

Report to Council



Date: July 10, 2023
To: Council
From: City Manager
Subject: Amendment No. 4 to the Soil Removal and Deposit Bylaw No. 9612
Department: Development Planning

Recommendation:

THAT Council receives, for information, the report from the Development Planning Department, dated July 10, 2023, with respect to the amendment to the Soil Removal and Deposit Regulation Bylaw No. 9612;

AND THAT Bylaw No. 12489, being Bylaw Amendment No. 4. to the Soil Removal and Deposit Regulation Bylaw No. 9612, be forwarded for reading consideration.

Purpose:

To support an amendment to the Soil Removal and Deposit Regulation Bylaw to include regulations concerning soil improvement activities that may be disruptive to the public or damaging to nearby infrastructure or structures.

Background:

Staff receive several complaints per month from residents experiencing disruptive vibrations or noise emanating from nearby construction sites to their homes. Most complaints arise from construction projects occurring within residential areas of the city where heavy equipment and occasional blasting from grading activities create discernable vibrations and noise. This proposed bylaw amendment would allow the City to impose monitoring for noise and vibrations around construction sites to ensure tolerances for protection of property and impacts to residents don't exceed industry standards.

Discussion:

The preparation of land for construction may in some cases cause issues to adjacent properties if not monitored correctly. Damage to critical infrastructure, cracking tile and drywall are concerning results of excess vibration from construction sites. Having learned from these kinds of negative outcomes, more cities are starting to explore bylaws to help reduce the nuisance to neighboring properties when a

construction project gets underway. By having bylaws related to vibration and noise, municipalities can protect themselves from risk, placing the responsibility on builders and their clients.

Staff are proposing bylaw amendments that would allow the City to impose monitoring for noise and vibrations around construction sites to ensure tolerances for protection of property and impacts to residents don't exceed industry standards. The proposed bylaw amendments would not require permits to be submitted for every construction project in the city; however, it would allow staff to intervene into situations where vibrations and noise are causing disruption to a neighbourhood or anticipated to create disruptions.

The proposed bylaw amendment would be administered on a day-to-day basis with the following characteristics:

- A permit would not be required if there are no neighbours, buildings, or infrastructure close to the work.
- A permit would be triggered when proposed works are considered disruptive to the neighbours as judged by the consulting engineers involved in the construction project.
- If a permit is required, the applicant would need to submit the following:
 - A site plan showing the extent of proposed works and the zone of influence for the soil improvement technique proposed.
 - Values for acceptable vibration and settlement thresholds for structures and infrastructure.
 - Expected impacts to nearby structures or City infrastructure from the soil improvement activities.
 - A monitoring program for vibrations, dust, and noise.

Further Information

The City of Vancouver and the City of Toronto have implemented bylaws on this matter, requiring construction companies to monitor any work near utilities and structures that would potentially have vibrations. However, there is a significant difference between a noticeable shake and vibrations causing structural damage. A condo tower resident could feel vibrations on the 10th floor of their building, but this may not mean there is a problem. The average person will feel a vibration at around 0.1 mm/sec – however, for a vibration to cause structural damage, it needs to be at 8 mm/sec, about 80 times higher. Drilling into bedrock and digging holes produce very different vibration levels, not all of which will cause issues with the neighbouring building.

When a bylaw controlling construction vibration exists, its enforcement relies on construction companies monitoring their own sites. There is a possibility a location's vibration measurements may never be reviewed, but if there is a problem with a neighbouring site, the company would be required to produce its data to show the project's vibration levels. The most crucial times for vibration monitoring are the demolition, excavation, and drilling stages.

The requirements for companies to monitor vibration calls for engineers with equipment suitable for measuring vibrations accurately. Standard equipment usually includes an accelerometer or geophone to measure vibration along with a box to capture and store the data. Simpler units only measure the data and store it for later review, while other systems are equipped with cell modems offering more than just a single vibration level result. These systems allow professionals to measure a vibration, record and sample, store and send data, and set up alerts for any issues via e-mail or phone text.

For work exceeding the acceptable vibration limits, there are options. A mix of equipment and manual labour may be required. For example, if a project abuts a heritage building, smaller equipment may be required to lower vibration impacts to protect the integrity of the structure.

Implementation:

The implementation of this bylaw amendment will be focused primarily on developer/contractor education. Staff will prepare a publicly available bulletin for distribution to contractors and developers at time of Development Permit, Subdivision or Building Permit issuance.

Conclusion:

This proposed amendment is considered an important tool for the City of Kelowna to protect the public interest with respect to construction activities that may be disruptive to the public or damaging to nearby infrastructure or structures. Permits allow staff to intervene if construction activities contribute to excess noise and vibration to adjacent properties.

Internal Circulation:

Development Engineering
City Clerk
Development Planning
Building and Permitting
Risk Management
Bylaw Services

Considerations not applicable to this report:

Legal/Statutory Authority:

Legal/Statutory Procedural Requirements:

Existing Policy:

Financial/Budgetary Considerations:

External Agency/Public Comments:

Communications Comments:

Submitted by: Corey Davis, Development Technician - Engineering

Approved for inclusion:



D. Strachan, Community Planning and Development Manager

Attachments:

Summary of Changes