20 West Champion Street, Suite 200 t: 360.650.14

FREELAND

ASSOCIATE

1655 MAIN STREET

SITUATE IN A PORTION OF THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 28. TOWNSHIP 39 NORTH, RANGE 2 EAST, W.M., WHATCOM COUNTY, WASHINGTON

CITY OF FERNDALE GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARD WSDOT

2. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING SUB-SURFACE CONDITIONS

4. THE SURVEYOR SHALL LAY OUT AND SET ANY CONSTRUCTION STAKES AND MARKS

BE CLEARLY STAKED AND MARKED PRIOR TO CITY INSPECTION.

NEEDED TO ESTABLISH THE LINES, GRADES, SLOPES OR CROSS-SECTIONS AS SHOWN

ON THE PLANS OR AS STAKED BY THE ENGINEER. ALL STRUCTURES AND GRADES WILL

THE CONTRACTOR SHALL PROTECT ALL PRIVATE AND PUBLIC UTILITIES FROM DAMAGE

6. WHEN THE CONTRACTOR CONSIDERS THE WORK PHYSICALLY COMPLETE AND READY

FOR FINAL INSPECTION. THE CONTRACTOR SHALL REQUEST THAT CITY INSPECTOR

SCHEDULE A FINAL INSPECTION. THE INSPECTOR WILL MAKE A FINAL INSPECTION AND

NOTIFY THE CONTRACTOR IN WRITING OF ALL PARTICULARS IN WHICH THE FINAL

INSPECTION REVEALS THE WORK INCOMPLETE OR UNACCEPTABLE. THE CONTRACTOR

SHALL IMMEDIATELY TAKE SUCH CORRECTIVE MEASURES AS ARE NECESSARY TO

PROPERTY DISRUPTED BY THE PROJECT IMMEDIATELY AFTER CONSTRUCTION.

RESULTING FROM THE WORK. CONTRACTOR SHALL RESTORE ALL PRIVATE AND PUBLIC

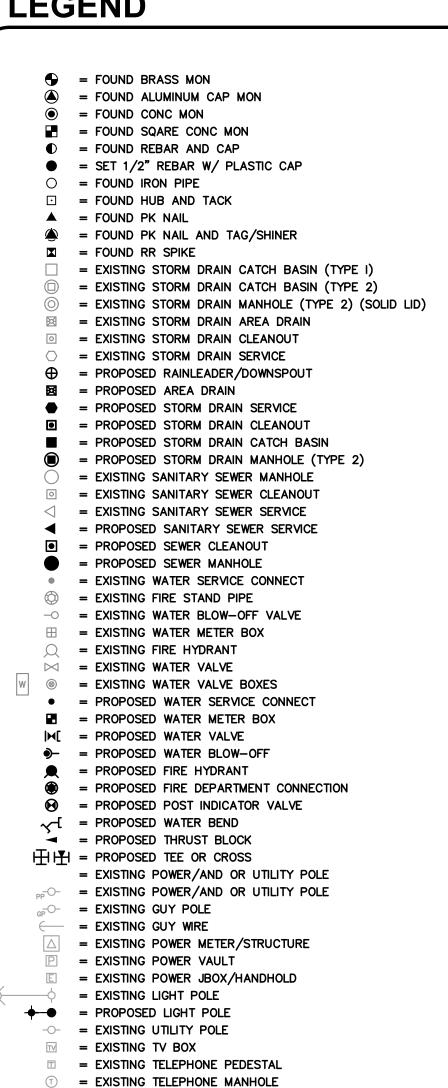
FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY

REVIEWS ALL PLANS AND OTHER CONSTRUCTION DOCUMENTS APPROVED BY ALL OF THE PERMITTING AUTHORITIES. THROUGHOUT THE PERIOD OF CONSTRUCTION, CONTRACTOR SHALL COMPLY WITH THE TERMS OF ALL PERMITS.

SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, CURRENT EDITION

AND THE CITY OF FERNDALE DEVELOPMENT STANDARDS AND SHALL BE SUBJECT TO APPROVAL BY THE CITY OF FERNDALE. IN THE EVENT OF A CONFLICT, THE MORE

LEGEND



- = EXISTING OVERHEAD ELECTRIC LINES = EXISTING FIBER OPTIC LINE --OT--OT--OT--= EXISTING OVERHEAD UTILITES (UNKNOWN) = EXISTING UNDERGROUND TV CABLE --- G --- = EXISTING GAS MAIN ——— G ——— = PROPOSED GAS LINE
- ----FIRE----FIRE- = EXISTING FIRE MAIN = PROPOSED WATER LINE ----SFM ----SFM = EXISTING SEWER FORCE MAIN SS — SS — = PROPOSED SANITARY SEWER LINE SFM ———— SFM ——— = PROPOSED SANITARY SEWER FORCE LINE = EXISTING FLOW LINE & DIRECTION = EXISTING STORM DRAIN LINE

= EXISTING FENCE TYPE:

= EXISTING FENCE TYPE:

----- - TOE - - - = EXISTING TOE OF BANK

----TOP -----TOP --- = PROPOSED TOP OF BANK

— TOE — TOE — PROPOSED TOE OF BANK

= PROPOSED CONTOUR (NORMAL)

--FILL ----FILL --- = PROPOSED DAYLIGHT FILL LINE

--cut----cut--- = PROPOSED DAYLIGHT CUT LINE

17.20

.000000000000

= EXISTING CONC. FENCE OR RET. WALL

-10——— = PROPOSED CONTOUR (INDEX)

= EXISTING STONE WALL

= EXISTING TOP OF BANK

= EXISTING CONTOUR (NORMAL)

x 100.00TP = EXISTING SPOT ELEV @ TOP OF PAVEMENT

x 100.0 = EXISTING SPOT ELEV @ TOP OF GROUND

x 100.0EG = EXISTING SPOT ELEV @ EDGE OF GRAVEL

x 100.00BW = EXISTING SPOT ELEV @ TOP BACK OF SIDEWALK

x 100.00FC = EXISTING SPOT ELEV @ FACE OF CURB

= EXISTING SPOT ELEV @ EDGE OF PAVEMENT

= EXISTING SPOT ELEV @ EDGE OF CONC WALK

= PROPOSED SPOT ELEV @ TOP OF SIDEWALK

= PROPOSED SPOT ELEV @ TOP OF PAVEMENT

PROPOSED SPOT ELEV @ TOP OF CURB

= PROPOSED ASPHALT PAVEMENT

= PROPOSED PAVEMENT REPAIR

= PROPOSED GRAVEL SURFACING

= PROPOSED CONCRETE

= EXISTING SPOT ELEV @ TOP OF CONC WALK OR WALL

= PROPOSED SPOT ELEV @ TOP OF FINISHED GRADE

= EXISTING ORDINARY HIGH WATER LINE

- SD SD PROPOSED STORM DRAIN LINE (SOLID WALL) = PROPOSED STORM DRAIN LINE (PERFORATED) —·—·— = PROPOSED FOUNDATION DRAIN ----- = PROPOSED ROOF DRAIN = EXISTING CHAIN LINK FENCE
 - REMEDY THE LISTED DEFICIENCIES. BEFORE ANY CONSTRUCTION OR DEVELOPMENT ACTIVITY A PRE—CONSTRUCTION MEETING MUST BE HELD BETWEEN THE CONTRACTOR, OWNER, CITY ENGINEER AND PROJECT ENGINEER. (MINIMUM 3 DAYS PRIOR TO STARTING WORK)

GENERAL REQUIREMENTS

STRINGENT REQUIREMENT SHALL APPLY.

- 8. A COPY OF THESE APPROVED PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR, ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED. ALL SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS 1-07.23-PUBLIC CONVENIENCE AND SAFETY, SHALL APPLY.
- 10. PROOF OF LIABILITY INSURANCE SHALL BE SUBMITTED TO THE CITY PRIOR TO THE PRE-CONSTRUCTION MEETING.
- 11. NO WORK SHALL OCCUR BETWEEN 7:00 PM & 7:00 AM MONDAY THROUGH SATURDAY.
- 12. ALL HARD SURFACED PAVEMENTS MUST BE REPAIRED AT THE CLOSE OF EACH WORK DAY. THE REPAIRS CAN BE TEMPORARY WITH ASPHALT COLD MIX OR PERMANENT WITH HOT MIX ASPHALT OR CONCRETE. ALL REPAIRS SHALL BE ACCORDING TO CITY OF FERNDALE DRAWING R-11.
- 13. ALL WORK MUST BE INSPECTED BY A REPRESENTATIVE OF THE CITY OF FERNDALE ENGINEERING DIVISION, AND 24 HOURS NOTICE MUST BE GIVEN PRIOR TO STARTING WORK OR TO SCHEDULE INSPECTIONS IN ACCORDANCE WITH SECTION 302 OF THE DEVELOPMENT STANDARDS.
- 14. THE CONTRACTOR SHALL INFORM THE ENGINEER AND OBTAIN APPROVAL FROM THE CITY OF FERNDALE PUBLIC WORKS DIRECTOR OF ANY PROPOSED DEVIATION FROM THE APPROVED PLANS PRIOR TO CONSTRUCTION OF THE REVISED IMPROVEMENTS. THE CONTRACTOR SHALL KEEP RECORDS OF ALL DEVIATIONS AND SHALL FORWARD THEM TO THE ENGINEER AND TO THE CITY OF FERNDALE PUBLIC WORKS DEPARTMENT.
- 15. AS-BUILT DATA SHALL BE PROVIDED TO THE CITY OF FERNDALE UPON COMPLETION OF CONSTRUCTION AND PROVIDED IN CITY OF FERNDALE DATUM-VERTICAL (NGVD 29) AND HORIZONTAL (NAD 83/91). CONTACT THE CITY FOR MORE INFORMATION ON SUBMITTAL REQUIREMENTS. ALL EXISTING AND NEW SITE IMPROVEMENTS MUST BE ACCURATELY DOCUMENTED PRIOR TO FINAL PROJECT ACCEPTANCE.
- 16. METHOD OF SURVEY, SURVEY DATA, AND SURVEY EQUIPMENT UTILIZED TO CREATE THE BASE MAP/EXISTING CONDITIONS ARE NOTED ON SHEET C2 OF THIS PLAN SET.
- 17. THE LOCATIONS OF UNDERGROUND FACILITIES SHOWN ON THESE PLANS ARE BASED ON FIELD SURVEYS AND LOCAL UTILITY COMPANY RECORDS. IT SHALL BE THE CONTRACTOR'S FULL RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES TO LOCATE THEIR FACILITIES PRIOR TO STARTING CONSTRUCTION. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR DAMAGE AND REPAIR TO THESE FACILITIES CAUSED BY HIS WORK FORCE. CALL 1-800-424-5555 FOR UTILITY LOCATE 48 HOURS PRIOR TO WORK, CONTRACT TO HOLD. THE CONTRACTOR SHALL NOTIFY THE ENGINEER PROMPTLY OF ANY CONFLICT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF ALL ADJACENT UTILITIES WHICH INCLUDE BUT ARE NOT LIMITED TO: WATER, SEWER, STORM SEWER, POWER, TELEPHONE, CABLE TV, IRRIGATION, AND STREET LIGHTING. CONTRACTOR SHALL RESTORE ALL PRIVATE AND PUBLIC PROPERTY DISTURBED BY THE PROJECT UPON COMPLETION OF
- 18. A REVOCABLE ENCROACHMENT PERMIT SHALL BE OBTAINED PRIOR TO COMMENCING WORK IN THE PUBLIC RIGHT-OF-WAY.
- 19. POT HOLING ALL EXISTING UTILITIES IS REQUIRED PRIOR TO CONSTRUCTION TO VERIFY DESIGN FEASIBILITY. THE CITY DOES NOT GUARANTEE AS BUILT INFORMATION IN THE CITY DATA BASE IS ACCURATE AND WILL NOT BE HELD RESPONSIBLE IF FIELD MODIFICATIONS AND/OR ADDITIONAL COSTS ARE REQUIRED BECAUSE POTHOLING WAS NOT DONE PRIOR TO DESIGN.

- 1. GRAVEL BASE AND GRAVEL BALLAST USED FOR TRENCH BACKFILL AND ROAD CONSTRUCTION MUST MEET CURRENT WSDOT REGULATIONS AND SPECIFICATIONS.
- 2. BALLAST, GRAVEL BASE AND CRUSHED SURFACING SHALL BE COMPACTED TO AT LEAST 95% OF ITS MAXIMUM DRY DENSITY.

3. THE CONTRACTOR OR PROPONENT SHALL BE RESPONSIBLE FOR ALL COMPACTION TESTING. PRIOR TO IMPORTING OF MATERIAL FOR BASE AND CSTC THE CONTRACTOR SHALL PROVIDE EVIDENCE OF SATISFACTORY PASSING GRADING AND DEGRADATION TEST RESULTS TO THE ENGINEER.

PAVEMENTS

- WHERE SHOWN ON THE PLANS, PAVEMENT MARKINGS SHALL BE OBLITERATED UNTIL BLEMISHES CAUSED BY THE PAVEMENT MARKING REMOVAL CONFORM TO THE COLORATION OF THE ADJACENT PAVEMENT.
- 2. SOIL RESIDUAL HERBICIDE SHALL BE PLACED WITHIN 24 HOURS OF PAVING.
- 3. A TACK COAT OF ASPHALT SHALL BE APPLIED BETWEEN ALL COURSES OF ASPHALT. ALL PAVEMENT REPAIR SHALL BE SAW-CUT BEFORE REMOVAL. AR-4000W SHALL BE
- APPLIED TO ALL EDGES OF EXISTING PAVEMENT.
- ASPHALT CONCRETE PAVEMENT SHALL NOT BE PLACED NOR COMPACTED DURING HOURS OF DARKNESS.

6. SUBGRADE SHALL BE CERTIFIED IN WRITING BY THE ENGINEER PRIOR TO PAVING. **WATER MAINS**

- TEST PRESSURE FOR WATERMAIN ACCEPTANCE SHALL BE 225 p.s.i. AT THE HIGHEST POINT ON THE WATER LINE AND SHALL BE DONE ACCORDING TO CITY OF FERNDALE REQUIREMENTS. ALL PURIFICATION ACCEPTANCE TESTING SHALL BE ACCORDING TO CITY OF FERNDALE REQUIREMENTS. THE PIPE WILL NOT PASS UNLESS A ZERO BACTERIA COUNT IS OBTAINED FOR TWO CONSECUTIVE TESTS 24 HOURS APART.
- ALL WORK AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF FERNDALE DEVELOPMENT STANDARDS, SECTIONS 702 AND 705 AND THE MOST RECENT VERSION OF WSDOT STANDARD SPECIFICATIONS.
- ALL BACKFILL SHALL BE IMPORTED GRAVEL AND SHALL CONFORM TO SECTION 2-09 OF THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION.
- 4. ALL PIPES SHALL HAVE A MINIMUM COVER OF 3.0 FEET AND A MAXIMUM OF 3.5 FEET UNLESS OTHERWISE APPROVED.

EARTHWORK

- THE CONTRACTOR SHALL CLEAR, GRUB AND CLEAN UP THOSE AREAS SHOWN ON THE
- THE CONTRACTOR SHALL EXCAVATE AND GRADE TO THE ALIGNMENT, GRADE AND CROSS-SECTIONS SHOWN IN THE PLANS OR ESTABLISHED BY THE ENGINEER. IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL ENGINEERING STUDY.
- MAXIMUM DENSITY AND OPTIMUM MOISTURE FOR GRANULAR MATERIALS WILL BE DETERMINED USING ASTM D-1557 TEST METHOD.
- THE UNSUITABLE MATERIAL NOT FIT FOR A SUB-GRADE SHALL BE EXCAVATED TO THE BOUNDARIES SET BY THE ENGINEER AND REPLACED WITH A SUITABLE BACKFILL MATERIAL.

STORM DRAINAGE

- ALL PIPE AND APPURTENANCES SHALL BE LAID ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH WSDOT 7-08. THIS SHALL INCLUDE LEVELING AND COMPACTING THE TRENCH BOTTOM, THE TOP OF THE FOUNDATION MATERIAL AND ANY REQUIRED PIPE BEDDING, TO A UNIFORM GRADE SO THAT THE ENTIRE PIPE IS SUPPORTED BY A UNIFORMLY DENSE UNYIELDING BASE.
- ALL DRAINAGE STRUCTURES, SUCH AS CATCH BASINS AND MANHOLES, NOT LOCATED WITHIN A TRAVELED ROADWAY OR SIDEWALK, SHALL HAVE SOLID LOCKING LIDS. ALL DRAINAGE STRUCTURES ASSOCIATED WITH A PERMANENT RETENTION/DETENTION FACILITY SHALL HAVE SOLID LOCKING LIDS.
- 3. ALL CATCH BASIN GRATES SHALL INCLUDE THE STAMPING "OUTFALL TO STREAM, DUMP NO POLLUTANTS".
- ALL DRIVEWAY CULVERTS LOCATED WITHIN THE RIGHT-OF-WAY SHALL BE OF SUFFICIENT LENGTH TO PROVIDE A MINIMUM 3:1 SLOPE FROM THE EDGE OF THE DRIVEWAY TO THE BOTTOM OF THE DITCH. CULVERTS SHALL HAVE BEVELED END
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE LOCATIONS OF ALL STUB-OUT CONVEYANCE LINES WITH RESPECT TO THE UTILITIES (E.G. POWER, GAS, TELEPHONE. TELEVISION).

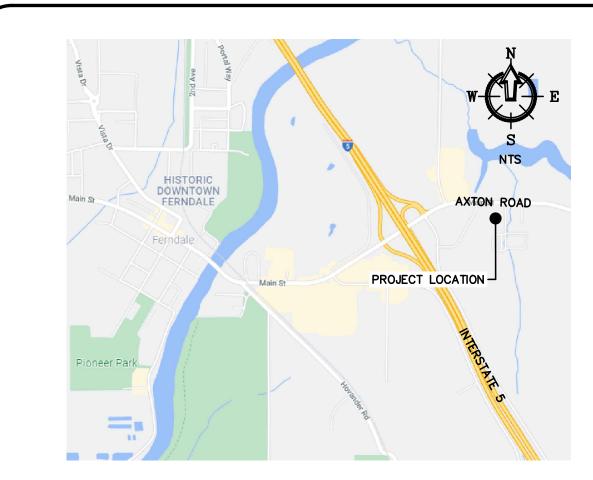
CITY OF FERNDALE NOTES

- APPLICANT/OWNER WILL PROVIDE ANYTIME ACCESS TO BOTH THE CITY AND FIRE DISTRICT AS NEEDED. KEY OR CODE ACCESS TO THE SATISFACTION OF BOTH CITY AND FIRE DISTRICT TO PROVIDE SAID ACCESS WILL BE REQUIRED PRIOR TO CITY FINAL ACCEPTANCE OF THE PROJECT.
- ALL PROPOSED LOCKABLE GATE LOCATIONS CONCEALING CITY INFRASTRUCTURE, FIRE DEPARTMENT CONNECTION, AND BUILDING ACCESS MUST PROVIDE 24 HR ACCESS VIA CODE OR ELECTRONIC OPENING DEVICES AS REQUIRED BY THE CITY OF FERNDALE AND
- ALL STRUCTURES, STORM FACILITIES, AND UTILITY CONNECTION POINTS WILL BE LOCATED AND MARKED APPROPRIATELY BY A LICENSED SURVEYOR PRIOR TO START OF CONSTRUCTION AND/OR CITY INSPECTION.
- 4. ALL EXISTING SEWER AND WATER SERVICES NOT UTILIZED WILL BE ABANDONED APPROPRIATELY AT THE MAIN.
- 5. ALL EXISTING AND NEW FACILITIES CONNECTING TO THE PUBLIC WATER SOURCE MUST BE DCVA PROTECTED. VERIFICATION OF DEVICES, LOCATIONS OF DEVICES AND NEW UPGRADES NEEDED TO COMPLY WILL BE REQUIRED PRIOR TO PROJECT ACCEPTANCE BY

SHEET INDEX

- COVER SHEET
- C2 EXISTING CONDITIONS
- TEMPORARY EROSION & SEDIMENT CONTROL PLAN
- TEMPORARY EROSION & SEDIMENT CONTROL **DETAILS & SWPPP**
- SITE PLAN
- GRADING & DRAINAGE PLAN
- WATER MAIN PLAN & PROFILE 0+00 6+00
- SITE DETAILS
- C9 SITE DETAILS
- C10 STORM DETAILS
- C11 STORM DETAILS
- C12 STORM DETAILS
- C13 SEWER DETAILS
- C14 WATER DETAILS
- C15 STORMBRIXX DETAILS

VICINITY MAP



PROJECT CONTACTS

CIVIL ENGINEER

FREELAND & ASSOCIATES, INC. JEAN-PAUL SLAGLE, PE DAVIS PHILLIPS, PE 220 W. CHAMPION STREET SUITE 200 BELLINGHAM, WA 98225 (360) 650-1408 jpslagle@freelandengineering.com dphillips@freelandengineering.com

OWNER

ARCHITECT HAVEN DESIGN WORKSHOP **BRENDA ZIRKELBACH** 5828 2ND AVE FERNDALE, WA 98248 (360) 527-2840

brenda@haven-dw.com

MICHAEL WATTERS 1016 CORDATA AVENUF BELLINGHAM, WA 98226

> **SURVEYOR** 523 FRONT STREET LYNDEN, WA 98264 (360) 354-8320

COMPASS POINT SURVEY GROUP INC.

APPROVED 04/24/2024 Y. My Hanger FOR ICCUIN CITY OF FERNDALE PUBLIC WORKS DEPARTMENT

AS-BUILT DRAWING AS-BUILT NOTE:

18054 4-23-2024

M 655 NDA

655

SURVEY NOTE

 $\square^{MB(1)}$ = EXISTING MAIL BOX

= EXISTING FLAG POLE

= EXISTING LANDSCAPING

□ GM = EXISTING GAS METER

= ADA PARKING SPACE

= PROPOSED FLOW DIRECTION ARROW

ARCHAEOLOGICAL FINDINGS

SHOULD ARCHAEOLOGICAL MATERIALS (e.g. SHELL MIDDEN, FAUNAL REMAINS, STONE TOOLS) OR HUMAN REMAINS BE OBSERVED DURING THE SCOPE OF OPERATIONS AS APPROVED, ALL WORK IN THE VICINTY SHALL STOP, AND THE AREA SHALL BE SECURED. THE STATE

OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION (360-586-3065) AND THE LUMMI NATION TRIBAL HISTORIC PRESERVATION OFFICE (360-384-2298) SHALL BE CONTACTED IMMEDIATELY IN ORDER TO HELP ASSESS THE SITUATION AND DETERMINE HOW TO

PRESERVE THE RESOURCE(S). COMPLIANCE WITH ALL APPLICABLE LAWS PERTAINING TO ARCHAEOLOGICAL RESOURCES IS REQUIRED.

■ = PROPOSED SIGN

 $\frac{X}{XXX}$ = DETAIL CALLOUT

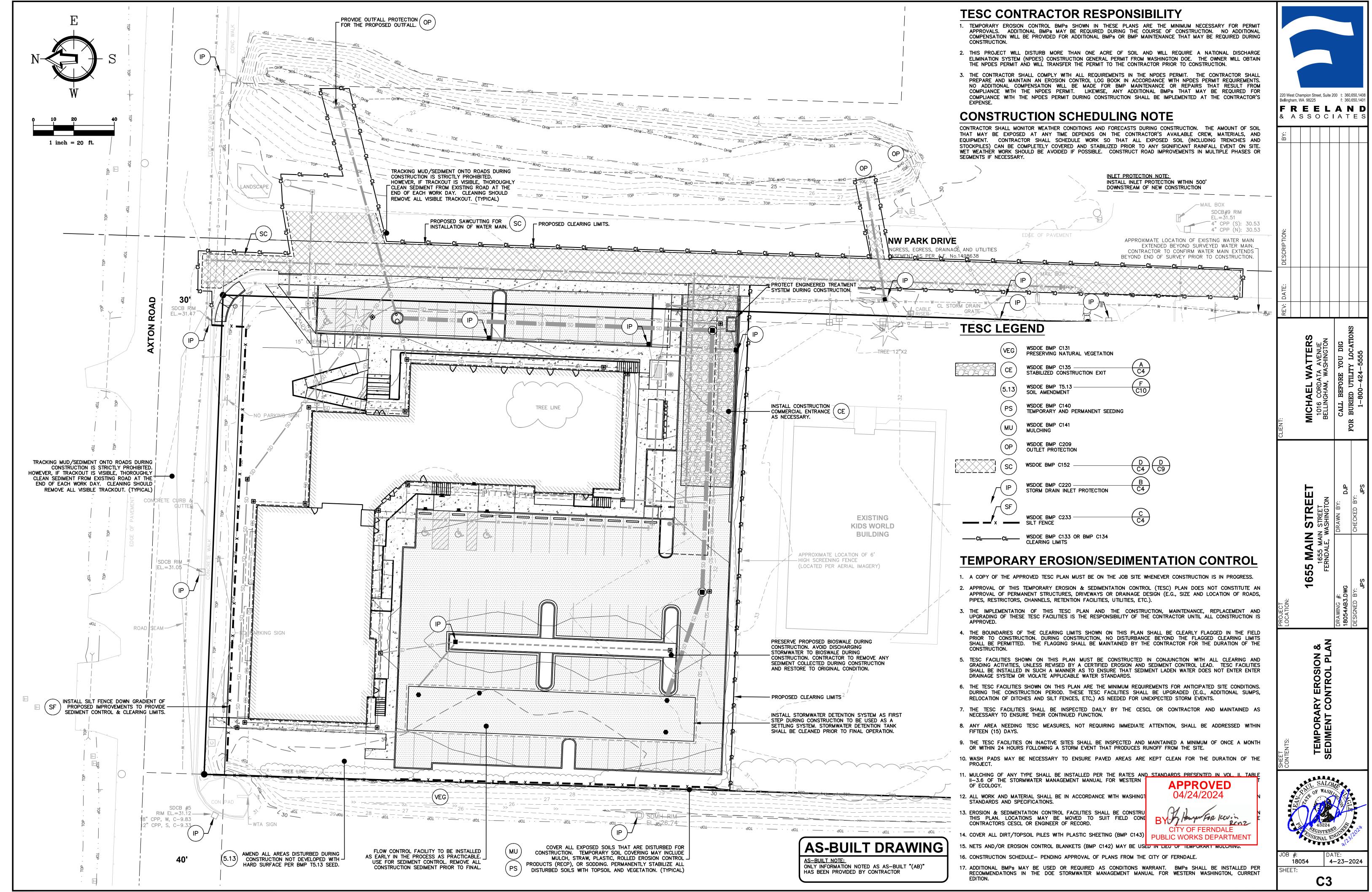
DIGITAL COPIES OF THE CIVIL SITE PLANS WILL BE PROVIDED TO THE CONTRACTOR. ALL BUILDINGS, UTILITY STRUCTURES, AND OTHER COMPONENTS NECESSARY FOR CONSTRUCTION SHALL BE STAKED BY A LICENSED SURVEYOR PRIOR TO CONSTRUCTION.

CALL BEFORE YOU DIG FOR BURIED UTILITY LOCATIONS 1-800-424-5555

ENGINEER'S CERTIFICATION: "I HEREBY CERTIFY THAT THE IMPROVEMENTS OF 1655 MAIN STREET HAVE BEEN INSPECTED BY FREELAND & ASSOCIATES, INC. AND CONSTRUCTED IN GENERAL CONFORMANCE WITH THE PLANS APPROVED BY PUBLIC WORKS DIRECTOR FOR SAID DEVELOPMENT

AND THE CENERAL SPECIFICATIONS ADOPTED BY THE CITY OF FER DATE OF PUBLIC WORKS."

ONLY INFORMATION NOTED AS AS-BUILT "(AB)" HAS BEEN PROVIDED BY CONTRACTOR

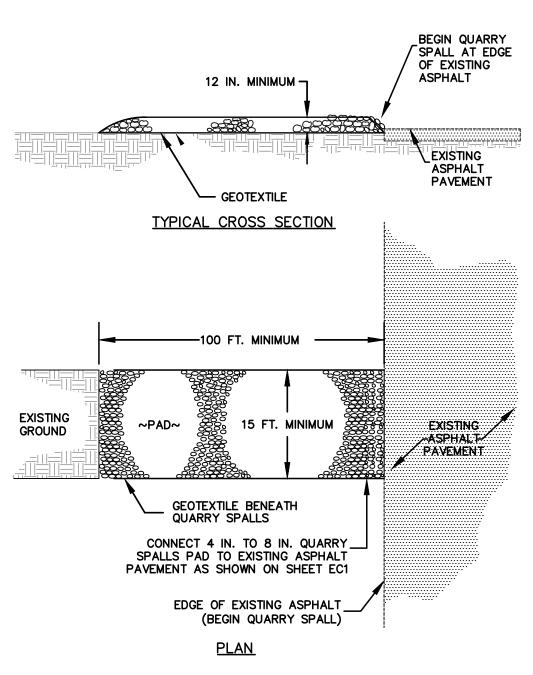


20 West Champion Street, Suite 200 t: 360,650,14

FREELAND

& ASSOCIATE

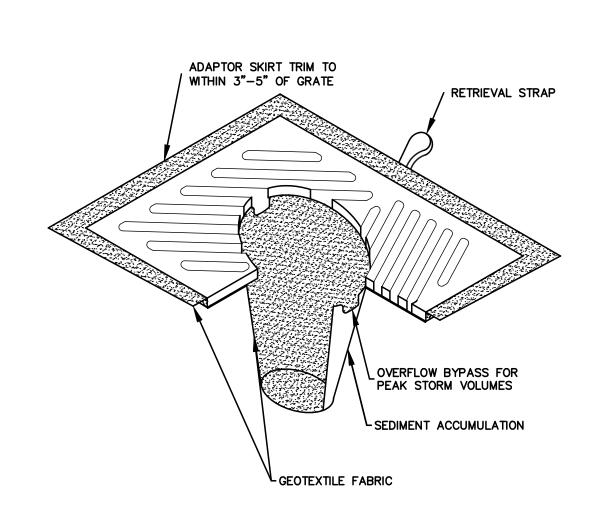
Bellingham, WA 98225



- NOTES:

 1. THE PAD SHALL BE REMOVED AND REPLACED WHEN SOIL IS EVIDENT ON THE SURFACE OF THE PAD.
- 2. PAD THICKNESS SHALL BE INCREASED IF SOIL CONDITIONS DICTATE OR PER THE DIRECTION OF ENGINEER OF RECORD OR THE CERTIFIED EROSION & SEDIMENTATION CONTROL LEAD (CESCL).
- 3. MINIMUM DIMENSIONS MAY BE MODIFIED AS REQUIRED BY SITE CONDITIONS UPON APPROVAL OF WHATCOM COUNTY.
- 4. SHAKER PLATS MAY BE SUBSTITUTED FOR QUARRY SPALL ENTRANCE OF DETERMINED APPROPRIATE BY PROJECT CESCL.

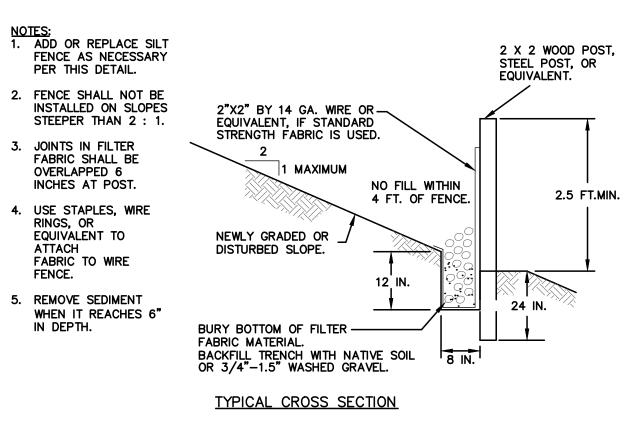


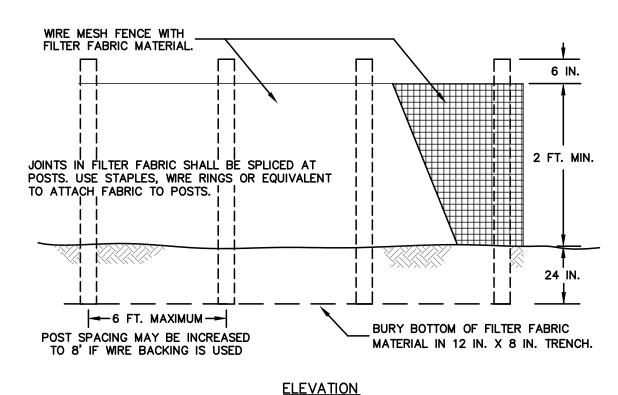


1. INSERT SHALL BE INSTALLED PRIOR TO CLEARING AND GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.

- 2. SEDIMENT SHALL BE REMOVED FROM THE UNIT WHEN IT BECOMES HALF FULL
- 3. SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INSERT, EMPTYING, AND RE-INSERTING IT INTO THE CATCH BASIN.







BMP C152: Sawcutting and Surfacing Pollution Prevention

Sawcutting and surfacing operations generate slurry and process water that contains fine particles and high pH (concrete cutting), both of which can violate the water quality standards in the receiving water. Concrete spillage or concrete discharge to surface waters of the State is prohibited. Use this BMP to minimize and eliminate process water and slurry created through sawcutting or surfacing from entering waters of the State.

Conditions of Use Utilize these management practices anytime sawcutting or surfacing operations take place. Sawcutting and surfacing operations include, but

- are not limited to, the following: Sawing
- Coring
- Grinding

Roughening

- Hydro-demolition
- Bridge and road surfacing

Design and Installation Specifications

- Vacuum slurry and cuttings during cutting and surfacing operations. Slurry and cuttings shall not remain on permanent concrete or asphalt pavement overnight
- Slurry and cuttings shall not drain to any natural or constructed drainage conveyance including stormwater systems. This may require temporarily blocking catch basins.
- Dispose of collected slurry and cuttings in a manner that does not violate ground water or surface water quality standards.
- Do not allow process water generated during hydro-demolition, surface roughening or similar operations to drain to any natural or constructed drainage conveyance including stormwater systems. Dispose process water in a manner that does not violate ground water or surface water quality standards.
- Handle and dispose cleaning waste material and demolition debris in a manner that does not cause contamination of water. Dispose of sweeping material from a pick-up sweeper at an appropriate disposal

Continually monitor operations to determine whether slurry, cuttings, or process water could enter waters of the state. If inspections show that a violation of water quality standards could occur, stop operations and immediately implement preventive measures such as berms, barriers, secondary containment, and vacuum trucks.

Volume II - Construction Stormwater Pollution Prevention - December 2014

SAWCUTTING POLLUTION PREVENTION

STORMWATER POLLUTION PREVENTION PLAN

ELEMENT #1: MARK CLEARING LIMITS CLEARING LIMITS AND NEARBY SENSITIVE AREAS AND THEIR BUFFERS, WILL BE CLEARLY MARKED PRIOR TO BEGINNING LAND DISTURBING ACTIVITIES, WHICH INCLUDES CLEARING AND GRADING. THESE AREAS WILL BE CLEARLY MARKED IN THE FIELD TO PREVENT DAMAGE AND OFFSITE IMPACTS.

WASHINGTON STATE DEPARTMENT OF ECOLOGY BMP'S CONSIDERED FOR ELEMENT #1 INCLUDE: BMP C131: PRESERVING NATURAL VEGETATION
BMP C133: HIGH VISIBILITY PLASTIC OR METAL FENCE

ELEMENT #2: ESTABLISH CONSTRUCTION ACCESS

A SINGLE ENTRANCE POINT WILL BE INSTALLED FOR CONSTRUCTION ACCESS TO THE PROPOSED ONSITE IMPROVEMENTS FROM NW PARK DRIVE. EARTHWORK EQUIPMENT WILL REMAIN WITHIN THE DISTURBED AREA TO THE MAXIMUM EXTENT PRACTICABLE. CONSTRUCTION TRAFFIC THAT WILL ROUTINELY LEAVE THE SITE (E.G. WORK TRUCKS, PERSONAL VEHICLES) SHALL REMAIN ON PAVED SURFACES TO THE MAXIMUM EXTENT PRACTICABLE. PAVED ROADS & PARKING AREAS SHALL BE CLEANED AT THE END OF EACH DAY. SEDIMENT TRANSPORTED TO ROADS FROM THE SITE SHALL BE SWEPT AND DISPOSED OF AT A CONTROLLED SEDIMENT DISPOSAL AREA ON SITE OR REMOVED OFF SITE AND DISPOSED AT AN APPROVED FILL SITE. IF STREET WASHING IS NEEDED, IT WILL ONLY OCCUR AFTER SEDIMENT HAS BEEN REMOVED AS DESCRIBED. THE RESULTING WASH WASTEWATER WOULD THEN BE CONTROLLED BY PUMPING IT BACK ON SITE. ALL CONSTRUCTION ACCESS POINTS WILL BE RESTORED TO PRE-CONSTRUCTION OR PROPOSED CONDITIONS.

WASHINGTON STATE DEPARTMENT OF ECOLOGY BMPS CONSIDERED FOR ELEMENT #2 INCLUDE: BMP C135: STABILIZED CONSTRUCTION ENTRANCE HOUSEKEEPING/MAINTENANCE BMP: DAILY STREET SWEEPING

HOUSEKEEPING/MAINTENANCE BMP: BMP C140 DUST CONTROL

ELEMENT #3: CONTROL FLOW RATES FLOW RATES SHALL BE CONTROLLED TO THE MAXIMUM EXTENT PRACTICAL. INSTALL PROPOSED DETENTION SYSTEM EARLY IN THE CONSTRUCTION PROCESS FOR FLOW AND SEDIMENT CONTROL. CONTRACTOR SHALL PRESERVE VEGETATED AREAS ON OR NEAR THE SITE AS ALLOWABLE THROUGHOUT THE CONSTRUCTION PROCESS. TEMPORARY SEDIMENT TRAPS OR PONDS MAY BE DESIGNED, LOCATED, AND INSTALLED IF THE CONTRACTOR, PROJECT ENGINEER. OR CESCL DEEMS NECESSARY.

ELEMENT #4: INSTALL SEDIMENT CONTROLS THE DÜFF LAYER, NATIVE TOPSOIL, AND NATURAL AND EXISTING VEGETATION WILL BE RETAINED IN AN UNDISTURBED STATE TO THE MAXIMUM EXTENT PRACTICABLE. ELEMENT #1 OF THIS PLAN, INCLUDING IMPLEMENTING PRESERVING NATURAL VEGETATION, WILL HELP RETAIN SOME AREAS IN AN UNDISTURBED STATE. SILT FENCING WILL BE INSTALLED DOWNHILL FROM DISTURBED AREAS TO TRAP AND RETAIN SEDIMENT ON SITE. OTHER SEDIMENT CONTROLS, SUCH AS TEMPORARY SEDIMENT TRAPS, SUMPS, GRAVEL FILER BERMS, STRAW WATTLES, ETC. MAY BE INSTALLED IF WARRANTED AS CONDITIONS CHANGE ON SITE DURING CONSTRUCTION.

WASHINGTON STATE DEPARTMENT OF ECOLOGY BMPS CONSIDERED FOR ELEMENT #4 INCLUDE: BMP C233: SILT FENCE

ELEMENT #5: STABILIZE SOILS IF CONSTRUCTION OCCURS IN THE DRY SEASON. (5/1 THROUGH 9/30) SOILS WILL NOT REMAIN EXPOSED AND UNWORKED FOR MORE THAN 7 DAYS. IF CONSTRUCTION OCCURS IN THE WET SEASON (10/1 THROUGH 4/30) SOILS WILL NOT REMAIN EXPOSED AND UNWORKED FOR MORE THAN 2 DAYS. WHEN ACTIVE GRADING IS IN PROGRESS, THE DEADLINE FOR SOIL STABILIZATION MAY BE EXTENDED UPON DETERMINING THAT THE LIKELIHOOD OF EROSION IMPACTS IS LOW BASED ON THE TYPE AND AMOUNT OF SOIL EXPOSED. SITE TOPOGRAPHY, POTENTIAL FOR DISCHARGE TO CRITICAL AREAS AND LAKES, AND OTHER FACTORS. IN ADDITION, WEATHER CONDITIONS WILL CONTINUALLY BE MONITORED, INCLUDING BEFORE HOLIDAYS AND WEEKENDS, FOR PURPOSES OF PREPARING THE SITE FOR PREDICTED WEATHER CONDITIONS. BMPS THAT ARE EFFECTIVE IN STABILIZING SOILS AND PROTECTING THEM FROM EXPOSURE TO RAIN AND WIND OR OTHER CLIMATIC CONDITIONS WILL BE IMPLEMENTED THROUGHOUT THE PROJECT. EVALUATION AND MONITORING OF BMP EFFECTIVENESS WILL OCCUR ON A DAILY BASIS. IN ADDITION, IN THE EVENT OF FORECASTED PRECIPITATION EVENTS, ADDITIONAL MEASURES TO STABILIZE SOILS WILL

BMPS THAT WILL BE CONSIDERED THROUGHOUT CONSTRUCTION INCLUDE BUT ARE NOT LIMITED TO TEMPORARY AND PERMANENT SEEDING, SODDING, MULCHING, PLASTIC COVERING, EROSION CONTROL FABRICS AND MATTING, THE EARLY APPLICATION OF GRAVEL BASE ON AREAS TO BE PAVED, AND DUST CONTROL.

WASHINGTON STATE DEPARTMENT OF ECOLOGY BMPS CONSIDERED FOR ELEMENT #5 INCLUDE: BMP C140: TEMPORARY AND PERMANENT SEEDING

BMP C141: MULCHING

BMP C142: NETS AND BLANKETS BMP C143: PLASTIC COVERING BMP C144: SODDING

BMP C145: TOPSOILING BMP C140: DUST CONTROL

ELEMENT #6: PROTECT SLOPES SIGNIFICANT CUT OR FILL SLOPES ARE NOT PROPOSED AS PART OF THIS PROJECT.

ELEMENT #7: PROTECT DRAIN INLETS STORM DRAIN INLETS ARE PROPOSED AS PART OF THIS PROJECT. OPERABLE STORM DRAIN INLETS ON THE SITE AND WITHIN 500 FEET DOWNSTREAM OF THE CONSTRUCTION AREA ROADS WILL BE PROTECTED SO THAT STORMWATER RUNOFF DOES NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FILTRATION OR OTHER TREATMENT FOR SEDIMENT. STORM DRAIN INLET PROTECTION WILL BE USED TO DETERMINE THE MOST APPROPRIATE INLET PROTECTION DESIGN FOR THE SITE AND THE DOWNSTREAM AREA.

INLETS WILL BE INSPECTED WEEKLY AT A MINIMUM AND DAILY DURING STORM EVENTS. INLET PROTECTION DEVICES SHALL BE CLEANED OR REMOVED AND REPLACED BEFORE SIX INCHES OF SEDIMENT CAN ACCUMULATE. CONSTRUCTION ACCESS POINTS AND APPROACHES WILL BE MONITORED AND SWEPT TO MINIMIZE THE POTENTIAL OF SEDIMENT TRANSPORT. IF STREET WASHING OCCURS, THE WASH WASTEWATER WILL BE PUMPED BACK ON SITE.

WASHINGTON STATE DEPARTMENT OF ECOLOGY BMPS CONSIDERED FOR ELEMENT #7 INCLUDE: BMP C220: STORM DRAIN INLET PROTECTION

ELEMENT #8: STABILIZE CHANNELS AND OUTLETS

NO CHÂNNELS ARE PROPOSED AS PART OF THIS PROJECT. STORMWATER WILL DISCHARGE TO AN EXISTING STABILIZED DITCH. OUTLET PROTECTION WILL BE PROVIDED FOR THE PROPOSED OUTFALL. PROVIDE STABILIZATION FOR ADJACENT BANKS, SLOPES, AND DOWNSTREAM REACHES AS NECESSARY AS IDENTIFIED BY THE CONTRACTOR OR CESCL ON SITE.

WASHINGTON STATE DEPARTMENT OF ECOLOGY BMPS CONSIDERED FOR ELEMENT #8 INCLUDE:

BMP C202: CHANNEL LINING BMP C122: NETS AND BLANKETS BMP C207: CHECK DAMS BMP C209: OUTLET PROTECTION

ELEMENT #9: CONTROL POLLUTANTS WASTE "MATERIALS GENERATED ON SITE WILL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORMWATER; INCLUDING COVERING SOIL STOCKPILES. ROUTINE INSPECTIONS OF THE WASTE MATERIAL STORAGE AREAS WILL BE CONDUCTED TO MAKE SURE THAT LEAKS OR SPILLS DO NOT OCCUR. ANY LEAKAGE OR SPILLS WILL BE CLEANED UP IMMEDIATELY.

PROVIDE COVER, CONTAINMENT, AND PROTECTION FROM VANDALISM FOR ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND OTHER MATERIALS THAT HAVE THE POTENTIAL TO POSE A THREAT TO HUMAN HEALTH OR THE ENVIRONMENT, ON-SITE FUELING TANKS MUST INCLUDE SECONDARY CONTAINMENT, SECONDARY CONTAINMENT MEANS PLACING TANKS OR CONTAINERS WITHIN AN IMPERVIOUS STRUCTURE CAPABLE OF CONTAINING 110% OF THE VOLUME CONTAINED IN THE LARGEST TANK WITHIN THE CONTAINMENT STRUCTURE. DOUBLE-WALLED TANKS DO NOT REQUIRE ADDITIONAL SECONDARY CONTAINMENT.

MAINTENANCE OF HEAVY EQUIPMENT INVOLVING OIL CHANGES. HYDRAULIC SYSTEM DRAIN DOWN, SOLVENT AND DE-GREASING CLEANING AND/OR OTHER ACTIVITIES THAT MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF WILL BE CONDUCTED WITH SPILL PREVENTION MEASURES IN PLACE, INCLUDING CONDUCTING MAINTENANCE ON A TEMPORARY PAD THAT CAN BE USED TO CAPTURE LARGE SPILLS AND THE USE OF DRIP PANS. IN THE EVENT THAT EMERGENCY REPAIRS NEED TO BE PERFORMED AND CLIMATIC CONDITIONS MAY RESULT IN A PRECIPITATION EVENT PRIOR TO THE REPAIR BEING COMPLETED, THE REPAIR AREA, WHICH INCLUDES THE VEHICLE, WILL BE COVERED WITH TARPS OR OTHER PLASTIC SHEETING. DISCHARGES, SPILLS, OR LEAKS WILL BE CLEANED IMMEDIATELY. THE NOTIFICATION PROCEDURE OUTLINED IN THE PERMANENT SITE SWPPP IS AS FOLLOWS:

ALL SPILLS WILL BE REPORTED TO THE DEPARTMENT OF ECOLOGY, SPILL RESPONSE PROGRAM (425) 649-7000.

BMPS CONSIDERED FOR ELEMENT #9 INCLUDE: SPILL CLEANUP AND RESPONSE PRACTICES

ELEMENT #10: CONTROL DE-WATERING IF NECËSSARY, CLEAN, NON-TURBID DE-WATERING WATER, SUCH AS WELL-POINT GROUND WATER, CAN BE DISCHARGED TO SYSTEMS TRIBUTARY TO STATE SURFACE WATERS, PROVIDED THE DE-WATERING FLOW DOES NOT CAUSE EROSION OR FLOODING OF RECEIVING WATERS. THESE CLEAN WATERS SHOULD NOT BE ROUTED THROUGH A STORMWATER SEDIMENT

HIGHLY TURBID OR CONTAMINATED DEWATERING WATER FROM CONSTRUCTION EQUIPMENT OPERATION, CONCRETE TREMIE, POUR, OR WORK INSIDE A COFFERDAM SHALL BE HANDLED SEPARATELY FROM STORMWATER. OTHER DISPOSAL OPTIONS, DEPENDING ON SITE CONSTRAINTS, MAY INCLUDE:

- INFILTRATION • TRANSPORT OFF SITE IN VEHICLE, SUCH AS A VACUUM FLUSH TRUCK, FOR LEGAL DISPOSAL IN A MANNER THAT DOES NOT POLLUTE STATE WATERS,
- ON-SITE TREATMENT USING CHEMICAL TREATMENT OR OTHER SUITABLE TREATMENT TECHNOLOGIES, SANITARY SEWER DISCHARGE WITH LOCAL SEWER DISTRICT APPROVAL, OR
- . USE OF A SEDIMENTATION BAG WITH OUTFALL TO A DITCH OR SWALE FOR SMALL VOLUMES OF LOCALIZED DEWATERING.

ELEMENT #11: MAINTAIN BMPS

ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMPS WILL BE INSPECTED BY THE CESCL OR CONTRACTOR, AND SHALL BE MAINTAINED, AND REPAIRED BY THE CONTRACTOR TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. MAINTENANCE AND REPAIR SHALL BE CONDUCTED IN ACCORDANCE WITH THE RELEVANT BMP IDENTIFIED IN ELEMENTS #1 THROUGH #10. TEMPORARY EROSION AND SEDIMENT CONTROLS IDENTIFIED ABOVE WILL BE INSPECTED D'AILY DURING THE WET SEASON. NEEDED REPAIRS AND MAINTENANCE WILL OCCUR WITHIN SEVEN (7) DAYS OR, IN THE EVENT OF A FORECAST OF INCLEMENT WEATHER, REPAIRS AND MAINTENANCE WILL OCCUR IMMEDIATELY. 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 RESULTING FROM REMOVAL OF BMPS OR VEGETATION SHALL BE PERMANENTLY STABILIZED.

ELEMENT #12: MANAGE THE PROJECT

<u>CONSTRUCTION</u> EXPOSED AREAS DURING THE CLEARING AND GRADING PROCESS WILL BE MULCHED AS PART OF THE CLEARING AND GRADING ACTIVITIES. CLEARING AND GRADING ACTIVITIES WILL OCCUR AFTER THE APPLICABLE PERMITS HAVE BEEN OBTAINED. REVEGETATION OF EXPOSED AREAS AND MAINTENANCE OF THAT VEGETATION WILL OCCUR AS PART OF THE PLANTING PHASE OF THE PROJECT TO BE INSTALLED AFTER SUB-GRADE ROAD BASE MATERIAL HAS BEEN INSTALLED AND PRIOR TO FINAL GRAVEL SURFACING.

SEASONAL WORK LIMITATIONS FROM MAY 1 THROUGH SEPTEMBER 30, SOIL WILL NOT BE EXPOSED/UNWORKED FOR 7 DAYS. FROM OCTOBER 1 THROUGH APRIL 30, SOIL WILL NOT REMAIN EXPOSED AND UNWORKED FOR MORE THAN 2 DAYS. IN ADDITION, WEATHER CONDITIONS WILL CONTINUALLY BE MONITORED INCLUDING BEFORE HOLIDAYS AND WEEKENDS FOR PURPOSES OF PREPARING THE SITE FOR PREDICTED WEATHER CONDITIONS. BMPS THAT ARE EFFECTIVE IN STABILIZING SOILS AND PROTECTING THEM FROM EXPOSURE TO RAIN AND WIND OR OTHER CLIMATIC CONDITIONS WILL BE IMPLEMENTED THROUGHOUT THE PROJECT. INSPECTION AND EVALUATION OF THE EFFECTIVENESS OF THE BMPS WILL OCCUR ON A DAILY BASIS. IN ADDITION, IN THE EVENT OF

FORECASTED PRECIPITATION EVENTS, ADDITIONAL MEASURES TO STABILIZE SOILS WILL BE TAKEN.

COORDINATION WITH UTILITIES AND OTHER CONTRACTORS
THE STORMWATER MANAGEMENT REQUIREMENTS FOR ALL ASPECTS OF THE CONSTRUCTION PROJECT, INCLUDING UTILITIES, WERE CONSIDERED IN PREPARING THE CONSTRUCTION SWPPP.

INSPECTION AND MONITORING
AS PREVIOUSLY MENTIONED, ALL BMPS WILL BE INSPECTED, MAINTAINED, AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. IN THE EVENT THAT INSPECTION AND/OR MONITORING REVEALS THAT THE BMPS IDENTIFIED IN THIS CONSTRUCTION SWPPP ARE INADEQUATE, DUE TO THE ACTUAL DISCHARGE OF OR POTENTIAL TO DISCHARGE A SIGNIFICANT AMOUNT OF ANY POLLUTANT, THIS SWPPP SHALL BE MODIFIED, AS APPROPRIATE, IN A TIMELY MANNER.

MAINTENANCE OF THE CONSTRUCTION SWPPP
THE CONSTRUCTION SWPPP WILL BE RETAINED ON—SITE ANI MODIFICATIONS TO THE CONSTRUCTION SWPPP WILL BE MADE W SIGNIFICANT CHANGE IN THE DESIGN, CONSTRUCTION, OPERATION

ELEMENT #13: PROTECT LOW IMPACT DEVELOPMENT BMPS BMP T5.13 IS PROPOSED FOR THIS PROJECT. PROTECT COM COMPACTION DUE TO CONSTRUCTION EQUIPMENT.

BY: by Hanger For Icevin PUBLIC WORKS DEPARTMENT

AS-BUILT DRAWING AS-BUILT NOTE: ONLY INFORMATION NOTED AS AS-BUILT "(AB)" HAS BEEN PROVIDED BY CONTRACTOR

APPROVED

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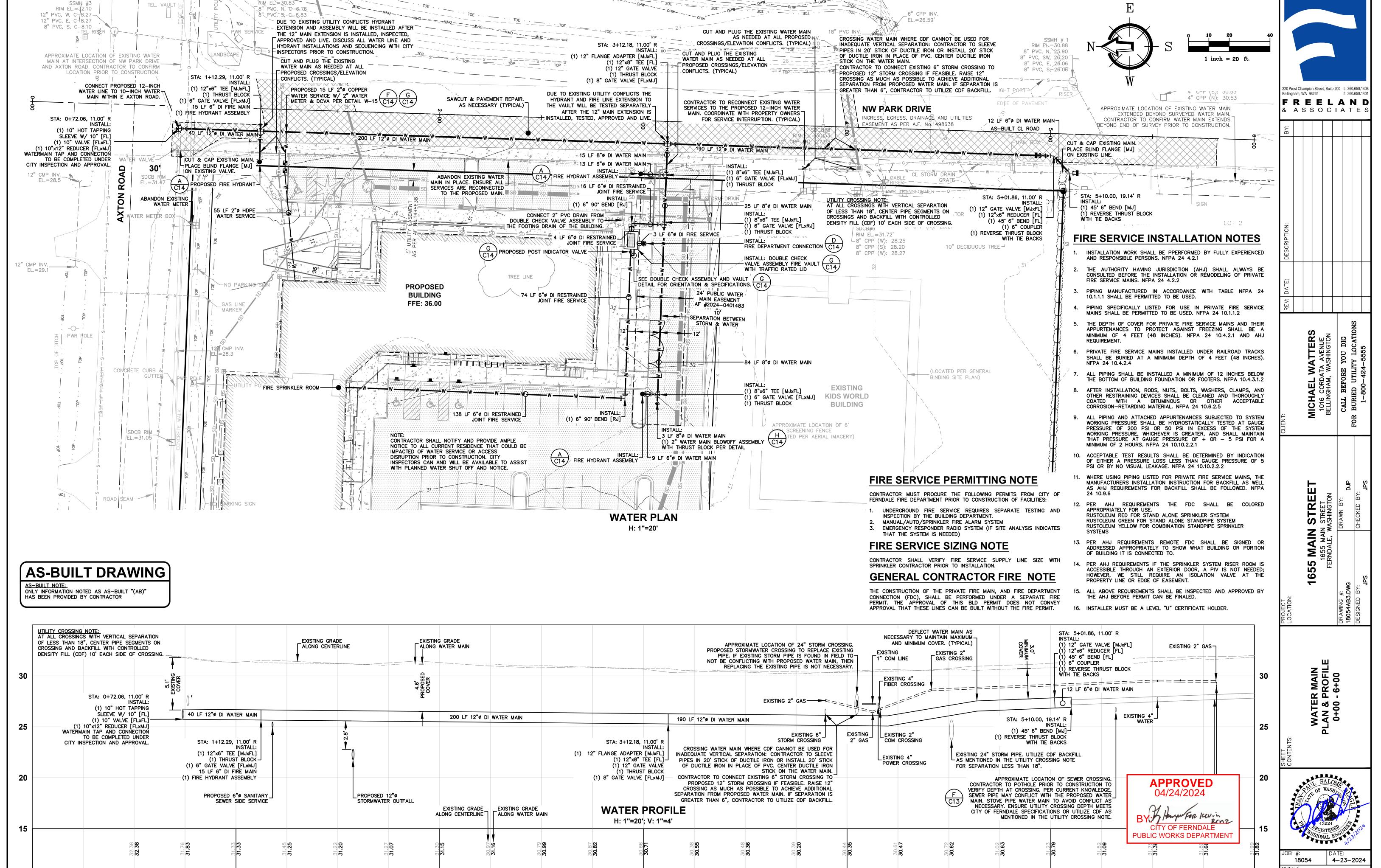
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EMPORAR SEDIMENT DETAILS 8

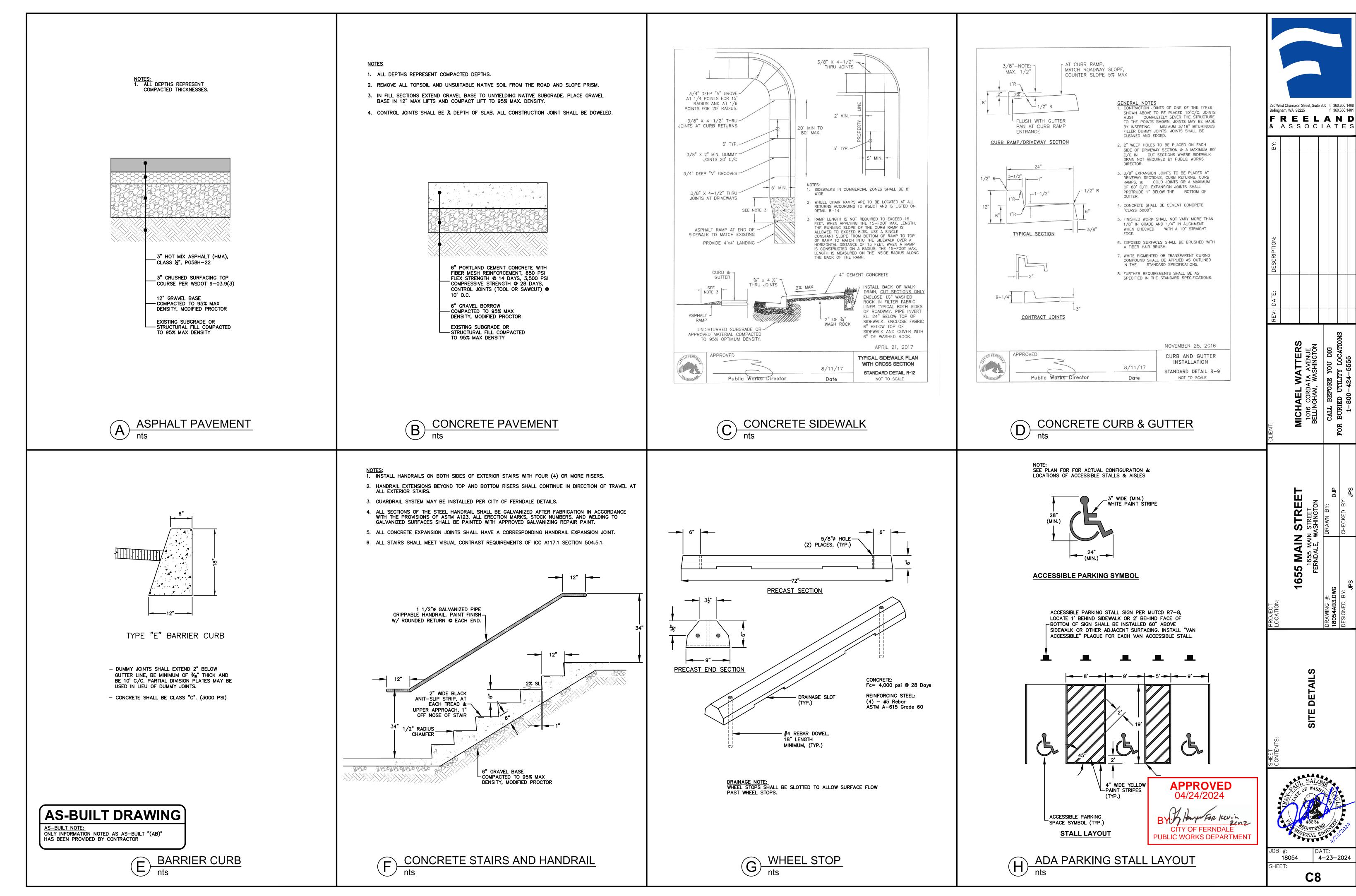


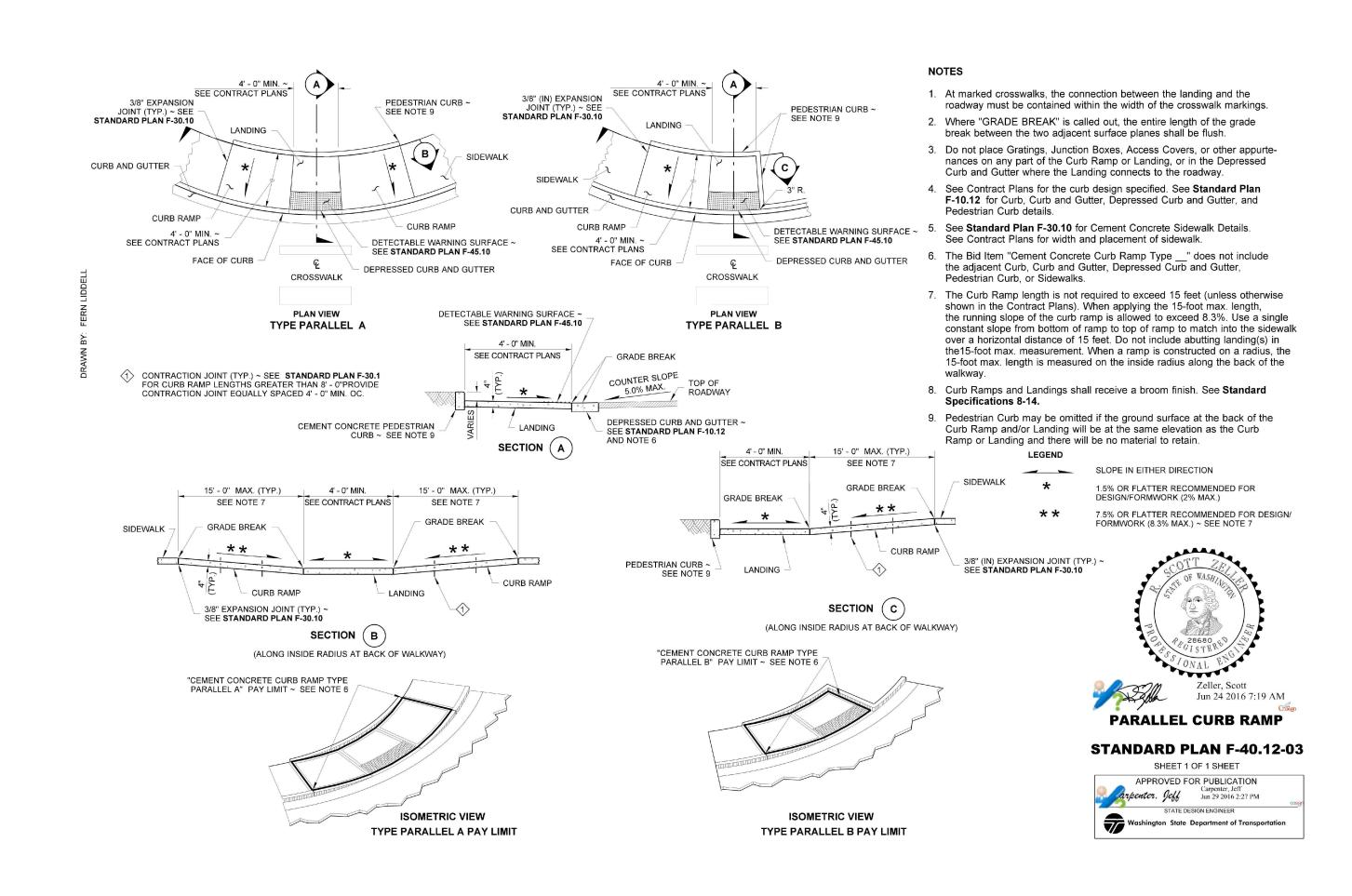
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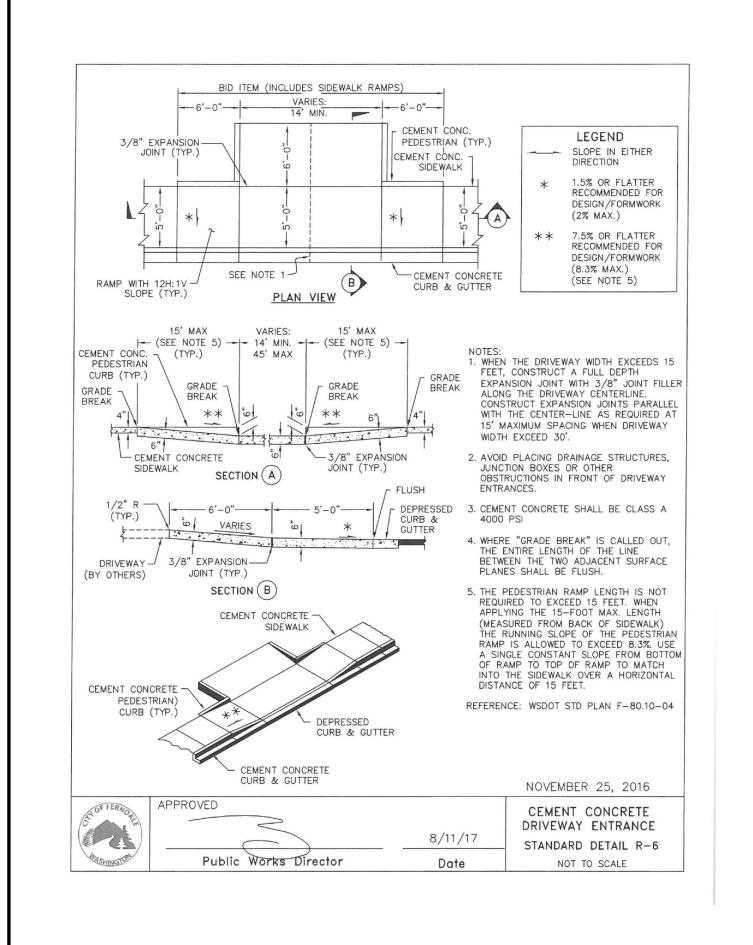
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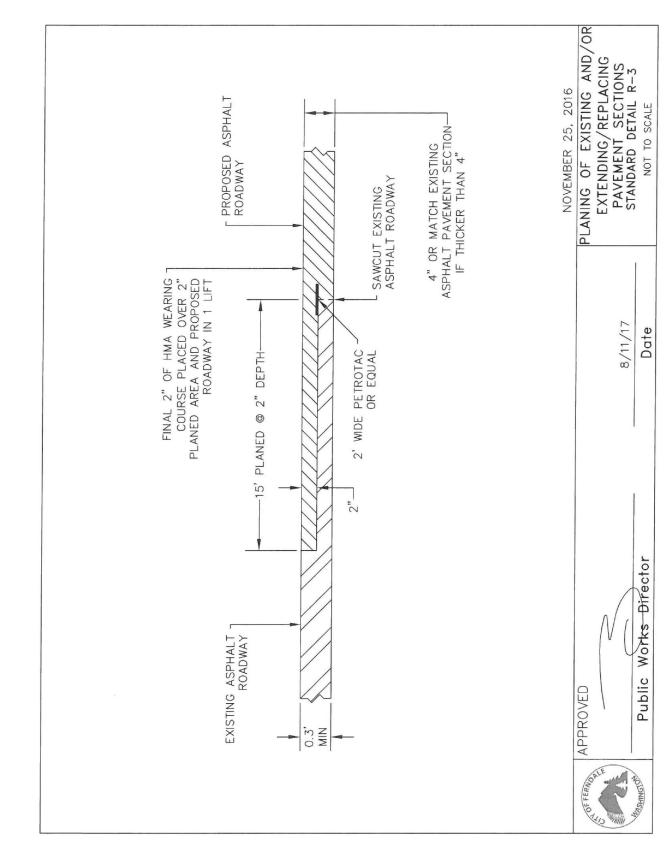
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© EXISTING PAVEMENT PLANING nts

- FILL SECTION

APRIL 21, 2017

LOCAL STREET

STANDARD DETAIL R-4

NOT TO SCALE

MAINTAIN 1:1 PRISM

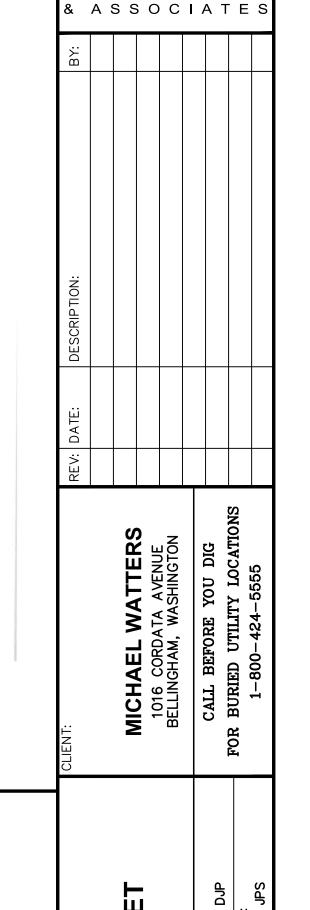
BEGINNING 1' FROM

BEHIND BACK OF WALK

BELOW BASE SECTION

COMPACTED TO 95% OF

MAXIMUM DENSITY (TYP)



20 West Champion Street, Suite 200 t: 360.650.14

FREELAND

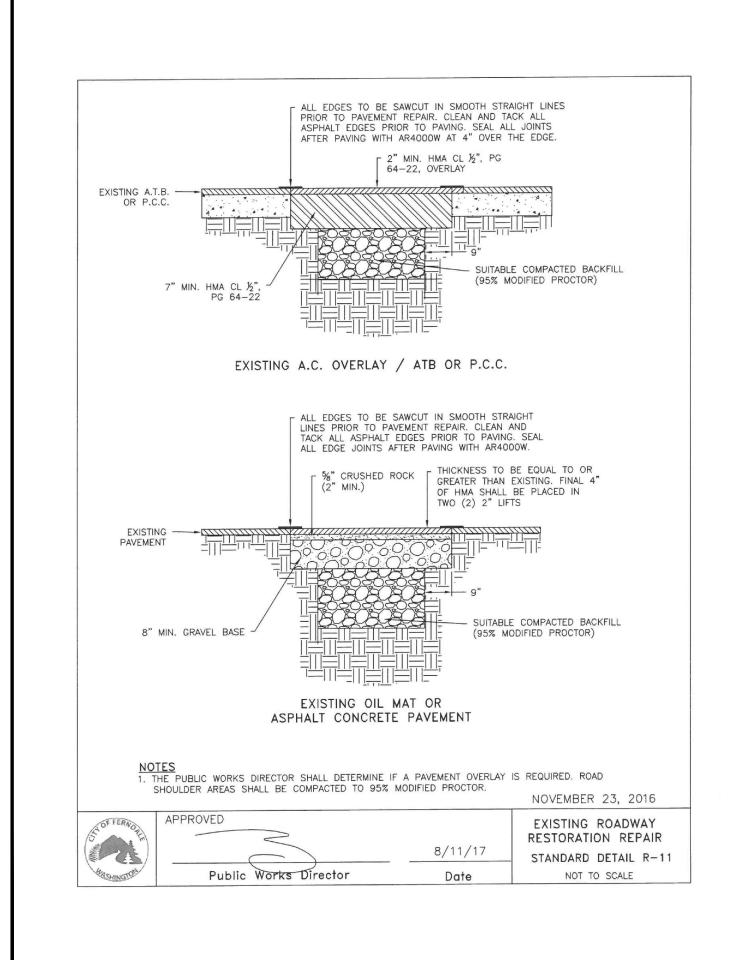
f: 360.650.140

Bellingham, WA 98225

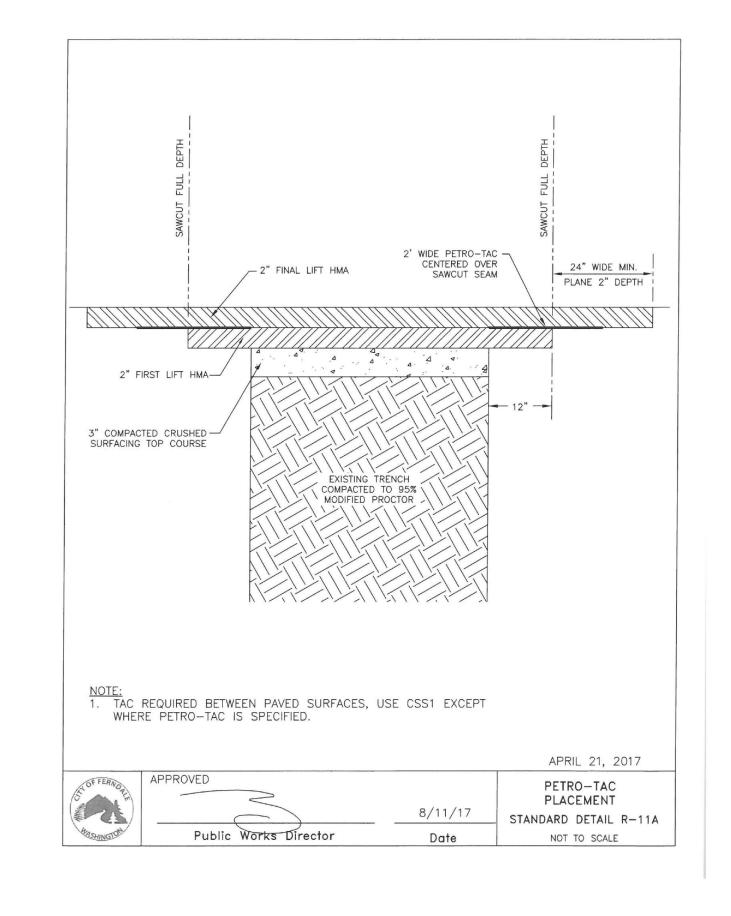
A PARALLEL CURB RAMP nts

CONCRETE DRIVEWAY ENTRANCE

INSPECTION NOTE



ROADWAY RESTORATION REPAIR



EXISTING PAVEMENT PLANING

BE DONE BY A LICENSED GEOTECHNICAL ENGINEER. VERIFICATION OF SAMPLES AND TESTING WILL BE REQUIRED PRIOR TO FINAL CITY PROJECT ACCEPTANCE. GUTTER PER COF STANDARD (TYP) o' ON STRAIGHT 10' CLEAR, MIN. | ALIGNMENT, WITHIN 5' EITHER SIDE OF INSTALL MIN. 4" PVC POSITIVE -LOT/ROOF DRAINS CONNECT TO WATER MAIN PORTION OF (VALVE BOXES MUST BE OUT CATCH BASINS TYPICAL BOTH SIDES ALIGNMENT OF ROADWAY 4' MIN. DEPTH OF DRIVE LANE) - SANITARY SEWER PERFORATED PVC PIPE 1.5" HMA CL ½", PG 64-22 (1.5" LIFT OVER 2" LIFT) INSTALL BACK OF WALK DRAIN. CUT SECTIONS ONLY ENCLOSE 11/2" WASHED ROCK IN FILTER FABRIC LINER └─ 3" CSTC — 12" GRAVEL BASE, COMPACTED TO 95% OF OPTIMUM DENSITY TYPICAL BOTH SIDES OF ROADWAY.
PIPE INVERT EL. 24" BELOW TOP OF SIDEWALK. ENCLOSE FABRIC 6" BELOW TOP OF SIDEWALK AND COVER WITH 6" OF WASHED ROCK. *NOIE: GRAVEL BASE MAY BE USED AS AN ALTERNATIVE TO GRAVEL BALLAST ONLY WITH PRIOR APPROVAL FROM THE DIRECTOR 4" PCC SIDEWALK OVER 2" OF 34" WASHED ROCK OVER 6" GRAVEL BASE, COMPACTED TO 95% OF OPTIMUM DENSITY (TYP.) OF PUBLIC WORKS. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE PROVISIONS TYPICAL SECTION 8" OR THE CONDUIT OF APPLICABLE SECTIONS OF THE WSDOT "STANDARD SPECIFICATIONS" AND SHALL CONFORM TO THE REQUIREMENTS OF THE CITY ENGINEER. DIAMETER PLUS 2 INCHES. NOT TO SCALE WHICHEVER IS LARGER. APPROVED ASPHALT CONCRETE SECTION 8/11/17 Public Works Director Date

MATERIAL USAGE, SOIL OBSERVATIONS, AND NECESSARY COMPACTION REQUIRED TO MEET CITY STANDARDS AND SPECIFICATIONS WITHIN CITY RIGHT OF WAY MUST

MAIN 1655 MAIN SNDAIF W 1655 PUBLIC WORKS DEPARTMENT

18054

SHEET:

4-23-2024

F LOCAL STREET SECTION

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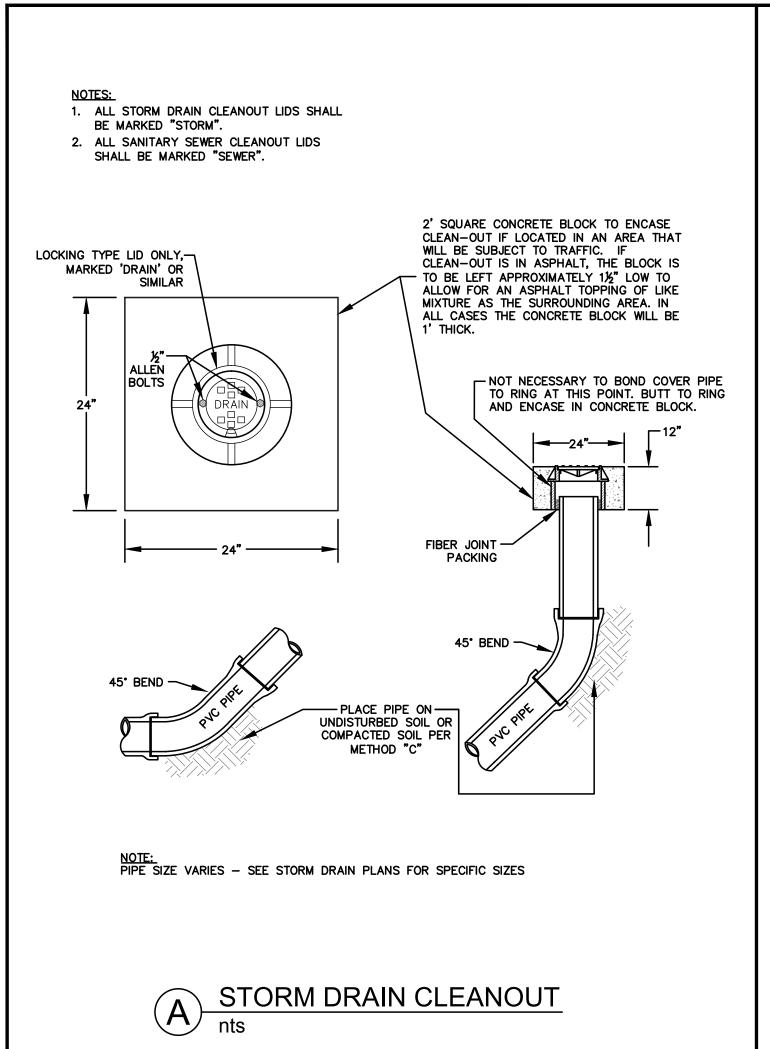
20 West Champion Street, Suite 200 t: 360.650.140

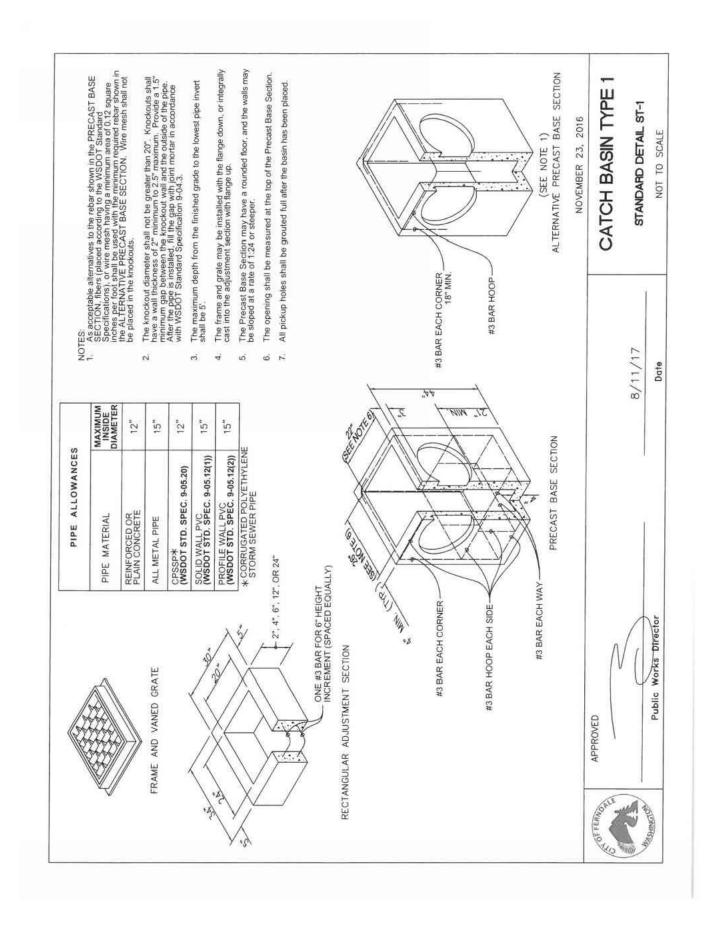
FREELAND

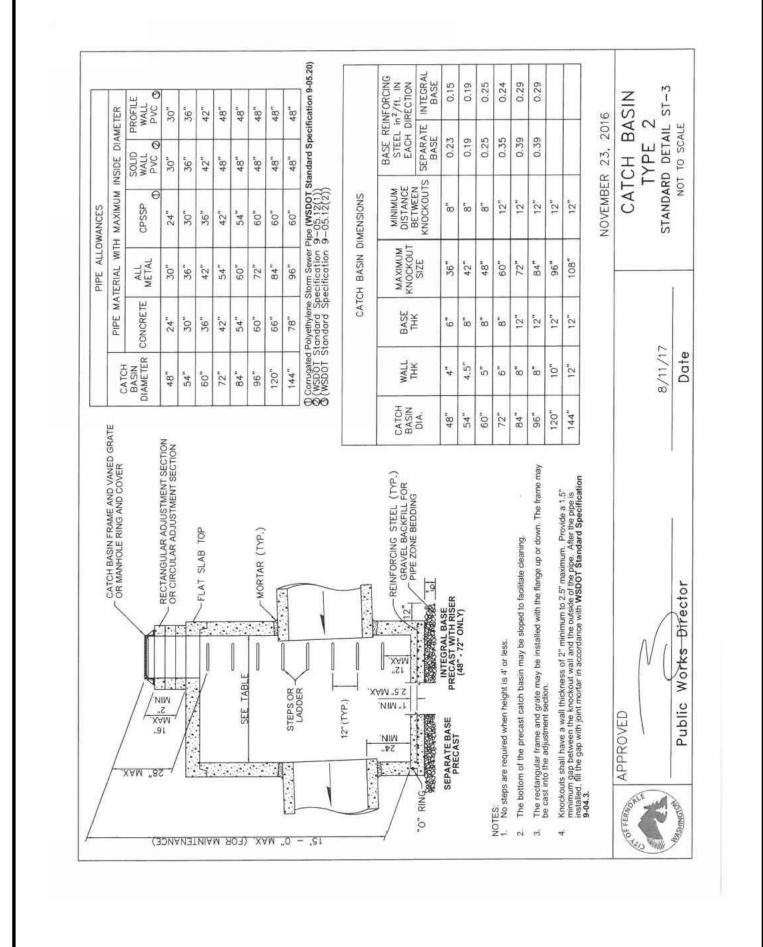
& ASSOCIATES

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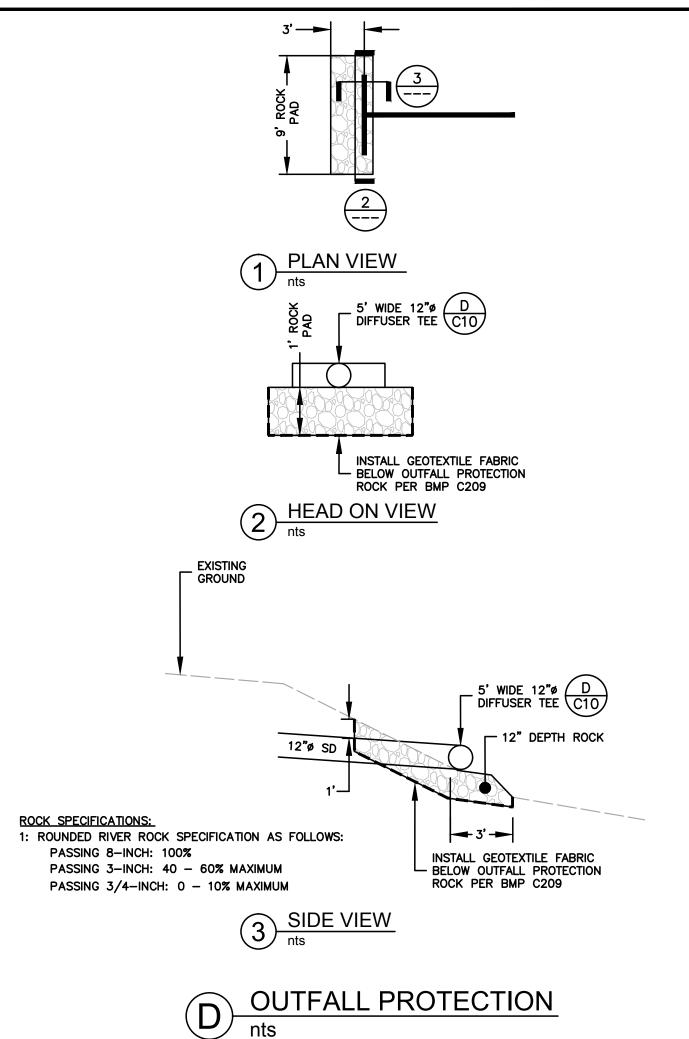
Bellingham, WA 98225

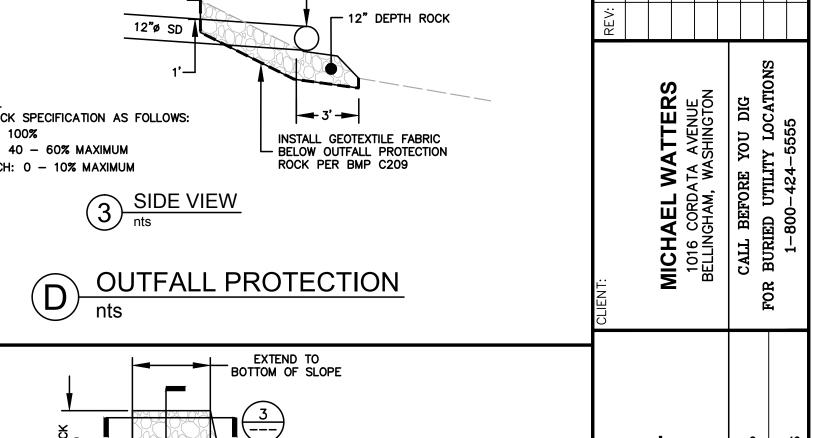


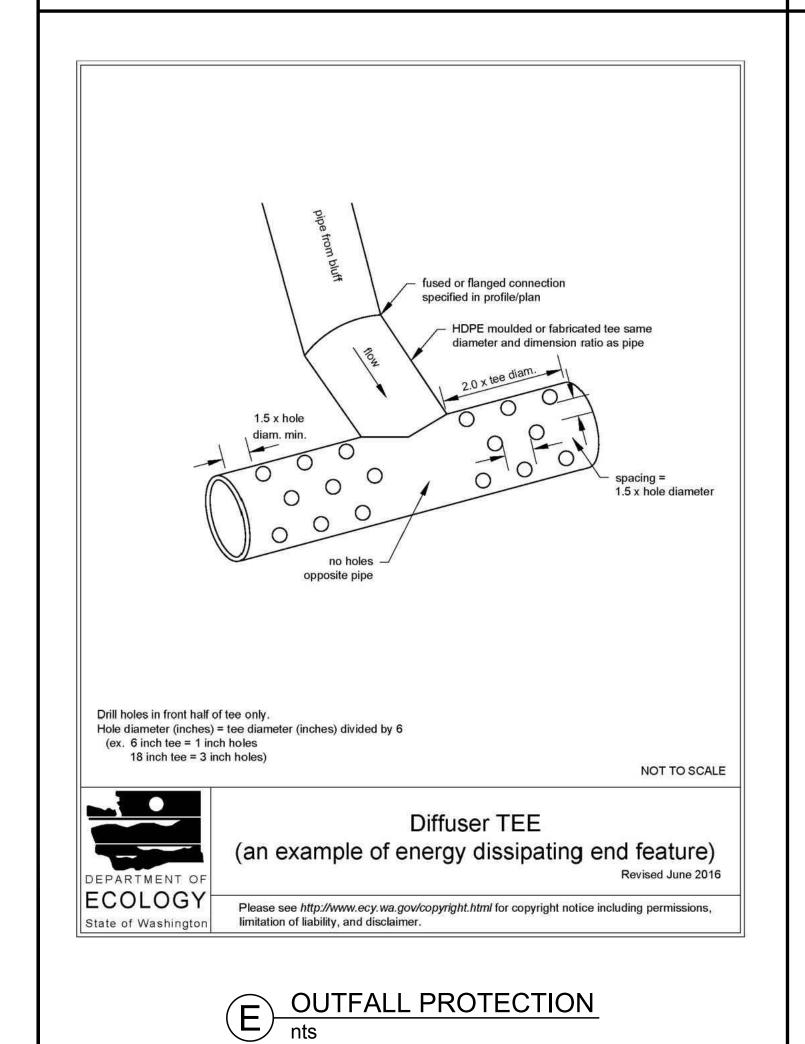


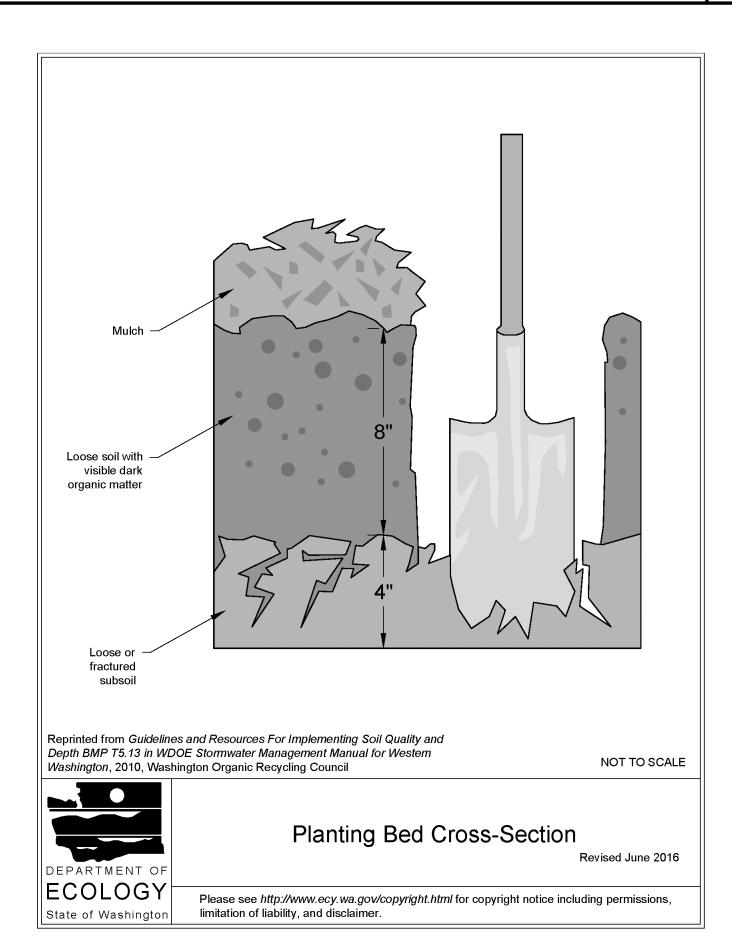


CATCH BASIN TYPE 2









CATCH BASIN TYPE 1

GENERAL NOTES ESTABLISHING A MINIMUM SOIL QUALITY AND DEPTH IS NOT THE SAME AS PRESERVATION OF NATURALLY OCCURRING SOIL AND VEGETATION. HOWEVER, ESTABLISHING A MINIMUM SOIL QUALITY AND DEPTH WILL PROVIDE IMPROVED ON-SITE MANAGEMENT OF STORMWATER FLOW AND WATER QUALITY. SOIL ORGANIC MATTER CAN BE ATTAINED THROUGH NUMEROUS MATERIALS SUCH AS COMPOST, COMPOSTED WOODY MATERIAL, BIOSOLIDS, AND FOREST PRODUCT RESIDUALS. IT IS IMPORTANT THAT THE MATERIALS USED TO MEET THE SOIL QUALITY AND DEPTH BMP BE APPROPRIATE AND BENEFICIAL TO THE PLANT COVER TO BE ESTABLISHED. LIKEWISE, IT IS IMPORTANT THAT IMPORTED TOPSOILS IMPROVE SOIL CONDITIONS AND DO NOT HAVE AN EXCESSIVE PERCENT OF CLAY FINES. THIS BMP CAN BE CONSIDERED INFEASIBLE ON TILL SOIL SLOPES GREATER THAN 33 PERCENT. **DESIGN GUIDELINES** SOIL RETENTION: RETAIN, IN AN UNDISTURBED

DESIGN GUIDELINES
SOIL RETENTION: RETAIN, IN AN UNDISTURBED STATE, THE DUFF LAYER AND NATIVE TOPSOIL TO THE MAXIMUM EXTENT PRACTICABLE. IN ANY AREAS REQUIRING GRADING REMOVE AND STOCKPILE THE DUFF LAYER AND TOPSOIL ON SITE IN A DESIGNATED, CONTROLLED AREA, NOT ADJACENT TO PUBLIC RESOURCES AND CRITICAL AREAS, TO BE REAPPLIED TO OTHER PORTIONS OF THE SITE WHERE FEASIBLE.

SOIL QUALITY: ALL AREAS SUBJECT TO CLEARING AND GRADING THAT HAVE NOT BEEN COVERED BY IMPERVIOUS SURFACE, INCORPORATED INTO A DRAINAGE FACILITY OR ENGINEERED AS STRUCTURAL FILL OR SLOPE SHALL, AT PROJECT COMPLETION, DEMONSTRATE THE FOLLOWING:

1. A TOPSOIL LAYER WITH A MINIMUM ORGANIC MATTER CONTENT OF 10% DRY WEIGHT IN PLANTING BEDS, AND 5% ORGANIC MATTER CONTENT IN TURF AREAS, AND A PH FROM 6.0 TO 8.0 OR MATCHING THE PH OF THE UNDISTURBED SOIL. THE TOPSOIL LAYER SHALL HAVE A MINIMUM DEPTH OF EIGHT INCHES EXCEPT WHERE TREE ROOTS LIMIT THE DEPTH OF INCORPORATION OF AMENDMENTS NEEDED TO MEET THE CRITERIA. SUBSOILS BELOW

AT LEAST 4 INCHES WITH SOME INCORPORATION OF THE UPPER MATERIAL TO AVOID STRATIFIED LAYERS, WHERE FEASIBLE.

2.MULCH PLANTING BEDS WITH 2 INCHES OF ORGANIC MATERIAL

3.USE COMPOST AND OTHER MATERIALS THAT MEET THESE ORGANIC CONTENT

THE TOPSOIL LAYER SHOULD BE SCARIFIED

REQUIREMENTS:

a. THE ORGANIC CONTENT FOR

"PRE-APPROVED" AMENDMENT RATES
CAN BE MET ONLY USING COMPOST
MEETING THE COMPOST SPECIFICATION
FOR BIORETENTION (BMP T7.30), WITH
THE EXCEPTION THAT THE COMPOST
MAY HAVE UP TO 35% BIOSOLIDS OR
MANURE. THE COMPOST MUST ALSO
HAVE AN ORGANIC MATTER CONTENT
OF 40% TO 65%, AND A CARBON TO
NITROGEN RATION BELOW 25:1. THE
CARBON TO NITROGEN RATION MAY BE
AS HIGH 35:1 FOR PLANTINGS
COMPOSED ENTIRELY OF PLANTS NATIVE
TO THE PUGET SOUND LOWLANDS

REGION.

b. CALCULATED AMENDMENT RATES MAY BE MET THROUGH USE OF COMPOSTED MATERIALS MEETING (A.) ABOVE; OR OTHER ORGANIC MATERIALS AMENDED TO MEET THE CARBON TO NITROGEN RATIO REQUIREMENTS, AND MEETING THE CONTAMINANT STANDARDS OF GRADE A COMPOST.

THE RESULTING SOIL SHOULD BE CONDUCIVE TO THE TYPE OF VEGETATION TO BE ESTABLISHED.

IMPLEMENTATION OPTIONS: THE SOIL QUALITY DESIGN GUIDELINES LISTED ABOVE CAN BE MET

BY USING ONE OF THE METHODS LISTED

1. LEAVE UNDISTURBED NATIVE VEGETATION
AND SOIL, AND PROTECT FROM
COMPACTION DURING CONSTRUCTION.
2. AMEND EXISTING SITE TOPSOIL OR SUBSOIL
EITHER AT DEFAULT 'PRE—APPROVED'

3.STOCKPILE EXISTING TOPSOIL DURING GRADING, AND REPLACE IT PRIOR TO PLANTING. STOCKPILED TOPSOIL MUST ALSO BE AMENDED IF NEEDED TO MEET THE ORGANIC MATTER OR DEPTH REQUIREMENTS, EITHER AT A DEFAULT "PRE—APPROVED" RATE OR AT A CUSTOM CALCULATED RATE.

4.IMPORT TOPSOIL MIX OF SUFFICIENT ORGANIC CONTENT AND DEPTH TO MEET

RATES, OR AT CUSTOM CALCULATED RATES

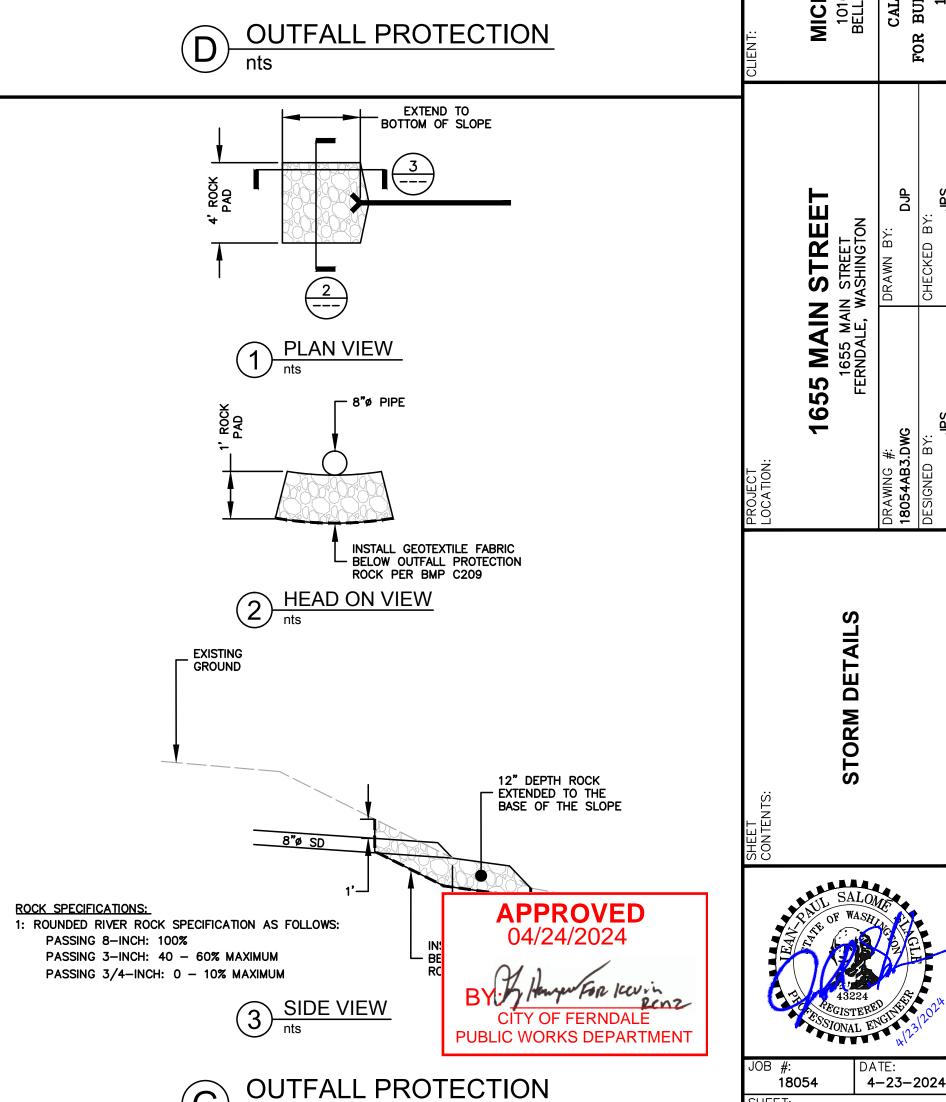
BASED ON TESTS OF THE SOIL AND

AMENDMENT.

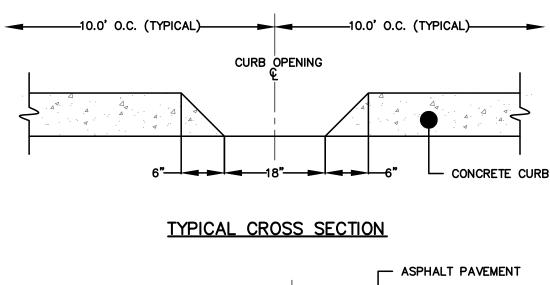
THE REQUIREMENTS.

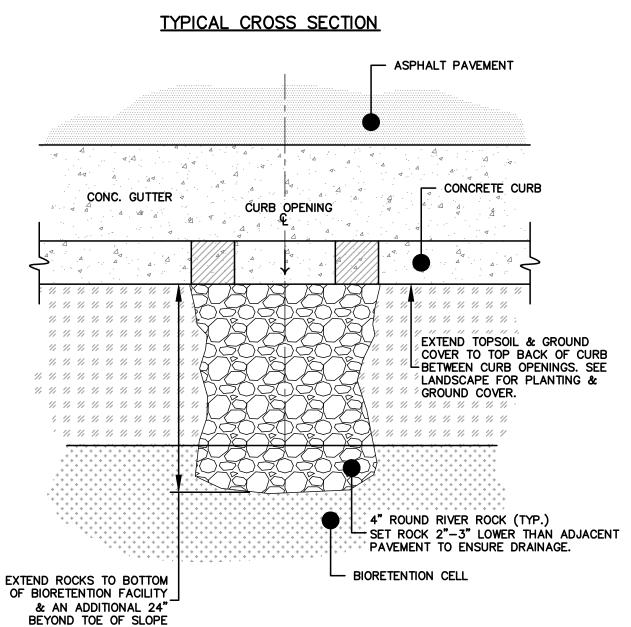
MORE THAN ONE METHOD MAY BE USED ON DIFFERENT PORTIONS OF THE SAME SITE. SOIL THAT ALREADY MEETS THE DEPTH AND ORGANIC MATTER QUALITY STANDARDS, AND IS NOT COMPACTED, DOES NOT NEED TO BE AMENDED.











<u>PLAN</u>

UNDERDRAIN PIPE

UNDERDRAINS SHALL BE SLOTTED, THICK-WALLED PLASTIC PIPE. THE SLOT OPENING SHOULD BE SMALLER THAN THE SMALLEST AGGREGATE FILTER AND BEDDING LAYER BELOW) TO PREVENT MIGRATION OF THE PERCENT FOR A PROPER FUNCTIONING SPECIFICATION ACCORDING TO ASTM D422.

MATERIAL INTO THE DRAIN. THIS CONFIGURATION ALLOWS FOR PRESSURIZED WATER CLEANING AND ROOT CUTTING IF NECESSARY.

- MINIMUM PIPE DIAMETER: 4 INCHES (PIPE DIAMETER WILL DEPEND ON HYDRAULIC CAPACITY REQUIRED, 4 TO 8 INCHES IS COMMON). SLOTTED SUBSURFACE DRAIN PVC PER ASTM D1785 SCH 40. SLOTS SHOULD BE CUT PERPENDICULAR TO THE LONG AXIS OF THE
- UNDERDRAIN AGGREGATE FILTER AND BEDDING LAYER (BELOW) FOR CHARACTERISTICS FOR MEETING DESIGN GUIDELINES AND OBJECTIVES.

 AGGREGATE GRADATION APPROPRIATE FOR THIS SLOT SIZE. UNDERDRAINS SHOULD BE SLOPED AT A MINIMUM OF 0.5 PERCENT

UNLESS OTHERWISE SPECIFIED BY AN ENGINEER.

PERFORATED PVC OR FLEXIBLE SLOTTED HDPE PIPE CANNOT BE CLEANED WITH PRESSURIZED WATER OR ROOT CUTTING EQUIPMENT, ARE LESS DURABLE AND ARE NOT RECOMMENDED. WRAPPING THE UNDERDRAIN PIPE IN FILTER FABRIC INCREASES CHANCES OF CLOGGING AND IS NOT RECOMMENDED. A 6-INCH RIGID NON-PERFORATED OBSERVATION PIPE OR OTHER MAINTENANCE ACCESS SHOULD BE CONNECTED TO THE UNDERDRAIN EVERY 250 TO 300 FEET TO PROVIDE A CLEAN-OUT PORT, AS WELL AS AN OBSERVATION WELL TO MONITOR DEWATERING RATES.

UNDERDRAIN PIPE BEDDING SPECIFICATIONS

AND SIDES OF THE SLOTTED PIPE.

U.S. SIEVE NUMBER PERCENT PASSING

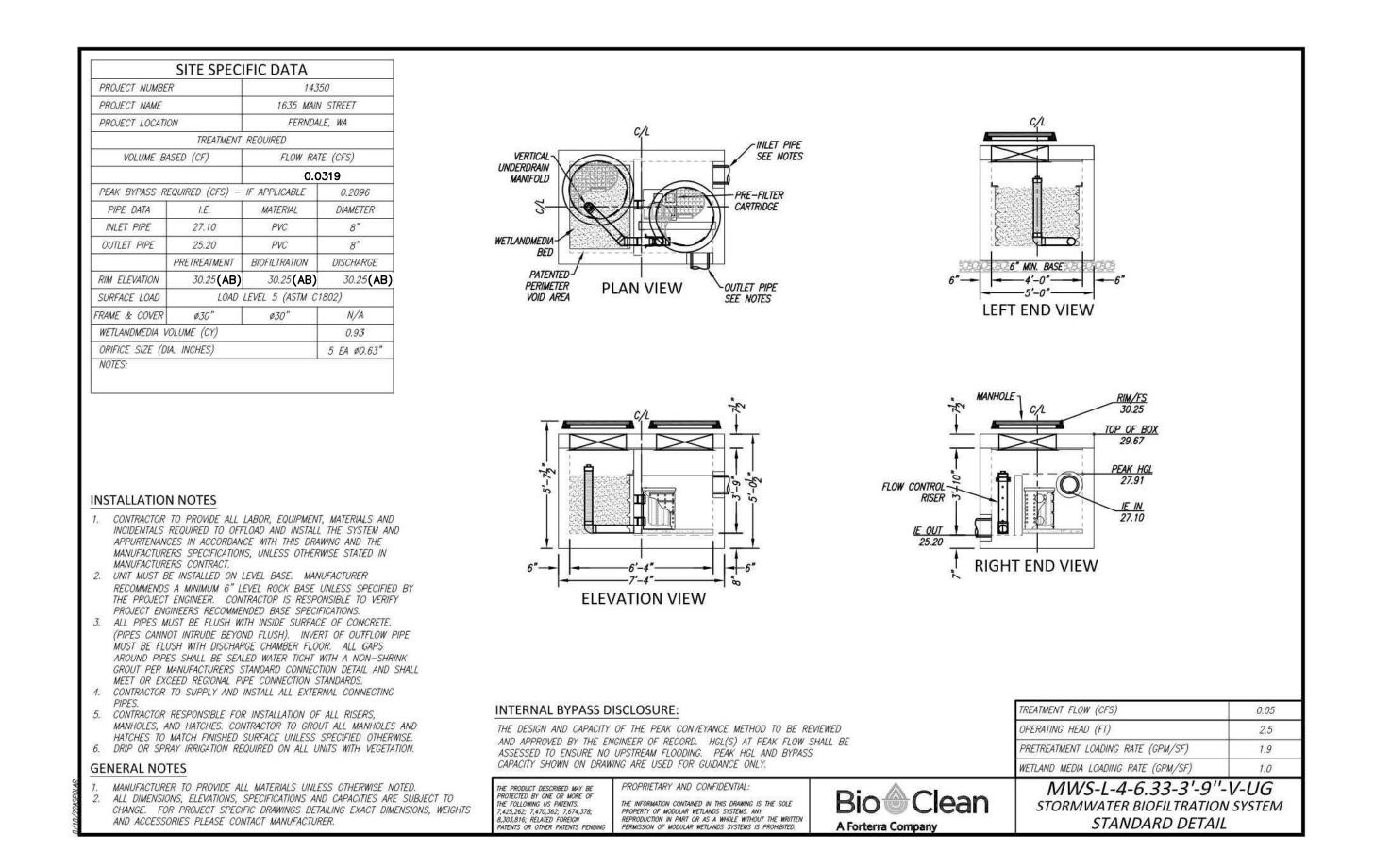
3/4	100
1/4"	30-60
US NO. 8	20-50
US NO. 50	3–12
US NO. 200	0-1

PLANT SPECIFCATIONS SEE LANDSCAPING PLANS FOR PLANTINGS WITHIN BIORETENTION CELLS.

MULCH/ORGANIC LAYER SPECIFICATIONS

MEDIUM COMPOST IN THE BOTTOM OF THE BMP (COMPOST IS LESS LIKELY TO FLOAT DURING CELL INUNDATION). COMPOST SHALL NOT INCLUDE BIOSOLIDS OR MANURES.

- SHREDDED OR CHIPPED HARDWOOD OR SOFTWOOD ON SIDE SLOPES ABOVE PONDING ELEVATION AND RIM AREA. ARBORIST MULCH IS MOSTLY WOODY TRIMMINGS FROM TREES AND SHRUBS AND IS A GOOD SOURCE OF MULCH MATERIAL. WOOD CHIP OPERATIONS ARE A GOOD SOURCE FOR MULCH MATERIAL THAT HAS MORE CONTROL OF SIZE DISTRIBUTION AND CONSISTENCY. DO NOT USE SHREDDED CONSTRUCTION WOOD DEBRIS OR ANY SHREDDED WOOD TO WHICH
- FREE OF WEED SEEDS, SOIL, ROOTS AND OTHER MATERIAL THAT IS
- NOT BOLE OR BRANCH WOOD AND BARK. A MAXIMUM OF 2 TO 3 INCHES THICK.





BIORETENTION SOIL MIX (BSM) SOIL SPECIFICATIONS

MINERAL AGGREGATE

GRADATION FOR THE GRAVEL FILTER BED (SEE UNDERDRAIN AGGREGATE PERCENT FINES: A RANGE OF 2 TO 4 PERCENT PASSING THE #200 SIEVE IS IDEAL AND FINES SHOULD NOT BE ABOVE 5

AGGREGATE GRADATION

THE AGGREGATE PORTION OF THE BSM SHOULD BE WELL-GRADED. ACCORDING TO ASTM D 2487-98 (CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES (UNIFIED SOIL CLASSIFICATION SYSTEM)), WELL-GRADED SAND SHOULD HAVE THE FOLLOWING **GRADATION COEFFICIENTS:**

• COEFFICIENT OF UNIFORMITY (CU = D60/D10) EQUAL TO OR GREATER THAN 4, AND

• COEFFICIENT OF CURVE (CC = (D30)2/D60 X D10) GREATER THAN OR EQUAL TO 1 AND LESS THAN OR EQUAL TO 3. PIPE AND BE 0.04 TO 0.069 INCHES BY 1 INCH LONG AND BE TABLE BELOW PROVIDES A GRADATION GUIDELINE FOR THE AGGREGATE COMPONENT OF A BIORETENTION SOIL MIX SPECIFICATION SPACED 0.25 INCHES APART (SPACED LONGITUDINALLY). SLOTS IN WESTERN WASHINGTON (HINMAN, ROBERTSON, 2007). THE SAND GRADATION BELOW IS OFTEN SUPPLIED AS A WELLGRADED SHOULD BE ARRANGED IN FOUR ROWS SPACED ON 45-DEGREE UTILITY OR SCREENED. WITH COMPOST THIS BLEND PROVIDES ENOUGH FINES FOR ADEQUATE WATER RETENTION, HYDRAULIC CENTERS AND COVER 1/2 OF THE CIRCUMFERENCE OF THE PIPE. SEE CONDUCTIVITY WITHIN RECOMMENDED RANGE (SEE BELOW), POLLUTANT REMOVAL CAPABILITY, AND PLANT GROWTH

MINERAL AGGREGATE GRADATION U.S. SIEVE NUMBER PERCENT PASSING

WHERE EXISTING SOILS MEET THE ABOVE AGGREGATE GRADATION, THOSE SOILS MAY BE AMENDED RATHER THAN IMPORTING MINERAL AGGREGATE. COMPOST TO AGGREGATE RATIO, ORGANIC MATTER CONTENT, CATION EXCHANGE CAPACITY

• COMPOST TO AGGREGATE RATIO: 60-65 PERCENT MINERAL AGGREGATE, 35 - 40 PERCENT COMPOST.

• ORGANIC MATTER CONTENT: 5 - 8 PERCENT BY WEIGHT. • CATION EXCHANGE CAPACITY (CEC) MUST BE > 5 MILLIEQUIVALENTS/100 G DRY SOIL NOTE: SOIL MIXES MEETING THE

ABOVE SPECIFICATIONS DO NOT HAVE TO BE TESTED FOR CEC. THEY WILL READILY MEET THE MINIMUM CEC.

TO ENSURE THAT THE BSM WILL SUPPORT HEALTHY PLANT GROWTH AND ROOT DEVELOPMENT, CONTRIBUTE TO BIOFILTRATION OF POLLUTANTS, AND NOT RESTRICT INFILTRATION WHEN USED IN THE PROPORTIONS CITED HEREIN, THE FOLLOWING COMPOST STANDARDS ARE REQUIRED.

• MEETS THE DEFINITION OF "COMPOSTED MATERIALS" IN WAC 173-350-220 (INCLUDING CONTAMINANT LEVELS AND OTHER STANDARDS), AVAILABLE ONLINE AT HTTP: //WWW.ECY.WA.GOV/PROGRAMS/SWFA/ORGANICS/SOIL.HTML • PRODUCED AT A COMPOSTING FACILITY PERMITTED BY THE WA DEPARTMENT OF ECOLOGY. A CURRENT LIST OF PERMITTED

FACILITIES IS AVAILABLE AT HTTP://WWW.ECY.WA.GOV/PROGRAMS/SWFA/COMPOST/ • THE COMPOST PRODUCT MUST ORIGINATE A MINIMUM OF 65 PERCENT BY VOLUME FROM RECYCLED PLANT WASTE AS DEFINED IN WAC 173-350-100 AS "TYPE I FEEDSTOCKS." A MAXIMUM OF 35 PERCENT BY VOLUME OF OTHER APPROVED ORGANIC WASTE AS DEFINED IN WAC 173-350-100 AS "TYPE III", INCLUDING POSTCONSUMER FOOD WASTE, BUT NOT INCLUDING BIOSOLIDS, MAY BE SUBSTITUTED FOR RECYCLED PLANT WASTE. • STABLE (LOW OXYGEN USE AND CO2 GENERATION) AND MATURE (CAPABLE OF SUPPORTING PLANT GROWTH) BY TESTS

SHOWN BELOW. THIS IS CRITICAL TO PLANT SUCCESS IN A BIORETENTION SOIL MIXES. MOISTURE CONTENT RANGE: NO VISIBLE FREE WATER OR DUST PRODUCED WHEN HANDLING THE MATERIAL • TESTED IN ACCORDANCE WITH THE U.S. COMPOSTING COUNCIL "TESTING METHODS FOR THE EXAMINATION OF COMPOST AND COMPOSTING" (TMECC), AS ESTABLISHED IN THE COMPOSTING COUNCIL'S "SEAL OF TESTING ASSURANCE" (STA) PROGRAM.

• SCREENED TO THE SIZE GRADATIONS FOR FINE COMPOST UNDER TMECC TEST METHOD 02.02-B, SAMPLE SIEVING FOR AGGREGATE SIZE CLASSIFICATION. • PH BETWEEN 6.0 AND 8.5 (TMECC 04.11-A). "PHYSICAL CONTAMINANTS" (AS DEFINED IN THE WAC 173-350-100) CONTENT

LESS THAN 1% BY WEIGHT (TMECC 04.10-A) TOTAL, NOT TO EXCEED 0.25 PERCENT FILM PLASTIC BY DRY WEIGHT. • MINIMUM ORGANIC MATTER CONTENT OF 40% (TMECC 05.07-A)

• SOLUBLE SALT CONTENT LESS THAN 4.0 MMHOS/CM (TMECC 04.10-A)

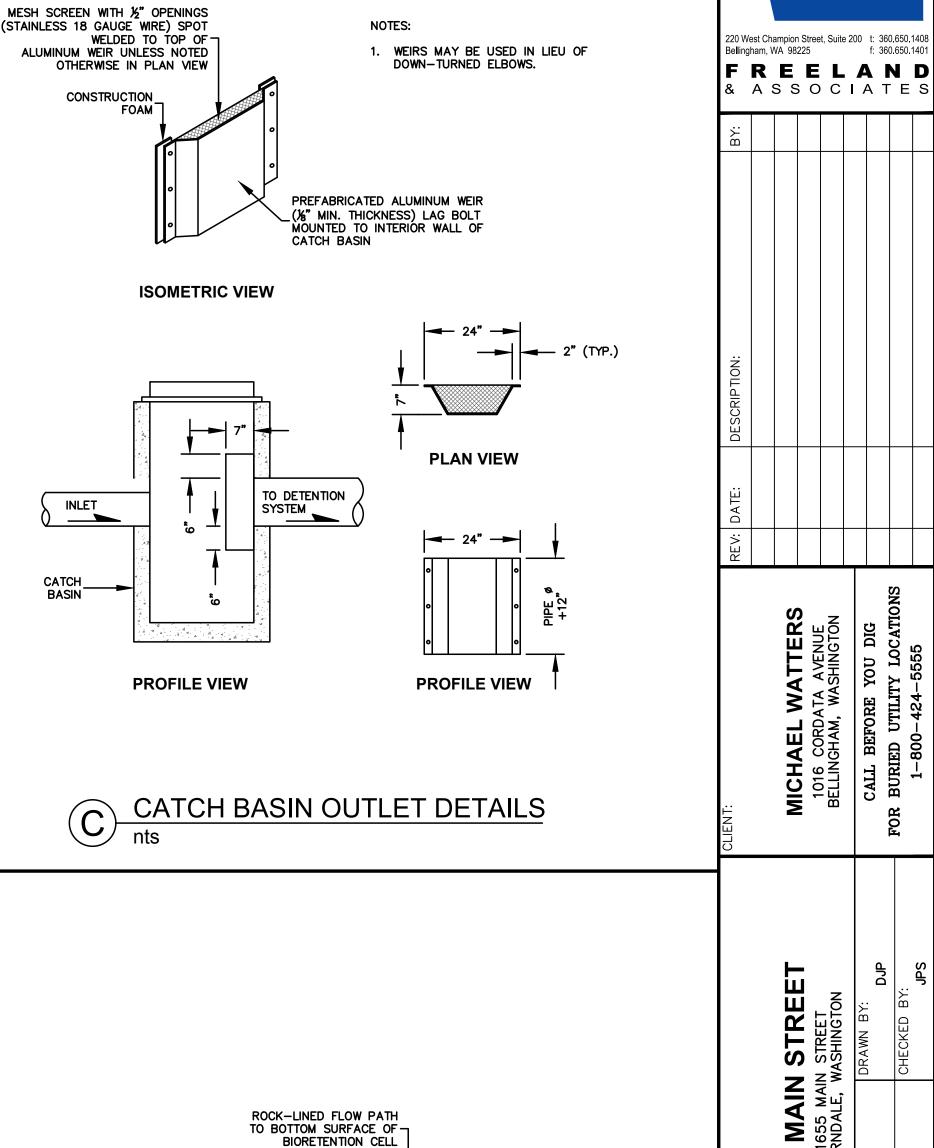
MOST WASHINGTON COMPOST FACILITIES NOW USE THESE TESTS.

• MATURITY GREATER THAN 80% (TMECC 05.05-A "GERMINATION AND VIGOR")

• CARBON TO NITROGEN RATIO (TMECC 04.01 "TOTAL CARBON" AND 04.02D "TOTAL KJELDAHL NITROGEN") OF LESS THAN 25:1. THE C:N RATIO MAY BE UP TO 35:1 FOR PLANTINGS COMPOSED ENTIRELY OF PUGET SOUND

BIORETENTION CELL SPECIFICATIONS



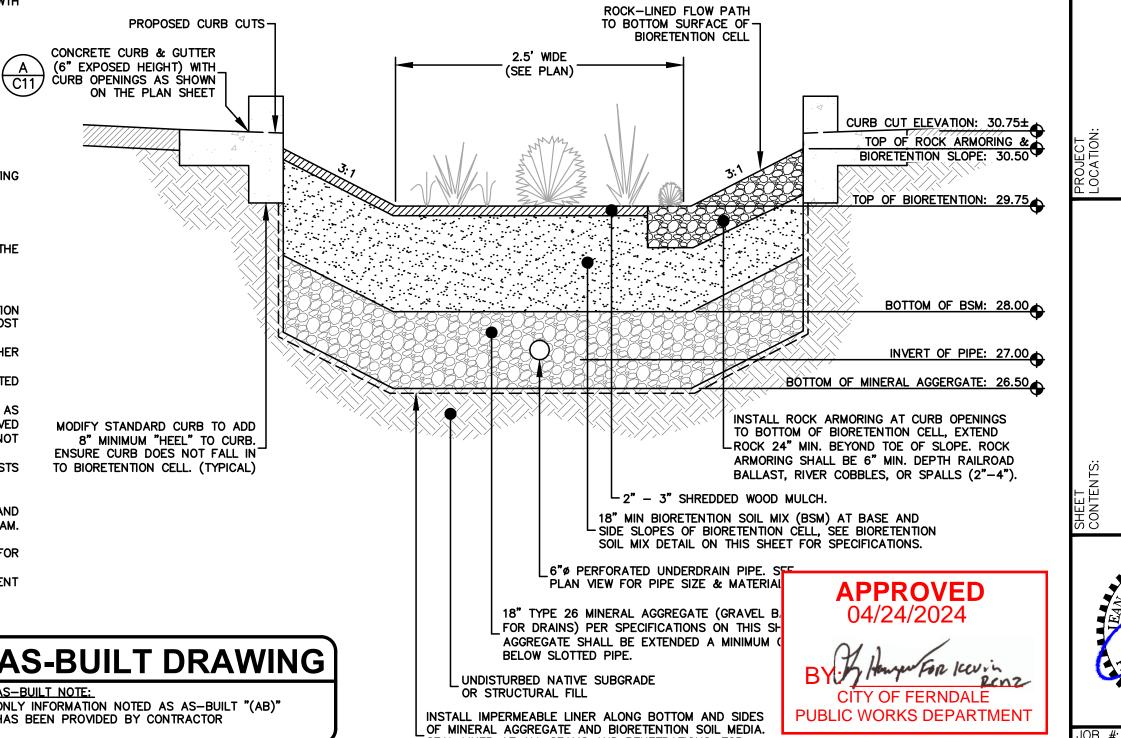


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CURB OPENING AT BIORETENTION CELLS BIORETENTION CONSTRUCTION SPECS

EXCAVATION SOIL COMPACTION CAN LEAD TO BIORETENTION BMP FAILURE; ACCORDINGLY, MINIMIZING COMPACTION OF THE BASE AND SIDEWALLS OF THE BIORETENTION AREA IS CRITICAL. EXCAVATION SHOULD NEVER BE

ALLOWED DURING WET OR SATURATED CONDITIONS (COMPACTION CAN REACH DEPTHS OF 2-3 FEET DURING WET CONDITIONS AND MITIGATION IS LIKELY TO NOT BE POSSIBLE). EXCAVATION SHOULD BE PERFORMED BY MACHINERY OPERATING ADJACENT TO THE BIORETENTION BMP, AND NO HEAVY EQUIPMENT WITH NARROW TRACKS, NARROW TIRES, OR LARGE LUGGED, HIGH PRESSURE TIRES SHOULD BE ALLOWED ON THE BOTTOM OF THE BIORETENTION BMP. IF MACHINERY MUST OPERATE IN THE BIORETENTION AREA FOR EXCAVATION, USE LIGHT WEIGHT, LOW GROUND-CONTACT PRESSURE EQUIPMENT AND RIP THE BASE AT COMPLETION TO REFRACTURE SOIL TO A MINIMUM OF 12 INCHES. IF MACHINERY OPERATES IN THE BMP FOOTPRINT, SUBGRADE INFILTRATION RATES MUST BE FIELD TESTED AND COMPARED TO INITIAL KSAT TESTS OBTAINED DURING DESIGN. FAILURE TO MEET OR EXCEED THE INITIAL KSAT TESTS WILL REQUIRE REVISED ENGINEERING DESIGNS TO VERIFY ACHIEVEMENT OF RUNOFF TREATMENT AND FLOW CONTROL BENEFITS THAT WERE ESTIMATED IN THE STORMWATER SITE PLAN.

PRIOR TO PLACEMENT OF THE BIORETENTION SOIL MIX, THE FINISHED SUBGRADE SHALL:

BE SCARIFIED TO A MINIMUM DEPTH OF 3 INCHES.

HAVE ANY SEDIMENT DEPOSITED FROM CONSTRUCTION RUNOFF REMOVED. TO REMOVE ALL INTRODUCED SEDIMENT, SUBGRADE SOIL SHOULD BE REMOVED TO A DEPTH OF 3-6 INCHES AND REPLACED WITH BIORETENTION SOIL MIX.

BE INSPECTED BY THE RESPONSIBLE ENGINEER TO VERIFY REQUIRED SUBGRADE CONDITION.

SIDEWALLS OF THE BMP, BENEATH THE SURFACE OF THE BIORETENTION SOIL MIX, CAN BE VERTICAL IF SOIL STABILITY IS ADEQUATE. EXPOSED SIDEWALLS OF THE COMPLETED BIORETENTION AREA WITH BIORETENTION SOIL MIX IN PLACE SHOULD BE NO STEEPER THAN 3H:1V. THE BOTTOM OF THE BMP SHOULD BE FLAT.

SOIL PLACEMENT

ON-SITE SOIL MIXING OR PLACEMENT SHALL NOT BE PERFORMED IF BIORETENTION SOIL MIX OR SUBGRADE USE TYPE 26 MINERAL AGGREGATE (GRAVEL BACKFILL FOR DRAINS, CITY SOIL IS SATURATED. THE BIORETENTION SOIL MIX SHOULD BE PLACED AND GRADED BY MACHINERY OF SEATTLE). OPERATING ADJACENT TO THE BIORETENTION BMP. IF MACHINERY MUST OPERATE IN THE BIORETENTION CELL FOR SOIL PLACEMENT, USE LIGHT WEIGHT EQUIPMENT WITH LOW GROUND-CONTACT PRESSURE. IF PLACE THE UNDERDRAIN PIPE ON A BED OF THE TYPE 26 AGGREGATE MACHINERY OPERATES IN THE BMP FOOTPRINT, SUBGRADE INFILTRATION RATES MUST BE FIELD TESTED WITH A MINIMUM THICKNESS OF 6 INCHES AND COVER WITH TYPE 26 CELL FOR SOIL PLACEMENT, USE LIGHT WEIGHT EQUIPMENT WITH LOW GROUND-CONTACT PRESSURE. IF AND COMPARED TO INITIAL KSAT TESTS OBTAINED DURING DESIGN. FAILURE TO MEET OR EXCEED THE AGGREGATE TO PROVIDE A 1-FOOT MINIMUM DEPTH AROUND THE TOP INITIAL KSAT TESTS WILL REQUIRE REVISED ENGINEERING DESIGNS TO VERIFY ACHIEVEMENT OF RUNOFF TREATMENT AND FLOW CONTROL BENEFITS THAT WERE ESTIMATED IN THE STORMWATER SITE PLAN.

THE SOIL MIXTURE SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 6 INCHES PER LIFT FOR | MINERAL AGGREGATE GRADATION THE ENTIRE AREA OF THE BIORETENTION BMP.

COMPACT THE BIORETENTION SOIL MIX TO A RELATIVE COMPACTION OF 85 PERCENT OF MODIFIED MAXIMUM DRY DENSITY (ASTM D 1557). COMPACTION CAN BE ACHIEVED BY BOOT PACKING (SIMPLY WALKING OVER ALL AREAS OF EACH LIFT), AND THEN APPLY 0.2 INCHES (0.5 CM) OF WATER PER 1 INCH (2.5 CM) OF BIORETENTION SOIL MIX DEPTH. WATER FOR SETTLING SHOULD BE APPLIED BY SPRAYING OR

TEMPORARY EROSION AND SEDIMENT CONTROL (TESC)

CONTROLLING EROSION AND SEDIMENT ARE MOST DIFFICULT DURING CLEARING, GRADING, AND CONSTRUCTION; ACCORDINGLY, MINIMIZING SITE DISTURBANCE TO THE GREATEST EXTENT PRACTICABLE IS THE MOST EFFECTIVE SEDIMENT MANAGEMENT. DURING CONSTRUCTION:

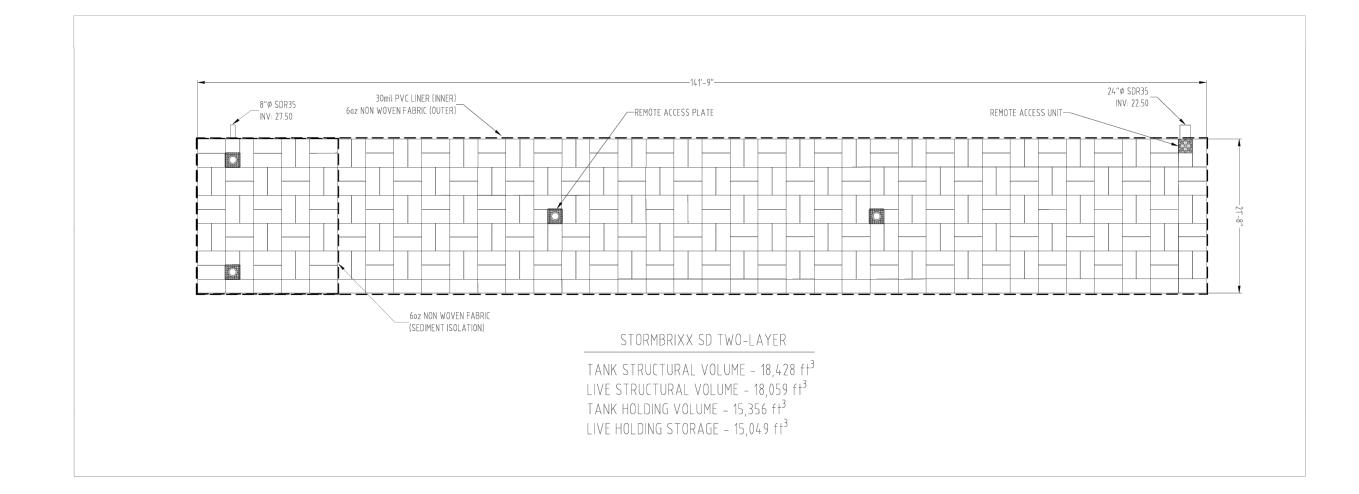
BIORETENTION BMPS SHOULD NOT BE USED AS SEDIMENT CONTROL BMPS, AND ALL DRAINAGE SHOULD BE DIRECTED AWAY FROM BIORETENTION BMPS AFTER INITIAL ROUGH GRADING. FLOW CAN BE DIRECTED AWAY FROM THE BMP WITH TEMPORARY DIVERSION SWALES OR OTHER APPROVED PROTECTION. IF INTRODUCTION OF CONSTRUCTION RUNOFF CANNOT BE AVOIDED SEE BELOW FOR GUIDELINES.

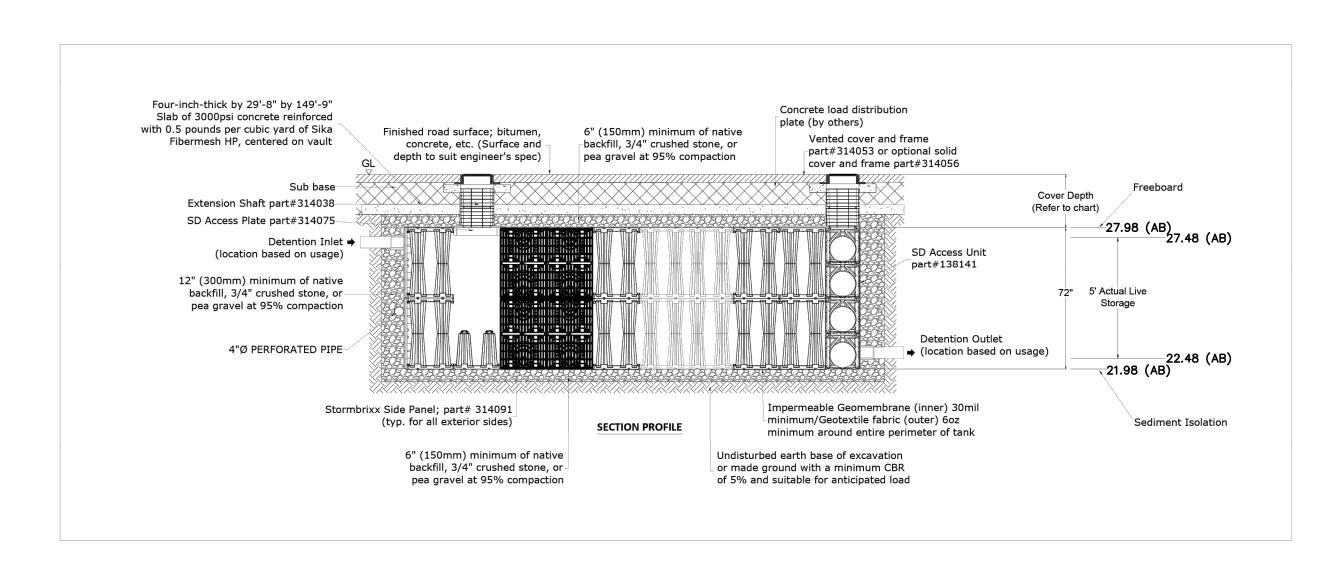
CONSTRUCTION ON BIORETENTION BMPS SHOULD NOT BEGIN UNTIL ALL CONTRIBUTING DRAINAGE AREAS ARE STABILIZED ACCORDING TO EROSION AND SEDIMENT CONTROL BMPS AND TO THE SATISFACTION OF

IF THE DESIGN INCLUDES CURB AND GUTTER, THE CURB CUTS AND INLETS SHOULD BE BLOCKED UNTIL BIORETENTION SOIL MIX AND MULCH HAVE BEEN PLACED AND PLANTING COMPLETED (WHEN POSSIBLE), AND DISPERSION PADS ARE IN PLACE. EVERY EFFORT DURING DESIGN, CONSTRUCTION SEQUENCING AND CONSTRUCTION SHOULD BE MADE TO PREVENT SEDIMENT FROM ENTERING BIORETENTION BMPS. HOWEVER, BIORETENTION AREAS ARE OFTEN DISTRIBUTED THROUGHOUT THE PROJECT AREA AND CAN PRESENT UNIQUE CHALLENGES DURING CONSTRUCTION. SEE THE LOW IMPACT DEVELOPMENT TECHNICAL GUIDANCE MANUAL FOR PUGET SOUND (HINMAN AND WULKAN, 2012) FOR GUIDELINES IF NO OTHER OPTIONS EXIST .

EROSION AND SEDIMENT CONTROL PRACTICES MUST BE INSPECTED AND MAINTAINED ON A REGULAR BASIS.

AND RUNOFF DURING CONSTRUCTION MUST BE DIRECTED THROUGH THE BIORETENTION BMPS.



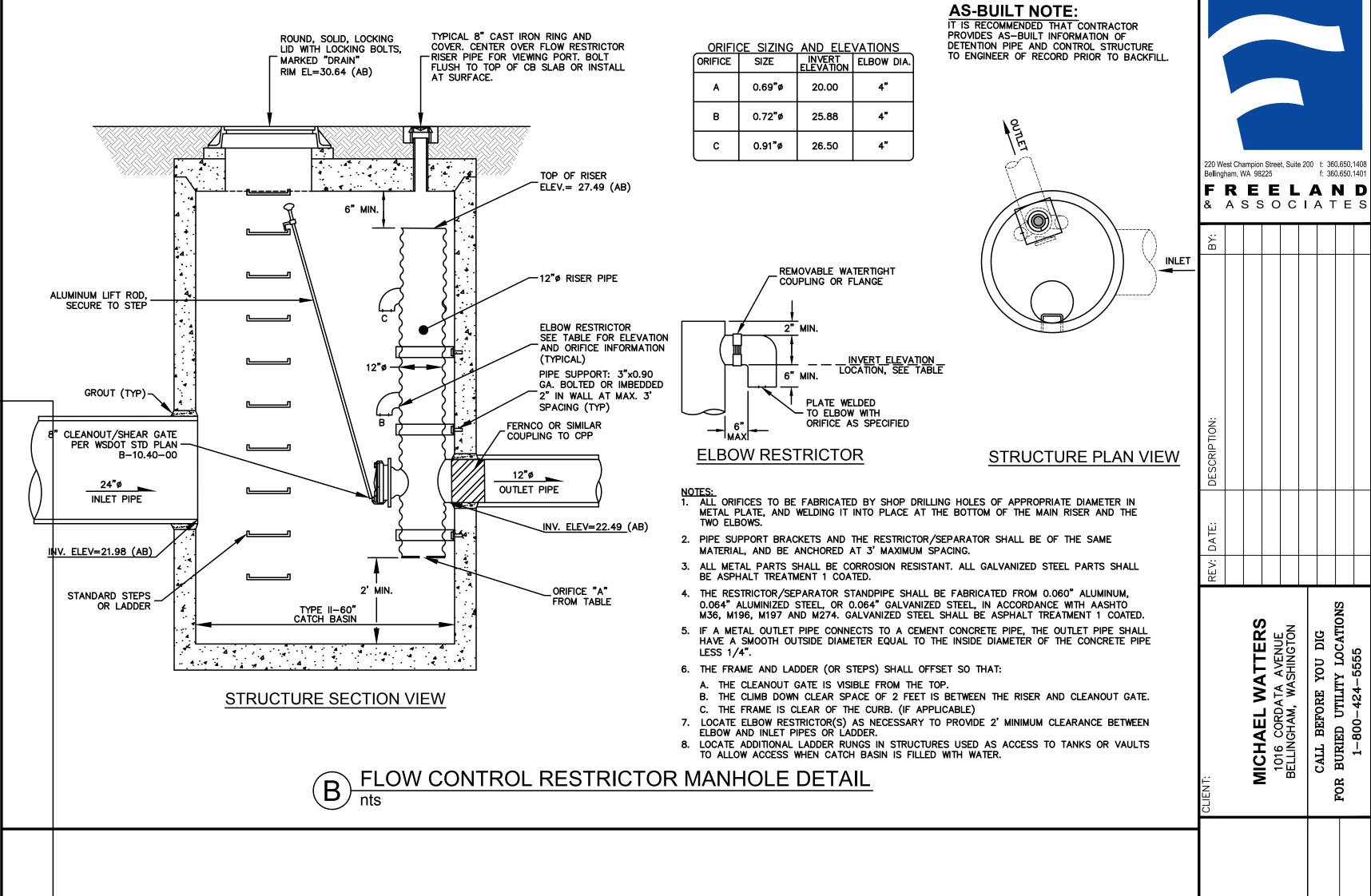


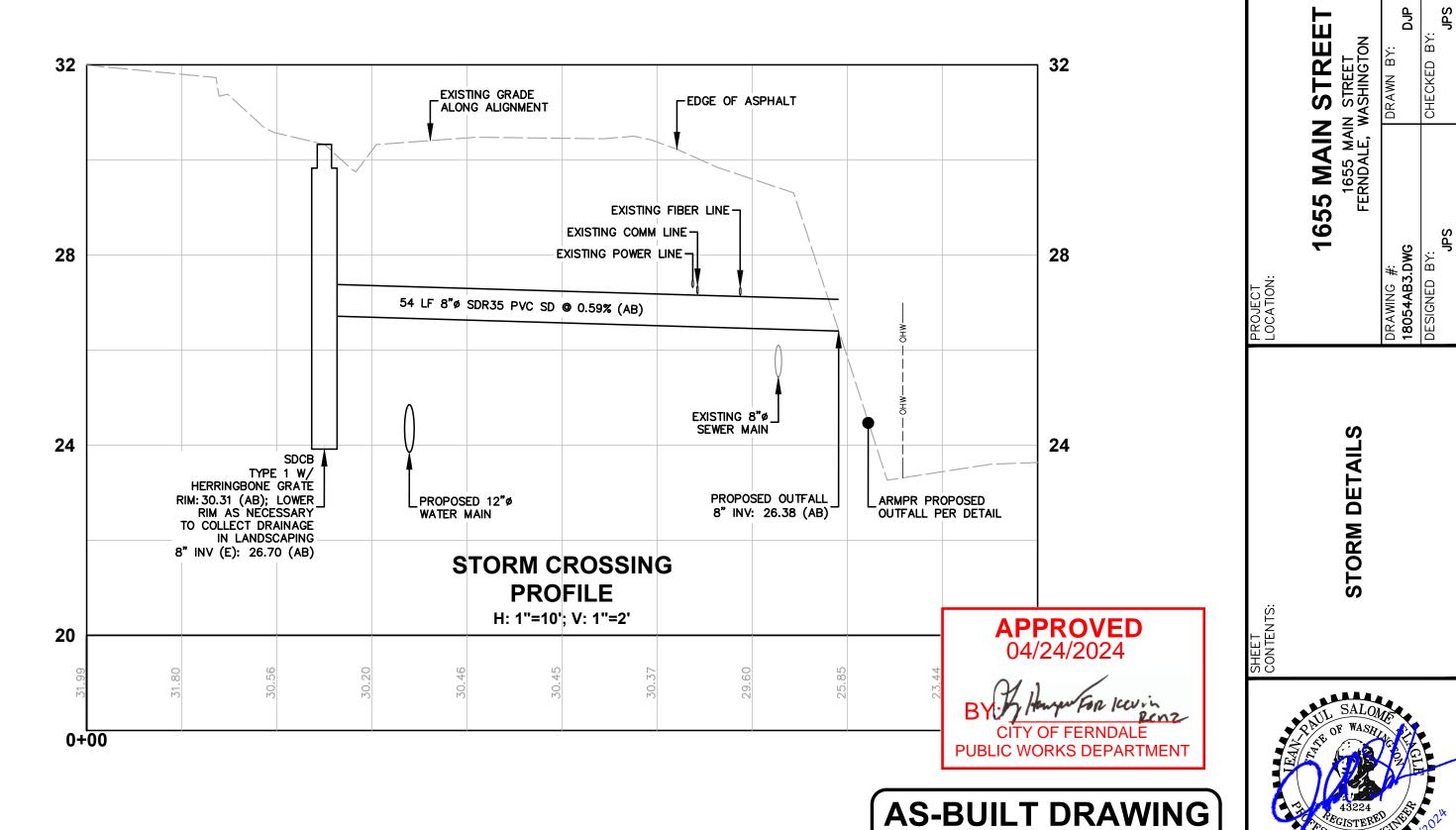
NOTES

- 1. DETAILS AND STRUCTURAL CALCULATIONS WITHIN UPDATED STORMWATER SYSTEM LETTER ARE DIRECTLY FROM AOC INC.
- 2. CONTRACTOR TO COORDINATE WITH AOC INC. TO DESIGN THE PERFORATED FOOTING DRAIN TO COUNTERACT BUOYANCY OF SYSTEM.
- 3. AOC INC. IS RESPONSIBLE FOR STRUCTURAL DESIGN OF SYSTEM WITH
- PROPOSED COVER AND HS—20 LOADING.

 4. STRUCTURAL COMPONENTS OF STORMBRIXX SD SYSTEM TO BE REVIEWED AND APPROVED WITH A BUILDING PERMIT.







C STORM CROSSING PROFILE nts

AS-BUILT NOTE:

ONLY INFORMATION NOTED AS AS-BUILT "(AB)"

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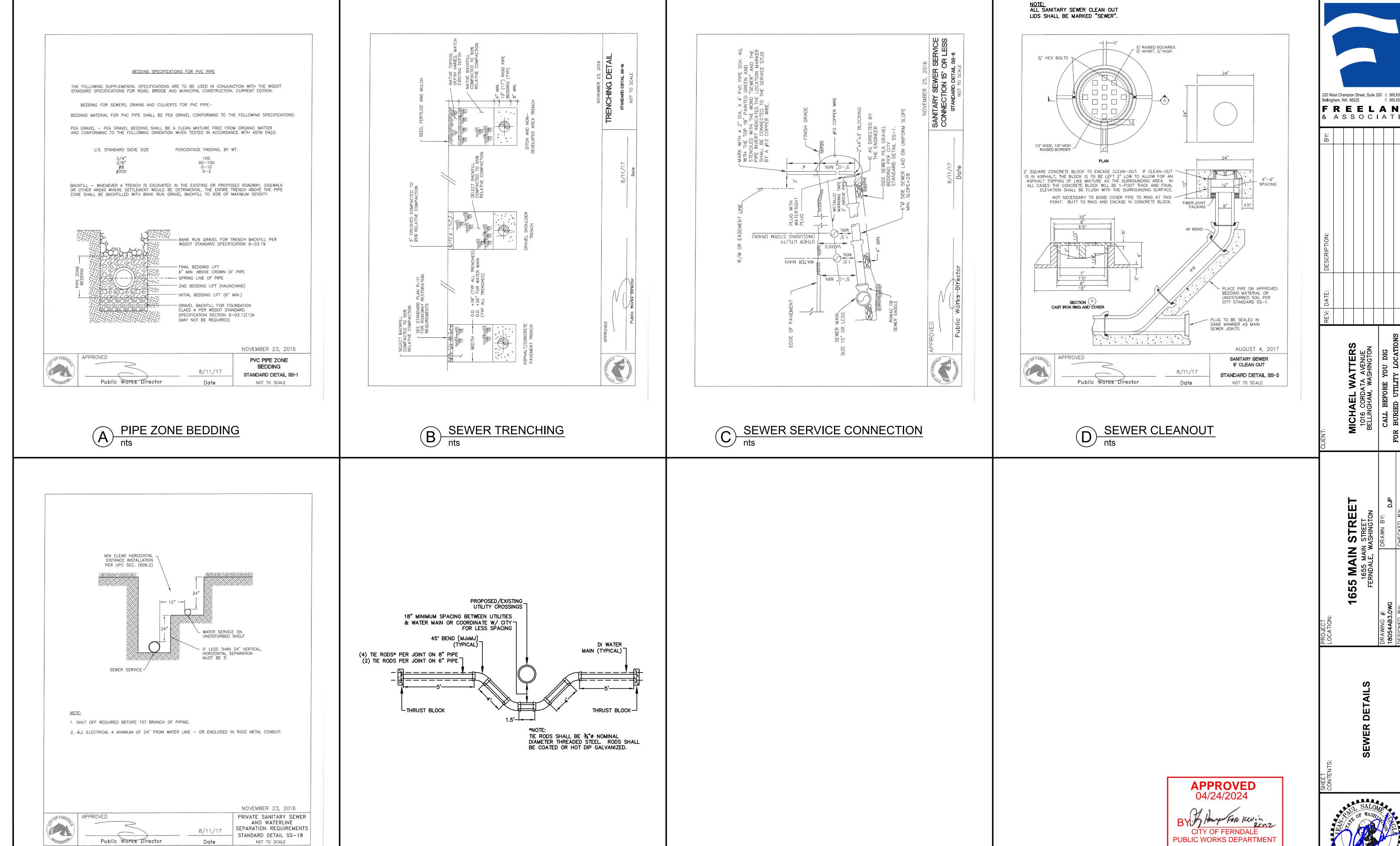
HAS BEEN PROVIDED BY CONTRACTOR

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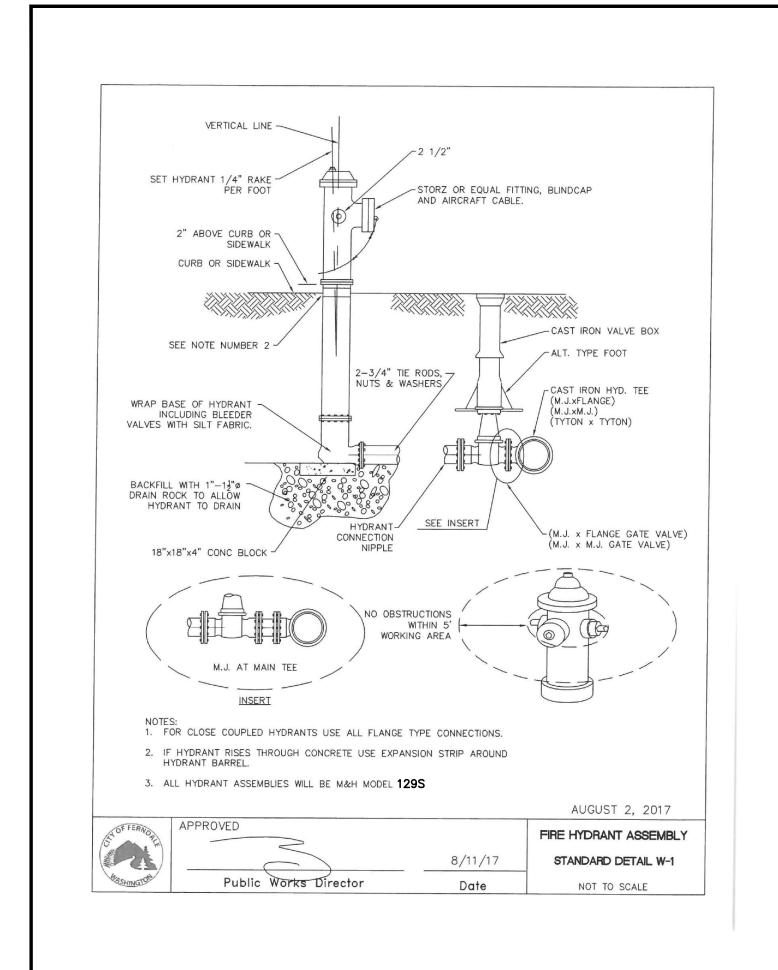
AS-BUILT DRAWING

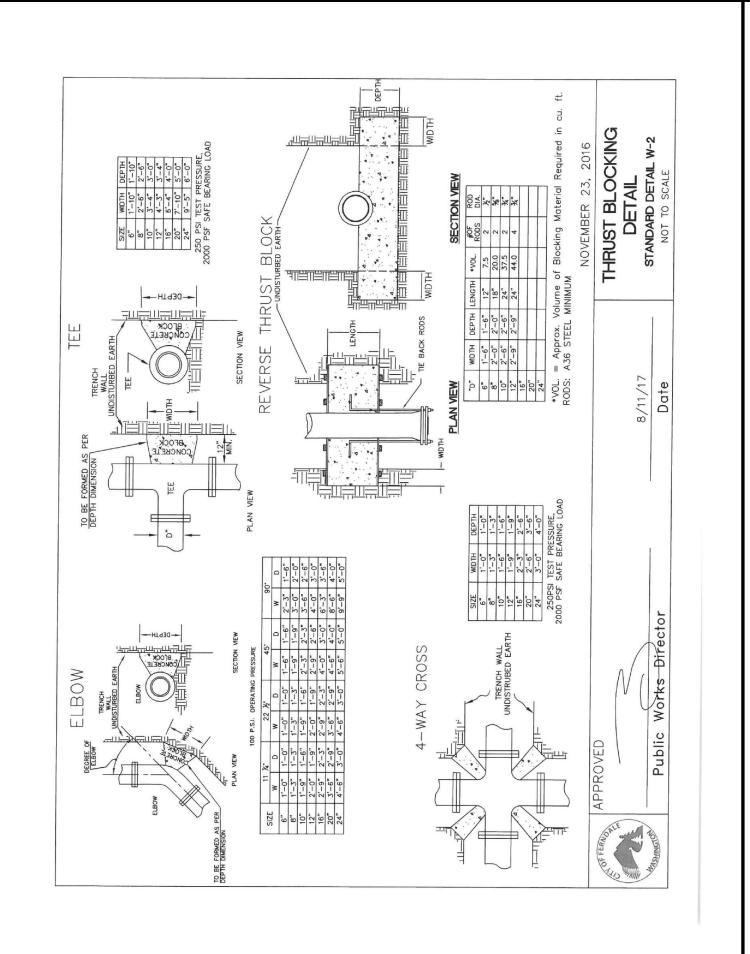
AS-BUILT NOTE:
ONLY INFORMATION NOTED AS AS-BUILT "(AB)"
HAS BEEN PROVIDED BY CONTRACTOR

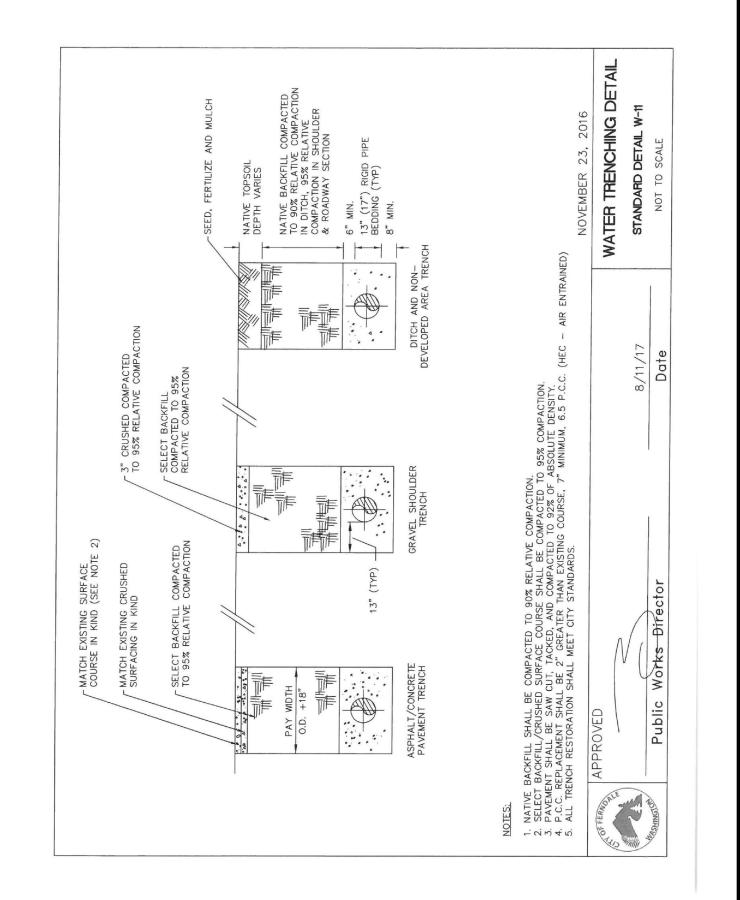
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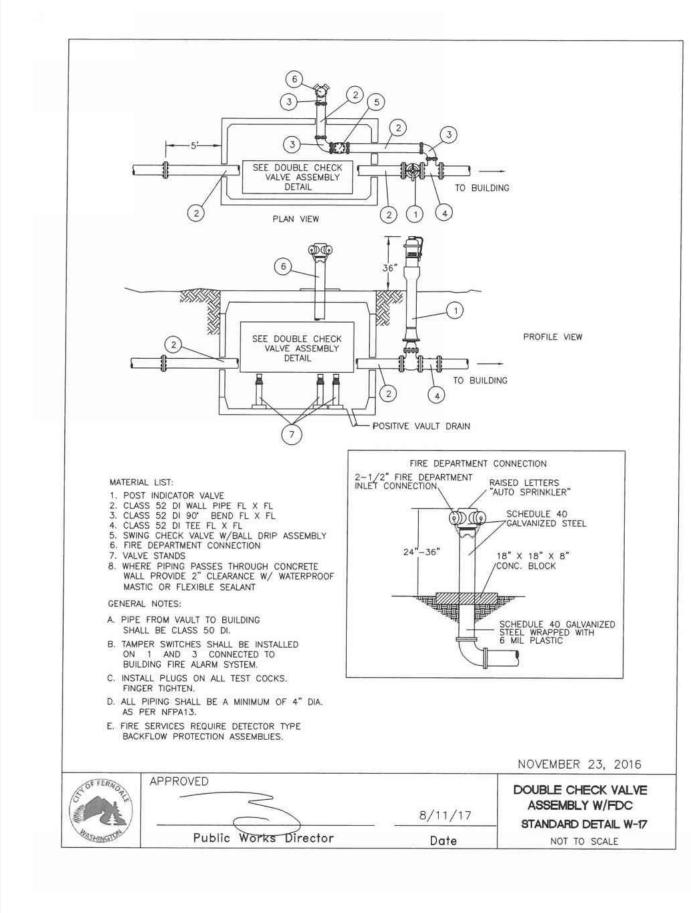


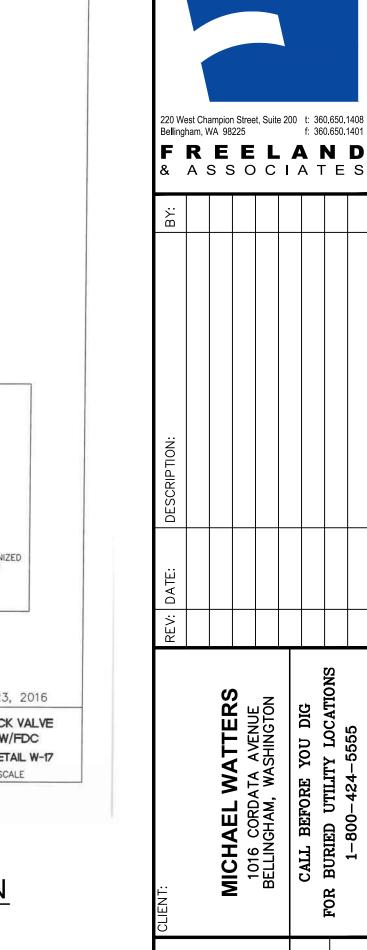
PRIVATE SEWER & WATER SERVICE SEPARATION nts









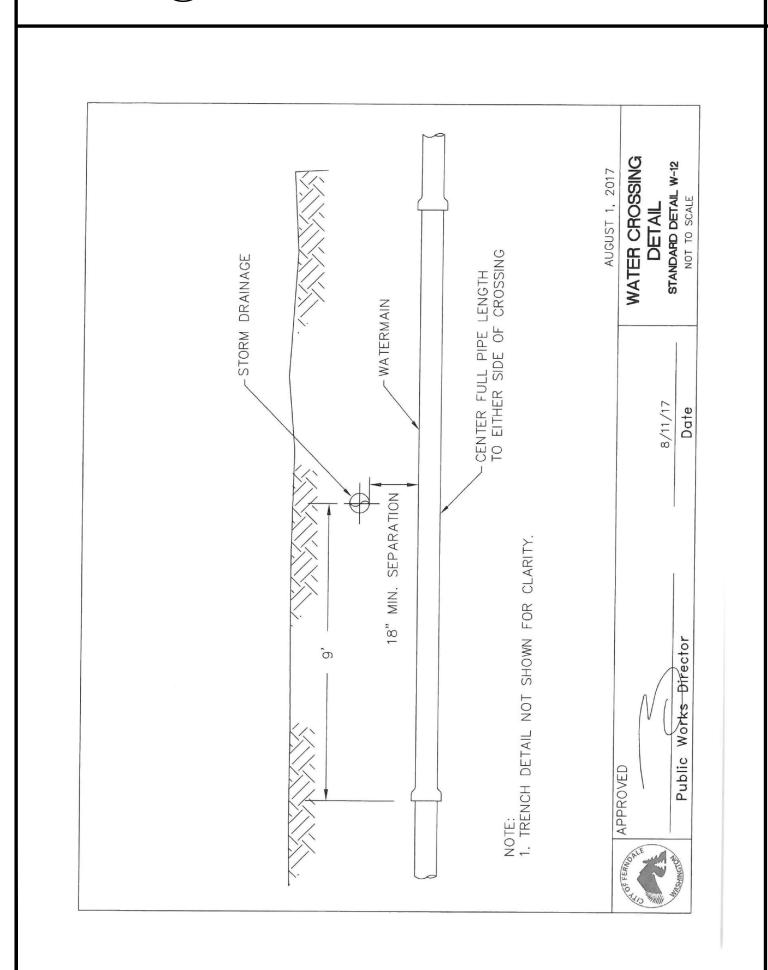




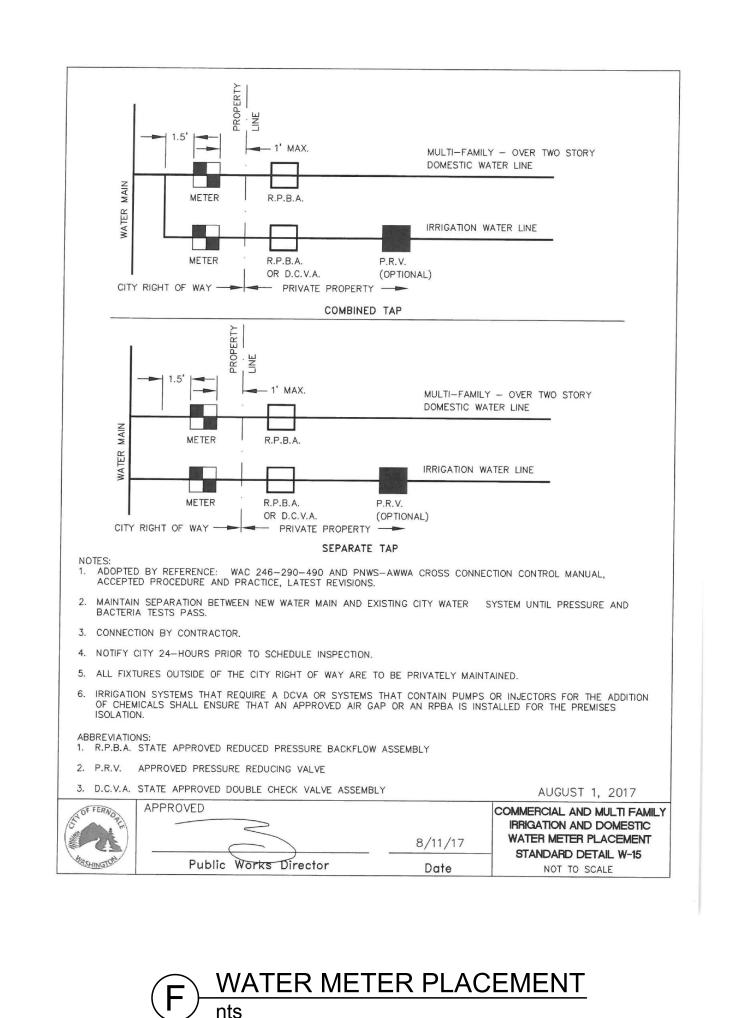


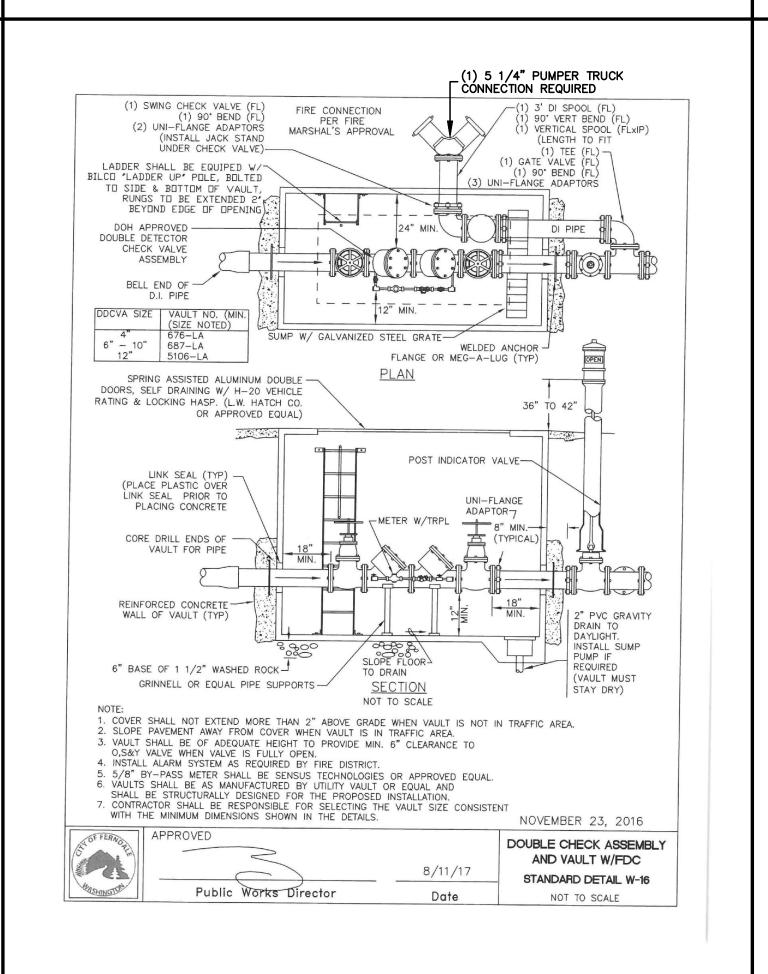




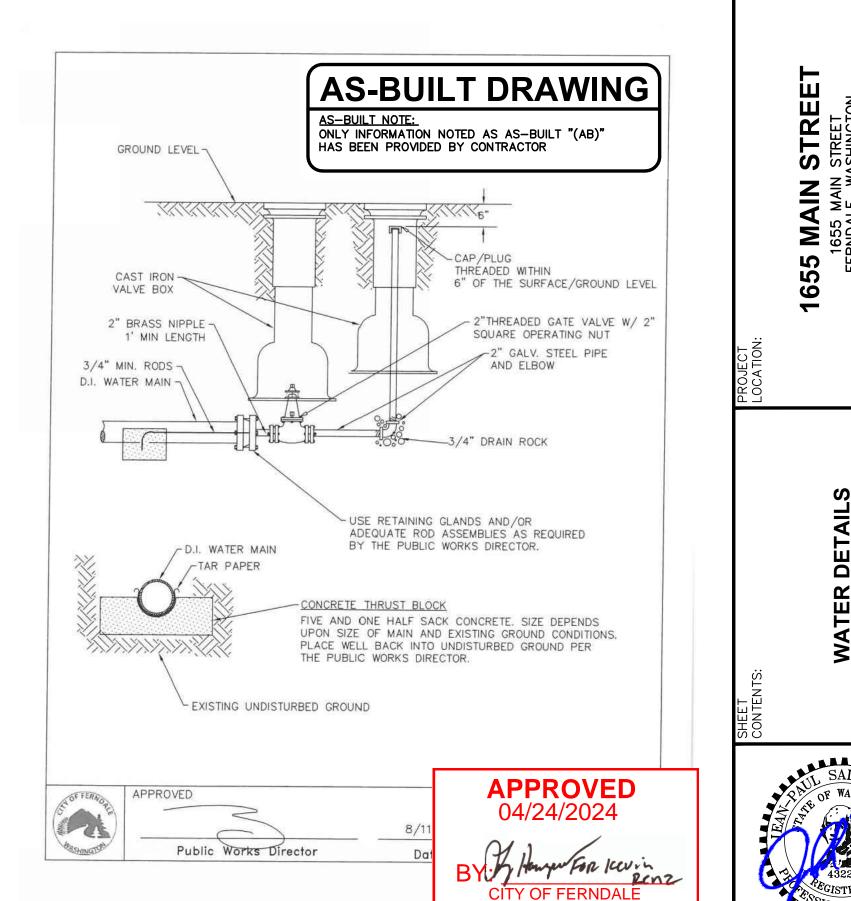


E UTILITY CROSSINGS AT WATER MAIN nts





G DOUBLE CHECK ASSEMBLY nts



H WATER MAIN BLOW-OFF

PUBLIC WORKS DEPARTMENT

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