

Snohomish Conservation District
In cooperation with
UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ENGINEER: Ryan Bartelheimer, PE
Snohomish Conservation District
528 91st Ave NE, Suite A
Lake Stevens, WA 98258
(360) 722-1479

CONSTRUCTION DRAWINGS
AND
SPECIFICATIONS



6/12/2026

Project: Cherry Creek Levee Upgrades

Landowner/Operator: Drainage District #7

Address: 19228 Duvall Monroe Rd NE

City, State, Zip: Duvall, WA 98019

Legal description of practice location: Section 6 & 7 T 26 N R 7 E, W.M.

Prepared By: Ryan Bartelheimer, PE **Date:** 6/11/2026
Practice Code(s): 356 (Dike) **Job Class:** IV



UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CONSTRUCTION & MATERIAL SPECIFICATIONS AND
OPERATION & MAINTENANCE PLANS

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GENERAL ITEM
“GENERAL REQUIREMENTS”

General:

The requirements for this installation are as shown on the drawings and described in the construction specifications and material specifications. The project shall be constructed at the location and to the lines and grades as shown on the drawings in accordance with the construction and material specifications.

Responsibilities:

a. Landowner/Operator:

The landowner/operator is the official spokesperson for this project. The landowner/operator is the person who reviewed and approved the construction drawings, made all contractual agreements with the contractor, ensures construction is in accordance with the requirements as set forth in the drawings, obtains all permits, and is financially responsible for implementing the project and operating and maintaining it after it has been constructed. The landowner/operator is the sole person that can authorize any construction changes that incur financial obligations.

b. Technical Representative:

The technical representative has the authority to review the practice during construction and conduct necessary tests and quality control reviews to ensure that all work is in compliance with the construction drawings. The technical representative reviews all construction changes and insures that the landowner/operator approves them prior to installation. The technical representative maintains a job diary and/or construction notes and prepares as-built drawings of the project.

c. Contractor:

The contractor has a contractual agreement with the landowner/operator for the project installation as set forth in the construction drawings. The contractor shall not make changes to the construction drawings without technical representative and landowner/operator approvals. The contractor shall comply with all applicable permits and conduct the work in a safe manner.

Construction Plan:

a. Specifications:

The construction specifications and material specifications describe minimum acceptable quality of work and materials for the project. The material specifications may also reference a commercial or governmental agency standard such as the American Society of Testing Materials



(ASTM). Commercial standards set forth the minimum acceptable quality of identified materials within the industry. If a conflict arises between the drawings and specifications, immediately inform the technical representative. The technical representative will work with the landowner/operator to resolve the conflict and document the resolution. In general, the specifications take precedence over the drawings.

b. Drawings:

The drawings are a visual representation of the design to supplement construction and material specifications. The drawings show the location of the project and typically include profiles, sections, details and notes necessary to depict and describe the planned construction.

Permits:

All permits, rights of ways, and/or easements that are applicable for the construction and/or operation are the responsibility of the landowner/operator and shall be available for review by the technical representative prior to the start of construction.

Safety:

The contractor is responsible for compliance with all state and local laws, ordinances, codes, and/or regulations applicable for the installation. The technical representative will document any safety violations witnessed.

Acceptance:

The technical representative will monitor construction activities for compliance with the drawings and specifications and formalize the documentation after the work has been completed. If deficiencies are found, the landowner will be notified by the technical representative verbally or in writing. Corrections will be necessary in order for the technical representative to accept the project.



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CONSTRUCTION SPECIFICATION
CS-01: "MOBILIZATION & DEMOBILIZATION"

1.1 SCOPE

The work shall consist of mobilizing equipment, supplies and securing bonds and permits necessary to do the work as stated in the contract and/or agreement and demobilization of excess materials and equipment from the work site.

1.2 FORCES AND EQUIPMENT

Mobilization may include costs for transporting personnel, equipment, operating supplies to the site, establishment of necessary facilities for the contractors operation and any permits, insurance and/or bonds required to do the work.

Demobilization may include the removal of equipment and facilities that were necessary to do the work.



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CONSTRUCTION SPECIFICATION
CS-02: "POLLUTION CONTROL"

2.1 SCOPE

The work shall consist of performing work to control soil erosion, sedimentation, petroleum, dust and smoke from becoming air and/or water pollutants during construction.

2.2 MATERIAL SPECIFICATIONS

All permanent works shall meet the requirements of the applicable Washington Material Specifications. Temporary works which are to be removed may be of a lesser quality.

2.3 EROSION AND SEDIMENT CONTROL MEASURES AND WORKS

In addition to the measures shown on the drawings, erosion and sedimentation shall be controlled at the work site by use of a single or a combination of the following measures:

Staging of Earthwork Activities - The excavation and moving of soil materials shall be scheduled so that the smallest possible areas will be unprotected during construction activities.

Seeding - Seedlings to protect all disturbed areas shall be done in a timely manner in accordance with the methods common to the geographic area.

Mulching - Mulching may be used to provide temporary protection to soil surfaces from erosion.

Diversions - Diversions can be used to divert water away from work areas and/or to collect runoff from work areas for treatment and safe disposition.

Stream Crossings - Culverts or bridges shall be used where equipment is not allowed to ford streams.

Sediment Basins - Sediment basins can be used to collect and store sediment from eroding areas to protect properties and streams down slope from the construction site.

Sediment Filters - Straw bale filters or geotextile sediment fences shall be installed to trap sediment on-site from areas subject to soil erosion. Sediment filters shall be anchored with 2x2



stakes and shall have a minimum burial depth of 6 inches to control erosion under or around them. The sediment filters shall be removed when permanent measures are installed.

Burning - Local and state regulations concerning the burning of brush or slash or disposal of other materials shall be adhered to. Fire prevention measures shall be taken to prevent the start or spreading of fires which result from construction activities.

Dust Control - All public access or haul roads used by the contractor during construction activities project shall be sprinkled or otherwise treated to fully suppress dust.

Staging Equipment - All construction equipment shall be staged in a location and manner to minimize air, soil and water pollution.

Storage of Fuel and Lubricants - All fuel and lubricants shall be stored in containers and areas that are in conformance with the Washington State Department of Ecology and local regulations.

Servicing and Refueling Equipment - All fuel and lubricants used in the servicing of construction equipment shall be done in a manner that avoids spills and over filling. The Washington State Department of Ecology shall be notified immediately of any spill and the operator shall contain the spillage.

Sanitary Facilities - Sanitary facilities such as chemical toilets shall be located to prevent contamination of surface or subsurface water.

2.4 MAINTENANCE, REMOVAL AND RESTORATION

All pollution control measures shall be adequately maintained in a functional condition as long as needed during the construction operation. All temporary measures shall be removed and the site restored to the original conditions as practicable.

2.5 PERMITS AND REGULATIONS

All pollution control measures shall be consistent with all permits issues for the practice(s) being installed.

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CONSTRUCTION SPECIFICATION
CS-06: "STRIPPING"

6.1 SCOPE

The work shall consist of removing vegetation, topsoil and other undesirable materials from borrow areas and foundations for structures and earth fills.

6.2 GENERAL

The stripping shall extend to a depth as shown on the drawings. Excavated earth material deemed satisfactory by the technical representative may be used for earth fill. All waste material shall be disposed of in areas shown on the drawings or as approved by the landowner and technical representative. Stripped material suitable for topsoil shall be stockpiled and spread over disturbed areas as shown on the drawings or as approved by the technical representative.

6.3 STRIPPING FOUNDATIONS

All foundations for structures and/or earthfill shall be stripped of vegetation, roots and unconsolidated soil. The technical representative shall approve all stripped foundations prior to placement of earth fill and/or structures. The stripped surfaces shall be reasonably smooth and free of unconsolidated or loose soil. Unless otherwise shown on the drawings, the side slopes for foundations shall be 1:1, or flatter.

6.4 STRIPPING BORROW AREAS

The areas from which borrow is to be taken shall be stripped of vegetation, roots and other unsuitable material to a sufficient depth to expose material suitable for the earth fill.



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CONSTRUCTION SPECIFICATION
CS-07: "REMOVAL OF WATER"

7.1 SCOPE

The work shall consist of the removal of surface water and ground water as needed to perform the required construction. This also includes the dewatering of borrow sites. It shall include furnishing, construction and operation of all temporary facilities and equipment. This construction specification also includes removal of temporary facilities.

7.2 DIVERTING SURFACE WATER

Protective measures needed to divert streamflow and other surface water shall be built, maintained and operated during construction.

7.3 DEWATERING CONSTRUCTION AND BORROW SITES

The construction site shall be dewatered and kept free of standing water or excessively muddy conditions as needed for proper execution of the construction work. Dewatering shall include furnishing, installing, operating and maintaining all equipment including such as pumps as needed.

7.4 REMOVAL OF TEMPORARY WORKS

After the temporary works have served their purposes, they shall be removed or graded to present an appealing appearance without interfering with permanent drainage systems or stream flows.

7.5 EROSION AND POLLUTION CONTROL

All temporary works shall be accomplished in such a manner that erosion and the transmission of sediment and other pollutants are minimized in accordance with CS-02 "Pollution Control".



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CONSTRUCTION SPECIFICATION
CS-11: "EXCAVATION, COMMON"

11.1 SCOPE

The work shall consist of all common excavations to the lines and grade as shown on the drawings.

11.2 CLASSIFICATION

Common excavation applies to all materials that can be removed and transported by heavy duty construction equipment including boulders and loose rock less than 1 cu. yd. in volume.

11.3 SAFETY LAWS

The owner and/or contractor are responsible for compliance to all Washington State and local safety laws, ordinances and regulations applicable for excavation.

11.4 USE OF EXCAVATED MATERIALS

Excavated materials that conform to the material requirements for earth fill, as stated in the drawings and approved by the technical representative may be used to the extent as needed.

11.5 DISPOSAL OF WASTE MATERIAL

All surplus or waste material shall be disposed of in areas shown on the drawings or as approved by the landowner and the technical representative in accordance with all local, state and federal regulations. The disposal site shall be left in a neat, visually appealing condition, free of depressions and sloped to drain.

11.6 BRACING AND SHORING

Unstable excavated surfaces and/or other excavations as defined by state and federal regulations shall be supported to prevent soil movement.

11.7 STRUCTURE AND TRENCH EXCAVATION

Structure or trench excavation shall be approved by the technical representative before the placement of any structure or earth fill.



11.8 EXCAVATION OF BORROW MATERIAL

All borrow sites shall be left in a final condition with stable side slopes, removal of hazards, sloped to drain, free of depressions and other unsightly conditions. If specified in the drawings, borrow areas and haul roads shall be fertilized and seeded.

11.9 OVER-EXCAVATED AREAS

All over-excavated areas shall be brought up to design elevation with compacted fill using NRCS Construction Specification CS-14 or CS-15 as approved by the technical representative.



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CONSTRUCTION SPECIFICATION
CS-15: "EARTH FILL, CLASS S"

15.1 SCOPE

The work shall consist of the construction of compacted earth fills where the amount of compaction is specified by the performance of equipment.

15.2 MATERIALS

All fill material shall be obtained from the approved excavation or borrow areas. The selection, blending, routing and disposition of materials within the embankment shall be subject to the approval of the NRCS technical representative. Fill materials shall contain no frozen material and shall be free of organic and foreign material. The maximum size of rock fragments incorporated in the earthfill liner shall be six (6) inches, provided that such rock fragments are completely imbedded in the matrix of the compacted earthfill.

15.3 FOUNDATION PREPARATION

After stripping, the foundation shall be scarified or plowed to a minimum depth of 2 inches. The foundation area shall be bonded and compacted with the first layer of earth fill by the process used to place fill. All foundation and abutment surfaces shall not be steeper than 1:1 unless otherwise specified on the drawings.

15.4 PLACEMENT

All foundation excavation and/or preparation shall be completed before placing fill. The fill shall be placed such that the distribution of material is essentially uniform throughout the entire fill and is free from lenses, pockets, streaks, frozen soil or layers of materials differing substantially from surrounding material. No fill shall be placed on a frozen surface.

Equipment weighing 400 pounds or more per foot of width shall not be operated within 2 feet of any structure.

Fill shall be placed in approximately equal horizontal layers. Fill layer thickness before compaction shall not exceed eight (8) inches for machine compaction or four (4) inches before compaction for hand-directed power tampers.

15.5 MOISTURE CONTENT

The moisture content at the time of compaction shall be maintained within the limits to prevent dilatancy and bulking. In addition, specified moisture limits using ASTM D-698 may be shown on the drawings.



Fill material shall be brought to the allowable moisture condition before compaction. Material that is too wet or too dry is not allowed as fill material and shall be removed from the site.

If the top surface of a preceding layer or foundation is too dry, the surface shall be scarified and moistened prior to placement of the next layer of fill material.

15.6 COMPACTION

The following is the minimum requirement for common types of compaction equipment. The compaction equipment to be used for the work is specified on the drawing.

(1) Sheepsfoot Roller

The sheepsfoot roller shall weigh 2,500 pounds per foot of width and have uniformly spaced 7-inch long tamping feet. The surface area of each layer of fill shall receive a minimum of six passes of the sheepsfoot roller. The maximum speed of the compaction equipment shall be 3 MPH. If wedgefoot or padded drum rollers with shorter tamping feet are used, the maximum thickness of the fill layer shall be less than the length of the teeth or pads.

~~(2) Pneumatic Rollers~~

~~The roller shall exert a force of not less than 60 PSI. The surface area of each layer of fill shall receive a minimum of six passes of the pneumatic roller.~~

~~(3) Vibratory Rollers~~

~~The roller shall have a minimum weight of 10,000 pounds and have a vibrating frequency of not less than 1000 vibrations per minute. The surface area of each layer of fill shall receive a minimum of six passes of the vibratory roller.~~

(4) Construction Equipment

The minimum weight of the construction equipment shall be 40,000 pounds and the tracks or wheels shall traverse the entire surface of each layer. The maximum layer thickness shall be 4 inches before compaction.

15.7 STRUCTURES OR CONDUITS

The passage of heavy equipment shall not be allowed over cast-in-place conduits until 14 days after placement of the concrete. The passage of heavy equipment over conduits shall not be allowed until the height of the compacted backfill above the top surface of the conduit equals one-half the clear span width of the conduit, or two (2) feet, whichever is greater.

Compaction of backfill adjacent to structures is governed by Construction Specification CS-17, Structural Backfill.

15.8 TESTING

The moisture content and the compaction of the earthfill may be tested by the NRCS technical representative during placement.

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CONSTRUCTION SPECIFICATION
CS-56: "ROCK STRUCTURE"

56.1 SCOPE

The work shall consist of furnishing and installing loose rock structures including filter layers or bedding as specified on the drawings.

56.2 SITE PREPARATION

The site shall be excavated and backfilled to the lines and grades shown on the drawings. Fill material shall be obtained from approved excavations. Prior to filling, the existing ground surface shall be scarified to ensure a bond with the fill material. The fill material shall be compacted to the density of the surrounding undisturbed areas. Excess excavated material shall be disposed of by spreading in areas shown on the drawings or removed from the site.

56.3 REMOVAL OF TREES AND VEGETATION

Removal of trees and brush shall only be to the extent necessary to do the work and done in a manner as to avoid damage to remaining trees, other vegetation and property. Shade, food, and/or trees to be saved shall be marked. Stumps and root wads will not be removed unless they are within the excavation areas shown on the drawings.

Disposal of trees, brush, and other materials shall be done in a manner that is compatible with state and local laws, regulations and/or ordinances and that causes the least detrimental effect to the environment.

56.4 FILTER OR BEDDING

When the drawings specify fabric filter, aggregate filter or bedding beneath structures, the filter or bedding material shall be spread uniformly on the prepared subgrade surfaces to the depth specified. Compaction of filter layers or bedding is not required, but the surface of such layers shall be finished and reasonably free of mounds, dips, or windrows. Construction Specification CS-67 applies for the installation of Construction Fabrics.

56.5 EQUIPMENT-PLACED ROCK

The rock shall be placed by equipment on the surface to the depths specified. The structure shall be constructed to the full course thickness in one operation and in a manner that prevents displacement of the underlying materials. The rock shall be placed in a manner that will ensure that the rock is reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact with one another. The smaller rocks and spalls fill the voids between the larger rocks. End dumping or dozer placement of rock is not permitted.



56.6 GRADATION

Rock and filter materials shall be of the gradation shown on the drawings.

56.7 SPRIGGING OF WOODY VEGETATION

When specified, woody cuttings shall be planted at locations using the methods detailed on the drawings and the applicable construction specification.

56.8 MAINTENANCE

Substantial maintenance will be needed. Eroded areas shall be promptly filled and revegetated as specified above for seeding and sprigging. Fertilizer should be applied at a recommended rate and watering may be necessary to sustain the plantings.



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CONSTRUCTION SPECIFICATION
CS-63: "VEGETATION OF CONSTRUCTION SITES"

63.1 SCOPE

The work shall consist of furnishing seed and fertilizer, seedbed preparation, and seeding of all area which was disturbed during construction or on specific areas which are shown or described on the drawing.

63.2 FERTILIZER

Fertilizer shall be applied at the minimum rates of 30 pound per acre of actual nitrogen. Other elements may be applied at the rate as determined by soil testing. If the fertilizer is applied to the surface, it shall be mixed with the soil prior to seeding. If not listed in the drawings, nitrogen shall be applied at the rate of 30 pounds per acre.

63.3 SEED

The areas shall be seeded to a grass species or mixture of grasses or legumes at the rate of pure live seed per acre as shown on the drawing.

63.4 SEEDING

The seeding will be performed when moisture is adequate for germination and establishment. Prepare the seedbed as for pasture and hayland plantings as common for the climatic area. The seeding will be accomplished in the seeding dates as common for the area unless otherwise specified on the drawing.

When broadcasting, the seeded area will be mulched with 2,000 pounds of grain straw per acre. Grain straw will be used, unless other mulching material and application rate is shown on the drawing.



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CONSTRUCTION SPECIFICATION
CS-65: "DRAINAGE FILTER"

65.1 SCOPE

The work shall consist of furnishing and installing drainage filter of the location and dimensions shown on the drawings.

65.2 SITE PREPARATION

The site shall be prepared by removing all material that will restrict or reduce the ability of the drainage filter to function.

65.3 INSTALLATION

- (1) Fabric Filters: The foundation shall be unyielding to prevent forces that will elongate, tear or puncture the fabric. All splices shall overlap a minimum of 6 inches unless otherwise shown on the drawings.
- (2) Aggregate Filters: The methods of installation shall prevent segregation and any single layer placement shall not exceed 12 inches.



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CONSTRUCTION SPECIFICATION
CS-67: "CONSTRUCTION FABRICS"

67.1 SCOPE

This construction specification is applicable for furnishing and installation of woven and non-woven construction fabrics to the lines and grades as shown in the drawings.

67.2 MATERIALS

The materials will conform to the type specified on the drawings and shall meet or exceed material specification, MS-209, for the type of fabric to be installed. The bedding and covering shall be of the material quality and depth as shown on the drawing.

67.3 SITE PREPARATION

The final grading of the earthwork shall be completed before installation. The site shall be free from depressions, ridges and rocks greater than 1 inch. The area shall be free from all sharp objects and foreign material such as wood, wire and metal. Bedding shall be in place prior to the installation of fabric material.

67.4 INSTALLATION

If bedding is shown on the drawing, it shall be installed prior to placement of the fabric. In channels, the fabric shall be installed in the direction of flow. On slopes, the fabric may be installed across the slope or perpendicular to the slope. The ends and edges shall be overlapped or shingled a minimum of 4 inches in the direction of flow and anchored. The fabric shall be covered, seeded and/or fertilized as shown on the drawings.

67.5 ANCHORING

Unless otherwise shown on the drawings, the upper and lower ends of fabric on slopes that exceed 5:1 shall be anchored by burial in a twelve-inch deep trench and covered and/or stapled. If the fabric is not covered, it shall be secured by stapling in a diamond pattern with a minimum of two staples per square yard which includes all edges and ends stapled at a maximum spacing of four foot on center.



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CONSTRUCTION SPECIFICATION
CS-70: "CONTRACTOR QUALITY CONTROL"

70.1 SCOPE

The work consists of developing, implementing, and maintaining a quality control system to ensure that the specified quality is achieved for all materials and work performed.

70.2 EQUIPMENT AND MATERIALS

Equipment and material used for quality control shall be of the quality and condition required to meet the test specifications. Testing equipment shall be properly adjusted and calibrated at the start of operations and the calibration maintained at the frequency specified. Records of equipment calibration tests shall be available to the technical representative at all times. Equipment shall be operated and maintained by qualified operators as prescribed in the manufacturer's operating instructions.

All equipment and materials shall be handled and operated in a safe and proper manner and shall comply with all applicable regulations pertaining to their use, operation, handling, storage, and transportation.

70.3 QUALITY CONTROL SYSTEM

The contractor shall develop, implement, and maintain a system adequate to achieve the specified quality of all work performed, material incorporated, and equipment furnished before use. The system established shall be documented in a written plan developed by the contractor. The system activities shall include the material testing and inspection needed to verify the adequacy of completed work and procedures to be followed when corrective action is required. Daily records to substantiate the conduct of the system shall be maintained by the contractor.

The quality control system shall include, but not be limited to, a rigorous examination of construction material, processes, and operation, including testing of material and examination of manufacturer's certifications as required, to verify that work meets contract requirements and is performed in a competent manner.

70.4 QUALITY CONTROL PERSONNEL

Quality control activities shall be accomplished by competent personnel who are separate and apart from line supervision and who report directly to management. A competent person is one who is experienced and capable of identifying, evaluating, and documenting that material and processes being used will result in work that complies with the contract, and who has authorization to take prompt action to remove, replace, or correct such work or products not in compliance. Offsite testing laboratories shall be certified or inspected by a nationally recognized



entity. The contractor shall make available to the technical representative the names, qualifications, authorities, certifications, and availability of the competent personnel who will perform the quality control activities.

70.5 RECORDS

The contractor's quality control records shall document both acceptable and deficient features of the work and corrective actions taken. All records shall be on forms approved by the contracting officer, be legible, and be dated and signed by the competent person creating the record.

Records shall include:

- a. Documentation of shop drawings including date submitted to and date approved by the contracting officer, results of examinations, any need for changes or modifications, manufacturer's recommendations and certifications, if any, and signature of the authorized examiner.
- b. Documentation of material delivered including quantity, storage location, and results of quality control examinations and tests.
- c. Type, number, date, time, and name of individual performing quality control activities.
- d. The material or item inspected and tested, the location and extent of such material or item, and a description of conditions observed and test results obtained during the quality control activity.
- e. The determination that the material or item met the contract provisions and documentation that the engineer was notified.
- f. For deficient work, the nature of the defects, specifications not met, corrective action taken, and results of quality control activities on the corrected material or item.

70.6 REPORTING RESULTS

The results of contractor quality control inspections and tests shall be made available to the technical representative upon request.

70.7 ACCESS

The technical representative shall be given free access to all testing equipment, facilities, sites, and related records.

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CONSTRUCTION SPECIFICATION
CS-72: “PRE-MANUFACTURED BRIDGE AND COMPONENTS ”

72.1 SCOPE

The bridge and all associated structural components shall be assembled and installed to the manufacturer’s specifications and to the engineer’s and to the lines and grades as shown on the engineer’s drawings.

72.2 DESIGN

Engineered drawings and specifications shall be submitted to the project owner prior to purchase of materials.

72.3 DIMENSIONS

The structure shall be installed according to the dimensions shown on the drawings.

72.4 ALTERNATE APPROACH

Contractor may propose an alternate approach to transporting materials across Lateral A:

- The Lateral A crossing on WDFW property not only has weight restrictions, but timing restrictions based on the hunting season for pheasants and waterfowl. Any use of WDFW property for hauling or demobilizing that occurs during these hunting seasons must be coordinated with WDFW in advance.
- Provisions must be made to avoid having any rock, earth, or any other materials enter Lateral A.





**UNITED STATES DEPARTMENT OF AGRICULTURE
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**CONSTRUCTION SPECIFICATION
CS-342A: "CRITICAL AREA PLANTING (DIKE)"**

342.1 SCOPE

The work shall consist of furnishing seed and fertilizer, seedbed preparation, and seeding of all area which was disturbed during construction or on specific areas which are shown or described on the drawing.

342.2 SEEDBED PREPARATION

Prepare the seedbed as for pasture and hayland plantings as common for the climatic area. The seedbed shall be firm, moist, and weed-free. Prior to seeding, the completed earthfill shall be track-walked with the tracks of a track-mounted tractor up and down the slope of the dike.

342.3 TIME AND METHOD OF SEEDING

The seeding will be performed as soon as construction is completed within the disturbed area and when moisture is adequate for germination and establishment. Seed shall be broadcast at the minimum rates given below. Time of seeding shall be within the dates specified and will determine seed mixture:

April 1 to September 15 Permanent seeding all areas

Winter seeding dates are outside permanent seeding dates and shall be followed up with permanent seeding the next spring as approved by the Engineer.

342.4 SPECIES AND SEEDING RATE

The seed mixture shall be:

PERMANENT: (dike)

<u>Seed</u>	<u>Pounds/Acre</u>
Perennial ryegrass (<i>Lolium perenne</i>)	10
Hard fescue (<i>Festuca ovina</i>)	5
Annual Ryegrass (<i>Lolium Multiflorum</i>)	10
Creeping red fescue (<i>Festuca rubra</i>)	25
Bentgrass	5

	55

WINTER: (all disturbed areas)

<u>Seed</u>	<u>Pounds/Acre</u>
Annual Ryegrass (<i>Lolium Multiflorum</i>)	50



Seeding rates are given in pounds of pure live seed per acre. All legumes shall be properly inoculated. All seed shall comply with Federal and Washington State Seed Laws concerning purity, germination and noxious weed content.

Seed, fertilizer, mulch and tackifier shall be hydroseeded evenly over designated areas in one application or the seed and fertilizer shall be evenly broadcast over the designated areas and covered with four (4) inches of chopped straw.

342.5 FERTILIZER

Fertilizer shall be applied over designated areas at a rate of 80 pounds nitrogen, 60 pounds phosphorus (P₂O₅), and 60 pounds potassium (K₂O) per acre.

342.6 MULCH

Mulch with straw at a rate of 1.5 to 2.0 tons/acre if not seeded before October 1.

Wood cellulose fiber mulch shall be evenly applied by hydro-mulching. Mulching rate shall be 2000 pounds per acre. A mulch tackifier shall be applied at an application rate of 50 pounds per acre.



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**CONSTRUCTION SPECIFICATION
MS-209: “WOVEN AND NON-WOVEN FABRICS”**

209.1 SCOPE

This specification governs the quality of structural woven and non-woven fabrics.

209.2 FABRIC

The fabric material shall be polypropylene material with long chain polymeric filaments or fibers. The material properties are defined in the following tables and the type of material selected is shown on the drawings

a. Table 1, Non-Woven Fabric Material

Property	ASTM Test method	Limit			
		Class I	Class II	Class III	Class IV ^{3/}
Tensile strength (lb) ^{1/}	D-4632 grab test	180 minimum	120 minimum	90 minimum	115 minimum
Elongation at failure (%) ^{1/}	D-4632	50	50	50	50
Puncture (lb)	D-4833	80 minimum	60 minimum	40 minimum	40 minimum
Ultraviolet light (% residual tensile strength)	D-4355	70 minimum	70 minimum	70 minimum	70 minimum
Apparent opening size	D-4751	As specified max #40 ^{2/}	As specified max #40 ^{2/}	As specified max #40 ^{2/}	As specified max #40 ^{2/}
Permittivity (sec ⁻¹)	D-4491	0.7 minimum	0.7 minimum	0.7 minimum	0.1 minimum

1/ Minimum average roll value (weakest principal direction).

2/ U.S. standard sieve size.

3/ Heat-bonded or resin-bonded geotextile may be used for Classes III and IV. They are particularly well suited to Class IV. Needle-punched geotextiles are required for all other classes.



b. Table 2, Woven Fabric Material

Property	ASTM Test method	Limit		
		Class I	Class II	Class IV ^{3/}
Tensile strength (lb) ^{1/}	D-4632 grab test	200 minimum	120 minimum	180 minimum
Elongation at failure (%) ^{1/}	D-4632	50	50	50
Puncture (lb)	D-4833	90 minimum	60 minimum	60 minimum
Ultraviolet light (% residual tensile strength)	D-4355 150-hr exposure	70 minimum	70 minimum	70 minimum
Apparent opening size	D-4751	As specified min #70 ^{2/}	As specified min #70 ^{2/}	As specified min #70 ^{2/}
Percent open area (%)	CWO-02215-86 ^{3/}	4 minimum	4 minimum	4 minimum
Permittivity (sec ⁻¹)	D-4491	0.1 minimum	0.1 minimum	0.1 minimum

1/ Minimum average roll value (weakest principal direction).

2/ U.S. standard sieve size.

3/ CWO is a reference to a USACE standard.

209.3 ENVIRONMENTAL RESISTANCE

The fabric shall be inert to commonly encountered chemicals within a pH range of 4 to 10. The ultra-violet light resistance shall not be less than the percentage shown for the specified fabric. The fabric shall also be resistant to mildew, rot and damage caused by rodents.

**UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE**

CONSTRUCTION SPECIFICATION

MS-210: “AGGREGATE FILTERS”

210.1 SCOPE

This specification governs the quality of aggregates used for filter materials in drainage systems for subsurface field drain lines, structural drains and/or foundation drains.

210.2 QUALITY

The aggregates shall conform to the durability requirements of ASTM C-33.

210.3 GRADATION

The gradation shall conform to the requirements for the fine aggregates of ASTM C-33, unless otherwise specified on the drawings.

Gradation for ASTM C-33 fine aggregates:

<u>Standard Sieve Size</u>	<u>Percent of Material Smaller Than</u>
3/8 inch (9.5 mm)	100
#4 (4.75 mm)	95 to 100
#8 (2.36 mm)	80 to 100
#16 (1.18 mm)	50 to 85
#30 (0.60 mm)	25 to 60
#50 (0.30 mm)	5 to 30
#100 (0.15 mm)	0 to 10
#200 (0.075 mm)	2 to 3*

*Maximum of 3% fines in stockpile. Maximum of 5% fines in place.

210.4 HANDLING

Equipment and methods shall prevent segregation of sizes or intermixing with other materials.



UNITED STATES DEPARTMENT OF AGRICULTURE
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CONSTRUCTION SPECIFICATION
MS-212: "ROCK"

212.1 SCOPE

This specification governs the quality of rock to be used for rock structures or rock surfacing.

212.2 QUALITY

Individual rock fragments shall be dense, sound and free from cracks, seams and other defects conducive to accelerated weathering. The rock fragment shapes shall be angular to sub-round. The least dimension of an individual rock fragment shall be not less than one-third the greatest dimension of the fragment. Rounded river rock is not acceptable for material used as rock riprap.

The rock shall have the following properties:

- a. Bulk specific gravity (saturated surface-dry basis) not less than 2.5.
- b. Absorption not more than 2 percent by weight.

The bulk specific gravity and absorption shall be determined by ASTM Method C-127.

Rock that fails to meet these requirements may be accepted only if similar rock from the same source has been demonstrated to be sound after 5 years or more of service under conditions of weather, wetting and drying, and erosive forces similar to those anticipated.

212.3 GRADATION

The rock shall conform to gradation limits shown on the drawings.



**UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE**

**OPERATION AND MAINTENANCE PLAN
OM-PS-356: "DIKE"**

Landowner/Operator: Drainage District #7 **Date:** 6/11/2026

Address: 19228 Duvall Monroe Rd NE
Duvall, WA 98019

Legal description of practice location: SEC 6 & 7 T 26 N R 7 E,
W.M.

OVERVIEW

A properly operated and maintained dike is an asset to your farm. This dike was designed and installed to prevent inundation of your farmland from the adjacent watercourse. The performance life of the structure can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic maintenance and may also require operational items to maintain satisfactory performance. Here are some recommendations to help you develop a good operation and maintenance program.

GENERAL RECOMMENDATIONS

- Avoid excessive travel on any portion of the system that will harm or destroy the vegetative cover.
- Periodically check the elevation of the earthfills and restore to grade, if necessary.
- Maintain vigorous growth of desirable vegetative coverings. This includes reseeding, fertilization and controlled application of herbicides when necessary. Periodic mowing may also be needed to control height.
- Remove all foreign debris that hinders system operation.
- Determine and eliminate causes of settlement or cracks in the earthen sections and repair damage.
- Check all rock riprap sections for accelerated weathering and displacement. Replace to original grades if necessary.
- Eradicate or otherwise remove all rodents or burrowing animals and repair any damage caused by their activity.
- Immediately repair any vandalism, vehicular, or livestock damage to any earthfills, spillways, outlets or other appurtenances.
- Remove woody vegetation from embankments.



SPECIFIC RECOMMENDATIONS FOR YOUR STRUCTURE

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

CONTACT YOUR LOCAL NATURAL RESOURCES CONSERVATION SERVICE OFFICE FOR ANY ADDITIONAL TECHNICAL ASSISTANCE YOU MIGHT NEED FOR IMPLEMENTATION OF THIS OPERATION AND MAINTENANCE PLAN FOR YOUR STRUCTURE.

