ATTACHMENT A:

TECHNICAL SPECIFICATIONS

Kittitas County Conservation District
607 Mountain View Avenue - Ellensburg, WA 98926
Phone (509)925-8585 ext. 109 - Fax (509) 925-8591

BID DOCUMENTS, SPECIFICATIONS AND DRAWINGS

Based on
UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE SPECIFICATIONS

Greer Ditch Decommissioning

FOR:

Landowener: Mark Anderson
Ditch Operator: Frank Payne

Prepared By: RTR **Date:** 12/03/2009
Practice Code(s): 500 **Job Class:** I

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CONSTRUCTION & MATERIAL SPECIFICATIONS

(TABLE OF CONTENTS)

Check if Applicable		Construction Specifications	Issue Date
	Miscellaneous		
____	CS-51	Cathodic Protection	July 2002
____	CS-52	Conduit and Pipelines	July 2002
____	CS-53	Valves & Meters	July 2002
____	CS-54	Metal Fabrication	July 2002
____	CS-55	Painting Metalwork	July 2002
____	CS-56	Rock Structures	July 2002
____	CS-57	Rock Surfacing	July 2002
____	CS-58	Timber Fabrication	July 2002
____	CS-59	Painting Woodwork	July 2002
____	CS-60	Well	July 2002
____	CS-61	Wire Mesh Gabions	July 2002
____	CS-62	Pump	July 2002
X	CS-63	Vegetation of Construction Sites	July 2002
____	CS-64	Fencing of Construction Sites	July 2002
____	CS-65	Drainage Filter	July 2002
X	CS-66	Erosion Control Blankets	July 2002
____	CS-67	Construction Fabrics	July 2002
____	CS-68	HDPE and LLDPE Liner	July 2002
____	CS-69	Geosynthetic Clay Liner	July 2002
____	CS-70	Contractor Quality Control	July 2002
____	CS-71	Roof Gutters & Downspouts	Jan 2004
	Special Construction Specifications (Number with the 100 Series)		
____	CS-_____	_____	_____
____	CS-_____	_____	_____

Check if Applicable		Material Specifications	Issue Date
	Miscellaneous		
____	MS-201	Concrete Aggregates	July 2002
____	MS-202	Portland Cement	July 2002
____	MS-203	Concrete	July 2002
____	MS-204	Concrete Pipe	July 2002
____	MS-205	Corrugated Metal and Structural Plate Pipe	July 2002
____	MS-206	Plastic Pipe	July 2002
____	MS-207	Steel Pipe	July 2002
____	MS-208	Corrugated Plastic Tile	July 2002
____	MS-209	Woven and Non -Woven Fabrics	July 2002
____	MS-210	Aggregate Filters	July 2002
____	MS-211	Bedding	July 2002
____	MS-212	Rock	July 2002
____	MS-213	Steel Reinforcement	July 2002
____	MS-214	Metal, Structural	July 2002
____	MS-215	Galvanizing	July 2002
____	MS-216	Structural Timber & Lumber	July 2002
____	MS-217	Wood Preservatives & Treatment	July 2002
____	MS-218	Valves and Meters	July 2002
X	MS-219	Erosion Control Blankets	July 2002
____	MS-220	Corrugated Polyethylene Pipe	July 2002
____	MS-221	Preformed Expansion Joint Filler	July 2002
____	MS-222	HDPE and LLDPE Flexible Membrane Liner	July 2002
____	MS-223	Geosynthetic Clay Liner	July 2002
	Special Material Specifications (Number with the 300 Series)		
____	MS-_____	_____	_____
____	MS-_____	_____	_____

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

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.

1.3 ITEMS OF WORK AND CONSTRUCTION DETAILS

This item shall consist of all mobilization and demobilization required to do the work in accordance with Section 1, SCOPE, as well as the cost of all necessary insurance and bonding, schedule production, and preconstruction meetings. A Work in the Right-of-way permit will be required from the Kittitas County Public Works Office. It is the responsibility of the Contractor to apply for this permit.

1.4 MEASUREMENT AND PAYMENT

Measurement will be made on a Lump Sum basis and paid for under Item 1 Mobilization and Demobilization of the contract. Half of the bid amount will be available for payment once mobilization onto the job site is complete. The remaining half will be available for payment once demobilization from the job site is complete.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

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.

2.6 ITEMS OF WORK AND CONSTRUCTION DETAILS

Construction limits for the work to be performed shall be within a distance of 50 feet from the immediate area of the construction activities, unless otherwise permitted by the landowner. The requirements of this specification shall be followed within the described limits. The contractor shall be responsible for making all agreements with landowners and land operators for site access, location of construction staging and material stockpiling areas.

2.7 MEASUREMENT AND PAYMENT

No measurement or payment will be made specifically for “Pollution Control”. All construction activities associated with pollution control requirements not covered under other bid items and specifications are considered incidental to Bid Item 3, “Site Restoration”.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CONSTRUCTION SPECIFICATION

CS-04 "CLEARING AND GRUBBING"

4.1 SCOPE

The work shall consist of the clearing and grubbing of designated areas by removal and off-site disposal of trees, snags, logs, stumps, shrubs, vegetation and rubbish.

4.2 REMOVAL

All trees, snags, logs, brush, stumps, and shrubs not marked for preservation and rubbish shall be removed from within the limits of the construction areas. Unless otherwise specified, all stumps, roots and root clusters having a diameter of 1 inch or larger shall be grubbed out to a depth of at least 2 feet below subgrade elevation for concrete structures and 1 foot below the ground surface for earthfills.

4.3 SALVAGE

Trees to be salvaged for saw logs shall be trimmed and cut to planned lengths and hauled to the loading area.

Brush piles for wildlife shall be established as shown on the drawings.

4.4 DISPOSAL

Where brush piles for wildlife are not specified on the drawings, cleared and grubbed materials shall be disposed of by hauling from the construction site to an approved, upland disposal site in accordance with all local, state and federal regulations.

4.5 ITEMS OF WORK AND CONSTRUCTION DETAILS

Approximately 100 feet of the delivery ditch down gradient from the existing concrete structure is to be filled with approved imported material. Prior to placement of the material, the existing ground shall be cleared of all organic material and scarified. The total area to be cleared is less than 1000 ft^2. Total volume to be removed from the site is expected to be less than 20 yrds.

4.6 MEASUREMENT AND PAYMENT

No measurement and payment will be made specifically for "Clearing and Grubbing". All construction activities associated with Clearing and Grubbing will be considered a component of Bid Item 2, Ditch Excavation.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CONSTRUCTION SPECIFICATION

CS-05: "STRUCTURE REMOVAL"

5.1 SCOPE

The work shall consist of the removal, salvage, and disposal of man-made structures, including buried structures and fences.

5.2 REMOVAL

Structures shall be removed to the extent and depth shown on the drawings or as designated by the technical representative.

All hazardous material shall be identified prior to structure removal by a qualified individual and identified accordingly in a report or by drawings.

5.3 SALVAGE

Structures designated as salvageable shall be carefully removed, disassembled and neatly placed in the storage area shown on the drawings or other selected areas approved by the landowner. All salvaged material is the property of the owner, unless otherwise specified.

5.4 DISPOSAL OF REFUSE AND UNSALVAGED MATERIALS

Refuse and unsalvageable materials shall be disposed of by hauling from the construction site to an approved, upland disposal site in accordance with all local, state and federal regulations.

5.5 HAZARDOUS MATERIAL

All identified hazardous material shall be disposed of in accoradnce with local, state and federal regulations.

5.6 ITEMS OF WORK AND CONSTRUCTION DETAILS

The abandoned diversion structure consists of approximately less than 5 yd^3 of concrete contained in three walls. All components of the structure shall be removed from the site.

5.7 MEASUREMENT AND PAYMENT

No measurement and payment will be made specifically for "Structure Removal". All construction activities associated with Structure Removal will be considered a component of Bid Item 2, Ditch Excavation.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

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, 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 a sightly 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".

7.6 ITEMS OF WORK AND CONSTRUCTION DETAILS

The construction area near the historical diversion shall be isolated from the flowing water of Fogarty Ditch. This may be accomplished with a combination of the following clean material; sand bags, ecology blocks, tarps, straw bales, or other material approved by the technical representative. Flow in Fogarty Ditch may be minimized by partially closing the headgate at the Yakima River. Flow shall not be decreased beyond the point at which stranding of fish may occur. If water in the immediate construction zone is to be pumped from the site, the water shall be discharge in an upland area far enough from Fogarty Ditch to allow for sediment to settle out prior to reentering.

7.7 MEASUREMENT AND PAYMENT

No measurement and payment will be made specifically for “Removal of Water”. All construction activities associated with Removal of Water will be considered a component of Bid Item 2, Ditch Excavation.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
WASHINGTON

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 KCCD 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 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 l:l 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 six (6) 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 in section 15.8.

(1) Sheepsfoot Roller

The sheepsfoot roller shall weigh 2500 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 ITEMS OF WORK AND CONSTRUCTION DETAILS

Fill material shall be imported to backfill the abandoned ditch upon complete removal of the abandoned structure and grubbing of organic material within the banks of Greer Ditch between Fogarty Ditch and the pasture gate. Final backfill on both sides of the abandoned ditch shall be blended to meet the existing elevation of the pasture access road. Fill shall be proportioned such that a minimum of 50% of the material by volume is topsoil. The remaining material shall be less

than 6 inches. Once material is placed, compaction shall be achieved using method 4 as described in section 15.6. The volume of fill needed is less than 50 yrds.

15.9 MEASUREMENT AND PAYMENT

No measurement and payment will be made specifically for “Earth Fill”. All construction activities associated with Earth Fill will be considered a component of Bid Item 3, Site Restoration.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CONSTRUCTION SPECIFICATION

CS-63: "VEGETATION OF CONSTRUCTION SITES"

63.1 SCOPE

The work shall consist of furnishing seed, 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 SEED

The areas shall be seeded to a grass species or mixture of grasses or legumes at the rate of 150 pounds of pure live seed per acre.

63.3 SEEDING

The seeding will be performed within 24 hours of the completion of backfill operations. Prepare the seedbed as for pasture and hayland plantings as common for the climatic area.

63.4 ITEMS OF WORK AND CONSTRUTION DETAILS

The backfilled area of the abandoned ditch shall be seeded with a mixture of typical pasture grasses and legumes. Any plant material from reed canary grass within the fill area shall be removed prior to seeding. Seeding may be accomplished by hand or hand broadcast equipment. Upon completion of seeding, the area shall be rolled and covered with coir fabric erosion control blanket.

63.5 MEASUREMENT AND PAYMENT

No measurement and payment will be made specifically for "Vegetation of Construction Sites". All construction activities associated with Vegetation of Construction Sites will be considered a component of Bid Item 3, Site Restoration.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CONSTRUCTION SPECIFICATION

CS-66: "EROSION CONTROL BLANKETS"

66.1 SCOPE

This construction specification is applicable for furnishing and installation of erosion control blankets to the lines and grades as shown in the drawings.

66.2 MATERIALS

The materials will conform to the type specified on the drawings and shall meet or exceed material specification, MS-219, for the type of blanket to be installed.

66.3 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.

66.4 INSTALLATION

If the area is to be seeded and/or fertilized, the operations shall be completed prior to the installation of erosion control blankets. In channels, install the blanket in the direction of flow. On slopes the blankets 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, unless otherwise shown on the drawing. The area shall be seeded to the species and rates shown on the drawing.

66.5 ANCHORING

Unless otherwise shown on the drawings, the upper and lower ends of each installation shall be anchored by burial in a twelve-inch deep trench and stapled. The stapling shall be 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.

66.6 ITEMS OF WORK AND CONSTRUCTION DETAILS

Once the final backfill operation to fill Greer Ditch has been completed, the fill shall be covered with a mixture of native grass seed. The seed may be hand broadcast. Erosion control blanket shall be placed on top off of the seed. Erosion control blanket placed on the banks of Fogarty Ditch shall be overlapped in the direction of flow and extend a minimum of 12 inches beyond the ordinary high water mark. Approximately 150 yd^2 of blanket will be required. Erosion control blanket shall be Type II as specified in MS-219.

66.7 MEASUREMENT AND PAYMENT

No measurement and payment will be made specifically for “Erosion Control Blankets”. All construction activities associated with Erosion Control Blankets will be considered a component of Bid Item 3, Site Restoration.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MATERIAL SPECIFICATION

MS-219: "EROSION CONTROL BLANKETS"

219.1 SCOPE

This specification governs the quality of the erosion control blankets for slope and/or channel protection.

219.2 QUALITY

All non-thermally bonded erosion control blankets shall have polypropylene netting on both sides that is sewn with polypropylene thread of 750 denier or larger diameter. The minimum requirement for each type of blanket identified in this specification is:

Type	Material	Weight OZ/SY	Thickness Inches	Shear Stress LB/SF	Tensile Strength LB/FT	Ground Cover Percent	Life Years	Netting & Thread Ultra-Violet light Stabilized
I	Grain Straw Blanket	8.0	0.25	2.0	60	90	<1.0	No
II	Coir Fiber Blanket	9.5	0.25	3.0	125	90	>5.0	Yes
III	Polyolefin Fiber Blanket	12.0	0.50	6.0	200	50	> 5.0	Yes
IV	Wood Fiber Blanket	15.0	0.50	2.5	----	90	< 2.0	No
V	Coir Fiber Mat	20.0	0.30	----	670	50	>5.0	N/A
VI	Thermally Bonded Nylon Monofilament	8.0	0.40	6.0	180	10	>10.0	Yes*
VII	Thermally Bonded Nylon Monofilament	12.0	0.75	8.0	250	10	>10.0	Yes*
VIII	Thermally Bonded Polyvinylchloride Monofilament	25.0	0.10	5.0	140	25	>10.0	Yes*

* Material for monofilament blankets are ultra-violet light stabilized

219.3 FASTENERS

The fasteners shall be 6" ecostakes.