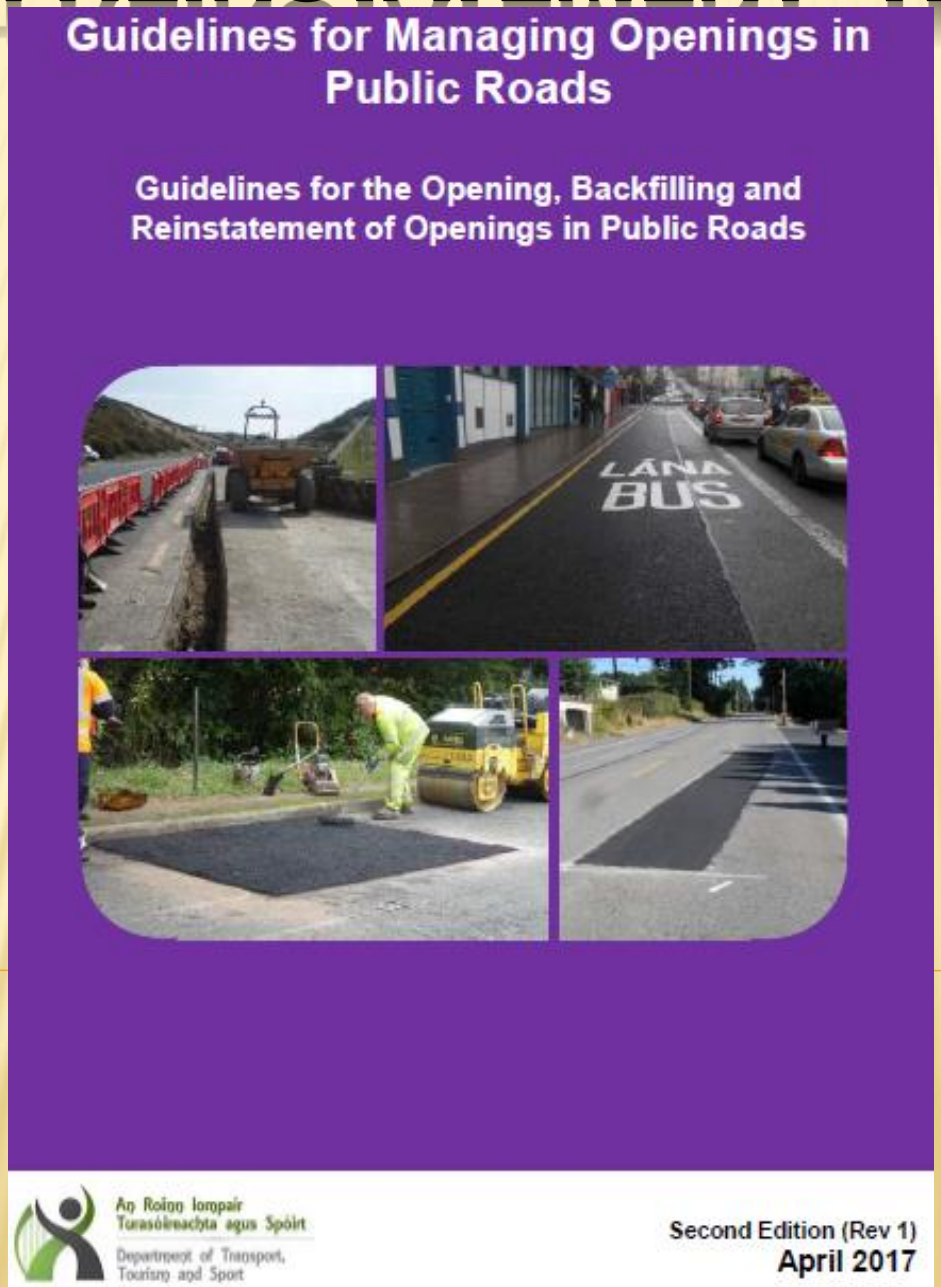
The Institute of Asphalt Technology
Irish Branch

Trench Reinstatement Training

TRENCH REINSTATEMENT TRAINING



HAVE YOU EVER DONE ONE OF THESE :

An Roinn Iompair,
Turasóireachta agus Spóirt
Department of Transport,
Tourism and Sport

6th February 2019 RW 05 of 2019

Re: - Guidelines for Managing for Managing Openings in Public Roads (2017)

Dear Director of Services,

In relation to the above Guidelines for Managing Road Openings, issued by way of Department Circular RW 5 – 2017, as part of which the Department advised of phasing in arrangements. In that regard the Department now sets out the following requirements in relation to Training and Roles and their effective dates for completion.:-

1. In relation to the requirement to have suitably trained personnel on site for the carrying out of works (Section 5.4) the Department now confirms that this requirement will be mandatory from Friday 27th September 2019. All required personnel shall have been trained in accordance with the LASNTG Basic Trench Reinstatement Course.

2. In relation to the requirement to have suitably trained personnel on site in relation to the carrying out of oversight/monitoring/inspection/sign of reinstatement works (Section 5.4) the Department now confirms that this will be mandatory from Friday 27th September 2019. All such personnel shall have been trained in accordance with the LASNTG Advanced Trench Reinstatement Course.

Details in relation to training are available from LASNTG (Local Authority Services National Training Group) www.lasntg.ie or your relevant Regional Training Centre.

You are asked to bring this to the attention of all those who carry out roadworks (including road openings) in your city/county.

Yours sincerely,

Paul Harrington
Roads Division

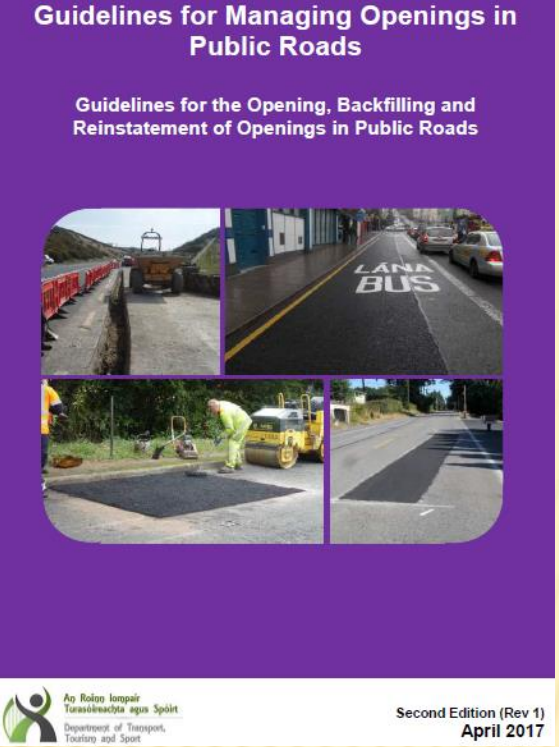
c.c. All Chief Executives
All Senior Engineers

22-25 Sráid an Chláraigh,Baile Átha Cliath D02 HC42, Éire
22-25 Clare Street, Dublin D02 HC42, Ireland
T +353 1 6707444| info@dttas.gov.ie
www.dttas.gov.ie

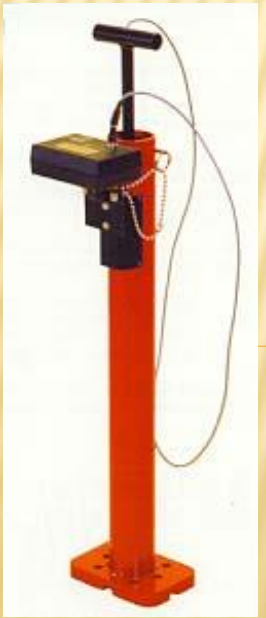
- Persons working in Excavation and trench reinstatement shall be suitably trained and training is mandatory from Friday 27th September 2019 in accordance with the LASNTG (Local Authority Services National Training Group) Basic Training Course

- Persons working Overseeing /Monitoring /Inspections of Excavation and Trench Reinstatement shall be suitably trained and training is mandatory from Friday 27th September 2019 in accordance with the LASNTG (Local Authority Services National Training Group) Advance Training Course

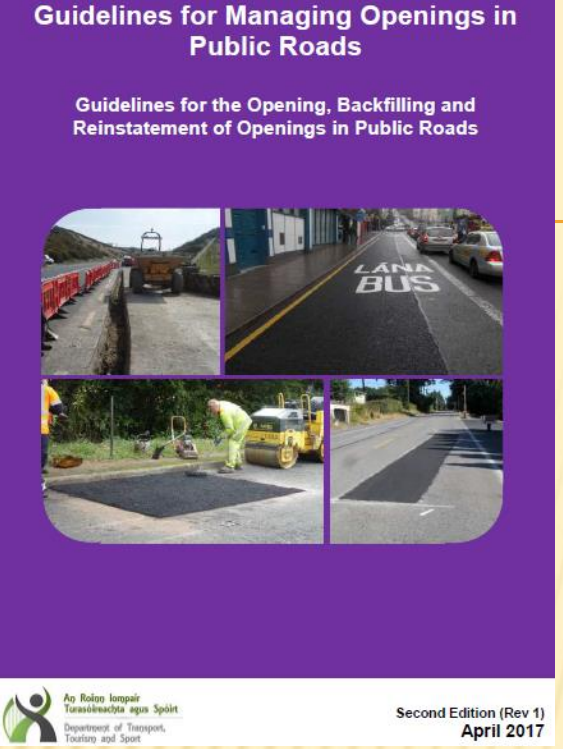
We (Local Authority Services National Training Group) are rolling out Basic (2 Day Course) and Advanced (1 Day Course) courses in Road Opening and Reinstatement on Public Roads in all Regional Training Centres Nationwide



Road Opening and Reinstatement – Basic (2 Days)



Version: February 26th 2018

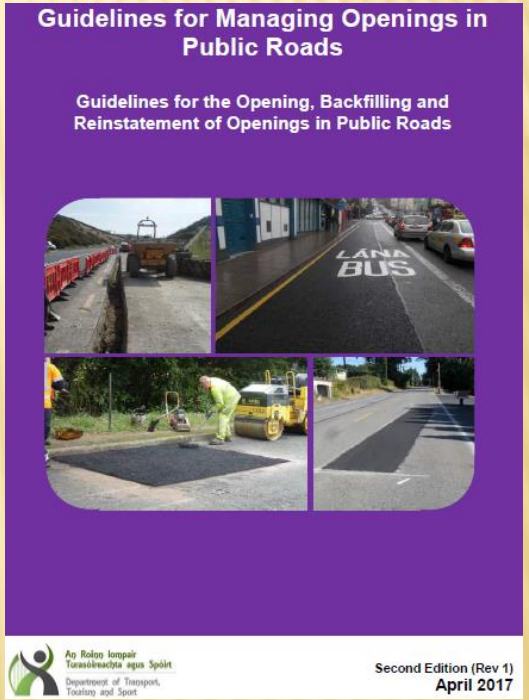


Road Opening and Reinstatement - Advanced (1 Day)

Version.©Nov 8th 2018

REASON FOR REVISION OF GUIDELINES

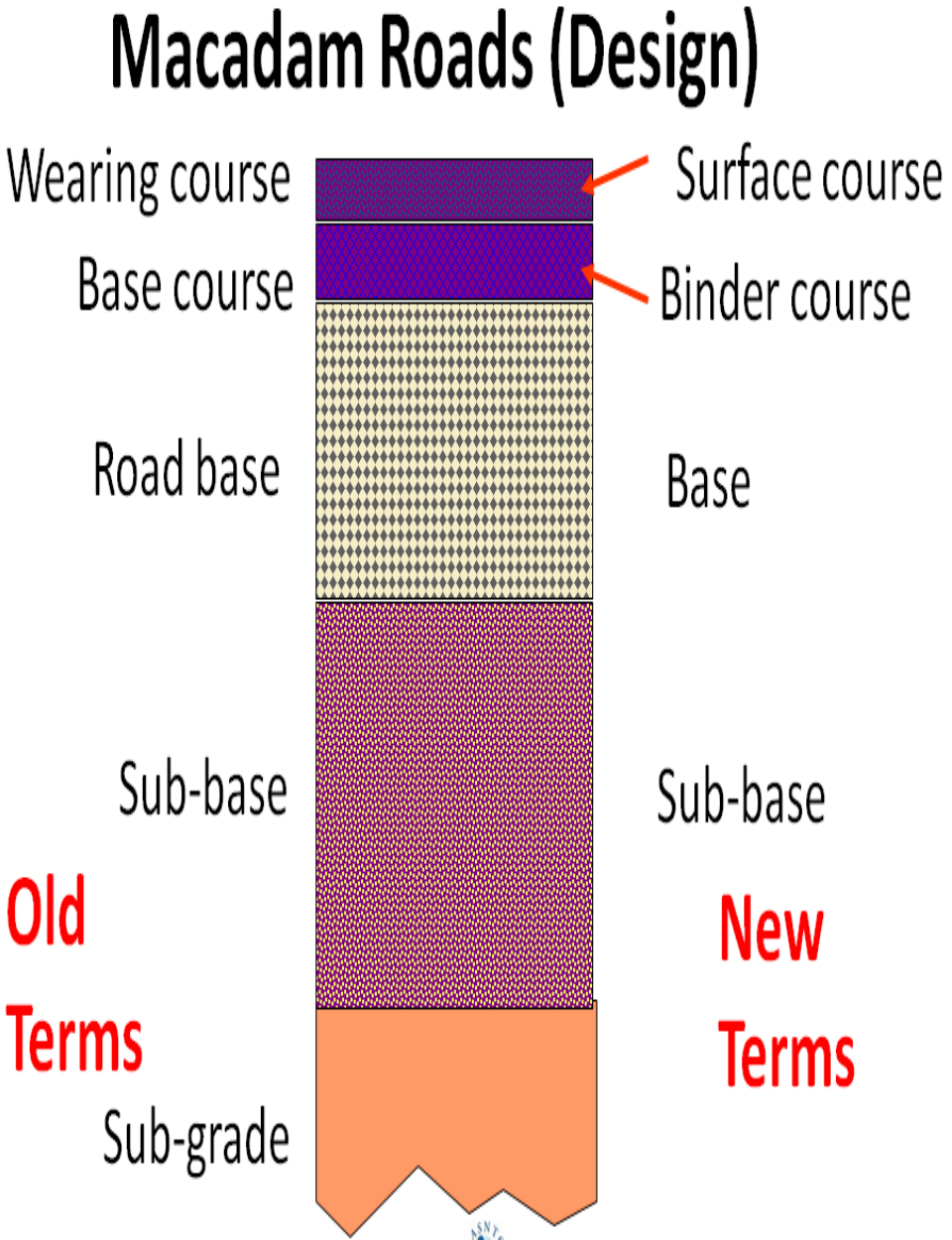
- National Consistency
- Updated Standards & Codes
- NRA (TII) Standards
- New Legislation
- Online Licensing (MRL)
- Compliance Required
- Reduce impact on road network
- Environmental/Economical factors
  Broadband, National Utilities



BENEFITS OF THE MRL SYSTEM

- Consistent National Approach
- Specific Authority and Applicant Responsibilities
- Communication between Applicant and Authority
- A Work Management System for Road Openings
- Unlimited capacity for Applications and Storage
- Increased Knowledge / Control of Roadworks
- Links to Local Authority Asset Management Systems
- Monitor Applicant and Authority Performance
- Reporting functionality for Applicant and Authority
- On-going development and improvement of processes

History of Roads



- Correct methods of excavation
- Material appreciation
- Reinstatement methods: Temporary / Permanent to public roads and footpaths
- Compaction equipment / methods
- Reinstatement of Ironworks, Access Chamber, Street Furniture, Edges and Joints

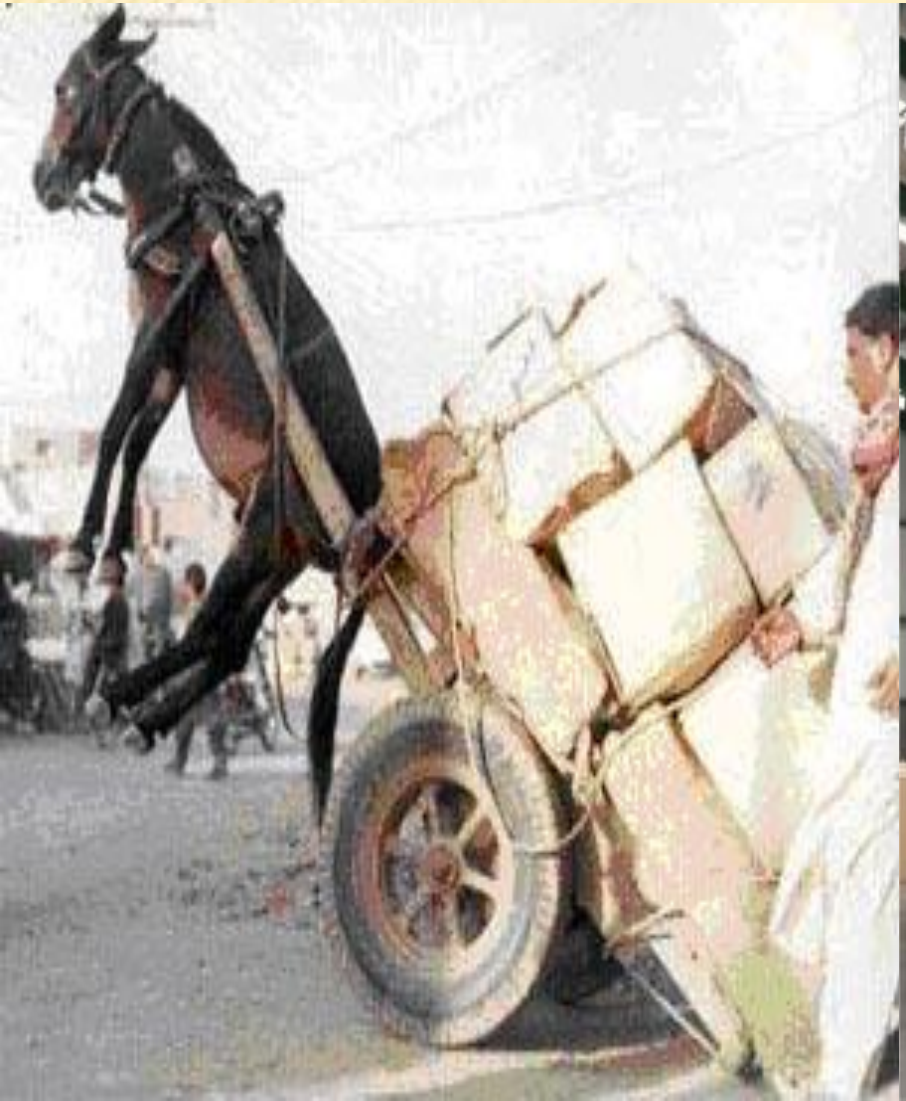

SAND
12.04.2016


17.12.2016

Consequences of Incorrect Procedures

- Road accidents
- Public liability claims
- Damage to services
- Waste of public resources

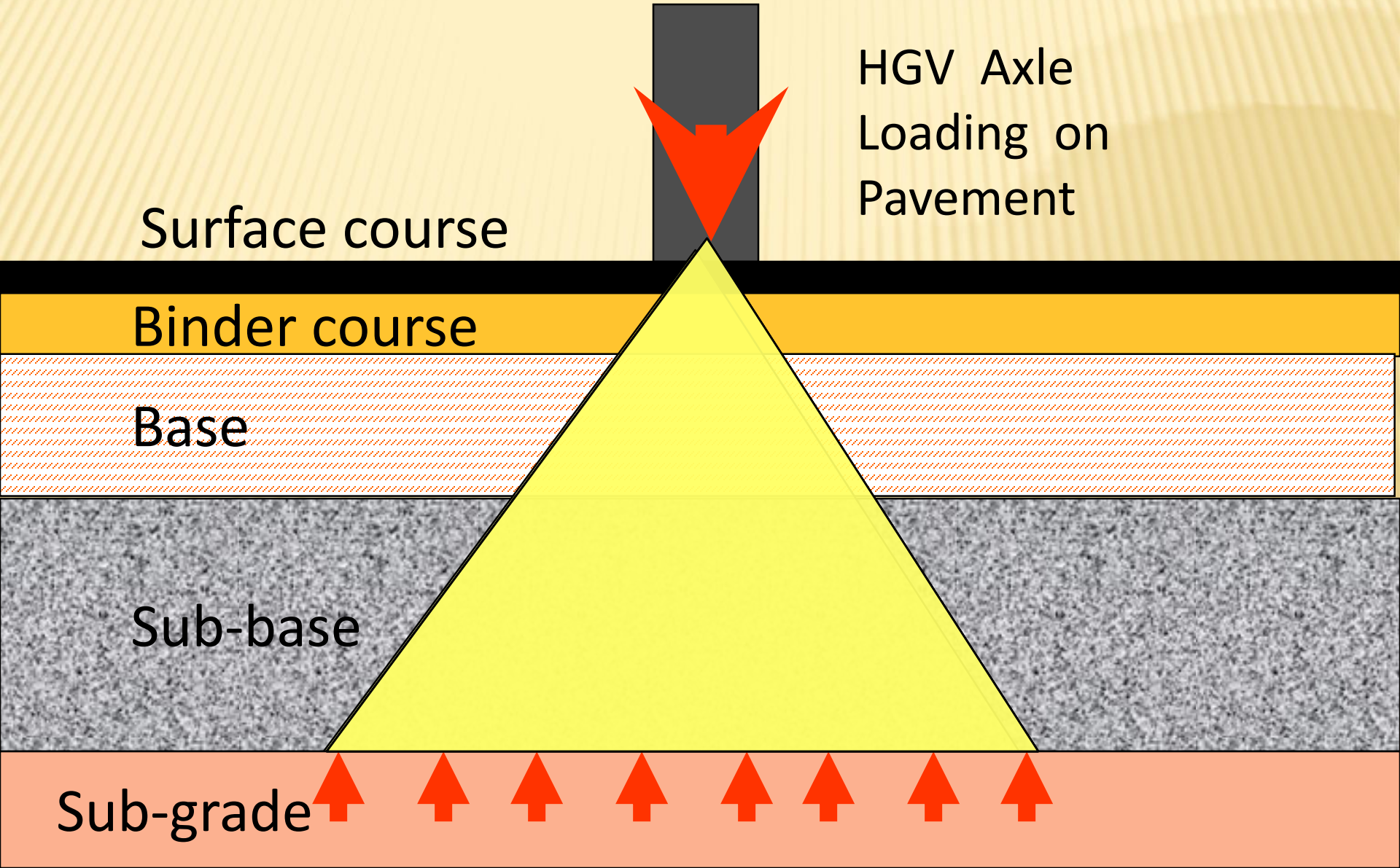
WHY IS THIS HAPPENING ON OUR ROADS



MAIN CAUSES OF DAMAGE TO OUR ROADS

- causes of damage to road structure are Heavy Goods Vehicles (HGV)
- 1 HGV = 10,000 Cars

LOAD DISTRIBUTION

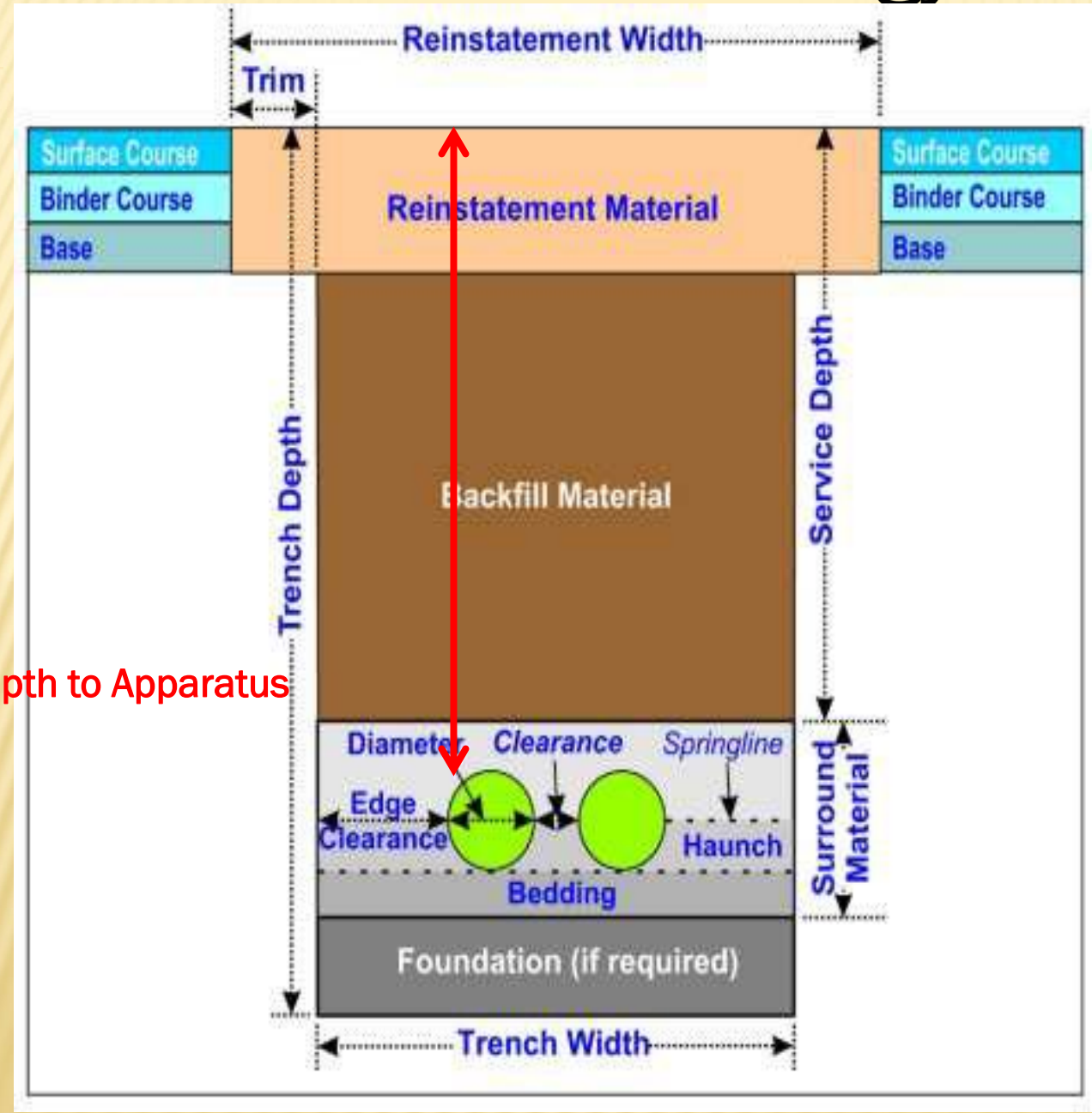



RAMP
CAUTION
RAISED
MANHOLES


14.01.2017

WATER ENTERING THE ROAD STRUCTURE

6.3.5 Trench Terminology




4
6

Assessment of Ground Conditions at Base Level Penetrometer cone test


RYA


170
B°R

Compaction Traditional Method

MODERN COMPACTION

- Material should be compacted in layers by mechanical means using either Vibratory Rollers, Vibrating Plate, Vibrotamper
- Compaction plant should be selected carefully to give the best results on the material used

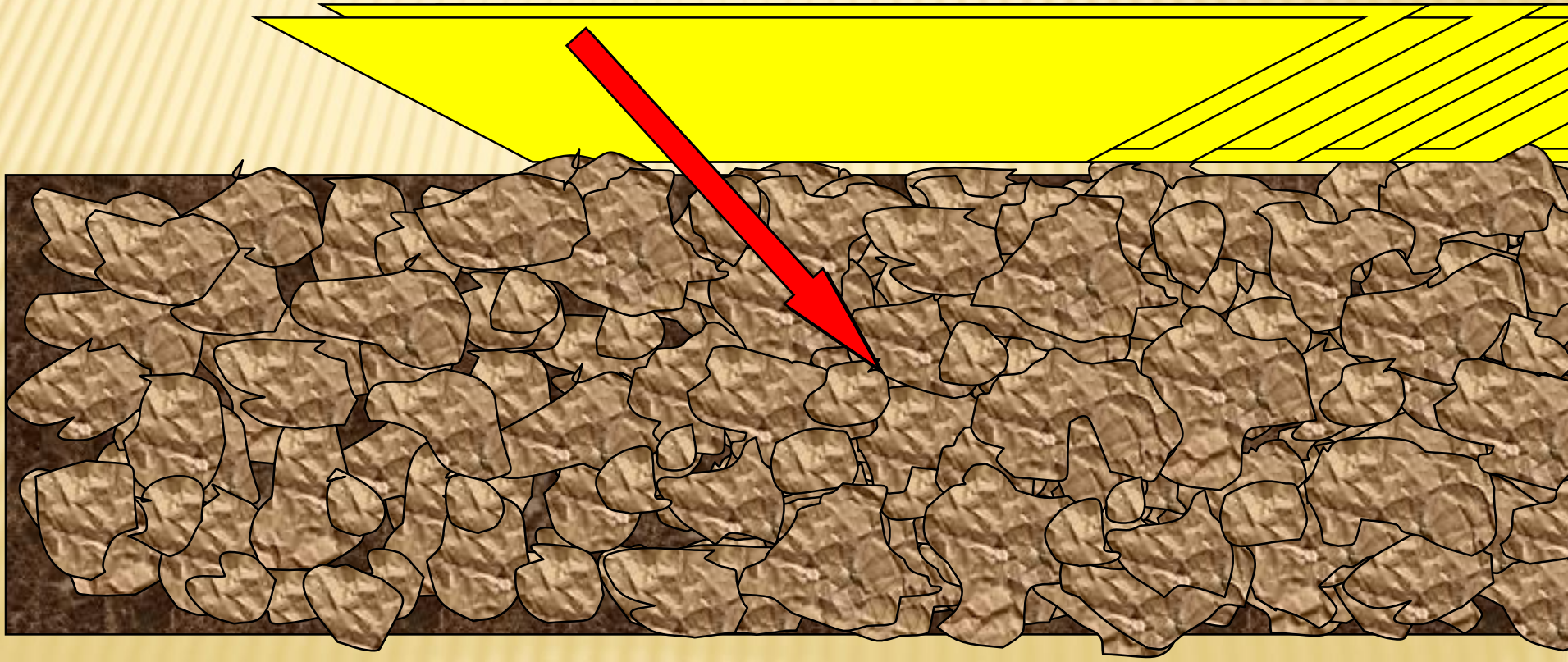
Compaction

WHY?

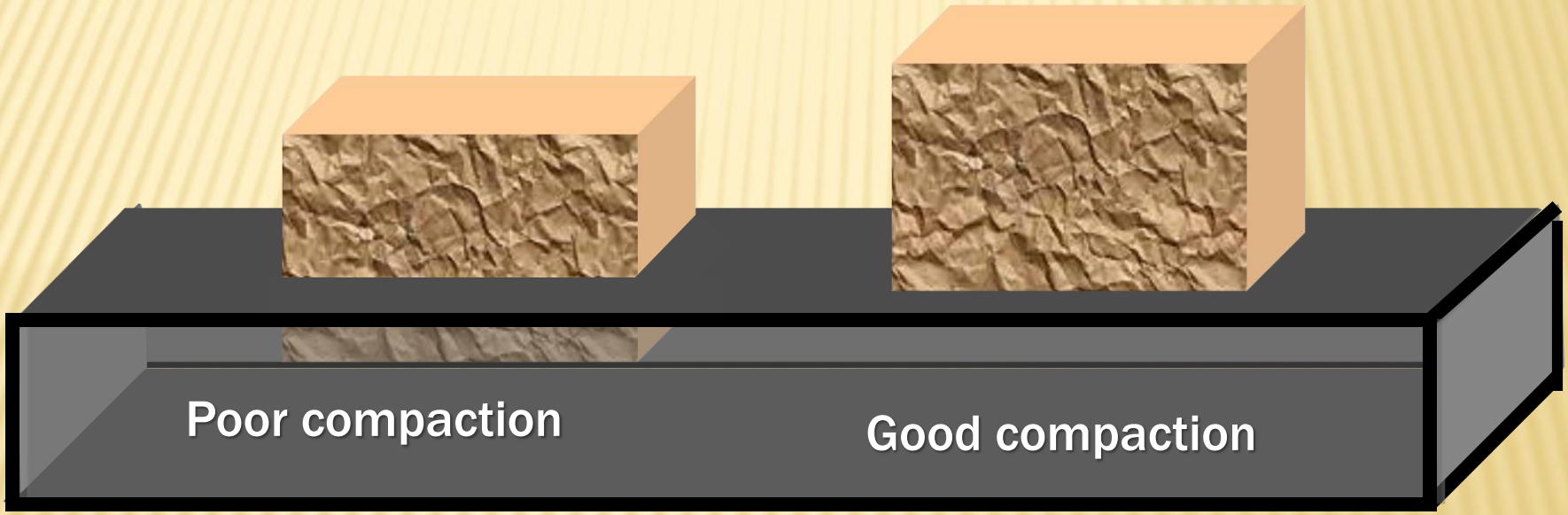
- Consolidates materials
- Removes air voids
- Increases density and load bearing capacity of material
- Will prevent settlement

Compaction of granular soil using a vibration plate

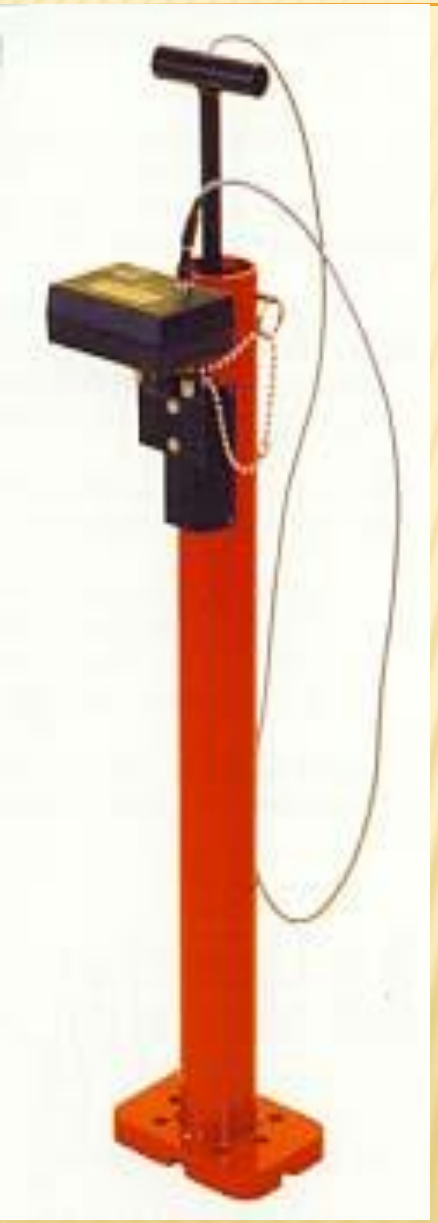
Note how particles become realigned closer together for greater strength.



LOAD BEARING CAPACITY INCREASES



METHODS OF CHECKING COMPACTION



CBR - California Bearing Ratio

Impact Soil Tester

Nuclear density test

Table 6.5.4 Compaction Requirements for Unbound Materials/Bituminous Mixtures

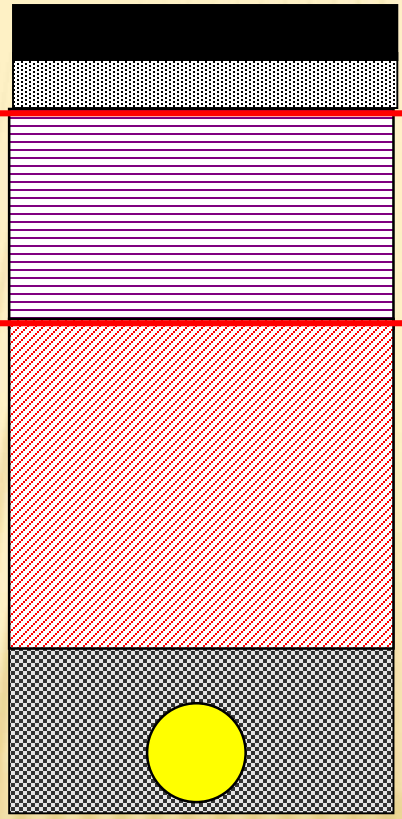
Type of Compaction Plant	Weight Category	Minimum passes per compacted lift thickness						
		Unbound Material			Bituminous Mixtures			
		100 mm	150 mm	200 mm	40 mm	60 mm	80 mm	100 mm
Vibratory roller; Single Drum	600 - 1000 kg/m	16	NR	NR	10	12	NR	NR
	1000 - 2000 kg/m	6	16	NR	6	10	NR	NR
	2000 - 3500 kg/m	4	6	10	5	7	8	NR
	Over 3500 kg/m	3	5	9	4	6	7	NR
Vibratory roller; Twin Drum	600 -1000 kg/m	6	NR	NR	5	7	NR	NR
	1000 - 2000 kg/m	3	6	NR	4	5	6	8
	2000 - 3500 kg/m	2	3	4	3	4	4	6
Vibrating-plate compactor	1400 - 1800kg/m^2	8	NR	NR	6	NR	NR	NR
	1800 - 2100kg/m^2	5	8	NR	3	5	6	8
Vibro-tamper	50 - 65kg	4	8	NR	NR	NR	NR	NR
	65 - 75kg	3	6	10	NR	NR	NR	NR
	over 75kg	2	4	8	NR	NR	NR	NR
Power Rammer	100 - 500kg	5	8	NR	NR	NR	NR	NR
	over 500kg	5	8	12	NR	NR	NR	NR
Alternative Compaction Plant for Areas of Restricted Access (including small excavations and trenches less than 200 mm width)								
Vibrotamper 25 kg minimum Percussive Rammer 10 kg minimum		Minimum of 6 compaction passes Maximum of 100mm compacted lift thickness			Minimum of 6 compaction passes. Maximum of 75mm compacted lift thickness.			

1) NR = Not Recommended
2) Twin drum vibrating rollers are preferred for compaction of bituminous mixtures
3) Single drum vibrating rollers are vibrating rollers providing vibration on only one drum
4) Twin drum vibrating rollers are vibrating rollers providing vibration on two separate drums

Target Impact Values (I. V.) for Flexible Carriageway

The Minimum at Top of Base 30 I.V.

The Minimum at Top of Sub - Base 21 I.V.



38 I.V. at the Top Base for Good Conditions

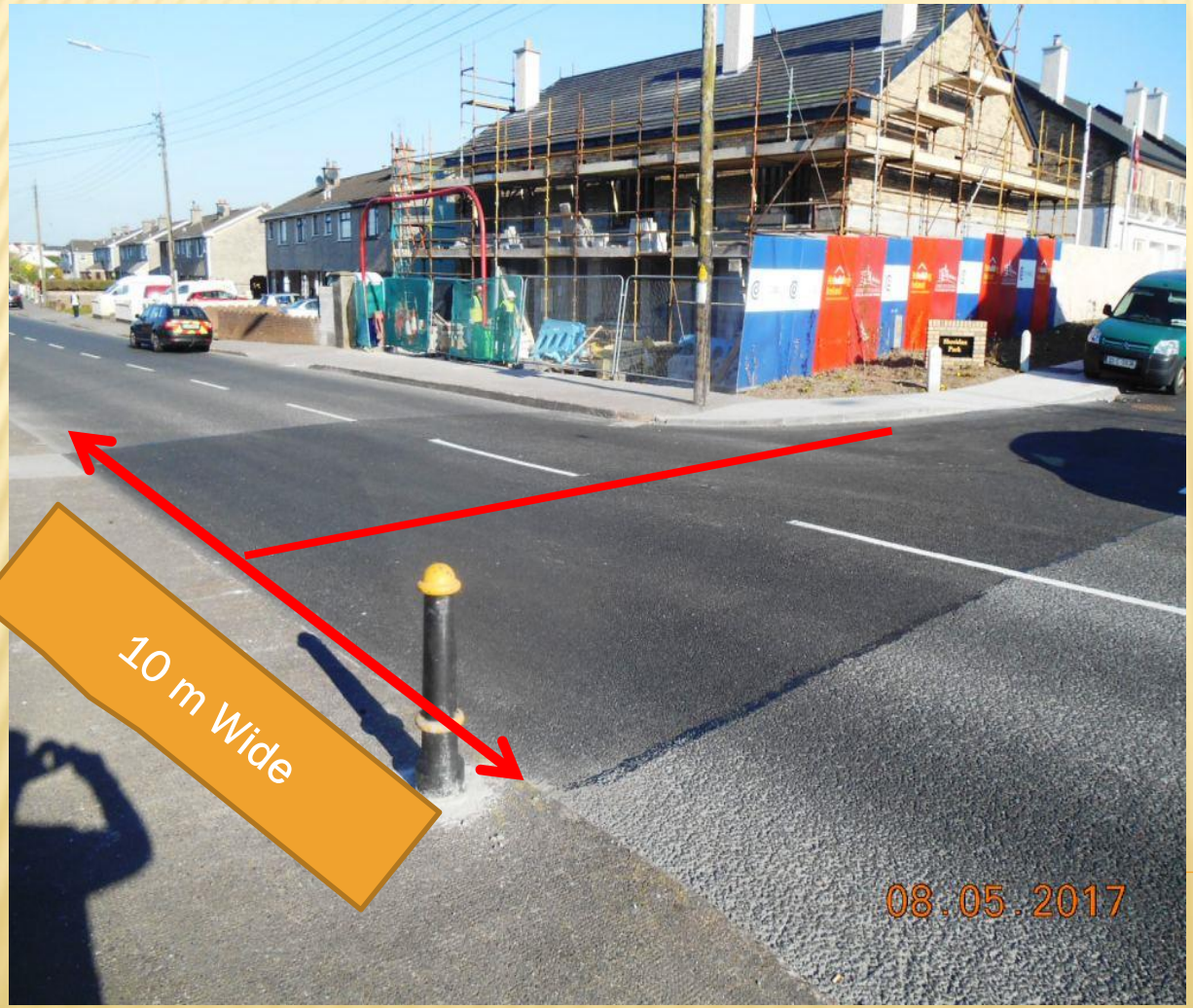
30 I.V. at Top of Sub - Base for Good Conditions

10mm Pea Gravel to IS. 505


CLEGG IMPACT SOIL TESTER
TYPE DST / 20J
IMPACT VALUE
DROP
ON
SDi
SIMON DEAKIN INSTRUMENTATION
TROWBRIDGE • ENGLAND
Manufactured under Soils UK Licence
From Dr. Baden Clegg

Reinstatement Temporary and Permanent

Additional Areas of Reinstatement



For transverse roadway crossings within the Protected Period

Full width reinstatement is required for a distance of 5m either side of the crossing.

Additional Areas of Reinstatement

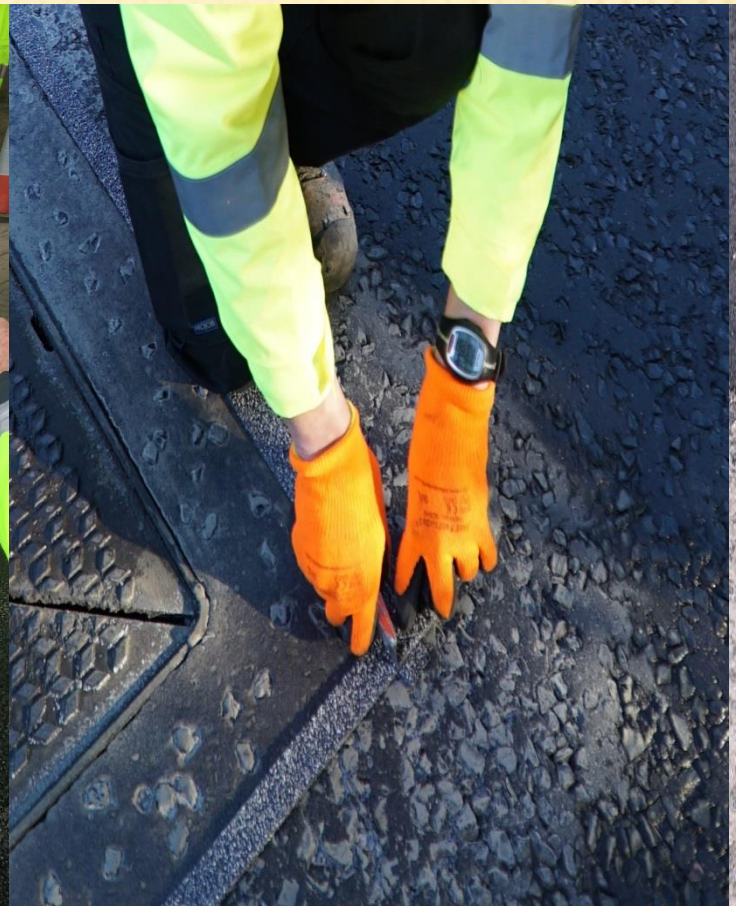
For transverse crossings within the Protected Period

Full footway bay reinstatement is required

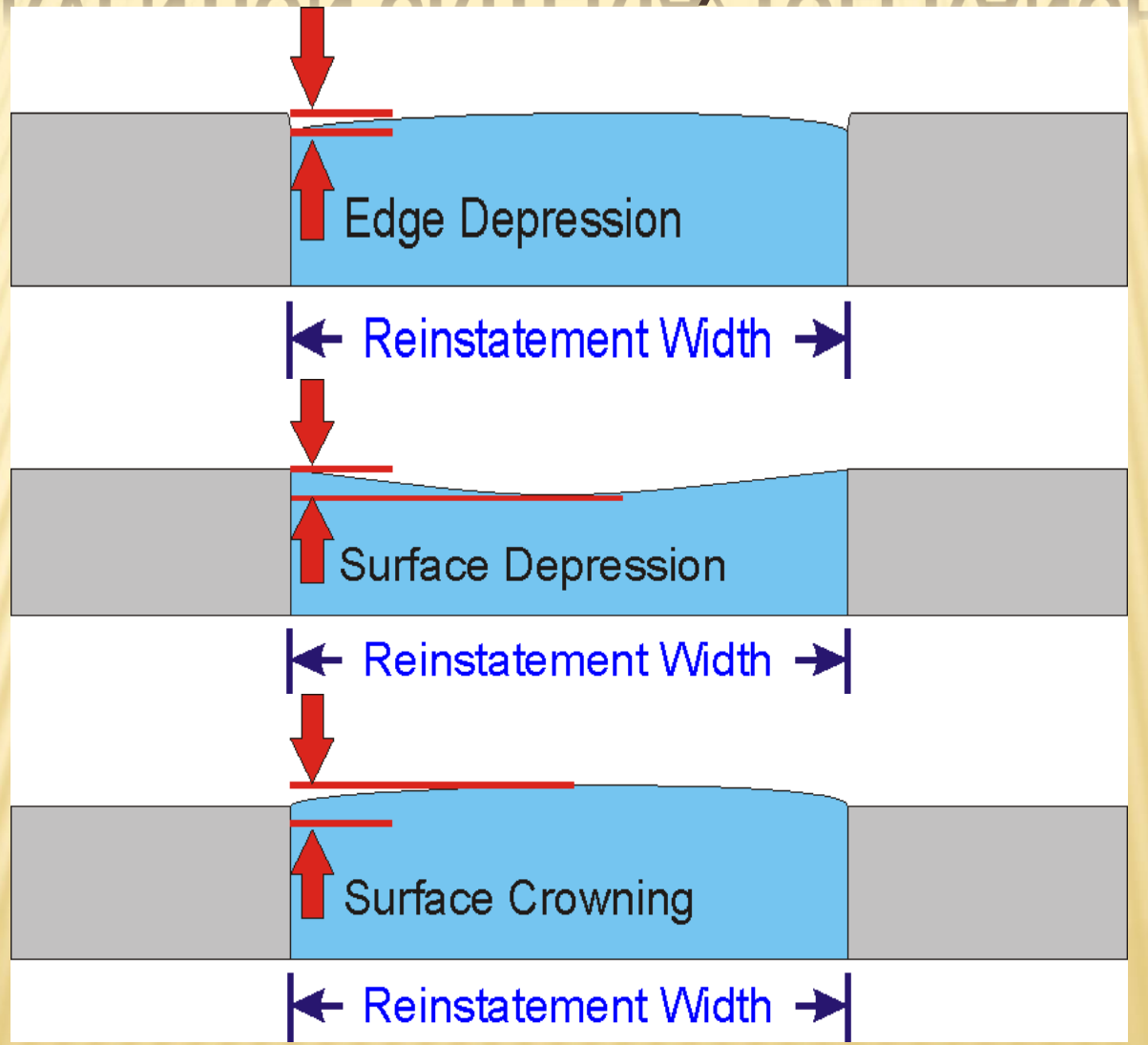

<400mm
11.06.2016

JOINTING / OVERBANDING TAPE

- Joints sealed with hot bitumen and topped with fine sand/grit to get a minimum 55 skid resistance value and shall not exceed 3mm depth and 50mm width or other method approved by the road authority



QUALITY CONTROL (INTERVENTION CRITERIA/TOLERANCES)



INTERVENTION LIMITS FOR BITUMINOUS SURFACES TABLE 6.8.2 INTERVENTION LIMITS

Intervention	Reinstatement Width (mm)						
	≤400	>400 & ≤500	>500& ≤600	>600& ≤700	>700 & ≤800	>800 & ≤900	>900
Edge Depression	5	5	5	5	5	5	5
Surface Depression	8	10	11	13	15	15	15
Surface Crowning	8	10	12	15	15	15	15
Combined Defect	10	10	10	12	12	12	22

Defects

Surface Defect

- Ravelling
- Bleeding
- Wear and Polishing
- Pop-outs
- Scaling

Pavement Deformation

- Rutting
- Surface Distortion
- Faulting

RECORD SHEET

Basic Trench Reinstatement – Site Record Sheet

Note: This record should be completed to demonstrate and record compliance with the requirements of the Guidelines for Managing Openings in Public Roads. To ensure that adequate records are retained for the Approved Certifier, at least one site record sheet should be completed per: Licence☐ Day ☐ Surface Type☐ Single trench☐ 20 metres of trench☐ Other_____

Record Sheet Completed by		**Date of Backfill**	
Site Location		**Date of Permanent Reinstatement**	
Licence Number		**Weather Conditions**	Wet☐ Dry☐ Freezing ☐
Client		**Additional Information:** Location of cutting changes, Other Services, Underground structures	
Standard Drawing No. (Purple Book)			

Trench/ Opening Dimensions		
Length(m)	Width(m)	Depth(m)

	Record of materials used on Site					
Layer	**Date**	**Material**	**Supplier**	**Docket Ref**	**Quantity**	Temperature
Permanent Surface						°C
Base						
Backfill						Moisture content Correct Yes☐ No ☐
Apparatus Surround						

Record of Site Tests			
Test Location	**Test Type**	**Chainage (m)**	**Result**
Formation	Penetrometer	1)	1)
		2)	2)
		3)	3)
During Backfill	Clegg Test	1)	1)
		2)	2)
		3)	3)
Top of Backfill	Clegg Test	1)	1)
		2)	2)
		3)	3)

Comment(s)	

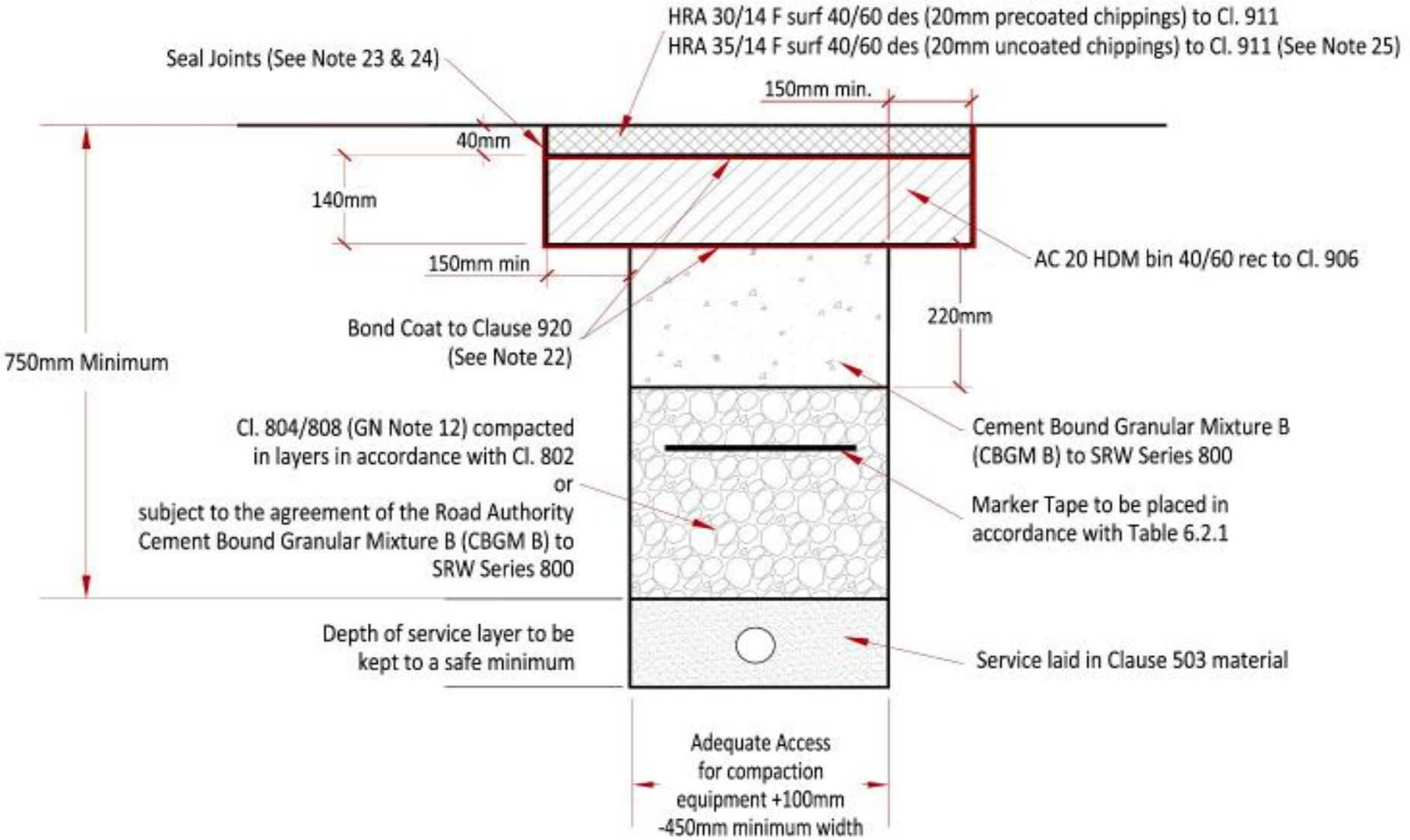
Signed: _____ Date:_____

14 STANDARD DRAWINGS

Roadways: Longitudinal Openings at Heavy Duty Locations

Permanent Reinstatement

Standard Drawing SD6



General Reinstatement Notes (GN1)

General Reinstatement Notes	General Reinstatement Notes GN1

to be read in conjunction with Chapter 6, General Arrangement and Standard Drawings

1. Compliance with these drawings and details are mandatory. Dependent on circumstances and where drawings provide options/alternatives, road authorities may specify one option only as being applicable. Where a utility has an approved equivalent detail for bedding and surround this may be substituted for the bedding and surround detail shown in the Standard Drawings, provided it is agreed with the road authority in advance.
2. Full width/lane/bay reinstatements works shall be machine laid with materials used in accordance with TII Specification for Road Works and use materials and depths of reconstruction to match the existing surface. *Note: Surface Dressing does not constitute full width reinstatement unless the structural Asphaltic Concrete (AC) layer is provided over the full width.*
3. On approach to the works site, the name of the contractor and Licence Holder must be clearly displayed with a 24 hour contact number.
4. All works shall have a temporary traffic management plan, which shall be available for inspection on site, and shall comply with the Traffic Signs Manual and health and safety requirements.
5. Prior to any excavation works taking place, the location of all underground and over ground services must be identified and marked by a competent person trained in the use of cable detectors. Contact shall be made with all relevant service providers in this regard.
6. All works and materials shall comply with the TII Specification for Road Works. Series 900 of that specification will be the March 2011 version. All other Series will be to the current version.
7. Excavation on a road should not be closer than 500mm to the kerb line in order to prevent undermining of the adjacent footway. The trench should be located so as to avoid surface joints being located in the wheel track as far as reasonably practicable.
8. All bound (or concrete) edges shall be saw cut to expose the full vertical thickness of each layer prior to excavation. All edges shall be essentially straight, smooth and vertical.
9. Excavations shall be sufficiently protected to avoid harmful effects caused by weather or adjacent wheel loading.
10. Refer to Chapter 6 for requirements on pipe/duct type/colour and marker tape.
11. The method of work shall ensure proper compaction and such compaction may be tested by the road authority. To ensure adequate compaction, minimum clearances must be maintained vertically and horizontally between individual ducts or services installed in a group.
12. Cl.808 to be used within 500mm of cement bound materials, concrete pavements, concrete structures or concrete products. Otherwise Cl. 804 may be used. Foamed concrete to Cl. 1043 may only be used as a bedding material or backfill material with prior approval of the road authority. Cement Bound Granular Mixture B shall have a minimum strength class of C8/10, unless otherwise directed.
13. Where steel plates or other trench covers are used, they must comply with Section 6.3.7.
14. Hand laying of hot bituminous mixtures shall be restricted to the following circumstances:
    i. At the edges of the layers of material and at gullies, manholes and other ironwork.
    ii. In confined spaces where it is impracticable for a paver to operate.
    iii. At the approaches to expansion joints at bridges, viaducts or other structures.
    iv. Transverse reinstatements less than 4 metres in width.
    v. Longitudinal reinstatements less than 20 metres in length.
    vi. Surface course reinstatements of longitudinal excavations less than 1 metre in width.
    vii. Temporary reinstatement

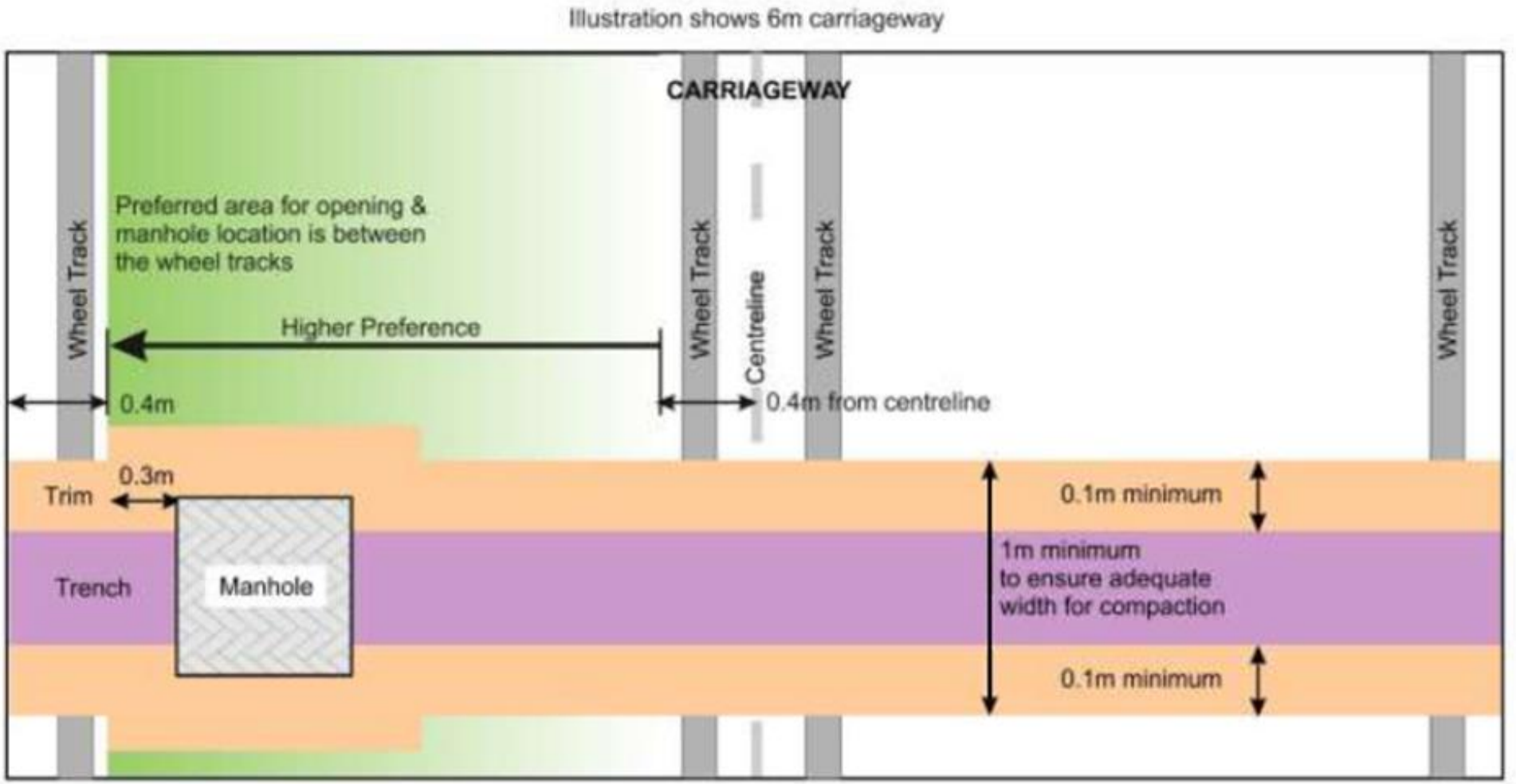
    The method of laying shall be such that the finished surface is free from dragging, tearing and segregation of the material.
15. All surface course aggregate shall have a minimum PSV of 60 declared unless otherwise specified by the road authority. Temporary surfaces to be managed in accordance with RLS8/2007.
16. Any damage to the road structure or areas adjacent to the opening and resulting from the works shall be repaired and included within the area to be reinstated.
17. Where there are exceptional circumstances not covered by the drawings, the reinstatement specification must be agreed with the road authority.

- 4. All works shall have a temporary traffic management plan, which shall be available for inspection on site, and shall comply with the Traffic Signs Manual and health and safety requirements.

5. Prior to any excavation works taking place, the location of all underground and over ground services must be identified and marked by a competent person trained in the use of cable detectors. Contact shall be made with all relevant service providers in this regard.

Transverse Opening

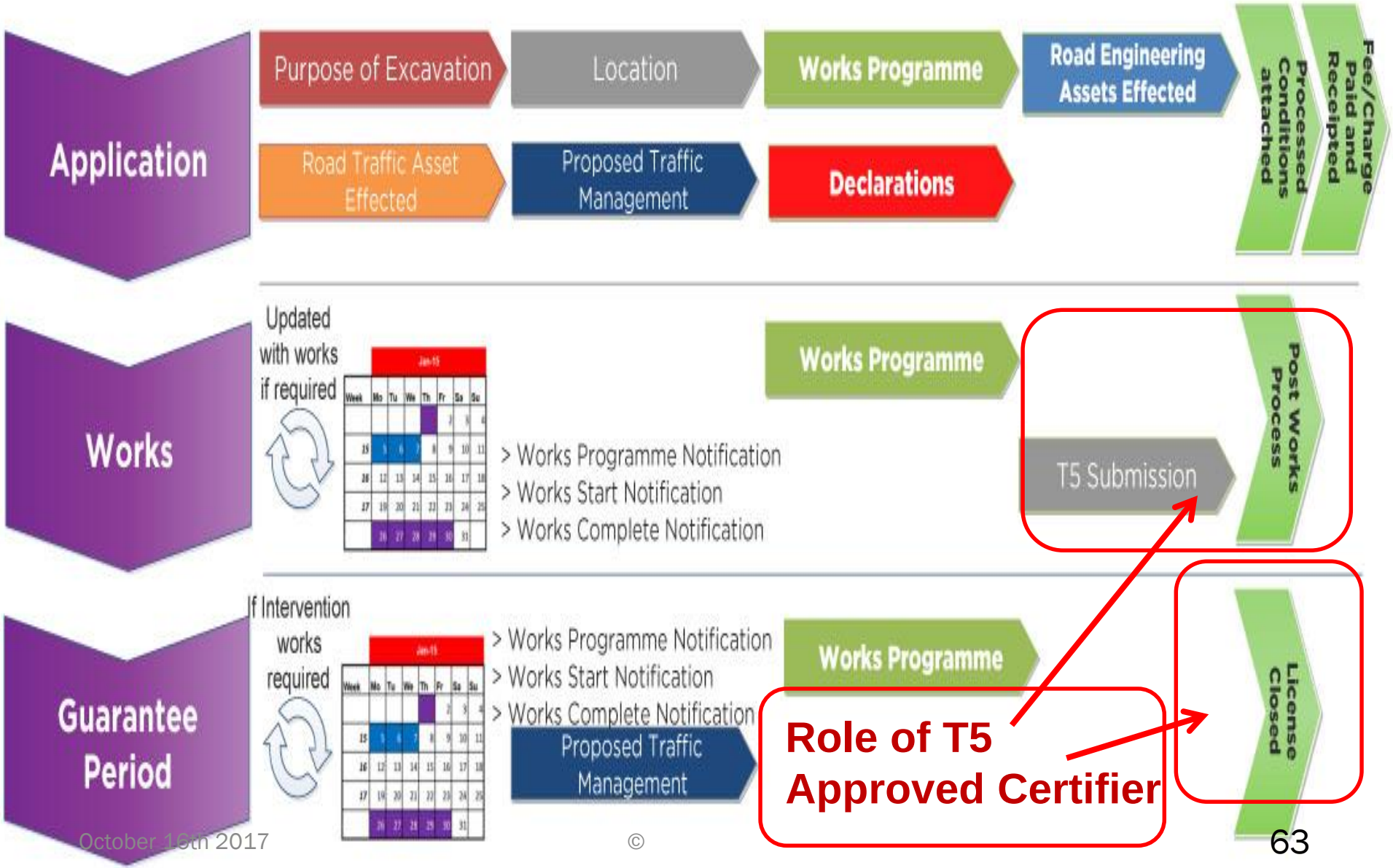
GA2 p85



Advanced Course will consist of :

- Key Elements of the Guidelines and Relevant Legislation
- MapRoad Roadworks Licensing System (MRL)
- Site Records
- Site Inspection(s)
- Dealing with Non-compliance and Unauthorised Work
- Completion of MRL Sign-off Actions at T5

OVERVIEW OF ENTIRE PROCESS



Licence Holder Inspections:

Shall be done by Applicant <4.5.7, 4.5.10, 5.2.1, Table 5.3>

- To identify existing defects
- To record type and condition of Road Assets
- To check existing services
- Photographic Record

Pre- works

- For Quality Assurance
- To support T5 signoff
- To record any services or culverts encountered
- To provide as-built records (inc line and level)

During Works

- Re-measure reinstatements
- To certify reinstatement has been completed in accordance with the licence
- Condition of services is satisfactory

Post Works Signoff - T5

- For Quality Assurance (During)
- To closeout the licence <4.5.10>

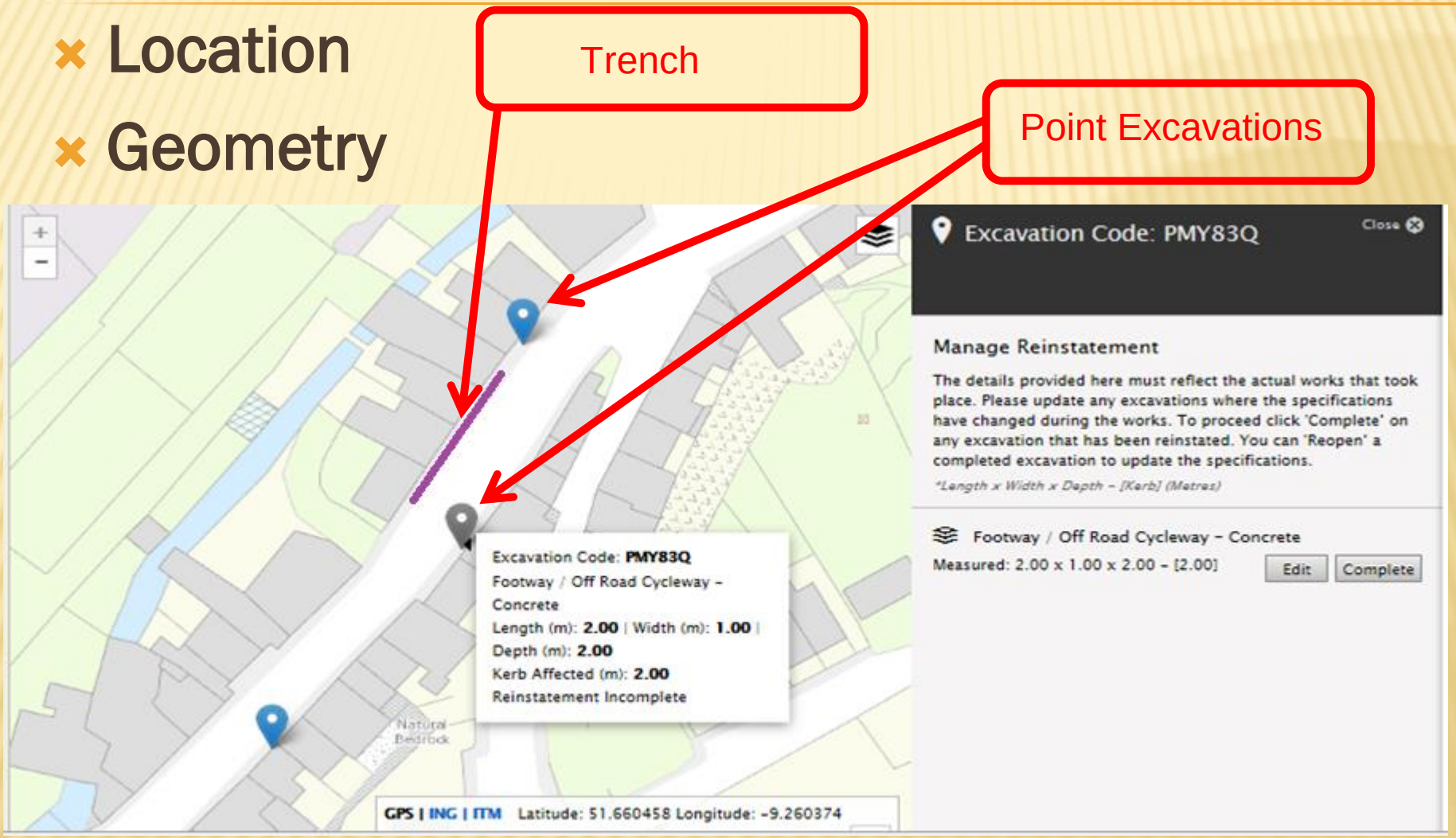
During and at end of Guarantee Period

Defects – Road Authority

- The Road Authority may carry out inspections on the performance standards during the Works and Guarantee Period, including an inspection at the end of the Guarantee Period
- Any defect identified during these inspections will require corrective action on the part of the Licence Holder prior to any take-over of responsibility by the Road Authority
- Any defect identified during the guarantee period will require corrective action on the part of the Licence Holder

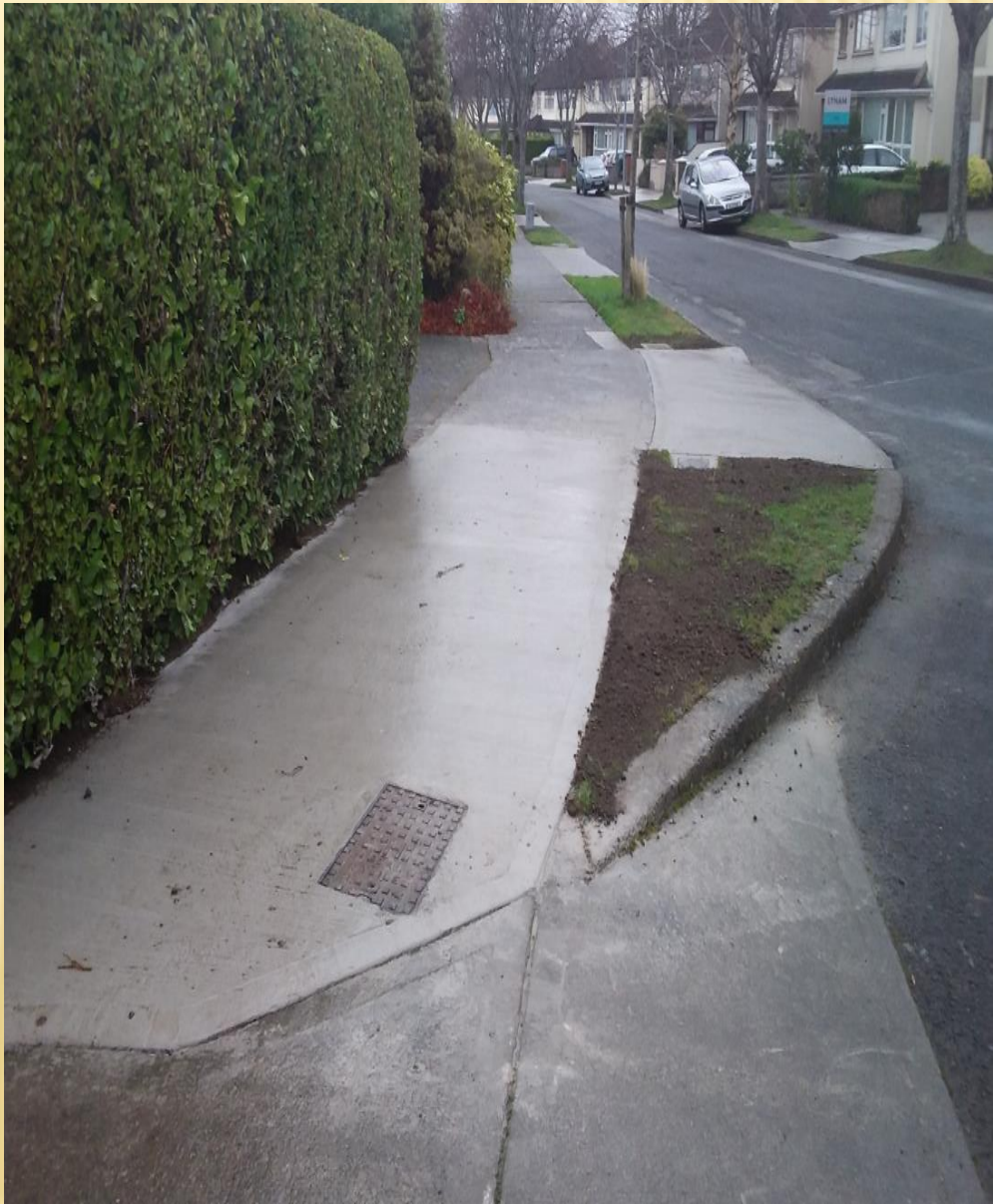
SITE INSPECTION CHECK LIST

- Location
- Geometry



Conclusion

- Improve on current standards
- Consistent implementation
- Better compliance
- Reduced costs
- Everyone trained to a basic standard



So lets keep the Cowboys out !

Get Trained on the Basic and Advance Reinstatement Courses

Roscrea Training Centre

Monastery Road, Roscrea, Co. Tipperary
0505 23425
roscreartc@tipperarycoco.ie

Ballycoolin Training Centre

IDA Business Park, Ballycoolin, Dublin 15
01 8097173
ballycoolintraining@fingal.ie

Stranorlar Training Centre

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074 9130208 or 074 9130209
stranorlarrtc@donegalcoco.ie

Castlebar Training Centre

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094 9064080
crtc@mayococo.ie

Ballincollig Training Centre

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021 4876253
brtc@corkcoco.ie

The Institute of Asphalt Technology
Irish Branch

Thanks Larry Carey DLR Co.Co.
Keep on Rocking!!