CITY OF
Mill Creek

Standard Specifications
And Details
2016
City of Mill Creek
Standard Plans

2016 Edition

The following standard plans have been developed for the use within the City of Mill Creek, and have been compiled from a variety of sources. These Standards are intended to apply uniformly to physical development within Mill Creek and may not apply precisely to all situations. Compliance with these Standards does not relieve the designer of the responsibility of applying sound professional judgment to protect the safety, health, and welfare of the general public. These are minimum standards and are intended to assist, not to substitute for, competent work by design professionals. Special conditions and environmental constraints may necessitate more stringent design than would normally be required under these Standards.


Scott Smith, P.E.
City Engineer

Distributed by:
City of Mill Creek Engineering Department
15728 Main Street, Mill Creek, WA 98012
(425) 745-1891
## City of Mill Creek

### Design and Construction Standard Plans

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#### General Street Details

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## Design and Construction Standard Plans

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1. All work and materials shall be in accordance with the current edition of the WSDOT "Standard Specifications for Road, Bridge, and Municipal Construction", City of Mill Creek Standard Plans and any development conditions of approval. It shall be the sole responsibility of the applicant and their professional engineer to correct and note any errors, omissions, or variations from the requirements found in these plans.

2. A City right-of-way (ROW) permit is required for any work that will impact the public ROW in accordance with MCMC Chapter 12.04.

3. Prior to beginning any site construction, the applicant, their engineer and contractor shall meet with the Engineering Department for a pre-construction meeting.

4. A copy of the approved plans must be on the site whenever construction is in progress.

5. Prior to any tree removal on site, the clearing limits shall be located and protected as required on the approved plans. Barrier fencing shall be placed around the dripline of the trees to retained and City Staff shall field inspect the trees to be retained prior to commencement of clearing and grading activities.

6. In accordance with MCMC Section 15.10.075.B, where trees designated to be retained are damaged, destroyed or removed during the construction of the proposed improvements, a penalty in the amount of $1,000 may be assessed per tree, and each tree shall be replaced at a 3:1 ratio.

7. Appropriate best management practices (BMP's) for erosion and sediment control shall be installed prior to any grading or land clearing in accordance with the approved Stormwater Pollution Prevention Plan (SWPPP). These BMP's must be satisfactorily maintained until construction and landscaping is completed and the potential for on-site erosion has passed.

8. Between October 1 and April 30, no soils shall remain exposed and unworked for more than two days. From May 1 through September 30, no soils shall remain exposed and unworked for more than seven days. Any unworked soil shall be stabilized with an approved BMP unless otherwise approved by the City Engineer.

9. Public streets shall be cleaned once per day with a regenerative air vacuum sweeper or as directed by the City. Flushing of streets with water will not be allowed.

10. Locations of existing utilities are approximate. The contractor shall contact the underground utility locate center at 811 no less than 48 hours prior to beginning of construction.

11. The contractor shall comply with all other necessary permits and requirements by the City of Mill Creek or other governing authority/agency.
24" CURB AS SHOWN ON PLANS (TYPICAL)

2" COMPACTED DEPTH HMA CLASS 1/2"

4" COMPACTED DEPTH ATB OR HMA CLASS 1"

6" MIN. CRUSHED SURFACING BASE COURSE (WSDOT 9-03.9(3)) MAY BE REQUIRED BY THE CITY. COMPACTED TO 95% MAX. DENSITY (MODIFIED PROCTOR).

NATIVE MATERIAL OR SELECT IMPORT SUBGRADE COMPACTED TO 95% MAX. DENSITY.
NOTES:
1. Concrete shall be Class 3000 air-entrained.
2. Base shall be Crushed Surfacing Top Course, per WSDOT sec. 9-03.9(3) with a minimum depth of 4 inch. In-situ native material may be used for a base if approved by the City. Sub-grade compaction shall meet a min. 95% of max. density.
3. Steel forms shall be used on all straight sections. Wood forms shall be used on radius.
4. Full depth expansion joints shall be placed at 10 feet center to center, at the top of each driveway, at top of access ramps, and on both sides of a catch basin. (Joint material shall be min. 3/8" premolded joint material. Factory cut to the shape of the curb. Strips of joint material shall not be stacked.)
5. Finish shall be broomed with tooled edges. All joints shall be clean.
NOTES:
1. Concrete shall be Class 3000 air entrained.
2. Concrete thickness shall be 4" (Typical) except at driveways which shall be 6" thick.
3. Thickened edge shall be used on commercial corners and 2 1/2 feet on both sides of a commercial driveway.
4. Sidewalk shall drain toward the street.
5. Broom finish surface with tool ed joints and edges.
6. Expansion joint material shall be used between driveways and sidewalk joint.
NOTES:

1. MATERIAL FOR PEDESTRIAN HANDRAIL SHALL BE ALUMINUM (ASTM B-429) OR HOT DIPPED GALVANIZED STEEL (ASTM 120) AS APPROVED BY THE CITY.

2. PROVIDE SLIP JOINTS AT STAIRWAY EXPANSION JOINTS AND AT EVERY 24 FEET ON CENTER (MAXIMUM).

3. STEEL RAILINGS MATERIALS SHALL BE WELDED OR SEAMLESS STEEL PIPE CONFORMING TO THE REQUIREMENTS OF ASTM A 120, STRUCTURAL STEEL CONFORMING TO ASTM A 36, OR TUBULAR SECTIONS OF HOT ROLLED MILD STEEL CONFORMING TO ASTM A 501. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE AWS D1.1. AFTER FABRICATION EACH SECTION OF RAILING SHALL BE HOT-DIPPED GALVANIZED WITH A MINIMUM ZINC COATING OF 2 OUNCES PER SQUARE FOOT. ALL BURRS AND SHARP EDGES SHALL BE REMOVED PRIOR TO GALVANIZING.

4. FIELD WELDS SHALL BE GALVANIZED WITH 3 COATS OF SUCH MATERIALS AS "GALVALLOY" OR GALVICON. PAINTING OF WELDS WILL NOT BE PERMITTED.

5. HORIZONTAL RAILS AND VERTICAL SUPPORT POSTS SHALL BE BE 1 1/2 INCH DIAMETER AND BALUSTERS SHALL BE 3/4 INCH DIAMETER STANDARD WEIGHT GALVANIZED STEEL PIPE. RAILS, POSTS AND BALUSTERS SHALL BE MACHINE CUT TO PROVIDE A UNIFORM LENGTH PRIOR TO ASSEMBLY.
NOTES:
1. CROSSWALK BARS AND MARKINGS SHALL BE THERMO-PLASTIC WITH GLASS BEAD SURFACE.
2. PAVEMENT SHALL BE SWEEPED BEFORE APPLICATION.
3. LOCATIONS SHALL BE PRE-APPROVED BY THE CITY PRIOR TO INSTALLATION.
NOTES:
1. Curb and Apron to be poured separately. Monolithic curb and apron is not allowed.
2. Driveway shall be 6 inches thick Class 3000 concrete air entrained.
3. Broom finish surface with tooled joints and edges.
4. The maximum running slope shall not exceed 15 feet to avoid chasing the slope indefinitely when connecting to steep road and curb grades. Transition panels on each side of driveway shall be equal in length for each driveway.

3/8" JOINT FILLER
FULL DEPTH
EXPANSION JOINT

SIDEWALK

PLANTER STRIP

DRIVEWAY WITH PLANTER STRIP

3/8" JOINT FILLER
FULL DEPTH
EXPANSION JOINT

FULL DEPTH
EXPANSION JOINT
AT CENTERLINE
(TYP.)

2% MAX

8.3% (MAX.)

SEE NOTE-4

SIDEWALK

DRIVEWAY IN SIDEWALK

CITY OF
Mill Creek
WASHINGTON

STREET
VERTICAL CURB DRIVEWAY
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO.
STR - 6

REV. DATE:
4/7/2016
5' WIDE MOUNTABLE 2" HIGH TABLE CURB.

5' SIDEWALK OR CLEAR ZONE.

BACK OF 24" CURB (TYP.)

PLANTER ISLAND

CUL-DE-SAC WITH PLANTER ISLAND

FLOWLINE (CURB)

VARRIES

FLOWLINE (CURB)

VARRIES

NOTE:
A CITY APPROVED TURN-AROUND SHALL BE INSTALLED AT THE END OF ANY ACCESS ROAD, PUBLIC OR PRIVATE, THAT IS MORE THAN 150' LONG.

HAMMER HEAD

HAMMER HEAD SHALL ONLY BE USED WITH PRIVATE ROADS W/ ACCESS TO FOUR LOTS OR LESS.

STANDARD CUL-DE-SAC
LANE LINE DETAIL

GORE STRIPE

DOUBLE YELLOW CENTER STRIPE

NO PASS CENTER LINE

CENTER LANE SKIP PATTERN

NOTES:
1. Match up to any existing pavement marking location or as directed by the City.
2. Paint line shall be 4" wide and shall be WSDOT approved paint. Surface shall be glass bead finished.
3. Type 1 marker shall be per WSDOT specifications.
4. Type 2 markers shall be Type 2 round shoulder ABS housing with optic grade methyl methacrylate acrylic (MMA) face and 3.25 sq. in. in size.

TWO-WAY LEFT TURN LANE
NOTES:
1. SIGN SHALL BE WHITE LETTERS ON A REFLECTIVE GREEN BACKGROUND. (SERIES C LETTERING)
2. ALL STREET NAME SIGNS MUST BE PRINTED ON BOTH SIDES OF THE SIGN.
3. 0-25 MPH ROADS - 4" CAPS / 3" LOWER CASE (6" BLANK)
   26-40 MPH ROADS - 6" CAPS / 4.5" LOWER CASE (8" BLANK)
   41-55 MPH ROADS - 8" CAPS / 8" LOWER CASE (9" BLANK)
4. THE LETTERING FOR NAMES OF STREETS ON STREET NAME SIGNS SHALL BE COMPOSED OF A COMBINATION OF LOWER-CASE LETTERS WITH INITIAL UPPER-CASE LETTERS. (ABBREVIATIONS SHOULD NOT CONTAIN PERIODS.)

BACKGROUND: GREEN, REFLECTIVE, HIGH INTENSITY PRISMATIC GRADE (H.I.P.) 0.080 GAUGE ALUMINUM SIGN BLANK
NOTES:

1. ROCK FACINGS SHALL BE CONSTRUCTED BY INTERLOCKING THE ROCKS SO THAT EACH ROCK IS IN CONTACT WITH AT LEAST TWO OTHER ROCKS WITH EACH ROCK HAVING A MINIMUM OF THREE BEARING SURFACES PER ROCK.

2. EACH ROCK SHALL BE LAYED WITH A FLAT SURFACE ON THE FACE OF THE ROCK FACING AND WITH THE LONG DIMENSION HORIZONTAL.

3. VOIDS IN THE ROCKERY FACE SHALL NOT BE GREATER THAN 50 SQUARE INCHES FOR ROCKS OVER 3 FEET HIGH AND 36 SQUARE INCHES FOR ROCKERIES UNDER 3 FEET HIGH.

4. ROCKERIES OVER FOUR (4) FEET HIGH REQUIRE A CITY BUILDING PERMIT. MAXIMUM ROCKERY HEIGHT IS 8 FEET.

5. ROCKERIES WHICH ARE MORE THAN 30 INCHES ABOVE GRADE OR FLOOR BELOW SHALL BE PROTECTED BY A FENCE OR PEDESTRIAN RAILING. TYPE TO BE APPROVED BY THE CITY.
SPECIFICATIONS:
1. MATERIAL: 5" SCH. 10 STEEL PIPE - ASTM A53.
2. GROUND RECEIVER: 10 GAUGE STEEL SLEEVE
(REMOVABLE BOLLARD) WELDED TO A 3"x5" LOCKWELL.
BASE SHALL BE SET IN CONCRETE
24" DEEP. CONCRETE SHALL BE MIN.
6" THICK AROUND RECEIVER SLEEVE.
3. COATING: 3 - 4 MILS THICK BLACK POWDER COATING
4. HEIGHT: 36 INCHES
5. TOP STYLE: DOME
6. MANUFACTURER: BOLLARDS SHALL BE MODEL B4-5B2-R
(REMOVABLE) AND B4-5B2 (FIXED)
BY FAIRWEATHER SITE FURNISHINGS
PORT ORCHARD, WA
OR APPROVED EQUAL.
INSTALL POST AND RAIL PER CITY STD. DETAIL STM 032 AT LOCATIONS REQUIRED BY THE CITY. LOCATIONS MAY INCLUDE: WEST EDGE OF TRAIL WITHIN OR ADJACENT TO WETLAND BUFFERS, SLOPES Steeper Than SH: TV, OR A VERTICAL DROP NEXT TO THE PATH GREATER THAN 30 INCHES.

SIX (S) INCH WIDE CRUSHED GRAVEL SHOULDER, MINIMUM 3 INCH THICK, TYPICAL BOTH SIDES.

3" DEPTH (COMPACTED) CL. G ASPHALT CONCRETE TRAIL OR AS DIRECTED BY THE CITY.

TOP DRESS SHOULDERS WITH MIN. 2" LANDSCAPE BARK OVER TOPSOIL OR AS APPROVED BY THE CITY.

HAND TAMM ASPHALT CONCRETE EDGES AT 45 DEGREE SLOPE EACH SIDE OF TRAIL.

MAX 3:1 SLOPE

4" DEPTH COMPACTED BASE OF CRUSHED SURFACING TOP COURSE PER WSDOT 9.93.930) OR AS DIRECTED BY THE CITY.

UNDISTURBED OR COMPACTED SUBGRADE MATERIAL

12 IN. PLASTIC ROOT BARRIER LOCATED MIN. 6 IN. FROM EDGE OF ASPHALT.

WEED BARRIER

NOTES:
1. ASPHALT TRAIL SHALL HAVE A CROSS SLOPE OF 2%.
2. FINAL LOCATION AND GRADES TO BE APPROVED IN THE FIELD BY THE CITY OF MILL CREEK.
3. THIS STANDARD SHALL APPLY TO PRIMARY TRAIL DEVELOPMENT NORTH OF 164TH ST. SW, WEST OF SR027, SOUTH OF MCCULLUM PARK, AND EAST OF NORTH CREEK.

STREETS
TRAIL
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO. STR-17

REV. DATE: 4/7/2016
NOTES

1. FENCING SHALL BE A PRE-DRILLED "DOWELED RAIL FENCING SYSTEM SUPPLIED BY SULTAN POST AND POLE, OR APPROVED EQUAL.

2. FENCING SHALL BE PRESSURE TREATED LODGEPOLE PINE. PRESSURE TREATMENT SHALL BE CCA IN ACCORDANCE WITH APWA LP-22 TO A MINIMUM RETENTION OF 0.4 lb./cu. ft.

3. CORNER FENCE POSTS SHALL BE 5-1/2" DIA. AND LINE POSTS SHALL BE 4-1/2" DIA. BY 6 FT. IN LENGTH, SPACED 10 FT. O.C.

4. FENCE RAILING SHALL BE 3-1/2" DIA. BY 10 FT. IN LENGTH WITH 3 RAILS PER POST.

5. THE TOP OF THE POSTS SHALL BE 4 FT. ABOVE FINISH GRADE.

6. ALL POSTS AND RAILS SHALL BE INSTALLED PER THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

7. CHAIN LINK FENCING SHALL BE FASTENED TO WOOD FENCE RAILING USING MINIMUM 1-1/4" LONG CORROSION RESISTANT STAPLES SPACED 15" O.C.

8. CHAIN LINK FENCING SHALL NOT EXTEND ABOVE THE TOP HORIZONTAL RAILING OR BELOW THE GROUND FINISH GRADE. FENCING SHALL BE CLASS 2B ASTM F669 OR APPROVED EQUAL.
NOTES:
1. THE CASTINGS SHALL BE GRAY-IRON CASTINGS, ASTM DESIGNATION A-48, CLASS 35B.
2. MONUMENT CASE AND COVER SHALL BE EAST JORDAN IRON WORKS PRODUCT NO. 369505 OR APPROVED EQUAL.
NOTES:
1. Mailbox shall be approved by the U.S. Postal Service.
2. All boxes shall be lock type.
3. Metal pedestal with metal base is required by the U.S. Postal Service. Do not cover pedestal or base with wood.
4. Structure design alterations only with the approval by the city.
5. Wood structure must not touch mailbox or metal base. Mailbox and base must be removable without alteration to the wood structure.
6. Standard minimum sidewalk width of 5 feet required.

Color for wood lattice, trim, and posts shall be light earth tones i.e. gray, cream, lt. brown, buff, or white.

4x6 TREATED POST
NON-SHRINK GROUT

SIDEWALK PANEL
CONCRETE BACKFILL
6"-12" PVC SLEEVE
SAND WITH GROUT CAP

WOOD POST DETAIL
N.T.S.

4 INCHES (MIN.)

2 IN. (MIN.)

16'

SIDEWALK SIDE FRONT VIEW
CONCRETE CURB

SIDE VIEW
LATTICE (SIDES ONLY)

METAL POST (CENTER)
(4X6 WOOD POST NOT SHOWN)

CONCRETE BASE 12" THICK PER U.S. POSTAL SERVICE REQUIREMENTS. (REBAR NOT SHOWN)

METAL PEDESTAL AND CONCRETE BASE INSTALLED PER MANUFACTURER'S REQUIREMENTS AND UNDER THE GUIDELINES AND INSPECTION OF THE U.S. POSTAL SERVICE.

STAND DETAIL

CONCRETE FOR SIDEWALK SHALL BE 4" THICK (6" AT DRIVEWAYS) CLASS 3000 AIR ENTRAINMENT SIDEWALK SHALL DRAIN TOWARD STREET WITH BROOM FINISH SURFACE WITH TOOLED JOINTS AND EDGES.

SIDEWALK DETAIL WITHOUT PLANTER STRIP

STREET
MAILBOX STAND IN SIDEWALK
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO. STR - 20

REV. DATE: 4/7/2016
NOTES:
1. Mailbox shall be approved by the U.S. Postal Service.
2. All boxes shall be lock type.
3. Metal pedestal with metal base is required by the U.S. Postal Service. Do not cover pedestal or base with wood.
4. Structure design alterations only with the approval by the City.
5. Wood structure must not touch mailbox or metal base. Mailbox and base must be removable without alteration to the wood structure.
6. Standard minimum sidewalk width of 5 feet required.

Color for wood lattice, trim, and posts shall be light earth tones i.e. gray, cream, light brown, buff, or white

SIDEBACK PANEL
CONCRETE BACKFILL
8"-12" PVC SLEEVE
SAND WITH GROUT GAP

WOOD POST DETAIL

N.T.S.

LATTICE (SIDES ONLY)
METAL PEDESTAL AND CONCRETE BASE INSTALLED PER MANUFACTURER'S REQUIREMENTS AND UNDER THE GUIDELINES AND INSPECTION OF THE U.S. POSTAL SERVICE.
METAL POST (CENTER) (4X6 WOOD POST NOT SHOWN)

CONCRETE BASE 12" THICK PER U.S. POSTAL SERVICE REQUIREMENTS (REBAR NOT SHOWN)

STAND DETAIL

CONCRETE SIDEWALK
EXPANSION JOINT

CONCRETE FOR SIDEWALK SHALL BE 4" THICK (6" AT DRIVEWAYS) CLASS 3000 AIR ENTRAIN. SIDEWALK SHALL DRAIN TOWARD STREET WITH BROOM FINISH SURFACE WITH TOOLING JOINTS AND EDGES.

SIDEWALK DETAIL WITHOUT PLANTER STRIP

STREET
MAILBOX STAND IN PLANTER STRIP
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO.
STR - 21

REV. DATE:
4/7/2016

CITY OF Mill Creek
WASHINGTON
1. All catch basins to be Type I unless otherwise required.

2. All catch basins with a depth over five feet to the flow line shall be Type II.

3. Standard ladder steps shall be provided in all catch basins and manholes extending over five feet in depth.

4. All drainage structures shall incorporate a ductile iron frame and grate or solid lid in accordance with the following requirements:
   a) Structures receiving flow in only one direction shall include a vaned frame and grate.
   b) Structures in a curb line receiving flow in two directions shall use a Through Curb Inlet with a vaned bi-directional grate with a full height diamond plate hood.
   c) Rolled frame and grates may be used only where approved by the City Engineer.
   d) Structures outside a curb line (e.g. parking lots) receiving flow from multiple directions may use a frame and grate with a flat herringbone pattern or equivalent.
   e) All drainage structures outside a water collection area shall have solid lids unless otherwise approved by the City.
   f) All grates or solid lids within the public right-of-way shall be non-locking. Grates and solid lids outside the public right-of-way may be locking at the owner’s discretion.
   g) All frame and grates or solid lids shall have an HS-25 rating.

5. The contractor shall be responsible for adjusting all frames and grates or solid lids prior to final paving. All utility manholes, valves and survey monuments shall be adjusted after paving.

6. Stub outs for traditional yard, foundation and roof drains shall be installed behind the sidewalk as required. Positive drainage is to be provided with a connection to the nearest catch basin structure. The location and type of stub-out shall be indicated with an above ground marker. Except when they use LID foundation drain?

7. All storm water detention and water quality facilities, flow control structures, pipes and catch basins shall be jetted and cleaned prior to final City acceptance.

8. All storm drain pipes shall be 12” minimum diameter unless approved by the City Engineer. Pipe and joint materials shall be in accordance with Sections 7-04 and 9-05 of the WSDOT Standard Specifications.
1. All work within the site shall be subject to the inspection of the City Engineer or designated representative in accordance with the following requirements:
   a) Inspections shall be scheduled online no less than 24 hours in advance.
   b) Underground public infrastructure shall not be backfilled without a visual inspection by the City.
   c) Any work covered without prior acceptance may be required to be exposed for City inspection.
   d) The contractor shall request a substantial completion inspection once site work has been completed for any punchlist items.
   e) The contractor shall request a physical completion inspection after all restoration and repair work has been completed for final City acceptance.

2. Compaction testing is required for all backfilling, grading, embankment and asphalt paving work within the public right-of-way.
   a) Earthwork shall be compacted to a minimum of 95% of the maximum density (modified proctor) under paved areas, and a minimum of 90% of the maximum density (modified proctor) in unpaved areas.
   b) Asphalt pavement shall be compacted to a minimum of 91% of the maximum (rice) density.
   c) The contractor is responsible for providing compaction testing services, and shall provide satisfactory test reports to the City prior to final acceptance.

3. Material sampling and testing is required for all concrete work within the public right-of-way.
   a) Sampling and testing requirements shall be in accordance with Section 6-02.3 of the WSDOT Standard Specifications.
   b) The contractor is responsible for providing material testing services, and shall provide satisfactory test reports to the City prior to final acceptance.
1. The as-built drawings shall show the final location of all infrastructure located within the public right-of-way, including but not limited to: streets, curbs, storm drain facilities, City owned street lights, medians, sidewalks, etc. Final elevations and locations of roadway and drainage facilities shall be measured by a licensed surveyor.

2. Elevations of the roadway centerline and curb flow line shall be measured every fifty feet after the final lift of asphalt has been placed, including the beginning and end of both horizontal and vertical curves and all points of intersection.

3. The as-built information of all storm drainage conveyance facilities such as catch basins, inlets, pipes and swales shall include inverts and rim elevations, as well as the material type and size. Open channels shall also include cross-sections at appropriate locations to verify design requirements.

4. The final as-built storage volume and dimensions of the storm water detention facilities, along with the orifice size(s) of the control structure, shall be field measured and included on the as-built drawings.

5. As-Built information can either be shown by adding new information to a set of the approved drawings or creating a new separate plan set. For elevation differences, a line should cross out old elevations and new elevations should be entered next to the original information. Original information shall not be removed from the approved plans unless approved by the City Engineer.
THIS DETAIL SUPPLEMENTS INFORMATION ON WSDOT STANDARD PLANS FOR CATCH BASIN TYPE 1 AND CONCRETE INLET.

CONCRETE INLET
REBAR NOT SHOWN FOR CLARITY.

PRECAST BASE SECTION
REBAR NOT SHOWN FOR CLARITY.

FRAME AND VANED GRATE

<table>
<thead>
<tr>
<th>PIPE MATERIAL</th>
<th>MAXIMUM INSIDE DIAMETER</th>
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</thead>
<tbody>
<tr>
<td>REINFORCED OR PLAIN CONCRETE</td>
<td>12&quot;</td>
</tr>
<tr>
<td>ALL METAL PIPE</td>
<td>15&quot;</td>
</tr>
<tr>
<td>CP DSVP STD SPEC. 9-05.20</td>
<td>12&quot;</td>
</tr>
<tr>
<td>SOLID WALL PVC STD SPEC. 9-05.12(1)</td>
<td>15&quot;</td>
</tr>
<tr>
<td>PROFILE WALL PVC STD SPEC. 9-05.12(2)</td>
<td>15&quot;</td>
</tr>
</tbody>
</table>

*Corrugated polyethylene storm sewer pipe.

NOTES
1. Base to be constructed and installed in accordance with WSDOT specifications (Section 7-05) for Catch Basin Type I and Concrete Inlet, or as approved by the City Engineer.
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 WSDOT Standard Specification 9-04.3. All side access into the base shall be through a precast knockout.
3. The maximum depth from the finished grade to the lowest pipe invert shall be 9'.
4. The frame and grate may be installed with the flange down, or integrally cast into the adjustment section with flange up.
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. The opening shall be measured at the top of the precast base section.
7. All pickup holes shall be grouted full after the basin has been placed.
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. The rectangular frame and grate may be installed with the flange up or down. The frame may be cast into the adjustment section.
4. Knockouts shall have a wall thickness of 2" minimum to 2.5" maximum. Provide a 1.6" 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.
FRAMES AND 
VANED GRATE
GRATE SIZE 20" X 24"

RISER SECTION

6" REDUCING SECTION

PRECAST BASE SECTION
MEASUREMENT AT THE TOP OF THE BASE

NOTES
1. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS OF THE MANUFACTURER. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.

2. THE KNOCKOUT OR CUTOUT HOLE SIZE SHALL BE EQUAL TO PIPE OUTER DIAMETER PLUS CATCH BASIN WALL THICKNESS. KNOCKOUTS MAY BE ON ALL 4 SIDES WITH MAX. DIA. OF 2\". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPED.

3. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN.

4. THE MAXIMUM DEPTHS FROM FINISHED GRADE TO PIPE INVERT SHALL BE 6'-0"

5. VERTICAL EDGE OF REDUCING SECTION OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.

6. 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 NOT BE PLACED IN KNOCKOUTS.

7. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2" PER FOOT.

8. APPLY NON-SHRINK GROUT TO INSIDE AND OUTSIDE OF ALL JOINTS RINGS, RISERS, AND FRAMES.

SURFACE WATER
CATCH BASIN TYPE 1-L
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO.
STM - 3

REV. DATE: 4/7/2016
NOTES

1. The asymmetry of the Combination Inlet shall be considered when calculating the offset distance for the catch basin.

2. The dimensions of the Frame and Hood may vary slightly among different manufacturers. The Frame may have cast features intended to support a grate guard. Hood units shall mount outside of the Frame.

3. Attach the Hood to the frame with two 3/4" x 2" hex head bolts, nuts, and oversize washers. The washers shall have diameters adequate to assure full bearing across the slots.

4. When bolt-down grates are specified in the contract, provide two tap holes to accept a 5/8" x 11 NC x 2" allen head cap screw in the frame that are vertically aligned with the grate slots.

5. Only ductile iron Vaned Grates shall be used.

6. This plan is intended to show the installation details of a manufactured product. It is not the intent of this plan to show the specific details necessary to fabricate the castings shown on this drawing. Through curb catch basin shall be 2-way vaned grate with 9" diamond plate hood with H20 rating (Olympic Foundary Item No. SM52VG) or approved equal.
1. The pipe supports and the flow restrictor shall be constructed of the same material and be anchored at a maximum spacing of 30'. Attach the pipe supports to the manhole with 5/8" stainless steel expansion bolts or embed the supports into the manhole wall 2'.

2. The vertical riser stem of the flow restrictor shall be the same diameter as the horizontal outlet pipe with a minimum diameter of 8". The overflow pipe and outlet pipe must have a combined capacity equal to or greater than the total inlet volume.

3. The flow restrictor shall be fabricated from one of the following materials:
   - 0.060" Corrugated Aluminum Alloy Drain Pipe
   - 0.064" Corrugated Galvanized Steel Drain Pipe with Treatment 1
   - 0.064" Corrugated Aluminumized Steel Drain Pipe

4. The frame and ladder or steps are to be offset so that the shear gate is visible from the top; the climb-down space is clear of the riser and gate, and the frame is clear of the curb.

5. The multi-orifice elbows may be located as shown, or all placed on one side of the riser to assure ladder clearance. The size of the elbows and their placement shall be specified in the plans.

6. Restrictor plate with orifice as specified in the plans. The opening shall be cut round and smooth.

7. The shear gate shall be made of aluminum alloy in accordance with ASTM B 26 and ASTM B 275, designation ZG32A, or cast iron in accordance with ASTM A 48, Class 30B. The lift handle shall be made of a similar metal to the gate (to prevent galvanic corrosion), and shall be of solid rod with adjustable hook as required. A neoprene rubber gasket is required between the riser mounting flange and the gate flange. Install the gate so that the level-line mark is level when the gate is closed.

8. All shear gate bolts shall be stainless steel.

9. The shear gate maximum opening shall be controlled by limited hinge movement, a stop tab, or some other device.

Alternative shear gate designs are acceptable if material specifications are met and flange bolt pattern matches.
NOTES

1. The City will accept other versions of this concept design. Submit design to the City Engineer for approval.

2. Pipe materials for the spill control separator shall be ASTM 3034 PVC SDR 35 sewer pipe with gasketed fittings or City approved alternate storm drain piping.

3. The spill control separator shall not be used to replace the function of or serve as an oil water separator.

STORM WATER
SPILL CONTROL SEPARATOR
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO.
STM - 6

REV. DATE:
4/7/2016
1. All steel parts shall be hot dipped galvanized.
2. Front grate frame shall be removable with bolts.
3. Spacing between grate bars shall not exceed 3 inches c/c.
4. All field welds shall be field galvanized.
5. To be used on all pipe ends over 12" diameter.
1. YARD DRAINS TO BE CONSTRUCTED FROM CONCRETE PIPE, IN ACCORDANCE WITH ASTM C 14 OR 18" LINED CORRUGATED HDPE (HIGH DENSITY POLYETHYLENE PIPE) ADS N-12 OR APPROVED EQUAL. SPECIAL CAST YARD DRAIN MAY BE REQUIRED FOR MULTIPLE PIPE CONNECTIONS.

2. CUTOUT HOLE SIZE EQUAL TO OUTLET PIPE OUTSIDE DIAMETER PLUS YARD DRAIN WALL THICKNESS FOR CONC. PIPE OR USE INSERTA TEE COMPRESSION FITTING FOR USE WITH PVC DRAIN PIPE CONNECTION.

3. CONNECTION TO OUTLET PIPE TO BE SEALED WITH GROUT AND MADE FLUSH WITH INSIDE OF THE YARD DRAIN WALL FOR CONCRETE PIPE OR COMPRESSION TEE FOR PLASTIC PIPE.

4. CAST IRON BELL GRATE, FITS INSIDE BELL OF CONC. PIPE AND ON THE OUTSIDE OF HDPE PIPE. HDPE PIPE GRATE = OLYMPIC FOUNDRY 10-1800 OR EAST JORDAN IRON WORKS - PRODUCT NO. 601836. CONC. PIPE GRATE - E. JORDAN IRON WORKS PRODUCT NO. 601832 OR APPROVED EQUAL.

5. 6" MIN. DEPTH GRAVEL BACKFILL FOR DRAINS PER WSDOT SEC. 9-03.12(4).

6. CONNECT TO CITY OWNED AND MAINTAINED SD SYSTEM IN THE STREET.

7. IF SERVICE LINE SERVES MORE THAN 4 LOTS, INCREASE SIZE TO 8".
NATIVE GROWTH PROTECTION AREA

THIS STREAM, WETLAND, AND UPLAND BUFFER ARE PROTECTED TO PROVIDE WILDLIFE HABITAT AND MAINTAIN WATER QUALITY.

PLEASE DO NOT DISTURB THIS VALUABLE RESOURCE.

NATIVE GROWTH PROTECTION AREA SIGNAGE

CONTACT CITY OF MILL CREEK SURFACE WATER SECTION FOR ARTWORK CAD FILE FOR THIS SIGN.

FOREGROUND COLOR PMS # 340C
(PANTONE COLOR FORMULA GUIDE)

BACKGROUND COLOR WHITE

NOTES:
1. ENGINEER GRADE SHEETING ON .080 ALUMINUM
2. ATTACH SIGN POST WITH (2) 5/16" GALVANIZED LAG BOLTS WITH WASHERS
3. POST SIGN ON 4"x4" CEDAR POST AT 5'-6" FROM GROUND
TRENCH IN UNPAVED AREA

(TOFF ROADWAY)

NEW ASPHALT REPAIR PATCH—SEE NOTE 5.
HMA CLASS 1/2" - REPAIR DEPTH SHALL MATCH EXISTING PAVEMENT DEPTH OR 4 INCHES, WHICHERVER IS GREATER.

EXISTING GRADE

NATIVE BACKFILL
COMPACTED TO 90% MAX.
DENSITY (MOD. PROCTOR)
PLACED IN 12" MAX. LIFTS.

INITIAL NATIVE BACKFILL
SELECT (MAX. 1" ROCK)
MATERIAL COMPACTED TO
95% MAX. DENSITY (MOD.
PROCTOR) 6" MAX. LOOSE
LIFTS. (SEE NOTE 4)

GRAVEL BACKFILL FOR PIPE
ZONE - BEDDING PER WSDOT
9-03.12 (3).

W = 40" FOR 15" DIAMETER PIPE & SMALLER.
W = 1 1/2" X PIPE DIAMETER +16" FOR PIPE 18" IN DIAMETER AND LARGER.

TRENCH IN PAVED AREA

12" PAVING BEYOND TRENCH LIMITS
(MIN. 2" THICK) - SEE NOTE 5.
SAWCUT EDGES

EXISTING ASPHALT PAVEMENT

CRUSHED SURFACING - TOP
COURSE MEETING WSDOT
9-03.9(3) MATERIAL COMPACTED
TO 95% MAXIMUM DENSITY
(MOD. PROCTOR) PLACED IN
12" MAX. LIFTS, OR CDF IF
REQUIRED BY THE CITY.

NATIVE BACKFILL COMPACTED
TO 95% MAX. DENSITY
(MODIFIED PROCTOR)
PLACED IN 12" MAX. LIFTS.
(SEE NOTE 4)

W = 40" FOR 15" DIAMETER PIPE & SMALLER.
W = 1 1/2" X PIPE DIAMETER +16" FOR PIPE 18" IN DIAMETER AND LARGER.

NOTES:

1. EXISTING ASPHALT PAVEMENT MUST BE SA WCUT TO PROVIDE A CLEAN STRAIGHT
EDGE BEFORE PIPE PLACEMENT.

2. EXISTING MATERIAL DISTURBED UNDER THE PIPE SHALL BE REPLACED WITH BEDDING
MATERIAL AND COMPACTED TO 95% MAX. DENSITY.

3. BACK MATERIAL SHALL BE INSTALLED IN AN APPROVED MANNER TO ENSURE NO DAMAGES
TO THE PIPE.

4. IF NATIVE BACKFILL IS DETERMINED UNSATISFACTORY BY THE CITY, USE CRUSHED
SURFACING TOP COURSE PER WSDOT 9-03.9 (3)

5. SEE MILL CREEK MUNICIPAL CODE SECTION 12.18.060 FOR PAVEMENT PATCHING STANDARDS.
EXTENDED SECTION A

SPACE CHECK DAMS THE DISTANCE APART WHERE POINTS "A" AND "B" ARE THE SAME ELEVATION

SPILLWAY
FLOWLINE

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

ELEVATION

ROCK CHECK DAM

SECTION A

USE FILTER FABRIC FOUNDATION UNDER A ROCK OR SANDBAG CHECK DAM.

EXTENDED SECTION C

SPACE CHECK DAMS THE DISTANCE APART WHERE POINTS "A" AND "B" ARE THE SAME ELEVATION

WATTLE OR COMPOST SOCK

ELEVATION

WATTLE OR COMPOST SOCK CHECK DAM

NOTES
1. Check dams shall be constructed and monitored for performance per the Washington State DOE manual for Western Washington and WSDOT Standard Specifications for Road, Bridge, and Municipal Construction.
2. Check dams may also be constructed of pea-gravel filled bags, triangular silt dikes, or other manufactured products available for this propose or as approved by the City.
3. Check dam rock size may be larger depending on expected site conditions.
NOTES:
1. INSTALL THE SILT FENCE FIRST. AFTER THE SILT FENCE HAS BEEN INSTALLED, CONSTRUCT BERM AND TRENCH.
2. SILT FENCE BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
NOTES:

1. 4" TO 6" Quarry Spalls as specified in Section 9-13.8 of the WSDOT Standard Specifications.

2. The minimum length shall be lengthened as necessary to ensure material is not tracked into the public right-of-way. Alternative construction entrances will be allowed with approval of the City Engineer on a case by case basis, where physical site conditions and size dictate.

3. Installation: The area of the entrance should be cleared of all vegetation, roots, other objectionable material. The gravel shall be placed to the specified dimensions.

4. Periodic inspection and needed maintenance shall be provided after each rain.

5. Truck tire wash required.

INSTALL ENTRANCE RAMP OF QUARRY SPALLS AS SPECIFIED OR TEMPORARY ATB RAMP AS DIRECTED BY THE CITY.

PROVIDE FULL WIDTH OF INGRESS/EGRESS AREA

ORANGE BARRIER FENCE TO DIRECT TRAFFIC INTO CONSTRUCTION ENTRANCE

4" TO 6" QUARRY SPALLS AS SPECIFIED FROM THE WSDOT STANDARD SPECIFICATIONS
NOTES:
1. SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR THE STORM WATER STRUCTURE IT WILL SERVICE.
2. THE BIGD SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS).
3. THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BIGD WITHOUT THE COLLECTED MATERIAL.
4. PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATION 8-C1.3(15).
LUMINAIRE AND POLE:
CANDB2-FRN-PH7 (CANDELA BOLLARD SERIES BY LUMEC) WITH CAST ALUMINUM HOUSING WITH LOUVERS, CLEAR FRESNEL LENS, PHOTOCELL AND EXTRUDED ALUMINUM 4-1/2" POLE WITH HINGED BASE.
COLOR: GN8-TX (TEXTURED DARK FOREST GREEN)
VOLTAGE: 240V
LAMP: 70W HPS (PROVIDED BY CE, PHILIPS OR SYLVANIA)
OPTICS: TYPE IV, LONG, CUTOFF

BASE COVER:
ROUND COVER MADE FROM CAST ALUMINUM MECHANICALLY FASTENED TO THE BASE PLATE WITH FOUR STAINLESS STEEL SCREWS.

BASE PLATE:
BASE PLATE COMES WITH 4 ANCHOR BOLTS AND 8 NUTS AND WASHERS. BOLT PROJECTION (ABOVE FOUNDATION) SHALL NOT EXCEED 1-3/4".

NOTES:
1. THIS STANDARD SHALL APPLY TO TRAIL ACCESS POINTS ALONG THE NORTH CREEK TRAIL AND WITHIN THE EAST GATEWAY URBAN VILLAGE.
2. INSTALLATION OF ALL LUMINAIRE COMPONENTS SHALL COMPLY WITH MANUFACTURER'S RECOMMENDATIONS.

FOR FOUNDATION DETAILS SEE CITY OF MILL CREEK STANDARD PLAN LGT 082
2" SLIP FITTER DEPTH

NOTES:
1. THIS STANDARD SHALL APPLY TO SIDEWALKS INSTALLED ALONG THE EASTSIDE OF SR 527 (BOTHELL-EVERETT HWY) OR AS REQUIRED BY THE CITY OF MILL CREEK.

2. INSTALLATION OF ALL COMPONENTS SHALL COMPLY WITH MANUFACTURER'S RECOMMENDATIONS.

3. POWER TO LUMINAIRE SHALL BE FED FROM ADJACENT BUILDING'S ELECTRICAL SERVICE PANEL, OR STAND ALONE POWER PEDESTAL/CABINET WITH ONE PHOTOCELL PROVIDED AT POWER SOURCE FOR ALL LIGHTS POWERED FROM THAT SOURCE. POWER SOURCE SHALL CONTAIN A BREAKER FOR LIGHT TURN OFF.

FOR FOUNDATION DETAILS SEE CITY OF MILL CREEK STANDARD PLAN LGT 082

LUMINAIRE:
BPM-2246/NATURAL (BEACON SERIES BY TEKA) WITH CAST BRONZE LOWER HOUSING AND CAP. COPPER SHADE, SOLID BRASS SPACERS AND CLEAR CYLINDRICAL GLASS LENS.
COLOR: NATURAL
VOLTAGE: 120V
LAMP: 100W HPS (PROVIDED BY GE, PHILIPS OR SYLVANIA)
OPTICS: TYPE V, SHORT, CUT-OFF
POLE:
PTR5-1308 (BY TEKA) WITH SMOOTH TAPERED (3" O.D. TOP & 5" O.D. BOTTOM) ALLOY ALUMINUM SHAFT WITH HINGED BASE ASSEMBLY (NO HANDBOLES) AND POLE MOUNTED BALLAST (TEKA #BMB).
COLOR: CARDINAL TO25BR01 (CUSTOM BRONZE)

BASE COVER:
COVER CONSISTS OF TWO PIECE DECORATIVE CAST ALUMINUM COMPONENTS (ROUND).

BASE PLATE:
BASE PLATE COMES WITH TEKA ANCHOR KIT #PTR-A. BOLT PROJECTION SHALL NOT EXCEED 3-1/2".
NOTES:
1. THIS STANDARD SHALL APPLY TO NEW PEDESTRIAN PATHS IN THE TOWN CENTER, SR-527 SUB-AREA, EAST GATEWAY URBAN VILLAGE, OR AS REQUIRED BY THE CITY OF MILL CREEK. EXISTING 70W HPS PEDESTRIAN LIGHT REPLACEMENT SHALL USE CITY STD PLAN LGT - 73N.

2. INSTALLATION OF ALL LUMINAIRE AND POLE COMPONENTS SHALL COMPLY WITH MANUFACTURER'S RECOMMENDATIONS.

FOR FOUNDATION DETAILS SEE CITY OF MILL CREEK STD PLAN LGT 082

LUMINAIRE:
CAND6-40W42LED4K-R-PC-C-RLE5-VOLT-GN8TX

COLOR: GN8-TX (TEXTURED DARK FOREST GREEN)

VOLTAGE: 240V

LAMP: PHILIPS LUMILEDS LUXEON R. 42 HIGH-PERF. LEDS- 40W LAMP.

OPTICS: (RLE5) I.E.S. TYPE V (SYMMETRICAL)

POLE:
APR4F-12HB (4" DIA ROUND STRAIGHT ALUMINUM POLE) WITH HINGED BASE (BY LUMEC).

COLOR: GN8-TX (TEXTURED DARK FOREST GREEN)

BASE COVER:
SQUARE COVER MADE FROM TWO PIECES OF FORMED ALUMINUM MECHANICALLY FASTENED TO THE BASE WITH STAINLESS STEEL SCREWS.

BASE PLATE:
BASE PLATE COMES WITH 4 ANCHOR BOLTS AND 8 NUTS AND AND WASHERS. BOLT PROJECTION (ABOVE FOUNDATION) SHALL NOT EXCEED 3".
NOTES:
1. THIS STANDARD SHALL APPLY TO COMMERCIAL AREAS IN THE TOWN CENTER, EAST GATEWAY URBAN VILLAGE, OR AS REQUIRED BY THE CITY OF MILL CREEK.
2. INSTALLATION OF ALL LUMINAIRE AND POLE COMPONENTS SHALL COMPLY WITH MANUFACTURER'S RECOMMENDATIONS.
3. INSTALL ONE TYPE B-SERVICE CABINET NEAR POWER SOURCE WITH TOP MOUNTED PHOTO CELL. PROVIDE BREAKER / DISCONNECT FOR EACH GROUP OF LIGHTS INSIDE LOCKABLE CABINET.

LUMINAIRE:
UCM-SA-ST-7.2-60LED-BW-DGN
(UNIVERSE COLLECTION SERIES BY ARCHITECTURAL AREA LIGHTING) WITH ONE-PIECE BALLAST DIE CAST ALUMINUM HOUSING, 24" HOOD WITH RINGS AND FLAT GLASS LENS.
COLOR: DGN (DARK GREEN)
LUMINOUS & HOOD: SR-ST (SOLID RINGS: STRAIGHT SKIRTED
LAMP: MICROEMITTER DLC APPROVED PRECISE AIMING LED.
OPTICS: TYPE II (H2), SHORT, FULL-CUTOFF
EXISTING LUMINAIRE USE: ARCH. LIGHTING UNIVERSE COLLECTION LED UPGRADE KIT RK5105 TYPE 2 (72 watts) BRIGHT WHITE (5100K).

LUMINAIRE ARM:
SLA17-DGN-PCR (UNIVERSE COLLECTION SERIES BY ARCHITECTURAL AREA LIGHTING) WITH STAINLESS STEEL FASTENERS.
COLOR: DGN (DARK GREEN)
PHOTOCELL: INSTALLATIONS DONE AFTER NOV. 2012 - PHOTOCELL SHALL BE LOCATED ON AN ELECTRICAL SERVICE CABINET WITH A BREAKER AND TEST SWITCH.

POLE:
PR4-4R16-125 (4" DIA. ROUND SMOOTH STRAIGHT ALUMINUM SHAFT) (BY ARCHITECTURAL AREA LIGHTING).
COLOR: DGN (DARK GREEN)

BASE COVER:
ROUND COVER MADE FROM FORMED ALUMINUM.

BASE PLATE:
BASE PLATE COMES WITH 4 ANCHOR BOLTS AND 8 NUTS AND WASHERS. BOLTS PROJECTION (ABOVE FOUNDATION) SHALL NOT EXCEED 3-1/2".

FOR FOUNDATION DETAILS SEE CITY OF MILL CREEK STD PLAN LGT 082

STREET LIGHTING
ARCHITECTURAL LIGHTING
COMMERCIAL STREET LIGHT
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO.
LGT-4

REV. DATE:
4/7/2016
NOTES:

1. THIS STANDARD SHALL APPLY TO RESIDENTIAL AREAS IN THE TOWN CENTER AND WITHIN THE EAST GATEWAY URBAN VILLAGE, OR AS REQUIRED BY THE CITY OF MILL CREEK.

2. INSTALLATION OF ALL LUMINAIRE AND POLE COMPONENTS SHALL COMPLY WITH MANUFACTURER'S RECOMMENDATIONS.

3. INSTALL ONE SERVICE CABINET NEAR POWER SOURCE WITH TOP MOUNTED OR INTERNAL PHOTO CELL. PROVIDE BREAKER / DISCONNECT FOR EACH GROUP OF LIGHTS INSIDE LOCKABLE CABINET.

LUMINAIRE:

UCM-SR-STR-T2-60LED-BW-DGN
(UNIVERSE COLLECTION SERIES BY ARCHITECTURAL AREA LIGHTING) WITH ONE-PIECE DIE CAST BALLAST ALUMINUM HOUSING,
24" HOOD WITH RINGS AND FLAT GLASS LENS.
COLOR: DGN (DARK GREEN)
LUMINOUS & HOOD: SR-STR (SOLID RINGS - STRAIGHT SKIRTED)
LAMP: MICROEMITTER DLC APPROVED PRECISE AIMING LED.
OPTICS: TYPE II (H2), SHORT, FULL-CUTOFF
EXISTING LUMINAIRE USE: ARCH. LIGHTING UNIVERSE COLLECTION LED UPGRADE KIT RK5105 TYPE 2 (72 watts) BRIGHT WHITE (5100k).

LUMINAIRE ARM:

SLA17-DGN-PCR (UNIVERSE COLLECTION SERIES BY ARCHITECTURAL AREA LIGHTING) WITH STAINLESS STEEL FASTENERS AND PHOTOCELL.
COLOR: DGN (DARK GREEN)
PHOTOCELL: FISHER-PIERCE, PART #7760-SSS (OR EQUAL)
INSTALLATIONS DONE AFTER NOV. 2012 - PHOTOCELL SHALL BE LOCATED ON AN ELECTRICAL SERVICE CABINET WITH A BREAKER AND TEST SWITCH.

POLE:

RT45-19-DE-SMS-GRG-40-60 SMOOTH TAPERED SHAFT, FIBERGLASS REINFORCED COMPOSITE MATERIAL, DIRECT BURY (BY WHATLEY), OR BH23-03SSBE09 BY SHAKESPEARE, AS APPROVED BY THE CITY.
COLOR: DGR (DARK GREEN)
LUMINAIRE:
CAND1-40W/42LED4K-R-PG-C-RLE3-120-GN6TX (BY LUMEC)
WITH ONE-PIECE CAST ALUMINUM BALLAST HOUSING,
SPUN-ALUMINUM EXTERIOR DEFLECTOR, CLEAR
POLYCARBONATE GLOBE, PHOTOCELL AND ALUMINUM
MOUNTING ARM.
COLOR:       GN6-TX (TEXTURED FOREST GREEN)
VOLTAGE:  AUTO-ADJUSTING TO A VOLTAGE 120-277V
LAMP:       PHILIPS LUMILEDS LEXEON R. 42 HP LEDs.
OPTICS:    (RLE3), I.E.S. TYPE III (ASYMMETRICAL).
POLE:
SPR4N-20DE (4" DIA. ROUND STRAIGHT STEEL POLE),
DIRECT BURIED (BY LUMEC),
COLOR:       GN6-TX (TEXTURED FOREST GREEN)

NOTES:
1. THIS STANDARD SHALL APPLY TO SR 527 SUB-AREA
PROJECTS (APARTMENTS / CONDOS) AND ALONG MAIN
STREET NORTH OF TOWN CENTER, OR AS REQUIRED BY
THE CITY OF MILL CREEK
2. INSTALLATION OF ALL LUMINAIRE AND POLE COMPONENTS
   SHALL COMPLY WITH MANUFACTURER'S RECOMMENDATIONS.
LUMINAIRE:
COBRA STYLE ROADWAY LUMINAIRES
WITH SOLID STATE PHOTOCELL, PROVIDED AND INSTALLED
BY SNOHOMISH COUNTY PUD #1.
VOLTAGE: VARIES
LAMP: 100W-200W LED STREET LIGHT LUMINAIRES
250W OR 400W (240V) - H.P.S.
(SUPPLIED BY GE, PHILIPS OR SVLANYA, HOWARD IND.)
OPTICS: TYPE III, MEDIUM, CUTOFF (NON-LED)

LUMINAIRE ARM:
SP-6 (BY AMERON) - 2" SCHEDULE 40 SINGLE OR DOUBLE
STEEL PIPE ARM WITH TOP MOUNT ASSEMBLY AND CAP.
COLOR: MILL CREEK BRONZE (CX)

POLE:
DIRECT BURY, SYMMETRICALLY TAPERED, SPUN-CAST,
PRESTRESSED CONCRETE POLE WITH EXPOSED
AGGREGATE FINISH AND ARCHITECTURAL GLOSS COATING
MANUFACTURED TO ASTM C-1089-97 (CENTRECON SERIES
BY AMERON).
COLOR: NATURAL SAND BLASTED FINISH #313 BUFF
MER-7.5 (RESIDENTIAL)
MER-9.0 (COLLECTORS/BUSINESS DISTRICT)
MERX-10 (MAJOR ARTERIALS)

NOTES:
1. THIS STANDARD SHALL APPLY TO LIGHTS INSTALLED
   EAST OF SR 527 (BOTHELL-EVERETT HWY), OR AS
   REQUIRED BY THE CITY OF MILL CREEK
2. INSTALLATION OF ALL POLE COMPONENTS SHALL
   COMPLY WITH MANUFACTURER'S RECOMMENDATIONS.

USE MAXIMUM 1-1/2" CONDUIT
BETWEEN POLE AND JUNCTION
BOX DUE TO POLE ENTRY SIZE

STREET LIGHTING
MILL CREEK STANDARD
STREET LIGHT
NOT TO SCALE
ENGINEERING DEPARTMENT

PLAN NO. LGT - 7
REV. DATE: 4/7/2016
DIRECTION OF TRAFFIC

CURB

SIDEWALK

PLANTER STRIP

TYPE 1 OR 2 JUNCTION BOX

LIGHT

2" CONDUIT

SIDEWALK NEXT TO CURB

DIRECTION OF TRAFFIC

CURB

SIDEWALK

PLANTER STRIP

TYPE 1 OR 2 JUNCTION BOX

LIGHT

2" CONDUIT

NO SIDEWALK

DIRECTION OF TRAFFIC

CURB

SIDEWALK

PLANTER STRIP

TYPE 1 OR 2 JUNCTION BOX

LIGHT

2" CONDUIT

SIDEWALK WITH PLANTER STRIP NEXT TO CURB

STREET LIGHTING

TYPICAL LUMINAIRE LOCATIONS

NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO.

LGT - 8

REV. DATE:

4/7/2016
TO LUMINAIRE

ROME POLE & BRACKET CABLE,
TWO CONDUCTOR #10 AWG
STRANDED COPPER WIRE WITH
45 MIL PVC INSULATION AND
95 MIL HMW POLYETHYLENE
CASING OR APPROVED EQUAL

LUMINAIRE POLE

HAND HOLE ON SIDE OPPOSITE
APPROACHING TRAFFIC

GROUND LUG

SEC MODEL #1791-SF FUSED
CONNECTOR KITS WITH FNM-5
FUSES OR APPROVED EQUAL

COIL MIN 2' TO PROVIDE SLACK

BARE #8 AWG STRANDED GROUND
(GROUND TO EXTEND TO LUMINAIRE
FOR FIBERGLASS POLES)

2" PVC SCH40 CONDUIT, EXCEPT USE
1-1/2" CONDUIT WITH CENTRECON
DIRECT BURY CONCRETE POLES

GROUND ROD AND CLAMPS

FOR CONDUIT, ILLUMINATION
AND GROUND WIRE SIZE SEE
PLANS

BELLE END PVC BUSHING (TYP)

TYPE 1 OR 2 JUNCTION BOX AS
PER WSDOT STD PLAN J-11a
(WITH GALVANIZED LID)

COIL MIN 2' TO PROVIDE SLACK

QUICK DISCONNECT SPLICE
KIT MODEL SEC 1791-DP
OR APPROVED EQUAL
NOTES:
1. EXISTING ASPHALT PAVEMENT MUST BE SAWCUT TO PROVIDE A CLEAN STRAIGHT EDGE BEFORE CONDUIT PLACEMENT.
2. EXISTING MATERIAL DISTURBED UNDER THE CONDUIT SHALL BE REPLACED WITH BEDDING MATERIAL AND COMPACTED TO 95% MAX DENSITY.
3. BACKFILL MATERIAL SHALL BE INSTALLED IN AN APPROVED MANNER TO ENSURE NO DAMAGES TO THE CONDUIT.
4. IF NATIVE MATERIAL IS DETERMINED UNSATISFACTORY BY THE CITY, USE CRUSHED SURFACING TOP COURSE, PER WSDOT STD SPEC 9-03.9(3).
PHOTOCELL W/ 5/8" EXPANDED STEEL MESH ENCLOSURE - HOT DIP GALV.

VIEW WINDOW BUILT INTO DOOR.

PADLOCKS/W STEEL VAULT HANDLE ON METER SIDE.

KEY LOCK THIS SIDE.

TUMBLER LOCK KEYED FOR "BEST" LOCK AND SUPPLIED WITH A BLUE CORE.

UTILITY SIDE VIEW

SIDE VIEW

MOUNTING FLANGE ON BOTTOM OF CABINET.

FOOTPRINT

METERBASE: 200 AMP, 4 JAW, B-LINE #U264 W/ BYPASS BLOCKS

1. SERIES RATED AT 65 KAIC, 18 CKT INTERIOR
   MAIN BREAKER: 100 AMP, 2 POLE, CUTLER HAMMER #BA32100
   CUTLER HAMMER TYPE EAD BOLT-ON BRANCH BREAKERS:
   4 - 29/5 STREET LIGHTING BRANCH (**ILLUMINATION CIRCUITS AS NEEDED)
   1 - 20/1 SIGNAL BRANCH
   1 - 15/1 CONTROL CKT BRANCH
   1 - 20/1 RECEPTACLE BRANCH
   2 - 20/1 SPARE BRANCH
   5 - SPARE SPACE

2. PANELBOARD: 120/240 VAC, 200 AMP, 1 PHASE, 3 WIRE, COPPER BUS COMPONENT SCHEDULE

3. CONTACTOR: 30 A, LIGHTING RATED, 4 POLE, 120 VAC COIL
   4 - 29/4 REQUIRED, W/ 1 - SPARE SPACE

4. PHOTOCCELL: 1800 WATT, 105 TO 305 VAC, PHOTO DIODE TYPE PER WSDOT SPEC, ALR #87-15-FV-110

5. HOA SWITCH: 30 mm, SQ D 9001KS43B; 2 REQUIRED (ST LGT & ORNAMENTAL LGT)

6. CONVENIENCE OUTLET: DUPLEX RECEPTACLE, 120 VAC, GFCl, 152 VAC, 20 A

NOTES:
1. FOR SERVICE CABINET FOUNDATION DETAIL- SEE MILL CREEK STD. LGT-87L.

2. FOR CABINET ATTACHMENT TO FOUNDATION, USE 1/2" X 4" STAINLESS QUICK BOLTS. SEAL CAB TO FOUNDATION WITH 1/2" BEAD OF SILICONE JOINT SEALANT - APPLY TO DRY SURFACE ONLY.

CABINET: NEMA 3R, PADMOUNT, 18" ALUMINUM TYPE 5522 H2 CONSTRUCTION
2 SCREENEED AND GASKETED VENTS
HINGED DEADFRONT WITH 1/2 TURN FASTENERS ON DISTRIBUTION SECTION DOORS: HEAVY DUTY CONCEALED HINGES (LIFT-OFF TYPE)
STAINLESS STEEL VAULT HANDLES
PADLOCKS/W METE DOOR, INTEGRAL "BEST LOCK" ON DISTRIBUTION DOOR POLISHED WIRE GLASS WINDOW IN METE DOOR
CLOSED CELL NEOPERENE GASKET, CARD HOLDER
FINISH: BARE ALUMINUM INSIDE AND OUT
DEADFRONTS AND WIREWAY COVERS WHITE POLYESTER POWDERCOAT

CITY OF MILL CREEK SERVICE CABINET FOR STREET LIGHTING CONTROL
SERVICE CABINET SERIES 63400-100. BY: SKYLINE ELECTRIC AND MFG. CO.
UL LISTED PER STANDARD # 506A (OR APPROVED EQUAL NEMA 3R SERVICE CABINET).
DIMENSIONS SHOWN ARE MINIMUM AND ADJUSTED TO ACCOMMODATE THE VARIOUS SIZES OF EQUIPMENT INSTALLED.

STREET LIGHTING
ELECTRICAL SERVICE CABINET
(TYPE "A")
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO.
LGT - 12

REV. DATE:
4/7/2016
CITY OF MILL CREEK TYPE "A" ELECTRICAL SERVICE CABINET (WITH METERED AND FLAT RATED SIDES), BY BROWNFIELD, SEE MANUFACTURER'S DRAWING #MC-A.

CABINET DETAILS:

COMPONENT SCHEDULE:

1. **METERBASE:**
   - 200A, 4-JAW, MIL 124TB SAFETY SOCKET, WITH 3TH JAW AT 9:00 9:00 POSITION (VERIFY WITH SERVICE UTILITY REPRESENTATIVE PRIOR TO FABRICATION).

2. **PANELBOARD:**
   - 120/240 VAC, 225A, 1Ø, 3-WIRE, COPPER BUS (CUTLER HAMMER LOAD CENTER).

3. **MAIN BREAKERS:**

4. **BRANCH BREAKERS:**
   - 4-20/2 ILLUMINATION
   - 2-20/1 RECEPTACLES
   - 1-15/1 HEATER
   - 1-50/1 SIGNAL
   - 1-20/1 IRRIGATION
   - 1-20/1 GFCI RECEPTACLE

5. **CONTACTOR:**
   - 30A, 2-POLE, LIGHTING RATED

6. **PHOTOELECTRIC CELL:**
   - BY-PASS SWITCH (SPST 15A, 277 VAC) AND REMOTE TERMINAL BLOCK.

7. **CABINET:**
   - NEMA 3R PADMOUNT, #12 GA 5052-H32 AL, POWDER COATED ASA 61 GRAY OUTSIDE AND INSIDE. 2 SCREENED GASKETED VENTS AND HINGED DEADFRONT.

8. **CABINET DOORS:**
   - WITH CLOSED CELL NEOPRENE GASKETS, CARD HOLDER, HEAVY-DUTY CONCEALED HINGES (LIFT-OFF TYPE), STAINLESS STEEL VAULT HANDLES (PADLOCKABLE ON UTILITY SIDE DOORS AND INTEGRAL "BEST LOCK" ON SERVICE DOOR) AND POLISHED WIRE GLASS WINDOW ON UTILITY SIDE DOORS. FINISH SHALL BE POLYESTER POWDER COAT ASA 61 GRAY OUTSIDE AND INSIDE.

WIRING SCHEMATIC:

NOTES:

1. CABINET SHALL BE UL LISTED PER STANDARD #508, SUITABLE FOR USE AS SERVICE ENTRANCE CABINET AND SHALL MEET EIUSERC REQUIREMENTS.
2. METERED MAIN BREAKER SHALL SERVICE SIGNAL, IRRIGATION, AND SIGNAL RELATED LIGHTING CIRCUITS.
3. FOR SERVICE CABINET FOUNDATION DETAILS SEE CITY OF MILL CREEK STD SHEET LGT 085.

STREET LIGHTING
ELECTRICAL SERVICE CABINET (TYPE "A") FOUNDATION
NOT TO SCALE

CITY OF Mill Creek
WASHINGTON

ENGINEERING DEPARTMENT

PLAN NO.
LGT - 13

REV. DATE:
4/7/2016
CITY OF MILL CREEK TYPE "B" ELECTRICAL SERVICE CABINET (FLAT RATED - DRAWING #MC-B.

UTILITY SIDE

SIDE VIEW
CABINET DETAILS:
(SHALL FACE THE STREET)

SERVICE SIDE

COMPONENT SCHEDULE:

1. METERBASE:
   200A, 4-JAW, U3504-XL METER SOCKET (WITH JUMPER METER SHALL NOT BE INSTALLED), WITH 5TH JAW AT 9:00 9:00 POSITION (VERIFY WITH SERVICE UTILITY REPRESENTATIVE PRIOR TO FABRICATION).

2. PANELBOARD:
   120/240 VAC, 225A, 10, 3-WIRE, COPPER BUS (SQUARE D LOAD CENTER)

3. MAIN BREAKER:
   100A, 2-POLE

4. BRANCH BREAKERS:
   4-20/22 2-POLI (MAX 12 SINGLE POLE BREAKERS OR 6 DOUBLE POLE BREAKERS)

5. CABINET:
   NEMA 3R PADMOUNT, 1/8" ALUMINUM, 5052 AL POWDER COATED ASA 61 GRAY OUTSIDE AND INSIDE, 2 SCREENED GASKETED VENTS AND HINGED DEADFRONT.

6. CABINET DOORS:
   WITH CLOSED CELL NEOPRENE GASKETS, CARD HOLDER, HEAVY-DUTY CONCEALED HINGES (LIFT-OFF TYPE), STAINLESS STEEL VAULT HANDLES (INTEGRAL "BEST LOCK" ON SERVICE DOOR). FINISH SHALL BE POLYESTER POWDER COAT ASA 61 GRAY OUTSIDE AND INSIDE. UTILITY DOOR SHALL PROVIDED WITH 4"x6" POLISHED WIRE GLASS WINDOW.

NOTES:
1. CABINET SHALL BE UL LISTED PER STANDARD #508, SUITABLE FOR USE AS SERVICE ENTRANCE CABINET.
2. FOR SERVICE CABINET FOUNDATION DETAILS SEE CITY OF MILL CREEK STD SHEET LGT 087.

STREET LIGHTING
ELECTRICAL SERVICE CABINET
(TYPE "B")
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO.
LGT - 14

REV. DATE:
4/7/2016
CABINET FOUNDATION NOTES:

1. PADMOUNT SHALL BE CLASS 3000 CONCRETE UNLESS OTHERWISE NOTED ON THE PLANS.

2. WHERE PADMOUNT IS LOCATED IN SIDEWALK, CONSTRUCT MOUNT TOP FLUSH WITH SIDEWALK GRADE, OMITTING CHAMFER WHERE TOP AND SIDEWALK ABUT.

3. PADMOUNT DESIGN IS TYPICAL; CONTRACTOR SHALL USE CABINET MANUFACTURER'S SPECIFICATIONS (SEE CITY OF MILL CREEK STD PLAN FOR ELECTRICAL SERVICE CABINET DETAILS) TO ASSURE PROPER FIT OF CABINET ON BASE WITH RESPECT TO CONDUIT PLACEMENT.

4. CABINET SHALL BE ATTACHED WITH 1/2" X 4" QUICK BOLTS. SEAL CABINET TO FOUNDATION WITH 1/2" BEAD OF SILICONE JOINT SEALANT- APPLY TO DRY SURFACE ONLY.
MPH

25

MARKED CENTERLINE OR CENTER OF TRAVELWAY

8' LETTERS X 15" WIDE THERMOPLASTIC
(LETTERS IN CENTER OF PAVEMENT, TYP.)

10' (TYP.)

DIRECTION OF TRAVEL

EDGE OF PAVEMENT OR FACE OF CURB

12" WIDE WHITE THERMOPLASTIC LINES, 4 EACH.

TRAFFIC CALMING
SPEED LIMIT PAVEMENT MARKING
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO.
TSC-1

REV. DATE:
4/7/2016
NOTE:
1. SIGNS TYPICAL BOTH DIRECTIONS OF TRAVEL.
2. SIGN AND MARKING LOCATIONS SHALL BE VERIFIED BY ENGINEER PRIOR TO INSTALLATION.
3. ALL SPEED HUMP MARKINGS SHALL BE THERMOPLASTIC. SEE MARKING DETAIL, THIS SHEET.

SIGNAGE DETAIL

1' WIDE PLASTIC STRIPE

NOTE:
SEE VERTICAL DIMENSION CHART

VERTICAL DIMENSION
CHART

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TYPICAL RAMP DETAIL

TRAFFIC CALMING
TRAFFIC CALMING SPEED CUSHION
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO.
TCS-2

REV. DATE:
4/7/2016
GRIND 2" DEPTH (TYP) FULL WIDTH OF ROADWAY

SPEED CUSHION SECTION

NOTE:
SEE VERTICAL DIMENSION CHART

VERTICAL DIMENSION CHART

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TYPICAL RAMP DETAIL

W11-2 PEDESTRIAN CROSSING

W16-7p

W11-2 PEDESTRIAN CROSSING

W16-9p AHEAD

NOTES:
1. SIGNS TYPICAL BOTH DIRECTIONS OF TRAVEL.
2. SIGN AND MARKING LOCATIONS SHALL BE VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.
3. CROSSWALK MARKINGS TO BE THERMOPLASTIC.
4. ALL SIGNS TO BE FLUORESCENT YELLOW-GREEN.

TYPICAL RAISED CROSSWALK SIGNAGE
TYPICAL, BOTH SIDES

TYPICAL RAISED CROSSWALK MARKING

TRAFFIC CALMING
TRAFFIC CALMING RAISED SIDEWALK
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO.
TCR-3

REV. DATE:
4/7/2016
CEMENT CONCRETE MOUNTABLE CURB DETAIL

EXISTING ASPHALT CONCRETE PAVEMENT

#3 BARS (TYP)

#3 CURB DOWEL (TYP), DRILLED 3" MIN INTO PAVEMENT

CEMENT CONCRETE MOUNTABLE CURB (DOWELED)

Cement concrete mountable curb detail

SECTION A-A

CEMENT CONCRETE MOUNTABLE CURB PER DETAIL, THIS SHEET

4" CEMENT CONCRETE PAVEMENT

3" CSTC

EXISTING ASPHALT PAVEMENT

4" - YY PAINT STRIPE, TYP. EACH END.

LENGTH, SEE PLANS

PLAN

CEMENT CONCRETE PAVEMENT, SCORING PATTERN & COLOR TO BE APPROVED BY CITY

FULL 4" RADIUS NOSING

INSTALL SIGN R4-7 2' BEHIND MOUNTABLE CURB (TYP)

PAINT NOSING YELLOW (TYP)

SIGN

FOUR SIGNS TOTAL-
TWO ON THE MEDIAN AND
TWO ON THE STREET PRIOR
TO THE MEDIAN- ONE ON EACH END.
(SEE PLANS FOR STREET SIGN PLACEMENT)

R4-7
24" X 30"

TRAFFIC CALMING
TRAFFIC MEDIAN
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO.
TCS-4

REV. DATE:
4/7/2016
INSTALL TRAFFIC CIRCLE SIGNS (TYP.)

INTERSECTION LAYOUT DETAIL

1/2" THROUGH JOINT WITH 1/4" X 2" FELT MATERIAL SPACED EVENLY (8 JOINTS)

3 - #3 CURB DOWELS (TYPICAL BETWEEN JOINTS)

MOUNTABLE CEMENT CONCRETE CURB PAINTED YELLOW

LANDSCAPE SEE PLANS

DIA. VARES

SEE PLANS

PLAN VIEW

INSTANTaneous

EXISTING ASPHALT CONCRETE PAVEMENT

#3 BARS (TYP)

#3 CURB DOWEL (TYP) DRILLED 3" MIN INTO PAVEMENT

SAWCUT OR LINE DRILL

REMOVE PAVEMENT INSIDE CIRCLE

W 2-6 30" X 30"

AHEAD

SIGN

SECTION A-A

TYPICAL TRAFFIC CIRCLE & MOUNTABLE CURB DETAIL

NTS

TRAFFIC CALMING

TRAFFIC CIRCLE

NOT TO SCALE

ENGINEERING DEPARTMENT

CITY OF Mill Creek WASHINGTON

TRAFFIC CALMING

TRAFFIC CIRCLE

NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO.

TCS-5

REV. DATE:

4/7/2016
WHEEL STOP NOTES:
1. HORIZONTAL SHELVE BETWEEN SIDEWALK OR ROAD AND BIORETENTION AREA SLOPE FOR SAFETY.
2. STEEPER SIDE SLOPES MAY BE NECESSARY DEPENDING ON SETTING AND REQUIRE ADDITIONAL ATTENTION FOR EROSION CONTROL, PLANT SELECTION, VEHICLE PEDESTRIAN SAFETY, ETC.

NOTES:
1. MAXIMUM BOTTOM SLOPE OF CELL IS 0.5'
2. OVERFLOW POINT SHALL BE AT LEAST 6" BELOW ANY ADJACENT PAVEMENT AREA.
3. INSTALL STREAMBED COBBLE (1"-4") AT INLET TO DISSIPATE RUNOFF.
4. IF OPTIONAL UNDERDRAIN IS USED:
   - 0.5% MIN. SLOPE
   - PROVIDE A CLEAN OUT EVERY 100 FEET
5. MINIMUM 3' DEPTH BETWEEN UNDERDRAIN (IF PRESENT) OR BOTTOM OF BIORETENTION SOIL MIX (BSM) AND WATER TABLE.
6. MINIMUM SETBACK OF 5' FROM TOP OF BIORETENTION CELL TO BUILDING STRUCTURES AND PROPERTY LINES.

7. AREA AND DEPTH OF FACILITIY ARE BASED UPON ENGINEERING CALCULATIONS.
8. CHECK DAMS MAY BE REQUIRED DEPENDING ON SLOPES AND FLOW VELOCITIES.
9. BOTTOM VELOCITIES SHOULD BE A MINIMUM OF 2 FEET TO PREVENT CHANNELIZATION.
10. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO, DURING AND AFTER CONSTRUCTION.
SECTION A-A

TOP VIEW

SECTION B-B

LOW IMPACT DEVELOPMENT
BIORETENTION CHECK DAM
NOT TO SCALE

ENGINEERING DEPARTMENT

PLAN NO. LID-2

REV. DATE: 4/7/2016
Curb Dowel (Optional)
Modified Conc Curb & Gutter

Streambed Cobble Per Standard Specifications 9-03.11(2) (2"-4") - See Note

Concrete Curb and Gutter

Note:
Modify inlet to bioretention planter as needed to prevent erosion.

Section A-A

Top of Curb
Gutter Line
Street Slope

Section B-B

Typical Gutter Elevation
Road Pavement
2%
6" 6" 6" 6" 6"

Swale/Rain Garden Bank (See Note)
Swale/Rain Garden Bottom

Low Impact Development
Curb Cut Opening for Bioretention
Not to Scale

City of Mill Creek
Washington
Engineering Department

Plan No. LID-3
Rev. Date: 4/7/2016
NEW DEVELOPMENT RAIN GARDEN SIGNAGE

CONTACT CITY OF MILL CREEK SURFACE WATER SECTION FOR ARTWORK CAD FILE FOR THIS SIGN.

NOTES:

1. TYPE 3 BEADED SHEETING ON .080 ALUMINUM
2. ATTACH SIGN POST WITH (2) 5/16" GALVANIZED LAG BOLTS WITH WASHERS
3. POST SIGN ON 4"x4" CEDAR POST WITH BOTTOM OF SIGN MIN. 3' ABOVE GROUND
4. PRINT IN COLOR ON WHITE BACKGROUND
NOTES:

1. GEOTEXTILE FOR UNDERGROUND SEPARATION. UNDERGROUND SEPARATION REQUIRED ONLY ON TYPE "C" AND "D" SOILS.

2. THESE GUIDELINES PROVIDE A MINIMUM DEPTH FOR THE HYDROLOGIC PERFORMANCE. THE STRUCTURAL CAPACITY OF PAVEMENT SECTIONS WHEN SUBJECT TO VEHICULAR LOADS DEPEND ON SEVERAL FACTORS AND MUST BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

3. LONGITUDINAL SLOPE, 0 TO 5% MAX. FOR POROUS ASPHALT, 10% MAX. FOR PERVIOUS CONCRETE.

4. USE CHECK DAM TO MAXIMIZE PONDING IN THE SUBSURFACE FOR LONGITUDINAL SLOPES EXCEEDING 2%. SEE PERMEABLE PAVEMENT FOR SLOPES DETAIL.

5. RESERVOIR COURSE MINIMUM DEPTH OF 6" WITHOUT UNDERDRAIN, 22" MINIMUM WITH UNDERDRAIN.

6. PERVIOUS CONCRETE SHALL BE INSTALLED BY A CERTIFIED PERVIOUS CONCRETE INSTALLER. POROUS ASPHALT SHALL BE INSTALLED BY AN EXPERIENCED POROUS ASPHALT INSTALLER. (NRMA OR EQUIVALENT)

7. PERMEABLE PAVEMENTS SHALL NOT BE USED FOR POLLUTION GENERATING SURFACES. SURFACES SUBJECT TO REGULAR VEHICLE TRAFFIC.
PERMEABLE PAVEMENT CAN BE PERVERSIOUS CONCRETE, PERVERSIOUS ASPHALT OR PERVERSIOUS PAVERS.

LONGITUDINAL SLOPE MAXIMUM 10% FOR CONCRETE OR 6% FOR ASPHALT. SEE NOTE BELOW.

END OF PERMEABLE PAVEMENT

CONVENTIONAL PAVEMENT

3"x6" CHECK DAM. NON-PERMEABLE MATERIAL (3000 PSI CONCRETE OR ACCEPTED EQUIVALENT

3"x6" CHECK DAM. NON-PERMEABLE MATERIAL (3000 PSI CONCRETE OR ACCEPTED EQUIVALENT

GEOTEXTILE FABRIC ON BOTTOM AND SIDES

10"x10" BEDDING

(SEE NOTE 4)

RESEVOIR COURSE

12"x12" INTERCEPTOR INFILTRATION TRENCH

INTERCEPTOR INFILTRATION TRENCH

1" MIN.

END OF PERMEABLE PAVEMENT

CONVENTIONAL PAVEMENT

6"x18" CHECK DAM. NON-PERMEABLE MATERIAL (3000 PSI CONCRETE OR ACCEPTED EQUIVALENT

18"x18" BEDDING

(SEE NOTE 4)

RESEVOIR COURSE

USE PERMEABLE PAVEMENT DETAIL

CHECK DAM

NOTES:
1. CHECK DAM OR INTERCEPTOR REQUIRED FOR LONGITUDINAL SLOPES > 2%
2. SPACE CHECK DAMS BASED ON SLOPE TO ACHIEVE DESIGN AVERAGE PONDING DEPTH BEFORE OVERTOPPING DAM
3. CALCULATE STORAGE VOLUME BETWEEN CHECK DAMS BASED ON CHECK DAM HEIGHT AND SLOPE FOR MODELING
4. 8" PVC PERI PIPE WITH CLEANOUTS AND CONNECTION TO STORM DRAIN. SEE LID CLEAN OUT DETAIL.
PERMEABLE PAVEMENT CAN BE PERVERVIOUS CONCRETE, PERVIOUS ASPHALT OR PERVIOUS PAVERS.

PERMEABLE PAVEMENT 4" MIN. DEPTH
PLANTER STRIP (OPTIONAL)
ROAD SURFACE
SUBGRADE

RESERVOIR COURSE
MINIMUM DEPTH OF 6" WITHOUT UNDERDRAIN,
22" MINIMUM DEPTH WITH UNDERDRAIN.

PERMEABLE PAVEMENT SIDEWALK
ADJACENT TO CURB

TOP OF CURB FLUSH
WITH SIDEWALK
12"
VARIES
PERMEABLE PAVEMENT
4" MIN. DEPTH
FINISH GRADE

RESERVOIR COURSE
MINIMUM DEPTH OF 6"
WITHOUT UNDERDRAIN,
22" MINIMUM DEPTH
WITH UNDERDRAIN.

BIORETENTION SOIL MIX
OR AS REQUIRED
BARRIER CURB
REQUIRED BETWEEN
SLOPED LANDSCAPE

PERMEABLE PAVEMENT
ADJACENT TO BIORETENTION OR DITCH

NOTES:
1. ROUGH GRADE DITCH OR BIORETENTION FIRST.
2. SUBGRADE SHALL NOT BE COMPACTED.
3. COVER PERMEABLE PAVEMENT AFTER POUR TO PROTECT SURFACE UNTIL FINAL LANDSCAPE IS COMPLETE.
NOTES:

1. MINIMUM PIPE DIAMETER: 4 INCHES (PIPE DIAMETER WILL DEPEND ON HYDRAULIC CAPACITY REQUIRED, 4-8" IS COMMON.
2. SLOTTED SUBSURFACE DRAIN PVC PER ASTM D1785 SCH 40.
3. SLOTS SHOULD BE CUT PERPENDICULAR TO THE LONG AXIS OF THE PIPE AND BE 0.04 - 0.069 INCH BY 1 INCH LONG AND BE SPACED 0.25 INCH APART (SPACE LONGITUDINALLY). SLOTS SHOULD BE ARRANGED IN TWO ROWS SPACED ON 45- DEGREE CENTERS AND COVER 1/2 OF THE CIRCUMFERENCE OF THE PIPE.
4. THE UNDER-DRAIN SHALL BE INSTALLED WITH SLOTS ORIENTED ON BOTTOM OF PIPE.
5. UNDER-DRAINS SHOULD BE SLOPED AT A MINIMUM OF 0.5 PERCENT UNLESS OTHERWISE SPECIFIED BY AN ENGINEER.
LOW IMPACT DEVELOPMENT
LID CLEAN OUT
NOT TO SCALE

NOTE:
LOCATE CLEAN OUTS EVERY 100 FEET IN PAVED AREAS ADJACENT TO BIORRETENTION OR PERVIOUS PAVEMENT WHERE POSSIBLE.
1. Trees shall have one central leader. If the leader was headed, a new leader (with a live terminal bud) at least one-half the diameter of the pruning cut shall be present.

- All trees are assumed to have one central leader trees unless a different form is specified in the plant list or drawings.

2. Twine and burlap used for wrapping the root ball package shall be natural, biodegradable material.

3. Container Root Ball Shaving: The outer surfaces of ALL container trees, including the top, sides and bottom of the root ball shall be shaved to remove all circling, descending, and matted roots. Shaving shall be performed using saws, knives, sharp shovels or other suitable equipment that is capable of making clean cuts on the roots. Shaving shall remove a minimum of one inch of root mat or up to 2 inches as required to remove all root segments that are not growing reasonably radial to the trunk.

4. For trees to be planted in prepared Planting Soil that is deeper than the root ball depth, compact the soil under the root ball using a mechanical tamper to assure a firm bedding for the root ball. Planting Soil is the site soil excavated from the planting pit, mixed with a maximum of 5% organic matter.

5. Root barrier is required adjacent to trees planted in a planter strip narrower than six feet and in landscape islands. Barrier adjacent to the curb shall be 24 inches and barrier adjacent to the sidewalk shall be 18 inches.

6. Set top outer edge of the root ball at the average elevation of the proposed finish. Set the plant plumb and upright in the center of the planting hole. The tree grafted, if applicable, shall be visible above the grade. Do not place soil on top of the root ball.

7. After the root ball has been placed in the excavated pit, remove root ball wrapping (burlap, wire basket, twine, etc.) from the top 12 inches or 2/3 of the root ball, whichever is greater. Cut the burlap away; do not fold down onto the Planting Soil.

8. Stabilize the root ball by firming a ring of backfill soil around the bottom of the root ball. Place additional Planting Soil around base and sides of ball in six-inch (6") lifts. Lightly tamp each lift using foot pressure or hand tools to settle backfill, support the tree and eliminate voids. DO NOT over compact the backfill or use mechanical or pneumatic tamping equipment.

9. When the planting hole has been backfilled to three quarters of its depth, water shall be poured around the root ball and allowed to soak into the soil to settle the soil. Do not flood the planting space. Air pockets shall be eliminated and backfill continued until the planting soil is brought to grade level.

10. Where indicated on the drawings, build a 4 inch high, level berm of Planting Soil around the outside of the root ball to retain water. Tamp the berm to reduce leaking and erosion of the saucer.

11. Thoroughly water the Planting Soil and root ball immediately after planting.
12. Remove all nursery plant identification tags and ribbons prior to final inspection.

13. Do not stake or guy trees unless specifically required by the Contract Documents, or in the event that the Contractor feels that staking is the only alternative way to keep particular trees plumb.

14. Trees that are guyed shall have their guys and stakes removed after one full growing season.

15. Apply 2 to 4 inches of mulch before settlement, covering the entire planting bed area. Install no more than 1 inch of mulch over the top of the root balls of all plants. Taper to 2 inches when abutting pavement.

16. Maintenance during the period prior to Substantial Completion Acceptance shall consist of pruning, watering, cultivating, weeding, mulching, removal of dead material, resetting plants to proper grades and upright position, and furnishing and applying such sprays as are necessary to keep plantings reasonably free of damaging insects and disease, and in healthy condition. The threshold for applying insecticides and herbicide shall follow established Integrated Pest Management (IPM) procedures. Mulch areas shall be kept reasonably free of weeds, grass.
1. All work within the site shall be subject to the inspection of the Director of Community and Economic Development or designated representative in accordance with the following requirements:

   a) Inspections shall be scheduled no less than 24 hours in advance.

   b) When planting trees, a visual inspection by the City is required when the root balls have been placed in the excavated pits, prior to backfilling.

   c) Any work covered without prior acceptance may be required to be exposed for City inspection.

   d) The contractor shall request a substantial completion inspection once site work has been completed for any punchlist items.

   e) The contractor shall request a physical completion inspection after all restoration and repair work has been completed for final City acceptance.
Notes:
See Landscape Notes for further requirements related to this detail.

- Tree caliper should be between 1.5 & 3 inches.
- Root ball surface shall be positioned to be 1.5 inches above finished grade.
- Root ball soil around the root ball in 6" lifts to brace tree. Do not over compact. When the planting hole has been backfilled, pour water around the root ball to settle the soil.
- Existing site soil added to create a smooth transition from the top of the raised root ball to the finished grade at a 15% max. slope.
- 4" layer of mulch. No more than 1" of mulch on top of root ball.
- Bottom of root ball rests on existing or recompacted soil. Firm a ring of backfill soil around the bottom of the root ball to stabilize it.
- When trees are set on undisturbed soil and a ring of soil is firmed around the base before backfilling, staking is not needed in many landscape settings.
PLANTING BEDS

2"x4" WOOD CHIP MULCH

3" OF COMPOST INCORPORATED INTO SOIL TO 6" DEPTH

SUBSOIL SCARIFIED 4" BELOW COMPOST AMENDED LAYER (12" BELOW SOIL SURFACE), AS DETERMINED BY ENGINEER

TURF (LAWN) AREAS

GRASS, SEED OR SOD

1 3/4" OF COMPOST INCORPORATED INTO SOIL TO 6" DEPTH

SUBSOIL SCARIFIED 4" BELOW COMPOST AMENDED LAYER (12" BELOW SOIL SURFACE), AS DETERMINED BY ENGINEER

NOTES

1. ALL SOIL AREAS DISTURBED OR COMPACTED DURING CONSTRUCTION, AND NOT COVERED BY BUILDINGS OR PAVEMENT, SHALL BE AMENDED WITH COMPOST AS DESCRIBED BELOW.

2. SUBSOIL SHOULD BE SCARIFIED (LOOSENED) 4 INCHES BELOW AMENDED LAYER TO PRODUCE 12 INCH DEPTH OF UN-COMPACTED SOIL, EXCEPT WHERE SCARIFICATION WOULD DAMAGE TREE ROOTS OR AS DETERMINED BY THE ENGINEER.

3. COMPOST SHALL BE TILLED IN TO 8 INCH DEPTH INTO EXISTING SOIL, OR PLACE 8 INCHES OF COMPOST-AMENDED SOIL, PER SOIL SPECIFICATIONS.

4. TURF AREAS SHALL RECEIVE 1.75 INCHES OF COMPOST TILLED IN TO 8 INCH DEPTH, OR MAY SUBSTITUTE 8 INCHES OF IMPORTED SOIL CONTAINING 20-25% COMPOST BY VOLUME. PLANT GRASS SEED OR SOD PER SPECIFICATION.

5. PLANTING BEDS SHALL RECEIVE 3 INCHES OF COMPOST TILLED IN TO 8 INCH DEPTH, OR MAY SUBSTITUTE 8 INCH OF IMPORTED SOIL CONTAINING 35-40% COMPOST BY VOLUME. MULCH AFTER PLANTING, WITH 2-4 INCHES OF ARBORIST WOOD CHIP MULCH OR APPROVED EQUAL.

6. SETBACKS: TO PREVENT UNEVEN SETTLING, DO NOT COMPOST-AMEND SOIL WITHIN 3 FEET OF UTILITY INFRASTRUCTURES (POLES, VAULTS, METERS ETC.), WITHIN ONE FOOT OF PAVEMENT EDGE, CURBS AND SIDEWALKS. SOIL SHOULD BE COMPACTED TO APPROXIMATELY 90% PROCTOR TO ENSURE A FIRM SURFACE.

LANDSCAPE

SOIL AMENDMENT AND DEPTH

NOT TO SCALE

ENGINEERING DEPARTMENT

CITY OF MillCreek WASHINGTON

PLAN NO. LND-4

REV. DATE: 4/7/2016