City of Bellevue

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TURBIDITY MONITORING REQUIREMENTS

What is Turbidity?
Turbidity is the clarity of water expressed as nephelometric turbidity units (NTU's) and is measured with a calibrated turbiditymeter. The level of turbidity is determined by measuring the amount of light that passes through a standard sample of the water.

Code Authority:
The Clearing and Grading Code (BCC 23.76.160.C) permits the Planning and Community Development Director to require performance monitoring to determine compliance with State Surface Water Quality Standards (WAC 173.201A-200).

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The standard for turbidity is:

> Not to exceed 5 NTU over upstream turbidity when upstream turbidity is 50 NTU or less; and
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> Not to exceed 10% above upstream turbidity when upstream turbidity is greater than 50 NTU.

Turbidity Monitoring Plan Requirements:
An acceptable turbidity monitoring plan will include the following elements:

1. Project Description – This section of the plan shall identify the purpose of the site clearing and grading, include a discussion of the extent of site disturbance required for the proposal, any proposed phasing of the project, and a brief description of the Temporary Erosion Control Plan (TESC Plan).
2. Drainage Analysis – This section, at a minimum, shall include a discussion of: i) the general topography; ii) existing drainage patterns on-site including existing drainage features (i.e. wetlands, streams, ditches, catch basins, pipes, ponds etc.); and iii) location of protected areas (i.e. steep slopes, wetlands, riparian corridors and shorelines).
3. Monitoring Locations – All upstream and downstream monitoring points must be indicated in the turbidity monitoring plan and on the TESC Plan. If more than one drainage basin (sub-basin) is present, multiple upstream and downstream monitoring points will be required to accurately monitor the site. Monitoring locations should be immediately downstream from discharge points.
   - **Note:** When measuring turbidity from point source discharges (e.g. releasing water from a sediment pond into the local drainage system), avoid sampling discharge prior to it mixing with local stormwater. For Example: When discharging to a catch basin, take the sample from the inlet of the next catch basin downstream, thus allowing mixing of discharge and off-site stormwater.

4. Gathering Baseline Data – Baseline data is used in lieu of upstream data when upstream data is not attainable during construction. Baseline data must be gathered prior to initiating clearing and grading or other site disturbance (i.e. demolition, etc). To gather data, the designated third party monitor shall sample turbidity at each of the downstream monitoring points at least two times per week for a period not less than two weeks. The baseline turbidity for each monitoring point is defined as the average turbidity of the samples taken at that location. [Note: If circumstances prevent readings from being taken from the baseline monitoring location (i.e. no water is present or flowing), the designated monitor shall obtain historic turbidity levels from the Utilities Department. In the absence of historic data, the Utilities Department shall determine turbidity levels based on their best judgement.]

5. Turbidity Monitoring Data Sheet – Include in the monitoring plan an example data sheet to record daily monitoring data. An example Data Sheet is attached to these requirements, which may be used directly, or as a reference to develop a project specific data sheet. Project specific data sheets shall include all of the information on the example sheet, but may provide additional information.

6. Third Party Monitor - The plan must identify a qualified, professional monitoring company that will be responsible for providing turbidity monitoring. The company may not be affiliated with any party with a vested interest in the project.

7. Field Testing Methods – Turbidity monitoring equipment must be specified in the monitoring plan, and shall comply with the requirements of the EPA and provide immediate results in the field.

8. Frequency of Monitoring – During the Dry Season (May 1 – October 31) sampling shall be performed no less than one sample weekly. Additional samples shall be taken during each rainfall event. No more than one sample will be required in a day if the test indicates that turbidity complies with allowable levels. If the test indicates that turbidity is in excess of the standard or turbid water is observed coming from the site after the initial sample is taken, additional samples may be required. Sampling during the Rainy Season (November 1 – April 30) must be done daily, preferably during rainfall events.

9. Determination of Compliance - To determine turbidity level compliance, upstream turbidity data is subtracted from the downstream data. The increase in turbidity is then compared to the State Surface Water Quality Standards (WAC 173.201A-200). A negative increase indicates that water from the site is cleaner than the water upstream, and no correction is necessary.

10. Reporting Requirements – Sampling data sheets shall be delivered or faxed to the City of Bellevue Clearing and Grading Inspector the same day they are taken (FAX # (425) 452-4101). Delivery of data sheets must be arranged with the inspector prior to collection of the data.

11. Exceeding State Water Quality Standards – Upon determination of turbidity levels in excess of State Water Quality Standards threshold for turbidity, the monitor shall notify the contractor, in writing, of the determination. The contractor shall make all necessary efforts to correct the condition(s) on site that is (are) causing, or contributing to, the excess turbidity. It is the responsibility of the contractor to determine the most

appropriate measures and implement them immediately, although they may solicit input from the inspector, the monitor, or any other outside resource.

The monitor shall also notify the Clearing and Grading Inspector immediately of turbidity levels in excess of the allowable increase and provide the documentation per Section 10 of this document. The Clearing and Grading Inspector has the authority to require additional TESC measures and issue a Stop Work order to mitigate water quality concerns.

12. Upon termination of monitoring services, the third party monitor shall submit a final report to the Clearing and Grading Inspector. The report shall indicate the reason for termination of services, a summary of turbidity data obtained throughout the project, final turbidity levels, and any outstanding issues that have not been fully addressed.

Turbidity Monitoring Data Sheet

Project Name & Permit Number

Site Address

Monitor Name, Company, Phone Number

Date & Time of Sample Baseline Turbidity
NTU

Weather Conditions

Upstream Location / Reading (NTU)	Downstream Location / Reading (NTU)	Turbidity Increase (Downstream - Upstream) (NTU)	Allowable Turbidity Increase (NTU)	Turbidity Increase Above Standard? (Y/N)[1]	Contractor Notified of results? (Y/N)

Corrective Measures Taken By Contractor (if turbidity increase is above standard):

Other Comments: