

BOTANICAL NAME	COMMON NAME	HEIGHT + OR - 30'	10'-20' SPREAD	20'-30' SPREAD	DROUGHT TOLERANT	SEASONAL COLOR	REQUIRES MOIST SOIL	REMARKS
ACER CAMPESTRE (EVELYN)	QUEEN ELIZABETH HEDGE MAPLE	+	●	●	●			YELLOW FALL COLOR, UPRIGHT AND ROUND
ACER GRISEUM	PAPERBARK MAPLE	-	●			●	●	RED FALL COLOR, EXFOLIATING BARK
ACER PLATANOIDES (GLOBOSUM)	GLOBE NORWAY MAPLE	-	●			●		SHORT, 15' TALL, COMPACT ROUND CANOPY
ACER TRUNCATUM X A. PLATANOIDES	KEITHSFORM NORWEGIAN SUNSET MAPLE	+		●		●		FALL YELLOW/ORANGE/RED
ACER TRUNCATUM X A. PLATANOIDES	WARRENRED PACIFIC SUNSET MAPLE	-		●		●		SHORTER, MORE SPREADING THAN KEITHSFORM
CRATAEGUS X LAVALII	LAVALLE HAWTHORN	-	●			●		RED FALL LEAVES AND FRUIT
CRATAEGUS PHAENOPYRUM	WASHINGTON HAWTHORN	-	●			●		THORNY, RED FALL COLOR
KOELREUTERIA PANICULATA	GOLDENRAIN TREE	-		●	●	●		YELLOW SUMMER FLOWERS AND FALL COLOR
MAGNOLIA GRANDIFLORA	EDITH BOGUE MAGNOLIA	-	●			●	●	WHITE BLOOMS, EVERGREEN, PYRAMIDAL, SNOW RESISTANT
MALUS (TSCHONOSKII)	TSCHONOSKII CRAB APPLE	-	●			●	●	DISEASE RESISTANT, PYRAMIDAL FORM
PRUNUS X HILLIERI (SPIRE)	SPIRE CHERRY	-	●			●		NARROW, PINK BLOOMS
PYRUS CALLERYANA (CAPITAL)	CAPITAL PEAR	+	●			●		SMALL NARROW UPRIGHT FORM
PYRUS CALLERYANA (AUTUMN BLAZE)	AUTUMN BLAZE PEAR	+		●		●		ROUND FORM, RED FALL COLOR
SORBUS X HYBRIDA	OAK-LEAF MOUNTAIN ASH	-	●		●	●		RED FRUIT, RUST FALL COLOR
TILIA CORDATA (CHANCOLE)	CHANCELLOR LINDEN	-		●		●		UPRIGHT, TIGHTLY PYRAMIDAL

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.

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SNOHOMISH COUNTY PUBLIC WORKS

4-010

SMALL TREES 25'-35' HEIGHT

APPROVED BY:

Steven E. Morrison

2-25-03

COUNTY ROAD ENGINEER

DATE

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

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.

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SNOHOMISH COUNTY PUBLIC WORKS

4-020A

MEDIUM TREES 30'-50' HEIGHT

APPROVED BY:

Stewart E. Morrison 2-25-03

COUNTY ROAD ENGINEER

DATE

BOTANICAL NAME	COMMON NAME	HEIGHT + OR - 40'	10'-20' SPREAD	20'-30' SPREAD	30'-40' SPREAD	DROUGHT TOLERANT	SEASONAL COLOR	REQUIRES MOIST SOIL	REMARKS
GINKGO BILOBA (AUTUMN GOLD)	AUTUMN GOLD GINKGO	+			●		●		BROADLY PYRAMIDAL, GOLDEN YELLOW FALL COLOR
GINKGO BILOBA (PRINCETON SENTRY)	PRINCETON SENTRY GINKGO	+	●				●		NARROWLY PYRAMIDAL, BRIGHT YELLOW FALL COLOR
GLEDITSIA TRIACANTHOS (SHADEMASTER)	SHADEMASTER HONEYLOCUST	+			●		●		LACY, OPEN FORM, YELLOW FALL COLOR
LIQUIDAMBAR STYRACIFLUA (MORAINE)	MORAINE SWEETGUM	-		●			●		COLD HARDY, BURGUNDY FALL COLOR
LIQUIDAMBAR STYRACIFLUA (ROTUNDILOBA)	ROTUNDILOBA SWEETGUM	+		●			●		FRUITLESS, ROUNDED LOBES, ORANGE TO PURPLE FALL COLOR
LIQUIDAMBAR STYRACIFLUA (WORPLESDON)	WORPLESDON SWEETGUM	-		●			●		BROADLY PYRAMIDAL, ORANGE AND PURPLE FALL COLOR
PRUNUS SARGENTII (COLUMNARIS)	COLUMNAR SARGENT CHERRY	-	●				●		PINK BLOOMS, ORANGE/RED FALL COLOR, VASE SHAPED
PYRUS CALLERYANA (ARISTOCRAT)	ARISTOCRAT PEAR	-		●			●		WHITE BLOOMS, RED FALL COLOR, SPREADING BRANCHES
PYRUS CALLERYANA (GLEN'S FORM)	CHANTICLEER FLOWERING PEAR	-	●				●		SIMILAR TO ARISTOCRAT, NARROWER
PYRUS CALLERYANA (REDSPIRE)	REDSPIRE PEAR	-		●			●		WHITE SPRING BLOOMS, DENSE AND SYMMETRICAL
QUERCUS ROBUR (FASTIGIATA)	SKYROCKET OAK	+	●						UNIFORMLY NARROW
ROBINIA X AMBIGUA (IDAHOENSIS)	PINK IDAHO LOCUST	-		●		●			FOR DRY LOCATIONS, ROSE-PINK FRAGRANT FLOWERS
SORBUS AUCUPARIA (MICHRED)	CARDINAL ROYAL MTN. ASH	-		●			●		RED BERRIES, UPRIGHT BRANCHES, NARROW OVAL
TILIA CORDATA (GREENSPIRE)	GREENSPIRE LINDEN	+			●			●	WIDER PYRAMIDAL FORM, SYMMETRICAL
ZELKOVA SERRATA (VILLAGE GREEN)	VILLAGE GREEN ZELKOVA	+			●		●		VIGOROUS, WIDE VASE FORM, RUSTY RED FALL COLOR

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.

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SNOHOMISH COUNTY PUBLIC WORKS

4-020B

MEDIUM TREES 30'-50' HEIGHT

APPROVED BY:

Steve E. Morrison 2-25-03

COUNTY ROAD ENGINEER

DATE

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

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.

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SNOHOMISH COUNTY PUBLIC WORKS

4-030

LARGE TREES 50' HEIGHT OR LARGER

APPROVED BY:

Steve Morrison 2-25-03

COUNTY ROAD ENGINEER

DATE

BOTANICAL NAME	COMMON NAME	HEIGHT + OR - 24"	DROUGHT TOLERANT	BERRIES OR FLOWERS	REQUIRES MOIST SOIL	REMARKS
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GROUNDCOVERS						
ARCTOSTAPHYLOS UVA-URSI	KINNIKINNICK	-	●	●		NATIVE EVERGREEN, LOW 3 IN. TO 9 IN. HT. VERY DROUGHT TOLERANT
ERICA CARNEA	WINTER HEATH	-		●		EVERGREEN, GROWS 2 FT. HT. BY 6 FT. WIDE, FLOWERS IN SPRING
RUBUS CALYCINOIDES	BRAMBLE	-	●	●		EVERGREEN, SPREADING GROUNDCOVER, SALMON COLORED BERRIES

SHRUBS						
BERBERIS THUNBERGII (CRIMSON PYGMY)	CRIMSON PYGMY BARBERRY	-		●		SMALL DECIDUOUS SHRUB, 18 IN. TO 24 IN., PURPLE FOLIAGE
CISTUS X HYBRIDUS	WHITE ROCKROSE	+	●	●		ROUNDED EVERGREEN SHRUB, GROWS 3 FT. TO 5 FT. HT., WHITE FLOWERS, VERY DROUGHT TOLERANT
CORNUS STOLONIFERA (KELSYEI)	KELSYEI RED TWIG DOGWOOD	-			●	DECIDUOUS MOUNDING SHRUB TO 2 FT. BRIGHT RED STEMS, NEEDS IRRIGATION
FESTUCA GLAUCA	BLUE FESCUE	-				SMALL CLUMPS OF EVERGREEN GRASS
GAULTHERIA SHALLON	SALAL	+	●	●		NATIVE EVERGREEN SHRUB, GROWS 2 FT.-4 FT. NEEDS TRIMMING, DROUGHT TOLERANT, WHITE FLOWERS, BLACK BERRIES
PINUS MUGO VAR. PUMILIO	COMPACT DWARF MUGO PINE	-				EVERGREEN SHRUB, GROWS SLOWLY TO 2 FT.
PRUNUS LAUROCERASUS (MT. VERNON)	MT. VERNON LAUREL	+		●		SMALL EVERGREEN SHRUB, GROWS SLOWLY TO 3 FT. HT.
PRUNUS LAUROCERASUS (OTTO LUYKEN)	OTTO LUYKEN LAUREL	+	●	●		SPREADING EVERGREEN SHRUB TO 3 FT., WHITE FLOWERS
VIBURNUM DAVIDII	DAVID VIBURNUM	+		●		2 FT.-3 FT. BY 3 FT. TO 4 FT. WIDE, WHITE FLOWERS, BLACK BERRIES

NOTE:

- SUITABLE FOR USE IN PLANTER STRIPS AS SHOWN IN STANDARD DRAWINGS 4-050, 4-060, AND 4-070.

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SNOHOMISH COUNTY PUBLIC WORKS

4-040

SHRUBS AND GROUNDCOVERS

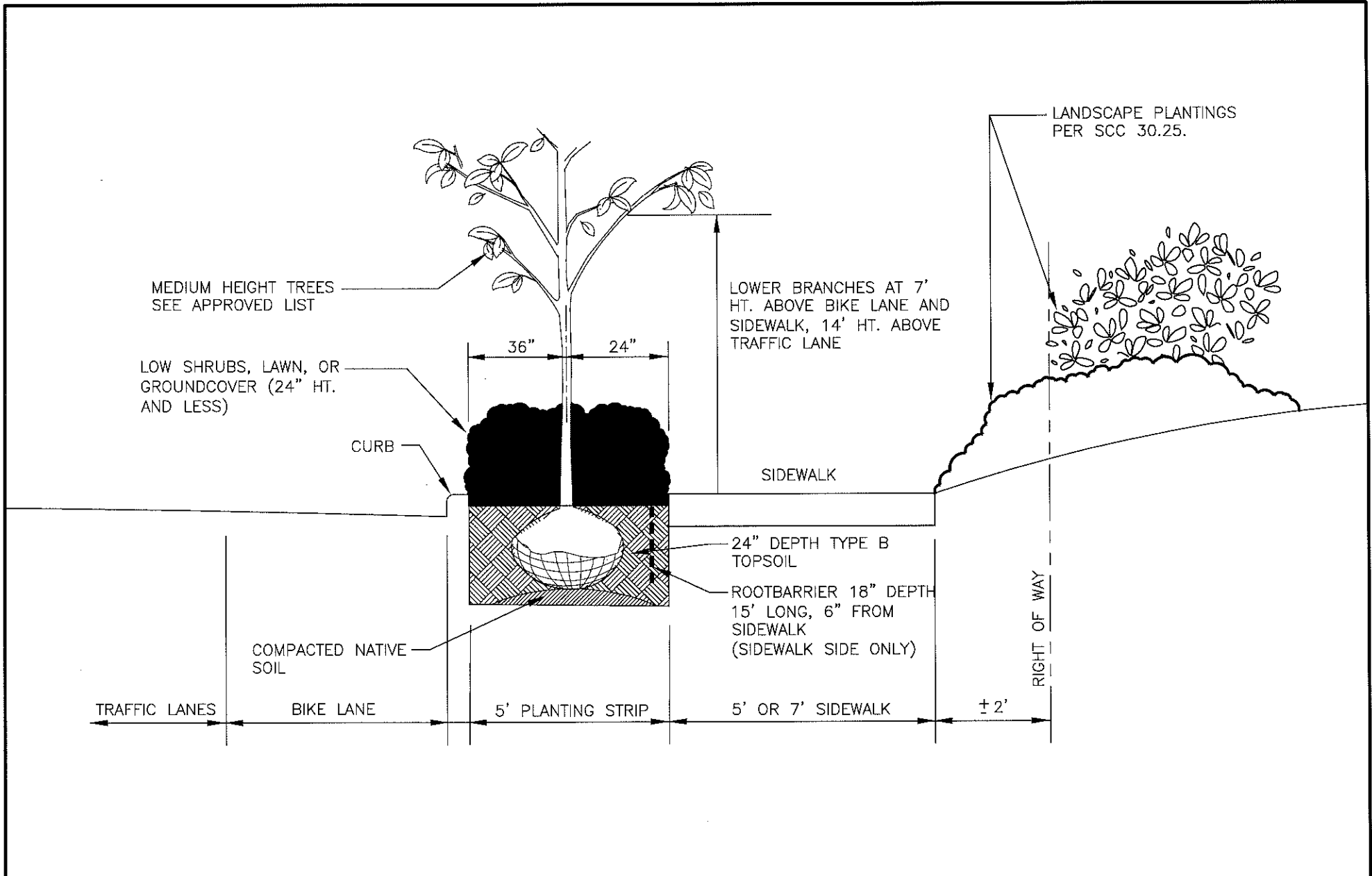
APPROVED BY:

Steve E. Morrison

2-25-03

COUNTY ROAD ENGINEER

DATE



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SNOHOMISH COUNTY PUBLIC WORKS

4-050

STANDARD PLANTING STRIP

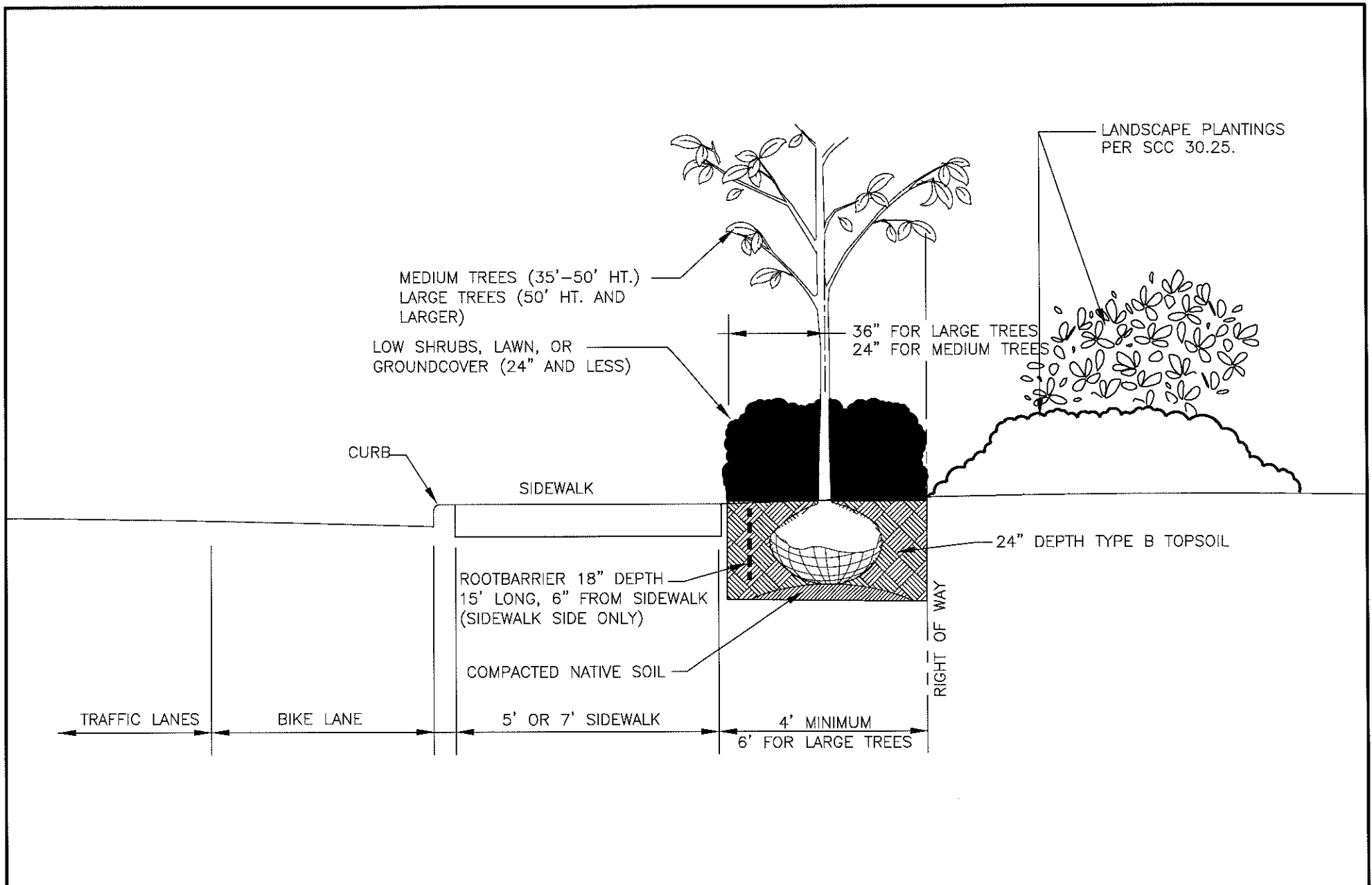
APPROVED BY:

Stewart Morrison

COUNTY ROAD ENGINEER

4-17-03

DATE



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SNOHOMISH COUNTY PUBLIC WORKS

4-060

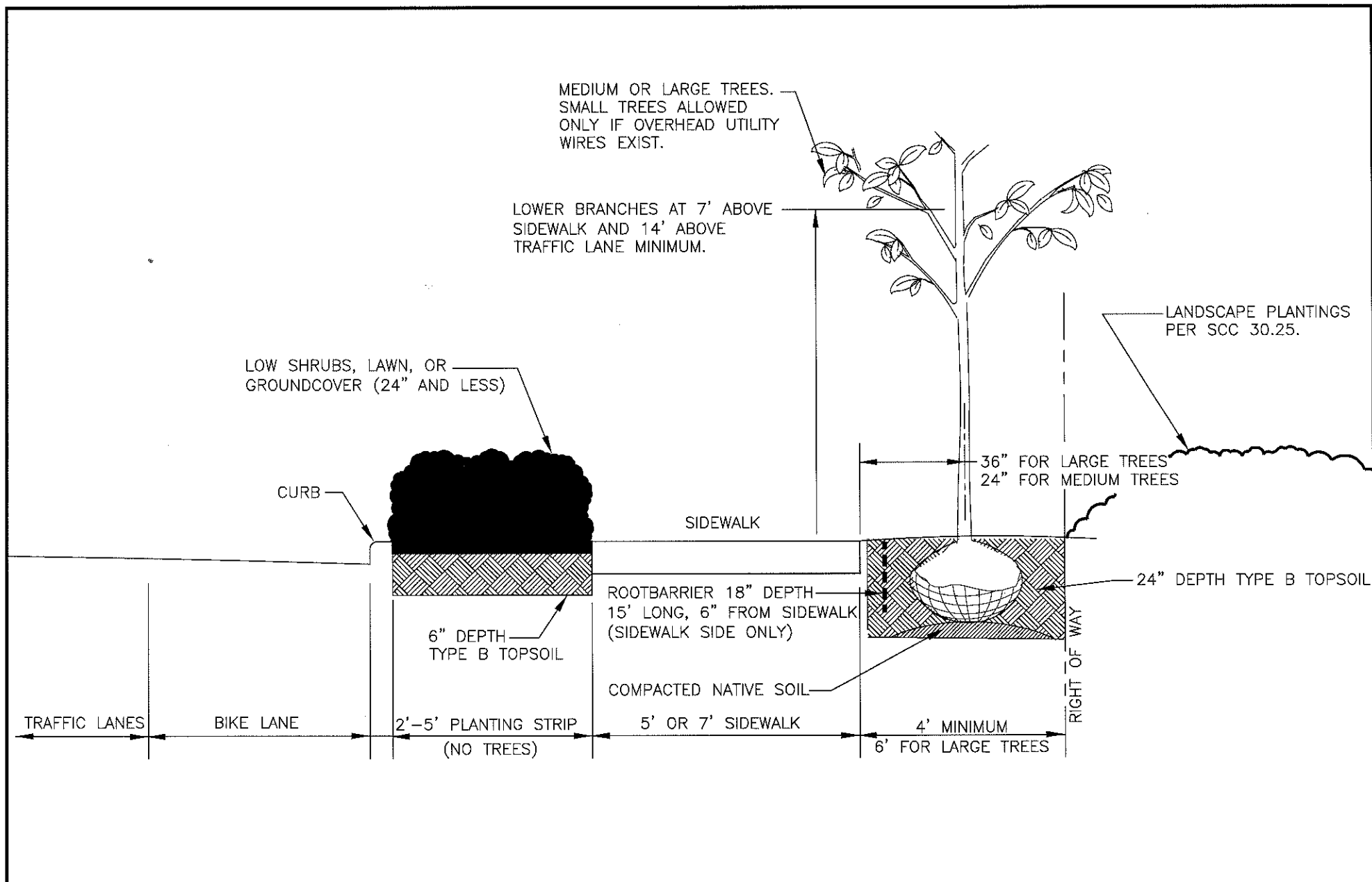
PLANTING STRIP BEHIND SIDEWALK

APPROVED BY:

Steve E. Morrison 4-17-03

COUNTY ROAD ENGINEER

DATE



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SNOHOMISH COUNTY PUBLIC WORKS

4-070

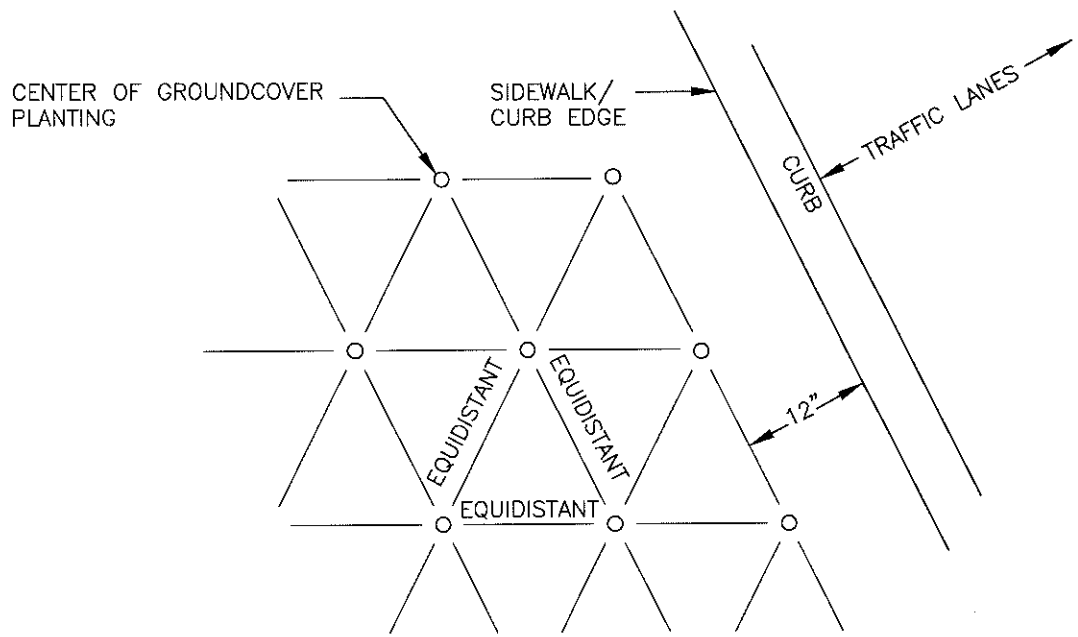
COMBINATION PLANTING STRIPS

APPROVED BY:

Stewart Morrison 4-17-03

COUNTY ROAD ENGINEER

DATE



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.

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SNOHOMISH COUNTY PUBLIC WORKS

4-080

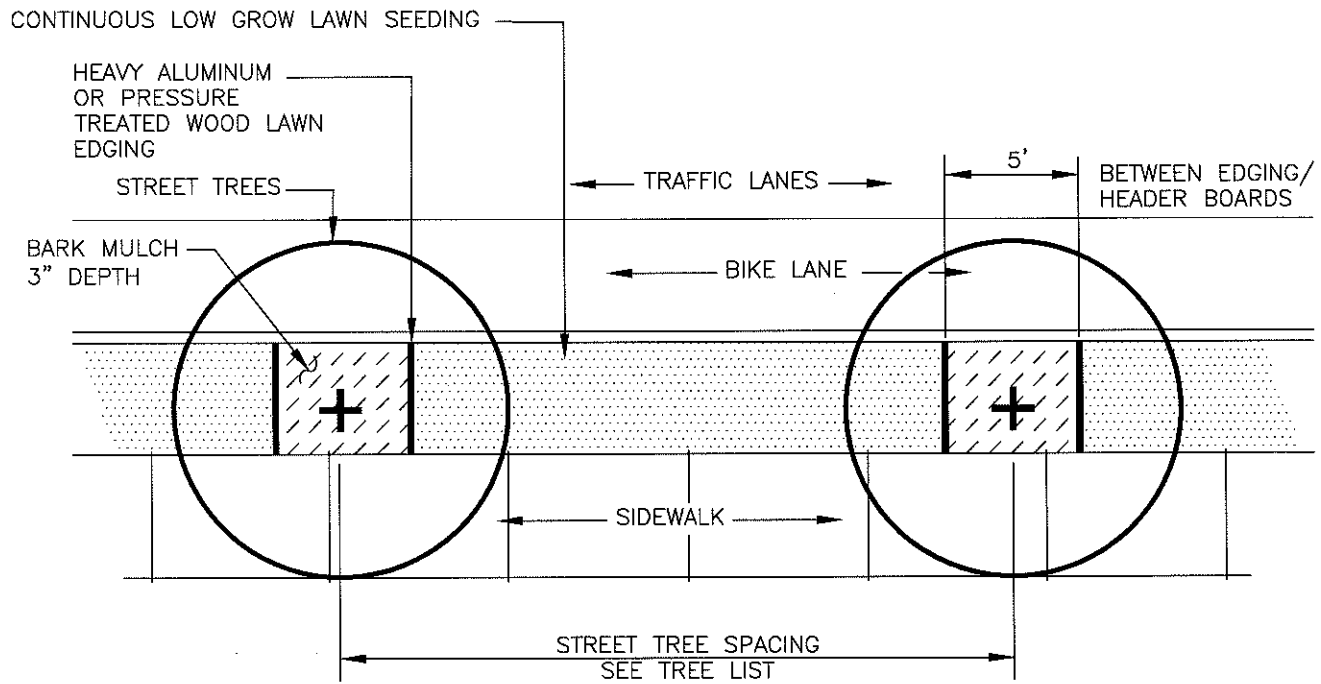
SMALL SHRUB - GROUNDCOVER SPACING

APPROVED BY:

Steve E. Morrison 2-25-03

COUNTY ROAD ENGINEER

DATE



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SNOHOMISH COUNTY PUBLIC WORKS

4-090

TREE AND LAWN PLANTING STRIP

APPROVED BY:

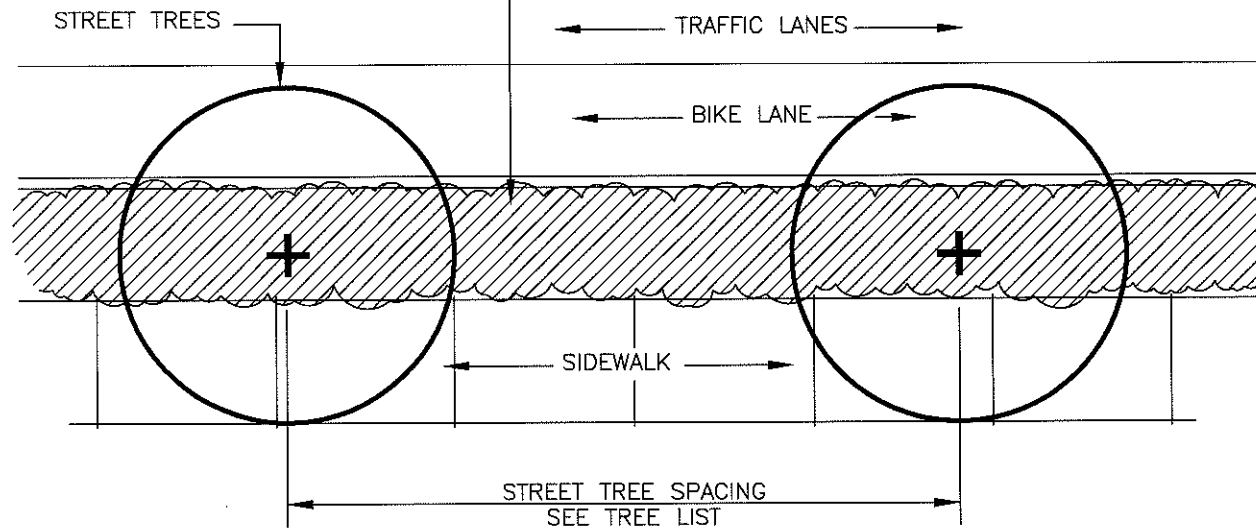
Steven C. Thomson

COUNTY ROAD ENGINEER

2-7-03

DATE

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



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SNOHOMISH COUNTY PUBLIC WORKS

4-100

TREE AND GROUNDCOVER PLANTING STRIP

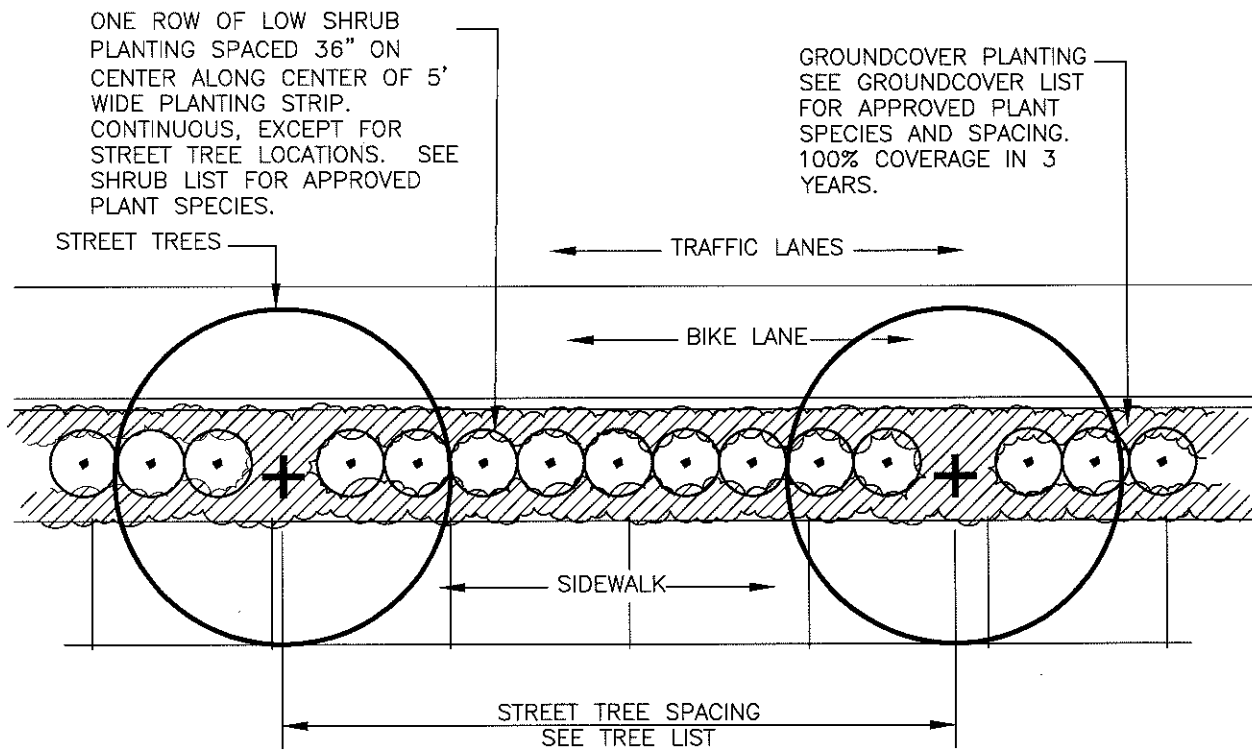
APPROVED BY:

Stuart E. Thompson

COUNTY ROAD ENGINEER

2-7-03

DATE



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SNOHOMISH COUNTY PUBLIC WORKS

4-110

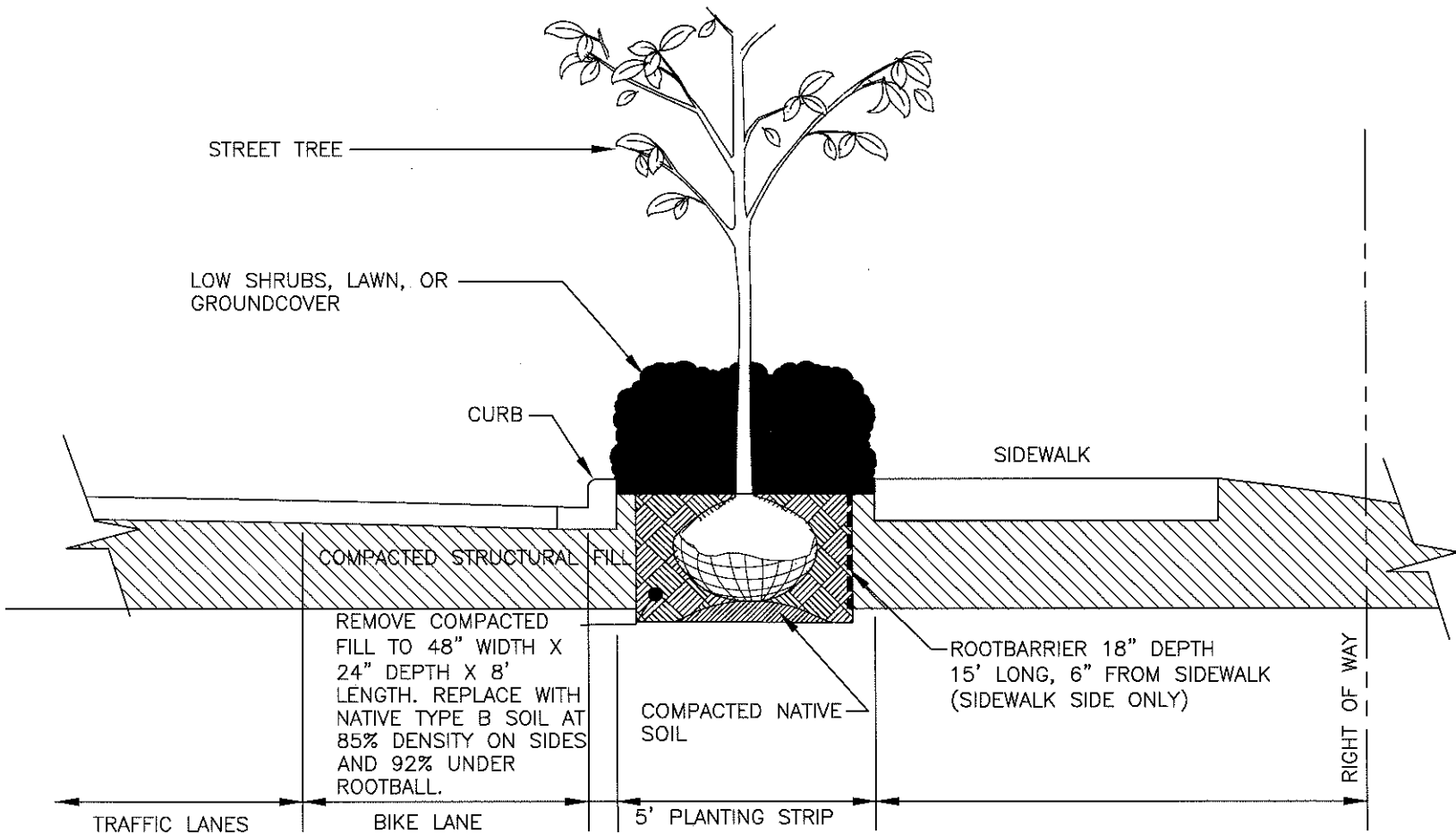
SHRUB, TREE, AND GROUNDCOVER PLANTING STRIP

APPROVED BY:

Steve E. Norman 2-7-03

COUNTY ROAD ENGINEER

DATE



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SNOHOMISH COUNTY PUBLIC WORKS

4-120

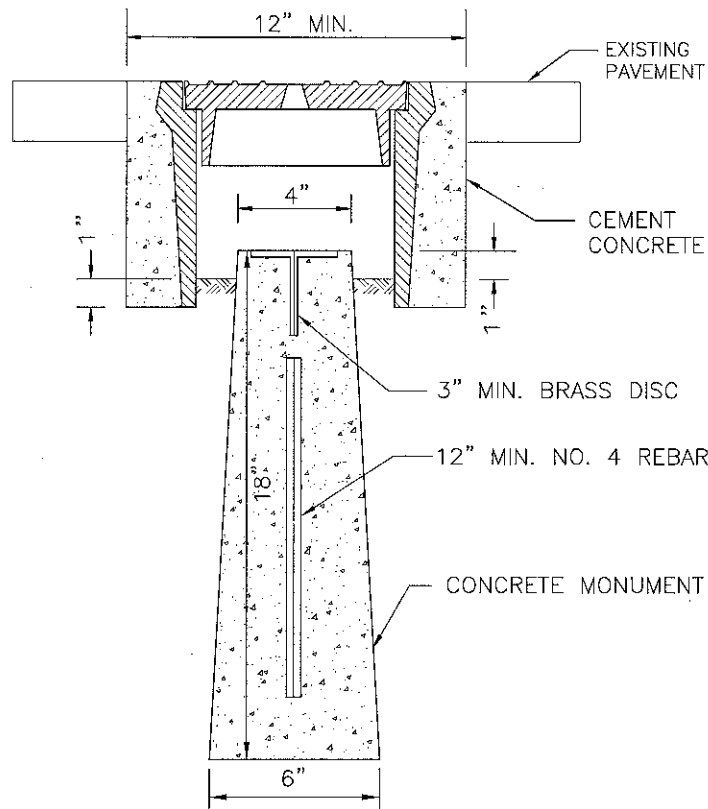
COMPACTED FILL REMOVAL / REPLACEMENT

APPROVED BY:

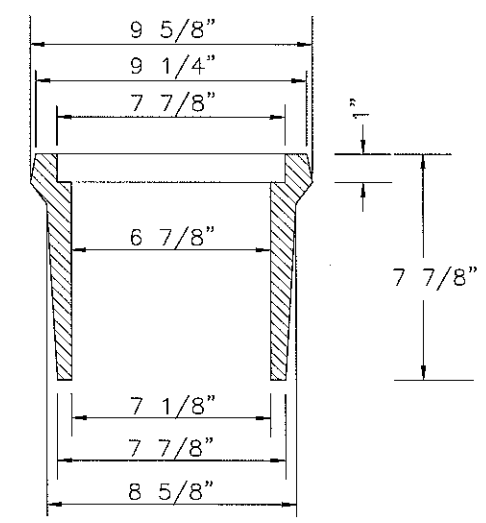
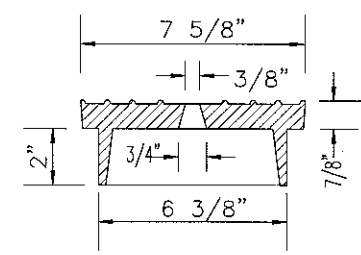
Steuw Thomson 2-7-03

COUNTY ROAD ENGINEER

DATE

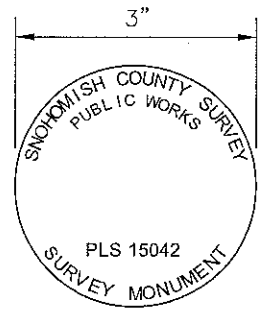


PLAN



SECTION

* BRASS DISK FOR SNOHOMISH COUNTY PROJECTS



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 DISCS FOR NON-SNOHOMISH COUNTY PROJECTS SHALL BEAR THE REGISTRATION NUMBER OF THE LAND SURVEYOR RESPONSIBLE FOR SETTING THE MONUMENT.
- * 4. BRASS DISCS FOR SNOHOMISH COUNTY PROJECTS SHALL BEAR THE COUNTY LAND SURVEYOR'S REGISTRATION NUMBER, AND THE REGISTRATION NUMBER OF THE LAND SURVEYOR RESPONSIBLE FOR SETTING THE MONUMENT.

SEE TEXT SECTION 4-03



SNOHOMISH COUNTY PUBLIC WORKS

4-130

MONUMENT CASE AND COVER

APPROVED BY:

[Signature]

COUNTY ROAD ENGINEER

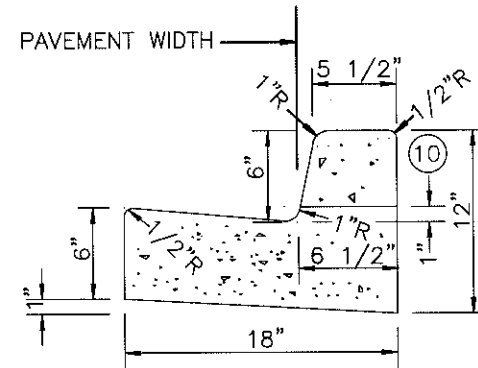
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DATE

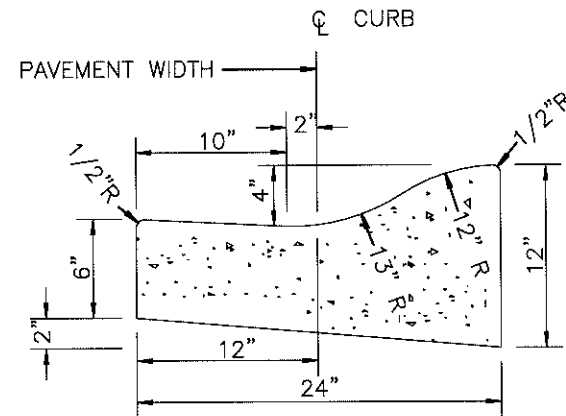
NOTES:

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 GUTTERS SHALL BE SPRAYED WITH A CLEAR CURING COMPOUND.
10. TOP OF CURB AT ACCESS POINT APPROACH.
11. SUBGRADE COMPACTION FOR CURBS AND GUTTERS 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



**CEMENT CONCRETE
VERTICAL CURB AND GUTTER**



**CEMENT CONCRETE
ROLLED CURB AND GUTTER**



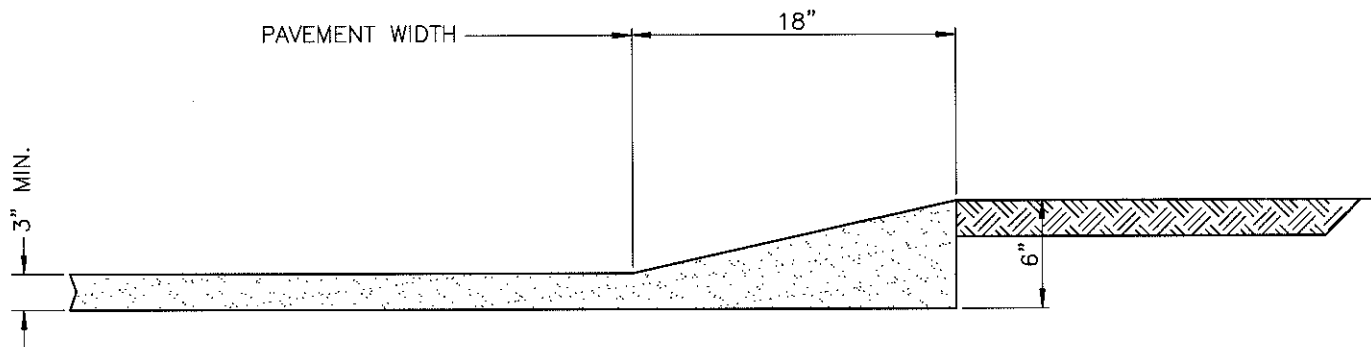
SNOHOMISH COUNTY PUBLIC WORKS

4-140

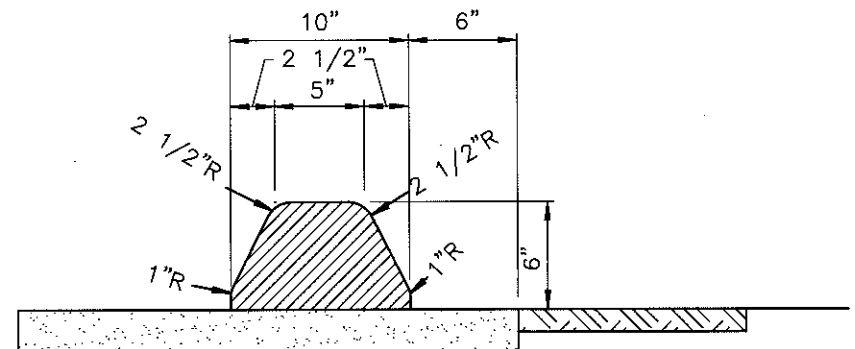
CURB DETAILS

APPROVED BY:

Stewart E. Morrison 10-1-04
COUNTY ROAD ENGINEER DATE



ASPHALT THICKENED
EDGE



EXTRUDED CURB

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. SAWED CUTS SHALL BE 1/8 INCH MINIMUM WIDTH.

SEE TEXT SECTION 4-04

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SNOHOMISH COUNTY PUBLIC WORKS

4-145

CURB DETAILS

APPROVED BY:

Steven E. Norman

COUNTY ROAD ENGINEER

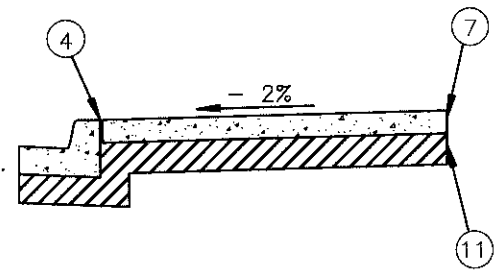
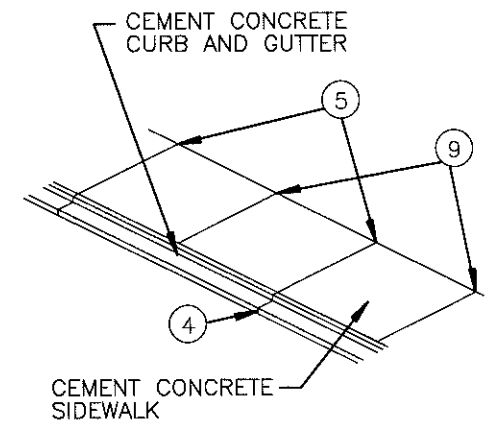
2-25-03

DATE


NOTES:

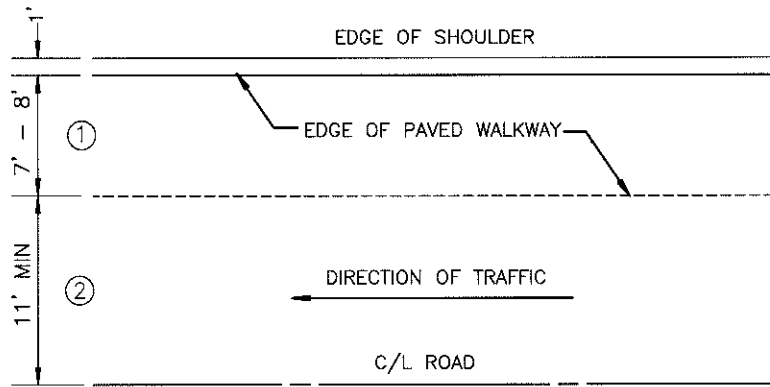
1. CONSTRUCTION OF SIDEWALKS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AS PUBLISHED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND THE AMERICAN PUBLIC WORKS ASSOCIATION (WSDOT/APWA SPECIFICATIONS) UNLESS OTHERWISE MODIFIED BELOW.
2.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

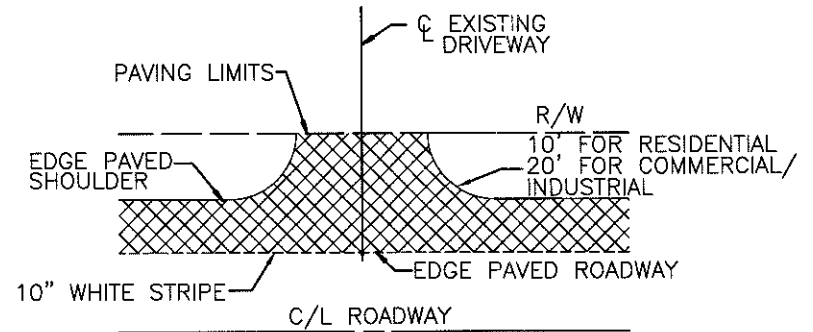


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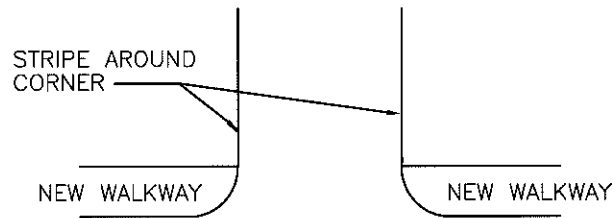
	SNOHOMISH COUNTY PUBLIC WORKS		APPROVED BY: <i>Steven C. Norman</i> 2-25-03
	4-150	SIDEWALK DETAILS	COUNTY ROAD ENGINEER DATE



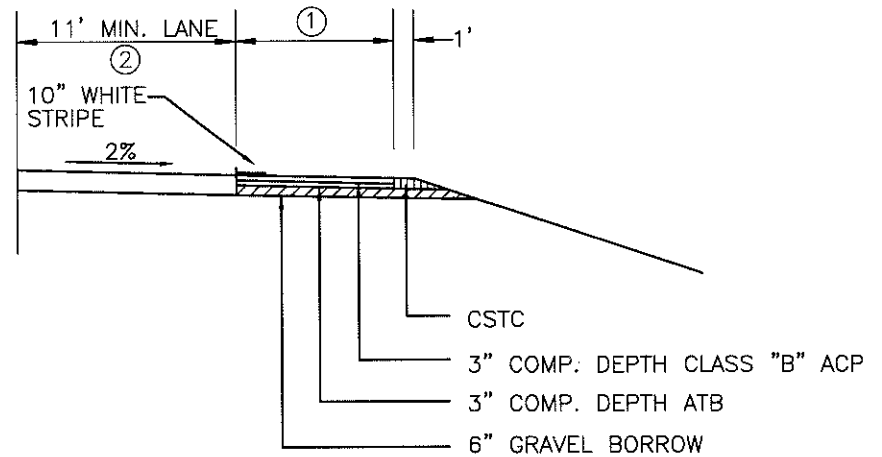
PLAN VIEW



DRIVEWAY PAVING PLAN



PLACEMENT AT INTERSECTIONS



TYPICAL NON-ARTERIAL ROADWAY SECTION

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

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SNOHOMISH COUNTY PUBLIC WORKS

4-160

ASPHALT WALKWAY

APPROVED BY:

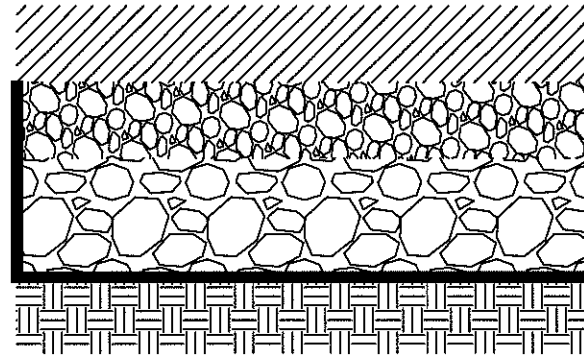
Steve Morrison

COUNTY ROAD ENGINEER

2-25-03

DATE

TYPICAL
CROSS-SECTION



POROUS ASPHALT TOP COURSE

CHOKER COURSE

BASE OR RESERVOIR COURSE

GEOTEXTILE FABRIC

SUBGRADE (EXISTING SOIL)

1. PAVEMENT DESIGN MUST BE REVIEWED AND APPROVED BY SNOHOMISH COUNTY.
2. TYPICAL CROSS-SECTION LAYERS:
 - TOP COURSE: PLANT-MIXED, OPEN-GRADED HOT MIX ASPHALT (HMA).
 - CHOKER COURSE: CLEAN, WASHED CRUSHED ROCK CONFORMING TO ASTM C33, GRADING NO. 8.
 - RESERVOIR COURSE: CLEAN, WASHED CRUSHED ROCK CONFORMING TO ASTM C33, GRADING NO. 57. LAYER DEPTH DETERMINED BY DRAINAGE DESIGN ASSUMPTIONS, SOIL POROSITY AND PAVEMENT STRUCTURE. 6 INCHES MINIMUM.
 - GEOTEXTILE LAYER: FABRIC PLACEMENT PER ENGINEERING DESIGN. WSDOT STANDARD SPECIFICATIONS SECTION 9-33 FOR PERMANENT EROSION CONTROL, NON-WOVEN, HIGH SURVIVABILITY, CLASS B FILTRATION FABRIC.
 - SUBGRADE: DO NOT ALLOW COMPACTION BY CONSTRUCTION EQUIPMENT. COMPACT ONLY AS NECESSARY FOR STRUCTURAL STABILITY. SCARIFY SOIL TO A MINIMUM DEPTH OF 6 INCHES PRIOR TO PLACEMENT OF GEOTEXTILE FABRIC AND AGGREGATE.



SNOHOMISH COUNTY PUBLIC WORKS

4-164

POROUS ASPHALT PAVEMENT

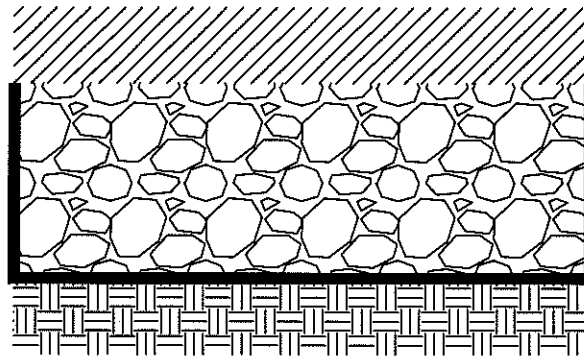
APPROVED BY:

COUNTY ROAD ENGINEER

9/23/10

DATE

**TYPICAL
CROSS-SECTION**



POROUS CONCRETE PAVEMENT

BASE OR RESERVOIR COURSE

GEOTEXTILE FABRIC

SUBGRADE (EXISTING SOIL)

1. PAVEMENT DESIGN MUST BE REVIEWED AND APPROVED BY SNOHOMISH COUNTY.

2. MATERIALS:

CEMENT: PORTLAND CEMENT TYPE I OR II CONFORMING TO ASTM C150 OR TYPE IP OR TYPE I(SM) CONFORMING TO ASTM C595.

AGGREGATE: CLEAN, WASHED CRUSHED ROCK CONFORMING TO ASTM C33, GRADING NO. 57.

WATER: WSDOT STANDARD SPECIFICATIONS SECTION 9-25.1.

ADMIXTURES: TYPE D WATER REDUCING/RETARDING CONFORMING TO ASTM C494 OR A HYDRATION STABILIZER MEETING REQUIREMENTS OF ASTM C494 FOR TYPE B RETARDING OR TYPE D WATER REDUCING/RETARDING ADMIXTURES.

FIBER: FIBRILLATED POLYPROPYLENE REINFORCING FIBERS, 1/2-INCH LONG, CONFORMING TO ASTM C1116.

3. TYPICAL CROSS-SECTION LAYERS:

TOP COURSE: PORTLAND CEMENT CONCRETE

RESERVOIR COURSE: LAYER DEPTH DETERMINED BY DRAINAGE DESIGN ASSUMPTIONS, SOIL POROSITY AND PAVEMENT STRUCTURE. 6 INCHES MINIMUM.

GEOTEXTILE LAYER: FABRIC PLACEMENT PER ENGINEERING DESIGN. WSDOT STANDARD SPECIFICATIONS SECTION 9-33 FOR PERMANENT EROSION CONTROL, NON-WOVEN, HIGH SURVIVABILITY, CLASS B FILTRATION FABRIC.

SUBGRADE: DO NOT ALLOW COMPACTION BY CONSTRUCTION EQUIPMENT. COMPACT ONLY AS NECESSARY FOR STRUCTURAL STABILITY. SCARIFY SOIL TO A MINIMUM DEPTH OF 6 INCHES PRIOR TO PLACEMENT OF GEOTEXTILE FABRIC AND AGGREGATE.



SNOHOMISH COUNTY PUBLIC WORKS

4-166

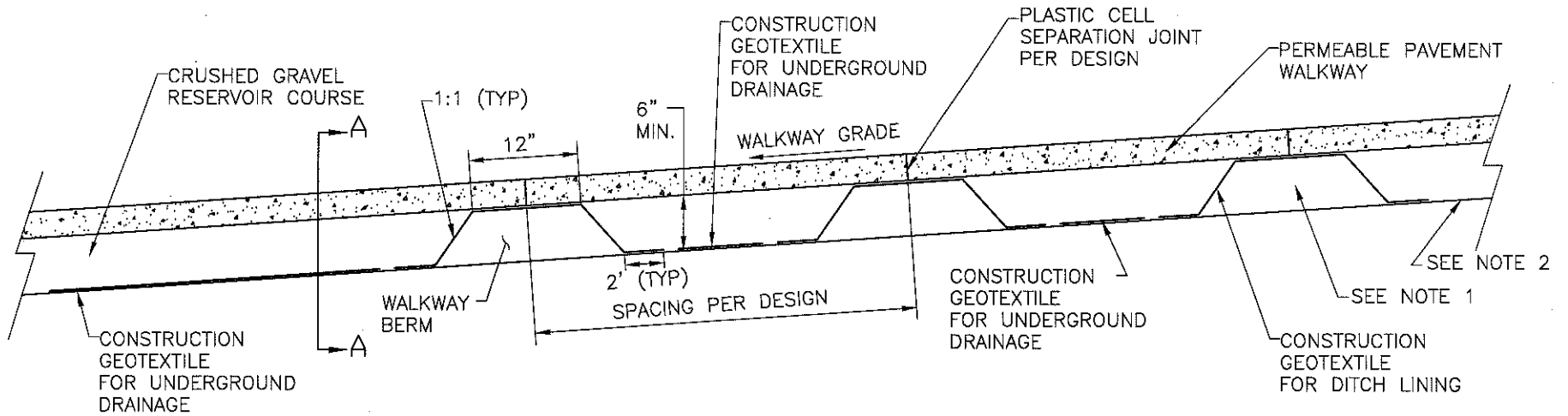
POROUS CONCRETE PAVEMENT

APPROVED BY:

COUNTY ROAD ENGINEER

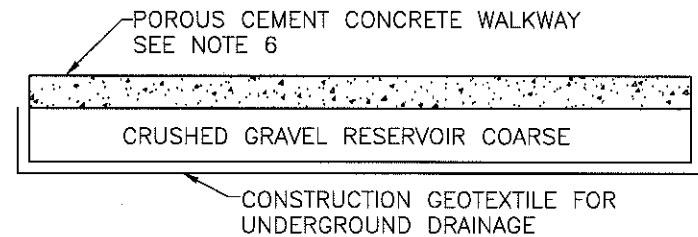
9/23/10

DATE



NOTES:

1. NATIVE MATERIAL AND/OR FILL MATERIAL. COMPACTED TO 95% OF MAXIMUM, TOP OF BERM ONLY.
2. NO COMPACTION OF NATIVE MATERIALS OUTSIDE OF BERMS.
3. CONSTRUCTION GEOTEXTILE FOR DITCH LINING SHALL COVER BERMS INCLUDING 2 FT TYPICAL ON EACH SIDE. GEOTEXTILE FOR UNDERGROUND DRAINAGE SHALL LINE THE REMAINING RESERVOIR LAYER.
4. PLASTIC CELL SEPARATION JOINTS OR OTHER MEASURES MAY BE REQUIRED ABOVE BERMS TO CONTROL HORIZONTAL FLOW THROUGH THE SURFACE LAYER, DEPENDING ON PROJECT DESIGN.
5. THE MAXIMUM RECOMMENDED GRADES FOR PERMEABLE PAVEMENT SYSTEMS ARE 5% FOR POROUS ASPHALT, 6% FOR POROUS CONCRETE OR GRID/LATTICE SYSTEMS, AND 10% FOR PAVER SYSTEMS.
6. PAVEMENT DEPTH PER PROJECT DESIGN. SEE TEXT SECTION 4-10.D.



SECTION A-A
N.T.S.



SNOHOMISH COUNTY PUBLIC WORKS

4-168

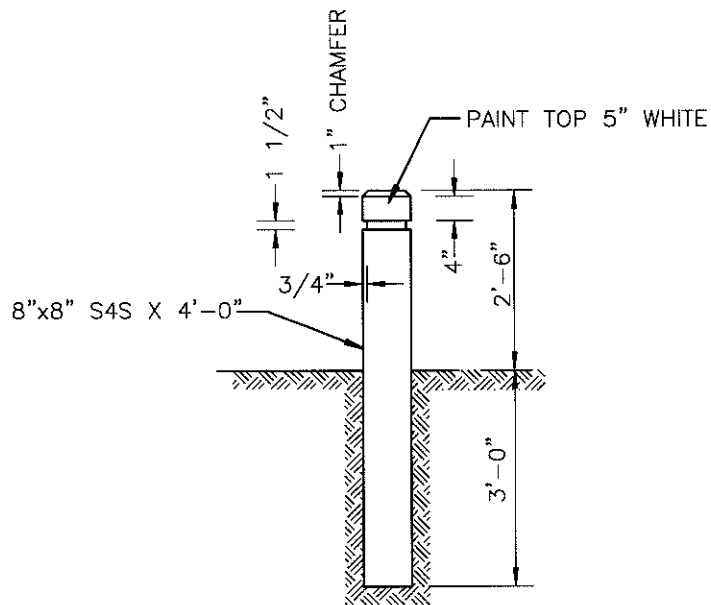
PERMEABLE PAVEMENT BERMS

APPROVED BY:

COUNTY ROAD ENGINEER

9/23/10

DATE

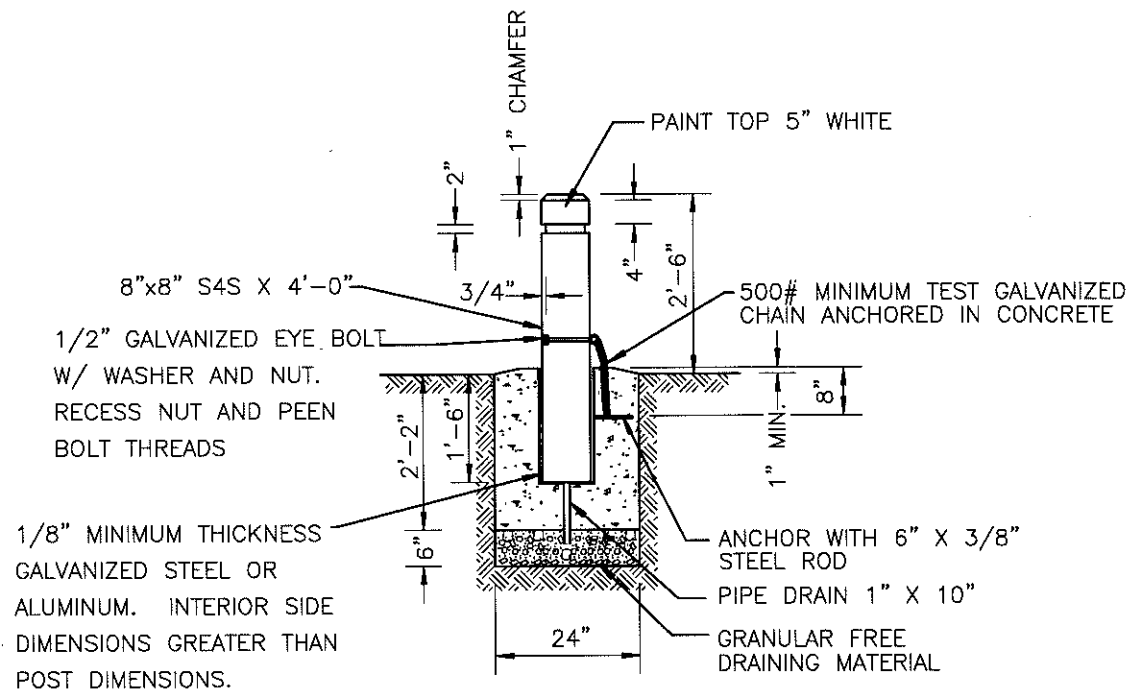


FIXED BOLLARD

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



REMOVABLE BOLLARD

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SNOHOMISH COUNTY PUBLIC WORKS

4-170

BOLLARDS

APPROVED BY:

Steve E. Norman 225-03

COUNTY ROAD ENGINEER

DATE

BARRICADE CHARACTERISTICS

TYPE OF BARRICADE	I	II	III
WIDTH OF RAIL	8" MIN. - 12" MAX.	8" MIN. - 12" MAX.	8" MIN. - 12" MAX.
LENGTH OF RAIL	2 FT. MIN.	2 FT. MIN.	4 FT. MIN.
WIDTH OF STRIPES	6 IN.	6 IN.	6 IN.
HEIGHT	3 FT. MIN.	3 FT. MIN.	5 FT. MIN.
NUMBER OF REFLECTORIZED FACES	2 (ONE EACH DIRECTION)	4 (TWO EACH DIRECTION)	3 IF FACING TRAFFIC IN ONE DIRECTION 6 IF FACING TRAFFIC IN TWO DIRECTIONS

NOTES:

FOR WOODEN BARRICADES, NOMINAL LUMBER DIMENSIONS WILL BE SATISFACTORY.

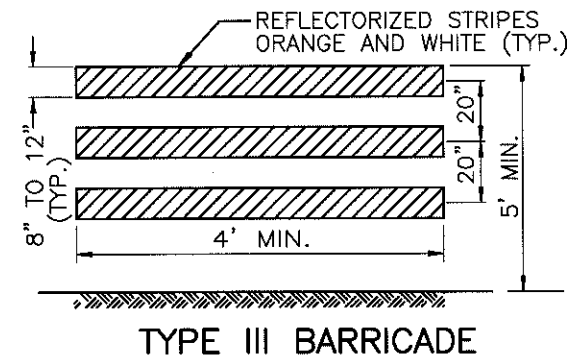
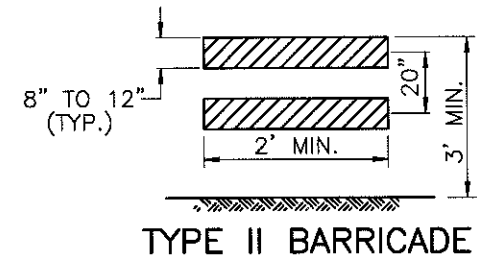
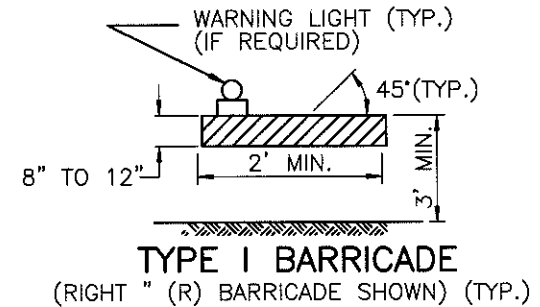
FOR RAILS LESS THAN 3- FEET LONG, 4-INCH-WIDE STRIPES SHALL BE USED.

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:

- BARRICADES SHALL BE INSTALLED IN ACCORDANCE WITH PART VI OF THE MUTCD.
- RAILS SHALL BE PLACED BOTH FRONT AND BACK OF BARRICADE IF REQUIRED FOR TWO-WAY TRAFFIC. RAILS SHALL BE THE SAME SIZE.
- LUMBER SHALL BE STANDARD GRADE OR BETTER.
- RIGHT (R) BARRICADES ARE PLACED TO THE RIGHT OF TRAFFIC. LEFT (L) BARRICADES ARE PLACED TO THE LEFT OF TRAFFIC.
- 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.
- 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



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SNOHOMISH COUNTY PUBLIC WORKS

4-180

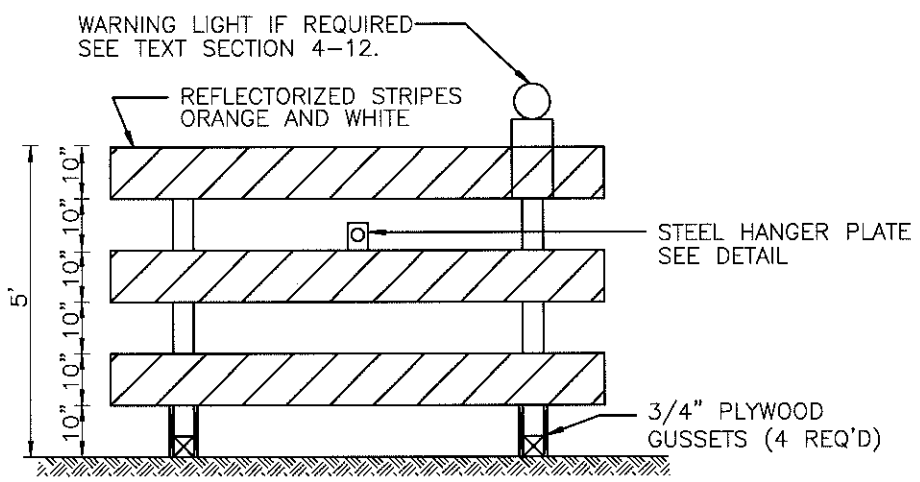
BARRICADES - GENERAL

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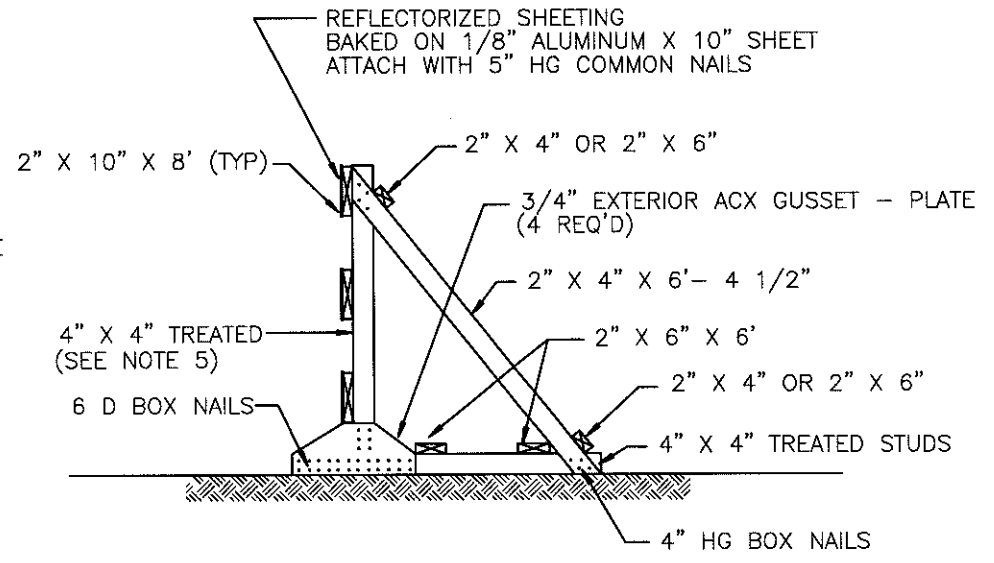
Steven E. Thomson 2-25-03

COUNTY ROAD ENGINEER

DATE



**FRONT VIEW
(RIGHT (R) BARRICADE SHOWN)**

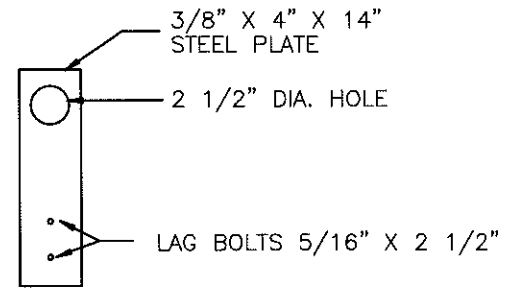


SIDE VIEW

NOTES:

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 POST EMBEDMENT OF 3 FEET. POSTS SHALL BE PRESSURE TREATED.

SEE TEXT SECTION 4-12



**STEEL HANGER PLATE
DETAIL**

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SNOHOMISH COUNTY PUBLIC WORKS

4-185

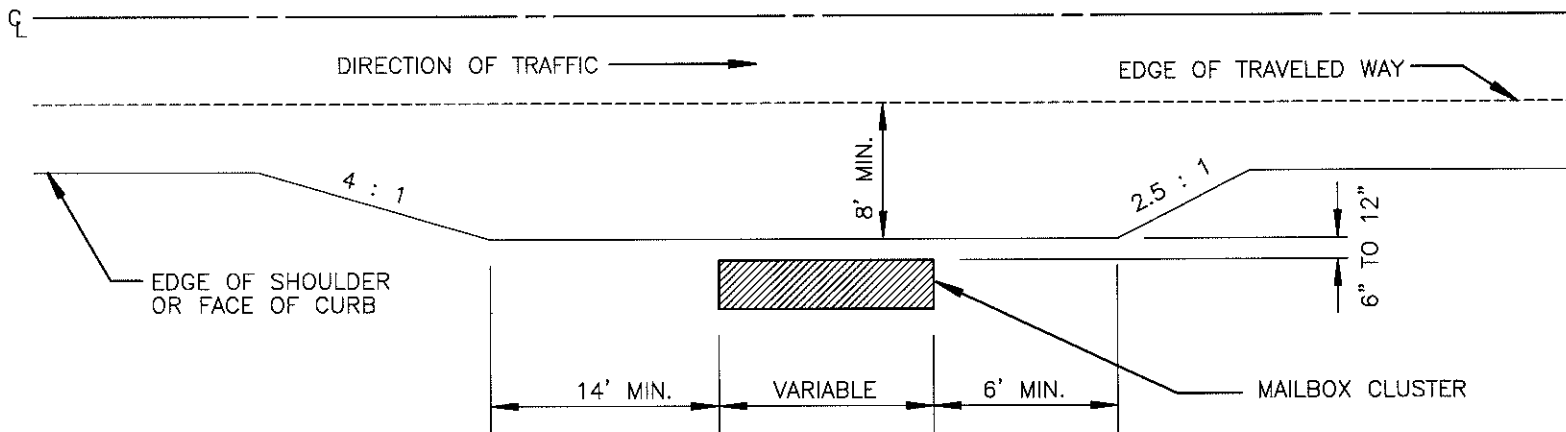
TYPE III BARRICADE

APPROVED BY:

Steve E. Hornum 2-25-03

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

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SNOHOMISH COUNTY PUBLIC WORKS

4-190

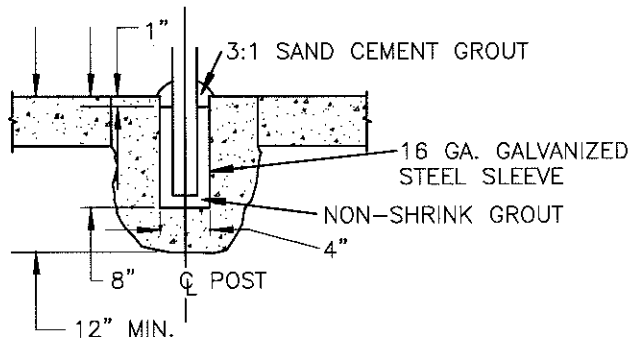
MAILBOX TURNOUT - COLLECTOR & ARTERIAL

APPROVED BY:

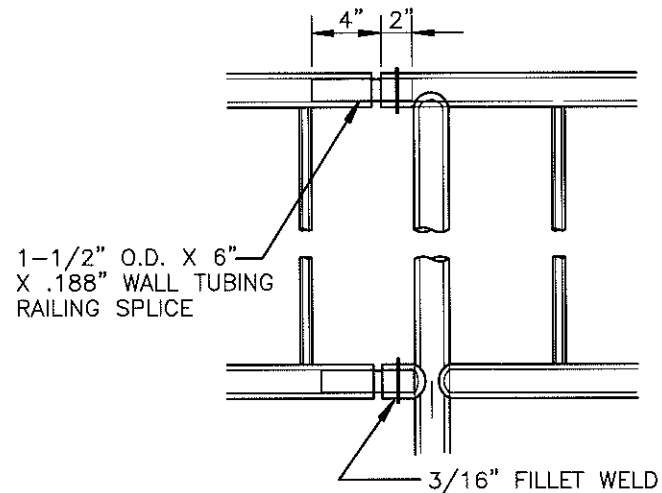
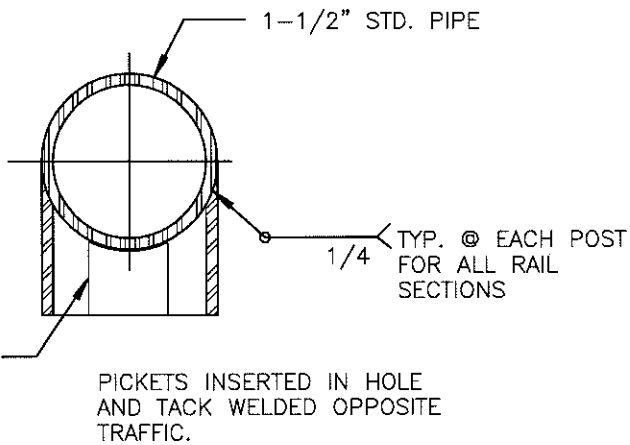
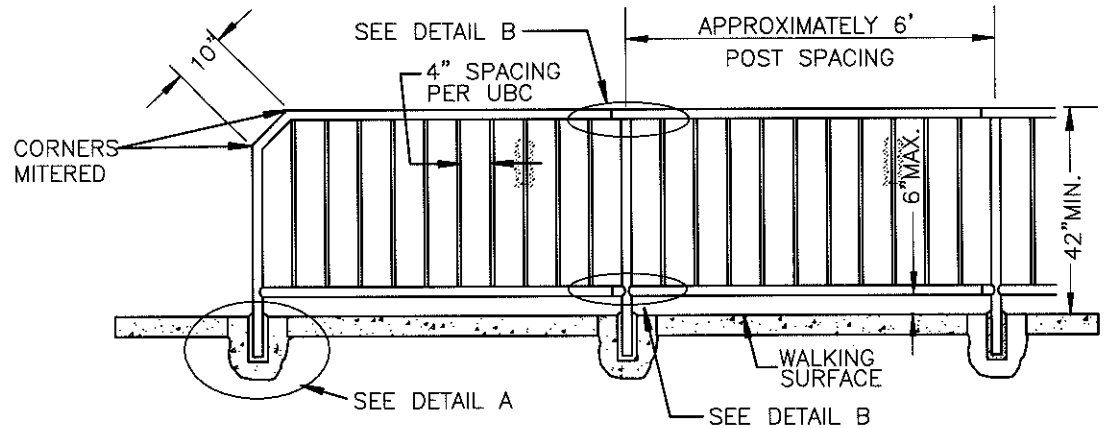
Steve Morrison 2-25-03

COUNTY ROAD ENGINEER

DATE



DETAIL A



DETAIL B

NOTES:

MATERIAL FOR PEDESTRIAN HANDRAIL SHALL BE STEEL (ASTM A120) OR ALUMINUM (ASTM B241 OR B429 ALLOY 6061-T6). MANUFACTURING OF THE HANDRAIL SHALL CONFORM TO STANDARD DRAWING 4-202.

SEE TEXT SECTION 4-16

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SNOHOMISH COUNTY PUBLIC WORKS

4-200

PEDESTRIAN HANDRAIL DETAILS

APPROVED BY:

Steve E. Horned 2-25-03

COUNTY ROAD ENGINEER

DATE

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 136 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

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SNOHOMISH COUNTY PUBLIC WORKS

4-202

PEDESTRIAN HANDRAIL DETAILS

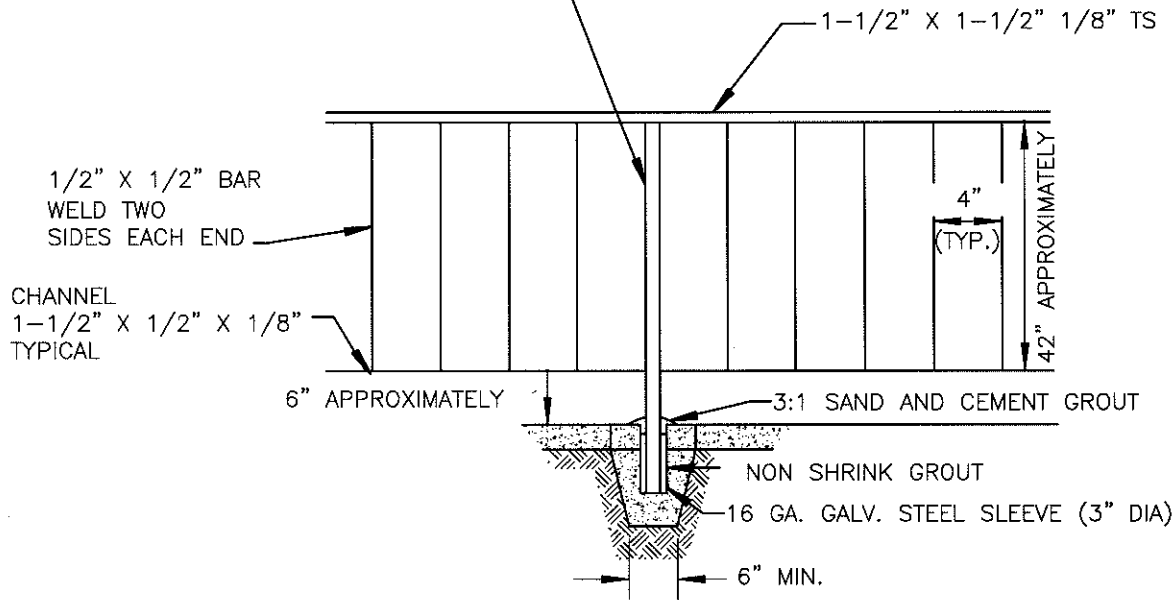
APPROVED BY:

Steven E. Monner 2-25-03

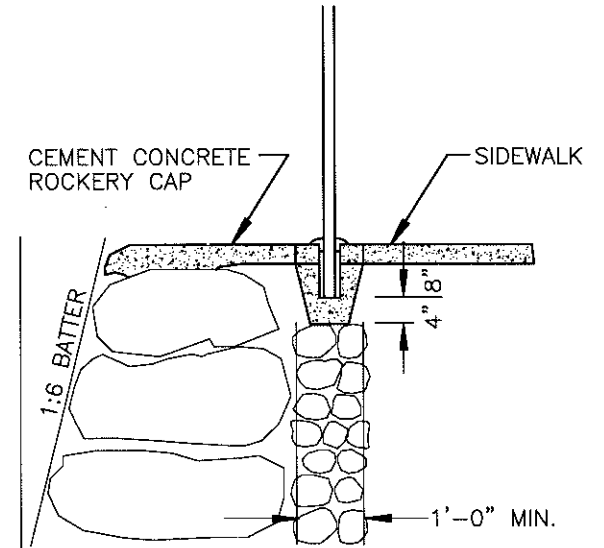
COUNTY ROAD ENGINEER

DATE

TYPICAL POST 1-1/2" X 1-1/2" X 1/8" TS
 POST AT 10' INTERVALS MAX.



FRONT VIEW



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

D.L.D.: 3/21/00

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SNOHOMISH COUNTY PUBLIC WORKS

4-204

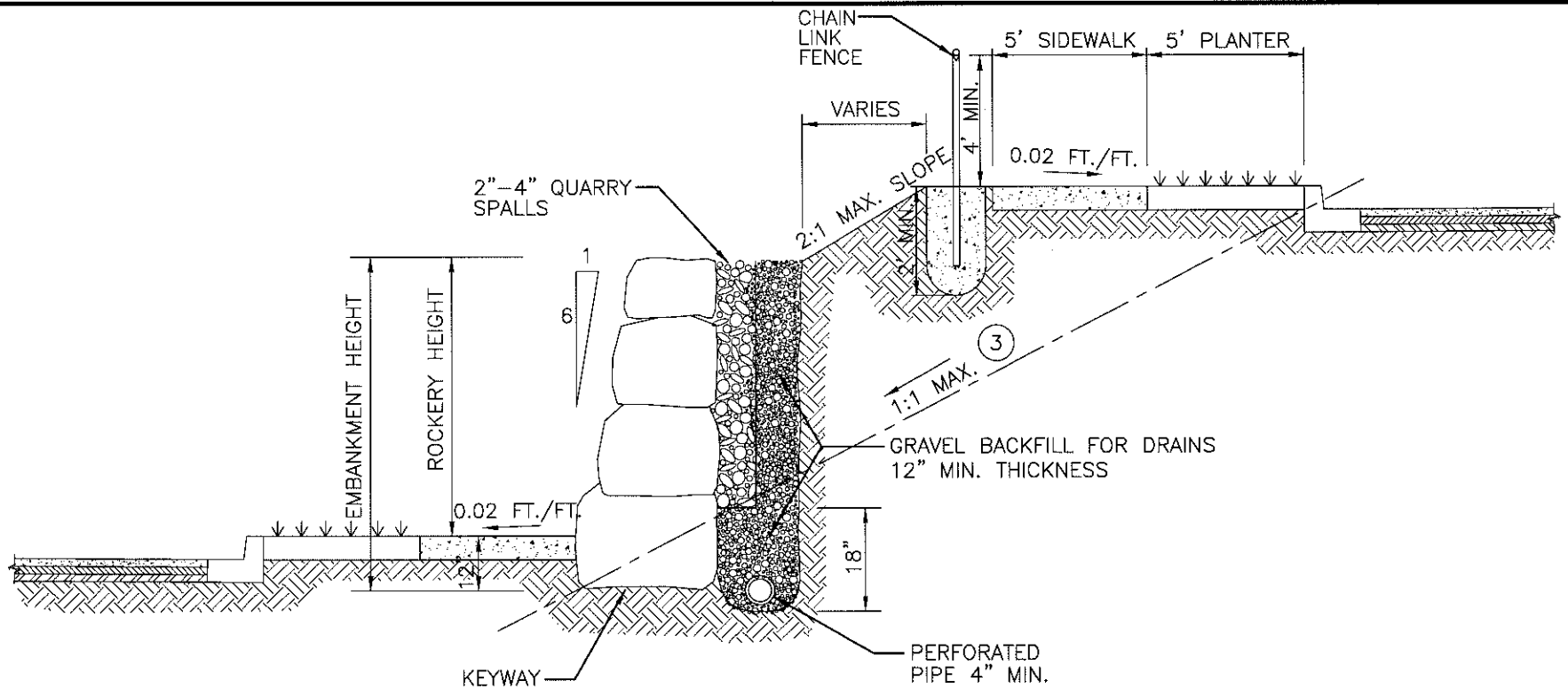
ORNAMENTAL HANDRAIL DETAILS

APPROVED BY:

Steve E. Morrison 2-25-03

COUNTY ROAD ENGINEER

DATE



NOTES:

NOT TO SCALE

1. SEE TEXT SECTION 4-17. ROCKERIES SHALL BE DESIGNED BY A GEOTECHNICAL 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.

	SNOHOMISH COUNTY PUBLIC WORKS		APPROVED BY:
	4-210	ROCKERY	10-1-04 COUNTY ROAD ENGINEER DATE