

SANITARY SEWERS

6.1 GENERAL.
CONSTRUCTION OF ALL SANITARY SEWER SHALL BE IN ACCORDANCE WITH THE STATE OF WASHINGTON'S STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, CRITERIA FOR SEWAGE WORKS DESIGN PREPARED BY THE DEPARTMENT OF ECOLOGY, AMERICAN WATER WORKS ASSOCIATION (AWWA) GUIDELINES, AND THESE STANDARDS, IF ANY INCONSISTENCIES OCCUR THESE STANDARDS SHALL HAVE PRECEDENCE.
SANITARY SEWER DESIGN AND CONSTRUCTION SHALL BE IN CONFORMANCE TO THESE STANDARDS AND TITLE 23 OF THE MONROE MUNICIPAL CODE (MMC).

6.2 DESIGN STANDARDS

6.2.1 SEWER MAIN LINE DESIGN STANDARDS
NEW SANITARY SEWERS SHALL BE DESIGNED IN ANTICIPATION OF FUTURE DEVELOPMENT OR REDEVELOPMENT BEYOND THE BOUNDARIES OF THE PROPOSED PROJECT.
THE MINIMUM SIZE SEWER MAIN SHALL BE 6 INCHES IN DIAMETER, EXCEPT A 4-INCH DIAMETER DEAD END LINE CAN BE INSTALLED IF ALL OF THE FOLLOWING REQUIREMENTS ARE MET:
1. THE MAXIMUM NUMBER OF RESIDENTIAL UNITS IS EIGHT.
2. THE 6-INCH LINE IS NO LONGER THAN 150 FEET.
3. A MANHOLE IS INSTALLED WHERE THE 6-INCH CONNECTS TO THE MAIN LINE.
4. THE MINIMUM SLOPE IS ONE FOOT PER 100 FEET.
SEWERS SHALL HAVE STRAIGHT ALIGNMENT BETWEEN MANHOLES, MAXIMUM LENGTH OF RUN BETWEEN MANHOLES SHALL BE 400 FEET.
SEWERS ON 20% SLOPE OR GREATER MUST BE ANCHORED SECURELY WITH CONCRETE ANCHORS OR THIRTY-SIX FOOT SPACING ON GRADES 20% TO 35%, TWENTY-FOUR FOOT SPACING ON GRADES 35% TO 50 %, SIXTEEN-FOOT SPACING ON GRADES OVER 50%.
SEWER MAINS OUTSIDE PUBLIC RIGHT-OF-WAY SHALL BE IN A 20-FOOT-WIDE EASEMENT, PROVIDE VEHICLE ACCESS TO ALL MANHOLES LOCATED IN EASEMENTS.
SEWER MAINS SHALL BE LAID BELOW WATER MAINS AT CROSSINGS TO PROVIDE A VERTICAL SEPARATION OF 18 INCHES BETWEEN THE INVERT OF THE WATER PIPE AND THE CROWN OF THE SEWER IF LOCAL CONDITIONS PREVENT THE MINIMUM VERTICAL SEPARATION SEE CHAPTER 2C OF THE DOE CRITERIA FOR SEWAGE WORKS DESIGN MANUAL FOR EXCEPTIONS.
NEW GRAVITY SEWER SYSTEMS SHALL BE DESIGNED ON THE BASIS OF AN AVERAGE DAILY PER CAPITA FLOW OF SEWAGE FOUND IN TABLE G2-2 OF THE CRITERIA FOR SEWAGE WORKS DESIGN. IN GENERAL, SEWERS SHOULD BE DESIGNED WITH A PEAKING FACTOR OF 4 TO BE APPLIED TO THE AVERAGE DAILY PER CAPITA FLOW RATE. OTHER FLOW RATES MAY BE PROPOSED AND BE BASED ON FLOW RATES FROM THE CRITERIA FOR SEWAGE WORK DESIGN AS PUBLISHED BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY.

PIPE DIAMETER, SLOPE AND FLOW VELOCITY SHALL COLLECTIVELY BE CONSIDERED IN THE DESIGN OF THE SEWER MAIN. THE CRITERIA FOR SEWAGE WORKS DESIGN PROVIDES GUIDELINES ON MINIMUM SLOPES FOR PIPE DIAMETERS. LARGER PIPE DIAMETERS SHALL NOT BE SELECTED SOLELY TO ACHIEVE LESSER SLOPES WITHOUT REGARD TO THE REQUIRED FLOW VELOCITY. IF THE SEWER MAIN TERMINAL RUN IS NOT EXPECTED TO BE EXTENDED IN THE FUTURE, SAID TERMINAL RUN SLOPE SHALL BE NOT LESS THAN 1%.
DESIGN DEPTH OF SEWER MAIN SHALL BE A MINIMUM OF 3 FEET FROM FINISH GRADE TO TOP OF PIPE. AN "N" VALUE OF .013 SHALL BE USED IN MANNING'S FORMULA FOR THE DESIGN OF ALL SEWER FACILITIES (REGARDLESS OF THE PIPE MATERIAL). INVERTED SIPHONS CAN USE AN "N" VALUE OF UP TO .015.

6.2.2 SIDE SEWER DESIGN STANDARDS

ALL CONNECTIONS TO PUBLIC SEWER SHALL BE BY A GRAVITY CONNECTION UNLESS APPROVED OTHERWISE BY THE DIRECTOR. THE CONNECTION SHALL BE MADE USING A GASKETED WYE IF ASSOCIATED WITH A NEW SEWER MAIN CONSTRUCTION.
EACH SINGLE-FAMILY RESIDENTIAL LOT SHALL BE SERVICED BY A SINGLE SIDE SEWER CONNECTION TO THE PUBLIC SEWER MAIN. EACH COMMERCIAL BUILDING SHALL BE SERVICED BY AT LEAST ONE SEPARATE SIDE SEWER CONNECTING TO THE PUBLIC MAIN. SHARING OF SIDE SEWERS BETWEEN SEPARATE PROPERTIES IS NOT ALLOWED.
SIDE SEWERS SHALL BE SIZED IN ACCORDANCE WITH MMC 23.60.01(C) AND BE EXTENDED TO THE PROPERTY LINE/EDGE OF EASEMENT OR THE DRY UTILITIES, WHICHEVER IS FARTHEST. THE DEPTH OF THE SIDE SEWER STUB SHALL BE INDICATED IN THE FIELD BY THE DEVELOPER USING A 2-INCH BLACK STENCILED NUMERAL ON A WHITE 2X4 MARKER POST ALONG WITH THE WORD "SEWER" AND THE DEPTH OF BURY NOTED.

IN GENERAL, SIDE SEWERS SHALL BE A MINIMUM DEPTH OF 4 FEET AT THE PROPERTY LINE. CLEANOUTS ARE REQUIRED EVERY 100 FEET AND AT THE BUILDING CONNECTION, AT 90-DEGREE BENDS, OR COMBINATIONS OF BENDS GREATER THAN 45 DEGREES. THE MINIMUM SLOPE FOR 4" AND 6" DIAMETER SIDE SEWERS SHALL BE 2%. CONNECTION TO AN EXISTING MAIN LINE MUST BE CORE DRILLED, SEE STANDARD PLAN NO. 411. TEN GAUGE INSULATED LOCATOR WIRE OR APPROVED TRACER TAPE MANUFACTURED FOR SUCH PURPOSE MUST RUN ALONG THE SIDE SEWER WITHOUT BREAK AND TERMINATE AT THE SEWER STUB MARKER OR CLEAN OUT AT THE BUILDING. THE WIRE MUST EXTEND UP THE SEWER MARKER BOARD TO A HEIGHT OF 3 FEET FOR NEW CONSTRUCTION. MEASUREMENT FROM THE DOWNSTREAM MANHOLE TO EACH SIDE SEWER LATERAL SHALL BE ACCURATELY SHOWN ON THE RECORD DRAWINGS.

6.2.3 MANHOLE DESIGN STANDARDS

MANHOLES SHALL NOT BE LOCATED IN CURBS OR LOW POINTS, NOR LOCATED IN SIDEWALKS OR CROSSWALKS UNLESS APPROVED BY THE CITY. MANHOLES PLACED IN UNPAVED AREAS SHALL HAVE A 12-INCH WIDE BY 2-INCH MINIMUM DEPTH ASPHALTIC RING AROUND THE EXTERNAL CASTING. ASPHALT SHALL BE PLACED ON A FIRM AND UNYIELDING BASE.
MANHOLES ARE REQUIRED AT CHANGES IN PIPE SLOPE, ALIGNMENT, OR SIZE. A MANHOLE IS REQUIRED AT THE END OF ALL SEWER MAINS, PROVIDED THAT A CLEANOUT MAY BE INSTALLED AT THE END OF SEWER RUNS LESS THAN 200 FEET AND HAVING A MINIMUM SLOPE OF 1%, AND THAT WILL BE EXTENDED IN THE FUTURE.
THE CHANNEL DROP WITHIN MANHOLES MUST BE 0.1 FOOT FROM INFLOW TO OUTFLOW. THE MINIMUM INSIDE DIAMETER OF MANHOLES SHALL BE 48 INCHES. A 54-INCH MANHOLE IS REQUIRED FOR PIPE CONNECTIONS LARGER THAN 24 INCHES IN DIAMETER, OR IF AN INSIDE DROP MANHOLE IS PROPOSED. MANHOLES DEEPER THAN 19 FEET SHALL BE A MINIMUM OF 60 INCHES IN DIAMETER.

ROADWAYS

3.1 GENERAL REQUIREMENTS

All work performed in the design, preparation of plans, and construction or improvement of all streets and appurtenances, whether public or private, is the responsibility of the Developer and must be completed to the satisfaction of the Public Works Director in accordance with these standards.
All design and construction of public and private streets and appurtenances shall conform to these Standards, the latest editions of the WSDOT/APWA Standard Specifications and the AASHTO Policy on Geometric Design of Highways and Streets.
If inconsistencies arise, the City of Monroe Design and Construction Standards shall take precedence.
No permits will be issued to start work until plans for the work are approved and the necessary bonds have been provided.
Any revisions to previously approved civil construction plans must be submitted to and approved by the Public Works Director before construction. A set of record drawings must be submitted at the completion of the project. Final acceptance of the work is conditioned on approval of record drawings. See individual utility sections of the City of Monroe Design and Construction Standards for more specific record drawing requirements.
The Monroe Municipal Code and the City of Monroe Design and Construction Standards establish requirements for the installation of street improvements. Permit applications may be reviewed at a scheduled pre-application conference with the Developer or at the time of permit application submittal and/or issuance.
See Section 1 - General Considerations, for construction plans requirements and required Standard Notes on Plans.

5.4 MATERIALS

5.4.1 GENERAL.
ALL PIPES, FITTINGS, VALVES, HYDRANTS, JOINTS, AND OTHER COMPONENTS SHALL CONFORM TO AWWA, APWA/WSDOT STANDARDS, AND BE OBTAINABLE FOR USE BY THE CITY OF MONROE. METAL THICKNESS AND MANUFACTURING PROCESS SHALL CONFORM TO APPLICABLE PORTIONS OF ASTM STANDARDS A21.10, A21.11, B16.2, AND B16.4.
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5.4.2 PIPE

ALL WATER MAIN DISTRIBUTION PIPE SHALL BE CLASS 52 DUCTILE IRON PIPE, CEMENT LINED, STANDARD CLASS RATING OF 350 PSI CONFORMING TO ANSI A21.51 AND AWWA C151. PIPE EXTENDING FROM THE WATER MAIN TO THE METER FOR ALL SERVICES UP TO 2-INCH DIAMETER SHALL BE REHAU MUNICIPEX PEX A, OR TYPE K COPPER TUBING. SERVICE LINES LARGER THAN 2-INCH DIAMETER SHALL BE HDPE POLYETHYLENE OR CLASS 52 DUCTILE IRON.
THE PIPE SHALL BE FURNISHED WITH MECHANICAL JOINT OR PUSH-ON JOINT, CONFORMING TO ANSI/AWWA C111/A21.11-85 STANDARDS, EXCEPT WHERE FLANGED JOINTS ARE SPECIFIED.
BRASS PIPING SHALL CONFORM TO ASTM B43.
DUCTILE IRON PIPE SHALL BE CLASS 52 DUCTILE IRON PIPE, CEMENT LINED, STANDARD THICKNESS CLASS 52, UNLESS OTHERWISE SPECIFIED AND SHALL CONFORM TO THE STANDARDS OF USA STANDARD A21.51 (AWWA C151), AND BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. GRADE OF IRON SHALL BE 60-42-10 AND THE EXTERIOR SHALL BE COATED WITH AN ASPHALTIC COATING. EACH LENGTH SHALL BE PLAINLY MARKED WITH THE MANUFACTURER'S IDENTIFICATION, YEAR, CAST OR CASTING PERIOD, THICKNESS AND CLASS OF PIPE, THE PIPE SHALL BE FURNISHED WITH MECHANICAL JOINT OR PUSH-ON JOINT, CONFORMING TO ANSI/AWWA C111/A21.11-85 STANDARDS, EXCEPT WHERE FLANGED JOINTS ARE SPECIFIED.

5.4.3 JOINTS AND FITTINGS

CONNECTION TYPES SHALL BE SPECIFIED AS PUSH-ON-JOINT (TYTON), MECHANICAL JOINT (MJ), OR FLANGED AS INDICATED ON THE DRAWINGS.
ALL FITTINGS FOR DUCTILE IRON PIPE SHALL BE DUCTILE IRON COMPACT (SHORT BODY) FITTINGS CONFORMING TO AWWA C153 OR CLASS 250 GRAY IRON CONFORMING TO AWWA C110 AND C111. ALL FITTINGS SHALL BE CEMENT MORTAR LINED CONFORMING TO AWWA C104. PLAIN END FITTINGS SHALL BE DUCTILE IRON IF MECHANICAL JOINT RETAINER GLANDS ARE INSTALLED ON THE FLAM ALL FITTINGS SHALL BE CONNECTED BY FLANGES OR MECHANICAL JOINTS.
FLANGES SHALL BE CLASS 250 DRILLED IN ACCORDANCE WITH ANSI A21.10.
RUBBER GASKETS FOR PUSH-ON JOINT (TYTON) OR MECHANICAL JOINT (MJ) SHALL CONFORM TO AWWA C110, C111 OR C153. WHERE SHACKLE RESTRAINT IS REQUIRED, THE RODS SHALL BE 3/4-INCH DIAMETER; THE BOLTS SHALL BE 3/4-INCH CONFORMING TO STAR NATIONAL PRODUCTS NO. S377 OR APPROVED EQUAL.
RESTRAINED JOINT ASSEMBLIES SHALL BE STAR NATIONAL NO. S11 OR APPROVED EQUAL. ALL PARTS SHALL BE CADMIUM PLATED.

5.4.4 PIPE BEDDING

NATIVE MATERIAL MAY NORMALLY BE USED FOR BEDDING OF DUCTILE IRON PIPE UNLESS DETERMINED UNSUITABLE AS PER WSDOT 7-09.3(9). BEDDING MATERIAL, WHEN SPECIFIED OR REQUIRED BY 12 THE DIRECTOR, SHALL BE WASHED SAND PER SECTION 5-4.20 OF THESE STANDARDS AND AS PER STANDARD DETAIL 102. BEDDING IS DEFINED AS 6 INCHES BELOW THE PIPE, AROUND THE PIPE AND 12-INCHES ABOVE THE PIPE.

5.4.5 BACKFLOW PREVENTION ASSEMBLIES

THE FOLLOWING TYPES OF ASSEMBLIES ON THE APPROVED WASHINGTON STATE DEPARTMENT OF HEALTH LIST MAY BE USED ON WATER DISTRIBUTION SYSTEMS AS REQUIRED:
REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA)
REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA)
DOUBLE CHECK DETECTOR ASSEMBLY (DCDA)
DOUBLE CHECK VALVE ASSEMBLY (DCVA)
AIR GAP

IF ASSEMBLIES ARE TO BE VERTICALLY ORIENTED, USE A TYPE AND MODEL APPROVED BY THE DOH FOR VERTICAL INSTALLATION. BACKFLOW ASSEMBLIES FOR FIRE PROTECTION SUPPLY LINES SHALL HAVE APPROVED INTEGRATED SHUTOFF VALVES AS PART OF THE ASSEMBLY.

5.4.6 VALVES

5.4.6.1 GENERAL
RESILIENT SEAL, OPENING COUNTER-CLOCKWISE, NON-RISING STEM TYPE, WITH DOUBLE O-RING SEAL EQUIPPED WITH STANDARD 2-INCH SQUARE STEM NUTS.
VALVES SHALL BE FLANGED OR MECHANICAL JOINT, SUITABLE FOR INSTALLATION WITH THE TYPE AND CLASS OF PIPE BEING USED.

5.4.6.2 AIR AND VACUUM RELEASE VALVES

AIR AND VACUUM RELEASE VALVES SHALL BE CRISPIN CRVL-10 OR 20 OR APPROVED SEE STANDARD DRAWING 511.

5.4.6.3 BUTTERFLY VALVES

BUTTERFLY VALVES SHALL CONFORM TO AWWA STANDARD C504-94 CLASS 150-B, WITH CAST-IRON SHORT-BODY AND O-RING STEM SEAL. BUTTERFLY VALVES IN CHAMBERS SHALL HAVE A MANUAL CRANK OPERATION. BURIED BUTTERFLY VALVES SHALL HAVE A STANDARD 2-INCH OPERATING NUT AND VALVE BOX. DIRECT-BURIED VALVES SHALL BE GROUND RATED. ONLY THE FOLLOWING PRATT "GROUNDHOG" M & H "450" OR "4500" MUELLER "LINESAL 111"

5.4.6.4 CHECK VALVES

CHECK VALVES FOR PERMANENT INSTALLATIONS OTHER THAN FOR CROSS-CONNECTION CONTROL SHALL BE RATED TO MATCH THE SOURCE PRESSURE, UNLESS OTHERWISE SPECIFIED, AND SHALL HAVE AN ADJUSTABLE TENSION LEVER AND SPRING TO PROVIDE NON-SLAMMING ACTION UNDER ALL CONDITIONS UNLESS OTHERWISE SPECIFIED. FOR BACKFLOW PREVENTION SEE SECTION 5.4.5.

5.4.6.5 GATE VALVES

GATE VALVE MATERIALS SHALL CONFORM TO AWWA C509-80 LATEST REVISION.
GATE VALVES SHALL CONFORM TO ANSI/AWWA C509 STANDARDS FOR RESILIENT-SEATED DISC GATE VALVES. THE VALVE SEATING SURFACE OF THE MUELLER A2341 OR A2342 D BODY VALVES TYPE, OR APPROVED EQUAL, THE VALVES SHALL BE IRON-BODIED. IRON DISK ENCAPSULATED WITH RUBBER AND BRONZE OR EPOXY COATED, NON-RISING STEM WITH "O" RING SEALS. THE SEALING RUBBER SHALL BE PERMANENTLY BONDED TO THE DISK TO MEET ASTM D429 TESTS FOR RUBBER TO METAL BOND. ALL VALVES SHALL BE RATED FOR AN OPERATING PRESSURE OF AT LEAST 200 PSI. THE VALVES SHALL OPEN COUNTER-CLOCKWISE AND BE FURNISHED WITH A 2-INCH SQUARE OPERATING NUT. ALL INTERIOR AND EXTERIOR VALVE SURFACES SHALL BE FUSION-BONDED EPOXY COATED, ACCEPTABLE FOR POTABLE WATER.
ALL VALVES SHALL BE VERTICAL MOUNTED AND WITHOUT GEARINGS.

5.4.7 VALVE ASSEMBLIES

THE PIPING ON THE INLET SIDE OF THE ASSEMBLY SHALL BE RIGID BRASS OR COPPER. GALVANIZED PIPE IS NOT ALLOWED.

5.4.8 VALVE BOXES

VALVE BOXES IN PAVED AREAS SHALL BE CAST IRON, TWO-PIECE UNITS DESIGNED WITH TABS (LUGS) ON THE COVER. DIRECTION OF TABS SHALL BE ALIGNED WITH THE PIPE LINE IT SERVES. THE VALVE BOX SHALL BE AN (E) EAST JORDAN VALVE BOX BOTTOM PROJECT NUMBER (85556024U), A VALVE BOX TOP NUMBER (85557016U), AND A VALVE BOX COVER NUMBER (04800001U), OR APPROVED EQUAL.

5.4.9 VALVE MARKER POSTS

VALVE MARKER POSTS SHALL BE SET AS DIRECTED BY THE DIRECTOR. CARSONITE MARKERS SHALL BE BLUE, 5-FEET LONG, WITH WATER DECAL AND ANCHOR. SEE STANDARD DRAWING 507.

5.4.10 HYDRANTS

HYDRANTS SHALL CONFORM TO AWWA C502-85 STANDARDS. FIRE HYDRANTS SHALL HAVE TWO 2-1/2-INCH HOSE PORTS, ONE 4-1/2-INCH PUMPER PORT (NATIONAL STANDARD THREADS), 4-INCH STORZ QUICK CONNECT AND A 1-1/4-INCH VALVE OPENING; 1-1/4-INCH PENTAGON OPERATING NUT, COUNTER-CLOCKWISE DIRECTION OF OPENING; AND POSITIVE AND AUTOMATIC BARREL DRAIN.
HYDRANTS SHALL BE PROVIDED WITH MECHANICAL JOINT BOTTOMS AND BREAKING FLANGE OR LUGS.
ONLY THE FOLLOWING HYDRANTS WILL BE ACCEPTED:
MUELLER CENTURION
WATEROUS PACER W8-67-250
EAST JORDON SC0250 NORTHWEST EDITION WITH 5-1/4 VALVE

5.4.11 HYDRANT GUARD POSTS

HYDRANT GUARD POSTS, WHEN REQUIRED, SHALL BE EITHER REINFORCED CONCRETE POSTS 8-INCH BY 8-INCH BY 6-FEET LONG, OR 6-INCH DIAMETER BY 6-FEET LONG SCHEDULE 40 STEEL PIPE, CONCRETE-FILLED PER STANDARD DRAWING 507.

5.4.12 THRUST BLOCKING

CEMENT CONCRETE BLOCKING SHALL BE COMPRISED OF CLASS 3000 CEMENT CONCRETE MIX WITH PLASTIC SHEET PROTECTION BETWEEN CONCRETE AND DUCTILE IRON, LEAVING ALL FITTING BOLTS AND NUTS EXPOSED.

5.4.13 SERVICE LINES FROM METER TO THE BUILDING

POLYETHYLENE TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM D2737 CTS FOR 1-INCH, 1 1/2-INCH AND 2-INCH SIZES. THE PIPE SHALL BE COPPER TUBE SIZE (CTS) AND BEAR THE SEAL OF THE NATIONAL SANITATION FOUNDATION FOR POTABLE WATER PIPE. MINIMUM WORKING PRESSURE SHALL BE 250 PSI. SOLVENT WELDED PIPE JOINTS WILL NOT BE PERMITTED.
DUCTILE IRON PIPE SHALL CONFORM TO THE REQUIREMENTS IN SECTION 5-4.02 PIPE FOR SIZES 3-INCH AND LARGER.

5.4.13.1 SMALL METER SERVICES (3/4-INCH X 5/8-INCH, 1-INCH, 1 1/2-INCH, 2-INCH)

SEE STANDARD DRAWINGS 501 AND 502.

STORMWATER SITE PLAN (SWPPP)

TESC Element #1: Preserve Vegetation / Mark Clearing Limits

Prior to beginning earth-disturbing activities, including clearing and grading, all clearing limits will be clearly marked, both in the field and on the plans, to prevent damage and offsite impacts.

Recommended BMPs

BMP C101: Preserving Native Vegetation

Silt fence

Orange construction fencing.

TESC Element #2: Establish Construction Access Route

Construction vehicle access will be limited to one route at each driveway. The access point will be stabilized with quarry spalls or crushed rock to minimize the tracking of sediment onto public roads.

Public roads shall be cleaned thoroughly at the end of each day. Sediment shall be removed from roads by shoveling or sweeping and shall be returned to the project site or hauled away.

Recommended BMPs

BMP C105: Stabilized Construction Entrance

BMP C107: Construction Road/Parking Stabilization

NOTE: Most work on this project will occur immediately adjacent to the existing roadway. Excavated material can be loaded into the haul vehicle without extensively traversing the site.

TESC Element #3: Flow Rate Controls

Properties and waterways downstream from the proposed site development will be protected from erosion due to increases in the volume, velocity, and peak flow rate of storm water runoff from the project site, by meeting or exceeding the DOE mandated runoff quantity and quality requirements.

Recommended BMPs

None proposed. Runoff will flow to adjacent grass areas that are essentially flat.

TESC Element #4: Sediment Controls

Prior to leaving a construction site, storm water runoff from disturbed areas will pass through an appropriate sediment removal BMP.

Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but must meet the flow control performance standard of TESC Element #3.

Skagit County will inspect and approve areas stabilized by means other than pavement or quarry spalls. Vegetated buffer strips, sediment barriers or filters, dikes, and other BMPs intended to trap sediment on-site will be constructed as one of the first steps in grading. These BMPs will be functional before other land disturbing activities take place

Recommended BMPs

BMP C232: Silt Fence, and/or

BMP C235: Straw Wattles

Other Available BMPs:

BMP C208: Triangular Silt Dike, and/or

BMP C240: Sediment Trap

TESC Element #5: Soil Stabilization

All exposed and un-worked soils will be stabilized by application of effective BMPs, which will protect the soil from the erosive forces of raindrop impact, flowing water and wind erosion.

From October 1 to March 31, no soils will remain exposed and un-worked for more than 2 days. This condition applies to all soils on site, whether at final grade or not.

Applicable practices include, but are not limited to, temporary and permanent seeding, sodding, mulching, plastic covering, the early application of gravel base on areas to be paved or graveled, and dust control.

Soil stabilization measures selected should be appropriate for the time of year, site conditions, estimated duration of use, and potential water quality impacts that stabilization agents may have on downstream waters or ground water.

Soil stockpiles must be stabilized and protected with sediment trapping measures.

Recommended BMPs

BMP C120: Temporary and Permanent Seeding, and/or

BMP C121: Mulching, and/or

BMP C123: Plastic Covering

TESC Element #6: Slope Protection & Stabilization

Cut and fill slopes will be designed, constructed and maintained in a manner that will minimize erosion.

NOTE: No significant slopes are present within the development area of the project, nor are there significant cut banks or fill areas are anticipated for this site.

Recommended BMPs:

None proposed.

TESC Element #7: Drain Inlet Protection

Drain inlets installed by this project will be protected from sediment-laden flows, and directed to sediment trapping facilities.

BMP C220: Inlet Protection

TESC Element #8: Stabilize Channels and Outlets

All temporary on-site conveyance channels and sheetflow surfaces shall be constructed and stabilized to prevent erosion from the expected velocity of flow from a 2 year, 24-hour frequency storm for the developed condition. Stabilization, including armoring material, adequate to prevent erosion of slopes and downstream reaches will be provided for all designed conveyance systems and sheetflow surfaces.

Note: There are no existing or proposed channels on the site. The adjacent drainage canal is heavily vegetated and slow-moving with no risk of erosion from site runoff contributions.

Recommended BMPs:

None proposed.\-

TESC Element #9: Control Pollutants

All pollutants, including construction waste materials and demolition debris, that occur on-site during construction will be handled and disposed of in a manner that does not cause contamination of storm water. Cover, containment, and protection from vandalism will be provided for all chemicals, liquid products, petroleum products, and non-hurt wastes present on the site (see Chapter 173-304 WAC for the definition of inert waste).

Maintenance and repair of heavy equipment and vehicles involving oil changes, hydraulic system drain down, solvent and de-greasing cleaning operations, fuel tank drain down and removal, and other activities which may result in discharge or spillage of pollutants to the ground or into storm water runoff must be conducted using spill prevention measures, such as drip pans.

Contaminated surfaces will be cleaned immediately following any discharge or spill incident. Emergency repairs shall employ temporary plastic sheeting placed beneath and, if raining, over the vehicle.

Application of agricultural chemicals, including fertilizers and pesticides, will be conducted in a manner and at application rates that will not result in the conveyance of chemical into storm water runoff. Manufacturers' recommendations will be followed for application rates and procedures. Management of pH-modifying sources will prevent contamination of runoff and storm water collected on the site. These sources include, but are not limited to, bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, and concrete pumping and mixer washout waters.

Recommended BMPs

BMP C154: Concrete Washout Area

TESC Element #10: Control De-Watering

All turbid de-watering water, which has similar characteristics to storm water runoff at the site, will be discharged into a controlled environment. Highly turbid or otherwise contaminated dewatering water, such as from the washing of construction equipment operation will be handled separately from storm water at the site. Disposal options may include: 1) infiltration by pumping to vegetated areas for dissipation 2) transport off-site in vehicle, such as a vacuum haul truck, for legal disposal in a manner that does not pollute state waters, or 3) on-site treatment using chemical treatment or other suitable treatment technologies.

Recommended BMPs

No de-watering is proposed for this project.

TESC Element #11: Maintain BMPs

All temporary and permanent erosion and sediment control BMPs will be maintained and repaired as needed to assure continued performance of their intended function.

All maintenance and repair will be conducted in accordance with BMPs. Sediment control BMPs will be inspected after a runoff-producing storm event during the dry season and daily during the wet season. All temporary erosion and sediment control BMPs will be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed.

Trapped sediment will be removed or stabilized on site.

Disturbed soil areas resulting from removal of BMPs or vegetation will be permanently stabilized.

TESC Element #12: Manage the Project

The project will be conducted to prevent, to the maximum extent practicable, the transport of sediment from the development site during construction. Revegetation of exposed areas and maintenance of vegetation will be an integral part of the clearing activities.

Based on the information provided, and/or local weather conditions, the local permitting authority may expand or restrict the seasonal limitation on site disturbance. If, during the course of any construction activity or soil disturbance during the seasonal limitation period, silt-laden runoff leaving the construction site causes a violation of the surface water quality standard or if clearing and grading limits or erosion and sediment control measures shown in the approved plan are not maintained, the local permitting authority may take enforcement action, including, but not limited to a notice of violation, administrative order, penalty, or stop-work order.

The following activities are exempt from the seasonal clearing and grading limitations:

1. Routine maintenance and necessary repair of erosion and sediment control BMPs and;
2. Activities where there is one hundred percent infiltration of surface water runoff within the site in approved and installed erosion and sediment control facilities.

All BMPs will be inspected, maintained, and repaired as needed to assure continued performance of their intended function. Whenever inspection and/or monitoring reveals that the BMPs identified in the Construction SWPPP are inadequate, due to the actual discharge or potential to discharge a significant amount of any pollutant, the SWPPP will be modified, as appropriate, in a timely manner.

This Construction SWPPP will be retained on-site or within reasonable access to the site. The Construction SWPPP will be modified whenever there is a significant change in the design, construction, operation, or maintenance of any BMP.

Element 13: Protect Low Impact Development BMPs

- Protect all Bioretention and Rain Garden BMPs from sedimentation through installation and maintenance of erosion and sediment control BMPs on portions of the site that drain into the Bioretention and/or Rain Garden BMPs. Restore the BMPs to their fully functioning condition if they accumulate sediment during construction. Restoring the BMP must include removal of sediment and any sediment-laden Bioretention/rain garden soils, and replacing the removed soils with soils meeting the design specification.
- Prevent compacting Bioretention and rain garden BMPs by excluding construction equipment and foot traffic. Protect completed lawn and landscaped areas from compaction due to construction equipment.
- Control erosion and avoid introducing sediment from surrounding land uses onto permeable pavements. Do not allow muddy construction equipment on the base material or pavement. Do not allow sediment-laden runoff onto permeable pavements or base materials.
- Keep all heavy equipment off existing soils under LID facilities that have been excavated to final grade to retain the infiltration rate of the soils.

Recommended BMPs

No Rain Gardens, Bioretention or similar LID elements are proposed. Downspout Infiltration Trenches will be constructed as part of the individual lot development.



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 Drafter: DLERVCK
 Checked By: DLERVCK
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 2: --
 3: --
 4: --

ARCELLIA & RAMON HENRIQUEZ
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HENRIQUEZ 149TH PLACE
SHORT PLAT

3.7 ASPHALT, CONCRETE AND PAVEMENT PATCHING

3.7.1 DESCRIPTION

THIS WORK CONSISTS OF ASPHALT CONCRETE PAVING AND THE PATCHING OF VARIOUS TYPES OF PAVEMENT CUTS, THE PERFORMANCE OF WHICH MUST BE IN ACCORDANCE WITH THE MONROE STANDARDS, THE CURRENT WSDOT/APWA STANDARD SPECIFICATIONS AND STANDARD DETAIL 317.

3.7.2 MATERIALS

ALL MATERIALS MUST CONFORM TO THE REQUIREMENTS IN THE WSDOT/APWA STANDARD SPECIFICATIONS AS FOLLOWS:

- 1. ASPHALT CONCRETE PAVEMENT, INCLUDING PATCHING, MUST CONFORM TO HOT MIX ASPHALT MEETING THE REQUIREMENTS OF 5-04.9(2) AND 9-03.
2. PAVING ASPHALT MUST CONFORM TO GRADE PG 58H-22.
3. ASPHALT FOR A TEMPORARY PATCH MUST MEET THE REQUIREMENTS OF 9-02.
4. TACK COAT MUST BE EMULSIFIED ASPHALT GRADE CSS-1H OR PERFORMANCE GRADED (PG) ASPHALT FOR TACK COAT AS SPECIFIED IN 9-02.1(6).
5. CRACK SEALING MUST CONFORM TO ASPHALT RUBBER MATERIAL.
6. GEOTEXTILE FABRIC FOR PAVEMENT REINFORCEMENT MUST BE NEEDLE-PUNCH NON-WOVEN 100 PERCENT POLYPROPYLENE. PRODUCTS SUCH AS PETROMAT OR SUPAC AS MANUFACTURED BY PHILLIPS FIBER CORPORATION ARE ACCEPTABLE. OTHER PRODUCTS MAY BE SUBMITTED BY THE DEVELOPER FOR REVIEW AS EQUAL SUBSTITUTIONS.
7. ASPHALTIC BINDER FOR USE WITH GEOTEXTILE FABRIC MUST CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS FOR THE FABRIC USED. CUTBACK ASPHALTS CANNOT BE USED WITH POLYPROPYLENE FABRICS DUE TO REACTIONS WITH SOLVENTS AT HIGH TEMPERATURES.
8. CRUSHED SURFACING TOP AND BASE COURSES MUST MEET THE REQUIREMENTS OF 9-03.9.(3).
9. CEMENT CONCRETE PAVEMENT PATCH MUST BE CLASS 4000 MEETING THE REQUIREMENTS OF 6-02.
10. PERMEABLE PAVEMENT AND PERVIOUS CONCRETE PAVEMENT SPECIFICATIONS HAVE NOT YET BEEN UNIVERSALLY ADOPTED BY A BROAD CROSS-SECTION OF PUBLIC AND PRIVATE AGENCIES. PROPOSED PERMEABLE PAVEMENT AND PERVIOUS CONCRETE SECTIONS AND MATERIALS WILL BE REVIEWED ON A CASE-BY-CASE BASIS UTILIZING THE MOST CURRENT BEST MANAGEMENT PRACTICES AT THE TIME OF SUBMITTAL. THE CITY RESERVES THE RIGHT TO MAKE THE FINAL DECISION ON ALL PERMEABLE PAVEMENT PROPOSALS ON STREETS THAT WILL ULTIMATELY BE OWNED AND MAINTAINED BY THE CITY.

PAVING FABRIC

- 1. SCOPE OF WORK: THIS WORK SHALL CONSIST OF FURNISHING AND PLACING AN ASPHALT OVERLAY GEOTEXTILE (PAVING FABRIC) BENEATH A PAVEMENT OVERLAY OR BETWEEN PAVEMENT LAYERS TO PROVIDE A MOISTURE BARRIER MEMBRANE AND A STRESS ABSORBING INTERLAYER.
2. MATERIAL REQUIREMENTS

- 2.1 PAVING FABRIC: PAVING FABRIC WILL BE A STAPLE FIBER, NEEDLE-PUNCHED, NON-WOVEN MATERIAL CONSISTING OF AT LEAST 85 PERCENT BY WEIGHT POLYOLEFINS, POLYESTERS, OR POLYAMIDES. THE PAVING FABRIC SHALL BE RESISTANT TO CHEMICAL ATTACK, ROT, MILDEW AND SHALL HAVE NO TEARS OR DEFECTS THAT WILL ADVERSELY ALTER ITS PHYSICAL PROPERTIES. THE FABRIC SHALL BE SPECIFICALLY DESIGNED FOR PAVEMENT APPLICATIONS AND BE HEAT-SET ON ONE SIDE TO REDUCE TACK COAT BLEED THROUGH AND TO MINIMIZE FABRIC PICKUP BY CONSTRUCTION EQUIPMENT DURING INSTALLATION. THE FABRIC SHALL MEET THE PHYSICAL REQUIREMENTS SPECIFIED IN TABLE 1.
2.2 TACK COAT: THE TACK COAT USED TO IMPREGNATE THE FABRIC AND BOND THE FABRIC TO THE PAVEMENT IS TYPICALLY THE SAME GRADE ASPHALT CEMENT AS USED IN THE HOT MIX ASPHALT. A CATIONIC OR ANIONIC EMULSION MAY BE USED AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL FOLLOW THE RECOMMENDATION OF THE PAVING FABRIC MANUFACTURER WHEN AS NOT PERMITTED.
3. CONSTRUCTION AND INSTALLATION REQUIREMENTS

- 3.1 SHIPPING AND STORAGE: THE PAVING FABRIC SHALL BE KEPT DRY AND WRAPPED SUCH THAT IT IS PROTECTED FROM THE ELEMENTS DURING SHIPPING AND STORAGE. IF STORED OUTDOORS, THE FABRIC SHALL BE ELEVATED AND PROTECTED WITH A WATERPROOF COVER. THE PAVING FABRIC SHALL BE LABELED IN ACCORDANCE WITH ASTM D 4873-88, "STANDARD GUIDE FOR IDENTIFICATION, STORAGE, AND HANDLING OF GEOSYNTHETIC ROLLS."
3.2 WEATHER LIMITATIONS: THE AIR AND PAVEMENT TEMPERATURES SHALL BE AT LEAST 50° F (10° C) AND RISING FOR PLACEMENT OF ASPHALT CEMENT AND SHALL BE AT LEAST 60° F (16° C) AND RISING FOR PLACEMENT OF ASPHALT EMULSION. NEITHER ASPHALT TACK COAT NOR PAVING FABRIC SHALL BE PLACED WHEN WEATHER CONDITIONS ARE NOT SUITABLE, IN OPINION OF THE ENGINEER. 20-3
3.3 SURFACE PREPARATION: THE PAVEMENT SURFACE SHALL BE DRY AND THOROUGHLY CLEANED OF ALL DIRT AND OIL. TO THE SATISFACTION OF THE ENGINEER. CRACKS 1/8" (3MM) WIDE OR GREATER SHALL BE CLEANED AND FILLED WITH SUITABLE BITUMINOUS MATERIAL OR BY A METHOD APPROVED BY THE ENGINEER. CRACK-FILLING MATERIAL SHALL BE ALLOWED TO CURE PRIOR TO PLACEMENT OF PAVING FABRIC. POTHoles AND OTHER PAVEMENT DISTRESS SHALL BE REPAIRED. REPAIRS SHALL BE PERFORMED AS DIRECTED BY THE ENGINEER.
3.4 TACK COAT APPLICATION: THE TACK COAT SHALL BE APPLIED USING A CALIBRATED DISTRIBUTOR SPRAY BAR. HAND SPRAYING, SQUEEGEE AND BRUSH APPLICATION MAY BE USED IN LOCATIONS WHERE THE DISTRIBUTOR TRUCK CANNOT REACH. EVERY EFFORT SHALL BE MADE TO KEEP HAND APPLICATION TO A MINIMUM. THE TACK COAT SHALL BE APPLIED UNIFORMLY TO THE PREPARED, CLEAN, DRY PAVEMENT SURFACE. THE ASPHALT CEMENT TACK COAT APPLICATION RATE MUST BE SUFFICIENT TO SATURATE THE FABRIC AND TO BOND THE FABRIC TO THE EXISTING PAVEMENT SURFACE. THE TACK COAT APPLICATION RATE SHALL BE 0.22 TO 0.28 GALLONS PER SQUARE YARD (1.0 TO 1.3 LITERS PER SQUARE METER) AS REQUIRED BY THE ROADWAY SURFACE AND ENVIRONMENTAL CONDITIONS. WHEN USING EMULSION, THE APPLICATION RATE MUST BE INCREASED AS DIRECTED BY THE ENGINEER TO OFFSET THE WATER CONTENT OF THE EMULSION. WITHIN STREET INTERSECTIONS, ON STEEP GRADES OR IN OTHER ZONES WHERE VEHICLE BRAKING IS COMMON, THE NORMAL APPLICATION RATE SHALL BE REDUCED BY ABOUT 20 PERCENT AS DIRECTED BY THE ENGINEER, BUT TO NOT LESS THAN 0.20 GALLONS PER SQUARE YARD (0.9 LITERS PER SQUARE METER).

THE TEMPERATURE OF THE TACK COAT SHALL BE SUFFICIENTLY HIGH TO PERMIT A UNIFORM SPRAY PATTERN. FOR ASPHALT CEMENTS, THE MINIMUM TEMPERATURE SHALL BE 200° F (143° C), TO AVOID DAMAGE TO FABRIC. DISTRIBUTOR TANK TEMPERATURES SHALL NOT EXCEED 325° F (163° C), FOR ASPHALT EMULSIONS, THE DISTRIBUTOR TANK TEMPERATURE SHALL BE MAINTAINED BETWEEN 130° F (55° C) AND 160° F (71° C).

THE TARGET WIDTH OF THE TACK COAT APPLICATION SHALL BE EQUAL TO THE PAVING FABRIC WIDTH PLUS 6" (15.2CM). TACK COAT APPLICATION SHALL BE WIDE ENOUGH TO COVER THE ENTIRE WIDTH OF FABRIC OVERLAPS. THE TACK COAT SHALL BE APPLIED ONLY AS FAR IN ADVANCE OF PAVING FABRIC INSTALLATION AS IS APPROPRIATE TO ENSURE A TACKY SURFACE AT THE TIME OF PAVING FABRIC PLACEMENT. TRAFFIC SHALL NOT BE ALLOWED ON THE TACK COAT. EXCESS TACK COAT SHALL BE CLEANED FROM THE PAVEMENT.

- 3.5 PAVING FABRIC PLACEMENT: THE PAVING FABRIC SHALL BE PLACED ONTO THE TACK COAT USING MECHANICAL OR MANUAL LAYDOWN EQUIPMENT CAPABLE OF PROVIDING A SMOOTH INSTALLATION WITH A MINIMUM AMOUNT OF WRINKLING OR FOLDING. THE PAVING FABRIC SHALL BE PLACED BEFORE THE SPHALT CEMENT TACK COAT COOLS AND LOSES ITS TACKINESS. PAVING FABRIC SHALL NOT BE INSTALLED IN AREAS WHERE THE OVERLAY ASPHALT TAPERS TO A MINIMUM COMPACTED THICKNESS OF LESS THAN 1.5" (3.8CM) WHEN ASPHALT EMULSIONS ARE USED. THE EMULSION SHALL BE ALLOWED TO CURE PROPERLY SUCH THAT ESSENTIALLY NO WATER MOISTURE REMAINS PRIOR TO PLACING THE PAVING FABRIC. WRINKLES SEVERE ENOUGH TO CAUSE FOLDS SHALL BE SLIT AND LAID FLAT. BROOMING AND/OR RUBBER-TIRE ROLLING WILL BE REQUIRED TO MAXIMIZE PAVING FABRIC CONTACT WITH THE PAVEMENT SURFACE.
TURNING OF THE PAVER AND OTHER VEHICLES SHALL BE DONE GRADUALLY AND KEPT TO A MINIMUM TO AVOID MOVEMENT AND DAMAGE TO THE PAVING FABRIC. ABRUPT STARTS AND STOPS SHALL ALSO BE AVOIDED. DAMAGED FABRIC SHALL BE REMOVED AND REPLACED WITH SAME TYPE OF FABRIC AND A TACK COAT.

- 3.6 JOINTS AND OVERLAPS: AT JOINTS, FABRIC ROLLS SHALL OVERLAP BY 1" TO 6" (2.5 TO 15.2CM). END JOINTS AND JOINTS FROM REPAIR OF WRINKLES SHOULD BE MADE TO OVERLAP OR "SHINGLE" IN THE DIRECTION THAT THE PAVEMENT OVERLAY WILL BE PLACED. OVERLAPS OF ADJACENT ROLLS MAY BE AS GREAT AS 8" TO ACCOMMODATE VARIATIONS BETWEEN THE WIDTH OF THE ROADWAY AND PAVING FABRIC. EXCESS FABRIC SHALL BE CUT AND REMOVED TO ENSURE THAT OVERLAPS OF ADJACENT ROLLS DO NOT EXCEED 6" (15.20CM). ADDITIONAL TACK COAT SHALL BE APPLIED BETWEEN ALL FABRIC OVERLAPS AND REPAIRS. ANY LOCATIONS THAT DO NOT HAVE ADDITIONAL TACK FOR THE OVERLAPS SHALL BE CORRECTED BY MANUAL PLACEMENT OF TACK COAT PRIOR TO OVERLAY CONSTRUCTION.

- 3.7 OVERLAY PLACEMENT: ASPHALT OVERLAY CONSTRUCTION SHALL CLOSELY FOLLOW FABRIC PLACEMENT. ALL AREAS IN WHICH PAVING FABRIC HAS BEEN PLACED WILL BE PAVED DURING THE SAME DAY. EXCESS TACK COAT THAT BLEEDS THROUGH THE PAVING FABRIC SHALL BE REMOVED BY BROADCASTING SAND ON THE PAVING FABRIC. EXCESS SAND SHOULD BE REMOVED BEFORE BEGINNING THE PAVING OPERATION. IN THE EVENT OF RAINFALL ON THE PAVING FABRIC PRIOR TO THE PLACEMENT OF THE ASPHALT OVERLAY, THE PAVING FABRIC MUST BE ALLOWED TO DRY BEFORE ASPHALT CONCRETE IS PLACED. OVERLAY ASPHALT THICKNESS SHALL MEET THE REQUIREMENTS FOR THE CONTRACT DRAWINGS AND DOCUMENTS. THE MINIMUM COMPACTED THICKNESS OF OVERLAY ASPHALT SHALL NOT BE LESS THAN 1.5" (3.8CM) IN AREAS OF PAVING FABRIC INSTALLATION.

UNLESS OTHERWISE APPROVED BY THE ENGINEER, NO TRAFFIC EXCEPT NECESSARY CONSTRUCTION TRAFFIC WILL BE ALLOWED TO DRIVE ON THE PAVING FABRIC.

3.11 CEMENT CONCRETE SIDEWALKS

DESCRIPTION

GENERAL

THIS WORK MUST CONSIST OF CONSTRUCTING CEMENT CONCRETE SIDEWALKS AND CURB RAMPS, INCLUDING EXCAVATION FOR THE DEPTH OF THE SIDEWALK AND SUBGRADE PREPARATION, IN ACCORDANCE WITH THE MONROE STANDARDS, THE WSDOT/APWA STANDARD SPECIFICATIONS AND STANDARD DETAILS 309, 313, 314 AND 315. WORK MUST COMPLY WITH ADA RCW 35.68.075-35.68.076.

MATERIALS

MATERIALS MUST MEET THE REQUIREMENTS OF THE FOLLOWING SECTION OF THE WSDOT/APWA STANDARD SPECIFICATIONS:

TABLE 3
MATERIAL SECTION
PORTLAND CEMENT 9-01
AGGREGATES 9-03
PRE-MOLDED JOINT FILLER 9-04
CONCRETE CURING MATERIALS AND ADMIXTURES 9-23
PERVIOUS CONCRETE WSDOT/APWA GENERAL SPECIAL PROVISIONS DIVISION 5
THE USE OF CALCIUM CHLORIDE AS AN ADMIXTURE IS PROHIBITED.

CONSTRUCTION REQUIREMENTS

GENERAL

THE CURB AND GUTTER SECTION MUST BE PLACED PRIOR TO THE PLACEMENT OF THE SIDEWALK SECTION.
SUBGRADE MUST BE APPROVED BY THE CONSTRUCTION INSPECTOR PRIOR TO CONCRETE PLACEMENT. EXPANSION JOINTS MUST BE 3/8 INCH WIDE BY FULL DEPTH AND PLACED ADJACENT TO STRUCTURES WITHIN THE SIDEWALK, SUCH AS FOUNDATIONS FOR MAILBOX STRUCTURES, VAULT LIDS, ETC. CONTROL JOINTS MUST BE PLACED TO MATCH ANY JOINTS IN ADJACENT CURBS AND BE AT LEAST 1/4 THE THICKNESS OF THE CONCRETE ON 5-FOOT CENTERS.
THE SIDEWALK MUST PROVIDE A MINIMUM OBSTRUCTION FREE WIDTH OF AT LEAST 5 FEET. MAILBOXES MUST BE SET AT LOCATIONS APPROVED BY THE POSTMASTER AND MUST PROVIDE A 2-FOOT CLEARANCE FROM THE FACE OF THE CURB. REFER TO SECTION 3.9 AND DETAIL 320.

WHERE THERE IS INSUFFICIENT SUITABLE NATIVE MATERIAL ON THE PROJECT SITE, THE DEVELOPER MUST FURNISH, PLACE AND COMPACT GRAVEL BORROW. ALL SIDEWALKS MUST BE CONSTRUCTED OVER A MINIMUM 4 INCHES OF CRUSHED SURFACING TOP COURSE MEETING THE REQUIREMENTS OF 9-03.9(3) OF THE WSDOT/APWA STANDARD SPECIFICATIONS COMPACTED TO 95 PERCENT OF MAXIMUM DRY DENSITY.

FORM AND FINE GRADING

STEEL FORMS MUST BE 4 INCH WIDE BY 10 FEET LONG. IF WOOD FORMS ARE USED, THE WOOD MUST BE 2-INCH X 4-INCH (NOMINAL) IN LENGTHS OF NOT LESS THAN 10 FEET. FORMS MUST BE STAKED TO A TRUE LINE AND GRADE.
PLACING AND FINISHING CONCRETE
THE CONCRETE MUST BE SPREAD UNIFORMLY BETWEEN THE FORMS AND THOROUGHLY COMPACTED WITH A STEEL SHOD STRIKE BOARD. EXPANSION JOINTS AND CONTROL JOINTS MUST BE LOCATED AND CONSTRUCTED IN ACCORDANCE WITH STANDARD DETAIL 309. IN CONSTRUCTION OF EXPANSION JOINTS, THE PRE-MOLDED JOINT FILLER MUST BE ADEQUATELY SUPPORTED UNTIL THE CONCRETE IS PLACED ON BOTH SIDES OF THE JOINT.

WHENEVER CASTINGS ARE LOCATED IN THE SIDEWALK AREA, JOINTS MUST BE INSTALLED AT THE CASTING LOCATION TO CONTROL CRACKING OF THE SIDEWALK. IF SPACING OF JOINTS OR SCORING IS SUCH THAT INSTALLATION OF JOINT MATERIAL WOULD BE UNSUITABLE, THE DEVELOPER MUST INSTALL REBAR TO STRENGTHEN THE SIDEWALK SECTION.
CONTROL JOINTS MUST BE FORMED BY FIRST CUTTING A GROOVE IN THE CONCRETE WITH A TEE BAR OF A DEPTH EQUAL TO, BUT NOT GREATER THAN, THE JOINT FILLER MATERIAL AND THEN WORKING THE PRE-MOLDED JOINT FILLER INTO THE GROOVE. PRE-MOLDED JOINT FILLER FOR BOTH EXPANSION AND CONTROL JOINTS MUST BE POSITIONED IN TRUE ALIGNMENT AT RIGHT ANGLES TO THE LINE OF THE SIDEWALK AND BE NORMAL TO AND FLUSH WITH THE SURFACE.
AFTER THE CONCRETE HAS BEEN THOROUGHLY COMPACTED AND LEVELLED, IT MUST BE FLOATED WITH WOOD FLOATS AND FINISHED AT THE PROPER TIME WITH A METAL FLOAT. JOINTS MUST BE EDGED WITH A 1/4 INCH RADIUS EDGER AND THE SIDEWALK EDGES MUST BE TOOLED WITH A 1/4 INCH RADIUS EDGER WITH A 4-INCH FLASH.

THE SURFACE MUST BE BRUSHED WITH A FIBER HAIRBRUSH IN A TRANSVERSE DIRECTION EXCEPT THAT AT DRIVEWAY AND ALLEY CROSSINGS, IT MUST BE BRUSHED LONGITUDINALLY.
AFTER BRUSH FINISH, THE EDGES OF THE SIDEWALK AND ALL JOINTS MUST BE LIGHTLY EDGED AGAIN WITH AN EDGING TOOL TO GIVE IT A FINISHED APPEARANCE.

CURING AND PROTECTION
THE CURING MATERIALS AND PROCEDURES SHALL BE AS SPECIFIED IN 5-05.3(13) OF THE WSDOT/APWA STANDARD SPECIFICATIONS.
THE DEVELOPER MUST HAVE READILY AVAILABLE SUFFICIENT PROTECTIVE COVERING, SUCH AS PLASTIC SHEETING, TO COVER THE POUR OF AN ENTIRE DAY IN EVENT OF RAIN OR OTHER UNSUITABLE WEATHER.
THE SIDEWALK MUST BE PROTECTED AGAINST DAMAGE OR DEFAACEMENT OF ANY KIND UNTIL IT HAS BEEN ACCEPTED BY THE CONSTRUCTION INSPECTOR. SIDEWALK WHICH IS NOT ACCEPTABLE TO THE CITY BECAUSE OF DAMAGE OR DEFAACEMENT MUST BE REMOVED AND REPLACED BY THE DEVELOPER.

CURING AND HOT WEATHER
IN PERIODS OF LOW HUMIDITY, DRYING WINDS, OR HIGH TEMPERATURES, A FOG SPRAY MUST BE APPLIED TO CONCRETE AS SOON AFTER PLACEMENT AS CONDITIONS WARRANT IN ORDER TO PREVENT THE FORMATION OF SHRINKAGE CRACKS. THE SPRAY MUST BE CONTINUED UNTIL CONDITIONS PERMIT THE APPLICATION OF A LIQUID CURING MEMBRANE OR OTHER CURING MEDIA.

COLD WEATHER WORK
WHEN THE AIR TEMPERATURE IS EXPECTED TO REACH THE FREEZING POINT DURING THE DAY OR NIGHT, THE CONCRETE MUST BE PROTECTED FROM FREEZING. THE DEVELOPER MUST PROVIDE A SUFFICIENT SUPPLY OF STRAW, HAY, GRASS, BLANKETS, OR OTHER SUITABLE BLANKETING MATERIAL AND SPREAD IT OVER THE CONCRETE TO A SUFFICIENT DEPTH TO PREVENT FREEZING OF THE CONCRETE. THE DEVELOPER IS RESPONSIBLE FOR THE QUALITY AND STRENGTH OF THE CURED CONCRETE. ALL CONCRETE DAMAGED BY FROST ACTION OR FREEZING MUST BE REMOVED AND REPLACED AT THE DEVELOPER'S EXPENSE.

CURB RAMPS
IN ACCORDANCE WITH STATE AND FEDERAL LAW, CURB RAMPS MUST BE PROVIDED AT ALL PEDESTRIAN CROSSINGS WITH CURB SECTIONS. WHEN A RAMP IS CONSTRUCTED GIVING HANDICAP ACCESS TO THE ROADWAY AREA, A CORRESPONDING RAMP AT THE OPPOSITE SIDE OF THE ROADWAY MUST ALSO BE PROVIDED THAT MEETS CURRENT ADA REQUIREMENTS. EXACT LOCATIONS AT EACH CURB RETURN WILL BE AS SHOWN IN THE APPROVED PLANS.
CURB RAMPS MUST BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DETAILS 313, 314, AND 315 AND AS SHOWN ON THE APPROVED PLANS. THIS WORK MUST INCLUDE CURB RAMPS INSTALLED IN NEW SIDEWALKS AND IN EXISTING SIDEWALKS. EXISTING SIDEWALKS MUST BE NEATLY

SAW-CUT FULL DEPTH PRIOR TO CONSTRUCTION OF CURB RAMPS.

CURB RAMPS MUST NOT BE POURED INTEGRAL WITH THE SIDEWALK. CURB AND GUTTER MUST BE ISOLATED BY EXPANSION JOINT MATERIAL ON ALL SIDES. RAMP TEXTURE MUST HAVE A HORIZONTAL BROOM FINISH AS SHOWN ON STANDARD DETAILS REFERENCED ABOVE.

CURB AND GUTTER SECTIONS

DESCRIPTION

THE STANDARD CURB AND GUTTER SECTION MUST BE A VERTICAL CURB AND GUTTER PER STANDARD DETAIL 305. VERTICAL CURB AND GUTTER MUST BE USED ON ALL PUBLIC AND SOME VERY LOW TRAFFIC VOLUME PRIVATE ROADWAYS. REFER TO STANDARD DETAIL 300 FOR ADDITIONAL INFORMATION.

MATERIALS

MATERIALS MUST MEET THE REQUIREMENTS OF THE FOLLOWING SECTIONS OF THE WSDOT/APWA STANDARD SPECIFICATIONS:

TABLE 4
MATERIAL SECTION
PORTLAND CEMENT 9-01
CONCRETE AGGREGATE 9-03
REINFORCING STEEL 9-07
PRE-MOLDED JOINT FILLER 9-04
CURING COMPOUND 9-23
THE PORTLAND CEMENT CONCRETE MUST MEET THE REQUIREMENTS OF SECTION 5-05 OF THE WSDOT/APWA STANDARD SPECIFICATIONS. CONCRETE MIX FOR CURBS MUST BE CLASS 3000. SLUMP OF THE CONCRETE MUST NOT EXCEED 3 1/2 INCHES.

ALL NEW CURB AND GUTTER MUST BE PLACED OVER NOT LESS THAN 3 INCHES OF CRUSHED SURFACING TOP COURSE OR BOTTOM COURSE COMPACTED TO 95 PERCENT MAXIMUM DRY DENSITY.
FORMS MAY BE OF WOOD OR METAL AT THE OPTION OF THE DEVELOPER, PROVIDED THAT THE FORMS AS SET WILL RESULT IN A CURB OR CURB AND GUTTER OF THE SPECIFIED THICKNESS, CROSS SECTION, GRADE, AND ALIGNMENT SHOWN ON THE APPROVED PLANS.

3.12.3 PLACING CONCRETE
THE SUBGRADE MUST BE PROPERLY COMPACTED AND BROUGHT TO SPECIFIED GRADE BEFORE PLACING CONCRETE. THE SUBGRADE MUST BE THOROUGHLY DAMPENED IMMEDIATELY PRIOR TO THE PLACEMENT OF CONCRETE. NO NEW CURB AND GUTTER IS TO BE PLACED UNTIL THE CONSTRUCTION INSPECTOR HAS CHECKED AND APPROVED THE FORMS FOR LINE, GRADE AND COMPACTION.

CONCRETE MUST BE SPADED AND TAMPED THOROUGHLY INTO THE FORMS TO PROVIDE A DENSE, COMPACTED CONCRETE. FREE OF ROCK POCKETS. THE EXPOSED SURFACES MUST BE FLOATED, FINISHED, AND BRUSHED LONGITUDINALLY WITH A FIBER HAIRBRUSH APPROVED BY THE CONSTRUCTION INSPECTOR.
THE RATE OF CONCRETE PLACEMENT MUST NOT EXCEED THE RATE AT WHICH THE VARIOUS PLACING AND FINISHING OPERATIONS CAN BE PERFORMED IN ACCORDANCE WITH THE MONROE STANDARDS.

IF CONCRETE IS TO BE PLACED BY THE EXTRUDED METHOD, THE DEVELOPER MUST DEMONSTRATE, TO THE SATISFACTION OF THE CONSTRUCTION INSPECTOR, THAT THE MACHINE IS CAPABLE OF PLACING A DENSE, UNIFORMLY COMPACTED CONCRETE TO EXACT SECTION, LINE, AND GRADE.
3.12.4 CURING AND PROTECTION
TRANSPARENT CURING COMPOUNDS MUST BE APPLIED TO ALL EXPOSED SURFACES IMMEDIATELY AFTER FINISHING. TRANSPARENT CURING COMPOUNDS MUST CONTAIN A COLOR DYE OF SUFFICIENT STRENGTH TO RENDER THE FILM DISTINCTLY VISIBLE ON THE CONCRETE FOR A MINIMUM PERIOD OF FOUR HOURS AFTER APPLICATION.

THE DEVELOPER MUST HAVE READILY AVAILABLE SUFFICIENT PROTECTIVE COVERING, SUCH AS PLASTIC SHEETING, TO COVER THE POUR OF AN ENTIRE DAY IN EVENT OF RAIN OR OTHER UNSUITABLE WEATHER.

THE CURB MUST BE PROTECTED AGAINST DAMAGE OR DEFAACEMENT OF ANY KIND UNTIL IT HAS BEEN ACCEPTED BY THE CONSTRUCTION INSPECTOR. CURB AND GUTTER WHICH IS NOT ACCEPTABLE TO THE CONSTRUCTION INSPECTOR BECAUSE OF DAMAGE OR DEFAACEMENT MUST BE REMOVED AND REPLACED BY THE DEVELOPER AT THEIR OWN EXPENSE.
THE CURING MATERIALS AND PROCEDURES SHALL BE AS SPECIFIED IN 5-05.3(13) OF THE WSDOT/APWA STANDARD SPECIFICATIONS, EXCEPT THAT WHITE PIGMENT CURING COMPOUNDS MUST NOT BE USED ON SIDEWALKS.

CEMENT CONCRETE DRIVEWAY
DESCRIPTION
THIS WORK CONSISTS OF CEMENT CONCRETE DRIVEWAY AND ALLEY RETURNS CONSTRUCTED AT THE LOCATIONS SHOWN ON THE APPROVED PLANS AND WHERE DIRECTED BY THE CONSTRUCTION INSPECTOR, AND MUST BE IN ACCORDANCE WITH THE MONROE STANDARDS, THE WSDOT/APWA STANDARD SPECIFICATIONS, AND STANDARD DETAILS 310, 311 AND 312. SEE 3.2.2.4 FOR ADDITIONAL CONDITIONS FOR DRIVEWAYS.

MATERIALS
MATERIALS MUST MEET THE REQUIREMENTS OF THE FOLLOWING SECTIONS OF WSDOT/APWA STANDARD SPECIFICATIONS:

TABLE 5
MATERIAL SECTION
PORTLAND CEMENT 9-01
FINE AGGREGATE 9-03
COARSE AGGREGATE 9-03
JOINT MATERIALS 9-04
CURING AND ADMIXTURES 9-23
PERVIOUS CONCRETE WSDOT/APWA GENERAL SPECIAL PROVISIONS DIVISION 5
THE CONCRETE MIX MUST BE AS SPECIFIED FOR CLASS 4000 AND THE SLUMP OF THE CONCRETE MUST NOT EXCEED 3 INCHES.

3.12.3 CONSTRUCTION REQUIREMENTS
GENERAL
NO DRIVEWAY APPROACH MAY PROJECT BEYOND THE EXTENSION OF THE SIDE PROPERTY LINE TO THE CURB, UNLESS THE OWNER OF THE ADJACENT PROPERTY IS A CO-SIGNER OF THE DRIVEWAY PERMIT.

THERE MUST BE AT LEAST 20 FEET OF FULL HEIGHT CURB BETWEEN DRIVEWAYS SERVING ANY ONE PROPERTY FRONTAGE.

THERE MUST BE AT LEAST 6 FEET OF FULL HEIGHT CURB BETWEEN DRIVEWAYS ON ADJACENT LOTS. DRIVEWAY APRONS MUST BE CONSTRUCTED PER STANDARD DETAILS 310, 311 OR 312, AS APPLICABLE. THE MINIMUM THICKNESS OF THE DRIVEWAY APRON MUST BE 6 INCHES, PLACED OVER A MINIMUM OF 4 INCHES OF CRUSHED SURFACING TOP COURSE COMPACTED TO 95 PERCENT MAXIMUM DRY DENSITY OVER A COMPACTED SUBGRADE. IN ALL CASES, SUBGRADE AND ROCK GRADE MUST BE APPROVED BY THE CONSTRUCTION INSPECTOR PRIOR TO CONCRETE BEING PLACED. DRIVEWAY APRONS OVER 15 FEET WIDE MUST HAVE AN EXPANSION JOINT PLACED IN THE CENTER OF THE APRON.

IN LOCATIONS WHERE A NEW DRIVEWAY IS TO BE CONSTRUCTED AND SIDEWALK, CURB, AND GUTTER IS ALREADY EXISTING, IT MUST BE TOTALLY REMOVED AND REPLACED TO DRIVEWAY STANDARDS. IT IS NOT PERMISSIBLE TO KNOCK OFF EXISTING CURB AND INSTALL DRIVEWAY APRON. THE TOTAL CURB AND GUTTER SECTION MUST BE REMOVED, EITHER BY SAWCUTTING OR TO THE NEAREST EXPANSION JOINT, AND REPLACED TO DRIVEWAY STANDARDS.

NEW DRIVEWAYS INSTALLED IN AREAS WHERE CURB AND GUTTER IMPROVEMENTS ARE NOT EXISTING, AND NOT REQUIRED, MUST BE PAVED FROM THE EXISTING EDGE OF PAVEMENT TO THE PROPERTY LINE, REGARDLESS OF WHETHER THE REMAINDER OF THE DRIVEWAY ON THE PRIVATE PROPERTY IS PAVED.

IN AREAS NOT FULLY IMPROVED WITH CURBS AND SIDEWALKS, THE ELEVATION OF THE DRIVEWAY AT THE POINT WHERE IT CROSSES THE PROPERTY LINE MUST NOT BE MORE THAN 3 INCHES HIGHER THAN THE ELEVATION OF THE CENTERLINE OF THE EXISTING PAVED STREET. IF THE DRIVEWAY IS RISING ON THE PRIVATE PROPERTY SIDE, AND NO LOWER THAN LEVEL WITH THE ELEVATION OF THE CENTERLINE OF THE EXISTING STREET, IF THE DRIVEWAY IS SLOPING DOWN ON THE PRIVATE PROPERTY SIDE.

DRIVEWAYS THAT CROSS BIKE/PEDESTRIAN TRAILS MUST BE DESIGNED TO SAFELY ACCOMMODATE BOTH THE VEHICLES AND THE TRAIL USERS. ANY RAMP IN THE TRAIL MUST MEET THE CURRENT ADA DESIGN STANDARDS.

EXCAVATION AND SUBGRADE
UNSUITABLE MATERIAL IN THE SUBGRADE MUST BE REMOVED AND REPLACED WITH SELECT MATERIAL SUCH AS GRAVEL BORROW CONFORMING TO 3.14.2., CSTC OR CS8C AND PROPERLY COMPACTED TO SPECIFICATIONS.

BEFORE ANY CONCRETE IS PLACED, THE DEVELOPER MUST BRING THE SUBGRADE TO THE REQUIRED LINE, GRADE, AND CROSS-SECTION. THE DEVELOPER MUST MAINTAIN THE SUBGRADE IN THE REQUIRED CONDITION UNTIL THE CONCRETE IS PLACED. COMPACTION MUST BE TO 95 PERCENT STANDARD DENSITY.

FORMS AND FINE GRADING
FORMS FOR THE STRAIGHT SECTIONS OF THE DRIVEWAY OR ALLEY RETURN MUST HAVE A MINIMUM NOMINAL THICKNESS OF TWO (2) INCHES AND BE EQUAL TO THE NOMINAL DEPTH OF THE CONCRETE. PLYWOOD OR ONE (1) INCH LUMBER MAY BE USED ON RADII. ALL FORMS MUST BE SECURELY STAKED AND BLOCKED TO TRUE LINE AND GRADE.

A TEMPLATE MUST BE SET UPON THE FORMS AND THE SUBGRADE MUST BE FINE GRADED TO CONFORM TO THE REQUIRED SECTION. THE SUBGRADE MUST THEN BE COMPACTED TO THE APPROVAL OF THE CONSTRUCTION INSPECTOR. PRIOR TO PLACEMENT OF THE CONCRETE, THE SUBGRADE MUST BE THOROUGHLY DAMPENED.

PLACING AND FINISHING
THE CONCRETE MUST BE SPREAD UNIFORMLY BETWEEN THE FORMS AND THOROUGHLY COMPACTED WITH AN APPROVED TYPE OF STRIKEBOARD. EXPANSION JOINTS AND CONTRACTION JOINTS MUST BE LOCATED AND CONSTRUCTED IN ACCORDANCE WITH STANDARD DETAIL 310, 311, OR 312, WHICHEVER APPLIES. IN THE CONSTRUCTION OF EXPANSION JOINTS, THE PRE-MOLDED JOINT FILLER MUST BE ADEQUATELY SUPPORTED UNTIL THE CONCRETE IS PLACED ON BOTH SIDES OF THE JOINT.

CONTRACTION JOINTS (CONTROL JOINTS) MUST BE FORMED WITH A TEE BAR BY FIRST CUTTING A GROOVE IN THE CONCRETE TO A DEPTH EQUAL TO, BUT NOT GREATER THAN THE JOINT FILLER MATERIAL AND THEN WORKING THE PRE-MOLDED JOINT FILLER INTO THE GROOVE. PRE-MOLDED JOINT FILLER FOR BOTH EXPANSION AND CONTROL JOINTS MUST BE POSITIONED IN TRUE ALIGNMENT AND AT RIGHT ANGLES TO THE CENTERLINE OF THE DRIVEWAY OR ALLEY RETURN.

AFTER THE CONCRETE HAS BEEN THOROUGHLY COMPACTED AND LEVELLED, IT MUST BE FLOATED WITH WOOD FLOATS AND FINISHED AT THE PROPER TIME WITH A METAL FLOAT. JOINTS MUST BE EDGED WITH 1/4 INCH RADIUS EDGER AND THE DRIVEWAY OR ALLEY RETURN EDGES MUST BE TOOLED WITH 1/4 INCH RADIUS EDGER WITH 4-INCH FLASHING.

THE SURFACE MUST BE BRUSHED IN A TRANSVERSE DIRECTION IN RELATION TO THE CENTERLINE OF THE DRIVEWAY OR ALLEY RETURN WITH A FIBER HAIRBRUSH OF A TYPE APPROVED BY THE CONSTRUCTION INSPECTOR.

CURING AND PROTECTION
THE CURING MATERIALS AND PROCEDURES SPECIFIED IN SECTIONS 5-05 AND 9-23 OF THE WSDOT/APWA STANDARD SPECIFICATIONS AND 3.12.4 OF THE MONROE STANDARDS MUST BE USED. THE DRIVEWAY AND THE ALLEY RETURN MUST BE PROTECTED AGAINST DAMAGE OR DEFAACEMENT OF ANY KIND UNTIL ACCEPTANCE BY THE CONSTRUCTION INSPECTOR. ANY DRIVEWAY OR ALLEY RETURN NOT ACCEPTABLE, IN THE OPINION OF THE CONSTRUCTION INSPECTOR BECAUSE OF DAMAGE OR DEFAACEMENT, MUST BE REMOVED AND BE REPLACED BY THE DEVELOPER.

BEFORE PLACING ANY CONCRETE, THE DEVELOPER MUST HAVE ON THE JOB SITE ENOUGH PROTECTIVE PAPER TO COVER THE POUR OF AN ENTIRE DAY, IN EVENT OF RAIN OR OTHER UNSUITABLE WEATHER CONDITIONS.



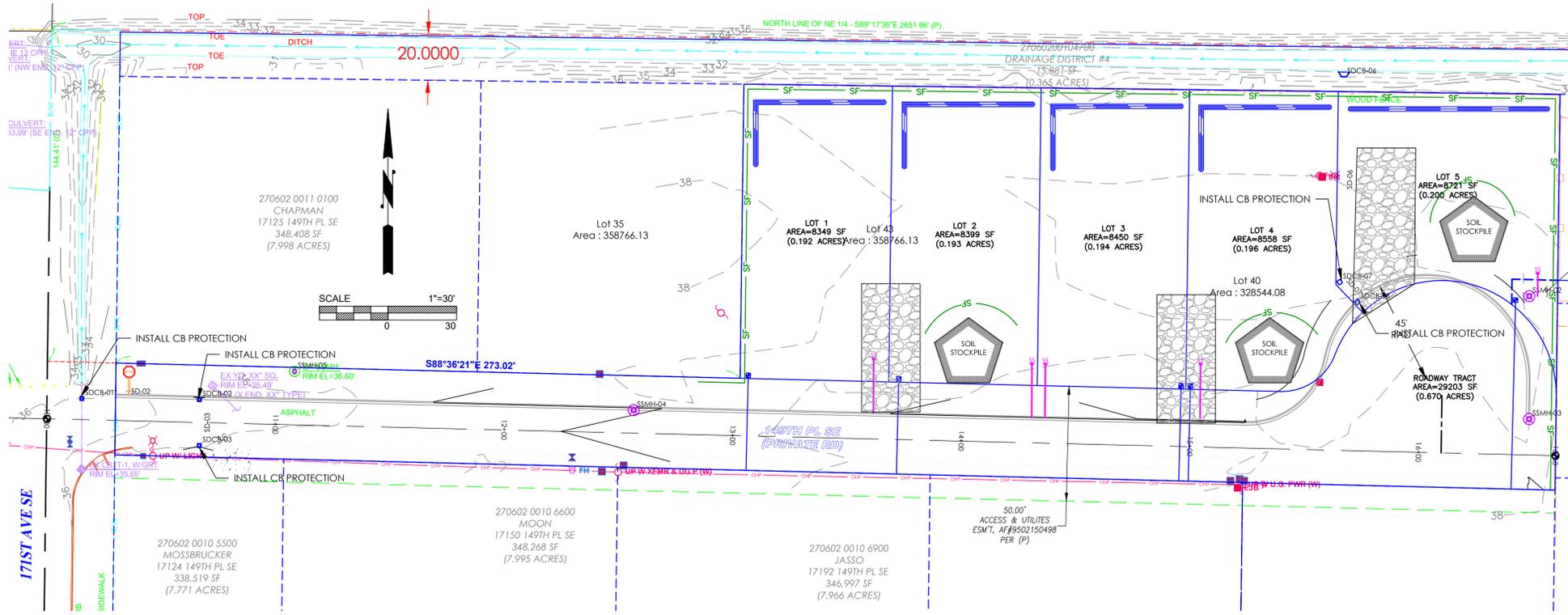
DATED: JUNE 17, 2024

Designer: DLERVK
Drafter: DLERVK
Checked by: DLERVK
Origin Date: OCTOBER 2023
Revision No.: 1: MAY 2024
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3:
4:

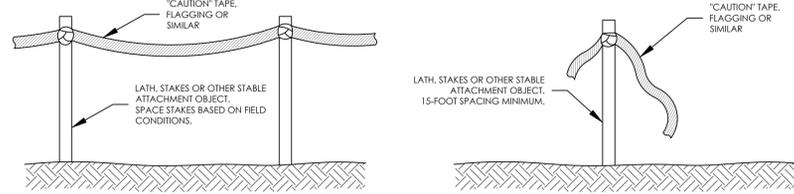
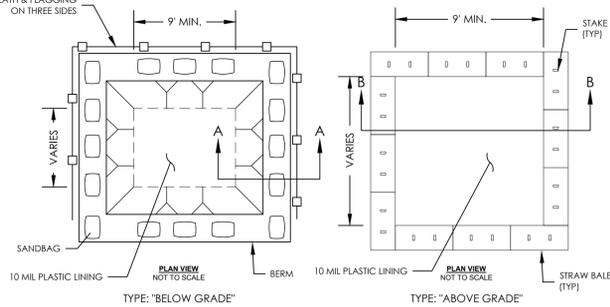
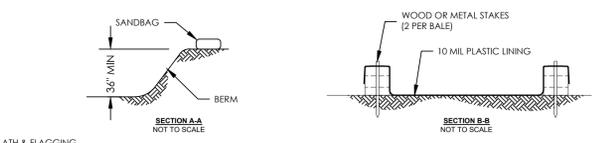
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HENRIQUEZ
172.67.1.49TH PL SE, MONROE, WA 98272
HENRIQUEZ 149TH PLACE
SHORT PLAT

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GENERAL NOTES

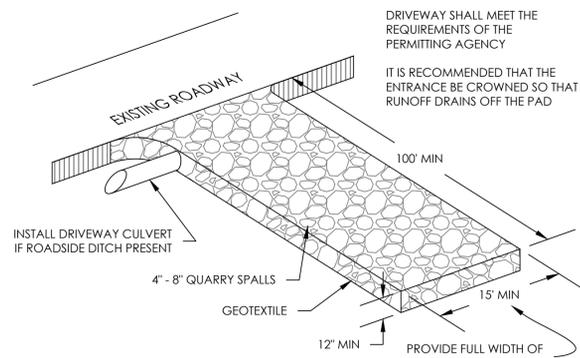
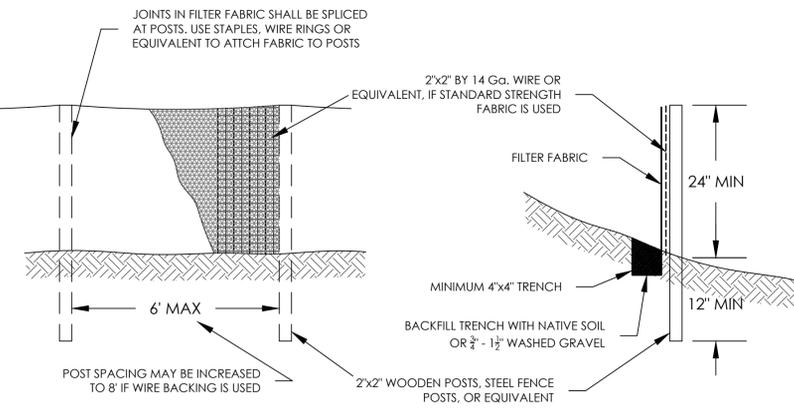
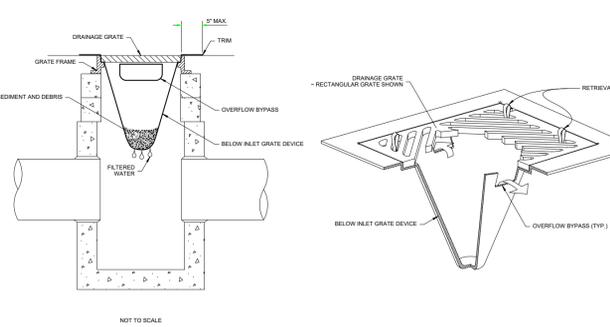


| Construction Storm-water BMP | Construction SWPPP Element # | | | | | | | | | | | | |
|--|------------------------------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| | #1 | #2 | #3 | #4 | #5 | #6 | #7 | #8 | #9 | #10 | #11 | #12 | #13 |
| Construction Source Control BMPs | | | | | | | | | | | | | |
| BMP C101: Preserving Natural Vegetation | ✓ | | | | | | | | | | | | |
| BMP C102: Buffer Zones | ✓ | | | | | | | | | | | | ✓ |
| BMP C103: High-Visibility Fence | ✓ | | | | | | | | | | | | ✓ |
| BMP C105: Stabilized Construction Access | | ✓ | | | | | | | | | | | |
| BMP C106: Wheel Wash | | ✓ | | | | | | | | | | | |
| BMP C107: Construction Road/Parking Area Stabilization | | ✓ | | | | | | | | | | | |
| BMP C120: Temporary and Permanent Seeding | | | | | ✓ | ✓ | | | | | | | |
| BMP C121: Mulching | | | | | ✓ | ✓ | | | | | | | |
| BMP C122: Nets and Blankets | | | | | ✓ | ✓ | | ✓ | | | | | |
| BMP C123: Plastic Covering | | | | | ✓ | ✓ | | | | | | | |
| BMP C124: Sodding | | | | | ✓ | ✓ | | | | | | | |
| BMP C125: Topsoiling/Composting | | | | | ✓ | | | | | | | | |
| BMP C126: Polyacrylamide (PAM) for Soil Erosion Protection | | | | | ✓ | | | | | | | | |
| BMP C130: Surface Roughening | | | | | ✓ | ✓ | | | | | | | |
| BMP C131: Gradient Terraces | | | | | ✓ | ✓ | | | | | | | |
| BMP C140: Dust Control | | | | | ✓ | | | | | | | | |
| BMP C150: Materials on Hand | | | | | | | | | | | | ✓ | ✓ |
| BMP C151: Concrete Handling | | | | | | | | | | | ✓ | | |
| BMP C152: Sawcutting and Surfacing Pollution Prevention | | | | | | | | | | | ✓ | | |
| BMP C153: Material Delivery, Storage, and Containment | | | | | | | | | | | ✓ | | |
| BMP C154: Concrete Washout Area | | | | | | | | | | | ✓ | | |
| BMP C160: Certified Erosion and Sediment Control Lead | | | | | | | | | | | | ✓ | ✓ |
| BMP C162: Scheduling | | | | | | | | | | | | | ✓ |
| Construction Runoff BMPs | | | | | | | | | | | | | |
| BMP C200: Interceptor Dike and Swale | | | | | | ✓ | | | | | | | ✓ |
| BMP C201: Grass-Lined Channels | | | | | | | ✓ | | | | | | ✓ |
| BMP C202: Riprap Channel Lining | | | | | | | | ✓ | | | | | |
| BMP C203: Water Bars | | | ✓ | | | ✓ | | | | | ✓ | | |
| BMP C204: Pipe Slope Drains | | | | | | ✓ | | | | | | | |
| BMP C205: Subsurface Drains | | | | | | ✓ | | | | | | | |
| BMP C206: Level Spreader | | | | | | ✓ | | | | | ✓ | | |
| BMP C207: Check Dams | | | ✓ | | | ✓ | | ✓ | | | | | ✓ |
| BMP C208: Triangular Silt Dike | | | | | | ✓ | | | | | | | ✓ |
| BMP C209: Outlet Protection | | | ✓ | | | | | ✓ | | | | | |
| BMP C220: Inlet Protection | | | | | | | | ✓ | | | | | |
| BMP C231: Brush Barrier | | | | | | | | | | | | | ✓ |
| BMP C232: Gravel Filter Berm | | | | | | | | | | | | | ✓ |
| BMP C233: Silt Fence | | | | | | | | | | | | | ✓ |
| BMP C234: Vegetated Strip | | | | | | | | | | | | | ✓ |
| BMP C235: Wattles | | | | | | | | | | | | | ✓ |
| BMP C236: Vegetative Filtration | | | | | | | | | | | | ✓ | |
| BMP C240: Sediment Trap | | | ✓ | | ✓ | | | | | | | | |
| BMP C241: Sediment Pond (Temporary) | | | ✓ | | ✓ | | | | | | | | |
| BMP C250: Construction Stormwater Chemical Treatment | | | | | | ✓ | | | | | | ✓ | |
| BMP C251: Construction Stormwater Filtration | | | | | | ✓ | | | | | | ✓ | |
| BMP C252: Treating and Disposing of High pH Water | | | | | | | | | | | | | ✓ |



154 TEMPORARY CONCRETE WASH-OUT AREA (BMP C154)
Not to Scale

CLEARING LIMIT DEMARCATION ALTERNATIVE "A"
CLEARING LIMIT DEMARCATION ALTERNATIVE "B"



B INLET PROTECTION (BMP C220)
Not to Scale

62 SILT FENCE DETAIL (BMP C233)
Not to Scale

78 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE (BMP C105)
Not to Scale



DESIGNED BY: ARCELIA & RAMON
CHECKED BY: HENRIQUEZ
DATE: OCTOBER 2023
REVISIONS: 1: MAY 2024, 2: ...

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HENRIQUEZ 149TH PLACE
SHORT PLAT

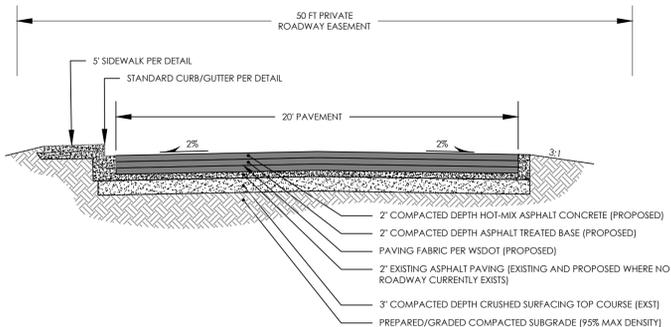
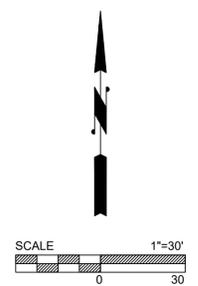
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EROSION AND SEDIMENT CONTROL PLAN

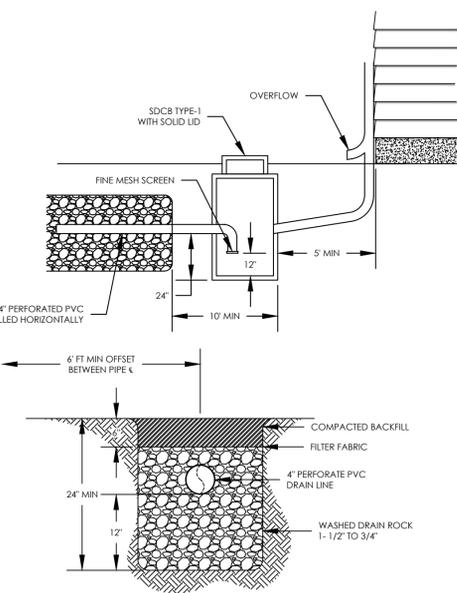
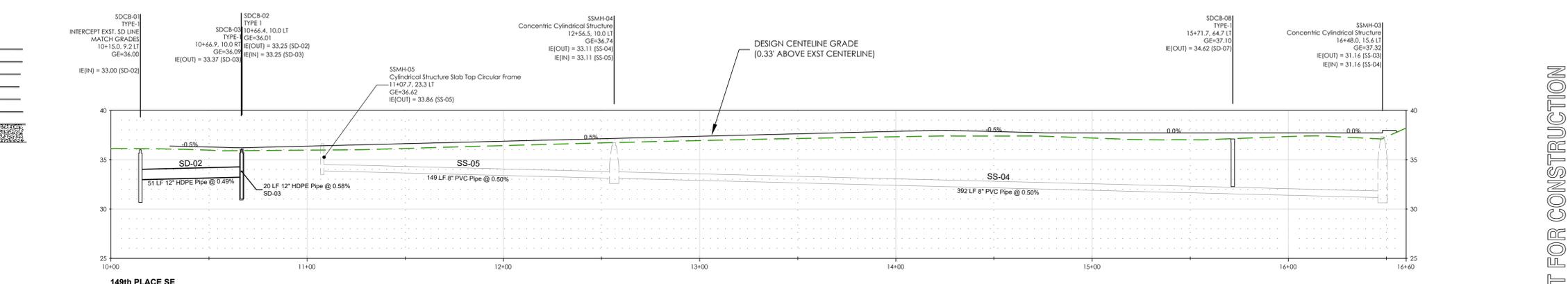
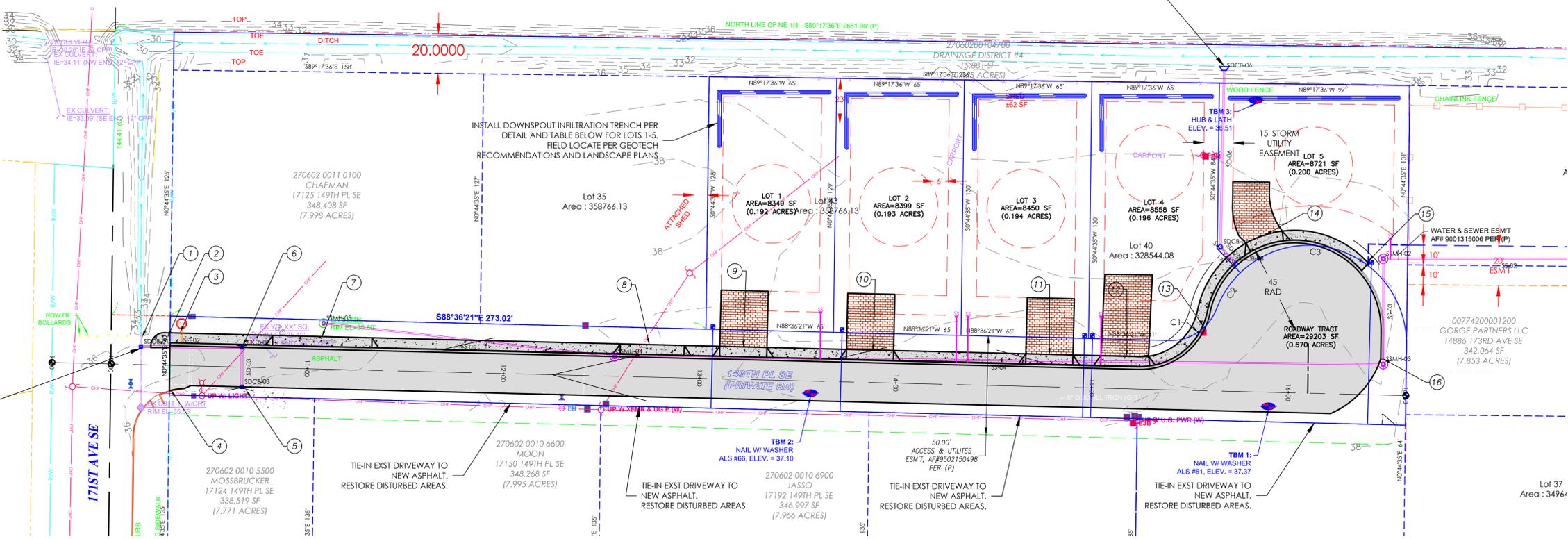
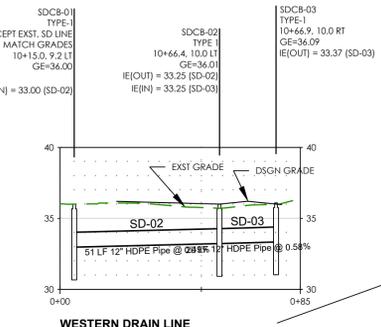
A PORTION OF SECTION 2, TOWNSHIP 27 NORTH, RANGE 06 EAST, W.M.

STREET REHABILITATION & CONSTRUCTION NOTES:

- THE ROADWAY SHALL BE IMPROVED TO HAVE A STRUCTURAL NUMBER OF 2.67. GENERALLY, THIS IS ACHIEVED WITH THE FOLLOWING:
 - 2" HOT-MIX ASPHALT
 - 4" ASPHALT TREATED BASE
 - 3" CRUSHED SURFACING TOP COURSE (CSTC)
 - GRADED AND COMPACTED SUBGRADE
- EXISTING POT HOLES SHALL BE REPAIRED CONSISTENT WITH THE EXISTING PAVEMENT SECTION
- AREAS OF COMPACTED GRAVEL WITH NO ASPHALT SHALL LIKEWISE BE PREPARED CONSISTENT WITH DETAIL ABOVE, INCLUDING PREPARATION OF THE SUBGRADE, PLACEMENT OF 3" COMPACTED CSTC AND ONE 2" LIFT OF COMPACTED ASPHALT TREATED BASE.
- THE EXISTING PAVEMENT SHALL BE THOROUGHLY CLEANED.
- A LAYER OF PAVING FABRIC -- PETROMAT OR SUPAC (PHILLIPS FIBER CORPORATION) OR APPROVED EQUAL -- SHALL BE APPLIED ON TOP OF THE EXISTING ASPHALT PAVEMENT AND SHALL OVERLAP ALL JOINTS BETWEEN EXISTING AND REPAIRED AREAS.
- ALL JOINTS SHALL BE SEALED



A STREET RESTORATION & IMPROVEMENTS
C6 Not to Scale



MAXIMUM ALLOWABLE HARD SURFACES PER LOT AND MINIMUM DOWNSPOUT INFILTRATION TRENCH LENGTH (PER BMP T5.10A DOWNSPOUT FULL INFILTRATION)

| LOT # | MAX HARD SURFACE AREA PER LOT (SF) | ALLOCATION FOR DWVY. (SF) | INFILTRATION TRENCH LENGTH (FT) |
|-------|------------------------------------|---------------------------|---------------------------------|
| 1 | 4,175 | 1,500 | 80 |
| 2 | 4,200 | 1,500 | 81 |
| 3 | 4,225 | 1,500 | 82 |
| 4 | 4,280 | 1,500 | 83 |
| 5 | 4,360 | 1,500 | 86 |

LENGTHS BASED ON 30 LINEAR FEET OF TRENCH PER 1,000 SQ.FT. OF TRIBUTARY ROOF AREA.

CONSTRUCTION NOTE CALL-OUTS

- INSTALL TYPE-1 CATCHBASIN, INTERCEPT EXISTING SD PIPE. MATCH GRADES. REINSTALL MAILBOXES.
- INSTALL CONCRETE ADA RAMP.
- INSTALL "STOP" SIGN PER CITY STANDARD, 10x33, 18" LT
- BEGIN ROAD RESTORATION/PAVING. CONSTRUCT BUTT JOINT, 10+30
- INSTALL TYPE-1 CATCH BASIN SEE PROFILE.
- INSTALL TYPE-1 CATCH BASIN SEE PROFILE.
- CONSTRUCT 50 FOOT WIDE DRIVEWAY, 11+06 LT
- CONSTRUCT 32 FOOT WIDE DRIVEWAY, 12+77 LT
- CONSTRUCT 22 FOOT WIDE DRIVEWAY 13+22 LT
- CONSTRUCT 22 FOOT WIDE DRIVEWAY 13+88 LT
- CONSTRUCT 22 FOOT WIDE DRIVEWAY 14+78 LT
- CONSTRUCT 22 FOOT WIDE DRIVEWAY 15+18 LT
- RELOCATE TRANSFORMER PER POWER COMPANY PLAN
- CONSTRUCT 22 FOOT WIDE DRIVEWAY 15+80, 77' LT
- END SIDEWALK 16+36, 62.8 LT
- END CURB/GUTTER 16+47.5, 18.25 LT



53 DOWNSPOUT INFILTRATION TRENCH - BMP T5.10A
Not to Scale

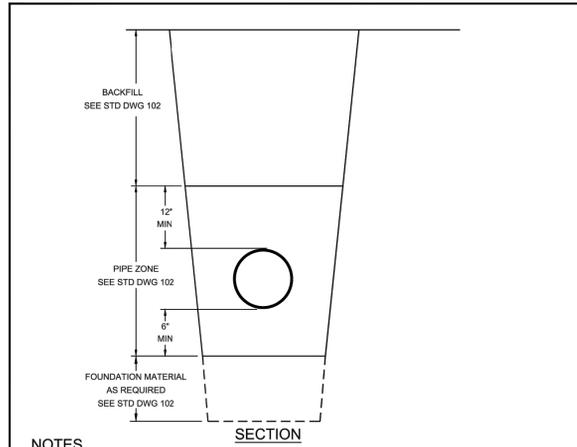
LERVIK ENGINEERING
CIVIL DESIGN AND DEVELOPMENT CONSULTING
PO BOX 684 ANACORTES, WA 98221 360.588.1592



DESIGNED BY: ARCELIA & RAMON HENRIQUEZ
CHECKED BY: HENRIQUEZ
DATE: OCTOBER 2023
REVISIONS: 1: MAY 2024, 2: JUNE 2024, 3: JUNE 2024, 4: JUNE 2024

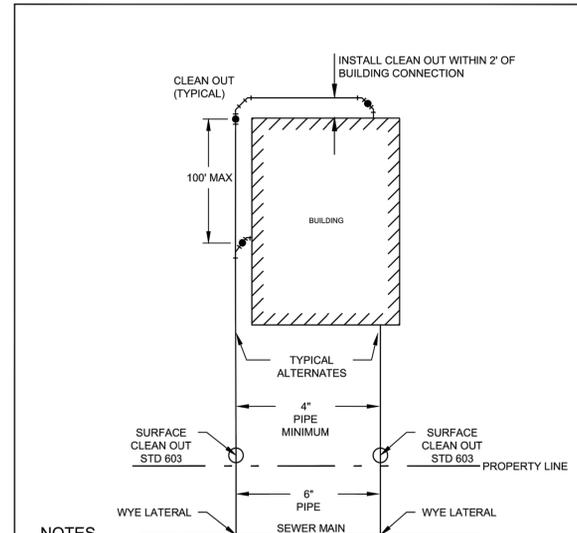
ARCELIA & RAMON HENRIQUEZ
17267 149TH PL SE, MONROE, WA 98272
HENRIQUEZ 149TH PLACE SHORT PLAT

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149TH PLACE SE
PLAN & PROFILE



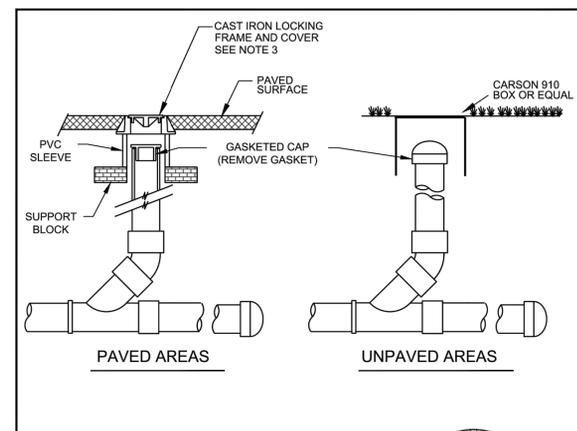
- NOTES**
- ALL BACKFILL MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 12 INCHES.
 - MECHANICAL COMPACTION OF BACKFILL SHALL BEGIN EIGHTEEN INCHES ABOVE THE TOP OF PIPE.
 - EACH LIFT SHALL BE MECHANICALLY COMPACTED TO THE REQUIRED DENSITY PRIOR TO PLACING SUCCEEDING LIFTS OF BACKFILL MATERIAL.
 - COMPACTION TESTS SHALL BE AS REQUIRED BY THE CITY ENGINEER BUT IN NO CASE LESS THAN 2 TESTS EVERY 200 FEET OF TRENCH. (ONE AT SUBGRADE AND ONE AT 50% OF TRENCH DEPTH)
 - IN PLACE DENSITY WILL BE DETERMINED BY ONE OR MORE OF THE FOLLOWING METHODS:
 - ASTM D1556; TEST FOR DENSITY OF SOIL IN PLACE BY THE SAND CONE METHOD
 - ASTM D1617; RUBBER BALLOON METHOD
 - ASTM D2922; NUCLEAR METHOD
 - LABORATORY DENSITY WILL BE DETERMINED BY ASTM D693, MOISTURE DENSITY RELATIONS OF SOILS AND SOIL AGGREGATE MIXTURES.
 - PAVED AREAS TO BE BACKFILLED WITH CRUSHED SURFACING TOP COURSE OR CRUSHED SURFACING BASE COURSE COMPACTED TO 95% MODIFIED PROCTOR DENSITY.
 - UNPAVED AREAS TO BE BACKFILLED WITH SUITABLE NATIVE MATERIAL OR CRUSHED ROCK TO 90% MODIFIED PROCTOR DENSITY.

| | | |
|--|-------------------|-----|
| | TRENCH COMPACTION | 103 |
| | NOT TO SCALE | |



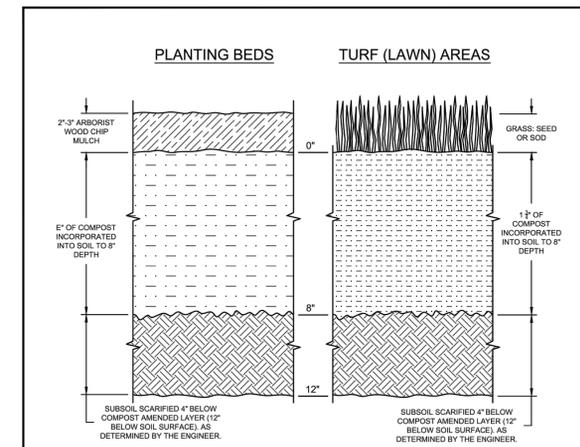
- NOTES**
- INSTALL SEWER MAIN CONNECTION AND CLEANOUT PER STANDARD DRAWING 602 AND 603.
 - ALL TEE CONNECTIONS SHALL BE WITH WYES. STRAIGHT TEES ARE NOT PERMITTED.
 - ALLOWABLE GRADES ARE 2% (1/2\"/>

| | | |
|--|---------------------------|-----|
| | TYPICAL SIDE SEWER LAYOUT | 601 |
| | NOT TO SCALE | |



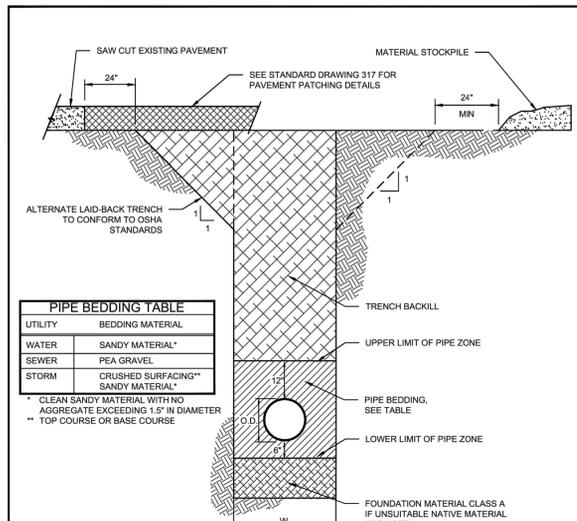
- NOTES**
- PIPE AND FITTINGS SHALL BE PVC ASTM 3034 (SDR 35).
 - A GASKETED WYE MUST BE INSTALLED. STRAIGHT TEES ARE NOT ACCEPTABLE.
 - CASTING SHALL BE 12\"/>

| | | |
|--|--------------------------------------|-----|
| | SANITARY SEWER/STORM DRAIN CLEAN OUT | 603 |
| | NOT TO SCALE | |



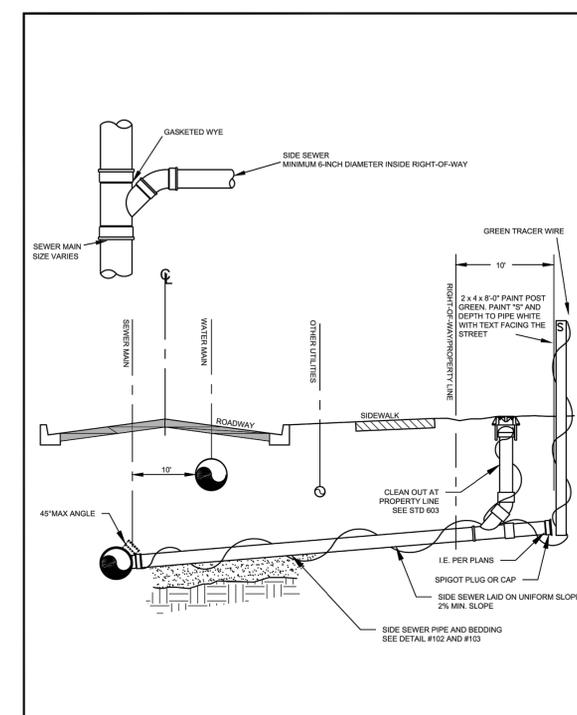
- ALL SOIL AREAS DISTURBED OR COMPACTED DURING CONSTRUCTION AND NOT COVERED BY BUILDINGS OR PAVEMENT MUST BE AMENDED AS DESCRIBED BELOW.
- SUBSOIL SHOULD BE SCARIFIED (LOOSENED) 4 INCHES BELOW AMENDED LAYER TO PRODUCE 12 INCH DEPTH OF UNCOMPACTED SOIL EXCEPT WHERE SCARIFICATION WOULD DAMAGE TREE ROOTS OR AS DETERMINED BY THE ENGINEER.
- COMPOST MUST BE TILLED TO 8 INCH DEPTH INTO EXISTING SOIL OR PLACE 8 INCHES OF COMPOST AMENDED SOIL PER SOIL SPECIFICATION.
- TURF AREAS MUST RECEIVE 1\"/>

| | | |
|--|--------------------------|-----|
| | SOIL AMENDMENT AND DEPTH | 415 |
| | NOT TO SCALE | |

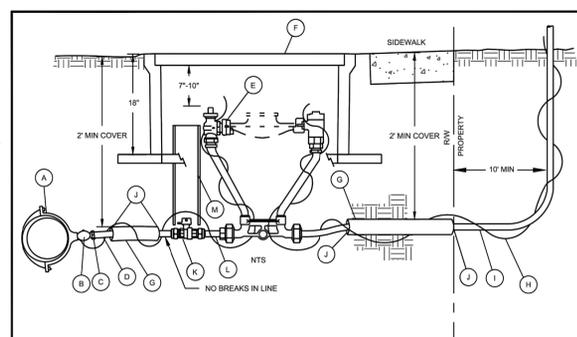


- NOTES**
- FOUNDATION AND BEDDING AND GRAVEL BORROW MATERIAL SHALL CONFORM TO THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION WSDOT/APWA.
 - W = MAXIMUM WIDTH OF TRENCH. FOR PIPES 15\"/>

| | | |
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| | TRENCH BACKFILL | 102 |
| | NOT TO SCALE | |

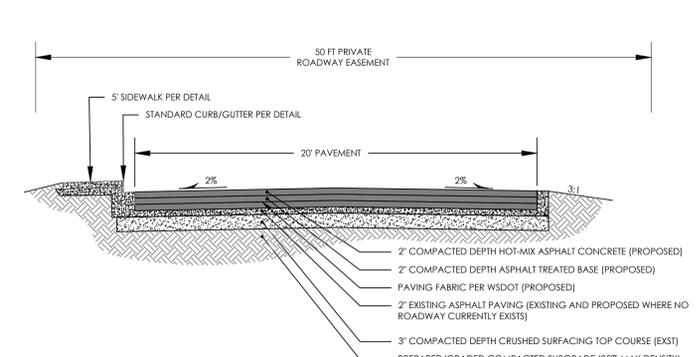


| | | |
|--|------------------------------|-----|
| | GRAVITY SEWER SVC CONNECTION | 602 |
| | NOT TO SCALE | |



- LEGEND**
- (A) WIDE BAND STAINLESS STEEL SERVICE SADDLE WITH IRON PIPE THREADS. FORD STYLE FS101 OR EQUAL. WHEN WATER MAIN MATERIAL IS C900 PVC PIPE THERE SHALL BE A MINIMUM OF 3 FEET BETWEEN TAPS AND STAGGER TAPS A MAXIMUM OF 45 DEGREES VERTICALLY. WITH ALL OTHER PIPES MATERIALS THERE SHALL BE A MINIMUM OF 2 FEET BETWEEN TAPS.
 - (B) 1\"/>

| | | |
|--|--------------|-----|
| | 3/4\"/> | 501 |
| | NOT TO SCALE | |



- STREET RESTORATION & CONSTRUCTION NOTES:**
- THE ROADWAY SHALL BE IMPROVED TO HAVE A STRUCTURAL NUMBER OF 2.67. GENERALLY, THIS IS ACHIEVED WITH THE FOLLOWING:
 - * 2\"/>
 - EXISTING POT HOLES SHALL BE REPAIRED CONSISTENT WITH THE EXISTING PAVEMENT SECTION
 - AREAS OF COMPACTED GRAVEL WITH NO ASPHALT SHALL LIKEWISE BE PREPARED CONSISTENT WITH DETAIL ABOVE, INCLUDING PREPARATION OF THE SUBGRADE. PLACEMENT OF 3\"/>

A STREET RESTORATION & IMPROVEMENTS
C6 Not to Scale



DESIGNED BY: ARCELIA & RAMON HENRIQUEZ
CHECKED BY: HENRIQUEZ
DATE: MAY 2024

PROJECT: HENRIQUEZ 149TH PLACE SHORT PLAT

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SEWER AND WATER GENERAL NOTES

