

This specification outlines the requirements for constructing, cleaning, deepening, widening and relocating water channels, other than those ditches that are contiguous with main grading operations, to design lines, grades, dimensions and typical cross sections shown on plans or established by the Owner.

**PART 1 REFERENCES**

**1.1 NOT APPLICABLE**

**PART 2 GENERAL**

**2.1 SUBMITTALS**

.1 Submit in accordance with Section 01340 – Shop Drawings, Samples and Submissions.

.2 Submit information as follows for channel excavation operation:

.1 Description of processes to be implemented including, but not limited to, site plan and available equipment specifications.

.2 Detailed operating procedures for proposed excavation method.

.3 Detailed operating procedures for proposed dewatering method.

.4 Detailed description and specifications for environmental controls including, but not limited to, control of sediment migration.

.5 Transportation and Disposal: provide copies of the following related to off-site transport and disposal of waste materials:

.1 Bill of lading.

.2 Chain-of-custody records.

.3 Contracts.

.4 Trucking logs.

.5 Scow load log.

**2.2 QUALITY ASSURANCE**

1 Regulatory Requirements: ensure Work related to dredging is performed in compliance with regulatory authorities.

.1 Dumping: when required obtain and be responsible for permits, licenses, or certificates as necessary for performance of Work in accordance with authorities having jurisdiction.

## 2.3 ENVIRONMENTAL PROTECTION

- .1 Provide erosion and sediment control measures to prevent migration of suspended sediments in downstream areas and erosion of on-site soils/sediments during the execution of the work as per requirements of Section 01560 - Environmental Requirements.
  - .1 To reduce siltation resulting from ditch cleaning operations, the Owner may require the installation of silt fence and/or check dam sediment traps in accordance with Section 01560 - Environmental Requirements. Where instructed, the Contractor shall install silt fence and terminate roadside ditches a minimum of 30 metres from any watercourse or water body to allow drainage water to filter through a vegetated area prior to entering any watercourse or water body.
  - .2 Excavations and embankments should be kept dry while work is in progress by draining and pumping as required. All necessary unwatering shall be completed in accordance with Section 01560 Environmental Requirements.
  - .3 Material required to grade the ditchline should not be placed in freestanding water.

## PART 3 PRODUCTS

- 3.1 NOT APPLICABLE.

## PART 4 EXECUTION

### 4.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for waterway channel maintenance.
  - .1 Visually inspect substrate in presence of the Owner.
  - .2 Inform the Owner of unacceptable conditions immediately upon discovery.
  - .3 Proceed with maintenance work only after unacceptable conditions have been remedied and after receipt of written approval to proceed from the Owner.

#### 4.2 PROTECTION

- .1 Cleaning operations must not undermine the existing foreslope and shall maintain a uniform cross section without gouges or ridges evident in the completed work.
- .2 Existing shoulder widths shall be maintained throughout the ditch cleaning operation and must not be compromised or narrowed by way of over excavation, undermining of foreslope or other construction activities.
- .3 Should any narrowing of the existing shoulder occur, the Contractor shall re-establish the original shoulder width and design foreslope, as directed by Owner's Representative.
- .4 All work required to re-establish shoulders to their original width shall be carried out at the Contractor's expense.

#### 4.14.3 EXCAVATION

- .1 Excavate **new channels** to design lines, grades and cross-sections **as indicated**.
- .2 Deepen existing channels to design lines, grades and cross-sections **as indicated** and clean channel bottom of debris and roots.
- .3 Confirm existing grades and adjust excavation quantities as necessary to produce desired channel configuration.
  - .1 Final cross section shall have a continuously smooth grade providing positive drainage, without ponding, in the specified flow direction.
- .4 The uniform cross section should carry throughout the entire ditch line, even in places where culverts were removed and not replaced.
- .5 All back and side slopes of other material shall be finished to a neat condition, suitable for seeding, true to line and grade.
- .6 Boulders removed as part of the cleaning operation shall not leave cavities in the final ditch slopes, all cavities shall be filled using suitable material from the cleaning operation as required. Any areas that cannot be finished satisfactorily by machine shall be completed by hand.
- .7 Provide and maintain means and devices for dewatering of water entering excavated areas.
  - .1 Remove water as fast as it collects without interfering with execution of work as reviewed by the Owner.
- .8 Stockpile fill material at on-site staging area as directed by the Owner.

- .1 Provide adequate silt control as provided for in Section 01560 - Environmental Requirements.
- .9 Do not place excavated materials adjacent to channel in a manner that will impede flow of surface water from adjacent land, or cause instability of channel banks.
- .10 In the event of damage to private property or existing culverts as a result of cleaning operations, the Contractor shall be responsible to rectify the damage in a reasonable timeframe at their own expense.
- .11 Upon completion of excavation, clean and trim site.
  - .3.1 Reinstate disturbed areas immediately after completion of grading as directed by the Owner.
- .12 Dispose of excavated materials as directed by the Owner.

## PART 5 PAYMENT

### 5.1 MEASUREMENT FOR PAYMENT

- .1 Channel excavation for new channels will be measured in cubic metres in their original location.
  - .1 Channel Excavation (~~±~~ Rock):
    - .1 Volume of rock excavated will be calculated from cross-sections of original rock surfaces, design grade line for excavation, and typical cross-sections as shown on the Contract Drawings.
    - .2 Where design grade line depth indicated on the Contract Drawings or directed by the Owner is less than 300 mm below original rock surface, actual volumes depth excavated will be measured to maximum of purposes will be taken as 300 mm below original rock surface.
  - .2 Channel Excavation (~~±~~ Common): initial cross sections will be taken after clearing and grubbing will be measured in cubic metres to and along theoretical paylines.
  - .2 Where depth indicated on the Contract Drawings or directed by the Owner is less than 300 mm below original rock surface, depth excavated for measurement purposes will be taken as 300 mm.
  - .3 Cleaning and deepening of existing channels will be measured in metres of channel along centreline.

5.2 BASIS OF PAYMENT

.1 All costs associated with the work outlined in this specification shall be deemed to be included in the appropriate unit and lump sum prices quoted as outlined in the Measurement for Payment subsection of this section and as included in the MERX Schedule of Quantities and Prices.

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