

## Schedule 3 - PRELIMINARIES AND GENERAL SPECIFICATIONS

### Contents

1. Contractors Method Statements .....	2
2. Working Hours .....	2
3. Construction Phasing Requirements.....	2
4. Site Clearance .....	2
5. Existing Drainage .....	4
6. Materials and Suppliers.....	4
7. Haul road construction.....	5
8. Setting Out and Existing Ground Levels.....	5
9. Privately and Publicly Owned Services and Supplies .....	5
10.Traffic Safety and Management .....	6
11.Information Boards .....	9
12.Substances Hazardous to Health.....	10
13. Earthworks.....	10
14.Geotextiles.....	11
15.Pavements.....	11
16.Concrete Reinforcement.....	12
17.Brick, Blockwork and Stonework .....	12
18.Grass Seeding.....	13

## 1. Contractors Method Statements

- 1.1 The Contractor shall produce method statements as required for the works for the approval of the Engineer. The extent to which method statements are required is dependent on the scale and complexity of the various activities.
- 1.2 Method statements may be brief but shall describe each stage of construction activity.
- 1.3 The contractor is responsible for producing detailed method and risk assessments statements for each major activity, whether directly controlled or sub-contracted.
- 1.4 The method statements shall identify hold points and invoke;
  - Work instructions
  - Quality control procedures
  - Compliance testing inspection arrangements
  - Work acceptance procedures
- 1.5 Identify the relevant construction procedures in the Contractor's own Quality Management System (and provide copies on request).

## 2. Working Hours

- 2.1 Unless otherwise agreed in writing by the Engineer, no activities shall be executed during the night or on Sundays. If for reasons of safety work is necessary, then the Engineer shall be informed immediately.
- 2.2 Normal working hours for site activities shall be Monday to Friday between 0700 and 1900 hours and Saturdays between 0800 and 1400 hours, with no working on public holidays or Sundays.
- 2.3 No heavy plant activities between the hours of 0700 – 0800 and 1800 – 1900 on any day.

## 3. Construction Phasing Requirements

- 3.1 The contractor shall co-ordinate the work of Statutory Authorities and their sub-contractors and outside contractors and their sub-contractors who are permitted under the Contract to enter the site within his own programme and activities. The Engineer is to be kept informed of all discussions relating to the above activities. The Contractor shall similarly co-ordinate the work of the employer's landscape contractor.
- 3.2 Phasing of the works is to be agreed with the Local Authorities Project Manager before commencement of works.

## 4. Site Clearance

### Protection of Trees and Hedgerows on Site

- 4.1 All trees and hedgerows that are to be retained on the site shall be carefully preserved and protected from damage during execution of work.

### Temporary Fencing for Protection of Existing Trees/Hedgerows

- 4.2 Unless otherwise indicated on the drawings, all existing trees/hedgerows for retention shall be fenced off with a cleft chestnut pale fencing type CW120 in accordance with BS1722 pt 4 1986. Fencing around trees shall be a minimum of 3m from its trunk, except where a boundary wall is closer and shall be erected before the commencement of any other works.  
The Contractor shall be responsible for maintaining the fencing in effective condition and/or its adaption from time to time during the Contract.

### Trees/Hedgerows to be reinstated

- 4.3 No trees/hedgerows other than those shown on the drawings to be removed shall be removed or cut without written permission of the Engineer.  
Within the spread of trees and hedgerows which are to be retained, the following will not be permitted;
- a. The storing or depositing of any soil, constructional material or rubbish.
  - b. The lighting of bonfires within 3m of spread.
  - c. The alteration of ground level (unless specified on the drawing).
  - d. The use of machinery or vehicles which will compact the ground.
  - e. The use of rippers to break up the ground.
  - f. The use of trees for the anchor of ropes.
  - g. The alteration of the drainage characteristics or water table by any site operations under the control of the Contractor unless approved by the Engineer.

No temporary buildings, machinery, storage areas or materials to be located within 5m (horizontal distance) of the canopy spread of trees unless approved by the Engineer.

### Damage

- 4.4 Any damage which occurs shall be reported immediately to the Engineer in writing and shall be repaired in accordance with his instructions. Minor damage shall be painted with an approved wood sealant within 24 hours at the Contractor's expense. Any damage will be repaired by a Specialist appointed by the Engineer and charged to the contractor.

Should any tree/hedgerow, which it is intended to be preserved be uprooted, destroyed or in the opinion of the Engineer be damaged beyond reasonable chance of survival in its original shape due to the Contractor's negligence then the Contractor shall at his own expense plant a suitable replacement or a similar type and age approved by the Engineer. The Contractor's liability for these trees/hedgerows shall be exactly the same as for any other tree, shrub or plant in connection with the contract.

### Necessary Work in the Vicinity of trees/hedgerows

- 4.5 No work under the branch spread of tree or within 2m of hedgerows shall be permitted without the approval of the Engineer unless specified on the drawings.

### Overhanging Branches

- 4.6 Branches overhanging the site boundary liable to be damaged by machinery are to be tied back, or, where damage is inevitable, shall be pruned and sealed by a tree surgeon before operations commence.

#### Excavation

- 4.7 Where it is essential and unavoidable to carry out excavation work under the branch spread, care shall be taken to avoid damage to the bark of trees and chestnut piling shall be either realigned or tied around the trunk before work commences. All digging under the branch spread shall be done by hand and tunnelling shall be allowed for to avoid root cutting. No root in excess of 50mm diameter shall be cut. Where the surface of main roots has been damaged in digging, the exposed section shall be treated with an approved wound sealant in accordance with the manufacturer's instructions. Trenches shall not be left open for long periods and shall be backfilled as quickly as possible. Backfilling shall be carefully consolidated to eliminate voids and damage roots.

#### Trees to be removed

- 4.8 The on-site burning of trees to be removed or other shrub shall only be burnt on site with the prior approval of the Public Health Officer. Ashes left from burning shall be disposed of, off the site.

### **5. Existing Drainage**

#### Cleaning

- 5.1 The first section between chambers of the existing downstream drainage system (excluding any lengths to be renewed) including gully connections shall, prior to the Contractor carrying out any alteration or addition required by the Engineer to that section, be flushed clean by a water jet method. The Contractor shall, within five working days of cleaning or attempting to clean any section, submit to the Engineer a written report on the state of that section, including a videotape from a CCTV survey.

#### Renewal of Filter Drains

- 5.2 The Contractor shall locate the ends of the existing filter pipe where it has been built into catchpits or the concrete surround to gully connections. These pipes shall be protected during the excavation of the existing drain removal. The new filter pipe shall connect positively to the existing pipe using a method approved by the Engineer.

#### Invert and Pipe Details of Replacement Drainage

- 5.3 All replacement pipe sizes and inverts shall be as existing.
- 5.4 Following agreement of the temporary benchmark values and one month before the drainage work is commenced, the invert and location of each existing drain runs or manholes shall be agreed with the Engineer, following detailed survey.

### **6. Materials and Suppliers**

- 6.1 Materials shall only be supplied from sources and plants which have been approved by the Adopting Authority in conjunction with the Engineer.

## **7. Haul road construction**

- 7.1 Before the laying of the material is to commence, the Contractor shall submit details to the Engineer of the sources of material and the methods he intends to use for the works.

### Granular Sub-Base Material Type 1

- 7.2 Crushed blast furnace slag is not permitted.
- 7.3 The material shall be laid and compacted at a moisture content within the range 1 per cent above and 1 per cent below the optimum percentage determined in accordance with BS 1377 Text 14.

## **8. Setting Out and Existing Ground Levels**

### General

- 8.1 The Contractor shall, in accordance with the information included in the Contract, with the approval of the Engineer, set out, mark and maintain until they are no longer required, all reference lines, templates, bench marks and markers, permanent or temporary, necessary for the setting out and checking the works. The Contractor shall keep updated schedules and drawings of such information which he shall supply to the Engineer as the setting out proceeds.
- 8.2 Where setting out markers are likely to be disturbed during the works, the Contractor shall, subject to the prior approval of the Engineer, transfer such markers to an adjacent point.
- 8.3 The Contractor shall not commence either general site clearance or fencing before obtaining the approval of the Engineer to the setting out of the site boundaries.

### Bench Marks

- 8.4 At the outset of the contract the Engineer will supply primary control stations giving co-ordinates and level datums for use in setting out the works.
- 8.5 Contract Bench Marks shall be sited for each section or phase of the works such that access to them is within the site and that no time will site personnel be required to cross a live carriageway to reach them.
- 8.6 If any of the bench marks become displaced during the contract, then the Contractor shall re-establish them immediately at his own expense and provide the Engineer with the amended co-ordinate and level values.

## **9. Privately and Publicly Owned Services and Supplies**

- 9.1 The Contractor shall make arrangements with the Statutory Undertakers and others concerned, for the co-ordination of his work with all work which needs to be done by them or their contractors concurrently with the works.
- 9.2 Private Services to individual properties are not generally listed or are shown on drawings. The Contractor shall make arrangements with the Statutory Undertakers

and others concerned for the phasing of all necessary disconnections of private services affected by the works.

- 9.3 Disconnected apparatus can be removed by the Contractor only with the prior approval of the Authority concerned.
- 9.4 Special requirements of the individual Service Companies will need to be obtained by the Contractor from the relevant companies before commencement of work.
- 9.5 The Contractor shall be responsible for locating all existing services (including mains, sewers, cables, plant equipment, apparatus etc) within the site.
- 9.6 No service trench is to be backfilled until such time as the position of the services have been recorded and validated by the Engineer.

## **10. Traffic Safety and Management**

### Responsibility for Traffic Safety and Management

- 10.1 The Contractor is responsible for the traffic safety and management and associated works, complying with the requirements and advice in the following publications;
  - a. Safety at Street Works and Road Works – A Code of Practice – issued jointly by the Department of Transport, the Scottish Office and the Welsh Office.

### Definitions

- 10.2 Generally the terms used are as described in the Traffic Signs Manual Chapter 8 Topic 1 Sections 1.1 and 1.2 with the addition of the following;
  - a. The word “should” where used in the Traffic Signs Manual Chapter 8 shall be regarded as a requirement of the contract.
  - b. “Traffic Safety and Management System” shall be defined as any system comprising the use of signs, lamps, cones and other aids to traffic movement placed on or adjacent the Public highway or Private Access.

### Design Requirements

- 10.3 The Contractor shall design the Traffic Safety and Management Systems in specific phases compatible with his contact programme and seek full approval from Gloucestershire County Council, Oxfordshire County Council, West Oxfordshire District Council, Cotswold District Council and Forest of Dean District Council.

### Works Traffic

- 10.4 Only vehicles and plant essential for carrying out the works shall be allowed to enter the working space. Any vehicle deemed by the Engineer to be non-essential (especially private cars), and any vehicle not complying with Clause 117 shall not be permitted to remain within the working space. If necessary, the contractor shall provide and maintain an area separate from the site for the long term parking of his employees' and his sub-contractors' employees' private vehicles. The location of such a parking area shall be subject to the Engineer's prior approval. The Contractor shall arrange if necessary, for the transport of personnel between the parking area and the site.

- 10.5 The Contractor shall ensure that all vehicle and plant movements within any working space do not exceed a speed of 20mph. Suitable notices drawing drivers attention to this requirement shall be posted at all entrances to working spaces and at regular intervals within any working space. The Engineer may require the installation of speed ramps at the Contractor's expense if this requirement is repeatedly ignored.
- 10.6 Hazard warning lights, in lieu of roof mounted amber flashing lights, shall not be used.

#### Safety Zones

- 10.7 Safety Zones shall be kept clear of personnel, plant and materials at all times. The safety zones shall be physically marked out by cones or cylinders on the traffic boundary and by a continuous barrier on the works or inner boundary. The barrier shall be sufficient to keep pedestrians out and prevent inadvertent straying by site personnel. Tape systems may be used, but cord or rope shall not be used. The minimum lateral clearance shall be as laid down in the Traffic Signs Manual Chapter 8 paragraph 2.5.1.4 unless otherwise determined by the Engineer. The minimum longitudinal clearance shall be as laid down in the Traffic Signs Manual Chapter Table 2.2.

#### Existing Carriageway Markings

- 10.8 To avoid confusion the existing road studs or rubber inserts shall be removed as appropriate. Similarly existing white lines or markings shall be removed. During the removal of the traffic management system which has required any changes to the permanent markings or road studs the Contractor shall remove all temporary road markings and reinstate the original marking and studs, all to the satisfaction of the Engineer, prior to opening that part of the carriageway to public use.
- 10.9 Temporary Thermoplastic lines may be used only when;
- a. the subsequent Traffic Safety and Management Systems do not require public use of that part of the carriageway and
  - b. the carriageway is to be reconstructed or covered by a new wearing course.

#### Traffic Safety and Management Patrols

- 10.10 During the period when any Traffic Safety and Management Systems are in operation on the site, the Contractor shall be responsible for patrolling in accordance with the requirements set out below;
- a. Any Traffic Safety and Management Systems that have become displaced and/or damaged in any way shall be repositioned and/or renewed immediately. In addition to patrolling, any defect in the Traffic Safety Management Systems reported to the Contractor by either the Police, Public or the Engineer shall be rectified within two hours of that notification. If the Contractor fails to rectify the defect within the two hour period then the Engineer shall mobilise the Employer's Emergency Service for the area and shall recharge the Contractor accordingly for the time of that visit even if no work is carried out.
  - b. The Contractor shall ensure that a sufficient stock of spare signs, lamps, cones and other aids to traffic movement are available on site to immediately make

good all reasonably foreseeable damage to the Traffic Safety and Management Systems.

#### Timing of Operations

10.11 The Engineer may permit pre-placement of traffic signs prior to the date of commencement of the works. Such signs shall be placed, and suitably covered prior to the commencement of the works, in agreed locations so as not to cause hindrance to passing motorists and pedestrians.

#### Portable Traffic Signals

10.12 The Contractor shall apply to the Local Highway Manager for permission to erect Portable Traffic Signals. The following minimum periods of notice, required by the Local Highway Manager, to give approval shall apply;

- |  |         |
|--|---------|
| 1. Sites requiring simple two way shuttle arrangements | 7 days  |
| 2. Sites such as junctions requiring more and 1. above | 21 days |

Should emergencies occur during or outside normal office hours, the Local Highway Manager must be contracted prior to the actual installation of traffic signals to ensure adequate supplementary traffic management measures are carried out. The form must then be submitted for approval on the next work day.

10.13 Traffic control signal equipment and operational facilities shall comply with the Department of Transport's Specification MCE0111 "Traffic Signal Control Equipment for use at Roadworks", the current Traffic Signs Regulations and General Directions together with the Department of Transport's Standard RD21/85, and the requirements laid down in the Traffic Signs Manual Chapter 8, Topic 4, Sections 4.25 to 4.28.

10.14 The Contractor shall satisfy the Engineer that immediately before delivery to site the apparatus has been inspected and tested as described in the Traffic Signs Manual Chapter 8 Appendix 5 Section 3. Only then shall the apparatus be installed on the site. The installation shall be carried out by a competent engineer.

10.15 The operative in overall control of the roadworks shall fully understand the signing requirements and the correct operation of the signals. The Contractor shall ensure that the operative has attended a training course on the use of the portable traffic signal equipment as described in the Traffic Signs Manual Chapter 8 Appendix 5 Section 2.

10.16 Traffic signals shall be vehicle actuated and shall also be capable of being operated on fixed time and manual modes.

10.17 Wherever possible temporary traffic signals shall be operated off mains supply.

10.18 Any alternative single way traffic working shall be controlled by traffic signals. The maximum length alternative single traffic working controlled by signals shall be as follows unless otherwise agreed by the Engineer;

1. With only one length of single way traffic working at any one time a length of 200metres.
2. With two lengths of single way traffic working at any one time a length of 150 metres for each length of working. If two sets of signals are to be used then a

clear two way traffic length of at least 300 metres must be maintained between the two sets.

- 10.19 Where a 3-phase operation of traffic signals is necessary approval must be obtained from the Local Highway Manager. A minimum of 3 weeks' notice is required together with details. The maximum length of single way working with 3-phase traffic signal operation will be significantly reduced from 200 metres.

#### Remedial works and work carried out during the Maintenance Period

- 10.20 The Contractor shall obtain prior approval from the Engineer for the Traffic Safety and Management proposals and timing of all operations covering all work to be carried out during the period of maintenance.

#### Maintenance Requirements

- 10.21 Until the issue of the Certificate of Completion, the Contractor shall be responsible for maintaining all lengths of the highway including its lighting, safety fences etc on which any works are to be undertaken under the contract and the highway approaches thereto. He shall also ensure that such lengths and approaches are kept free of litter and refuse, to the standards detailed in the Environmental Protection Act 1990, within the stated timescales.

- 10.22 The public highways with the site shall, under the terms of the Environmental Protection Act 1990, be regarded as Zone 2.

#### Control of Dust and Mud on the Road

- 10.23 The Contractor shall take all necessary steps to avoid creating a dust nuisance. If in the opinion of the Engineer the Contractor is not dealing adequately with the control of dust, the Engineer may instruct the Contractor to carry out such additional measures as the Engineer considers are necessary, at the Contractors expense.

- 10.24 The Contractor shall keep all roads, accesses, rights of way etc. leading to, from or crossing the site free from mud, slurry or other hazardous substance that is deposited through his operations. Any such substances deposited by the Contractor or his sub-contractor or any persons authorised to enter the site on any such road shall be promptly removed by the Contractor at his expense.

- 10.25 In the event of vehicles using an access depositing mud or other dirt onto a public road or way, the Engineer shall immediately close that access and require the Contractor to take whatever steps required by the Engineer, police or highway Authority to clean the road or way. The Engineer will not permit re-opening of the access until he is satisfied that no further deposition will occur.

- 10.26 Compliance with the foregoing will not relieve the Contractor of his responsibilities for complying with the requirements of any Authority in respect of keeping the highway clean.

### **11. Information Boards**

- 11.1 Information boards shall be erected to the requirements of the Engineer.

- 11.2 Type and position of Contractors/Clients information boards to be agreed with the Engineer.

## 12. Substances Hazardous to Health

### General

- 12.1 In connection with substances hazardous to health, the Contractor shall be responsible for taking all reasonable steps, including COSHH assessments, to secure the safety of his employees, members of the Council staff and members of the public through the carrying out of all reasonable steps in connection with;
1. Traffic management measures
  2. Working practices
  3. Monitoring

This is included in the contract because substances that may be hazard to health are sometimes specified for use in the works in this contract.

- 12.2 The Engineer shall be informed immediately of any hazardous material found on site.
- 12.3 The Contractor shall ensure that his operatives and sub-contractors comply with all requirements of the Health and Safety Executive and Codes of Practice etc in handling and disposing of hazardous material.

## 13. Earthworks

### General

- 13.1 The Contractor shall take all due care to avoid damage to surfaces adjacent to the works and shall include in his rates for reinstatement of such areas.
- 13.2 Trial holes in any material other than hard material shall include backfilling with Type 1 Stone material and compaction in accordance with the Engineer's specification.
- 13.3 Trial holes in hard material shall include reinstatement of the hole with material and thicknesses to be compatible with adjacent construction materials.

### Earthworks classification will be made by the Engineer in areas of cut

- 13.4 If in the opinion of the Engineer any material has altered its classification or become unacceptable for whatever reason, the Engineer may require the classification and acceptability tests to be repeated.
- 13.5 Sampling of materials by the Contractor for earthworks classification testing will normally be undertaken in conjunction with the Engineer. The Engineer will be notified of the intention to sample at least 1 hour in advance, at which time the Engineer may give approval for sole sampling by the Contractor. **Earthworks classification will be made by the Engineer at the point of excavation for on-site material, or at the point of deposition for imported materials.**

### Requirements for Excavation, Deposition, Compaction (other than Dynamic Compaction etc)

- 13.6 Compaction of all earthwork's materials shall, except for those formed by filling for batters and landscape bunds where Method Compaction is permitted, be End Product Compact, including drainage trench backfill. Materials so compacted shall achieve a minimum of 95% of the maximum dry density.
- 13.7 The upper 300mm of landscape bunds shall be tined/ripped by mechanical means prior to the depositing of topsoil thereon.
- 13.8 Where pipes for drainage are installed by open-cut methods beneath carriageway at or deeper than 5m from the underside of the sub-base material then a time period of six weeks shall elapse after backfilling and compacting before the carriageway pavement including the sub-base shall be laid.
- 13.9 The use of Nuclear Density Gauges is permitted for measuring field dry densities.
- 13.10 Trench excavations of excavations beneath carriageways are not permitted to be battered.

#### Preparation of Topsoil for use

- 13.11 Prior to deposition in the works, all topsoil shall be sieved to remove all stones, roots, lumps etc. Upon completion of the sieving, the topsoil shall be deposited and spread.
- 13.12 Upon completion of the deposition and spreading of the topsoil, final preparation works shall be carried out prior to any grass seeding or turfing works. All grass seeding and turfing works shall be carried out to the satisfaction of the Engineer.

### **14. Geotextiles**

#### Geotextiles and Geogrids Used To Separate Earthworks Materials

- 14.1 The Geotextile shall be made of a thin permeable synthetic membrane and have a 20 year design life.  
Lapping shall be to Clause 609.5  
Loading: Not less than 2.4kN in any direction  
Minimum puncture resistance 6.0kN as measured in BS6906: Part 4: 1988  
Pore size shall be in the range 60 to 400 microns as BS606: Part 2

### **15. Pavements**

#### Preparation of Surfaces

- 15.1 Before laying any pavement course, the underlying surface shall be cleaned of all dust, debris, loose and deteriorious materials.
- 15.2 Any Bituminous surface which has been left uncovered for more than three days, or has been planed shall be sprayed with tack coat.
- 15.3 Joints between new and old surfaces shall be cut on diagonal horizontal line across the carriageway. The edge faces of joints shall be vertical. Edge faces of wearing course joints shall be treated with grade 200 pen bitumen and band sealed on the surface.

#### Permanent Reinstatements

- 15.4 All permanent reinstatements in the public domain will be required to be carried out to the NRSWA (section 71) Reinstatement Standards (methods and materials).

#### Bituminous Sprays

- 15.5 The Contractor shall apply a tack coat to all existing bituminous surfaces to receive bituminous overlays.

#### Type of Binder

- 15.6 The Binder shall be bitumen emulsion BS 434 Part 1.

#### Binder Grade

- 15.7 The binder shall be Class K1-40.

#### Rate of Spread

- 15.8 Rate of spread shall be 0.35 to 0.55 litres/m<sup>2</sup>, except where applied to previous macadam when the rate of spread shall be 0.4 to 0.65 litres/m<sup>2</sup>.

### **16. Concrete Reinforcement**

#### Concrete

- 16.1 Reinforcement to comply with following standards;
- Grade 250 reinforcement complying with BS4449.
  - Grade 460 type 3 reinforcement complying with BS4449 or BS 4482.
  - Stainless reinforcement complying with the grade and type selected from BS6744.

### **17. Brick, Blockwork and Stonework**

- 17.1 Sulphate Resisting Portland Cement complying with BS 4027 Class 2 shall be used for all underground and underwater brick and stonework.
- 17.2 Mortar Designation for general brick and stone work to be in accordance with the site instruction of the Engineer.
- 17.3 Claybrick to be in accordance with BS 3921 Class B Engineering brick showing a crushing strength of not less than 20 N/mm<sup>2</sup> when used for surface water drainage.
- 17.4 Facework is to be tied to retaining walls and parapets using stainless steel dovetailed safety ties (Ancon type S21 or similar approved equivalent) at 450 centres vertically and 900 centres horizontally, placed into dovetail into dovetail slots cast into face of concrete work.
- 17.5 Locations of contraction joints in reconstructed stonework are to be generally at no more than 6m centres. Joints to be tied as shown on the typical contraction joint detail. Joint to be filled with 10mm proprietary filler material ("Hydrocel" or similar approved equivalent) mastic sealed with a proprietary compound colour matched to the facing work.

## 18. Grass Seeding

- 18.1 Grass seed shall only be sown during the growing period.
- 18.2 All areas to be seeded or turfed shall be finally cultivated. All areas shall be fertilised at the rate of 75gm m<sup>2</sup> during the final cultivation prior to seeding.
- 18.3 Grass seed for use in highway verges, swales etc shall comply to the following mix;

Seed Mixture (per 50kg)

	<b>kg</b>	<b>%</b>
Perennial Rye Grass	12.5	25
Strong Creeping Red Rescue	10.0	20
Hard Fescue	15.0	30
Smooth-Stalked Meadow Grass	5.0	10
Highland Browntop Bent	5.0	10
Huia White Clover	2.5	5

- 18.4 The use of Hydraulic Mulch Seeding will be permitted.
- 18.5 The seeding shall be repeated until such time as an evenly distributed dense sward is established over the seeded area or until advised by the Engineer.
- 18.6 All areas of seeding shall be adequately watered to ensure an evenly distributed dense sward is established over the seeded area.