

Shoulder and Driveway Standards

Camaloch Association Road System

Amended June 13, 2013

All driveway and road shoulder improvements within the Camaloch Association Street Right of Way shall be approved and inspected by the Camaloch Association Roads Committee or designated representative(s)

A. Road Shoulder

Approved Materials

- Crushed Surfacing Top Course (CSTC) (5/8" Minus Gravel) in conformance with WSDOT/APWA standard specifications*
- Asphalt Concrete (AC) Pavement, Class B in conformance with WSDOT/APWA standard specifications*

Installation Standards

- CSTC: 4" minimum thickness for new work
- AC Pavement: 2" minimum thickness on acceptable crushed rock subgrade
- Slope shall be 2% desirable, 5% maximum, sloped down for distance of 8' from edge of roadway
- By exception, on uphill lots, roadway shoulder maybe 2% desirable, 5% maximum, sloped up from pavement edge for distance of 8' *providing* a curb inlet is installed at the edge of the existing roadway pavement to control storm water in conformance with the Storm Drain Standards.
- Drainage pipe and structures as may be required in conformance with the Storm Drain Standards

Approval Procedure

- Lot owner must obtain a Work Permit from Camaloch Association prior to rocking and/or paving the shoulder area of Camaloch Right-of-Way
- Lot owner shall provide a sketch (not necessarily an engineered drawing) of their proposed improvements, Minimum detail to be placed on the sketch is:
 - Lot layout, Lot Numbers, Division and Street Name
 - Existing drainage on right of way; 1 lot upstream and 1 lot down stream of site including size and type of drainage structures and pipe. Place dimensions of facilities on the sketch.
 - Direction of storm water flow
 - Estimate of road grade
 - Cross-section showing pavement (and/or rock) section and slope
 - Indicate pipe and grate grades as may be necessary to provide drainage if required
 - Erosion control fencing shall be placed on all downhill lot slopes
- Sketch shall be attached to work permit and, if approved, shall be considered part of work permit

B. Driveways (on Camaloch Right-of-Way)

Approved Materials

- Crushed Surfacing Top Course (CSTC) (5/8" Minus Gravel) in conformance with WSDOT/APWA Standard Specifications*
- Asphalt Concrete (AC) Pavement Class B in conformance with WSDOT/APWA Standard Specifications*
- Portland Cement Concrete (PCC) Pavements providing expansion joints are placed in conformance with these standards.

Installation Standards

- CSTC: 4" minimum thickness
- AC: 2" minimum thickness on acceptable crushed rock subgrade
- PCC: 5" minimum thickness
- Place transverse expansion joint 3/8 X 3" premolded joint material as follows:
 1. at interface with asphalt roadway pavement
 2. 4' from pavement edge
 3. 8' from pavement edge if there is a grade break over 3%
 4. 12' from pavement
 5. At the property line
- Driveway shall be graded so as to match into widened roadway with 8' shoulders, i.e., grade shall be 2% sloped down (or up) from pavement edge for a distance of 8'

Approval Procedure

- Lot owner must obtain a Work Permit from Camaloch Association prior to installing driveways on Camaloch Right-of-Way
- Lot owner shall provide a sketch (not necessary an engineered drawing) of his proposed improvements. Minimum detail to be placed on the sketch is:
 - Lot Layout, Lot Numbers, Division and Street Name
 - Existing drainage on Right-of-Way; 1 lot upstream and one lot downstream of site including size and type of drainage structures and pipe. Place dimensions of facilities on the sketch
 - Drainage improvements existing or proposed to be placed under the driveway (if any)
 - Type of paving material
 - Estimated grade of drive way grade breaks
 - Transverse construction joints if concrete pavement is extended to pavement edge
 - Erosion control fencing shall be placed on all downhill lot slopes
 - All streets must be cleaned of dirt or debris ASAP
- Sketch shall be attached to work permit and, if approved, shall be considered part of work permit

These standards as approved by the Board of Trustees of Camaloch Association are minimum standards. With proper justification, Camaloch Association may approve a driveway that does not conform to the above minimum standards where it is probably the best possible solution because of past installations on the Right-of-Way.

*WSDOT/APWA- Standard Plans and Specifications for Road, Bridge and Municipal Construction, Washington State Department of Transportation/American Public Works Association, Latest Edition.

Storm Drain Standards
Camaloch Association Road System
Amended June 13, 2013

All storm drain improvements within the Camaloch Association Street Right-of-Way shall be approved and inspected by the Camaloch Association Roads Committee or designated representative(s)

Approved Materials

Pipe – 12” Minimum size CB to CB; 8” minimum size CI to CB

- Corrugated Metal- Aluminum
- Corrugated High Density Polyethylene – smooth interior N12 (CPEP) Preferred

Catch Basin Structures

- Catch Basin- Type 1 Std Plan No B-1 WSDOT/APWA* (CB)
- Curb Inlet- Type 1L Std Plan No B-1a WSDOT/APWA* (CI)
- Constructed in place with 8”X 8” X 16” masonry blocks such that top opening is 22” X 26” special (CB)

Frame and Grate

- Standard Grate- Standard Plan No B-2 WSDOT/APWA* (#5435 Supplier: East Jordon, or others)
- Vaned Grate – Standard Plan No B-2b WSDOT/APWA* (#5435 Supplier: East Jordon, or others)

Miscellaneous Materials

- Other materials and sizes such as smaller yard drains and smaller diameter pipe may be used on a pre-approved, justified basis. Written justification by the lot owner shall be providing as a part of plan submittal. Such facilities, if approved, shall be maintained by the lot owner.

Catch Basin Spacing Requirements

- CI to CB Minimum 8” Pipe 650 feet
- CB to CB Road Slope < 1.0% 150 feet
- Road Slope 1% to 3% 200 feet
- Road slope > 3.0% 300 feet
- All angle points (bends)- i.e. no directional changed without catch basin
- All pipe intersections including down spout and footing drains from lots
- When joining pipes of dissimilar materials
- When joining pipes at different grade elevations

Installations Standards

- All pipes shall be tightly joined. Metal pipe (CMP) and Polyethylene (CEP) shall be gasketed and securely banded.
- All pipe ends shall be extended into the catch basin structure a minimum of 3” and mortared in place to prevent leakage.
- Pipe shall be set to a minimum grade of 0.5%
- All Pipes shall be attached to existing pipes as practical.

- Minimum bury depth of top pipe is 1.25' (15") below the edge of the adjacent road surface. Camaloch shall reserve the right to require deeper depths in order to adequately serve upstream or down stream properties.

Installations Standards (continued)

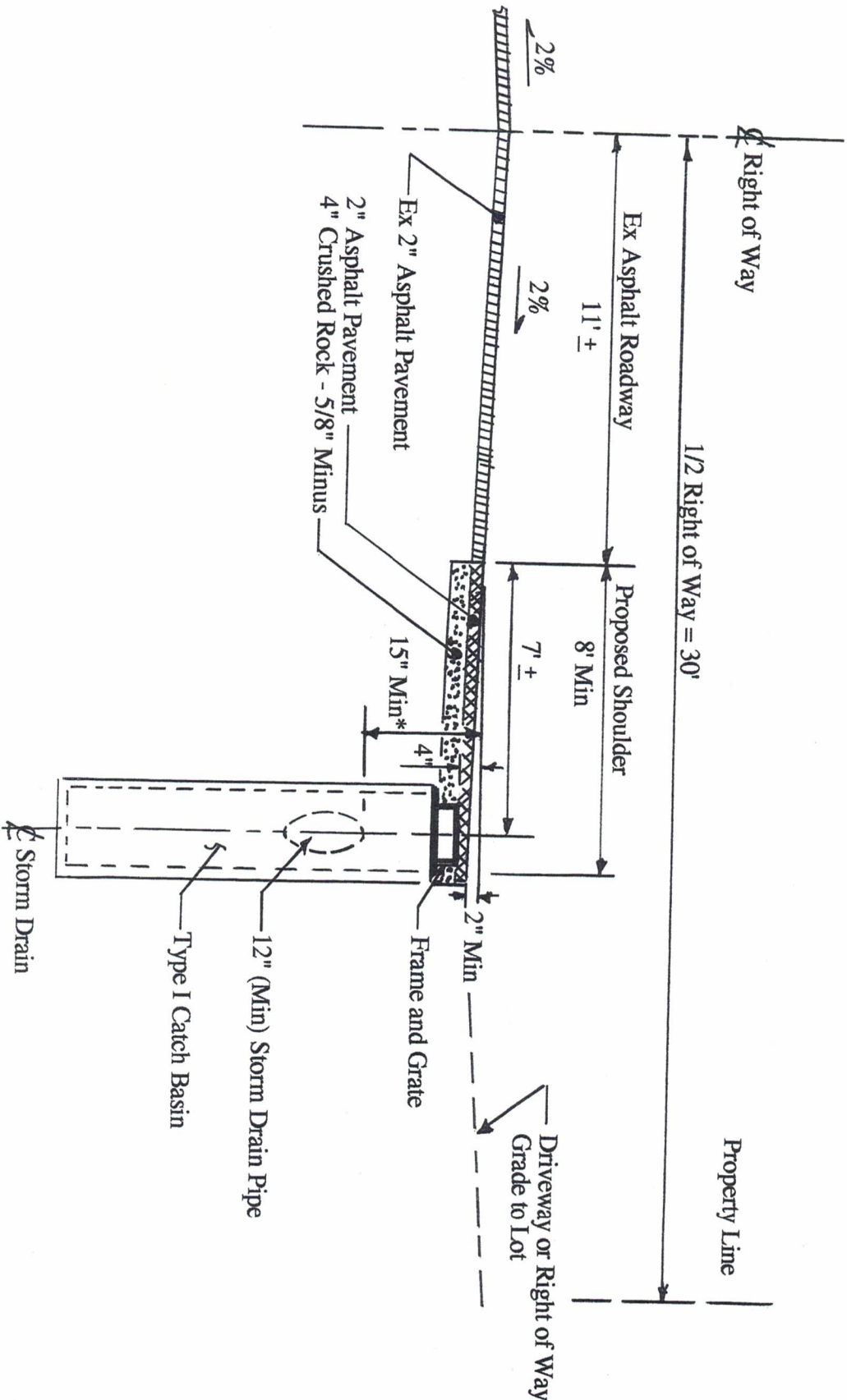
- If an upstream pipe is lower in grade than the existing downstream pipe, the pipes shall be connected in a catch basin structure.
- Grate elevation shall be a set minimum of 2% (1/4" per foot) below the adjacent pavement edge if in a paved shoulder and 2% below the adjacent pavement edge if in a gravel shoulder. If these grades can not be met, curb inlets shall be placed at the existing edge of pavement and joined back to a catch basin with a solid lid (Standard Plan No B-2 WSDOT/APWA) and main 12" pipe located in the old ditch line
- Standard Grate shall be used for streets < 6.0%; vanned grates shall be used on streets >6.0%

Approval Procedure

- Lot owner must obtain a Work Permit from Camaloch prior to installation of storm drain facilities including a simple driveway culvert on Camaloch Right-of-Way
- Lot owner shall provide a sketch (not necessarily an engineered drawing) of his proposed improvements. Minimum detail to be placed on the sketch is (see attached example):
 - Lot Layout, Lot Numbers, Division and Street Name
 - Existing drainage on Right-of-Way, 1 lot upstream and 1 lot downstream of site including size and type of drainage structures and pipe. Place dimensions of facilities on the sketch
 - Direction of storm water flow
 - Estimate of road grade
 - Location, size, and type of storm drainage pipes and/or swales from lot and adjacent lots
 - Special grade or utility interference problem area
 - Proposed improvement including type and size of drainage structures and pipes including lot drainage
 - Indicate pipe and grate grades as may necessary to provide drainage or show problem area
 - Erosion control fencing shall be placed on all downhill lot slopes
- Sketch shall be attached to work permit and, if approved, shall be considered part of work permit
- Based upon above sketch, Camaloch reserves the right to require the lot owner to provide an engineered drawing

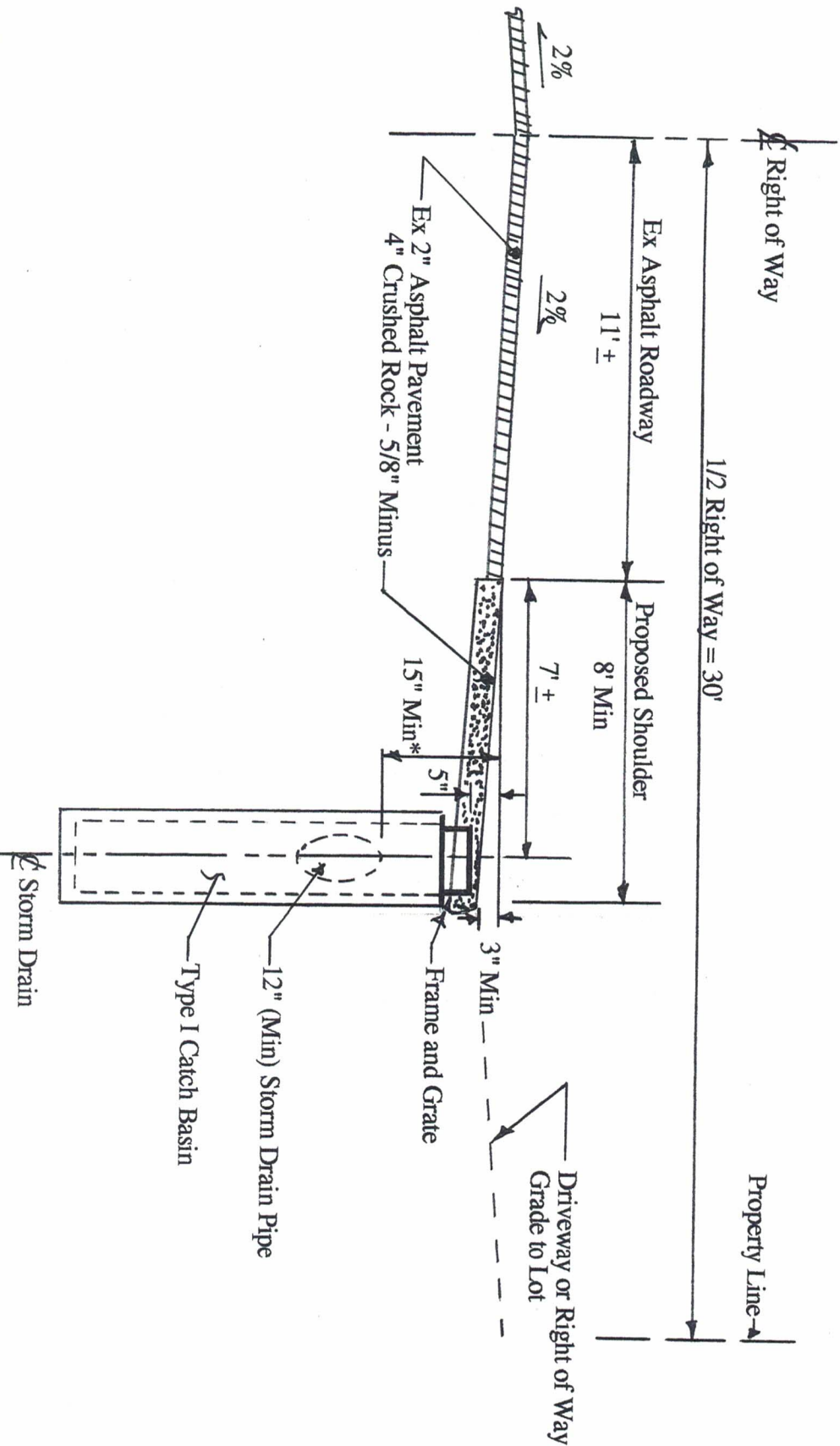
These standards as approved by the Board of Trustees of Camaloch Association are minimum standards. Camaloch Association reserves the right to require more than the approved minimum in order to protect the interests of the upstream properties or to mitigate past mistakes that are in existence in the street Right-of-Way. Also, with proper justification, Camaloch Association may approve a project that does not conform to the above minimum standards where it is probably the best, possible solution because of past installations on the Right-of-Way or existing flow directions (see miscellaneous section above.)

Camaloch Standard Plan Paved Shoulder/Storm Drain



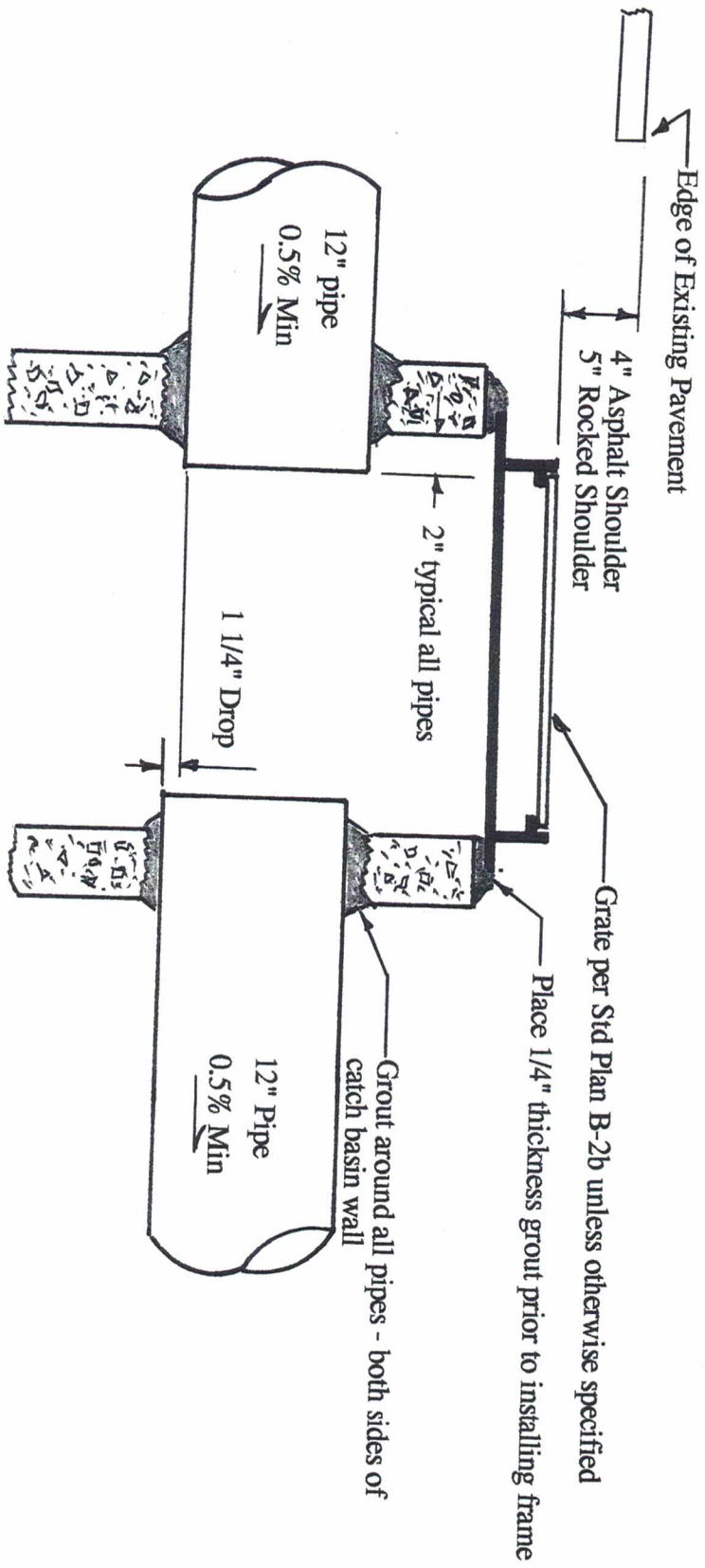
* 15" shall be the minimum bury depth from edge of pavement for all storm drain pipe including culverts at driveways in the absence of any engineered information giving detailed grades and elevations of pipe and structures. Engineered information shall always take precedence over the 15" minimum standard.

Camaloch Standard Plan Rocked Shoulder/Storm Drain



* 15" shall be the minimum bury depth from edge of pavement for all storm drain pipe including culverts at driveways in the absence of any engineered information giving detailed grades and elevations of pipe and structures. Engineered information shall always take precedence over the 15" minimum standard.

Camaloch Standard Plan Catch Basin Installation



Prepared By: JF Phillips Date: 1/10/03

Scale: 1" = 1'-0"