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Risk control
Managing Grass Cutting:
A Case Study



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Introduction

The cutting of grass and the use of machinery associated with these tasks is inherently dangerous. Hazards such as slippery grass, steep slopes, noise, vibration as well as machinery designed to cut, all make for a work environment which is going to be challenging to manage.

Historically grounds and park keepers have used a combination of experience, luck and historic working practices to know what can and can't be used to cut areas of grassland. Operatives have used pedestrian and ride-on mowers, strimmers and shears to manage and maintain green spaces with no real regard to the design specifications or manufacturers recommendations. It was not uncommon to see standard pedestrian mowers or even ride-on mowers being used on steep grass banks and slopes. Over time, equipment and technology has improved along with the skills and training of employees to allow machinery to indicate to the operator what angle of slope they are operating on. These changes allow for early detection and can potentially prevent an accident.

The Health and Safety Executive (HSE) reported that there were 21 fatal injuries to workers in the 2022-2023 period in Agriculture, Forestry and Fishing, making it the second most dangerous industry in the Country¹. In recent years, throughout the UK, there have been multiple deaths and major injuries to operatives who have been operating on grass banks. The accident investigations carried out by the HSE regularly state that in the majority of the cases operatives were using ride-on mowers and pedestrian mowers on banks and inclines exceeding the manufacturers recommended maximum working angles for the equipment.

Local Authorities are always looking for innovative ways to reduce the risks to employees and members of the public and maintain grassland areas at the same time.

This case study will demonstrate one option which has been adopted by a Local Authority to manage grassed areas within a city and the surrounding areas.

Background

The Local Authority in this study was responsible for a variety of different grassed areas. They managed nearly 100 play parks, a number of open playing fields with football and rugby pitches, bowling greens, canal towpaths and approximately 15ha (15,000m²) of urban and rural banked and sloped areas.

Historically, the Local Authority cut every bank and slope within the district using every bit of equipment at their disposal. This often meant that much of the work undertaken had been carried out on slopes and banks with machines working in excess of the manufacturers recommended working tolerances. The Local Authority had a range of machinery which was utilised for various tasks. The grass cutting machinery varied in size and capability and had been collected and maintained over the years for particular jobs dependent on a number of factors including the size of the area, frequency of cutting, access and egress, gradient of the slope and the dedicated use of the area. However, there was no identification or indicator on machinery which let employees know the limits of the machinery.

The Local Authority experienced incidents of mowers slipping sideways on slopes, sliding down banks, running off into streams and sliding into trees on banks and slopes. These incidents had not resulted in injuries to employees but acted as a stark reminder to managers and staff of what could go wrong. In order to reduce the risks to staff and increase biodiversity a less intrusive grassland management strategy was adopted.

The Local Authority, as part of its proactive risk profiling process, identified the Public and Green Spaces Department, especially the Grass team, as having a higher than average rate of incidents and accidents. Through trend analysis the types of incidents, accidents and injuries were categorised:

- Manual handling injuries
- Slips and trips of employees working on steep ground
- Objects being ejected and striking operatives, cars and windows
- Equipment losing traction on slopes and sliding into trees and streams, becoming stuck and requiring recovery
- Equipment overturning due to the gradient of slope

The Local Authority decided to completely review how they undertook grass maintenance starting with the cutting of grass on banks and slopes.

Legal Requirements

Health and Safety Regulations: Local Authorities are subject to health and safety regulations. The primary piece of legislation, The Health and Safety at Work Act 1974² places the legal duty on employers to “ensure so far as reasonably practicable, the health, safety and welfare at work of his employees” and also requires them to “conduct his undertaking in such a way as to ensure, so far as reasonably practicable, that persons not in his employment who may be affected thereby are not thereby exposed to risks to their health and safety”. This legislation also outlines the duties employees have to themselves and others.

The Provision and Use of Work Equipment Regulations 1998³ requires the employer to provide equipment that is suitable for the intended use, well maintained, as well as provide information, instruction and training for the employees required to operate and use the equipment.

Risk Assessment

The Management of Health and Safety at Work Regulations 1994³ requires employers to make a suitable and sufficient assessment of the health and safety risks. Different strategic options, inspection regimes, and equipment should be considered for different areas.

General public safety – the very nature of grass cutting requires sharp spinning blades moving through long grass with the potential to strike a hidden obstruction. From time to time hidden objects do get struck and ejected from cutting decks which can then make contact with people and objects within the vicinity. Employers have to take into consideration not only the risks associated with the task to their employees but also to the general public.

Strategy

The Local Authority had a generic risk assessment for the cutting of grass which identified operatives working on banks and slopes but did not give any detail as to the locations of these areas or the specific equipment required for the tasks. What was needed was a scheme which would create a modified site-specific risk assessment which would identify the high risk banks and slopes and also identify what equipment would be suitable for use on them.

The Local Authority set out on a phased approach to identifying and mapping the grassed areas in the district which it was responsible for maintaining.

The exercise was split into a number of phases:

- Desk top phase which involved creating a GIS map of all the grassed areas cut by the Council.
- Machinery checks using manufacturer’s handbooks to work out the maximum angle of work for each make and model of machinery. Machinery was allocated a colour which would identify the maximum gradient for use
- A data gathering phase where supervisors went out and measured the gradients of the slopes and banks in the areas to be cut with a digital inclinometer
- Desk top phase transferring the data collected by the supervisors onto the GIS map. Each area or zone being cut was then given a colour depending on the gradient of the slope
- Training of staff on the new cutting program

The resulting map created a visual depiction of the gradients within the area to be cut and also indicated the classification of equipment which should be used in each area.

Slopes were classified into 4 categories and colour coded.

Category 1 slopes of 0-15 ⁰	Green
Category 2 slopes of 16-20 ⁰	Yellow
Category 3 slopes of 21-30 ⁰	Pink
Category 4 slopes of 30+ ⁰	Red

The Local Authority had numerous makes and models of pedestrian mowers, ranging from ride-on triple decks, self-propelled rotary mowers, cylinder mowers, tractors with flails and even some equipment designated specifically for banks cutting.

The Parks Department, with the help of the Health and Safety team went back to basics and asked why some areas were cut at all. The most effective control measures in the hierarchy of control is that of elimination. It was decided that steep banks in excess of 30 degrees would not be cut with pedestrian equipment due to the risks to employees. If these slopes had to be cut they would be maintained only if they could be reached by the tractor with the flail or by the robotic remote controlled flail. If this was not possible it was concluded that the steep inclines around the city could

be left completely to themselves. The result of this decision would both eliminate the risk to the employees and create wildlife corridors allowing insects and animals to move around the city and increase biodiversity.

Operatives were given strict guidance on the maximum gradient which they could operate manual strimmers on.

Although no manufacturers would provide maximum gradients for working with strimmers, guidance was found from the HSE's guidance⁵ and industry guidance⁶. It was concluded that the use of strimmers on gradients greater than 30 degrees should not be undertaken without additional risk assessment and managerial clearance.

The Grass teams were given toolbox talks with regard to the new risk assessments and cutting strategy. Each team was given a van pack for the city which contained the colour coded cutting area maps that they could refer to at the start of each day. These packs would indicate the areas to be cut and what should be left. The packs would also help the teams to select the equipment needed for the day.

The resultant colour coded cutting maps were found to be of great help to some of the work force who struggled with literacy or whose first language was not English.

Conclusion

The management of grass is inherently dangerous due to the nature of the equipment used. However, carrying out grass cutting safely doesn't have to be rocket science or subject to luck, it comes from good planning and execution. By performing the mapping and classification process, this Local Authority was able to reduce the need to cut large areas of high risk grass across the city. They managed to significantly reduce the risks to the employees and public and increase biodiversity. Due to the reduction in the need to cut the difficult areas they also saved time and money. The process was even proven to improve staff moral within the department.

This case study is not intended to give a definitive view of best practice, but is intended to provide an example of an effective approach as adopted by a Local Authority. As technology improves and mobile robotic options become more available the risks to operatives can be further reduced as these become more affordable and accessible.

References

1. [Statistics - Work-related fatal injuries in Great Britain \(hse.gov.uk\)](https://www.hse.gov.uk/statistics/work-related-fatal-injuries-in-great-britain/)
2. [The Health and Safety at Work Act 1974](https://www.legislation.gov.uk/ukpga/1974/37/section-1)
3. [Provision and Use of Work Equipment Regulations 1998 \(PUWER\) \(hse.gov.uk\)](https://www.legislation.gov.uk/uksi/1998/1261/section-1)
4. [The Management of Health and Safety at Work Regulations 1999](https://www.legislation.gov.uk/uksi/1999/1283/section-1)
5. [Steep ground working \(hse.gov.uk\)](https://www.hse.gov.uk/steep-ground-working/)
6. [bali-slopes-guidance-a4-28pp.pdf](#)

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