



Design & Construction

Standard Plans

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.

Construction not covered by these Standard Plans, use the current Snohomish County EDDS or WSDOT Standard Plans as directed by the City Engineer. These Standard Plans shall also be used with the WSDOT Standard Specifications for Road, Bridge and Municipal Construction (current edition) in English Units. Low Impact Development details not covered by these Standard Plans shall use the December 2012 Low Impact Development Technical Guidance Manual for Puget Sound and the Ecology 2012 Stormwater Management Manual for Western Washington, as Amended in December 2014.

Scott Smith *10/18/16*

Scott Smith, P.E.
City Engineer

Distributed by:
City of Mill Creek Public Works Department
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City of Mill Creek
Design and Construction Standard Plans

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General Notes

October 2016

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 Public Works 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 be 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.

Storm Drainage Notes

October 2016

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.
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.

Low Impact Development (LID) Construction Notes

1. Contact City Public Works staff for a separate pre-construction meeting prior to beginning work on all LID sites.
2. Install perimeter protection around all rain garden, bioswale, or permeable pavement sites after rough grading work.
3. Perimeter protection must remain in place and be maintained around all LID sites until facility construction begins. This is to prevent compaction of native soils and existing soils from getting clogged with sediment.
4. Rain garden construction shall follow the current Rain Garden Handbook for Western Washington for specifications and construction guidance.
5. Bioswale construction shall follow the current LID Technical Guidance Manual for specifications and construction guidance.
6. Bioretention soil mix requires a lab report for physical submittal to the City inspector.
7. Permeable pavement shall be covered with plastic after installation in order to prevent construction materials from clogging the surface. Plastic shall not be removed until all earth work and building construction is complete.
8. All rain gardens shall have a City approved education sign installed after completion.
9. Low Impact Development sites shall be fully functioning prior to final City acceptance.

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. 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 graft, 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.

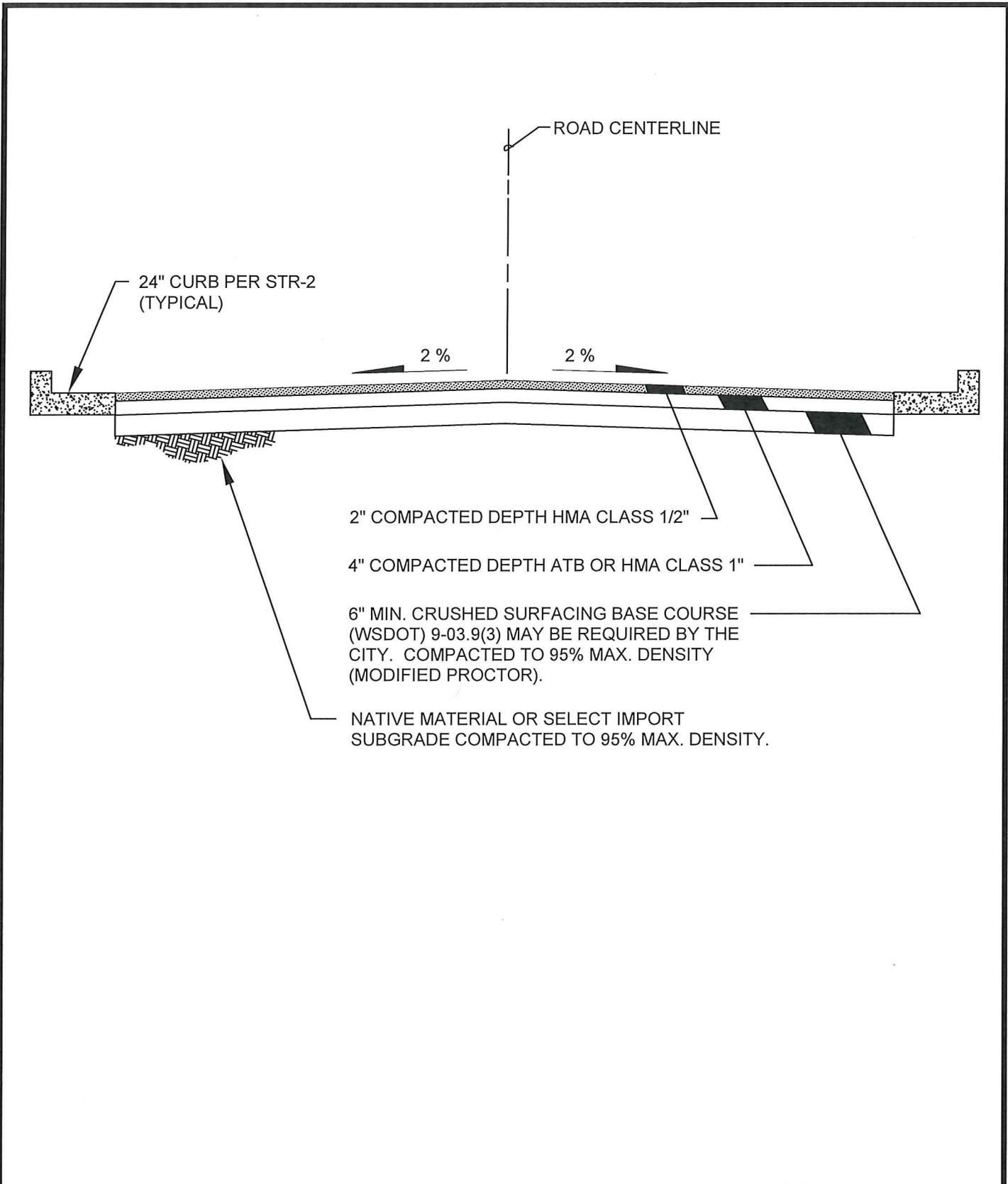
12. Remove all nursery plant identification tags and ribbons prior to final inspection.
13. Do not stake or guy trees unless specifically required by the Contract Documents, or in the event that the Contractor feels that staking is the only alternative way to keep particular trees plumb.
14. Trees that 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.

As-Built Requirements

October 2016

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.
6. As-Built drawings shall be submitted electronically to the City Engineer in one complete file in pdf format.

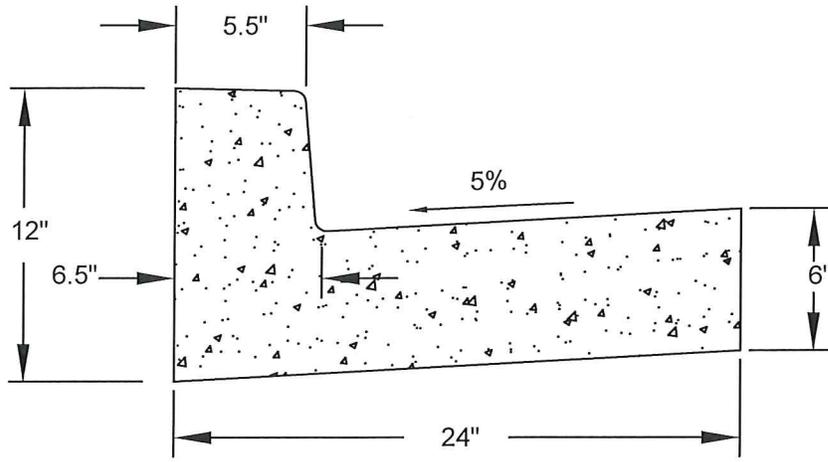


STREET
TYPICAL ROAD CROSS SECTION
 NOT TO SCALE

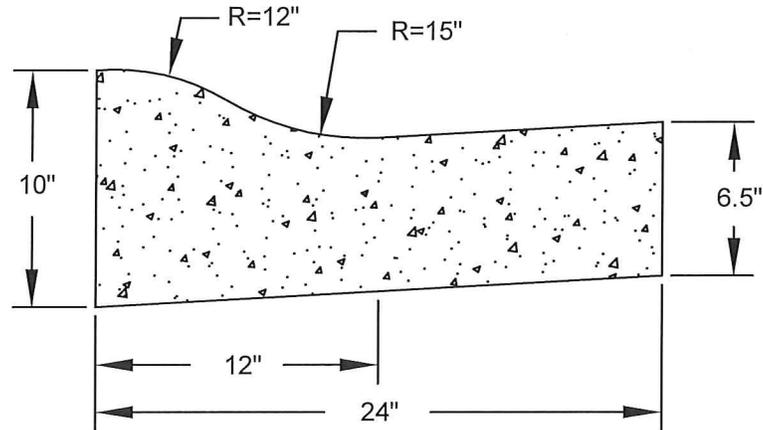
PUBLIC WORKS DEPARTMENT

PLAN NO.
STR-1

REV. DATE:
 9/20/2016



VERTICAL CURB & GUTTER



ROLLED CURB & GUTTER

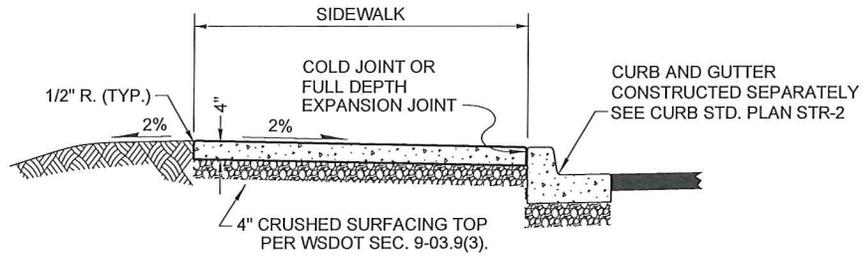
NOTES:

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.



STREET
ROLLED AND VERTICAL CURB
 NOT TO SCALE
 PUBLIC WORKS DEPARTMENT

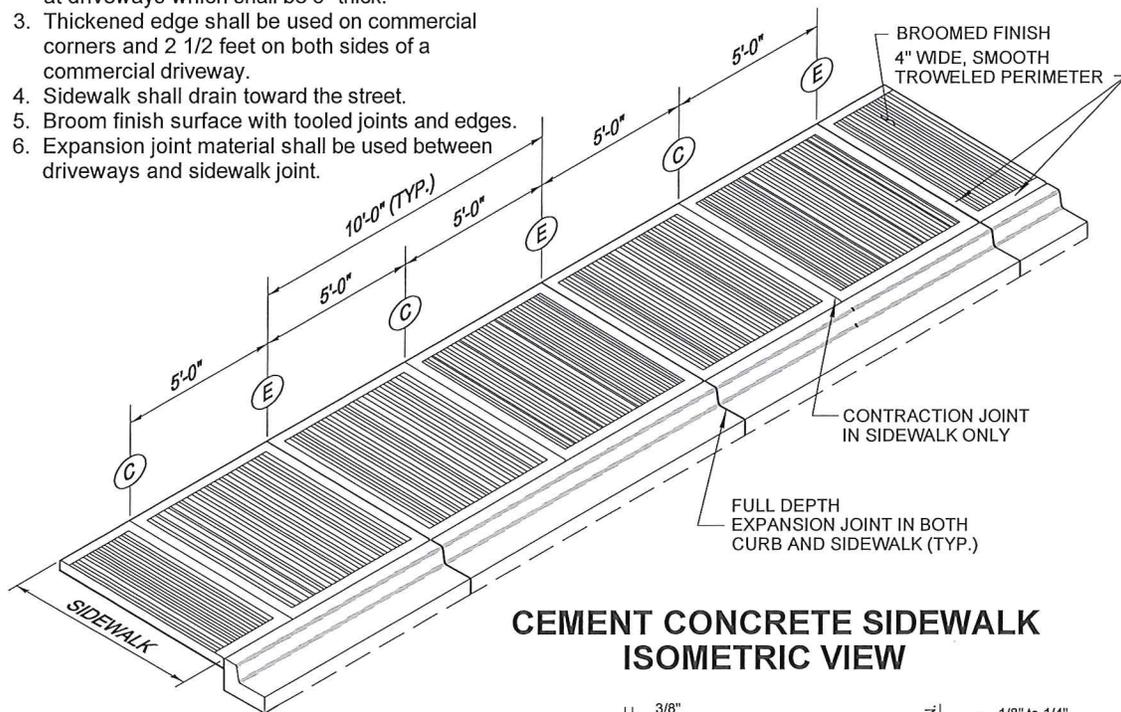
PLAN NO.
STR-2
 REV. DATE:
 9/20/2016



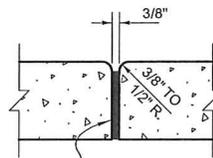
NOTES:

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 tooled joints and edges.
6. Expansion joint material shall be used between driveways and sidewalk joint.

CEMENT CONCRETE SIDEWALK SECTION

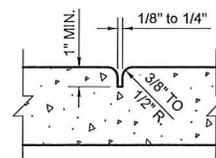


CEMENT CONCRETE SIDEWALK ISOMETRIC VIEW



EXPANSION JOINT- 1/2 DEPTH, EVERY 10', FULL DEPTH EVERY 100'

(E) EXPANSION JOINT



(C) CONTRACTION JOINT

MIN. SIDEWALK WIDTHS

- RESIDENTIAL & COMMERCIAL 5 FT.
- ARTERIALS 6 FT.
- USE AS MULTI-PURPOSE TRAIL 10 FT.

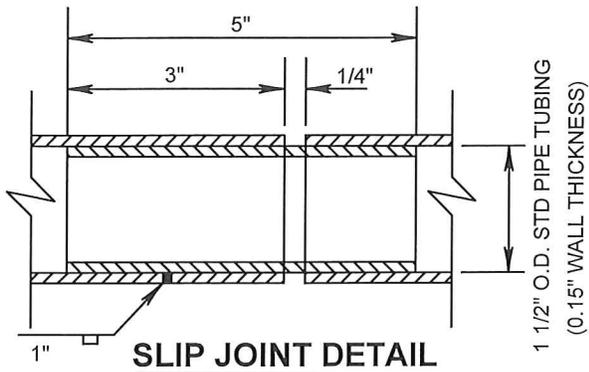


STREET
CEMENT CONCRETE SIDEWALK
 NOT TO SCALE

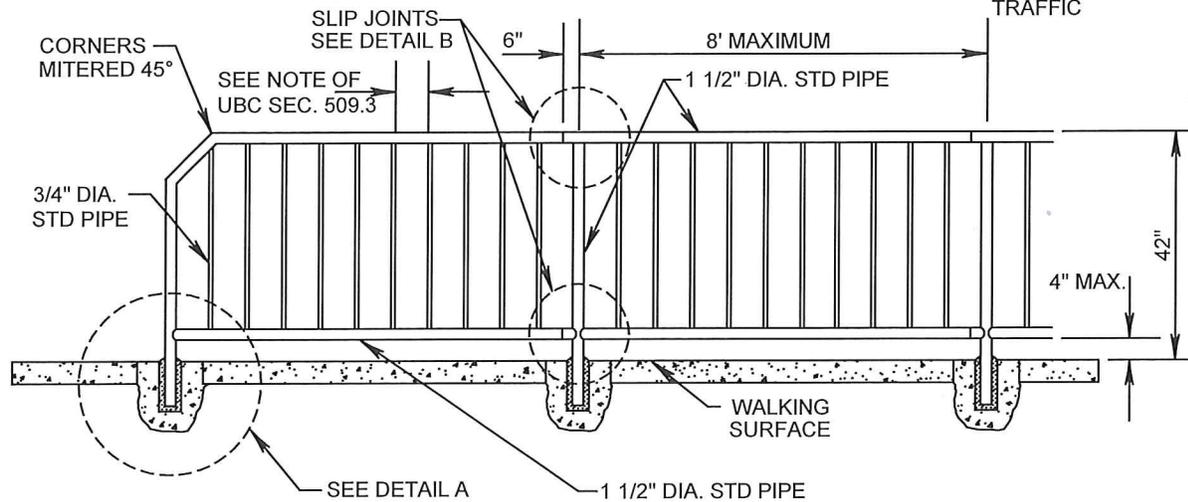
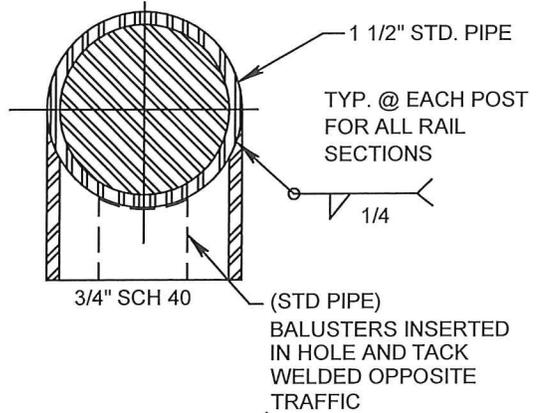
PUBLIC WORKS DEPARTMENT

PLAN NO.
STR-3

REV. DATE:
 9/20/2016

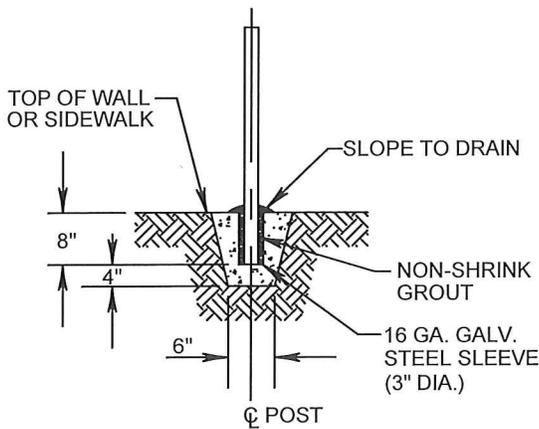


**SLIP JOINT DETAIL
DETAIL B**



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 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.



DETAIL A

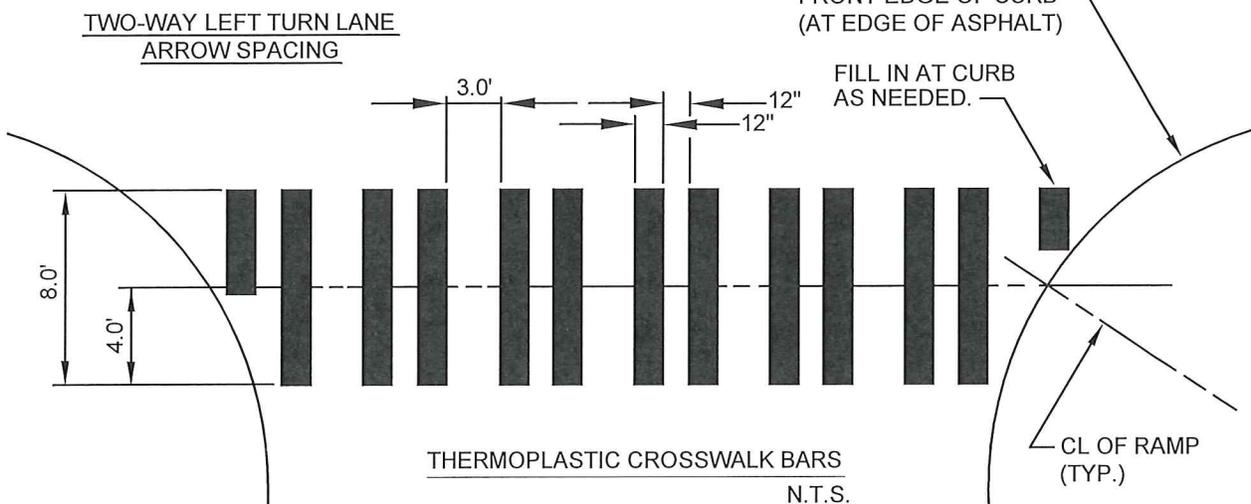
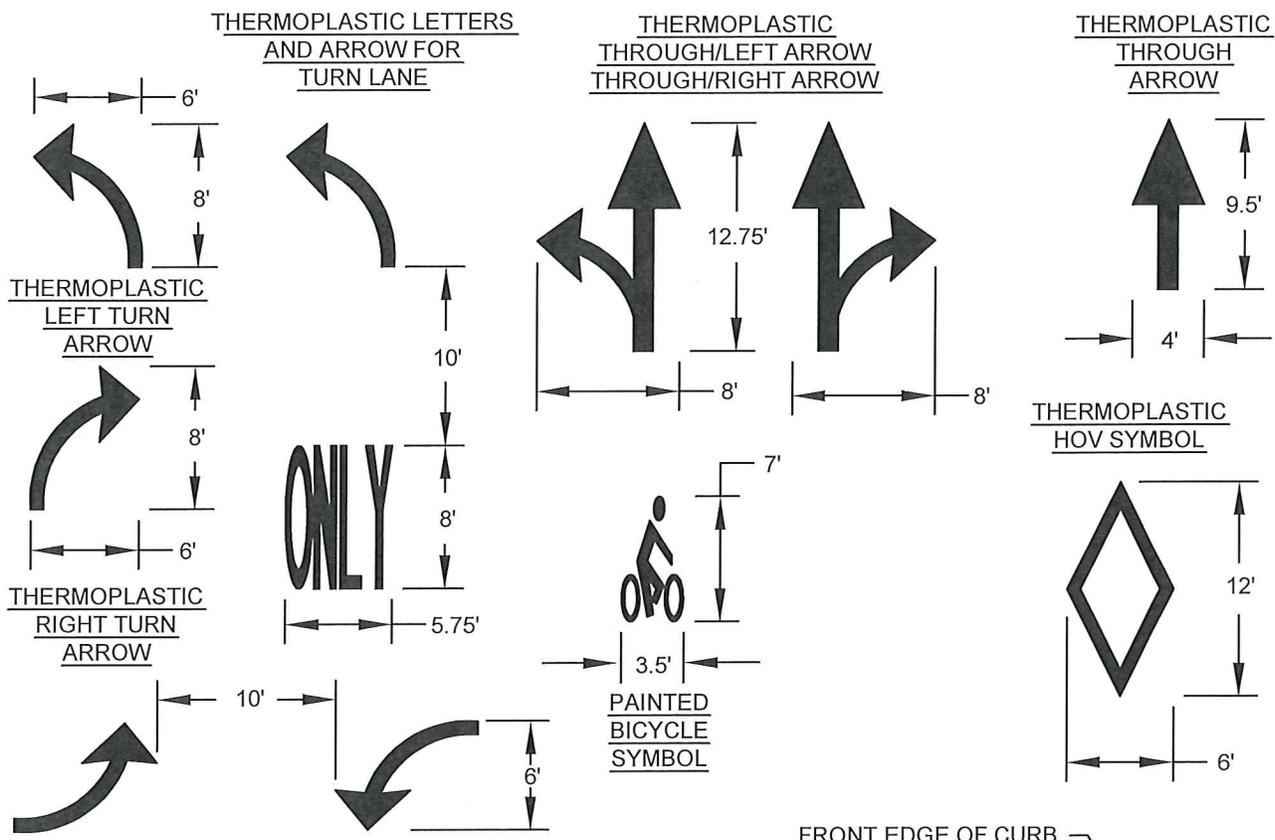


STREET
PEDESTRIAN HANDRAIL
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
STR - 4

REV. DATE:
9/20/2016



- 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.



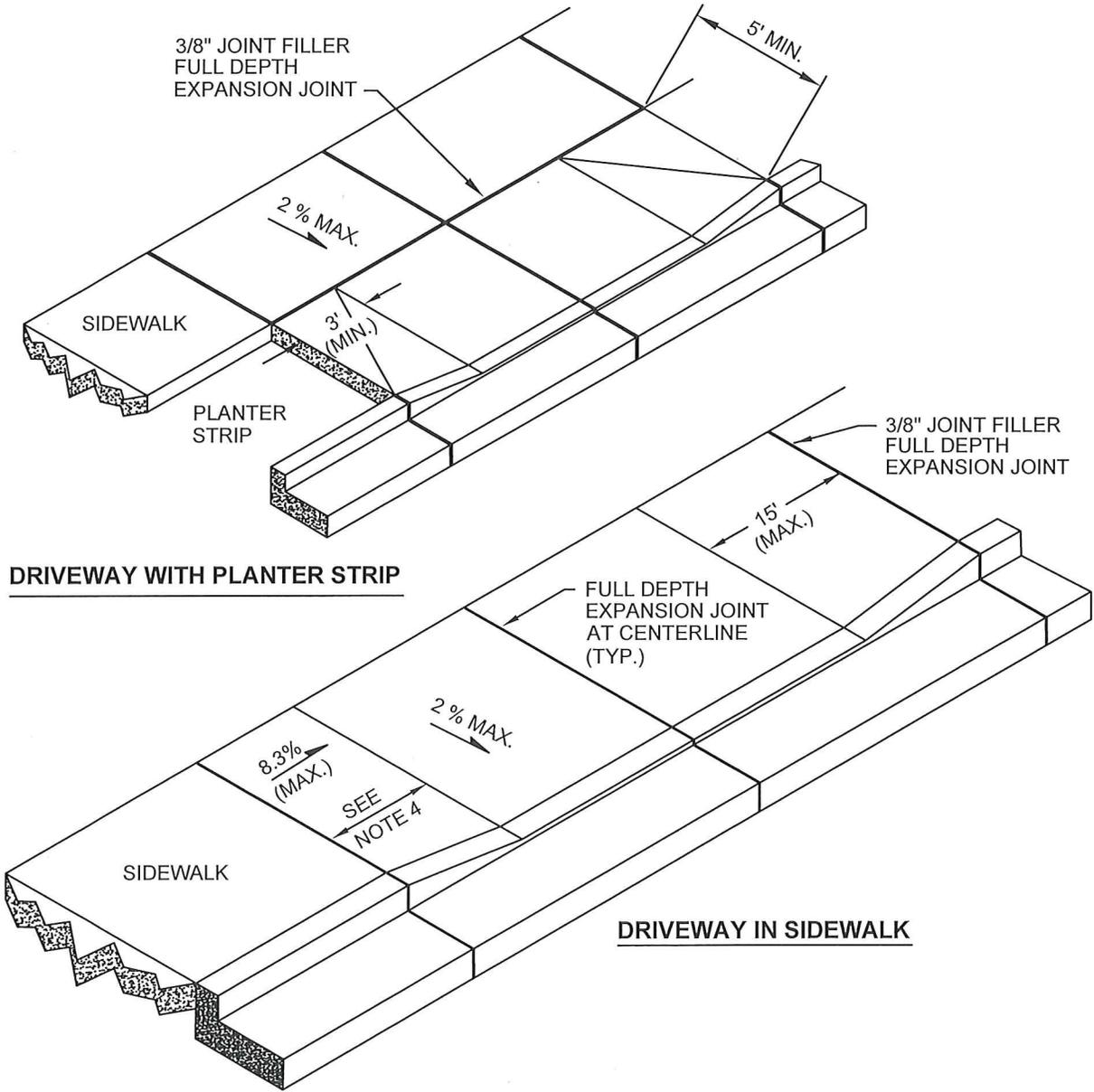
STREET
CROSSWALK AND PAVEMENT MARKINGS
 NOT TO SCALE
 PUBLIC WORKS DEPARTMENT

PLAN NO.
STR - 5

REV. DATE:
 9/20/2016

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.

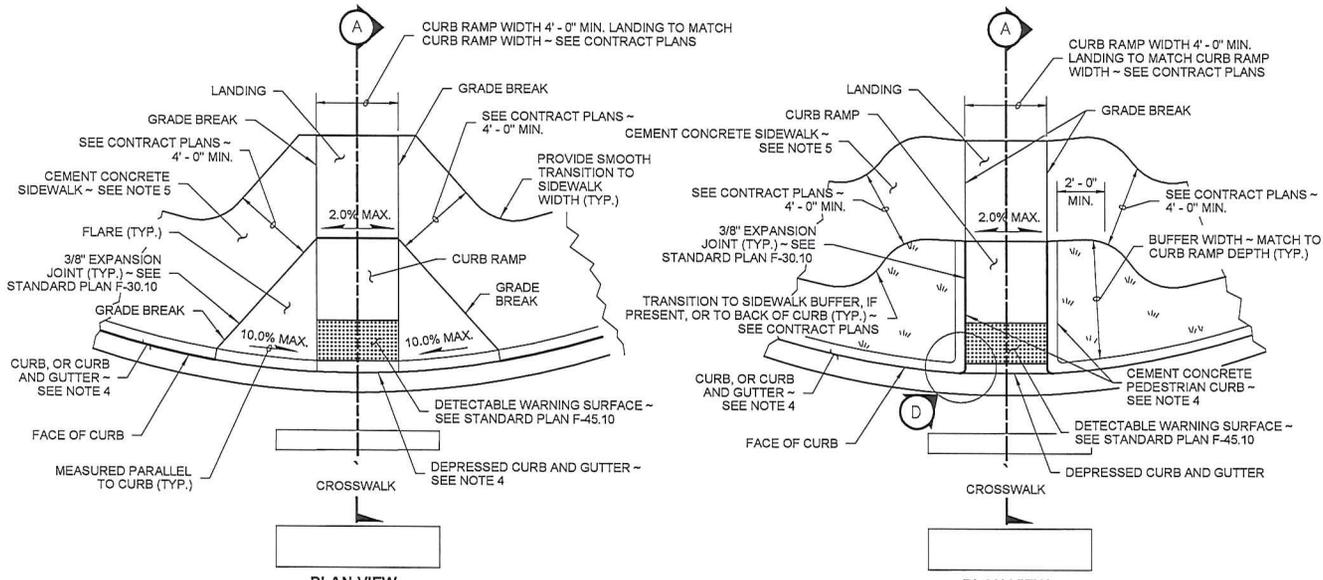


STREET
VERTICAL CURB DRIVEWAY
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

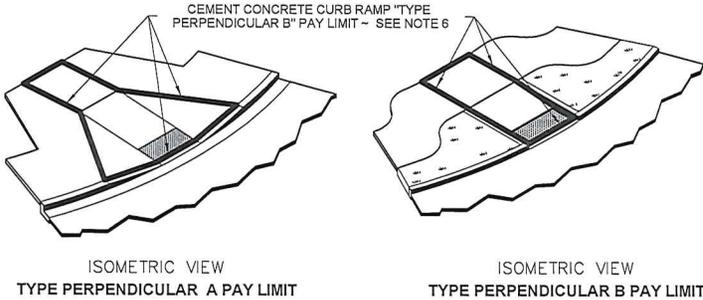
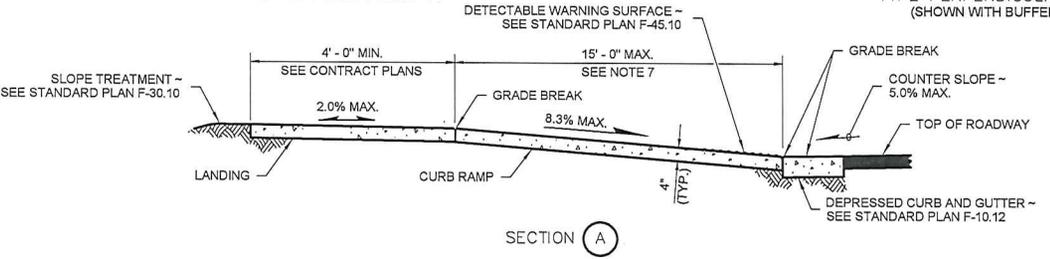
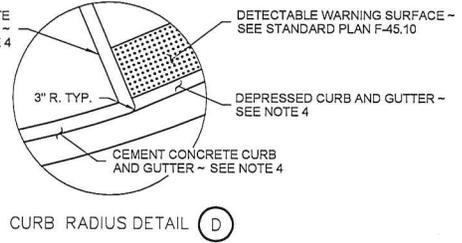
PLAN NO.
STR - 6

REV. DATE:
9/20/2016



- NOTES**
1. Provide a separate Curb Ramp for each marked or unmarked crosswalk. Curb Ramp location shall be placed within the width of the associated crosswalk or as shown in the Contract Plans.
 2. Where "GRADE BREAK" is called out, the entire length of the grade break between the two adjacent surface planes shall be flush.
 3. Do not place Gratings, Junction Boxes, Access Covers, or other appurtenances in front of the Curb Ramp or on any part of the Curb Ramp or Landing.
 4. See the Contract Plans for the curb design specified. See Standard Plan F-10.12 for Curb, Curb and Gutter, Depressed Curb and Gutter, and Pedestrian Curb details.
 5. See Standard Plan F-30.10 for Cement Concrete Sidewalk details. See Contract Plans for width and placement of sidewalk.
 6. The Bid Item "Cement Concrete Curb Ramp Type ..." does not include the adjacent Curb, Curb and Gutter, Depressed Curb and Gutter, Pedestrian Curb, or Sidewalk.
 7. The Curb Ramp maximum running slope shall not require the ramp length to exceed 15-feet to avoid chasing the slope indefinitely when connecting to steep grades. When applying the 15-foot maximum length, the running slope of the Curb Ramp shall as flat as feasible.
 8. Curb Ramp, Landing, and Flares shall receive broom finish. See Standard Specifications 8-14.

LEGEND
 SLOPE IN EITHER DIRECTION



STANDARD PLAN F-40.15.12
 WSDOT 6/20/13

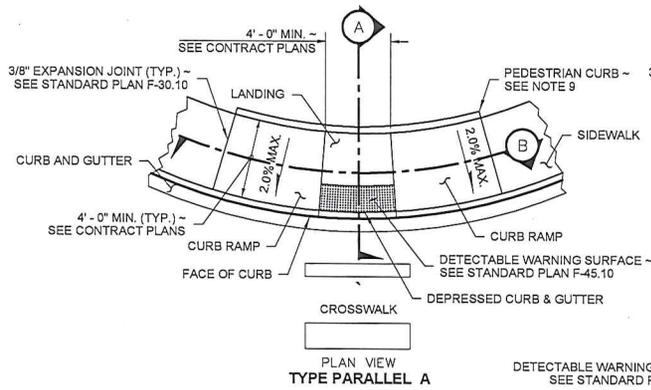


STREET
PERPENDICULAR CURB RAMP
 NOT TO SCALE

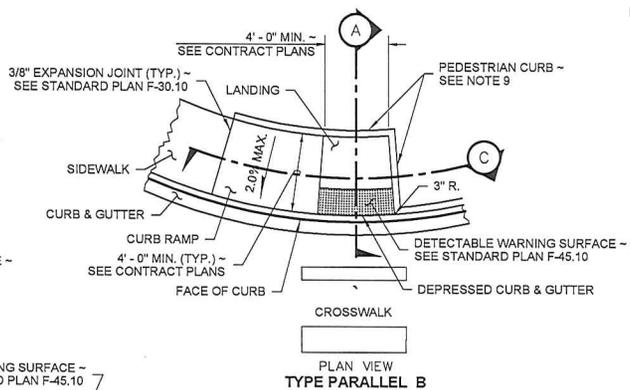
PUBLIC WORKS DEPARTMENT

PLAN NO.
STR - 7

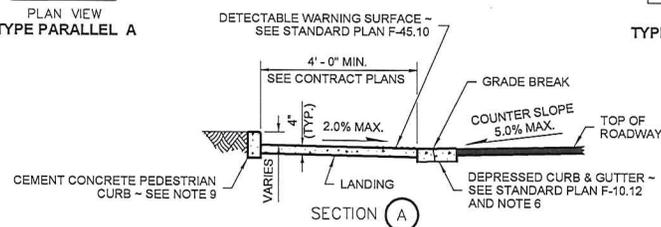
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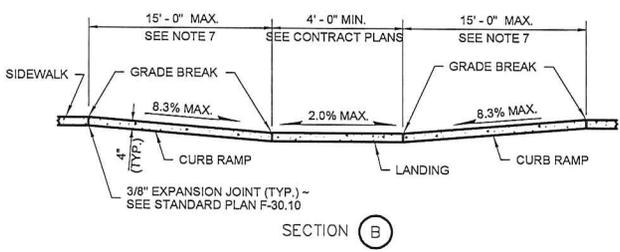
PLAN VIEW
TYPE PARALLEL A



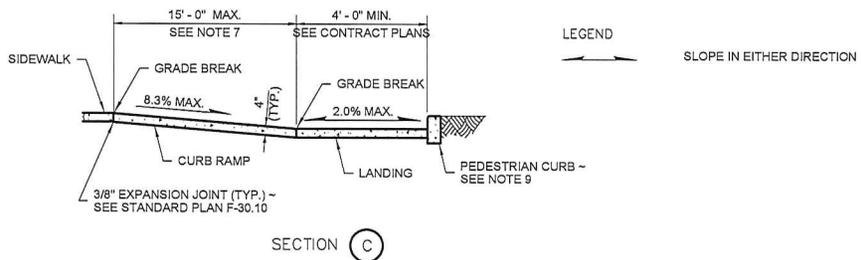
PLAN VIEW
TYPE PARALLEL B



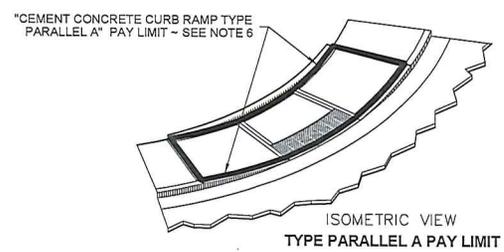
SECTION A



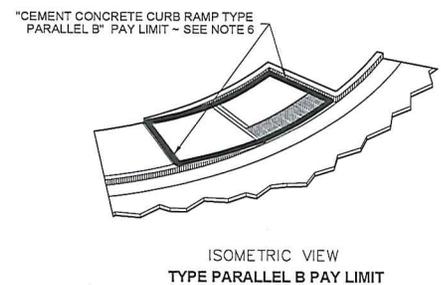
SECTION B



SECTION C



ISOMETRIC VIEW
TYPE PARALLEL A PAY LIMIT



ISOMETRIC VIEW
TYPE PARALLEL B PAY LIMIT

NOTES

1. Provide a separate Curb Ramp for each marked or unmarked crosswalk. Curb Ramp location shall be placed within the width of the associated crosswalk, or as shown in the Contract Plans.
2. Where "GRADE BREAK" is called out, the entire length of the grade break between the two adjacent surface planes shall be flush.
3. Do not place Gratings, Junction Boxes, Access Covers, or other appurtenances in front of the Curb Ramp or on any part of the Curb Ramp or Landing.
4. See Contract Plans for the curb design specified. See Standard Plan F-10.12 for Curb, Curb and Gutter, Depressed Curb and Gutter, and Pedestrian Curb details.
5. See Standard Plan F-30.10 for Cement Concrete Sidewalk Details. See Contract Plans for width and placement of sidewalk.
6. The Bid Item "Cement Concrete Curb Ramp Type ___" does not include the adjacent Curb, Curb and Gutter, Depressed Curb and Gutter, Pedestrian Curb, or Sidewalks.
7. The Curb Ramp maximum running slope shall not require the ramp length to exceed 15 feet to avoid chasing the slope indefinitely when connecting to steep grades. When applying the 15-foot max. length, the running slope of the curb ramp shall be as flat as feasible.
8. Curb Ramp, Landing, and Flares shall receive broom finish. See Standard Specifications 8-14.
9. Pedestrian Curb may be omitted if the ground surface at the back of the Curb Ramp and/or Landing will be at the same elevation as the Curb Ramp or Landing and there will be no material to retain.

STANDARD PLAN F-40.12-02
WSDOT 6/20/13



STREET
PARALLEL CURB RAMP
NOT TO SCALE
PUBLIC WORKS DEPARTMENT

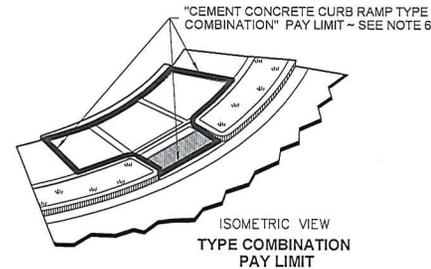
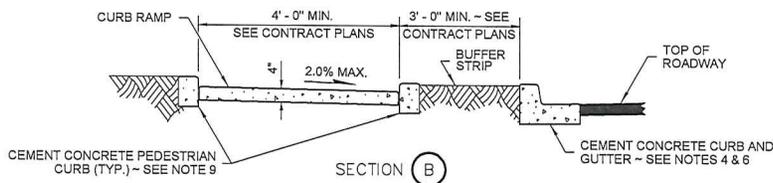
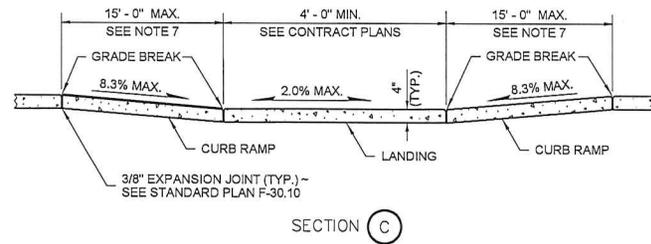
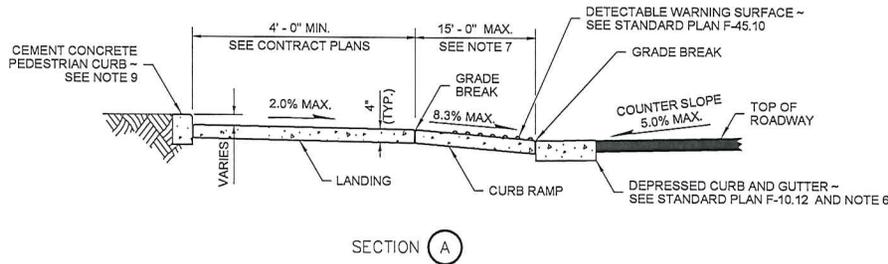
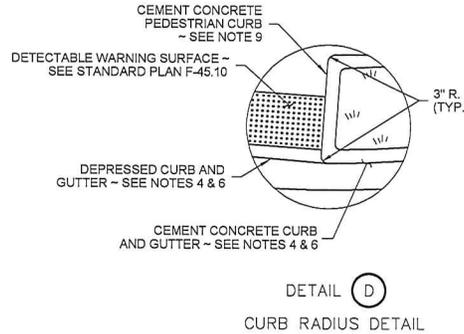
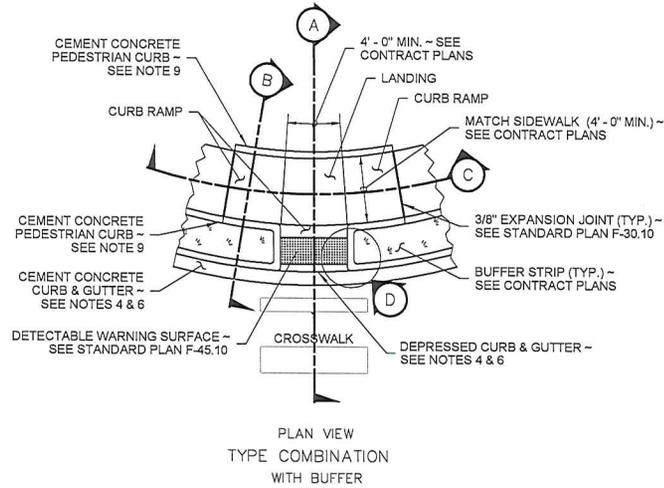
PLAN NO. STR - 8
REV. DATE: 9/20/2016

NOTES

1. Provide a separate Curb Ramp for each marked or unmarked crosswalk. Curb Ramp location shall be placed within the width of the associated crosswalk or as shown in the Contract Plans.
2. Where "GRADE BREAK" is called out, the entire length of the grade break between the two adjacent surface planes shall be flush.
3. Do not place Gratings, Junction Boxes, Access Covers, or other appurtenances in front of the Curb Ramp or on any part of the Curb Ramp or Landing.
4. See Contract Plans for the curb design specified. See Standard Plan F-10.12 for Curb, Curb and Gutter, Depressed Curb, Gutter and Pedestrian Curb details.
5. See Standard Plan F-30.10 for Cement Concrete Sidewalk Details. See Contract Plans for width and placement of sidewalk.
6. The Bid Item "Cement Concrete Curb Ramp Type ..." does not include the adjacent Curb, Curb and Gutter, Depressed Curb and Gutter, Pedestrian Curb, or Sidewalks.
7. The Curb Ramp maximum running slope shall not require the ramp length to exceed 15 feet to avoid chasing the slope indefinitely when connecting to steep grades. When applying the 15-foot max. length, the running slope of the Curb Ramp shall be as flat as feasible.
8. Curb Ramp, Landing and Flares shall receive broom finish. See Standard Specifications 8-14.
9. Pedestrian Curb may be omitted if the ground surface at the back of the Curb Ramp and/or Landing will be at the same elevation as the Curb Ramp or Landing and there will not be material to retain.

LEGEND

↔ SLOPE IN EITHER DIRECTION



STANDARD PLAN F-40.14-02
WSDOT 6/20/13

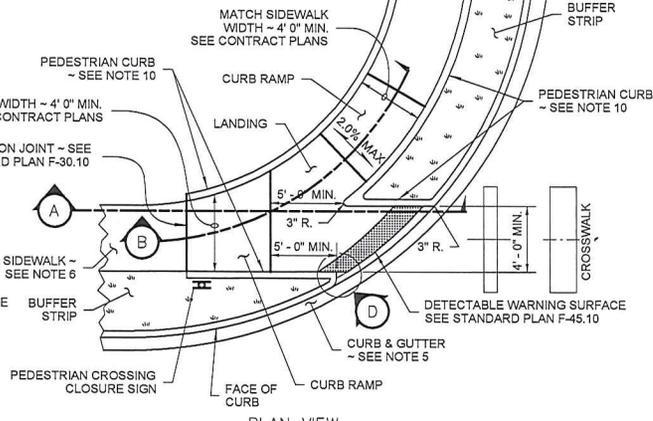
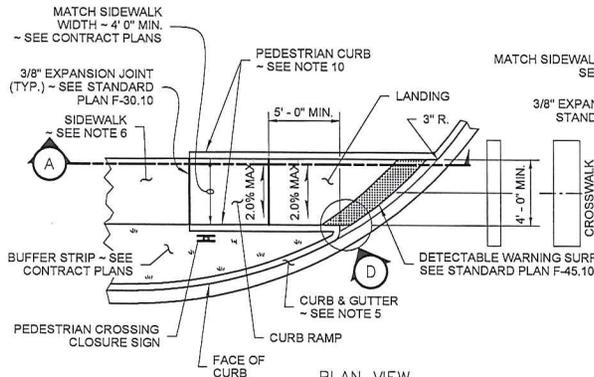


STREET
COMBINATION CURB RAMP
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

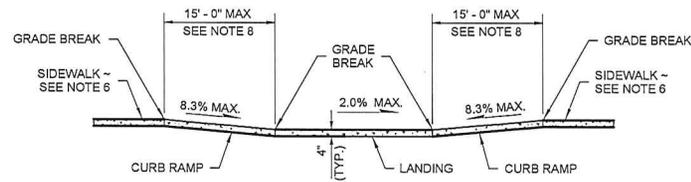
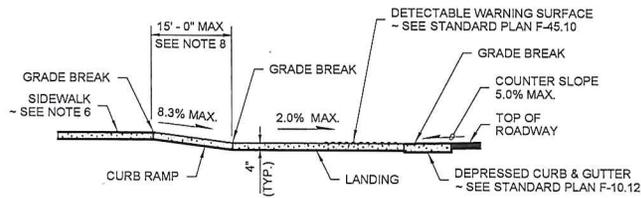
PLAN NO.
STR - 9

REV. DATE:
9/20/2016

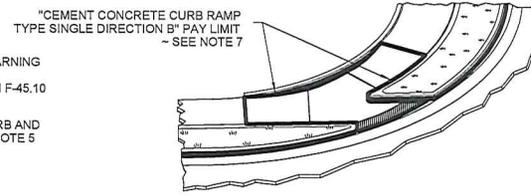
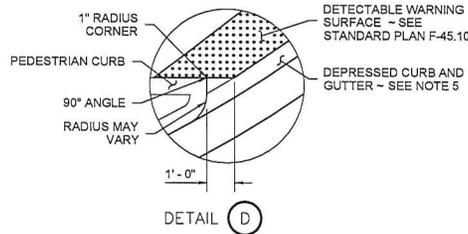
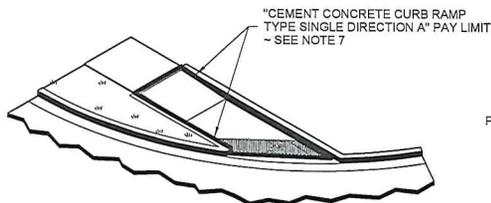


NOTES

1. This plan is to be used where pedestrian crossing in one direction is not permitted.
2. Curb ramp location shall be placed within the width of the associated crosswalk, or as shown in the Contract Plans.
3. Where "GRADE BREAK" is called out, the entire length of the grade break between the two adjacent surface planes shall be flush.
4. Do not place gratings, junction boxes, access covers or other appurtenances in front of the curb ramp or on any part of the curb ramp or landing.
5. See the Contract Documents for the curb design specified. See Standard Plan F-10.12 for Curb, Curb and Gutter, Depressed Curb and Gutter and Pedestrian Curb details.
6. See Standard Plan F-30.10 for Cement Concrete Sidewalk Details. See contract plans for width and placement of sidewalk.
7. The bid item "Cement Concrete Curb Ramp Type ..." does not include the adjacent Curb or (Curb and Gutter), Depressed Curb and Gutter, Pedestrian Curb or Sidewalk, or the pedestrian crossing closure sign.
8. The curb ramp maximum running slope shall not require the ramp length to exceed 15 feet to avoid chasing the slope indefinitely when connecting to steep grades. When applying the 15 foot maximum length, the running slope of the curb ramp shall be as flat as feasible.
9. Curb ramps and landings shall receive broom finish. See Standard Specifications 8-14.
10. Pedestrian Curb may be omitted if the ground surface at the back of the Curb Ramp and/or landing will be at the same elevation as the Curb Ramp or Landing and there will be no material to retain.



LEGEND
 SLOPE IN EITHER DIRECTION



STANDARD PLAN F-40.16-02
WSDOT 6/20/13

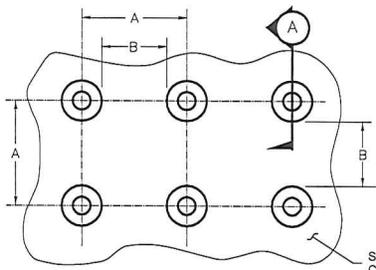


STREET
SINGLE DIRECTION RAMPS
NOT TO SCALE

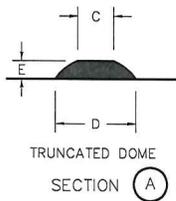
PUBLIC WORKS DEPARTMENT

PLAN NO.
STR - 10

REV. DATE:
9/20/2016



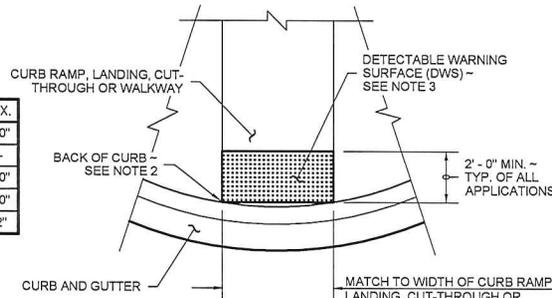
TRUNCATED DOME SPACING
SEE NOTE 3



TRUNCATED DOME DETAILS

	MIN.	MAX.
A	1.60"	2.40"
B	0.65"	—
C	0.45"	0.90"
D	0.9"	1.40"
E	0.2"	0.2"

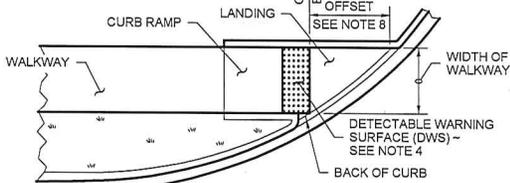
SEE STANDARD SPECIFICATIONS FOR COLOR OF SURFACE



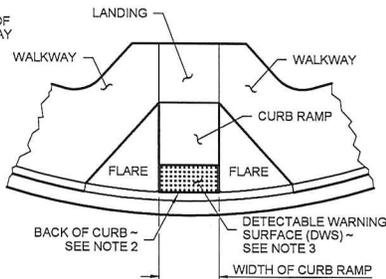
DETECTABLE WARNING SURFACE DETAIL

NOTES

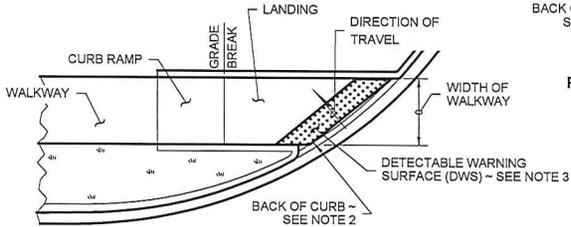
1. The Detectable Warning Surface (DWS) shall extend the full width of the curb ramp (exclusive of flares) or the landing.
2. The Detectable Warning Surface shall be placed at the back of curb, and need not follow the radius.
3. The rows of truncated domes shall be aligned to be perpendicular to the grade break at the back of curb.
4. The rows of truncated domes shall be aligned to be parallel to the direction of travel.
5. If curb and gutter are not present, such as a shared-use path connection, the Detectable Warning Surface shall be placed at the pavement edge.
6. See Standard Plans for sidewalk and curb ramp details.
7. If a curb ramp is required, the location of the Detectable Warning Surface must be at the bottom of the ramp and within the required distance from the rail.
8. When the grade break between the curb ramp and the landing is less than or equal to 5 ft. from the back of curb at all points, place the Detectable Warning Surface on the bottom of the curb ramp.



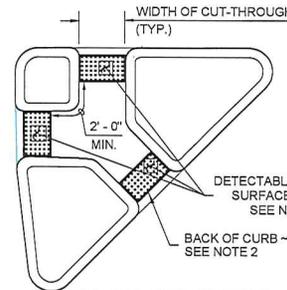
SINGLE DIRECTION CURB RAMP
(GRADE BREAK BETWEEN CURB AND LANDING ≤ 5 FT. FROM BACK OF CURB)
(SEE NOTE 6)



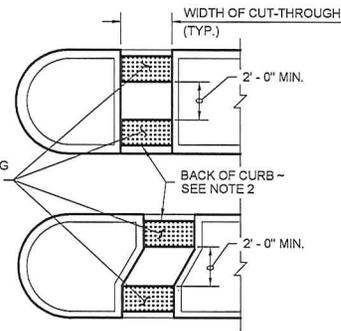
PERPENDICULAR CURB RAMP
(SEE NOTE 6)



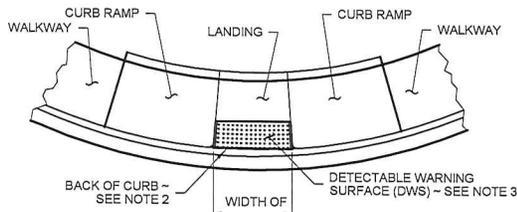
SINGLE DIRECTION CURB RAMP
(GRADE BREAK BETWEEN CURB AND LANDING > 5 FT. FROM BACK OF CURB)
(SEE NOTE 6)



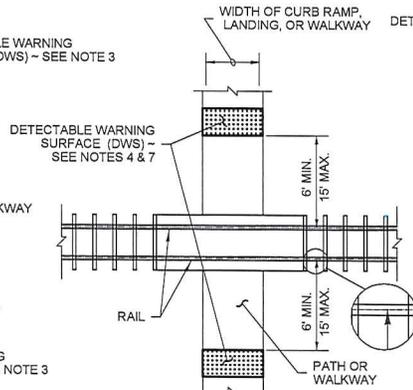
ISLAND CUT-THROUGH



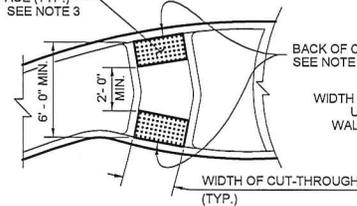
MEDIAN CUT-THROUGH



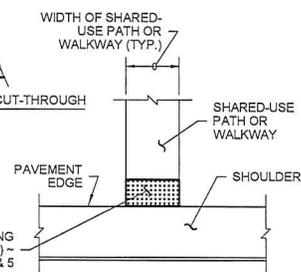
PARALLEL CURB RAMP
(SEE NOTE 6)



PEDESTRIAN RAILROAD CROSSING



ROUNDABOUT SPLITTER ISLAND



SHARED-USE PATH CONNECTION

PLACEMENT GUIDELINES

STANDARD PLAN F-45.10-01

WSDOT 6/20/13

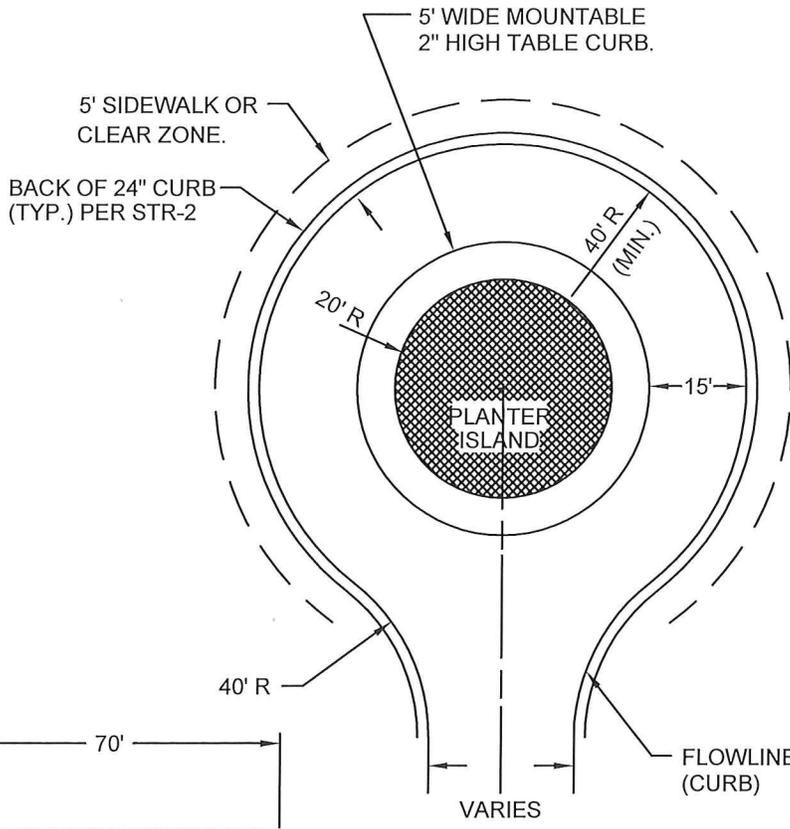


STREET
DETECTABLE WARNING SURFACE
NOT TO SCALE

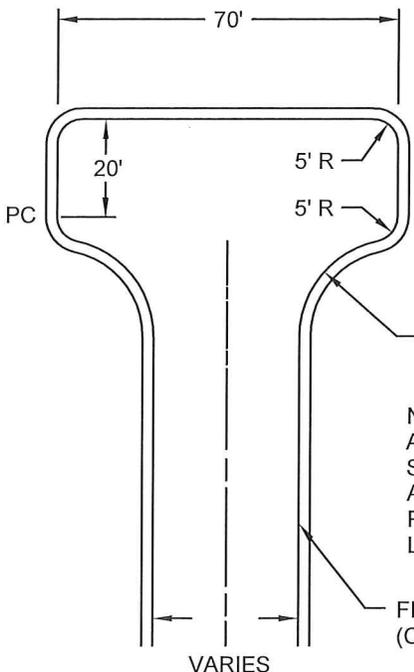
PUBLIC WORKS DEPARTMENT

PLAN NO.
STR - 11

REV. DATE:
9/21/2016



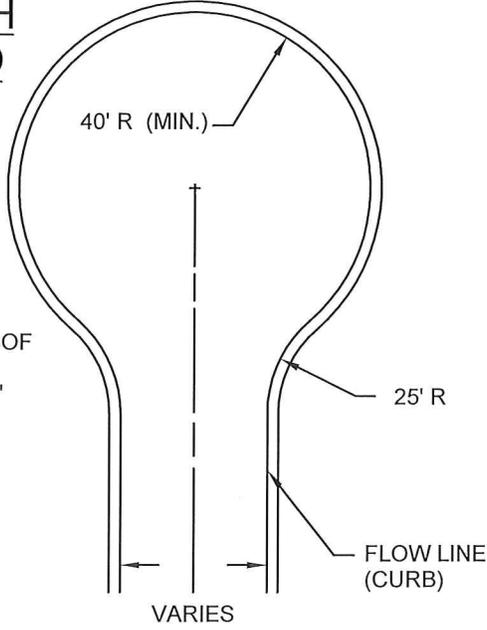
**CUL-DE-SAC WITH
PLANTER ISLAND**



HAMMER HEAD

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

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.

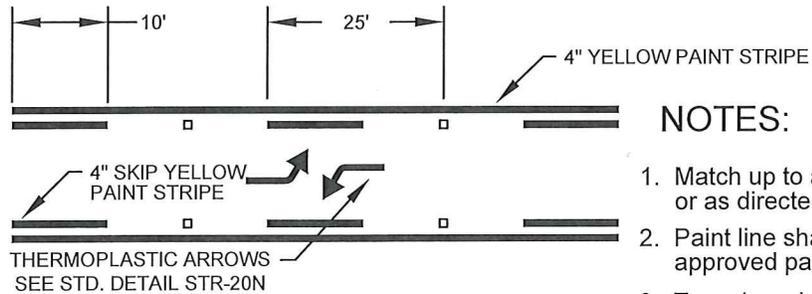
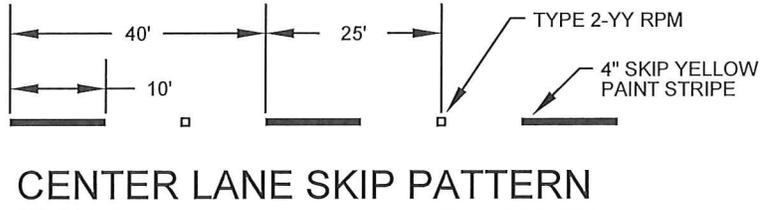
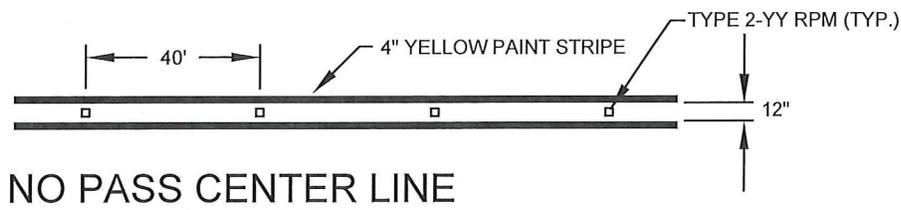
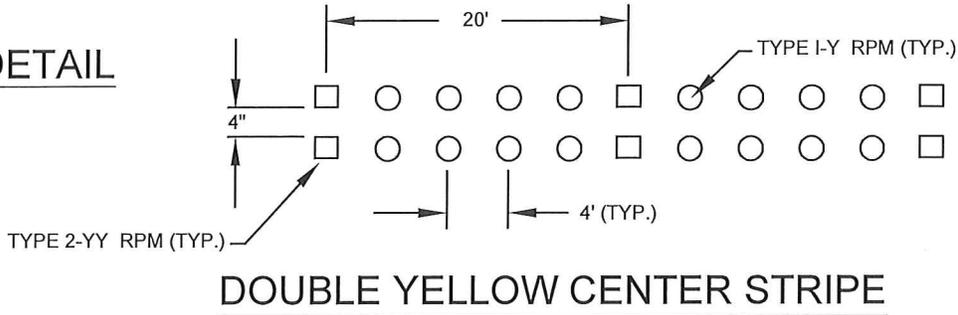
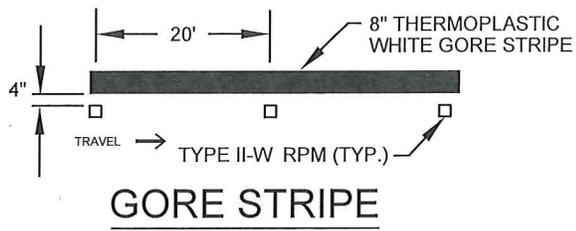
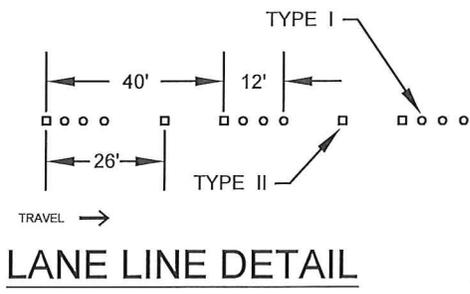


STANDARD CUL-DE-SAC



STREET
CUL-DE-SAC / HAMMER HEAD
NOT TO SCALE
PUBLIC WORKS DEPARTMENT

PLAN NO.
STR - 12
REV. DATE:
9/21/2016



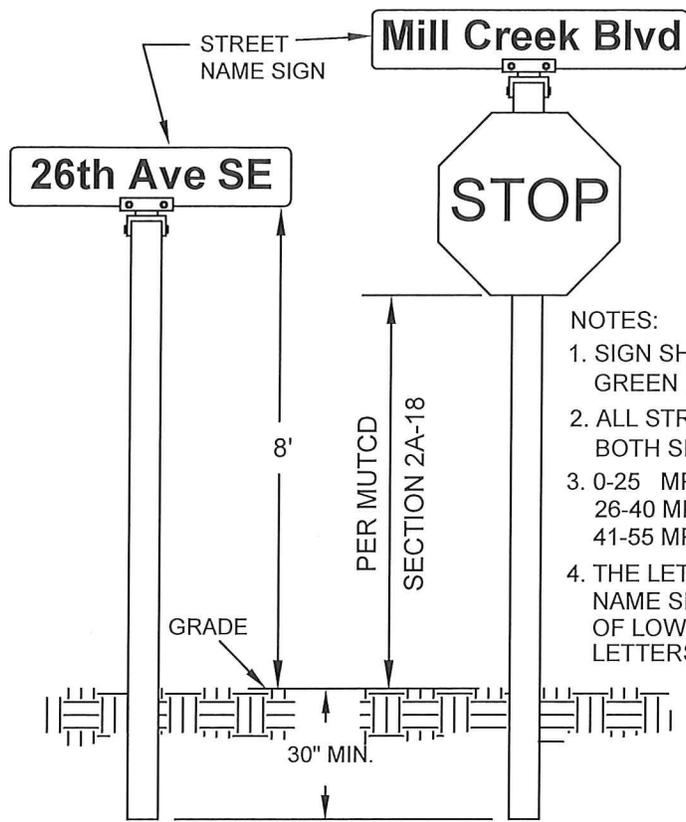
- NOTES:**
1. Match up to any existing pavement marking location or as directed by the City.
 2. Paint line shall be 4" wide and shall be WSDOT approved paint. Surface shall be glass bead finished.
 3. Type 1 marker shall be per WSDOT specifications.
 4. Type 2 markers shall be Type 2 round shoulder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



STREET
LANE MARKING DETAILS
 NOT TO SCALE
 PUBLIC WORKS DEPARTMENT

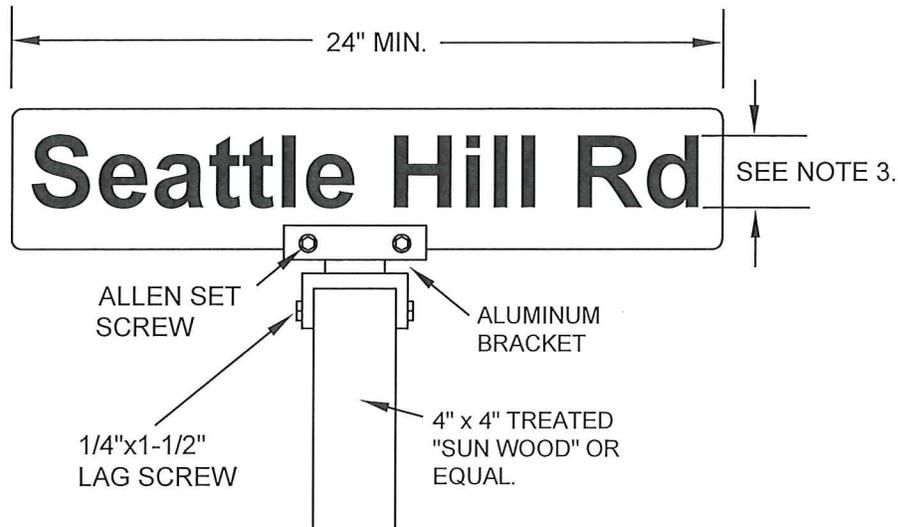
PLAN NO.
STR - 13

REV. DATE:
 9/21/2016



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 / 6" 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

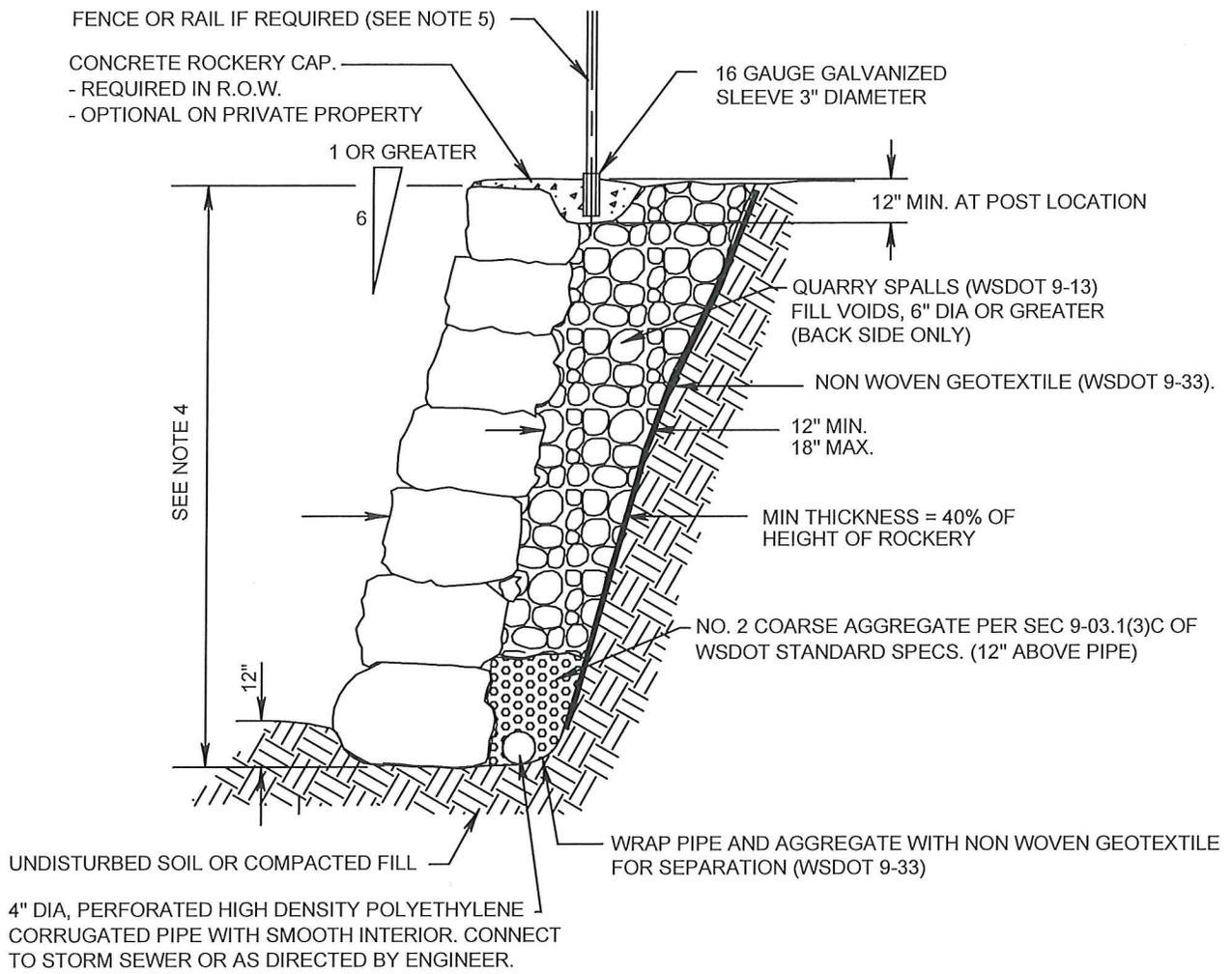


STREET
STREET NAME SIGNS
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
STR - 14

REV. DATE:
9/21/2016



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 LAID 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.

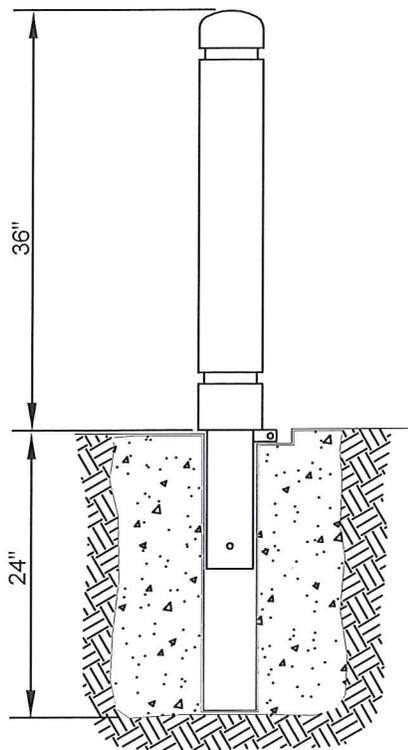


STREET
ROCKERY
NOT TO SCALE

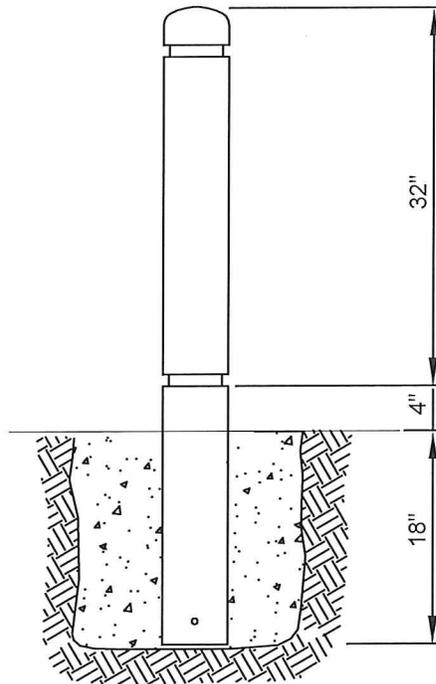
PUBLIC WORKS DEPARTMENT

PLAN NO.
STR - 15

REV. DATE:
9/21/2016



REMOVABLE
MOD. B4-5B2-R



FIXED
MOD. B4-5B2

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.



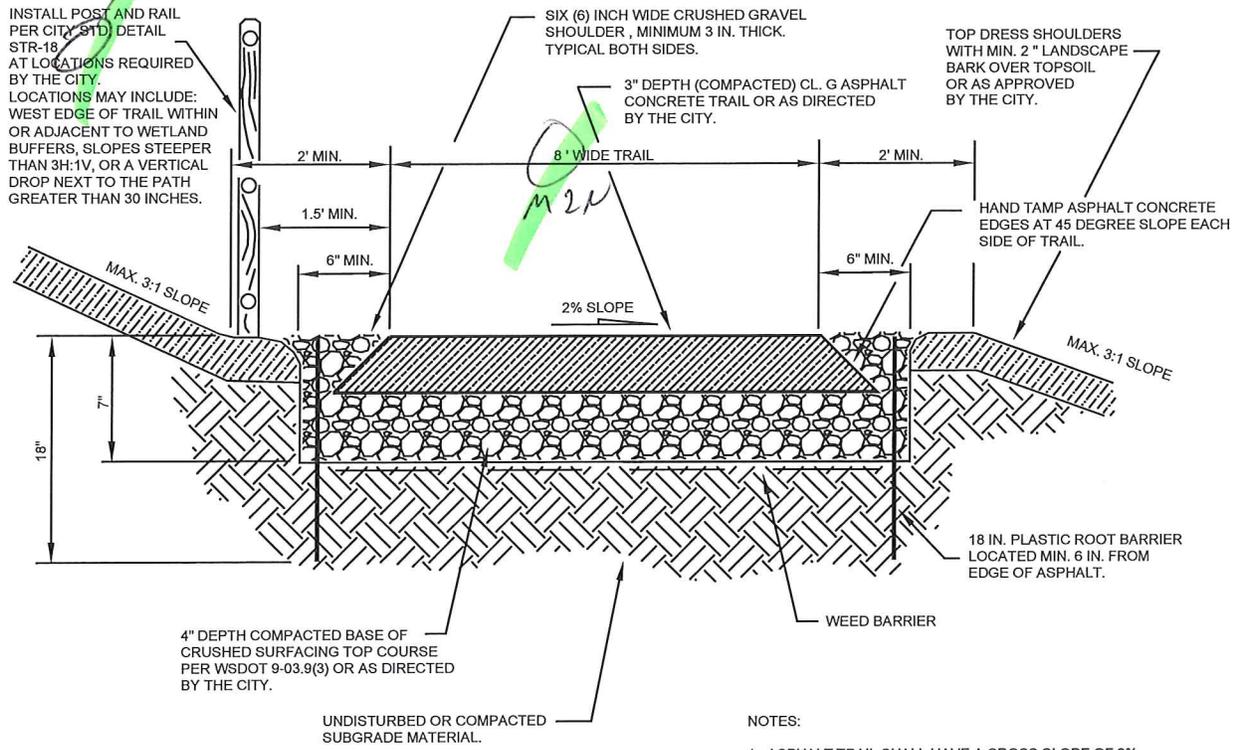
STREETS
BOLLARDS
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
STR - 16

REV. DATE:
9/21/2016

INSTALL POST AND RAIL PER CITY STD DETAIL STR-18 AT LOCATIONS REQUIRED BY THE CITY. LOCATIONS MAY INCLUDE: WEST EDGE OF TRAIL WITHIN OR ADJACENT TO WETLAND BUFFERS, SLOPES STEEPER THAN 3H:1V, OR A VERTICAL DROP NEXT TO THE PATH GREATER THAN 30 INCHES.



- 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. SE, WEST OF SR527, SOUTH OF McCOLLUM PARK, AND EAST OF NORTH CREEK.

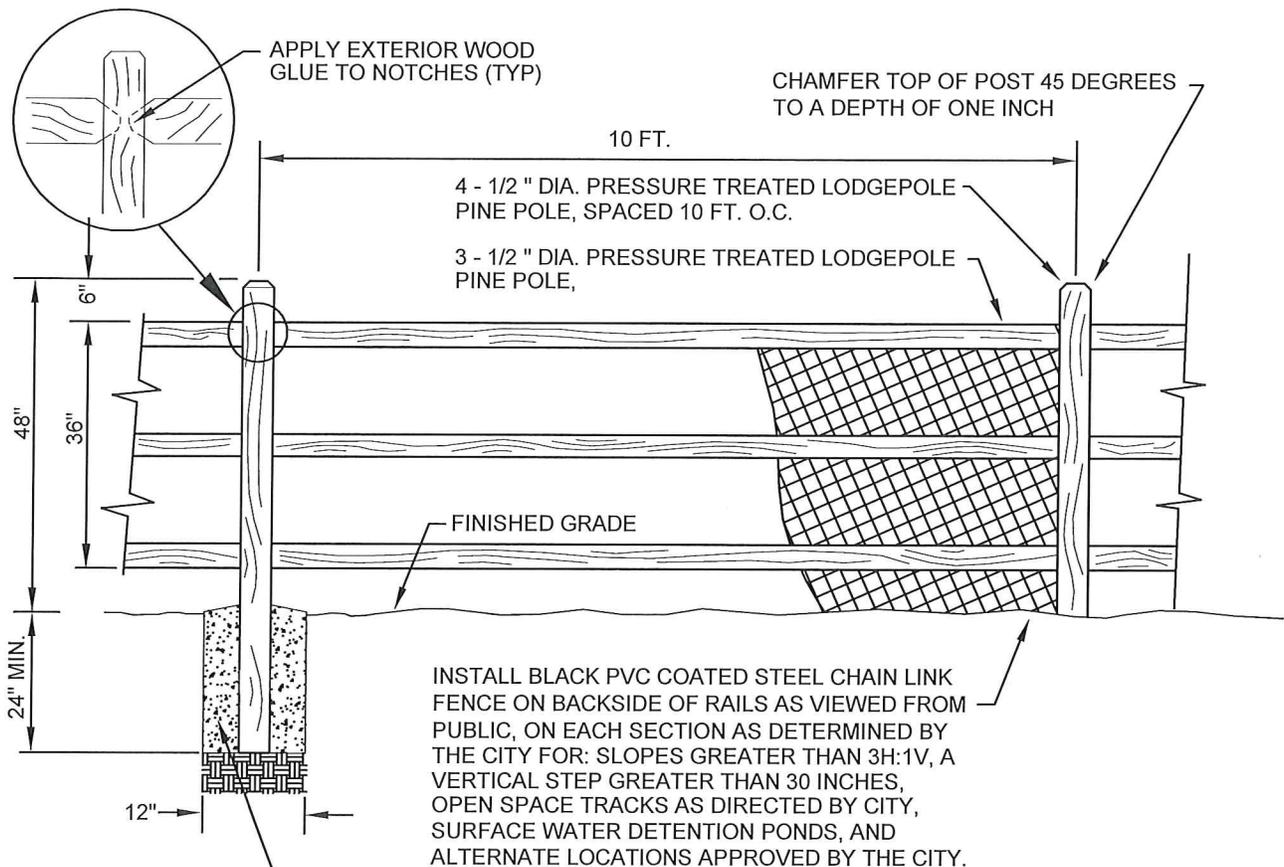


**STREETS
TRAIL**
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
STR-17

REV. DATE:
9/21/2016



12" DIA. CONC. FOOTING FOR POSTS; PITCH TO DRAIN (TYP). OPTIONAL USE OF GRAVEL TO HOLD POST IS ALLOWED AS APPROVED BY THE CITY.

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 16" 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 F668 OR APPROVED EQUAL.



STREET
POST AND RAIL FENCE
 NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
STR - 18

REV. DATE:
 9/21/2016

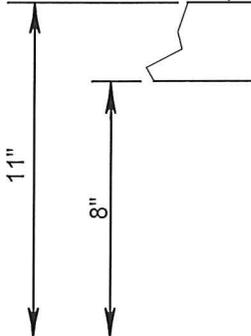
SEAL W/ AR4000
AND DRY SAND

EXISTING
STREET

24" ROUND ASPH. CONC. PATCH

10- 9/16" DIA.

2.5"-3"CL."G" ASPHALT



CEMENT CONCRETE
COLLAR

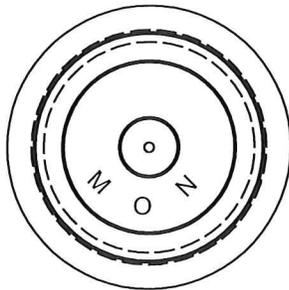
2" DIA. BRASS DISC
PUNCHED WITH SURVEY
LOCATION.

1/2 BRICK (3 NEEDED)

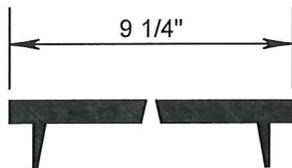
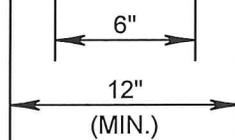
PRE-MANUFACTURED CONC.
MONUMENT

CDF OR CONCRETE

HOLE CAN BE AUGERED



PLAN



SECTION

GRAY IRON LID

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.



STREET
SURVEY CONTROL MONUMENT

NOT TO SCALE

PUBLIC WORKS DEPARTMENT

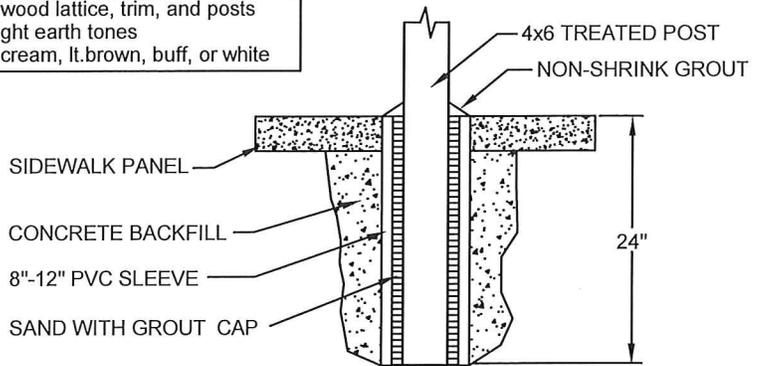
PLAN NO.
STR - 19

REV. DATE:
9/21/2016

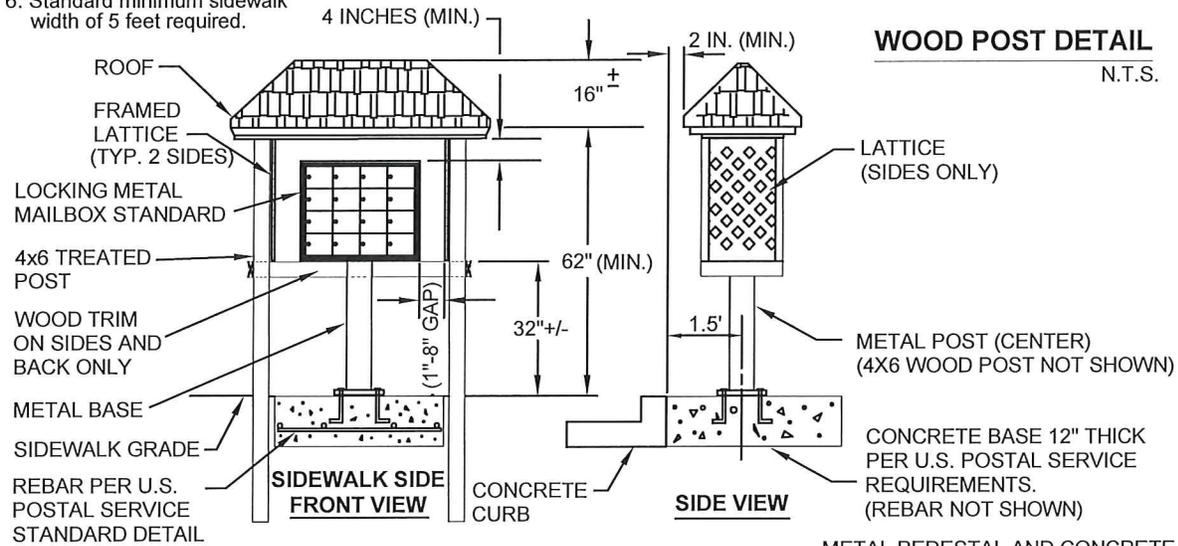
NOTES:

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, lt.brown, buff, or white



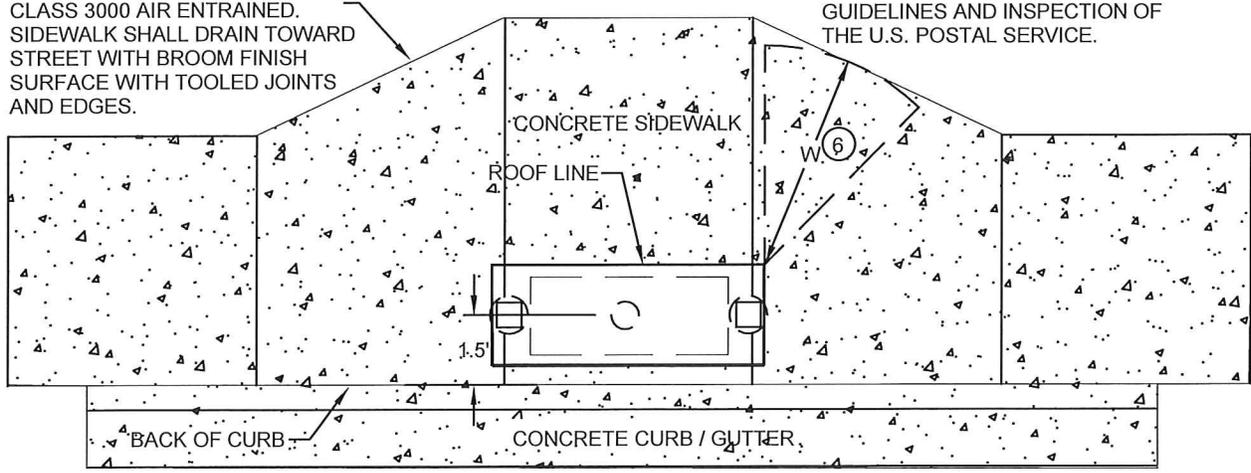
WOOD POST DETAIL
N.T.S.



STAND DETAIL

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

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



SIDEWALK DETAIL WITHOUT PLANTER STRIP



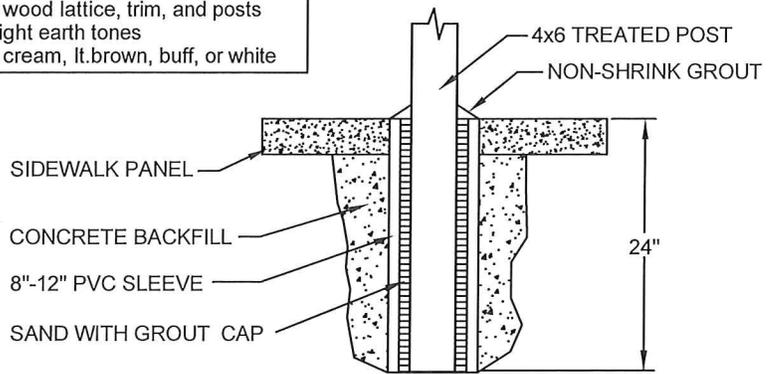
STREET
MAILBOX STAND IN SIDEWALK
NOT TO SCALE
PUBLIC WORKS DEPARTMENT

PLAN NO.
STR - 20
REV. DATE:
9/21/2016

NOTES:

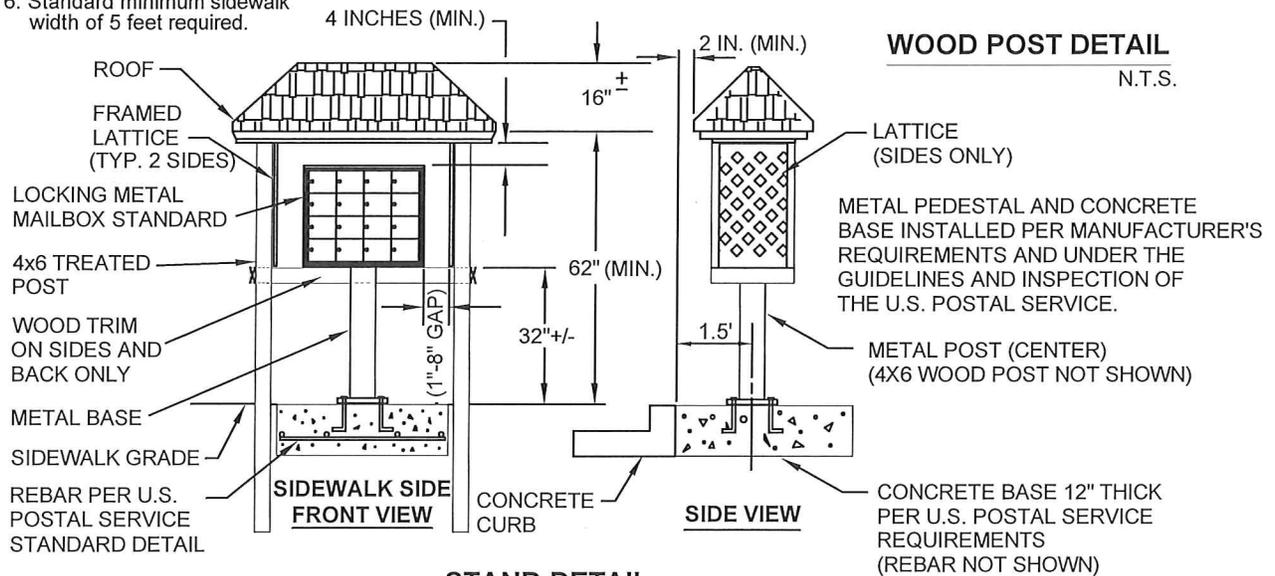
1. Mailbox shall be approved by the U.S. Postal Service.
2. All boxes shall be lock type.
3. Metal pedestal with metal base is required by the U.S. Postal Service. Do not cover pedestal or base with wood.
4. Structure design alterations only with the approval by the City.
5. Wood structure must not touch 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, lt.brown, buff, or white

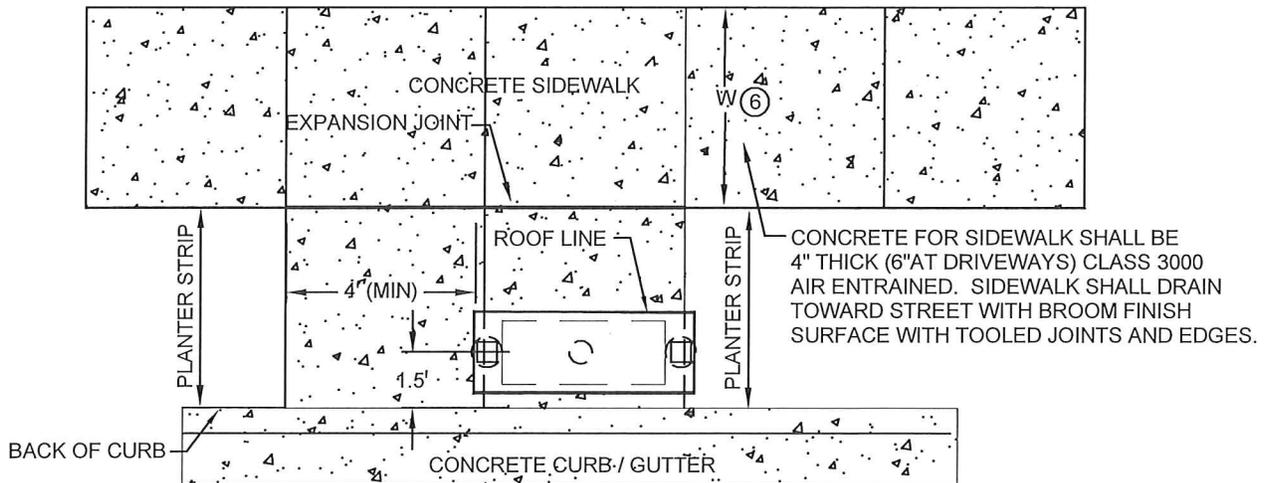


WOOD POST DETAIL

N.T.S.



STAND DETAIL



SIDEWALK DETAIL WITHOUT PLANTER STRIP



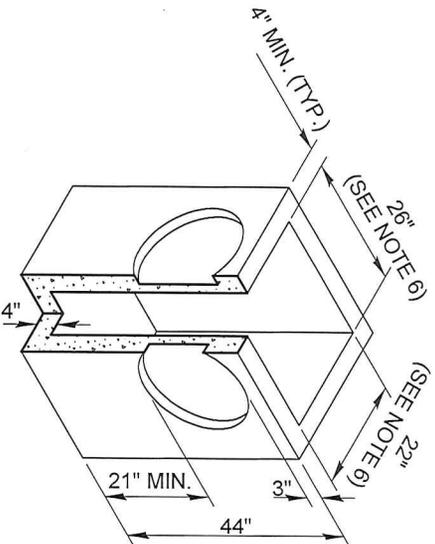
STREET
MAILBOX STAND IN PLANTER STRIP
 NOT TO SCALE

PUBLIC WORKS DEPARTMENT

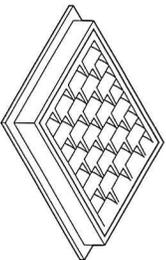
PLAN NO.
STR - 21

REV. DATE:
 9/21/2016

THIS DETAIL SUPPLEMENTS INFORMATION ON WSDOT STANDARD PLANS FOR CATCH BASIN TYPE 1 AND CONCRETE INLET.



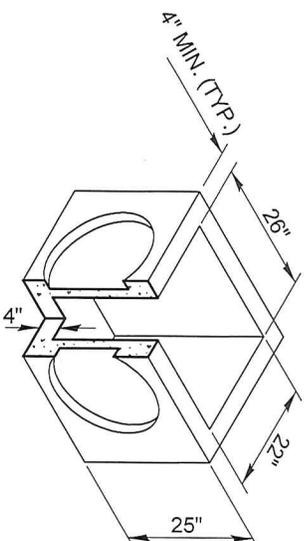
PRECAST BASE SECTION
REBAR NOT SHOWN FOR CLARITY.



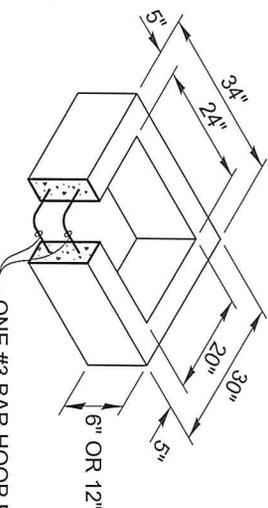
FRAME AND VANED GRATE

PIPE ALLOWANCES FOR : CATCH BASIN TYPE 1 and CONCRETE INLET.	
PIPE MATERIAL	MAXIMUM INSIDE DIAMETER
REINFORCED OR PLAIN CONCRETE	12"
ALL METAL PIPE	15"
CPSPP* (STD. SPEC. 9-05.20)	12"
SOLID WALL PVC (STD. SPEC. 9-05.12(1))	15"
PROFILE WALL PVC (STD. SPEC. 9-05.12(2))	15"

*CORRUGATED POLYETHYLENE
STORM SEWER PIPE.



CONCRETE INLET
REBAR NOT SHOWN FOR CLARITY.



6" or 12" CONCRETE RISER

NOTES

1. Base to be constructed and installed in accordance with WSDOT specifications (Section 7-05) for Catch Basin Type 1 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 5'.
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.

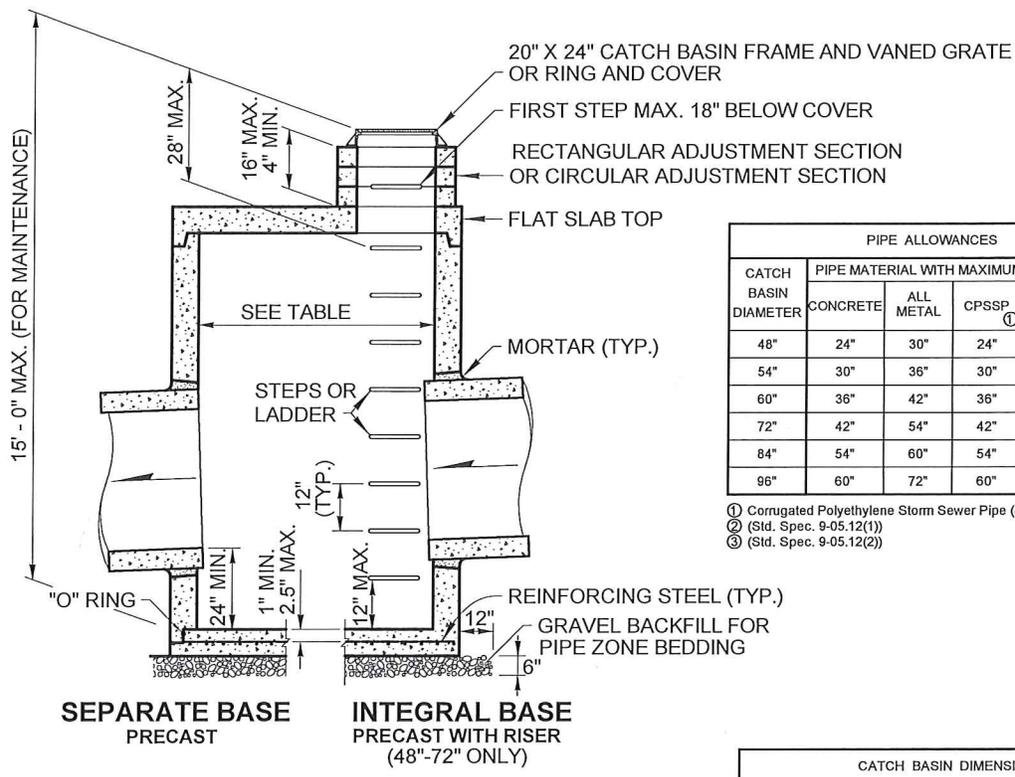


STORM WATER
CATCH BASIN TYPE 1 AND CONCRETE INLET
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
STM - 1

REV. DATE:
9/21/2016



CATCH BASIN DIAMETER	PIPE ALLOWANCES			
	PIPE MATERIAL WITH MAXIMUM INSIDE DIAMETER			
	CONCRETE	ALL METAL	CPSSP ①	PROFILE WALL PVC ③
48"	24"	30"	24"	30"
54"	30"	36"	30"	36"
60"	36"	42"	36"	42"
72"	42"	54"	42"	48"
84"	54"	60"	54"	48"
96"	60"	72"	60"	48"

① Corrugated Polyethylene Storm Sewer Pipe (Std. Spec. 9-05.20)
 ② (Std. Spec. 9-05.12(1))
 ③ (Std. Spec. 9-05.12(2))

CATCH BASIN DIMENSIONS				
CATCH BASIN DIAMETER	WALL THICKNESS	BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS
48"	4"	6"	36"	8"
54"	4.5"	8"	42"	8"
60"	5"	8"	48"	8"
72"	6"	8"	60"	12"
84"	8"	12"	72"	12"
96"	8"	12"	84"	12"

NOTES

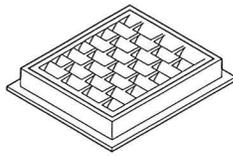
1. No steps are required when height is 4' or less.
2. The bottom of the precast catch basin may be sloped to facilitate cleaning.
3. The rectangular frame and grate may be installed with the flange up or down. The frame may be cast into the adjustment section.
4. Knockouts shall have a wall thickness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



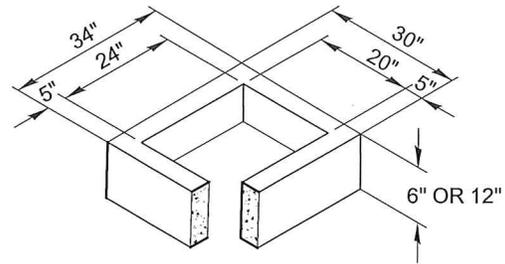
STORM WATER
CATCH BASIN TYPE 2
 NOT TO SCALE
PUBLIC WORKS DEPARTMENT

PLAN NO.
STM - 2

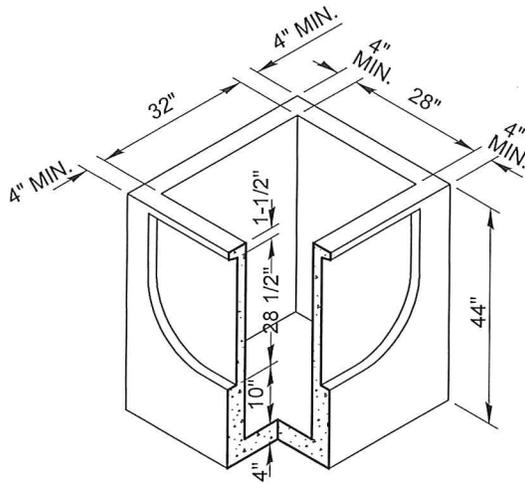
REV. DATE:
9/21/2016



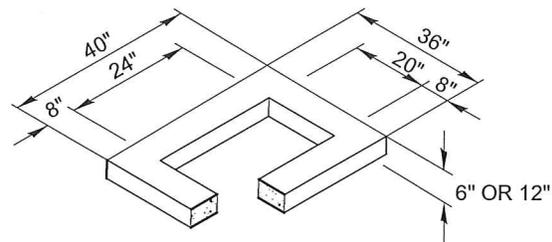
**FRAME AND
VANED GRATE**
GRATE SIZE 20" X 24"



RISER SECTION



PRECAST BASE SECTION
MEASUREMENT AT THE TOP OF THE BASE



6" REDUCING SECTION

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 28". 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 5'-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.

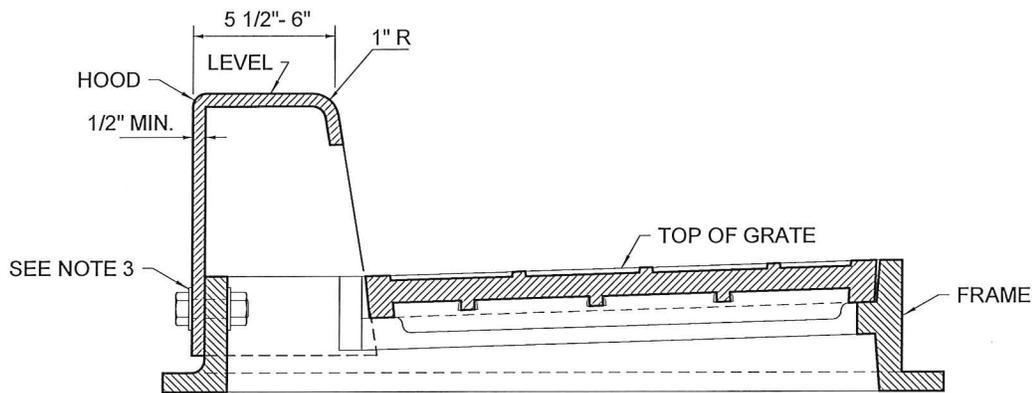


SURFACE WATER
CATCH BASIN TYPE 1-L
NOT TO SCALE

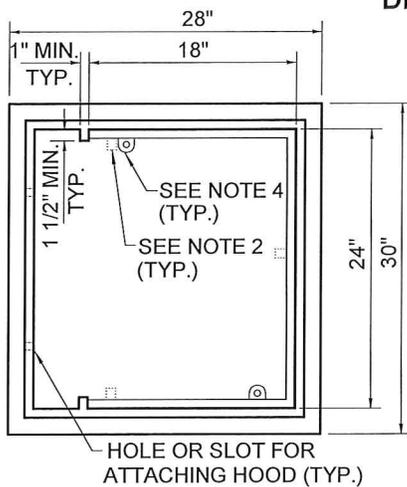
PUBLIC WORKS DEPARTMENT

PLAN NO.
STM - 3

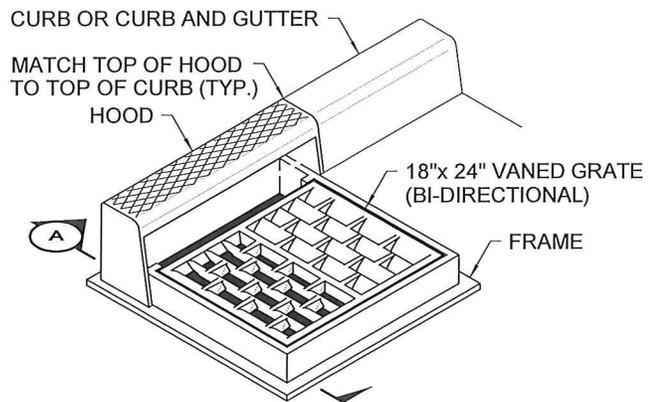
REV. DATE:
9/21/2016



DETAIL SECTION (A)



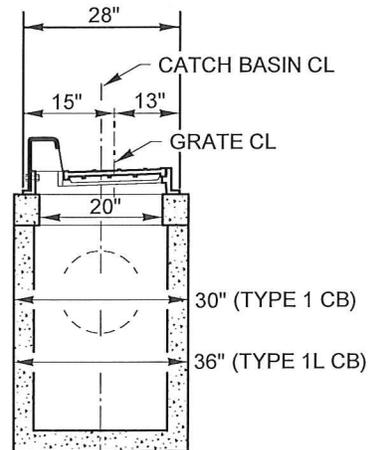
**TOP VIEW
FRAME DETAIL**



ISOMETRIC VIEW

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. Refer to Standard Specification 9-05.15(2) for additional requirements.
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 Foundry Item No. SM52VG) or approved equal.



SECTION (A)

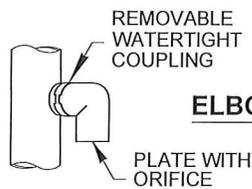


**STORM WATER
THROUGH CURB INLET
NOT TO SCALE**

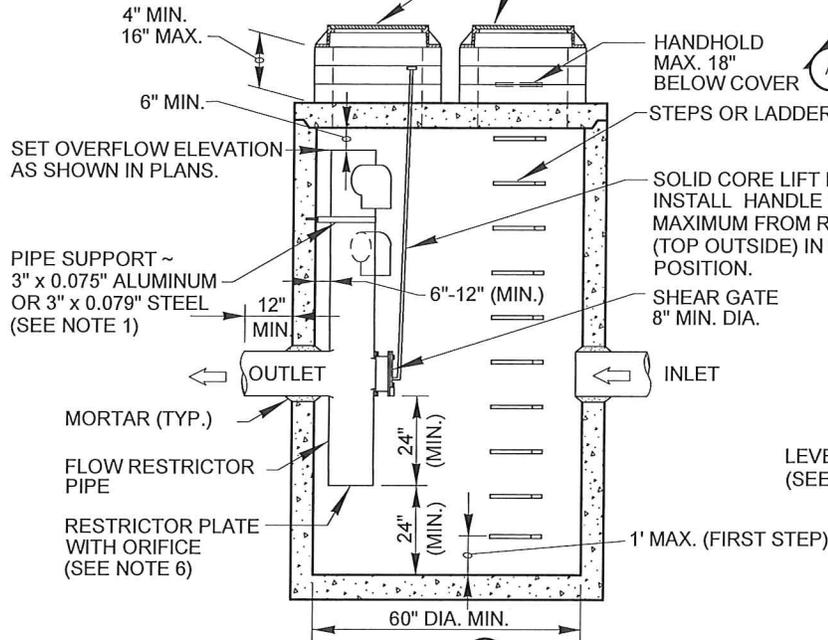
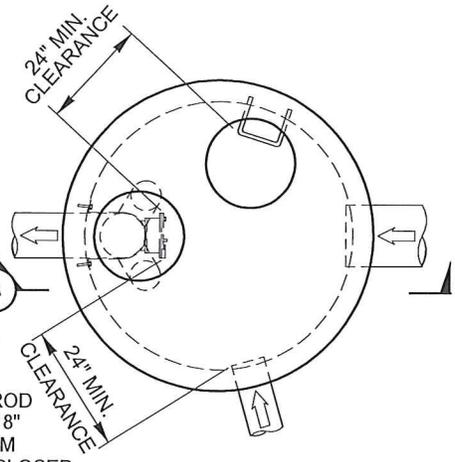
PUBLIC WORKS DEPARTMENT

**PLAN NO.
STM - 4**

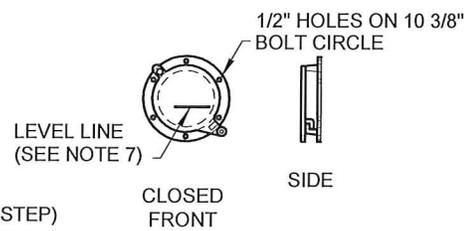
**REV. DATE:
9/21/2016**



PROVIDE TWO 24" ROUND RING AND COVER WITH LOCKING BOLTS, MARKED "DRAIN"

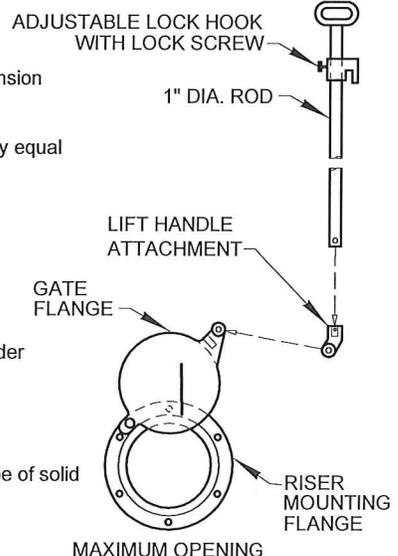


PLAN VIEW



NOTES

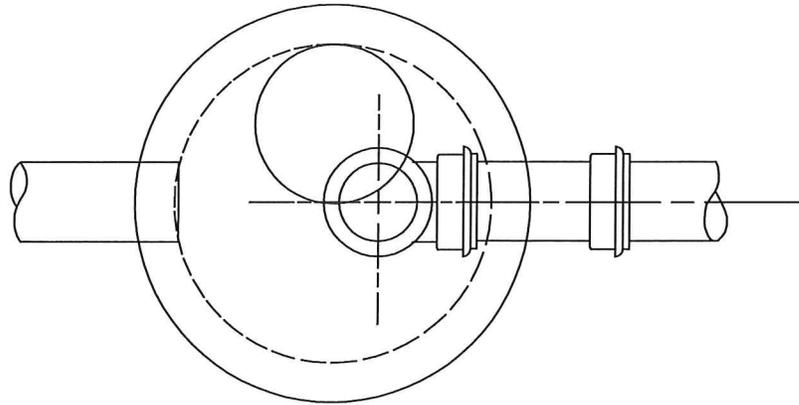
- The pipe supports and the flow restrictor shall be constructed of the same material and be anchored at a maximum spacing of 36". Attach the pipe supports to the manhole with 5/8" stainless steel expansion bolts or embed the supports into the manhole wall 2".
- The vertical riser stem of the flow restrictor 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.
- 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 Aluminized Steel Drain Pipe
- 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.
- 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.
- Restrictor plate with orifice as specified in the plans. The opening shall be cut round and smooth.
- 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. The mating surfaces of the lid and the body shall be machined for proper fit.
- All shear gate bolts shall be stainless steel.
- 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.



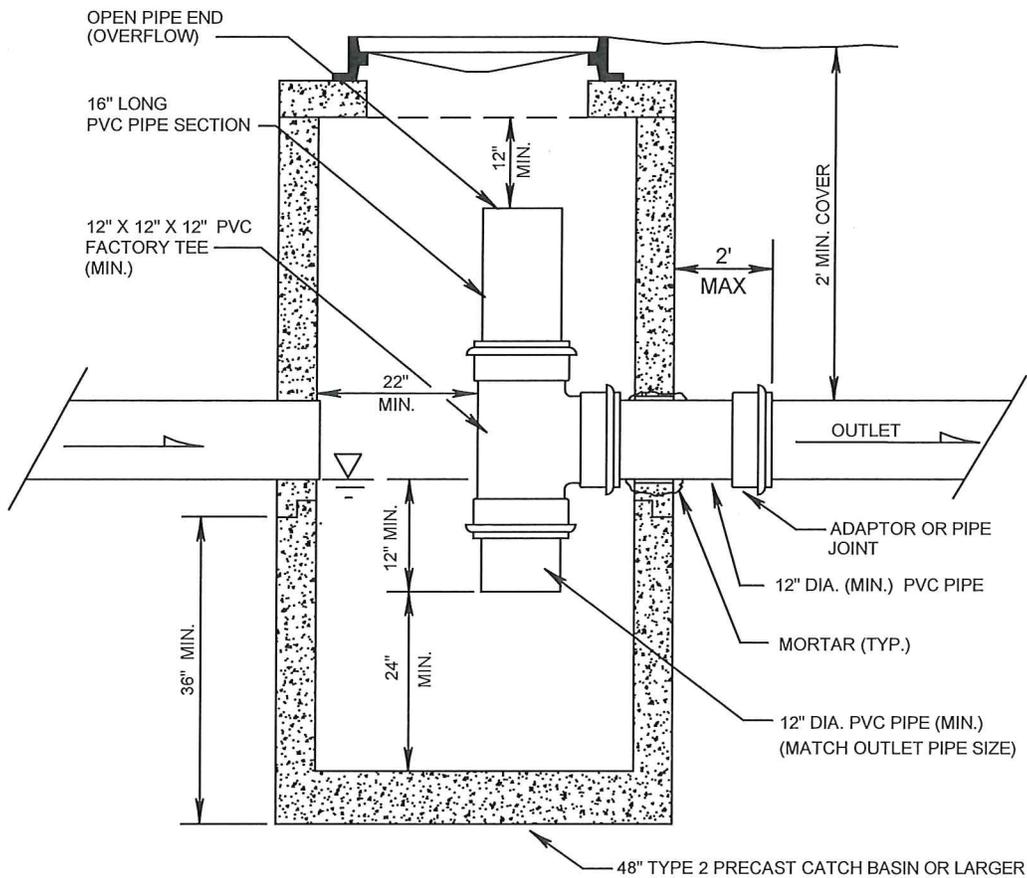
STORM WATER
FLOW CONTROL STRUCTURE
NOT TO SCALE
PUBLIC WORKS DEPARTMENT

PLAN NO.
STM - 5

REV. DATE:
4/7/2016



PLAN VIEW



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.

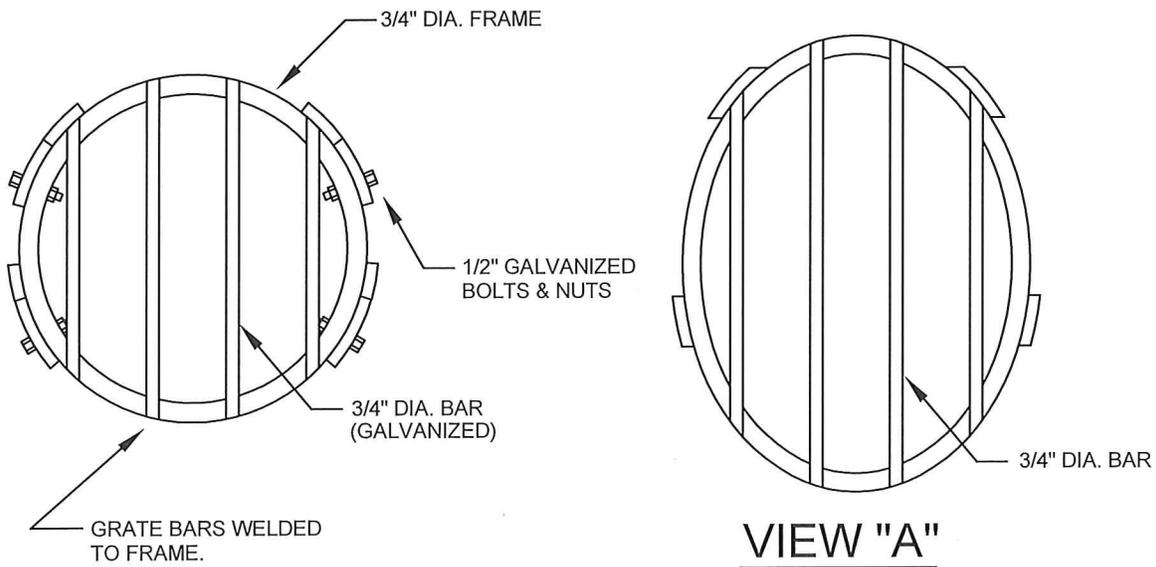
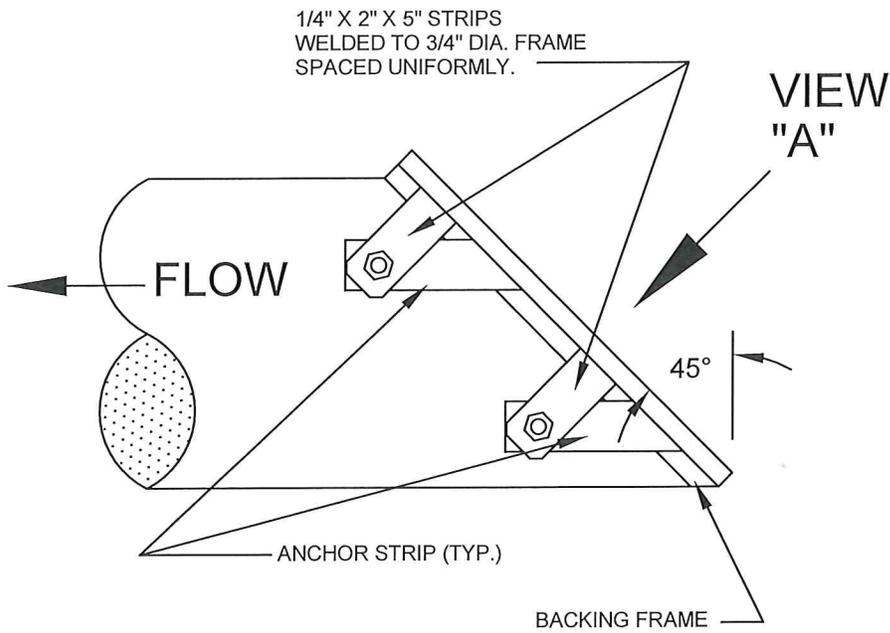


**STORM WATER
SPILL CONTROL SEPARATOR
NOT TO SCALE**

PUBLIC WORKS DEPARTMENT

**PLAN NO.
STM - 6**

**REV. DATE:
9/21/2016**



END VIEW

VIEW "A"

NOTES:

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.

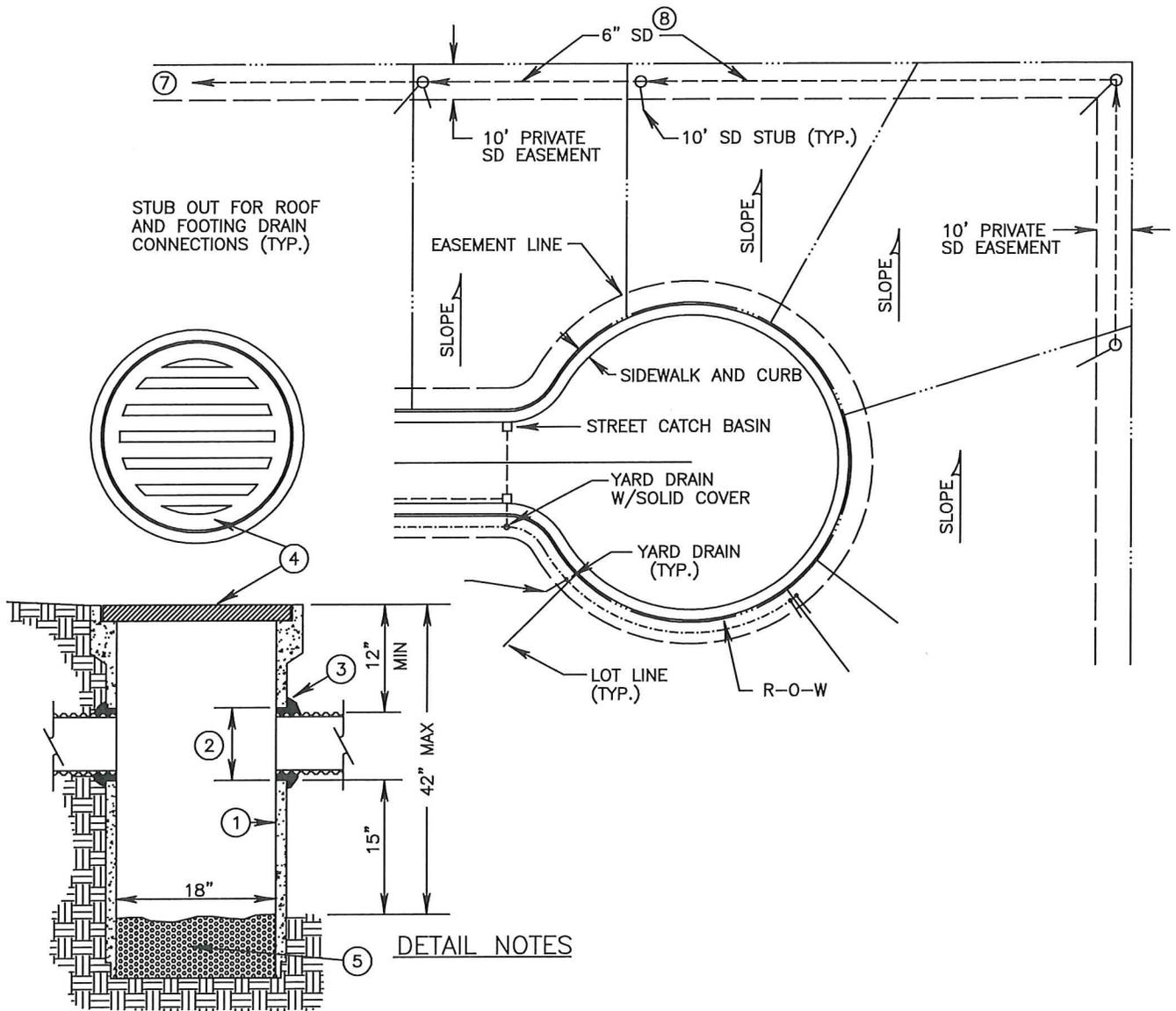


STORM WATER
DEBRIS BARRIER
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
STM - 7

REV. DATE:
9/21/2016



DETAIL NOTES

- 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 FOUNDARY 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).
- ⑦ CONNECT TO CITY OWNED AND MAINTAINED SD SYSTEM IN THE STREET.
- ⑧ IF SERVICE LINE SERVES MORE THAN 4 LOTS, INCREASE SIZE TO 8".

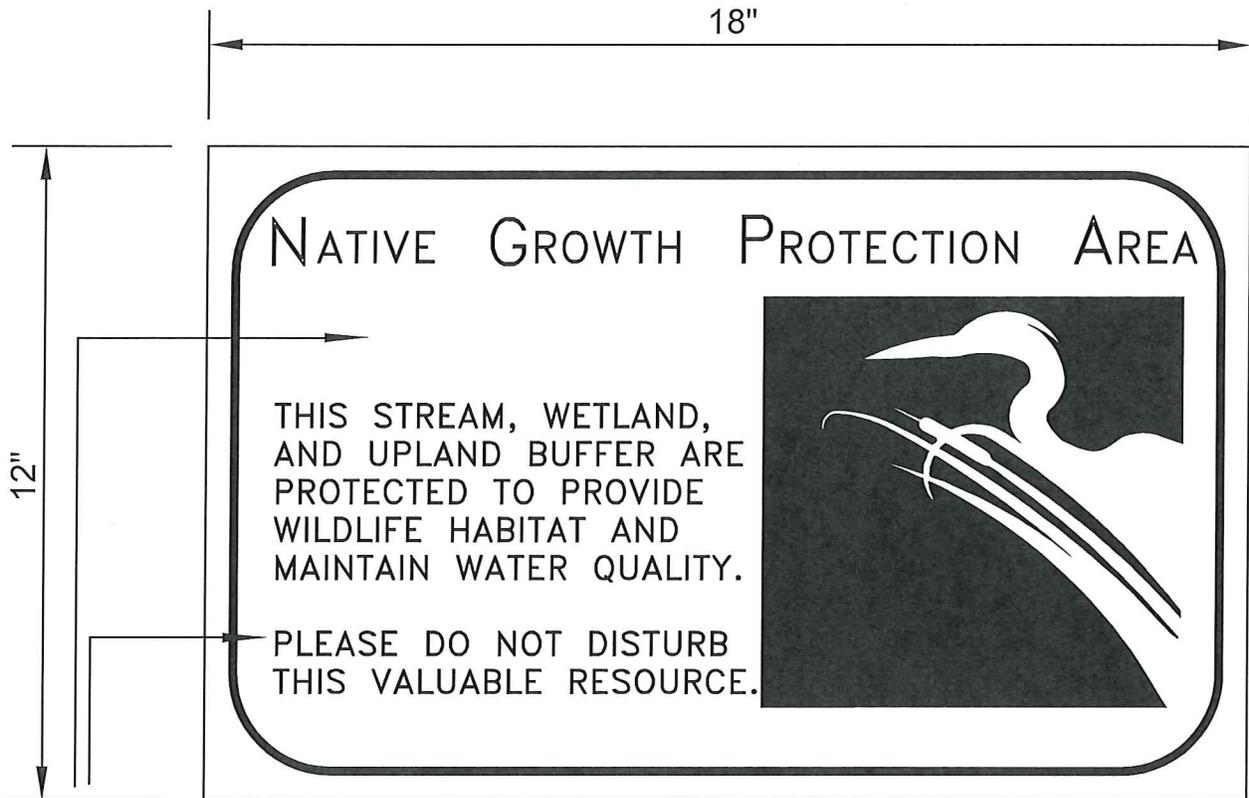


**STORM WATER
YARD DRAIN
NOT TO SCALE**

PUBLIC WORKS DEPARTMENT

**PLAN NO.
STM - 8**

**REV. DATE:
9/21/2016**



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



STORM WATER
NATIVE GROWTH PROTECTION SIGN
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

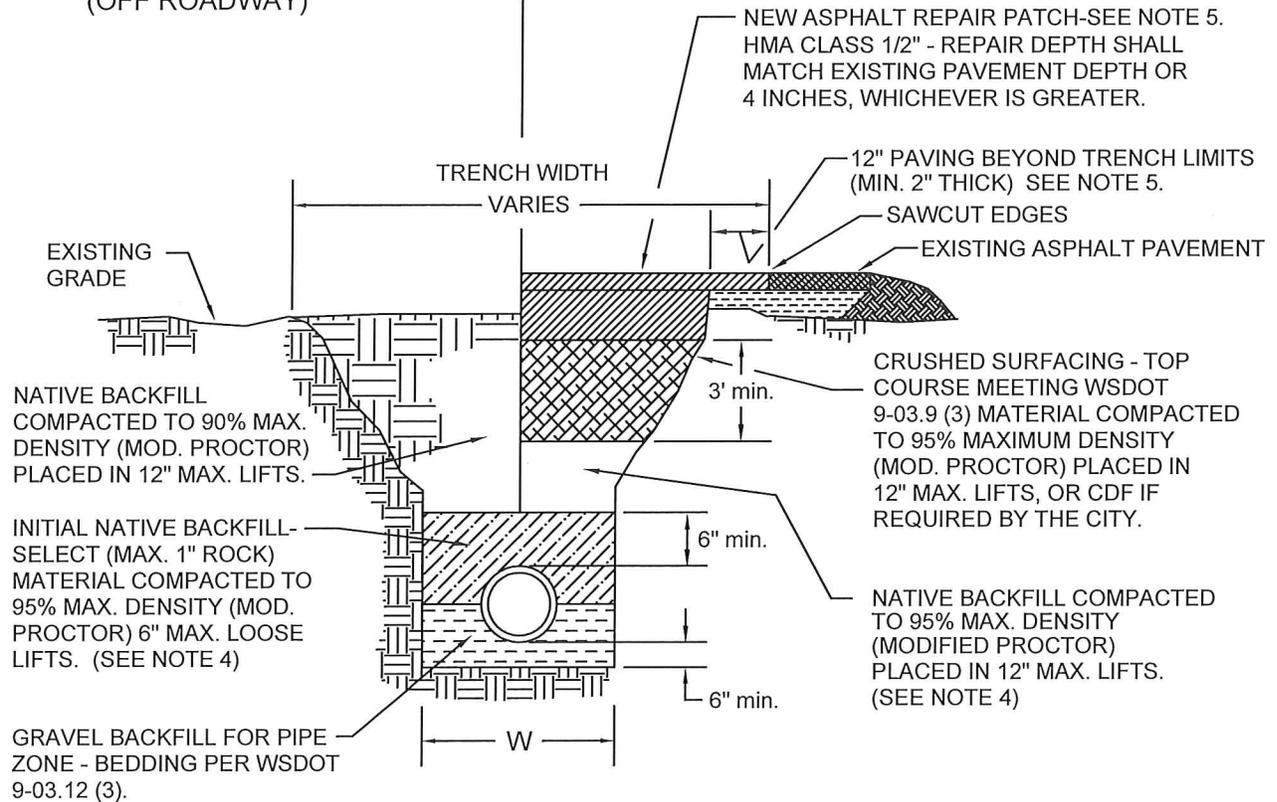
PLAN NO.
STM - 9

REV. DATE:
9/21/2016

TRENCH IN UNPAVED AREA

(OFF ROADWAY)

TRENCH IN PAVED AREA



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

NOTES:

1. EXISTING ASPHALT PAVEMENT MUST BE SAWCUT 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.

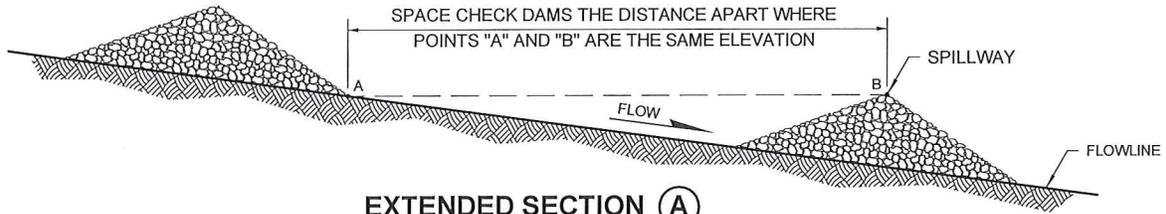


STORM WATER
TYPICAL TRENCH DETAIL
 NOT TO SCALE

PUBLIC WORKS DEPARTMENT

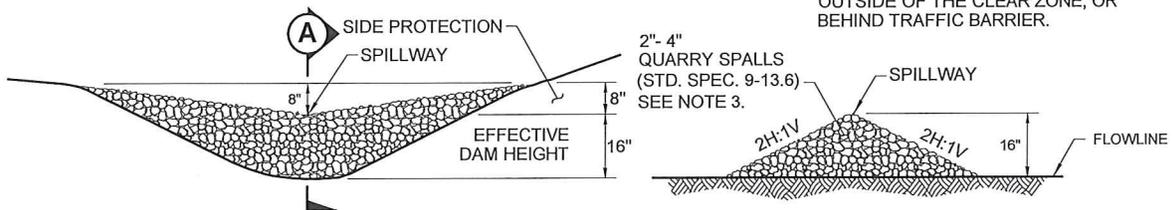
PLAN NO.
STM - 10

REV. DATE:
 9/21/2016



EXTENDED SECTION (A)

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

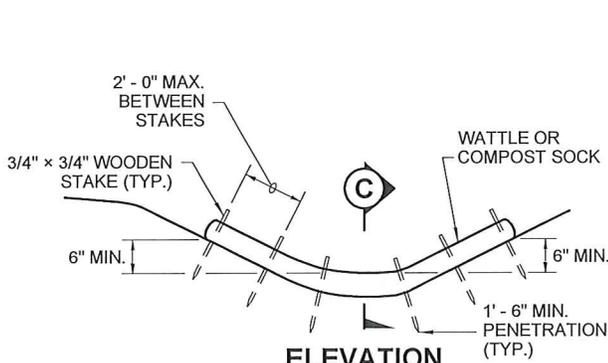


ELEVATION

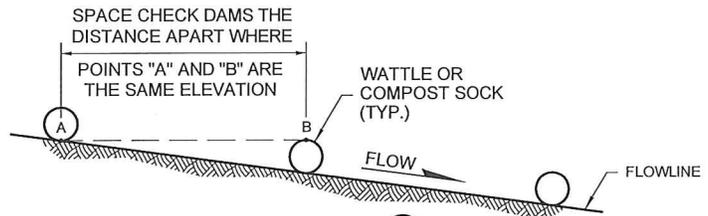
SECTION (A)

ROCK CHECK DAM

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



**WATTLE OR COMPOST SOCK
CHECK DAM**



EXTENDED SECTION (C)

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.

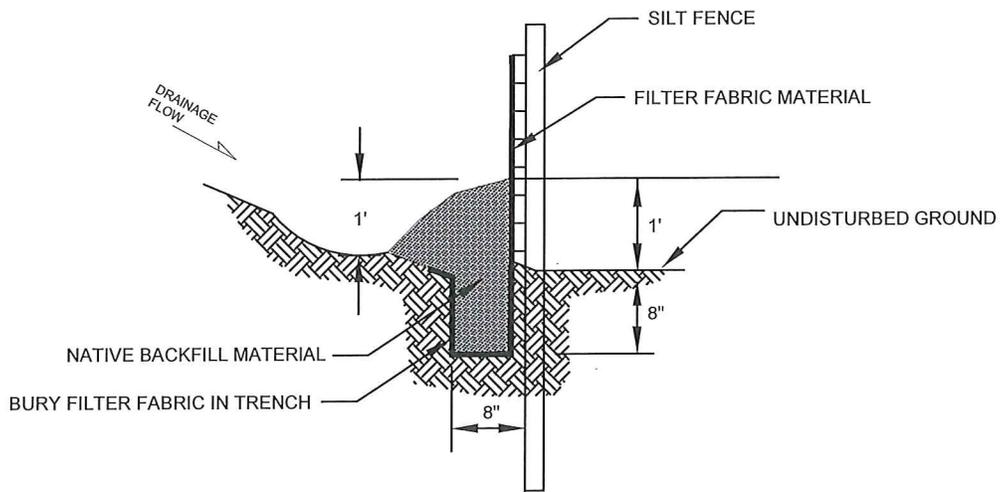


EROSION CONTROL
CHECK DAM
NOT TO SCALE

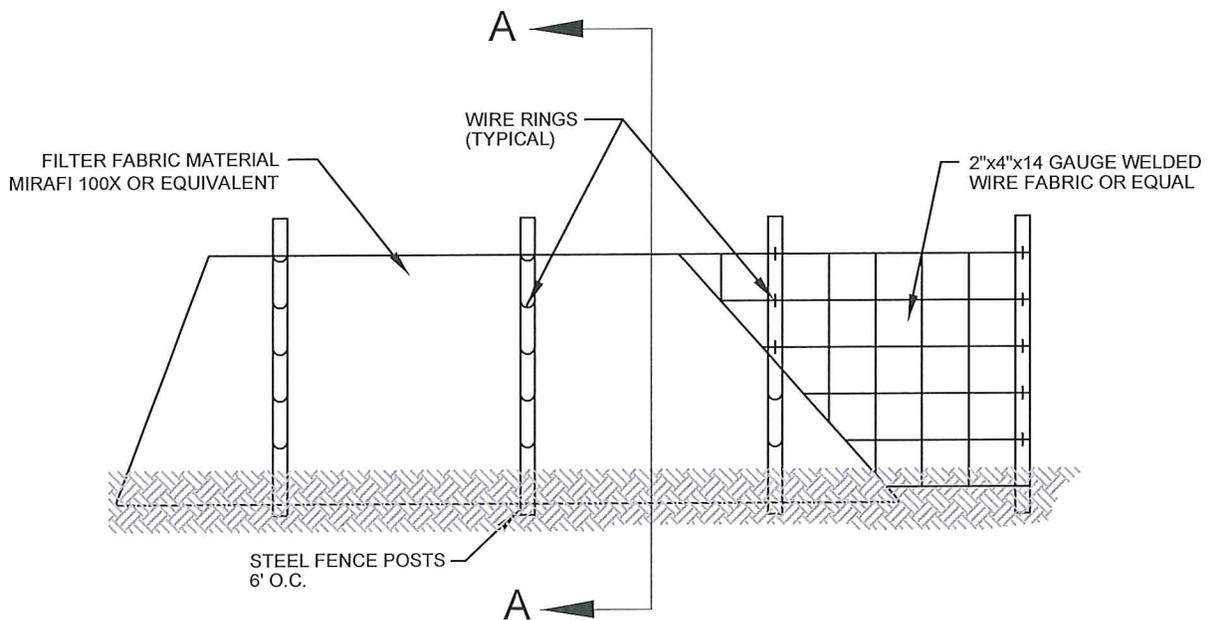
PUBLIC WORKS DEPARTMENT

PLAN NO.
ESC - 1

REV. DATE:
9/21/2016



SECTION A-A



ELEVATION

NOTES:

1. INSTALL THE SILT FENCE FIRST. AFTER THE SILT FENCE HAS BEEN INSTALLED, DIG TRENCH, BURY FILTER FABRIC IN TRENCH AND FILL WITH NATIVE BACKFILL MATERIAL.
2. SILT FENCE BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.



**EROSION CONTROL
SILT FENCE
NOT TO SCALE**

PUBLIC WORKS DEPARTMENT

**PLAN NO.
ESC - 2**

**REV. DATE:
9/22/2016**

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

ROAD

EP

NOTES:

1. 4" TO 8" QUARRY SPALLS AS SPECIFIED IN SECTION 9-13.6 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. ALTERNATE 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 MAY BE REQUIRED BY CITY ENGINEER.

20'
SEE NOTE 2

20" MIN

PROVIDE FULL WIDTH OF INGRESS/EGRESS AREA

ORANGE BARRIER FENCE TO DIRECT TRAFFIC ONTO CONSTRUCTION ENTRANCE

4" TO 8" QUARRY SPALLS AS SPECIFIED FROM THE WSDOT STANDARD SPECIFICATIONS

PLAN



EROSION CONTROL
GRAVEL CONSTRUCTION ENTRANCE
NOT TO SCALE

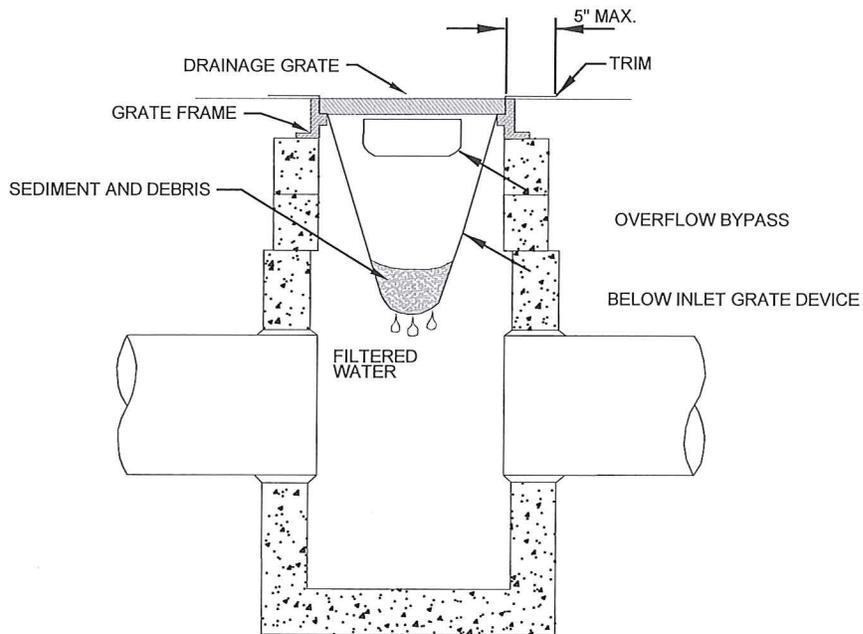
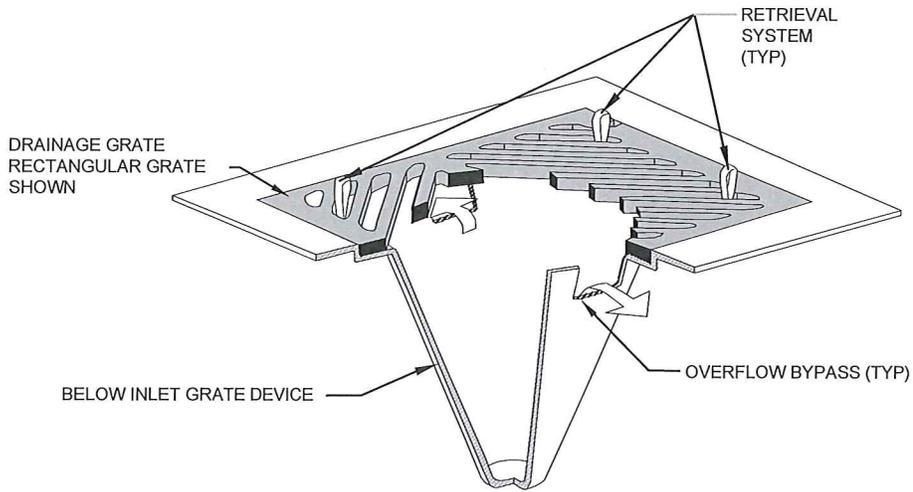
PUBLIC WORKS DEPARTMENT

PLAN NO.
ESC- 3

REV. DATE:
9/22/2016

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 8-01.3(15).



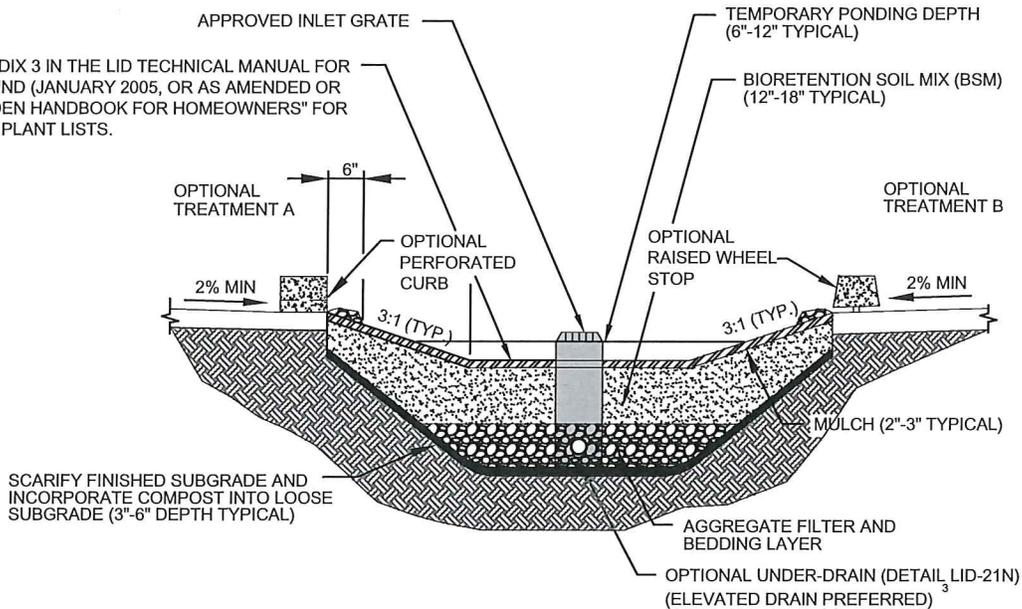
EROSION CONTROL
CATCH BASIN INLET PROTECTION
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
ESC- 4

REV. DATE:
9/22/2016

SEE APPENDIX 3 IN THE LID TECHNICAL MANUAL FOR PUGET SOUND (JANUARY 2005, OR AS AMENDED OR "RAIN GARDEN HANDBOOK FOR HOMEOWNERS" FOR APPROVED PLANT LISTS.



WHEEL STOP NOTES:

1. HORIZONTAL SHELF 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. BOTTOM SLOPE LESS THAN 8%. INSTALL CHECK DAMS OR WEIRS FOR SLOPES GREATER THAN 2%.
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. DO NOT LOCATE IMMEDIATELY UPSLOPE OF BUILDING STRUCTURES.
7. AREA AND DEPTH OF FACILITY 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.

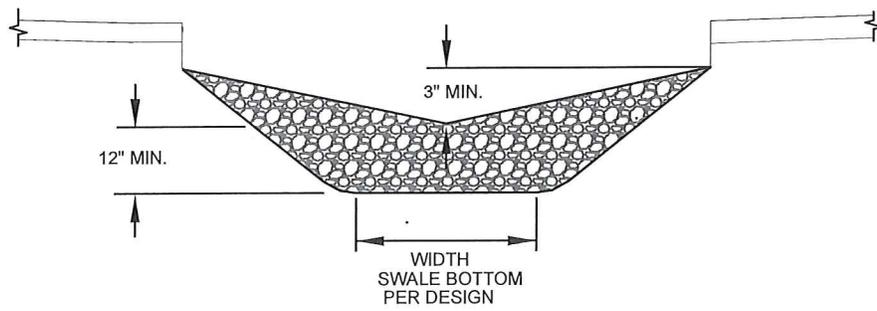


LOW IMPACT DEVELOPMENT
BIORETENTION FACILITY/ RAIN GARDEN
NOT TO SCALE

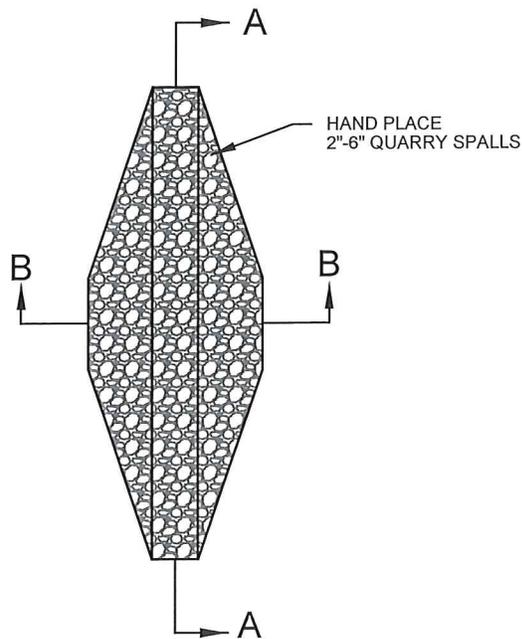
PUBLIC WORKS DEPARTMENT

PLAN NO.
LID-1

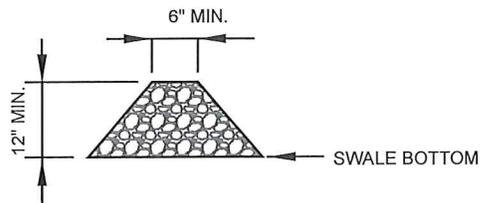
REV. DATE:
9/23/2016



SECTION A-A



TOP VIEW



SECTION B-B

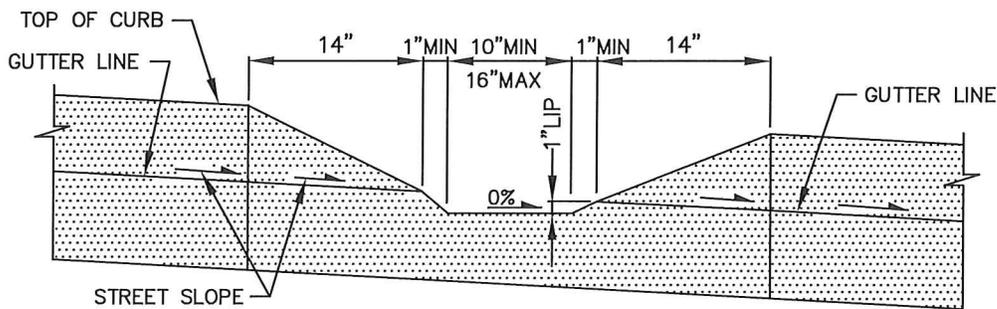
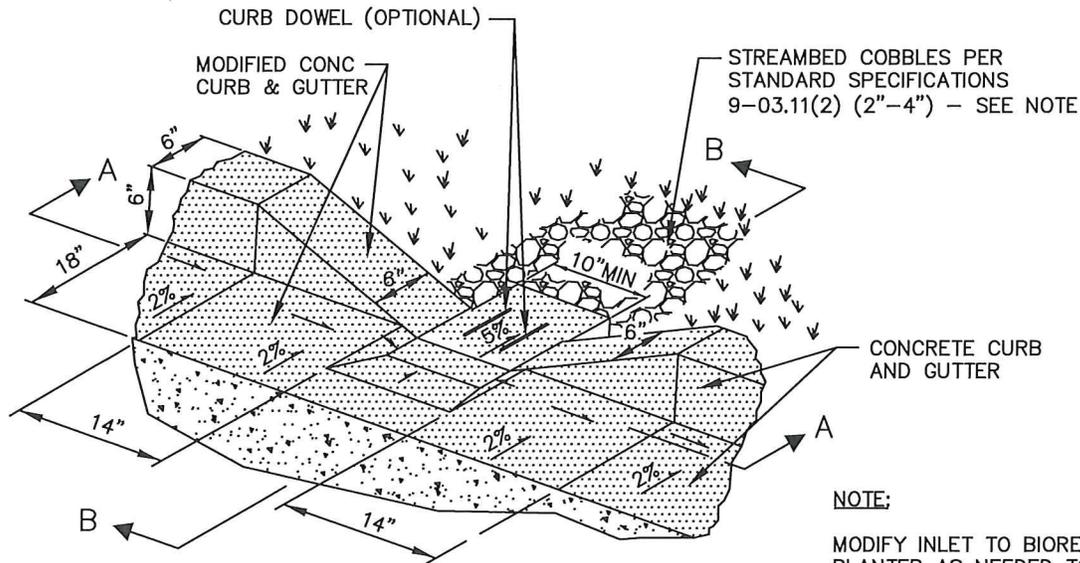


LOW IMPACT DEVELOPMENT
BIORETENTION CHECK DAM
 NOT TO SCALE

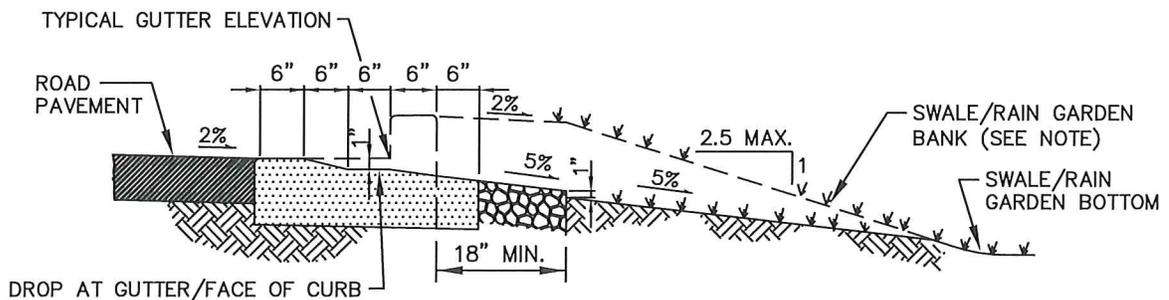
PUBLIC WORKS DEPARTMENT

PLAN NO.
LID-2

REV. DATE:
 9/23/2016



SECTION A-A



SECTION B-B



LOW IMPACT DEVELOPMENT
CURB CUT OPENING FOR BIORETENTION
 NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
LID-3

REV. DATE:
 9/23/2016



NEW DEVELOPMENT RAIN GARDEN SIGNAGE

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

NOTES:

1. ENGINEER GRADE SHEETING ON 0.080 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

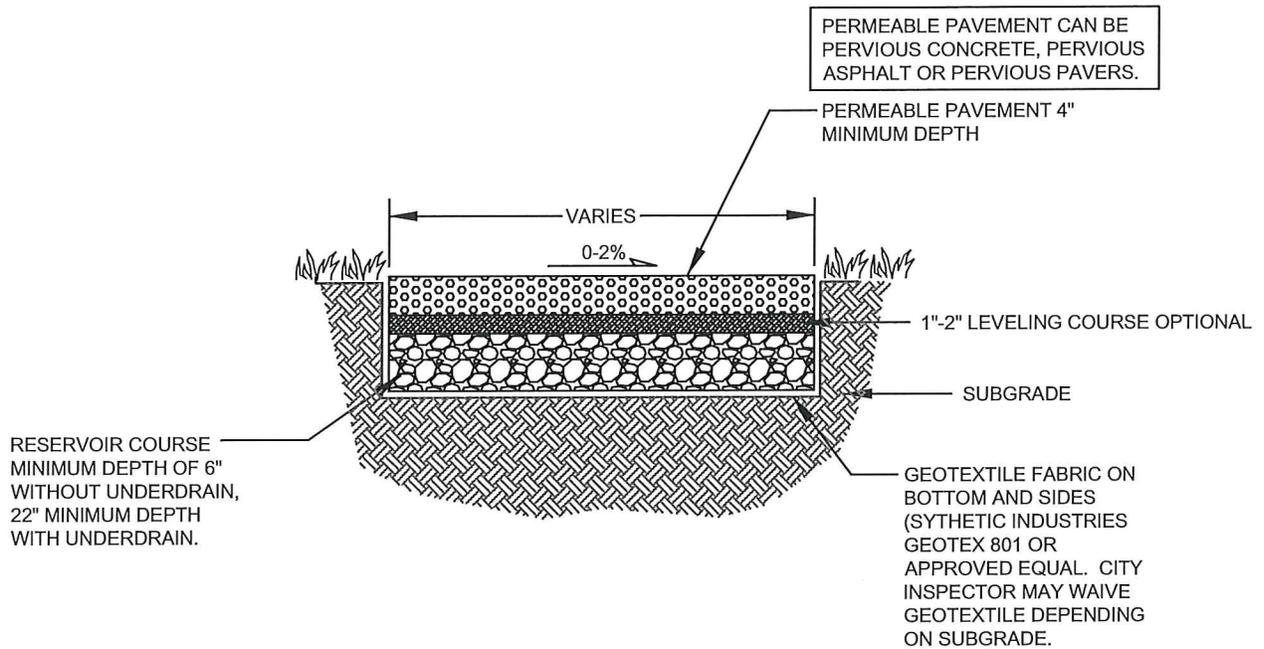


LOW IMPACT DEVELOPMENT
RAIN GARDEN SIGN
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
LID-4

REV. DATE:
9/23/2016



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 LONGINTUDINAL SLOPES EXCEEDING 2%. SEE PERMEABLE PAVEMENT ON SLOPES DETAIL. LID-6.
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. (NRMCA OR EQUIVALENT)
7. PERMEABLE PAVEMENTS IS APPLICABLE TO LOW VOLUME, LOW TRAFFIC SURFACES.



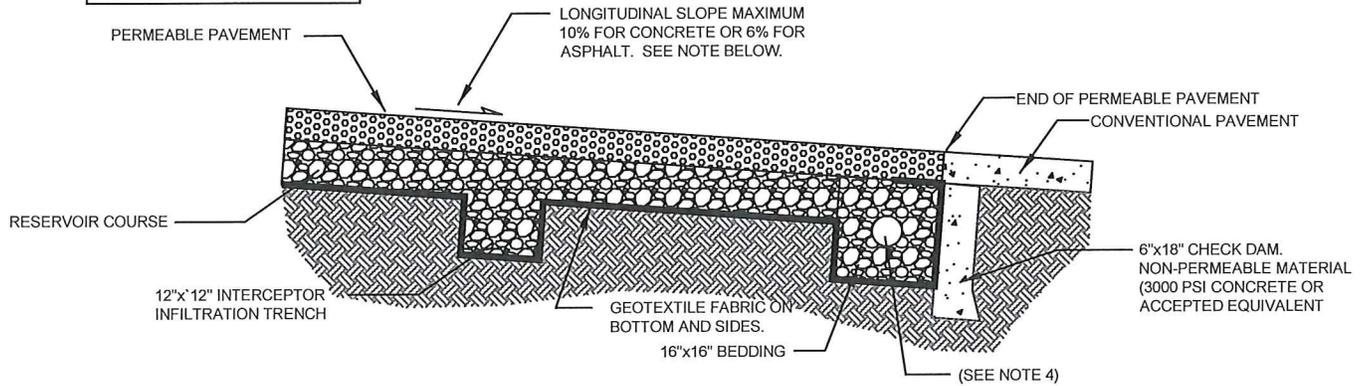
LOW IMPACT DEVELOPMENT
PERMEABLE PAVEMENT
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

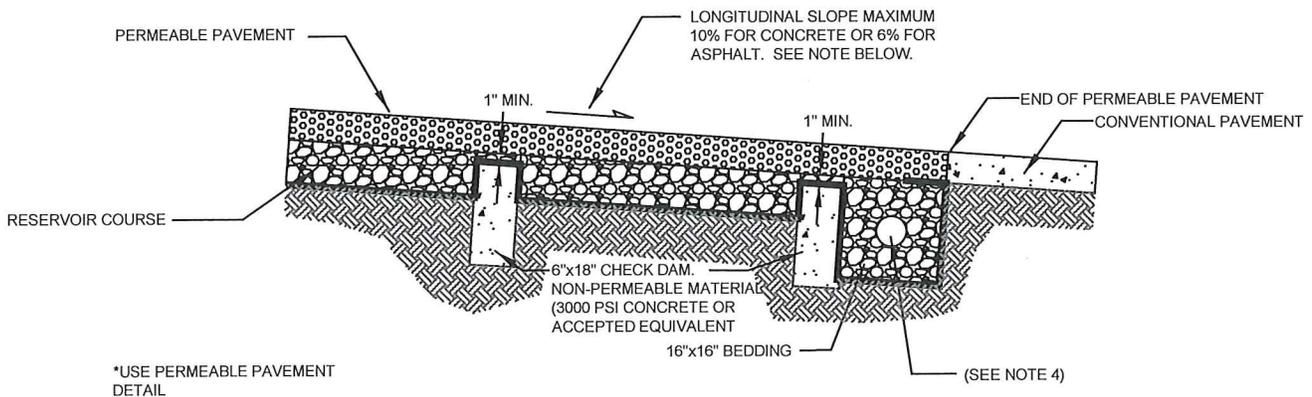
PLAN NO.
LID-5

REV. DATE:
9/23/2016

PERMEABLE PAVEMENT CAN BE PERVIOUS CONCRETE, PERVIOUS ASPHALT OR PERVIOUS PAVERS.



INTERCEPTOR INFILTRATION TRENCH



*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. 6" PVC PERF PIPE WITH CLEANOUTS AND CONNECTION TO STORM DRAIN. SEE LID CLEAN OUT DETAIL.



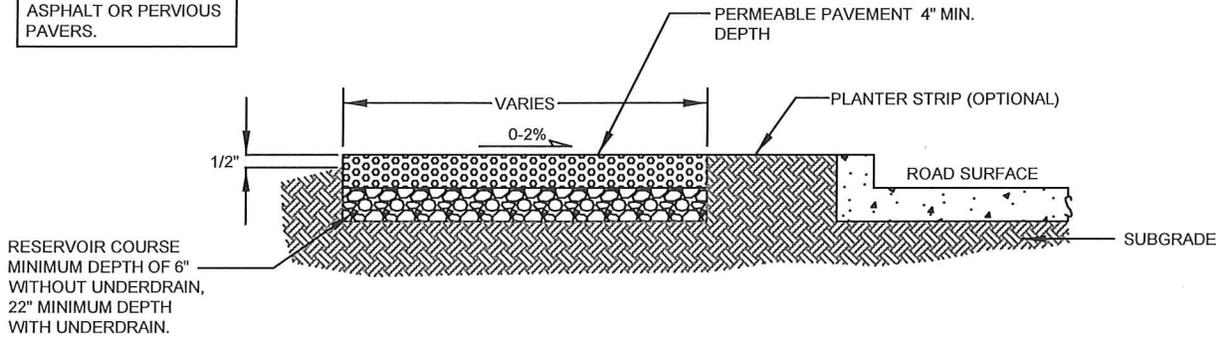
LOW IMPACT DEVELOPMENT
PERMEABLE PAVEMENT ON SLOPES
 NOT TO SCALE

PUBLIC WORKS DEPARTMENT

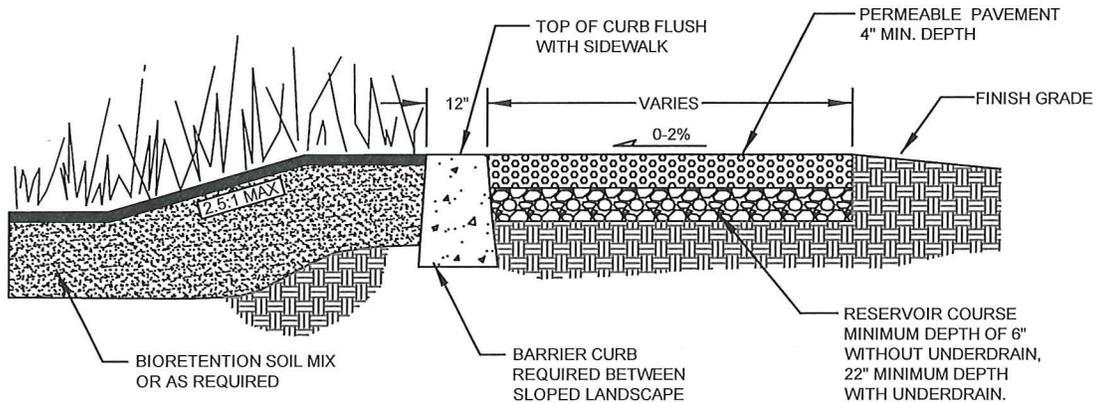
PLAN NO.
LID-6

REV. DATE:
 9/23/2016

PERMEABLE PAVEMENT CAN BE PERVIOUS CONCRETE, PERVIOUS ASPHALT OR PERVIOUS PAVERS.



PERMEABLE PAVEMENT SIDEWALK
ADJACENT TO CURB



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.

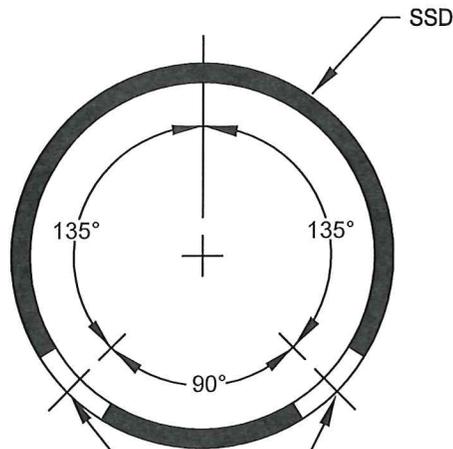


LOW IMPACT DEVELOPMENT
PERMEABLE PAVEMENT SIDEWALK
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
LID-7

REV. DATE:
9/23/2016



\varnothing OF SLOT LOCATIONS
 (TYP) (2 ROWS)
 TYPICAL SLOT SIZE FOR
 TYPE 26 AGGREGATE
 FILTER & BEDDING LAYER
 IS 0.04"

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 CIRCUMFRENCE 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 UNDER-DRAIN PIPE
 NOT TO SCALE

PUBLIC WORKS DEPARTMENT

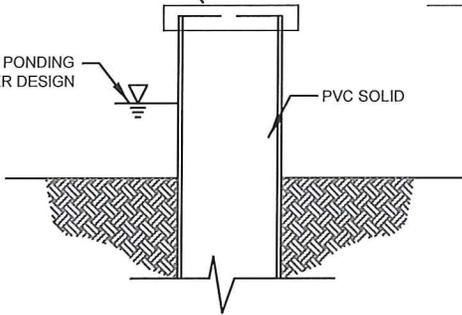
PLAN NO.
LID-8

REV. DATE:
 9/23/2016

REMOVABLE PVC CAP
(DO NOT GLUE)

MAXIMUM PONDING
DEPTH PER DESIGN

PVC SOLID



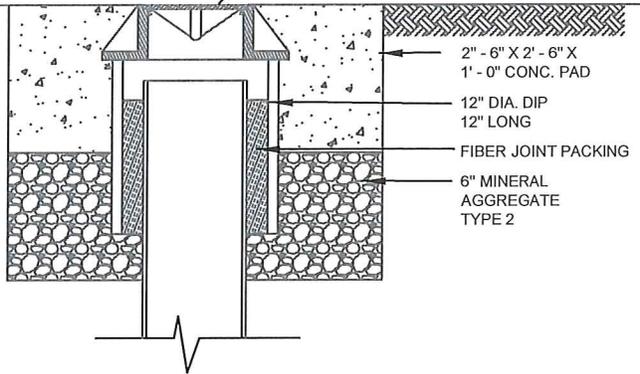
FRAME & COVER
EAST JORDAN IRON
WORKS MODEL 00367501
OR EQUAL

2" - 6" X 2' - 6" X
1' - 0" CONC. PAD

12" DIA. DIP
12" LONG

FIBER JOINT PACKING

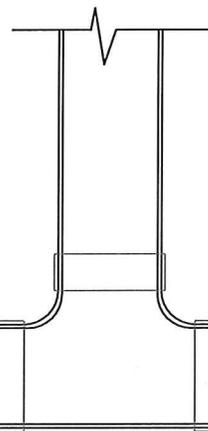
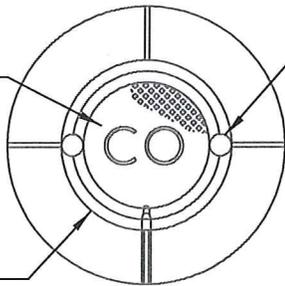
6" MINERAL
AGGREGATE
TYPE 2



2" RAISED
LETTERS

DRILL AND TAP
FOR LOCKING AS
REQUIRED

1/8" RAISE,
1/2" WIDE BORDER



PVC SLOTTED PIPE
SEE LID UNDER-DRAIN PIPE
DETAIL

NOTE:

LOCATE CLEAN OUTS EVERY 100
FEET IN PAVED AREAS ADJACENT
TO BIORETENTION OR PERVIOUS
PAVEMENT WHERE POSSIBLE.



LOW IMPACT DEVELOPMENT

LID CLEAN OUT

NOT TO SCALE

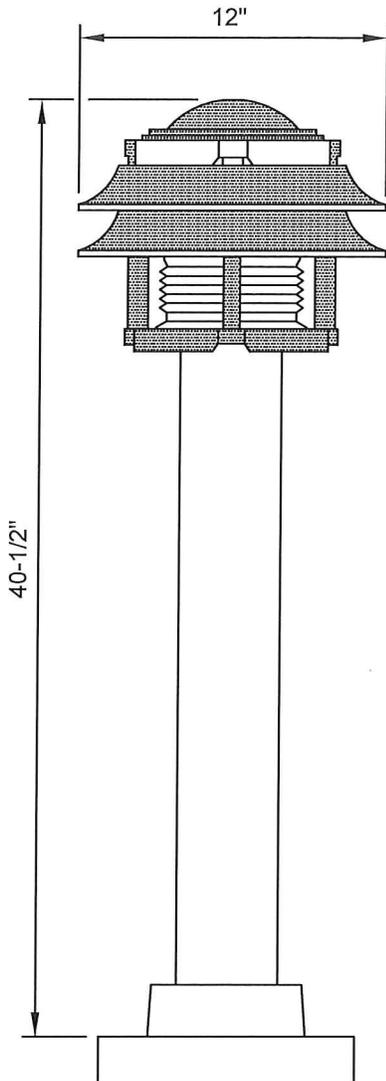
PUBLIC WORKS DEPARTMENT

PLAN NO.

LID-9

REV. DATE:

9/23/2016



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 GE, PHILIPS OR SYLVANIA)

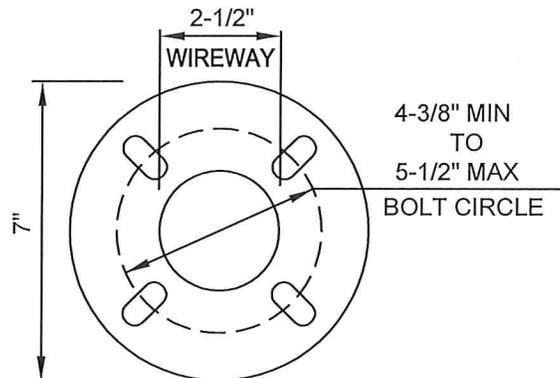
OPTICS: TYPE IV, LONG, CUTOFF

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-10

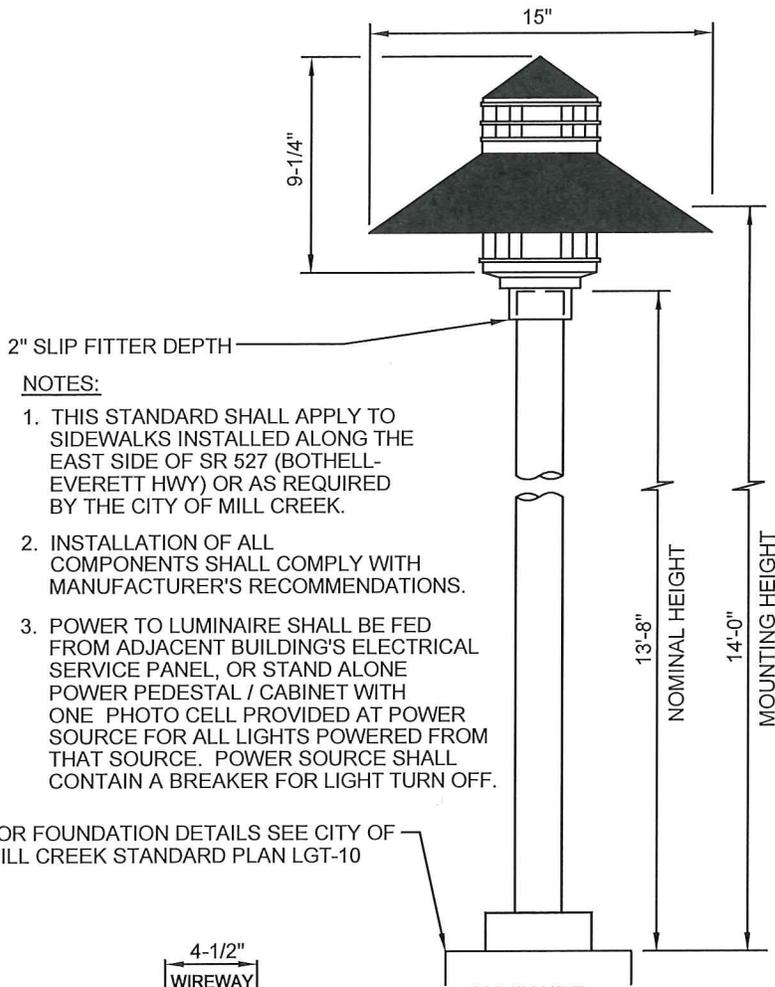


STREET LIGHTING
BOLLARD PATH LIGHT
 (CONCRETE FOUNDATION)
 NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
LGT - 1

REV. DATE:
 9/22/2016

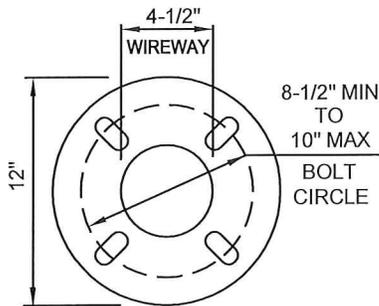


2" SLIP FITTER DEPTH

NOTES:

1. THIS STANDARD SHALL APPLY TO SIDEWALKS INSTALLED ALONG THE EAST SIDE 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 PHOTO CELL 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-10



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, CUTOFF

POLE:

PTR5-1308 (BY TEKA) WITH SMOOTH TAPERED (3" O.D. TOP & 5" O.D. BOTTOM) ALLOY ALUMINUM SHAFT WITH HINGED BASE ASSEMBLY (NO HANDHOLE) 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".

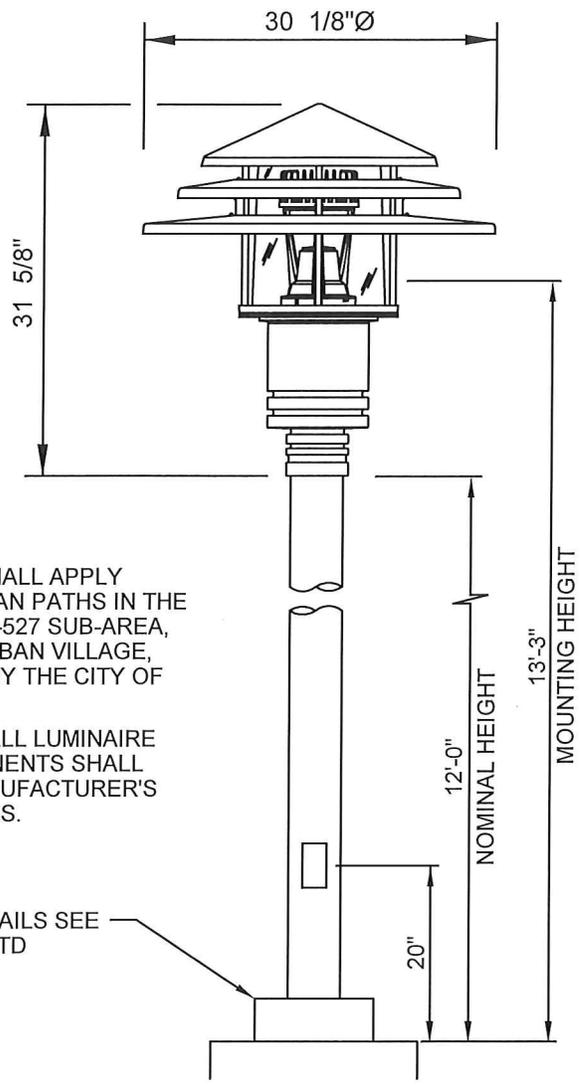


**STREET LIGHTING
 TEKA PEDESTRIAN PATH LIGHTING
 (CONCRETE FOUNDATION)
 NOT TO SCALE**

PUBLIC WORKS DEPARTMENT

**PLAN NO.
 LGT - 2**

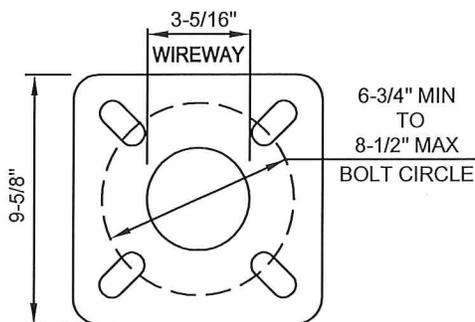
REV. DATE:
 9/22/2016



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.
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-10



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".



**STREET LIGHTING
 CANDELA PEDESTRIAN PATH LIGHTING
 (CONCRETE FOUNDATION)
 NOT TO SCALE**

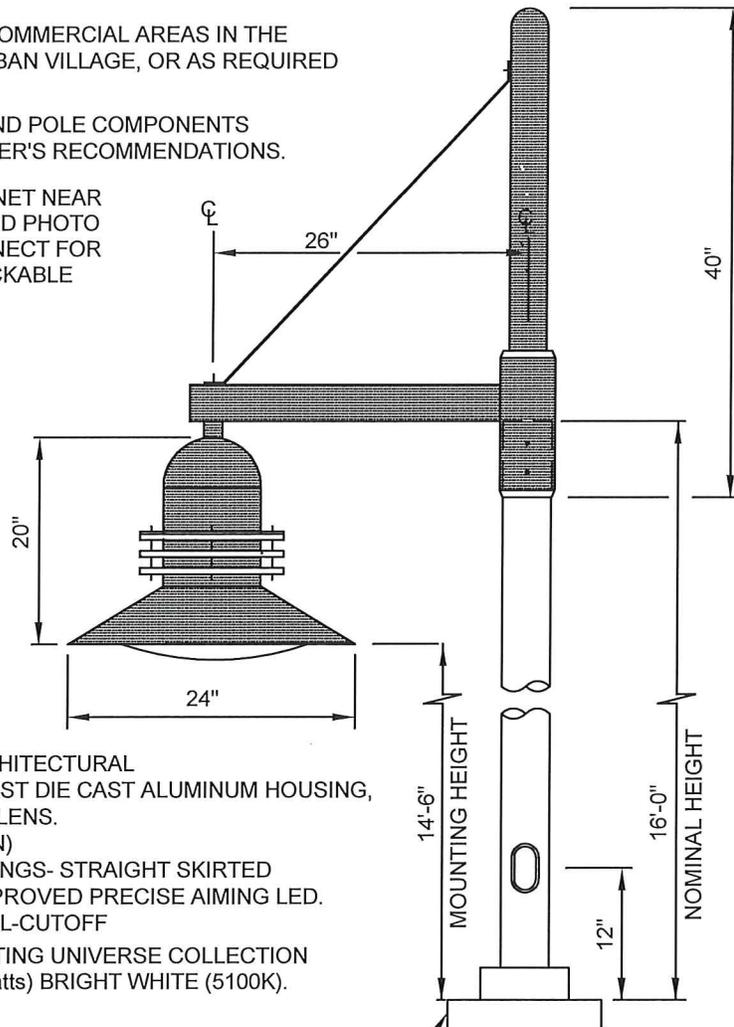
ENGINEERING DEPARTMENT

PLAN NO.
LGT - 3

REV. DATE:
 4/7/2016

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-SR-STR-T2-60LED-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-STR (SOLID RINGS- STRAIGHT SKIRTED LAMP:
 MICROEMITTER DLC APPROVED PRECISE AIMING LED.
 OPTICS: TYPE II (H2), SHORT, FULL-CUTOFF
 EXISTING LUMINAIRES 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)

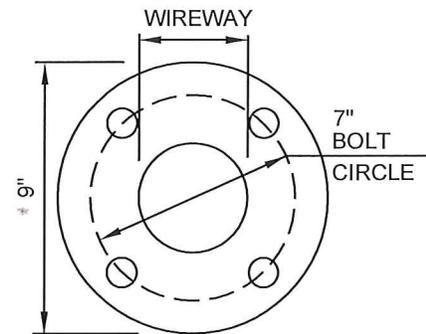
BASE COVER:

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-10



STREET LIGHTING
ARCHITECTURAL LIGHTING
COMMERCIAL STREET LIGHT
 NOT TO SCALE

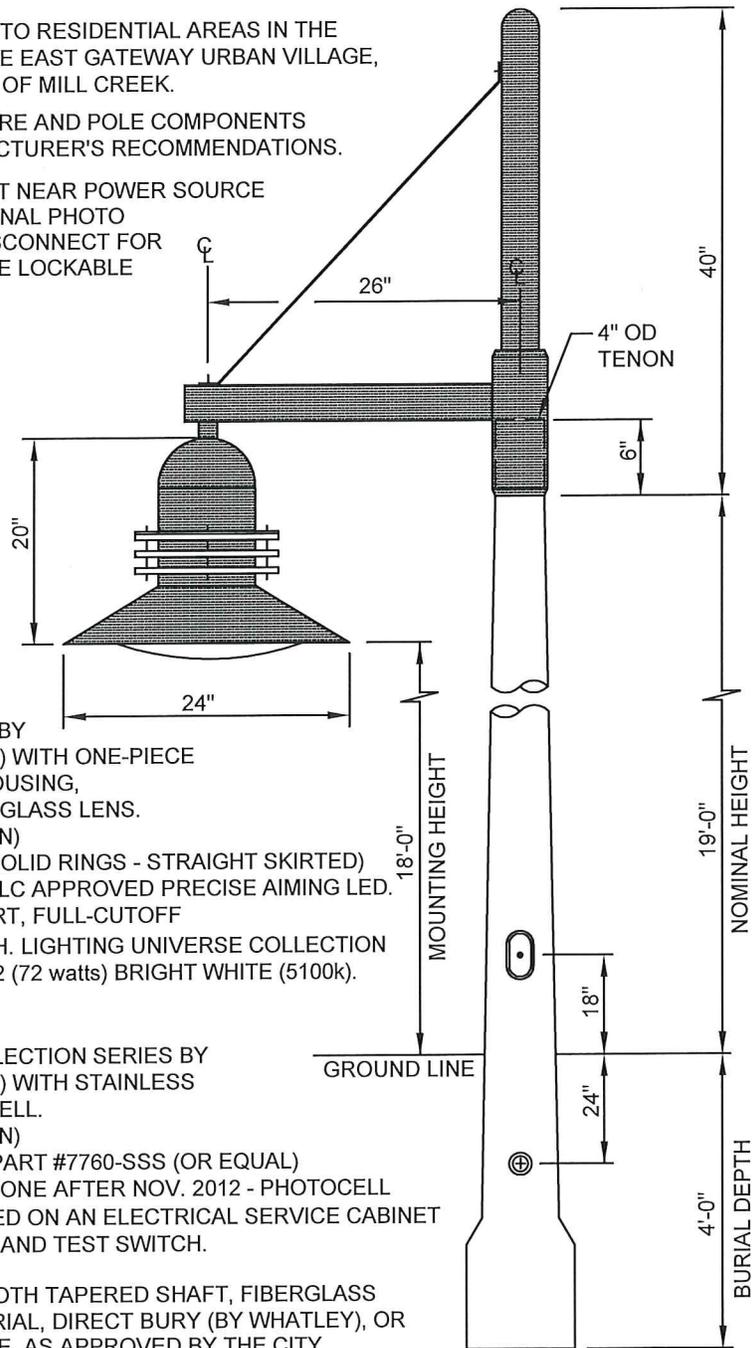
PUBLIC WORKS DEPARTMENT

PLAN NO.
LGT- 4

REV. DATE:
 9/22/2016

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 LUMINAIRES 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-DGR-40-60 SMOOTH TAPERED SHAFT, FIBERGLASS REINFORCED COMPOSITE MATERIAL, DIRECT BURY (BY WHATLEY), OR BH23-03S8BE09 BY SHAKESPEARE, AS APPROVED BY THE CITY.
 COLOR: DGR (DARK GREEN)

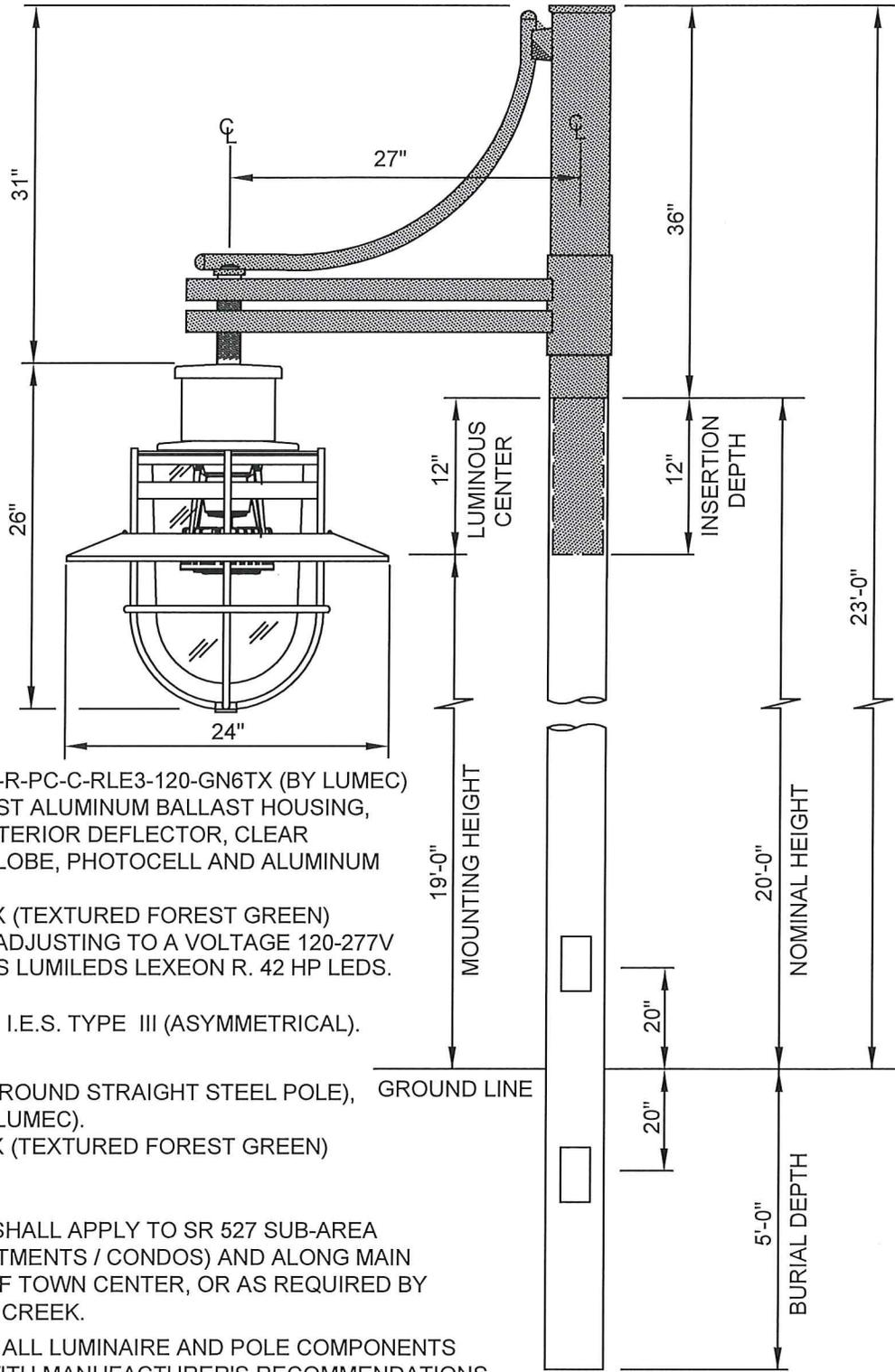


STREET LIGHTING
 ARCHITECTURAL LIGHTING
 RESIDENTIAL STREET LIGHTING
 NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
 LGT - 5

REV. DATE:
 9/22/2016



LUMINAIRE:

CAND1-40W42LED4K-R-PC-C-RLE3-120-GN6TX (BY LUMEC) WITH ONE-PIECE CAST ALUMINUM BALLAST HOUSING, SPUN-ALUMINUM EXTERIOR DEFLECTOR, CLEAR POLYCARBONATE GLOBE, PHOTOCCELL 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.

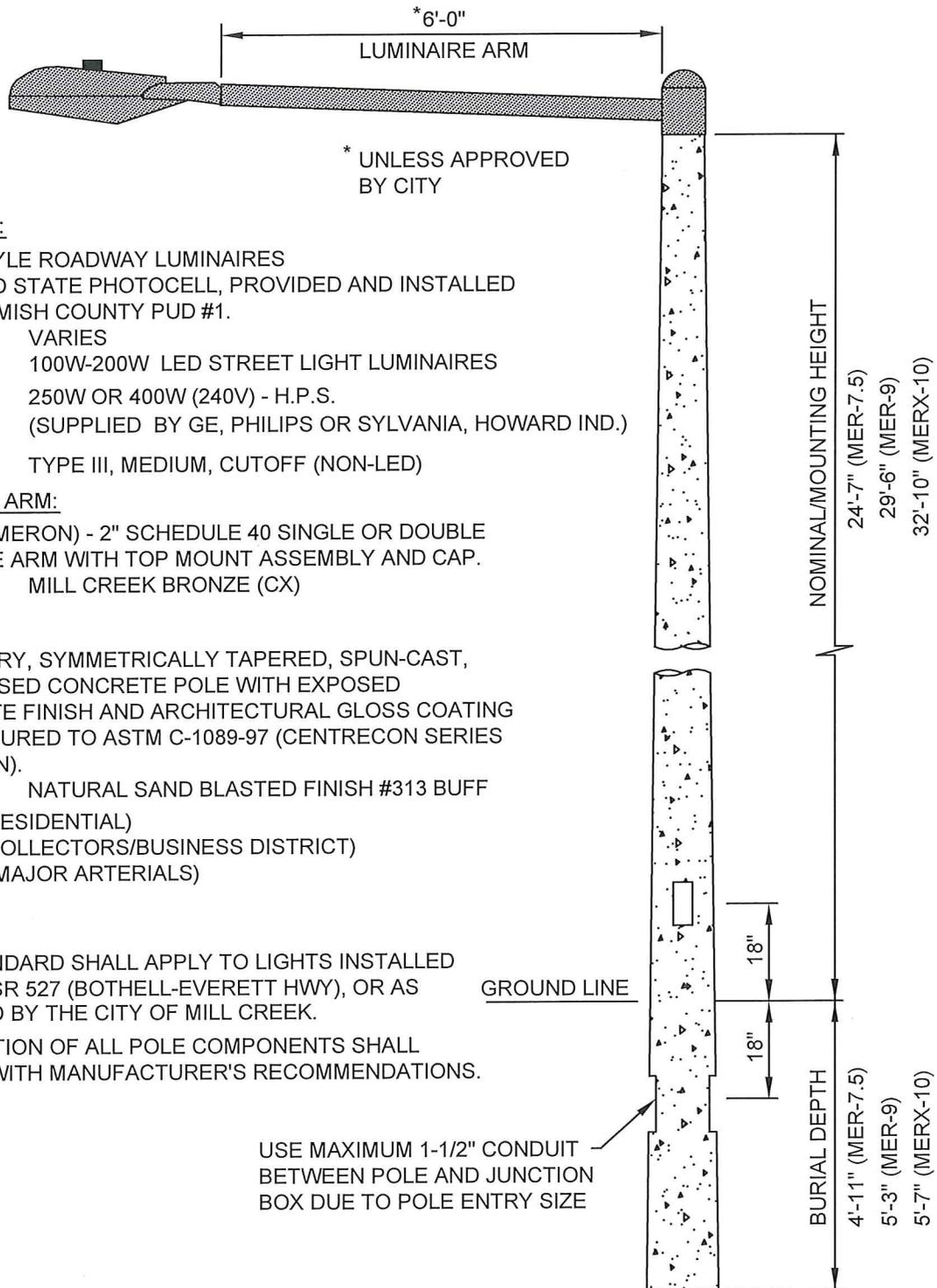


STREET LIGHTING
CANDELA COMMERCIAL HOUSING STREET LIGHT
 (DIRECT BURY)
 NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
LGT - 6

REV. DATE:
 9/22/2016



LUMINAIRE:

COBRA STYLE ROADWAY LUMINAIRE
WITH SOLID STATE PHOTOCCELL, PROVIDED AND INSTALLED
BY SNOHOMISH COUNTY PUD #1.

VOLTAGE: VARIES

LAMP: 100W-200W LED STREET LIGHT LUMINAIRE
250W OR 400W (240V) - H.P.S.
(SUPPLIED BY GE, PHILIPS OR SYLVANIA, 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.



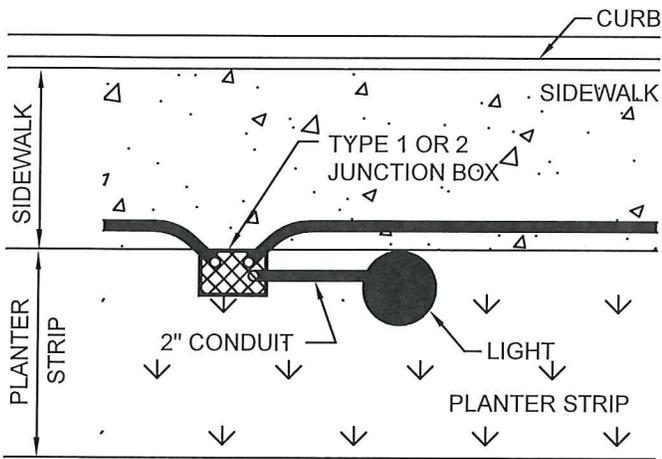
STREET LIGHTING
**MILL CREEK STANDARD
STREET LIGHT**
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
LGT - 7

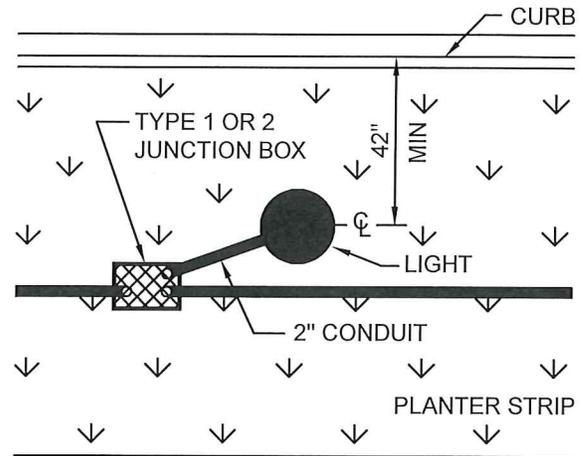
REV. DATE:
9/22/2016

DIRECTION OF TRAFFIC →



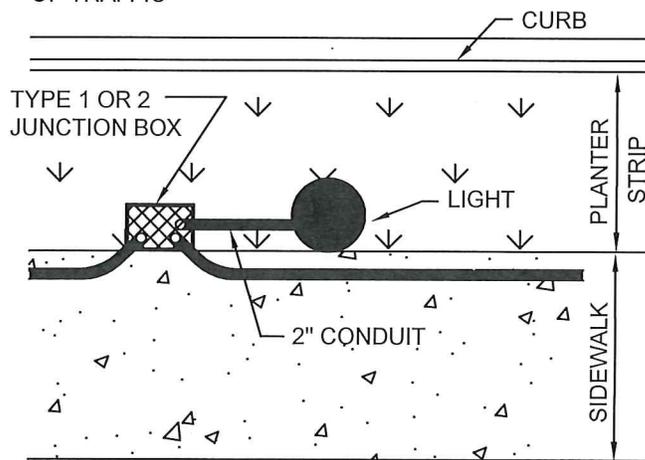
SIDEWALK NEXT TO CURB

DIRECTION OF TRAFFIC →



NO SIDEWALK

DIRECTION OF TRAFFIC →



SIDEWALK WITH
PLANTER STRIP NEXT TO CURB



STREET LIGHTING
TYPICAL LUMINAIRE LOCATIONS
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
LGT - 8

REV. DATE:
9/22/2016

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

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

1-1/2"
MAX

6"
MAX

GROUND ROD AND CLAMPS

FOR CONDUIT, ILLUMINATION
AND GROUND WIRE SIZE SEE
PLANS

BELL END PVC BUSHING (TYP)

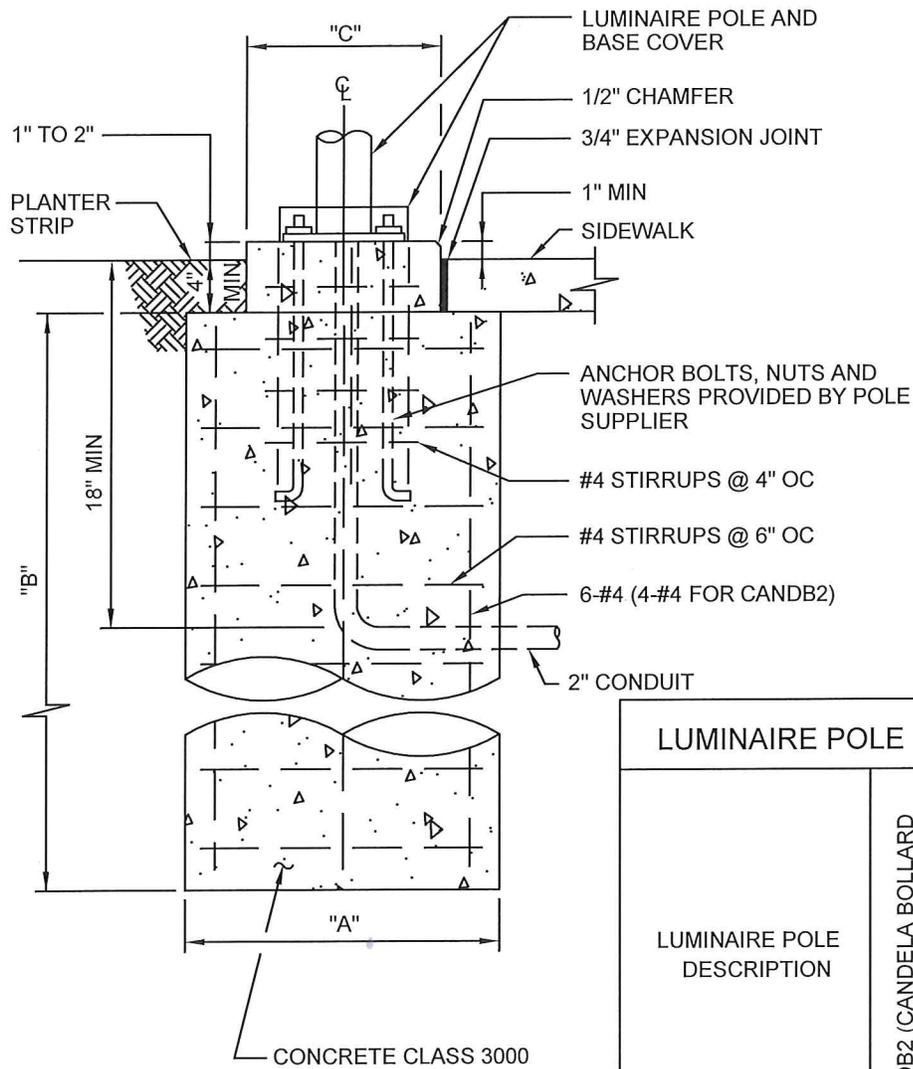


STREET LIGHTING
TYPICAL LUMINAIRE POLE
JUNCTION BOX WIRING DETAIL
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
LGT - 9

REV. DATE:
9/22/2016



LUMINAIRE POLE FOUNDATION TABLE				
LUMINAIRE POLE DESCRIPTION	CANDB2 (CANDELA BOLLARD SERIES BY LUMEC)	PTR5-1308 (PEDESTRIAN PATH LIGHT BY TEKA)	CANDB6 (CANDELA PEDESTRIAN PATH LIGHT BY LUMEC)	PR4-4R16-125 (STREET LIGHT BY ARCHITECTURAL AREA LIGHTING)
CITY OF MILL CREEK STD PLAN NUMBER	LGT -01	LGT -02	LGT -03	LGT -04
FOUNDATION DIAMETER "A"	1'-3"	2'-0"	2'-0"	2'-0"
FOUNDATION HEIGHT "B"	2'-6"	4'-6"	4'-6"	4'-6"
PEDESTAL WIDTH (SQUARE) "C"	8"x8"	14"x14"	14"x14"	14"x14"

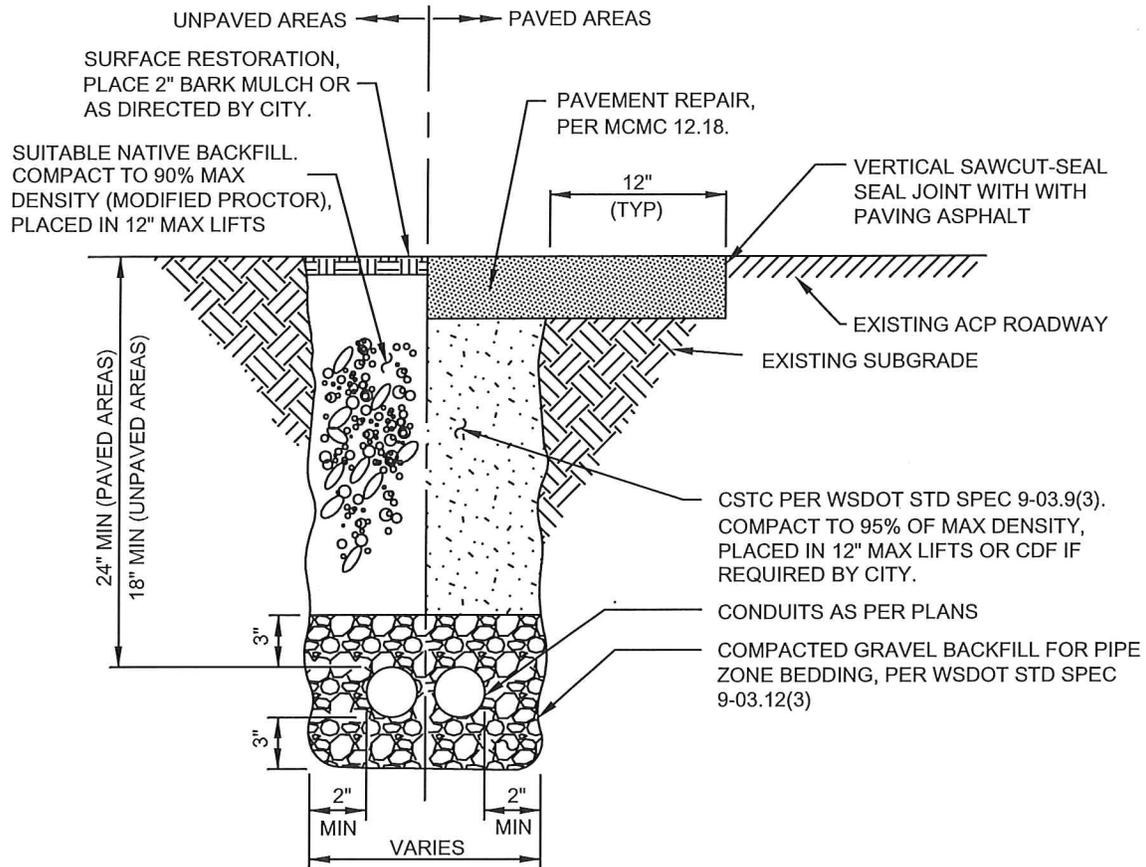


STREET LIGHTING
**TYPICAL LUMINAIRE POLE
FOUNDATION DETAIL**
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
LGT - 10

REV. DATE:
9/22/2016



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).



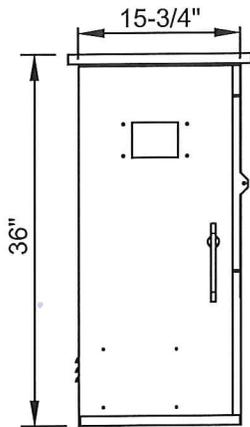
**STREET LIGHTING
TYPICAL CONDUIT TRENCH DETAIL
NOT TO SCALE**

PUBLIC WORKS DEPARTMENT

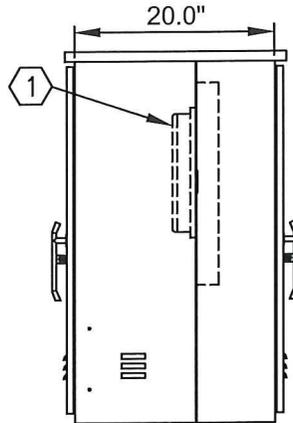
**PLAN NO.
LGT - 11**

REV. DATE:
9/22/2016

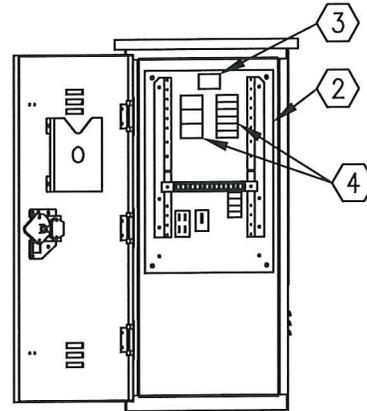
CITY OF MILL CREEK TYPE "B" ELECTRICAL SERVICE CABINET (FLAT RATED - DRAWING #MC-B.



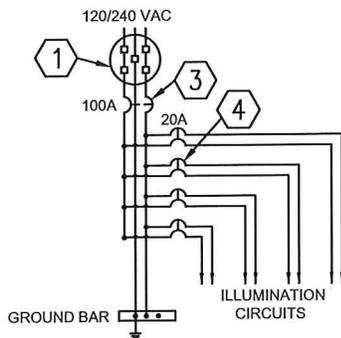
UTILITY SIDE



SIDE VIEW
CABINET DETAILS:



SERVICE SIDE
(SHALL FACE THE STREET)



WIRING SCHEMATIC:

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, 1Ø, 3-WIRE, COPPER BUS (SQUARE D LOAD CENTER)
- ③ **MAIN BREAKER:**
100A, 2-POLE
- ④ **BRANCH BREAKERS:**
4-20/2 ILLUMINATION
(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-13.



STREET LIGHTING
ELECTRICAL SERVICE CABINET
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
LGT - 12

REV. DATE:
9/22/2016

ALL CONDUIT TO CLEAR TOWER CENTER BRACE OF CABINET BY 1/2" MIN

3/8" DIAMETER PLASTIC DRAIN HOLE

ANCHOR BOLTS (SEE CABINET FOUNDATION NOTES)

SHIM TO PLUMB AND PLACE SILICONE SEAL BETWEEN FOUNDATION AND CABINET

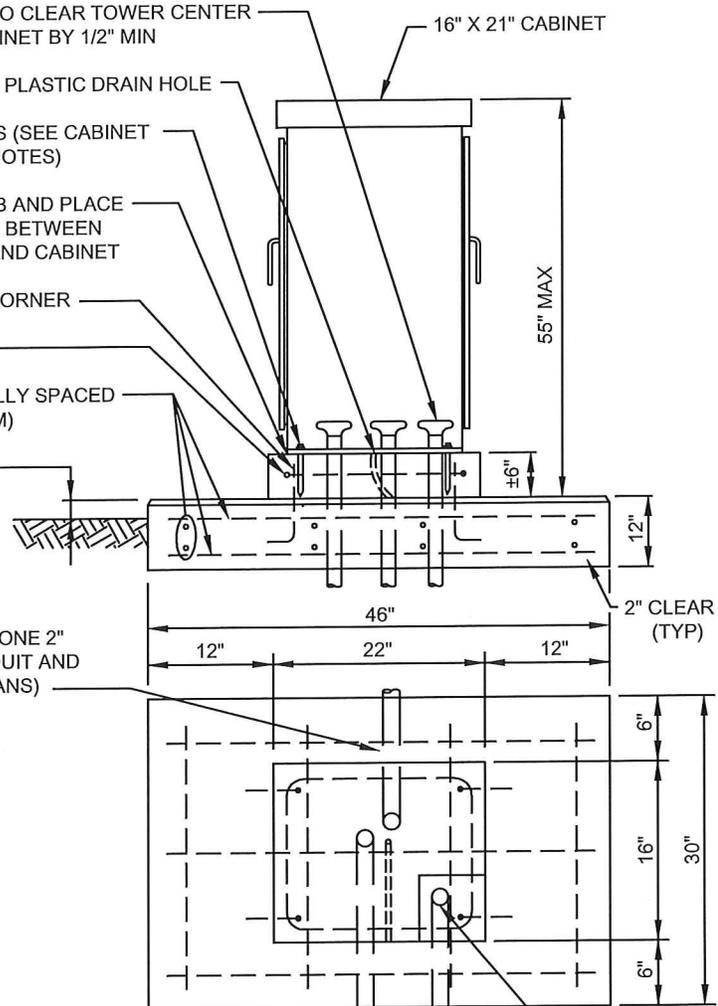
#4 BAR EACH CORNER

#4 HOOP

#4 BARS EQUALLY SPACED (TOP & BOTTOM)

1" TO 2"

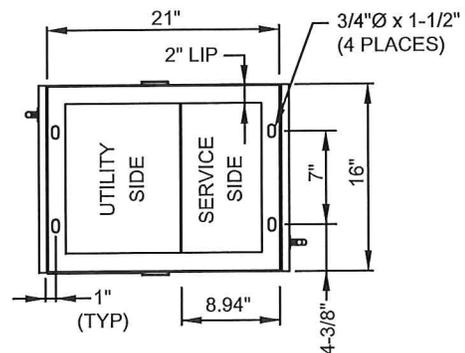
INSTALL MIN ONE 2" SPARE CONDUIT AND CAP (SEE PLANS)



2" UNDERGROUND SERVICE ENTRANCE FEEDER CONDUIT TO BE LOCATED IN CORNER (WITHIN 4"x4" SPACE)

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.

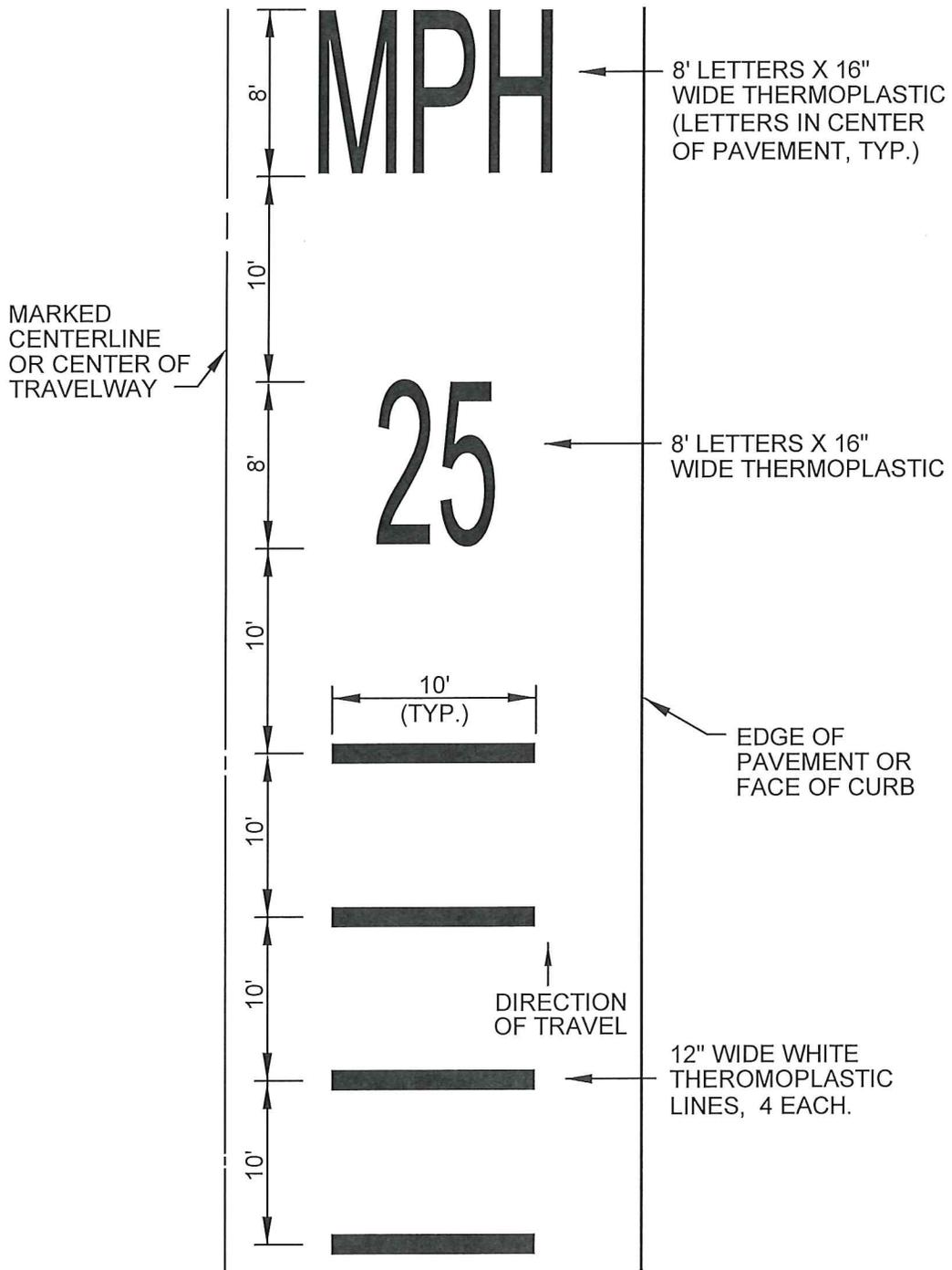


STREET LIGHTING
**ELECTRICAL SERVICE CABINET
 FOUNDATION**
 NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
LGT - 13

REV. DATE:
 9/22/2016

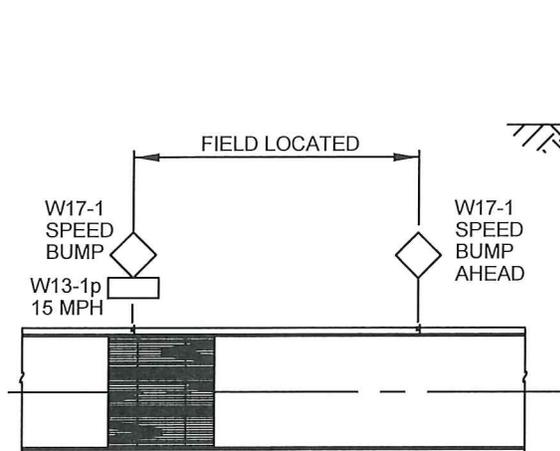


TRAFFIC CALMING
SPEED LIMIT PAVEMENT MARKING
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

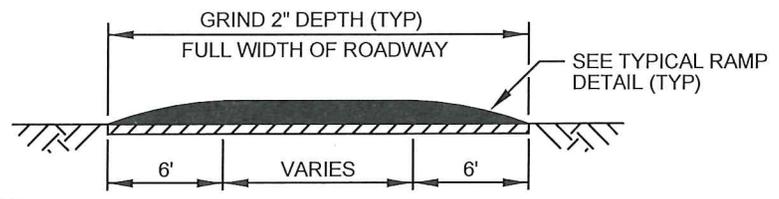
PLAN NO.
TCS-1

REV. DATE:
9/22/2016

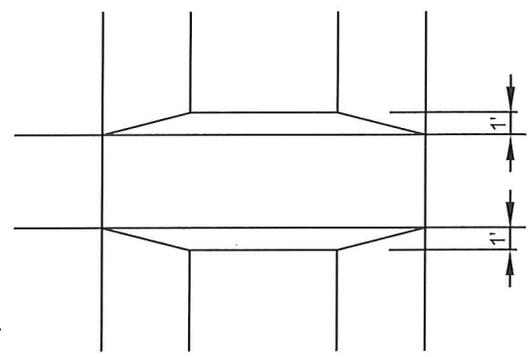


- NOTE:**
1. SIGNS TYPICAL BOTH DIRECTIONS OF TRAVEL.
 2. SIGN AND MARKING LOCATIONS SHALL BE VERIFIED BY ENGINEER PRIOR TO INSTALLATION.
 3. ALL SPEED HUMP MARKINGS SHALL BE THERMOPLASTIC. SEE MARKING DETAIL, THIS SHEET.

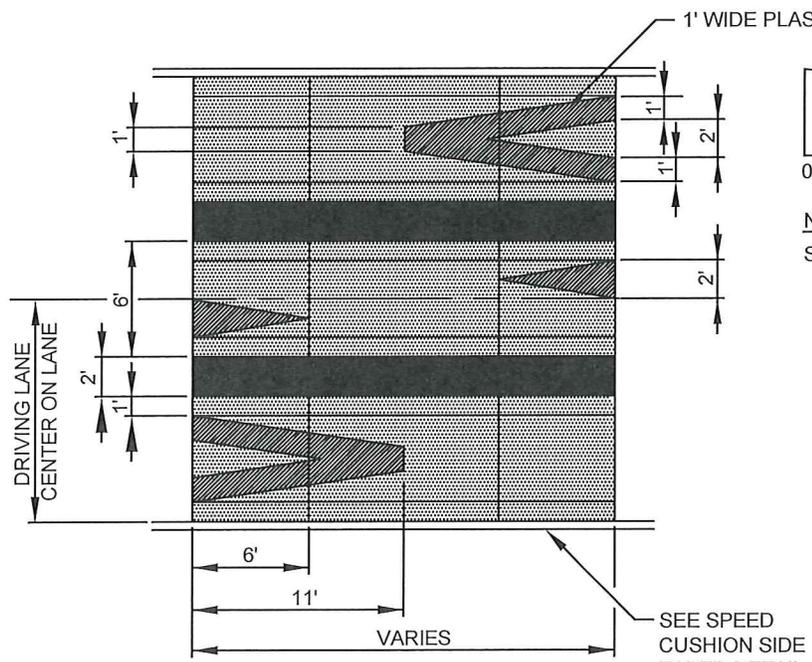
SIGNAGE DETAIL
NTS



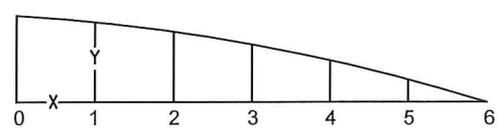
SPEED CUSHION SECTION
NTS



SPEED CUSHION SIDE TAPER DETAIL
NTS



MARKING DETAIL
SPEED CUSHION
NTS



NOTE:
SEE VERTICAL DIMENSION CHART

VERTICAL DIMENSION CHART

X(FT.)	Y(FT.) = INCHES
0	0.25 = 3.0
1	0.243 = 2.92
2	0.222 = 2.67
3	0.186 = 2.25
4	0.139 = 1.67
5	0.077 = 0.92
6	0.00 = 0

TYPICAL RAMP DETAIL
NTS

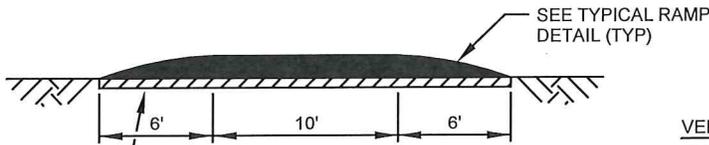


TRAFFIC CALMING
SPEED CUSHION
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

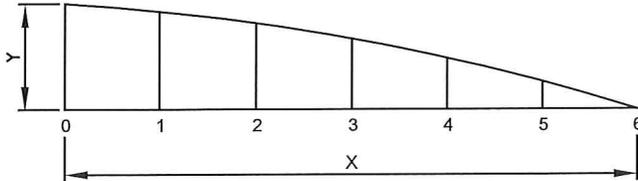
PLAN NO.
TCS-2

REV. DATE:
9/22/2016



GRIND 2" DEPTH (TYP) FULL WIDTH OF ROADWAY

SPEED CUSHION SECTION

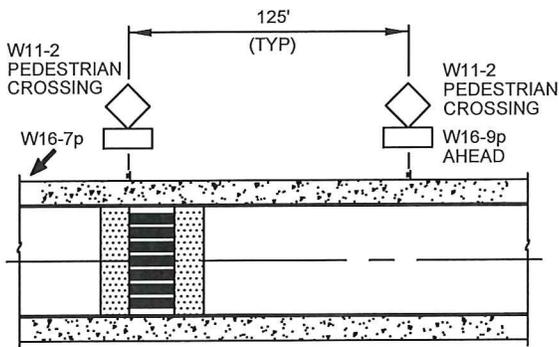


NOTE:
SEE VERTICAL DIMENSION CHART

VERTICAL DIMENSION CHART

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0	0.25 = 3.0
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TYPICAL RAMP DETAIL

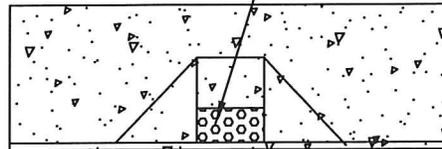


NOTES:

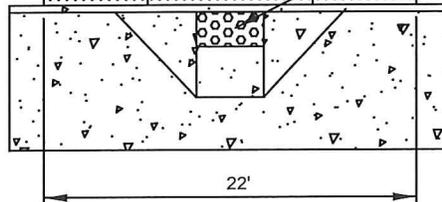
1. SIGNS TYPICAL BOTH DIRECTIONS OF TRAVEL.
2. SIGN AND MARKING LOCATIONS SHALL BE VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.
3. CROSSWALK MARKINGS TO BE THERMOPLASTIC PER STR-5.
4. ALL SIGNS TO BE FLUORESCENT YELLOW-GREEN.

TYPICAL RAISED CROSSWALK SIGNAGE
TYPICAL, BOTH SIDES

SEE APPROPRIATE RAMP DETAIL IN STREET SECTION 2016 DESIGN & CONSTRUCTION STANDARDS



SEE APPROPRIATE RAMP DETAIL IN STREET SECTION 2016 DESIGN & CONSTRUCTION STANDARDS



TYPICAL RAISED CROSSWALK MARKING

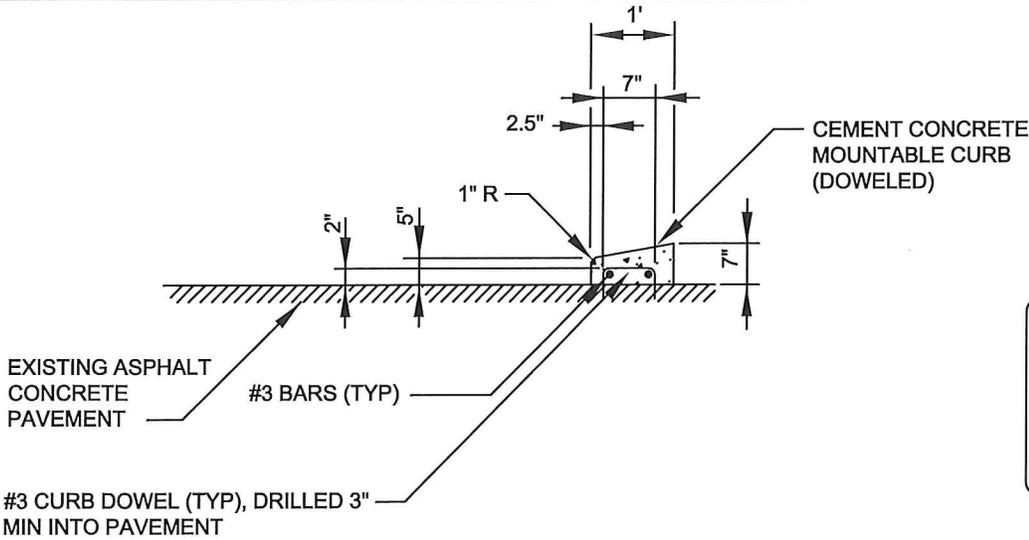


TRAFFIC CALMING
RAISED CROSSWALK
NOT TO SCALE

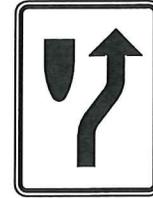
PUBLIC WORKS DEPARTMENT

PLAN NO.
TCS-3

REV. DATE:
9/22/2016



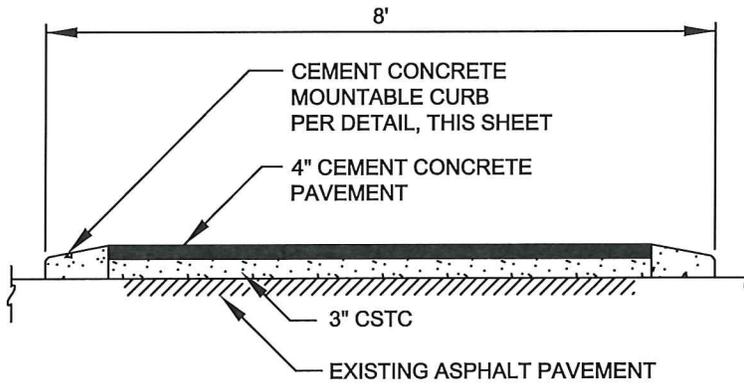
CEMENT CONCRETE MOUNTABLE CURB DETAIL
NTS



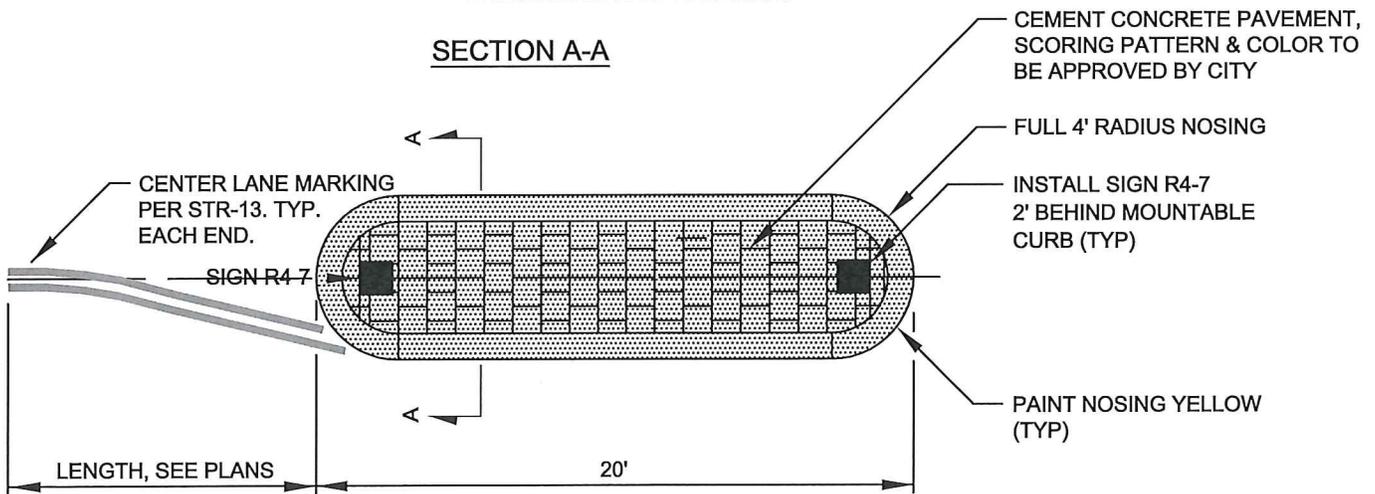
R4-7
24" X 30"

SIGN

FOUR SIGNS TOTAL-
TWO ON THE MEDIAN AND
TWO ON THE STREET PRIOR
TO THE MEDIAN- ONE ON EACH END.



SECTION A-A



PLAN

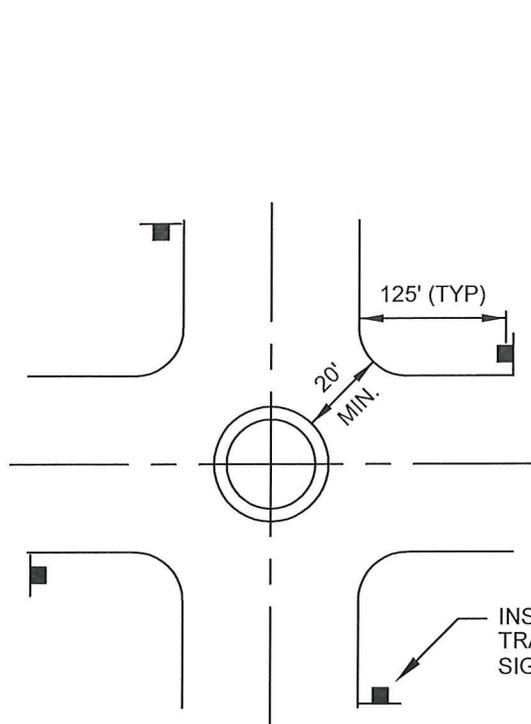


TRAFFIC CALMING
TRAFFIC MEDIAN
NOT TO SCALE

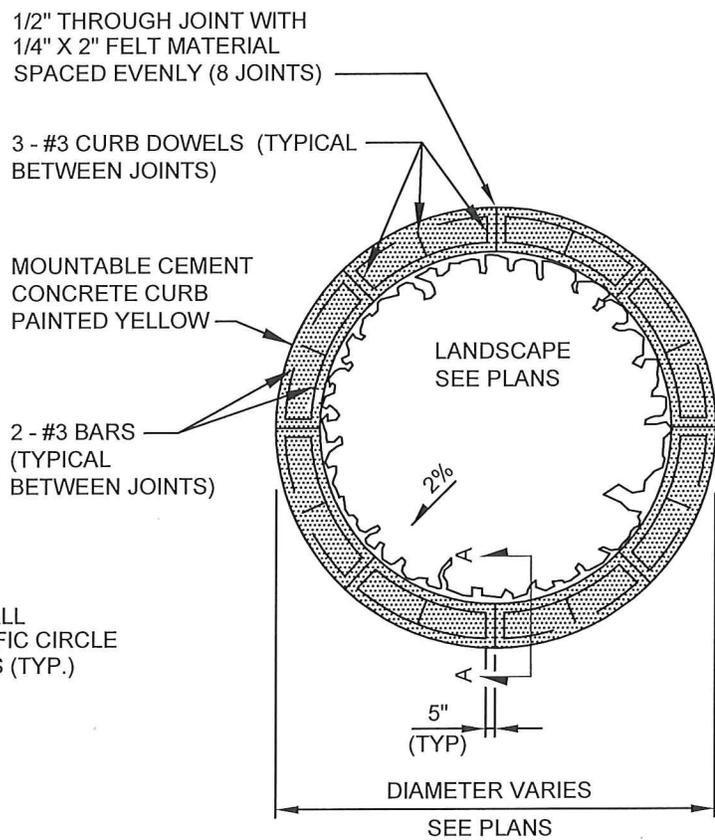
PUBLIC WORKS DEPARTMENT

PLAN NO.
TCS-4

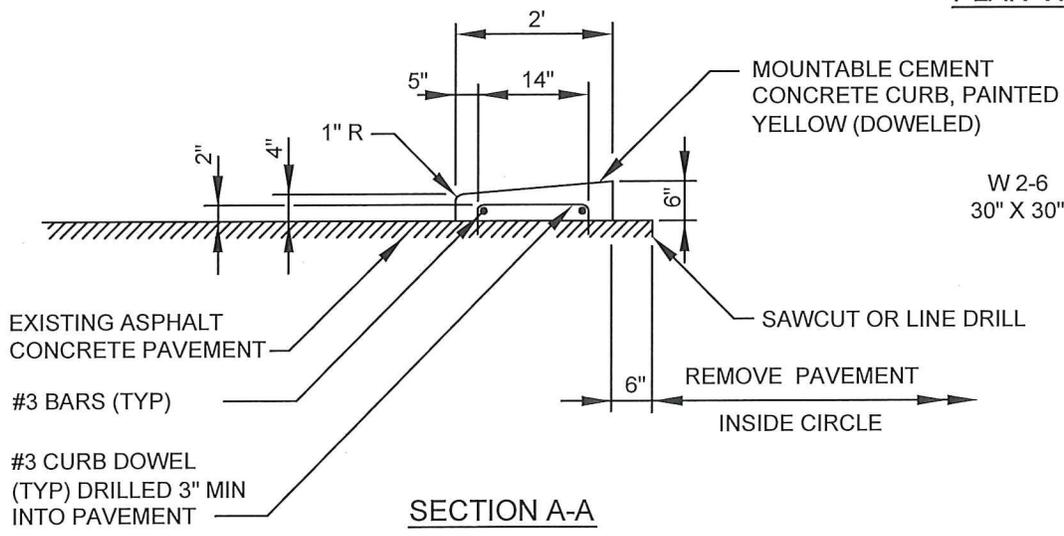
REV. DATE:
9/23/2016



INTERSECTION LAYOUT DETAIL
NTS



PLAN VIEW



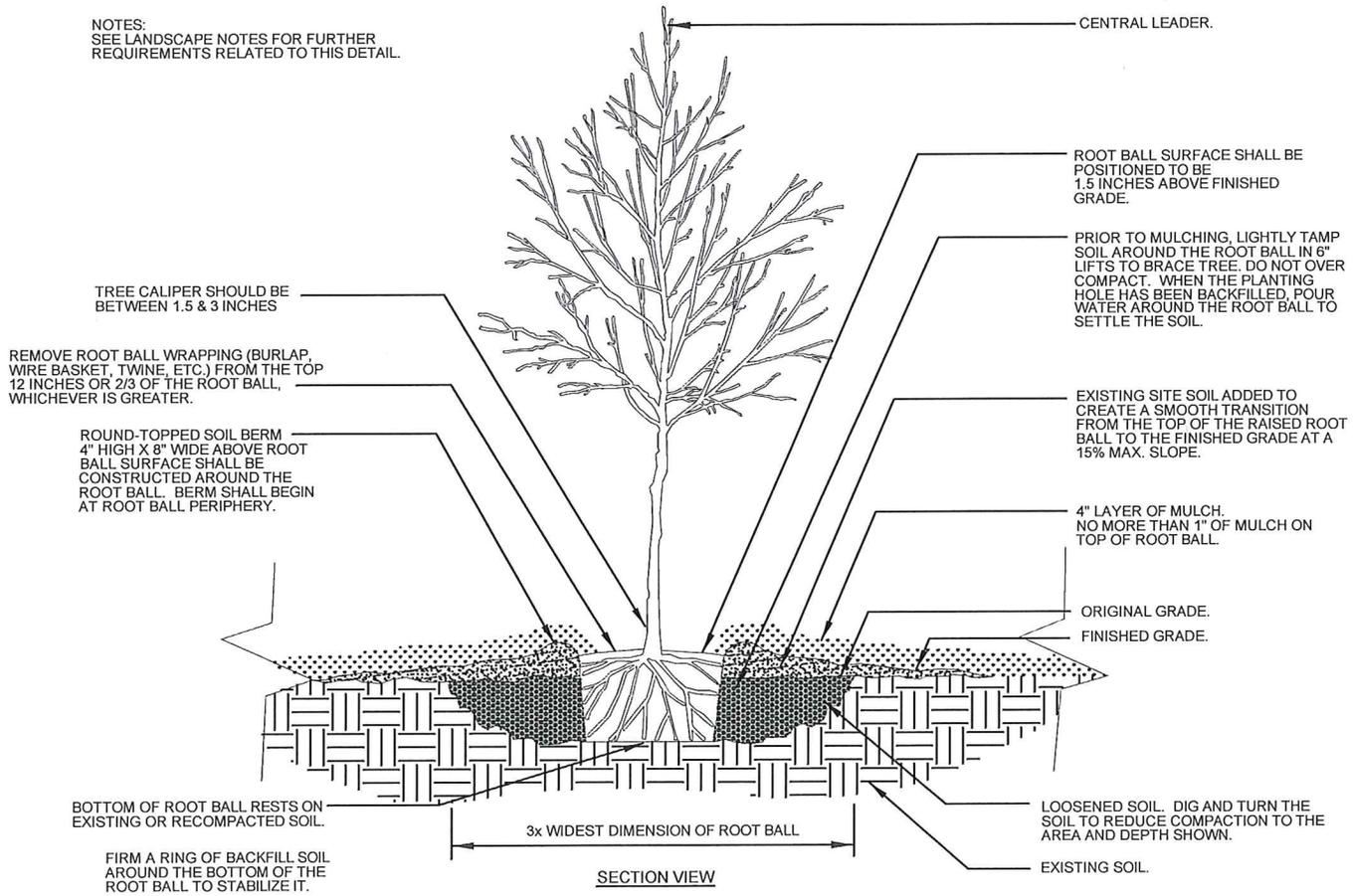
TYPICAL TRAFFIC CIRCLE & MOUNTABLE CURB DETAIL
NTS



TRAFFIC CALMING
TRAFFIC CIRCLE
NOT TO SCALE
PUBLIC WORKS DEPARTMENT

PLAN NO.
TCS-5
REV. DATE:
9/23/2016

NOTES:
SEE LANDSCAPE NOTES FOR FURTHER
REQUIREMENTS RELATED TO THIS DETAIL.



WHEN TREES ARE SET ON UNDISTURBED SOIL AND A RING OF SOIL IS FIRMED AROUND THE BASE BEFORE BACKFILING, STAKING IS NOT NEEDED IN MANY LANDSCAPE SETTINGS.

URBAN TREE FOUNDATION 2014
OPEN SOURCE FREE TO USE



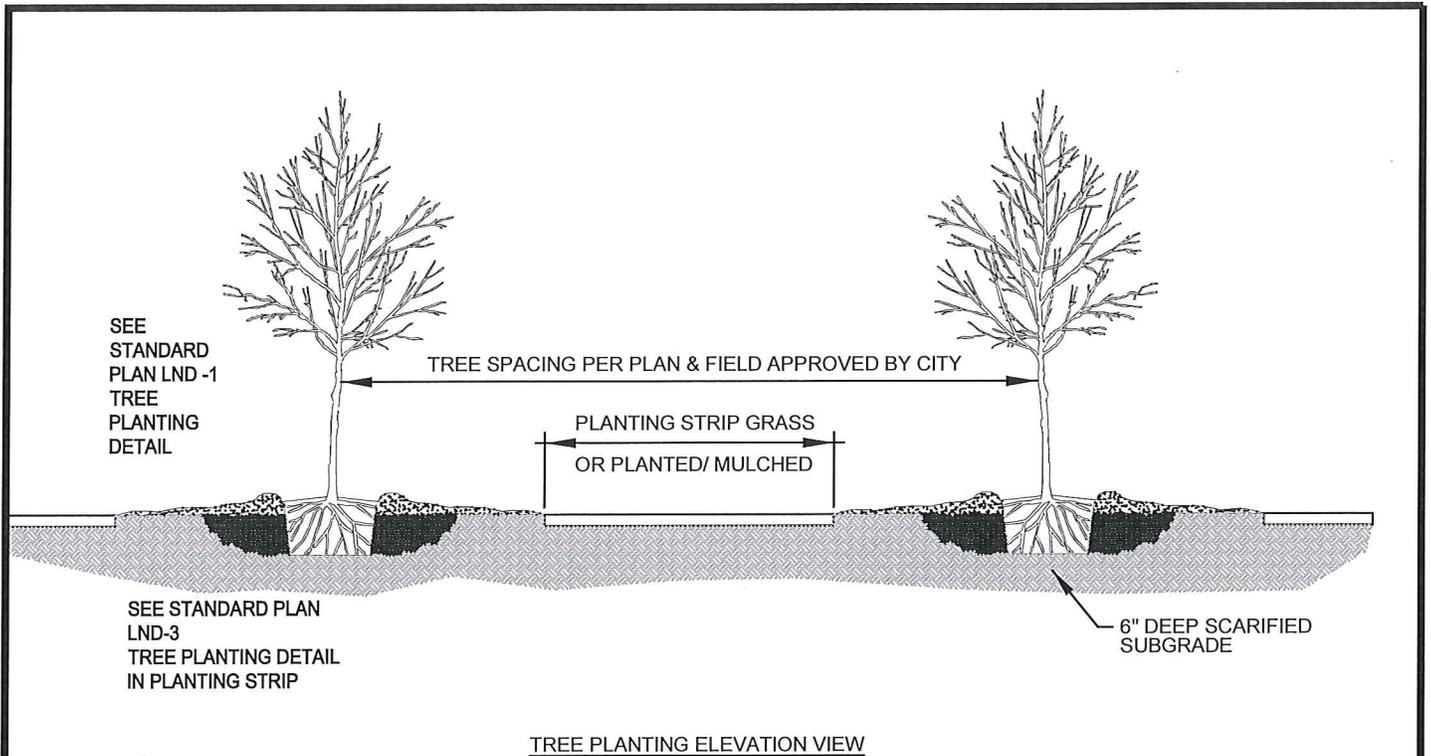
LANDSCAPE
DECIDUOUS TREE PLANTING

NOT TO SCALE

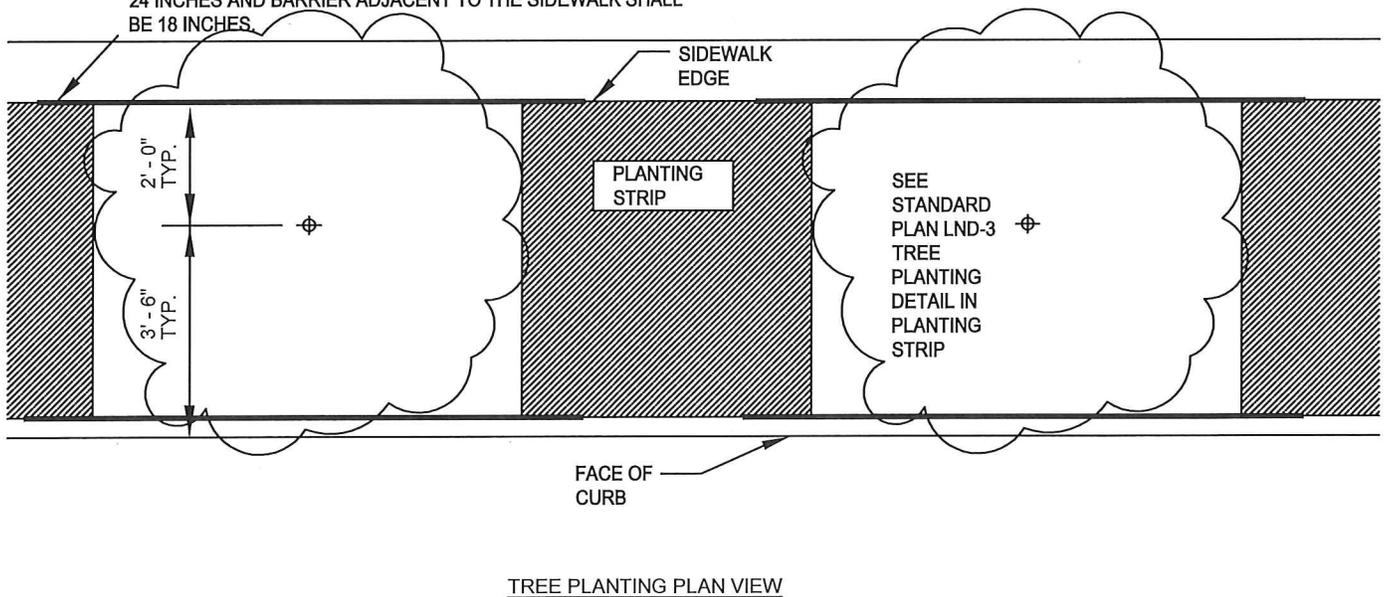
PUBLIC WORKS DEPARTMENT

PLAN NO.
LND-1

REV. DATE:
9/23/2016



ROOT BARRIER IS REQUIRED ADJACENT TO TREES PLANTED IN A PLANTER STRIP NARROWER THAN SIX FEET AND IN LANDSCAPE BEDS. BARRIER ADJACENT TO THE CURB SHALL BE 24 INCHES AND BARRIER ADJACENT TO THE SIDEWALK SHALL BE 18 INCHES.



LANDSCAPE
**DECIDUOUS TREE PLANTING
 IN AMENDED TRENCH**
 NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
LND - 2

REV. DATE:
 9/23/2016

NOTES:
SEE LANDSCAPE NOTES FOR FURTHER
REQUIREMENTS RELATED TO THIS DETAIL.

TREE CALIPER SHOULD BE
BETWEEN 1.5 & 3 INCHES

REMOVE ROOT BALL WRAPPING (BURLAP,
WIRE BASKET, TWINE, ETC.) FROM THE TOP
12 INCHES OR 2/3 OF THE ROOT BALL,
WHICHEVER IS GREATER.

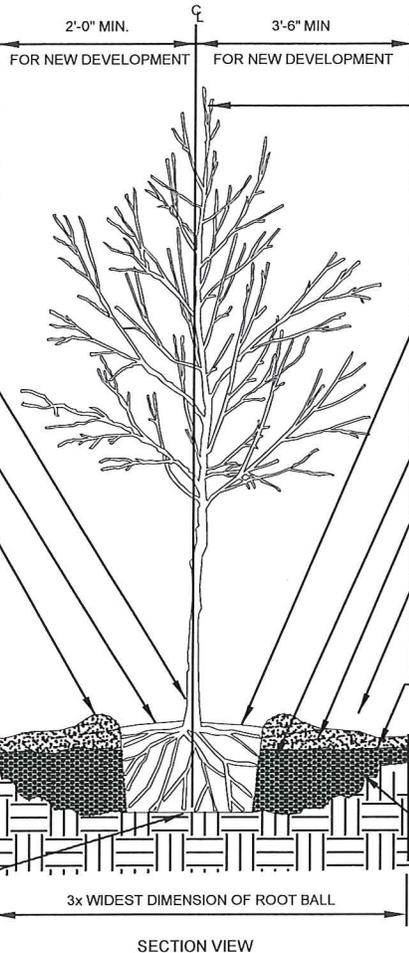
ROUND-TOPPED SOIL BERM
4" HIGH X 8" WIDE ABOVE ROOT
BALL SURFACE SHALL BE
CONSTRUCTED AROUND THE
ROOT BALL. BERM SHALL BEGIN
AT ROOT BALL PERIPHERY.

SEE SIDEWALK DETAIL
STR-4

BARRIER ADJACENT TO SIDEWALK
SHALL BE 18 INCHES

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.



CENTRAL LEADER.

ROOT BALL SURFACE SHALL BE
POSITIONED TO BE
1.5 INCHES ABOVE FINISHED
GRADE.

PRIOR TO MULCHING, LIGHTLY TAMP
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.

ORIGINAL GRADE.

SEE ROLLED AND VERTICAL CURB DETAIL
(STR-2)

LOOSENED SOIL. DIG AND TURN THE
SOIL TO REDUCE COMPACTION TO THE
AREA AND DEPTH SHOWN.

EXISTING SOIL.

BARRIER ADJACENT TO THE CURB SHALL BE 24 INCHES

SECTION VIEW

WHEN TREES ARE SET ON UNDISTURBED SOIL AND A RING OF
SOIL IS FIRMED AROUND THE BASE BEFORE BACKFILING, STAKING
IS NOT NEEDED IN MANY LANDSCAPE SETTINGS.

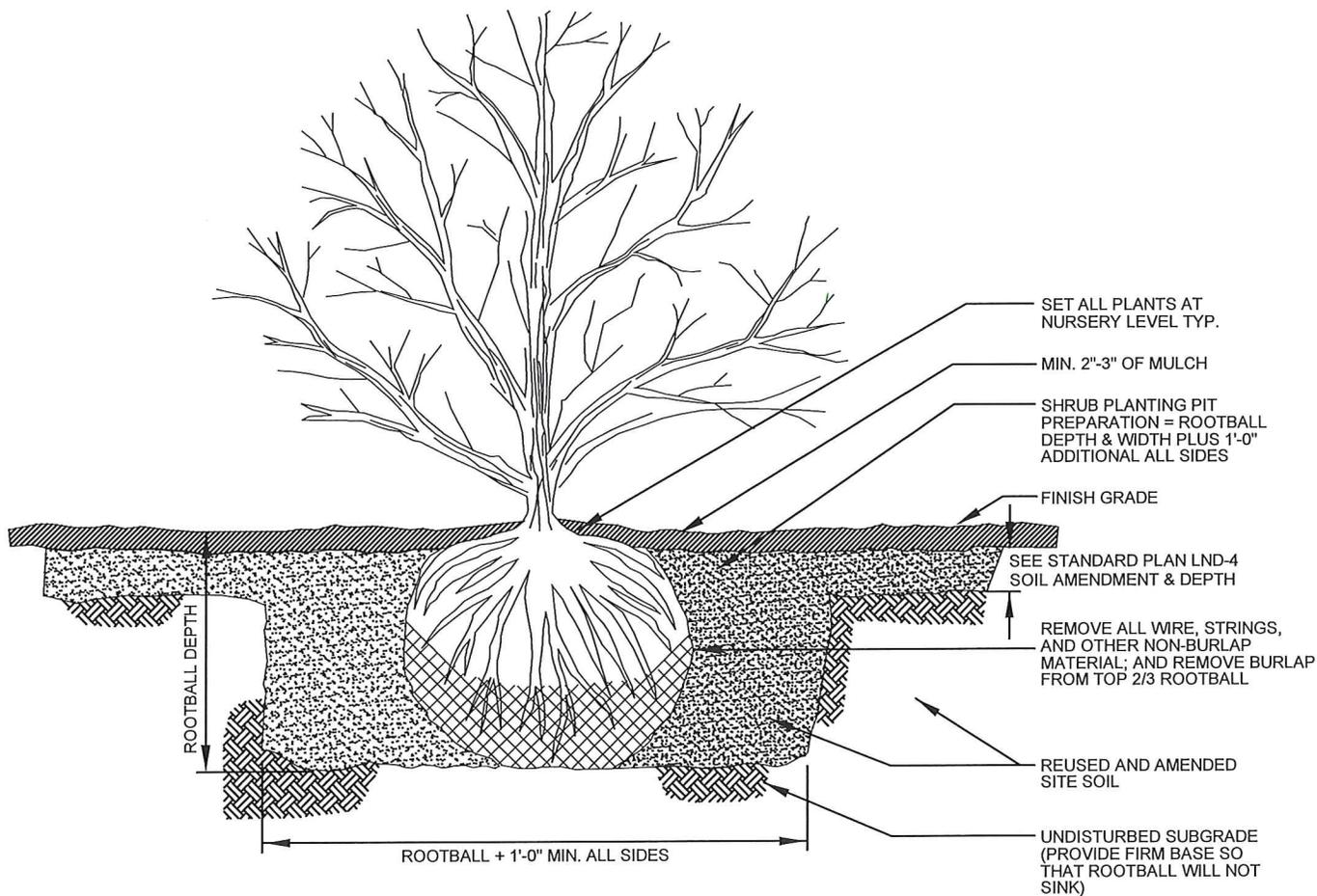


LANDSCAPE
DECIDUOUS TREE PLANTING
IN PLANTING STRIP
NOT TO SCALE

PUBLIC WORKS DEPARTMENT

PLAN NO.
LND-3

REV. DATE:
9/28/2016



LANDSCAPE
SHRUB PLANTING
NOT TO SCALE

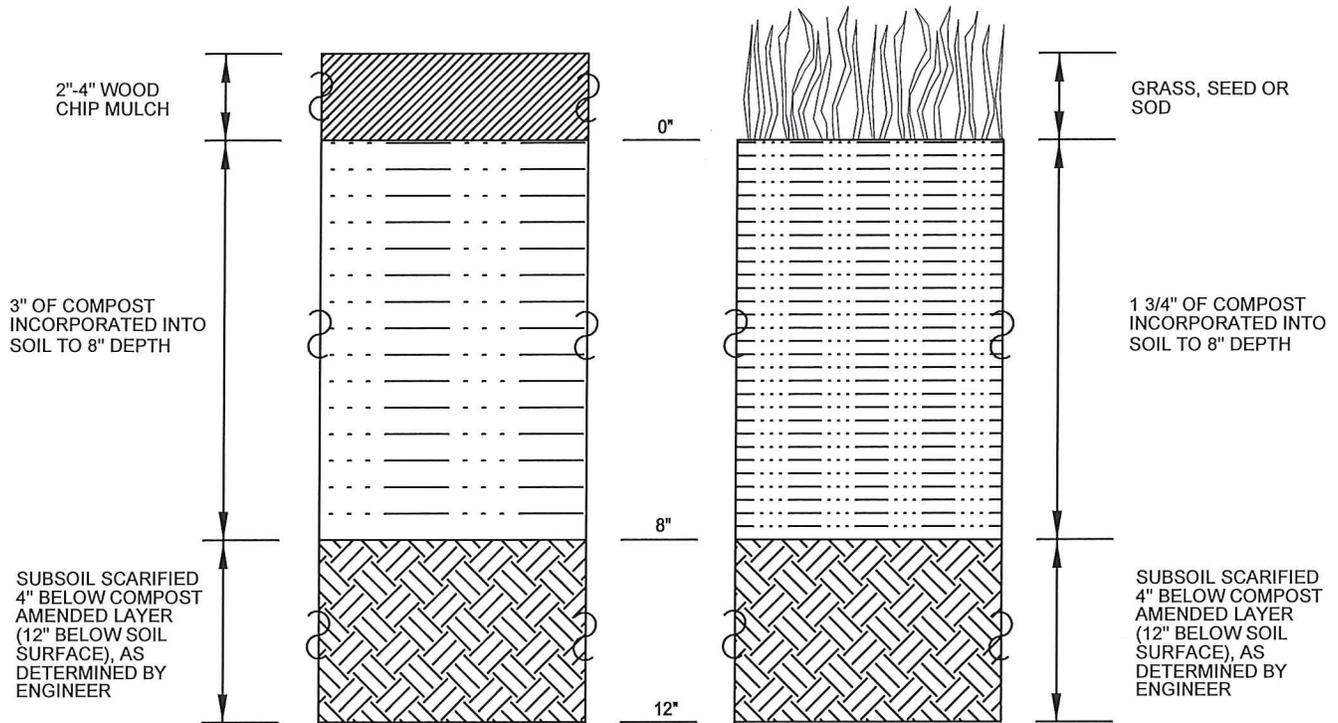
PUBLIC WORKS DEPARTMENT

PLAN NO.
LND-4

REV. DATE:
9/23/2016

PLANTING BEDS

TURF (LAWN) AREAS



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

PUBLIC WORKS DEPARTMENT

PLAN NO.
LND-5

REV. DATE:
9/23/2016