NOTES:

1. Concrete base shall be poured in place. Hand mixed concrete is prohibited. Concrete base need not be formed.

2. Notice to surveyors: any monument set in the City of Tacoma must bear the land surveyor number of the surveyor setting the monument. Monuments set as part of an approved plat are exempt.

3. The surveyor is to supply the City of Tacoma with a copy of the calculations used to determine all monument positions before the monuments are set.

4. Brass marker for City of Tacoma funded projects will be supplied by the City, all other brass markers to be supplied by the contractor.

5. Monument must be magnetically locatable.

6. Prior to removing or destroying a monument, the surveyor or engineer shall apply for a permit from the Department of Natural Resources in accordance with WAC 332-120.
NOTES:
1. This detail shall be used in unpaved areas only.
2. Prior to removing or destroying a monument, the surveyor or engineer shall apply for a permit from the Department of Natural Resources in accordance with WAC 332-120.
NOTES:

When used on high side of roadways, the cross slope of the gutter shall match the cross slope of the adjacent pavement. The height of the curb shall be 6", unless otherwise shown on plans.

Flush with gutter pan at curb ramp entrance or 3/8" vertical lip at driveway entrance.

1. For trench crossings, curb and gutter shall be removed to a minimum 2' cut back over undisturbed soil.
2. In all projects, any remaining sections of curb and gutter less than 5' in length between the project area and the nearest control joint shall also be removed and replaced.
3. All joints shall be saw cut full depth prior to restoration and 3/8" expansion joint installed.
4. Concrete finish shall match existing.
5. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.
6. Foundations shall be fully compacted prior to form placement.
7. Unsuitable foundation shall be replaced with 3/8" crushed surfacing top course.

CITY OF TACOMA
CEMENT CONCRETE CURB AND GUTTER
STANDARD PLAN NO. SU-03

Reviewed By: GMS
Public Works
NA
TACOMA POWER

Reviewed By: DCS
Environmental Services
NA
TACOMA WATER

Approved For Publication
City Engineer
8/10/16
Date
**NOTE:**

B. Flush with gutter pan at curb ramp entrance or 3/4" vertical lip at driveway entrance.

**TYPE "C" MOUNTABLE INTEGRAL CEMENT CONCRETE CURB**

- 1/2" R
- 8" CURB
- 3" CEMENT CONCRETE PAVEMENT
- VAR.

**TYPE "D" MOUNTABLE INTEGRAL CEMENT CONCRETE CURB**

- 1/2" R
- 6" 1" MIN. OR AS DIRECTED BY ENGINEER
- VAR.

**HMA WEDGE CURB DOWNHILL SIDE OF FULL STREET Warp**

- 18" CURB
- ASPHALT CONCRETE PAVEMENT VAR. DEPTH

**CEMENT CONCRETE PEDESTRIAN CURB**

- 6" PEDESTRIAN CURB PREFERRED (4" MIN.)
- 6" CEMENT CONCRETE OR ASPHALT CONCRETE SIDEWALK, PATH, CURB RAMP, OR LANDING.
- 3/8" PREMOLDED JOINT FILLER WHEN ADJACENT TO CEMENT CONCRETE HARD SURFACE

**CEMENT CONCRETE TRAFFIC CURB**

- 1/2" R
- 5 1/2"

**HMA WEDGE CURB STANDARD**

- 12" CURB
- ASPHALT CONCRETE PAVEMENT VAR. DEPTH

**NOTES:**

1. For trench crossings, curb and gutter shall be removed to a minimum 2' cut back over undisturbed soil.
2. In all projects, any remaining sections of curb and gutter less than 5' in length between the project area and the nearest control joint shall also be removed and replaced.
3. All joints shall be saw cut full depth prior to restoration and 3/8" expansion joint installed.
4. Concrete finish shall match existing.
5. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.
6. Foundations shall be fully compacted prior to form placement.
7. Unsuitable foundation shall be replaced with 3/8" crushed surfacing top course.

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**REVIEWED BY**

- DCS
- NA
- TACOMA POWER
- TACOMA WATER

**APPROVED FOR PUBLICATION**

- ENVIRONMENTAL SERVICES
- NA
- PUBLIC WORKS

**CITY OF TACOMA**

- CEMENT CONCRETE CURB AND GUTTER AND ASPHALT WEDGE CURB

**STANDARD PLAN NO.**

- SU-03A

**CITY ENGINEER**

- 8/16/14
NOTES:
1. Sidewalks shall be designed and constructed in accordance with 2010 ADA Standards, 28 CFR, Part 35 and as supplemented by the Public Right of Way Accessibility Guidelines (PROWAG). City of Tacoma prefers sidewalk cross slopes to be designed to a maximum of 1.5% and a minimum of 1.0%.
2. When placing walk adjacent to existing curb and gutter, curb and gutter will be repaired as necessary before placing concrete forms for walk.
3. Staking is required where no curb is present.
4. Thickened edge shall be constructed using cement concrete on all radii. All other locations shall be backfilled and compacted.
5. Combination walk shall be 7' min. on all commercial sites and arterial streets. Combination walk shall be a minimum of 5' on non arterial streets. Dimensions are from back of curb to back of walk. See contract plans for width and placement of sidewalk.
6. All expansion joints shall be full depth with 3/8" pre-molded joint filler.
7. All joints shall be cleaned and edged. External edges shall be 1/4" radius. Internal joints shall be 3/8" radius.
8. All soft and yielding foundation material shall be removed and replaced with crushed surfacing top course (CSTC) per Section 9-03.9(3) of the WSDOT Standard Specifications.
9. All sidewalk shall be replaced to the nearest expansion or contraction joint. All joints shall be cut full depth prior to restoration and 3/8" expansion joint installed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8B) for cement concrete surfaces and 5-04.3(5C) for asphalt concrete surfaces.
10. For sidewalks within the North Slope Historical District area use Standard Plan HD-NS03. See Standard Plan HD-NS01 for North Slope Historic District site map.

TOP SURFACE SHALL BE BROOMED IN THE SAME DIRECTION AS THE EXPANSION JOINT

4" SHINER AROUND 15' PANEL 3/8" EXPANSION JOINT

3/8" EXPANSION JOINT TO MATCH CURB JOINTS NOT TO EXCEED 15'

2" X 1/2" DEEP WESTERN GROOVED CONTRACTION JOINT (TYP.)

4" SHINER AROUND 15'

HEAVY BROOM FINISH (TYP.)

CITY OF TACOMA
CEMENT CONCRETE SIDEWALK
STANDARD PLAN NO. SU-04

APPROVED FOR PUBLICATION
CITY ENGINEER
DATE

REVIEWED BY
PUBLIC WORKS
TACOMA POWER

ENVIRONMENTAL SERVICES
TACOMA WATER

N/A
N/A

N/A
4/28/19

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

DECORATIVE GROOVES
NOTES:

1. Sidewalks shall be designed and constructed in accordance with ADA standards for accessible design, 28 CFR, Part 35 and as supplemented by the public right of way accessibility guidelines (PROWAG). City of Tacoma prefers sidewalk cross slopes to be designed to a maximum of 1.5% and a minimum of 1.0%.

2. When placing walk adjacent to existing curb and gutter, curb and gutter will be repaired as necessary before placing concrete forms for walk per Right-of-Way Restoration Policy.

3. Staking is required where no curb is present. Combination walk shall be 7" min. on all commercial sites and arterial streets. Combination walk shall be a minimum of 5" on non arterial streets. Dimensions are from back of curb to back of walk. See contract plans for width and placement of sidewalk.

4. All expansion joints shall be full depth with 3/8" preformed joint filler.

5. All joints shall be cleaned and edged. External edges shall be 1/2" radius. Internal joints shall be 1/4" radius.

6. Permeable ballast shall meet APWA GSP 2-06.3(3) Subgrade for Permeable Pavements.

7. Subgrade preparation shall meet APWA GSP 4-04.2 Gravel Base and 9-03.9(2).Opt1 Pavement Ballast.

8. All soft and yielding foundation material shall be removed and replaced with ballast per APWA GSP 4-04.2 Gravel Base and 9-03.9(2).Opt1 Permeable Ballast.

9. Geotextile fabric may be required between native soils or amended soils and permeable ballast per the recommendation of the geotechnical professional. Geotextile shall be per WSDOT 9.32.2(1), Tables 1 and 2, nonwoven, moderate survivability.

10. For sidewalks within the North Slope Historic District area use Standard Plan ND-NS03. See Standard Plan HD-NS01 for North Slope Historic District site map.

11. Sidewalk with planter strip may slope in either direction.

12. Planting strip soils shall be per BMP L813 (see Std. Plan GSI-01), if applicable; or scarpify or till subgrade to 3 inch depth. Place 3-inches of topsoil on surface and till into 5-inches of site soil. Install 3-inches of arborist wood chip mulch or as specified on plans. Topsoil layer with a minimum organic matter content of 10% dry weight in planting beds, and 5% in turf areas, and a pH from 6.0 to 8.0 or matching the pH of the original undisturbed soil.

13. All disturbed areas not covered with hard surfaces shall be stabilized by planting or mulching.

14. Where needed, adjust ballast in planting strip to accommodate plants. Keep permeable ballast a minimum 2 feet from trunk of trees.

15. Where ballasted sidewalk is installed adjacent to permeable roadway, the permeable ballast may extend from the sidewalk to the roadway section. See Std. Plan SU-31b.

16. Refer to Std. Plan SU-32 for subgrade terracing, as applicable.
NOTES:
1. See SU-04b(2) for Notes.
NOTES:

1. Sidewalks shall be designed and constructed in accordance with ADA standards for accessible design, 28 CFR, Part 35 and as supplemented by the public right of way accessibility guidelines (PROWAG). City of Tacoma prefers sidewalk cross slopes to be designed to a maximum of 1.5% and a minimum of 1.0%.

2. When placing walk adjacent to existing curb and gutter, curb and gutter will be repaired as necessary before placing concrete forms for walk per Right-of-Way Restoration Policy.

3. Staking is required where no curb is present.

4. Combination walk shall be 7' min. on all commercial sites and arterial streets. Combination walk shall be a minimum of 5' on non arterial streets. Dimensions are from back of curb to back of walk. See contract plans for width and placement of sidewalk.

5. All isolation joints shall be full depth with 3/8" premolded joint filler.

6. All joints shall be clean and edged. Joint edges shall be 1/2" radius.

7. Subgrade preparation shall meet APWA GSP 2-06.3(3) Subgrade for Permeable Pavements.

8. All soft and yielding foundation material shall be removed and replaced with ballast per APWA GSP 4-04.2 Gravel Base and 9-03.9(2).Opt1 Permeable Ballast.

9. Permeable ballast shall meet APWA GSP 4-04.2 Gravel Base and 9-03.9(2).Opt1 Permeable Ballast.

10. All pervious surfaces shall be vacuumed immediately after completion of sawcutting to prevent clogging per Std. Detail SU-14F.

11. Geotextile fabric may be required between native soils and permeable ballast per the recommendation of the geotechnical professional. Geotextile shall be per WSDOT 9.33.2(1) Tables 1 and 2, nonwoven, moderate survivability.

12. Planting strip soils shall be per BMP L613 (see Std. Plan GSI-01), if applicable; or scarify or till subgrade to 3 inch depth. Place 3 inches of topsoil on surface and till into 5-inches of site soil. Install 3-inches of arborist wood chip mulch or as specified on plans. Topsoil layer with a minimum organic matter content of 10% dry weight in planting beds, and 5% in turf areas, and a pH from 6.0 to 8.0 or matching the pH of the original undisturbed soil.

13. Where needed, adjust ballast in planting strip to accommodate plants. Keep permeable ballast a minimum 2 feet from trunk of trees.

14. For ballast deeper than curb, provide a geomembrane barrier per Std. Plan GSI-18 between permeable ballast and road section unless adjacent road is permeable.

15. All disturbed areas not covered with hard surfaces shall be stabilized by planting or mulching.

16. For sidewalks within the North Slope Historic District area, use Std. Plan HD-NS03. See Std. Plan HD-NS01 for North Slope Historic District site map.

17. Refer to Std. Plan SU-32 for subgrade terracing, as applicable.
GENERAL NOTES:
1. Provide a separate directional curb ramp for each marked or unmarked crosswalk. Directional curb ramps are preferred over 45 degree ramps. Curb ramp location shall be placed within the width of the associated crosswalk, or as shown on the Contract Plans. The curb ramp centerline shall be parallel to the direction of the crossing. Forty-five (45) degree curb ramps shall be installed only after approval by the City’s ADA Coordinator or the Street Operations Division Manager.
2. Where “GRADE BREAK” is called out, the entire length of the grade break between the two adjacent surface planes shall be flush and perpendicular to the direction of travel. There shall be no vertical discontinuity between the base of curb ramp and gutter line.
3. Do not place grates, junction boxes, access covers, or other appurtenances in front of the curb ramp or on any part of the curb ramp or turning space. Placement on or in front of ramp flares is allowed.
5. A thickened edge shall be constructed to full depth of adjacent curb along entire curb radius.
6. For sidewalk and curb ramps within the North Slope Historical District area see North Slope Historic District Site Map, HD-NS01. Apply Lamp Black 1lb. per cubic yard of cement concrete or as required for discoloration in accordance with ASTM D209-81 Standard Specifications for Lamp Black pigment.
7. The running slope of a curb ramp shall not exceed 8.3% but does not require the ramp length to exceed 15 feet to avoid chasing the slope indefinitely when connecting to steep grades.
8. Curb ramp, turning space and flares shall receive a broom finish, see WSDOT Standard Specifications 8-14.
9. Return curbs, (pedestrian curbs), may only be used with landscaping or railing. Return curbs, (pedestrian curbs), shall not be used to prevent pedestrians from crossing streets.
10. All curb ramp designs shall be stamped by a Washington State licensed Professional Engineer. If meeting the current design standards is not possible, curb ramps shall be constructed to the maximum extent feasible as indicated by an Engineer’s note on the stamped drawings. Rationale supporting the design variance shall be provided by the Engineer and shall include a description of the scope of work, the site-specific factors affecting compliance, and the measures implemented to improve compliance.
11. Pedestrian traffic should be aligned to the receiving curb ramp. The existing curb ramps shall be evaluated using criteria in the City's Curb Ramp Installation Matrix.
12. Consult the City’s Curb Ramp Installation Matrix and the Right Of Way Restoration Policy for additional requirements.
13. Conduit for APS equipment shall be installed during curb ramp construction at all signalized intersections and at intersections where signalization is anticipated within the next 6 years. Coordinate with Public Works - Engineering, Traffic Section.
14. A Pedestrian Accessibility Control Plan shall be developed in conjunction with each project-specific Temporary Traffic Control Plan for all work in the ROW.
15. Pedestrian traffic shall NOT be directed behind the stop bar.
16. Curb ramp alignment should be consistent with crosswalk alignment
17. Curb ramp shall be 5’ minimum in width.
18. Catch basins shall be located upstream of curb ramps outside of flare/wing for new construction or when performing storm sewer upgrades.
19. For constructability purposes, the City recommends designing to less than the maximum allowable slopes.
CURB RAMP/TURNING SPACE WIDTH 5'-0" MIN.
- SEE CONTRACT PLANS

CEMENT CONCRETE SIDEWALK,
SEE STANDARD PLAN SU-04

CEMENT CONCRETE PEDESTRIAN CURB
PERMITTED ADJACENT TO LANDSCAPING,
TAPER CURB, SEE NOTE 4. IF PEDESTRIAN
CURB IS NEEDED AT OTHER LOCATIONS,
RAILING MAY BE REQUIRED TO PREVENT
CROSS TRAVEL.

PLAN VIEW
(SHOWN WITH PLANTER STRIP/LANDSCAPING)

PLANTER STRIP/LANDSCAPING
CURB, OR CURB
AND GUTTER
FACE OF CURB
RAMP FLUSH WITH GUTTER
CROSSWALK

NOTES:
See Standard Plan SU-05 for
referenced notes

LEGEND
SLOPE IN EITHER
DIRECTION

DCS
PUBLIC WORKS
NA
TACOMA POWER

GMS
ENVIRONMENTAL
SERVICES
NA
TACOMA WATER

APPROVED FOR PUBLICATION

CITY OF TACOMA

PERPENDICULAR CURB RAMP
TYPE 'B'

STANDARD PLAN NO. SU-05B
CURB RAMP/TURNING SPACE WIDTH 5'-0" MIN.
- SEE CONTRACT PLANS

TUNING SPACE

GRADE BREAKS SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL

3/8" EXPANSION JOINT (TYP.)
CURB AND GUTTER

FOR SIDEWALK WIDTHS, SEE STANDARD PLAN SU-04 AND CONTRACT PLANS, OR MATCH EXISTING (TYP.)
TAPER CURB (TYP.)

CROSSWALK

PLAN VIEW

AS NEEDED, CEMENT CONCRETE PEDESTRIAN CURB CONSTRUCTED BEHIND WALK, HEIGHT VARIES, SEE NOTE 4

SIDEWALK

DETECTABLE WARNING SURFACE, SEE STANDARD PLANS SU-5G
TURNING SPACE FLUSH WITH GUTTER

ISOMETRIC VIEW

SECTION DETAIL A-A

CEMENT CONCRETE PEDESTRIAN CURB, SEE NOTE 4

5'-0" MIN.
SEE CONTRACT PLANS OR MATCH NEAREST JOINT

VARIETY

4" (TYP.)
TURNING SPACE

DETECTABLE WARNING SURFACE, SEE STANDARD PLAN SU-05G
GRADE BREAK
COUNTER SLOPE 5.0% MAX.
GRADE BREAK TOP OF ROADWAY

SECTION DETAIL B-B

Curb & gutter, see note 4
18" THICKENED EDGE, SEE NOTE 5

3/8" EXPANSION JOINT (TYP.)

NOTES:
See Standard Plan SU-05 for referenced notes

LEGEND
- SLOPE IN EITHER DIRECTION

ENVIRONMENTAL SERVICES

TACOMA WATER

CITY OF TACOMA

PUBLIC WORKS

TACOMA POWER

PARALLEL CURB RAMP
TYPE 'A'

STANDARD PLAN NO. SU-05D

8/16/16

ACCEP TED FOR PUBLICATION

CITY ENGINEER

DATE

REVIEWED BY

GMS

NA

NA
CURB RAMP/TURNING SPACE WIDTH 5'-0" MIN. - SEE CONTRACT PLANS

3/8" EXPANSION JOINT (TYP.)
RAMP
SIDWALK

FOR SIDEWALK WIDTHS, SEE
STANDARD PLAN SU-04 AND
CONTRACT PLANS, OR
MATCH EXISTING (TYP.)
CURB AND GUTTER
FACE OF CURB, TAPER CURBING
CROSSWALK
PLAN VIEW

AS NEEDED, CEMENT CONCRETE PEDESTRIAN CURB
CONSTRUCTED BEHIND WALL, HEIGHT VARIES, SEE NOTE 4

PEDESTRIAN CURB PERMITTED
ADJACENT TO LANDSCAPING. IF
RETURN CURB IS NEEDED AT OTHER
LOCATIONS, RAILING MAY BE REQUIRED
TO PREVENT CROSS TRAVEL
FLARE - A FLARE IS PREFERRED
OVER A RETURN CURB.
DETECTABLE WARNING SURFACE,
SEE STANDARD PLANS SU-5G
TURNING SPACE FLUSH WITH GUTTER

GRADE BREAKS SHALL BE
PERPENDICULAR TO THE
DIRECTION OF TRAVEL (TYP.)

ISOMETRIC VIEWS

PEDESTRIAN CURB PERMITTED
ADJACENT TO LANDSCAPING AND
WHERE THERE IS NO EVIDENCE OF
PEDESTRIAN TRAFFIC.

NOTES:
See Standard Plan SU-05 for
referenced notes

LEGEND
SLOPE IN EITHER
DIRECTION

SECTION DETAIL A-A

SECTION DETAIL B-B

Cement Concrete
Pedestrian Curb, See Note 4

5'-0" MIN.
SEE CONTRACT PLANS
OR MATCH
NEAREST JOINT

4" (TYP.)
TURNING SPACE

5'-0"
SEE CONTRACT PLANS

18" THICKENED EDGE,
SEE NOTE 5

15'-0" MAX., SEE NOTE 7
GRADE BREAK

2.0% MAX.

Cement Concrete
Return Curb, See Note 4

10% MAX.

DCS
PUBLIC WORKS
TACOMA POWER

GMS
ENVIRONMENTAL SERVICES
TACOMA WATER

APPROVED FOR PUBLICATION
CITY ENGINEER

CITY OF TACOMA
PARALLEL CURB RAMP
TYPE 'B'

STANDARD PLAN NO. SU-05E

5'-0"
SEE CONTRACT PLANS

10% MAX.

GRADE BREAK

Cement Concrete
Return Curb, See Note 4

10% MAX.

CEMENT CONCRETE
PEDESTRIAN CURB, SEE NOTE 4

5'-0" MIN.
SEE CONTRACT PLANS
OR MATCH NEAREST JOINT

2.0% MAX.

Curb & Gutter,
See Note 4

4" (TYP.)
TURNING SPACE

18" THICKENED EDGE,
SEE NOTE 5

15'-0" MAX., SEE NOTE 7
GRADE BREAK

2.0% MAX.

Cement Concrete
Return Curb, See Note 4

10% MAX.

DCS
PUBLIC WORKS
TACOMA POWER

GMS
ENVIRONMENTAL SERVICES
TACOMA WATER

APPROVED FOR PUBLICATION
CITY ENGINEER

CITY OF TACOMA
PARALLEL CURB RAMP
TYPE 'B'

STANDARD PLAN NO. SU-05E
NOTES:
1. The Detectable Warning Surface shall extend the full width of the curb ramp (exclusive of flares) or the turning area.
2. The rows of truncated domes in a Detectable Warning Surface shall be parallel with the direction of wheelchair travel.
4. If a curb is not present, place the Detectable Warning Surface at the edge of the pavement.
5. The Detectable Warning Pattern shall be installed using Vanguard ADA Systems, ADA Solutions, or Armor-Tile "Cast in Place Systems," manufactured by Engineering Plastics Inc., or approved equal. Concrete shall be blocked out as required for the installation of the Detectable Warning Pattern material.
6. The Detectable Warning Pattern area shall be yellow and shall match the color of Federal Standard 595a, color number 33538.

TRUNCATED DOME DETAILS
TRUNCATED DOME SPACING

SECTION DETAIL A-A
TRUNCATED DOME

Camber Warning Surface Detal
NOTES:
1. The Detectable Warning Surface shall extend the full width of the curb ramp (exclusive of flares) or the turning space.
2. The edge of the Detectable Warning Surface shall be placed along the back of the curb line unless otherwise noted.
3. The Detectable Warning Surface shall be within 2" (max.) of the edge of the ramp.
4. The rows of truncated domes in the Detectable Warning Surface shall be parallel with the direction of travel.
6. If a curb is not present, place the Detectable Warning Surface at the edge of the pavement.
7. The Detectable Warning Pattern shall be installed using Vanguard ADA Systems, or Armor-Tile "Cast in Place Systems" as manufactured by Engineering Plastics Inc., or approved equal. Concrete shall be blocked out as required for the installation of the Detectable Warning Pattern material. See Standard Plan SU-05G for additional information.
8. The Detectable Warning Pattern area shall be yellow and shall match the color of Federal Standard 595a, Color Number 33538 unless otherwise noted.
FOR INFORMATIONAL PURPOSES ONLY
DO NOT INCLUDE IN CONTRACT SPECIFICATIONS
R303.2.2 PARALLEL CURB RAMPS.

R303.2.2.1 RUNNING SLOPE.
The running slope shall be 8.3% maximum but shall not require the ramp length to exceed 15.0 feet.

R303.2.2.2 CROSS SLOPE.
The cross slope shall be 2% maximum.

R303.3 WIDTH.
The clear width of landings, blended transitions, and curb ramps, excluding flares, shall be 4.0 feet minimum.

R303.3.1 SURFACES.
Surfaces of curb ramps, blended transitions, and landings shall comply with R303 - Gratings, access covers, and other appurtenances shall not be located on curb ramps, landings, blended transitions and gutters within the pedestrian access route.

R303.3.2 DETECTABLE WARNINGS.
Detectable warning surfaces complying with R304 shall be provided, where a curb ramp, landing, or blended transition connects to a street.

R303.4.1 SIZE.
Detectable warning surfaces shall extend 24 in. minimum in the direction of travel and the full width of the curb ramp (exclusive of flares), the landing or, the blended transition.

R303.4.2 ALIGNMENT.
The rows of truncated domes in a detectable warning surface shall be aligned to be perpendicular or radial to the grade break between the ramp, landing, or blended transition and the street.

R303.4.3 GRADE BREAKS.
Grade breaks at the top and bottom of perpendicular curb ramps shall be perpendicular to the direction of ramp run. At least one end of the bottom grade break shall be at the back of curb. Grade breaks shall not be permitted on the surface of curb ramps, blended transitions, landings, and gutter areas within the pedestrian access route. Surface slopes that meet the grade breaks shall be flush.

CROSSWALK.

R303.3.1.2 CROSS SLOPE.
The cross slope at intersections shall be 2% maximum. The cross slope at mid-block crossings shall be permitted to be warped to meet street grade.

NOTES:
1. CURB RAMPS SHALL BE LOCATED, CONSTRUCTED OR RETROFITTED IN ACCORDANCE WITH ADA STANDARDS FOR ACCESSIBLE DESIGN, 28 CFR, PART 36 AS SUPPLEMENTED BY THE DRAFT PUBLIC WORKS RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG). THE CITY OF TACOMA STANDARD PLANS AND THE CITY'S CURB RAMP INSTALLATION MATRIX.

2. CONDUIT FOR APE EQUIPMENT SHALL BE INSTALLED DURING CURB RAMP CONSTRUCTION AT ALL SIGNALIZED INTERSECTIONS AND AT INTERSECTIONS WHERE SIGNALIZATION IS ANTICIPATED WITHIN THE NEXT 5 YEARS. COORDINATE WITH PUBLIC WORKS - ENGINEERING, TRAFFIC SECTION.

R303.2.2 REFERENCE TO PROWAG SECTION, 2005 DRAFT RULE (IDENTIFIED AS CURRENT BEST PRACTICE IN ACCESSIBLE PEDESTRIAN DESIGN UNDER FHWA FEDERAL AID (04) REGULATION).

PROWAG GUIDELINES.
TYPICAL PARALLEL CURB RAMP DESIGN STANDARDS.

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN NO. SU-05J

FOR INFORMATIONAL PURPOSES ONLY
DO NOT INCLUDE IN CONTRACT SPECIFICATIONS.
NOTES
1. The clearance between the face of curb and any obstruction, except mail boxes, shall be a minimum of 1'-6" and shall be in accordance with applicable standards. The front of a mail box shall be 6" to 8" from the face of curb.
2. Sidewalk cafes, artwork, poles, mailboxes, vault lids, ramps, etc., may not reduce the width of the sidewalk to less than 5' for residential streets and 7' for arterial streets and commercial areas, excluding the curb width.
3. All obstructions shall meet requirements for cane detection. See City of Tacoma Design Manual Chapter 8.
4. The following criteria shall only be used in rare circumstance when an obstruction cannot be relocated and does not allow the minimum required sidewalk width:
   a) If the sidewalk is new or replaced and cannot meet the minimum clearance requirements due to an existing obstruction, then a maximum extent feasible (MEF) justification shall be included in the Plans. Rationale supporting the MEF shall be provided by the Engineer and shall include a description of the scope of work, the site-specific factors affecting compliance, and the measures implemented to improve compliance. The MEF shall be submitted and approved by the City of Tacoma Traffic Engineering Division and ADA Coordinator prior to requesting project bids or permit approval.
   b) When placing a new obstruction in an existing sidewalk and the minimum clearance requirements cannot be met, a MEF shall be submitted and approved by the City of Tacoma Traffic Engineering Division and ADA Coordinator prior to requesting project bids or permit approval.
5. See Tacoma's Design Manual Chapter 8, Pedestrian Facilities, for additional information on Pedestrian Access Routes (PARs).
6. Sidewalk taper around obstructions shall be 5:1. If a 5:1 taper cannot be achieved, then an MEF justification shall be included on the Plans for review and approval by City Staff. Sidewalk shall comply with SU-04.
1. Use the following as a guide of when each Entrance or Access Type should be used:
   
1.a. Cement Concrete Driveway Entrances Type 1 (Entrances) or Accesses Type 1 (Accesses) shall be used at driveways where the planting strip width is 3' or greater. See Standard Plan SU-07A.
   
1.b. Cement Concrete Driveway Entrances Type 2 (Entrances) or Access Type 2 (Accesses) shall be used at driveways and alleys where the planting strip is less than 3' wide. See Standard Plan SU-07B.
   
1.c. Cement Concrete Alley Entrance Type 3 (Entrances) or Access Type 3 (Accesses) shall be used at alleys where the planting strip is 3' wide or greater. See Standard Plan SU-07C.
   
1.d. New proposed planter widths shall be 5' min, with Type 1 Driveway Entrance or Type 3 Alley Entrance

2. Standard Concrete shall be a minimum compressive strength of 3,000 PSI.

3. Concrete Joints:
   
3.a. All joints shall be cleaned & edged.
   
3.b. All expansion or isolation joints shall be full depth.
   
3.c. External joints to the driveway shall be 1/2" radius. Internal joints to the driveway shall be 1/4" radius.
   
3.d. All joints shall be saw cut full depth prior to restoration and 3/8" expansion joint installed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification Section 5-03.

4. Entrances and Accesses wider or narrower than shown on this plan require approval of the Director of Public Works.

5. Entrances and Accesses shall have a brushed finish in a transverse direction to the center line of Entrance or Access.

6. Entrances or Accesses wider than 20' require a center line expansion joint.

7. When trenching through an Entrance or Access:
   
7.a. If Entrance or Access is 20' or less in width, full replacement is required.
   
7.b. If Entrance or Access is greater than 20' in width, a minimum 2' wide cut back over undisturbed soil is required and replacement shall extend to the nearest control joint.

8. Transition panels are required when a new driveway entrance or access matches into a sidewalk with a cross slope greater than 2%. Transition panels shall be a minimum of 5' in length.

9. For Entrances or Accesses within the North Slope Historical District area use Standard Plan HD-NS02. See Standard Plan HD-NS01 for map of Historical District area limits.

10. Permeable surfacing may be allowed for Entrances or Accesses. Refer to Standard Plans PD-01 and PD-02 as applicable. Do not compact subgrade for permeable surfacing and refer to APWA GSP 2-06.3(3) Subgrade for Permeable Pavements. A soils report is required and modeling may be necessary per SWMM BMP L633.


13. A 2" Ø PVC Sch. 80 Pipe with capped ends shall be installed as shown, per TMC 10.14.070. Pipe shall be buried 24 inches below finished grade and have a pull string and location wire per WSDOT 9-29

14. A detectable warning surface shall be placed at any Entrance or Access if, and only if, any of the following are true/expected:
   - The Average Daily Traffic of the alley/driveway is greater than 700 or is reasonably expected to exceed 700 vehicles per typical day upon future development, such as alleys in regional growth centers and mixed-use centers where zoning supports significant growth.
   - It is located in a high pedestrian use area such as, a designated pedestrian street in a mixed-use center, or a school walking route.
   - A safety concern is documented by the City Traffic Engineer.

15. The detectable warning pattern, if needed, shall be placed the full width of the sidewalk in accordance with City of Tacoma Standard Plan SU-05A.

16. When an existing entrance or access does not meet current ADA standards as defined by the City of Tacoma's Design Manual, the entire entrance or access shall be replaced to current ADA standards.
 FOR DRIVEWAY ENTRANCE AND ACCESS NOTES, SEE STANDARD PLAN SU-07

STANDARD CONCRETE SECTION DETAIL A-A

NOTE: DESIGNED SECTION REQUIRED FOR PERMEABLE SURFACING. SEE NOTES 10 AND 11 ON SU-07.
STANDARD CONCRETE SECTION DETAIL A-A

EX. SIDEWALK, TYP.

TRANSITION PANEL, 5’ MIN.
SEE NOTE 8 ON SU-07

A DETECTABLE WARNING SURFACE
SHALL BE PLACED AT ALLEY
ENTRANCES AND HIGH VOLUME
COMMERCIAL DRIVEWAYS IF, AND
ONLY IF, ANY OF THE CONDITIONS
IN NOTE 14 OF SU-07 ARE
TRUE/EXPECTED

ROADWAY PAVEMENT DISTURBED
DURING CONSTRUCTION OF DRIVEWAY
SHALL BE RESTORED IN ACCORDANCE
WITH STANDARD PLANS SU-14 OR SU-15.

A DETECTABLE WARNING SURFACE
SHALL BE PLACED AT
ALLEY ENTRANCES AND HIGH
VOLUME COMMERCIAL
DRIVEWAYS IF, AND
ONLY IF, ANY OF THE CONDITIONS
IN NOTE 14 OF SU-07 ARE
TRUE/EXPECTED

FOR DRIVEWAY ENTRANCE
AND ACCESS NOTES, SEE
STANDARD PLAN SU-07

NOTE: DESIGNED SECTION REQUIRED FOR PERMEABLE
SURFACING. SEE NOTES 10 AND 11 ON SU-07.

STANDARD CONCRETE SECTION DETAIL A-A

NOTES

ENVIRONMENTAL SERVICES
TACOMA WATER
TACOMA POWER

REVIEWED BY

APPROVED FOR PUBLICATION

CITY OF TACOMA
CEMENT CONCRETE DRIVEWAY
ENTRANCE AND ACCESS
TYPE 2

PUBLIC WORKS

TACOMA-BY-WATER

10/02/2022

DATE

STANDARD PLAN NO. SU-07B
FOR ALLEY ENTRANCE
AND ACCESS NOTES, SEE
STANDARD PLAN SU-07

FOR SIDEWALK WIDTHS, SEE STANDARD PLAN SU-04 AND CONTRACT PLANS, OR MATCH EXISTING, (TYP.)

#4 GRADE 60 REBAR EACH SIDE, 6" ON CENTER, 3" CLEARANCE EACH CONCRETE FACE

2" Ø PIPE, SEE NOTES 12 AND 13 ON SU-07

2' 0" PIPE, SEE NOTES 12 AND 13 ON SU-07

15' MAX 5' MIN

ALLEY PAVING WIDTH

8.3% (MAX)

8" (MIN.)

1 1/2" DEEP CONTRACTION JOINT

1' WEDGE

A DETECTABLE WARNING SURFACE SHALL BE PLACED AT ALLEY ENTRANCES IF, AND ONLY IF, ANY OF THE CONDITIONS IN NOTE 14 OF SU-07 ARE TRUE/EXPECTED

3/8" CONTRACTION JOINT (TYP.) ISOLATION JOINT FOR PERVERIOUS CONCRETE (TYP.)

BACK OF WEDGE CURB TO ALLEY PAVING WIDTH

BACK OF WEDGE CURB TO ALLEY PAVING WIDTH

3/8" EXPANSION JOINT (TYP.)

3/4" LIP WITH 1/4" R.

12% MAX

GRADE BREAK VARIABLE

8" (MIN)

CRUSHED SURFACING

SUITABLE COMPACTED SUBGRADE

NOTE: DESIGNED SECTION REQUIRED FOR PERMEABLE SURFACING. SEE NOTES 10 AND 11 ON SU-07.

NOTE: DESIGNED SECTION REQUIRED FOR PERVERIOUS CONCRETE. SEE NOTES 10 AND 11 ON SU-07.

15' MAX 5' MIN

CONSTRUCTION OF ACCESS SHALL BE RESTORED IN ACCORDANCE WITH STANDARD PLANS SU-14 OR SU-15

ROADWAY PAVEMENT DISTURBED DURING CONSTRUCTION OF ACCESS SHALL BE RESTORED IN ACCORDANCE WITH STANDARD PLANS SU-14 OR SU-15

TRANSITION PANEL, 5' MIN. SEE NOTE 8 ON SU-07

TRANSITION PANEL, 5' MIN. SEE NOTE 8 ON SU-07

EX. SIDEWALK, TYP.

STANDARD CONCRETE SECTION DETAIL B-B

STANDARD CONCRETE SECTION DETAIL A-A
NOTES:
1. For stairway handrail details, refer to Standard Plan No. SU-11.
2. Concrete shall be a minimum compressive strength of 3,000 PSI.
NOTE:
For cement concrete stairway details, refer to Standard Plan No. SU-10
1/8" MIN. THICKNESS GALVANIZED STEEL. INTERIOR SIDE DIMENSIONS 1/2" GREATER THAN POST DIMENSIONS.

CLASS 3000 CONCRETE

NOTES:
1. Timber shall be douglas fir, dense construction grade, and shall be pressure treated.
2. Steel tube shall conform to ASTM A53 or ASTM A53 Grade A.
4. All steel parts shall be galvanized.

REMovable Bollard

PAINT TOP 5" WHITE

1" CHAMFER (4 SIDES)

500# MIN. TEST GALVANIZED CHAIN ANCHORED IN CONCRETE

ANCHOR WITH 6"x3/8" STEEL ROD

3"Ø MIN. DRAIN PIPE

24" x 24" x 3"

8"x8" S4S x 4'-0"

8"x8" S4S x 5'-6"

1 1/2"

3/4"

1/2" GALVANIZED EYE BOLT w/ WASHER AND NUT. RECESS NUT AND PEEN BOLT THREADS.

FIXED BOLLARD
NOTES:
1. 4"x4"x8' wooden posts shall be western red cedar or pressure treated wood.
2. Hardware for mounting signs shall be hot dipped galvanized 5/16" x 2" hex head lag screws. The washers shall be USS F/W 5/16" zinc.
3. The end-of-road marker shall be one of the following:
   - a marker consisting of nine red retroreflectors with a minimum 3" diameter, mounted symmetrically on a red diamond panel 24 in. on a side (OM4-1)
   - a retroreflective red diamond panel 24 in. on a side (OM4-3).
4. Provide minimum of four posts as shown.
1. All pavement restoration work shall also meet the requirements of the City of Tacoma’s Right of Way Restoration Policy. See Standard Plan SU-14D for any streets exempt from this policy.

2. Temporary Surface Restoration:
   - Arterials, industrial areas and/or roads with bus traffic: Temporary patches shall be compacted and leveled to a minimum of 3-inches of hot-mix asphalt (HMA).
   - Residential and alleys: Temporary patches shall be compacted and leveled to a minimum of 2-inches of either HMA or cold-mix asphalt. Temporary patches between October 1st and March 31st shall be made with HMA unless otherwise approved.

3. All permanent final patches shall be rectangular in shape and constructed parallel and perpendicular to the road centerline.

4. Where existing pavement defects are in close proximity to the new cut, the inspector may require additional pavement removal to eliminate the pavement defect.

5. The final cut edge of paved surfaces shall be smooth and straight, consistent with grinding or saw cutting devices. No jagged, broken or undermined edges are allowed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for concrete cement surfaces and 5-04.3(5)C for asphalt concrete surfaces.

6. Final compaction of HMA shall be 91% of maximum density.
   - Isolated patches: Minimum 1 test per patch up to 150 square feet, and 1 test required every additional 300 square feet, thereafter.
   - Trench patches: 1 test every 150 linear feet of trench with a minimum of 2 tests per trench.

    Testing shall be performed by a certified independent testing laboratory or certified tester, as approved by the City’s Construction Division. Tests shall be completed and reports identifying the project number submitted to the City Construction Division within 48 hours of test.

7. All joints between the new and original asphalt pavement shall be sealed with hot asphalt or asphalt emulsion and covered with dry paving sand before the asphalt solidifies. Existing surfaces shall be prepared in accordance with WSDOT Standard Specification 5-04.3(5)A prior to placing any new pavement surfaces.

8. Longitudinal construction joints shall only be located at the center or edge of affected lanes.
   - Streets and courts 20 feet or less in width and all alleys are considered one-lane streets.
   - Non-arterial streets and courts greater than 20 feet in width with no traffic channelization are considered two-lane streets with one-lane either side of the centerline of the street.
   - Non-arterial streets greater than 32 feet in width with no traffic channelization may be considered three lane streets upon prior approval from the City Engineer on a case by case basis.

9. Transverse construction joints terminate at the edge of the 2' cut back.

10. For municipal capital improvement projects, cement concrete base pavement shall be in accordance with WSDOT Standard Specification 5-05 for cement concrete pavement. For non-municipal capital improvement projects, concrete shall be a minimum compressive strength of 4,000 PSI.

11. Dowel in accordance with WSDOT Standard Plan A-60.10-00 for arterials, industrial areas, and/or roads with bus traffic. For residential streets the dowel bars may be reduced to 1-inch in diameter. In lieu of dowels, full panel replacement is acceptable.
1. All pavement restoration work shall also meet the requirements of the City of Tacoma's Right of Way Restoration Policy. See Standard Plan SU-14E for any streets exempt from this policy.

2. Temporary Surface Restoration:
   Arterials, industrial areas and/or roads with bus traffic: Temporary patches shall be compacted and leveled to a minimum of 3-inches of hot-mix asphalt (HMA).
   Intersections and alleys: Temporary patches shall be compacted and leveled to a minimum of 2-inches of either hot-mix asphalt or cold-mix asphalt. Temporary patches between October 1st and March 31st shall be made with hot-mix asphalt unless otherwise approved.

3. All permanent final patches shall be rectangular in shape and constructed parallel and perpendicular to the road centerline.

4. Where existing pavement defects are in close proximity to the new cut, the inspector may require additional pavement removal to eliminate the pavement defect.

5. The final cut edge of paved surfaces shall be smooth and straight, consistent with grinding or saw cutting devices. No jagged, broken or undermined edges are allowed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.

6. Final compaction of HMA shall be 91% of maximum density.
   Isolated patches: Minimum 1 test per patch up to 150 square feet, and 1 test required every additional 300 square feet, thereafter.
   Trench patches: 1 test every 150 linear feet of trench with a minimum of 2 tests per trench.
   Testing shall be performed by a certified independent testing laboratory or certified tester, as approved by the City’s Construction Division. Tests shall be completed and reports identifying the project number submitted to the City Construction Division within 48 hours of test.

7. All joints between the new and original asphalt pavement shall be sealed with hot asphalt or asphalt emulsion and covered with dry paving sand before the asphalt solidifies. Existing surfaces shall be prepared in accordance with WSDOT Standard Specification 5-04.3(5)A prior to placing any new pavement surfaces.

8. Longitudinal construction joints shall only be located at the center or edge of affected lanes.
   Streets and courts 20 feet or less in width and all alleys are considered one-lane streets.
   Non-arterial streets and courts greater than 20 feet in width with no traffic channelization are considered two-lane streets with one-lane either side of the centerline of the street.
   Non-arterial streets greater than 32 feet in width with no traffic channelization may be considered three lane streets upon prior approval from the City Engineer on a case by case basis.

9. Transverse construction joints terminate at the edge of the 2" cut back.

10. For municipal capital improvement projects, cement concrete base pavement shall be in accordance with WSDOT Standard Specification 5-05 for cement concrete pavement. For non-municipal capital improvement projects, concrete shall be a minimum compressive strength of 4,000 PSI.

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CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION

TYPICAL PAVEMENT RESTORATION FOR ASPHALT OVER RIGID BASE BRICK OR STONE BLOCK PAVEMENT

STANDARD PLAN NO. SU-14B
NOTES:

1. **All pavement restoration work shall also meet the requirements of the City of Tacoma's Right of Way Restoration Policy.**

2. **Temporary Surface Restoration:**
   - Arterials, industrial areas and/or roads with bus traffic: Temporary patches shall be compacted and leveled to a minimum of 3-inches of hot-mix asphalt (HMA).
   - Residentials and alleys: Temporary patches shall be compacted and leveled to a minimum of 2-inches of either HMA or cold-mix asphalt. Temporary patches between October 1st and March 31st shall be made with HMA unless otherwise approved.

3. **All permanent final patches shall be rectangular in shape and constructed parallel and perpendicular to the road centerline.**

4. **Where existing pavement defects are in close proximity to the new cut, the inspector may require additional pavement removal to eliminate the pavement defect.**

5. **The final cut edge of paved surfaces shall be smooth and straight, consistent with grinding or saw cutting devices. No jagged, broken or undermined edges are allowed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.**

6. **Permanent Panel Replacement:**
   - Arterials, industrial areas and/or roads with bus traffic: 100% panel replacement is required for all affected panels. Monolithic curbs will be poured at time of panel replacement.
   - Residentials and Alleys: Panels cut greater than ½ the panel length, width, or total area, including the 2-foot cut back, will require 100% panel replacement. Panels cut less than ½ the panel length, width, or total area, including the 2-foot cut back will require 50% panel replacement. Three-piece panels are not acceptable and will require 100% panel replacement.

7. **For municipal capital improvement projects, cement concrete base pavement shall be in accordance with WSDOT Standard Specification 5-05 for cement concrete pavement. For non-municipal capital improvement projects, concrete shall be a minimum compressive strength of 4,000 PSI.**

8. **Dowel in accordance with WSDOT Standard Plan A-60.10-00 for arterials, industrial areas, and/or roads with bus traffic. In residential streets the dowel bars may be reduced to 1-inch in diameter. In lieu of dowels, full panel replacement is acceptable.**
NOTES:

1. This Standard Plan shall only apply to streets that are exempt from the City of Tacoma's Restoration Policy. See Standard Plan SU-14A for any streets not exempt from this policy.

2. Temporary Surface Restoration:
   Arterials, industrial areas and/or roads with bus traffic: Temporary patches shall be compacted and leveled to a minimum of 3-inches of hot-mix asphalt (HMA).
   Residentials and alleys: Temporary patches shall be compacted and leveled to a minimum of 2-inches of either HMA or cold-mix asphalt. Temporary patches between October 1st and March 31st shall be made with HMA unless otherwise approved.

3. All permanent final patches shall be rectangular in shape and constructed parallel and perpendicular to the road centerline.

4. Where existing pavement defects are in close proximity to the new cut, the inspector may require additional pavement removal to eliminate the pavement defect.

5. The final cut edge of paved surfaces shall be smooth and straight, consistent with grinding or saw cutting devices. No jagged, broken or undermined edges are allowed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.

6. Final compaction of HMA shall be 91% of maximum density. Testing shall be performed by a certified independent testing laboratory or certified tester, as approved by the City's Construction Division. Tests shall be completed and reports identifying the project number submitted to the City Construction Division within 48 hours of test.

7. If remaining pavement adjacent to the patch is less than 3' wide, remove and replace to match existing pavement.

8. All joints between the new and original asphalt pavement shall be sealed with hot asphalt or asphalt emulsion and covered with dry paving sand before the asphalt solidifies. Existing surfaces shall be prepared in accordance with WSDOT Standard Specification 5-04.3(5)A prior to placing any new pavement surfaces.

9. For municipal capital improvement projects, cement concrete base pavement shall be in accordance with WSDOT Standard Specification 5-05 for cement concrete pavement. For non-municipal capital improvement projects, concrete shall be a minimum compressive strength of 4,000 PSI.

10. Dowel in accordance with WSDOT Standard Plan A-60.10-00 for arterials, industrial areas, and/or roads with bus traffic. For residential streets the dowel bars may be reduced to 1-inch in diameter. In lieu of dowels, full panel replacement is acceptable.
NOTES:

1. This Standard Plan shall only apply to streets that are exempt from the City of Tacoma’s Restoration Policy. See Standard Plan SU-14B for any streets not exempt from this policy.

2. Temporary Surface Restoration:
   Arterials, industrial areas and/or roads with bus traffic: Temporary patches shall be compacted and leveled to a minimum of 3-inches of hot-mix asphalt (HMA).
   Residential and alleys: Temporary patches shall be compacted and leveled to a minimum of 2-inches of either hot-mix asphalt or cold-mix asphalt.
   Temporary patches between October 1st and March 31st shall be made with hot-mix asphalt unless otherwise approved.

3. All permanent final patches shall be rectangular in shape and constructed parallel and perpendicular to the road centerline.

4. Where existing pavement defects are in close proximity to the new cut, the inspector may require additional pavement removal to eliminate the pavement defect.

5. The final cut edge of paved surfaces shall be smooth and straight, consistent with grinding or saw cutting devices. No jagged, broken or undermined edges are allowed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.

6. Final compaction of HMA shall be 91% of maximum density.
   Testing shall be performed by a certified independent testing laboratory or certified tester, as approved by the City’s Construction Division. Tests shall be completed and reports identifying the project number submitted to the City Construction Division within 48 hours of test.

7. All joints between the new and original asphalt pavement shall be sealed with hot asphalt or asphalt emulsion and covered with dry paving sand before the asphalt solidifies. Existing surfaces shall be prepared in accordance with WSDOT Standard Specification 5-04.3(5)A prior to placing any new pavement surfaces.

8. For municipal capital improvement projects, cement concrete base pavement shall be in accordance with WSDOT Standard Specification 5-05 for cement concrete pavement. For non-municipal capital improvement projects, concrete shall be a minimum compressive strength of 4,000 PSI.
NOTES:
1. To be used only where abutting surfaces are pervious concrete or as directed in writing by City of Tacoma. Permeable roads may be required to be patched in an alternate material as directed in writing by City of Tacoma.
2. All pavement restoration work shall also meet the requirements of the City of Tacoma’s Right of Way Restoration Policy.
3. Temporary Surface Restoration:
   Arterials, industrial areas and/or roads with bus traffic: Temporary patches shall be compacted and leveled to a minimum of 3-inches of hot-mix asphalt (HMA).
   Residential and alleys: Temporary patches shall be compacted and leveled to a minimum of 2-inches of either HMA or cold-mix asphalt. Temporary patches between October 1st and March 31st shall be made with HMA unless otherwise approved.
4. All permanent final patches shall be rectangular in shape and constructed parallel and perpendicular to the road centerline.
5. Where existing pavement defects are in close proximity to the new cut, the inspector may require additional pavement removal to eliminate the pavement defect.
6. The final cut edge of paved surfaces shall be smooth and straight, consistent with grinding or saw cutting devices. No jagged, broken or undermined edges are allowed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces. Joint sealant shall not migrate beyond run-out areas.
7. All pervious surfaces shall be vacuumed immediately after completion of sawcutting to prevent clogging.
8. Permanent Panel Replacement:
   Arterials, industrial areas and/or roads with bus traffic:
   100% panel replacement is required for all affected panels. Monolithic curbs will be poured at time of panel replacement.
   Residential and Alleys: Panels cut greater than ½ the panel length, width, or total area, including the 2-foot cut back, will require 100% panel replacement. Panels cut less than ½ the panel length, width, or total area, including the 2-foot cut back will require 50% panel replacement. Three-piece panels are not acceptable and will require 100% panel replacement.
9. Pervious concrete pavement mix shall be approved in writing by the City of Tacoma.
10. Where geotextile fabric or geomembrane liner exist under the permeable ballast, replace with same material. Additional width of excavation may be necessary to overlay fabric or liner. Where a liner is used to create a watertight barrier, repair per manufacturer's specifications to maintain a watertight barrier.
1. All pavement restoration work shall also meet the requirements of the City of Tacoma's Right of Way Restoration Policy. See Standard Plan SU-15B for any streets exempt from this policy.

2. Temporary Surface Restoration:
   Arterials, industrial areas and/or roads with bus traffic: Temporary patches shall be compacted and leveled to a minimum of 3-inches of hot-mix asphalt (HMA).
   Residentials and alleys: Temporary patches shall be compacted and leveled to a minimum of 2-inches of either HMA or cold-mix asphalt. Temporary patches between October 1st and March 31st shall be made with HMA unless otherwise approved.

3. All permanent final patches shall be rectangular in shape and constructed parallel and perpendicular to the road centerline.

4. Where existing pavement defects are in close proximity to the new cut, the inspector may require additional pavement removal to eliminate the pavement defect.

5. The final cut edge of paved surfaces shall be smooth and straight, consistent with grinding or saw cutting devices. No jagged, broken or undermined edges are allowed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.

6. Final compaction of HMA shall be 91% of maximum density.
   Isolated patches: Minimum 1 test per patch up to 150 square feet, and 1 test required every additional 300 square feet, thereafter.
   Trench patches: 1 test every 150 linear feet of trench with a minimum of 2 tests per trench.

Testing shall be performed by an independent testing laboratory or certified tester, as approved by the City's Construction Division. Tests shall be completed and reports identifying the project number submitted to the City Construction Division within 48 hours of test.

7. All joints between the new and original asphalt pavement shall be sealed with hot asphalt or asphalt emulsion and covered with dry paving sand before the asphalt solidifies. Existing surfaces shall be prepared in accordance with WSDOT Standard Specification 5-04.3(5)A prior to placing any new pavement surfaces.

8. Longitudinal construction joints shall only be located at the center or edge of affected lanes.

   Streets and courts 20 feet or less in width and all alleys are considered one-lane streets. Non-arterial streets and courts greater than 20 feet in width with no traffic channelization are considered two-lane streets with one-lane either side of the centerline of the street.

   Non-arterial streets greater than 32 feet in width with no traffic channelization may be considered three lane streets upon prior approval from the City Engineer.

9. Transverse construction joints terminate at the edge of the 2' cut back.

10. HMA pavement shall not be placed over CDF until approved by the City.

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**TABLE 1**

<table>
<thead>
<tr>
<th>PAVEMENT REPLACEMENT DEPTH IN CUT BACK ZONE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MIN.</strong></td>
</tr>
<tr>
<td>ARTERIALS, INDUSTRIAL AREAS &amp; ROADS WITH BUS TRAFFIC</td>
</tr>
<tr>
<td>RESIDENTIALS AND ALLEYS</td>
</tr>
</tbody>
</table>

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** Typical Pavement Restoration for Asphalt Concrete/Oil Mat Pavement **

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**City of Tacoma**

**Department of Public Works**

**Approved for Publication**

**City Engineer**

**Date**

**Standard Plan No.** SU-15A
1. This Standard Plan shall only apply to streets that are exempt from the City of Tacoma’s Restoration Policy. See Standard Plan SU-15A for any streets not exempt from this policy.

2. Temporary Surface Restoration:
   Arterials, industrial areas and/or roads with bus traffic: Temporary patches shall be compacted and leveled to a minimum of 3-inches of hot-mix asphalt (HMA).
   Residential and alleys: Temporary patches shall be compacted and leveled to a minimum of 2-inches of either HMA or cold-mix asphalt. Temporary patches between October 1st and March 31st shall be made with HMA unless otherwise approved.

3. All permanent final patches shall be rectangular in shape and constructed parallel and perpendicular to the road centerline.

4. Where existing pavement defects are in close proximity to the new cut, the inspector may require additional pavement removal to eliminate the pavement defect.

5. The final cut edge of paved surfaces shall be smooth and straight, consistent with grinding or saw cutting devices. No jagged, broken or undermined edges are allowed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.

6. Final compaction of HMA shall be 91% of maximum density. Testing shall be performed by a certified independent testing laboratory or certified tester, as approved by the City’s Construction Division. Tests shall be completed and reports identifying the project number submitted to the City Construction Division within 48 hours of test.

7. All joints between the new and original asphalt pavement shall be sealed with hot asphalt or asphalt emulsion and covered with dry paving sand before the asphalt solidifies. Existing surfaces shall be prepared in accordance with WSDOT Standard Specification 5-04.3(5)A prior to placing any new pavement surfaces.

8. HMA pavement shall not be placed over CDF until approved by the City.

9. If remaining pavement adjacent to the patch is less than 3’ wide, remove and replace with asphalt concrete pavement to match existing (minimum 2”).

**TABLE 1**

<table>
<thead>
<tr>
<th>Pavement Replacement Depth in Cut Back Zone</th>
<th>MIN.</th>
<th>MAX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterials, industrial areas &amp; roads with bus traffic</td>
<td>MATCH EXISTING +1&quot;, OR 4&quot;, WHICHEVER IS GREATER</td>
<td>6&quot;</td>
</tr>
<tr>
<td>Residential and alleys</td>
<td>MATCH EXISTING +1&quot;, OR 3&quot;, WHICHEVER IS GREATER</td>
<td>4&quot;</td>
</tr>
</tbody>
</table>

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**CITY OF TACOMA**

**DEPARTMENT OF PUBLIC WORKS**

**APPROVED FOR PUBLICATION**

[Signature]

**DATE**

7/17/09

**TYPICAL PAVEMENT RESTORATION FOR ASPHALT CONCRETE/OIL MAT PAVEMENT**

**STANDARD PLAN NO.**

SU-15B
NOTES:

1. To be used only where abutting surfaces are porous asphalt or as directed in writing by City of Tacoma. Permeable roads may be required to be patched in an alternate material as directed in writing by City of Tacoma.

2. All pavement restoration work shall also meet the requirements of the City of Tacoma's Right of Way Restoration Policy. For any streets exempt from this policy, compliance with notes 8 and 9 is not required, compliance with note 12 is required.

3. Temporary Surface Restoration:
   - Arterial, industrial areas and/or roads with bus traffic: Temporary patches shall be compacted and leveled to a minimum of 3-inches of hot-mix asphalt (HMA).
   - Residences and alleys: Temporary patches shall be compacted and leveled to a minimum of 2-inches of either HMA or cold-mix asphalt. Temporary patches between October 1st and March 31st shall be made with HMA unless otherwise approved.
   - All permanent final patches shall be rectangular in shape and constructed parallel and perpendicular to the road centerline.
   - Where existing pavement defects are in close proximity to the new cut, the City Inspector may require additional pavement removal to eliminate the pavement defect.
   - The final cut edge of paved surfaces shall be smooth and straight, consistent with grinding or saw cutting devices. No jagged, broken or undermined edges are allowed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-04.3(5)C for asphalt concrete surfaces. Joint sealant shall not migrate beyond run-out areas.
   - Final compaction of porous HMA shall meet APWA GSP 5-04.3(10)A General.

   Isolated patches: Minimum 1 test per patch up to 150 square feet, and 1 test required every additional 300 square feet, thereafter.

   Trench patches: 1 test every 150 linear feet of trench with a minimum of 2 tests per trench.

   Testing shall be performed by a certified independent testing laboratory or certified tester, as approved by the City's Inspector. Tests shall be completed and reports identifying the project number submitted to the City's Inspector within 48 hours of test.

   8. Longitudinal construction joints shall only be located at the center or edge of affected lanes.

   Roadways 20 feet or less in width and all alleys are considered one-lane streets. Non-arterial roadways greater than 20 feet in width with no traffic channelization are considered two-lane streets with one lane either side of the centerline of the street.

   Non-arterial streets greater than 32 feet in width with no traffic channelization may be considered three lane streets upon prior approval from the City Engineer.

   9. Transverse construction joints terminate at the edge of the 2' cut back.

   10. Porous HMA and Asphalt Treated Permeable Base (ATPB) pavement shall not be placed over CDF until approved by the City.

   11. Where geotextile fabric or geomembrane liner exist under the permeable ballast, replace with same material. Additional width of excavation may be necessary to overlay fabric or liner. Where a liner is used to create a watertight barrier, repair per manufacturer's specifications and to maintain a watertight barrier.

   12. If remaining pavement adjacent to the patch is less than 3' wide, remove and replace asphalt concrete pavement to match existing (minimum 2'). This note only applies to roads not subject to the City of Tacoma's Restoration Policy.

   13. All pervious surfaces shall be vacuumed immediately after completion of sawcutting to prevent clogging.

---

TABLE 1

<table>
<thead>
<tr>
<th>PAVEMENT REPLACEMENT DEPTH IN CUT BACK ZONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTERIALS &amp; INDUSTRIAL AREAS</td>
</tr>
<tr>
<td>RESIDENTIALS AND ALLEYS</td>
</tr>
</tbody>
</table>

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![Cut Back Zone Diagram]

- **CUT BACK ZONE**
- **CONSTRUCTION JOINT, SEE NOTE 8**
- **EXISTING POROUS ASPHALT**
- **EXISTING ATPB**
- **EXISTING PERMEABLE BALLAST**
- **PROPOSED PERMEABLE BALLAST (MATCH EXISTING PERMEABLE BALLAST THICKNESS AND GRADATION)**

---

DH
PUBLIC WORKS

CITY OF TACOMA
TYPICAL PAVEMENT RESTORATION FOR POROUS ASPHALT PAVEMENT

SU-15C

---

<table>
<thead>
<tr>
<th>REVIEWED BY</th>
<th>APPROVED FOR PUBLICATION</th>
<th>CITY OF TACOMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS</td>
<td>GM</td>
<td>NA</td>
</tr>
<tr>
<td>TACOMA WATER</td>
<td>TACOMA POWER</td>
<td>TACOMA WATER</td>
</tr>
<tr>
<td>9/3/16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DATE

STANDARD PLAN NO.
NOTES:

1. Provide uniform support under barrel and provide pockets in bedding for pipe bells.
2. Hand tamp under haunches.
3. Trench width shall be as specified in Section 2-09.4 of the WSDOT Standard Specifications.
4. Pipe zone backfill and backfill above pipe zone shall meet the material requirements of WSDOT Standard Specification Section 9-03.12(2) for gravel backfill for walls.
5. All trenches shall be compacted in accordance with SU-28.
6. Pipe zone bedding shall meet the material requirements of WSDOT Standard Specification Section 9-03.9(3) for crushed surfacing top course.
NOTES:

1. For details showing grade ring, ladder, steps, handholds and top slabs, see Standard Plan No. SU-21.
2. Non-reinforced concrete in channel and shelf shall be Class 3000. All precast concrete shall be Class 4000.
3. Rubber gaskets shall be used in tongue and groove joints of pre-cast sections.
4. A flexible pipe-to-manhole connector shall be employed in all connections of rigid and flexible pipes to new precast concrete manholes. The connector shall be "Kor-N-Seal" with "Wedge Korband" manufactured by NPC, Inc., or approved equal.
5. Base reinforcing steel shall be per manufacturer's recommendation.

<table>
<thead>
<tr>
<th>MANHOLE DIMENSION TABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INSIDE DIAMETER</strong></td>
</tr>
<tr>
<td>48&quot;</td>
</tr>
<tr>
<td>54&quot;</td>
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<tr>
<td>60&quot;</td>
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</table>

SEPARATE PRECAST BASE

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION

CITY ENGINEER

MANHOLE-TYPE 1
48", 54" AND 60"

STANDARD PLAN NO. SU-17
NOTES:
1. For details showing grade ring, ladder, steps, handholds and top slabs, see Standard Plan No. SU-21.
2. Non-reinforced concrete in channel and shelf shall be Class 3000. All precast concrete shall be Class 4000.
3. Rubber gaskets shall be used in tongue and groove joints of pre-cast sections.
4. A flexible pipe-to-manhole connector shall be employed in all connections of rigid and flexible pipes to new precast concrete manholes. The connector shall be "Kor-N-Seal" with "Wedge Korband" manufactured by NPC, Inc., or approved equal.
5. Base reinforcing steel shall be per manufacturer's recommendation.

MANHOLE DIMENSION TABLE

<table>
<thead>
<tr>
<th>INSIDE DIAMETER</th>
<th>MINIMUM WALL THICKNESS</th>
<th>MINIMUM BASE THICKNESS</th>
<th>MAXIMUM HOLE SIZE</th>
<th>MINIMUM DISTANCE BETWEEN HOLES</th>
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</thead>
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<tr>
<td>72&quot;</td>
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<td>120&quot;</td>
<td>11&quot;</td>
<td>12&quot;</td>
<td>108&quot;</td>
<td>12&quot;</td>
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</table>

SEPARATE PRECAST BASE

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION

CITY ENGINEER

MANHOLE-TYPE 2
72" AND GREATER

STANDARD PLAN NO. SU-18
NOTES:
1. For details showing grade ring and top slabs, see Standard Plan No. SU-21.
2. Non-reinforced concrete in channel and shelf shall be Class 3000. All precast concrete shall be Class 4000.
3. Rubber gaskets shall be used in tongue and groove joints of pre-cast sections.
4. A flexible pipe-to-manhole connector shall be employed in all connections of rigid and flexible pipes to new precast concrete manholes. The connector shall be "Kor-N-Seal" with "Wedge Korband" manufactured by NPC, Inc., or approved equal.
5. Manholes shall have the access hole centered over the channel on the upstream side of the manhole.
6. Base reinforcing steel shall be per manufacturer's recommendation.

**MANHOLE DIMENSION TABLE**

<table>
<thead>
<tr>
<th>INSIDE DIAMETER</th>
<th>MINIMUM WALL THICKNESS</th>
<th>MINIMUM BASE THICKNESS</th>
<th>MAXIMUM HOLE SIZE</th>
<th>MINIMUM DISTANCE BETWEEN HOLES</th>
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<tr>
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<td>4&quot;</td>
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<td>36&quot;</td>
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<td>54&quot;</td>
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</table>

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION

CITY ENGINEER
DATE

MANHOLE TYPE 3
5' MAXIMUM HEIGHT

STANDARD PLAN NO. SU-19
NOTES:

1. Existing pipe shall be supported at all times.
2. No weight of the precast unit shall bear on the existing pipe.
3. Concrete for cast-in-place base shall be Class 4000.
4. Cast-in-place base shall be poured to encase the precast unit.
5. Precast manhole section shall be installed in accordance with the Standard Plan for the specified manhole size and type.
6. Additional manhole sections shall not be installed until concrete base has set for 12 hours.
7. The existing main shall be left in place and the top portion of the main shall be removed. The bottom portion shall be tied in as the channel of the new manhole.
8. Grout all openings to ensure water tight structure.
# BARS AT 7" SPACING

1" MIN  
2 1/2" MAX

96" FLAT SLAB TOP

#5 BARS AT 6" SPACING

1" MIN  
2 1/2" MAX

72" FLAT SLAB TOP

#4 BARS AT 6" SPACING

1" MIN  
2 1/2" MAX

48", 54" OR 60" FLAT SLAB TOP

NOTE:
As an acceptable alternate to rebar, wire mesh having a minimum area of 0.12 square inches per foot may be used for adjustment sections.

APPROVED FOR PUBLICATION

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

MISCELLANEOUS DETAILS
FOR MANHOLES AND
CATCH BASINS

SU-21
NOTES:
1. Covers shall have the word "SANITARY" in 2 inch raised letters when used with sanitary sewer installations, or "STORM" when installed with storm sewers. All covers shall have the words "CITY OF TACOMA" in 1-1/2 inch raised letters and the words "CONFINED SPACE" in 1-inch raised letters.
2. Lids must be interchangeable, any lid shall fit any and all frames.
3. Frame and cover shall be designed for H-20 loading.
4. Frame shall be grey-iron conforming to the requirements of AASHTO M 105, grade 30B.
5. Covers shall be ductile iron conforming to ASTM A 536, grade 80-55-06.
6. Per WSDOT Standard Specification 9-05.15, metal castings shall not be dipped, painted, welded, plugged, or repaired.
NOTES:
1. Romac style "CB" sewer saddle or approved equal.
2. Core drill sewer main.
3. Portions of the City's sanitary sewer system have been lined. If a lined pipe is encountered during connection of the new side sewer, the Construction Division shall be contacted at (253) 591-5760 for further instructions.
4. Sewer laterals shall not extend beyond the interior wall of the sanitary sewer main.
NOTE:
When no curb and gutter or sidewalk exist, locate cleanout in future planting strip.
**PROGRESSION OF WORK**

**PRIOR TO EXCAVATING OR RESURFACING:**
Contractor shall:
Remove frame and risers to a depth 8-inches below subgrade.
Install steel protective plate in accordance with Detail A.
Reference the location of the utility structure.

**CONSTRUCTION OF SURFACING:**
Gravel surfacing:
Install base materials and gravel over protective steel plate.
Asphalt surfacing:
Install base materials and asphalt over protective steel plate.
Concrete surfacing:
Adjust frame and grate to final grade prior to placing concrete surfacing.

**UPON COMPLETION OF SURFACING:**
The asphalt concrete pavement or gravel surfacing shall be removed in a neat circle in accordance with Detail B.
The location of the asphalt or gravel removal shall be based upon the reference location established by the Contractor.
Crushed surfacing and base materials shall be removed and disposed of to allow the removal of the steel protective plate.
The structure shall be adjusted to finish grade utilizing the same methods of construction as specified for new construction in Section 7-05.
For hot mix asphalt, the area shall then be backfilled with Class 3000 cement concrete to an elevation of 3 to 4 inches below the finished pavement surface. 24-hours after placing the concrete, HMA pavement Cl. 3/8th PG 64-22 shall be placed in accordance with Standard Plan No. SU-15.
For non-paved surfaces, the area shall be backfilled with Class 3000 cement concrete to an elevation of 3 to 4 inches below the top of the casting and then backfilled with crushed surfacing top course and compacted.

**NOTE:**
All general provisions, construction and warranty requirements of the Right of Way Restoration Policy will be followed.
NOTES:
1. The existing pavement shall be cut full depth with an eight inch diameter core drill. The subbase material shall be removed using a vacuum excavator, keeping the excavation as minimal as possible.
2. Backfill the excavation with a six inch cushion of crushed rock over the utility then place the remaining void with CDF or compacted CSTC.
3. For asphalt concrete streets, repair the cored pavement section with HMA Class 3/4 PG 64-22 and seal the joint.
4. For cement concrete pavement streets, replace the cored section with Class 6000 cement concrete.
5. If excavation is larger than 8" core, restoration shall comply with the Right of Way Restoration Policy.
## Compaction Testing Requirements

<table>
<thead>
<tr>
<th>Depth</th>
<th>Testing Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface (Below HMA)</td>
<td>N/A</td>
</tr>
<tr>
<td>1 Test every 150 Linear Feet of Trench or Minimum 2 per Trench</td>
<td></td>
</tr>
<tr>
<td>1 Test for 150 Square Feet for Isolated Patches</td>
<td></td>
</tr>
<tr>
<td>1 to 4 Feet (or Min 18 In. above Pipe)</td>
<td>1 Every 12 Inches</td>
</tr>
<tr>
<td>&gt; 4 Feet to Bottom of Trench</td>
<td>No Specific Requirement - may be required by COT Inspector for Verification of Compaction</td>
</tr>
</tbody>
</table>

A. Testing shall be performed by a certified independent testing laboratory or a certified tester as approved by the City's Construction Division. The cost of testing is the responsibility of the permittee. Tests shall be completed and reports identifying the project number submitted to the construction division within 48 hours of tests.

B. Only one compaction test will be required for multiple trenches within a 150 SF area provided compaction procedures are the same.

C. Each lift shall be compacted to 95% modified proctor density, as verified by compaction testing, before proceeding to the next lift. COT inspector may require excavation and removal of soil where compaction is in question.

### Notes:

1. Compact backfill material in max. 12 in. lifts. Compact backfill material to 95% max. modified proctor density (ASTM 1557) except directly over pipe, hand tamp only.

2. Native backfill will require laboratory testing to determine max. modified proctor density. Imported backfill will require submittal of proctor test results from supplier.

3. See WSDOT Standard Specification Section 2-09.3(1)E for material requirements on "Controlled Density Fill" (CDF). CDF may be used for trenches less than 24 in. wide or as approved by the City Engineer. CDF shall be vibrated/compacted.
NOTES:
1. For new pervious concrete sidewalk, place joint directly over centerline of pipe. When placing pipe under existing pervious sidewalk, restoration with impervious concrete will be allowed.
2. No mesh reinforcement to be used for pervious sidewalks.
3. Storm pipe shall be per the City Stormwater Management Manual Volume 3 for pipes within the right-of-way.
NOTES

1. For new pervious concrete sidewalk, place joint directly over centerline of pipe. When placing pipe under existing pervious sidewalk, restoration with impervious concrete will be allowed.

2. No mesh reinforcement shall be used in pervious sidewalks.

3. Storm pipe material shall be ductile iron per the City Stormwater Management Manual Volume 3, for pipes within the Right-of-Way.
NOTES:
1. The intent of this design is to facilitate the compaction of hot mix asphalt pavement adjacent to a drainage structure.
2. The centerline of the drainage structure may differ from the centerline of the frame and grate.
NOTES:
1. Permeable ballast shall meet APWA GSP 4-04.2 Gravel Base and 9-03.9(2) Permeable Ballast Opt1 and shall be installed per APWA GSP 4-04.3(5) Shaping and Compaction.
2. Minimum surface longitudinal slope shall be 0.5%. Geomembrane barrier shall provide an impermeable barrier between standard and permeable section. Geomembrane may also be required at the shoulder side of the road. It shall be installed 1" below finished grade of surfacing, as shown. Alternatively, the liner shall fold over the permeable ballast a minimum of 6". Geomembrane barrier seams shall overlap at least 18"
3. Geomembrane barrier shall extend the length of the permeable section when adjacent to standard pavement. See Std. Plan GSI-18.
4. Geotextile to be provided when recommended by geotechnical professional and shall be required when fines in native subgrade exceed 7% on the #200 sieve.
5. Geotextile for separation per WSDOT 9.33.2(1), woven, Table 3 and installed per WSDOT 2-12.3(1).
6. See Std. Plan PD-01 for minimum pavement section.
7. Permeable pavement surfacing shall meet APWA GSP 5-04.3 Construction Requirements Porous Asphalt (PHMA/PWMA) Acceptance Infiltration Test for porous asphalt or 5-06.3(6)A Infiltration Rate of the Placed Pavement for pervious concrete.
8. Permeable ballast may be extended under curb and sidewalk when approved, see Std. Plan SU-31b.

REVIEWED BY

APPROVED FOR PUBLICATION

CITY OF TACOMA
PERMEABLE ROADWAY
WITH IMPERVIOUS SIDEWALK

STANDARD PLAN NO. SU-31a
1. Permeable ballast shall meet APWA GSP 4-04.2 Gravel Base and 9-03.9(2) Permeable Ballast Opt1 and shall be installed per APWA GSP 4-04.3(3) Shaping and Compaction.

2. Minimum surface longitudinal slope shall be 0.5%.

3. Geomembrane barrier shall provide an impermeable barrier between standard and permeable section. Geomembrane may also be required at the shoulder side of the road. It shall be installed 1" below finished grade of surfacing, as shown. Alternatively, the inner shall fold over the permeable ballast a minimum of 6". Geomembrane barrier seams shall overlap at least 18" or per manufacturer's recommendations. Geomembrane barrier shall extend the length of the permeable section when adjacent to standard pavement. See Std. Plan GSI-18.

4. Geotextile to be provided when recommended by geotechnical professional and shall be required when fines in native subgrade exceed 7% on the #200 sieve.

5. Geotextile for separation per WSDOT 9.33.2(1), woven, Table 3 and installed per WSDOT 2-12.3(1). Geotextile under sidewalk may be same as under road or WSDOT 9.33.2(1), Tables 1 and 2, nonwoven, moderate survivability.

6. See Std. Plan PD-01 for minimum pavement section.

7. Planting strip soils shall be per BMP L613 (see Std. Plan GSI-01), if applicable; or scarify or till subgrade to 3-inch depth; place 3-inches of topsoil on surface and till into 5-inches of site soil. Install 3-inches of arborist wood chip mulch or as specified on plans. Topsoil layer with a minimum organic matter content of 10% dry weight in planting beds, and 5% in turf areas, and a pH from 6.0 to 8.0 or matching the pH of the original undisturbed soil.

8. Permeable pavement surfacing shall meet APWA GSP 5-04.3 Construction Requirements Porous Asphalt (PA) (NA/FW/PA) Acceptance Infiltration Test for porous asphalt or 5-06.3(6)A Infiltration Rate of the Placed Pavement for pervious concrete.

9. Permeable ballast may be extended under curb and sidewalk when approved.
NOTES:

1. Permeable ballast shall meet APWA GSP 4-04.2 Gravel Base and 9-03.9(2) Permeable Ballast Opt1 and shall be installed per APWA GSP 4-04.3(5) Shaping and Compaction.

2. Minimum surface longitudinal slope shall be 0.5%.

3. Geomembrane barrier shall provide an impermeable barrier between standard and permeable section. Geomembrane may also be required at the shoulder side of the road. It shall be installed 1" below finished grade of surfacing, as shown. Alternatively, the liner shall fold over the permeable ballast a minimum of 6". Geomembrane barrier seams shall overlap at least 18" or per manufacturer's recommendations. Geomembrane barrier shall extend the length of the permeable section when adjacent to standard pavement. See Std. Plan GSI-18.

4. Geotextile to be provided and shall be recommended by material selection professional and shall be required when fines in native subgrade exceed 7% on the 200 sieve.

5. Geotextile for separation per WSDOT 9.33.2(1), woven, Table 3 and installed per WSDOT 2-12.3(1). Geotextile under sidewalk may be the same as under road or WSDOT 9.33.2(1), Tables 1 and 2, nonwoven, moderate survivability.

6. See Std. Plan PD-01 for minimum pavement section.

7. Planting strip soils shall be per BMP L513 (see Std. Plan GSI-01), if applicable; or scarify or till subgrade to 3-inch depth; place 3-inches of topsoil on surface and till into 5-inches of site soil. Install 3-inches of arborist wood chip mulch or as specified on plans. Topsoil layer with a minimum organic matter content of 10% dry weight weight in planting beds, and 5% in turf areas, and a pH from 6.0 to 8.0 or matching the pH of the original undisturbed soil.

8. Permeable pavement surfacing shall meet APWA GSP 5-04.3 Construction Requirements Porous Asphalt (PHMA/PWMA) Acceptance Infiltration Test for porous asphalt or 5-06.3(6)A Infiltration Rate of the Placed Pavement for pervious concrete.

9. Permeable ballast may be extended under curb and sidewalk when approved, see Std. Plan SU-31b.
NOTES:
1. For finish grade no steeper than 10%.
2. Geotextile to be provided between native soil and permeable ballast when recommended by geotechnical professional and shall be required when fines in native subgrade exceed 7% on the #200 sieve.
3. Geotextile for separation under roadways shall be per WSDOT 9.33.2(1), woven, Table 3 and installed per WSDOT 2-12.3(1). Geotextile under sidewalk may be same as under road or WSDOT 9.33.2(1), Tables 1 and 2, nonwoven, moderate survivability.
4. See Std. Plans SU-31a, b and c for permeable roadway sections.
5. See Std. Plans SU-04a and b for permeable sidewalk sections.
NOTES:
1. Location on mains per plan sheet.
2. Review design with the City for utilities greater than 36 inches in diameter.
3. For service lines, install trench dams at approximate back of walk where utility services are installed beyond the permeable ballast section.
4. Ductile iron pipe shall be encased in a polyethylene sleeve, meeting the requirements of American Waterworks Association (AWWA).
NOTES:
1. Surface mounting of sign posts, especially within traffic islands or medians, is only allowable with special authorization from the city's traffic engineering group. (Exception: Surface mounting of flexible post object markers within islands or medians is permitted).
2. If finished ground line is a hard surface, then compacted native backfill material shall be concrete with the top of foundation being smooth, dense, and uniform to finished ground line.

![Diagram of sign support detail for steel sign post]
NOTES:
1. Barricades shall meet the design criteria of MUTCD section 6F.68 for a Type 3 barricade, except that the colors of the stripes shall be retroreflective (Type IV or better) white and retroreflective (Type IV or better) red.
2. Barricade section shall extend to limits of the roadway surface relying on the least number of posts while still providing equidistant-spacing in accordance with the above detail.
3. Sign sheet shall be bolted to (or integral to) the cross member using 5/8-inch galvanized bolts with fender washers. Securing hardware shall not consist of or include nails, lag bolts, or screws.
4. Panel material shall be high density polyethylene (HDPE), or approved equivalent such as #2 or better Douglas Fir (Untreated).
BACK-IN ANGLE PARKING
ADJACENT SIDEWALK SHOWN

10.33 (TYP.)
16" WHITE STRIPE
60"
16" WHITE STRIPE
105"
FROM CURB

4" WHITE STRIPE
8' MIN.
CENTERED

SUPPLEMENTAL FACE OF CURB (FULL OR PARTIAL HEIGHT) PAINT. WHITE FOR DISABILITY PARKING, YELLOW FOR PASSENGER LOAD ZONE.

4" YELLOW STRIPE ADJACENT TO STALL STRIPING FOR PASSENGER LOAD ZONE.

DISABILITY SYMBOL FOR DISABILITY PARKING ONLY, PER STANDARD SU-36E

HEAD-IN ANGLE PARKING
ADJACENT PLANTING STRIP SHOWN

10.33 (TYP.)
60"
16"
16" WHITE STRIPE

4" WHITE STRIPE
8' MIN.
CENTERED

SUPPLEMENTAL FACE OF CURB (FULL OR PARTIAL HEIGHT) PAINT. WHITE FOR DISABILITY PARKING, YELLOW FOR PASSENGER LOAD ZONE.

4" YELLOW STRIPE ADJACENT TO STALL STRIPING FOR PASSENGER LOAD ZONE.

DISABILITY SYMBOL FOR DISABILITY PARKING ONLY, PER STANDARD SU-36E

CITY OF TACOMA
ANGLED DISABILITY PARKING STALL OR PASSENGER LOAD ZONE

STANDARD PLAN NO. SU-36D
DISABILITY PARKING SPACE SYMBOL WITH OPTIONAL BLUE BACKGROUND

TOTAL MARKING AREA = 10 SQ. FT.
WHITE = 1 SQ. FT.
BLUE = 9 SQ. FT.

PARALLEL PARKING/LOADING SPACE ACCESS AISLE STRIPING

NO PARKING
PASSENGER LOADING ONLY
30 MIN LIMIT
8 AM - 6 PM

DISABILITY PARKING STALL SIGNS
(WHITE ON BLUE)

PASSENGER LOADING ZONE SIGNS
(RED ON WHITE)

(BEGIN/END TIMES MAY VARY DEPENDING ON LOCATION)

CITY OF TACOMA
DISABILITY PARKING &
PASSENGER LOAD ZONE
STRIPING & SIGNING DETAILS

STANDARD PLAN NO. SU-36E
Class 3000 cement concrete shall be placed, 1 1/2" min., below the finished pavement surface.

24-hours after placing the cement collar, HMA Class 5/8" PG 64-22 shall be placed in accordance with Standard Plan SU-15.

If the valve chamber being adjusted belongs to Tacoma Water, the Contractor shall contact Tacoma Water, Operations, at 253-502-8742 for final inspection.
NOTES

1. Leading and rear pads shall have a minimum concrete thickness of 4".
2. Leading and rear pads shall be a minimum of 7' in length and leading pads shall be a minimum of 8' in width unless otherwise specified.
3. The leading and rear pads shall be connected to the nearest sidewalk by a pedestrian accessible route.
4. If there is no sidewalk present or the existing sidewalk doesn’t meet current standards, connect leading and rear pads with concrete sidewalk.
5. The slope of the bus pad measured parallel to the adjacent street shall match the street grade. The slope of the bus pad, measured from the back of pad to the back of curb, shall not exceed 2%.
6. When placing concrete adjacent to existing curb and gutter, curb and gutter will be repaired as necessary before placing concrete forms for bus pad.
7. Staking is required where no curb is present.
8. All expansion joints shall be full depth with 3/8" premolded joint filler.
9. All soft and yielding foundation material shall be removed and replaced with crushed surfacing top course (CSTC) per the WSDOT Standard Specifications.
10. Refer to to COT Standard Plans SU-04 series for any sidewalk replacement.
11. Bus stop pole, sign, & all amenities to be installed by Pierce Transit.
12. Contact Pierce Transit once work is complete. (253-983-2706)
NOTES

1. Shelter pads shall have a minimum concrete thickness of 6"; if cantilevered shelter, consult with Pierce Transit for design requirements.
2. Shelter pads shall be a minimum of 5’ in width and 10’ in length. If the bus shelter is located behind the sidewalk, the pad shall be a minimum of 11’ in length.
3. The shelter pad shall be connected to the nearest sidewalk by a pedestrian accessible route.
4. The slope of the shelter pad measured parallel to the adjacent street shall match the street grade. The slope of the shelter pad, measured from the back of pad to the back of curb, shall not exceed 2%.
5. When placing concrete adjacent to existing curb and gutter, curb and gutter will be repaired as necessary before placing concrete forms for shelter pad.
6. Staking is required where no curb is present.
7. All expansion joints shall be full depth with 3/8” premolded joint filler.
8. Expansion joints are required between shelter pads and sidewalk.
9. All soft and yielding foundation material shall be removed and replaced with crushed surfacing top course (CSTC) per the WSDOT Standard Specifications.
10. Refer to to COT Standard Plans SU-04 series for any sidewalk replacement.
11. Bus stop pole, sign, & all amenities to be installed by Pierce Transit.
12. Contact Pierce Transit once work is complete. (253-983-2706)
NOTES
1. Single stamp/impression shall be placed in 6" of concrete with 4" border as close to the
   preferred location as possible. If constructed in Historic District, see Standard Plan
   HD-NS03 for details on applying concrete color.
2. Existing stamp/impression shall be sawcut to no less than 3" from stamp lettering or
   symbol and shall be no smaller than 12" in any direction.
3. Street name to be parallel with the corresponding street, and oriented to be read from
   the sidewalk, and as though the reader is facing the street.
5. If a crack or broken section of concrete is in the existing stamped area to be cut,
   then the stamp shall be disposed of and not salvaged.

SAWCUT
3" MIN (TYP)
IN ALL DIRECTIONS

WHEN PLACED
ADJACENT TO A CURB
CURVE, FILL VOID
AREA WITH
CONCRETE

EXISTING HISTORIC MAKER'S MARK TO BE PRESERVED

INSTALL NEW CONCRETE
AROUND MAKER'S MARK
FOR SUPPORT (TYP)

SECONDARY LOCATION
WITH LANDSCAPING

PREFERRED LOCATION

MAKER'S MARK POTENTIAL NEW LOCATIONS
CURB RAMPS WITH LANDSCAPING AND PED CURBS

SECONDARY LOCATION
WITH FLARES

PREFERRED LOCATION

MAKER'S MARK POTENTIAL NEW LOCATION
CURB RAMPS WITH WINGS/FLARES AND WITH OR WITHOUT LANDSCAPING

DEPTH OF STAMP/IMPRESSION
4" MIN

EXISTING HISTORIC MAKER'S MARK TO BE PRESERVED

3" MIN (TYP)
IN ALL DIRECTIONS

SAWCUT

EXISTING HISTORIC MAKER'S MARK TO BE PRESERVED

SAWCUT