

MDS

Minimum Distance Separation (MDS) Formulae

Implementation Guidelines

Publication 707

IMPLEMENTATION GUIDELINES – MINIMUM DISTANCE SEPARATION FORMULAE

The following section outlines the specific implementation guidelines that need to be considered as part of the application and calculation of the Minimum Distance Separation (MDS) Formulae. To assist the user the implementation guidelines have been organized into six sections.

| Implementation Guideline | MDS I | MDS II |
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General Rules and Application of the Minimum Distance Separation Formulae

The following implementation guidelines speak to some of the general rules regarding the MDS Formulae, and how they are to be referenced in planning documents and applied to land use applications and building permits. This section also highlights some of the specific instances where MDS Formulae are applied and exceptions where they are not applied.

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| 1. Application of MDS and reference in municipal planning documents | MDS Formulae and criteria are to be referenced in official plans, included in zoning by-laws and applied in designations and zones where <i>livestock facilities</i> are a permitted use. MDS will be applied in Prime Agricultural Areas and Rural Areas as defined by the Provincial Policy Statement, 2005. | |
| 2. What MDS <u>does</u> and <u>does not</u> apply to | MDS applies to <i>livestock facilities</i> . It does not apply to abattoirs, apiaries, assembly yards, fairgrounds, feed storages, field shade shelters, greenhouses, kennels, <i>livestock facilities</i> that are less than 10 m ² (108 ft ²) in floor area, machinery sheds, mushroom farms, pastures, slaughter houses, stockyards, or temporary field nutrient storage sites (as defined under the <i>Nutrient Management Act, 2002</i>). | |
| 3. MDS and manure transfer facilities | Some <i>livestock facilities</i> require small facilities for holding some manure before transfer to long-term permanent storage, or transfer to field spreading areas, or transfer off the farm entirely. Examples include: small tanks inside or just outside the barn for settling out sand from liquid dairy manure; small sumps inside or just outside the barn for collection and/or mixing of liquid manure from several barn areas; or concrete pads at the end of chicken broiler barns where solid manure is pushed outside awaiting pickup by a trucker. These facilities should be considered as part of the barn and have the same MDS setbacks as the barn. | |

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| 4. MDS and earthen <i>manure storages</i> | <p>MDS I is applied to earthen storages, despite the fact they are not considered to be a building.</p> <p>Best management practices recommend the MDS formula be followed for earthen <i>manure storages</i>, and this is backed up by the Provincial Policy Statement, 2005, '<i>New land uses, including the creation of lots and new or expanding livestock facilities shall comply with the minimum distance separation formulae</i>'.</p> | <p>MDS II is triggered when a building permit is required, but because earthen storages are not considered to be a building, they do not require a building permit. However, this does not exclude them from the requirement for siting according to the MDS formula.</p> <p>Best management practices recommend the MDS formula be followed for earthen <i>manure storages</i>, and this is backed up by the Provincial Policy Statement, 2005, '<i>New land uses, including the creation of lots and new or expanding livestock facilities shall comply with the minimum distance separation formulae</i>'.</p> |
| 5. When are MDS Formulae implemented and applied? | <p>MDS I is applied at the time of planning and/or development review for proposed new development, such as <i>lot</i> creation, building permits for development on a <i>lot</i> in accordance with Implementation Guideline # 6, rezoning or redesignation of agricultural land to permit development, in proximity to <i>existing livestock facilities</i> on an existing or proposed separate parcel of land.</p> | <p>MDS II is applied at the time of building permit application to build a <i>first or expanded livestock facility</i>.</p> |
| 6. MDS and surrounding development. When is MDS applied? | <p>MDS I is applied to all <i>livestock facilities</i> reasonably expected to be impacted by the proposed development, <i>lot</i> creation, rezoning or redesignation. For Type A applications, apply MDS I for <i>livestock facilities</i> within a 1000 metre radius. For Type B applications apply MDS I for <i>livestock facilities</i> within a 2000 metre radius.</p> <p>Separate MDS I calculations should be undertaken for each <i>livestock facility</i> located on a separate parcel of land. See Implementation Guidelines # 34 and # 35 for a discussion regarding Type A and Type B land uses.</p> | <p>MDS II is applied to all development reasonably expected to be impacted by the proposed <i>first or expanded livestock facility</i>.</p> |

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| <p>7. Application of MDS to development on existing <i>lots</i></p> | <p>Municipalities have the option, but are strongly encouraged to apply MDS I to development proposed through building permit on an existing <i>lot</i>. Construction of a <i>dwelling</i>, or other structures that are incompatible with <i>livestock facilities</i>, on an existing <i>lot</i> can have a very detrimental impact on the ability of surrounding agricultural operations to expand in the future, and often introduces a potential new source for nuisance complaints regarding odour from a <i>livestock facility</i>, that would generally not be allowed if the <i>lot</i> were to be created today. To address the potential negative impact of nuisance complaints to surrounding <i>livestock</i> operations from development on existing <i>lots</i>, municipalities are encouraged to undertake a thorough review of this issue at the next update of their municipal planning documents. Municipalities should consider approaches to address the future use and suitability of development on existing <i>lots</i>. The application of MDS I to development on existing <i>lots</i> will take its direction from the applicable municipal planning documents.</p> | <p>MDS II applies to <i>lot</i> lines.</p> |
| <p>8. MDS and Consent Applications</p> | <p>MDS I is applied to a proposed <i>lot</i>, vacant or with existing structures.</p> <p>Where a new <i>lot</i> is proposed with an existing <i>dwelling</i>, and that <i>dwelling</i> is already located on a <i>lot</i> separate from the subject <i>livestock facility</i>, MDS I is not applied as the potential odour conflict is already present between the neighbouring <i>livestock facility</i> and the existing <i>dwelling</i>. However, municipalities may choose to apply MDS I from the neighbouring <i>livestock facility</i> to a proposed <i>lot</i> with an existing <i>dwelling</i>. Direction to apply MDS I in these circumstances should be clearly indicated in the municipality's planning documents.</p> <p>MDS I is applied to a proposed <i>lot</i> with an existing <i>dwelling</i> when the <i>dwelling</i> is presently located on the same <i>lot</i> as the subject <i>livestock facility</i>.</p> | <p>N/A</p> |

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| 9. MDS and Zoning By-Law Amendments | MDS I is applied when new development is proposed by way of a re-zoning in a zone where agriculture is a permitted use. | N/A |
| 10. MDS and Official Plan Amendments | MDS I is applied to lands being considered for non-agricultural designation through the official plan amendment process. | N/A |
| 11. Application of MDS after a <i>catastrophe</i> | Where municipalities apply MDS I to buildings or structures on an existing <i>lot</i> , municipalities have the option to not apply MDS I after a <i>catastrophe</i> that destroys part or all of a <i>dwelling</i> , providing the resulting new <i>dwelling</i> is built no closer to a <i>livestock facility</i> than before the <i>catastrophe</i> . | Municipalities have the option to not apply MDS II after a <i>catastrophe</i> that destroys part or all of a <i>livestock facility</i> , providing the resulting <i>livestock facility</i> is built no closer to a surrounding development than before the <i>catastrophe</i> . However, if rebuilding results in higher values for Factor A, B and/or D than before the <i>catastrophe</i> , then MDS II applies. |
| 12. Existing uses that do not conform to MDS | MDS I is applied to new proposed development, even though there may be existing non-agricultural uses that do not conform to MDS I requirements. Where there are four, or more, existing non-farm uses closer to the subject <i>livestock facility</i> and in immediate proximity to the current application, MDS I will not be applied. The current application must not be located closer to the <i>livestock facility</i> than the four, or more, existing non-farm uses. | MDS II is measured from the proposed new construction of an <i>expanding livestock facility(ies)</i> even though there may be parts of the existing <i>livestock facility</i> , that do not conform. |
| 13. Non-application of MDS to accessory structures | When a municipality applies MDS I to development on an existing <i>lot</i> , it is not applied to buildings and structures, accessory to a <i>dwelling</i> , such as decks, garages, gazebos, greenhouses, outbuildings, picnic areas, patios or sheds. | MDS II is not applied to buildings and structures, accessory to a <i>dwelling</i> on an adjacent <i>lot</i> , such as decks, garages, gazebos, greenhouses, outbuildings, picnic areas, patios or sheds. |

| Implementation Guideline | MDS I | MDS II |
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| 14. <i>Livestock occupied portions of livestock facilities</i> | MDS is not applied to portions of the <i>livestock facility</i> where <i>livestock</i> are not normally present for a long enough time for substantial amounts of manure to accumulate. For example, this includes feed bins, feed preparation areas, field shadeselters, <i>livestock</i> assembly areas, <i>livestock</i> loading chutes, machinery sheds, milking centres, offices, riding arenas, silos or washrooms. | |
| 15. Setbacks - <i>dwelling</i> from <i>livestock facilities</i> , same <i>lot</i> | Neither MDS I nor MDS II are applied between a <i>dwelling</i> and a <i>livestock facility</i> located on the same <i>lot</i> . | |
| 16. Ownership of adjacent land by same owner | MDS is applied regardless of the ownership of adjacent or adjoining legally separate <i>lots</i> . Ownership of adjacent or adjoining legally separate <i>lots</i> by the same owner does not prevent the application of MDS. | |

Determining Livestock Facility Capacity

The following implementation guidelines provide direction on determining the capacity of a *livestock facility* for calculating MDS; as well as, direction on applying MDS to *empty livestock facilities*.

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| 17. Obtaining Required <i>Livestock</i> Information from Owners | Information to be used in MDS calculations, (such as capacity of the <i>livestock facility</i> , type of <i>manure storage</i> , number of <i>tillable hectares</i> , etc..) should be obtained from the owner of an <i>existing</i> or <i>first livestock facility</i> . It may be necessary to independently verify the information received from the owner of the <i>livestock facility</i> to ensure accuracy of an MDS calculation. | |
| 18. Smallest size of <i>livestock facility</i> for MDS | For the purposes of calculations, the smallest size of <i>livestock facility</i> is deemed to be five <i>Nutrient Units</i> , regardless if there are fewer <i>Nutrient Units</i> within the <i>livestock facility</i> , or not. | |
| 19. Capacity of <i>livestock facilities</i> for MDS | MDS calculations shall be based on the maximum <i>livestock housing capacity</i> for all <i>livestock facilities</i> on a <i>lot</i> , even if the building is not currently used, but is structurally sound and reasonably capable of housing <i>livestock</i> . This also applies for permanent <i>manure storages</i> on <i>lots</i> where there is no <i>livestock</i> generating manure. | |
| 20. Application of MDS to <i>empty livestock facilities</i> | MDS I applies to <i>empty livestock facilities</i> if they are structurally sound and reasonably capable of housing <i>livestock</i> , or storing manure. The MDS I calculation should be based on the most probable Factors A, B and D. The Ministry of Agriculture, Food and Rural Affairs may provide municipalities with additional information to guide them in this determination. See Implementation Guidelines # 25, 26 and 28 regarding Factors A, B and D. | MDS II applies to <i>empty livestock facilities</i> that are part of an <i>expanding livestock facility</i> if they are structurally sound and reasonably capable of housing <i>livestock</i> , or storing manure. The MDS II calculation should be based on the most probable Factors |

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| Implementation Guideline | MDS I | MDS II |
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| <p>20. Application of MDS to <i>empty livestock facilities</i></p> <p style="text-align: right;">continued...</p> | | <p>A, B and D. continued... See Implementation Guidelines # 25, 26 and 28 regarding Factors A, B and D.</p> <p>However, <i>empty livestock facilities</i> can be excluded from MDS II calculations for <i>expanding livestock facilities</i> if a building permit is required for altering the facilities so they are no longer capable for the housing of <i>livestock</i> (or manure). Municipalities may consider other approaches which achieve the same objective.</p> |

Anaerobic Digesters

The following implementation guidelines speak to issues related specifically to *anaerobic digesters*, such as determination of appropriate MDS factors, and setbacks for *co-substrate input tanks (CSIT)* and *anaerobic digesters (AD)*.

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| <p>21. Storages for <i>digestate</i> from an <i>anaerobic digester</i> and how to apply Factors B and C</p> | <p>When a <i>livestock facility</i> installs an <i>anaerobic digester (AD)</i>, some supplemental agricultural or non-agricultural materials may be imported to help boost biogas production. This means a larger storage for the resulting materials treated by the <i>AD</i> system is required.</p> <p>If an adjacent <i>livestock facility</i> has an <i>AD</i> system <u>and</u> there are imported supplemental materials, then for Factor B, use the greater of the NU capacity for <i>livestock</i> on the <i>lot</i>, versus the NU capacity of <u>all</u> storage volumes using 19.8 m³/NU (700 ft³/NU) from Table 1.</p> <p>For example, a 100 NU swine farm has an <i>AD</i> system and imports supplemental materials to boost biogas production. There is just one storage of 2,376 m³ capacity.</p> <p>For Factor B, this is 2,376 m³ ÷ 19.8 m³/NU = 120 NU, which is greater than 100 NU for swine. Use 120 NU in Table 2 to determine Factor B.</p> | <p>When a <i>livestock facility</i> installs an <i>anaerobic digester (AD)</i>, some supplemental agricultural or non-agricultural materials may be imported to help boost biogas production. This necessitates the need for larger storage for the resulting <i>digestate</i> from the <i>AD</i> system.</p> <p>In MDS II, for Factor B, use the greater of the NU capacity for <i>livestock</i> on the <i>lot</i>, versus the NU capacity of the proposed storage volume using 19.8 m³/NU (700 ft³/NU) from Table 1.</p> <p>For Factor C, use the increased NU capacity of the proposed storage volume compared to the NU capacity for the <i>livestock</i> on the <i>lot</i>.</p> <p style="text-align: right;">continued...</p> |
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| <p>21. Storages for <i>digestate</i> from an <i>anaerobic digester</i> and how to apply Factors B and C</p> <p style="text-align: right;">continued...</p> | | <p>continued...</p> <p>For example, a 100 NU swine farm proposes to build 2,376 m³ of storage for manure and other imported materials treated by an <i>AD</i> system.</p> <p>For Factor B, this is $2,376 \text{ m}^3 \div 19.8 \text{ m}^3/\text{NU} = 120 \text{ NU}$, which is greater than 100 NU for swine. Use 120 NU in Table 2 to determine Factor B.</p> <p>For Factor C, the NU capacity of the proposed storage is 120 NU compared to 100 NU for swine. The increase is $120 \text{ NU} - 100 \text{ NU} = 20 \text{ NU}$, or $20 \text{ NU} / 100 \text{ NU} \times 100 = 20\%$. Use 20% in Table 3 to determine Factor C.</p> |
| <p>22. <i>Anaerobic digesters</i> and <i>co-substrate input tanks</i></p> | <p><i>Co-substrate input tanks (CSIT)</i> may be installed to store imported agricultural or non-agricultural materials prior to input into an <i>anaerobic digester (AD)</i>.</p> <p>The required MDS I separation from a <i>CSIT</i> and/or <i>AD</i> is 125 m regardless of size or type, and whether greater or lesser MDS I setbacks are calculated based on the <i>livestock</i> NU capacity or potential NU capacity based on <i>tillable hectares</i>.</p> | <p><i>Co-substrate input tanks (CSIT)</i> may be installed to store imported agricultural or non-agricultural materials prior to input into an <i>anaerobic digester (AD)</i>.</p> <p>The required MDS II separation from a <i>CSIT</i> and/or <i>AD</i>, regardless of size or type, is:</p> <ul style="list-style-type: none"> • 125 m for Type A land uses • 250 m for Type B land uses • 125 m to the nearest neighbour's house • 13 m to the nearest <i>lot</i> line • 25 m to the nearest road allowance |

| Implementation Guideline | MDS I | MDS II |
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MDS Formulae and Factors

The following implementation guidelines provide direction on the calculation of the MDS Formulae for MDS I and MDS II. In addition, they provide a brief summary of the Factors used to calculate MDS, and specific considerations related to the calculation.

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| 23. Calculating building base distance, 'F' | F = Factor A x B x D x E (Note: Factor C <u>not</u> used in MDS I) | F = Factor A x B x C x D (Note: Factor E <u>not</u> used in MDS II) |
| 24. Calculating permanent <i>manure storage</i> base distance, 'S' | 'S' is <u>not</u> calculated, but read directly from Table 6 by first calculating the building base distance 'F', then choosing the new added 'Permanent Manure Storage Type' from Table 5. | |
| 25. Storage base distances ('S') when F > 1000 metres | If 'F' > 1000 m, the Storage Base Distance 'S' is the same as the Building Base Distance, 'F' as noted in Table 6. | |
| 26. Factor A - Odour Potential Factor | Factor A is based on the type of <i>livestock</i> and its relative potential for emanating offensive odours. The higher the Factor A, the higher the odour potential, and the higher the resulting MDS separation distances, all other things being equal. See Table 1. | |
| 27. Factor B - <i>Nutrient Units</i> Factor | Factor B is based on the number, or equivalent number, of <i>Nutrient Units (NU)</i> in <i>housing capacity</i> at a <i>livestock facility</i> . The higher the number of NU, the higher the Factor B, and the higher the resulting MDS separation distances, all other things being equal. See Table 2. In determining Factor B, it may be required to interpolate a value from Table 2. Interpolated values for Factor B should not include more than two decimal places, and may need to be rounded accordingly. | |
| 28. Factor C - Orderly Expansion Factor | Does not apply for MDS I | Factor C only applies for MDS II, and is based on the percentage increase in the number of NU for the proposed construction. The higher the percentage increase, the higher the Factor C, and the higher the resulting MDS II, all things being equal. Expansion of a <i>livestock facility</i> is a necessary and typical process for the economic development of most farm operations, and can reasonably be expected over time. continued... |

| Implementation Guideline | MDS I | MDS II |
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| <p>28. Factor C - Orderly Expansion Factor</p> <p style="text-align: right;">continued...</p> | | <p>continued...</p> <p>Factor C allows for future expansion. Factor C is the highest it can be for the <i>first livestock</i> building (or first permanent <i>manure storage</i> where no <i>livestock</i> are housed) on a <i>lot</i>, resulting in a building location that will allow most subsequent <i>livestock</i> buildings to be built within a reasonable building envelope. Factor C is smallest for no increase in NU (0% increase), or decreases in NU ('negative' increase), rare on most farms, except when replacing an old building with little to no additional <i>livestock</i> capacity, downsizing, or when installing storages to increase manure holding capacity to prevent spreading at inappropriate times of the year.</p> <p>For the purposes of determining Factor C, all <i>first livestock facilities</i> are to be calculated at Factor C = 1.14.</p> <p>Where an <i>existing livestock facility</i> is to be expanded, the percentage increase shall be calculated using: the total additional <i>Nutrient Units</i> proposed as the numerator, and the total existing <i>Nutrient Units</i> as the denominator.</p> <p>For example, an <i>existing livestock facility</i> currently has 200 <i>nutrient units</i> and proposes to add 100 additional <i>Nutrient Units</i>. In this case percentage increase, would be calculated as 100 NU divided by 200 NU and then multiplied by 100 for a value of 50 %</p> <p>$(100/200) \times 100 = 50 \%$</p> <p style="text-align: right;">continued...</p> |

| Implementation Guideline | MDS I | MDS II |
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| <p>28. Factor C - Orderly Expansion Factor</p> <p style="text-align: right;">continued...</p> | | <p>continued...</p> <p>Where a <i>livestock facility</i> is to be expanded, and one or more building permits to establish or expand that <i>livestock facility</i> were already issued within the previous three years, the percentage increase shall be calculated using: the total additional <i>Nutrient Units</i> established or added by building permit issued during the previous three year period, plus the proposed expansion, as the numerator; and the total existing <i>Nutrient Units</i> prior to the previous three year period as the denominator.</p> <p>For example, an <i>existing livestock facility</i> currently has 200 <i>Nutrient Units</i> and proposes to add 100 additional <i>Nutrient Units</i>. A building permit for this <i>livestock facility</i> was issued 2 years ago, and increased the size of the operation at that time from 100 <i>Nutrient Units</i> to 200 <i>Nutrient Units</i>. In this case, percentage increase would be calculated as 200 NU (100 NU for this expansion plus 100 NU for expansion 2 years ago) divided by 100 NU (the total capacity of the <i>livestock facility</i> 3 years ago) and then multiplied by 100 for a value of 200%.</p> <p>$[(100+100)/100] \times 100 = 200 \%$</p> <p>See Table 3 for further information. In determining Factor C, it may be required to interpolate a value from Table 3. Interpolated values for Factor C should not include more than four decimal places, and may need to be rounded accordingly.</p> |

| Implementation Guideline | MDS I | MDS II |
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| 29. Factor D - Manure or Material Form in Permanent Storage Factor | Factor D is based on the type of manure or material and its relative potential for emanating offensive odours. The higher the Factor D, the higher the odour potential, and the higher the resulting MDS separation distance, all other things being equal. See Table 1. | |
| 30. Factor E - Encroaching Land Use Factor | Factor E is based on the degree of effect an encroaching land use might have on an <i>existing livestock facility</i> . The higher the encroachment factor, the higher the potential effect on a <i>livestock facility</i> , and the higher the resulting MDS I separation distance, all other things being equal. See Table 4. | N/A |
| 31. Calculating weighted averages for Factor A | <p>In MDS I, Factor A <u>may</u> require a weighted average, if there are more than one type of <i>livestock</i> housed with differing values for Factor A.</p> <p>For example, if an adjacent <i>livestock facility</i> houses 50 NU of chicken broilers with Factor A = 0.7, and 100 NU of swine feeders with Factor A = 1.2, then the weighted average Factor A is: $[(50 \times 0.7) + (100 \times 1.2)] \div (50 + 100) = 1.03$</p> <p>When calculating a weighted average, the value of Factor A should not include more than two decimal places, and may need to be rounded accordingly.</p> | <p>In MDS II, Factor A <u>may</u> require a weighted average, if more than one type of <i>livestock</i> is <u>added</u> with differing values for Factor A.</p> <p>For example, if a farmer proposes to <u>add</u> 50 NU of chicken broilers with Factor A = 0.7, and 100 NU of swine feeders with Factor A = 1.2, to a <i>livestock facility</i>, then the weighted average Factor A is: $[(50 \times 0.7) + (100 \times 1.2)] \div (50 + 100) = 1.03$</p> <p>When calculating a weighted average, the value of Factor A should not include more than two decimal places, and may need to be rounded accordingly.</p> |
| 32. Calculating weighted averages for Factor D | <p>In MDS I, Factor D <u>may</u> require a weighted average, if there are more than one type of <i>livestock</i> housed with differing values for Factor D.</p> <p>For example, if an adjacent <i>livestock facility</i> houses 50 NU of chicken broilers with Factor D = 0.7, and 100 NU of swine feeders with Factor D = 0.8, then the weighted average Factor D is: $[(50 \times 0.7) + (100 \times 0.8)] \div (50 + 100) = 0.77$ <p style="text-align: right;">continued...</p></p> | <p>In MDS II, Factor D <u>may</u> require a weighted average, if more than one type of <i>livestock</i> is <u>added</u> with differing values for Factor D.</p> <p>For example, if a farmer proposes to <u>add</u> 50 NU of chicken broilers with Factor D = 0.7, and 100 NU of swine feeders with Factor D = 0.8, then the weighted average Factor D is: <p style="text-align: right;">continued...</p></p> |

| Implementation Guideline | MDS I | MDS II |
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| <p>32. Calculating weighted averages for Factor D</p> <p style="text-align: right;">continued...</p> | <p>continued...</p> <p>When calculating a weighted average, the value of Factor D should not include more than two decimal places, and may need to be rounded accordingly.</p> | <p>continued...</p> $[(50 \times 0.7) + (100 \times 0.8)] \div (50 + 100) = 0.77$ <p>When calculating a weighted average, the value of Factor D should not include more than two decimal places, and may need to be rounded accordingly.</p> |
| <p>33. <i>Tillable hectares</i></p> | <p>In MDS I, Factor B is based on the greater of the existing <i>Nutrient Unit housing capacity</i> of the <i>livestock facility</i>, or the potential <i>Nutrient Unit housing capacity</i> of the <i>livestock facility</i> based on the product of <i>tillable hectares</i> on that <i>lot</i> multiplied by <i>7.5 Nutrient Units/tillable hectare</i> (to a maximum of <i>300 Nutrient Units</i>).</p> <p>However, for <i>settlement area</i> expansions only, MDS I is based on the existing <i>Nutrient Unit housing capacity</i> and not <i>tillable hectares</i>. See the following examples:</p> <p>For example:</p> <p style="padding-left: 40px;">20 NU operation on 10 hectares; <i>housing capacity</i> is 75 NU</p> <p style="padding-left: 40px;">20 NU operation on 45 hectares; <i>housing capacity</i> is 300 NU</p> <p style="padding-left: 40px;">300 NU operation on 10 hectares; <i>housing capacity</i> is 300 NU</p> <p style="padding-left: 40px;">300 NU operation on 45 hectares; <i>housing capacity</i> is 300 NU.</p> | <p>N/A</p> |
| <p>34. Rounding of MDS calculations</p> | <p>All resulting calculated separation distances are rounded <u>up</u> to the nearest metre.</p> | |

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Type A and B Land Uses

These implementation guidelines outline considerations regarding the interpretation of Type A and Type B land uses for MDS I and II, and how different land uses should be treated in MDS. They also provide specific direction on exceptions to Type A and Type B land uses.

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| 35. Type A land uses | <p>Type A land uses are typically characterized by uses that have a lower density of human occupancy, habitation or activity.</p> <p>For the purposes of MDS I, Type A land uses include applications to rezone or redesignate agricultural lands for <i>industrial, agricultural-related or recreational use – low intensity</i> purposes.</p> <p>Type A land uses include applications to permit:</p> <ul style="list-style-type: none"> • construction of a <i>dwelling</i> on an existing <i>lot</i> where the municipality has determined that MDS I should be applied, or the • creation of up to three <i>lots</i> either by consent or plan of subdivision | <p>Type A land uses are typically characterized by uses that have a lower density of human occupancy, habitation or activity.</p> <p>For the purposes of MDS II, Type A land uses include areas zoned or designated <i>industrial, agricultural-related or recreational use – low intensity</i>.</p> <p>Type A land uses include <i>residential dwellings</i> on <i>lots</i> zoned agriculture, rural <i>residential, residential</i>, or other similar zoning. This includes existing <i>residential</i> uses on separate <i>lots</i> not recognized through Official Plan designation as a <i>residential</i> area.</p> |
| 36. Type B land uses | <p>Type B land uses are typically characterized by uses that have a higher density of human occupancy, habitation or activity.</p> <p>For the purposes of MDS I, Type B land uses include applications to rezone or redesignate agricultural lands for <i>residential, institutional, recreational use – high intensity, commercial or settlement area</i> purposes.</p> <p>Type B land uses include applications to permit:</p> <ul style="list-style-type: none"> • creation of <i>residential</i> subdivisions in rural areas, or • expansion of a <i>settlement area</i>, or • creation of <i>multiple residential</i> development, or • the creation of a <i>lot</i> which results in a <i>rural residential cluster</i> | <p>Type B land uses are typically characterized by uses that have a higher density of human occupancy, habitation or activity.</p> <p>For the purposes of MDS II, Type B land uses include areas zoned or designated <i>settlement area, recreational use – high intensity, institutional, or commercial</i>.</p> <p>Type B land uses include areas designated in an Official Plan as <i>residential</i> for:</p> <ul style="list-style-type: none"> • <i>residential</i> subdivisions, or • multiple <i>residential</i>, or • estate <i>residential</i> development |

| Implementation Guideline | MDS I | MDS II |
|---|---|---|
| 37. Application to <i>settlement areas</i> | <p>MDS I does not apply to proposed non-agricultural uses in approved <i>settlement area</i> designations. However, municipalities have the option to apply MDS I from <i>livestock facilities</i> within a <i>settlement area</i> designation.</p> <p>The application of MDS I will take its direction from the applicable municipal planning documents.</p> | <p>Where municipalities permit <i>first</i> or <i>expanded livestock facilities</i> within approved <i>settlement area</i> designations, municipalities have the option, but are strongly encouraged to apply MDS II.</p> <p>The application of MDS II will take its direction from the applicable municipal planning documents.</p> |
| 38. Cemeteries | <p>For the purposes of MDS I, cemeteries should be considered a Type B land use, as they are an <i>institutional use</i>.</p> | <p>For the purposes of MDS II, cemeteries should be considered a Type B land use, as they are an <i>institutional use</i>.</p> <p>However, cemeteries may be treated as a Type A land use when the cemetery is closed and receives low levels of visitation. Cemeteries such as this should be clearly identified in the municipality's planning documents.</p> |
| 39. <i>Rural residential clusters</i> | <p>For the purposes of MDS I, <i>lot</i> creation which results in a <i>rural residential cluster</i> should be considered a Type B land use.</p> | <p>For the purposes of MDS II, <i>rural residential clusters</i> should be considered a Type A land use, except where they have been identified and designated in an Official Plan.</p> |
| 40. Rear <i>lot</i> lines, side <i>lot</i> lines, and road allowances | N/A | <p>In addition to Type A and Type B land uses, MDS II setbacks are calculated from rear <i>lot</i> lines, side <i>lot</i> lines, and road allowances.</p> <p>Rear and side <i>lot</i> line MDS II setbacks are calculated as 0.1 x the Building Base Distance 'F' and Storage Base Distance 'S'.</p> <p style="text-align: right;">continued...</p> |

| Implementation Guideline | MDS I | MDS II |
|---|-------|---|
| <p>40. Rear <i>lot</i> lines, side <i>lot</i> lines, and road allowances</p> <p style="text-align: right;">continued...</p> | | <p>continued...</p> <p>For example, an MDS II calculation yields values of 100 metres for Building Base Distance 'F' and 123 metres for Storage Base Distance 'S'. The required setback for the <i>livestock facility</i> from the <i>lot</i> lines would be 10 metres (100 x 0.1). The required setback for the <i>manure storage</i> from the <i>lot</i> lines would be 12.3 metres (123 x 0.1). This value should be rounded to the nearest whole number, so in this instance, the setback for the <i>manure storage</i> would be 12 metres.</p> <p>Under no circumstances should the MDS II setback from a rear or side <i>lot</i> line exceed 30 metres, see Implementation Guideline #44.</p> <p>Road allowance MDS II setbacks are calculated as 0.2 x the Building Base Distance 'F' and Storage Base Distance 'S'.</p> <p>For example, an MDS II calculation yields values of 100 metres for Building Base Distance 'F' and 123 metres for Storage Base Distance 'S'. The required setback for the <i>livestock facility</i> from the road allowance would be 20 metres (100 x 0.2). The required setback for the <i>manure storage</i> from the road allowance would be 24.6 metres (123 x 0.2). This value should be rounded to the nearest whole number, so in this instance, the setback for the <i>manure storage</i> would be 25 metres.</p> |

| Implementation Guideline | MDS I | MDS II |
|--------------------------|-------|--------|
|--------------------------|-------|--------|

Applying MDS - Measurement of MDS Setbacks

The following implementation guidelines provide direction on measurement of MDS setbacks between *livestock facilities*, and other existing or proposed development, *lot* lines, and road allowances.

| | | |
|--|--|--|
| 41. Measurement of MDS | For MDS I, measurements are taken as the shortest distance between the area to be rezoned or redesignated and the <i>livestock occupied portion</i> of the <i>livestock facility</i> (or storage). | For MDS II, measurements are taken as the shortest distance between the point of new construction for the <i>livestock occupied portion</i> of a <i>first</i> or <i>expanded livestock facility</i> and the <i>dwelling/lot line/road allowance/or area</i> zoned or designated. |
| 42. Measurement of MDS for <i>Lot</i> Creation | For MDS I, measurements are taken as the shortest distance between the <i>lot</i> line of the <i>lot</i> being created and the <i>livestock occupied portion</i> of the <i>livestock facility</i> (or storage). Where larger lots may be permitted (generally greater than 1 ha), a suitable location must be identified for a 1 ha building envelope outside the MDS I setback. | N/A |
| 43. Measurement of MDS for development on existing <i>lots</i> | Where a municipality chooses to apply MDS I to development proposed through building permit on an existing <i>lot</i> , measurements are taken as the shortest distance between the <i>dwelling</i> or other structure to be constructed and the <i>livestock occupied portion</i> of the <i>livestock facility</i> . | N/A |
| 44. Maximum setbacks to side or rear <i>lot</i> lines | N/A | The maximum required setback from any <i>livestock facility</i> to side or rear <i>lot</i> lines is 30 m. |

| Implementation Guideline | MDS I | MDS II |
|--------------------------|-------|--------|
|--------------------------|-------|--------|

Applying MDS - Minor Variances

This section of the MDS Formulae implementation guidelines speak to specific issues regarding minor variances applications under the *Planning Act*.

| | | |
|---|---|---|
| 45. Affects of wind, etc. on MDS | The direction of prevailing wind, surrounding topography, and presence of trees, berms, or other screening do not affect MDS calculations, but could be elements considered in Minor Variance applications. | |
| 46. Reducing MDS setbacks and minor variances | MDS I setbacks should not be reduced except in accordance with these implementation guidelines. Where a municipality applies MDS I to development on existing <i>lots</i> , minor variances to MDS I distances can be considered based on site specific circumstances. Circumstances that meet the intent, if not the precise distances of MDS I, or mitigate environmental impacts, may warrant further consideration. | Minor variances to MDS II distances can be considered based on site specific circumstances. Circumstances that meet the intent, if not the precise distances of MDS II, or mitigate environmental impacts, may warrant further consideration. |
| | | |

MDS I CALCULATION FORM

The following outlines the 10 Steps on how to calculate setbacks to all adjacent *livestock facilities*, reasonably expected to be impacted by an applicant's proposed development. The applicable topics found in the Implementation Guidelines Chart on pages 1 to 17 and the applicable Tables are noted in the steps below.

| | | |
|----------------------|--|---|
| <p>Step 1</p> | <p>Location and contact information</p> | <p>Fill in the pertinent information about the applicant, and each adjacent <i>livestock facility</i> within 1000 m or more, of the proposed development. Each <i>livestock facility</i> must be on its own separate <i>lot</i> and should be treated as separate calculations. All barns and structures located on one <i>lot</i> should be treated as part of the same <i>livestock facility</i>. Implementation Guidelines #1 through #16 provide direction on the general rules and application of the Minimum Distance Separation Formulae.</p> |
| <p>Step 2</p> | <p><i>Livestock facility</i> animal/material types</p> | <p>For the first <i>livestock facility</i> identified in Step 1, fill in all of its existing animal/material types, descriptions, the total maximum <i>housing capacity</i>, the number of animals/material per <i>Nutrient Unit</i> (NU) and associated manure forms. Information on the existing animal/material types, descriptions, the total number of animals/material, and associated manure forms should be obtained from the owner of the <i>livestock facility</i>. It may be necessary to verify this information independently. Information on the number of animals/material per <i>Nutrient Unit</i> (NU) can be determined from Table 1. Implementation Guidelines #17 through #20 provide guidance on determining <i>livestock facility</i> capacity. Implementation Guidelines #21 and #22 provide direction on dealing with <i>anaerobic digesters</i>.</p> |
| <p>Step 3</p> | <p>Existing <i>Nutrient Units</i> (NU)</p> | <p>Calculate the existing total maximum NU capacity of the <i>livestock facility</i> by dividing existing capacity of each animal/material type by the number of animals/material per NU as found in Table 1. Then, add all the existing NU together for all the types of animal/material present, to obtain the total maximum number of NU.</p> |

| | | |
|---------------|---|--|
| Step 4 | Weighted Factor A | Determine Factor A (Odour Potential Factor) for each animal/material type present, from Table 1, and fill in the calculation form. If necessary, calculate the weighted average for Factor A, if Factor A is not the same for all animals/materials listed. See Implementation Guidelines #26 and #31 for further direction. |
| Step 5 | Weighted Factor D | Determine Factor D (Manure Form in Permanent Storage Factor) from Table 1, for each animal/material type present, and fill in the calculation form. If necessary, calculate the weighted average Factor D, if Factor D is not the same for all animals/materials listed. See Implementation Guidelines #29 and #32 for further direction. |
| Step 6 | <i>Tillable hectares</i> and potential NU | Fill in the maximum <i>tillable hectares</i> of land on the <i>lot</i> where the <i>livestock facility</i> is located, based on information obtained from the owner of the <i>livestock facility</i> . It may be necessary to verify this information independently. Calculate the potential total number of NU, which equals: # of <i>tillable hectares</i> x 7.5, up to a maximum of 300 NU. Implementation Guidelines #33 and #17 provide more specific information. |
| Step 7 | Factor B and existing vs. potential NU | Compare the total number of existing NU calculated in Step 3 with the total number of potential NU calculated in Step 6. Using the greater of these two numbers, determine Factor B from Table 2, and fill in the correct space on the calculation form. In some circumstances, it will be necessary to interpolate Factor B from Table 2, when the number of NU is not specifically identified in the table. Implementation Guideline #27 provides more specific direction on Factor B. |
| Step 8 | Determine Factor E | Determine and fill in Factor E (Encroachment Land Use Factor) on the calculation form. Factor E can be determined from Table 4. Implementation Guidelines #30 and #35 through #39 provide specific direction on Factor E and the determination of Type A and Type B land uses. |
| Step 9 | F, Building Base Distance | Calculate F (Building Base Distance) = (Factor A) x (Factor D) x (Factor B) x (Factor E), which is the required MDS I setback from the proposed development to the nearest barn of the <i>livestock facility</i> . For further information, see Implementation Guidelines #23 and #34. |

| | | |
|-------------------------|---|---|
| <p>Step 10</p> | <p>S, <i>Manure Storage</i> Base Distance</p> | <p>Establish S (<i>Manure Storage</i> Base Distance) by first using Table 5 to choose the existing storage at the <i>livestock facility</i> with the highest odour potential: Very Low, Low, Medium, and High. Then, enter Table 6 under the appropriate column and read across using 'F' calculated from Step 9. It may be necessary to interpolate. S, is the required MDS I setback from the proposed development to the nearest <i>manure storage</i> at the <i>livestock facility</i>. Implementation Guidelines #24 and #25 provide further information. Implementation Guidelines #21 and #22 provide further information on dealing with <i>anaerobic digesters</i>.</p> <p>Steps 2 through 10 should be completed for any other <i>livestock facilities</i> present, in accordance with Implementation Guideline #6.</p> |
| <p>Now What?</p> | <p>Using calculated MDS</p> | <p>The calculated values of MDS can now be used in the context of the land use planning application for which they have been prepared. Implementation Guidelines #35 through #40 provide direction around issues regarding Type A and Type B land uses. Implementation Guidelines #41 through #44 provide direction around issues of measurement of MDS setbacks, and, Implementation Guidelines #45 and #46 provide direction on issues regarding minor variances.</p> |

MDS I CALCULATION BLANK FORM

Evaluator: _____

Date: _____

File Number: _____

Contact Information:

| | Applicant Information | Owner of Adjacent Livestock Facility #1 | Owner of Adjacent Livestock Facility #2, etc |
|---------------------|------------------------------|--|---|
| File Name | | | |
| Last Name | | | |
| Farm/Company | | | |
| Address | | | |
| City/Town | | | |
| Province | | | |
| Postal Code | | | |
| Upper Tier | | | |
| Lower Tier | | | |
| Lot | | | |
| Concession | | | |
| 911 Number | | | |
| Roll Number | | | |
| Telephone | | | |
| Fax | | | |
| Email | | | |

MDS I CALCULATION BLANK FORM

| Animal Type or Material | Description | Number per NU | Manure Form | Existing Maximum Housing Capacity | Existing NU | Factor A | Factor D |
|---|---|---------------|-------------|-----------------------------------|-------------|----------|------------------|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Total Number of NU | | | | | | | |
| Factor A (Odour Potential Factor)...a weighted average may be necessary | | | | | | | |
| Factor D (Manure Form Factor)...a weighted average may be necessary | | | | | | | |
| Factor B (<i>Nutrient Units</i> Factor) | | | | | | | |
| Factor E (Encroaching Land Use Factor) | | | | | | | |
| Maximum tillable hectares on the lot with the livestock facilities | | | | X | | = | (Maximum 300 NU) |
| F (Building Base Distance, m) = Factor A x Factor D x Factor B x Factor E | | | | | | | |
| S (Manure Storage Base Distance, m) | | | | | | | |
| Now What? | Repeat MDS calculation process as appropriate for other <i>livestock facilities</i> in the vicinity. Apply calculated MDS in the context of the land use planning application for which they were prepared. | | | | | | |

MDS II CALCULATION FORM

The following outlines the 10 Steps on how to calculate setbacks to all development reasonably expected to be impacted by a proposed *first* or *expanded livestock facility*. Applicable topics are found in the Implementation Guidelines Chart on pages 1 to 17 and applicable Tables are noted.

| | | |
|---------------|---|---|
| Step 1 | Location and contact information | Fill in the pertinent information about the applicant who is proposing a <i>first</i> , or <i>expanded, livestock facility</i> . Implementation Guidelines #1 through #16 provide direction on the general rules and application of the Minimum Distance Separation Formulae. |
| Step 2 | <i>Livestock facility</i> animal/material types | Fill in all existing, and proposed to be added, animal/material types, descriptions, the total maximum <i>housing capacity</i> , the number of animals/material per <i>Nutrient Unit</i> (NU) and associated manure forms. Table 1 and Implementation Guidelines #17 through #20 provide guidance on determining <i>livestock facility</i> capacity. Implementation Guidelines #21 and #22 provide direction on dealing with <i>anaerobic digesters</i> . |
| Step 3 | Existing, and proposed to be added <i>Nutrient Units</i> (NU) | Calculate the existing, and proposed to be added, NU capacity of the <i>livestock facility</i> by dividing existing, and proposed to be added, capacity of each animal/material type by the number of animals/material per NU as found in Table 1. Then, add all the existing, and proposed to be added, NU together for all the types of animal/material present, to obtain the total number of NU. |
| Step 4 | Weighted Factor A | Determine Factor A (Odour Potential Factor) from Table 1, for <u>only</u> each animal/material type proposed to be <u>added</u> , and fill in the calculation form. If necessary, calculate the weighted average for Factor A, if Factor A is not the same for all animals/materials added. See Implementation Guidelines #26 and #31 for further direction. |

| | | |
|----------------------|--|---|
| <p>Step 5</p> | <p>Weighted Factor D</p> | <p>Determine Factor D (Manure Form in Permanent Storage Factor) from Table 1, for <u>only</u> each animal/material type <u>added</u>, and fill in the calculation form. If necessary, calculate the weighted average for Factor D, if Factor D is not the same for all animals/materials added. See Implementation Guidelines #29 and #32 for further direction.</p> |
| <p>Step 6</p> | <p>Factor B</p> | <p>Determine Factor B from Table 2, based on the Total NU to be housed at the <i>livestock facility</i>, and fill in the space on the calculation form. In some cases, it will be necessary to interpolate Factor B from Table 2, when the number of NU is not specifically identified in the table. Implementation Guideline #27 provides more specific direction on Factor B.</p> |
| <p>Step 7</p> | <p>Determining Percentage Increase for <i>livestock facility</i></p> | <p>Determine if a building permit was issued on this <i>lot</i> in the past 3 years that increased the <i>livestock</i> capacity of the <i>livestock facility</i>.</p> <p>If 'No', use Approach (i) below to calculate Percentage Increase. If 'Yes', use Approach (ii) below to calculate Percentage Increase.</p> <p>Approach (i)</p> <p>Enter total Added NU as calculated in Step 3 above. Enter total Existing NU as calculated in Step 3 above. If total Existing NU is zero (i.e. this is the <i>First Livestock Facility</i> on the <i>lot</i>), then the Percentage Increase is considered to be at its maximum, or 700% as per Table 3. If total Existing NU is not zero, divide Added NU by Existing NU and multiply by 100. This value is the Percentage Increase. In rare cases of downsizing, the Added NU would actually be 'negative'. In this case, the Percentage Increase is 'negative', but considered to be at its minimum, or 0% as per Table 3.</p> <p>Approach (ii)</p> <p>Enter total Added NU as calculated in Step 3 above, as well as the total number of NU added in the past 3 years by previous building permit(s). Enter total Existing NU of the <i>livestock facility</i> as it was 3 years ago, prior to the current application date. If total Existing NU 3 years ago was zero, then the <i>livestock facility</i> in this current application <u>and</u> the one(s) constructed in the past 3 years are all considered to be the <i>First Livestock Facility</i> on the <i>lot</i>, and the Percentage Increase is considered to be at its maximum, or 700% as per Table 3. If total Existing NU 3 years ago was <u>not</u> zero, divide Added NU</p> <p style="text-align: right;">continued...</p> |

| | | |
|--|--|---|
| <p>Step 7</p> <p>continued...</p> | | <p>continued...</p> <p>in this application <u>plus</u> Added NU over the past 3 years, by Existing NU 3 years ago and multiply by 100. This value is the Percentage Increase. In rare cases of downsizing, the Added NU would actually be 'negative'. In this case, the Percentage Increase is 'negative', but considered to be at its minimum, or 0% as per Table 3.</p> <p>Implementation Guideline #28 provides further direction and assistance on calculating Percentage Increase, and establishing Factor C.</p> |
| <p>Step 8</p> | <p>Factor C</p> | <p>Determine and fill in Factor C (Orderly Expansion Factor) on the calculation form, based on the Percentage Increase calculated in Step 7. Factor C can be determined from Table 3. In some instances, it may be necessary to interpolate Factor C. Implementation Guideline #28 provides direction on calculating the Percentage Increase in NU for the proposed construction.</p> |
| <p>Step 9</p> | <p>F, Building Base Distance</p> | <p>Calculate F (Building Base Distance) = (Factor A) x (Factor D) x (Factor B) x (Factor C), which is the required MDS II setback from <u>all</u> proposed <i>first or expanded livestock facilities</i> to the nearest development. For further information, see Implementation Guidelines #23 and #34.</p> |
| <p>Step 10</p> | <p>S, Manure Storage Base Distance</p> | <p>Establish S (<i>Manure Storage</i> Base Distance) by first using Table 5 to choose the proposed new storage at the <i>livestock facility</i> with the <u>highest</u> odour potential: Very Low, Low, Medium, and High. Then, enter Table 6 under the appropriate column and read across using 'F' calculated from Step 9. It may be necessary to interpolate from the table. 'S' is the required MDS II setback from <u>all</u> proposed new storages to the nearest development. Implementation Guidelines #24 and #25 provide further information. Implementation Guidelines #21 and #22 provide further information on dealing with <i>anaerobic digesters</i>.</p> |
| <p>Now What?</p> | <p>Using calculated MDS</p> | <p>The calculated values of MDS II can now be applied to the building permit application. Implementation Guidelines #35 through #39 provide direction around Type A and Type B land uses. For Type A land uses, the values of Building Base Distance 'F' and Storage Base Distance 'S' should be multiplied by 1.0 to determine the required MDS setback. For Type B land uses, the values of Building Base Distance 'F' and Storage Base Distance 'S' should be multiplied by 2.0 to determine the required MDS setback. Implementation Guideline #40 provides direction around setbacks from rear <i>lot</i> lines, side <i>lot</i> lines and road allowances. For rear and side <i>lot</i> lines, the values of Building Base Distance 'F' and Storage Base Distance 'S' should be multiplied by 0.1 to determine the required</p> <p>continued...</p> |

**Now
What?**

continued...

continued...

MDS setback. In accordance with Implementation Guideline #44, the required MDS setback from a rear or side *lot* line should never exceed 30 metres. For road allowances, the values of Building Base Distance 'F' and Storage Base Distance 'S' should be multiplied by 0.2 to determine the required MDS setback. Implementation Guidelines #41 through #44 provide direction around issues of measurement of MDS II setbacks. Implementation Guidelines #45 and #46 provide direction on issues regarding minor variances.

MDS II CALCULATION BLANK FORM

Evaluator: _____

Date: _____

File Number: _____

Contact Information:

| | Applicant Information | Owner of Adjacent Livestock Facility #1 | Owner of Adjacent Livestock Facility #2, etc |
|---------------------|----------------------------------|--|---|
| File Name | | | |
| Last Name | | | |
| Farm/Company | | | |
| Address | | | |
| City/Town | | | |
| Province | | | |
| Postal Code | | | |
| Upper Tier | | | |
| Lower Tier | | | |
| Lot | | | |
| Concession | | | |
| 911 Number | | | |
| Roll Number | | | |
| Telephone | | | |
| Fax | | | |
| Email | | | |

MDS II CALCULATION BLANK FORM

| Animal Type or Material | Description | Number per NU | Manure Form | Existing Maximum Housing Capacity | Existing NU | Proposed Maximum Housing Capacity | Added NU | Total NU | Factor A | Factor D |
|--|---|---------------|-------------|-----------------------------------|---|-----------------------------------|----------|----------|----------|----------|
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Totals | | | | | | | | | | |
| Factor A (Odour Potential Factor) weighted average may be necessary | | | | | | | | | | |
| Factor D (Manure Form Factor) weighted average may be necessary | | | | | | | | | | |
| Factor B (<i>Nutrient Units</i> Factor) | | | | | | | | | | |
| Has a building permit been issued for the <i>livestock facility</i> on this property, in the last 3 years that has increased its <i>livestock</i> capacity? No? Yes? <i>If No, proceed to Approach (i); if Yes, proceed to Approach (ii)</i> | | | | | | | | | | |
| Approach (i) - No Building Permits in Last 3 Years | | | | | Approach (ii) - Building Permit(s) issued in Last 3 Years | | | | | |
| Calculation of Percentage Increase | | | | | Calculation of Percentage Increase | | | | | |
| Total 2 - Total Added NU (From Above) | | | | | Total 2 - Total Added NU (From Above) + Total Added NU from building permit(s) issued in the last 3 Years | | | | | |
| Total 1 - Total Existing NU (From Above) | | | | | Total 1 - Total Existing NU at <i>Livestock Facility</i> - 3 Years Ago | | | | | |
| If Total 1 = Zero - Treat as a <i>First Livestock Facility</i> | | | | | If Total 1 = Zero - Treat as a <i>First Livestock Facility</i> | | | | | |
| % Increase: (Total 2/Total 1) x 100 | | | | | % Increase: (Total 2/Total 1) x 100 | | | | | |
| Factor C (Orderly Expansion Factor) | | | | | | | | | | |
| F (Building Base Distance, m) = Factor A x Factor D x Factor B x Factor C | | | | | | | | | | |
| S (<i>Manure Storage</i> Base Distance, m) | | | | | | | | | | |
| Now What? | Apply MDS calculation to building permit application as appropriate. For Type A land uses, the values of Building Base Distance 'F' and Storage Base Distance 'S' should be multiplied by 1.0 to determine the required MDS setback. For Type B land uses, the values of Building Base Distance 'F' and Storage Base Distance 'S' should be multiplied by 2.0 to determine the required MDS setback. Implementation Guideline #40 provides direction around setbacks from rear <i>lot</i> lines, side <i>lot</i> lines and road allowances. For rear and side <i>lot</i> lines, the values of Building Base Distance 'F' and Storage Base Distance 'S' should be multiplied by 0.1 to determine the required MDS setback. In accordance with Implementation Guideline #44, the required MDS setback from a rear or side <i>lot</i> line should never exceed 30 metres. For road allowances, the values of Building Base Distance 'F' and Storage Base Distance 'S' should be multiplied by 0.2 to determine the required MDS setback. | | | | | | | | | |

FACTOR TABLES

Table 1: Factor A (Odour Potential) and Factor D (Manure or Material Form in Storage Facility)

| Animal Type or Material | Description | Number per NU | Factor A | Manure or Material Form in Permanent Storage | | | |
|--|--|---------------|----------|--|---|--|---|
| | | | | Liquid Manure: Factor D = 0.8 < 18% Dry Matter | Solid Manure: Factor D = 0.7 18 - 100% Dry Matter | | |
| Swine | Sows with litter, dry sows/boars Segregated Early Weaning (SEW) | 3.33 | 1.0 | Most systems have liquid manure stored under the barn slats for short or long periods, or in storages located outside | Systems with solid manure inside on deep bedded packs, or with scraped alleys | | |
| | Sows with litter, dry sows or boars (non-SEW) | 3.5 | | | | | |
| | Breeder gilts (entire barn designed specifically for this purpose) | 5 | | | | | |
| | Weaners (7 kg – 27 kg) | 20 | 1.1 | | | | |
| | Feeders (27 – 105 kg) | 6 | 1.2 | | | | |
| Dairy Cattle ¹ | Milking-age cows (dry or milking) | | 0.7 | Free-stall barns with minimal bedding, or sand bedding, or tie-stall barns with minimal bedding & milking centre washwater added | Tie-stall barns with lots of bedding, or loose housing with deep bedded pack, and with or without outside yard access | | |
| | - Large-framed; 545 kg – 636 kg (e.g. Holsteins) | 0.7 | | | | | |
| | - Medium-framed; 455 kg – 545 kg (e.g. Guernseys) | 0.85 | | | | | |
| | - Small-framed; 364 kg – 455 kg (e.g. Jerseys) | 1 | | | | | |
| | Heifers (5 months to freshening) | | | | | | |
| | - Large-framed; 182 kg – 545 kg (e.g. Holsteins) | 2 | | | | | |
| | - Medium-framed; 148 kg – 455 kg (e.g. Guernseys) | 2.4 | | | | | |
| | - Small-framed; 125 kg – 364 kg (Jerseys) | 2.9 | | | | | |
| | Calves (0 – 5 months) | | 0.7 | | | Free-stall barns with minimal bedding, or sand bedding, or tie-stall barns with minimal bedding & milking centre washwater added | Bedded pens or stalls or heavily bedded calf hutches that are outside |
| | - Large-framed; 45 kg – 182 kg (e.g. Holsteins) | 6 | | | | | |
| - Medium-framed; 39 kg – 148 kg (e.g. Guernseys) | 7 | | | | | | |
| - Small-framed; 30 kg – 125 kg (Jerseys) | 8.5 | | | | | | |
| Beef Cattle | Cows, including calves to weaning (all breeds) | 1 | 0.7 | N/A | Bedded pack barns with or without outside yard access | | |
| | Feeders (7 – 16 months) | 3 | 0.8 | | | | |
| | Backgrounders (7 – 12.5 months) | 3 | | | | | |
| | Shortkeepers (12.5 – 17.5 months) | 2 | | | | | |

| Animal Type, or Material | Description | Number per NU | Factor A | Manure or Material Form in Permanent Storage | |
|---|---|---------------------|----------|--|---|
| | | | | Liquid Manure: Factor D = 0.8 Less than 18% Dry Matter | Solid Manure: Factor D = 0.7 18 to 100% Dry Matter |
| Veal | Milk-fed | 6 | 1.1 | Slatted floors or slatted stall system | Heavily bedded pack barns |
| | Grain-fed | 6 | 0.8 | | |
| Goats | Does & bucks (for meat kids; includes unweaned offspring & replacements) | 8 | 0.7 | N/A | Heavily bedded pack barns |
| | Does & bucks (for dairy; includes unweaned offspring & replacements) | 8 | | | |
| | Kids (dairy or feeder kids) | 20 | | | |
| Sheep | Ewes & rams (for meat lambs; includes unweaned offspring & replacements) | 8 | 0.7 | N/A | All sheep systems |
| | Ewes & rams (dairy operation; includes unweaned offspring & replacements) | 6 | | | |
| | Lambs (dairy or feeder lambs) | 20 | | | |
| Horses | Large-framed, mature; > 681 kg (including unweaned offspring) | 0.7 | 0.7 | N/A | All horse systems |
| | Medium-framed, mature; 227 kg – 680 kg (including unweaned offspring) | 1 | | | |
| | Small-framed, mature; < 227 kg (including unweaned offspring) | 2 | | | |
| Chickens | Layer hens (for eating eggs; after transfer from pullet barn) | 150 | 1.0 | Birds in cages, manure belts, no drying of manure, water added | Birds in cages, manure belts & drying, or floor systems |
| | Layer pullets (day olds until transferred into layer barn) | 500 | 0.7 | | |
| | Broiler breeder growers (males/females transferred out to layer barn) | 300 | 0.7 | N/A | Bedded floors |
| | Broiler breeder layers (males/females transferred in from grower barn) | 100 | 0.7 | N/A | Cage or slatted floor systems |
| | Broilers on an 8 week cycle | 350 | 0.7 | N/A | Bedded floor systems |
| | Broilers on a 9 week cycle | 300 | | | |
| | Broilers on a 10 week cycle | 250 | | | |
| | Broilers on a 12 week cycle | 200 | | | |
| Broilers on any other cycle, or if unknown, use 24.8 m ² /NU | 24.8 m ² | | | | |
| Turkeys | Turkey pullets (day old until transferred to layer turkey barn) | 267 | 0.7 | N/A | Bedded floor systems |
| | Turkey breeder layers (males/females transferred in from grower barn) | 67 | | | |
| | Breeder toms | 45 | | | |
| | Broilers (day olds to 6.2 kg) | 133 | | | |
| | Hens (day olds up to 6.2 kg to 10.8 kg; 7.5 kg is typical) | 105 | | | |
| | Toms (day olds to over 10.8 to 20 kg; 14.5 kg is typical) | 75 | | | |
| | Turkeys at any other weights, or if unknown, use 24.8 m ² /NU | 24.8 m ² | | | |

| Animal Type, or Material | Description | Number per NU | Factor A | Manure or Material Form in Permanent Storage | |
|--------------------------|--|---------------------|----------|--|--|
| | | | | Liquid Manure: Factor D = 0.8 Less than 18% Dry Matter | Solid Manure: Factor D = 0.7 18 to 100% Dry Matter |
| Quail | Use 24.8 m ² /NU | 24.8 m ² | 0.7 | N/A | Bedded floor systems |
| Partridge | Use 24.8 m ² /NU | 24.8 m ² | | | |
| Pheasants | Use 24.8 m ² /NU | 24.8 m ² | | | |
| Squab | Use 24.8 m ² /NU | 24.8 m ² | | | |
| Rheas | Adults (includes replacements & market birds) | 13 | | | |
| Emus | Adults (includes replacements & market birds) | 12 | | | |
| Ostriches | Adults (includes replacements & market birds) | 4 | | | |
| Ducks | Peking | 105 | 0.8 | Wire mesh flooring systems | Bedded floor systems |
| | Muscovy, use 24.8 m ² /NU | 24.8 m ² | | | |
| Geese | Use 24.8 m ² /NU | 24.8 m ² | | | |
| Rabbits | Breeding females (including males, replacements & market animals) | 40 | 0.8 | N/A | Cage or floor systems |
| Chinchillas | Breeding females (including males, replacements & market animals) | 320 | | | |
| Fox | Breeding females (including males, replacements & market animals) | 25 | 1.0 | | |
| Mink | Breeding females (including males, replacements & market animals) | 90 | | | |
| Bison | Adults (includes unweaned calves & replacements) | 1.3 | 0.7 | N/A | Bedded pack barns with outside access or outside confinement areas |
| | Feeders (170 kg – 477 kg) | 4 | | | |
| Llama | Adults (includes unweaned young & replacements) | 5 | | | |
| | Feeders (45 kg – 86 kg) | 16 | | | |
| Alpaca | Adults (includes unweaned young & replacements) | 8 | | | |
| | Feeders (23 kg – 48 kg) | 26 | | | |
| Wild Boar | Breeding age sows (includes boars, replacements & weaned piglets to 27 kg) | 5 | | | |
| | Finishing boars (27 kg – 86 kg) | 7 | | | |
| | | | | | Continued... |

| Animal Type, or Material | Description | Number per NU | Factor A | Manure or Material Form in Permanent Storage | |
|--|---|--|----------|---|---|
| | | | | Liquid Manure: Factor D = 0.8 Less than 18% Dry Matter | Solid Manure: Factor D = 0.7 18 to 100% Dry Matter |
| Deer | White tailed deer - Adults > 24 mo (including unweaned offspring) | 11 | 0.7 | N/A | Bedded pack barns with outside access <u>OR</u> outside confinement areas |
| | - Feeders | 21 | | | |
| | Red deer - Adults > 24 mo (including unweaned offspring) | 7 | | | |
| | - Feeders | 14 | | | |
| | Elk - Adults > 24 mo (including unweaned offspring) | 2 | | | |
| | - Feeders | 6 | | | |
| | Elk/deer hybrids - Adults > 24 mo (including unweaned offspring) | 4 | | | |
| | - Feeders | 10 | | | |
| Fallow deer - Adults > 24 mo (including unweaned offspring) | 13 | | | | |
| - Feeders | 23 | | | | |
| Other <i>livestock</i> not listed in this table | To determine the number per NU, add up the total maximum live weight of animals and divide by the weight of animals per NU in the next column | 453.6 kg (1000 lbs) | 0.8 | All storages with liquid manure | All storages with solid manure |
| Manure imported to a <i>lot</i> not generating <i>manure</i> ² | Maximum capacity of permanent storages at any time: solid or liquid capacity | 19.8 m ³ (700 ft ³) | 1.2 | All storages with liquid manure | All storages with solid manure |
| Storages for <i>digestate</i> from an <i>Anaerobic Digester</i> (odours reduced during this process) | Maximum capacity of permanent storages at any time: solid or liquid capacity | 19.8 m ³ (700 ft ³) | 0.5 | All storages with liquid manure | All storages with solid manure |

1. On farms with 100 milking-age cows (dry & milking), there are usually about 20 replacement calves and 80 replacement heifers.
2. Average value for typical types of manures that might be imported to a *lot*, such as poultry, dairy, beef, swine, horse or other manure.
N/A = Not Applicable

Table 2: Factor B (Nutrient Units Factor)

In using Table 2 to determine Factor B, it may be necessary to interpolate a value for Factor B. For example, you determine the total number of *nutrient units* at a *livestock facility* to be 255 NU. Table 2 provides a value for Factor B for 250 NU and for 260 NU, but not for 255 NU. The value of Factor B for 250 NU is 435 and the value of Factor B for 260 NU is 441. To determine Factor B for 255 NU interpolate between the numbers 435 and 441. In this example, the value of Factor B for 255 NU is 438.

When interpolating a value for Factor B do not include more than two decimal places. Interpolated values with more than two decimal places should be rounded accordingly. For example, if an interpolated value for Factor B is calculated as 499.238, then use a value of 499.24 for Factor B in the MDS calculation.

For operations less than 5 NU in size, do not interpolate, but use a Factor B of 150. For operations greater than 5000 NU in size, contact OMAFRA staff to determine Factor B.

| Final NU | Factor B | Final NU | Factor B | Final NU | Factor B | Final NU | Factor B |
|----------|----------|----------|----------|----------|----------|-------------------|----------------------|
| Up to 5 | 150 | 46 | 252 | 124 | 340 | 390 | 508 |
| 6 | 153 | 47 | 254 | 126 | 342 | 400 | 513 |
| 7 | 157 | 48 | 256 | 128 | 344 | 410 | 517 |
| 8 | 160 | 49 | 258 | 130 | 346 | 420 | 522 |
| 9 | 163 | 50 | 260 | 135 | 351 | 430 | 526 |
| 10 | 167 | 52 | 264 | 140 | 355 | 440 | 530 |
| 11 | 170 | 54 | 268 | 145 | 360 | 450 | 535 |
| 12 | 173 | 56 | 272 | 150 | 364 | 460 | 539 |
| 13 | 177 | 58 | 276 | 155 | 368 | 470 | 543 |
| 14 | 180 | 60 | 280 | 160 | 372 | 480 | 547 |
| 15 | 183 | 62 | 282 | 165 | 376 | 490 | 551 |
| 16 | 187 | 64 | 284 | 170 | 380 | 500 | 555 |
| 17 | 190 | 66 | 285 | 175 | 384 | 520 | 562 |
| 18 | 193 | 68 | 287 | 180 | 388 | 540 | 570 |
| 19 | 197 | 70 | 289 | 185 | 392 | 560 | 577 |
| 20 | 200 | 72 | 291 | 190 | 395 | 580 | 584 |
| 21 | 202 | 74 | 293 | 195 | 399 | 600 | 591 |
| 22 | 204 | 76 | 294 | 200 | 402 | 620 | 598 |
| 23 | 206 | 78 | 296 | 205 | 406 | 640 | 605 |
| 24 | 208 | 80 | 298 | 210 | 409 | 660 | 611 |
| 25 | 210 | 82 | 300 | 215 | 413 | 680 | 618 |
| 26 | 212 | 84 | 301 | 220 | 416 | 700 | 624 |
| 27 | 214 | 86 | 303 | 225 | 419 | 750 | 639 |
| 28 | 216 | 88 | 305 | 230 | 423 | 800 | 654 |
| 29 | 218 | 90 | 307 | 235 | 426 | 850 | 668 |
| 30 | 220 | 92 | 309 | 240 | 429 | 900 | 681 |
| 31 | 222 | 94 | 310 | 245 | 432 | 950 | 694 |
| 32 | 224 | 96 | 312 | 250 | 435 | 1000 | 707 |
| 33 | 226 | 98 | 314 | 260 | 441 | 1100 | 731 |
| 34 | 228 | 100 | 316 | 270 | 447 | 1200 | 753 |
| 35 | 230 | 102 | 318 | 280 | 453 | 1300 | 775 |
| 36 | 232 | 104 | 320 | 290 | 458 | 1400 | 795 |
| 37 | 234 | 106 | 322 | 300 | 464 | 1500 | 815 |
| 38 | 236 | 108 | 324 | 310 | 469 | 2000 | 870 |
| 39 | 238 | 110 | 326 | 320 | 474 | 3000 | 980 |
| 40 | 240 | 112 | 329 | 330 | 480 | 4000 | 1090 |
| 41 | 242 | 114 | 331 | 340 | 485 | 5000 | 1200 |
| 42 | 244 | 116 | 333 | 350 | 490 | Greater than 5000 | Contact OMAFRA staff |
| 43 | 246 | 118 | 335 | 360 | 494 | | |
| 44 | 248 | 120 | 337 | 370 | 499 | | |
| 45 | 250 | 122 | 339 | 380 | 504 | | |

Table 3: Factor C (Orderly Expansion Factor)

In using Table 3 to determine Factor C, it may be necessary to interpolate a value for Factor C. For example, you determine the percentage increase at a *livestock facility* to be 155%. Table 3 provides a value for Factor C for a 150% increase, and for a 160% increase, but not for a 155% increase. The value of Factor C for a 150% increase is 0.9371 and the value of Factor C for a 160% increase is 0.9497. To determine Factor C for a 155% increase interpolate between the numbers 0.9371 and 0.9497. In this example, the value of Factor C for a 155% increase is 0.9434.

When interpolating a value for Factor C do not include more than four decimal places. Interpolated values with more than four decimal places should be rounded accordingly. For example, if an interpolated value for Factor C is calculated as 0.977643, then use a value of 0.9776 for Factor C in the MDS calculation.

For operations with a 0% increase, or a decrease, i.e. 'negative' percentage increase, use a value of 0.5000 for Factor C. Do not interpolate below a value of 0.5000. For operations with a 700% increase or greater, or for a *first livestock facility*, use a value of 1.1400 for Factor C. Do not interpolate above a value of 1.1400.

| % Increase in Nutrient Units | Factor C | % Increase in Nutrient Units | Factor C | % Increase in Nutrient Units | Factor C |
|--|-----------------|---|-----------------|--|-----------------|
| 0% increase or decreases (‘negative’ increase) | 0.5000 | 27% | 0.6674 | 80% | 0.8484 |
| 1% | 0.5062 | 28% | 0.6736 | 85% | 0.8547 |
| 2% | 0.5124 | 29% | 0.6798 | 90% | 0.8610 |
| 3% | 0.5186 | 30% | 0.6860 | 95% | 0.8674 |
| 4% | 0.5248 | 31% | 0.6922 | 100% | 0.8737 |
| 5% | 0.5310 | 32% | 0.6984 | 105% | 0.8800 |
| 6% | 0.5372 | 33% | 0.7046 | 110% | 0.8864 |
| 7% | 0.5434 | 34% | 0.7108 | 115% | 0.8927 |
| 8% | 0.5496 | 35% | 0.7170 | 120% | 0.8990 |
| 9% | 0.5558 | 36% | 0.7232 | 125% | 0.9054 |
| 10% | 0.5620 | 37% | 0.7294 | 130% | 0.9117 |
| 11% | 0.5682 | 38% | 0.7356 | 135% | 0.9180 |
| 12% | 0.5744 | 39% | 0.7418 | 140% | 0.9244 |
| 13% | 0.5806 | 40% | 0.7480 | 145% | 0.9307 |
| 14% | 0.5868 | 41% | 0.7542 | 150% | 0.9371 |
| 15% | 0.5930 | 42% | 0.7604 | 160% | 0.9497 |
| 16% | 0.5992 | 43% | 0.7666 | 170% | 0.9624 |
| 17% | 0.6054 | 44% | 0.7728 | 180% | 0.9751 |
| 18% | 0.6116 | 45% | 0.7790 | 190% | 0.9877 |
| 19% | 0.6178 | 46% | 0.7852 | 200% | 1.0000 |
| 20% | 0.6240 | 47% | 0.7914 | 300% | 1.0280 |
| 21% | 0.6302 | 48% | 0.7976 | 400% | 1.0560 |
| 22% | 0.6364 | 49% | 0.8038 | 500% | 1.0840 |
| 23% | 0.6426 | 50% | 0.8100 | 600% | 1.1120 |
| 24% | 0.6488 | 55% | 0.8167 | 700% increase, or more, or <i>First Livestock Facility on lot of record.</i> | 1.1400 |
| 25% | 0.6550 | 60% | 0.8230 | | |
| 26% | 0.6612 | 65% | 0.8294 | | |
| | | 70% | 0.8357 | | |
| | | 75% | 0.8420 | | |

Table 4: Factor E (Encroaching Land Use Factor)

| Encroaching Land Use | Factor E |
|-----------------------------|-----------------|
| Type A Land Use | 1.1 |
| Type B Land Use | 2.2 |

Table 5: Permanent *Manure or Material Storage* Types

Solid *Manure*: 18% dry matter, or more

Liquid *Manure*: Less than 18% dry matter

***Digestate*:** Less than 18% dry matter

| Storage Odour Potential | Solid or Liquid System | Inside or Outside Livestock Facility | Number referred to in Table 6 (View images in Appendix A) | Description of permanent manure storages being sited by MDS II, or encroached upon through MDS I application |
|--------------------------------|-------------------------------|---|--|--|
| Very Low | Solid | Inside | V1 | Solid, inside, bedded pack (manure accumulates under <i>livestock</i> over time) |
| | | Outside | V2 | Solid, outside, covered (cover keeps off precipitation to prevent runoff) |
| | | | V3 | Solid, outside, no cover, greater than or equal 30% dry matter (manure is dry enough that a flowpath option can be used for runoff control (<i>Nutrient Management Act, 2002</i>)) |
| | | | V4 | Solid, outside, no cover, 18% to less than 30% dry matter, with covered liquid runoff storage (manure not dry enough to soak up precipitation, so a liquid runoff storage needed, but it has a permanent, tight cover) |
| | Liquid | Inside | V5 | Liquid, inside, underneath slatted floor (manure is stored under the animals in the barn) |
| | | Outside | V6 | Liquid, outside, with a permanent, tight fitting cover (negative pressure tarp, concrete lid, inflatable dome, etc.) |
| | | | V7 | Liquid, (<i>digestate</i>), outside, no cover (all manure has been treated through anaerobic digestion, or a similar process that reduces odours) |
| | Solid | Outside | L1 | Solid, outside, no cover, 18% to less than 30% dry matter, with uncovered liquid runoff storage (manure not dry enough to soak up precipitation, so a liquid Low runoff storage needed, but it is uncovered, producing more odour than in V4 above) |
| | Liquid | Outside | L2 | Liquid, outside, with a permanent floating cover (tarps, foam panels, etc.) |
| Medium | Liquid | Outside | M1 | Liquid, outside, no cover, straight-walled storage (usually circular or rectangular concrete, or steel storages) |
| | | | M2 | Liquid, outside, roof, but with open sides (roof keeps off precipitation, but the open sides allow wind to travel over the manure and carry odours) |
| High | Liquid | Outside | H1 | Liquid, outside, no cover, sloped-sided storage (earthen <i>manure storages</i> , but <u>not</u> earthen runoff storages associated with a solid <i>manure storage</i> which are L1 above) |

Table 6: MDS I/II Separation Distances for Permanent Manure or Material Storage Types in Table 5

In using Table 6 to determine a value for 'S' – Storage Separation Distance, in some instances it may be necessary to interpolate a value.

For example, you determine the value for Encroachment Base Distance 'F' to be 106 metres. From Table 5, you have determined that the *livestock facility* uses a storage facility with an odour potential that is considered medium (M1).

Table 6 provides a value for Storage Separation Distance 'S' for an M1 Storage for an Encroachment Base Distance 'F' of 100 metres and for an Encroachment Base Distance 'F' of 110 metres, but not for an Encroachment Base Distance 'F' of 106 metres. The value of Storage Separation Distance 'S' for an M1 Storage with an Encroachment Base Distance 'F' of 100 metres, is 190 metres. The value of Storage Separation Distance 'S' for an M1 Storage with an Encroachment Base Distance 'F' of 110 metres, is 199 metres. To determine the value of Storage Separation Distance 'S' for an M1 Storage, with an Encroachment Base Distance 'F' of 106 metres interpolate between the numbers 190 and 199. In this example, the value of Storage Separation Distance 'S' for an M1 Storage, with an Encroachment Base Distance 'F' of 106 metres is 195.4 metres. This value should be rounded to the nearest whole number, in this case 195 metres.

When interpolating a value for Storage Separation Distance 'S' do not include any decimal places. Interpolated values with decimal places should be rounded accordingly. For example, if an interpolated value for Storage Separation Distance 'S' is calculated as 202.83 metres, then use a value of 203 metres for Storage Separation Distance 'S'.

In all instances, where Encroachment or Building Base Distance 'F' exceeds 1000 metres, then Storage Separation Distance 'S' will be the same value as 'F'.

Table 6: MDS I/II Separation Distances for Permanent Manure

| Building Base Distance (m) for MDS II ('F'), or Encroachment Base Distance for MDS I ('F') | Storage Separation Distances Based on Relative Odour Potential - Storage Base Distance, 'S' (m) | | | |
|--|--|-----------------------------|--------------------------------|------------------------|
| | Very Low Odour Storages V1 to V7 | Low Odour Storages L1 to L2 | Medium Odour Storages M1 to M2 | High Odour Storages H1 |
| 40 | 40 | 64 | 136 | 232 |
| 50 | 50 | 74 | 145 | 240 |
| 60 | 60 | 84 | 154 | 248 |
| 70 | 70 | 93 | 163 | 256 |
| 80 | 80 | 103 | 172 | 264 |
| 90 | 90 | 113 | 181 | 272 |
| 100 | 100 | 123 | 190 | 280 |
| 110 | 110 | 132 | 199 | 288 |
| 120 | 120 | 142 | 208 | 296 |
| 130 | 130 | 152 | 217 | 304 |
| 140 | 140 | 162 | 226 | 312 |
| 150 | 150 | 171 | 235 | 320 |
| 160 | 160 | 181 | 244 | 328 |
| 170 | 170 | 191 | 253 | 336 |
| 180 | 180 | 201 | 262 | 344 |
| 190 | 190 | 210 | 271 | 352 |
| 200 | 200 | 220 | 280 | 360 |
| 210 | 210 | 230 | 289 | 368 |
| 220 | 220 | 240 | 298 | 376 |
| 230 | 230 | 249 | 307 | 384 |
| 240 | 240 | 259 | 316 | 392 |
| 250 | 250 | 269 | 325 | 400 |
| 260 | 260 | 279 | 334 | 408 |
| 270 | 270 | 288 | 343 | 416 |
| 280 | 280 | 298 | 352 | 424 |
| 290 | 290 | 308 | 361 | 432 |
| 300 | 300 | 318 | 370 | 440 |
| 310 | 310 | 327 | 379 | 448 |
| 320 | 320 | 337 | 388 | 456 |
| 330 | 330 | 347 | 397 | 464 |
| 340 | 340 | 357 | 406 | 472 |
| 350 | 350 | 366 | 415 | 480 |
| 360 | 360 | 376 | 424 | 488 |
| 370 | 370 | 386 | 433 | 496 |
| 380 | 380 | 396 | 442 | 504 |
| 390 | 390 | 405 | 451 | 512 |
| 400 | 400 | 415 | 460 | 520 |
| 420 | 420 | 435 | 478 | 536 |
| 440 | 440 | 454 | 496 | 552 |
| 460 | 460 | 474 | 514 | 568 |
| 480 | 480 | 493 | 532 | 584 |
| 500 | 500 | 513 | 550 | 600 |
| 600 | 600 | 610 | 640 | 680 |
| 800 | 800 | 805 | 820 | 840 |
| 1000 | 1000 | 1000 | 1000 | 1000 |
| Greater than 1000 m | Storage Base Distance, 'S', should be the same as Building Base Distance or Encroachment Base Distance - 'F' | | | |