### CHAPTER 2 DRAWING INDEX

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-010</td>
<td>Access Point Types, Radii and Widths</td>
</tr>
<tr>
<td>2-020</td>
<td>Drop Curb Driveway - Residential</td>
</tr>
<tr>
<td>2-025</td>
<td>Drop Curb Driveway - Commercial/Industrial</td>
</tr>
<tr>
<td>2-030</td>
<td>Residential Driveway Approach - Asphalt</td>
</tr>
<tr>
<td>2-035</td>
<td>Residential Driveway Approach - Concrete</td>
</tr>
<tr>
<td>2-040</td>
<td>Commercial/Industrial Approach - Asphalt</td>
</tr>
<tr>
<td>2-045</td>
<td>Commercial/Industrial Approach - Concrete</td>
</tr>
<tr>
<td>2-050</td>
<td>Commercial/Industrial Access Point Spacing</td>
</tr>
<tr>
<td>2-060</td>
<td>Commercial/Industrial Corner Clearances</td>
</tr>
<tr>
<td>2-070</td>
<td>Access Point Grades</td>
</tr>
</tbody>
</table>
## ACCESS POINT TYPES, RADII AND WIDTHS

<table>
<thead>
<tr>
<th>USE</th>
<th>SECTION</th>
<th>TYPES OF ACCESES</th>
<th>STD DWG</th>
<th>MIN. RADII</th>
<th>MIN. WIDTH</th>
<th>MAX. WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESIDENTIAL</td>
<td>CURB</td>
<td>DROP CURB DRIVEWAY – RESIDENTIAL</td>
<td>2-020</td>
<td>FLARED</td>
<td>10 FEET</td>
<td>30 FEET</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td>SHOULDER</td>
<td>RESIDENTIAL DRIVEWAY APPROACH – ASPHALT OR</td>
<td>2-030</td>
<td>10 FEET</td>
<td>10 FEET</td>
<td>30 FEET</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RESIDENTIAL DRIVEWAY APPROACH – CONCRETE</td>
<td>2-035</td>
<td>10 FEET</td>
<td>10 FEET</td>
<td>30 FEET</td>
</tr>
<tr>
<td>COMMERCIAL</td>
<td>CURB</td>
<td>DROP CURB DRIVEWAY – COMMERCIAL/INDUSTRIAL</td>
<td>2-025</td>
<td>FLARED</td>
<td>25 FEET</td>
<td>40 FEET</td>
</tr>
<tr>
<td></td>
<td>SHOULDER</td>
<td>COMMERCIAL/INDUSTRIAL APPROACH – ASPHALT OR</td>
<td>2-040</td>
<td>10 FEET</td>
<td>25 FEET</td>
<td>40 FEET</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMMERCIAL/INDUSTRIAL APPROACH – CONCRETE</td>
<td>2-045</td>
<td>10 FEET</td>
<td>25 FEET</td>
<td>40 FEET</td>
</tr>
<tr>
<td>INDUSTRIAL</td>
<td>CURB</td>
<td>DROP CURB DRIVEWAY – COMMERCIAL/INDUSTRIAL</td>
<td>2-025</td>
<td>FLARED</td>
<td>25 FEET</td>
<td>40 FEET</td>
</tr>
<tr>
<td></td>
<td>SHOULDER</td>
<td>COMMERCIAL/INDUSTRIAL APPROACH – ASPHALT OR</td>
<td>2-040</td>
<td>10 FEET</td>
<td>25 FEET</td>
<td>40 FEET</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMMERCIAL/INDUSTRIAL APPROACH – CONCRETE</td>
<td>2-045</td>
<td>10 FEET</td>
<td>25 FEET</td>
<td>40 FEET</td>
</tr>
</tbody>
</table>

### NOTES:

1. COMMERCIAL AND INDUSTRIAL ACCESS WIDTHS SHOWN ARE FOR TWO-WAY ACCESS ONTO NON-ARTERIALS. MINIMUM WIDTH FOR ACCESS ONTO ARTERIALS IS 35 FEET. SEE TEXT SECTION 2-03 FOR ONE-WAY WIDTHS.

2. FOR ALL ACCESS POINTS IN VERTICAL CURB SECTIONS, A DROP CURB DRIVEWAY SHALL BE USED.

3. FOR ALL ACCESS POINTS TO COMMERCIAL AND INDUSTRIAL USES, THE CURB, GUTTER AND SIDEWALK SHALL MEET H25 LOADING REQUIREMENTS.

SEE TEXT SECTION 2-03
NOTES:

1. FULL DEPTH EXPANSION JOINT, 3/8" MINIMUM THICKNESS.

2. FULL DEPTH EXPANSION JOINT, 3/8" MINIMUM THICKNESS IF WIDTH OF DRIVEWAY IS 15 FEET OR GREATER.

3. DRIVEWAY SECTION WITHIN PUBLIC RIGHT-OF-WAY IS TO BE SURFACED WITH ASPHALT OR CONCRETE.

4. DRIVEWAY CEMENT CONCRETE DEPTH SHALL BE A MINIMUM OF 6" AND PLACED ON COMPACTED GRADE.

5. CONCRETE SHALL BE COMMERCIAL CLASS CONCRETE PER WSDOT/APWA SPECIFICATIONS.

6. CLEAN AND EDGE ALL JOINTS.

7. SEE STD DWG 2-010 TO DETERMINE WHEN THIS DRIVEWAY MAY BE USED.

SEE TEXT SECTION 2-03
NOTES:

1. FULL DEPTH EXPANSION JOINT, 3/8" MINIMUM THICKNESS.

2. DRIVEWAY SECTION WITHIN PUBLIC RIGHT-OF-WAY IS TO BE SURFACED WITH ASPHALT OR CONCRETE.

3. DRIVEWAY CEMENT CONCRETE DEPTH SHALL BE A MINIMUM OF 6" AND PLACED ON COMPACTED GRADE. DEPENDING ON VEHICLE LOADING, A STRUCTURAL DESIGN OF THE DRIVEWAY MAY BE REQUIRED BY THE ENGINEER.

4. CONCRETE SHALL BE COMMERCIAL CLASS CONCRETE PER WSDOT/APWA SPECIFICATIONS.

5. CLEAN AND EDGE ALL JOINTS.

6. COMMERCIAL AND INDUSTRIAL ACCESS WIDTHS SHOWN ARE FOR TWO-WAY ACCESS ONTO NON-ARTERIALS. MINIMUM WIDTH FOR ACCESS ONTO ARTERIALS IS 35 FEET. SEE TEXT SECTION 2-03 FOR ONE-WAY WIDTHS.

7. SEE STD DWG 2-010 TO DETERMINE WHEN THIS DRIVEWAY MAY BE USED.
SECTION A–A

NOTES:

1. FOR ACCESSING ONE OR TWO RESIDENTIAL DWELLING UNITS (ONE DUPLEX OR TWO SINGLE FAMILY RESIDENCES).

2. ALL SURFACE DRAINAGE FROM THE DRIVEWAY MUST BE CONTAINED AND DIRECTED FROM THE DRIVEWAY TO THE OPEN DITCH. NO SURFACE DRAINAGE SHALL FLOW ONTO THE COUNTY ROAD.

3. SUBGRADE SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH SECTION 2–03.3(14)C OF THE WSDOT/APWA SPECIFICATIONS (METHOD B). SURFACING MATERIALS SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY (MODIFIED PROCTOR).

4. CULVERT PIPE SHALL BE SIZED TO ACCOMMODATE DITCH FLOWS BUT IN NO CASE BE SMALLER THAN 12 INCHES.

5. COVER DEPTHS LESS THAN 12 INCHES REQUIRE APPROVAL BY THE ENGINEER.

6. A DRIVEWAY CULVERT HEADWALL, SUBJECT TO APPROVAL BY THE ENGINEER, MAY BE USED IN LIEU OF THE 1 1/2: 1 SIDESLOPE.

SEE TEXT SECTION 2–03
NOTES:

1. FOR ACCESSING ONE OR TWO RESIDENTIAL DWELLING UNITS (ONE DUPLEX OR TWO SINGLE FAMILY RESIDENCES).

2. ALL SURFACE DRAINAGE FROM THE DRIVEWAY MUST BE CONTAINED AND DIRECTED FROM THE DRIVEWAY TO THE OPEN DITCH. NO SURFACE DRAINAGE SHALL FLOW INTO THE COUNTY ROAD.

3. SUBGRADE SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH SECTION 2–03.3(14)C OF THE WSDOT/APWA SPECIFICATIONS (METHOD B). SURFACING MATERIALS SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY (MODIFIED PROCTOR).

4. CULVERT PIPE SHALL BE SIZED TO ACCOMMODATE DITCH FLOWS BUT IN NO CASE BE SMALLER THAN 12 INCHES.

5. COVER DEPTHS LESS THAN 12 INCHES REQUIRE APPROVAL BY THE ENGINEER.

6. A DRIVEWAY CULVERT HEADWALL, SUBJECT TO APPROVAL BY THE ENGINEER, MAY BE USED IN LIEU OF THE 1 1/2: 1 SIDESLOPE.

7. EXPANSION JOINT REQUIRED AT A DISTANCE OF 1 1/2 TIMES THE PIPE DIAMETER FROM PIPE CENTERLINE. MATERIAL MAY BE CEDAR 2"X6" OR 3/8" MIN. X FULL DEPTH PREMOLDED JOINT MATERIAL.

8. PAVEMENT/DRIVEWAY INTERFACE MUST BE A CLEAN STRAIGHT SURFACE WITH A 3/8" MIN. X FULL DEPTH EXPANSION JOINT. 3/8" MIN. THICKNESS OF PREMOLDED JOINT MATERIAL REQUIRED. (NO CEDAR).

SEE TEXT SECTION 2–03
NOTES:

1. ALL SURFACE DRAINAGE FROM THE DRIVEWAY MUST BE CONTAINED AND DIRECTED FROM THE DRIVEWAY TO THE OPEN DITCH. NO SURFACE DRAINAGE SHALL FLOW ONTO THE COUNTY ROAD.

2. SUBGRADE SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH SECTION 2-03.3(14)C OF THE WSDOT/APWA SPECIFICATIONS (METHOD B). SURFACING MATERIALS SHALL BE COMPACTED TO 95% MAXIMUM DENSITY (MODIFIED PROCTOR).

3. CULVERT PIPE SHALL BE 12 INCHES MINIMUM DIAMETER AND LARGER IF DRAINAGE REQUIRES.

4. COVER DEPTHS LESS THAN 12" REQUIRE REINFORCED CONCRETE CULVERT PIPE AND APPROVAL BY THE ENGINEER.

5. A DRIVEWAY CULVERT HEADWALL, SUBJECT TO APPROVAL BY THE ENGINEER, MAY BE USED IN LIEU OF THE 1 1/2 : 1 SIDESLOPE.

6. SEE STANDARD DRAWING 2-010 FOR RADII.

7. MAXIMUM WIDTH: 40'. MINIMUM WIDTH SEE SECTION 2-03.

8. ADDITIONAL PAVEMENT THICKNESS MAY BE REQUIRED FOR HEAVY TRUCK TRAFFIC.

SEE TEXT SECTION 2-03
NOTES:

1. ALL SURFACE DRAINAGE FROM THE DRIVEWAY MUST BE CONTAINED AND DIRECTED FROM THE DRIVEWAY TO THE OPEN DITCH. NO SURFACE DRAINAGE SHALL FLOW ONTO THE COUNTY ROAD.

2. CULVERT PIPE SHALL BE 12 INCHES MINIMUM DIAMETER AND LARGER IF DRAINAGE REQUIRES.

3. COVER DEPTHS LESS THAN 12 INCHES REQUIRE REINFORCED CONCRETE CULVERT PIPE AND APPROVAL BY THE ENGINEER.

4. A DRIVEWAY CULVERT HEADWALL, SUBJECT TO APPROVAL BY THE ENGINEER, MAY BE USED IN LIEU OF THE 1 1/2 : 1 SIDESLOPE.

5. SEE STANDARD DRAWING 2-010 FOR RADIUS.

6. MAXIMUM ACCESS POINT WIDTH: 40'. MINIMUM WIDTH SEE SECTION 2-03.

7. ADDITIONAL PAVEMENT THICKNESS MAY BE REQUIRED FOR HEAVY TRUCK TRAFFIC.

8. EXPANSION JOINT REQUIRED AT A DISTANCE OF 1 1/2 TIMES THE PIPE DIAMETER FROM PIPE CENTERLINE. MATERIAL MAY BE CEDAR 2"X6" OR 3/8" MIN. X FULL DEPTH PREMOLDED JOINT MATERIAL.


SEE TEXT SECTION 2-03
### Minimum Access Point Spacing — Commercial/IndustriAL (Feet)

<table>
<thead>
<tr>
<th>Roadway Speed (MPH)</th>
<th>Dimension A Arterials</th>
<th>Dimension A Non-Arterials</th>
<th>Dimension B Arterials</th>
<th>Dimension B Non-Arterials</th>
<th>Dimension C Arterials</th>
<th>Dimension C Non-Arterials</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>105</td>
<td>35</td>
<td>105</td>
<td>75</td>
<td>105</td>
<td>35</td>
</tr>
<tr>
<td>30</td>
<td>125</td>
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<td>125</td>
<td>75</td>
<td>125</td>
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<tr>
<td>35</td>
<td>150</td>
<td>45</td>
<td>150</td>
<td>75</td>
<td>150</td>
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<td>40</td>
<td>185</td>
<td>50</td>
<td>185</td>
<td>75</td>
<td>185</td>
<td>50</td>
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<tr>
<td>45</td>
<td>230</td>
<td>50</td>
<td>230</td>
<td>75</td>
<td>230</td>
<td>50</td>
</tr>
<tr>
<td>50</td>
<td>275</td>
<td>50</td>
<td>275</td>
<td>75</td>
<td>275</td>
<td>50</td>
</tr>
</tbody>
</table>

**NOTES:**

1. Access point spacing only. For public street spacing, see text section 3-09.

2. Refers to posted speed or operating speed, whichever is greater.

3. Between the nearest edges of two-way access points. Distances between adjacent, one-way access points (with the inbound access upstream) can be one-half the distances shown above.

4. Between the nearest edges of one or two-way access points.

5. Access points directly opposite from each other are most desirable. Where this is not possible, these dimensions will apply.

6. Where access points are to be signalized, a minimum spacing of 1200 feet to any other signalized intersection should be maintained. If the signalized access points form a "T" intersection with little possibility of any future access point across the street, a minimum spacing of 600 feet from the nearest signalized intersection may be acceptable.

7. In cases where access point spacing is not attainable because existing frontages are narrow, access points should be located as close to the tabulated values shown above as possible. When this occurs, the engineer may require analysis to determine if left turns should be prohibited into or out of the access point.

---

**SNOHOMISH COUNTY PUBLIC WORKS**

**APPROVED BY:**

**COUNTY ROAD ENGINEER**

**DATE:** 2-7-03
## Minimum Corner Clearances

### For Stop Sign Intersection Control (in Feet)

<table>
<thead>
<tr>
<th>ARTERIALS</th>
<th>NON-ARTERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTERIAL POSTED SPEED</td>
<td>ALL SPEEDS</td>
</tr>
<tr>
<td>DIM. 30 35 40 45 50 55</td>
<td>50</td>
</tr>
<tr>
<td>A 115 135 160 180 205 230</td>
<td>50</td>
</tr>
<tr>
<td>B 115 135 160 180 205 230</td>
<td>50</td>
</tr>
<tr>
<td>C 115 135 160 180 205 230</td>
<td>50</td>
</tr>
<tr>
<td>D 115 135 160 180 205 230</td>
<td>50</td>
</tr>
<tr>
<td>E 115 OR 0 135 OR 0 160 OR 0 180 OR 0 205 OR 0 230 OR 0 0</td>
<td></td>
</tr>
</tbody>
</table>

### For Signalized Intersection Control (in Feet)

<table>
<thead>
<tr>
<th>ARTERIALS</th>
<th>NON-ARTERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTERIAL POSTED SPEED</td>
<td>ALL SPEEDS</td>
</tr>
<tr>
<td>DIM. 30 35 40 45 50 55</td>
<td>50</td>
</tr>
<tr>
<td>A 230 275 320 365 410 460</td>
<td>50</td>
</tr>
<tr>
<td>B 115 135 160 180 205 230</td>
<td>50</td>
</tr>
<tr>
<td>C 230 275 320 365 410 460</td>
<td>50</td>
</tr>
<tr>
<td>D 230 275 320 365 410 460</td>
<td>50</td>
</tr>
<tr>
<td>E 115 OR 0 135 OR 0 160 OR 0 180 OR 0 205 OR 0 230 OR 0 0</td>
<td></td>
</tr>
</tbody>
</table>

### Notes:

1. In cases where corner clearances are not attainable because frontages are narrow, access points should be located as close as practicable to the property line most distant from the intersection. The engineer may require analysis of such locations to determine if left turns should be prohibited into or out of the access point.

2. Access points near stop or signal controlled intersections shall be analyzed to determine whether stopping queues will block the access point.

See text section 2-05

---

Snohomish County Public Works

2-060 Commercial/Industrial Corner Clearances

Approved by:

[Signature]

County Road Engineer

Date 2-7-03
NOTES:
1. SEE STD DWG 4-140 FOR CURB DETAILS.

2. WHEN ACCESSING SHOULDEROED ROADWAYS, MAINTAIN SHOULDER SLOPE TO PIVOT POINT A.

3. ACCESS POINT GRADE SHALL BE MEASURED FROM PIVOT POINT B.

4. LANDING WIDTH W MAY BE REDUCED SUBJECT TO APPROVAL OF THE ENGINEER IN ACCORDANCE WITH SECTION 1-05 OF THESE STANDARDS.

5. A VERTICAL CURVE SHALL BE CONSTRUCTED TO TRANSITION THE LANDING TO THE ACCESS APPROACH. THE VERTICAL SEPARATION BETWEEN THE CURVE AND A 10-FOOT CHORD OF THE CURVE SHALL NOT EXCEED 3.25 INCHES (WHERE D IS POSITIVE) OR 2.00 INCHES (WHERE D IS NEGATIVE).

6. GRADE ACROSS RURAL LANDING MAY BE ±5%.

<table>
<thead>
<tr>
<th>TYPE OF ACCESS</th>
<th>ACCESSING</th>
<th>LANDING WIDTH W</th>
<th>ACCESS GRADE D</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESIDENTIAL (URBAN)</td>
<td>NON-ARTERIAL</td>
<td>15'</td>
<td>± 15% MAX.</td>
</tr>
<tr>
<td>RESIDENTIAL (URBAN)</td>
<td>ARTERIAL</td>
<td>15'</td>
<td>± 7% MAX.</td>
</tr>
<tr>
<td>RESIDENTIAL (RURAL)</td>
<td>ALL</td>
<td>5' ⑥</td>
<td>± 15% MAX.</td>
</tr>
<tr>
<td>COMMERCIAL/INDUSTRIAL</td>
<td>NON-ARTERIAL</td>
<td>30'</td>
<td>± 8% MAX.</td>
</tr>
<tr>
<td>COMMERCIAL/INDUSTRIAL</td>
<td>ARTERIAL</td>
<td>30'</td>
<td>± 5% MAX.</td>
</tr>
</tbody>
</table>
CHAPTER 3 DRAWING INDEX

3-010  Typical Arterial Road - Rural Areas
3-020  Typical Arterial Road - Urban Areas
3-030A Road Standards - Arterials
3-030B Road Standards - Arterials
3-040  Typical Non-Arterial Road - Rural Areas
3-050  Typical Non-Arterial Road - Urban Areas
3-060  Road Standards - Non Arterials (Rural)
3-065  Road Standards - Non Arterials (Urban)
3-070  Trail Access Permit Road
3-075  Trail Access Permit Road Dimensions
3-080  Private Low Volume Access Road (Rural)
3-090  Private Subcollector Road (Rural)
3-100  Private Road Intersections (Rural)
3-102  Alleys – Residential & Commercial (Added 2004 Revision)
3-105  90° Intersection Elbow
3-110  Crest Vertical Curves
3-120  Sag Vertical Curves
3-130  Stopping Sight Distance
3-140  Clear Sight Triangles
3-150  Road Ends
3-160  Bus Pullouts
NOTES:
1. CLEAR ZONE DISTANCES SHOWN APPLY TO ROADS WITH A POSTED SPEED OF 35 MPH OR LESS. CLEAR ZONE DISTANCES FOR ROADS POSTED AT GREATER THAN 35 MPH SHOULD BE DETERMINED ACCORDING TO CHAPTER 7 OF THE WSDOT DESIGN MANUAL.

2. R/W, PAVEMENT, AND SHOULDER WIDTHS VARY. SEE STANDARD DRAWING 3–030B. CROSS-SECTION MAY BE ALTERED WHERE A STREAM OR WETLAND BORDERS THE ROAD.

3. SEE STANDARD DRAWING 8–010 FOR PLACEMENT OF UTILITIES.

4. WHERE BICYCLE LANE ARE REQUIRED ON ARTERIALS, PAVEMENT WIDTH AND R/W WIDTH SHALL BE INCREASED TO ACCOMMODATE THE BICYCLE LANES.

5. R/W WIDTH MAY BE REDUCED WHERE THE ENGINEER HAS DETERMINED THAT ADEQUATE PROVISIONS HAVE BEEN MADE FOR WALKWAYS, BIKEWAYS, SWALES OR OTHER FEATURES OUTSIDE THE R/W.


7. PREFERRED WALKWAY LOCATION WHERE R/W PERMITS. WHEN PLACED IN THIS LOCATION, A WIDENED SHOULDER FOR A WALKWAY WILL NOT BE REQUIRED. SEE TEXT TABLE 4–1 FOR SURFACING REQUIREMENTS.
NOTE:

1. URBAN CLEAR ZONE DISTANCE SHALL BE 2 FT. BEYOND THE FACE OF CURB FOR ROADS WITH A POSTED SPEED OF 35 MPH OR LESS. CLEAR ZONE DISTANCES FOR ROADS POSTED AT GREATER THAN 35 MPH SHOULD BE DETERMINED ACCORDING TO CHAPTER 7 OF THE WSDOT DESIGN MANUAL.

2. SEE STANDARD DRAWING 8-020 FOR PLACEMENT OF UTILITIES.

3. REFER TO SECTION 4-01 FOR LANDSCAPING REQUIREMENTS. ALL LANDSCAPING WITHIN THE RIGHT OF WAY IS SUBJECT TO APPROVAL BY DPW.

4. THE R/W LINE SHALL BE AT LEAST 1.5 FEET BEHIND THE BACK OF SIDEWALK.

5. CROSS-SECTION MAY BE ALTERED WHERE A STREAM OR WETLAND BORDERS THE ROAD.

6. REFER TO TEXT SECTION 4-05 FOR SIDEWALK WIDTH REQUIREMENTS.

7. SEE STANDARD DRAWING 3-030B FOR WIDTH REQUIREMENTS.
ROAD STANDARDS — ARTERIALS

RURAL AREA STANDARDS ARE TO BE USED IN DESIGNING ROADS UTILIZING SHOULDERs AND OPEN DRAINAGE. THESE STANDARDS WILL GENERALLY BE REQUIRED IN RURAL AREAS AS DESIGNATED IN SNOHOMISH COUNTY’S COMPREHENSIVE PLANS. HOWEVER, THESE STANDARDS MAY ALSO BE ALLOWED FOR THOSE ROADS LING INSIDE THE URBAN AREA BOUNDARY WHERE ZONING Requires RESIDENTIAL LOT SIZES OF APPROXIMATELY ONE–HALF ACRE OR MORE AND CHARACTERIZED BY LARGE AREAS OF FARMLAND OR NATURAL AND UNDEVELOPED LANDS.

URBAN AREA STANDARDS ARE TO BE USED IN DESIGNING STREETS UTILIZING CURB AND GUTTER SECTIONS, SIDEWALKS AND ENCLOSED DRAINAGE. THESE STANDARDS WILL GENERALLY BE REQUIRED IN AREAS OF SUBURBAN OR HIGHER DENSITIES AS DESIGNATED IN SNOHOMISH COUNTY’S COMPREHENSIVE PLANS. HOWEVER, THESE STANDARDS MAY ALSO BE REQUIRED FOR THOSE ROADS IN RURAL AREAS WHERE ZONING PERMITS RESIDENTIAL LOT SIZES OF APPROXIMATELY ONE–THIRD ACRE OR LESS, COMMERCIAL OR INDUSTRIAL DEVELOPMENT, OR OTHER INTENSIVE LAND USES.

NOTES:

1. PAVEMENT WIDTH FOR RURAL ARTERIALS IS MEASURED FROM OUTSIDE EDGE OF SHOULDER TO OUTSIDE EDGE OF SHOULDER. URBAN ARTERIALS ARE MEASURED FROM FACE OF CURB TO FACE OF CURB. WIDTH VARIES DEPENDING ON WHETHER BICYCLE LANES OR WIDENED EXTERIOR LANES ARE CONSTRUCTED. SEE TEXT SECTION 4–08.

2. SHOULDER WIDTHS VARY. SEE TEXT SECTION 4–06.

3. DESIGNATED WALKWAYS SHALL BE DELINEATED IN ACCORDANCE WITH STANDARD DRAWING 4–160.

4. ALL PAVED SHOULDERS AND NON–SEPARATED WALKWAYS SHALL BE CONSTRUCTED TO THE SAME PAVEMENT SECTION AS REQUIRED FOR TRAVEL LANES.

5. BOULEVARDS (i.e., STREETS WITH MEDIANS) SHALL BE CONSTRUCTED WITH A MINIMUM OF 20 FEET OF CLEAR PAVEMENT ON EACH SIDE OF THE MEDIAN. IF PARKING IS ALLOWED, A MINIMUM OF 28 FEET SHALL BE CONSTRUCTED ON EACH SIDE OF THE MEDIAN TO ALLOW FOR 20 FEET OF CLEAR PAVEMENT PLUS 8 FEET OF PARKING.

6. ROADS IN COMMERCIAL/INDUSTRIAL AREAS SERVING SIGNIFICANT VOLUMES OF TRUCK TRAFFIC MAY REQUIRE ADDITIONAL WIDTH AND PAVEMENT DEPTH AS DETERMINED BY THE ENGINEER BASED ON SUPPORTING DATA SUBMITTED BY THE DEVELOPER.

7. NUMBER OF LANES TO BE DETERMINED FROM THE TRANSPORTATION ELEMENT OF THE COMPREHENSIVE PLAN AND THE TRANSPORTATION NEEDS REPORT.

8. ADDITIONAL R/W WIDTH MAY BE REQUIRED TO ACCOMMODATE 7–FOOT SIDEWALKS IN COMMERCIAL/INDUSTRIAL OR MULTI–FAMILY RESIDENTIAL ZONED AREAS.

9. IF BICYCLE LANES ARE REQUIRED. SEE TEXT SECTION 4–08. MINIMUM WIDTH SHALL BE 5 FT IN A CURB ROAD SECTION AND 4 FT IN A NON–CURB ROAD SECTION.

10. IF BICYCLE LANES ARE NOT REQUIRED, THE EXTERIOR LANE WIDTH ON URBAN ROADS SHALL BE 14 FT TO PROVIDE A SHARED TRAVEL LANE.

SEE TEXT CHAPTER 3
### RURAL ARTERIALS

**Minimum Width in Feet**

<table>
<thead>
<tr>
<th>RURAL AREAS</th>
<th>R/W</th>
<th>PAVEMENT WIDTH</th>
<th>EXTERIOR LANE</th>
<th>INTERIOR LANE</th>
<th>SHOULDER SIDE/SIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MINOR COLLECTOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADT &lt; 400</td>
<td>70</td>
<td>36</td>
<td>11</td>
<td>--</td>
<td>7/7</td>
</tr>
<tr>
<td>ADT 400 to 2000</td>
<td>70</td>
<td>36</td>
<td>11</td>
<td>--</td>
<td>8/8</td>
</tr>
<tr>
<td>ADT &gt; 2000</td>
<td>70</td>
<td>40</td>
<td>12</td>
<td>--</td>
<td>8/8</td>
</tr>
<tr>
<td>MAJOR COLLECTOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADT &lt; 2000</td>
<td>80</td>
<td>38</td>
<td>11</td>
<td>--</td>
<td>8/8</td>
</tr>
<tr>
<td>ADT &gt; 2000 (2 Lane)</td>
<td>80</td>
<td>40</td>
<td>12</td>
<td>--</td>
<td>8/8</td>
</tr>
<tr>
<td>ADT &gt; 2000 (4 Lane)</td>
<td>100</td>
<td>62</td>
<td>11</td>
<td>12</td>
<td>8/8</td>
</tr>
</tbody>
</table>

### URBAN ARTERIALS

**Minimum Width in Feet**

<table>
<thead>
<tr>
<th>URBAN AREAS</th>
<th>R/W</th>
<th>PAVEMENT WIDTH</th>
<th>BICYCLE LANE</th>
<th>EXTERIOR LANE</th>
<th>INTERIOR LANE</th>
<th>LEFT TURN LANE</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLLECTOR ARTERIAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2 Lanes)</td>
<td>70</td>
<td>28–34</td>
<td>5</td>
<td>12–14</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>(3 Lanes)</td>
<td>70</td>
<td>40–46</td>
<td>5</td>
<td>12–14</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>(4 Lanes)</td>
<td>80</td>
<td>50–56</td>
<td>5</td>
<td>12–14</td>
<td>11</td>
<td>--</td>
</tr>
<tr>
<td>(5 Lanes)</td>
<td>92</td>
<td>62–68</td>
<td>5</td>
<td>12–14</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>MINOR ARTERIAL</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(2 Lanes)</td>
<td>80</td>
<td>28–34</td>
<td>5</td>
<td>12–14</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>(3 Lanes)</td>
<td>80</td>
<td>40–46</td>
<td>5</td>
<td>12–14</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>(4 Lanes)</td>
<td>80</td>
<td>50–56</td>
<td>5</td>
<td>12–14</td>
<td>11</td>
<td>--</td>
</tr>
<tr>
<td>(5 Lanes)</td>
<td>92</td>
<td>62–68</td>
<td>5</td>
<td>12–14</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>PRINCIPAL ARTERIAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4 Lanes)</td>
<td>100</td>
<td>52–58</td>
<td>5</td>
<td>12–14</td>
<td>12</td>
<td>--</td>
</tr>
<tr>
<td>(5 Lanes)</td>
<td>100</td>
<td>64–70</td>
<td>5</td>
<td>12–14</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>(6 Lanes)</td>
<td>106</td>
<td>76–82</td>
<td>5</td>
<td>12–14</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>(7 Lanes)</td>
<td>118</td>
<td>88–94</td>
<td>5</td>
<td>12–14</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

**NOTE:**

1. SEE STD. DRAWING 3-030A FOR NOTES.
NOTES:
1. CLEAR ZONE DISTANCES SHOWN APPLY TO ROADS WITH A POSTED SPEED OF 35 MPH OR LESS. CLEAR ZONE DISTANCES FOR ROADS POSTED AT GREATER THAN 35 MPH SHOULD BE DETERMINED ACCORDING TO CHAPTER 7 OF THE WSDOT DESIGN MANUAL.

2. AT THE ENGINEER'S DISCRETION, THE 6 INCH GRAVEL BORROW LAYER MAY BE ELIMINATED OR SUBSTITUTED WITH A LESSER THICKNESS OF GRAVEL BORROW OR EQUIVALENT MATERIAL WHEN SUBGRADE CONDITIONS WARRANT AS SUBSTANTIATED BY MATERIALS TESTING.

3. CROSS-SECTION MAY BE ALTERED WHERE A STREAM OR WETLAND BORDERS THE ROAD.

4. FOR ACCESS ROADS SERVING 90 ADT OR LESS AND HAVING NO POTENTIAL FOR CONNECTIVITY, A WIDENED SHOULDER FOR A WALKWAY IS NOT REQUIRED. HOWEVER, WHERE SAFE WALKING CONDITIONS FOR STUDENTS ARE IMPOSED PURSUANT TO RCW 58.17.060, 58.17.110 OR APPLICABLE COUNTY CODES, A WALKWAY WILL BE REQUIRED ON ONE SIDE OF THE ROAD.

5. IN FILL SECTIONS AND AROUND CUL-DE-SACS, THE ENGINEER MAY REQUIRE A THICKENED EDGE TO CONTROL EROSION. SEE STANDARD DRAWING 4-145.

6. SEE STANDARD DRAWING 8-010 FOR PLACEMENT OF UTILITIES.

7. SEE STD DWGS 3-060 & 3-065 FOR NON-ARTERIAL ROAD STANDARDS. INDUSTRIAL/COMMERCIAL ROADS SERVING SIGNIFICANT VOLUMES OF TRUCK TRAFFIC MAY REQUIRE ADDITIONAL WIDTH AND PAVEMENT DEPTH AS DETERMINED BY THE ENGINEER BASED ON DATA SUBMITTED BY THE DEVELOPER.

8. FOR ACCESS AND SUBCOLLECTOR ROADS, FILL SLOPES MAY BE 2:1 MAX. AND CUT SLOPES MAY BE 1-1/2:1 MAX.

9. PREFERRED WALKWAY LOCATION WHERE R/W PERMITS. WHEN PlACED IN THIS LOCATION, A WIDENED SHOULDER FOR A WALKWAY WILL NOT BE REQUIRED. SEE TEXT TABLE 4-1 FOR SURFACING REQUIREMENTS.

SEE TEXT CHAPTER 3.
NOTES:
1. SEE STANDARD DRAWING 8–020 FOR PLACEMENT OF UTILITIES.

2. URBAN CLEAR ZONE DISTANCE SHALL BE 2 FT. BEYOND THE FACE OF CURB FOR ROADS WITH A POSTED SPEED OF 35 MPH OR LESS. CLEAR ZONE DISTANCES FOR ROADS POSTED AT GREATER THAN 35 MPH SHOULD BE DETERMINED ACCORDING TO CHAPTER 7 OF THE WSDOT DESIGN MANUAL.

3. INDUSTRIAL/COMMERCIAL ROADS SERVING SIGNIFICANT VOLUMES OF TRUCK TRAFFIC MAY REQUIRE ADDITIONAL WIDTH AND PAVEMENT DEPTH AS DETERMINED BY THE ENGINEER BASED ON DATA SUBMITTED BY THE DEVELOPER.

4. FOR ACCESS AND SUBCOLLECTOR ROADS, FILL SLOPES MAY BE 2:1 MAX. AND CUT SLOPES MAY BE 1–1/2:1 MAX.

5. REFER TO SECTION 4–01 FOR LANDSCAPING REQUIREMENTS. ALL LANDSCAPING WITHIN THE RIGHT OF WAY IS SUBJECT TO APPROVAL BY DPW.

6. AN 8 FT PARKING LANE MAY BE REQUIRED ON ONE OR BOTH SIDES, SEE STANDARD DRAWING 3–065.

7. THE R/W LINE SHALL BE AT LEAST 1.0 FEET BEHIND THE BACK OF SIDEWALK.

8. CROSS–SECTION MAY BE ALTERED WHERE A STREAM OR WETLAND BORDERS THE ROAD.

9. REFER TO TEXT SECTION 4–05 FOR SIDEWALK WIDTH REQUIREMENTS. FOR RESIDENTIAL ROADS SERVING 90 ADT OR LESS AND HAVING NO POTENTIAL FOR CONNECTIVITY, SIDEWALKS AND PLANTERS ARE NOT REQUIRED. HOWEVER, WHERE SAFE WALKING CONDITIONS FOR STUDENTS ARE IMPOSED PURSUANT TO RCW 58.17.060, 58.17.110 OR APPLICABLE COUNTY CODES, A SIDEWALK ONLY WILL BE REQUIRED ON ONE SIDE OF THE ROAD.

10. SEE STANDARD DRAWING 3–065 FOR WIDTH REQUIREMENTS. IF THE ROAD IS A DESIGNATED BIKEWAY ROUTE, BICYCLE LAKES MAY BE REQUIRED IN ADDITION TO, OR IN PLACE OF, THE PARKING LANES. SEE TEXT SECTION 4–08.

SEE TEXT CHAPTERS 3 AND 4
NOTES:

1. ROAD STANDARDS BASED ON "RESIDENTIAL STREETS", 2ND EDITION, PUBLISHED JOINTLY BY THE AMERICAN SOCIETY OF CIVIL ENGINEERS, THE NATIONAL ASSOCIATION OF HOME BUILDERS AND THE URBAN LAND INSTITUTE.

2. MAY BE REDUCED UPON APPROVAL OF THE ENGINEER. REFER TO SECTION 3-06.

3. FOR ACCESS ROADS SERVING 90 ADT OR LESS AND HAVING NO POTENTIAL FOR CONNECTIVITY, A WIDENED SHOULDER FOR A WALKWAY IS NOT REQUIRED. HOWEVER, WHERE SAFE WALKING CONDITIONS FOR STUDENTS ARE IMPOSED PURSUANT TO ROW 58.17.060, 58.17.110 OR APPLICABLE COUNTY CODES, A WALKWAY WILL BE REQUIRED ON ONE SIDE OF THE ROAD.

4. A 7 FT PAVED SHOULDER IS REQUIRED ON ONE SIDE IF ADT IS 250 OR GREATER, OR IF SAFE WALKING CONDITIONS FOR STUDENTS ARE IMPOSED PURSUANT TO ROW 58.17.060, 58.17.110 OR APPLICABLE COUNTY CODES.

5. EASEMENT WIDTH VARIES, BUT SHALL BE NO LESS THAN 30 FEET.

SEE TEXT CHAPTER 3

### PUBLIC ROAD STANDARD – RURAL

<table>
<thead>
<tr>
<th>ROAD CLASSIFICATION</th>
<th>DESIGN SPEED (MPH)</th>
<th>PAVEMENT WIDTH</th>
<th>TRAVEL LANES</th>
<th>SHOULDER WIDTH</th>
<th>PLANTER WIDTH</th>
<th>WALKWAY WIDTH</th>
<th>R/W WIDTH</th>
<th>SEE STD DRAWING</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCAL ACCESS ROAD (ADT &lt; 250)</td>
<td>25(2)</td>
<td>28'</td>
<td>2x9'</td>
<td>3'/7'</td>
<td>NONE</td>
<td>7'(SHLDR)</td>
<td>38'-50'</td>
<td>3-040</td>
</tr>
<tr>
<td>RESIDENTIAL (ADT 250 –1000)</td>
<td>30</td>
<td>30'</td>
<td>2x10'</td>
<td>3'/7'</td>
<td>NONE</td>
<td>7'(SHLDR)</td>
<td>40'-60'</td>
<td>3-040</td>
</tr>
<tr>
<td>COLLECTOR ROAD (ADT 1001 – 3000)</td>
<td>30-35</td>
<td>36'</td>
<td>2x11'</td>
<td>7'/7'</td>
<td>NONE</td>
<td>7'(SHLDR)</td>
<td>42'-60'</td>
<td>3-040</td>
</tr>
</tbody>
</table>

### PRIVATE ROAD STANDARD – RURAL

<table>
<thead>
<tr>
<th>ROAD CLASSIFICATION</th>
<th>DESIGN SPEED (MPH)</th>
<th>PAVEMENT WIDTH</th>
<th>SURFACE</th>
<th>EASEMENT WIDTH</th>
<th>WALKWAY</th>
<th>SEE STD DRAWING</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIVATE LOW VOLUME ACCESS (90 ADT OR LESS)</td>
<td>20</td>
<td>20'</td>
<td>GRAVEL</td>
<td>NONE</td>
<td></td>
<td>3-080</td>
</tr>
<tr>
<td>PRIVATE SUBCOLLECTOR (91 TO 1000 ADT)</td>
<td>30</td>
<td>20'-30'</td>
<td>PAVED</td>
<td>1x7' PAVED SHOULDER</td>
<td>4</td>
<td>3-090</td>
</tr>
</tbody>
</table>
NOTES:

1. ROAD STANDARDS BASED ON "RESIDENTIAL STREETS", 2ND EDITION, PUBLISHED JOINTLY BY THE AMERICAN SOCIETY OF CIVIL ENGINEERS, THE NATIONAL ASSOCIATION OF HOME BUILDERS AND THE URBAN LAND INSTITUTE.

2. PARKING RESTRICTED TO ONE SIDE.

3. NO RESTRICTION ON PARKING.

4. MAY BE REDUCED UPON APPROVAL OF THE ENGINEER. REFER TO SECTION 3-06.

5. BICYCLE LANES MAY BE REQUIRED ON ROADS THAT ARE DESIGNATED BIKEWAY ROUTES. PAVEMENT AND R/W WIDTH SHALL BE WIDENED AS NECESSARY. SEE TEXT SECTION 4-08.

6. RIGHT OF WAY WIDTH MAY VARY. SEE TEXT SECTION 3-03B.

7. FOR RESIDENTIAL ROADS SERVING 90 ADT OR LESS AND HAVING NO POTENTIAL FOR CONNECTIVITY, SIDEWALKS AND PLANTERS ARE NOT REQUIRED. HOWEVER, WHERE SAFE WALKING CONDITIONS FOR STUDENTS ARE IMPOSED PURSUANT TO RCW 58.17.060, 58.17.110 OR APPLICABLE COUNTY CODES, A SIDEWALK ONLY WILL BE REQUIRED ON ONE SIDE OF THE ROAD.

SEE TEXT CHAPTER 3

---

PUBLIC AND PRIVATE ROAD STANDARD - URBAN

<table>
<thead>
<tr>
<th>ROAD CLASSIFICATION</th>
<th>DESIGN SPEED (MPH)</th>
<th>PAVEMENT WIDTH</th>
<th>TRAVEL LANE WIDTH</th>
<th>PARKING LANE WDL</th>
<th>PLANTER WIDTH</th>
<th>SIDEWALK WIDTH</th>
<th>R/W WIDTH</th>
<th>SEE STD DRAWING</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESIDENTIAL (ADT 1 - 1000)</td>
<td>25</td>
<td>28'</td>
<td>2x10'</td>
<td>1x8'</td>
<td>5' MIN.</td>
<td>5' MIN.</td>
<td>51'-55'</td>
<td>3-050</td>
</tr>
<tr>
<td>COLLECTOR (ADT 1001 - 3000)</td>
<td>30-35</td>
<td>36'</td>
<td>2x10'</td>
<td>2x8'</td>
<td>5' MIN.</td>
<td>5' MIN.</td>
<td>59'-63'</td>
<td>3-050</td>
</tr>
</tbody>
</table>
NOTES:
1. REFER TO STANDARD DRAWING 3-075 FOR SECTIONS A AND B, AND FOR SURFACING DEPTH D.
SEE TEXT SECTION 3-05
<table>
<thead>
<tr>
<th></th>
<th>LOTS</th>
<th>R/W</th>
<th>SECTION</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>LESS THAN 20'</td>
<td>SECTION A</td>
<td>INADEQUATE R/W WIDTH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20' - 30'</td>
<td></td>
<td>6&quot; GRAVEL BORROW OR PIT-RUN GRAVEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31' TO 60'</td>
<td>SECTION B</td>
<td>6&quot; GRAVEL BORROW OR PIT-RUN GRAVEL</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>LESS THAN 30'</td>
<td>---</td>
<td>INADEQUATE R/W WIDTH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31' TO 60'</td>
<td>SECTION B</td>
<td>6&quot; GRAVEL BORROW OR PIT-RUN GRAVEL PLUS 2 1/2&quot; CSBC GRAVEL PLUS 1 1/2&quot; CSTC GRAVEL AND PAVED APRON</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>LESS THAN 30'</td>
<td>---</td>
<td>INADEQUATE R/W WIDTH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31' TO 60'</td>
<td>SECTION B</td>
<td>6&quot; GRAVEL BORROW OR PIT-RUN GRAVEL PLUS 2 1/2&quot; CSBC GRAVEL PLUS 1 1/2&quot; CSTC GRAVEL AND PAVED APRON</td>
</tr>
<tr>
<td>4</td>
<td>URBAN</td>
<td>LESS THAN 30'</td>
<td>---</td>
<td>INADEQUATE R/W WIDTH</td>
</tr>
<tr>
<td>4</td>
<td>RURAL</td>
<td>31' TO 60'</td>
<td>SECTION B</td>
<td>6&quot; GRAVEL BORROW OR PIT-RUN GRAVEL PLUS 2 1/2&quot; CSBC GRAVEL PLUS 1 1/2&quot; CSTC GRAVEL AND PAVED APRON</td>
</tr>
<tr>
<td>5+</td>
<td>URBAN</td>
<td>ROAD IMPROVEMENT REQUIREMENTS DETERMINED BY PUBLIC WORKS.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5+</td>
<td>RURAL</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES:**

1. SEE STANDARD DRAWING 3-070 FOR ROADWAY SECTIONS.

2. APPLIES TO EXISTING LOTS CREATED PRIOR TO JULY 1, 1992. NUMBER OF LOTS REFERS TO THE TOTAL NUMBER OF EXISTING LOTS THAT WILL RECEIVE ACCESS VIA THE COUNTY R/W THROUGH THE TRAIL PERMIT PROCESS.

3. ANY PROPOSED ACCESS VIA COUNTY R/W TO ANY LOT SUBDIVIDED ON OR AFTER JULY 1, 1992 SHALL BE EVALUATED ON A CASE BY CASE BASIS BY PUBLIC WORKS.

SEE TEXT SECTION 3-05

SNOHOMISH COUNTY PUBLIC WORKS

APPROVED BY:

COUNTY ROAD ENGINEER

DATE
90 ADT OR LESS

EASEMENT

CUT

20' MIN

2:1 MAX

3:1 MAX

- 2%

VEGETATION LINED CHANNEL OR DITCH
SEE STD DWG 5-280

STANDARD ROADWAY SECTION 3
6" COMPACTED DEPTH GRAVEL
BORROW OR PIT RUN GRAVEL

NOTES:

1. ROAD SHALL BE PRIVATELY MAINTAINED BY A HOMEOWNERS ASSOCIATION.
2. REFER TO STD DWG 3-060 FOR GEOMETRIC STANDARDS.
3. ROADWAY SECTION MAY BE ADJUSTED WITH THE APPROVAL OF THE ENGINEER UPON SUBMISSION OF SUBSTANTIATING ENGINEERING DATA (SOILS TESTS, ETC.)
4. SUBGRADE SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH SECTION 2-03.3(14)C OF THE WSDOT/APWA SPECIFICATIONS (METHOD B). SURFACING MATERIALS SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY (MODIFIED PROCTOR).
5. PRIVATE ROAD INTERSECTIONS SHALL COMPLY WITH STD DWG 3-100.

SEE TEXT SECTION 3-05
NOTES:

1. ROAD SHALL BE PRIVATELY MAINTAINED BY A HOMEOWNERS ASSOCIATION.

2. REFER TO STD DWG 3-060 FOR GEOMETRIC STANDARDS.

3. PRIVATE ROAD INTERSECTIONS SHALL COMPLY WITH STD DWG 3-100.

4. ROADWAY SECTION MAY BE ADJUSTED WITH THE APPROVAL OF THE ENGINEER UPON SUBMISSION OF SUBSTANTIATING ENGINEERING DATA (SOILS TESTS, ETC.)

5. AT THE ENGINEER'S DISCRETION, THE 4 INCH GRAVEL BORROW LAYER MAY BE ELIMINATED OR SUBSTITUTED WITH A LESSER THICKNESS OF GRAVEL BORROW OR EQUIVALENT MATERIAL WHEN SUBGRADE CONDITIONS WARRANT, AS SUBSTANTIATED BY MATERIALS TESTING.

6. A WALKWAY WILL BE REQUIRED WHERE THE PRIVATE ROAD ADT IS PROJECTED TO BE 250 OR GREATER. THE WALKWAY SHALL CONSIST OF A 7 (SEVEN) FT. PAVED SHOULDER ON ONE SIDE OF THE ROAD, DELINEATED BY A FOUR INCH WHITE PAINTED STRIPE. A 3 FT. PAVED SHOULDER SHALL BE PROVIDED ON THE OTHER SIDE.

7. SUBGRADE SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH SECTION 2-03.3(14)C OF THE WSDOT/APWA SPECIFICATIONS (METHOD B). SURFACING MATERIALS SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D1557.

SEE TEXT SECTION 3-05
NOTES:

1. ALL SURFACE DRAINAGE FROM THE PRIVATE ROAD MUST BE DIRECTED FROM THE ROAD TO THE OPEN DITCH. NO SURFACE DRAINAGE SHALL FLOW ONTO THE COUNTY ROAD.

2. CULVERT PIPE SHALL BE 12 INCHES MINIMUM DIAMETER AND LARGER IF DRAINAGE REQUIRES.

3. COVER DEPTHS LESS THAN 12" REQUIRE APPROVAL BY THE ENGINEER.

4. A DRIVEWAY CULVERT HEADWALL, SUBJECT TO APPROVAL BY THE ENGINEER, MAY BE USED IN LIEU OF THE 1-1/2 : 1 SIDESLOPE.

5. MINIMUM RADII VARY. SEE STANDARD DRAWING 2-010.

6. A PAVED APRON IS REQUIRED AT ALL INTERSECTIONS WITH COUNTY ROADS. PAVED APRON SECTION SHALL BE EQUIVALENT TO STANDARD ROADWAY SECTION FOR PRIVATE SUBCOLLECTOR ROAD (SEE STD DWG 3-090) OR BETTER.

7. ADDITIONAL PAVEMENT THICKNESS MAY BE REQUIRED FOR HEAVY VEHICLE TRAFFIC.

SEE TEXT SECTION 3
RESIDENTIAL

1-1/2" COMP. DEPTH CLASS "B" ACP
2" COMP. DEPTH ATB
6" COMP. DEPTH GRAVEL BASE

COMMERCIAL

2" COMP. DEPTH CLASS "B" ACP
2" COMP. DEPTH ATB
6" COMP. DEPTH GRAVEL BASE
NOTES:
1. INTERSECTION BULBS MAY BE USED IN LIEU OF HORIZONTAL CURVES FOR CERTAIN LOW-SPEED DESIGNS. REFER TO TEXT TABLE 3-4.

2. A MINIMUM 50' TANGENT IS REQUIRED FROM THE POINT OF INTERSECTION OF THE CENTERLINES.

3. INTERSECTION ANGLE SHALL BE 90 DEGREES +/- 10 DEGREES.

4. RADII SHOWN APPLY FOR A 51-FOOT URBAN NON-ARTERIAL R/W.

SEE TEXT SECTION 3-06.
SNOHOMISH COUNTY PUBLIC WORKS

3-110
CREST VERTICAL CURVES

WHEN S > L

\[ L = 2S - \frac{1917}{A} \]

WHEN S < L

\[ L = \frac{AS^2}{1917} \]

L = CURVE LENGTH (FEET)
A = ALGEBRAIC GRADE DIFFERENCE (PERCENT)
S = SIGHT DISTANCE (FEET)

NOTES:
1. L = MINIMUM LENGTH OF CURVE BASED ON MINIMUM STOPPING SIGHT DISTANCE.

SEE TEXT CHAPTER 3

DESIGN SPEED (MPH) | DESIRABLE STOPPING DISTANCE (FEET) | MINIMUM STOPPING DISTANCE (FEET)
--- | --- | ---
20 | 115 | 60
25 | 155 | 75
30 | 200 | 90
35 | 250 | 105
40 | 305 | 120
45 | 360 | 135
50 | 425 | 150
55 | 495 | 165
INCREASE FOR DOWNGRADES:
SEE TABLE 3-7 IN TEXT

WHEN S > L
\[ L = 2S - \frac{400 + 3.5S}{A} \]

WHEN S < L
\[ L = \frac{A S^2}{400 + 3.5S} \]

\( L = \text{CURVE LENGTH (FEET)} \)
\( A = \text{ALGEBRAIC GRADE DIFFERENCE (PERCENT)} \)
\( S = \text{SIGHT DISTANCE (FEET)} \)

<table>
<thead>
<tr>
<th>DESIGN SPEED (MPH)</th>
<th>DESIRABLE STOPPING DISTANCE (FEET)</th>
<th>MINIMUM LENGTH (FEET)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>115</td>
<td>60</td>
</tr>
<tr>
<td>25</td>
<td>155</td>
<td>75</td>
</tr>
<tr>
<td>30</td>
<td>200</td>
<td>90</td>
</tr>
<tr>
<td>35</td>
<td>250</td>
<td>105</td>
</tr>
<tr>
<td>40</td>
<td>305</td>
<td>120</td>
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<td>45</td>
<td>360</td>
<td>135</td>
</tr>
<tr>
<td>50</td>
<td>425</td>
<td>150</td>
</tr>
<tr>
<td>55</td>
<td>495</td>
<td>165</td>
</tr>
</tbody>
</table>

NOTES:
1. \( L = \text{MINIMUM LENGTH OF CURVE BASED ON MINIMUM STOPPING SIGHT DISTANCE.} \)

SEE TEXT CHAPTER 3
NOTES:
1. CREST VERTICAL CURVE CONDITION SHOWN. FOR EVALUATION OF CREST VERTICAL CURVE ALIGNMENT FOR STOPPING SIGHT DISTANCE REQUIREMENTS, REFER TO STD DWG 3-110. FOR EVALUATION OF SAG VERTICAL CURVE ALIGNMENT FOR STOPPING SIGHT DISTANCE REQUIREMENTS, REFER TO STD DWG 3-120.

SEE TEXT SECTION 3-07 & 3-08.

D = STOPPING SIGHT DISTANCE
NOTES:

1. AT ANY INTERSECTION OR ACCESS POINT CONNECTION, THERE MUST EXIST CLEAR SIGHT TRIANGLES, FREE OF SIGHT OBSCURING OBJECTS. UNOBSERVED LINES OF SIGHT MUST BE PROVIDED FROM A POINT ON THE MINOR ROAD 15 FEET BEHIND THE EDGE OF TRAVELED WAY (POINT A) TO ALL POINTS IN THE TRAVELED WAY INCLUDED IN THE CLEAR SIGHT TRIANGLES. THE BASE OF EACH CLEAR SIGHT TRIANGLE SHALL BE AT LEAST EQUAL TO THE STOPPING SIGHT DISTANCE D.

2. THE DRIVER'S EYE TO DETERMINE LINE OF SIGHT AT INTERSECTIONS IS 3.5 FEET ABOVE THE MINOR ROAD PAVEMENT, WITH AN OBJECT HEIGHT OF 3.5 FEET ABOVE THE MAJOR ROAD PAVEMENT.

3. THE AREA WITHIN THE CLEAR SIGHT TRIANGLE MUST BE FREE FROM ANY SIGHT OBSCURING OBJECTS. GROUND SHALL BE REGRADED AND VEGETATION TRIMMED OR REMOVED SO THAT NO OBJECT PROTRUDES CLOSER THAN 18 INCHES TO THE LINE OF SIGHT BETWEEN THE MINOR ROAD/ACCESS POINT AND THE MAJOR ROAD.

4. AREA WITHIN THE CLEAR SIGHT TRIANGLE BUT OUTSIDE OF EXISTING PUBLIC RIGHT-OF-WAY SHALL EITHER BE ACQUIRED AS NEW PUBLIC RIGHT-OF-WAY OR A SIGHT DISTANCE EASEMENT RECORDED FOR FUTURE COUNTY MAINTENANCE.

SEE TEXT SECTION 3-08.
NOTES:

1. ROAD WIDTH AND PAVEMENT SECTION SHALL BE AS SPECIFIED FOR EACH CLASS OF ROAD. REFER TO SECTION 3 AND STANDARD DRAWINGS 3-010 THROUGH 3-060.

2. LENGTH OF ROAD END IS MEASURED FROM THE FACE OF CURB LINE (EXTENDED) OF THE PREVIOUS INTERSECTING ROAD.

3. NO DRIVE THROUGH CUL DE SACS ARE ALLOWED.

4. HAMMERHEAD TURNAROUNDS ARE ALLOWED ONLY UPON APPROVAL OF THE FIRE MARSHAL AS A TEMPORARY TURNAROUND.

5. PERMANENT ROAD ENDS SHALL INCLUDE PEDESTRIAN FACILITIES IN URBAN AREAS OR WHERE THESE FACILITIES ARE PROVIDED ALONG THE ROAD LEADING TO THE PERMANENT ROAD END. PEDESTRIAN FACILITIES ARE NOT REQUIRED ALONG ROADS 150 FEET OR LESS IN LENGTH.

6. ROADS 150 FEET OR LESS MAY END IN A ROAD STUB. HOWEVER, IF FOUR OR MORE ACCESS POINTS ARE LOCATED WITHIN 50 FEET OF THE ROAD END, THEN A CUL-DE-SAC WITH A MINIMUM PAVED RADIUS OF 30 FEET IS REQUIRED.

7. PLANTER STRIPS MAY BE INSTALLED, BUT ARE NOT REQUIRED, AROUND PERMANENT OR TEMPORARY ROAD ENDS. SEE TEXT SECTION 3-10
NOTES:
1. TYPE 1 RAISED PAVEMENT MARKERS, 3' O.C. SEE
   WSDOT/APWA SPECIFICATIONS.
2. FARSIDE BUS PULLOUTS ARE PREFERRED. FOR DESIGN
   GUIDANCE RELATIVE TO NEARSIDE AND MIDDLE BLOCK BUS
   PULLOUTS, SEE THE WSDOT DESIGN MANUAL, CHAPTER 1060.
3. SEE TEXT SECTION 3-13 AND STD DRAWINGS 3-010
   THROUGH 3-065 FOR PAVEMENT SECTIONS.
CHAPTER 4 DRAWING INDEX

4-010  Small Trees 25'-35' Height
4-020A  Medium Trees 30'-50' Height
4-020B  Medium Trees 30'-50' Height
4-030  Large Trees 50' Height or Larger
4-040  Shrubs and Groundcovers
4-050  Standard Planting Strip
4-060  Planting Strip Behind Sidewalk
4-070  Combination Planting Strips
4-080  Small Shrub - Groundcover Spacing
4-090  Tree and Lawn Planting Strip
4-100  Tree and Groundcover Planting Strip
4-110  Shrub, Tree and Groundcover Planting Strip
4-120  Compacted Fill Removal/Replacement
4-130  Monument Case and Cover
4-140  Curb Details (Vertical and Rolled)
4-145  Curb Details (Asphalt Thickened Edge, Extruded Curb)
4-150  Sidewalk Details
4-160  Asphalt Walkway
4-170  Bollards
4-180  Barricades - General
4-185  Type III Barricade
4-190  Mailbox Turnout - Collector & Arterial
4-200  Pedestrian Handrail Details
4-202  Pedestrian Handrail Details
4-204  Ornamental Handrail Details
4-210  Rockery
4-220  Rockery, Fill Section (Deleted 2004 Revision)
<table>
<thead>
<tr>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACER CAMPESTRE (EVELYN)</td>
<td>QUEEN ELIZABETH HEDGE MAPLE</td>
<td>YELLOW FALL COLOR, UPRIGHT AND ROUND</td>
</tr>
<tr>
<td>ACER GRISEUM</td>
<td>PAPERBARK MAPLE</td>
<td>RED FALL COLOR, EXFOLIATING BARK</td>
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<tr>
<td>ACER PLATANOIDES (GLOBOSUM)</td>
<td>GLOBE NORWAY MAPLE</td>
<td>SHORT, 15' TALL, COMPACT ROUND CANOPY</td>
</tr>
<tr>
<td>ACER TRUNCATUM X. A. PLATANOIDES</td>
<td>KEITHSFORM NORWEGIAN SUNSET MAPLE</td>
<td>FALL YELLOW/ORANGE/RED</td>
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<tr>
<td>ACER TRUNCATUM X. A. PLATANOIDES</td>
<td>WARRENRED PACIFIC SUNSET MAPLE</td>
<td>SHORTER, MORE SPREADING THAN KEITHSFORM</td>
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<tr>
<td>CRATAEGUS X LAVALII</td>
<td>LAVALLE HAWTHORN</td>
<td>RED FALL LEAVES AND FRUIT</td>
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<tr>
<td>CRATAEGUS PHAENOPYRUM</td>
<td>WASHINGTON HAWTHORN</td>
<td>THORNY, RED FALL COLOR</td>
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<tr>
<td>KOELREUTERIA PANICULATA</td>
<td>GOLDENRAIN TREE</td>
<td>YELLOW SUMMER FLOWERS AND FALL COLOR</td>
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<tr>
<td>MAGNOLIA GRANDIFLORA</td>
<td>EDITH BOGUE MAGNOLIA</td>
<td>WHITE BLOOMS, EVERGREEN, PYRAMIDAL, SNOW RESISTANT</td>
</tr>
<tr>
<td>MALUS (TSCHONOSKII)</td>
<td>TSCHONOSKII CRAB APPLE</td>
<td>DISEASE RESISTANT, PYRAMIDAL FORM</td>
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<tr>
<td>PRUNUS X HILLIERI (SPIRE)</td>
<td>SPIRE CHERRY</td>
<td>NARROW, PINK BLOOMS</td>
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<tr>
<td>PYRUS CALLERYANA (CAPITAL)</td>
<td>CAPITAL PEAR</td>
<td>SMALL NARROW UPRIGHT FORM</td>
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<tr>
<td>PYRUS CALLERYANA (AUTUMN BLAZE)</td>
<td>AUTUMN BLAZE PEAR</td>
<td>ROUND FORM, RED FALL COLOR</td>
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<tr>
<td>SORBUS X HYBRIDA</td>
<td>OAK-LEAF MOUNTAIN ASH</td>
<td>RED FRUIT, RUST FALL COLOR</td>
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<tr>
<td>TILIA CORDATA (CHANCOLE)</td>
<td>CHANCELLOR LINDEN</td>
<td>UPRIGHT, TIGHTLY PYRAMIDAL</td>
</tr>
</tbody>
</table>

**NOTES:**

1. THESE TREES ARE SUITABLE FOR USE IN PLANTER STRIPS ALONG 2-LANE ROADS AND UNDER UTILITY LINES.

2. AVERAGE TREE SPACING: 25'-30' O.C.
<table>
<thead>
<tr>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>HEIGHT + OR - 40'</th>
<th>10' - 20' SPREAD</th>
<th>20' - 30' SPREAD</th>
<th>30' - 40' SPREAD</th>
<th>DROUGHT TOLERANT</th>
<th>SEASONAL COLOR</th>
<th>REQUIRES MOST SOIL</th>
<th>REMARKS</th>
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<tr>
<td>ACER X FREEMANII (JEFFERSRED)</td>
<td>AUTUMN BLAZE MAPLE</td>
<td>+</td>
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<td></td>
<td>BRILLIANT ORANGE FALL COLOR, UPRIGHT AND ROUND</td>
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<tr>
<td>ACER NIGRUM (GECOLOUM)</td>
<td>GREENCOLUMN MAPLE</td>
<td>+</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td>UPRIGHT OVAL FORM, YELLOW/ORANGE FALL COLOR</td>
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<tr>
<td>ACER PLATANOIDES (COLUMNAR)</td>
<td>COLUMNAR NORWAY MAPLE</td>
<td>-</td>
<td>●</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td>VERY NARROW, YELLOW FALL COLOR</td>
</tr>
<tr>
<td>ACER PLATANOIDES (EMERALD QUEEN)</td>
<td>EMERALD QUEEN MAPLE</td>
<td>+</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<td>DURABLE STANDARD, OVAL UPRIGHT</td>
</tr>
<tr>
<td>ACER PLATANOIDES (COLUMNARBROAD)</td>
<td>PARKWAY MAPLE</td>
<td>-</td>
<td>●</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td>GOOD FORM, DURABLE, YELLOW FALL COLOR</td>
</tr>
<tr>
<td>ACER RUBRUM (BOWHALL)</td>
<td>BOWHALL MAPLE</td>
<td>-</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td>VERY NARROW, ORANGE FALL COLOR</td>
</tr>
<tr>
<td>ACER RUBRUM (KARPIEK)</td>
<td>KARPIEK MAPLE</td>
<td>-</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td>MEDIUM NARROW, YELLOW/ORANGE FALL COLOR</td>
</tr>
<tr>
<td>ACER RUBRUM (SCARSEN)</td>
<td>SCARLET SENTINEL MAPLE</td>
<td>-</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td>UPRIGHT BRANCHING HABIT</td>
</tr>
<tr>
<td>AESCULUS X CARNEA (BRIOTTII)</td>
<td>BRIOTTI RED HORSECHESTNUT</td>
<td>-</td>
<td>●</td>
<td></td>
<td>●</td>
<td></td>
<td>●</td>
<td></td>
<td>LOW, WIDE, AND ROUND</td>
</tr>
<tr>
<td>BETULA JACQUEMONTII</td>
<td>JACQUEMONTII BIRCH</td>
<td>-</td>
<td>●</td>
<td></td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>BRILLIANT WHITE BARK</td>
</tr>
<tr>
<td>CARPINUS BETULUS (FASTIGIATA)</td>
<td>PYRAMIDAL EUROPEAN HORNBEAM</td>
<td>-</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
<td>STARTS NARROW, BROADENS TO OVAL WITH AGE</td>
</tr>
<tr>
<td>CERCIDIPHYLLUM JAPONICUM</td>
<td>KATSURA TREE</td>
<td>-</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
<td>VARIABLE UPRIGHT FORM, APRICOT FALL COLOR</td>
</tr>
<tr>
<td>FRAXINUS OXYCARPA (RAYWOOD)</td>
<td>RAYWOOD ASH</td>
<td>+</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>BRIGHT REDISH PURPLE FALL COLOR</td>
</tr>
<tr>
<td>FRAXINUS PENNSYLVANICA (PATMORE)</td>
<td>PATMORE ASH</td>
<td>+</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>EXTREMELY HARDY, UPRIGHT BRANCHES</td>
</tr>
<tr>
<td>FRAXINUS AMERICANA (AUTUMN APPLAUSE)</td>
<td>AUTUMN APPLAUSE ASH</td>
<td>+</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>GOOD PURPLE FALL COLOR, SMALL AND DENSE</td>
</tr>
<tr>
<td>FRAXINUS PENNSYLVANICA (URBANITE)</td>
<td>URBANITE ASH</td>
<td>+</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>TALL, BROAD, AND UPRIGHT WITH BRONZE FALL COLOR</td>
</tr>
</tbody>
</table>

NOTES:
1. STREET TREES IN PLANTER STRIPS ALONG SNOHOMISH COUNTY ROADWAYS ARE TO BE FROM THIS LIST OF MEDIUM SIZE TREES, UNLESS SPECIAL CONDITIONS SUCH AS OVERHEAD WIRES OR WIDE PLANTING AREAS FAVOR SMALL OR LARGE TREES AS DETERMINED BY THE SNOHOMISH COUNTY ENGINEER.

2. AVERAGE TREE SPACING: 35'-40' O.C.

SNOHOMISH COUNTY PUBLIC WORKS

4-020A MEDIUM TREES 30'-50' HEIGHT

APPROVED BY: 

COUNTY ROAD ENGINEER DATE

S:\TES\COMMON\EDDS\EDDS DRAWINGS\Ch4\landscape\4020.dwg
<table>
<thead>
<tr>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>HEIGHT + OR - 40'</th>
<th>10' - 20' SPREAD</th>
<th>20' - 30' SPREAD</th>
<th>30' - 40' SPREAD</th>
<th>DROUGHT TOLERANT</th>
<th>SEASONAL COLOR</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>GINKGO BILOBA (AUTUMN GOLD)</td>
<td>AUTUMN GOLD GINKGO</td>
<td>+</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>BROADLY PYRAMIDAL, GOLDEN YELLOW FALL COLOR</td>
</tr>
<tr>
<td>GINKGO BILOBA (PRINCETON Sentry)</td>
<td>PRINCETON Sentry GINKGO</td>
<td>+</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>NARROWLY PYRAMIDAL, BRIGHT YELLOW FALL COLOR</td>
</tr>
<tr>
<td>GLEDISSA TRIACANTHOS (SHADEMASTER)</td>
<td>SHADEMASTER HONEYLOCUST</td>
<td>+</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>LACY, OPEN FORM, YELLOW FALL COLOR</td>
</tr>
<tr>
<td>LIQUIDAMBAR STYRACIFLUA (MORaine)</td>
<td>MORaine SWEETGUM</td>
<td>-</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>COLD HARDY, RUGGED SWEETGUM FALL COLOR</td>
</tr>
<tr>
<td>LIQUIDAMBAR STYRACIFLUA (ROTUNDILOBA)</td>
<td>ROTUNDILOBA SWEETGUM</td>
<td>+</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>FRUITLESS, ROUNDED LOBES, ORANGE TO PURPLE FALL COLOR</td>
</tr>
<tr>
<td>LIQUIDAMBAR STYRACIFLUA (WORPLESDON)</td>
<td>WORPLESDON SWEETGUM</td>
<td>-</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>BROADLY PYRAMIDAL, ORANGE AND PURPLE FALL COLOR</td>
</tr>
<tr>
<td>PRUNUS SARGENTII (COLUMNARIS)</td>
<td>COLUMNAR SARGENT CHERRY</td>
<td>-</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>PINK BLOOMS, ORANGE/RED FALL COLOR, VASE SHAPED</td>
</tr>
<tr>
<td>PYRUS CALLERYANA (ARISTOCRAT)</td>
<td>ARISTOCRAT PEAR</td>
<td>-</td>
<td>⬤</td>
<td>⬤</td>
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<td>⬤</td>
<td>⬤</td>
<td>WHITE BLOOMS, RED FALL COLOR, SPREADING BRANCHES</td>
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<tr>
<td>PYRUS CALLERYANA (GLEN'S FORM)</td>
<td>CHANTICLEER FLOWERING PEAR</td>
<td>-</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>SIMILAR TO ARISTOCRAT, NARROWER</td>
</tr>
<tr>
<td>PYRUS CALLERYANA (REDSPIRE)</td>
<td>REDSPIRE PEAR</td>
<td>-</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>WHITE SPRING BLOOMS, DENSE AND SYMMETRICAL</td>
</tr>
<tr>
<td>QUERCUS ROBUR (FASTIGIATA)</td>
<td>SKYROCKET OAK</td>
<td>+</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>UNIFORMLY NARROW</td>
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<tr>
<td>ROBINIA X AMBIGUA (IDAHOENSIS)</td>
<td>PINK IDAHO LOCUST</td>
<td>-</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>FOR DRY LOCATIONS, ROSE-PINK FRAGRANT FLOWERS</td>
</tr>
<tr>
<td>SORBUS AUCUPARIA (MICHRED)</td>
<td>CARDINAL ROYAL MTN. ASH</td>
<td>-</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>RED BERRIES, UPRIGHT BRANCHES, NARROW OVAL</td>
</tr>
<tr>
<td>Tilia CORDATA (GREENSPIRE)</td>
<td>GREENSPIRE LINDEN</td>
<td>+</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>WIDER PYRAMIDAL FORM, SYMMETRICAL</td>
</tr>
<tr>
<td>ZELKOVA SERRATA (VILLAGE GREEN)</td>
<td>VILLAGE GREEN ZELKOVA</td>
<td>+</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>VIGOROUS, WIDE VASE FORM, RUSTY RED FALL COLOR</td>
</tr>
</tbody>
</table>

**NOTES:**
1. STREET TREES IN PLANTER STRIPS ALONG SNOHOMISH COUNTY ROADWAYS ARE TO BE FROM THIS LIST OF MEDIUM SIZE TREES, UNLESS SPECIAL CONDITIONS SUCH AS OVERHEAD WIRES OR WIDE PLANTING AREAS FAVOR SMALL OR LARGE TREES AS DETERMINED BY THE SNOHOMISH COUNTY ENGINEER.

2. AVERAGE TREE SPACING: 35'-40' O.C.
<table>
<thead>
<tr>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>HEIGHT + OR - 50'</th>
<th>8' MIN. PLANTER WIDTH</th>
<th>10' MIN. PLANTER WIDTH</th>
<th>20' - 30' SPREAD</th>
<th>20' TO 40' SPREAD</th>
<th>DROUGHT TOLERANT</th>
<th>SEASONAL COLOR</th>
<th>REQUIRES</th>
<th>MOIST SOIL</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABIES GRANDIS</td>
<td>GRAND FIR</td>
<td>+</td>
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<td></td>
<td></td>
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<td>TALL EVERGREEN CONIFER</td>
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<tr>
<td>ACER SACCHARUM (BONFIRE)</td>
<td>BONFIRE MAPLE</td>
<td>+</td>
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<td>FAST GROWING, ORANGE/RED FALL COLOR</td>
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<tr>
<td>ACER SACCHARUM (COMMEMORATION)</td>
<td>COMMEMORATION MAPLE</td>
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<td>ORANGE FALL COLOR, RAPID GROWING</td>
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<td>ACER SACCHARUM (GREEN MOUNTAIN)</td>
<td>GREEN MOUNTAIN MAPLE</td>
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<td>HARDY, RED FALL COLOR</td>
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<tr>
<td>CALOCEDRUS DECURRENS</td>
<td>INCENSE CEDAR</td>
<td>+</td>
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<td>EVERGREEN, NARROW FORM</td>
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<tr>
<td>LIQUIDAMBAR STYACIFLUA</td>
<td>AMERICAN SWEETGUM</td>
<td>+</td>
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<td>PYRAMIDAL FORM, YELLOW/RED/PURPLE FALL COLOR</td>
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<tr>
<td>LIRIODENDRON TULIPIFERA</td>
<td>TULIP TREE</td>
<td>+</td>
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<td>STRONG CENTRAL TRUNK, NARROW FORM</td>
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<tr>
<td>NYSSA SYLVIACA</td>
<td>BLACK TUPELO</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ORANGE FALL COLOR, SHAPE SPREADS WITH AGE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLATANUS X ACERIFOLIA (BLOODGOOD)</td>
<td>BLOODGOOD LONDON PLANETREE</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LARGE SPREADING TREE, PATCHY BARK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSEUDOTSUGA MENZIESII</td>
<td>DOUGLAS FIR</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>VERY TALL EVERGREEN CONIFER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QUERCUS COCCINEA</td>
<td>SCARLET OAK</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UPRIGHT GROWTH, OVAL, BRILLIANT RED FALL COLOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QUERCUS RUBRA</td>
<td>RED OAK</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FAST GROWING, ROUNDED SHAPE, RED FALL COLOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>THUJA PLICATA</td>
<td>WESTERN RED CEDAR</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FOR MOIST OR SHADY LOCATIONS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ULMUS (HOMESTEAD)</td>
<td>HOMESTEAD ELM</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FAST GROWTH, RESISTS DUTCH ELM DISEASE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ULMUS (PIONEER)</td>
<td>PIONEER ELM</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>RESISTS DUTCH ELM DISEASE, YELLOW FALL COLOR</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES:**
1. NOT FOR USE IN STANDARD PLANTER STRIPS OR UNDER UTILITY WIRES. USE FOR BACK OF SIDEWALK OR LARGE PLANTING STRIPS 8' TO 10' WIDE.
2. CONIFERS ONLY ON BACK OF SIDEWALK.
3. AVERAGE TREE SPACING: 35'-40' O.C.
<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Drought Tolerant</th>
<th>Berries or Flowers</th>
<th>Requires Moist Soil</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arctostaphylos Uva-Ursi</td>
<td>Kinnikinnick</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Native evergreen, low 3 in. to 9 in. ht. Very drought tolerant</td>
</tr>
<tr>
<td>Erica Carnea</td>
<td>Winter Heath</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Evergreen, grows 2 ft. ht. by 6 ft. wide, flowers in spring</td>
</tr>
<tr>
<td>Rubus Caucinoides</td>
<td>Bramble</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Evergreen, spreading groundcover, salmon colored berries</td>
</tr>
<tr>
<td>Berberis Thunbergii (Crimson Pygmy)</td>
<td>Crimson Pygmy Barberry</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Small deciduous shrub, 18 in. to 24 in., purple foliage</td>
</tr>
<tr>
<td>Cistus x Hybridus</td>
<td>White Rockrose</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Rounded evergreen shrub, grows 3 ft. to 5 ft. ht., white flowers, very drought tolerant</td>
</tr>
<tr>
<td>Cornus Stolonifera (Kelsyei)</td>
<td>Kelsyei Red Twig Dogwood</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Deciduous mounding shrub to 2 ft. bright red stems, needs irrigation</td>
</tr>
<tr>
<td>Festuca Glauca</td>
<td>Blue Fescue</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Small clumps of evergreen grass</td>
</tr>
<tr>
<td>Gaultheria Shallon</td>
<td>Salal</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Native evergreen shrub, grows 2 ft. - 4 ft. needs trimming, drought tolerant, white flowers, black berries</td>
</tr>
<tr>
<td>Pinus Mugo Var. Pumilio</td>
<td>Compact Dwarf Mugo Pine</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Evergreen shrub, grows slowly to 2 ft.</td>
</tr>
<tr>
<td>Prunus Laurocerasus (Mt. Vernon)</td>
<td>Mt. Vernon Laurel</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Small evergreen shrub, grows slowly to 3 ft. ht.</td>
</tr>
<tr>
<td>Prunus Laurocerasus (Otto Luyken)</td>
<td>Otto Luyken Laurel</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Spreading evergreen shrub to 3 ft., white flowers</td>
</tr>
<tr>
<td>Viburnum Davidii</td>
<td>David Viburnum</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>2 ft. - 3 ft. by 3 ft. to 4 ft. wide, white flowers, black berries</td>
</tr>
</tbody>
</table>

**NOTE:**
1. Suitable for use in planter strips as shown in standard drawings 4-050, 4-080, and 4-070.

**Snohomish County Public Works**

**SHRUBS AND GROUNDCOVERS**

**APPROVED BY:**

[Signature]

**County Road Engineer**

**Date:** 2-25-03
MEDIUM HEIGHT TREES
SEE APPROVED LIST

LOW SHRUBS, LAWN, OR
GROUNDCOVER (24" HT.
AND LESS)

CURB

36"

24"

LOWER BRANCHES AT 7"
HT. ABOVE BIKE LANE AND
SIDEWALK, 14" HT. ABOVE
TRAFFIC LANE

24" DEPTH TYPE B TOPSOIL

ROOTBARRIER 18" DEPTH
15' LONG, 6" FROM
SIDEWALK (SIDEWALK SIDE ONLY)

COMPACTED NATIVE
SOIL

TRAFFIC LANES

BIKE LANE

5' PLANTING STRIP

5' OR 7' SIDEWALK

LANDSCAPE PLANTINGS
PER SCC 30.25.

RIGHT OF WAY

SNOHOMISH COUNTY PUBLIC WORKS

4-050

STANDARD PLANTING STRIP

APPROVED BY:

COUNTY ROAD ENGINEER

DATE

4-17-03
LANDSCAPE PLANTINGS PER SCC 30.25.

MEDIUM TREES (35'-50' HT.)
LARGE TREES (50' HT. AND LARGER)
LOW SHRUBS, LAWN, OR GROUNDCOVER (24" AND LESS)

Curb

SIDEWALK

ROOTBARRIER 18" DEPTH
15' LONG, 6" FROM SIDEWALK (SIDEWALK SIDE ONLY)

COMPACTED NATIVE SOIL

24" DEPTH TYPE B TOPSOIL

36" FOR LARGE TREES
24" FOR MEDIUM TREES

4' MINIMUM
6' FOR LARGE TREES

TRAFFIC LANES
BIKE LANE
5' OR 7' SIDEWALK

SNOHOMISH COUNTY PUBLIC WORKS
4-060
PLANTING STRIP BEHIND SIDEWALK

APPROVED BY:
COUNTY ROAD ENGINEER
DATE
MEDIUM OR LARGE TREES. SMALL TREES ALLOWED ONLY IF OVERHEAD UTILITY WIRES EXIST.

LOWER BRANCHES AT 7' ABOVE SIDEWALK AND 14' ABOVE TRAFFIC LANE MINIMUM.

LOW SHRUBS, LAWN, OR GROUNDCOVER (24" AND LESS)

CURB

SIDEWALK

ROOTBARRIER 18" DEPTH 15' LONG, 6" FROM SIDEWALK (SIDEWALK SIDE ONLY)

6" DEPTH TYPE B TOPSOIL

6' FOR LARGE TREES

2'-5' PLANTING STRIP (NO TREES)

5' OR 7' SIDEWALK

4' MINIMUM

LANDSCAPE PLANTINGS PER SCC 30.25.

36" FOR LARGE TREES

24" FOR MEDIUM TREES

24" DEPTH TYPE B TOPSOIL

4-070

COMBINATION PLANTING STRIPS

SNOHOMISH COUNTY PUBLIC WORKS

APPROVED BY:

S:\TES\LANDUSE\EDDS\EDDS DRAWINGS\Ch4\landscape\4050-4120.dwg

COUNTY ROAD ENGINEER

DATE

4-17-03
NOTES:
1. Snohomish County to approve final layout based on actual field dimensions.
2. See plant lists for spacing. Provide 100% coverage in 3 years.
CONTINUOUS LOW GROW LAWN SEEDING

HEAVY ALUMINUM OR PRESSURE TREATED WOOD LAWN EDGING

STREET TREES

BARK MULCH
3" DEPTH

TRAFFIC LANES

BIKE LANE

5'

BETWEEN EDGING/HEADER BOARDS

SIDEWALK

STREET TREE SPACING
SEE TREE LIST

SNOHOMISH COUNTY PUBLIC WORKS

4-090

TREE AND LAWN PLANTING STRIP

APPROVED BY:

COUNTY ROAD ENGINEER

DATE
CONTINUOUS GROUNDCOVER PLANTING.
100% COVERAGE IN 3 YEARS.
SEE SPACING DETAIL AND
GROUNDCOVER LIST FOR APPROVED
PLANT SPECIES.
ONE ROW OF LOW SHRUB PLANTING SPACED 36" ON CENTER ALONG CENTER OF 5' WIDE PLANTING STRIP. CONTINUOUS, EXCEPT FOR STREET TREE LOCATIONS. SEE SHRUB LIST FOR APPROVED PLANT SPECIES.

GROUNDCOVER PLANTING SEE GROUNDCOVER LIST FOR APPROVED PLANT SPECIES AND SPACING. 100% COVERAGE IN 3 YEARS.

STREET TREES

TRAFFIC LANES

BIKE LANE

SIDEWALK

STREET TREE SPACING SEE TREE LIST
STREET TREE

LOW SHRUBS, LAWN, OR GROUNDCOVER

CURB

SIDEWALK

COMPACTED STRUCTURAL FILL

REMOVE COMPACTED FILL TO 48" WIDTH X 24" DEPTH X 8' LENGTH. REPLACE WITH NATIVE TYPE B SOIL AT 85% DENSITY ON SIDES AND 92% UNDER ROOTBALL.

COMPACTED NATIVE SOIL

ROOTBARRIER 18" DEPTH 15' LONG, 6" FROM SIDEWALK (SIDEWALK SIDE ONLY)

RIGHT OF WAY

TRAFFIC LANES  BIKE LANE  5' PLANTING STRIP
NOTES:

1. THE OFF-STREET MONUMENT SHALL BE THE SAME EXCEPT USING A NO. 8 REBAR AND WITHOUT A CASE AND COVER. THE OFF-STREET MONUMENT SHALL BE 3" ABOVE GRADE.

2. MONUMENT CASE AND COVER SHALL BE CAST IRON.

3. BRASS DISC SHALL BEAR LAND SURVEYOR'S REGISTRATION NUMBER.

SEE TEXT SECTION 4-03
NOTES:

1. VERTICAL CURB WILL BE REQUIRED EXCEPT AS NOTED IN SECTION 4-04.

2. CONSTRUCTION OF CURB DETAILS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AS PUBLISHED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND THE AMERICAN PUBLIC WORKS ASSOCIATION (WSDOT/APWA SPECIFICATIONS) UNLESS OTHERWISE MODIFIED BELOW.

3. ALL CONCRETE SHALL BE COMMERCIAL CLASS PER WSDOT/APWA SPECIFICATIONS.

4. FORMS SHALL BE TRUE TO LINE AND GRADE AND SECURELY STAKED. STEEL FORMS ONLY SHALL BE USED ON TANGENT SECTIONS. WOOD FORMS MAY BE USED ON CURVED SECTIONS.

5. FULL DEPTH EXPANSION JOINTS CONSISTING OF 3/8 INCH MINIMUM PREMOLDED JOINT MATERIAL SHALL BE PLACED ADJACENT TO CATCH BASINS, INLETS AND AT POINTS OF TANGENCY ON STREETS AND DRIVEWAY RETURNS. MAXIMUM SPACING SHALL BE 20 FEET.

6. CONTRACTION JOINTS (DUMMY JOINTS) CONSISTING OF 3/8" MIN. X 2" OF PREMOLDED JOINT MATERIAL SHALL BE CONSTRUCTED AT INTERVALS OF 10 FEET.

7. ALL JOINTS SHALL BE CLEAN AND EDGED.

8. FINISH SHALL BE A LIGHT BROOM FINISH.

9. FINISHED CURBS AND CUTTERS SHALL BE SPRAYED WITH A CLEAR CURING COMPOUND.

10. TOP OF CURB AT ACCESS POINT APPROACH.

11. SUBGRADE COMPACTION FOR CURBS AND CUTTERS SHALL MEET A MINIMUM 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH SEC. 2-03.3(14) OF THE WSDOT/APWA SPECIFICATIONS.

SEE TEXT SECTION 4-04
NOTES:

1. EXTRUDED CURB SHALL BE BONDED TO THE PAVEMENT WITH TACK COAT OR SLURRY MIXTURE ADHESIVE.

2. JOINTS IN EXTRUDED CEMENT CONCRETE CURB SHALL BE CUT VERTICALLY AT 10 FOOT INTERVALS TO A MINIMUM DEPTH OF 5 INCHES. SAWS CULTS SHALL BE 1/8 INCH MINIMUM WIDTH.

SEE TEXT SECTION 4-04
NOTES:

1. CONSTRUCTION OF SIDEWALKS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AS PUBLISHED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND THE AMERICAN PUBLIC WORKS ASSOCIATION (WSDOT/APWA SPECIFICATIONS) UNLESS OTHERWISE MODIFIED BELOW.

2. ALL CONCRETE SHALL BE COMMERCIAL CLASS CONCRETE PER WSDOT/APWA SPECIFICATIONS.

3. FORMS SHALL BE TRUE TO LINE AND GRADE AND SECURELY STAKED. STEEL FORMS ONLY SHALL BE USED ON TANGENT SECTIONS. WOOD FORMS MAY BE USED ON CURVED SECTIONS.

4. EXPANSION JOINTS CONSisting of 3/8" FULL DEPTH PREMOLDED JOINT MATERIAL SHALL BE PLACED AROUND FIRE HYDRANTS, POLES, METER BOXES AND OTHER OBSTRUCTIONS AND ALONG WALLS OR STRUCTURES IN PAVED AREAS. EXPANSION JOINTS SHALL ALSO BE PLACED AT THE BEGINNING AND THE END OF EACH CURVE. ON EACH SIDE OF STRUCTURES, DROP CURB DRIVEWAYS AND CURB RAMPS, BETWEEN SIDEWALK AND BACK OF CURB WHEN FLOURED SEPARATELY, AND AT OTHER LOCATIONS AS DIRECTED BY THE ENGINEER. FULL EXPANSION JOINTS SHALL GENERALLY BE PLACED TO MATCH THOSE PLACED IN ADJACENT CURB WITH A MAXIMUM SPACING OF 20 FEET.

5. CONTRACTION JOINTS (DUMMY JOINTS) CONSisting of 3/8" X 2" OF PREMOLDED JOINT MATERIAL SHALL BE CONSTRUCTED AT INTERVALS NOT TO EXCEED 10 FEET. WHEN SIDEWALKS ARE PLACED BY SLIP-FORMING, A PREMOLDED STRIP OF 3/8" THICK AND UP TO FULL DEPTH MAY BE USED. CONTRACTION JOINTS (DUMMY JOINTS) IN SIDEWALKS SHALL BE LOCATED SO AS TO MATCH THE JOINTS IN THE CURB WHETHER SIDEWALK IS ADJACENT TO CURB OR SEPARATED BY A PLANTING STRIP. JOINT SEALANTS FOR SAWED CONSTRUCTION JOINTS SHALL MEET THE REQUIREMENTS OF SECTION 9-04.2 OF THE WSDOT/APWA SPECIFICATIONS.

6. ALL JOINTS SHALL BE CLEAN AND EDGED.

7. CEMENT CONCRETE SIDEWALK THICKNESS IS SPECIFIED IN TEXT SECTION 4-05C. SEE ALSO STANDARD DRAWINGS 2-020 AND 2-025 FOR DRIVEWAY DETAILS.

8. THE WIDTH OF SIDEWALK SHALL BE 5 FEET MIN. FOR SINGLE FAMILY RESIDENTIAL PROPERTY USES AND 7 FEET MIN. FOR COMMERCIAL/INDUSTRIAL AND MULTI-FAMILY RESIDENTIAL PROPERTY USES.

9. SCORE MARKS, 1/4" DEEP, ARE TO BE PLACED ON 5 FOOT CENTERS, AND TO CORRESPOND TO THE MARKINGS IN EXISTING SIDEWALKS. WHEN THE SIDEWALK WIDTH EXCEEDS 6 FEET, A LONGITUDINAL SCORE AT THE CENTER OF THE SIDEWALK SHALL BE PROVIDED.

10. FINISH SHALL BE A LIGHT BROOM FINISH.

11. 6 INCHES OF GRAVEL BORROW OR EQUIVALENT. SEE STANDARD DRAWINGS 3-020, 3-050 AND SECTION 4-10.

12. SUBGRADE COMPACTION FOR SIDEWALKS SHALL MEET A MINIMUM 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH SEC. 2-03.3(14) OF THE WSDOT/APWA SPECIFICATIONS.

13. PLANTER STRIPS REQUIRED BUT NOT SHOWN. SEE STANDARD DRAWINGS 3-020 AND 3-050 FOR LOCATION OF PLANTERS.

SEE TEXT SECTION 4-05.
NOTES:

1. VARIES 7' TO 8' DEPENDING ON ROAD CLASSIFICATION.
2. FOR RURAL ARTERIAL. NON-ARTERIALS VARY 9' TO 11'.

SEE TEXT SECTION 4-06
NOTES:
1. ALL WOOD 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.
5. COMMERCIAL CLASS CONCRETE SHALL BE USED.
6. FOR ACCEPTABLE ALTERNATE BOLLARD DESIGNS, SEE WSDOT/APWA PLANS H-13 AND H-13A.

SEE TEXT SECTION 4-11
# Barricade Characteristics

<table>
<thead>
<tr>
<th>Type of Barricade</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width of Rail</td>
<td>8&quot; Min. – 12&quot; Max.</td>
<td>8&quot; Min. – 12&quot; Max.</td>
<td>8&quot; Min. – 12&quot; Max.</td>
</tr>
<tr>
<td>Length of Rail</td>
<td>2 ft. Min.</td>
<td>2 ft. Min.</td>
<td>4 ft. Min.</td>
</tr>
<tr>
<td>Width of Stripes</td>
<td>6 in.</td>
<td>6 in.</td>
<td>6 in.</td>
</tr>
<tr>
<td>Height</td>
<td>3 ft. Min.</td>
<td>3 ft. Min.</td>
<td>5 ft. Min.</td>
</tr>
<tr>
<td>Number of ReflectORIZED Faces</td>
<td>2 (One Each Direction)</td>
<td>4 (Two Each Direction)</td>
<td>3 If Facing Traffic in One Direction, 6 If Facing Traffic in Two Directions</td>
</tr>
</tbody>
</table>

**Notes:**

For wooden barricades, nominal lumber dimensions will be satisfactory.

For rails less than 3-feet long, 4-inch-wide stripes shall be used.

Barricades intended for use on expressways, freeways and other high speed roadways shall have a minimum of 270 square inches of reflective area facing traffic.

---

**Notes:**

1. Barricades shall be installed in accordance with Part VI of the MUTCD.

2. Rails shall be placed both front and back of barricade if required for two-way traffic. Rails shall be the same size.

3. Lumber shall be standard grade or better.

4. Right (R) barricades are placed to the right of traffic. Left (L) barricades are placed to the left of traffic.

5. Where a barricade extends entirely across a roadway, the stripes shall slope downward in the direction toward which traffic must turn in detouring. Where both right and left turns are provided for, the chevron striping shall slope downward in both directions from the center of the barricade.

6. Barricade rails should be supported in a manner that will allow them to be seen by the motorist and provide a stable support not easily blown over by the wind or traffic. Barricades should be constructed of lightweight materials and have no rigid stay bracing for A-frame designs.

See Text Section 4-12
NOTE:

1. BARRICADES SHALL BE INSTALLED IN ACCORDANCE WITH PART VI OF THE MUTCD.

2. LUMBER SHALL BE STANDARD GRADE OR BETTER.

3. RIGHT (R) BARRICADES ARE PLACED TO THE RIGHT OF TRAFFIC. LEFT (L) BARRICADES ARE PLACED TO THE LEFT OF TRAFFIC.

4. WHERE A BARRICADE(S) EXTENDS ENTIRELY ACROSS A ROADWAY, THE STRIPES SHALL SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING. WHERE BOTH RIGHT AND LEFT TURNS ARE PROVIDED, THE CHEVRON STRIPING SHALL SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE.

5. TEMPORARY BARRICADE SHOWN. FOR PERMANENT BARRICADE, DELETE SUPPORT PLATFORM AND REPLACE SUPPORT POSTS TO ENABLE A MINIMUM EMBEMENT OF 3 FEET. POSTS SHALL BE PRESSURE TREATED.

SEE TEXT SECTION 4-12

---

SNOHOMISH COUNTY PUBLIC WORKS

TYPE III BARRICADE

SIGNED:

COUNTY ROAD ENGINEER

DATE
NOTE:

1. FOR COLLECTOR AND ARTERIAL ROADS, OR ANY ROAD WITH
   A POSTED SPEED LIMIT OF 35 MPH OR ABOVE.

SEE TEXT SECTION 4-13
NOTES:


SEE TEXT SECTION 4-16
PEDESTRIAN RAIL (GALV. STEEL)

GALVANIZED PEDESTRIAN RAIL SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THESE SPECIAL PROVISIONS AND STANDARD DRAWING 4-200.

GALVANIZED STEEL PEDESTRIAN RAIL SHALL CONFORM TO ASTM DESIGNATION A120. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE AWS D1.1-72. AFTER FABRICATION EACH SECTION OF RAILING SHALL BE HOT-DIPPED GALVANIZED WITH A MINIMUM ZINC COATING OF 2 OUNCES PER SQUARE FOOT. ALL BURRS AND SHARP EDGES SHALL BE REMOVED PRIOR TO GALVANIZING. FIELD WELDS SHALL BE GALVANIZED WITH "GALVALLOY" OR APPROVED EQUIVALENT. PAINTING OF WELDS WILL NOT BE PERMITTED.

HORIZONTAL RAILS AND VERTICAL SUPPORT POSTS SHALL BE 2 INCH DIAMETER AND BALUSTERS SHALL BE 1 INCH DIAMETER STANDARD WEIGHT GALVANIZED STEEL PIPE. RAILS, POSTS & BALUSTERS SHALL BE MACHINE CUT TO PROVIDE A UNIFORM LENGTH PRIOR TO ASSEMBLY.

RAILING SHALL BE ERECTED AND ADJUSTED, IF NECESSARY, TO ASSURE A CONTINUOUS LINE AND GRADE. FINISHED HEIGHT IS TO BE 42 INCHES ABOVE PEDESTRIAN SURFACE. EXPANSION JOINTS SHALL BE PROVIDED AT INTERVALS SHOWN ON THE STANDARD DRAWING.

PEDESTRIAN RAIL (ALUMINUM)

ALUMINUM PEDESTRIAN RAIL SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THESE SPECIAL PROVISIONS AND STANDARD DRAWING 4-200.

ALUMINUM PEDESTRIAN RAIL SHALL BE NATURAL ALUMINUM COLOR.

IF ANODIZATION IS SPECIFIED, ALL ALUMINUM PARTS SHALL BE GIVEN A CLEAR ANODIC COATING AT LEAST 0.0006 INCH THICK AND SHALL BE SEALED TO MEET THE REQUIREMENTS OF ASTM B 135 AND SHALL HAVE A UNIFORM FINISH.

WELDING OF ALUMINUM SHALL BE IN ACCORDANCE WITH THE "STRUCTURAL WELDING CODE-- ALUMINUM, AWS D 1.2".

ALL MATERIALS USED IN THE FABRICATION OF ALUMINUM PEDESTRIAN RAIL SHALL MEET THE REQUIREMENTS OF ASTM B241 OR B429 ALLOY 6061-T6 SCHEDULE 40 (STD. PIPE).

HORIZONTAL RAILS AND VERTICAL SUPPORT POSTS SHALL BE 1.9" O.D. AND BALUSTERS SHALL BE 1.05" O.D. STANDARD WEIGHT ALUMINUM PIPE. RAILS, POSTS & BALUSTERS SHALL BE MACHINE CUT TO PROVIDE A UNIFORM LENGTH PRIOR TO ASSEMBLY.

SEE TEXT SECTION 4-16
TYPICAL POST 1-1/2" X 1-1/2 X 1/8 TS
POST AT 10' INTERVALS MAX.

1/2" X 1/2" BAR
WELD TWO
SIDES EACH END

CHANNEL
1-1/2" X 1/2" X 1/8"
TYPICAL

6" APPROXIMATELY

3:1 SAND AND CEMENT GROUT
NON SHRINK GROUT

16 GA. GALV. STEEL SLEEVE (3" DIA)

6" MIN.

SIDE VIEW
SEE STANDARD DRAWINGS
FOR ROCKERY DETAILS

NOTES:
1. AFTER FABRICATION, ALL BURRS AND SHARP EDGES SHALL BE REMOVED.
2. APPLY RUST PROOF METAL PRIMER AND ONE COAT OF BLACK ORNAMENTAL IRON METAL PAINT.

SEE TEXT SECTION 4-16

SNOHOMISH COUNTY PUBLIC WORKS
4-204
ORNAMENTAL HANDRAIL DETAILS

APPROVED BY:

COUNTY ROAD ENGINEER

DATE

D.L.D.: 3/21/00
NOTES:
1. SEE TEXT SECTION 4-17. ROCKERIES SHALL BE DESIGNED BY A GEOFUNDOMICAL ENGINEER IF EMBANKMENT HEIGHT EXCEEDS 6 FT. IN A CUT SECTION OR 4 FT. IN A FILL SECTION.

2. GRAVEL BACKFILL SHALL MEET WSDOT/APWA STANDARD SPECIFICATION 9-03.12[4]

3. FLATTER SLOPE MAY BE REQUIRED IN LESS STABLE SOIL.

4. CHAIN LINK FENCE, TYPE NO. 4 OR 6 (WSDOT/APWA STANDARD), REQUIRED WHEN ROCKERY HEIGHT IS 30 INCHES OR GREATER. VINYL-COATED FENCING IN A DARK, NATURAL COLOR MAY BE USED TO IMPROVE VISUAL APPEARANCE.

5. TRAFFIC BARRIERS MAY BE REQUIRED ON ROADS WITH SPEED LIMITS OF 40 MPH OR GREATER, WHERE ROCKERY HEIGHTS EXCEED 6'. SEE CHAPTER 7 OF THE WSDOT DESIGN MANUAL.

6. IF ROCKERY IS BEHIND A ROLLED CURB OR A RURAL SHOULDER SECTION, THE ROCKERY FACE SHALL BE A MINIMUM OF 10 FT FROM EDGE OF TRAVELED WAY.
NOTES:

1. SEE TEXT SECTION 4-17. ROCKERIES SHALL BE DESIGNED BY A GEOTECHNICAL ENGINEER IF THE HEIGHT EXCEEDS 6 FT. IN A CUT SECTION OR 4 FT. IN A FILL SECTION.

2. GRAVEL BACKFILL SHALL MEET WSDOT/APWA STANDARD SPECIFICATION 9-03.12[4]

3. FLATTER SLOPE MAY BE REQUIRED IN LESS STABLE SOIL.

4. CHAIN LINK FENCE, TYPE NO. 4 OR 6 (WSDOT/APWA STANDARD), REQUIRED WHEN ROCKERY HEIGHT IS 3' OR HIGHER.

5. TRAFFIC BARRIERS MAY BE REQUIRED ON ROADS WITH SPEED LIMITS OF 40 MPH OR GREATER, WHERE ROCKERY HEIGHTS EXCEED 6'. SEE CHAPTER 7 OF THE WSDOT DESIGN MANUAL.
CHAPTER 5 DRAWING INDEX

5-010    Shoulder Ditches
5-020    Interceptor Ditch and Checkdam
5-030    Yard Drain Connections
5-040    Pipe Compaction Designs and Backfill
5-050    Beveled End Section
5-060    Catchbasin Type I
5-070    Catchbasin Type 1-L
5-080    Catchbasin Type 1-P
5-090A   Catchbasin Type 2 - 48" & 54"
5-090B   Catchbasin Type 2 - 48" & 54"
5-100A   Catchbasin Type 2 - 72" & 96"
5-100B   Catchbasin Type 2 - 72" & 96"
5-110    Concrete Inlet
5-120    Catchbasin Details
5-130A   Manhole Type 1 - 48" & 54"
5-130B   Manhole Type 1 - 48" & 54"
5-140A   Manhole Type 2 - 72" & 96"
5-140B   Manhole Type 2 - 72" & 96"
5-150A   Manhole Type 3 - 48", 54", 72" & 96"
5-150B   Manhole Type 3 - 48", 54", 72", & 96"
5-160    Manhole Type 4
5-170    Manhole Details
5-180    Metal Frame and Grate (20" X 24")
5-190    Solid Metal Cover for Catchbasin
5-200    Vaned Grate for Catchbasin and Inlet
5-210    Through Curb Inlet Frame
5-220A   Rolled Curb Frame & Grate
5-220B   Rolled Curb Frame and Grate Installation
5-225    Rolled Curb Vaned Grate
5-230    Manhole Ring and Cover
5-240A   Flow Restrictor/Oil Pollution Control - T Restrictor
5-240B   Flow Restrictor/Oil Pollution Control - T Restrictor
5-240C   Oil Pollution Control Catchbasin (Added 2004 Revision)
5-250    Flow Restrictor/Oil Pollution Control - T Shear Gate Detail
5-260    Level Spreader Trench
5-270    Bubble-Up Spreader
5-280    Biofiltration Swale
NOTES:

1. ASPHALT THICKENED EDGE MAY BE USED WHERE NO DITCH EXISTS OR A CLOSED DRAINAGE SYSTEM IS LOCATED BENEATH A PAVED SHOULDERS.

2. A ROCK-LINED DITCH MAY BE USED FOR CHANNEL SLOPES BETWEEN 5% AND 9%.

SEE TEXT SECTION 5-03

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ASPHALT THICKENED EDGE IN FILL SECTION

---

ROCK-LINED SHOULDER DITCH IN CUT SECTION
NOTES:

1. Yard drains to be constructed from concrete pipe or HDPE N-12 in accordance with ASTM C 14.

2. Cutout hole size is equal to outlet pipe outside diameter plus yard drain wall thickness.

3. Connection to outlet pipe to be mortared and made flush with inside of the yard drain wall.

4. Cast iron bell grate. Fits into bell recess and extends flush with face of bell. The grate shall have slots (holes) that constitute 50 percent open area for drainage. Inlet bell surface shall be finished to assure non-rocking fit with any cover position.

5. Washed drain rock. 6 inches minimum depth.

6. Varies 12 inches or 18 inches.

7. Special cast yard drain may be required for multiple pipe connections.

8. Clean outs are required for depths over 42 inches.

SEE TEXT SECTION 5-04.
PIPE ZONE BACKFILL (SEE NOTE 1)

GRAVEL BACKFILL FOR PIPE ZONE BEDDING (SEE NOTE 2)

FOUNDATION LEVEL

CONCRETE AND DUCTILE IRON PIPE

TRENCH WIDTH

6"  85% O.D.  (SEE NOTE 3)

15% O.D.

6"

PIPE ZONE BACKFILL (SEE NOTE 1)

GRAVEL BACKFILL FOR PIPE ZONE BEDDING (SEE NOTE 2)

FOUNDATION LEVEL

TRENCH WIDTH

6"  85% RISE

15% RISE

PIPE ZONE

TRENCH WIDTH

6"

THERMOPLASTIC PIPE

6"

FOUNDATION LEVEL

6"

METAL PIPE

6"

GRAVEL BACKFILL FOR PIPE ZONE BEDDING (SEE NOTE 2)

FOUNDATION LEVEL

PIECE ARCHES

CLEARANCE BETWEEN PIPES FOR MULTIPLE INSTALLATIONS

<table>
<thead>
<tr>
<th>PIPE</th>
<th>SIZE</th>
<th>MINIMUM DISTANCE BETWEEN BARRELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIRCULAR PIPE (DIAMETER)</td>
<td>12&quot; to 24&quot;</td>
<td>12&quot; DIA./2</td>
</tr>
<tr>
<td></td>
<td>30&quot; to 96&quot;</td>
<td>48&quot;</td>
</tr>
<tr>
<td></td>
<td>102&quot; to 180&quot;</td>
<td></td>
</tr>
<tr>
<td>PIPE ARCH METAL ONLY (SPAN)</td>
<td>18&quot; to 36&quot;</td>
<td>12&quot; SPAN/3</td>
</tr>
<tr>
<td></td>
<td>43&quot; to 142&quot;</td>
<td>48&quot;</td>
</tr>
<tr>
<td></td>
<td>148&quot; to 200&quot;</td>
<td></td>
</tr>
</tbody>
</table>

NOTES:

1. SEE WSDOT/APWA STANDARD SPECIFICATIONS SECTION 7–08.3(3) FOR PIPE ZONE BACKFILL.

2. SEE STANDARD SPECIFICATIONS SECTION 9–03.12(3) FOR GRAVEL BACKFILL FOR PIPE ZONE BEDDING

3. FOR SANITARY SEWER INSTALLATION, CONCRETE PIPE SHALL BE BEDDED TO SPRING LINE.

SEE TEXT SECTION 5–04.
NOTES:

1. THE CULVERT ENDS SHALL BE BEVELED TO MATCH THE SIDE SLOPE. FIELD CUT OF CULVERT ENDS IS PERMITTED, WHEN APPROVED BY THE ENGINEER.

2. ALL FIELD CUT CULVERT SHALL BE TREATED WITH TREATMENT AS SPECIFIED IN THE WSDOT/APWA SPECIFICATIONS.

3. CORRUGATED POLYETHYLENE PIPE IS PERMITTED WHEN BEVELED SLOPES ARE 4:1 OR STEEPER. FOR ANY PIPE SECTION THAT IS BEVELED ON THE END, THE MINIMUM LENGTH OF THE UNBEVELED PORTION OF THE PIPE SHALL BE 6 FEET.

SEE TEXT SECTION 5-04
NOTES:

1. CATCHBASINS TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA SPECIFICATIONS.

2. REINFORCING SHALL BE EQUIVALENT TO WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M221). WIRE FABRIC SHALL NOT BE PLACED IN THE KNOCKOUTS.

3. THE BOTTOM OF THE Precast Base Section MAY BE ROUNDED.

4. Precast Bases SHALL BE Furnished WITH CUTOUTs OR KNOCKOUTs. KNOCKOUTs SHALL HAVE A WALL Thickness OF 2" MINIMUM.

5. KNOCKOUTs MAY BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 20". KNOCKOUTs MAY BE EITHER ROUND OR "D" SHAPED. PIPE TO BE INSTALLED IN FACTORY SUPPLIED KNOCKOUTs.

6. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CONCRETE INLET WALL THICKNESS.

7. THE TAPER ON THE SIDES OF THE Precast Base Section AND RisER SECTION SHALL NOT EXCEED 1/2" PER FT.

8. CONCRETE INLET FRAME AND GrATE SHALL BE IN ACCORDANCE WITH THE WSDOT/APWA SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-8210. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT.

9. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.

SEE TEXT SECTION 5-06 WSDOT/APWA PLAN 1-A

LOCKING FRAME AND GrATE
(SEE STD DWG 5-180 FOR DETAILS)

2"X4"X8" SOLID BrICK USED FOR FINAL ADJUSTMENT TO GRADE. 6" HIGH MAX.

6" OR 12" CONCRETE RISER SECTION CLASS 4000 CONCRETE

Precast Base Section
(MEASUREMENT AT THE TOP OF THE BASE)
NOTES:

1. CATCHBASINS TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA SPECIFICATIONS.

2. REINFORCING SHALL BE EQUIVALENT TO WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M221). WIRE FABRIC SHALL NOT BE PLACED IN THE KNOCKOUTS.

3. THE BOTTOM OF THE PRECAST BASE SECTION MAY BE ROUNDED.

4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.

5. KNOCKOUTS MAY BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 28". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPED. PIPE TO BE INSTALLED IN FACTORY SUPPLIED KNOCKOUTS.

6. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CONCRETE INLET WALL THICKNESS.

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

8. CONCRETE INLET FRAME AND GRATE SHALL BE IN ACCORDANCE WITH THE WSDOT/APWA SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-6210. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT.

9. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.

SEE TEXT SECTION 5-06 WSDOT/APWA PLAN 1-A
NOTES:

1. AS AN ACCEPTABLE ALTERNATE TO REBAR, WIRE MESH HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WIRE MESH SHALL NOT BE PLACED IN KNOCKOUTS.

2. THE KNOCKOUT DIAMETER SHALL NOT BE GREATER THAN 16". KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM TO 2 1/2" MAXIMUM.

3. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT SHALL BE 5'.

4. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO ADJUSTMENT SECTION.

5. THE PRECAST BASE SECTION MAY HAVE A ROUNDED FLOOR AND THE WALLS MAY BE SLOPED AT A RATE OF 1:24 OR STEEPER.

6. OPENINGS SHALL BE MEASURED AT THE TOP OF THE PRECAST BASE SECTION.
NOTES

1. CATCHBASINS TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA SPECIFICATIONS.

2. HANDHOLDS IN RISER OR ADJUSTMENT SECTION SHALL HAVE A 3" MINIMUM CLEARANCE. STEPS IN CATCHBASIN SHALL HAVE 6" MINIMUM CLEARANCE. NO STEPS ARE REQUIRED WHEN "B" IS 4" OR LESS.

3. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL OBTAIN 4000 PSI @ 28 DAYS.

4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.

5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CATCHBASIN WALL THICKNESS. MAXIMUM HOLE SIZE IS 36" FOR 48" CATCHBASIN, 42" FOR 54" CATCHBASIN. MINIMUM DISTANCE BETWEEN HOLES IS 8".

6. FRAME AND GRATE OR RING AND COVER SHALL BE IN ACCORDANCE WITH WSDOT/APWA SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION 44-F-621D. MATTING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT.

7. ALL BASE REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.

8. THE BOTTOM OF THE PRECAST CATCHBASIN MAY BE ROUNDED.

9. FOR DETAILS SHOWING FRAME AND GRATE, RING AND COVER SEE STANDARD DRAWING 5-180, "METAL FRAME AND GRATE (20X24)" OR STANDARD DRAWING 5-230, "MANHOLE RING AND COVER".

10. FOR DETAILS SHOWING LADDER, STEPS, HANDRAIL AND TOP SLAB SEE STANDARD DRAWING 5-120, "CATCHBASIN DETAILS".

11. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.

WSDOT/APWA PLAN B-1e.

SEE TEXT SECTION 5-07
DESIGN ASSUMPTIONS
SOIL BEARING VALUE EQUALS 3300 PSF (MIN). WHERE
SOIL BEARING VALUE IS LESS THAN 3300 PSF, THE BASE
SHALL BE DESIGNED BY A STRUCTURAL ENGINEER.

FRAME AND GRATE OR RING AND COVER
(GRATE OR COVER SHALL BE LOCKING)
RISER OR ADJUSTMENT SECTION
HANDHOLDS
FLAT SLAB COVER
STEPS AND LADDER

20" X 24" OR
24" DIAMETER

MORTAR FILLET
48" DIA-6"
54" DIA-8"
6"

48" or 54"

2'-0"

SEPARATE CAST IN PLACE OR SEPARATE PRECAST BASE
REINFORCING STEEL (FOR SEPARATE BASE ONLY)
0.23 SQ IN/FT IN EACH DIRECTION FOR 48" DIA
0.19 SQ IN/FT IN EACH DIRECTION FOR 54" DIA

PRECasting BASE WITH INTEGRAL RISER

REINFORCING STEEL (FOR PRECAST BASE WITH INTEGRAL RISER)
0.19 SQ IN/FT IN EACH DIRECTION FOR 48" DIA
0.19 SQ IN/FT IN EACH DIRECTION FOR 54" DIA

GRAVEL BACKFILL FOR PIPE
BEDDING, 6" MIN COMPACTED
DEPTH, FOR PRECAST BASES ONLY.

SITES: COMMON EDDS EDDS DRAWINGS\Ch51090.dwg

SNOHOMISH COUNTY PUBLIC WORKS
5-090B CATCHBASIN TYPE 2 - 48" & 54"

APPROVED BY:
COUNTY ROAD ENGINEER
DATE
NOTES

1. CATCHBASINS TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA SPECIFICATIONS.

2. HANDHOLDS IN RISER OR ADJUSTMENT SECTION SHALL HAVE 3" MINIMUM CLEARANCE. STEPS IN CATCHBASIN SHALL HAVE 6" MINIMUM CLEARANCE. NO STEPS ARE REQUIRED WHEN "B" IS 4' OR LESS.

3. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL OBTAIN 4000 PSI @ 28 DAYS.

4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.

5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CATCHBASIN WALL THICKNESS. MAXIMUM HOLE SIZE IS 60" FOR 72" CATCHBASIN, 84" FOR 96" CATCHBASIN. MINIMUM DISTANCE BETWEEN HOLES IS 12".

6. FRAME AND GRATE OR RING AND COVER SHALL BE IN ACCORDANCE WITH WSDOT/APWA SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FITS.

7. ALL BASE REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.

8. THE BOTTOM OF THE PRECAST CATCHBASIN MAY BE ROUNDED.

9. FOR DETAILS SHOWING FRAME AND GRATE, RING AND COVER SEE STANDARD DRAWING 5-180, "METAL FRAME AND GRATE (20 X 24)" OR STANDARD DRAWING 5-230, "MANHOLE RING AND COVER".

10. FOR DETAILS SHOWING LADDER, STEPS, HANDRAIL AND TOP SLAB SEE STANDAR DRAWING 5-120, "CATCHBASIN DETAILS".

11. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.

WSDOT/APWA PLAN B-1f

SEE TEXT SECTION 5-07.
DESIGN ASSUMPTIONS

SOIL BEARING VALUE EQUALS 3300 PSF (MIN). WHERE
SOIL BEARING IS LESS THAN 3300 PSF, A GEOTECHNICAL
ENGINEER SHALL DESIGN THE BASE.

FRAME AND GRATE OR RING AND COVER
(GRATE OR COVER SHALL BE LOCKING)
RISE OR ADJUSTMENT SECTION
HANDHOLDS
FLAT SLAB COVER

STEPS AND LADDER

20" X 24" OR
24" DIAMETER

72" OR 96"

"8" (12 MAX)

MORTAR FILLET

72" DIA-6"
96" DIA-12"

*FOR SEPARATE CAST IN PLACE ONLY

"O" RING

PRECAB BASE JOINT

REINFORCING STEEL (FOR PRECAST BASE WITH INTEGRAL RISER)
0.24 SQ IN/FT IN EACH DIRECTION FOR 72" DIA
0.29 SQ IN/FT IN EACH DIRECTION FOR 96" DIA

PRECAB BASE WITH INTEGRAL RISER

GRAVEL BACKFILL FOR PIPE BEDDING
6" MIN COMPACTED DEPTH. FOR PRECAST BASES ONLY.

SEPARATE CAST IN PLACE OR SEPARATE PRECAST BASE

REINFORCING STEEL (FOR SEPARATE BASE ONLY)
0.35 SQ IN/FT IN EACH DIRECTION FOR 72" DIA
0.39 SQ IN/FT IN EACH DIRECTION FOR 96" DIA

SNOHOMISH COUNTY PUBLIC WORKS

5-100B CATCHBASIN TYPE 2 - 72" & 96"

APPROVED BY:

COUNTY ROAD ENGINEER

DATE

Steven E. Morrison 2-7-03
NOTES:

1. CONCRETE INLET TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA SPECIFICATIONS.

2. REINFORCING SHALL BE EQUIVALENT TO WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M221). WIRE FABRIC SHALL NOT BE PLACED IN THE KNOCKOUTS.

3. THE BOTTOM OF THE PRECAST BASE SECTION MAY BE ROUNDED.

4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.

5. KNOCKOUTS MAY BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 17". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPED. PIPE TO BE INSTALLED IN FACTORY SUPPLIED KNOCKOUTS.

6. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CONCRETE INLET WALL THICKNESS.

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

8. CONCRETE INLET FRAME AND GRATE SHALL BE IN ACCORDANCE WITH THE WSDOT/APWA SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT.

9. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.

SEE TEXT SECTION 5-06.
WSDOT/APWA PLAN B-26
NOTES:

1. PROPRIETARY CATCHBASIN STEPS ARE ACCEPTABLE, PROVIDED THEY CONFORM TO SECTION R, ASTM C 478 (AASHTO M 199) AND MEET ALL WISHA REQUIREMENTS.

2. CATCHBASIN STEP LEGS SHALL BE PARALLEL OR APPROXIMATELY RADIAL AT THE OPTION OF THE MANUFACTURER, EXCEPT THAT ALL STEPS IN ANY CATCH BASIN SHALL BE SIMILAR. PENETRATION OF OUTER WALL BY LEG IS PROHIBITED.

3. SLAB OPENING MAY BE 24" X 20" OR 24" DIAMETER.

4. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M 221).

SEE TEXT SECTION 5–06
DESIGN ASSUMPTIONS
HEIGHT 8’ TO 12’, BEARING VALUE EQUALS 3300 PSF (MIN). OVER 12’ TO 25’, SOIL BEARING VALUE EQUALS 3800 PSF (MIN). WHERE SOIL BEARING VALUE IS LESS THAN 3300 PSF, THE BASE SHALL BE DESIGNED BY A GEOTECHNICAL ENGINEER.

NOTES:
1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) UNLESS OTHERWISE SHOWN IN PLANS OR NOTED IN THE WSDOT/APWA SPECIFICATIONS.
2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3” MINIMUM CLEARANCE. STEPS IN MANHOLE SHALL HAVE 6” MINIMUM CLEARANCE. SEE STANDARD DRAWING 5-170, MANHOLE DETAILS.
3. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2” MINIMUM.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM HOLE SIZE IS 36” FOR 48” MANHOLE, 42” FOR 54” MANHOLE. MINIMUM DISTANCE BETWEEN HOLES IS 8”.
6. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH THE WSDOT/APWA SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
7. ALL BASE REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH A 1” MINIMUM CLEARANCE.
8. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HANDHOLDS AND TOP SLABS, SEE STANDARD DRAWING 5-170, MANHOLE DETAILS.
9. SEE THE WSDOT/APWA SPECIFICATIONS FOR JOINT REQUIREMENTS.
WSDOT/APWA PLAN B-23a
SEE TEXT SECTION 5-06
RING AND COVER (LOCKING)

ADJUSTMENT SECTION
LEVELING BRICKS OR GRADE RINGS OPTIONAL

PRECAST CONE (ECCENTRIC UNLESS OTHERWISE SPECIFIED). RISER SECTION WITH FLAT SLAB TOP MAY ALSO BE USED.

STEPS

PRECAST RISER SECTIONS

LADDER
SLOPE = 1/2"/FT (TYPICAL)
CONSTRUCT IN FIELD CHANNEL & SHELF TO CROWN OF PIPE.

REINFORCING STEEL
( FOR PRECAST BASE WITH INTEGRAL RISER)
0.15 SQ IN/FT IN EACH DIRECTION FOR 48" DIA.
0.19 SQ IN/FT IN EACH DIRECTION FOR 54" DIA.

PRECAST BASE WITH INTEGRAL RISER

GRAVEL BACKFILL FOR PIPE BEDDING.
6" MIN COMPACTED DEPTH FOR PRECAST BASES ONLY.

"O" RING
FOR SEPARATE CAST IN PLACE ONLY

MORTAR FILLET

48" DIA-6"
54" DIA-8"

SEPARATE CAST IN PLACE OR SEPARATE PRECAST BASE
REINFORCING STEEL (FOR SEPARATE BASE ONLY)
0.23 SQ IN/FT IN EACH DIRECTION FOR 48" DIA.
0.19 SQ IN/FT IN EACH DIRECTION FOR 54" DIA.

SNOHOMISH COUNTY PUBLIC WORKS
5-130B MANHOLE TYPE 1 - 48" & 54"

APPROVED BY:

COUNTY ROAD ENGINEER

DATE
DESIGN ASSUMPTIONS

HEIGHT 8' TO 12', SOIL BEARING VALUE EQUALS 3300 PSF (MIN). OVER 12' TO 25', SOIL BEARING VALUE EQUALS 3800 PSF (MIN). WHERE SOIL BEARING VALUE IS LESS THAN 3300 PSF, THE BASE SHALL BE DESIGNED BY A GEOTECHNICAL ENGINEER.

NOTES:

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASH-TO M 199) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA SPECIFICATIONS.

2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3” MINIMUM CLEARANCE. STEPS IN MANHOLE SHALL HAVE 6” MINIMUM CLEARANCE. SEE STANDARD DRAWING 5-170, MANHOLE DETAILS.

3. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.

4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCK-OUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2” MINIMUM.

5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM HOLE SIZE IS 60” FOR 72” MANHOLE, 84” FOR A 96” MANHOLE. MINIMUM DISTANCE BETWEEN HOLES IS 12”.

6. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH THE WSDOT/APWA SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.

7. ALL BASE REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH A 1” MINIMUM CLEARANCE.

8. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HANDHOLDS AND TOP SLABS, SEE STANDARD DRAWING 5-170, MANHOLE DETAILS.

9. SEE THE WSDOT/APWA SPECIFICATIONS FOR JOINT REQUIREMENTS.

WSDOT/APWA PLAN B-23b

SEE TEXT SECTION 5-06
DESIGN ASSUMPTIONS

HEIGHT 8’ TO 12’, SOIL BEARING VALUE EQUALS 3300 PSF (MIN). OVER 12’ TO 25’, SOIL BEARING VALUE EQUALS 3800 PSF (MIN). WHERE SOIL BEARING VALUE IS LESS THAN 3300 PSF, A GEOTECHNICAL ENGINEER SHALL DESIGN THE BASE.

NOTES:

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) UNLESS OTHERWISE SHOWN IN PLANS OR NOTED IN THE WSDOT/APWA SPECIFICATIONS.

2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3” MINIMUM CLEARANCE. STEPS IN MANHOLE SHALL HAVE 6” MINIMUM CLEARANCE. SEE STANDARD DRAWING 5–170, MANHOLE DETAILS.

3. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON–REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.

4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCK–OUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2” MIN.

5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM HOLE SIZE IS 35” FOR 48” MANHOLE, 42” FOR 54” MANHOLE, 60” FOR FOR 72” MANHOLE, 84” FOR 96” MANHOLE. MINIMUM DISTANCE BETWEEN HOLES IS 12”.

6. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH THE WSDOT/APWA SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR–F–621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON–ROCKING FIT WITH ANY COVER POSITION.

7. ALL BASE REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH A 1” MINIMUM CLEARANCE.

8. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HAND–HOLDS AND TOP SLABS, SEE STANDARD DRAWING 5–170, MANHOLE DETAILS.

9. SEE THE WSDOT/APWA SPECIFICATIONS FOR JOINT REQUIREMENTS.

WSDOT/APWA PLAN B–23c
SEE TEXT SECTION 5–06
NOTES:

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) UNLESS OTHERWISE SHOWN IN PLANS OR NOTED IN THE WSDOT/APWA SPECIFICATIONS.

2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MINIMUM CLEARANCE. STEPS IN MANHOLE SHALL HAVE 6" MINIMUM CLEARANCE. SEE STANDARD DRAWING 5−170, MANHOLE DETAILS.

3. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON−REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.

4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.

5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM HOLE SIZE IS 36" FOR 48" MANHOLE, 42" FOR 54" MANHOLE. MINIMUM DISTANCE BETWEEN HOLES IS 8".

6. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH THE WSDOT/APWA SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR−F−621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON−ROCKING FIT WITH ANY COVER POSITION.

7. ALL BASE REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH A 1" MINIMUM CLEARANCE.

8. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HANDHOLDS AND TOP SLABS, SEE STANDARD DRAWING 5−170, MANHOLE DETAILS.

SEE TEXT SECTION 5−06.

WSDOT/APWA PLAN B−23d
NOTES:

1. PROPRIETARY MANHOLE STEPS ARE ACCEPTABLE PROVIDED THAT THEY CONFORM TO SECTION R, ASTM C 478 (AASHTO M 199) AND MEET ALL WISHA REQUIREMENTS.

2. MANHOLE STEP LEGS SHALL BE PARALLEL OR APPROXIMATELY RADIAL AT THE OPTION OF THE MANUFACTURER, EXCEPT THAT ALL STEPS IN ANY MANHOLE SHALL BE SIMILAR. PENETRATION OF OUTER WALL BY A LEG IS PROHIBITED.

SEE TEXT SECTION 5-06
WSDOT/APWA PLAN B-24

SNOHOMISH COUNTY PUBLIC WORKS
MANHOLE DETAILS

APPROVED BY:

COUNTY ROAD ENGINEER

DATE
NOTES:

1. FOR INSTALLATION ON ARTERIALS, FOR NON-ARTERIALS AN ALTERNATE METAL FRAME AND GRATE (18" X 24") MAY BE USED. (REFER TO KING CO. STANDARD DRAWINGS 41 AND 42.)

2. WELDING NOT PERMITTED.

3. FOUNDRY NAME SHALL BE EMBOSSED ON GRATE.

4. "OUTFALL TO STREAM DUMP NO POLLUTANTS" SHALL BE EMBOSSED ON GRATE IN LOCATION SHOWN. 1/2" MINIMUM SIZE LETTERS.

5. "THIS SIDE TO CURB " SHALL BE EMBOSSED ON GRATE IN LOCATION SHOWN. 1/2" MINIMUM SIZE LETTERS.

6. GRATE MATERIAL SHALL BE DUCTILE IRON.

WSDOT/APWA PLAN B-2a
SEE SECTION 5-07
NOTES:
1. MATERIAL USED SHALL BE DUCTILE IRON PER ASTM-A536, GRADE 80-55-06, WITH BITUMINOUS COATING.
2. WHEN LOCKING GRATE REQUIRED HOLES WILL BE PROVIDED IN CASTING TO ALLOW FOR TWO 5/8" DIA STAINLESS STEEL, SOCKET HEAD CAP SCREWS. NO PART OF SCREW WILL PROTRUDE ABOVE GRATE.
3. GRATE TO BE USED WITH FRAME SHOWN IN STD DWG 5-180.
4. GRATE SEATING: 8 INTEGRALLY CAST PADS.
5. CAST POCKET LIFT HANDLE.
6. NON-SKID DIAMOND PATTERN APPROX 2-1/2" x 1" x 1/8" HIGH

SEE TEXT SECTION 5-07
WSDOT/APWA PLAN B-2
NOTES:

1. MATERIAL USED SHALL BE DUCTILE IRON PER ASTM—A536, GRADE 80—55—06, WITH BITUMINOUS COATING.

2. WHEN LOCKING GRATE REQUIRED HOLES WILL BE PROVIDED IN CASTING TO ALLOW FOR TWO 5/8" DIA STAINLESS STEEL, SOCKET HEAD CAP SCREWS. NO PART OF SCREW WILL PROTRUDE ABOVE GRATE.

3. GRATE TO BE USED WITH FRAME SHOWN IN STD DWG 5-180.

SEE TEXT SECTION 5-07
WSDOT/APWA PLAN B-2b
NOTES:

1. GRATE SHALL EITHER BE STANDARD GRATE (STD DWG 5-180) OR VANED GRATE (STD DWG 5-200).

2. GRATE SHALL BE LOCKED DOWN WITH (2) 5/8" STAINLESS STEEL SOCKET HEAD CAP SCREWS.

3. LEVELING PADS 1 1/2"X 3/4"X 1/8" SHALL BE USED.


5. INSTALL 3/16" NON-SKID DIAMOND PATTERN ON TOP SURFACE OF HOOD.

6. BOLT, WASHER, AND NUT SHALL BE GALVANIZED OR CORROSION RESISTANT.

7. FOR INSTALLATION ON ARTERIALS, FOR NON-ARTERIALS, ALTERNATE THROUGH CURB INLET FRAMES FOR 18" X 24" GRATES MAY BE INSTALLED. SEE STANDARD DRAWINGS 5-220A AND 5-220B.

TEXT SECTION 5-07
NOTES:
1. MATERIAL IS CAST IRON ASTM A48 CLASS 30.
2. THE WORDS "PROPERTY OF SNOHOMISH COUNTY" SHALL BE OMITTED IF ON A PRIVATE SYSTEM.
3. NOT TO BE USED ON THICKENED EDGE ROADWAYS.

SEE TEXT SECTION 5-07

SNOHOMISH COUNTY PUBLIC WORKS
5-220A ROLLED CURB FRAME & GRATE

APPROVED BY:...
COUNTY ROAD ENGINEER DATE
NOTES:

1. SET FRAME TO GRADE AND CONSTRUCT ROAD AND CURB TO BE FLUSH AT FRONT AND BACK OF FRAME.

2. SEE SECTION 5-07.

3. THE WORDS "PROPERTY OF SNOHOMISH COUNTY" SHALL BE OMITTED IF GRATE IS ON PRIVATE SYSTEM.

4. NOT TO BE USED ON THICKENED EDGE ROADWAYS.
NOTES:

1. MATERIAL IS CAST IRON ASTM A48 CLASS 30.

2. THE WORDS "PROPERTY OF SNOHOMISH COUNTY" SHALL BE OMITTED IF ON A PRIVATE SYSTEM.

SEE TEXT SECTION 5-07.
NOTES:

1. COVER SHALL BE LOCKED DOWN WITH (3) 5/8" STAINLESS STEEL SOCKET HEAD CAP SCREWS. DRILL (3) 11/16" HOLES IN COVER SPACED AT 120 DEGREES AND 3/4" IN FROM EDGE OF COVER.

2. MATERIAL IS DUCTILE IRON ASTM A 536 GRADE 80–55–06.

SEE TEXT SECTION 5–07.
NOTES:

1. EXCEPT AS SHOWN OR NOTED, UNITS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS FOR CATCHBASIN TYPE 2 54" MINIMUM DIAMETER.

2. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HANDHOLDS AND TOP SLABS, SEE STD DWG 5-120, CATCHBASIN DETAILS.

3. THE RESTRICTOR/SEPARATOR AND PIPE SUPPORTS SHALL BE OF THE SAME MATERIAL AND SHALL BE FABRICATED FROM 0.060" ALUMINUM OR 0.064" ALUMINIZED STEEL OR 0.064" GALVANIZED STEEL PIPE IN ACCORDANCE WITH AASHTO M 36, M 196, M197 AND M274. GALVANIZED STEEL SHALL HAVE TREATMENT 1.

4. OUTLET SHALL BE CONNECTED TO CULVERT OR SEWER PIPE WITH A STANDARD COUPLING BAND FOR CORRUGATED METAL PIPE OR GROUTED INTO THE BELL OF CONCRETE PIPE.

5. THE VERTICAL RISER STEM OF THE RESTRICTOR/SEPARATOR SHALL BE THE SAME DIAMETER AS THE HORIZONTAL OUTLET PIPE WITH A 8" MINIMUM SIZE.

6. FRAME AND LADDER OR STEPS TO BE OFFSET SO THAT (1) CLEANOUT GATE IS VISIBLE FROM TOP. (2) CLIMB-DOWN SPACE IS CLEAR OF RISER AND CLEANOUT GATE. (3) FRAME IS CLEAR OF CURB (IF ANY EXIST).

7. MULTI-ORIFICE ELBOWS MAY BE LOCATED AS SHOWN ON ONE SIDE OF RISER TO ASSURE LADDER CLEARANCE. SIZE OF ELBOWS TO BE DETERMINED BY THE ENGINEER.

8. RESTRICTOR PLATE WITH ORIFICE AS SPECIFIED IN THE PLANS. OMIT PLATE IF ONLY FOR POLLUTION CONTROL SPECIFIED OPENING TO BE CUT ROUND AND SMOOTH.

9. CLEANOUT GATE/SHEAR GATE:
ALUMINUM ALLOY PER ASTM B26-ZG32A OR CAST IRON ASTM A48 CLASS 30B AS REQUIRED.
LIFT HANDLE EITHER SOLID OR TUBING WITH ADJUSTABLE HOOK AS REQUIRED.
NEOPRENE RUBBER GASKETS REQUIRED BETWEEN FLANGES.

10. ALTERNATE CLEANOUT GATES/SHEAR GATES TO THE DESIGN SHOWN ON STD DWG 5-250 ARE ACCEPTABLE PROVIDED THEY MEET THE MATERIAL SPECIFICATIONS ABOVE AND HAVE A SIX BOLT, 10 3/8" BOLT CIRCLE FOR BOLTING TO THE FLANGE CONNECTION. 5/8" DIAMETER STAINLESS STEEL EXPANSION BOLTS SHALL BE USED.

11. RESTRICTOR TEES MAY BE FABRICATED (EXTRUSION WELDED) FROM DOUBLE WALLED (SMOOTH INTERIOR) CORRUGATED POLYETHYLENE PIPE MEETING THE REQUIREMENTS OF SECTION 5-04.H OF THESE STANDARDS. PIPE SUPPORTS FOR RESTRICTOR SHALL BE FABRICATED FROM THOSE MATERIALS LISTED IN NOTE 3 ABOVE. THE OUTLET SHALL BE CONNECTED TO CULVERT OR SEWER PIPE WITH A PREMIUM COUPLING, BY USING A HEAT SHRINK ADAPTER TO OTHER TYPES OF PIPE, OR BY FABRICATING A SMOOTH OR TAPERED OUTLET TO SLIP INSIDE OF THE CULVERT OR SEWER PIPE.

WSDOT/APWA PLAN B-3
SEE TEXT SECTION 5-09
OVERFLOW ELEVATION
TO PROVIDED DETENTION
AND OIL SEPARATION
PER PLANS

ROUND MANHOLE
COVER MARKED
"DRAIN" WITH LOCKING
BOLTS

HANDHOLD

CAP

SEE NOTE 3: PIPE
SUPPORTS 3" X .075"
STEEL

STEPS OR
LADDER

LIFT ROD W/HANDLE,
WITH SHEAR GATE CLOSED
HANDLE SHOULD ATTACH TO
TOP HANDHOLD/LADDER RUNG.

CLEANOUT
SHEAR GATES
8" DIA. MIN.

METAL PIPE
(SEE NOTE 4)

OUTLET

SEE NOTE 3: PIPE
SUPPORTS 3" X .075"
STEEL

INLET

2' MIN. CLEARANCE

48" MIN. DIA

4' MAX

TYPE 2 CATCHBASIN
SECTION A-A

PLAN VIEW
CLEANOUT/SHEAR GATE

ALTERNATES ARE ACCEPTABLE PROVIDED MATERIAL SPECIFICATIONS ARE MET AND FLANGE BOLT PATTERN MATCHES.

SEE TEXT SECTION 5-09.
NOTES:
SEE TEXT SECTION 5-12.

SNOHOMISH COUNTY PUBLIC WORKS

5-260 LEVEL SPREADER TRENCH

APPROVED BY:

DATE
NOTCHED GRADE BOARD 2"x2" NOTCHES 18" O.C.

END CAP OR PLUG

CLEAN OUTWYE FROM PIPE

4" OR 6" PERFORATED PIPE LAI TR FLAT/LEVEL

TYPE 1 CB WITH SOLID COVER (LOCKING)

INFLUENT PIPE (MAX DESIGN FLOW ≤ 0.5 CFS PER TRENCH)

PLAN

NOTES:
1. THIS TRENCH SHALL BE CONSTRUCTED SO AS TO PREVENT POINT DISCHARGE AND/OR EROSION.
2. TRENCHES MAY BE PLACED NO CLOSER THAN 50 FEET TO ONE ANOTHER. (100 FEET ALONG FLOWLINE)
3. TRENCH AND GRADE BOARD MUST BE LEVEL. ALIGN TO FOLLOW CONTOURS OF SITE.
4. SUPPORT POST SPACING AS REQUIRED BY SOIL CONDITIONS TO ENSURE GRADE BOARD REMAINS LEVEL.

SNOHOMISH COUNTY PUBLIC WORKS

5-270 BUBBLE-UP SPREADER

APPROVED BY: [Signature] 10-1-04
COUNTY ROAD ENGINEER DATE
1. BIOFILTRATION SWALES THAT PROVIDE STORMWATER TREATMENT FOR PRIVATE DEVELOPMENT ARE REQUIRED BY CHAPTER 30.63A SCC TO BE PLACED IN SEPARATE TRACTS AND SHALL NOT BE LOCATED IN PUBLIC RIGHT-OF-WAY.

2. LOCATE BIOFILTRATION SWALES WITHIN SEPARATE TRACTS OF LAND "OFF-LINE" FROM THE MAIN ROADWAY STORMWATER CONVEYANCE CHANNEL.

3. GRASS HEIGHT OF 6 INCHES OR LESS. VARIATION OF VEGETATIVE PLANTING MUST BE APPROVED BY THE ENGINEER.

4. FLOW DEPTH SHALL BE 0.25 FEET MAXIMUM.

5. CHANNEL SLOPE SHALL BE 0.005 TO 0.040.

6. SLOPES LESS THAN 2 PERCENT ALLOWED IF UNDERDRAINS ARE PLACED BENEATH THE CHANNEL TO PREVENT PONDING.

7. SLOPES GREATER THAN 4 PERCENT ALLOWED IF CHECK DAMS ARE PLACED IN THE CHANNEL TO SLOW FLOWS.

8. FOR FURTHER INFORMATION REFER TO CHAPTER III-6 OF THE STORMWATER MANAGEMENT MANUAL FOR THE PUGET SOUND BASIN PUBLISHED BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY.

SEE TEXT SECTION 5-13.
CHAPTER 6 DRAWING INDEX

6-010  Urban Standard - Transition at Bridge
6-020  Rural Standard - Transition at Bridge
6-030A Typical Bridge Approach Slab
6-030B Typical Bridge Approach Slab
6-040  Standard Bridge Rail
NOTES:

1. GUARDRAIL TAPERS 9:1 MIN.

2. GUARDRAIL NOT REQUIRED WHEN POSTED SPEED IS LESS THAN 35 M.P.H.

3. OPTIONS A AND B ILLUSTRATE PLANTER STRIP END TREATMENT.

4. REFER TO WSDOT STANDARD PLANS AND SPECIFICATIONS FOR ADDITIONAL DETAILS.

SEE TEXT SECTION 6-03.
NOTES:

1. FLARED TERMINAL PREFERRED. REFER TO WSDOT STANDARD PLANS C–3, C–4B, AND C–5. LENGTH = 50 FT. MIN. FOR POSTED SPEED ≤40 MPH. LENGTH = 60 FT. MIN. FOR POSTED SPEED ≥45 MPH.

2. REFER TO WSDOT STANDARD PLANS C–3, C–4E, AND C–5. LENGTH = 50 FT. MIN. FOR POSTED SPEED ≤40 MPH. LENGTH = 70 FT. MIN. FOR POSTED SPEED ≥45 MPH.

3. REFER TO WSDOT STANDARD PLAN C–2F.

SEE TEXT SECTION 6–03.
TYPICAL LONGITUDINAL CONSTRUCTION JOINT

EDGE FIRST POUR ONLY WITH 1/2" RADIUS.

N.T.S.

NOTE:
1. ALL EDGES OF APPROACH SLAB SHALL HAVE 1/2" RADIUS.
2. G = GALVANIZED REINFORCING STEEL

SNOHOMISH COUNTY PUBLIC WORKS

6-030A TYPICAL BRIDGE APPROACH SLAB

APPROVED BY:

COUNTY ROAD ENGINEER

DATE
WRAP BLOCK 2 TIMES WITH DUCT TAPE
3/4" Ø ANCHOR ROD

3/4" X 2 1/2" SQUARE PLATE WITH DRILLED 13/16" HOLE IN CENTER
3/4" X 4" SQUARE POLYSTYRENE (DRILLED & CUT TO FIT ANCHOR HEAD)

ANHCOR HEAD DETAIL
N.T.S.

1/4" X 2 1/2" SQUARE PLATE WITH 2 NUTS
1" Ø X 1'-0" LONG POLYETHYLENE OR PVC PIPE

1 5/8" INSTALLATION WIDTH (NORMAL TO PAVEMENT SEAT) FOR 2 1/2" COMPRESSION SEAL
1/2" PREMOLDED JOINT FILLER

* FULLY COMPRESSED SEAL HEIGHT, SEAL HEIGHT VARIES WITH MANUFACTURER VERIFY PRIOR TO SLAB CONSTRUCTION

COMPRESSION SEAL DETAIL
N.T.S.

10" MIN. EMBED.

3/4" Ø X 2'-0" ANCHOR ROD THREADED 3" MIN ON END AWAY FROM ANCHOR HEAD
SEE ANCHOR HEAD DETAIL

STEEL TROWELED FINISH, COVER WITH ONE LAYER 15# ASPHALTIC BUILDING FELT

PREMOLDED JOINT FILLER
1/2" THICK X FULL LENGTH OF JOINT BENEATH COMPRESSION SEAL

BENDING DETAIL FOR QUANTITIES
N.T.S.

<table>
<thead>
<tr>
<th>APPROXIMATE QUANTITIES</th>
<th>AMOUNT</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLAB GALVANIZED REINFORCING BARS (TOP MAT)</td>
<td>15.645</td>
<td>LBS/SY</td>
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<td>SLAB REINFORCING BARS (BOTTOM MAT)</td>
<td>28.161</td>
<td>LBS/SY</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>0.361</td>
<td>CY/SY</td>
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</tbody>
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NOTE:
PAINT METAL COMPONENTS OF APPROACH ANCHOR WITH ONE COAT OF INORGANIC ZINC OR FORMULA A-11-99 PAINT IN ACCORDANCE WITH STD. SPEC. 9-08.2.

APPROVED BY:
SNOHOMISH COUNTY PUBLIC WORKS
6-030B TYPICAL BRIDGE APPROACH SLAB
COUNTY ROAD ENGINEER DATE
1/2" GOOSENECK BARS BOLTED TO POST WEB (1 PER SIDE)

Ø 3/4" DIA. X 2" THREAD STUDS WITH HEX NUTS, HARDENED WASHERS, AND LOCK WASHERS AUTOMATICALLY END WELDED TO TUBE (2 PER RAIL PER POST)

Ø 5/8" DIA. X 2 1/4" H.S. BOLTS (A325) & NUT W/ WASHER (2 PER POST)

NOTE:

1. THIS RAIL MEETS ALL REQUIREMENTS FOR BICYCLE AND PEDESTRIAN RAILS PER Sections 2.7.2 AND 2.7.3. OF AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

2. THIS RAIL IS CERTIFIED BY FHWA FOR LEVEL TL-4 CRASH WORTHINESS.

3. FOR CONNECTION TO GUARDRAIL USE WSDOT STANDARD PLANS C-7A AND C-3 TYPE 1A.

SNOHOMISH COUNTY PUBLIC WORKS

6-040 STANDARD BRIDGE RAIL

APPROVED BY: [Signature]
COUNTY ROAD ENGINEER
DATE: 2-10-03
### CHAPTER 7 DRAWING INDEX

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-010</td>
<td>Centerlines</td>
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<tr>
<td>7-020</td>
<td>Centerlines</td>
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<tr>
<td>7-030</td>
<td>Centerlines</td>
</tr>
<tr>
<td>7-040</td>
<td>Two Way Left Turn Lane</td>
</tr>
<tr>
<td>7-050</td>
<td>Lane Lines/Drop Lane Stripes</td>
</tr>
<tr>
<td>7-060</td>
<td>Typical Lane Reduction Transition Markings</td>
</tr>
<tr>
<td>7-070</td>
<td>Walkway and Edge Lines</td>
</tr>
<tr>
<td>7-080</td>
<td>Bike Lane Stripe/Markings</td>
</tr>
<tr>
<td>7-090</td>
<td>Gore Stripes</td>
</tr>
<tr>
<td>7-100</td>
<td>Stop Bars</td>
</tr>
<tr>
<td>7-110</td>
<td>Crosswalk Detail</td>
</tr>
<tr>
<td>7-120</td>
<td>Railroad Crossing</td>
</tr>
<tr>
<td>7-130</td>
<td>Pavement Markings</td>
</tr>
<tr>
<td>7-140</td>
<td>Misc. Pavement Markings (Typical)</td>
</tr>
<tr>
<td>7-150</td>
<td>Bus Pullout Markings</td>
</tr>
<tr>
<td>7-160A</td>
<td>Raised Pedestrian Crosswalk</td>
</tr>
<tr>
<td>7-160B</td>
<td>Raised Pedestrian Crosswalk Sections</td>
</tr>
<tr>
<td>7-160C</td>
<td>Raised Pedestrian Crosswalk Details</td>
</tr>
<tr>
<td>7-170</td>
<td>Speed Hump</td>
</tr>
</tbody>
</table>
GENERAL NOTES:
1. PAINT IS USED FOR PAVEMENT MARKINGS ON NON-ARTERIAL ROADS.

2. RAISED PAVEMENT MARKERS (RPMs) OR A COMBINATION OF PAINT AND RPMs ARE USED ON ARTERIAL ROADS.

3. CENTERLINE MARKINGS SHALL BE PLACED ON URBAN ARTERIALS AND COLLECTORS GREATER THAN 20 FEET WIDE WITH ADT>6000. CENTERLINE MARKINGS SHALL ALSO BE PLACED ON ALL ROADS WITH THREE OR More TRAFFIC LANES.

NOTE:
TWO-DIRECTION NO-PASSING ZONE MARKINGS CONSIST OF TWO NORMAL SOLID YELLOW LINES. USED WHERE CROSSING THE CENTERLINE MARKINGS FOR PASSING IS PROHIBITED FOR TRAFFIC TRAVELING IN EITHER DIRECTION.
NOTE:
ONE-DIRECTION NO-PASSING ZONE MARKINGS CONSIST OF A NORMAL BROKEN YELLOW LINE AND A NORMAL SOLID YELLOW LINE. USED WHERE CROSSING THE CENTERLINE MARKINGS FOR PASSING WITH CARE IS PERMITTED FOR THE TRAFFIC TRAVELING ADJACENT TO THE BROKEN LINE, BUT IS PROHIBITED FOR TRAFFIC TRAVELING ADJACENT TO THE SOLID LINE.
PAINT (NON-ARTERIAL)

YELLOW PAINT

PAINT AND RPM (ARTERIAL)

RAISED PAVEMENT MARKER TYPE 2YY

YELLOW PAINT

TWO-LANE, TWO-WAY TRAVEL
WITH PASSING PERMITTED
4" WHITE PAINT
PAINT (NON-ARTERIAL)

80' RAISED PAVEMENT MARKER TYPE 2W
RAISED PAVEMENT MARKER TYPE 1W
RPM (ARTERIAL)

WHITE PAINT
PAINT (NON-ARTERIAL)

VARYING

2' 8'
RAISED PAVEMENT MARKER TYPE 1W
RPM (ARTERIAL)

2' 6'

LANE LINES

DROP LANE STRIPES
FROM 3 LANES TO 2 LANES

W4-2 (L OR R)

D/4

D

STANDARD:
The minimum taper length shall be 100 feet in urban areas and 200 feet in rural areas.

FORMULA WHEN POSTED SPEED IS:
≥45 MPH, L = WS.
<45 MPH, L = W5Y60.

VARIABLE LEGEND:
L = LENGTH IN FEET
S = POSTED SPEED OR 85TH PERCENTILE SPEED, WHICHEVER IS GREATER.
W = OFFSET IN FEET
D = ADVANCE WARNING DISTANCE. SEE SECTION 2C.05 OF MUTCD FOR PLACEMENT.

SNOHOMISH COUNTY PUBLIC WORKS
7-060 TYPICAL LANE REDUCTION TRANSITION MARKINGS

APPROVED BY:
COUNTY ROAD ENGINEER
DATE

03/20/01
NOTE:

1. EDGE LINE MARKINGS SHALL BE PLACED ON PAVED ARTERIALS WITH A TRAVELED WAY OF 17 FEET OR WIDER.

2. EDGE LINE MARKINGS SHALL BE PLACED ON PAVED ROADS OR HIGHWAYS WITH THE FOLLOWING CHARACTERISTICS: RURAL ARTERIALS AND COLLECTORS WITH A TRAVELED WAY OF 20 FEET OR WIDER AND AN ADT >3,000

3. EDGE LINE MARKINGS MAY BE PLACED ON ROADS AND HIGHWAYS THAT DO NOT HAVE CENTERLINE MARKINGS.
WORD MARKINGS

NOTE:
1. BICYCLE LANE MARKINGS SHALL BE USED IN CONJUNCTION WITH BICYCLE LANE SIGNAGE.
2. BICYCLE LANE SIGNS (R3-16) SHALL BE USED IN ADVANCE OF THE BEGINNING OF A MARKED BICYCLE LANE.
WHITE THERMOPLASTIC OR PAINT

RAISED PAVEMENT MARKERS TYPE 2WR

DIRECTION OF TRAFFIC

PAINT & RPM (NON-ARTERIAL)

RAISED PAVEMENT MARKER TYPE 1W

RAISED PAVEMENT MARKER TYPE 2W

RPM (ARTERIAL)
WHITE THERMOPLASTIC

12"

NON-ARTERIAL

WHITE THERMOPLASTIC

24"

ARTERIAL
SOME PORTION OF THIS PAVEMENT MARKING SYMBOL SHOULD BE ADJACENT TO THE W10-1 SIGN.

LANE LINE OR NO PASSING CENTERLINE IS REQUIRED THROUGH THE ENTIRE CROSSING SYMBOL.

SEE MUTCD SECTION 2C-3, TABLE II-1e

RAILROAD - HIGHWAY GRADE CROSSINGS
PAVEMENT MARKING PLACEMENT DETAIL

KEY
1. RR CROSSING SYMBOL
2. 24" STOP BAR
3. W10-1 ADVANCE WARNING SIGN
4. SEE "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING"
5. 24" TRANSVERSE MARKING.

SNOHOMISH COUNTY PUBLIC WORKS
7-120
RAILROAD CROSSING

APPROVED BY:

COUNTY ROAD ENGINEER
DATE
TURN AND THROUGH LANE-USE ARROW

TURN LANE-USE ARROW

THROUGH LANE-USE ARROW

LANE-REDUCTION ARROW

WRONG WAY ARROW

5 SPACES AT 4.75 FT.

27.75 INCHES

4 SPACES AT 27.25 IN.

SNOHOMISH COUNTY PUBLIC WORKS

7-130

PAVEMENT MARKINGS

APPROVED BY:

SHERWOOD E. MURDOCH

COUNTY ROAD ENGINEER

DATE: 2-10-03
RAISED PAVEMENT MARKERS TYPE 1W

GUIDE SPOTS

LANE

6"   12'

WHITE THERMOPLASTIC OR PAINT

PREFERENTIAL LANE SYMBOL

HANDICAPPED PARKING
STALL SYMBOL

WHITE THERMOPLASTIC
OR PAINT

LENGTH AND WIDTH VARY WITH APPLICATION

RAISED PAVEMENT MARKERS TYPE 1W

RUMBLE STRIP

SNOHOMISH COUNTY PUBLIC WORKS
7-140 MISC. PAVEMENT MARKINGS (TYPICAL)

APPROVED BY:
COUNTY ROAD ENGINEER

2-10-03

03/20/01
NOTES:
1. FAR-SIDE BUS STOPS ARE PREFERRED ALTERNATIVE. NEAR-SIDE OR MID-BLOCK LOCATIONS MAY BE APPROVED ON A CASE BY CASE BASIS. REFER TO WSDOT DESIGN MANUAL, CHAPTER 1060.

2. THIS DRAWING REPRESENTS A TYPICAL DESIGN FOR PAVEMENT MARKINGS. BUS PULLOUT DESIGN DETAILS ARE PROVIDED IN TEXT SECTION 3-13 AND STANDARD DRAWING 3-150.
NOTES:
1. ADVANCE WARNING SIGNS SHALL BE PLACED A MINIMUM OF 150 FEET IN ADVANCE OF THE CROSSWALK.

2. SECTIONS A–A AND B–B ARE SHOWN ON STANDARD DRAWINGS 7–160B AND 7–160C RESPECTIVELY.
OPTION 1 VERTICAL CURB
N.T.S.

OPTION 2 ROLLED CURB
N.T.S.

NOTE:
ROLLED CURB MAY BE USED ONLY IN RURAL AREAS WHERE SPECIFICALLY APPROVED BY THE ENGINEER. OPTION 2 IS PROVIDED FOR RETROFIT PROJECTS.
DETAIL 1
VERTICAL CURB AND STEEL CHANNEL

DETAIL 2
ROLLED CURB AND STEEL CHANNEL

RAISED CROSSWALK CROSS SECTION

NOTE:
ROLLED CURB MAY BE USED ONLY IN RURAL AREAS WHERE SPECIFICALLY APPROVED BY THE ENGINEER. DETAIL 2 IS PROVIDED FOR RETROFIT PROJECTS.
NOTES:
1) FLAGS TO BE REMOVED 60 DAYS AFTER INSTALLATION.
2) TEMPLATE SHALL BE USED FOR CONSTRUCTION OF THE SPEED BUMP USING DIMENSIONS AS SHOWN IN SECTION A-A.
3) MAXIMUM HEIGHT AT PARABOLIC CROWN SHALL BE NO MORE THAN 3.50 INCHES AFTER COMPACTION WITH AN ACCEPTABLE TOLERANCE TO A MINIMUM OF 3.25".

SECTION A-A

SPEED BUMP MARKINGS SHALL BE A SERIES OF WHITE MARKINGS PLACED ON A SPEED BUMP TO IDENTIFY ITS LOCATION.

APPROPRIATE ADVANCE WARNING SIGNS SHALL BE USED IN CONFORMANCE WITH SECTION 2C.22 OF THE M.U.T.C.D.

SECTION B-B

SHOULDER DETAIL FOR STREETS WITHOUT CURBS

SECTION B-B

SHOULDER DETAIL FOR STREETS WITH CURBS

SNOHOMISH COUNTY PUBLIC WORKS
7-170
SPEED HUMP

7-170
SPEED HUMP

APPROVED BY:
STEVE E. MONTEO 4-17-03
COUNTY ROAD ENGINEER  DATE
### CHAPTER 8 DRAWING INDEX

<table>
<thead>
<tr>
<th>8-010</th>
<th>Typical Utility Locations - Shoulder Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-020</td>
<td>Typical Utility Locations - Curb Section</td>
</tr>
<tr>
<td>8-030</td>
<td>Utility Trench Restoration and Backfill</td>
</tr>
<tr>
<td>8-040</td>
<td>General R/W Restoration Requirements</td>
</tr>
</tbody>
</table>
NOTES:

1. MINIMUM COVER AND SEPARATION FOR FIBEROPTICS, SANITARY SEWER, WATER, GAS, POWER AND NON-FIBEROPTICS TELEPHONE AND CABLE TELEVISION SHALL BE IN COMPLIANCE WITH FEDERAL AND STATE REGULATIONS.

2. POWER POLES AND OTHER ABOVE GROUND UTILITY OBJECTS SHALL BE PLACED OUTSIDE CONTROL ZONE AREAS UNLESS (1) JUSTIFIED TO THE ENGINEER'S SATISFACTION BY SUITABLE ENGINEERING STUDIES CONSIDERING TRAFFIC SAFETY (2) SHIELDED BY A BARRIER, (3) PLACED IN AN AREA NORMALLY INACCESSIBLE TO VEHICLES OR (4) UTILIZING A BREAKAWAY DESIGN. INSTALLATION OF POWER POLES AND OTHER ABOVE GROUND UTILITY OBJECTS WILL NOT BE PERMITTED IN SIDEWALKS OR WALKWAYS.

3. CONTROL ZONE DISTANCES SHOWN APPLY TO ROADS WITH A POSTED SPEED OF 35 MPH OR LESS. CONTROL ZONE DISTANCES FOR ROADS POSTED AT GREATER THAN 35 MPH SHOULD BE DETERMINED ACCORDING TO CHAPTER 710, TRAFFIC BARRIERS, OF THE WSDOT DESIGN MANUAL.

4. POWER, TELEPHONE, CABLE TV AND GAS MAY SHARE THE SAME TRENCH IN RESIDENTIAL PLATS.

5. WATER LINE PREFERRED BENEATH SHOULDER. IF NOT PRACTICAL LOCATE AS SHOWN.

6. SANITARY SEWER AND WATER LINES SHALL HAVE 10 FT. MINIMUM HORIZONTAL SEPARATION AND 1.5 FT. MINIMUM VERTICAL SEPARATION FROM BOTTOM OF WATER LINE TO CROWN OF SEWER. REFER TO DOE "CRITERIA FOR SEWAGE WORKS DESIGN."

SEE TEXT SECTION 8-02
UTILITY LOCATIONS SHOWN ARE FOR NEW CONSTRUCTION. INSTALLATIONS WITHIN EXISTING ROADS MAY VARY AND WILL BE EVALUATED AT THE
UTILITY PERMIT STAGE ON A CASE BY CASE BASIS. NO UTILITY SHALL BE LOCATED DIRECTLY BELOW A ROADSIDE DITCH OR SWALE.

NOTES:
1. MINIMUM COVER AND SEPARATION FOR FIBEROPTICS, SANITARY SEWER, WATER, GAS, POWER AND NON-FIBEROPTICS TELEPHONE AND CABLE TELEVISION SHALL BE IN COMPLIANCE WITH FEDERAL AND STATE REGULATIONS.

2. POWER POLES AND OTHER ABOVE GROUND UTILITY OBJECTS SHALL BE PLACED OUTSIDE CONTROL ZONE AREAS UNLESS JUSTIFIED TO THE ENGINEER'S SATISFACTION BY SUITABLE ENGINEERING STUDIES CONSIDERING TRAFFIC SAFETY (2) SHIELDED BY A BARRIER, (3) PLACED IN AN AREA NORMALY INACCESSIBLE TO VEHICLES OR (4) UTILIZING A BREAKAWAY DESIGN. INSTALLATION OF POWER POLES AND OTHER ABOVE GROUND UTILITY OBJECTS WILL NOT BE PERMITTED IN SIDEWALKS OR WALKWAYS.

3. CONTROL ZONE DISTANCES SHOWN APPLY TO ROADS WITH A POSTED SPEED OF 35 MPH OR LESS. CONTROL ZONE DISTANCES FOR ROADS POSTED AT GREATER THAN 35 MPH SHOULD BE DETERMINED ACCORDING TO CHAPTER 710, TRAFFIC BARRIERS, OF THE WSDOT DESIGN MANUAL.

4. POWER, TELEPHONE, CABLE TV AND GAS MAY SHARE THE SAME TRENCH IN RESIDENTIAL PLATS.

5. WATER LINE LOCATION TO BE DETERMINED BASED ON SITE CONDITIONS IN CONJUNCTION WITH THE WATER PROVIDER.

6. SANITARY SEWER AND WATER LINES SHALL HAVE 10 FT. MINIMUM HORIZONTAL SEPARATION AND 1.5 FT. MINIMUM VERTICAL SEPARATION FROM BOTTOM OF WATER LINE TO CROWN OF SEWER. REFER TO DOE "CRITERIA FOR SEWAGE WORKS DESIGN."

SEE TEXT SECTION 8-02

SNOHOMISH COUNTY PUBLIC WORKS

8-020 TYPICAL UTILITY LOCATIONS - CURB SECTION

APPROVED BY: 
COUNTY ROAD ENGINEER 
DATE
NOTES:

1. LONGITUDINAL TRENCH – 2” ASPHALT CLASS B OVERLAY. TRANSVERSE TRENCH – 2” ASPHALT CLASS B OVERLAY WHERE MULTIPLE CROSSINGS BY SAME UTILITY.

2. EXISTING PAVEMENT.

3. LONGITUDINAL TRENCH – 6” ACP OR 2” ACP + 4” ATB. TRANSVERSE TRENCH – 6” ACP OR 2” ACP + 6” ATB. IF CONCRETE, RESTORATION SHALL BE IN ACCORDANCE WITH SECTION 5-05 OF THE WSDOT/APWA SPECIFICATIONS.

4. NATIVE MATERIAL, BANK RUN GRAVEL, CSTC OR CONTROL DENSITY FILL MAY BE REQUIRED BY THE ENGINEER.

5. NEAT LINE CUT, CLEAN, HEAT & TACK EDGES WITH SEALER CSS-1 & SEAL WITH HOT ASPHALT CEMENT.

6. TEMPORARY RESTORATION OF TRENCHES FOR OVERNIGHT USE SHALL BE ACCOMPLISHED BY USING COLD MIX, ATB, OR STEEL PLATES.

7. PATCH SHALL BE MACHINE ROLLED FLUSH WITH EXISTING PAVEMENT AND SHALL BE PLACED PER SECTION 5-04 OF THE WSDOT/APWA SPECIFICATIONS.

8. COVER DEPTH OVER UNDERGROUND UTILITIES SHALL CONFORM TO FEDERAL AND STATE REGULATIONS.

9. TRENCHES IN CONCRETE PAVEMENT SHALL BE RESTORED USING TIE BARS OR DOWEL BARS IN ACCORDANCE WITH SECTION 5-05 OF THE WSDOT/APWA SPECIFICATIONS.

SEE TEXT SECTIONS 8-02, 8-04, 8-05.
GENERAL R/W USE RESTORATION REQUIREMENTS

1. AT THE ENGINEER'S DISCRETION, PRIOR TO COMMENCING ANY CONSTRUCTION, PHOTOGRAPHS DEPICTING PRE-EXISTING ROADWAY CONDITIONS WILL BE REQUIRED EVERY 50 FEET IN PAVED AREAS OR ANY OTHER LOCATION AS SPECIFIED BY THE ENGINEER.

2. SIGNING, FLAGGING AND TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THESE STANDARDS, THE WSDOT TRAFFIC MANUAL AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

3. ONE LANE OF TRAFFIC SHALL REMAIN OPEN AT ALL TIMES, ATTENDED BY FLAGMEN AND APPROPRIATE CONSTRUCTION SIGNING PROVIDED. THE ROAD SHALL BE RESTORED TO TWO-WAY TRAFFIC AT THE END OF EACH WORKING DAY. APPLICATIONS FOR TOTAL ROAD CLOSURES MUST BE FILED WITH SNOHOMISH COUNTY PUBLIC WORKS AT LEAST 5 DAYS PRIOR TO THE ANTICIPATED CLOSURE.

4. EXISTING DRAINAGE DITCHES, CULVERTS, ETC., SHALL BE KEPT CLEAN AT ALL TIMES. TEMPORARY DIVERSION OF ANY DRAINAGE SYSTEM WILL NOT BE PERMITTED WITHOUT THE CONSENT OF THE ENGINEER. ANY DRAINAGE CULVERT, CATCHBASIN, MANHOLE OR OTHER DRAINAGE STRUCTURE DISTURBED BY EXCAVATION SHALL BE REPLACED WITH NEW MATERIAL OR REPAIRED TO THE SATISFACTION OF THE ENGINEER. TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES SHALL BE EMPLOYED TO PROTECT ADJACENT PROPERTY AND STORM DRAINAGE FACILITIES.

5. GRAVEL SHOULDERS DISTURBED BY EXCAVATION SHALL BE SHAPED TO COUNTY STANDARDS AND PROVIDED WITH A MINIMUM OF 6 INCHES COMPACTED CRUSHED SURFACING TOP COURSE.

6. IF IN THE OPINION OF THE ENGINEER, WEATHER CONDITIONS DETERIORATE TO THE POINT WHERE THE TRAVELED ROADWAYS ARE UNSAFE FOR THE PUBLIC OR DETRIMENTAL TO THE RESTORATION OF THE ROADWAY, EXCAVATION SHALL CEASE IMMEDIATELY AND CLEANUP SHALL BE PROMPTLY ACCOMPLISHED.

7. ALL PIPE OR OTHER MATERIAL STORED ALONG COUNTY RIGHT-OF-WAY MUST BE PLACED AT A SAFE DISTANCE FROM THE TRAVELED ROADWAY IN SUCH A MANNER AS TO AVOID FALLING ONTO THE ROADWAY.

8. NO EXCESS OR UNSUITABLE MATERIAL SHALL BE WASTED ON COUNTY RIGHT-OF-WAY. ANY SUCH MATERIAL DUMPED ON PRIVATE PROPERTY MAY REQUIRE A GRADING PERMIT. VERIFICATION WITH SNOHOMISH COUNTY PLANNING & DEVELOPMENT SERVICES IS REQUIRED.

9. STREET SURFACES SHALL BE CLEANED AT THE END OF EACH DAY'S OPERATION WITH A POWER BROOM OR OTHER APPROVED MEANS.

10. NO OPEN CUT CROSSING OF COUNTY ROADS OR STREETS SHALL BE MADE WITHOUT THE APPROVAL OF THE ENGINEER.

11. MAXIMUM AMOUNT OF OPEN TRENCH IN ROADS SHALL BE 400 LINEAL FEET. AT THE END OF EACH DAY, ALL DITCHES MUST BE BACKFILLED OR COVERED WITH STEEL PLATES AND BARRICADED WITH FLASHING WARNING LIGHTS TO PREVENT PEOPLE OR ANIMALS FROM FALLING INTO THE TRENCH.

12. FINAL CLEANUP INCLUDING COMPLETE RESTORATION OF SHOULDERS, CLEANING OF DITCHES, CULVERTS AND CATCHBASINS, AND REMOVAL OF LOOSE MATERIAL FROM BACK SLOPES OF DITCHES SHALL NOT EXCEED 1500 L.F. BEHIND EXCAVATING OPERATIONS OR AS REQUIRED BY THE ENGINEER.