

**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.

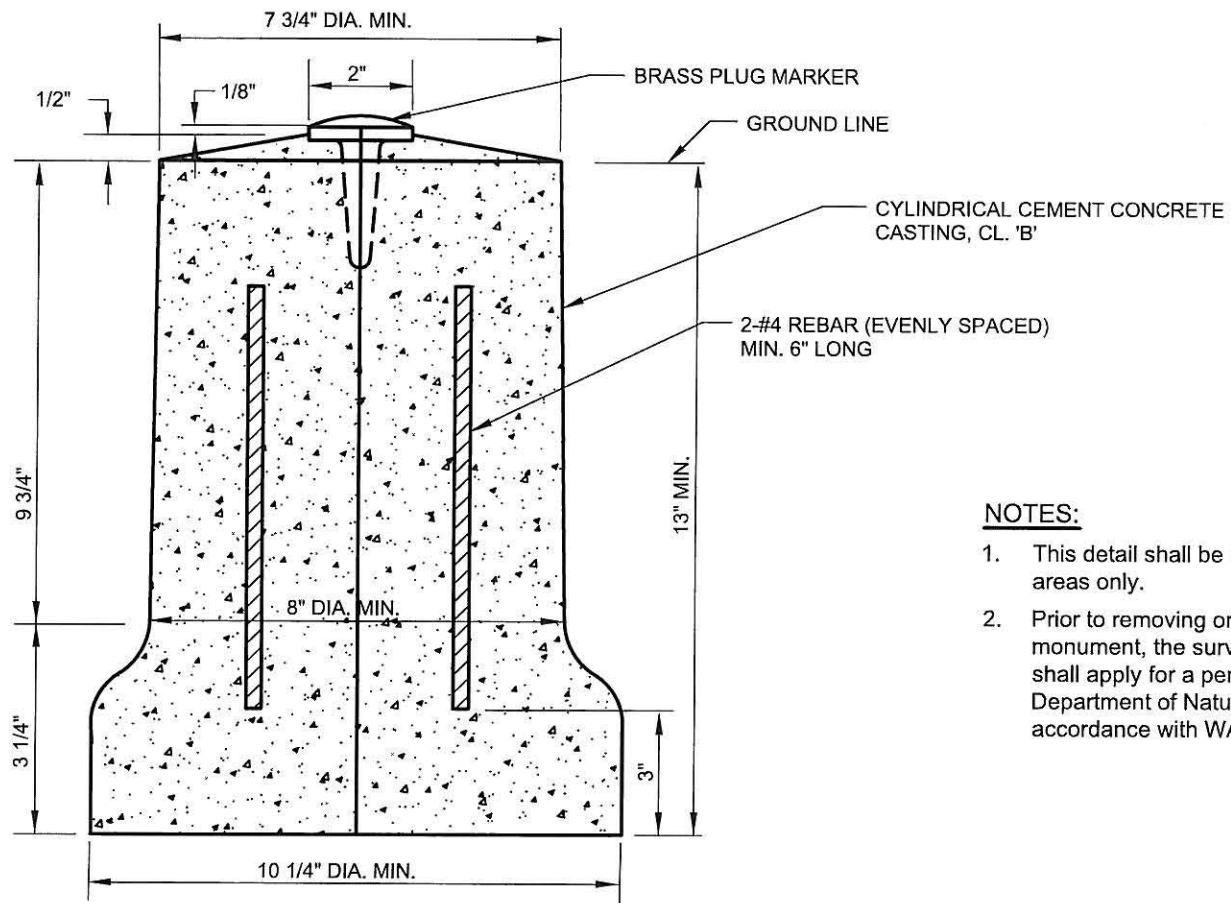
APPROVED FOR PUBLICATION

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*James Parney* 09 JUN 2009  
CITY ENGINEER DATE

POURED MONUMENT

STANDARD PLAN NO. SU-01



**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.

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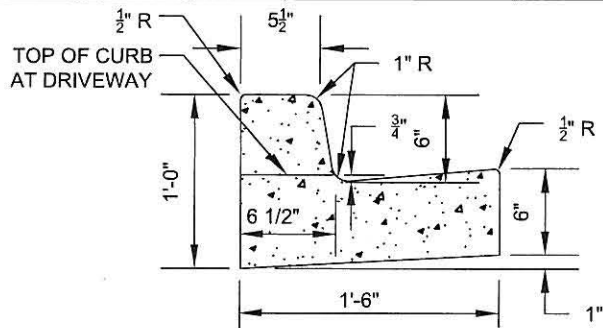
CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*James Parvay*  
CITY ENGINEER

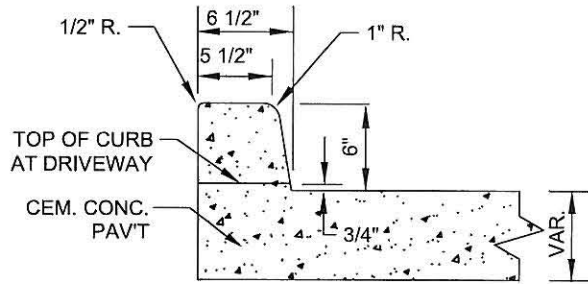
09 JUN 2009  
DATE

PRECAST CONCRETE  
MONUMENT

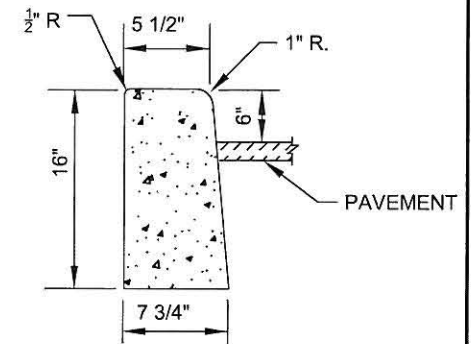
STANDARD PLAN NO. SU-02



**CEMENT CONCRETE TRAFFIC CURB & GUTTER**



**INTEGRAL CEMENT CONCRETE TRAFFIC CURB**



**CEMENT CONCRETE TRAFFIC CURB**

**NOTE:**

For trench crossings, curb and gutter shall be removed to a minimum 2' cut back over undisturbed soil. 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. All joints shall be saw cut full depth prior to restoration and 3/8" expansion joint installed. Concrete finish shall match existing. 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.

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DEPARTMENT OF PUBLIC WORKS

*James Pervey*  
CITY ENGINEER

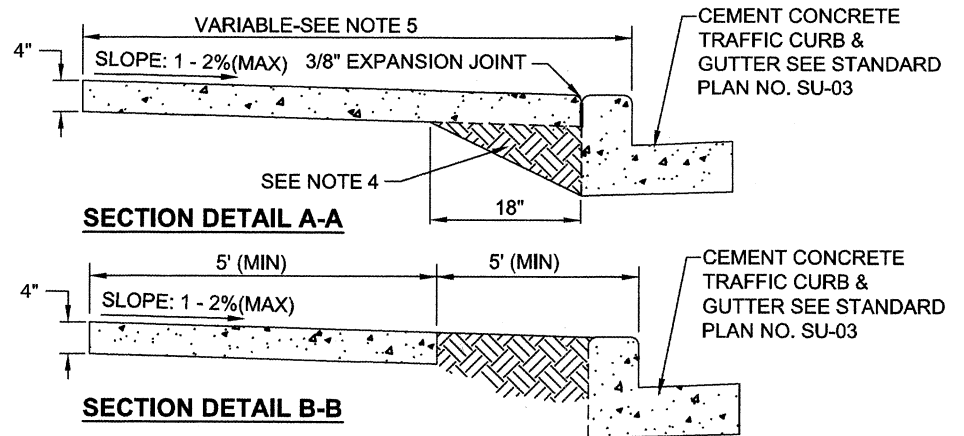
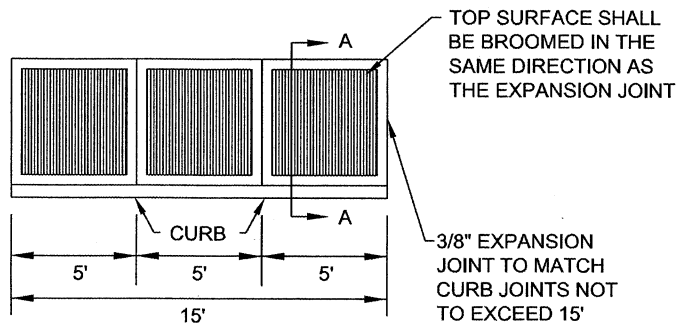
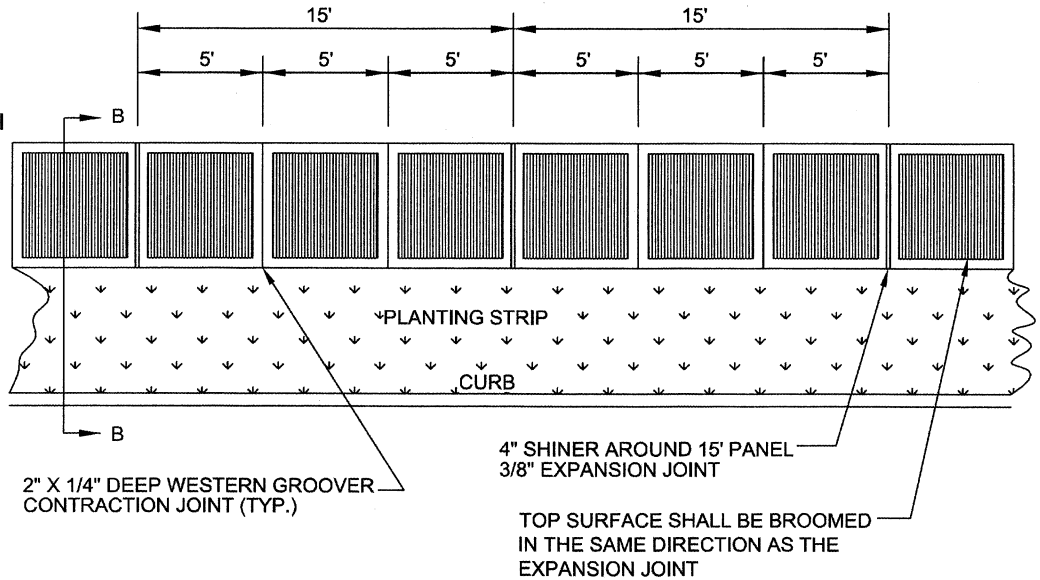
09 JUN 2009  
DATE

CEMENT CONCRETE  
CURB AND GUTTER

STANDARD PLAN NO. SU-03

**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).
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' on all commercial sites and arterial streets. Combination walk shall be a minimum of 5'-6" on non arterial streets. Dimensions are from face of curb to back of walk.
6. All expansion joints shall be full depth with 3/8" premolded joint filler.
7. All joints shall be cleaned and edged. External edges shall be 1/2" radius. Internal joints shall be 1/4" 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 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 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.
10. For sidewalks within the North Slope Historical District area per Standard Plan ND-NS01, see Standard Plan HD-NS03.



CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION

*[Signature]*  
CITY ENGINEER

12/6/14  
DATE

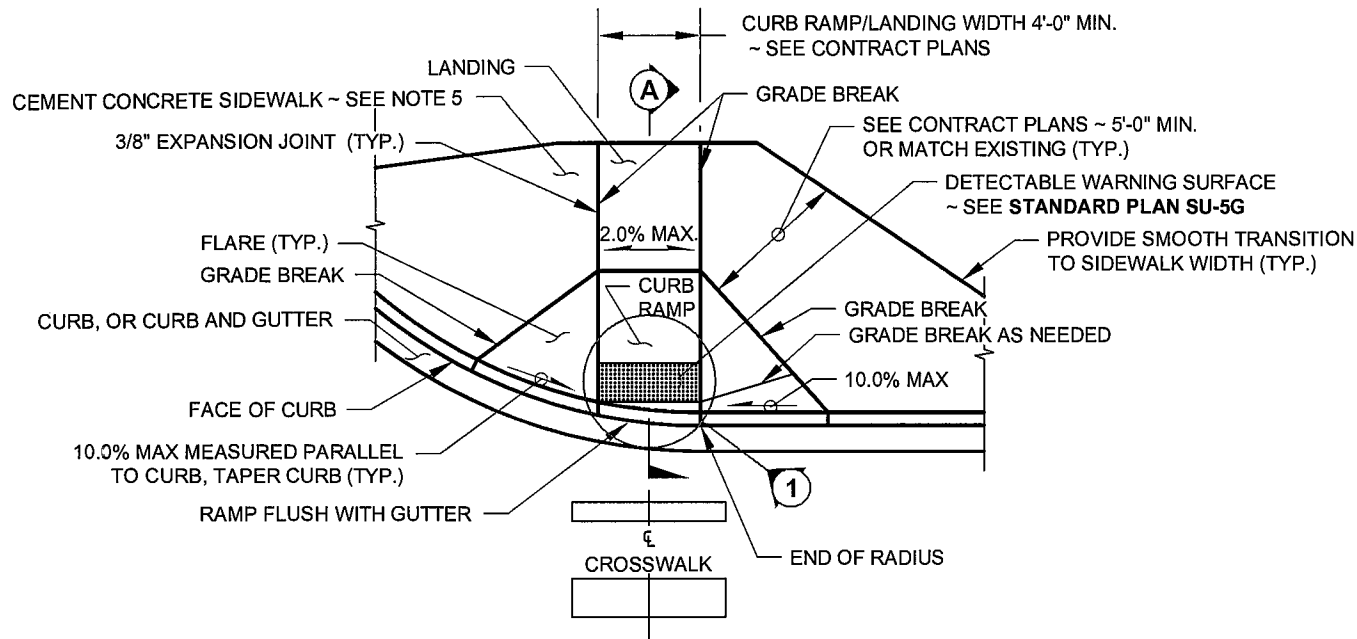
CEMENT CONCRETE  
SIDEWALK

STANDARD PLAN NO. SU-04

## GENERAL NOTES:

1. Provide a separate directional curb ramp for each marked or unmarked crosswalk. (Directional 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 ramp centerline shall be parallel to the direction of the crossing. Forty-five (45) degree ramps shall be installed only after approval by the City's ADA Coordinator and/or the Construction 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 ramp and gutter line.
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. Placement on/in front of ramp flares is allowed.
4. See Contract Plans for the curb design specified. See **Standard Plan SU-03** for Curb, and Curb and Gutter Details.
5. See **Standard Plan SU-04** for Cement Concrete Sidewalk Details. See Contract Plans for width and placement of sidewalk. A thickened edge shall be constructed to full depth of adjacent curb along entire curb radius.
6. For sidewalk ramps within the North Slope Historical District area, per **Standard Plan 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 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 possible.
8. Curb ramp, landing and flares shall receive a broom finish, see **Standard Specifications 8-14**.
9. All curb ramp designs shall be stamped by a licensed Professional Engineer. If meeting the current design standards is not possible, 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
10. Pedestrian traffic should be aligned to the receiving ramp. The receiving ramp shall be upgraded or replaced as required in the City's Curb Ramp Installation Matrix.
11. Consult the City's Curb Ramp Installation Matrix and the Street Restoration Policy for additional requirements.
12. 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.
13. A Pedestrian Accessibility Control Plan shall be developed in conjunction with the project-specific Temporary Traffic Control Plan for all work in the ROW.
14. Pedestrian traffic shall NOT be directed behind the stop bar.
15. Ramp alignment should be consistent with crosswalk alignment
16. Catch basins shall be located upstream of curb ramps for new construction or when performing storm sewer upgrades.
17. For constructability purposes, the City recommends designing to **less than** the maximum allowable slopes.

<p>CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS</p>	<p>APPROVED FOR PUBLICATION</p> <p><i>James Perry</i> CITY ENGINEER</p> <p><i>01 APR 2011</i> DATE</p>	<p>CURB RAMP DETAILS GENERAL INFORMATION</p> <p>STANDARD PLAN NO. SU-05</p>
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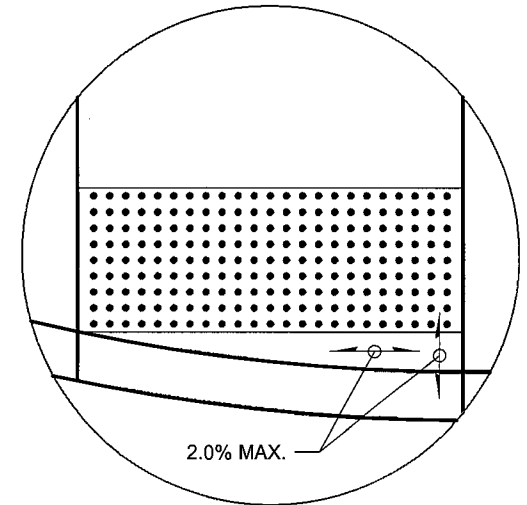
PLAN VIEW  
PERPENDICULAR CURB RAMP TYPE 'A'

**NOTES:**

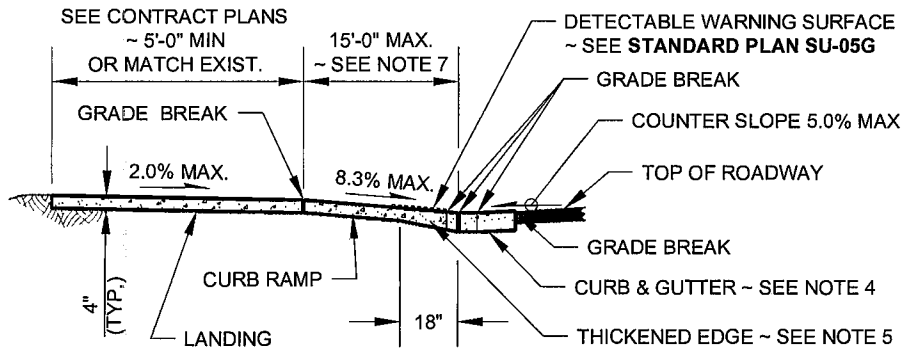
SEE STANDARD PLAN SU-05 FOR REFERENCED NOTES

**LEGEND:**

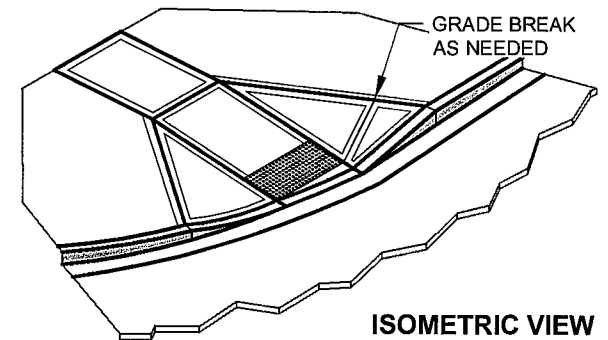
↔ SLOPE IN EITHER DIRECTION



DETAIL ①



SECTION A



ISOMETRIC VIEW

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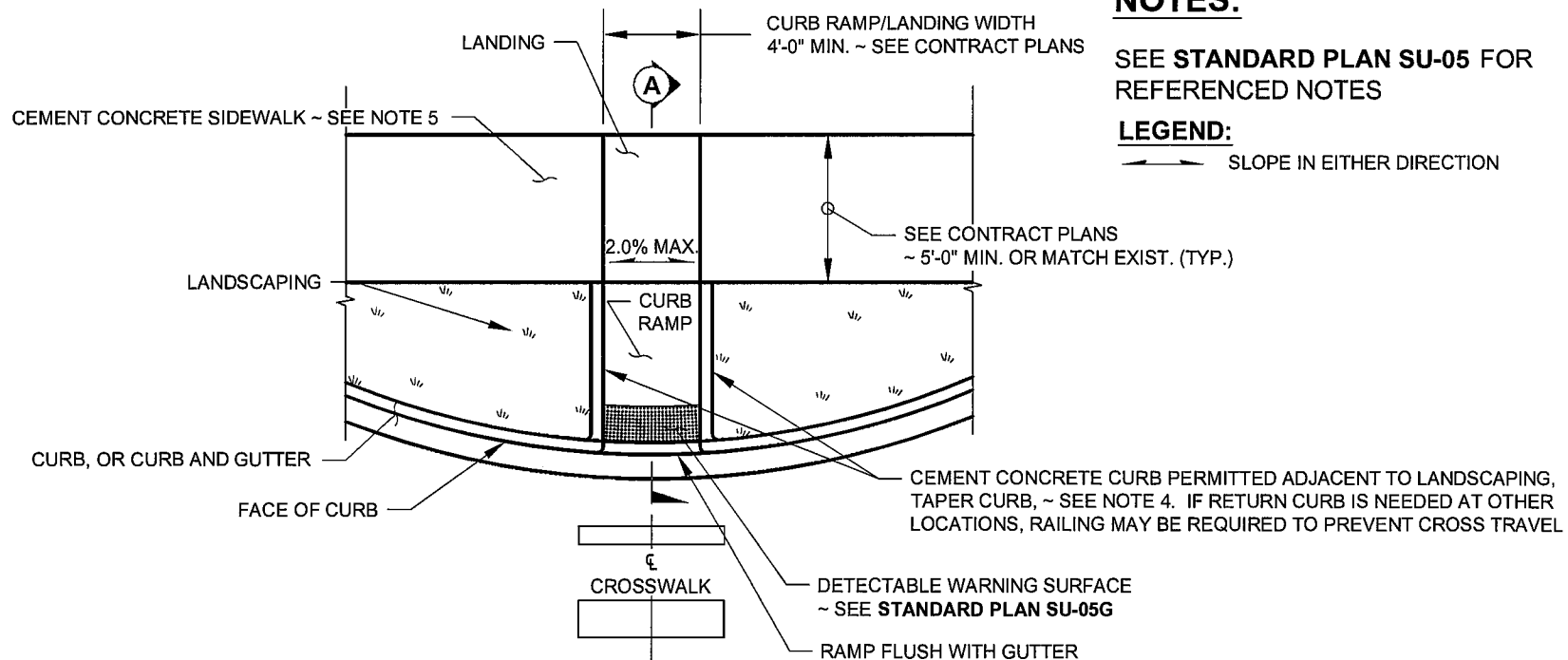
CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*James Parney*  
CITY ENGINEER

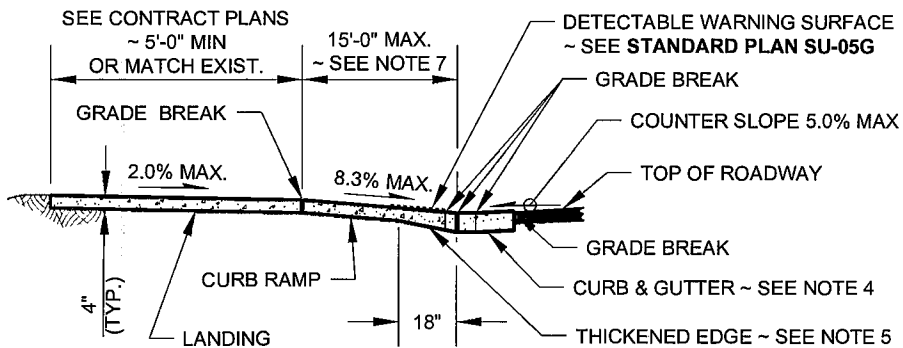
01 APR. 2011  
DATE

PERPENDICULAR CURB RAMP  
TYPE 'A'

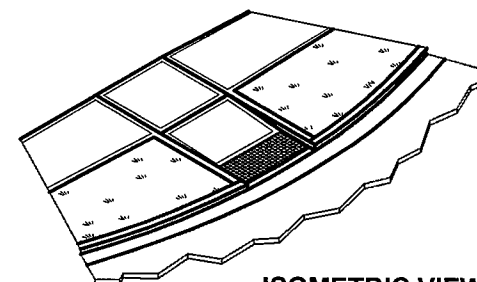
STANDARD PLAN NO. SU-05A



**PLAN VIEW  
 PERPENDICULAR CURB RAMP TYPE 'B'  
 (SHOWN WITH LANDSCAPED BUFFER)**



**SECTION A**



**ISOMETRIC VIEW  
 (SHOWN WITH LANDSCAPED BUFFER)**

APPROVED FOR PUBLICATION

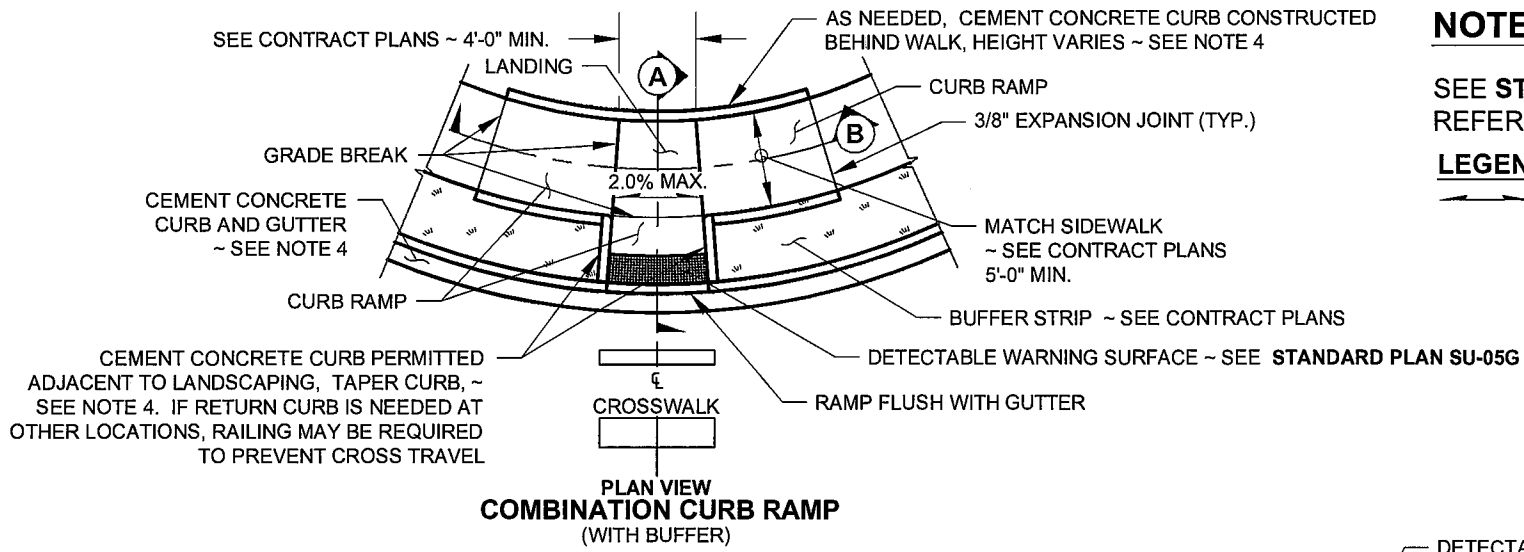
CITY OF TACOMA  
 DEPARTMENT OF PUBLIC WORKS

*James Perney*  
 CITY ENGINEER

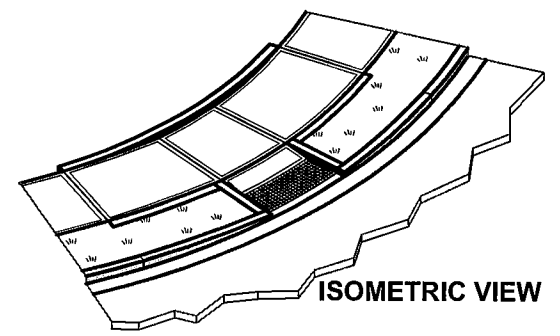
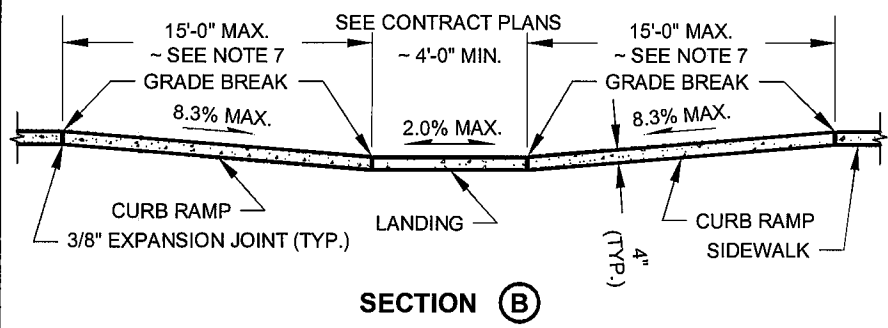
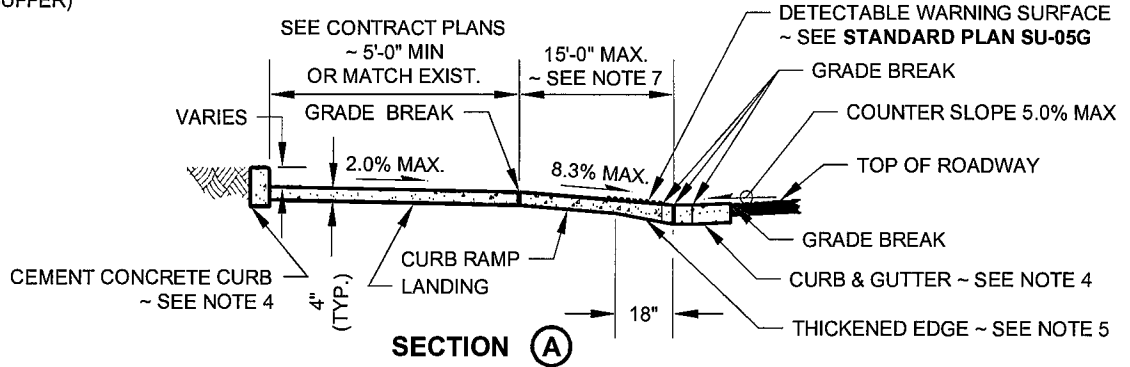
01 APR 2011  
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PERPENDICULAR CURB RAMP  
 TYPE 'B'

STANDARD PLAN NO. SU-05B

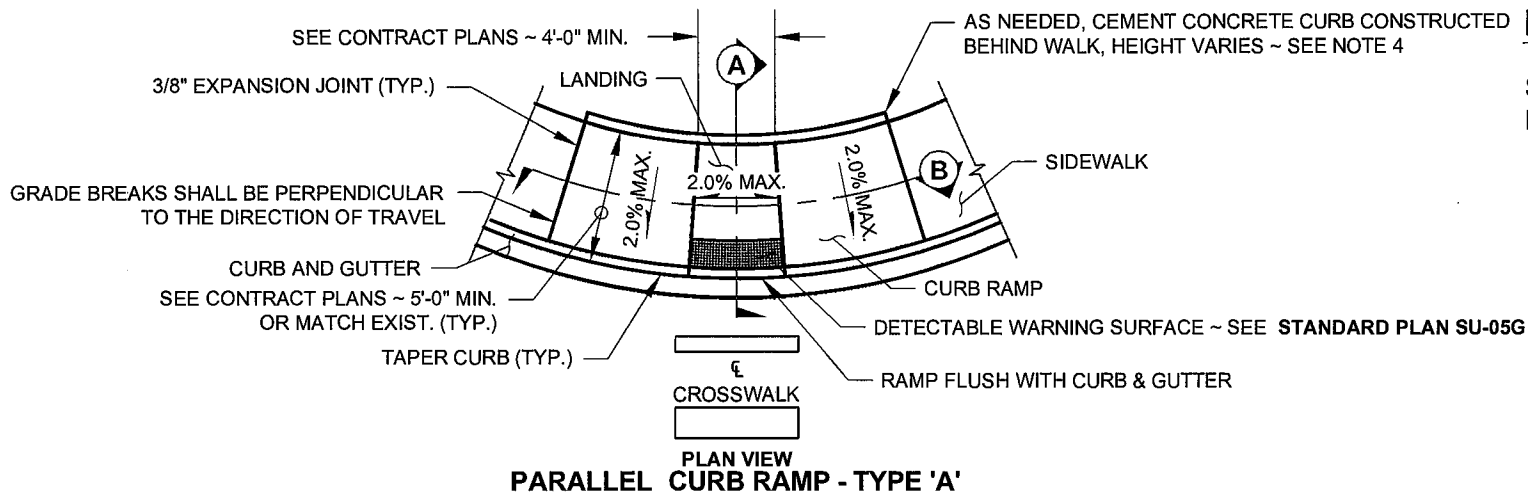


**NOTES:**  
 SEE STANDARD PLAN SU-05 FOR REFERENCED NOTES  
**LEGEND:**  
 ——— SLOPE IN EITHER DIRECTION



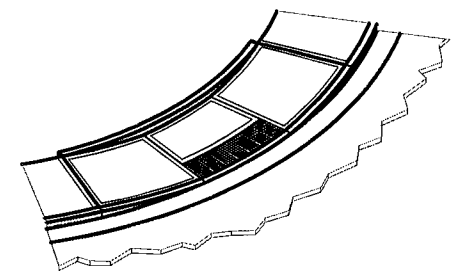
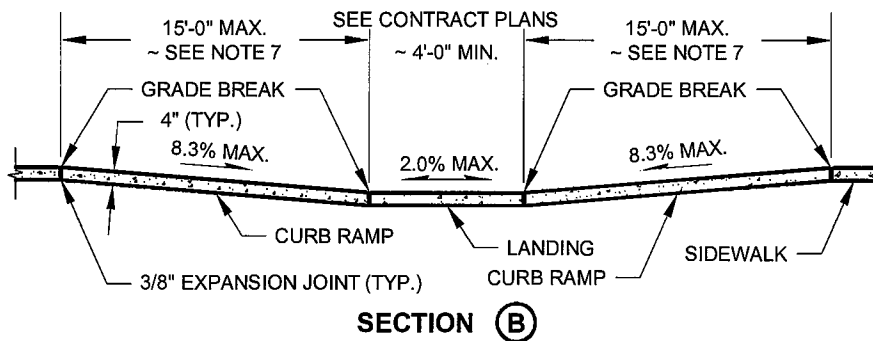
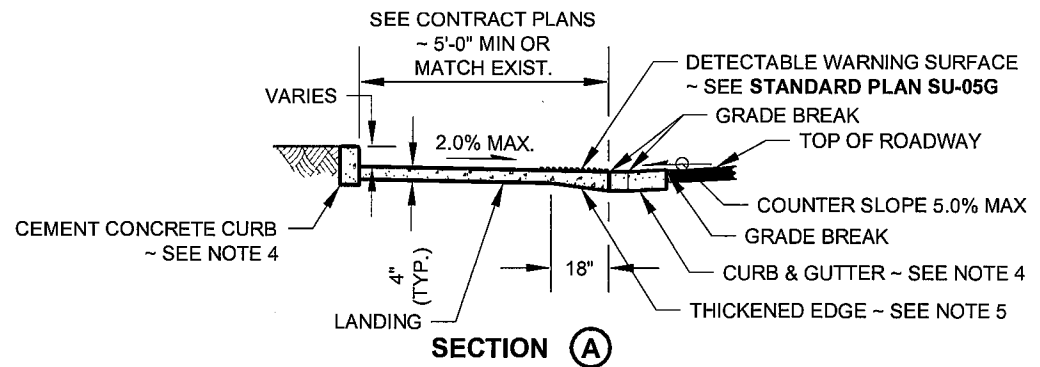
<p>CITY OF TACOMA          DEPARTMENT OF PUBLIC WORKS</p>	<p>APPROVED FOR PUBLICATION</p> <p><i>James Pervey</i>          CITY ENGINEER</p> <p>01 Apr. 2011          DATE</p>	<p>COMBINATION CURB RAMP</p> <p>STANDARD PLAN NO. SU-05C</p>
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**NOTES:**  
SEE STANDARD PLAN SU-05 FOR REFERENCED NOTES.

**LEGEND:**  
SLOPE IN EITHER DIRECTION



CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

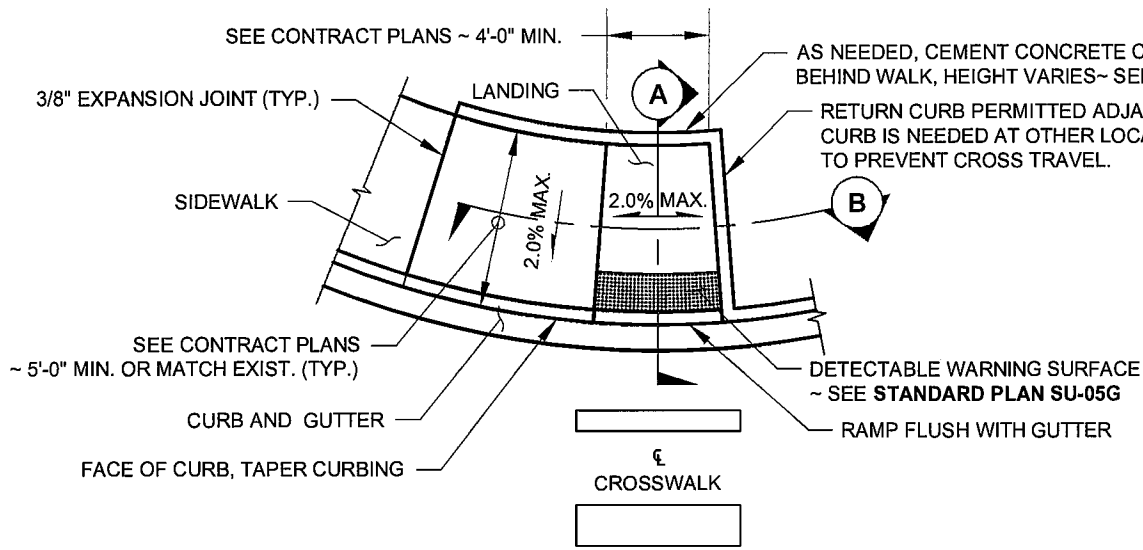
APPROVED FOR PUBLICATION

*James Perney*  
CITY ENGINEER

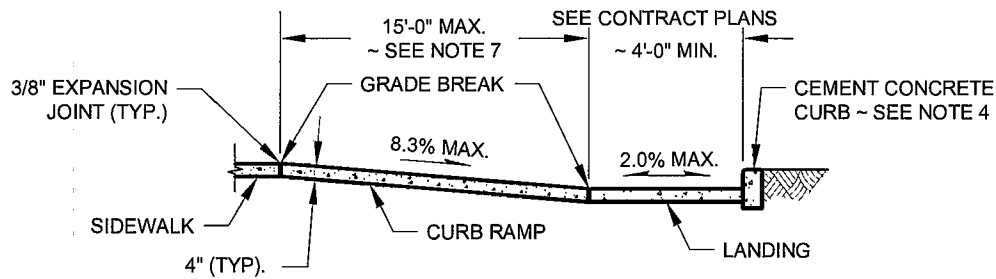
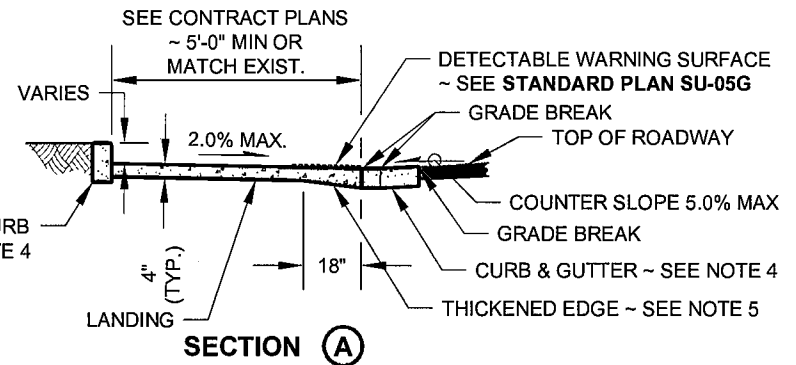
01/17/2011  
DATE

PARALLEL CURB RAMP  
TYPE 'A'

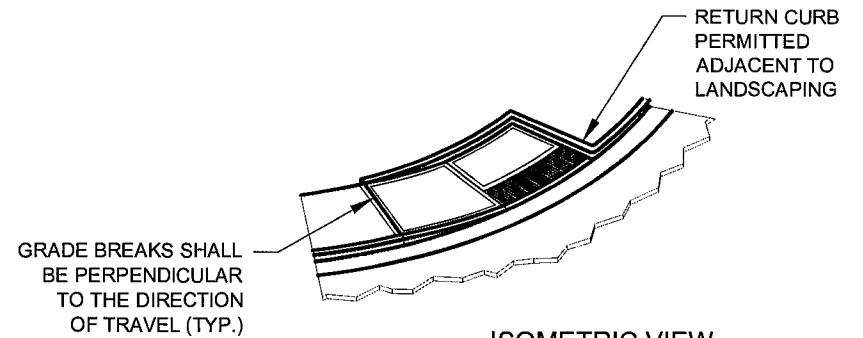
STANDARD PLAN NO. SU-05D



PLAN VIEW  
PARALLEL CURB RAMP  
TYPE 'B'



SECTION B



**NOTES:**

SEE STANDARD PLAN SU-05 FOR REFERENCED NOTES.

**LEGEND:**

↔ SLOPE IN EITHER DIRECTION

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

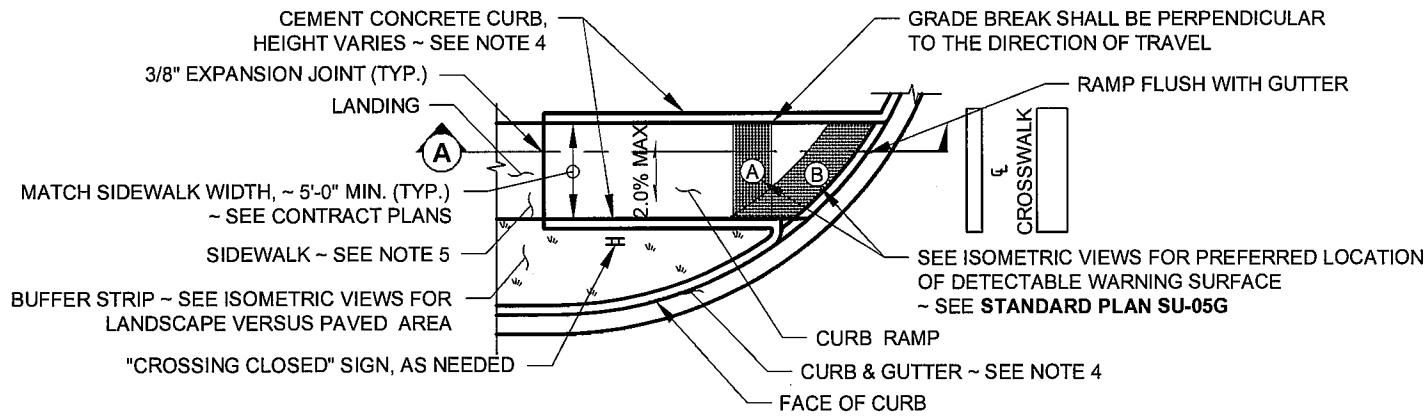
APPROVED FOR PUBLICATION

*James Parry*  
CITY ENGINEER

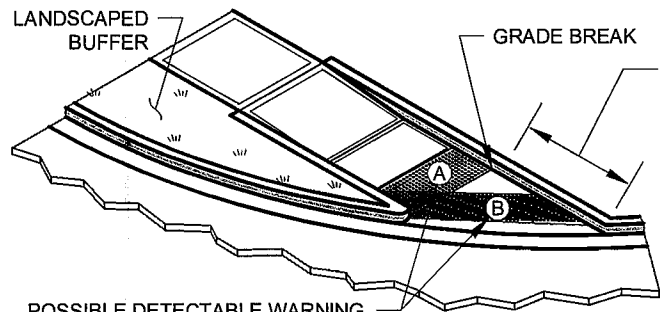
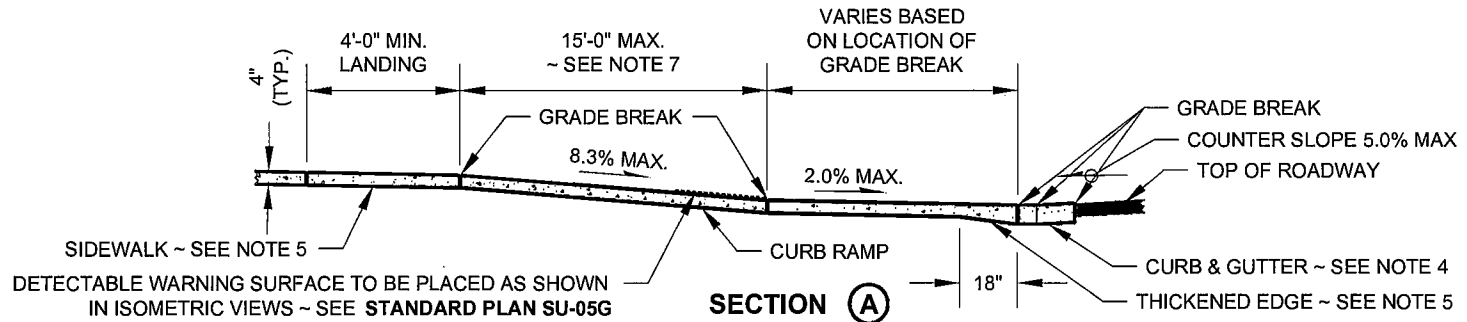
01 Apr. 2011  
DATE

PARALLEL CURB RAMP  
TYPE 'B'

STANDARD PLAN NO. SU-05E



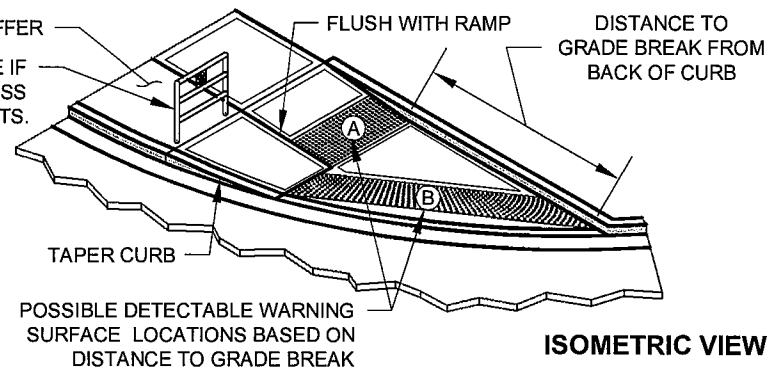
**PLAN VIEW  
SINGLE DIRECTION CURB RAMP**



**ISOMETRIC VIEW  
(SHOWN WITH LANDSCAPED BUFFER)**

HARDSCAPED BUFFER

RAILING AS NEEDED, USE IF NO OBSTRUCTION TO CROSS TRAVEL EXISTS.



**ISOMETRIC VIEW  
(SHOWN WITH PAVED BUFFER)**

**NOTES:**

SEE STANDARD PLAN SU-05 FOR REFERENCED NOTES.

THIS PLAN IS TO BE USED WHERE PEDESTRIAN CROSSING IN ONLY ONE DIRECTION IS PERMITTED.

**LEGEND:**

↔ SLOPE IN EITHER DIRECTION

APPROVED FOR PUBLICATION

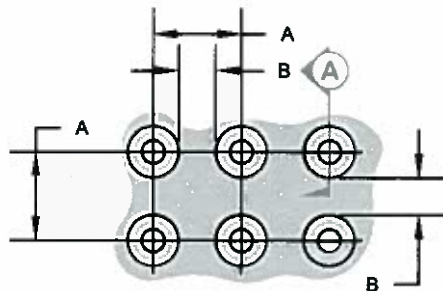
CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*James Parvey*  
CITY ENGINEER

01 APR 2011  
DATE

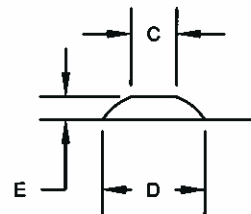
SINGLE DIRECTION CURB RAMP

STANDARD PLAN NO. SU-05F



TRUNCATED DOME SPACING

TRUNCATED DOME DETAILS



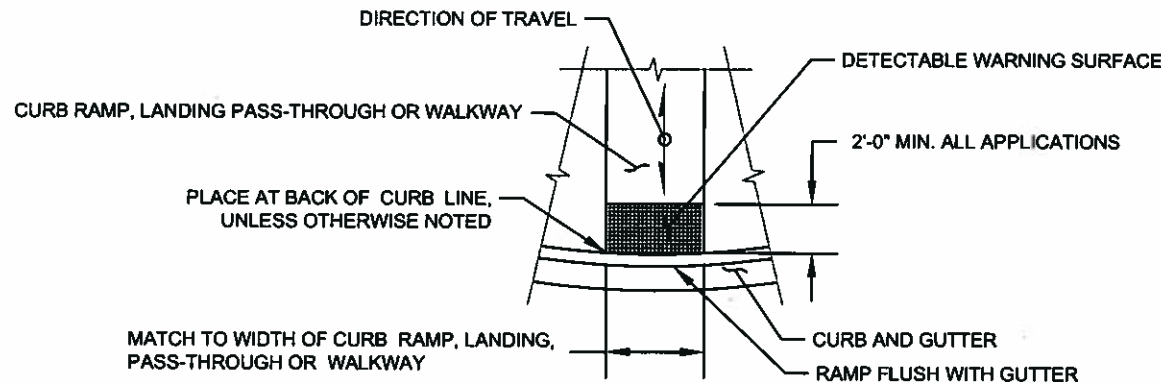
TRUNCATED DOME

SECTION (A)

	MIN.	MAX.
A	1.60"	2.40"
B	0.65"	-
C	0.45"	0.90"
D	0.90"	1.40"
E	0.20"	0.20"

**NOTES:**

1. The Detectable Warning Surface shall extend the full width of the curb ramp (exclusive of flares) or the landing.
2. The rows of truncated domes in a detectable Warning Surface shall be parallel with the direction of wheel chair travel.
3. See **Standard Plans** for sidewalk and curb ramp details.
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, Armor-Tile, or approved equal. All detectable warning surface tiles shall be cast in place and shall not use anchors or bolts which make them removable. 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.
7. See **Standard Plan SU-05H** for Detectable Warning Surface placement guidelines.



DETECTABLE WARNING SURFACE DETAIL

APPROVED FOR PUBLICATION

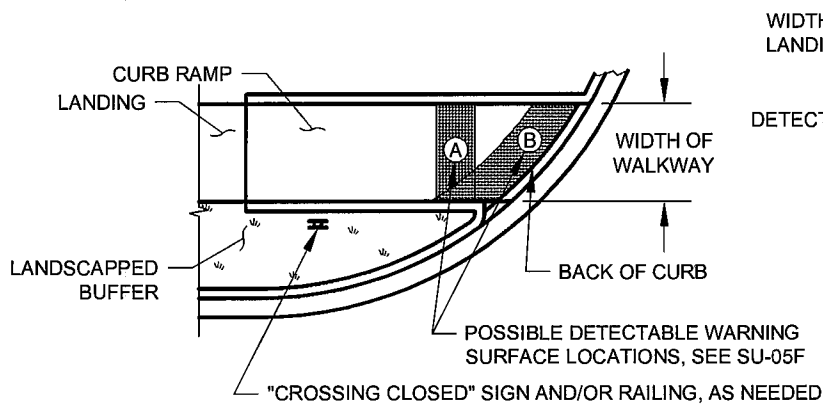
CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*[Signature]*  
CITY ENGINEER

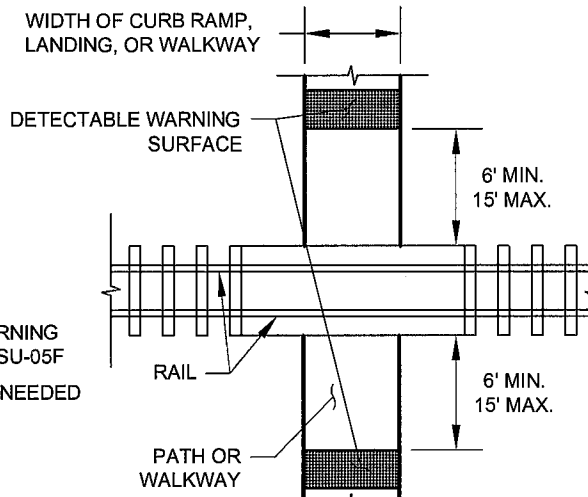
*1/17/13*  
DATE

DETECTABLE WARNING SURFACE  
DETAILS

STANDARD PLAN NO. SU-05G



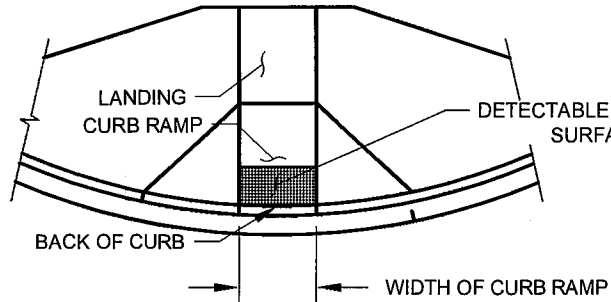
**SINGLE DIRECTION CURB RAMP**



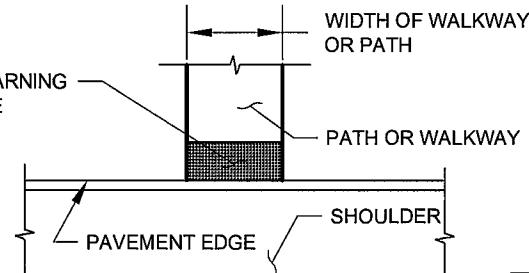
**PEDESTRIAN RAILROAD CROSSING**

**NOTES:**

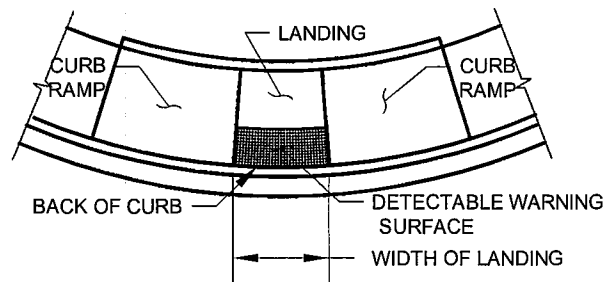
1. The Detectable Warning Surface shall extend the full width of the curb ramp (exclusive of flares) or the landing.
2. The edge of the Detectable Warning Surface shall be placed along the back of the curb line unless otherwise noted.
3. The rows of truncated domes in the Detectable Warning Surface shall be parallel with the direction of travel.
4. See **Standard Plans** for sidewalk and curb ramp details
5. If a curb is not present, place the Detectable Warning Surface at the edge of the pavement.
6. 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.
7. The Detectable Warning Pattern area shall be yellow and shall match the color of Federal Standard 595a, Color Number 33538 unless otherwise noted.



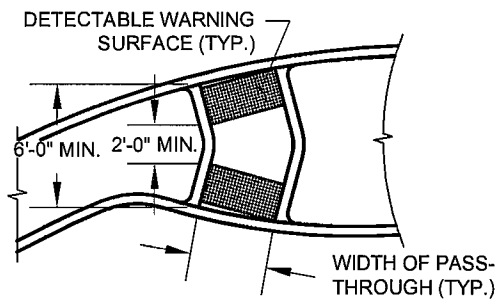
**PERPENDICULAR CURB RAMP**  
(SEE SU-05A AND SU-05B)



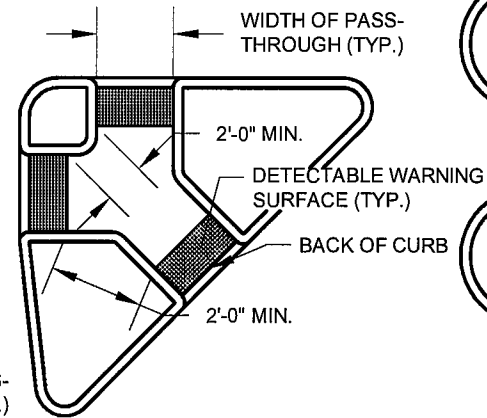
**SHARED-USE PATH CONNECTION**



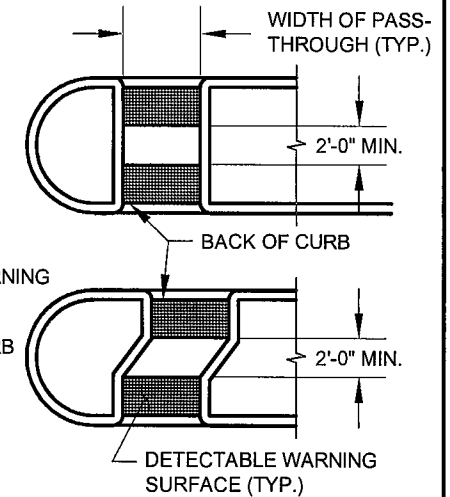
**PARALLEL CURB RAMP**  
(SEE SU-05C, SU-05D AND SU-05E)



**ROUNDBOUT SPLITTER ISLAND**



**ISLAND PASS-THROUGH**



**MEDIAN PASS-THROUGH**

APPROVED FOR PUBLICATION

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*James Parvey*  
CITY ENGINEER

01 Apr. 2011  
DATE

DETECTABLE WARNING SURFACE  
PLACEMENT GUIDELINES

STANDARD PLAN NO. SU-05H

**R303.2.1.4 FLARES.**  
 FLARED SIDES WITH A SLOPE OF 10% MAXIMUM, MEASURED PARALLEL TO THE CURB LINE, SHALL BE PROVIDED WHERE A PEDESTRIAN CIRCULATION PATH CROSSES THE CURB RAMP.

**ADVISORY R303.2.1.4 FLARES.**  
 SIDE OF RAMPS MAY BE RETURNED, PROVIDING USEFUL DIRECTIONAL CUES, IF PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, POLES, OR EQUIPMENT.

**NOTE:** CITY OF TACOMA PREFERS A RETURN CURB BE USED ONLY ADJACENT TO LANDSCAPING. IF RETURN CURB IS NEEDED AT OTHER LOCATIONS, RAILING MAY BE REQUIRED TO PREVENT CROSS TRAVEL.

**NOTES:**

1. CURB RAMPS SHALL BE LOCATED, CONSTRUCTED OR RETROFITTED IN ACCORDANCE WITH ADA STANDARDS FOR ACCESSIBLE DESIGN, 28 CFR, PART 35 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 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.

**R303.2.2** REFERENCE TO PROWAG SECTION, 2005 DRAFT RULE (IDENTIFIED AS CURRENT BEST PRACTICE IN ACCESSIBLE PEDESTRIAN DESIGN UNDER FHWA FEDERAL AID (504) REGULATION).

 TAPER CURB

**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.

**R304.1.4 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.

**R304.2.1 PERPENDICULAR CURB RAMPS.**

WHERE BOTH ENDS OF THE BOTTOM GRADE BREAK COMPLYING WITH R303.3.4 ARE 5.0 FT OR LESS FROM THE BACK OF CURB, THE DETECTABLE WARNING SHALL BE LOCATED ON THE RAMP SURFACE AT THE BOTTOM GRADE BREAK. WHERE EITHER END OF THE BOTTOM GRADE BREAK IS MORE THAN 5.0 FT FROM THE BACK OF CURB, THE DETECTABLE WARNING SHALL BE LOCATED ON THE LOWER LANDING.

**R304.2.3 ALIGNMENT.**

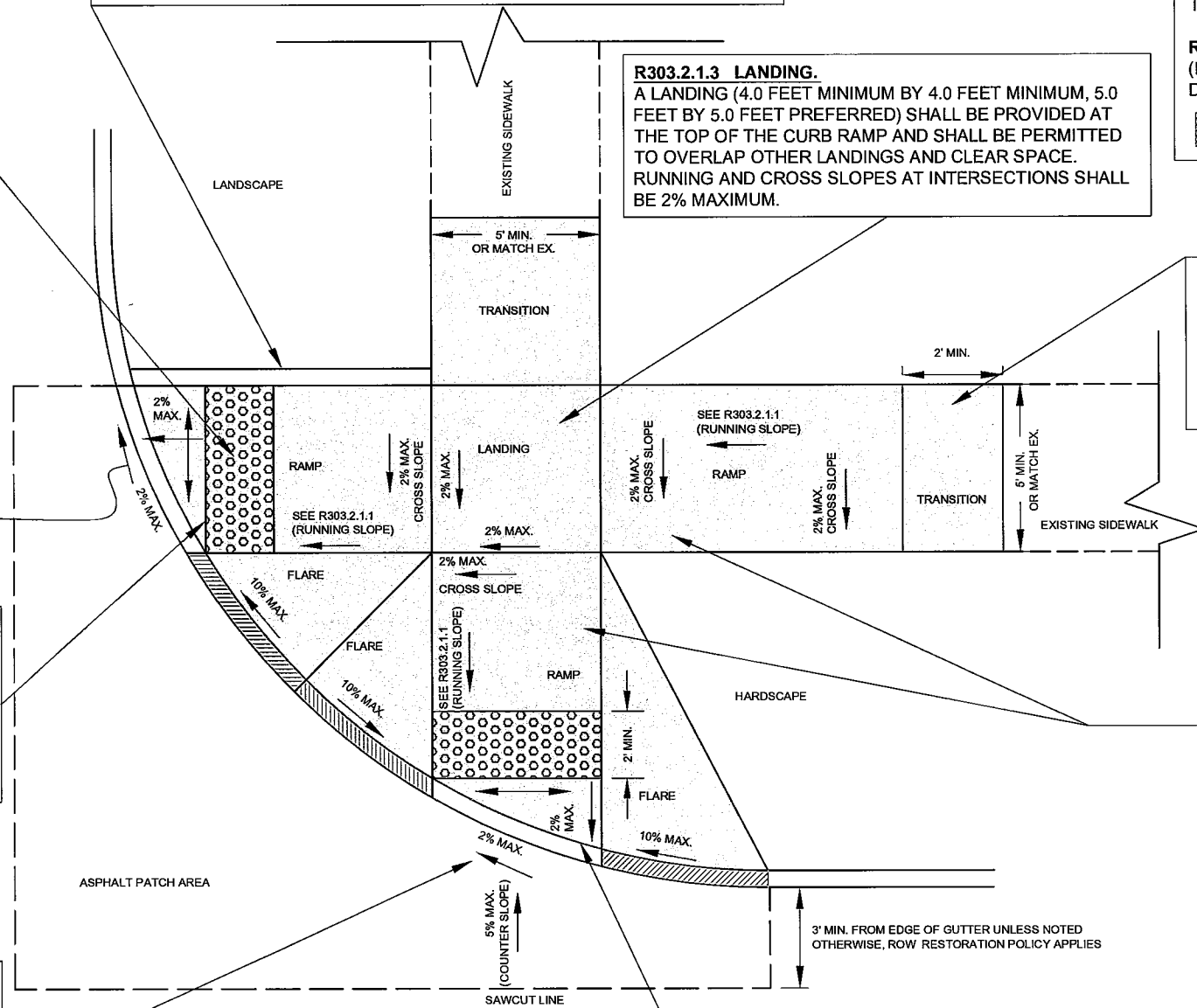
THE ROWS OF TRUNCATED DOMES IN A DETECTABLE WARNING SURFACE SHALL BE ALIGNED TO BE PERPENDICULAR OR RADIAL TO THE GRADE BREAK BETWEEN THE RAMP, LANDING, OR BLENDED TRANSITION AND THE STREET.

**R303.2.1.3 LANDING.**

A LANDING (4.0 FEET MINIMUM BY 4.0 FEET MINIMUM, 5.0 FEET BY 5.0 FEET PREFERRED) SHALL BE PROVIDED AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER LANDINGS AND CLEAR SPACE. RUNNING AND CROSS SLOPES AT INTERSECTIONS SHALL BE 2% MAXIMUM.

TRANSITION PANEL FROM RAMP TO EXISTING SIDEWALK (WHERE REQUIRED TO MATCH EXISTING SIDEWALK CROSS SLOPE). MAXIMUM GRADES ARE NOT SPECIFIED BY PROWAG. ADJUST LENGTH AS NEEDED TO PROVIDE SMOOTH TRANSITION. IF PROPOSED MATCH LINE LOCATION DOES NOT FALL ON AN EXISTING JOINT IN THE SECTION OF SIDEWALK TO REMAIN, THE EXISTING WALK SHALL BE REMOVED BACK TO THE NEXT JOINT (MINIMUM 2 FEET).

MAINTAIN POSITIVE STORM WATER DRAINAGE (TYP.)



**R303.3.4 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.

**R303.2.1 PERPENDICULAR CURB RAMPS.**

**R303.2.1.1 RUNNING SLOPE.**

THE RUNNING SLOPE SHALL BE 8.3% MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FEET.

**R303.2.1.2 CROSS SLOPE.**

THE CROSS SLOPE SHALL BE 2% MAXIMUM.

**R303.3.1 WIDTH.**

THE CLEAR WIDTH OF LANDINGS, BLENDED TRANSITIONS, AND CURB RAMPS, EXCLUDING FLARES, SHALL BE 4.0 FEET MINIMUM.

**R303.3.3 SURFACES.**

SURFACES OF CURB RAMPS, BLENDED TRANSITIONS, AND LANDINGS SHALL COMPLY WITH R301. GRATINGS, ACCESS COVERS, AND OTHER APPURTENANCES SHALL NOT BE LOCATED ON CURB RAMPS, LANDINGS, BLENDED TRANSITIONS AND GUTTERS WITHIN THE PEDESTRIAN ACCESS ROUTE.

**CROSSWALK**

**R303.3.5 COUNTER SLOPES.**

THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, LANDING, OR BLENDED TRANSITION SHALL BE 5% MAXIMUM.

**R303.2.1.2 CROSS SLOPE.**

THE CROSS SLOPE AT INTERSECTIONS SHALL BE 2% MAXIMUM. THE CROSS SLOPE AT MID-BLOCK CROSSING SHALL BE PERMITTED TO BE WARPED TO MEET STREET GRADE.

GRADE BREAK AT BASE OF RAMP AND GUTTER SHALL BE FLUSH

**FOR INFORMATIONAL PURPOSES ONLY  
 DO NOT INCLUDE IN CONTRACT SPECIFICATIONS**

CITY OF TACOMA  
 DEPARTMENT OF PUBLIC WORKS

PROWAG GUIDELINES  
 TYPICAL PERPENDICULAR CURB RAMP  
 DESIGN STANDARDS

STANDARD PLAN NO. SU-051

**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.

**R303.2.1.2 CROSS SLOPE.**

THE CROSS SLOPE SHALL BE 2% MAXIMUM.

**R303.3.1 WIDTH.**

THE CLEAR WIDTH OF LANDINGS, BLENDED TRANSITIONS, AND CURB RAMPS, EXCLUDING FLARES, SHALL BE 4.0 FEET MINIMUM.

**R303.3.3 SURFACES.**

SURFACES OF CURB RAMPS, BLENDED TRANSITIONS, AND LANDINGS SHALL COMPLY WITH R301. 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.

**R304.1.4 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.

**R304.2.3 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.

**R303.3.4 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.

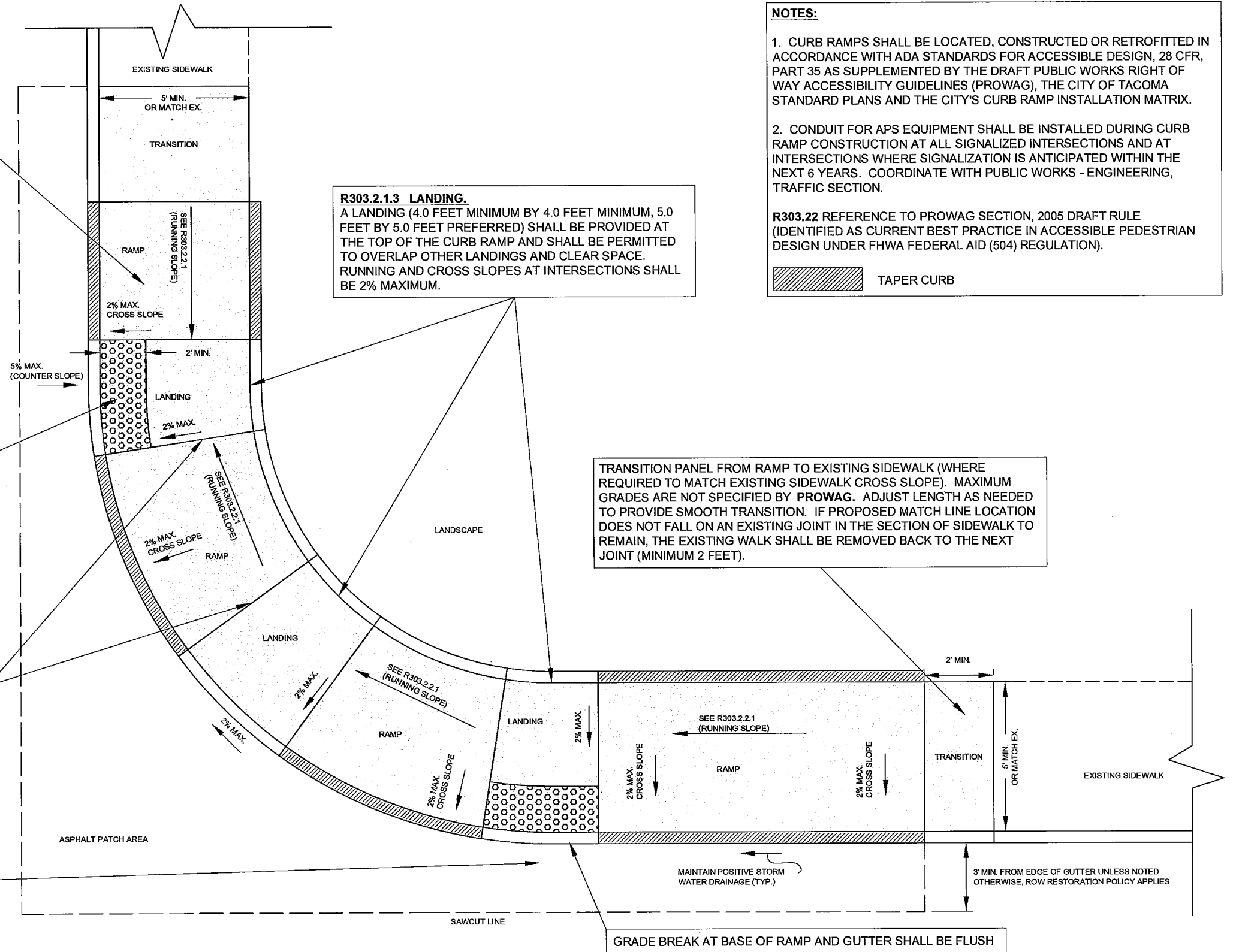
**CROSSWALK.**

**R303.3.5 COUNTER SLOPES.**

THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, LANDING, OR BLENDED TRANSITION SHALL BE 5% MAXIMUM.

**R303.2.1.2 CROSS SLOPE.**

THE CROSS SLOPE AT INTERSECTIONS SHALL BE 2% MAXIMUM. THE CROSS SLOPE AT MID-BLOCK CROSSING SHALL BE PERMITTED TO BE WARPED TO MEET STREET GRADE.



**R303.2.1.3 LANDING.**

A LANDING (4.0 FEET MINIMUM BY 4.0 FEET MINIMUM, 5.0 FEET BY 5.0 FEET PREFERRED) SHALL BE PROVIDED AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER LANDINGS AND CLEAR SPACE. RUNNING AND CROSS SLOPES AT INTERSECTIONS SHALL BE 2% MAXIMUM.

**NOTES:**

1. CURB RAMPS SHALL BE LOCATED, CONSTRUCTED OR RETROFITTED IN ACCORDANCE WITH ADA STANDARDS FOR ACCESSIBLE DESIGN, 28 CFR, PART 35 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 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.

**R303.22** REFERENCE TO PROWAG SECTION, 2005 DRAFT RULE (IDENTIFIED AS CURRENT BEST PRACTICE IN ACCESSIBLE PEDESTRIAN DESIGN UNDER FHWA FEDERAL AID (504) REGULATION).

 TAPER CURB

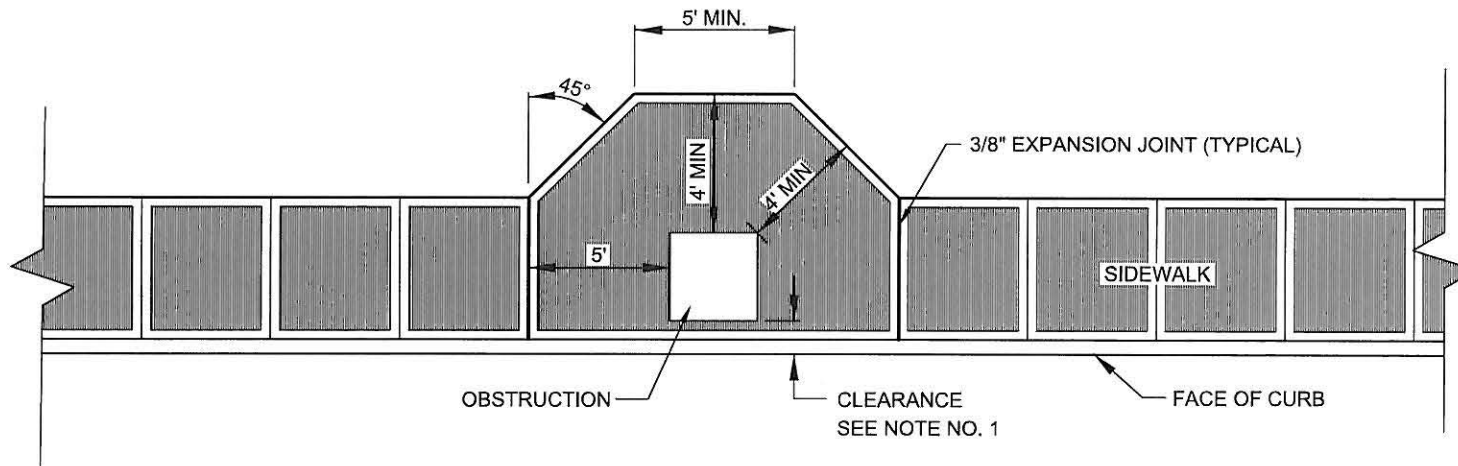
TRANSITION PANEL FROM RAMP TO EXISTING SIDEWALK (WHERE REQUIRED TO MATCH EXISTING SIDEWALK CROSS SLOPE). MAXIMUM GRADES ARE NOT SPECIFIED BY PROWAG. ADJUST LENGTH AS NEEDED TO PROVIDE SMOOTH TRANSITION. IF PROPOSED MATCH LINE LOCATION DOES NOT FALL ON AN EXISTING JOINT IN THE SECTION OF SIDEWALK TO REMAIN, THE EXISTING WALK SHALL BE REMOVED BACK TO THE NEXT JOINT (MINIMUM 2 FEET).

GRADE BREAK AT BASE OF RAMP AND GUTTER SHALL BE FLUSH

**FOR INFORMATIONAL PURPOSES ONLY  
DO NOT INCLUDE IN CONTRACT SPECIFICATIONS**

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

PROWAG GUIDELINES  
TYPICAL PARALLEL CURB RAMP  
DESIGN STANDARDS  
STANDARD PLAN NO. SU-05J



**NOTES:**

1. The clearance between the face of curb and any obstruction, except mail boxes, shall be a minimum of 1'-6". The front of a mail box shall have 1'-0" minimum clearance from face of curb.
2. A minimum clear width of 4' shall be provided for continuous passage around the obstruction.

APPROVED FOR PUBLICATION

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*Jane Parry*  
CITY ENGINEER

12 Jun 2009  
DATE

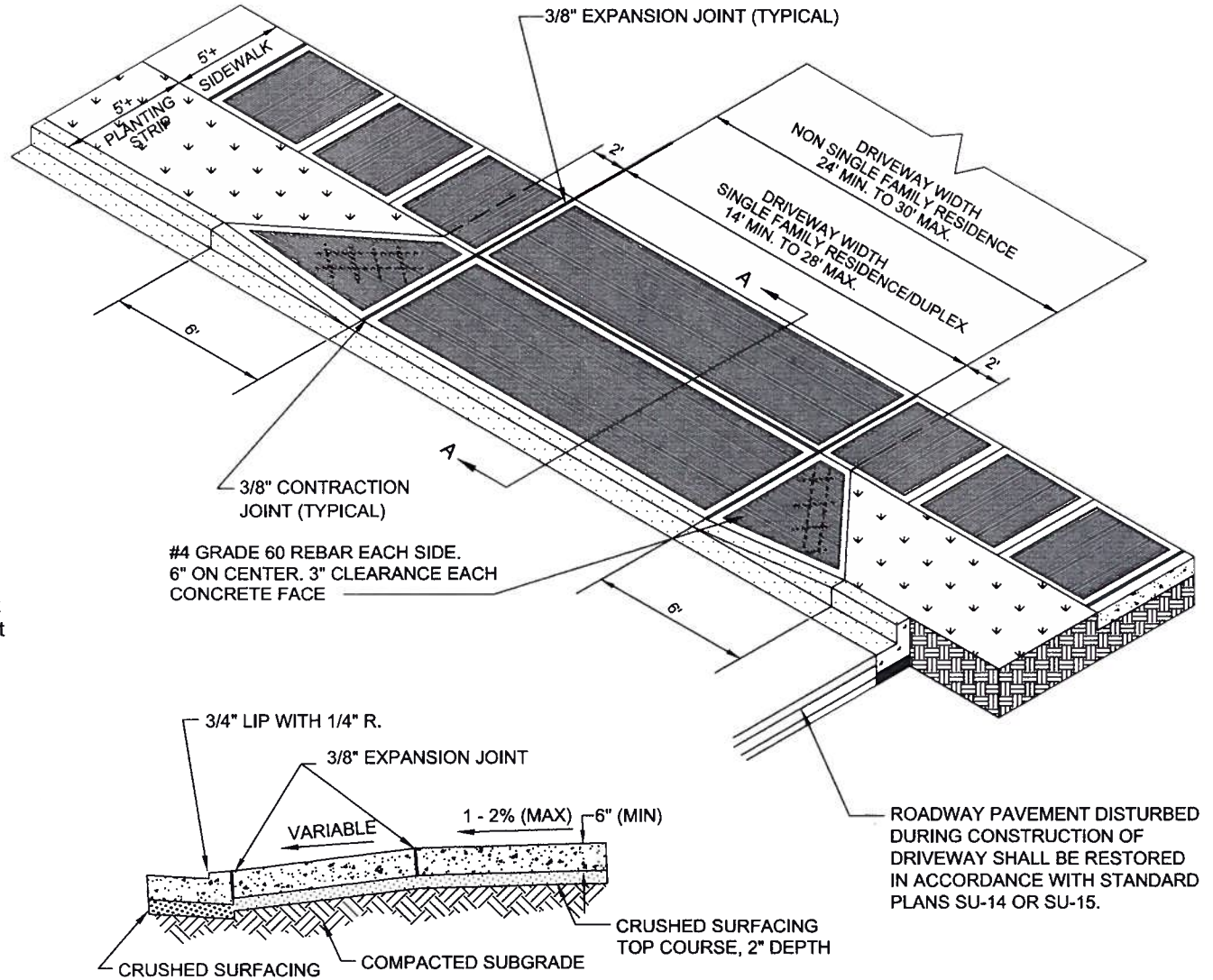
MINIMUM SIDEWALK  
WIDTH AT OBSTRUCTIONS

STANDARD PLAN NO. SU-06



**NOTES:**

1. Type 1 driveway shall be used where the planting strip width is 5' or greater.
2. Concrete shall be a minimum compressive strength of 3,000 PSI.
3. All joints shall be cleaned & edged. External joints to the driveway shall be 1/2" radius. Internal joints to the driveway shall be 1/4" radius.
4. Driveways wider or narrower than shown on this plan require approval of the Director of Public Works.
5. Driveway section shall be a brushed finish in a transverse direction to the center line of driveway.
6. Driveways wider than 20' require a center line expansion joint.
7. All expansion joints shall be full depth.
8. When trenching through a driveway, replacements for driveways greater than 20' in width shall include a minimum 2' wide cut back over undisturbed soil and extend to the nearest control joint. Replacements for driveways 20' or less in width will require a full driveway replacement.
9. 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 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.
10. Minimum 5' between adjacent sidewalk transitions.
11. For driveway entrances within the North Slope Historical District area per Standard Plan HD-NS01, see Standard Plan HD-NS02.



**SECTION DETAIL A-A**

NTS

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CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*[Signature]*  
CITY ENGINEER

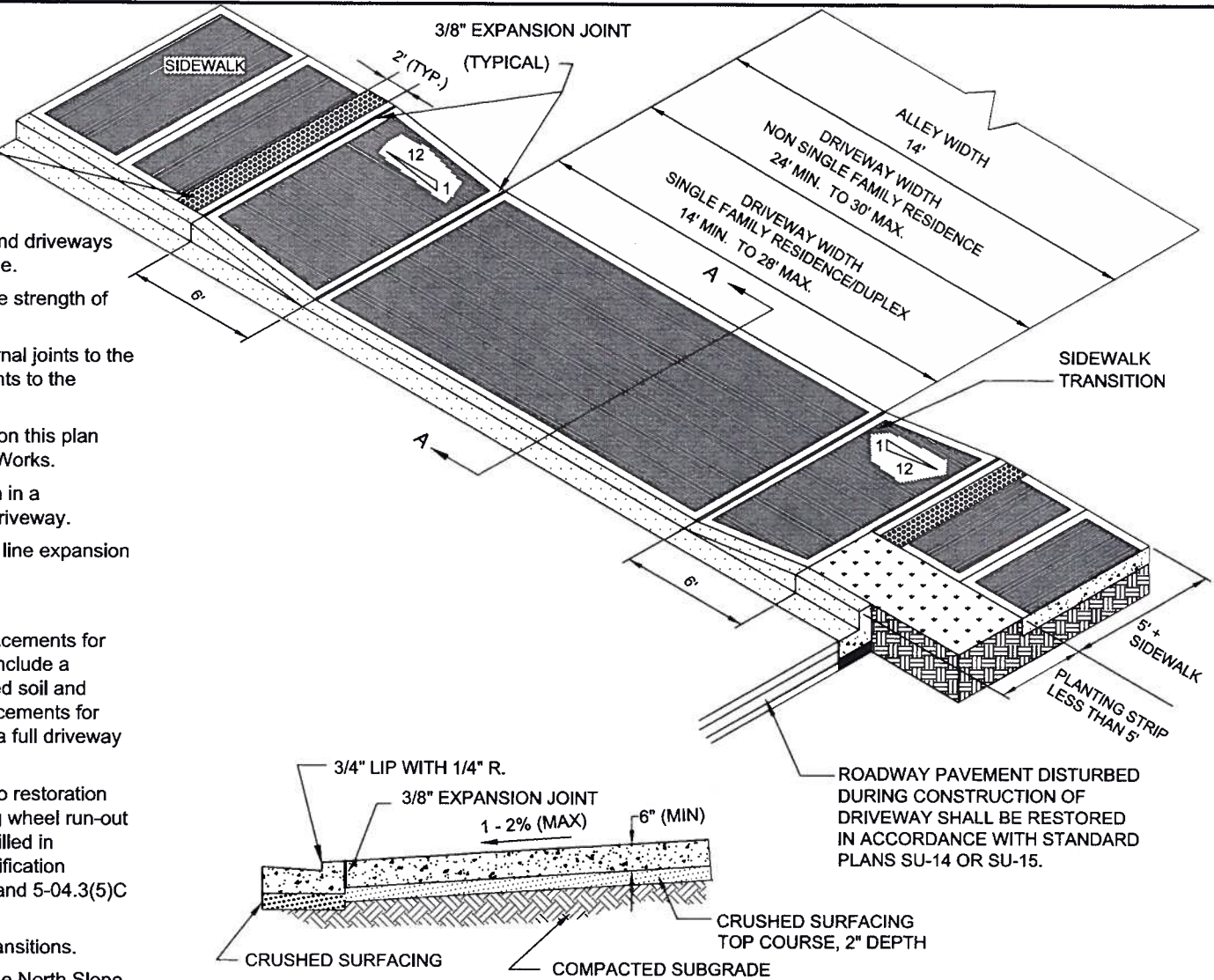
*12/30/10*  
DATE

CEMENT CONCRETE  
DRIVEWAY ENTRANCE  
TYPE 1  
STANDARD PLAN NO. SU-07

DETECTABLE WARNING PATTERN  
FULL WIDTH OF SIDEWALK  
(ALLEYS ONLY) IN ACCORDANCE  
WITH STANDARD PLAN SU-05A

**NOTES:**

1. Type 2 driveway shall be used at alleys and driveways where the planting strip is less than 5' wide.
2. Concrete shall be a minimum compressive strength of 3,000 PSI.
3. All joints shall be cleaned & edged. External joints to the driveway shall be 1/2" radius. Internal joints to the driveway shall be 1/4" radius.
4. Driveways wider or narrower than shown on this plan require approval of the Director of Public Works.
5. Driveway section shall be a brushed finish in a transverse direction to the center line of driveway.
6. Driveways wider than 20' require a center line expansion joint.
7. All expansion joints shall be full depth.
8. When trenching through a driveway, replacements for driveways greater than 20' in width shall include a minimum 2' wide cut back over undisturbed soil and extend to the nearest control joint. Replacements for driveways 20' or less in width will require a full driveway replacement.
9. 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 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.
10. Minimum 5' between adjacent sidewalk transitions.
11. For driveway and alley entrances within the North Slope Historical District area per Standard Plan HD-NS01, see Standard Plan HD-NS02 and HD-NS04.



**SECTION DETAIL A-A**  
NTS

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

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DEPARTMENT OF PUBLIC WORKS

*[Signature]*  
CITY ENGINEER

11/30/10  
DATE

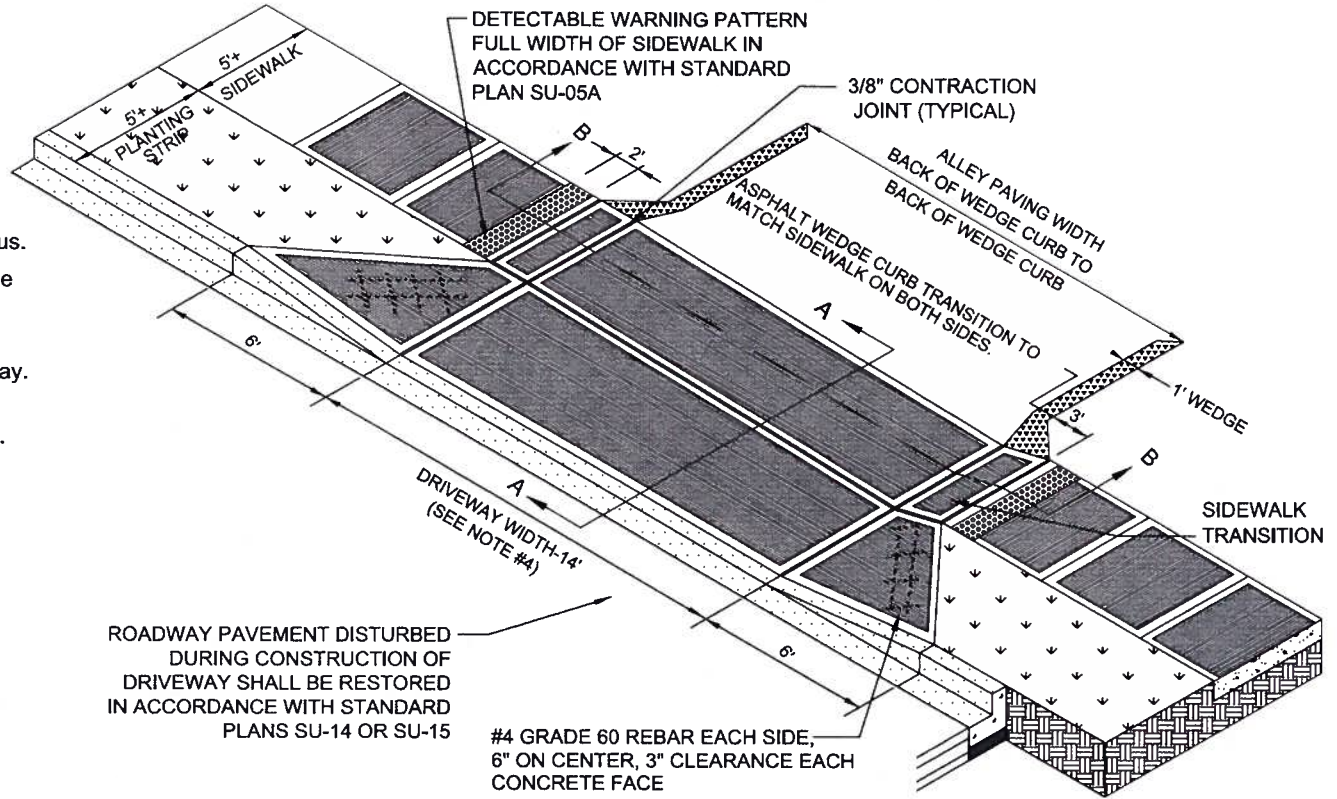
CEMENT CONCRETE  
DRIVEWAY ENTRANCE  
TYPE 2

STANDARD PLAN NO. SU-08



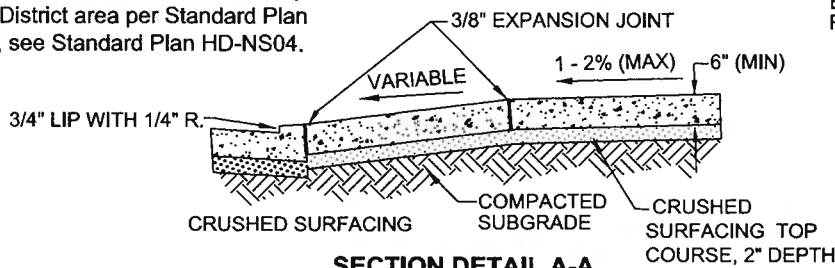
**NOTES:**

1. Type 3 driveway shall be used at alleys where the planting strip is 5' wide or greater.
2. Concrete shall be a minimum compressive strength of 3,000 PSI.
3. All joints shall be cleaned & edged. External joints to the driveway shall be 1/2" radius. Internal joints to the driveway shall be 1/4" radius.
4. Driveways wider than 14' require approval of the Director of Public Works.
5. Driveway section shall be a brushed finish in a transverse direction to the center line of driveway.
6. Dependent upon cross slope of driveway, additional drainage provisions may be required.
7. Concrete wings shall extend to front of walk.
8. When trenching through a driveway, the entire driveway shall be replaced.
9. 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 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.
10. Minimum 5' between adjacent sidewalk transitions.
11. For alley entrances within the North Slope Historical District area per Standard Plan HD-NS01, see Standard Plan HD-NS04.



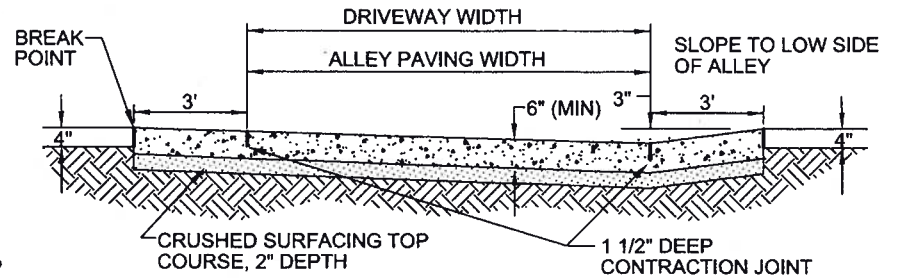
ROADWAY PAVEMENT DISTURBED DURING CONSTRUCTION OF DRIVEWAY SHALL BE RESTORED IN ACCORDANCE WITH STANDARD PLANS SU-14 OR SU-15

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



**SECTION DETAIL A-A**

NTS



**SECTION DETAIL B-B**

NTS

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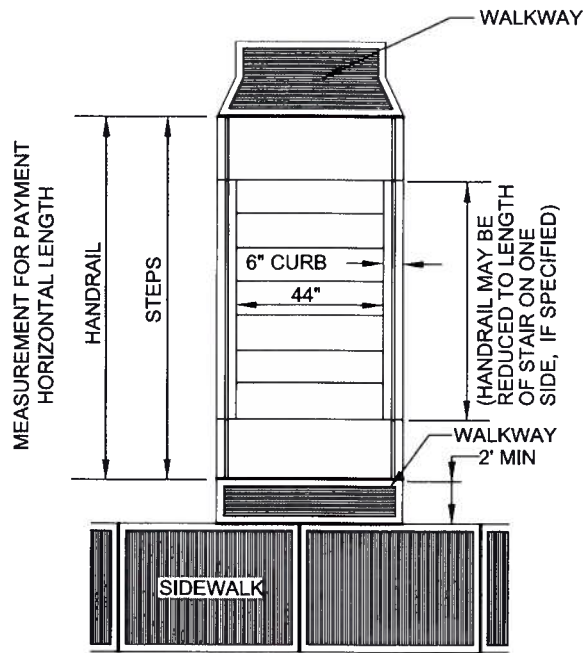
CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*[Signature]*  
CITY ENGINEER

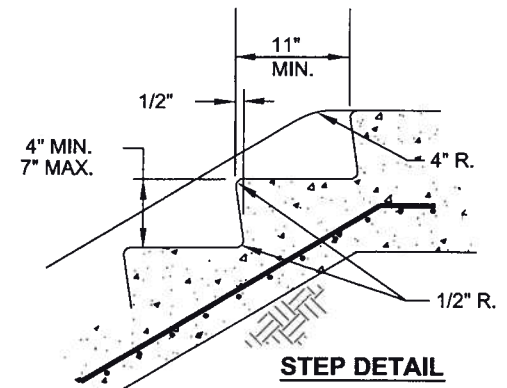
11/3/16  
DATE

CEMENT CONCRETE  
DRIVEWAY ENTRANCE  
TYPE 3

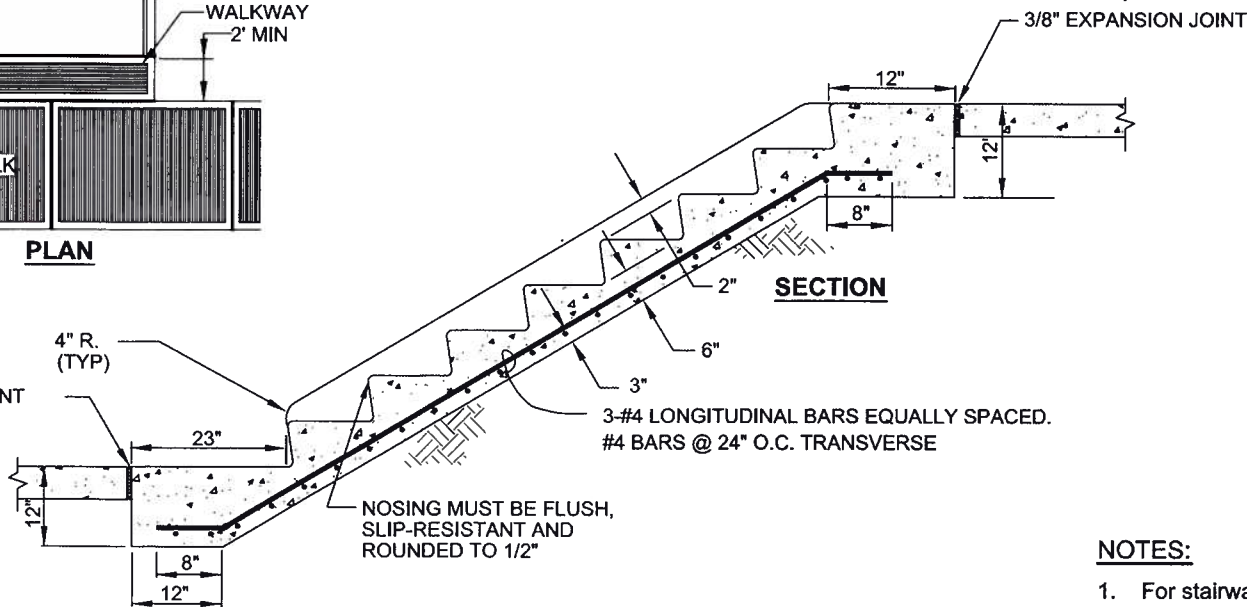
STANDARD PLAN NO. SU-09



**PLAN**



**STEP DETAIL**



**SECTION**

**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.

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

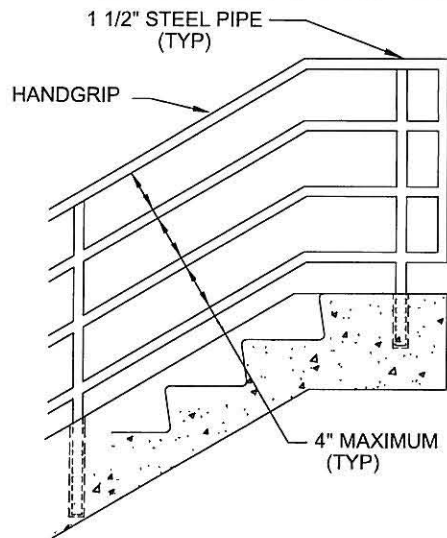
APPROVED FOR PUBLICATION

*[Signature]*  
CITY ENGINEER

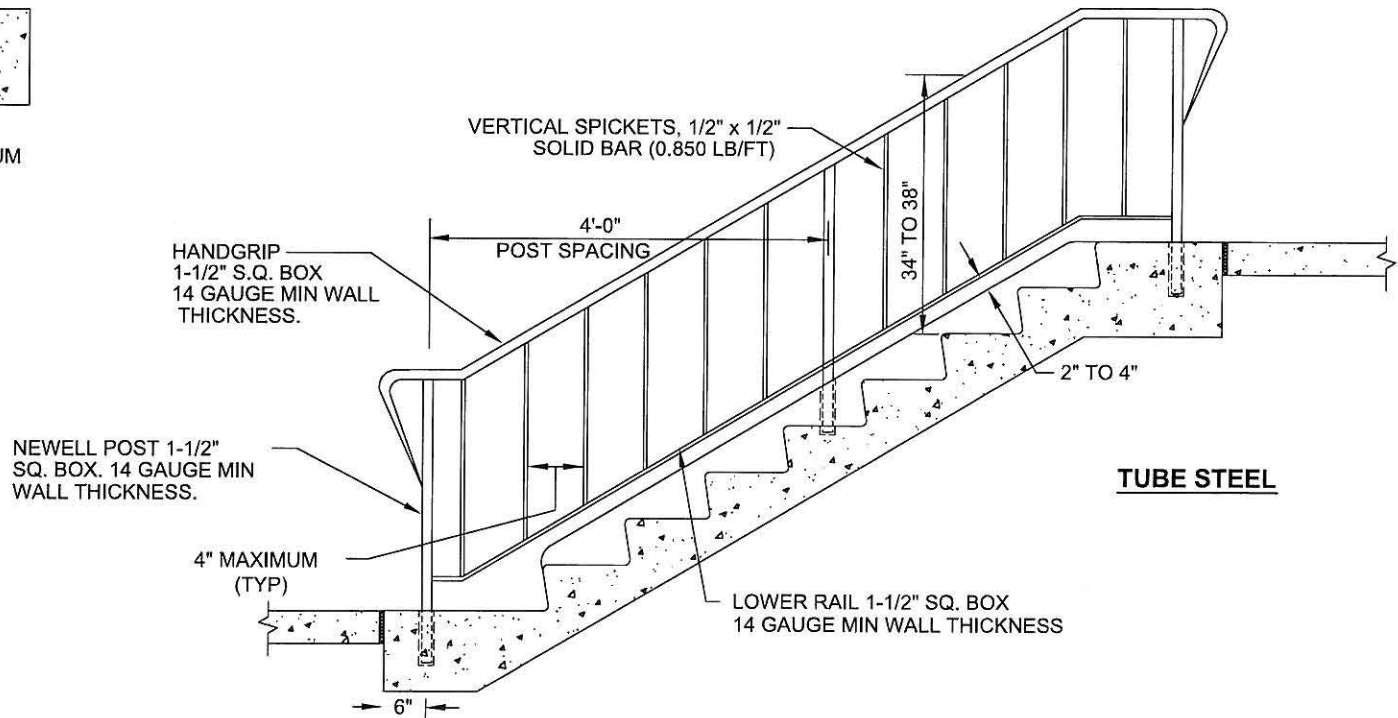
11/23/15  
DATE

CEMENT CONCRETE STAIRWAY

STANDARD PLAN NO. SU-10



**STEEL PIPE**



**TUBE STEEL**

**NOTE:**

For cement concrete stairway details, refer to Standard Plan No. SU-10

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION

*Jana Perry*  
CITY ENGINEER

12 JUN 2009  
DATE

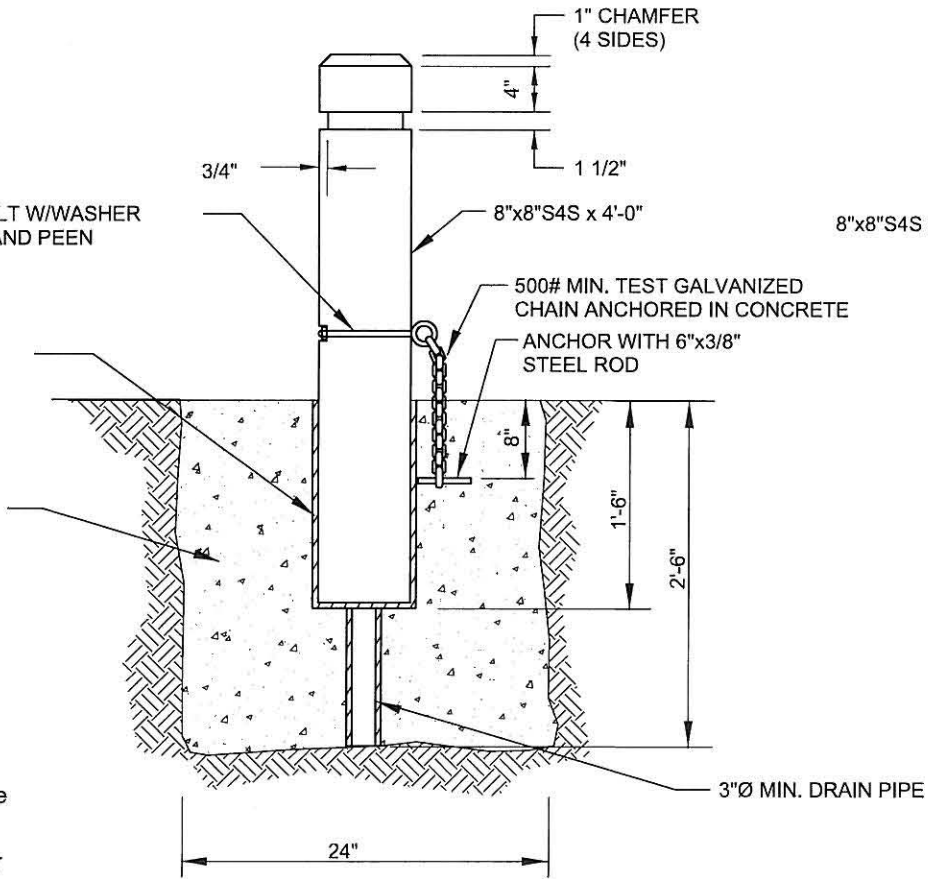
HANDRAILS

STANDARD PLAN NO. SU-11

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

1/8" MIN. THICKNESS GALVANIZED STEEL. INTERIOR SIDE DIMENSIONS 1/2" GREATER THAN POST DIMENSIONS.

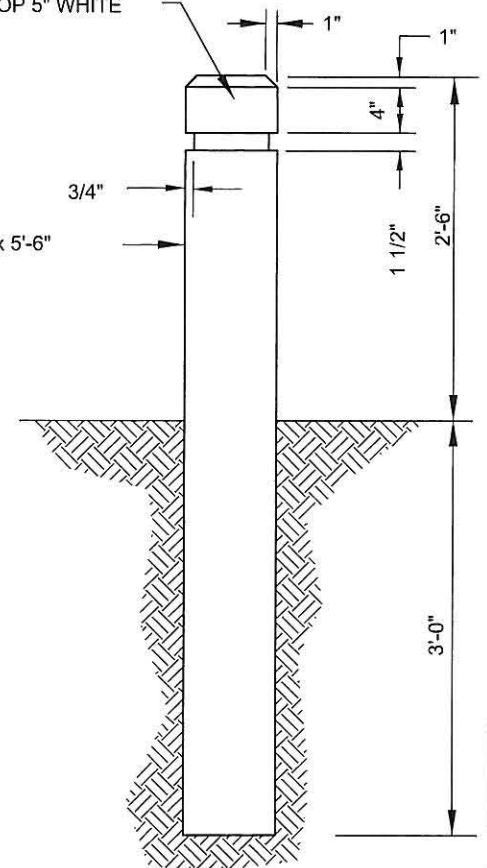
CLASS 3000 CONCRETE



**REMOVABLE BOLLARD**

PAINT TOP 5" WHITE

8"x8"S4S x 5'-6"



**FIXED BOLLARD**

**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.
3. Nuts, bolts, & washers shall conform to ASTM A307.
4. All steel parts shall be galvanized.

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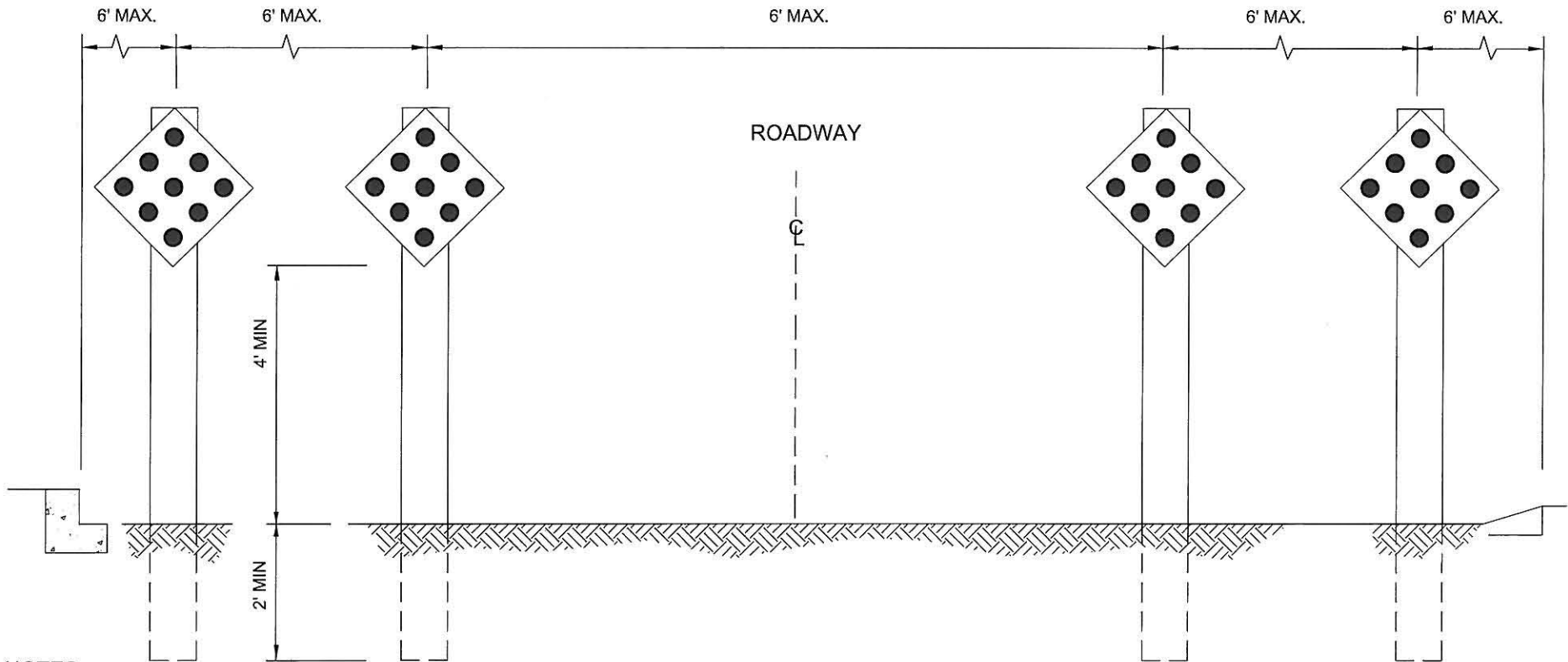
CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*James Perry*  
CITY ENGINEER

12 Jun 2007  
DATE

BOLLARD DETAILS

STANDARD PLAN NO. SU-12



**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.

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CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*James Parry*  
CITY ENGINEER

12 Jun 2009  
DATE

END OF ROAD MARKER

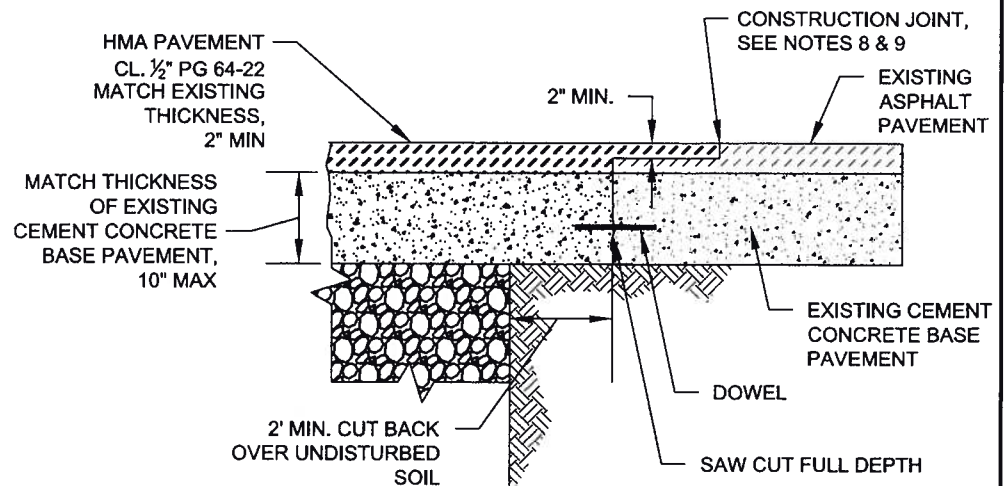
STANDARD PLAN NO. SU-13



**NOTES:**

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 areas 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 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.



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DEPARTMENT OF PUBLIC WORKS

*[Signature]*  
CITY ENGINEER

11/30/10  
DATE

TYPICAL PAVEMENT RESTORATION  
FOR ASPHALT OVER  
CEMENT CONCRETE BASE PAVEMENT

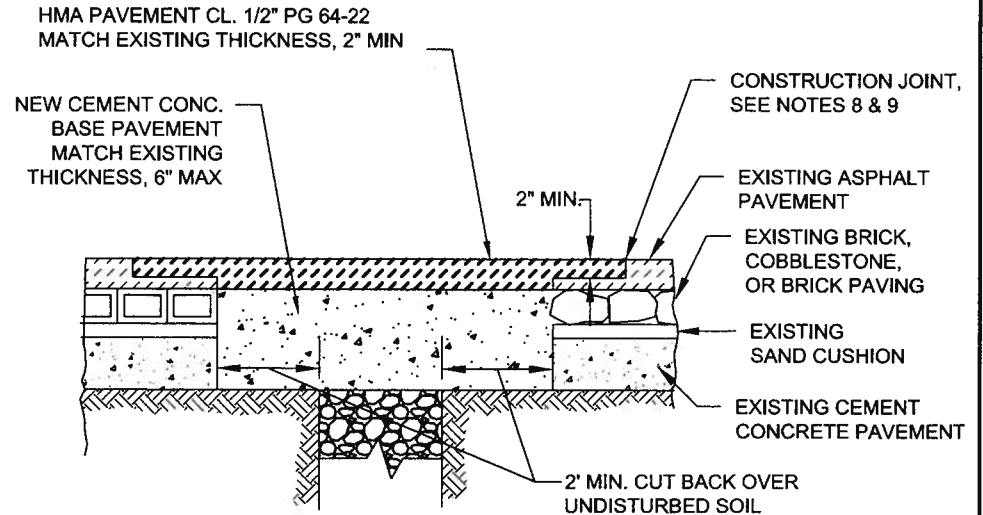
STANDARD PLAN NO. SU-14A



**NOTES:**

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).  
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.  
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.

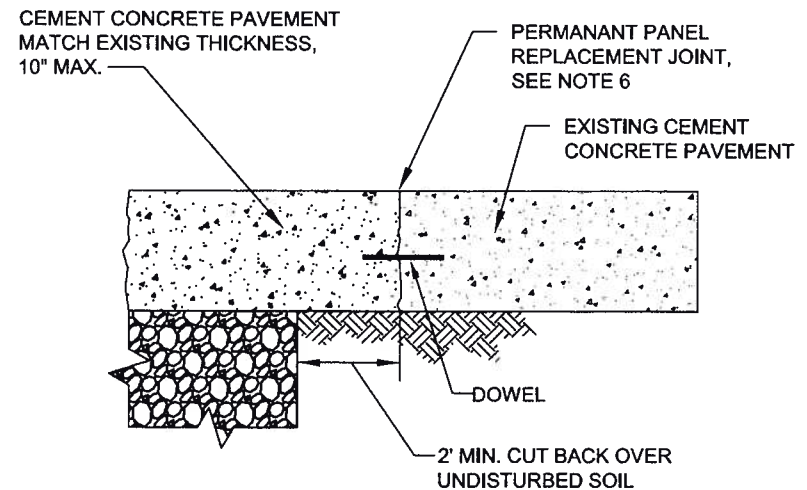


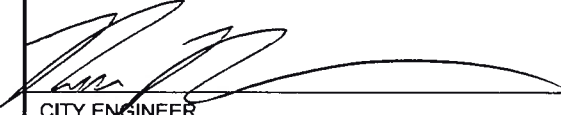
<p><b>CITY OF TACOMA</b> <b>DEPARTMENT OF PUBLIC WORKS</b></p>	<p><b>APPROVED FOR PUBLICATION</b></p> <p>CITY ENGINEER</p>	<p><b>TYPICAL PAVEMENT RESTORATION FOR ASPHALT OVER RIGID BASE BRICK OR STONE BLOCK PAVEMENT</b></p> <p>STANDARD PLAN NO. <b>SU-14B</b></p>
	<p>11/30/11 DATE</p>	

**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).  
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. 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 1/2 the panel length, width, or total area, including the 2-foot cut back, will require 100% panel replacement. Panels cut less than 1/2 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.

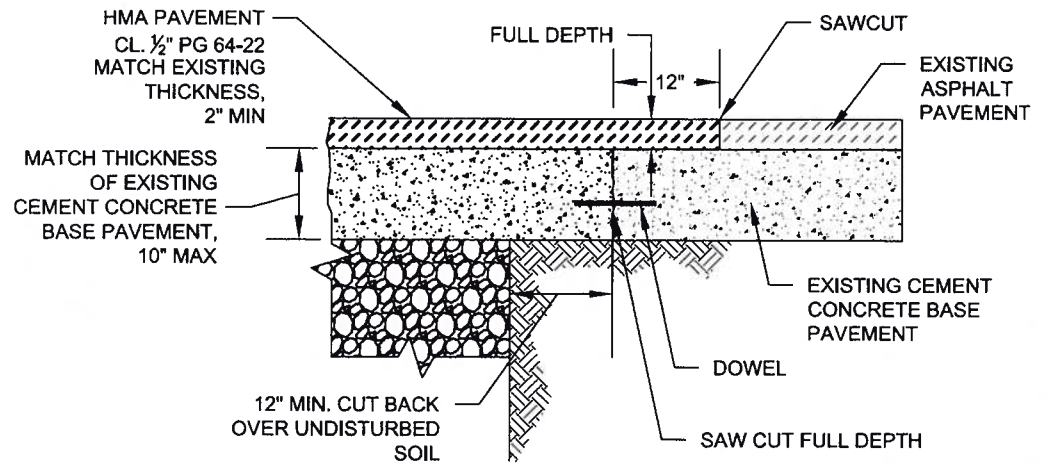


<p><b>CITY OF TACOMA</b> <b>DEPARTMENT OF PUBLIC WORKS</b></p>	<p><b>APPROVED FOR PUBLICATION</b></p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">               CITY ENGINEER         </div> <div style="text-align: center;">             11/20/10              DATE         </div> </div>	<p><b>TYPICAL PAVEMENT RESTORATION FOR CEMENT CONCRETE PAVEMENT</b></p> <p><b>STANDARD PLAN NO. SU-14C</b></p>
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**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).  
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. 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.

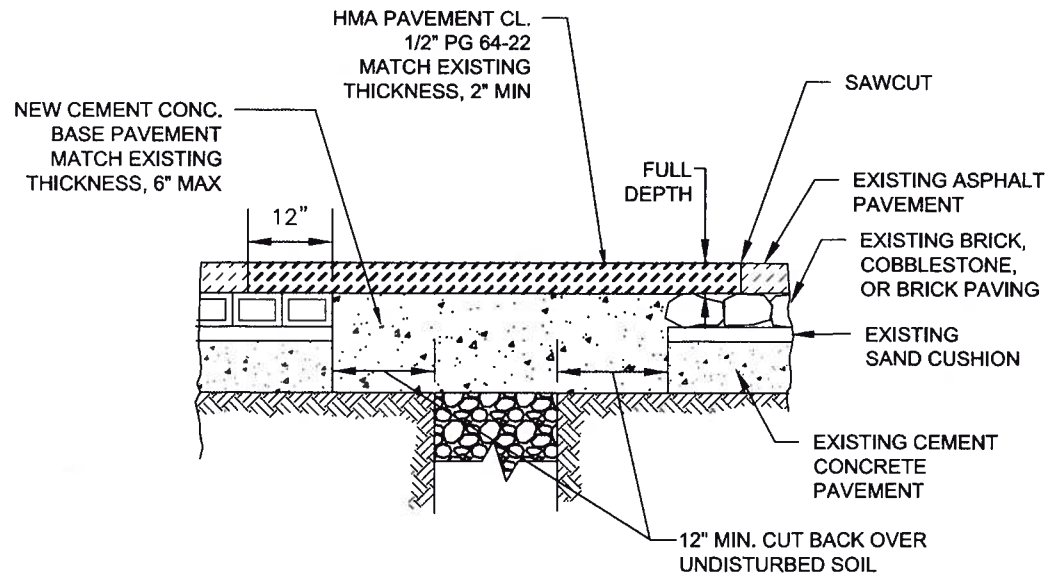


<p style="text-align: center;"><b>CITY OF TACOMA</b> <b>DEPARTMENT OF PUBLIC WORKS</b></p>	<p style="text-align: center;"><b>APPROVED FOR PUBLICATION</b></p> <p style="text-align: center;"><i>[Signature]</i> CITY ENGINEER</p> <p style="text-align: right;">11/22/13 DATE</p>	<p style="text-align: center;"><b>TYPICAL PAVEMENT RESTORATION FOR ASPHALT OVER CEMENT CONCRETE BASE PAVEMENT</b></p> <p style="text-align: center;"><b>STANDARD PLAN NO. SU-14D</b></p>
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**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.



APPROVED FOR PUBLICATION

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*[Signature]*  
CITY ENGINEER

11/20/10  
DATE

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

STANDARD PLAN NO. SU-14E



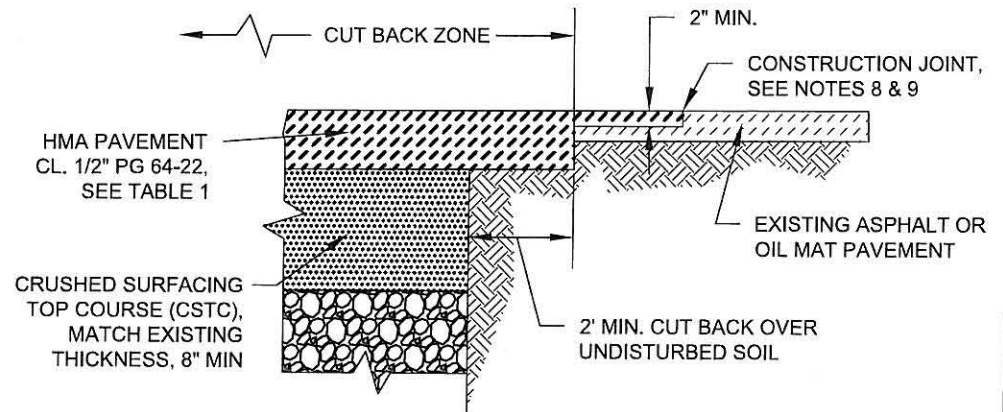
**NOTES**

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).  
Residential areas 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 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.
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.

**TABLE 1  
PAVEMENT REPLACEMENT DEPTH  
IN CUT BACK ZONE**

	MIN.	MAX.
ARTERIALS, INDUSTRIAL AREAS & ROADS WITH BUS TRAFFIC	MATCH EXISTING +1", OR 4", WHICHEVER IS GREATER	6"
RESIDENTIALS AND ALLEYS	MATCH EXISTING +1", OR 3", WHICHEVER IS GREATER	4"



APPROVED FOR PUBLICATION

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*James Ramsey*  
CITY ENGINEER

12 Jun 2009  
DATE

TYPICAL PAVEMENT RESTORATION  
FOR ASPHALT CONCRETE/OIL MAT  
PAVEMENT

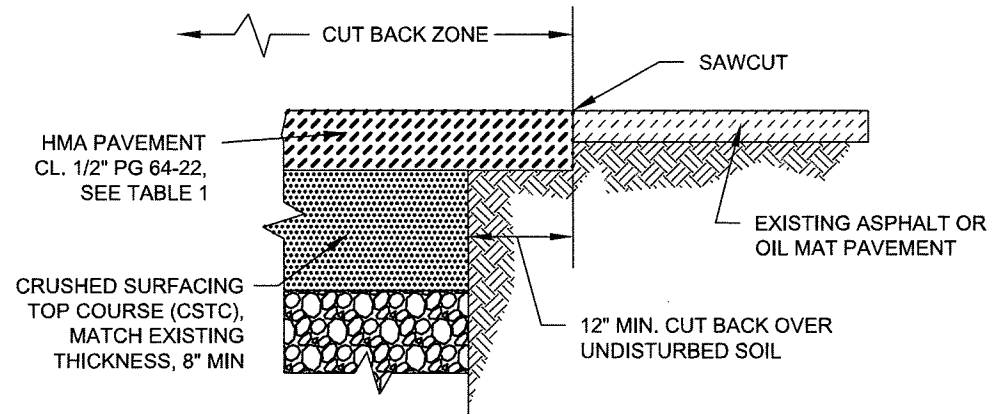
STANDARD PLAN NO. SU-15A

**NOTES**

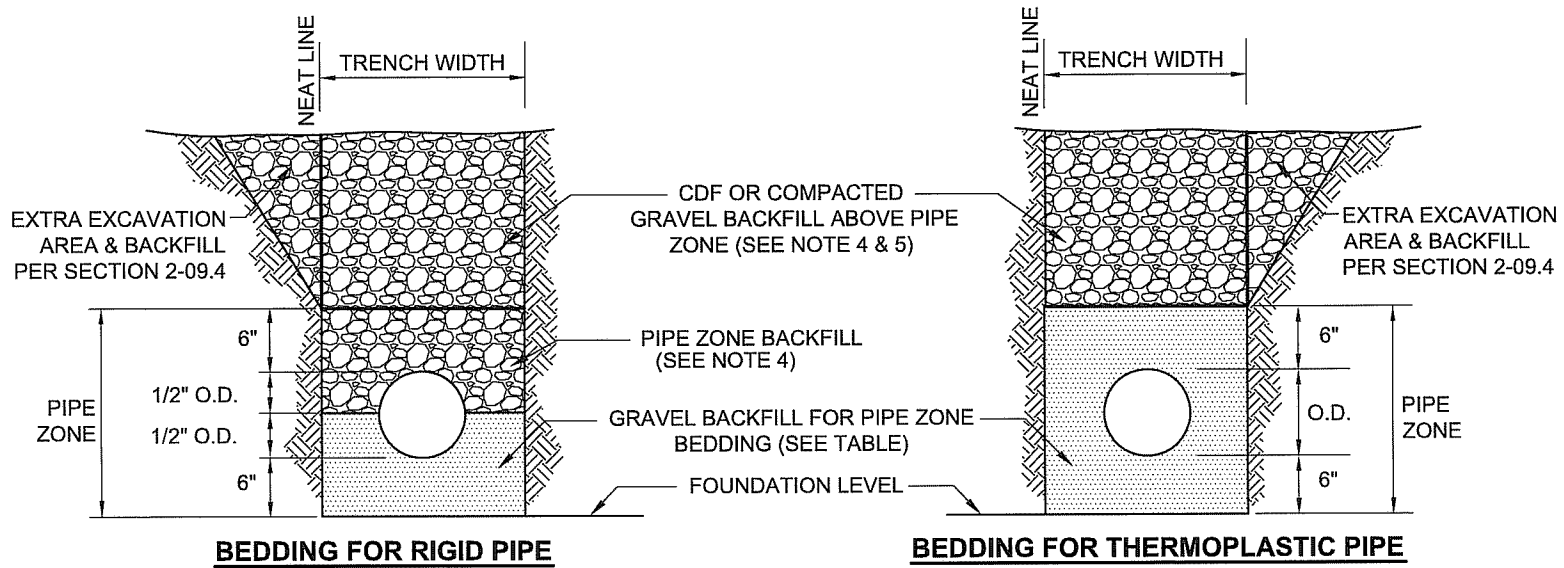
1. **This Standard Plan shall only apply to streets that are exempt from the City of Tacoma's Restoration Policy. See Standard Plan SU-15A for any streets not exempt from this policy.**
2. Temporary Surface Restoration:  
Arterials, industrial areas and/or roads with bus traffic: Temporary patches shall 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  
PAVEMENT REPLACEMENT DEPTH  
IN CUT BACK ZONE**

	MIN.	MAX.
ARTERIALS, INDUSTRIAL AREAS & ROADS WITH BUS TRAFFIC	MATCH EXISTING +1", OR 4", WHICHEVER IS GREATER	6"
RESIDENTIALS AND ALLEYS	MATCH EXISTING +1", OR 3", WHICHEVER IS GREATER	4"



<p><b>CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS</b></p>	<p><b>APPROVED FOR PUBLICATION</b></p> <p style="font-size: 2em; font-family: cursive;"><i>R. Bailey</i></p>	<p><b>TYPICAL PAVEMENT RESTORATION FOR ASPHALT CONCRETE/OIL MAT PAVEMENT</b></p> <p>STANDARD PLAN NO. SU-15B</p>
	<p>CITY ENGINEER</p>	

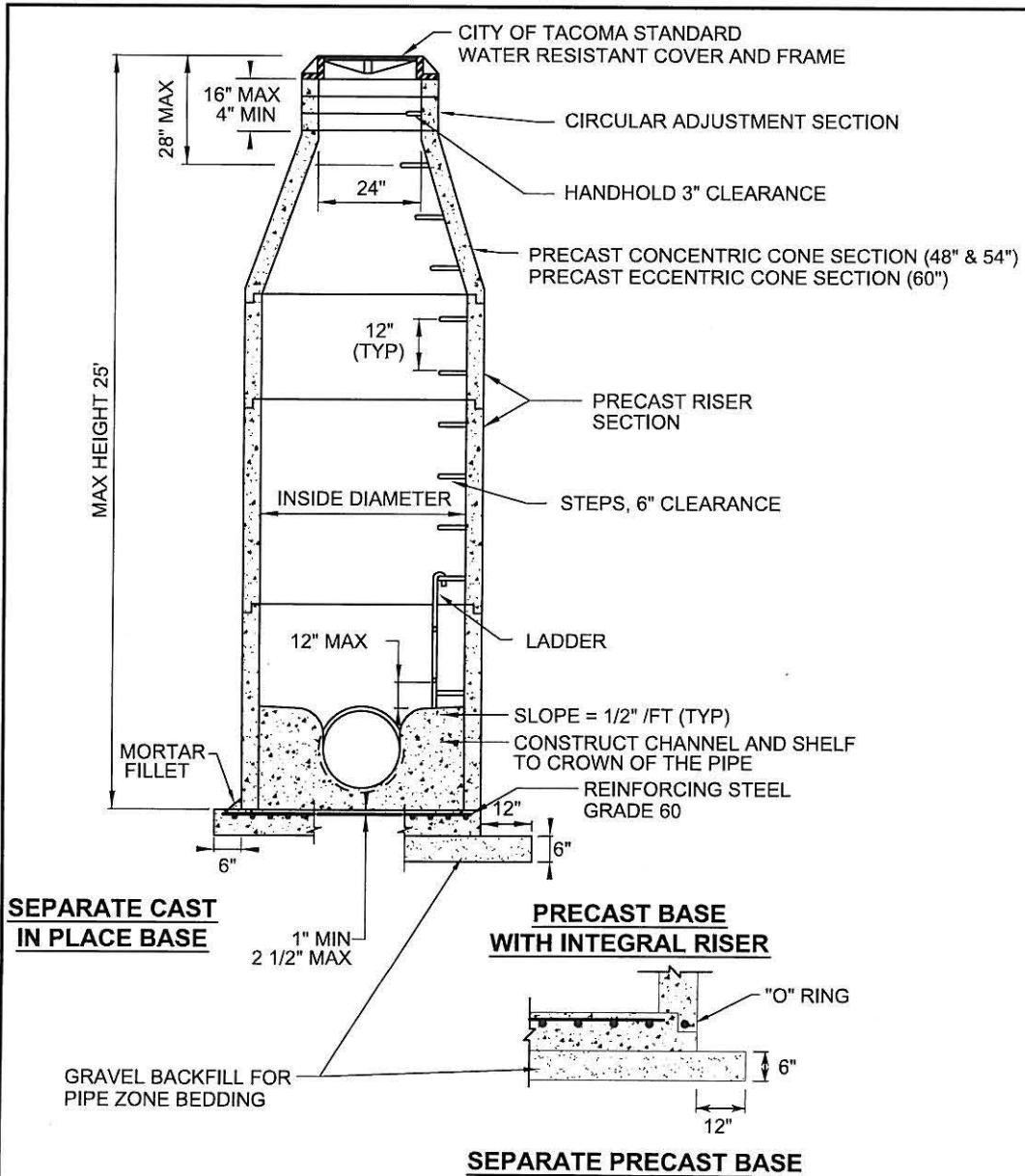


GRAVEL BACKFILL FOR PIPE ZONE BEDDING	
SIEVE SIZE	PERCENT PASSING
3/4" SQUARE	100
3/8" SQUARE	95-100
U.S. NUMBER 8	0-10
U.S. NUMBER 200	0-3
SAND EQUIVALENT	35 MINIMUM

**NOTES:**

1. Provide uniform support under barrel.
2. Hand tamp under haunches.
3. Trench width shall be as specified in Section 2-09.4 of the WSDOT Standard Specifications.
4. See WSDOT Standard Specification Section 9-03.12(2) for material requirements on "Pipe Zone Backfill" and for "Backfill Above Pipe Zone."
5. All trenches shall be compacted in accordance with SU-28.

<p>CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS</p>	<p>APPROVED FOR PUBLICATION</p>		<p>PIPE BEDDING AND BACKFILL FOR SANITARY AND STORM SEWERS</p>
	<p><i>Jana Parvey</i> CITY ENGINEER</p>	<p>28 Jun 2010 DATE</p>	



**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				
INSIDE DIAMETER	WALL THICKNESS	BASE THICKNESS	MAXIMUM HOLE SIZE	MINIMUM DISTANCE BETWEEN HOLES
48"	4"	6"	36"	8"
54"	4 1/2"	8"	42"	8"
60"	5"	8"	48"	8"

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION

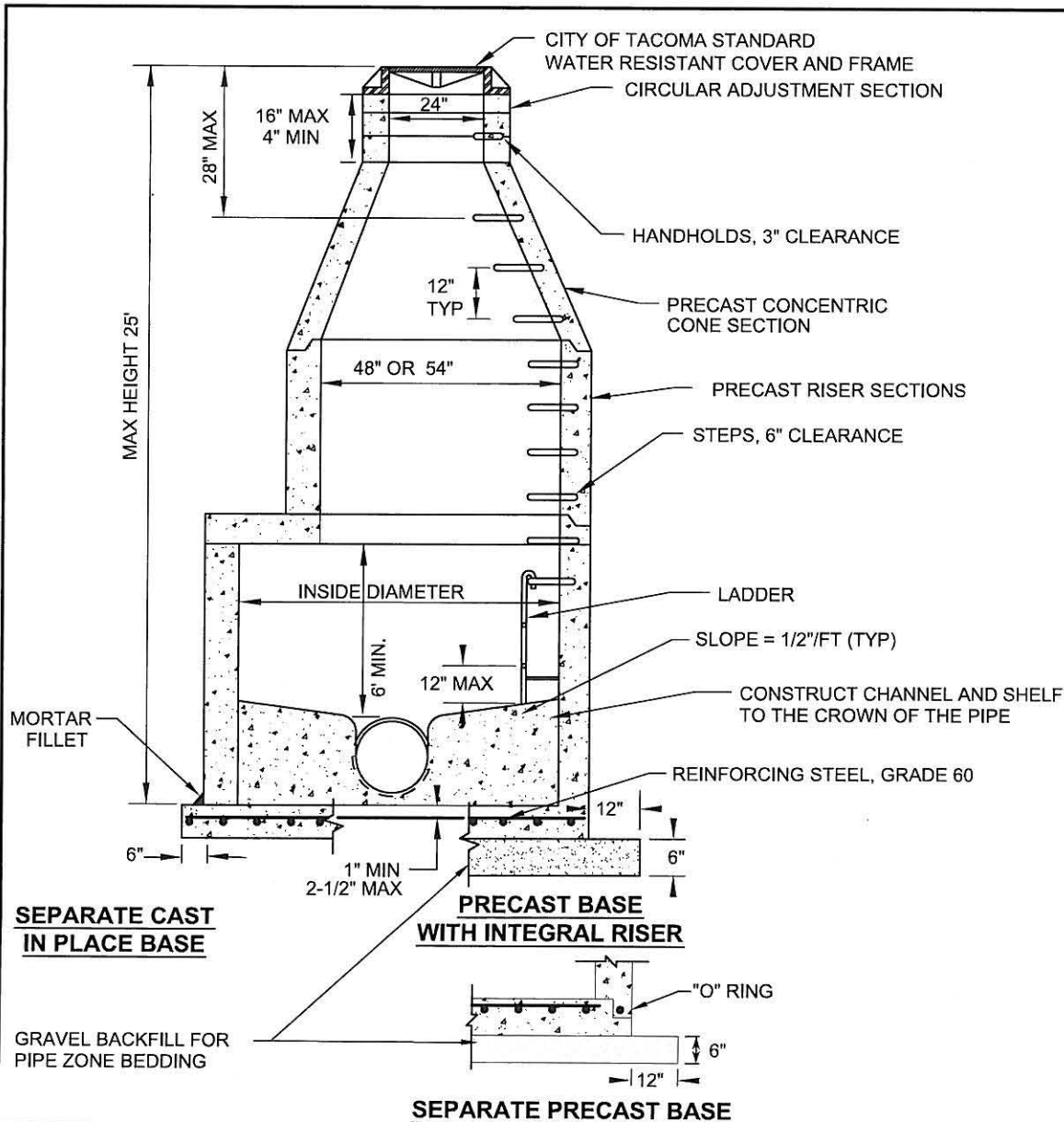
*James Penney*  
CITY ENGINEER

12 Jun 2009  
DATE

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				
INSIDE DIAMETER	WALL THICKNESS	BASE THICKNESS	MAXIMUM HOLE SIZE	MINIMUM DISTANCE BETWEEN HOLES
72"	6"	8"	60"	12"
84"	8"	12"	72"	12"
96"	8"	12"	84"	12"
108"	10"	12"	96"	12"
120"	11"	12"	108"	12"

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

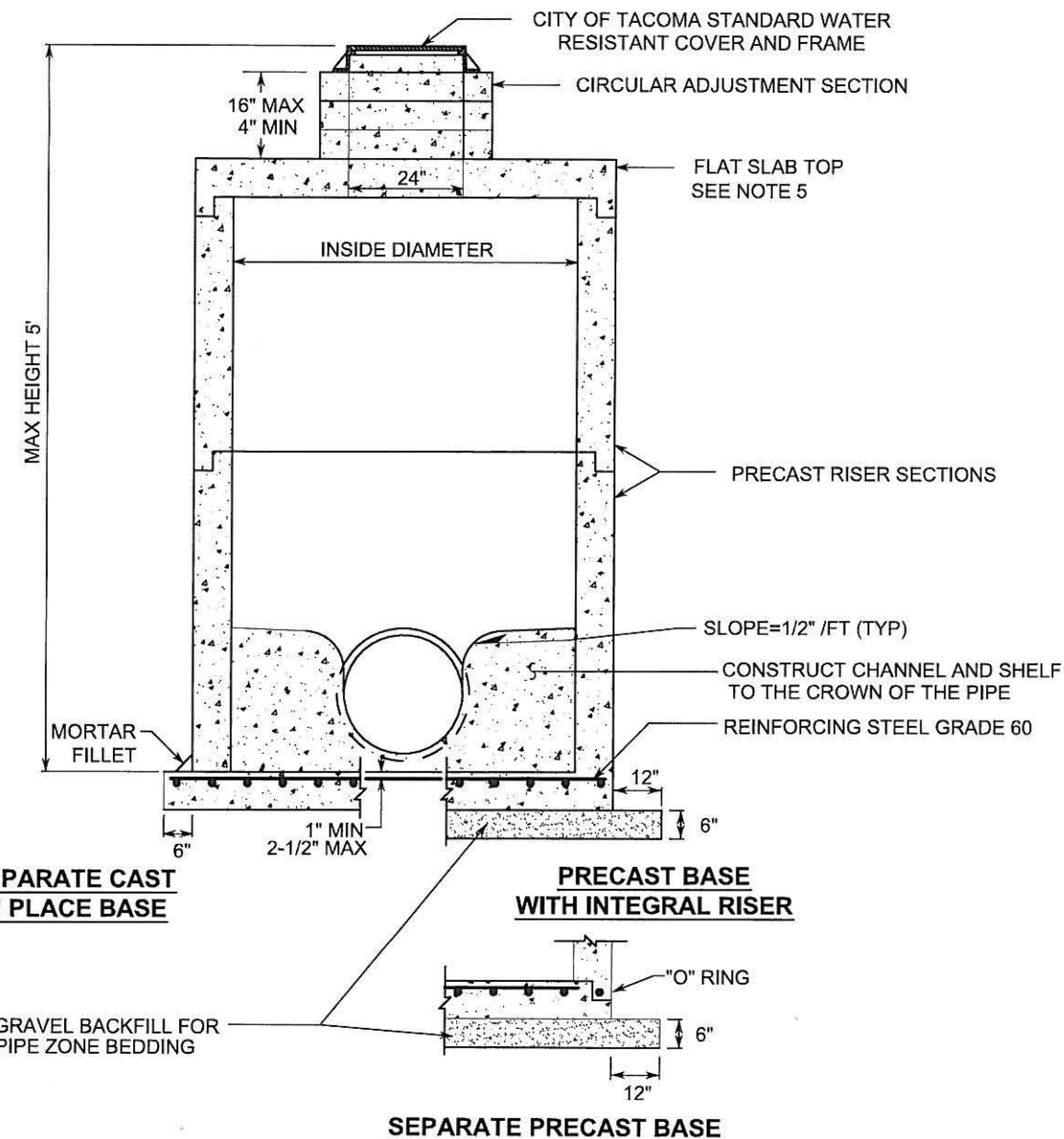
APPROVED FOR PUBLICATION

*James Pomeroy*  
CITY ENGINEER

12 Jun 2009  
DATE

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**

INSIDE DIAMETER	WALL THICKNESS	BASE THICKNESS	MAXIMUM HOLE SIZE	MINIMUM DISTANCE BETWEEN HOLES
48"	4"	6"	36"	8"
54"	4 1/2"	8"	42"	8"
60"	5"	8"	48"	8"
72"	6"	8"	48"	12"
84"	8"	12"	48"	12"
96"	8"	12"	48"	12"
108"	10"	12"	48"	12"
120"	11"	12"	48"	12"

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

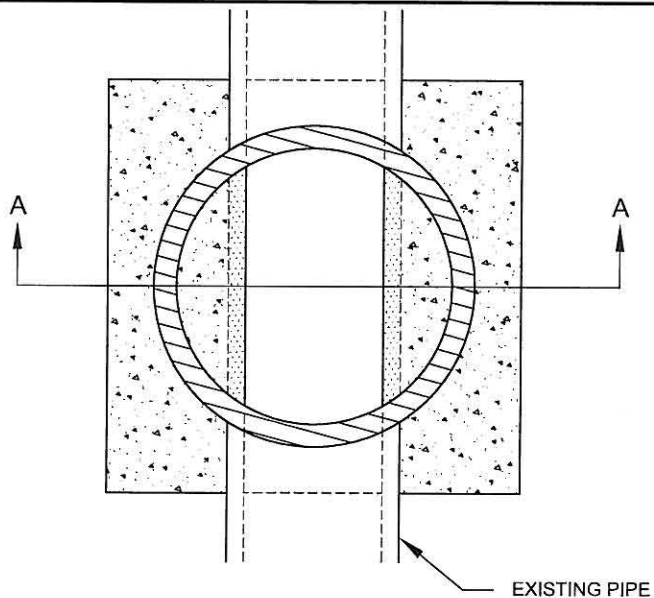
APPROVED FOR PUBLICATION

*James Perry*  
CITY ENGINEER

12 Jun 2009  
DATE

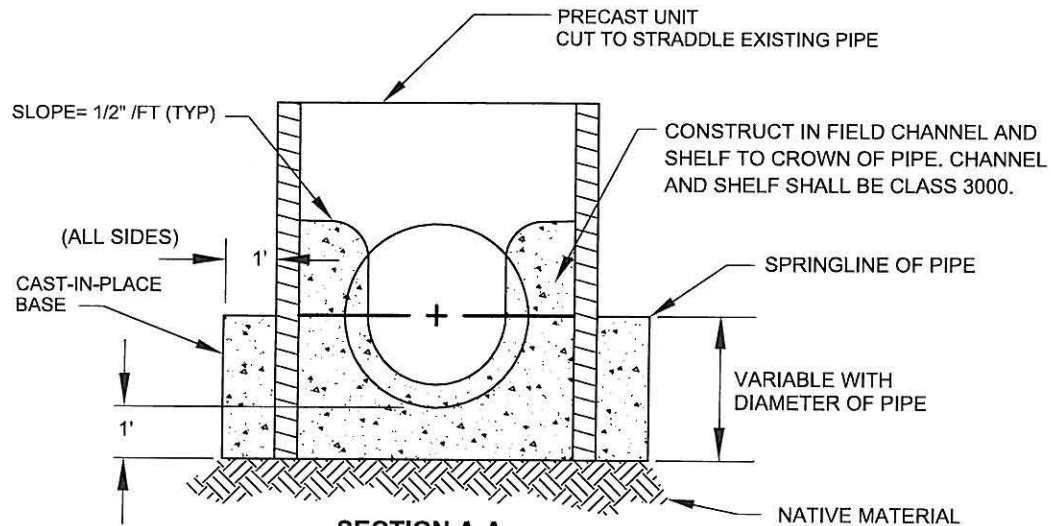
MANHOLE TYPE 3  
5' MAXIMUM HEIGHT

STANDARD PLAN NO. SU-19



**TOP VIEW**

EXISTING PIPE



**SECTION A-A**

**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.

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

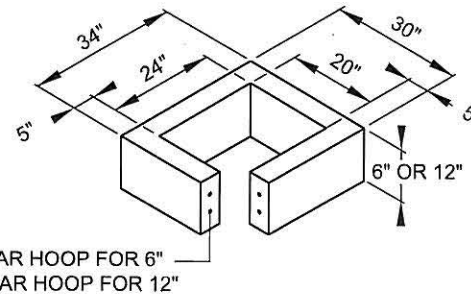
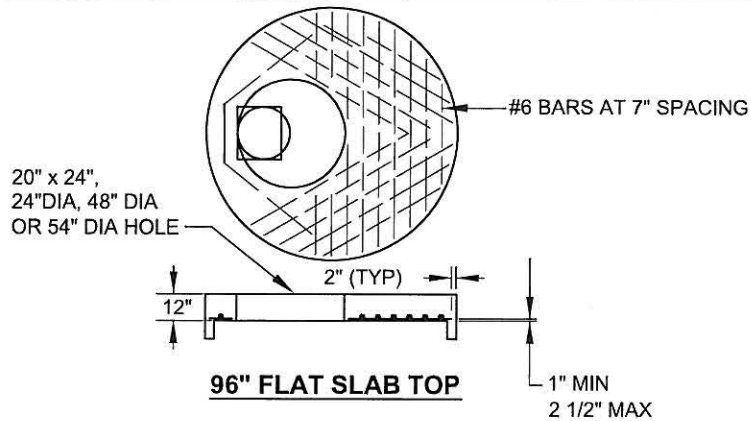
APPROVED FOR PUBLICATION

*James Perry*  
CITY ENGINEER

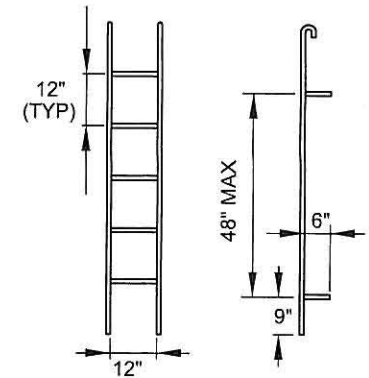
12 Jun 2009  
DATE

CAST-IN-PLACE  
MANHOLE BASE

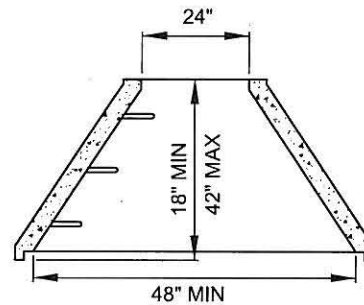
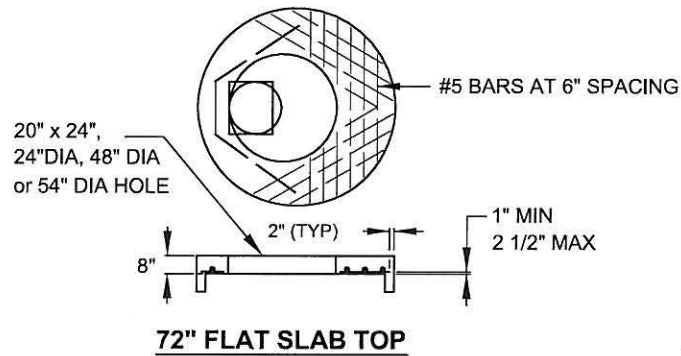
STANDARD PLAN NO. SU-20



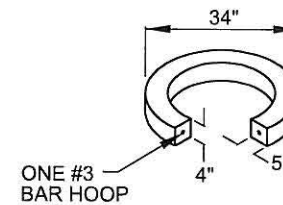
**RECTANGULAR ADJUSTMENT SECTION**



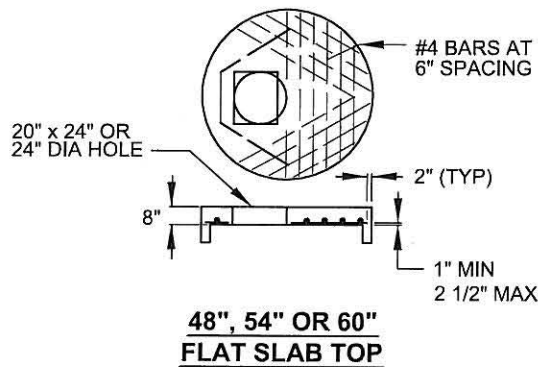
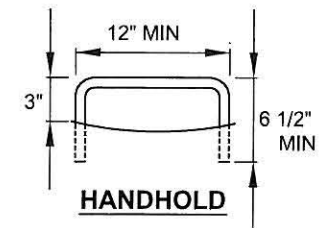
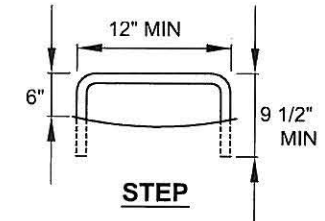
**PREFABRICATED LADDER**



**CONCENTRIC CONE SECTION**



**CIRCULAR ADJUSTMENT SECTION**



**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.

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

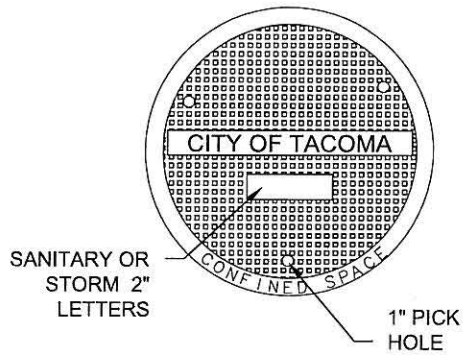
APPROVED FOR PUBLICATION

*Jane Pervey*  
CITY ENGINEER

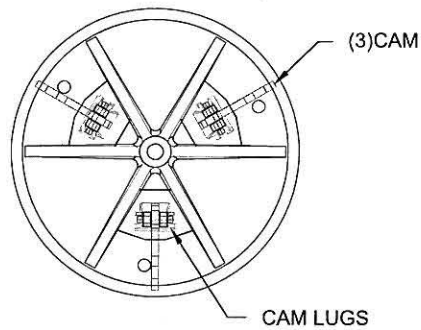
12 Jun 2009  
DATE

MISCELLANEOUS DETAILS  
FOR MANHOLES AND  
CATCH BASINS

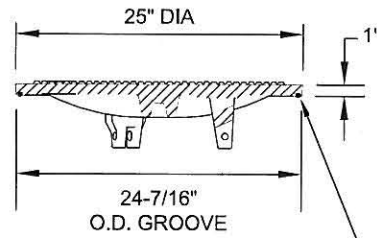
STANDARD PLAN NO. SU-21



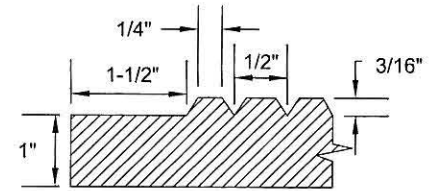
**PLAN VIEW**



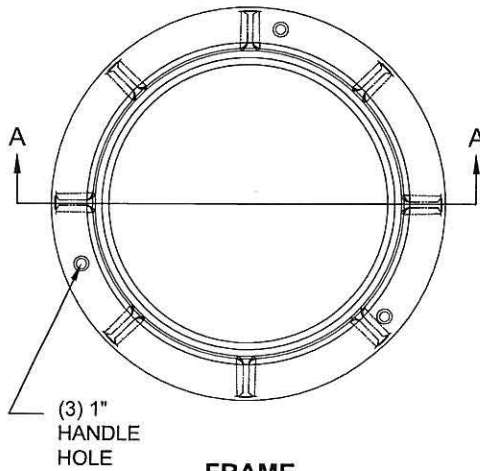
**BOTTOM VIEW**



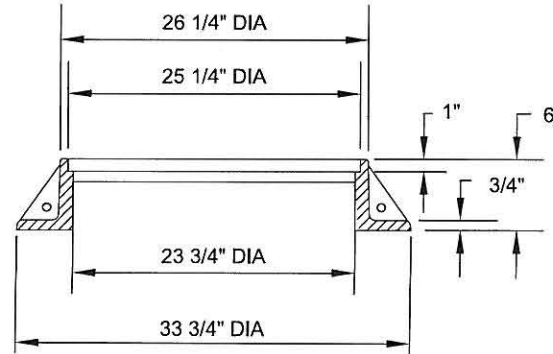
**COVER SECTION**



**COVER SKID DESIGN**



**FRAME**



**SECTION A-A**

**NOTES:**

1. Covers shall have the word "SEWER" in 2 inch raised letters when used with sanitary sewer installations, or "DRAIN" 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.

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

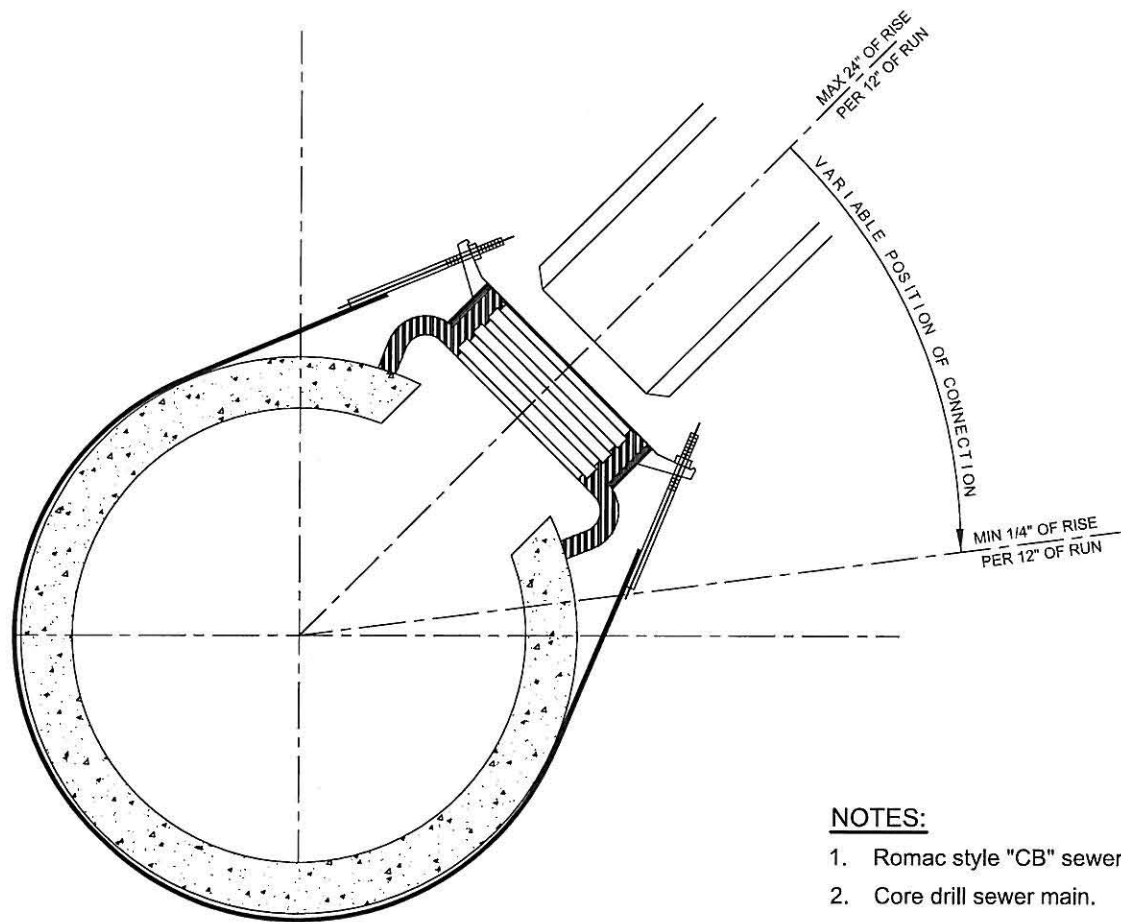
APPROVED FOR PUBLICATION

*James Parway*  
CITY ENGINEER

12 Jun 2009  
DATE

MANHOLE FRAME AND COVER

STANDARD PLAN NO. SU-22



**SANITARY SEWER MAIN  
CROSS SECTION**

**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.

APPROVED FOR PUBLICATION

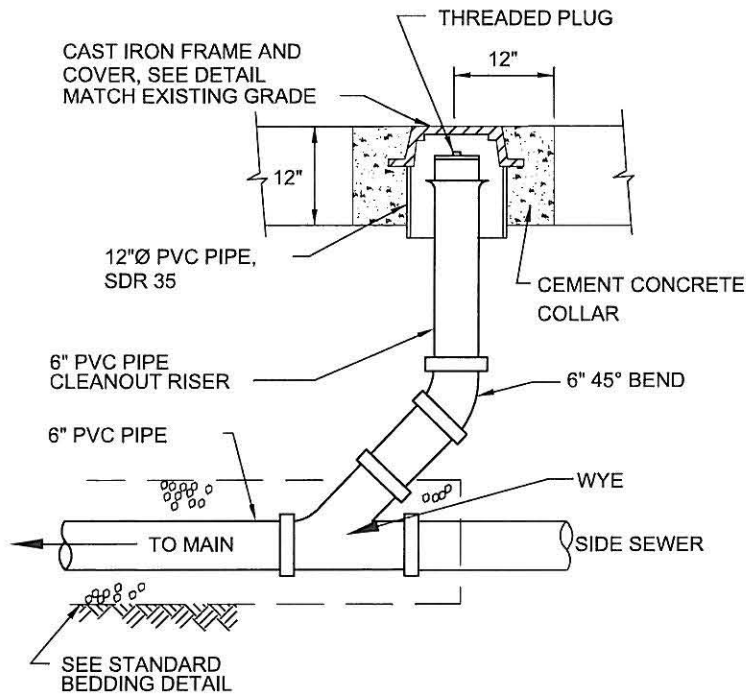
CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*James Parney*  
CITY ENGINEER

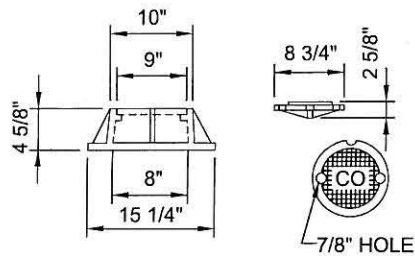
12 JUN 2009  
DATE

LATERAL  
SEWER CONNECTION TO  
SANITARY SEWER MAIN

STANDARD PLAN NO. SU-23

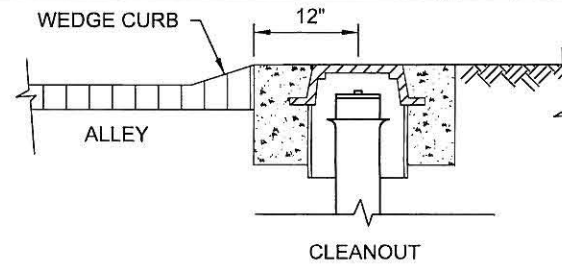


**CLEANOUT DETAIL**  
NOT TO SCALE

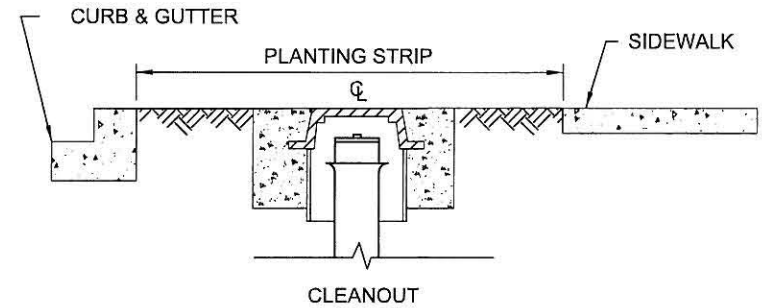


**FRAME AND COVER DETAIL**  
NOT TO SCALE

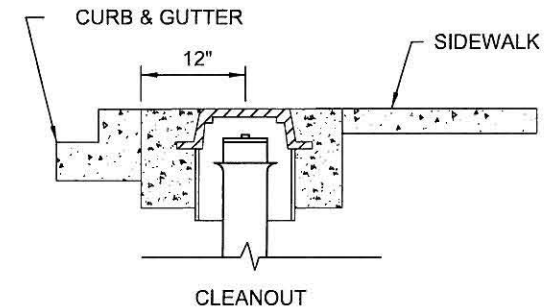
**NOTE:**  
When no curb and gutter or sidewalk exist, locate cleanout in future planting strip.



**TYPICAL ALLEY SECTION**



**TYPICAL SIDEWALK SECTION**



**TYPICAL COMBINATION SIDEWALK SECTION**

**STANDARD CLEANOUT LOCATION**  
NOT TO SCALE

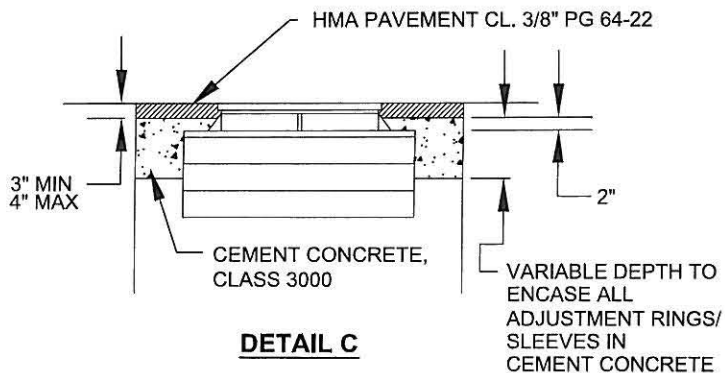
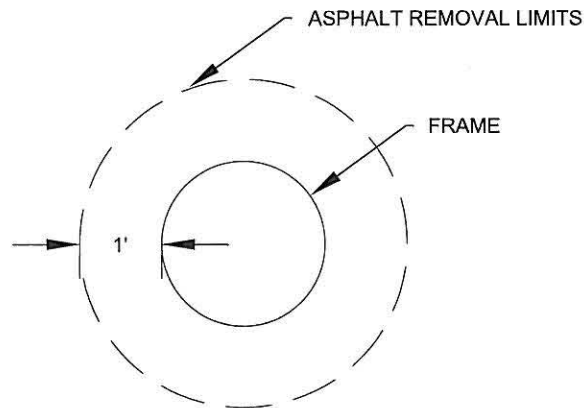
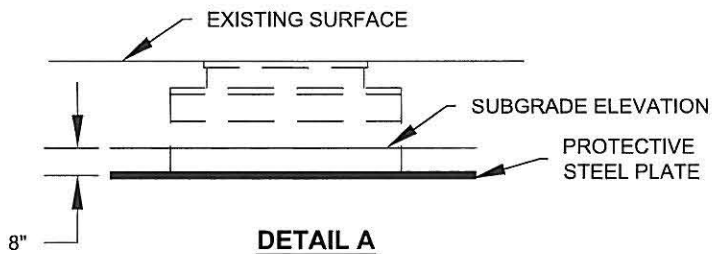
CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION

*James Parvey*  
CITY ENGINEER

12 Jun 2009  
DATE

SIDE SEWER CLEANOUT  
AND  
COVER DETAIL  
STANDARD PLAN NO. SU-24



**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. 3/8" PG 64-22 shall be placed in accordance with Standard Plan No. SU-15.

For gravel surfaces, the area shall then be 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.

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CITY OF TACOMA  
 DEPARTMENT OF PUBLIC WORKS

*James Rowley*  
 CITY ENGINEER

12 JUN 2009  
 DATE

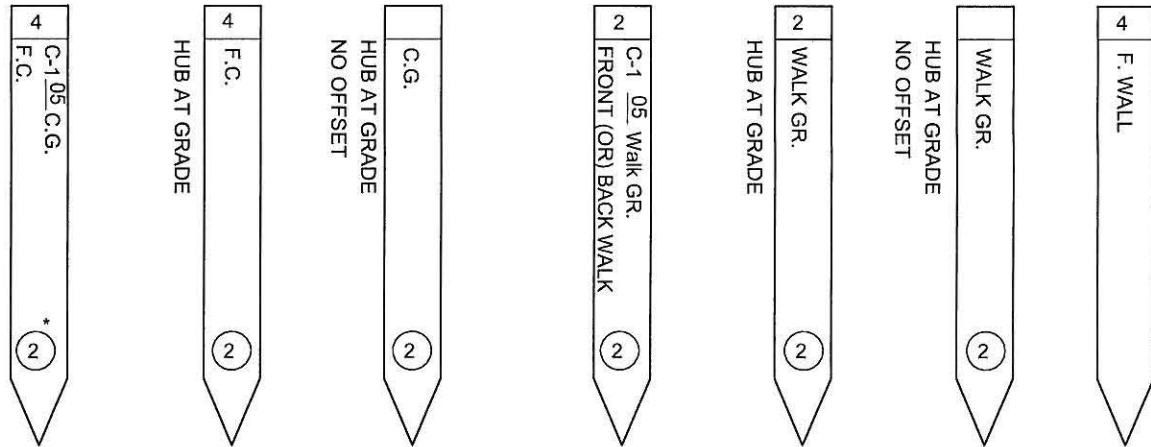
UTILITY  
 ADJUSTMENT

STANDARD PLAN NO. SU-25



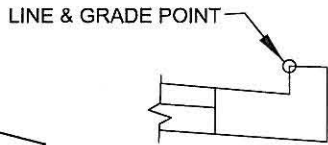
**ABBREVIATIONS**

- F.C..... FACE OF CURB
- C.G..... CURB GRADE
- F.L..... FLOW LINE
- F.WALL... FACE OF WALL
- SH.GR.... SHOULDER GRADE
- C.B..... CATCH BASIN
- M.H..... MAN HOLE
- L.H..... LAMP HOLE
- S.G..... SUBGRADE
- B.G..... BALLAST GRADE
- CR.R.GR. CRUSHED ROCK GRADE
- P.C..... POINT OF CURVATURE
- P.T..... POINT OF TANGENCY
- V.C..... VERTICAL CURVE
- E.P..... EDGE OF PAVING

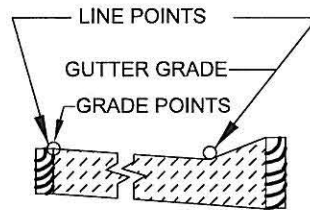
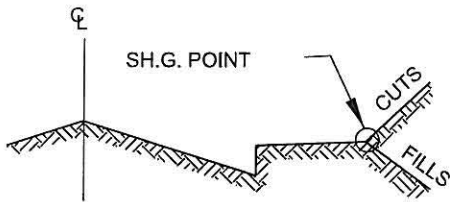
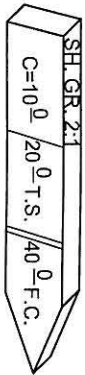


**STAKES SHALL HAVE STATIONS ON BACK SIDE**

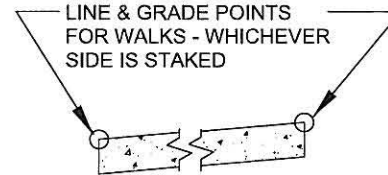
\* DESIGNATES DISTANCE FROM GUARD STAKE TO GRADE OR LINE HUB. (OPTIONAL)



**CURBS**

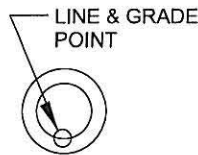


**ALLEY SLABS**

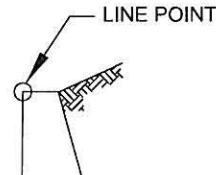


**WALKS**

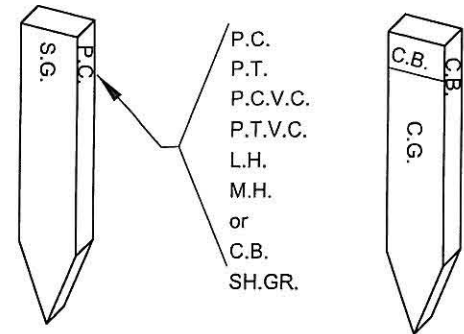
**SIDE OR BACK**



**SEWERS**



**WALLS**



**SLOPE STAKES**

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

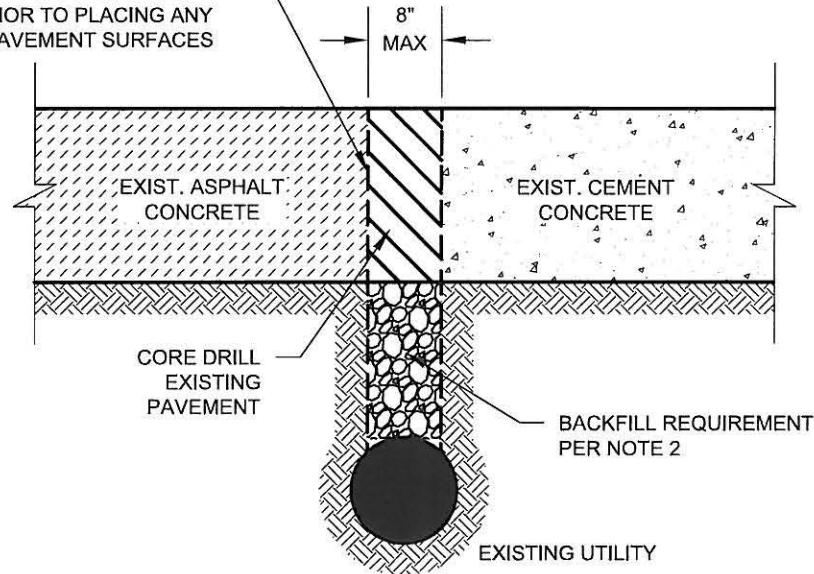
APPROVED FOR PUBLICATION

*James Power*  
CITY ENGINEER

12 Jun 2009  
DATE

STANDARD PROCEDURE  
FOR MARKING  
CONSTRUCTION STAKES  
STANDARD PLAN NO. SU-26

EXISTING SURFACES SHALL BE PREPARED IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATION 5-04.3(5)A PRIOR TO PLACING ANY NEW PAVEMENT SURFACES



**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 ½" 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.

APPROVED FOR PUBLICATION

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

*June Pervey*  
CITY ENGINEER

12 Jun 2009  
DATE

POTHOLING

STANDARD PLAN NO. SU-27

COMPACTION TESTING REQUIREMENTS <sup>A</sup>		
DEPTH	TESTING FREQUENCY <sup>C</sup>	
	VERTICAL	HORIZONTAL
SURFACE (BELOW HMA)	N/A	1 TEST EVERY 150 LINEAR FEET OF TRENCH OR MINIMUM 2 PER TRENCH
		1 TEST FOR 150 SQUARE FEET FOR ISOLATED PATCHES <sup>B</sup>
1 TO 4 FEET (OR MIN 18 IN. ABOVE PIPE)	1 EVERY 12 INCHES	SAME AS FOR SURFACE
> 4 FEET TO BOTTOM OF TRENCH	NO SPECIFIC REQUIREMENT - MAY BE REQUIRED BY COT INSPECTOR FOR VERIFICATION OF COMPACTION	

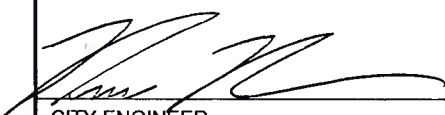
A. TESTING SHALL BE PERFORMED BY A CERTIFIED INDEPENDENT TESTING LABORATORY OR A CERTIFIED TESTOR AS APPROVED BY THE CITY'S CONSTRUCTION DIVISION. THE COST OF TESTING IS THE RESPONSIBILITY OF THE PERMITTEE. TESTS SHALL BE COMPLETED AND REPORTS IDENTIFYING THE PROJECT NUMBER SUBMITTED TO THE CONSTRUCTION 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 COMPACTIONED 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.

<p>CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS</p>	<p>APPROVED FOR PUBLICATION</p> 	<p>TRENCH BACKFILL COMPACTION REQUIREMENTS</p>
	<p>CITY ENGINEER</p>	<p>11/30/14 DATE</p>