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SECTION 2: ROUTINE MAINTENANCE

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3.2.0 GENERAL

Databases and software:

In the era of computers and other electronic apparatus it is very difficult to manage the complex processes and the logistic in the routine maintenance in the old way, i.e. manually. With the help of state-of-the-art tools the supervision and execution costs related to the routine maintenance can be significantly reduced. In addition, the stacks of data can be easily (read: only) managed in this way, and such data are later on applicable to different analyses as well. The maintenance cost analyses are namely the base for decisions regarding economical road maintenance and one of the key elements in determining the investment maintenance. Managing the costs by the types of works related to the particular road section is also required by the European Union. In addition, these costs shall be managed separately for road section within and out of settlements.

The longer the monitoring period, the greater the number of quality data, and the easier the decision! Therefore it is essential to be equipped with the new technology such as computers and adequate (specialized) software, to which all other electronic apparatus such as cameras, weather stations, traffic counters, GPS, etc. shall be linked. The supervision shall also be equipped with such devices. At the same time, the contractors performing the routine maintenance shall also be equipped with compatible apparatus and instruments, as they are the first to record the data. In this way, plenty of superfluous and non-creative work related to the control of monthly progress statements is eliminated. It shall be noted that the costs of purchasing such equipment are negligible in comparison with the costs of the routine maintenance works, and, in addition, such costs are reimbursed in a period of maximum two years.

Inspection service:

For a successful performance of routine maintenance, a good and effective inspection service is of the greatest significance. Each inspector shall be adequately qualified and equipped. A regular education of inspectors is very important as well. In our opinion, licences of inspectors shall be renewed every four years. The education in the field of legislation should be emphasized. In case inspectors are not ranked as authorized persons, certain portion of tasks in the sense of prosecution shall be taken over by the Traffic Inspectorate and Police. The inspector is obliged to take care of his portion of the road as of "his own courtyard".

When privatising national maintenance enterprises it shall be taken into consideration whether the inspection service can be incorporated in this segment of the privatisation. Experiences show that is such a case a collision of interests may occur: namely, where the same company performs both inspection works and works of investment character, the inspector usually does not play the role as required by the client.

Maintenance of slopes:

Locations, where stone crumbles thus jeopardizing the road users, represent a major problem. Such locations should be secured by introducing adequate measures as soon as possible. It is not always necessary to provide extremely expensive structures such as galleries. Plenty of cases can be solved by means of lighter or heavier meshes (Geobruck) or metal barriers. In case no steps are taken, the number of indemnification charges by the users against the road manager will significantly increase in the future. In case of fatal accidents, the indemnification charges are generally more expensive than appropriate insurances.

Problem of ruts:

Ruts represent a significant problem to the "maintainers". Firstly, the repair of ruts is very expensive (as a rule, the entire deformable layer shall be milled off), and secondly, the

ruts are very dangerous if they are too deep. They make ploughing impossible thus the consumption of spreading materials is significantly increased as thawing of non-removed snow is required.

Since there are only few motorway sections available, the entire traffic, particularly lorries, runs on usual roads. For this reasons it is advised to introduce more suitable, i.e. less deformable asphalt types.

Roads in settlements:

In settlements, a trend of constructing new buildings at the roads is well perceivable. In the future, such a trend will lead to a consequence that a major part of road will run through a settlement. This will cause a reduction of traffic flows due to the speed reduction and the local communities will claim the expensive construction of by-pass roads. It can be also noticed that the local population uses the road ditches as a sewage system even for its own entrepreneurial activities (car washes).

To eliminate the abovementioned problems the road manager will have to react very quickly, in particular by the aid of inspection services, and perhaps, by means of an action via public media, to draw attention of the public and violators to the mentioned cases. The agility of reacting in such cases is of essential importance, as the tendency of increasing of the number of these violations is extremely rapid.

3.2.1 ROUTINE, PERIODIC, AND EXTRAORDINARY INSPECTIONS

Work Description

The tasks and the scope of the inspection service's activities are defined by the regulations on the types of maintenance work and the level of routine maintenance of public roads. »Regulation on maintenance of public roads« (Official Gazette of FBiH No. 48/03). In the Republic of Slovenia, article 14 of the »Regulation on types of maintenance works on public roads and on the level of routine maintenance of public roads« (Official Gazette of RS No. 62/98) defines the amount and frequency of the works and inspections that must be performed by the inspection service. The regulation also requires the inspection service to perform minor maintenance and protection work as long as this can be done with the equipment and means defined by the regulation. The tasks of the inspection service are carried out by a competent road inspector with the prescribed equipment and vehicle.

The road inspector inspects roads according to the inspection schedule, and must be able to detect irregularities and defects that could endanger the road traffic safety or cause damage to the body of the road. The road inspector must carefully observe the condition of all parts of the road and immediately carry out those repairs that he can do by himself with the available equipment and materials. Inspection of road structures is also done primarily with a view to traffic safety. The inspector must also look for anomalies in the traffic flow, as well as any other peculiarities that may endanger the safe use of roads. The road inspector also assesses and records any damage that appears on roads and the road property. Should the road inspector identify any defects that could endanger the safety of the road users, or that could cause damage to the road, he should take immediate action. If possible, the defect should be removed; otherwise, the location should be protected and the problem should be brought to the attention of the head of maintenance, as well as to the police if necessary. If the inspector is able neither to fix the problem by himself nor to notify the maintenance head, he should not remain inactive, but should try to use all available means, including asking the police or possibly other road users for help. During his work, the inspector should also take into account the protection of the environment.

The amount of work to be done by the road inspector is based on the requirements in the Regulation, which specifies the inspection frequency for each category of roads. The inspection plan for each inspector is then drawn up based on these requirements. In the

Republic of Slovenia, each inspector must inspect and fix defects on 50 km of roads within eight hours. **The road inspector must not be reassigned to other tasks.**

The road inspector shall find out whether any works are carried out on the road or in the road protective zone without adequate approval. He is obliged to keep a record on the person/company performing the works, as well as on the type and time of these works. In addition, he has to establish and record, to what extent such works harm the road or increase the road maintenance costs, or jeopardize the traffic safety.

The description of the inspector's tasks in this chapter is supplemented by other provisions mentioned in subsequent chapters.

Recordkeeping

Activities of the inspection service are recorded in an inspection log, based on a standard form (see the "Inspection Log" form in the supplement on documentation). The inspection log is signed by the inspector and the maintenance head. Supervisors examine the inspection log on a monthly basis, or at other times if needed; they may also require the maintenance head to submit a brief report on the inspectors' findings. In the "Observations" field the inspector must note all those irregularities and defects that he observed but couldn't fix, as well as all measures and works he undertook on the road and in the protected area of the road. The maintenance head examines the log and authorizes any minor works that may be required; regarding larger operations, he consults with the supervisor. The supervisor and the maintenance head authorize the required activities if the required funds are available. In the case of a lack of contractual funds to address even the urgent defects, the maintenance operator must notify the road administrator and ask for further instructions.

The inspection log must also note any works performed outside the routine maintenance contract, namely: works based on issued approvals, investment works, and other works in the protected area of the road, especially activities carried out without the road administrator's consent (illegal works).

The equipment of the inspector and the inspection vehicle

The inspection shall be carried out by means of an inspection vehicle (refer to Volume III: Road Maintenance, Part 2: Routine Annual Maintenance, Supplement 3). The inspection vehicle can be a small lorry of total mass of up to 5 tons, which, in addition to a passenger cabin, shall also have a space for cargo. The vehicle shall be equipped with a yellow rotation light, visible from a distance, enabling other traffic participants a safe stop in front of an obstacle. To perform the work adequately, the equipment shall also comprise the following items:

- a pick,
- a shovel,
- a wheelbarrow,
- a hammer,
- a set of spanners and screwdrivers needed for the maintenance of signals and other technical equipment,
- bags of 25–40 kg of cold mix, for a total weight of 100–120 kg of cold mix
- 10 kg of oil absorbent material,
- trash bags,
- an axe,
- a saw,
- traffic signs needed to mark obstacles on the road, including at least: two I-19 signs (road work), two II-30(40) signs (speed limit), 100 m of barricade

tape with flags, 10 yellow/red sign poles (2 m tall), 10 VI-9 traffic cones. (The numerical codes are based on the regulation »Regulation on traffic signs and traffic equipment on public roads", Official Gazette of RS No. 46/2000)

Supplements:

A schematic view of the inspection vehicle (see the supplement on RAM equipment)

A picture of a vehicle suitable for use by the road inspector and for road maintenance work (see the supplement on RAM Equipment)

A picture of a vehicle suitable for road maintenance work (see the supplement on RAM Equipment)

Plan of the inspection vehicle (see the supplement on RAM Equipment)

The equipment of an inspection vehicle (see the supplement on RAM Equipment)

List of works (see the supplement: RAM List of Works)

The list of works includes routine, periodic, and extraordinary inspections as item 1101.

Work accounting

This work can be accounted as overheads (an hourly rate for the inspector and his equipment; material costs are included separately, on the basis of receipts, release notes, etc.).

In Slovenia, the inspector's work is rated on the basis of the length of roads that were inspected (m^1 or km^1), while the costs of the materials used are included separately on the basis of documents proving the use of the said materials.

The VGRC system

VGRC system „(**V**zdrževanje **G**lavnih in **R**egionalnih **C**est – Maintenance of Main and Regional Roads)"

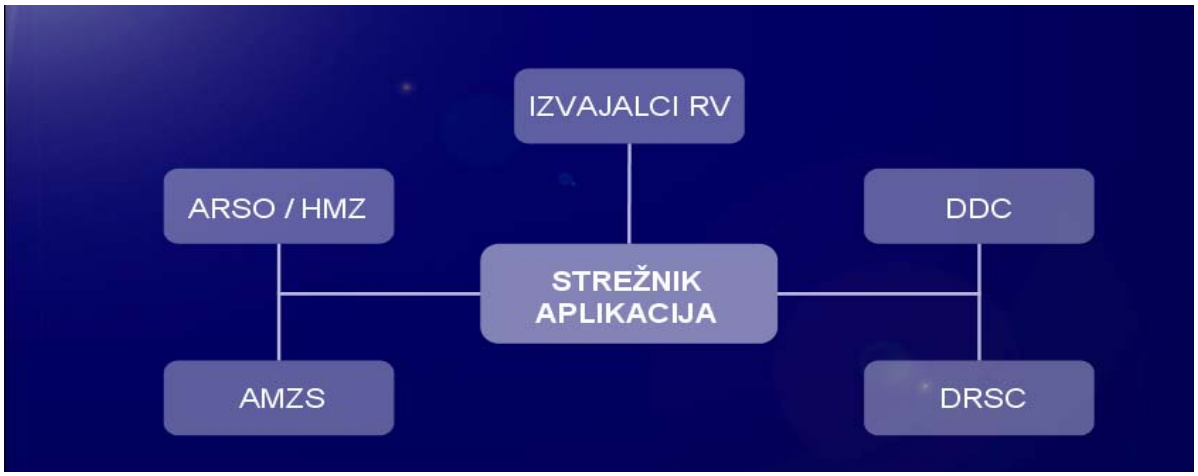
The VGRC is a system of informing of events and works on national roads and of work accounting on national roads. It is intended to monitor the condition and passability of national roads, to monitor road closures required for the routine maintenance, to monitor the works and to account these works, to monitor the winter service and to provide adequate information during the winter service, to monitor the stocks of spreading material, to monitor the weather data required to bring decisions on the winter service works, and to follow the decrees issued by the road inspectors in the field of the routine maintenance of main and regional roads.

The entire system of informing of the works on national roads and of accounting the works on national roads has been made as a web site, by means of which all the participants of the system are interconnected.

The web site includes the following constituent parts (sub-sites)

- road closures
- log of routine maintenance works
- spreading materials
- informing of winter service
- exchange of files
- decrees by inspectors
- reports by inspectors

Scheme of interconnection of individual system participants (in Slovenia)



Within the VGRC system it is possible to monitor the inspector in the way as shown in the Supplement RCV to the VGRC system:

- A list of all the inspectors employed by the road enterprise
- A list of road sections and of the days, when these sections are inspected within a week.

The inspections are performed:

- three times a day on motorways and expressways (in the morning, in the afternoon, and at night),
- once a day on trunk roads, main urban roads, and other roads of AADT > 4,000 (in the morning),
- twice a week on regional and collecting urban roads (usually, the first time on Mondays or Tuesdays, and the second time on Thursdays or Fridays, so that there are at least two days between the first and the second inspection within a week),
- once a week on local or urban roads (in the morning).

Routine inspections shall be specified in advance for each day and for each section, and the sequence of works shall be defined as well. This shall be carried out for each week.

The daily work includes inspecting the road with a vehicle and performing the following urgent tasks:

- Filling potholes
- Straightening traffic signs and other signs
- Straightening delineator poles
- Removal of objects and local alluvia
- Protecting the sites of road damage with traffic signs
- Reporting on the road conditions and the works performed

In addition to these tasks, the inspector may occasionally also perform the following tasks, if necessary:

- Manually dig through the shoulder to permit water outflow
- Clipping or loosening of branches that reach into the road clearance
- Straightening and replacement of road poles
- Salt spreading – locally and on structures
- Inspection of border markers

- Inspection of the protected area of the road
- Inspection of the construction parts of structures and devices
- Inspection of the pavement on bridges after rain or winter
- Inspection of props, pillars, and walls

3.2.2 CLEANING OF DRAINAGE STRUCTURES

Work description

These works comprise maintenance and cleaning of water-course beds, gutters, culverts, and open ditches, as well as local repair or replacements of individual drainage elements, replacements of shaft covers, maintenance and cleaning of the road sewage system, inlet and inspection shafts and drainages, which serve for evacuating the water from the public road area.

In addition to cleaning the gutters, removal of turf above the gutter curbs and above walls should also be performed.

The works also include manual cleaning of all drainage components on structures, including drains. The material removed is collected and loaded onto a light lorry or the inspection vehicle; if the amount of material is small, it can be driven off the structure in a wheelbarrow.

Attention must also be paid to expansion joints on the structures, particularly in springtime.

Work must be carried out regularly, so as to prevent damage of these joints and hence serious damage to the structure as a whole. People involved in this work must be alerted to the characteristics of the individual joint structures (seals, rubber, cylinders, etc.).

These works include minor repairs within the scope of dewatering devices in order to ensure their proper functioning. Major works (to be carried out every couple of years) on the maintenance and restoration of devices for collecting and draining the water, cleaning of precipitation water sewage systems and drainages, as well as extensive excavations of culverts filled up with earth, are not included in the routine maintenance. However, they are within the scope of the maintenance and renewal of installations, foreseen by an adequate programme.

The following priorities and guidelines must be observed in the preparation of the drainage cleaning and reconstruction programme:

- a measure is extremely urgent if there exists a risk of water leaking through the pavement structure, or if it involves the replacement of a destroyed structure;
- a measure is urgent if there is a risk of shoulder or slope erosion, or of the pavement being flooded;
- a measure is necessary if it involves the repair of a damaged structure or similar activities.

The road inspector's tasks include the inspection of drainage structures and minor urgent measures, such as cleaning the critical parts of the structures and aligning the gully covers, etc. In case of larger urgent measures that cannot be done by the road inspector himself, he must immediately report the matter to his supervisor.

Ditch cleaning is done using a small excavator machine and is accounted per meter of cleaned ditch, while also taking into account the average amount of alluvium per meter of ditch for the entire road network (e.g. 0.30 m^3/m^1), the effect of the small excavator, the need for further manual cleaning or shaping, and the removal of the excavated material (at these locations, this is accounted per m^3).

Culverts are cleaned manually by removing the alluvium. Cleaning of pipe culverts

with a diameter between 60 and 100 cm is accounted per meter of length; for flat culverts, accounting is also done per meter of length, with different rates for culverts spanning less than 2 m and those between 2 and 5 m (the accounting is performed per m^3 of removed material).

It is extremely important to continuously clean the settling shafts, in order to prevent further introduction of alluvium into the pipes.

Recordkeeping

The drainage structure cleaning activities are recorded in the maintenance log in the same way as described in chapter 4.2.1.2 on pavement cleaning.

Equipment

Manual cleaning of gutters and curved channels requires a shovel, a broom, and a wheelbarrow.

In addition to these tools, a pick or hoe is needed to remove turf above curbs.

Cleaning of longitudinal drainage installations on structures requires a shovel, a broom, and a wheelbarrow; in the case of a larger structure, or for removal of a larger amount of material, the inspection vehicle or a small lorry should be used.

The same equipment is also needed for the cleaning of intake and inspection shafts; a specially designed "shovel" to scoop the dirt from the depths is also helpful.

Manual cleaning of ditches requires a shovel, a pick, and a wheelbarrow. Cleaning by excavation is performed only for smaller profiles and quantities.

Mechanized cleaning of gutters and curved channels is done using a unimog or tractor with a rotating wire brush attachment. In dry weather, a water tank should also be used to prevent the cleaning from causing excessive dusting and the attendant pollution.

Mechanized cleaning of road sewers and drains is best done using a truck with special attachments and a water tank which allows water under high pressure to be used to flush sewage pipes, drains, and choked culverts.

Mechanized cleaning of intake and inspection shafts is done using a truck with special attachments and tanks to pump out the waste using subpressure.

For an example of a vehicle for cleaning the intake and inspection shafts, see the supplement on RAM Equipment.

The mechanized cleaning of ditches shall be carried out by means of trench excavators, dredgers, or mini-dredger containing a flat or profiled shovel, as well as by means of lorries to cart away the material. Cleaning can be executed by means of a unimog or a tractor, to whose arm a rotational head is fixed.

Supplements:

Mechanization for cleaning and excavation of ditches (see the supplement on RAM Equipment)

List of works (see the supplement: RAM List of Works)

The list of works includes cleaning of drainage structures in items 1301 through 1311.

Work accounting

Cleaning of curved channels, gutters, and diversion ditches is done manually; accounting is based per meter. These costs cover the manual work and the suitable removal of the material.

Cleaning of longitudinal drainage on structures is accounted per meter of works carried out.

Cleaning of turf above curbs and walls is accounted per meter of curb cleaned; this cost must include the removal of the material.

The cleaning of surface water sewers and drains is mechanized. Accounting is based per meter of sewers and drains cleaned.

Accounting of the excavation of ditches is based on the length of the ditches involved. Different prices per meter are defined for different ranges of the amount of excavated material:

- 0.00 m^3/m^1 – 0.10 m^3/m^1
- 0.10 m^3/m^1 – 0.30 m^3/m^1
- 0.30 m^3/m^1 – 0.50 m^3/m^1
- 0.50 m^3/m^1 – 0.75 m^3/m^1

Shafts are cleaned manually; accounting is done per shaft cleaned.

Replacement of shaft and gully covers is accounted per cover replaced, with the price depending on the material, shape, and quality of the cover.

The VGRC system

Activities related to drainage structure cleanup are entered and accounted in the VGRC system in the same way as shown in chapter 1.2 on pavement cleaning.

The attachments show sample reports on work carried out (see the supplement on the RAM VGRC System):

An example of entering an activity (ditch cleaning)

List of all possible works under the heading of "drainage structure cleaning"

A list of works carried out in the context of drainage structure cleaning, sorted by type of work

3.2.3 ROADSIDE MOWING, VISIBILITY

3.2.3.1 ROADSIDE MOWING

Work description

Roadside mowing and visibility activities include above all the mowing of shoulders and along the pavement, both manual and mechanized. Road surfaces outside the pavement area (embankments, slopes, road property) must be mower at least once a year.

Maintenance must aim to ensure visibility as required by the regulations concerning the sight triangle and sight widening; if this is not possible, maximum visibility possible given the circumstances should be ensured.

Thus, the maximum permitted height of the grass is:

- On the shoulder or 1.30 m away from the pavement, grass may be up to 30 cm tall.
- Grass further than 1.30 m away from the pavement, as well as in ditches and on slopes, may be up to 40 cm tall.
- Grass in the sight triangle of a crossing, or in the sight widening, can be up to 30 cm tall.
- Grass on traffic islands in crossings can be up to 30 cm tall.
- All the grass on a public road (which has not been mown down during the years) shall be mown once a year (after September 15).
- At the onset of winter, grass on the public road must not be taller than 20 cm.

The manual (around delineator poles, fences, signs) and the mechanized part of the mowing must be done at most three days apart; it is

recommended that the manual mowing be performed first.

Recordkeeping

The roadside mowing activities are recorded in the maintenance log in the same way as described in chapter 4.2.1.2 on pavement cleaning.

Equipment (see the supplement on RAM Equipment)

Mechanized mowing employs mowers attached to a unimog or a tractor.

A front mower has a sensor to automatically avoid obstacles (fence and delineator posts), and its height supports mowing below a steel protective fence.

Side-mowers are attached to the machine using a hydraulic hand.

Mowing the shoulder with a side-mower

Standalone agricultural mowers are designed for standalone mowing of more distant slopes.

Manual mowing around obstacles is performed using a string trimmer or a rotary mower.

List of works (see the supplement: RAM List of Works)

The list of works includes roadside mowing under the items 1401 and 1402.

Work accounting

Grass mowing is accounted per m^2 of mowed area, with separate prices for manual and for mechanized mowing.

The VGRC system

Roadside mowing activities are entered and accounted in the VGRC system in the same way as shown in section 4.2.1.2 on pavement cleaning.

The supplements show sample reports on work carried out (see the supplement on the RAM VGRC System):

- An example of entering an activity (roadside mowing)
- A sample report on work carried out, sorted by type of work under the heading of "roadside mowing"

3.2.3.2 LOPPING AND PRUNING

Work description

On the surfaces that form part of the road, vegetation should be mowed, pruned and cut at least to the extent necessary to ensure the **road clearance** and the required visibility, to enable the inspection of and access to the road structures, to ensure the visibility of and access to traffic signs, road furniture and other road devices and installations. Trees located near the road must also be maintained insofar as they could endanger the road and the traffic on it.

The maintenance of the vegetation must follow professional practice. Environmentally harmful substances for the suppression of plant growth must not be used.

The work is both manual and mechanized.

Lopping and pruning is mostly done in spring and in autumn, but may also be done in winter, when vegetation growth processes are dormant.

During his inspection rounds, the road inspector must verify whether the road meets the minimum required visibility standards, or at least the level of visibility it had when it was first opened for traffic. The inspector must remove minor obstructing vegetation by himself, and notify his supervisor in case of larger obstacles.

Recordkeeping

Lopping and pruning activities are recorded in the maintenance log in the same way as described in chapter 2 on pavements cleaning.

Equipment

Lopping and pruning is done using scissors attached to a unimog or tractor.

Supplements (see the supplement on RAM Equipment)

Scissors for cutting plants

For a manual lopping and pruning, axes, shears, and saws, as well as chain saws and hydraulic shears shall be used.

List of works (see the supplement: RAM List of Works)

The list of works includes lopping and pruning in items 1403 and 1404.

Work accounting

Lopping and pruning is accounted per m^2 of ground surface where lopping or pruning was performed.

The VGRC system (see the supplement on the RAM VGRC System)

An example of entering an activity (plant lopping and pruning)

An example report of the works carried out, sorted by type of work under the heading of "plant lopping and pruning"

3.2.4 SHOULDER REPAIR

Work description

The shoulder level must not be higher than the level of the pavement edge, or lower than it by more than 3 cm. The transverse gradient of the shoulder must allow water runoff from the pavement and must not be less than 4%, or less than the transverse gradient of the pavement. The shoulder must be levelled and surfaced. Traffic signs, road furniture, and other devices and installations on the shoulders must be visible and accessible.

Utrjena bankina – stabilized shoulder

Vozni pas – traffic lane

Plastični cestni smerokaz – plastic delineator post

Računska os – designed road axis

V-2 bela prekinjena črta – V-2 white broken longitudinal line

Črta, d=15 cm 5/10/5 – line, d=15 cm 5/10/5

V-1 bela neprekinjena črta – V-1 white unbroken longitudinal line

Preplastitev – surfacing

3cm BB 8s bitumenski beton - 3cm BB 8s asphalt concrete

6 cm BD bitumenski drobljenec - 6 cm BD bituminous crushed stone

Obstoječa asfaltna utrditev – subsistent asphalt pavement

4 cm utrjena bankina iz drobljenca – 4 cm stabilized crushstone shoulder

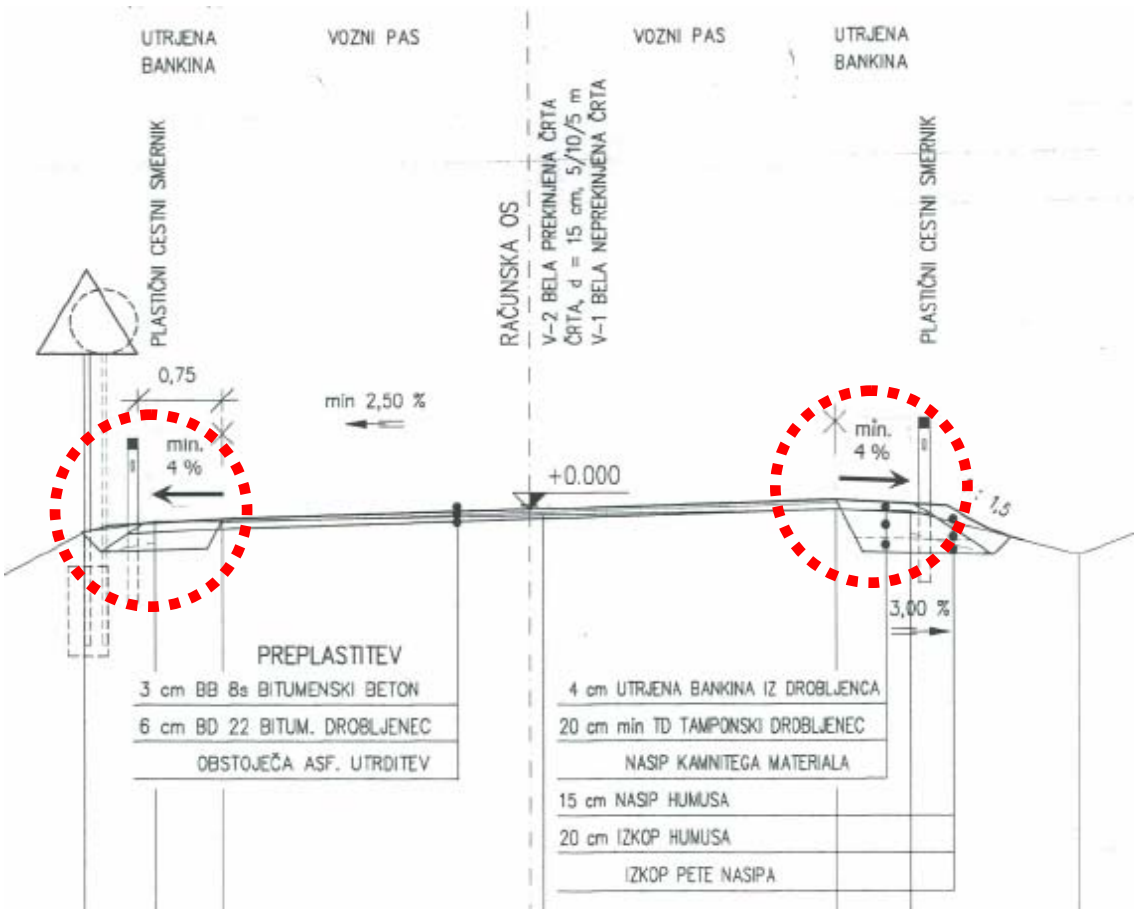
20 cm min TD Tamponski drobljenec - 20 cm min TD crushstone subbase

Nasip kamnitega materiala – stone mixture fill

15 cm nasip humusa - 15 cm soil fill

15 cm izkop humusa – 15 cm soil excavation

izkop pete nasipa – embankment base excavation



If the shoulder is regularly maintained and is not in a state of disrepair, some of the necessary measures of routine maintenance can be performed by the road inspector. In the case of minor repairs, if the shoulder is too low or has been partly carried away by water, the inspector must spread crushed stone material of a homogeneous granularity, with a diameter not exceeding 32 mm. This new material must then also be suitably hardened.

During rainfall, if the shoulder is too high the road inspector must dig small ditches across it as a temporary measure to permit the outflow of water from the carriageway. This can only be a temporary measure, and cutting the shoulder to a more appropriate height must be included in the work programme for the next period.

Larger activities of routine shoulder maintenance, such as large-scale "cutting" of too high shoulders, as well as spreading new material on too low shoulders and hardening them, should be performed by special routine maintenance teams.

Recordkeeping

Shoulder repair activities are recorded in the maintenance log in the same way as described in chapter 4.2.1.2 on pavement cleaning.

Equipment

This work can be manual or mechanized.

The mechanized approach involves a grader (which both "cuts" turf and levels the newly-spread material), a dump to transport the material, and a wheelbarrow, a shovel, and a rake for precise spreading and levelling of the material. A small roller or a compactor is used to harden the shoulder. An asphalt surface must be swept before rolling.

For minor shoulder repair activities, an excavator may be used instead of a grader.

For a thorough rehabilitation of the shoulder, we must also use a shoulder cutter. Such cutters are available both as attachments (for a unimog or a tractor) or as

self-propelled cutters. In addition to the cutter, we need a vehicle onto which the cut material will be disposed by a conveyor belt.

Shoulder repair (see the supplement on RAM Equipment)

For local and manual shoulder repair, we use a pick, a shovel, a wheelbarrow, a broom, and a compactor.

List of works (see the supplement: RAM List of Works)

The list of works includes shoulder repair under the items 1501 and 1502.

Work accounting

These activities are accounted per m^2 of shoulder.

The VGRC system (see the supplement on the RAM VGRC System)

An example of entering an activity (shoulder repair)

A list of works carried out under the heading of "shoulder repair", sorted by type of work

3.2.5 PAVEMENT CLEANING

Work description

The works include general cleaning of the paved surfaces and the removal of litter in the road area and in other traffic areas (rest stops, parking lots, bus stops and bus turning areas, areas and structures for traffic weighing and control).

Pavement cleaning includes the removal from these surfaces and any installations thereon (e.g. garbage bins etc.) of any material (soil, sand, fallen leaves, oil, packaging, etc.) that can adversely affect the:

- traffic safety and functionality
- orderly appearance of these areas
- hygiene and
- protection of the environment

It is required to remove the spreading material (after the termination of the winter service), crumbled pieces, mud, and other dirt, which endangers and disturbs the traffic. The works shall be performed after the winter service has terminated (if a longer period of fine weather is expected at the end of the winter, the cleaning works may also commence before the termination of the winter service). Special attention shall be paid to cleaning at crossroads and at the carriageway edges.

Manual removal of material is performed using a shovel and a broom, loading the material onto a wheelbarrow and removal to a distance of 20 m, and by spreading the material in a suitable location near the road.

Mechanized cleaning is performed using a tractor or unimog with a "broom"-type attachment. If the material being removed is dry, it must be sprinkled with water during machine sweeping to prevent dusting.

Mechanized cleaning in inhabited areas is done using special sweeping machines (citycats) that collect the dirt, store it while the work is in progress, and finally discard it to a suitable waste dump.

The disposal of the collected material depends on the presence of harmful substances. Thus professional removal is necessary, by taking the material either to a garbage dump or to a temporary depot. Garbage bins in populated areas must be covered by lids. Sorting of waste for recycling must also be supported in suitable conditions.

Spilled fuil, oil, or other chemicals that are considered special kinds of waste, must be removed by spreading suitable absorbent material. They must then be stored and destroyed in an appropriate and ecologically sound manner.

How frequently the traffic surfaces are to be cleaned essentially depends on the quantity and characteristics of the pollution or waste involved, and of its impact on traffic safety. It is particularly important to clean traffic surfaces and surface markings after extraordinary events (e.g. winter service, harvesting, construction work, etc.) and in particular locations (e.g. in front of traffic lights).

Suitable traffic signs must be used to warn road users of any maintenance activity in the context of surface cleaning outside the public road.

Recordkeeping

Cleaning activities are recorded in a maintenance log. The form contains the following basic pieces of information:

- Sequential number of the entry
- Date
- Sector
- Weather
- Temperature
- Precipitation
- Working time
- Author of the log entry
- Signature of the responsible person
- Signature of the supervisory body

Information about the work performed includes:

- Road number
- Section number
- Work item
- Work description
- Station (from – to or from and length)
- Unit of measurement
- Amount of work done

The lower part of the form provides for the entry of information about:

- Labour force (can be named individually or by group, with the number of person-hours worked)
- Mechanization used (by vehicle/machine type and the number of hours worked)
- Material used, no. of bill of delivery, number of hours worked

Supplements:

"Routine Maintenance Activity Log" form (see the supplement on Documentation).

Equipment

Manual cleaning requires a shovel, a broom, and a wheelbarrow.

Mechanized cleaning involves the use of a unimog or tractor with a broom-type attachment. In dry weather, a water tank must also be included to prevent excessive dusting during the sweeping. The most appropriate solution for urban areas is to use sweeping machines (larger or smaller).

Supplements:

Equipment for mechanized cleaning of the pavement (including along the curbs) (see the supplement on RAM Equipment)

Standalone road cleaning and sweeping machine (citycat) (see the supplement on RAM Equipment)

List of works (see the supplement: RAM List of Works)

The list of works includes surface cleaning in items 1201 (for manual works) i 1202 (for mechanized works).

Work accounting

Costs can be assessed per m^2 of cleaned surface, with mechanized cleanup treated separately from manual cleanup.

The VGRC system (see the supplement on the RAM VGRC System)

Supplements:

Example of entry (registration) of an individual task into the VGRC program

Example of works entered into the VGRC program

Example of works confirmed in the VGRC program

Example of accounting for the work carried out

Example report from the activity log for a single day, using the VGRC program

Example of searching by work type or road section

Example report of the requested work

3.2.6 PAVEMENT PATCHING

Work description

This work includes manual patching of individual minor damaged spots on public roads during summer, as well as patching of all severely damaged spots during winter.

In the summer, mechanized patching is also performed, at lengths up to 300 m, either across the entire width of the pavement or across part of it. Lengths exceeding 300 m do not belong to the routine maintenance system, therefore special contracts shall be made, and such works are classified into preventive maintenance or rehabilitation. Reconstruction of pavements, which are executed in accordance with an adequate design, is not classified into routine maintenance.

The task involves observing and maintaining the condition of the pavement and the pavement structures, so as to ensure the conditions regarding the following characteristics of the pavement:

- a visual assessment of the condition of the pavement (expressed using the modified Swiss index– MSI),
- longitudinal roughness (expressed using the international roughness index – IRI),
- transverse roughness (expressed using the maximum left and right rut depth and the depth of water remaining on the road surface),
- skid characteristics (expressed using the sliding friction coefficient and the texture depth),
- carrying capacity of the pavement structure (expressed as the remaining lifespan of the pavement).

Before the annual patching begins, a cost estimate is drawn up based on the standard list of works (which includes the typical kinds of renovation activities). Thus we obtain a thorough list of damaged spots in a particular area. This list is updated every year (the patched spots are removed, and newly discovered damaged spots are added).

Examples of pavement damage:


24 3 2005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Typical components of a standard list of patching activities:

A	Asphalt cutting to an average depth of 4 cm, including loading and transport to a depot (cutting of entry ramps, cutting of the entire surface, cutting of particularly uneven areas, …)	m^2
B	Manual patching to an average thickness of 3 cm EAB 8 (4-8 mm of eruptive material), including cutting, cleaning, and coating with a semi-stable cation emulsion (200g/m^2).	m^2
C	Levelling (manual) before manual patching using BNOP 16 to an average thickness of 4 cm; costs accounted per ton of material used.	tons
D	Mechanized patching to an average thickness of 4 cm of EAB 8 (4-8 mm eruptive material), cleaning the pavement and coating it with a semi-stable cation emulsion (200g/m^2), and cleaning the shoulders.	m^2
E	Levelling (mechanized) before mechanized patching using BNOP 16 to an average thickness of 4 cm; costs accounted per ton of material used.	tons
F	Full-depth reconstruction with a cement stabilization to a depth of 20 cm – cement 70kg/m^3 (excavation of asphalt (avg. thickness 10 cm) and base (avg. thickness 20 cm), removal of material to a depot up to 10 km away, rolling the roadbed, supply and installation (including rolling) of a 20 cm thick cement stabilizing layer, coating the joints with bitumen paste, installation of BD 22 to a thickness of 7 cm and EAB 8 (4-8 mm eruptive material) to a thickness of 3 cm, with step cutting of asphalt on the edges, 20 cm from the edges of the excavated area).	m^2
G	Full-depth reconstruction with the replacement of the unbound base layer to the depth of 70 cm (cutting the edges, excavation of asphalt (avg. thickness 10 cm) and base (avg. thickness 70 cm), removal to a depot up to 10 km away, rolling the roadbed, supply and installation of an unbound base layer 70 cm deep, rolled in layers 20 cm each, joins coated with dilaplast, installation of BD 22 to a depth of 7 cm and EAB 8 (4-8 mm eruptive material) to a depth of 3 cm, with step cutting of asphalt on the edges, 20 cm from the edges of the excavated area).	m^2
H	Cutting the asphalt edges, on average 10 cm thick.	m

Note:

For each damaged spot, a combination of the above items should be considered.

Example:	Item A	16.5	m^2
	Item B	35.0	m^2
	Item C	1.3	tons
	Item G	6.0	m^2

The purpose of patching is to preserve the pavement. This includes regular work to keep them in a useful condition, which includes routine road maintenance as well as periodic work on the structural preservation of traffic surfaces.

From the point of view of routine maintenance, the preservation of the usefulness of traffic surfaces means above all the ensuring of traffic safety and passability, and includes both assessment of the road condition and routine maintenance work. On the other hand, periodic work for the structural preservation of traffic surfaces (overlays, strengthening, and renovation) uses many procedures that are largely typical for construction of new roads and to a lesser extent also for routine maintenance.

The following routine maintenance activities on traffic surfaces can be part of procedures

to preserve the usefulness of surfaces:

- Patching of individual potholes up to 0.5 m^2 in area is one of the tasks of the road inspector. During the period of systematic patching of traffic surfaces (e.g. after the springtime thaws), this work can also be assigned to a dedicated team. This work is done using a special thermally insulated tank attached to the truck, to keep the asphalt mass at the required temperature.
- Patching of damaged pavement areas up to 10 m^2 can be manual or mechanized. (Patching shall be carried out in regular geometrical shapes).
- Mechanized patching of damaged pavement is usually performed on areas between 10 m^2 and 2.000 $m^{2.}$ The technological procedures of mechanized patching are standardized.
- Full-depth reconstruction of damaged or destroyed road base in a limited area is a difficult task and usually involves ground of poor carrying capacity. Such work proceeds according to specified technological procedures. It is performed on locations where local damage of the pavement has been caused by the poor state of the base material.

Concerning new asphalt mass, the manufacturer's tests are sufficient, but the supervisory organ must require to be provided the control reports on the test results.

The supervisor is obliged to inspect both quantity (area and depth) and quality of the works carried out. This shall be done on the basis of the following:

- a visual inspection,
- the report on the tests,
- quality control of the manufactured asphalt mixtures
- internal and external quality control of the asphalt mixtures used in the pavement

Recordkeeping

In the case of routine patching of potholes and minor damaged spots with cold and warm asphalt mixture, the standard recordkeeping system is used, as shown in chapter 4.2.1.2. on pavement cleaning.

For larger works done on the basis of a previously prepared work programme with a list of sections, the locations and types of work involved, a construction log book of the work performed should be kept (just as in the case of an standalone construction contract). A work programme of this type is not accounted on the basis of the standard list of types of mechanized pavement patching activities.

Equipment

Pavement patching involves standard paving equipment: an asphalt saw, cutter, broom (manual or as a unimog attachment), emulsion spreader, finisher, roller, and, for manual patching work, a wheelbarrow, a shovel, a pick, a rake, a poker, a broom, … Dump-trucks are used to transport the asphalt mixture, which makes it possible to cover the mixture during transport. For small-scale manual patching, a thermally insulated tank (see the supplement on RAM Equipment), attached to the truck, is absolutely required. Without this, the asphalt mixture would cool too much due to the slowness of the patching work.

List of works (see the supplement: RAM List of Works)

The list of works includes pavement patching activities as items 2101 through 2108.

Work accounting

Work is accounted per m^2 of patched area. When patching potholes and areas of

undefined shape, accounting is based on the weight of asphalt mass used. However, in the latter case, bills of delivery for the asphalt mass must be provided.

The VGRC system (see the supplement on the RAM VGRC System)

3.2.7 CRACK AND JOINT SEALING

Work description

This work includes filling and sealing the cracks and joints on asphalt and concrete pavements with a bituminous filling mass, after the cracks have been cleaned and widened. This prevents water and other chemicals used in wintertime from contact with the inside of the road body. Joints should be sealed as soon as possible after they appear; this helps us maintain a good asphalt wearing course at a lower cost. This work is carried out on roads where the amount of cracks and joins is no more than **0.5 m^1/m^2** of pavement. If this threshold is exceeded, other methods should be used (e.g. thin surface dressing).

These works shall be performed cyclically every 5 years, so that approximately 20% of the entire road length is completed every year.

The following are the procedures for repairing cracks and joints in asphalt pavements:

- Using dry cutting, the existing crack must be widened to a width of at least 2.0 cm but no more than 3.0 cm and to a depth of at least 2.5 cm and at most 3.5 cm. **Only an impact cutter may be used** (not a borer- or diamond saw-based one), which allows the crack to be followed in all directions. After cutting the crack must be rectangular in shape.
- The cut crack must be cleaned mechanically with a rotating steel brush. The brush must be of an appropriate size to fit into the crack.
- The final cleaning is performed using compressed air at a pressure of at least 0.7 MPa to remove all dust and any remaining aggregate particles. The sides of the cut crack must be absolutely dry and clean – without dust.
- The cleaned and dried crack must be coated with a suitable primer, which binds dust particles and increases adhesiveness. Sealing may begin once the primer is dry to the touch.
- Sealing the crack must be done entirely mechanically. Only a polymerous bituminous mass with an appropriate certificate (proof of quality from an authorized Slovenian institution) may be used for sealing the crack. The temperature of the sealing mass must be between 160^0C and 180^0C (unless the manufacturer's instructions specify otherwise). The bituminous mass may only be heated in a boiler heated indirectly through an oil jacket and having an inbuilt mixer and thermometers to control the temperature of the oil in the oil jacket and the temperature of the sealing mass inside the boiler. During sealing, the temperature of the sealing mass must match the one required by its manufacturer. The flow pressure of the sealing mass must be constant throughout the sealing process. The height of the sealing must be adapted to the external temperature. At pavement temperatures above 20°C the crack must be filled to the top, while at lower temperatures it must be filled up to a little below the top. Under no circumstances should the sealing extend above the top of the crack.
- Work may only be carried out if the weather is dry and temperatures exceed 5°C. After the work is done, the pavement must be cleaned and a suitable material (such as stone dust or chalk) spread over the freshly filled cracks to prevent them from becoming damaged.

Recordkeeping

The crack and joint sealing activities are logged in the standard way, as described in chapter 4.2.1.2 on pavement cleaning.

Equipment

Crack and joint sealing equipment consists of:

- Impact cutter with engine power exceeding 9 kW.
- Rotating brush for cleaning the cracks. Engine power must exceed 9.5 kW.
- Boiler with a capacity above 500 l.
- Compressor with pressure above 0.7 MPa and throughput above 2m^3/min.
- Vehicles to transport the equipment to the sealing site.

Supplement (see the supplement on RCV Equipment): a joint deepening machine.

An example of repaired joints and cracks:

List of works (see the supplement: List of Works)

The list of works includes joint and crack sealing under item 9014.

Work accounting

These activities are accounted per m^1 of repaired crack.

The VGRC System

The process of entering data into the VGRC system is similar to the one described in chapter 2 on pavement cleaning.

3.2.8 REPAIR OF GRAVEL ROADWAYS

Work description

This work involves the repair of gravel roadways (patching and spreading new material) on public roads.

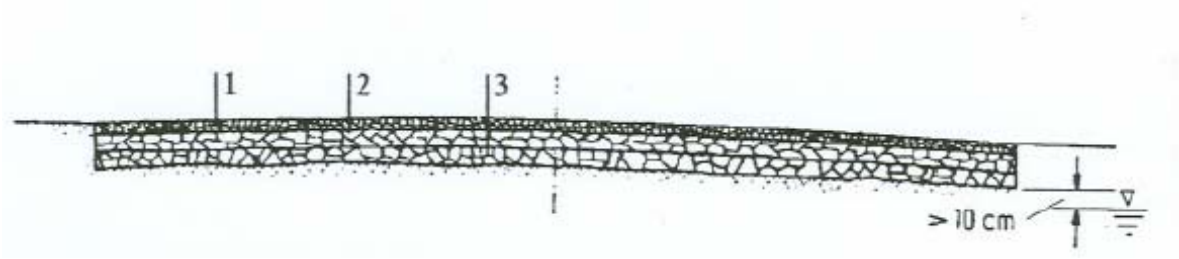
This includes both manual and mechanized work.

The manual work is performed using a shovel, a pick, a rake, and a wheelbarrow.

The work proceeds by removing mud and dirt from the individual potholes, and by cutting the edges of the potholes, which enables better adhesion and wedging of the new and old gravel material.

Patching is used for holes up to 2 m^2 in are and up to 10 cm deep.

Mechanized work involves an excavator with a levelling blade for shorter sections, or a grader for longer sections. The new gravel material can be spread in advance, or it may be brought little by little as the work proceeds, and levelled immediately so that traffic may proceed on a part of the road throughout the works. The levelled roadway must also be rolled. The roadway must have a sufficient transverse gradient, usually at least 4% and sloping outwards on both sides.



Key: Roadway strengthening after McAdam (1920)

- *5 cm of crushed gravel to 2.5 cm*
- *2 - 10 cm of crushed gravel to 7.5 cm*
- *3 -10 cm of crushed gravel to 7.5 cm*

Recordkeeping

Activities related to gravel roadway repair are logged in the standard way as described in chapter 4.2.1.2 on pavement cleaning.

Equipment

Manual work is done using a shovel, a pick, a rake, and a wheelbarrow. The required material should be brought beforehand to temporary storage locations along the road.

Mechanized patching and gravelling uses, in addition to the above manual tools, a grader of excavator, and the material is transported by trucks as the work proceeds. Once the roadway is well levelled, it must be further hardened with a vibrating roller.

Example of individual potholes

Example of consequences of water flowing along the right edge of the roadway

Example of potholes in the "ruts"

List of works (see the supplement: RAM List of Works)

The list of works includes gravel roadway repair under items 2301 through 2303.

Work accounting

The work is accounted per m^2 of repaired gravel road surface.

When spreading new gravel material, accounting is also based on m^2 of the repaired surface. However, bills of delivery of the new gravel must also be provided.

The VGRC system -

3.2.9 CLEANING OF STRUCTURES

Work description

Routine cleaning of structures involves semiannual general cleaning (in spring and in autumn) as well as additional cleaning when required. The date and amount of routine cleaning must be recorded in the structure's maintenance book.

Spring cleaning must be carried out after the end of the winter season of ploughing and salting.

Spring cleaning must above all include the following activities:

- washing the structure, footways, edge beams, barriers, and concrete parapets (removal of salt from exposed surfaces of the structure),
- cleaning the carriageway and removing the salting material,
- cleaning the drains and the surface water sewers,
- cleaning the drains that drain rainwater off the structure,
- cleaning the barbicans [QW barbakan] of retaining and supporting walls,
- cleaning the drainage systems of tunnels and galleries, and the backfill drainage of retaining and supporting walls,
- cleaning the expansion joints (which are almost entirely open at the time, and filled with salting material),
- cleaning the alluvia from the drainage systems of slopes and structures (open ditches, diversion ditches, inspection shafts),
- cleaning the alluvia deposited by waterways underneath structures and in the area of the road body.

Autumn cleaning is performed before winter season and consists mostly of removing the pollution caused by traffic and plants.

Autumn cleaning must above all include the following activities:

- cleaning the carriageways, sidewalk structure, cornices, fences and concrete parapets and portals (removal of oil, litter discarded from vehicles, leaves, bird droppings, graffiti, and plants),
- cleaning the drains and the surface water sewers,
- cleaning the drains that drain rainwater off the structure,
- cleaning the barbicans [QW barbakan] of retaining and supporting walls
- cleaning the drainage systems of tunnels and galleries, and the backfill drainage of retaining and supporting walls,
- cleaning the expansion joints,
- cleaning the abutment bearing shelves,
- cleaning the alluvia from the drainage systems of slopes and structures (open ditches, diversion channels, inspection shafts),
- cleaning the alluvia deposited by waterways underneath structures and in the area of the road body.

The work differs from one structure to another. The above lists mention only the most frequent activities; the actual type and extent of work must be defined in the course of the routine inspection of the structure.

The work may be performed individually or in groups.

Recordkeeping

The structure cleaning activities use the standard recordkeeping practice as shown in chapter 2 on pavement cleaning.

Equipment

Manual cleaning involves the use of a shovel, a broom, a wheelbarrow, and other suitable tools.

For mechanized cleaning, we use a unimog or a tractor with various attachments.

List of works (see the supplement: RAM List of Works)

The list of works includes structure cleaning as item 5101.

Work accounting

Structure cleaning is accounted per m^2 or m^1 of the cleaned surface.

Overhead-based accounting may be used when several kinds of minor works were performed on a structure.

The VGRC system -

3.2.10 MINOR REPAIRS OF WALLS AND CRIB WALLS

Work description

The works include minor wall repairs such as joint sealing, patching of chipped areas, and moving stone walls.

Joint sealing and patching of chipped areas is performed on existing walls in "good" condition, which can be revitalized with this procedure. It is important to start by cleaning the wall, particularly the joints, thoroughly, and ensure that the joints do not contain organic matter, soil, and loose mortar fragments. In addition to classic mechanical tools (hammer, chisel, wire brush) we can also use a high-pressure water blast (the pressure should be more than 200 bar). The sealing itself can be done manually (as in traditional masonry) or mechanically (shotcreting).

Moving the wall is only appropriate for dry-built walls and for walls damaged to the point when they lack their original shape or are partly or completely destroyed. When moving the wall, static considerations must be taken into account.

An example of overgrown supporting wall in need of joint sealing

Example of a partly destroyed wall:

Recordkeeping

In the case of joint sealing and patching chipped areas, the standard recordkeeping system can be used, as described in chapter 2 on pavement cleaning.

For larger wall work (partly destroyed walls, moving dry-built walls) done on the bases of a previously prepared work programme with a clearly defined section, station and list of tasks, a construction log book of work performed should be maintained (just like for a standalone construction contract).

Note: In the case of moving a wall, the work can also be done by strengthening (adding a layer of concrete on the back part of the wall).

Equipment

Cleaning requires a hammer, a chisel, a wire brush, and a high-pressure water cleaner.

For manual joint sealing, we can use all the standard masonry tools (trowels, scoops, brick hammers). We also need scaffolding. For mechanized sealing, we need the aforementioned tools as well as a shotcreting machine with cement mortar under high pressure.

Wall moving and other larger works are performed as standard construction work with equipment suitable for work of that size (mini-excavator, ordinary excavator, mobile crane, a hiab truck mounted forklift, formwork, vibrators,…).

List of works (see the supplement: RAM List of Works)

The list of works includes minor wall repairs as item 5402.

Work accounting

In the case of joint sealing and patching of chipped areas, the work performed is accounted per m^2 of wall surface.

However, when moving walls or performing other larger-scale repair, accounting is done on an overhead basis for smaller walls, while for larger walls a construction log book of work performed should be maintained (just like for a standalone construction contract).

The VGRC system -

3.2.11 REPAIR AND MAINTENANCE OF SLOPES

Work description

Routine maintenance of slopes involves slope cleaning, consolidation and removal of unstable material, local repairs of turfing, local repairs of slopes and embankments, measures taken to ensure suitable drainage, removal of material behind catchment nets and the repair of these nets.

Slope maintenance also includes the maintenance of vegetation growing on the slope. Such vegetation prevents the progress of erosion and the deposition of eroded material from the slope onto the carriageway. Vegetation maintenance consists of:

- cutting and pruning unsuitable trees and shrubs, particularly dry and poorly shaped trees which might collapse in an uncontrolled way due to wind or snow,
- small-scale planting of new vegetation on poorly covered slopes, and
- fertilizing and watering the vegetation to enhance its vitality on slopes where the ecological conditions are severe.

The maintainer must alert the client (i.e. the road administrator) in the case of slopes where erosive processes are underway and where eroded material is being carried onto the roadway or into drainage systems.

Example of a »sliding« slope

Example of a dangerous slope (falling rocks)

Recordkeeping

The repair and maintenance of slopes is logged using the standard approach as described in chapter 4.2.1.2 on pavement cleaning.

Equipment

Slope maintenance work requires the usual road-working tools (shovels, picks, brooms, saws, wheelbarrows…).

For the cleanup of sliding or eroded material we also need mechanized equipment such as excavator and trucks.

List of works (see the supplement: RAM List of Works)

The list of works includes slope repair and maintenance as items 7101 through 7104.

Work accounting

The repair and maintenance works shall be accounted per m^3 or m^2 (accounting per working hours is possible as well). However, removal of material from behind the meshes shall be accounted per m^3 of material removed.

The repair of netting and planting of minor parts of slopes is accounted per m^2 of area treated.

The VGRC system -

3.2.12 CLEANING OF TRAFFIC SIGNS AND ROAD EQUIPMENT

3.2.12.1 CLEANING OF TRAFFIC SIGNS

Work description

Traffic sign cleaning can be manual or mechanized.

Manual:

- a brush, a wiping cloth and a bucket are used
- a water tank with a valve is attached to the inspection vehicle
- the work is performed by a team of two workers, one of which is the driver
- a broom with an extended handle is used to clean larger signs
- we also need all the tools necessary for minor repairs such as fixing a loose sign

Mechanized:

- the work employs a cleaning assembly consisting of:
- a water tank on the platform of a unimog or similar vehicle
- a water pump
- a rubber hose
- a handle with a rotating brush
- this assembly can also be used to clean other road furniture
- a team of two workers is needed (a driver and a road worker)

Recordkeeping

Traffic sign cleaning is recorded using the standard approach as described in the section 4.2.1.2 on pavement cleaning.

Equipment

Equipment for manual cleaning:

A brush, a brush with an extended handle, a wiping cloth, a bucket, a water tank or reservoir with a faucet, the inspection vehicle.

Equipment for mechanized cleaning:

Water tanks on the platform of a unimog or similar vehicle, water pumps, rubber hoses, handles with rotating brushes, tools for fixing loose signs.

List of works

The list of works includes traffic sign cleaning under the headings 4101 (a, b).

Work accounting

The work is accounted per traffic sign cleaned, with separate costs for the summer season and the winter season (during winter, snow and slush must also be cleaned off the signs).

The VGRC system -

3.2.12.2 CLEANING OF DELINEATOR POSTS

Work description

This work can be manual or mechanized.

Manual:

- the work involves cleaning of reflectors on all kinds of fences (protective, New Jersey, parapets on structures, etc.) with manual tools (brushes, sponges, buckets)
- alignment of delineators and reflectors (where needed)
- a team of at least two workers is needed - one to drive the vehicle, the other(s) to clean
- the water tank is mounted onto the pickup truck or other similar vehicle

Mechanized:

- the work involves cleaning of reflectors on all kinds of fences (protective, New Jersey, parapets on structures, etc.)
- mechanized cleaning of delineators with a unimog/tractor attachment - a hydraulic hand with delineator cleaning brushes

Recordkeeping

Delineator post cleaning is logged using the standard approach as described in the section 4.2.1.2 on pavement cleaning.

List of works

The list of works includes delineator post keeping under the items 4102 and 4103.

Equipment

Equipment for manual cleaning: a brush, a sponge, a bucket, a water tank or reservoir with faucet, the inspection vehicle.

Equipment for mechanized cleaning: a water tank on the unimog platform and a hydraulic hand with delineator cleaning brushes.

Work accounting

This work is accounted per delineator post cleaned.

The VGRC system -

3.2.13 TRAFFIC SIGNALIZATION MAINTENANCE AND REPLACEMENT

Introduction

These guidelines contain standards for defining the level of the condition of traffic signs and road furniture, which the road maintainer (referred to as the concessionaire from now on) must provide on all parts of the road network covered in its contracts.

The standards are adapted to the conceder's requirements and expect that the concession contract will require maintenance at least up to the standards of level 3 on the condition evaluation scale.

Condition below level 3 of the condition evaluation scale constitutes failure to meet the requirements. The consequences of such failure to meet the requirements as determined by these standards will be appraised in accordance with the provisions of the concession contract. Their cost will be greater than the cost of non-performed works and will take into account the following aspects (in decreasing order of priority):

- provision of traffic safety,
- provision of passability, and
- provision of the required level of service to the road users.

These guidelines consist of:

- an introduction proposing a new classification of road maintenance (as a consequence of these standards),
- an announcement of the concession performance monitoring (chapter 2), and
- the main part of the supplement, consisting of chapters 3–9, discussing the required levels of the condition of each of the components of the road networks; for each component, there is a general description of the task, the maintenance requirements for traffic signs and road furniture, a definition of the condition evaluation scale, a description of the quality verification procedure, a definition of the allowed response times, standard requirements, and the required condition at the end of the concession period.

Maintenance classification

We propose classification of the maintenance of traffic signs and road furniture as an extension of the existing functional classification. The proposed classification of the maintenance of traffic signs and road furniture takes into account not only the functional classification of roads but also the traffic thereon. The aim of this classification is to establish a balance, allowing the most appropriate standards to be defined based on the road's purpose and the traffic on it.

This will be reflected in a lowering of standards for roads with low traffic and the raising of standards for roads with high traffic. The reduction of standards, particularly on the secondary road network, can be justified by the fact that the traffic speed is low, both because of the road geometry (narrow roads, sharp turns) and because of the lower standard to which they are maintained. However, the reduction of standards must not adversely affect the traffic safety.

The proposed classification of maintenance is shown in Table 1. A higher class (e.g. Class I) means higher service requirements and a shorter maximum allowed response time.

Table 1: Proposed classification of road maintenance based on traffic density and the functional class of the road.

Traffic density (AADT)	Trunk roads, 1st class T1	Trunk roads, 2nd class T2	Regional roads, 1st class R1	Regional roads, 2nd class R2	Regional roads, 3rd class R3	Tourist roads RT
>5000	I	I	I	I	II	III
2000-5000	II	II	II	II	III	III
1000-2000	III	III	III	III	IV	IV
<1000	IV	IV	IV	IV	V	V

The changes in traffic density may eventually lead to changes in the road maintenance classification. Therefore we propose that the definition of road network maintenance classes be reviewed and possibly revised every five years. The length of the roads in each maintenance class must be sufficiently long for practical purposes. The initial definition of the minimum length that can belong to its own maintenance class is 5 km.

Operational and technical regulations

We propose that the standards to be introduced regarding the level of reconstruction and maintenance of traffic signs and road furniture of state roads in the context of concessions should not be lower than the minimal requirements and conditions set forth in these guidelines. Deviation from the guidelines is only

acceptable if the standard to be introduced is higher than suggested in the guidelines.

Monitoring of the concession performance

The monitoring of the performance of the concessionaires in the area of maintenance of traffic signs and road furniture on the state road network lies outside the scope of this project. Thus we only present the basic considerations regarding the monitoring of the maintenance of traffic signs and road furniture of state roads. A detailed regulation should be prepared on the monitoring methods, the basis for evaluation of the required level of maintenance of the traffic signs and road furniture, and the methods, competencies and the resulting measures to be introduced based on the monitoring observations. However, the preparation of such regulations is outside the scope of this project.

The goal is to set up a system of quality assurance and provision rather than just quality control, a system based on partnership and mutual trust of the conceder and the concessionaire. This introduces a key change to the existing system of controlling the maintenance of state road traffic signs and furniture, which is based on a lump sum for the maintenance and partly on a quantitative control of the performed maintenance work. Monitoring is the basis for following the required level of concession-based maintenance of traffic signs and road furniture. Such monitoring must above all evaluate compliance with the requirements set forth by the standards as agreed upon in the concession act and the concession contract.

The road maintenance standards are based on the appropriate regulations, standards and norms, technical specifications and other acts that define the level of conditions and the ways of ensuring the passability of state roads and the appropriate quality of materials and structures composing the state road network.

We propose that the concessionaire prepare a Manual for quality assurance in the maintenance of traffic signs and road furniture. The manual would be based on the requirements set forth in this document, as well as on provisions of the concession act and concession contract. The manual would need to be confirmed and accepted by the conceder after it has been approved by the monitoring contractor. This manual would define the day-to-day procedures to be used by the concessionaire to meet the requirements in the context of individual tasks. The manual will also define how the concessionaire itself verifies the quality of its service, of the materials used and the structures built, how it reports its observations, any deviations in quality and the reasons for such deviations. Incorrect reporting and insufficient monitoring of its own quality on part of the concessionaire is to be treated as if the required level of maintenance and response time has not been met for the particular component or part of the road in question.

3.2.13.1 TRAFFIC SIGNALIZATION MAINTENANCE

3.2.13.1.1 Traffic signs maintenance

Work description

The work includes

- maintenance of traffic signs, except for pavement markings, tourist and other informational signs, and road delineator posts,
- cleaning, substitution, replacement and repair of worn-out, damaged, incomplete or missing traffic signs, tourist and other informational signs, and road delineator posts including their retaining structures, and
- changes of traffic signs as required by the conceder.

Maintenance requirements

Traffic signs, tourist and other informational signs, and road delineator posts must be kept in the required condition. Any unauthorized activities must be noted and

reported in writing after no more than 24 hours.

The concessionaire may order new traffic signs and delineator posts only from manufacturers possessing the required certificates that their products meet the requirements of the current regulations and other requirements of the conceder. Such certificates must have been issued by a body authorized to perform testing in this area. Suppliers of materials must be approved by the conceder before the first purchase.

Evaluation of the condition

Throughout the duration of the contract, the concessionaire is to maintain the traffic signs, tourist signs and other signals, as well as road delineators, in one of the following conditions:

Condition grade	Condition description
5 - very good	All newly installed danger and regulation signs use type 3 light reflecting foil (DIN 67520), and other traffic signs use type 2 foil. The same is true of traffic signs that need to be replaced because of wear or damage. When replacing signs, the colour of danger and regulation signs must meet the requirements of the Regulation on traffic signs and road furniture on public roads. This regulation also defines the coordination deadlines. The traffic signs are not damaged (cracked foil, rust, minor folds or bends). The reflection coefficient of the foil used on the traffic signs meets the standards for new traffic signs. Surface colour (print) and the symbols and inscriptions glued onto the traffic signs are not damaged and can be seen in their entirety. Regarding the physical placement of traffic signs both in a horizontal and a vertical sense, regulatory requirements are met and there are no construction faults, damage or corrosion. Retaining and attachment structures of the traffic signs guarantee stability in the required weather conditions. All road sections are entirely equipped with delineator posts. Delineator posts do not lean, all are equipped with caps and the red-white delineators.
4 - good	All newly installed traffic signs use type 2 light reflecting foil (DIN 67520). The same is true of traffic signs that need to be replaced because of wear or damage. When replacing signs, the colour of danger and regulation signs must meet the requirements of the Regulation on traffic signs and road furniture on public roads. This regulation also defines the coordination deadlines. The traffic signs have minor damage (foil cracks, rust, minor folds or bends), which however is not noticeable to the drivers. The reflection coefficient of the foil used on the traffic signs is above 80 % of the value required for new traffic signs. Surface colour (print) and the symbols glued onto the signs are damaged, but the damage does not exceed 5 % of the total area of the coloured region or the glued symbol. Inscriptions on the traffic signs are visible in their entirety. Regarding the physical placement of traffic signs both in a horizontal and a vertical sense, the existing traffic signs may lean no more than 2 % away from the regulatory requirements, and do not have any construction faults or major defects. Retaining structures exhibit moderate corrosion; the protective surface layer is deteriorating. Retaining and attachment structures guarantee stability in the required

	weather conditions; moderate corrosion occurs. All road sections are entirely equipped with delineator posts. Delineator posts do not lean so much as to make this an annoyance; all of them are equipped with caps and the red-white delineators.
3 - borderline	All newly installed danger and regulation signs use type 2 light reflecting foil (DIN 67520), and other traffic signs use type 1 foil. The same is true of traffic signs that need to be replaced because of wear or damage. When replacing signs, the colour of danger and regulation signs must meet the requirements of the Regulation on traffic signs and road furniture on public roads. This regulation also defines the coordination deadlines. The traffic signs have minor damage (foil cracks, rust, minor folds or bends). The reflection coefficient of the foil used on the traffic signs is above 60 % of the value required for new traffic signs. Surface colour (print) and the symbols glued onto the signs are damaged, but the damage does not exceed 10 % of the total area of the coloured region or the glued symbol. Inscriptions on the traffic signs are visible in their entirety. Regarding the physical placement of traffic signs both in a horizontal and a vertical sense, the existing traffic signs may lean no more than 4 % away from the regulatory requirements, and do not have any construction faults or major defects. Moderate corrosion appears, and the protective surface layer is deteriorating. Traffic sign attachment structures guarantee stability in the required weather conditions; moderate corrosion occurs. All road sections are entirely equipped with delineator posts. Delineator posts do not lean so much as to make this an annoyance; all of them are equipped with caps and the red-white delineators.
2 - poor	All newly installed traffic signs use type 1 light reflecting foil (DIN 67520). The same is true of traffic signs that need to be replaced because of wear or damage. When replacing signs, the colour of danger and regulation signs must meet the requirements of the Regulation on traffic signs and road furniture on public roads. This regulation also defines the coordination deadlines. The traffic signs have damage (foil cracks, rust, minor folds or bends) not exceeding 10 % of the surface of the signs. The reflection coefficient of the foil used on the traffic signs is above 30 % of the value required for new traffic signs. Surface colour (print) and the symbols glued onto the signs are damaged, but the damage does not exceed 25 % of the total area of the coloured region or the glued symbol. Visibility of inscriptions on the traffic signs is above 90 %. Regarding the physical placement of traffic signs both in a horizontal and a vertical sense, the existing traffic signs lean, but not more 15 % away from the regulatory requirements. They have no construction faults but may exhibit minor defects. Moderate corrosion appears, and the protective surface layer is deteriorating. Traffic sign attachment structures guarantee stability in the required weather conditions; moderate corrosion occurs. Delineator posts lean noticeably; most (at least 80 %) of them are equipped with caps and the red-white delineators. All road sections from road maintenance classes I, II, and III are entirely equipped with delineator posts.
1 - very poor	All newly installed traffic signs use type 1 light reflecting foil (DIN 67520). The same is true of traffic signs that need to be replaced because of wear or damage. When replacing signs, the colour of danger and regulation signs must meet the requirements of the Regulation on traffic signs and

	road furniture on public roads. This regulation also defines the coordination deadlines. The traffic signs have damage (foil cracks, rust, minor folds or bends), which however does not make recognition difficult. The reflection coefficient of the foil used on the traffic signs is above 20 % of the value required for new traffic signs. Surface colour (print) and the symbols glued onto the signs are damaged, but the damage does not exceed 20 % of the total area of the coloured region or the glued symbol. Visibility of inscriptions on the traffic signs is above 80 %. Regarding the physical placement of traffic signs both in a horizontal and a vertical sense, the existing traffic signs lean, but not more 20 % away from the regulatory requirements. They have no construction faults but may exhibit minor defects. Moderate corrosion appears, and the protective surface layer is deteriorating. Traffic sign attachment structures guarantee stability in the required weather conditions; moderate corrosion occurs. Delineator posts lean noticeably, but not so much as to make this an annoyance; most (at least 80 %) of them are equipped with caps and the red-white delineators. All road sections from road maintenance classes I and II are entirely equipped with delineator posts.

Quality verification procedure

If the concessionaire begins using a new kind of material, it must submit this new material to the same quality verification process. Such verification may only be performed by an institution possessing the necessary competence and equipment. Other parameters are verified in the field by both parties to the contract.

Maximum allowed response time

Any materials ordered by the concessionaire contrary to the above stipulations must be replaced by appropriate ones within 10 days after receiving a written notice from the monitoring agency. The same time period also applies to the replacement of traffic signs whose dimensions, shape, or content fails to meet the current regulations.

Leaning and bent signs, as well as signs occluded by vegetation, must be straightened and their visibility ensured. This should be a permanent process, carried out at least once a week.

Danger and regulatory signs must be installed within 24 hours.

Signs and retaining structures whose condition falls below the borderline level 3 of the above scale must be restored to the required borderline level within two weeks.

Missing delineator posts must be replaced within 30 days, except in wintertime, when they must be replaced within 30 days after the thaws. Missing reflectors and caps must be replaced within 30 days.

Standards compliance

Any deviation from the required standards is handled in accordance with the procedures defined in the concession contract between the conceder and the concessionaire.

Failure to meet the requirements regarding the quality and condition of traffic signs and delineators is evaluated as follows:

- **degree 5**, if

- the concessionaire uses traffic signs and delineators manufactured contrary to the requirements,
- it exceeds the required response times by up to 10 %

- **degree 7**, if
- three degree-5 violations occur within one month,
- the quality of the materials used and of their maintenance meets the definition of level 2 (poor),
- when executing the conceder's requests, the concessionaire exceeds deadlines by up to 15 days, and/or
- it fails to replace inappropriate materials (installed contrary to the stipulations of the maintenance requirements) within the required response time,
- it exceeds the required response times by up to 20 %

- **degree 9,** if
- three degree-7 violations occur within one month,
- the quality of the materials used and of their maintenance meets the definition of level 1 (very poor),
- when executing the conceder's requests, the concessionaire exceeds deadlines by up to 30 days,
- it fails to replace inappropriate materials (installed contrary to the stipulations of the maintenance requirements) within the required response time, and even within an additional period of 10 days,
- if the poor maintenance of structural and retaining elements has endangered the stability of the structure,
- it exceeds the required response times by up to 20 %.

- **degree 10,** if
- five degree-9 violations occur within one month, or
- ten degree-7 violations occur.

These degrees are assigned separately for each traffic sign; regarding the failure to meet requirements concerning delineators, the maximum degree is 5 for the entire road section.

The required condition at the end of the concession period

At the end of the concession contract, the signs, posts, and delineators must be in level 3 or better condition.

3.2.13.1.2 Pavement markings maintenance

Work description

This work includes:

- maintenance of existing pavement markings, in
- changes of markings.

Maintenance requirements

The pavement markings must be kept in the conditions described in this section.

The concessionaire must send the conceder written notification of any unauthorized activities affecting the pavement markings. Such notification must take place no more than 24 hours after the activity in question.

The concessionaire may order materials to be used for new markings, and for the reconstruction of old ones, only from manufacturers possessing the required certificates

that their product meet the requirements of the current regulations and other requirements of the conceder. Such certificates must have been issued by a body authorized to perform testing in this area. Suppliers of materials must be approved by the conceder before the first purchase.

Renovation of pavement markings must be adapted to the traffic density, i.e. such work must not be performed during rush hours and during the tourist season.

Evaluation of the condition

Throughout the duration of the contract, the concessionaire is to maintain the pavement markings in one of the following conditions:

<table>
<tr><th>Condition grade</th><th>Condition description</th></tr>
<tr><td>5 – very good</td><td>Pavement markings are not covered with dirt and are clearly visible.
The shape and size of the pavement markings entirely match the current regulations.
The characteristics of the markings meet the following requirements from the EN 1436 European standard:
<table>
<tr><td>Characteristic</td><td>White markings</td><td>Yellow markings</td></tr>
<tr><td>Qd (mcd*m^{-2}*lx^{-1})</td><td>Q3</td><td>Q2</td></tr>
<tr><td>R_l (mcd*m^{-2}*lx^{-1}) dry pavement</td><td>R5</td><td>R4</td></tr>
<tr><td>R_l (mcd*m^{-2}*lx^{-1}) wet pavement</td><td>RW 3</td><td>RW3</td></tr>
<tr><td>b luminescence factor</td><td>B5</td><td>B3</td></tr>
<tr><td>SRT</td><td>S5</td><td>S5</td></tr>
</table></td></tr>
<tr><td>4 – good</td><td>Pavement markings are not covered with dirt and are clearly visible.
The shape and size of the pavement markings match the current regulations.
The characteristics of the markings meet the following requirements from the EN 1436 European standard:
<table>
<tr><td>Characteristic</td><td>White markings</td><td>Yellow markings</td></tr>
<tr><td>Qd (mcd*m^{-2}*lx^{-1})</td><td>Q3</td><td>Q2</td></tr>
<tr><td>R_l (mcd*m^{-2}*lx^{-1}) dry pavement</td><td>R4</td><td>R3</td></tr>
<tr><td>R_l (mcd*m^{-2}*lx^{-1}) wet pavement</td><td>RW 2</td><td>RW2</td></tr>
<tr><td>b luminescence factor</td><td>B4</td><td>B2</td></tr>
<tr><td>SRT</td><td>S3</td><td>S3</td></tr>
</table></td></tr>
<tr><td>3 – borderline</td><td>Pavement markings are not covered with dirt and are clearly visible.
The shape and size of the pavement markings match the current regulations.
The characteristics of the markings meet the following requirements from the EN 1436 European standard:
<table>
<tr><td>Characteristic</td><td>White markings</td><td>Yellow markings</td></tr>
<tr><td>Qd (mcd*m^{-2}*lx^{-1})</td><td>Q2</td><td>Q1</td></tr>
<tr><td>R_l (mcd*m^{-2}*lx^{-1}) dry pavement</td><td>R2</td><td>R3</td></tr>
<tr><td>R_l (mcd*m^{-2}*lx^{-1}) wet pavement</td><td>RW1</td><td>RW1</td></tr>
<tr><td>b luminescence factor</td><td>B3</td><td>B2</td></tr>
<tr><td>SRT</td><td>S1</td><td>S1</td></tr>
</table></td></tr>
<tr><td>2 – poor</td><td>Pavement markings are not covered with dirt and are clearly visible.
The shape and size of the pavement markings match the current regulations.
The characteristics of the markings meet the following requirements from the EN 1436 European standard:
<table>
<tr><td>Characteristic</td><td>White markings</td><td>Yellow markings</td></tr>
<tr><td>Qd (mcd*m^{-2}*lx^{-1})</td><td>Q0</td><td>Q0</td></tr>
<tr><td>R_l (mcd*m^{-2}*lx^{-1}) dry pavement</td><td>R1</td><td>R1</td></tr>
<tr><td>R_l (mcd*m^{-2}*lx^{-1}) wet pavement</td><td>RW 0</td><td>RW0</td></tr>
<tr><td>b luminescence factor</td><td>B2</td><td>B1</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td>
<table>
<tr><td>SRT</td><td>S0</td><td>S0</td></tr>
</table>
</td></tr>
<tr><td>1 – very poor</td><td>Pavement markings are partly covered with dirt and are not clearly visible.
The shape and size of the pavement markings do not match the current regulations.
The characteristics of the markings do not meet the following requirements from the EN 1436 European standard:
<table>
<tr><td>Characteristic</td><td>White markings</td><td>Yellow markings</td></tr>
<tr><td>Qd (mcd*m^{-2}*lx^{-1})</td><td>Q0</td><td>Q0</td></tr>
<tr><td>R_l (mcd*m^{-2}*lx^{-1}) dry pavement</td><td>R0</td><td>R0</td></tr>
<tr><td>R_l (mcd*m^{-2}*lx^{-1}) wet pavement</td><td>RW 0</td><td>RW0</td></tr>
<tr><td>b luminescence factor</td><td>B0</td><td>B0</td></tr>
<tr><td>SRT</td><td>S0</td><td>S0</td></tr>
</table>
</td></tr>
</table>

Quality verification procedure

If the concessionaire begins using a new kind of material mid-year, it must submit this new material to the same quality verification process. Such verification may only be performed by an institution possessing the necessary competence and equipment.

Maximum allowed response time

Any pavement markings whose characteristics fall below the borderline level 3 must be restored within 30 days. If the weather conditions make such restoration impossible and the characteristics of the markings fall into condition level 1, a warning vertical traffic sign must be installed immediately.

For roads from classes III, IV, and V of the proposed road maintenance classification system, the maximum allowed response time is increased by 50 %.

Standards compliance

Any deviation from the required standards is handled in accordance with the procedures defined in the concession contract between the conceder and the concessionaire.

Failure to meet the requirements regarding pavement markings is evaluated as follows:

- **degree 5**, if
- the concessionaire uses materials contrary to the requirements, and/or
- it exceeds the required response times by up to 10 %
- **degree 7**, if
- three degree-5 violations occur within one month,
- the quality of the materials used and of their maintenance meets the definition of level 2 (poor),
- when executing the conceder's requests, the concessionaire exceeds deadlines by up to 15 days, and/or
- it fails to replace inappropriate materials (installed contrary to the stipulations of the maintenance requirements) within the required response time,
- it exceeds the required response times by up to 20 %
- **degree 9,** if
- three degree-7 violations occur within one month,
- the quality of the materials used and of their maintenance meets the definition of level 1 (very poor),

- when executing the conceder's requests, the concessionaire exceeds deadlines by up to 30 days,
- it fails to replace inappropriate materials (installed contrary to the stipulations of the maintenance requirements) within the required response time, and even within an additional period of 10 days,
- if the poor maintenance has endangered traffic safety,
- it exceeds the required response times by up to 20 %.

- **degree 10**

One installment of the concessionary payment may be entirely delayed for the whole payment period (or until the first regular payment period after all the deficiencies have been remedied) if the conceder finds that

- five degree-9 violations occur within one month, or
- ten degree-7 violations occur.

These degrees are assigned separately for each group of markings. A group of markings consists of the transverse markings of an individual road crossing or pedestrian crossing, or the longitudinal markings of a road section in the length up to 5 km. Deviations from the requirements are considered to be violations of the marking quality standards if such deviations occur on

- more than 10 % of the transverse markings of a particular group, or
- more than 5 % of the longitudinal markings of a particular group.

The required condition at the end of the concession period

At the end of the concession contract, all the pavement markings must be in level 3 or better condition.

3.2.13.1.3 Maintenance of traffic lights, backlit signs, changeable traffic signs, emergency call systems, tunnel furniture and devices, and flashing lights

Work description

This work includes routine and investment maintenance of:

- traffic lights with all necessary equipment and signals (traffic light devices, traffic light heads, traffic signs and posts, vehicle detectors, attachment equipment, electric cables, indicators, control equipment),
- changeable traffic signs, composed of rotating prisms, optical fibers or superluminescent diodes,
- backlit traffic signs,
- emergency call systems,
- tunnel equipment and devices,
- weather stations,
- video cameras used to monitor the condition and passability of the road,
- flashing lights,
- supporting structures for all the above-mentioned signals and furniture,
- elements and equipment needed to power the above-mentioned devices, including the offtake points,
- covering the costs of the electrical energy consumed by these devices,
- changing the traffic programs in traffic lights, as required by the conceder in accordance with the Public Roads Act.

Maintenance work must be carried out on all devices regardless of their location, except for traffic lights, which are subject to maintenance only on roads outside

populated areas (as denoted by the traffic signs III-14 and III-15).

Maintenance requirements

Routine maintenance of these devices to the required level involves replacement of light bulbs and other components, cleaning the devices, straightening of leaning posts and repair of posts suffering damage or wear, traffic signal cables, control equipment, and other equipment. The task also involves removal of snow and ice from the front side of traffic signal wiring boxes, and the removal of branches and other objects that obstruct the visibility of signs and other devices.

The renovation includes the replacement of all worn-out parts, components, or entire devices or items of equipment.

Evaluation of the condition

Throughout the duration of the contract, the concessionaire is to maintain the devices in one of the following conditions:

Condition grade	Condition description
5 - very good	All the devices function efficiently and correctly (any problems are fixed in accordance with the requirements defined in the following paragraphs). In road crossings with traffic lights, any burnt-out light bulbs must be replaced within 4 hours of the failure, and any other faults in 6 hours after they occur. Any destroyed, broken, or damaged parts of devices and supporting structures are immediately protected; they are replaced within 12 hours after the problem occurred. Devices are not concealed by trees or other vegetation. Electrical cables, networks, and components are routinely inspected every month, tested according to the current regulations, and comply with the standards of electrical safety. Supporting structures do not lean. Supporting structures do not exhibit traces of corrosion or damage. The structural integrity of lamp posts and boxes is tested every year to establish the stability and expected lifespan of every unit. All the components are cleaned once per month.
4 - good	All the devices function efficiently and correctly (any problems are fixed in accordance with the requirements defined in the following paragraphs). In road crossings with traffic lights, any burnt-out light bulbs must be replaced within 6 hours of the failure, and any other faults in 12 hours after they occur. Any destroyed, broken, or damaged parts of devices and supporting structures are immediately protected; they are replaced within 24 hours after the problem occurred. Devices are not concealed by trees or other vegetation. Electrical cables, networks, and components are routinely inspected twice a year, tested according to the current regulations, and comply with the standards of electrical safety. Supporting structures do not lean. Supporting structures exhibit traces of corrosion or damage. The structural integrity of lamp posts and boxes is tested every three years to establish the stability and expected lifespan of every unit. All the components are cleaned four times a year.
3 - borderline	All the devices function efficiently and correctly (any problems are fixed in accordance with the requirements defined in the following paragraphs). In road crossings with traffic lights, any burnt-out red light bulbs must be replaced within 8 hours of the failure, and any other faults in 24 hours

	after they occur. Any destroyed, broken, or damaged parts of devices and supporting structures are immediately protected; they are replaced within 48 hours after the problem occurred. Devices are not concealed by trees or other vegetation. Electrical cables, networks, and components are routinely inspected once a year, tested according to the current regulations, and comply with the standards of electrical safety. Supporting structures do not lean more than 2 %. Supporting structures exhibit minor traces of corrosion (up to 5 % of the area of the structure) and possibly minor damage, which however does not affect the aesthetic appearance and stability. Lamp posts and boxes are tested every five years to verify their structural perfection, to define the stability and the expected service life of each unit. All the components are cleaned twice a year.
2 - poor	All the devices function efficiently and correctly (any problems are fixed in accordance with the requirements defined in the following paragraphs). In road crossings with traffic lights, any burnt-out red light bulbs must be replaced within 24 hours of the failure, and any other faults in 7 days after they occur. Any destroyed, broken, or damaged parts of devices and supporting structures are immediately protected; they are replaced within 7 days after the problem occurred. Devices are partially concealed by trees or other vegetation. Electrical cables, networks, and components are occasionally inspected and tested according to the current regulations; they comply with the standards of electrical safety. Supporting structures do not lean more than 5 %. Supporting structures exhibit minor traces of corrosion (up to 10 % of the area of the structure) and possibly minor damage, which however does not affect the aesthetic appearance and stability. Lamp posts and boxes are tested every ten years to verify their structural perfection, to define the stability and the expected service life of each unit. All the components are cleaned once a year.
1 - very poor	The devices function efficiently and correctly, unless they are broken. In road crossings with traffic lights, any burnt-out red light bulbs must be replaced within a week. Any destroyed, broken, or damaged parts of devices and supporting structures are immediately protected; they are replaced within a month after the problem occurred. Devices are partially concealed by trees or other vegetation. Lamps concealed by trees or other vegetation are considered as out of function. Electrical cables, networks, and components are inspected occasionally (when necessary) and tested according to the current regulations; they comply with the standards of electrical safety. Supporting structures lean more than 5 %. Supporting structures exhibit minor traces of corrosion (up to 20 % of the area of the structure) and possibly damage, which however does not affect the stability of the structure. All the components are cleaned once every two years.

Quality verification procedure

Quality verification must take into account the current regulations and their requirements concerning the frequency of the tests. Such verification may only be performed by an institution or organization possessing the necessary competence and equipment.

Maximum allowed response time

The response times are the same for all road maintenance classes

The concessionaire must monitor the condition of the devices and maintain it on the level specified in the requirements.

Electrical, structural, and other failures that represent a direct danger to road users, including failures caused by accidents, must be protected and repaired within the period specified in the requirements.

Other faults must be repaired within 24 hours if they affect the smooth and safe progress of traffic, and within 7 days otherwise.

Standards compliance

Any deviation from the required standards is handled in accordance with the procedures defined in the concession contract between the conceder and the concessionaire.

Failure to meet the requirements regarding the quality and condition of devices and other equipment is evaluated as follows:

- **degree 3**, if
- corrosion exceeds the maximum area of the supporting structure required for level 3 (borderline condition),
- **degree 5**, if
- response times are exceeded by up to 10 %,
- **degree 7**, if
- response times are exceeded by up to 20 %,
- three degree-5 violations occur within one month,
- the quality of the devices of their maintenance meets the definition of level 2 (poor),
- **degree 9**, if
- response times are exceeded by up to 20 %,
- three degree-7 violations occur within one month,
- the quality of the devices of their maintenance meets the definition of level 1 (very poor),
- if the lack of proper maintenance of structural and supporting elements jeopardizes the stability of the structure,
- if the inappropriate condition of the devices causes a reduction in traffic safety.
- **degree 10,** if
- five degree-9 violations occur within one month, or
- ten degree-7 violations occur.

These degrees are assigned separately for each device.

The required condition at the end of the concession period

All devices must be in level 3 (borderline) or better condition. The expected remaining lifespan of all devices, retaining structures, wiring box cables, and networks must be at least 10 years.

3.2.13.2 TRAFFIC EQUIPMENT MAINTENANCE

3.2.13.2.1 Safety fences maintenance

Work description

The work involves routine maintenance of damaged fences and the replacement of worn-out or destroyed ones. This includes the following fences:

- metal safety fences,
- combined metal and wooden safety fences,
- concrete and stone pillars intended to protect the vehicles from sliding off the carriageway, and
- Jersey barriers (New Jersey type concrete safety barriers).

Maintenance requirements

Road safety fences and barriers must be maintained in level 3 (borderline) or better condition.

The concessionaire must inform the conceder in writing of any unauthorized activities affecting this kind of road furniture, particularly any destruction thereof. Unauthorized activities must be detected and reported within 24 hours after they occur.

The concessionaire may order new fences and barriers only from manufacturers possessing the required certificates that their products meet the requirements of the current regulations and other requirements of the conceder. Such certificates must have been issued by a body authorized to perform testing in this area. Suppliers of materials must be approved by the conceder before the first purchase.

Regardless of the level of maintenance, all stipulations of the safety fence technical specification must be strictly observed when replacing the existing damaged or worn-out fences (if the section is longer than 100 m).

Evaluation of the condition

Condition grade	Condition description
5 - very good	The safety fence does not exhibit noticeable corrosion damage or missing parts or elements. The wooden parts of the fence are undamaged and show no signs of deterioration. The placement of all supporting posts ensures the stability of the fence and its ability to protect vehicles from sliding off the carriageway. The height of the fence meets the regulatory requirements. The metal fence shows no signs of corrosion. All the reflectors are present on the fence, at the required intervals.
4 - good	The safety fence exhibits minor horizontal deformations (up to 5 cm). The fence is undamaged and is not missing any elements or parts that could affect its functionality. The wooden parts of the fence show minor damage, which however does not affect their functionality. The placement of all supporting posts ensures the stability of the fence and its ability to protect vehicles from sliding off the carriageway. The height of the fence deviates up to 5 cm from the regulatory requirements. Most (more than 95 %) of the reflectors are present, with no more than two missing ones in a row.
3 - borderline	The safety fence exhibits minor horizontal deformations (up to 10 cm). The fence is slightly corroded (up to 10 % of the area), which does not

	affect its structural integrity. The wooden parts of the fence show minor damage, which however does not affect their functionality. The placement of most the supporting posts (at least 90 % are present, with no more than two missing ones in a row) ensures the stability of the fence and its ability to protect vehicles from sliding off the carriageway. The height of the fence deviates up to 10 cm from the regulatory requirements. Most (more than 90 %) of the reflectors are present, with no more than three missing ones in a row.
2 - poor	The safety fence exhibits horizontal deformations (up to 30 cm). The fence has minor damage and missing elements or parts that affect its functionality in a minor way. Up to 30 % of the area of the fence is corroded, which however does not affect its structural integrity. The wooden parts of the fence are damaged, which however does not affect its functionality. The placement of most of the supporting posts (at least 75 % are present, with no more than five missing ones in a row), which still ensures the stability of the fence and its ability to protect vehicles from sliding off the carriageway. The height of the fence deviates up to 20 cm from the regulatory requirements. Most (more than 85 %) of the reflectors are present, with no more than four missing ones in a row.
1 - very poor	The safety fence exhibits horizontal deformations greater than 30 cm. The fence is damaged and lacks elements or parts that affect its functionality. More than 30 % of the area of the fence is corroded, and its structural integrity is affected. The wooden parts of the fence are damaged, which affects its functionality. The placement of most of the supporting posts (at least 50 % are present, with no more than ten missing ones in a row) does not ensure the stability of the fence and its ability to protect vehicles from sliding off the carriageway. The height of the fence deviates from the regulatory requirements by more than 20 cm. Most (more than 85 %) of the reflectors are present, with no more than five missing ones in a row.

Quality verification procedure

Quality control of the construction materials used must be performed once a year, as specified by the current regulations and by these norms. The "crash" tests are an exception to this, being valid for as long as the product characteristics remain unchanged. If the concessionaire switches to a different material mid-year, it must order a quality check of the new material as well. Such testing may only be performed by an institution possessing the necessary competence and equipment. Other parameters are verified in the field by both parties to the contract.

Maximum allowed response time

Any materials ordered by the concessionaire contrary to the above stipulations must be replaced by appropriate ones within 10 days after receiving a written notice from the monitoring agency.

Any safety fences that have been destroyed or have deteriorated to the point when they

no longer meet the basic requirements to stop vehicles from sliding off the road must be replaced by the concessionaire within three days after such fences have been identified. Until the fence is replaced, the location must be protected by appropriate traffic signs.

Components whose condition falls below the level 3 (borderline) requirements of the above scale must be restored to the required borderline level within two weeks if they are located on maintenance class I or II roads, within 30 days if located on maintenance class III or IV roads, and within 45 days if located on maintenance class V roads.

Missing delineators must be replaced within 7 days after they have been identified.

Standards compliance

Any deviation from the required standards is handled in accordance with the procedures defined in the concession contract between the conceder and the concessionaire.

Failure to meet the requirements regarding the quality and condition of damaged and deteriorated fences is evaluated as follows:

- **degree 5**, if
- the concessionaire fails to meet the required response times, running overdue by up to 3 days,
- maintenance quality meets the requirements for level 2 (poor),
- the concessionaire fails to replace inappropriate materials (installed contrary to the maintenance requirements) within the required response time,
- **degree 7**, if
- three degree-5 violations occur within one month,
- the maintenance quality meets the requirements for level 1 (very poor),
- the concessionaire fails to replace inappropriate materials (installed contrary to the maintenance requirements) within the required response time, and even within an additional period of 10 days,
- the inappropriate maintenance of the fence led to a traffic accident with at least a minor injury,
- **degree 9,** if
- three degree-7 violations occur within one month,
- the inappropriate maintenance of the fence led to a traffic accident with at least a minor injury,
- the concessionaire exceeds the maximum allowed response times by more than 20 %,
- **degree 10**, if
- five degree-9 violations occur within one month, or
- ten degree-7 violations occur.

These degrees are assigned separately for each damaged or deteriorated safety fence section.

The required condition at the end of the concession period

The safety fences on all classes of roads must be in level 3 (borderline) or better condition. The expected remaining lifespan of all safety fences must be at least 10 years.

3.2.13.2.2 Road lighting maintenance

Work description

This work involves routine and investment maintenance of road lighting.

The routine and investment maintenance of road lighting consists of:

- monitoring the condition and functioning of all devices,
- replacement of worn-out, broken or destroyed parts, such as lights, glass, chokes, cables, etc.,
- cleaning of reflectors and lights,
- maintenance and replacement of retaining structures,
- general cleaning of all lighting devices and their parts or elements once a year, and
- major works related to road lighting damage caused by special circumstances (weather conditions, traffic accidents, vandalism).

Maintenance work is carried out on all devices outside populated areas.

Maintenance requirements

Routine maintenance of devices to the required level consists of replacement of light bulbs and other broken components or parts, cleaning of devices, straightening of leaning posts, and repair of damaged or worn-out posts, cables, control equipment, and other equipment. This task also involves the removal of snow and ice from the front side of wiring boxes and the removal of branches and other objects that reduce the functionality of road lighting.

Renovation involves the replacement of all worn-out parts, components, or entire devices.

Evaluation of the condition

Throughout the period of the contract, the concessionaire must maintain the road lighting in one of the following states:

Condition grade	Condition description
5 - very good	All road lighting is 100 % operational. Lights are not concealed by trees or other obstacles. Electrical cables, networks, and components are routinely inspected, tested according to the current regulations, and comply with the standards of electrical safety. Lampposts do not lean. There are no traces of corrosion or damage on the supporting structures. The structural integrity of lampposts and boxes is tested every year to establish the stability and expected lifespan of every unit. All the components are clean.
4 - good	95 % of road lighting units are operational. On any particular location, at most one out of ten lighting units is non-operational. There are no non-operational lighting units within 100 m of any crossing, access, or pedestrian crossing. Any lights concealed by trees or other obstacles are treated as non-operational. Electrical cables, networks, and components are routinely inspected, tested according to the current regulations, and comply with the standards of electrical safety. Lamp posts lean up to 2 % from the vertical. There are no traces of corrosion or damage on the supporting structures. The structural integrity of lampposts and boxes is tested every three years to establish the stability and expected lifespan of every unit. All the components are cleaned four times a year.
3 - borderline	90 % of road lighting units are operational. On any particular location, at most two out of ten lighting units are non-

	operational. There are no more than two non-operational lighting units within 100 m of any crossing, access, or pedestrian crossing. Any lights concealed by trees or other obstacles are treated as non-operational. Electrical cables, networks, and components are routinely inspected, tested according to the current regulations, and comply with the standards of electrical safety. Lamp posts lean up to 3 % from the vertical. The supporting structures show minor traces of corrosion (up to 5 % of the area). The damage does not affect the aesthetic appearance and stability of the supporting structures. The structural integrity of lampposts and boxes is tested every five years to establish the stability and expected lifespan of every unit. All the components are cleaned twice times a year.
2 - poor	70 % of road lighting units are operational. On any particular location, at most three out of ten lighting units are non-operational. Of the lighting units located within 100 m of any crossing, access, or pedestrian crossing, at most two out of five are non-operational. Any lights concealed by trees or other vegetation are treated as non-operational. Electrical cables, networks, and components are occasionally inspected and tested according to the current regulations, and they comply with the standards of electrical safety. Lamp posts lean up to 5 % from the vertical. The supporting structures show traces of corrosion (up to 10 % of the area). The damage affects the aesthetic appearance of the supporting structure, but not their stability. All the components are cleaned once times a year.
1 - very poor	50 % of road lighting units are operational. On any particular location, at most five out of ten lighting units are non-operational. Of the lighting units located within 100 m of any crossing, access, or pedestrian crossing, at most two out of five are non-operational. Of the lighting units located within 100 m of any access, at most three in a row are non-operational. Any lights concealed by trees or other vegetation are treated as non-operational. Electrical cables, networks, and components are occasionally inspected and tested according to the current regulations, and they comply with the standards of electrical safety. Lamp posts lean more than 5 % from the vertical. The supporting structures show major traces of corrosion (up to 20 % of the area). The damage affect both the aaesthetic appearance and the stability of the supporting structures. All the components are cleaned once every two years.

Quality verification procedure

Quality verification must take into account the current regulations and their requirements concerning the frequency of the tests. Such verification may only be performed by an institution or organization possessing the necessary competence and equipment.

Maximum allowed response time

On roads belonging to maintenance classes I and II, the concessionaire must continuously monitor the state of the equipment and keep it in line with the above-mentioned requirements.

Any electrical and structural failures that represent a direct danger to road users, including failures caused by accidents, must be protected within 3 hours after the failure occurred, and repaired within 24 hours.

On road sections where the road lighting drops below the borderline level, the concessionaire is required to restore it to borderline level within two weeks.

Inadequate supporting structures must be upgraded to comply with the above requirements within two weeks, except if the weather conditions make this impossible. If the stability of a structure is under threat, and the problem cannot be repaired because of the weather conditions, the structure must be removed.

The response times for other road maintenance classes are twice as long.

Standards compliance

Any deviation from the required standards is handled in accordance with the procedures defined in the concession contract between the conceder and the concessionaire.

Failure to meet the requirements regarding the quality and condition of road lighting is evaluated as follows:

- **degree 3**, if
- corrosion exceeds the maximum area of the supporting structure required for level 3 (borderline condition),
- if the number or percentage of non-operative lights reaches the amount specified for level 2 (poor),
- **degree 5**, if
- three degree-3 violations occur within one month,
- the condition of devices and their maintenance meets the definition of level 2 (poor),
- **degree 7**, if
- three degree-5 violations occur within one month,
- the condition of devices and their maintenance meets the definition of level 1 (very poor),
- if the inadequate maintenance of structural and retaining elements endangers the structural stability.

These degrees are assigned separately for each group of devices.

The required condition at the end of the concession period

At the end of the concession contract, the road lighting must be in level 3 (borderline) or better condition. The expected remaining lifespan of all devices, retaining structures, wiring box cables, and networks must be at least 10 years.

3.2.14 ROADSIDE CLEANING

3.2.14.1 ROADSIDE

Work description

Litter is removed manually throughout the area of the public road.

The disposal of the litter thus collected depends on the presence of any harmful substances. Thus the disposal must be done professionally and the trash taken to a

garbage dump or a temporary depot. Garbage bins in populated areas must be covered by lids. Sorting of waste for recycling must also be supported in suitable conditions.

Recordkeeping

Roadside cleaning activities are recorded in the log in the same way as shown in chapter 2 on pavement cleaning.

Equipment

A shovel, a broom, and a wheelbarrow are needed for manual cleanup.

During litter removal the litter is collected in plastic bags, which are then loaded onto the inspection vehicle and driven to a garbage dump.

List of works

The list of works includes roadside cleaning as item 8001.

Work accounting

Roadside cleaning work is accounted on an overhead basis, by the hour.

The VGRC system -

3.2.14.2 CLEANING OF PARKING LOTS

Work description

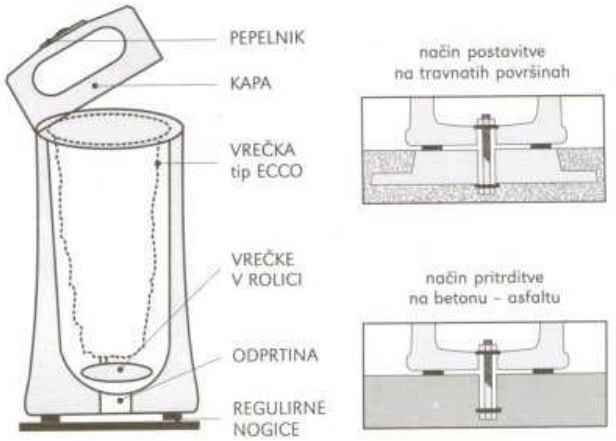
This work includes removal of litter and other waste in parking lots along the road, as well as emptying of any garbage bins.

Removal of litter and other waste in the area of parking lots and their immediate surroundings is performed manually.

The disposal of the litter thus collected depends on the presence of any harmful substances. Thus the disposal must be done professionally and the trash taken to a garbage dump or a temporary depot. Garbage bins in populated areas must be covered by lids. Sorting of waste for recycling must also be supported in suitable conditions.

The collected garbage shall be removed from the bins and containers, when the latter are almost full, as well as by the end of the week, thus allowing dumping the garbage into the bins on the weekend days.

Example of a clean and orderly rest area (and parking area) along a bicycle path



Example of garbage bins

Recordkeeping

Parking lot cleaning activities are recorded in the maintenance logs in the same way as shown in chapter 4.2.1.2 on pavement cleaning.

Equipment

Manual cleaning requires a shovel, a broom, and a wheelbarrow.

During litter removal the litter is collected in plastic bags, which are then loaded onto the inspection vehicle and driven to a garbage dump.

Mechanized cleaning is performed using a citycat sweeping machine. In dry weather a water tank must also be attached to prevent dusting.

List of works (see the supplement on RAM List of Works)

The list of works includes parking lot cleaning as item 8002.

Work accounting

Roadside cleaning work is accounted on an overhead basis, by the hour.

The VGRC system -

3.2.15 EMERGENCY RESPONSE

Work description

This work involves the organization of an emergency service outside the regular working hours, during the summer season.

In the case of an environmental emergency or other unexpected event, the road maintainer is notified of this by the police, by individuals, or by the emergency notification centre.

The road maintainer protects the site of the emergency with appropriate traffic signs and alerts the road administration and the supervisor both by phone and in writing. The notification must specify the road, section, station, damage or event type, and an estimate of the costs of addressing the problem. If the event causing the emergency covers a wider area that extends outside the bounds of the maintainer's jurisdiction, the maintainer(s) of the neighbouring area(s) must also be notified.

The contractor in charge of routine maintenance prepares a cost estimate for returning the road to a passable state and forwards it to the client (the road administrator). Upon receiving the latter's approval, the contractor begins work to restore the passability of the road.

If addressing the consequences of the emergency event is wider in scope and takes a

longer time, the road maintainer prepares a road closure proposal, sends it to the client for approval, and then closes the road.

The road closure may be partial or a semi-closure or it may be a full closure of the entire breadth of the road. In the latter case, a detour must also be defined and marked with signs.

Activities caused by environmental emergency events may be carried out as emergency work (in case of smaller works), or through the prearranged tenders on the national level (i.e. based on the existing designs).

If the extent of the damage is large and the existing budget allocation does not provide sufficient funds to fix the damage, the work is funded from the budgetary reserves; however, this requires an emergency act to be proposed by the government.

Example of an environmental emergency event (road flooded and partly buried)

Example of an environmental emergency event (collapsed embankment)

Example of an environmental emergency event (deposit of material from the embankment)

Example of an environmental emergency event (treatment of a sliding embankment)

Recordkeeping

The emergency response work uses the standard recordkeeping procedures as described in the chapter 4.2.1.2 on pavement cleanup.

Equipment

Manual cleaning involves a shovel, a broom, a wheelbarrow, a set of road closure signs with flashing lights, barricade tapes, …)

In the case of larger environmental emergencies, mechanical cleaning is used. The mechanization must be suitable given the extent of the work (a smaller or larger excavator, a front shovel loader, a unimog with attachments…)

List of works (see the supplement on RAM List of Works)

The list of works includes emergency response activities as items 1503 and 1504.

Work accounting

Roadway repair work and cleaning after accidents and environmental emergency events are accounted on an overhead basis, by the hour. . (All the quantities of the works performed, such as removal, transportation, cleaning, etc., shall be entered into the maintenance log.

The VGRC system -

3.2.16 ENVIRONMENT PROTECTION

During regular maintenance different waste may occur being harmful to the environment.

After the winter period, spreading sand shall be swept away and brought to a suitable communal deposit area.

Concrete residues and remains of demolished concrete products shall be transported to an adequate deposit area for construction waste.

In addition, all the demolished reinforcing steel shall be brought to the deposit area as well.

Residues of asphalt due to demolishing of asphalt carriageways shall also be transported to a deposit area for construction waste. They can be brought to asphalt bases as well, where they are milled and recycled in a new bituminous mixture (added to new bituminous mixtures). Asphalt milling residue, which is won on the road by milling the carriageway, shall be removed as well.

Chemical agents for decomposition of liquids, which remain on a road upon traffic accidents, represent a special case. Areas of stains of oil, anti-freeze liquid, sulphuric acid from batteries, etc. shall be powdered with suitable chemical absorptive agent. After the waste liquids are absorbed, the absorptive agent is swept away and stored in an adequate closed container. Such containers shall be delivered to specialized companies to destroy the waste at an appropriate combustion plant.

In case of interventions after a traffic accident, which represents a major hazard to the environment (overturning of a tank lorry containing harmful material etc.), a fire brigade shall be notified of the accident to protect the area, and relevant rescuing authority within the region or the state shall be informed to sanitize the area as well as to remove harmful waste and polluted soil.

GUIDELINES FOR ROAD DESIGN, CONSTRUCTION, MAINTENANCE AND SUPERVISION

VOLUME III: ROAD MAINTENANCE

SECTION 2: ROUTINE MAINTENANCE

SUPPLEMENT 1: LIST OF WORKS

Sarajevo/Banja Luka
2005

3.2.17 SUPPLEMENT 1 - LIST OF WORKS

3.2.17.1 ROUTINE, PERIODIC, AND EXTRAORDINARY INSPECTIONS

1101	Routine, periodic, and extraordinary inspections	m^1

3.2.17.2 PAVEMENT CLEANING

1201	Pavement cleaning - mechanized	m^2
1202	Pavement cleaning - manual	m^2

3.2.17.3 CLEANING OF DRAINAGE STRUCTURES

1301	Ditch cleaning - mechanized 0.0 through 0.1 m^3/m^1	m^1
1301	Ditch cleaning - mechanized 0.1 through 0.3 m^3/m^1	m^1
1301	Ditch cleaning - mechanized 0.3 through 0.5 m^3/m^1	m^1
1302	Ditch cleaning - manual 0.0 through 0.1 m^3/m^1	m^1
1302	Ditch cleaning - manual 0.1 through 0.3 m^3/m^1	m^1
1302	Ditch cleaning - manual 0.3 through 0.5 m^3/m^1	m^1
1303	Excavation of filled ditches - mechanized 0.5 through 0.75 m^3/m^1	m^1
1304	Cleaning of gutters, curved channels, diversion ditches - diversion ditch - manual	m^1
1304	Cleaning of gutters, curved channels, diversion ditches - diversion ditch - mechanized	m^1
1304	Cleaning of gutters, curved channels, diversion ditches - gutter - manual	m^1
1304	Cleaning of gutters, curved channels, diversion ditches - gutter - mechanized	m^1
1304	Cleaning of gutters, curved channels, diversion ditches - curved channel - manual	m^1
1304	Cleaning of gutters, curved channels, diversion ditches - curved channel - mechanized	m^1
1304	Cleaning of gutters, curved channels, diversion ditches - in a road cut - manual	m^1
1305	Cleaning of insp. shafts, sink holes, and grease traps - mechanized	m^1
1306	Inspection shaft cleaning - manual	pcs
1307	Culvert cleaning - mechanized	m^1
1308	Culvert cleaning - manual	m^1
1309	Cleaning of longitudinal drainage installations on structures	m^1
1310	Shaft cover replacement, round, on pavement, carr. cap. up to 8 t	pcs
1310	Shaft cover replacement, round, on pavement, carr. cap. up to 16 t	pcs
1310	Shaft cover replacement, round, on pavement, carr. cap. up to 20 t	pcs
1310	Shaft cover replacement, round, on pavement, carr. cap. up to 25 t	pcs
1310	Shaft cover replacement, round, on pavement, carr. cap. up to 45 t	pcs
1310	Shaft cover replacement, round, outside pavement	pcs

1310	Shaft cover replacement, rect., on pavement, carr. cap. up to 8 t	pcs
1310	Shaft cover replacement, rect., on pavement, carr. cap. up to 16 t	pcs
1310	Shaft cover replacement, rect., on pavement, carr. cap. up to 20 t	pcs
1310	Shaft cover replacement, rect., on pavement, carr. cap. up to 25 t	pcs
1310	Shaft cover replacement, rect., on pavement, carr. cap. up to 45 t	pcs
1310	Shaft cover replacement, rect., outside pavement	pcs
1311	Turf removal above curbs and walls	m^1

3.2.17.4 ROADSIDE MOWING, VISIBILITY

1401	Grass mowing - mechanized	m^2
1402	Grass mowing - manual	m^2

3.2.17.5 LOPPING AND PRUNING

1403	Plant lopping – manual	m^2
1404	Plant pruning – mechanized	m^1

3.2.17.6 SHOULDER REPAIR

1501	Shoulder repair - mechanized using a grader	m^2
1501	Shoulder repair - mechanized using a cutter	m^2
1502	Shoulder repair - manual	m^2

3.2.17.7 PAVEMENT PATCHING

2101	Pothole filling with cold mass - manual	ton
2102	Pothole filling with asphalt – manual without cutting the hole	ton
2102	Pothole filling with asphalt – manual with cutting the hole	ton
2102	Pothole filling with asphalt, including subgrade repair	ton
2103	Pothole filling with cutting – manual with scraper	ton
2104	Mechanized pavement patching with levelling	m^2
2105	Scraping in a depth of up to 1.5 cm	m^2
2105	Cutting to an average depth of 4 cm	m^2
2108	Mechanized pavement patching up to 300 m	m^2

3.2.17.8 FILLING JOINTS AND CRACKS

9014	Filling joints and cracks	m^1

3.2.17.9 GRAVEL ROADWAY REPAIR

2301	Gravel roadway repair - mechanized	m^2
2302	Gravel roadway repair - manual	m^2
2303	Gravelling of macadamized roadways	m^2

3.2.17.10 MINOR WALL REPAIRS

5402	Minor wall and [QW kašte] repairs	m^2

3.2.17.11 CLEANING OF STRUCTURES

5101	Cleaning of structures	m^2

3.2.17.12 TRAFFIC SIGN CLEANING

4101	Traffic sign cleaning – manualy - summer season	pcs

4101	Cleaning of traffic signs – mechanized – annually	pcs
4101	Traffic sign cleaning - winter season	pcs

3.2.17.13 DELINEATOR POST CLEANING

4102	Delineator post cleaning - mechanized	pcs
4103	Delineator post cleaning - manual	pcs

3.2.17.14 REPAIR AND MAINTENANCE OF SLOPES

7101	Minor slope repairs	hrs
7102	Removal of material from catchment nets	m^3
7103	Minor net repair	m^2
7104	Small-scale planting of vegetation	m^2

3.2.17.15 ROADSIDE CLEANING

8001	Roadside cleaning	hrs

3.2.17.16 PARKING LOT CLEANING

8002	Parking lot cleaning and rubbish disposal	hrs

3.2.17.17 EMERGENCY RESPONSE

1503	Carriageway repair after accidents and environmental emergency events	hrs
1504	Carriageway cleaning after accidents and emergency events	hrs

GUIDELINES FOR ROAD DESIGN, CONSTRUCTION, MAINTENANCE AND SUPERVISION

VOLUME III: ROAD MAINTENANCE

SECTION 2: ROUTINE MAINTENANCE

SUPPLEMENT 2: DOCUMENTATION

Sarajevo/Banja Luka
2005

3.2.18 SUPPLEMENT 2: DOCUMENTATION

3.2.18.1 ROUTINE, PERIODIC, AND EXTRAORDINARY INSPECTIONS

Form: "Inspection Log"

cestno podjetje murska sobota, d.d.

DNEVNIK PREGLEDA CESTE IN DELA PREGLEDNIKA

ŠTEVILKA DNEVNIKA: .....

INVESTITOR: **RS MPZ DRSC**

Datum: .....

Sektor: ..... Str. mesto:.....

Preglednik: .....

Vreme: ..... Temp. (°C):..... Padavine:.....

Delavec: .....

CESTA	ODSEK	OD (ur)	DO (ur)	(m)	OPRAVLJENA DELA IN PORABLJEN MATERIAL		

OPAŽANJA NA OBHODIH:

NAROČILA:

Dnevnik sestavil: ..... Odgovorni vodja del: ..... Nadzor: .....

PAVEMENT CLEANING

Form: "Routine Maintenance Activity Log"

cestno podjetje murska sobota, d.d.

DNEVNIK IZVAJANJA REDNEGA VZDRŽEVANJA

ŠTEVILKA DNEVNIKA: .....

INVESTITOR: **RS MPZ DRSC**

Datum: .....

Sektor: ..... Str. mesto:.....

Delovni čas: od ..... do .....

Vreme: ..... Temp. (°C):..... Padavine:.....

..... od ..... do .....

Cesta	Odsek	Šifra dela	Opis dela	Stacionaža	Enota	Količina

Delovna sila		Uporabljena mehanizacija		Porabljen material	

Opomba:

..... Dnevnik sestavil:

..... Odgovorni vodja del:

..... Nadzor:

ROUTINE MAINTENANCE LOG

CP Nova Gorica

DNEVNIK IZVAJANJA REDNEGA VZDRŽEVANJA

ŠTEVILKA DNEVNIKA:_____

SEKTOR: Nova Gorica

INVESTITOR: RS MPZ DRSC

Datum: 24/03/2004

Vreme: 8/8 (OBLAČNO) Temp.(°C): 2 Padavine: DEŽ

cesta	odsek	šifra dela	opis dela	stacionaža	EM	količina
05	9502	1504	Čiščenje vozišča po nezgodi in elementarju		ur	
444	347	1504	Čiščenje vozišča po nezgodi in elementarju		ur	**2.00**
402	1426	1504	Čiščenje vozišča po nezgodi in elementarju		ur	**2.00**
612	1042	1504	Čiščenje vozišča po nezgodi in elementarju		ur	**2.00**
402	1465	1504	Čiščenje vozišča po nezgodi in elementarju		ur	**2.00**
604	5701	3105	Priprava deponij		ur	
05	9502	3202	Pripravnost		ur	
609	1064	3208	Pluženje in posipavanje		ur	
608	1065	3208	Pluženje in posipavanje		ur	
608	1067	3208	Pluženje in posipavanje		ur	

Delovna sila

9502	1504	Pripravnost cestar [ura]	32.00
9502	3202	Pripravnost cestar [ura]	39.00
9502	3202	Pripravnost voznik [ura]	38.00
5701	3105	Voznik [ura]	1.00
1065	3208	Cestar [ura]	1.00
1065	3208	Voznik [ura]	1.00
1067	3208	Cestar [ura]	4.00
1067	3208	Voznik [ura]	4.00
1064	3208	Cestar [ura]	4.00
1064	3208	Voznik [ura]	4.00

Uporabljena mehanizacija

1065	3208	Snežni plug šir. nad 3.5 m (obr.ure) [ura]	1.00
1067	3208	Snežni plug šir. nad 3.5 m (obr.ure) [ura]	1.50
1064	3208	Snežni plug šir. nad 3.5 m (obr.ure) [ura]	4.00
9502	1504	Pregledniško vozilo (ostali) [ura]	1.00
5701	3105	Tovorna vozila 12 - 15 ton [ura]	1.00
1065	3208	Tovorna vozila 12 - 15 ton [ura]	1.00
1067	3208	Tovorna vozila 12 - 15 ton [ura]	1.50
1064	3208	Tovorna vozila 12 - 15 ton [ura]	4.00

Porabljeni material

Opomba:

_____ Dnevnik sestavil:

_____ Odgovorni vodja del:

_____ Nadzor:

ROUTINE MAINTENANCE CONSTRUCTION BOOK

CP Nova Gorica — Obdobje izpisa:01/03/2004 - 31/03/2004

GRADBENA KNJIGA — ENOTA:Nova Gorica

Vrsta cest: Vse ceste

Šifra	Delo		Mesečno		Kumulativno	
			Količina	Vrednost	Količina	Vrednost
1101	Redni, občasni in izredni pregledi	m	1,969,703.00	**1,794,344.24**	1,969,703.00	**1,794,344.24**
1201	Čiščenje vozišča - strojno	m2	18,000.00	**82,221.30**	18,000.00	**82,221.30**
1202	Čiščenje vozišča - ročno	m2	1,000.00	**37,222.74**	1,000.00	**37,222.74**
1301	Čiščenje jarkov - strojno od 0 do 0,3 m3/m	m	2,590.00	**1,393,600.21**	2,590.00	**1,393,600.21**
1301	Čiščenje jarkov - strojno od 0,3 do 0,5 m3/m	m	170.00	**155,572.99**	170.00	**155,572.99**
1303	Izkop zasutih jarkov - strojno od 0,5 do 0.75 m3/m	m3	22.00	**74,223.58**	22.00	**74,223.58**
1304	Čiščenje koritnic, muld in kanalet koritnica-ročno	m	7,930.00	**407,831.97**	7,930.00	**407,831.97**
1306	Čiščenje revizijskih jaškov - ročno	kos	16.00	**65,435.05**	16.00	**65,435.05**
1308	Čiščenje propustov - ročno	m	4.00	**6,816.14**	4.00	**6,816.14**
1310	Zamenjava pokrova jaška pravokot., na vozišču, nos.do 20 ton	kos	1.00	**69,551.33**	1.00	**69,551.33**
1310	Zamenjava pokrova jaška pravokot., na vozišču, nos.do 25 ton	kos	1.00	**69,551.33**	1.00	**69,551.33**
1310	Zamenjava pokrova jaška pravokot., izven vozišča	kos	0.00	**19,781.88**	0.00	**19,781.88**
1403	Obsekovanje rastlinja	m2	21.00	**352,764.26**	21.00	**352,764.26**
1501	Popravilo bankin - strojno	m2	3,153.00	**266,224.15**	3,153.00	**266,224.15**
1502	Popravilo bankin - ročno	m2	0.00	**86,012.22**	0.00	**86,012.22**
1504	Čiščenje vozišča po nezgodi in elementarju	ur	50.00	**515,343.29**	50.00	**515,343.29**
2102	Krpanje udarnih jam z asfaltom ročno	ton	8.46	**429,296.35**	8.46	**429,296.35**
2302	Krpanje gramoznih vozišč - ročno	m2	10,800.00	**435,880.16**	10,800.00	**435,880.16**
3105	Priprava deponij	ur	0.00	**60,615.68**	0.00	**60,615.68**
3201	Dežurstvo	ur	0.00	**1,017,575.03**	0.00	**1,017,575.03**
3202	Pripravnost	ur	0.00	**686,610.69**	0.00	**686,610.69**
3203	Zimski pregledi cest	m	1,862,491.00	**1,804,203.64**	1,862,491.00	**1,804,203.64**
3205	Posipavanje poledice - strojno	ur	0.00	**528,086.71**	0.00	**528,086.71**
3206	Odstranjevanje snega z vozišča - strojno	ur	0.00	**1,122,791.56**	0.00	**1,122,791.56**
3207	Odstranjevanje snega in poledice - ročno	m2	0.00	**52,261.56**	0.00	**52,261.56**
3208	Pluženje in posipavanje	ur	0.00	**3,428,317.27**	0.00	**3,428,317.27**
3210	Zimske odškodnine za stroje	ur	0.00	**764,457.78**	0.00	**764,457.78**
3212	Zimske odškodnine za vozila	ur	0.00	**880,767.41**	0.00	**880,767.41**
3301	Odstranjevanje opreme - koli	kos	1,392.00	**187,098.44**	1,392.00	**187,098.44**
3301	Odstranjevanje opreme - prometni znaki	kos	168.00	**304,044.86**	168.00	**304,044.86**
4103	Čiščenje smernikov - ročno	kos	40.00	**6,262.19**	40.00	**6,262.19**
5101	Čiščenje objektov	m2	0.00	**12,516.56**	0.00	**12,516.56**
5102	Manjša popravila objektov	m2	0.00	**88,658.52**	0.00	**88,658.52**
7101	Manjša popravila brežin	ur	0.00	**15,348.67**	0.00	**15,348.67**
7102	Odstranitev materiala za mrežami	m3	132.00	**1,026,359.28**	132.00	**1,026,359.28**
8001	Čiščenje obcestja	ur	26.00	**66,146.24**	26.00	**66,146.24**
8003	Ostala dela	SIT	0.00	**27,686.40**	0.00	**27,686.40**
9001	Tehnična in administrativna pomoč pri pripravljanju osnutkov dovoljenj	ur	175.00	**871,804.50**	175.00	**871,804.50**
9004	Naloge v zvezi z obveščanjem in oglaševanjem ob državnih cestah	ur	71.00	**353,703.54**	71.00	**353,703.54**
9007	Naloge v zvezi s spremljajočo dejavnostjo ob državnih cestah	ur	6.00	**29,890.44**	6.00	**29,890.44**
		SKUPAJ:		**19,596,880.17**		**19,596,880.17**

ELECTRONIC COPY OF MONTHLY PROGRESS STATEMENT

CP Nova Gorica — Obdobje izpisa:01/03/2004 - 31/03/2004

Enota: Nova Gorica

347 444 SELO-ROŽNA DOLINA	**l = 11990 m**				
1101 Redni, občasni in izredni pregledi	m	191,840.00	0.73	140,043.20
1403 Obsekovanje rastlinja	m2		168.79	
Cestar	ura	19.00	2,344.78	44,550.82
Žaga	ura	2.00	583.31	1,166.62
Pregledniško vozilo (ostali)	ura	3.00	2,537.11	7,611.33
Stojnina pregl.vozilo (ostali)	ura	1.00	852.36	852.36
1504 Čiščenje vozišča po nezgodi in elementarju	ur	6.00	2,344.78	14,068.68
Pregledniško vozilo (ostali)	ura	3.00	2,256.50	6,769.50
3203 Zimski pregledi cest	m	179,850.00	0.73	131,290.50
Hladna asfaltna masa	t	0.06	46,097.91	2,765.87
3301 Odstranjevanje opreme - prometni znaki	kos	6.00	1,668.01	10,008.06
			SKUPAJ ODSEK:	**359,126.94**
348 444 N.GORICA-ROŽNA DOLINA	**l = 130 m**			
1101 Redni, občasni in izredni pregledi	m	2,080.00	0.73	1,518.40
3203 Zimski pregledi cest	m	1,950.00	0.73	1,423.50
			SKUPAJ ODSEK:	**2,941.90**
365 444 NOVA GORICA	**l = 690 m**			
1101 Redni, občasni in izredni pregledi	m	11,040.00	0.73	8,059.20
3203 Zimski pregledi cest	m	10,350.00	0.73	7,555.50
			SKUPAJ ODSEK:	**15,614.70**
438 103 PRIKLJ. ROŽNA DOLINA	**l = 439 m**			
1101 Redni, občasni in izredni pregledi	m	7,040.00	0.73	5,139.20
3203 Zimski pregledi cest	m	6,600.00	0.73	4,818.00
			SKUPAJ ODSEK:	**9,957.20**
484 103 PRIKLJ.RONDO ROŽNA DOL.	**l = 254 m**			
1101 Redni, občasni in izredni pregledi	m	4,000.00	0.73	2,920.00
3203 Zimski pregledi cest	m	3,750.00	0.73	2,737.50
			SKUPAJ ODSEK:	**5,657.50**
1008103 UŠNIK-PLAVE	**l = 16000 m**			
1101 Redni, občasni in izredni pregledi	m	256,000.00	0.73	186,880.00
Hladna asfaltna masa	t	0.13	46,097.91	5,992.73
1301 Čiščenje jarkov - strojno od 0,3 do 0,5 m3/m	m	170.00	733.10	124,627.00
Cestar	ura	8.00	2,344.78	18,758.24
1303 Izkop zasutih jarkov - strojno od 0,5 do 0.75 m3/m	m3	22.00	1,658.60	36,489.20
Cestar	ura	8.00	2,344.78	18,758.24
Strojnik	ura	1.00	2,708.43	2,708.43
Rovokopač	ura	1.00	3,897.11	3,897.11
1304 Čiščenje koritnic, muld in kanalet koritnica-ročno	m	1,100.00	47.40	52,140.00
1306 Čiščenje revizijskih jaškov - ročno	kos	1.00	3,769.30	3,769.30
1308 Čiščenje propustov - ročno	m	2.00	1,570.54	3,141.08
1403 Obsekovanje rastlinja	m2	21.00	168.79	3,544.59
1504 Čiščenje vozišča po nezgodi in elementarju	ur	3.00	2,344.78	7,034.34
Žaga	ura	0.50	583.31	291.66
Pregledniško vozilo (ostali)	ura	1.00	2,537.11	2,537.11

3203 Zimski pregledi cest	m	240,000.00	0.73	175,200.00
Voznik	ura	8.00	2,708.43	21,667.44
Tovorna vozila 12 - 15 ton	ura	1.00	7,775.30	7,775.30
Pregl. vozilo (TAM, Hyundai)	ura	6.00	2,065.22	12,391.32
Hladna asfaltna masa	t	0.21	46,097.91	9,680.56
Absorber				2,980.00
3205 Posipavanje poledice - strojno	ur			
Voznik	ura	2.50	2,708.43	6,771.08
AP suho-mokri (obr.ure)	ura	2.50	731.50	1,828.75
Tovorna vozila 12 - 15 ton	ura	2.50	7,775.30	19,438.25
Posipni material	m3	2.40	4,729.50	11,350.80
Sklad. soli in manipulacija na sezono	SIT/tono	8.60	1,623.80	13,964.68
3301 Odstranjevanje opreme - prometni znaki	kos	14.00	1,668.01	23,352.14
7102 Odstranitev materiala za mrežami	m3	132.00	5,142.51	678,811.32
Cestar	ura	64.00	2,344.78	150,065.92
Strojnik	ura	4.00	2,708.43	10,833.72
Rovokopač	ura	4.00	3,897.11	15,588.44
			SKUPAJ ODSEK:	**1,632,268.74**

1009103 PLAVE-SOLKAN l = 10070 m

1101 Redni, občasni in izredni pregledi	m	161,120.00	0.73	117,617.60
Hladna asfaltna masa	t	0.09	46,097.91	4,148.81
1202 Čiščenje vozišča - ročno	m2	130.00	27.08	3,520.40
1304 Čiščenje koritnic, muld in kanalet koritnica-ročno	m	3,500.00	47.40	165,900.00
1308 Čiščenje propustov - ročno	m	2.00	1,570.54	3,141.08
2102 Krpanje udarnih jam z asfaltom ročno	ton	0.62	40,623.91	25,186.82
Cestar	ura	6.00	2,344.78	14,068.68
3203 Zimski pregledi cest	m	151,050.00	0.73	110,266.50
Voznik	ura	8.00	2,708.43	21,667.44
Tovorna vozila 12 - 15 ton	ura	1.00	7,775.30	7,775.30
Pregl. vozilo (TAM, Hyundai)	ura	6.00	2,065.22	12,391.32
Tov. vozila 10 - 12 t (TAM)	ura	1.00	4,339.58	4,339.58
Hladna asfaltna masa	t	0.15	46,097.91	6,914.69
3205 Posipavanje poledice - strojno	ur			
Voznik	ura	2.50	2,708.43	6,771.08
Strojnik	ura	0.50	2,708.43	1,354.22
Rovokopač	ura	0.50	4,188.24	2,094.12
AP suho-mokri (obr.ure)	ura	2.50	731.50	1,828.75
Tovorna vozila 12 - 15 ton	ura	2.50	7,775.30	19,438.25
Posipni material	m3	2.40	4,729.50	11,350.80
Sklad. soli in manipulacija na sezono	SIT/tono	7.40	1,623.80	12,016.12
3301 Odstranjevanje opreme - prometni znaki	kos	12.00	1,668.01	20,016.12
			SKUPAJ ODSEK:	**571,807.67**

1010103 SOLKAN-NOVA GORICA l = 2436 m

1101 Redni, občasni in izredni pregledi	m	83,072.00	0.73	60,642.56
Hladna asfaltna masa	t	0.03	46,097.91	1,382.94
ABSORBER				2,980.00
1304 Čiščenje koritnic, muld in kanalet koritnica-ročno	m	600.00	47.40	28,440.00
1306 Čiščenje revizijskih jaškov - ročno	kos	15.00	3,769.30	56,539.50
1403 Obsekovanje rastlinja	m2		168.79	
Komunala-odvoz,deponija				87,068.44
Komunala-odvoz,deponija				87,068.44
1504 Čiščenje vozišča po nezgodi in elementarju	ur		2,344.78	
Cestar	ura	10.00	2,344.78	23,447.80
Pregledniško vozilo (ostali)	ura	2.00	2,537.11	5,074.22
Absorber				2,980.00

Absorber				2,988.88
3203 Zimski pregledi cest	m	77,880.00	0.73	56,852.40
Voznik	ura	1.00	2,708.43	2,708.43
Pregl. vozilo (TAM, Hyundai)	ura	0.50	2,065.22	1,032.61
3301 Odstranjevanje opreme - prometni znaki	kos	4.00	1,668.01	6,672.04
4103 Čiščenje smernikov - ročno	kos	40.00	144.29	5,771.60
5101 Čiščenje objektov	m2		34.27	
Vzd. črpališča				11,536.00
8001 Čiščenje obcestja	ur	6.00	2,344.78	14,068.68
8003 Ostala dela	SIT			
Komunala				23,072.00
			SKUPAJ ODSEK:	**477,337.66**
1012204 ŠEMPETER-DORNBERK	**l = 8343 m**			
1101 Redni, občasni in izredni pregledi	m	133,488.00	0.73	97,446.24
1301 Čiščenje jarkov - strojno od 0 do 0,3 m3/m	m	2,590.00	448.84	1,162,495.60
Cestar	ura	52.00	2,344.78	121,928.56
1310 Zamenjava pokrova jaška pravokot., na vozišču, nos.do 25 ton	kos	1.00	57,959.44	57,959.44
1501 Popravilo bankin - strojno z grederjem	m2	3,153.00	49.54	156,199.62
Cestar	ura	28.00	2,344.78	65,653.84
1504 Čiščenje vozišča po nezgodi in elementarju	ur	8.00	2,344.78	18,758.24
Pregl. vozilo (TAM, Hyundai)	ura	1.50	1,824.54	2,736.81
Pregledniško vozilo (ostali)	ura	3.00	2,256.50	6,769.50
3203 Zimski pregledi cest	m	125,145.00	0.73	91,355.85
3301 Odstranjevanje opreme - prometni znaki	kos	9.00	1,668.01	15,012.09
			SKUPAJ ODSEK:	**1,796,315.79**
1013204 DORNBERK-ŠTANJEL	**l = 5415 m**			
1101 Redni, občasni in izredni pregledi	m	21,720.00	0.73	15,855.60
Hladna asfaltna masa	t	0.03	46,097.91	1,382.94
1504 Čiščenje vozišča po nezgodi in elementarju	ur		2,344.78	
Voznik	ura	3.00	2,708.43	8,125.29
Pregledniško vozilo (ostali)	ura	0.50	2,537.11	1,268.56
Stojnina preg.vozilo (grupa 1)	ura	2.50	401.48	1,003.70
3203 Zimski pregledi cest	m	27,150.00	0.73	19,819.50
3301 Odstranjevanje opreme - prometni znaki	kos	4.00	1,668.01	6,672.04
5102 Manjša popravila objektov	m2		7,218.40	
Cestar	ura	25.00	2,344.78	58,619.50
Pregledniško vozilo (ostali)	ura	4.00	2,537.11	10,148.44
Stojnina pregl.vozilo (ostali)	ura	6.00	852.36	5,114.16
Beton in armatura				0.00
			SKUPAJ ODSEK:	**128,009.72**
1024611 DORNBERK-SELO	**l = 1880 m**			
1101 Redni, občasni in izredni pregledi	m	7,520.00	0.73	5,489.60
3203 Zimski pregledi cest	m	9,400.00	0.73	6,862.00
3301 Odstranjevanje opreme - prometni znaki	kos	2.00	1,668.01	3,336.02
			SKUPAJ ODSEK:	**15,687.62**

BILL TO MONITOR THE MONTHLY PROGRESS STATEMENT:

ŠKULJ ERVIN

LIST ZA SPREMLJAVO SITUACIJE

ŠT. ODREDBE 05-04491

KOPIJO ODREDBE PRILOŽITI K LISTU

DATUM PRISPETJA NA DRSC	06.05.2005		
DATUM PRISPETJA NA DDC	09.05.2005		

	DATUM/PODPIS	DATUM/PODPIS	DATUM/PODPIS
PREVZEM SITUACIJE (NADZORNIK/CA)	10.5.05.		
POTRDITEV SITUACIJE (NADZORNIK/CA)	12.5.05.		
POTRDITEV ODREDBE (NADZORNIK/CA)	12.5.05.		
POTRDITEV ODREDBE (DIREKTOR PROJ)	12.5.05		
PREJEM V OS G+R	13-05-2005		
ODDANO NA DRSC			

POST/KONTO/PROJEKT 4036 402503 98-9048

ŠT POGODBE ALI ANEKSA 2415-04-000869/0

NAZIV PROJEKTA: Redno vzdrževanje HC in G cest

IZVAJALEC: CP NG

OŠKODOVANEC:

ZARAČUNANI ZNESEK 49.991.621,70

POST	PODKONTO	ŠT.PROJEKTA	POTRJENI ZNESEK
4036	402 503	98-9048	26.948.413,94
4036	402 503	98-9049	23.043.207,76
		SKUPAJ	

OPOMBE

STORNO

DECREE OF PAYMENT OF TRUNK ROADS:

DIREKCIJA RS ZA CESTE
Tržaška 19, 1000 Ljubljana

ŠKOLJ

Odredba za plačilo - nakazilo

(s podračuna EZR: 01100-6300109972)

(1) Evidenčna številka odredbe: 2415-05-04491-0001

PRORAČUNSKI VIR

(2) Šifra in naziv neposrednega PU: 2415 - DIREKCIJA RS ZA CESTE
(3) Proračunsko leto: 2005
(4) Postavka: 4036 - Redno vzdrževanje javnih cest
(5) Konto: 4025 - Tekoče vzdrževanje
(6) Podkonto: 4025 - Tekoče vzdrževanje
(7) Številka predobremenitve: 2415-04-000869

PLAČILO-NAKAZILO

(8) Znesek odredbe z valuto: 26.948.413,94
(9) Datum zapadlosti po odr.: 06.06.2005
(10) Način plačila: Virman
(11) Vrsta odhodka: Redno vzdrževanje ter varstvo glavnih in regionalnih cest na
(12) Valuta nakazila: SIT
(13) Vrsta tečajne liste:
(14) Vrsta tečaja:
(15) Nosilec str. trans.:

UPRAVIČENEC

(16) Davčna številka upravičenca: 39716651
(17) Naziv upravičenca: CESTNO PODJETJE NOVA GORICA D,
(18) Naslov upravičenca: PRVOMAJSKA ULICA 52, 5000 NOVA GORICA
(19) Račun upravičenca: 02241-0011831280
(20) Sklicna številka odobritve: 00 60001-0212-1402701
(21) Tuj sklic:
(22) Račun banke:
(23) Naziv in naslov banke:

DOKUMENT

(24) Evidenčna številka dok.: 2415-05-04491
(25) Evidenčna št. veznega dok.: 2415-05-04491
(26) Datum prejema dokumenta: 09.05.2005
(27) Orig. številka dok.: 600212
(28) Orig. št. veznega dok.: 600212
(29) Datum dokumenta: 30.04.2005
(30) Datum zapad. po dok.: 06.06.2005

ANALITIKA

(31) Stroškovno mesto plačnika: 2415 - DIREKCIJA RS ZA CESTE
(32) Stroškovno mesto prejemnika:
(33) Oznaka zakonskega projekta: - - Projekt ni določen
(34) Oznaka analitike PU: - - Analitika PU ni določena
(35) Postavka EU:

98-9048 RC Gcest

OPOMBA

(36)

12.05.05.
Datum in podpis predlagatelja (36)

Datum in podpis strokovne službe

Liljana Hrega
Datum in podpis odredbodajalca (38)

Ministrstvo za finance, obr. št. 12 ODR

Oznaka: **DPS-06-07/08** Poročilo: d_edt_06_08_r, Vir: ORACLE (MF-ERAC), 09.05.2005, 08:17:12, Uporabnik: MPZ107, OE: 2415

Stran 1 od 1

DECREE OF PAYMENT OF TRUNK ROADS

DIREKCIJA RS ZA CESTE
Tržaška 19, 1000 Ljubljana

ŠKULJ

Odredba za plačilo - nakazilo

(s podračuna EZR: 01100-6300109972)

(1) **Evidenčna številka odredbe: 2415-05-04491-000**

PRORAČUNSKI VIR

(2) **Šifra in naziv neposrednega PU: 2415 - DIREKCIJA RS ZA CESTE**
(3) **Proračunsko leto: 2005**
(4) **Postavka: 4036 - Redno vzdrževanje javnih cest**
(5) **Konto: 4025 - Tekoče vzdrževanje** 402 103
(6) **Podkonto: 4025 - Tekoče vzdrževanje**
(7) **Številka predobremenitve: 2415-04-000869**

PLAČILO-NAKAZILO

(8) **Znesek odredbe z valuto:** 23.043.207,76
(9) **Datum zapadlosti po odr.: 06.06.2005**
(10) Način plačila: Virman
(11) Vrsta odhodka: Redno vzdrževanje ter varstvo glavnih in regionalnih cest na
(12) Valuta nakazila: SIT
(13) Vrsta tečajne liste:
(14) Vrsta tečaja:
(15) Nosilec str. trans.:

UPRAVIČENEC

(16) Davčna številka upravičenca: 39716651
(17) Naziv upravičenca: CESTNO PODJETJE NOVA GORICA D,
(18) Naslov upravičenca: PRVOMAJSKA ULICA 52, 5000 NOVA GORICA
(19) **Račun upravičenca: 02241-0011831280**
(20) Sklicna številka odobritve: 00 60001-0212-1402701
(21) Tuj sklic:
(22) Račun banke:
(23) Naziv in naslov banke:

DOKUMENT

(24) Evidenčna številka dok.: 2415-05-04491
(25) Evidenčna št. veznega dok.: 2415-05-04491
(26) Datum prejema dokumenta: 09.05.2005
(27) Orig. številka dok.: 600212
(28) Orig. št. veznega dok.: 600212
(29) Datum dokumenta: 30.04.2005
(30) Datum zapad. po dok.: 06.06.2005

ANALITIKA

(31) Stroškovno mesto plačnika: 2415 - DIREKCIJA RS ZA CESTE
(32) Stroškovno mesto prejemnika:
(33) Oznaka zakonskega projekta: - - ~~Projekt ni določen~~ 98-9049 ZV Teasa
(34) Oznaka analitike PU: - - Analitika PU ni določena
(35) Postavka EU:

OPOMBA

(36)

12.05.05 — 17.05 — Liljana Hrega

Datum in podpis predlagatelja (36) — Datum in podpis odredbodajalca (36)

Ministrstvo za finance, obr. št. 12 ODR

Oznaka: DPS-06-07/08 Poročilo: d_edt_06_08_r, Vir: ORACLE (MF-ERAC), 09.05.2005, 08:17:12, Uporabnik: MPŽ107, OE: 2415 Stran 1 od 1

INVOICE OF ROUTINE MAINTENANCE PERFORMER:

CPG

MINISTRSTVO ZA PROMET
DIREKCIJA RS ZA CESTE
LJUBLJANA

Prejeto: 06 -05- 2005
Šifra zadeve: 05 - 044491
Šig. z:
Pril:
Vred.:

Račun: 600212

cestno podjetje nova gorica
družba za vzdrževanje in gradnjo cest, d.d.
5000 Nova Gorica, Prvomajska ulica 52, Slovenija
matična št.: 5143497, ID za DDV: SI39716651

Nova KBM d.d. TRR: 04750-0000190171
NLB d.d. TRR: 02241-0011831280
Abanka VIPA d.d. TRR: 05100-8010759814

Šifra kupca: M02701
Izdajno mesto: 6000
Datum izdaje: 30.04.2005
Valuta: 06.06.2005
Datum opravljene dobave blaga oz.
opravljene storitve: 01.04.2005 do 30.04.2005
Zaporedna št. izvoda: 1

MINISTRSTVO ZA PROMET DIREKCIJA RS ZA CESTE

TRŽAŠKA 19

1000 LJUBLJANA

Material ali storitev	ME	Količina	Cena	Vrednost brez DDV	POP %	DDV %	Skupaj brez DDV
Poj a: 2415-04-000869/0 z dne 29.07.04							
Prejemnik: G+R CESTE							
Zaračunavamo vam vzdrževalna dela na glavnih in regionalnih cestah v mesecu APRILU 2005:							
- redna vzdrževalna dela	KOS			22.675.764,02		20,0	22.675.764,02
- čiščenje cestišča	KOS			20.996.041,36		8,5	20.996.041,36

		SKUPAJ:	43.671.805,38
Davek 8,5% ---> osnova:	20.996.041,36	DDV (8,5%):	1.784.663,52
Davek 20,0% ---> osnova:	22.675.764,02	DDV (20,0%):	4.535.152,80
		ZA PLAČILO SIT (z DDV):	49.991.621,70

Pri plačilu vpišite v polje SKLIC NA ŠT.:60001-0212-1402701

Pripravila:
ALENKA ZGAGA

Vodja enote VZDRŽEVANJE:
STOJAN KOMOŠEC

V PRIMERU ZAMUDE PRI PLAČILU SI PRIDRŽUJEMO PRAVICO ZARAČUNATI ZAMUDNE OBRESTI.

FIRST PAGE OF MONTHLY PROGRESS STATEMENT:

MINISTRSTVO ZA PROMET
DIREKCIJA RS ZA CESTE
LJUBLJANA
Prejeto: 06 -05- 2005
Šifra zadeve:
Sig. z:
Pril:
Vred.:

CESTNO PODJETJE Nova Gorica,
Družba za vzdrževanje in gradnjo cest, d.d.
Prvomajska ulica 52, 5000 Nova Gorica

IX. ZAČASNA **SITUACIJA** ŠT. **600212**

del, izvršenih do konca meseca: APRILU 2005

na gradbenem objektu (ime in označba naslovnega seznama) **REDNA VZDRŽEVALNA DELA**

NA GLAVNIH IN REGIONALNIH CESTAH NA PODROCJU CPG,D.D.

NAROCNIK: MINISTRSTVO ZA PROMET; DIREKCIJA RS ZA CESTE, LJUBLJANA

Kraj, kjer izvajajo dela : na "G" IN "R" cestah

Številka partije financiranja: 6101,6201,6301,6401

Številka tekočega računa izvajalca: ---

P r i p o m b a : po pogodbi DRSC št. 2415-04-000869/0 z dne 29.07.2004
in aneks št. 2415-04-000869/1 z dne 28.2.2005

Izjava investitorja oziroma njegovega nadzornega organa.

Potrjujemo, da so dela, izkazana v tej situaciji, resnična v navedenih količinah, da so vrste in količine del vnesene na podlagi podatkov iz gradbene knjige, da posamezne cene ustrezajo cenam iz predračuna, kakor tudi, da izvršena dela ustrezajo pogojem iz pogodbe.

Nova Gorica, 30. 4. 05

Vodja enote Vzdrževanje:
Stojan KOROŠEC

Vodja Marketinga:
Teja ČRV, inž.grad.

RECAPITULATION IN MONTHLY PROGRESS STATEMENT

CPG, d.d.
PROJEKTNA ENOTA VZDRŽEVANJE

OBRAČUN DEL PO ENOTAH ZA MESEC APRIL 2005

	G ceste	R ceste	Skupaj
01 IDRIJA	3.124.420,51	5.109.753,74	8.234.174,25
02 NOVA GORICA	4.904.340,17	7.740.501,93	12.644.842,10
03 TOLMIN	2.902.519,24	11.883.744,36	14.786.263,60
04 AJDOVŠČINA	2.387.484,76	5.619.040,67	8.006.525,43
S K U P A J :	13.318.764,68	30.353.040,70	43.671.805,38

		DDV
Osnova za obračun DDV-ja 8,5%	20.996.041,36	1.784.663,52
Osnova za obračun DDV-ja 20%	22.675.764,02	4.535.152,80
	43.671.805,38	6.319.816,32

SKUPAJ Z DDV-jem	**49.991.621,70**

RECAPITULATIONS IN MONTHLY PROGRESS STATEMENT

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CP Nova Gorica **Obdobje izpisa:01/04/2005 - 30/04/2005**

OBRAČUN DDV

Šifra	Delo	Vrednost	8,5% DDV	20% DDV	SKUPAJ
1101	Redni, občasni in izredni pregledi	8,239,978.93		1,647,995.79	9,887,974.72
1201	Čiščenje vozišča - strojno	2,251,668.55	191,391.83		2,443,060.38
1202	Čiščenje vozišča - ročno	1,202,669.63	102,226.92		1,304,896.55
1301	Čiščenje jarkov - strojno od 0,3 do 0,5 m3/m	269,597.16	22,915.76		292,512.92
1302	Čiščenje jarkov - ročno od 0 do 0,3 m3/m	243,385.72	20,687.79		264,073.51
1304	Čiščenje koritnic, muld in kanalet koritnica-ročno	5,605,706.44	476,485.05		6,082,191.49
1306	Čiščenje revizijskih jaškov - ročno	255,359.27	21,705.54		277,064.81
1307	Čiščenje propustov - strojno	66,976.88	5,693.03		72,669.91
1308	Čiščenje propustov - ročno	14,878.35	1,264.66		16,143.01
1310	Zamenjava pokrova jaška pravokot., izven vozišča	45,315.82		9,063.16	54,378.98
1311	Obkopavanje nad robniki in zidovi	1,695,584.85	144,124.71		1,839,709.56
1403	Obsekovanje rastlinja	71,426.89	6,071.29		77,498.18
1501	Popravilo bankin - strojno z grederjem	225,045.29		45,009.06	270,054.35
1502	Popravilo bankin - ročno	2,125,903.18		425,180.64	2,551,083.82
1503	Popravilo vozišča po nezgodi in elementarnih dogodkov	85,305.01		17,061.00	102,366.01
1504	Čiščenje vozišča po nezgodi in elementarju	6,176,347.75	524,989.56		6,701,337.31
2101	Krpanje udarnih jam s hladno maso ročno	1,339,341.69		267,868.34	1,607,210.02
2102	Krpanje udarnih jam z asfaltom ročno	8,034,033.54		1,606,806.71	9,640,840.25
2103	Krpanje udarnih jam z rezkanjem ročno	132,427.55		26,485.51	158,913.06
2302	Krpanje gramoznih vozišč - ročno	412,122.40		82,424.48	494,546.88
3105	Priprava deponij	27,811.96	2,364.02		30,175.98
3201	Dežurstvo	383,283.05	32,579.06		415,862.11
3202	Pripravnost	237,929.33	20,223.99		258,153.32
3203	Zimski pregledi cest	80,737.36	6,862.68		87,600.04
3205	Posipavanje poledice - strojno	254,039.64	21,593.37		275,633.01
3206	Odstranjevanje snega z vozišča - strojno	1,140,937.37	96,979.68		1,237,917.05
3208	Pluženje in posipavanje	628,261.43	53,402.22		681,663.65
4101	Čiščenje prometnih znakov - letni	9,214.38	783.22		9,997.60
4103	Čiščenje smernikov - ročno	1,215.04	103.28		1,318.32
5101	Čiščenje objektov	4,653.03	395.51		5,048.54
5402	Manša popravila zidov in kašt	919,548.54		183,909.71	1,103,458.25
7101	Manjša popravila brežin	43,730.18		8,746.04	52,476.22
7102	Odstranitev materiala za mrežami	78,281.85		15,656.37	93,938.22
8001	Čiščenje obcestja	148,055.20	12,584.69		160,639.89
8002	Čiščenje parkirišč z odvozom smeti	226,302.08	19,235.68		245,537.76
8003	Ostala dela	49,730.04		9,946.01	59,676.05
9001	Tehnična in administrativna pomoč pri pripravljanju osnutkov dovoljenj	945,000.00		189,000.00	1,134,000.00
	SKUPAJ:	**43,671,805.38**	**1,784,663.52**	**4,535,152.80**	**49,991,621.69** ✓

Osnova za 8.5%:	**20,996,041.36**	**DDV 8.5%:**	**1,784,663.52** ✓
Osnova za 20%:	**22,675,764.02**	**DDV 20%:**	**4,535,152.80** ✓
Skupaj:	**43,671,805.38**	**Skupaj DDV:**	**6,319,816.32** ✓

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CP Nova Gorica **Obdobje izpisa:01/04/2005 - 30/04/2005**

OBRAČUN DDV (glavne ceste)

Šifra	Delo	Vrednost	8,5% DDV	20% DDV	SKUPAJ
1101	Redni, občasni in izredni pregledi	3,239,785.11		647,957.02	3,887,742.13
1201	Čiščenje vozišča - strojno	779,696.03	66,274.16		845,970.19
1202	Čiščenje vozišča - ročno	120,408.56	10,234.73		130,643.29
1301	Čiščenje jarkov - strojno od 0,3 do 0,5 m3/m	52,159.30	4,433.54		56,592.84
1302	Čiščenje jarkov - ročno od 0 do 0,3 m3/m	16,366.02	1,391.11		17,757.13
1304	Čiščenje koritnic, muld in kanalet koritnica-ročno	1,846,564.54	156,957.99		2,003,522.53
1306	Čiščenje revizijskih jaškov - ročno	23,805.30	2,023.45		25,828.75
1307	Čiščenje propustov - strojno	47,998.56	4,079.88		52,078.44
1311	Obkopavanje nad robniki in zidovi	1,225,625.73	104,178.19		1,329,803.92
1403	Obsekovanje rastlinja	9,417.57	800.49		10,218.06
1501	Popravilo bankin - strojno z grederjem	37,684.44		7,536.89	45,221.33
1502	Popravilo bankin - ročno	495,375.78		99,075.16	594,450.94
1503	Popravilo vozišča po nezgodi in elementarnih dogodkov	85,305.01		17,061.00	102,366.01
1504	Čiščenje vozišča po nezgodi in elementarju	3,132,401.50	266,254.13		3,398,655.63
2101	Krpanje udarnih jam s hladno maso ročno	202,647.93		40,529.59	243,177.51
3105	Priprava deponij	27,811.96	2,364.02		30,175.98
3201	Dežurstvo	383,283.05	32,579.06		415,862.11
3202	Pripravnost	237,929.33	20,223.99		258,153.32
3203	Zimski pregledi cest	30,855.33	2,622.70		33,478.03
3205	Posipavanje poledice - strojno	49,347.91	4,194.57		53,542.48
3208	Pluženje in posipavanje	22,179.87	1,885.29		24,065.16
4101	Čiščenje prometnih znakov - letni	9,214.38	783.22		9,997.60
4103	Čiščenje smernikov - ročno	1,215.04	103.28		1,318.32
5101	Čiščenje objektov	4,653.03	395.51		5,048.54
5402	Manša popravila zidov in kašt	46,615.52		9,323.10	55,938.62
8001	Čiščenje obcestja	71,296.72	6,060.22		77,356.94
8002	Čiščenje parkirišč z odvozom smeti	152,630.16	12,973.56		165,603.72
8003	Ostala dela	21,491.00		4,298.20	25,789.20
9001	Tehnična in administrativna pomoč pri pripravljanju osnutkov dovoljenj	945,000.00		189,000.00	1,134,000.00
	SKUPAJ:	**13,318,764.68**	**700,813.09**	**1,014,780.96**	**15,034,358.73**

Osnova za 8.5%:	**8,244,859.89**	**DDV 8.5%:**	**700,813.09**
Osnova za 20%:	**5,073,904.79**	**DDV 20%:**	**1,014,780.96**
Skupaj:	**13,318,764.68**	**Skupaj DDV:**	**1,715,594.05**
Skupaj vrednost situacije:			**15,034,358.73**

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CP Nova Gorica **Obdobje izpisa:01/04/2005 - 30/04/2005**

OBRAČUN DDV (regionalne ceste)

Šifra	Delo	Vrednost	8,5% DDV	20% DDV	SKUPAJ
1101	Redni, občasni in izredni pregledi	5,000,193.82		1,000,038.76	6,000,232.58
1201	Čiščenje vozišča - strojno	1,471,972.52	125,117.66		1,597,090.18
1202	Čiščenje vozišča - ročno	1,082,261.07	91,992.19		1,174,253.26
1301	Čiščenje jarkov - strojno od 0,3 do 0,5 m3/m	217,437.86	18,482.22		235,920.08
1302	Čiščenje jarkov - ročno od 0 do 0,3 m3/m	227,019.70	19,296.67		246,316.37
1304	Čiščenje koritnic, muld in kanalet koritnica-ročno	3,759,141.90	319,527.06		4,078,668.96
1306	Čiščenje revizijskih jaškov - ročno	231,553.97	19,682.09		251,236.06
1307	Čiščenje propustov - strojno	18,978.32	1,613.16		20,591.48
1308	Čiščenje propustov - ročno	14,878.35	1,264.66		16,143.01
1310	Zamenjava pokrova jaška pravokot., izven vozišča	45,315.82		9,063.16	54,378.98
1311	Obkopavanje nad robniki in zidovi	469,959.12	39,946.53		509,905.65
1403	Obsekovanje rastlinja	62,009.32	5,270.79		67,280.11
1501	Popravilo bankin - strojno z grederjem	187,360.85		37,472.17	224,833.02
1502	Popravilo bankin - ročno	1,630,527.40		326,105.48	1,956,632.88
1504	Čiščenje vozišča po nezgodi in elementarju	3,043,946.25	258,735.43		3,302,681.68
2101	Krpanje udarnih jam s hladno maso ročno	1,136,693.76		227,338.75	1,364,032.51
2102	Krpanje udarnih jam z asfaltom ročno	8,034,033.54		1,606,806.71	9,640,840.25
2103	Krpanje udarnih jam z rezkanjem ročno	132,427.55		26,485.51	158,913.06
2302	Krpanje gramoznih vozišč - ročno	412,122.40		82,424.48	494,546.88
3203	Zimski pregledi cest	49,882.03	4,239.97		54,122.00
3205	Posipavanje poledice - strojno	204,691.73	17,398.80		222,090.53
3206	Odstranjevanje snega z vozišča - strojno	1,140,937.37	96,979.68		1,237,917.05
3208	Pluženje in posipavanje	606,081.56	51,516.93		657,598.49
5402	Manša popravila zidov in kašt	872,933.02		174,586.60	1,047,519.62
7101	Manjša popravila brežin	43,730.18		8,746.04	52,476.22
7102	Odstranitev materiala za mrežami	78,281.85		15,656.37	93,938.22
8001	Čiščenje obcestja	76,758.48	6,524.47		83,282.95
8002	Čiščenje parkirišč z odvozom smeti	73,671.92	6,262.11		79,934.03
8003	Ostala dela	28,239.04		5,647.81	33,886.85
	SKUPAJ:	**30,353,040.70**	**1,083,850.42**	**3,520,371.85**	**34,957,262.97**

Osnova za 8.5%:	**12,751,181.47**	**DDV 8.5%:**	**1,083,850.42**
Osnova za 20%:	**17,601,859.23**	**DDV 20%:**	**3,520,371.85**
Skupaj:	**30,353,040.70**	**Skupaj DDV:**	**4,604,222.27**
Skupaj vrednost situacije:			**34,957,262.97**

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CP Nova Gorica **Obdobje izpisa:01/04/2005 - 30/04/2005**

OBRAČUN DDV (glavne ceste)

ENOTA: Idrija

Šifra	Delo	Vrednost	8,5% DDV	20% DDV	SKUPAJ
1101	Redni, občasni in izredni pregledi	911,088.00		182,217.60	1,093,305.60
1201	Čiščenje vozišča - strojno	556,491.76	47,301.80		603,793.56
1202	Čiščenje vozišča - ročno	106,158.56	9,023.48		115,182.04
1304	Čiščenje koritnic, muld in kanalet mulda-ročno	508,317.12	43,206.96		551,524.08
1501	Popravilo bankin - strojno z grederjem	37,684.44		7,536.89	45,221.33
1504	Čiščenje vozišča po nezgodi in elementarju	808,505.26	68,722.95		877,228.21
3202	Pripravnost	74,920.62	6,368.25		81,288.87
3208	Pluženje in posipavanje	22,179.87	1,885.29		24,065.16
8002	Čiščenje parkirišč z odvozom smeti	99,074.88	8,421.36		107,496.24
	SKUPAJ:	**3,124,420.51**	**184,930.09**	**189,754.49**	**3,499,105.08**

Osnova za 8.5%:	**2,175,648.07**	**DDV 8.5%:**	**184,930.09**
Osnova za 20%:	**948,772.44**	**DDV 20%:**	**189,754.49**
Skupaj:	**3,124,420.51**	**Skupaj DDV:**	**374,684.57**
Skupaj vrednost situacije:			**3,499,105.08**

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COPY OF MONTHLY PROGRESS STATEMENT

CP Nova Gorica **Obdobje izpisa:01/04/2005 - 30/04/2005**

SITUACIJA GLAVNIH CEST **Enota: Idrija**

1034 102	**SP.IDRIJA-GODOVIČ**	**l = 13460 m**			
1101	**Redni, občasni in izredni pregledi**	m	403,800.00	0.76	306,888.00
1202	**Čiščenje vozišča - ročno**	m2		28.50	
	Cestar	ura	20.00	2,468.12	49,362.40
	Pregledniško vozilo (ostali)	ura	4.00	2,375.20	9,500.80
1304	**Čiščenje koritnic, muld in kanalet mulda-ročno**	m	200.00	45.73	9,146.00
	Cestar	ura	10.00	2,468.12	24,681.20
1501	**Popravilo bankin - strojno z grederjem**	m2		52.16	
	Cestar	ura	4.00	2,468.12	9,872.48
	Strojnik	ura	4.00	2,850.89	11,403.56
	Rovokopač	ura	4.00	4,102.10	16,408.40
1504	**Čiščenje vozišča po nezgodi in elementarju**	ur	62.00	2,468.12	153,023.44
	Pregledniško vozilo (ostali)	ura	13.00	2,375.20	30,877.60
	chemsorb 40 kg				4,080.00
3208	**Pluženje in posipavanje**	ur			
	Cestar	ura	2.00	2,468.12	4,936.24
	Voznik	ura	2.00	2,850.89	5,701.78
	Vlečni posipalec (obr.ure)	ura	1.00	15.49	15.49
	Snežni plug šir. nad 3.5 m (obr.ure)	ura	1.00	2,382.93	2,382.93
	Tovorna vozila 12 - 15 ton	ura	1.00	7,434.22	7,434.22
	Sklad. soli in manipulacija na sezono	SIT/tono	1.00	1,709.21	1,709.21
8002	**Čiščenje parkirišč z odvozom smeti**	ur	16.00	2,468.12	39,489.92
	Pregledniško vozilo (ostali)	ura	2.00	2,375.20	4,750.40
	prevzem odpadkov komunala				5,658.00
				SKUPAJ ODSEK:	**697,322.07**
1035 102	**SPODNJA IDRIJA**	**l = 1900 m**			
1101	**Redni, občasni in izredni pregledi**	m	57,000.00	0.76	43,320.00
1504	**Čiščenje vozišča po nezgodi in elementarju**	ur	26.00	2,468.12	64,171.12
	Strojnik	ura	5.00	2,850.89	14,254.45
	Rovokopač	ura	5.00	4,102.10	20,510.50
	Pregledniško vozilo (ostali)	ura	2.00	2,375.20	4,750.40
				SKUPAJ ODSEK:	**147,006.47**
1036 102	**ŽELIN-SP.IDRIJA**	**l = 11300 m**			
1101	**Redni, občasni in izredni pregledi**	m	339,000.00	0.76	257,640.00
1201	**Čiščenje vozišča - strojno**	m2	44,000.00	4.42	194,480.00
1304	**Čiščenje koritnic, muld in kanalet koritnica-strojno**	m	8,000.00	29.00	232,000.00
1504	**Čiščenje vozišča po nezgodi in elementarju**	ur	28.00	2,468.12	69,107.36
	Strojnik	ura	4.00	2,850.89	11,403.56
	Rovokopač	ura	4.00	4,102.10	16,408.40
	Pregledniško vozilo (ostali)	ura	10.00	2,375.20	23,752.00
	chemsorb 20 kg				3,540.00
8002	**Čiščenje parkirišč z odvozom smeti**	ur	8.00	2,468.12	19,744.96
	Pregledniško vozilo (ostali)	ura	1.00	2,375.20	2,375.20
				SKUPAJ ODSEK:	**830,451.48**
1037 102	**DOL.TREBUŠA-ŽELIN**	**l = 13300 m**			
1101	**Redni, občasni in izredni pregledi**	m	399,000.00	0.76	303,240.00
1201	**Čiščenje vozišča - strojno**	m2	55,100.00	4.42	243,542.00
	Cestar	ura	48.00	2,468.12	118,469.76
1202	**Čiščenje vozišča - ročno**	m2	800.00	28.50	22,800.00
	Cestar	ura	8.00	2,468.12	19,744.96
	Pregledniško vozilo (ostali)	ura	2.00	2,375.20	4,750.40
1304	**Čiščenje koritnic, muld in kanalet koritnica-strojno**	m	7,000.00	29.00	203,000.00
	Cestar	ura	16.00	2,468.12	39,489.92
1504	**Čiščenje vozišča po nezgodi in elementarju**	ur	64.00	2,468.12	157,959.68
	Strojnik	ura	2.00	2,850.89	5,701.78
	Rovokopač	ura	2.00	4,102.10	8,204.20
	Pregledniško vozilo (ostali)	ura	4.00	2,375.20	9,500.80
8002	**Čiščenje parkirišč z odvozom smeti**	ur	10.00	2,468.12	24,681.20

	Pregledniško vozilo (ostali)	ura	1.00	2,375.20	2,375.20
				SKUPAJ ODSEK:	**1,163,459.90**
9501	**05 BAZA IDRIJA**	**l = 0 m**			
1504	**Čiščenje vozišča po nezgodi in elementarju**	ur		2,468.12	
	Pripravnost cestar	ura	474.00	370.22	175,484.28
	Pregledniško vozilo (ostali)	ura	14.50	2,375.20	34,440.40
	Pregledniško vozilo (ostali)	ura	0.50	2,670.58	1,335.29
3202	**Pripravnost**	ur			
	Pripravnost cestar	ura	73.00	370.22	27,026.06
	Pripravnost voznik	ura	73.00	427.63	31,216.99
	Pripravnost strojnik	ura	39.00	427.63	16,677.57
				SKUPAJ ODSEK:	**286,180.59**
				SKUPAJ:	**3,124,420.51**

LAST PAGE OF MONTHLY PROGRESS STATEMENT

Vrednost sedanje situacije				**453.510.138,45**
IZPLAČILO PO SITUACIJAH				
za januar		SIT	80.280.139,87	
za februar		SIT	87.925.407,43	
za marec	zimska	SIT	64.856.823,04	
za marec	letna		11.919.357,00	
za april		SIT		
za maj		SIT		
za junij		SIT		
za julij		SIT		
za avgust		SIT		
za september	2004	SIT	17.686.128,91	
za oktober	2004	SIT	12.278.544,28	
za november A	2004	SIT	7.810.194,10	
za november B	2004	SIT	48.006.193,31	
za december	2004	SIT	72.755.728,81	
za obračunsko		SIT		**403.518.516,75**
		Izplačevanje po tej situaciji	SIT	**49.991.621,70**

MAINTENANCE OF ROAD WEATHER STATIONS

Work Description

The installation of road weather stations on a road section enables us to monitor the physical conditions of the roadway.

Based on these measurements, operative weather-related information and fairly detailed forecasts (both in terms of time and of space) of general weather phenomena important for road maintainers may be issued.

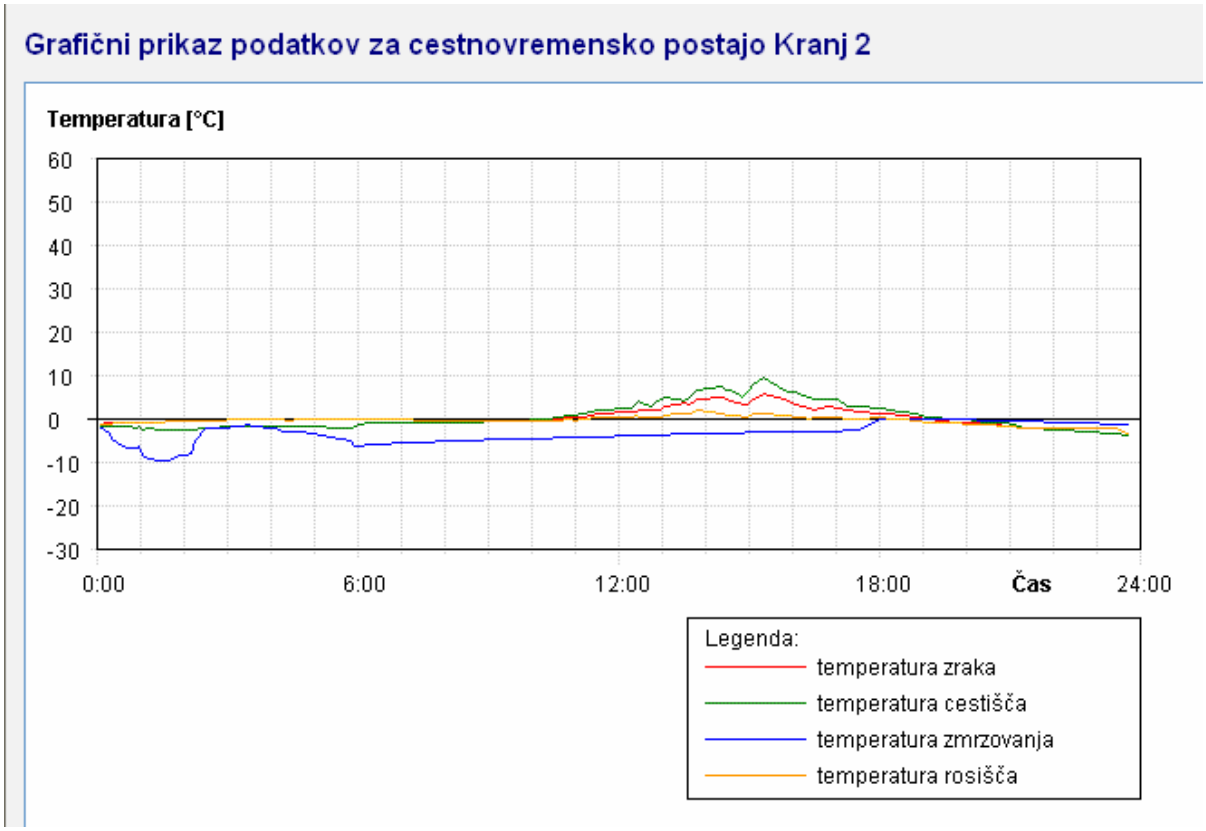
The following information can be obtained from the road weather stations:

Air temperature	[°C]
Driving surface temperature	[°C]
Salt concentration	[%]
Precipitation intensity	[mm/h]
Relative humidity	[%]
Wind direction	[°]
Wind speed	[m/s]
Type of precipitation	
Wind speed - gusts	[m/s]
Freezing temperature	[°C]
Dew-point temperature	[°C]
Roadway internal temperature (30 cm)	[°C]
Water film thickness	[mm]
Roadway conditions	

Trenutni podatki in napovedi za cestnovremensko postajo Kranj 2

petek, 20.1.2006	stanje 10:07	napoved 11:35	Enota
Temperatura zraka	-8,5	-8,9	[°C]
Temperatura cestišča	-6,9	-6,2	[°C]
Koncentracija soli	40	36	[%]
Jakost padavin	0		[mm/h]
Relativna vlaga	98		[%]
Smer vetra	90		[°]
Hitrost vetra	0,7		[m/s]
Vrsta padavin	Brez padavin		[-]
Hitrost vetra-sunki	1,2		[m/s]
Temperatura zmrzovanja	-6,8	-5,9	[°C]
Temperatura rosišča	-8,9	-9,2	[°C]
Temperatura tal-globina3	-1,0		[°C]
Debelina vodnega filma	0,14		[mm]
RWIS-SC	podhlajeno	vlažno	[-]

All information is archived and can be displayed in graphical or tabular view for any period:



Tabelarični prikaz podatkov za cestnovremensko postajo Kranj 1

datum ura	Temperatura zraka	Temperatura cestišca	Koncentracija soli	Jakost padavin	Relativna vlaga	Smer vetra	Hitrost vetra	Vrsta padavin	Hitrost vetra-sunki	Temperatura zmrzovanja	Temperatura rosišca	Debelina vodnega filma	RWIS-SC
20.1.2006 10:20:00	-8,1	-5,6	21	0	97	63	0,9	0	1,2	-3,0	-8,5	0,10	9
20.1.2006 10:12:00	-8,3	-5,9	21	0	98	56	0,6	0	1,1	-3,1	-8,6	0,10	9
20.1.2006 10:07:00	-8,5	-6,1	22	0	98	90	0,7	0	1,2	-3,1	-8,9	0,10	9
20.1.2006 10:01:00	-8,7	-6,3	22	0	97	69	0,9	0	1,4	-3,1	-9,0	0,10	9
20.1.2006 9:48:00	-9,1	-6,5	22	0	98	54	0,7	0	1,1	-3,2	-9,2	0,10	9
20.1.2006 9:24:00	-9,1	-6,5	22	0	97	231	0,9	0	2,1	-3,2	-9,5	0,10	9
20.1.2006 7:24:00	-9,2	-6,8	25	0	98	56	1,1	0	3,2	-3,8	-9,5	0,10	9
20.1.2006 6:00:00	-8,9	-6,3	28	0	97	71	0,9	0	1,3	-4,2	-9,2	0,10	9
20.1.2006 4:38:00	-9,0	-5,8	30	0	98	57	1,3	0	1,5	-4,6	-9,3	0,10	9
20.1.2006 3:58:00	-8,3	-5,6	31	0	98	180	0,5	0	0,9	-4,8	-8,5	0,10	9
20.1.2006 1:58:00	-7,5	-5,7	35	0	99	0	0	0	0,8	-5,7	-7,7	0,09	9
20.1.2006 1:46:00	-7,6	-5,7	36	0	99	0	0	0	0,8	-5,7	-7,8	0,09	3
20.1.2006 1:18:00	-7,5	-6,2	37	0	99	0	0	0	0,6	-6,0	-7,6	0,09	9
20.1.2006 0:41:00	-7,1	-6,7	38	0	99	126	0,9	0	1,8	-6,2	-7,2	0,09	9
20.1.2006 0:09:00	-6,6	-6,5	39	0	100	0	0	0	0,5	-6,5	-6,7	0,09	9

The locations for placing road weather stations are on characteristic spots on the roadway or spots that yield the most relevant information possible, for the largest area possible, characterized by approximately the same conditions. On other locations, the conditions are established according to repeated measurements carried out in different circumstances (so-called. thermal mapping).

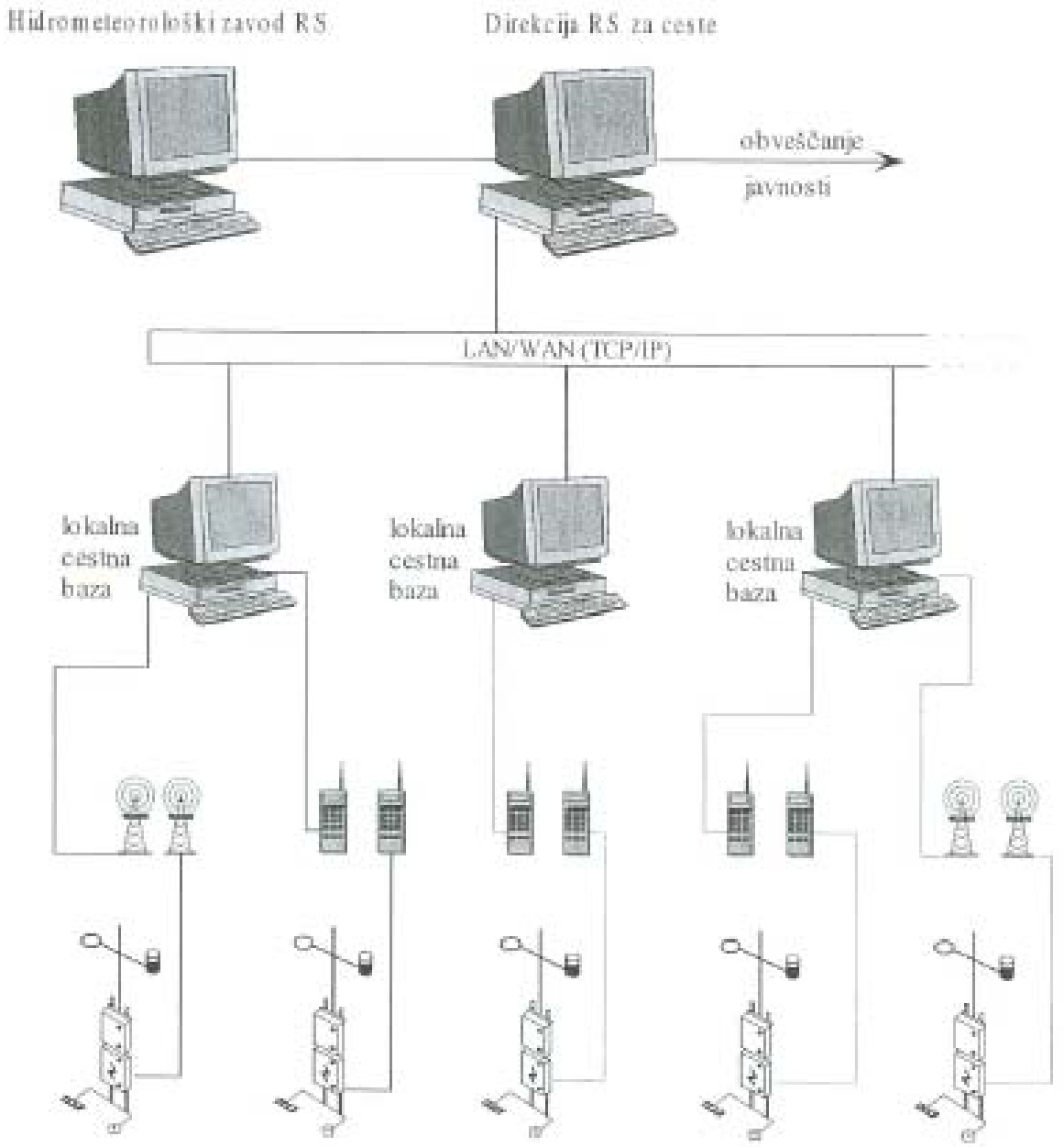
The maintenance of these devices is defined in accordance with the manufacturer's instructions. Particular attention must be paid to the following systems:

In the field:

- Road ice alert driver
- GSM modem
- IRS road sensor
- Air temperature and relative humidity sensor
- Precipitation sensor (strength and type of precipitation)
- Wind speed and direction sensor

Regarding the control system:

- Personal computer
- A modem providing access to the public telephone or GSM network


Hidrometeorološki zavod RS
Direkcija RS za ceste
obveščanje
javnosti
LAN/WAN (TCP/IP)
lokalna
cestna
baza
lokalna
cestna
baza
lokalna
cestna
baza

Form: "Routine Monthly Inspection of a Road Weather Station"

Maintenance of Road Weather Stations

Routine report for the month: ……..

(Location of the weather station)	(Inspection date and time)
The following issues were identified during the inspection of this weather station:	
Control	*Condition*
Control of measurement signal from the sensors to the logger - air temperature - air humidity - wind direction - wind speed - road sensors	…….. …….. …….. …….. ……..
Station power supply control	Battery 1: ……V Battery 2: …….
Visual inspection of the physical condition of the station - structural stability - mechanic damage to the sensors - other damage (due to weather)	…….. …….. ……..
Pictures of the intervention:	
Nothing special to photograph.	

Inspection date:

Report prepared by:

Completed Form: "Routine Monthly Inspection of a Road Weather Station"

Maintenance of Road Weather Stations

Routine report for the month: MARCH

…….. bridge	18.3.2005 between 13:00 and 14:00
No problems were identified during this inspection of this weather station.	
Control	*Condition*
Control of measurement signal from the sensors to the logger - air temperature - air humidity - wind direction - wind speed - road sensors	 OK OK OK OK OK
Station power supply control	Battery 1: 11.72 V Battery 2: 6.03 V
Visual inspection of the physical condition of the station - structural stability - mechanic damage to the sensors - other damage (due to weather)	 OK / /
Pictures of the intervention:	
Nothing special to photograph.	

……., 18. 3. 2005

Report prepared by:

……..

GUIDELINES FOR ROAD DESIGN, CONSTRUCTION, MAINTENANCE AND SUPERVISION

VOLUME III: ROAD MAINTENANCE

SECTION 2: ROUTINE MAINTENANCE

SUPPLEMENT 3: EQUIPMENT

Sarajevo/Banja Luka
2005

3.2.19 SUPPLEMENT 3: EQUIPMENT

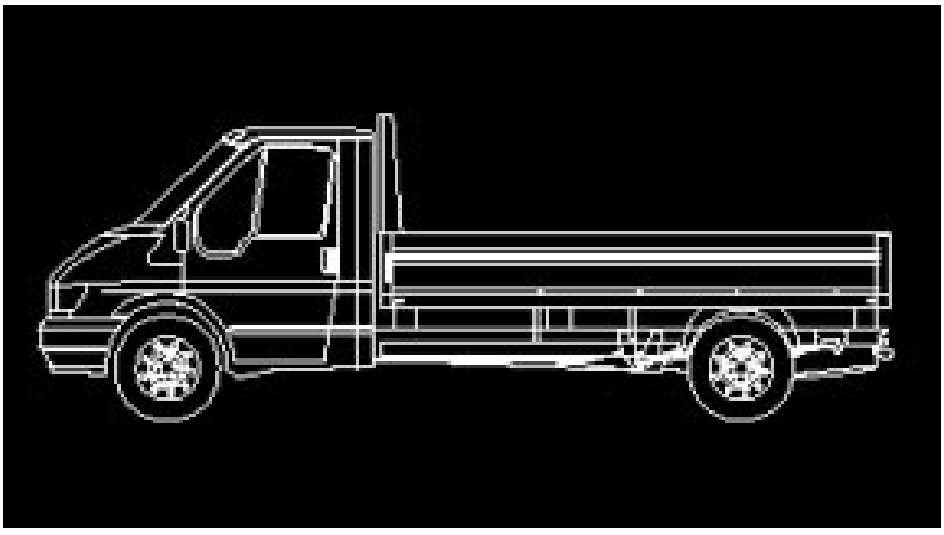
3.2.19.1 ROUTINE, PERIODIC, AND EXTRAORDINARY INSPECTIONS

Inspection vehicle

The inspection vehicle can be a small lorry of total mass of up to 5 tons, which, in addition to a passenger cabin, shall also have a space for cargo. The vehicle shall be equipped with a yellow rotation light, visible from a distance, enabling other traffic participants a safe stop in front of an obstacle. To perform the work adequately, the equipment shall also comprise the following items:

- a pick,
- a shovel,
- a wheelbarrow,
- a hammer,
- a set of spanners and screwdrivers needed for the maintenance of signals and other technical equipment,
- bags of 25–40 kg of cold mix, for a total weight of 100–120 kg of cold mix
- 10 kg of oil absorbent material,
- trash bags,
- an axe,
- a saw,
- traffic signs needed to mark obstacles on the road, including at least: two I-19 signs (road work), two II-30(40) signs (speed limit), 100 m of barricade tape with flags, 10 yellow/red sign poles (2 m tall), 10 VI-9 traffic cones. (The numerical codes are based on the »Regulation on traffic signs and traffic equipment on public roads", Official Gazette of RS No. 46/2000)

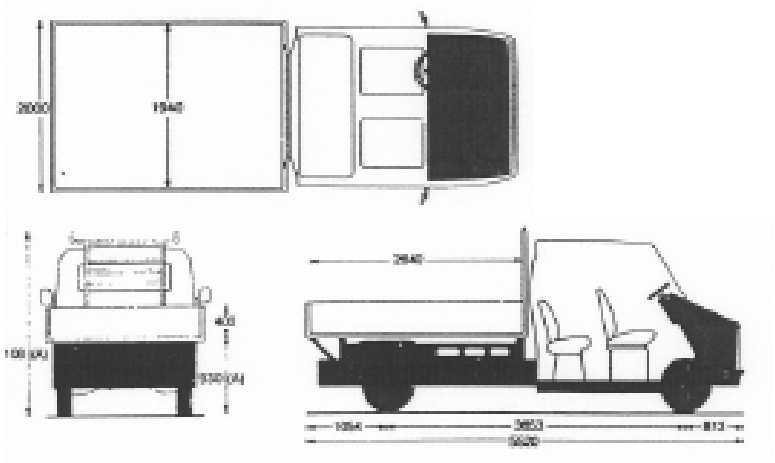
A schematic view of the inspection vehicle



A picture of a vehicle suitable for use by the road inspector and for road maintenance work

A picture of a vehicle suitable for road maintenance work

Plan of the inspection vehicle



The equipment of an inspection vehicle

Pregledniško vozilo z dvojno kabino.

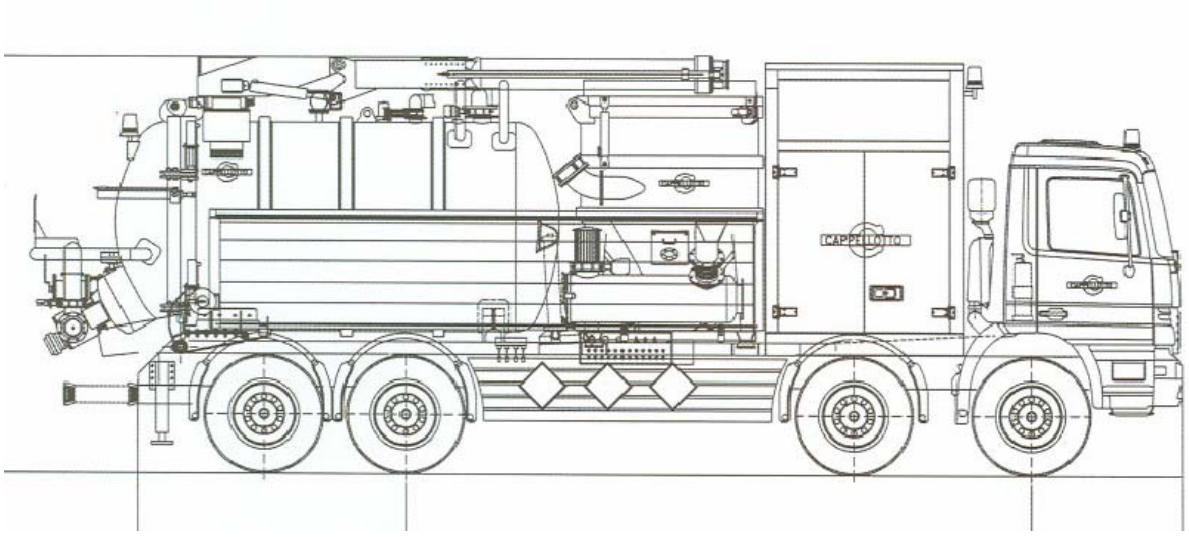
3.2.19.2 PAVEMENT CLEANING

Equipment for mechanized pavement cleaning (including along the curbs)

Standalone road cleaning and sweeping machine (citycat)

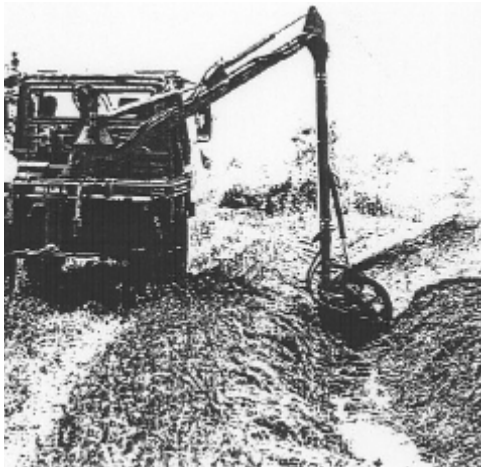
3.2.19.3 CLEANING OF DRAINAGE STRUCTURES

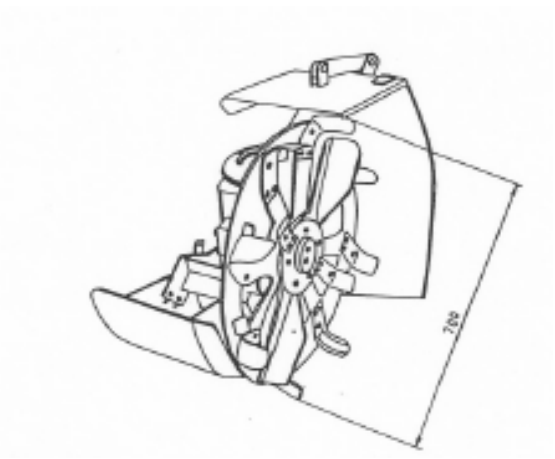
Mechanized equipment for cleaning of curved channels, gutters, etc.



Example of a vehicle for cleaning the intake and inspection shafts

Mechanization for cleaning and excavation of ditches





3.2.19.4 ROADSIDE MOWING, VISIBILITY

Side-mowers are attached to the machine using a hydraulic hand:

Mowing the shoulder with a side-mower

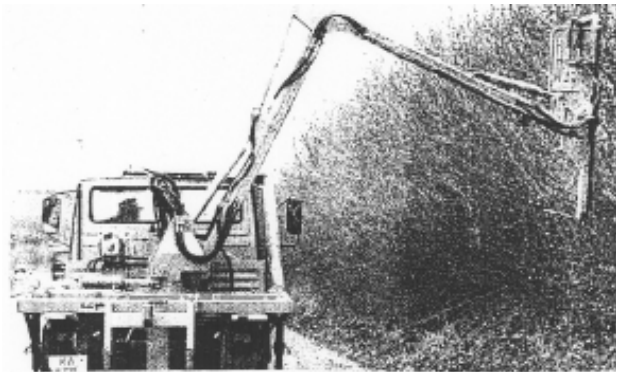
Standalone agricultural mowers are designed for standalone mowing of more distant slopes.

Manual mowers

3.2.19.5 LOPPING AND PRUNING

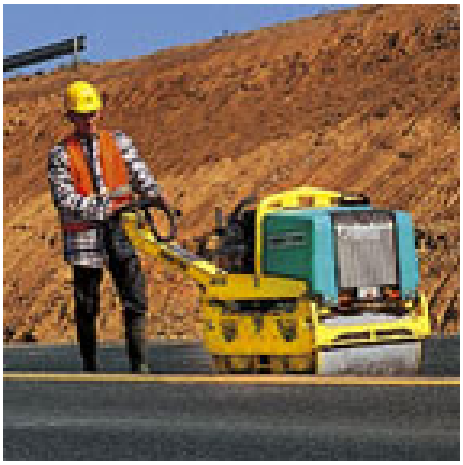
Scissors for cutting plants

Manual lopping and pruning is done using scissors, saws, motor saws and hydraulic scissors.

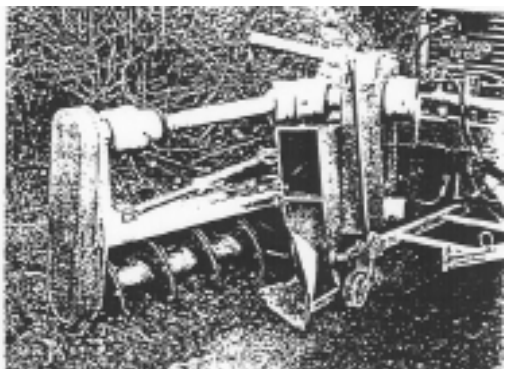


3.2.19.6 SHOULDER REPAIR

Shoulder compacting (rolling)



Shoulder construction



3.2.19.7 PAVEMENT PATCHING

Example of a thermally insulated tank for the asphalt mixture

3.2.19.8 CRACK AND JOINT SEALING

Joint deepening machine

GUIDELINES FOR ROAD DESIGN, CONSTRUCTION, MAINTENANCE AND SUPERVISION

VOLUME III: ROAD MAINTENANCE

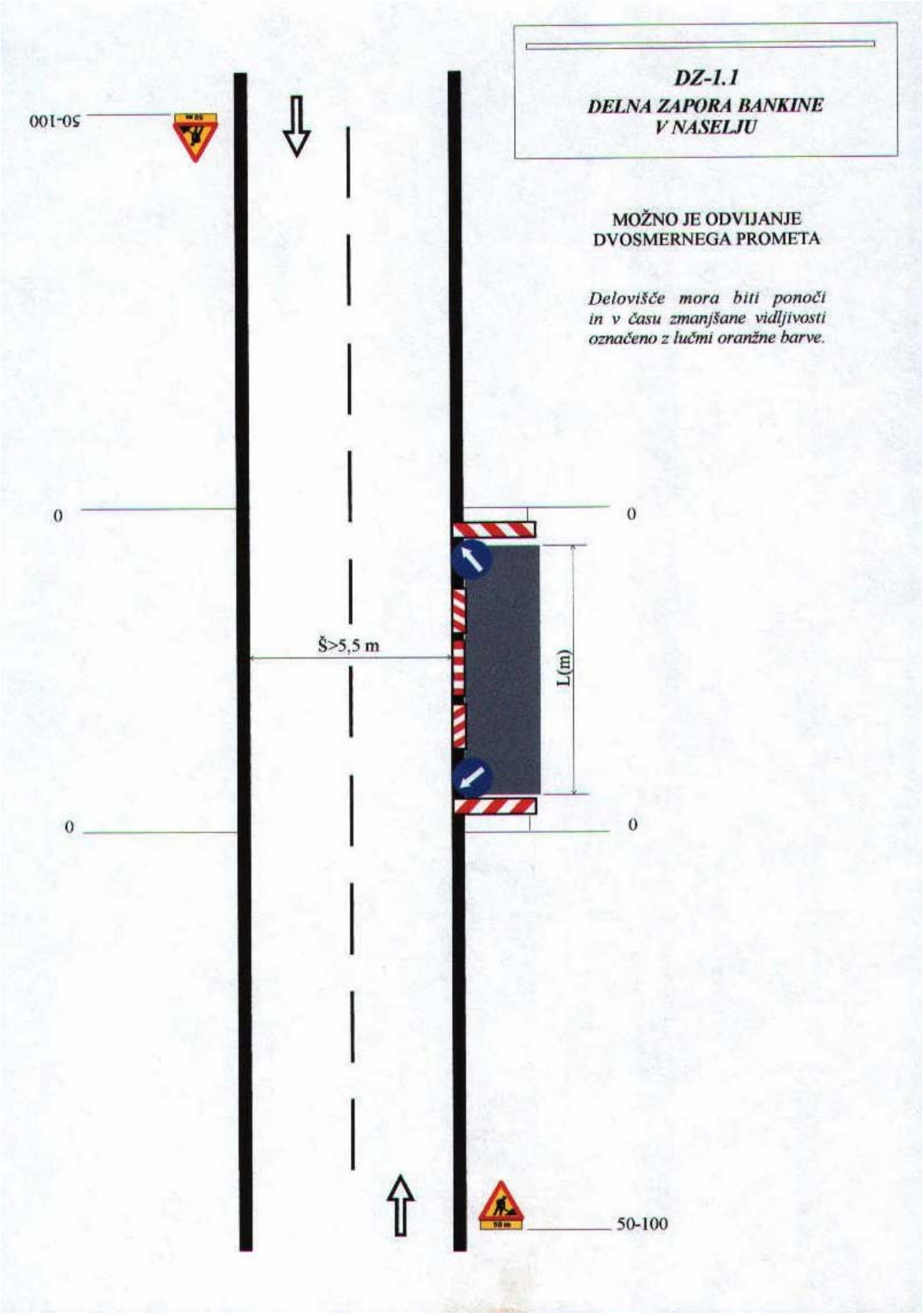
SECTION 2: ROUTINE MAINTENANCE

SUPPLEMENT 4: ROAD CLOSURE SKETCHES

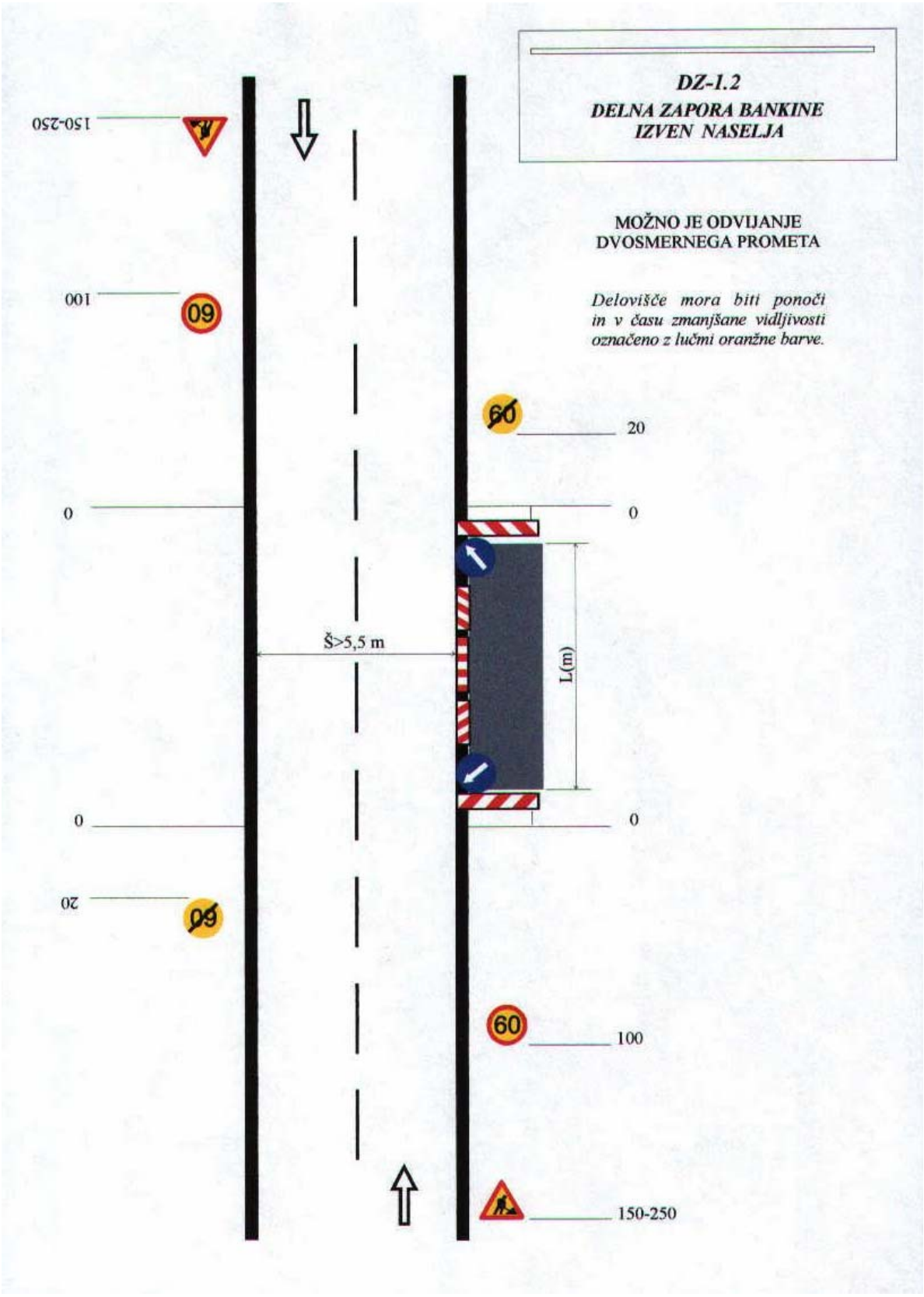
Sarajevo/Banja Luka
2005

3.2.20 SUPPLEMENT 4 - ROAD CLOSURE SKETCHES

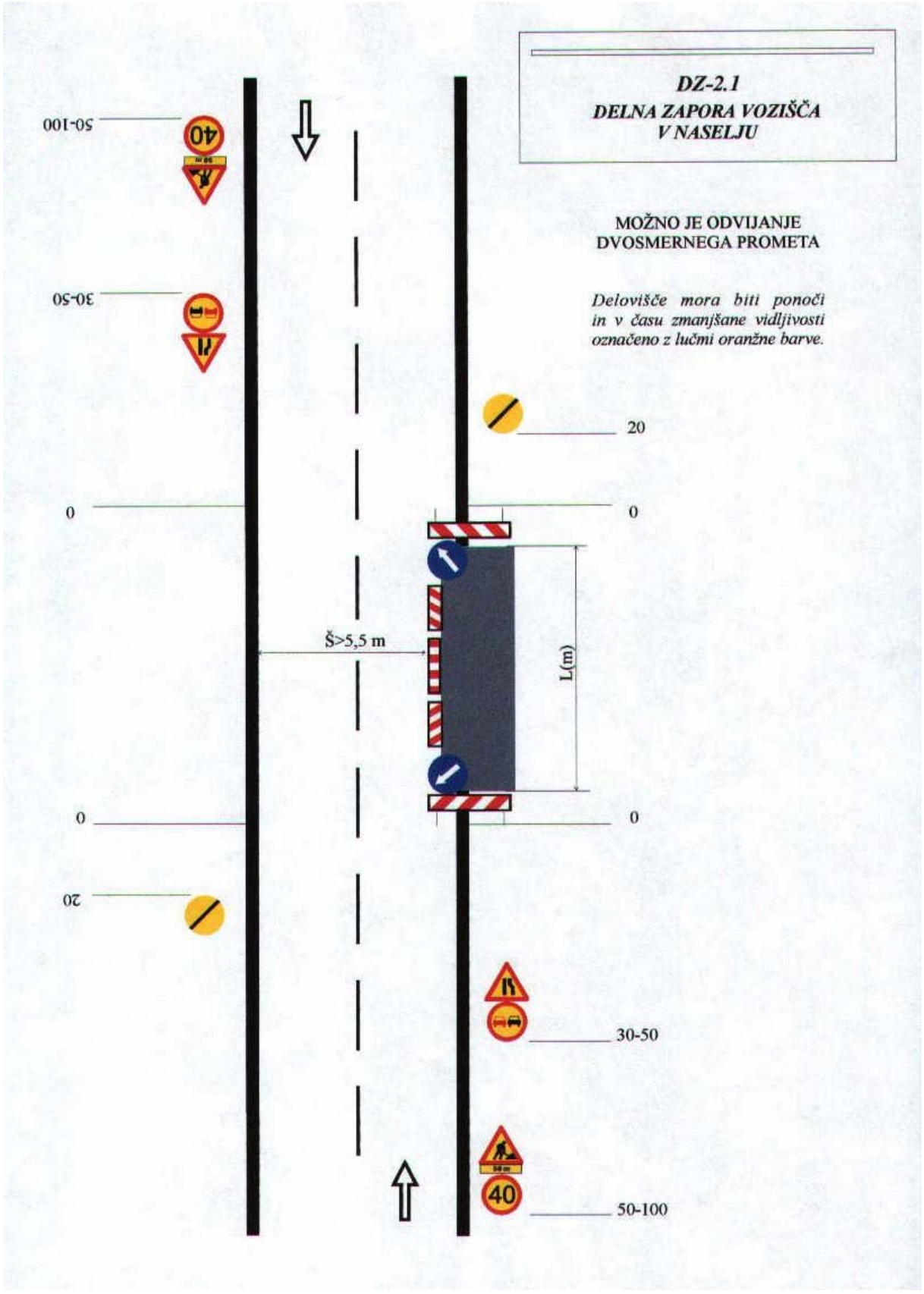
3.2.20.1 DZ-1.1 - PARTIAL SHOULDER CLOSURE - IN A POPULATED AREA



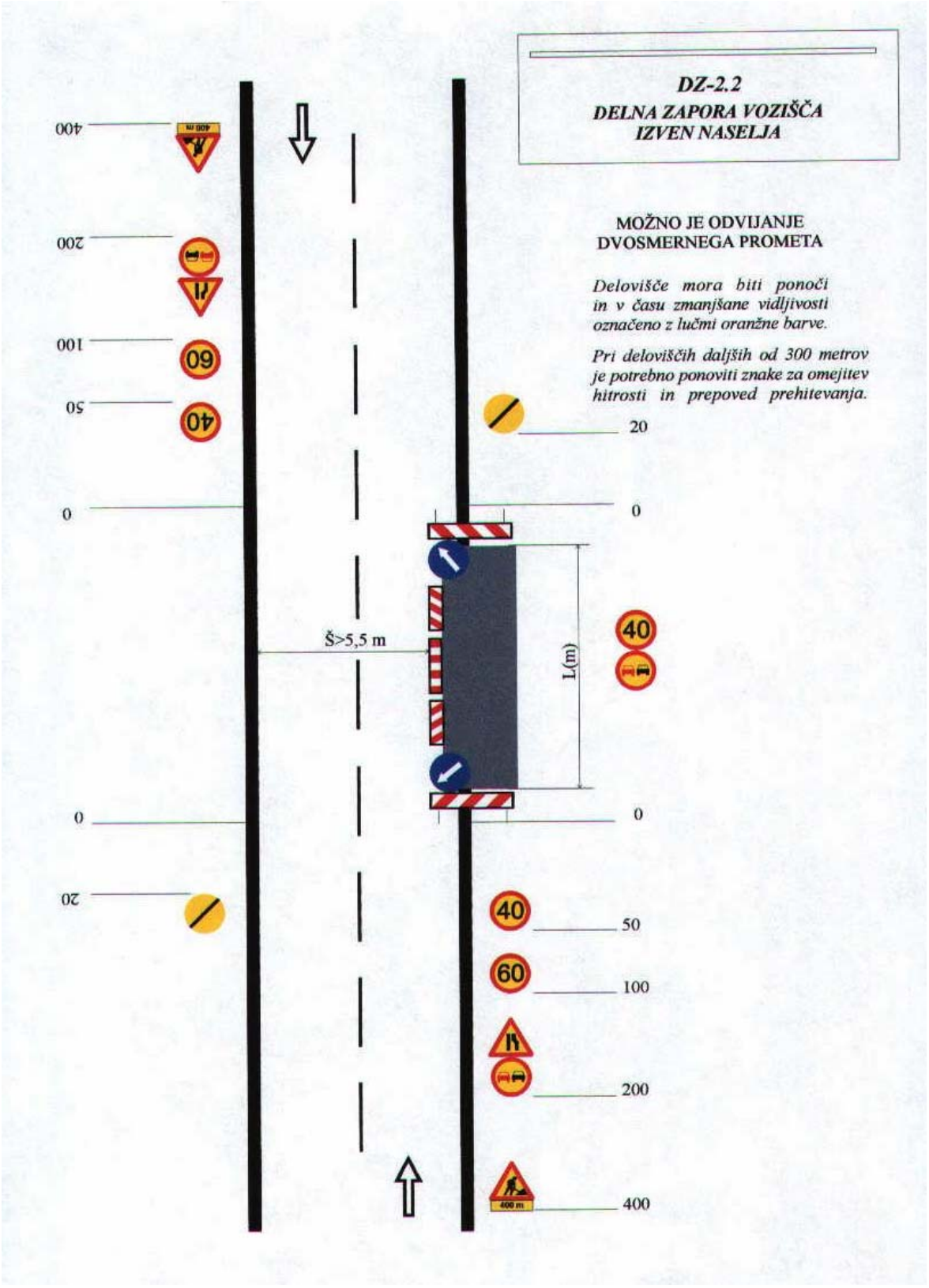
3.2.20.2 DZ 1.2 - PARTIAL SHOULDER CLOSURE - OUTSIDE POPULATED AREAS



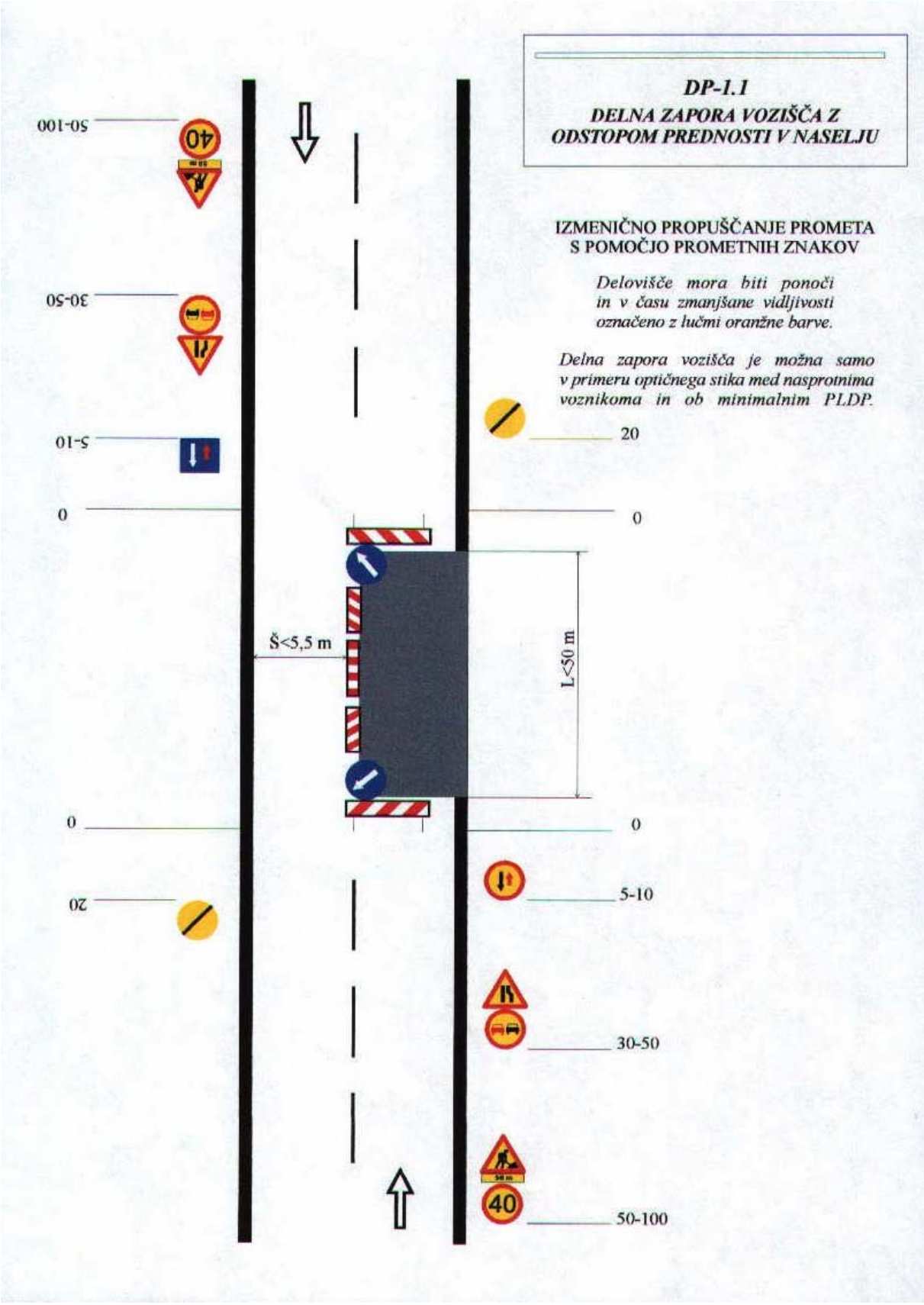
3.2.20.3 DZ 2.1 - PARTIAL CARRIAGEWAY CLOSURE - IN A POPULATED AREA



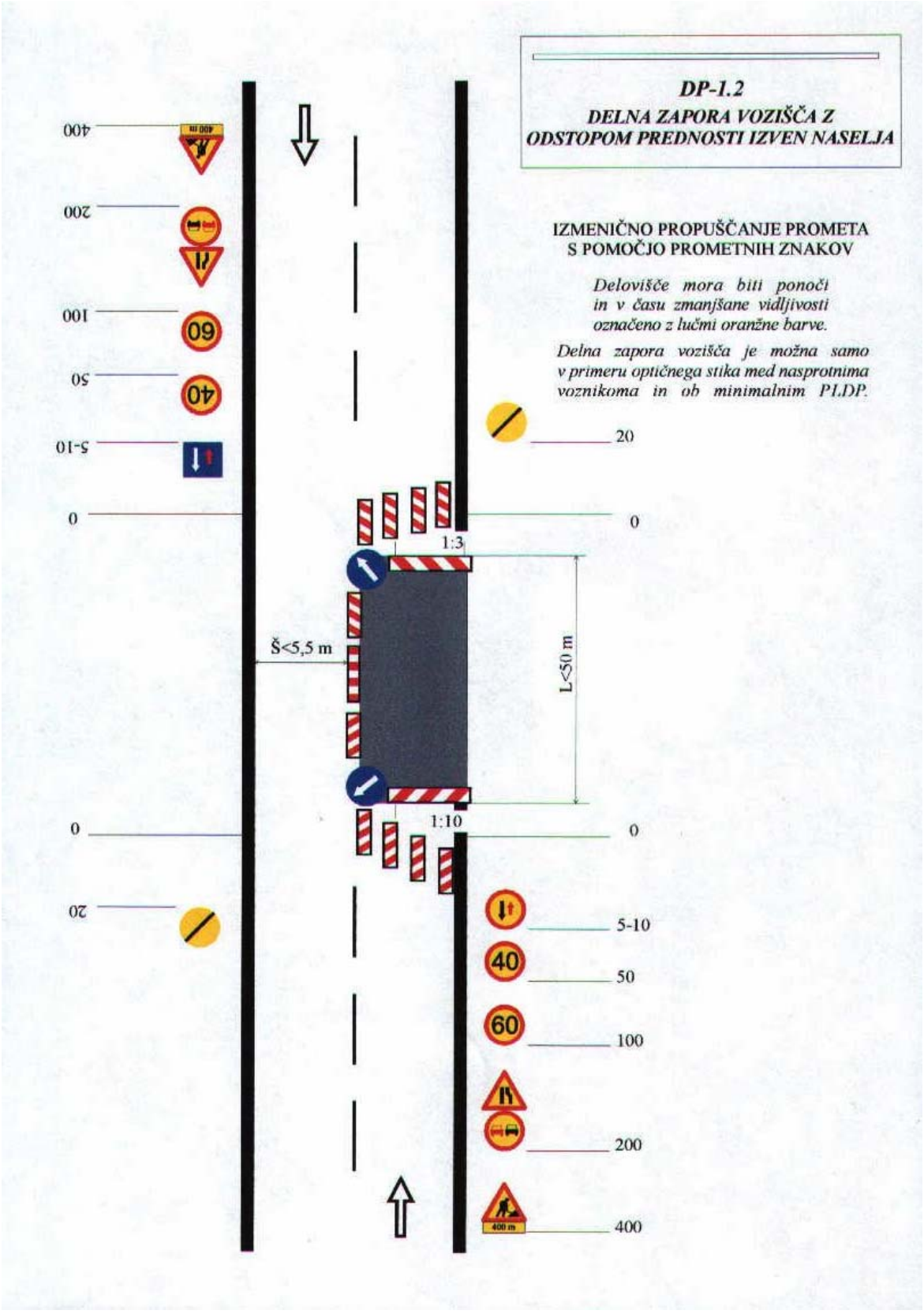
3.2.20.4 DZ 2.2 - PARTIAL CARRIAGEWAY CLOSURE - OUTSIDE POPULATED AREAS



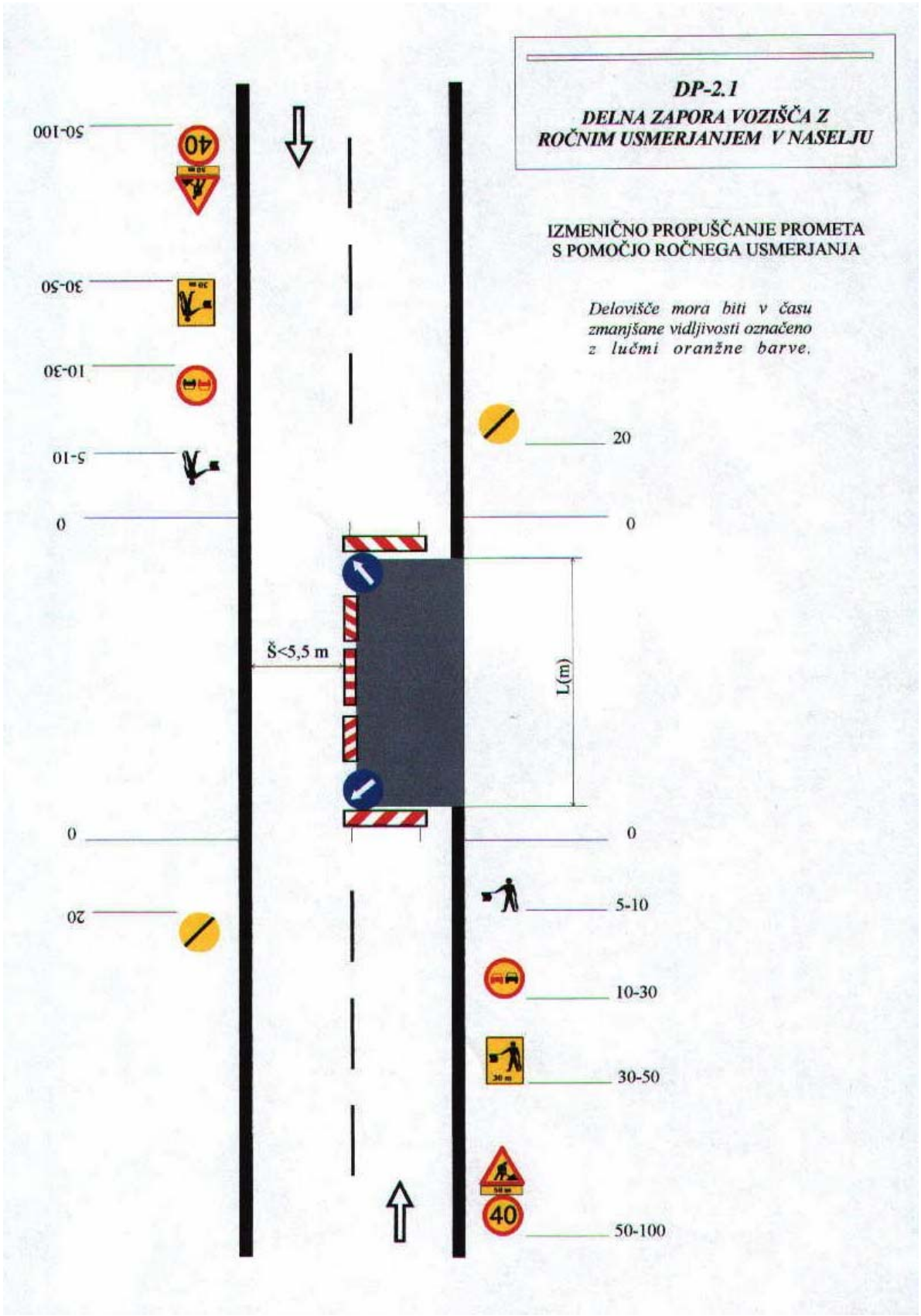
3.2.20.5 DP 1.1 - PARTIAL CARRIAGEWAY CLOSURE WITH PRIORITY GIVEN TO TRAFFIC IN ONE DIRECTION - IN A POPULATED AREA



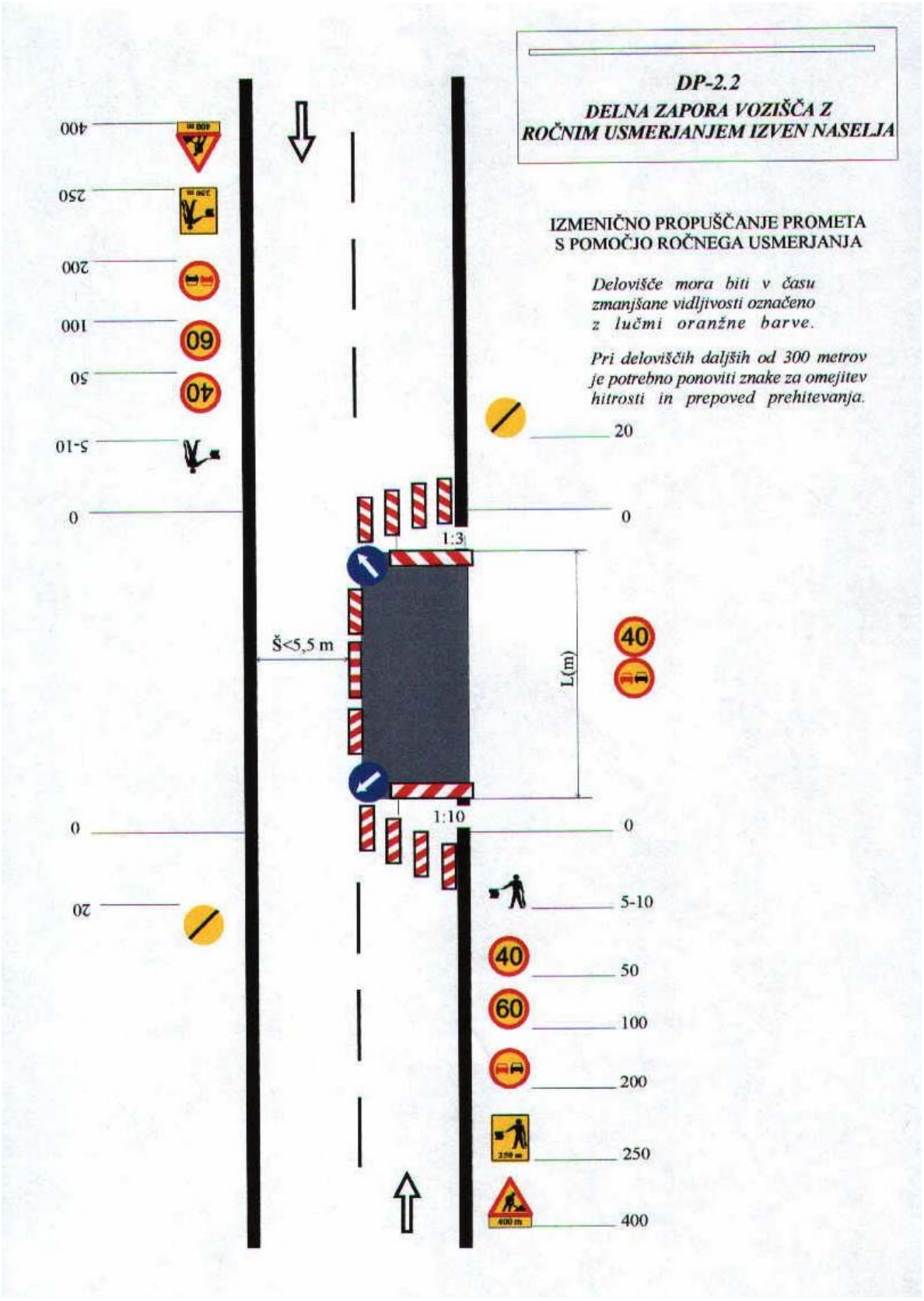
3.2.20.6 DP 1.2 - PARTIAL CARRIAGEWAY CLOSURE WITH PRIORITY GIVEN TO TRAFFIC IN ONE DIRECTION - OUTSIDE POPULATED AREAS



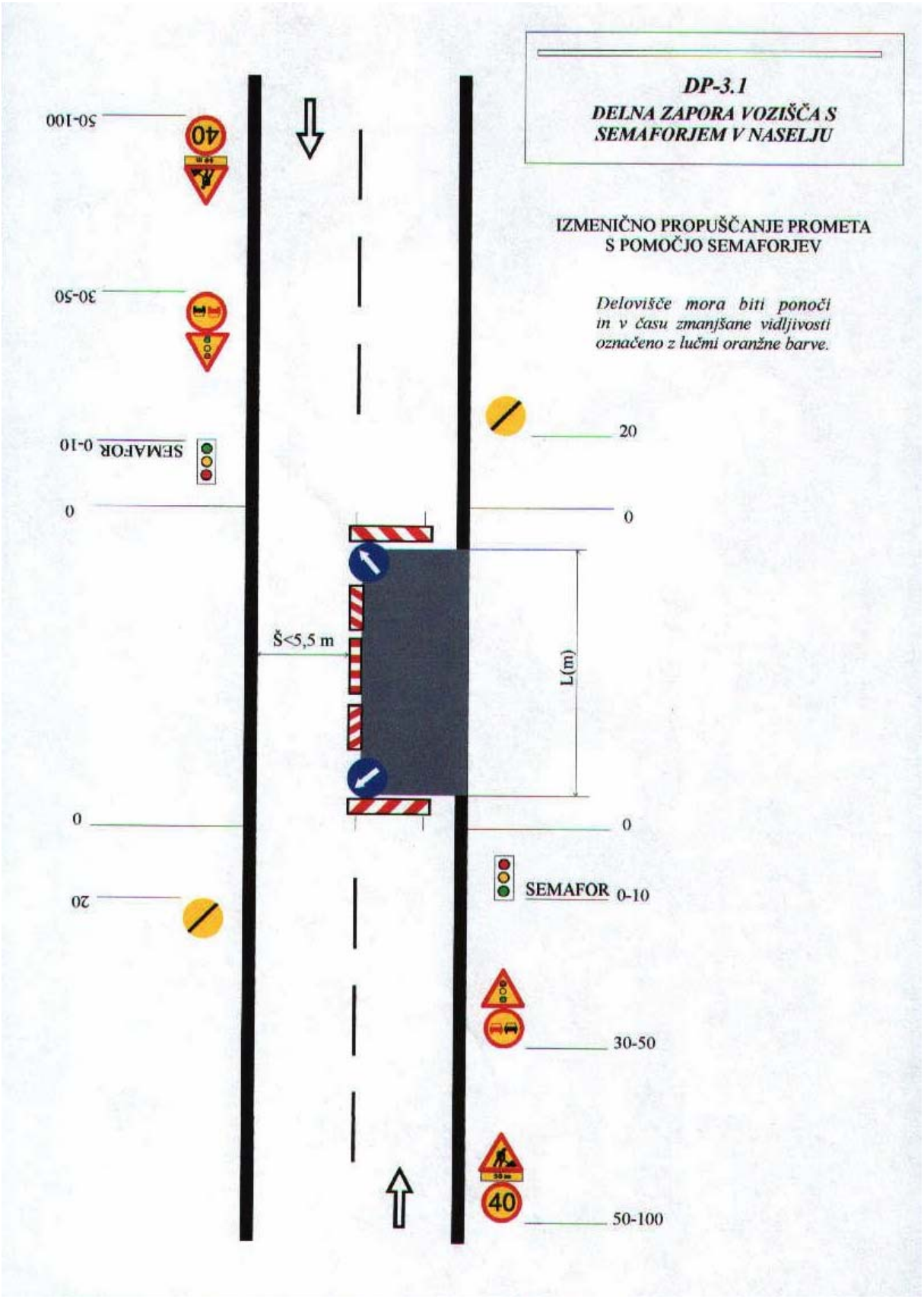
3.2.20.7 DP 2.1 - PARTIAL CARRIAGEWAY CLOSURE WITH TRAFFIC DIRECTED MANUALLY - IN A POPULATED AREA



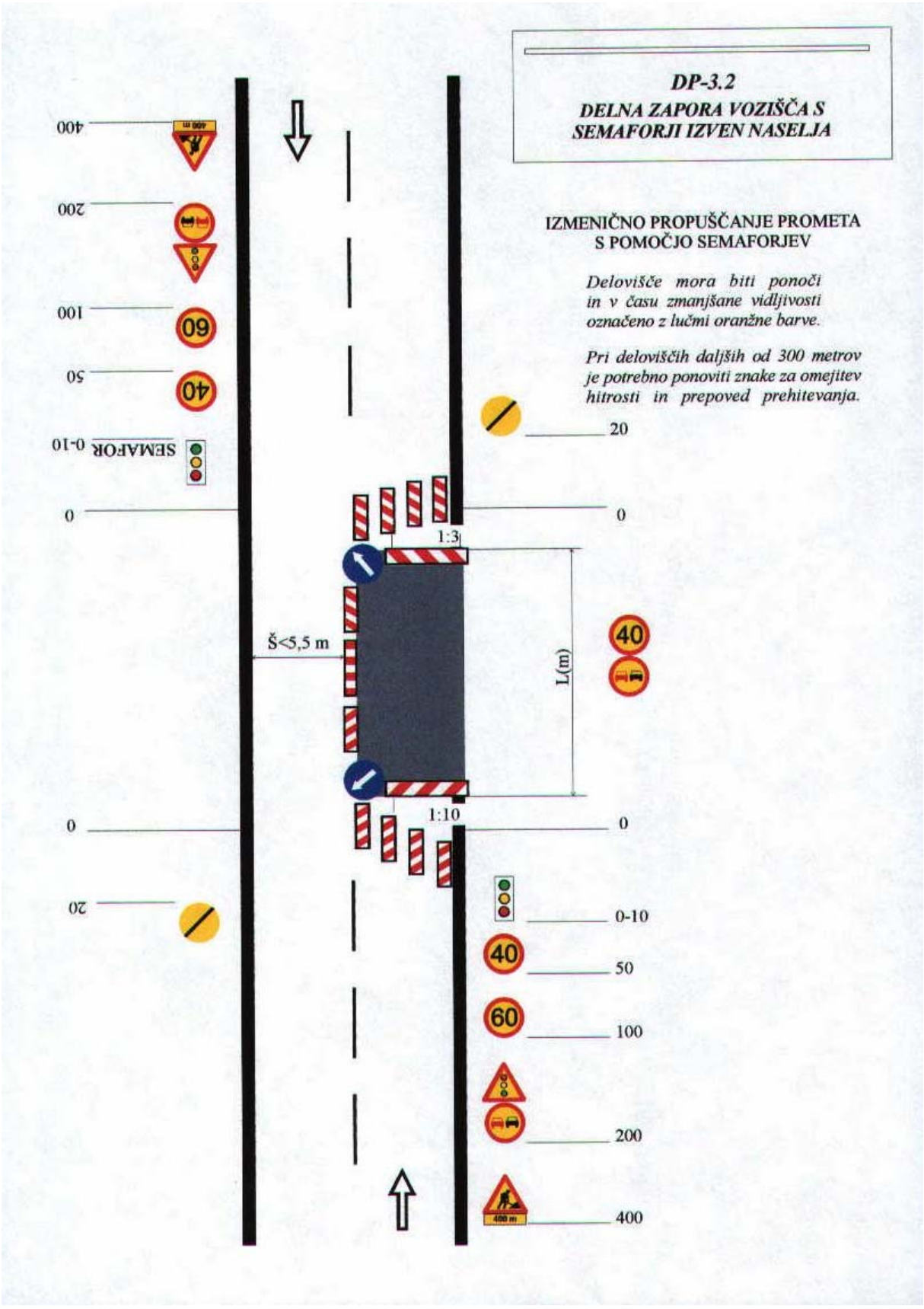
3.2.20.8 DP 2.2 - PARTIAL CARRIAGEWAY CLOSURE WITH TRAFFIC DIRECTED MANUALLY - OUTSIDE POPULATED AREAS



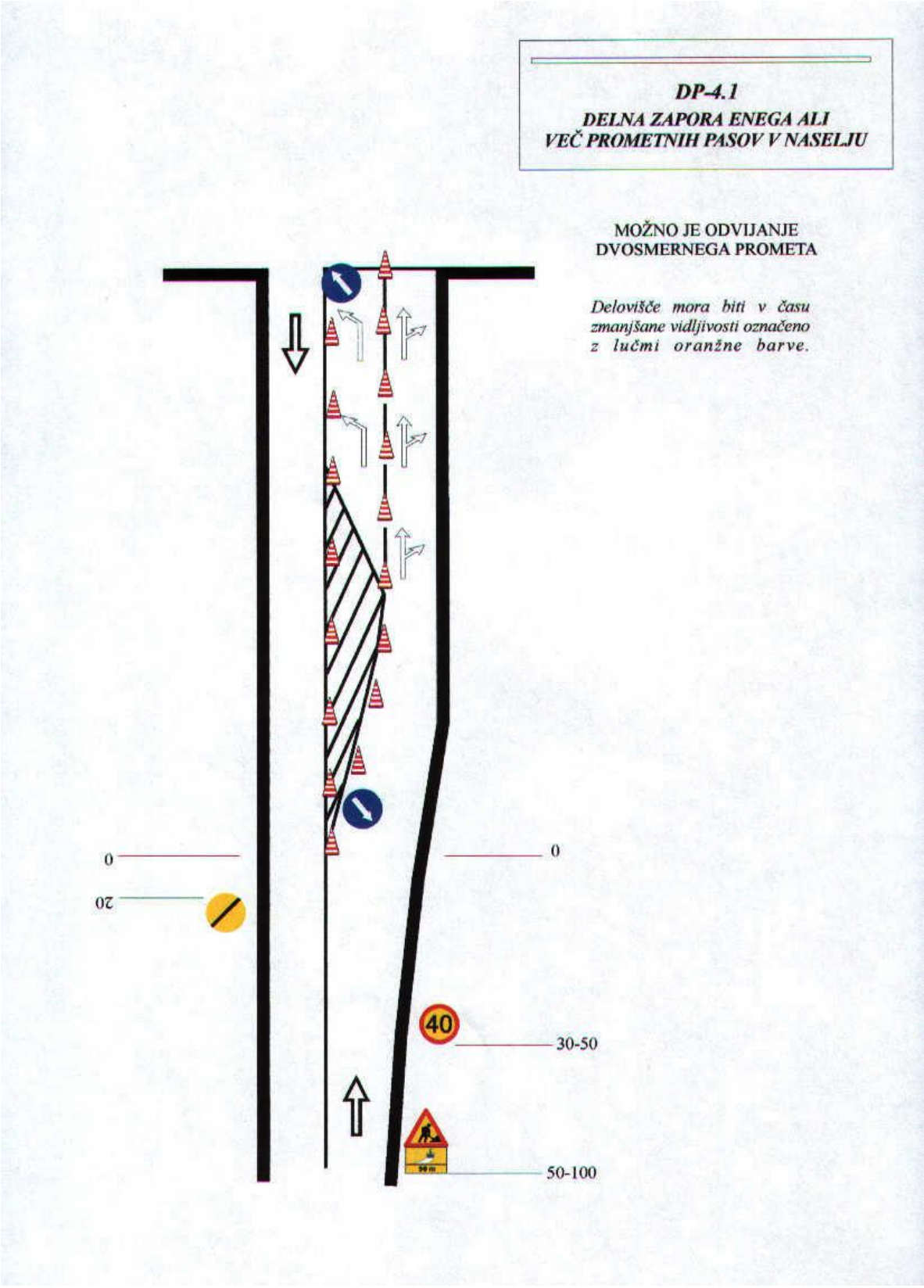
3.2.20.9 DP 3.1 - PARTIAL CARRIAGEWAY CLOSURE WITH TRAFFIC LIGHTS - IN A POPULATED AREA



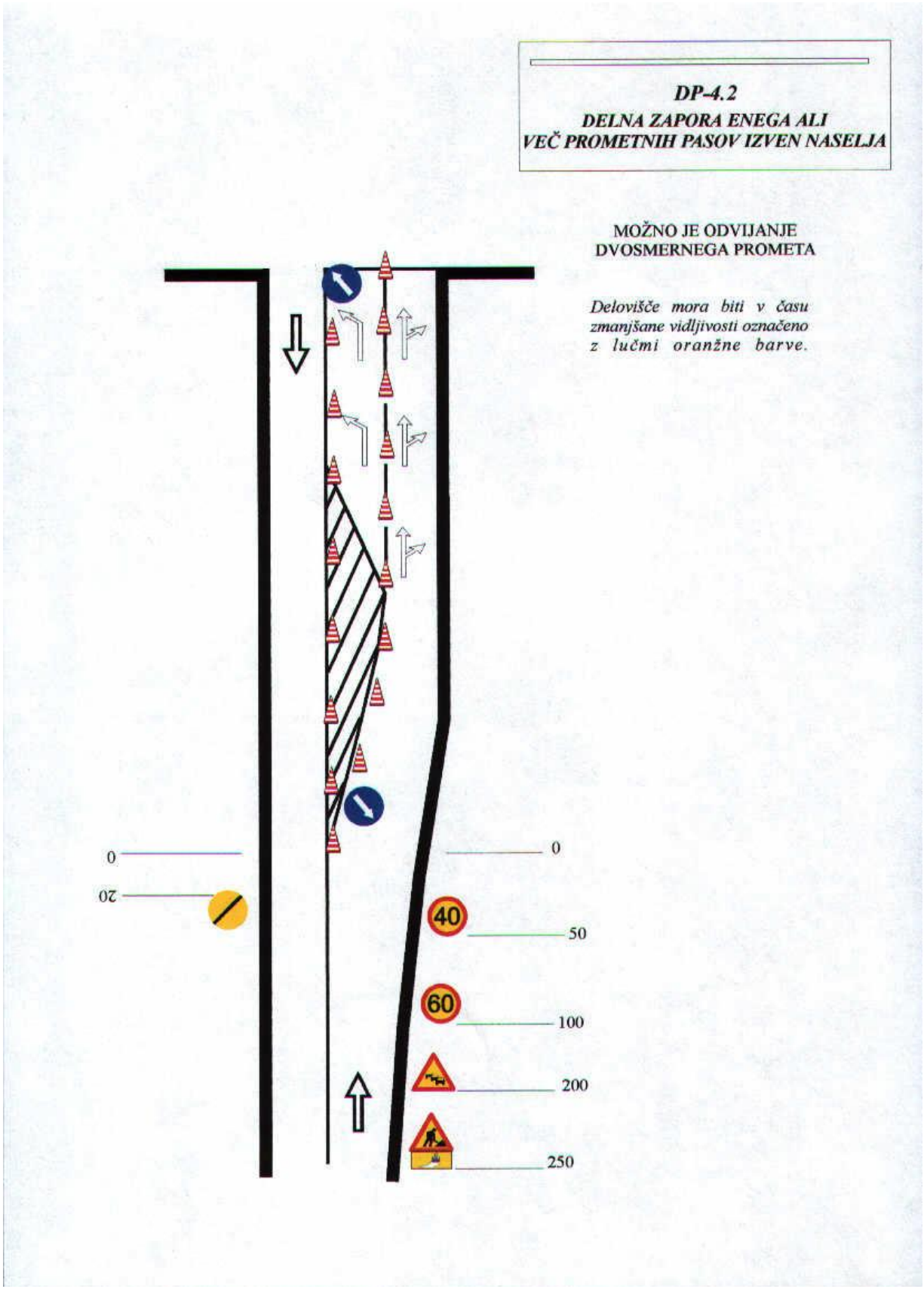
3.2.20.10 DP 3.2 - PARTIAL CARRIAGEWAY CLOSURE WITH TRAFFIC LIGHTS - OUTSIDE POPULATED AREAS



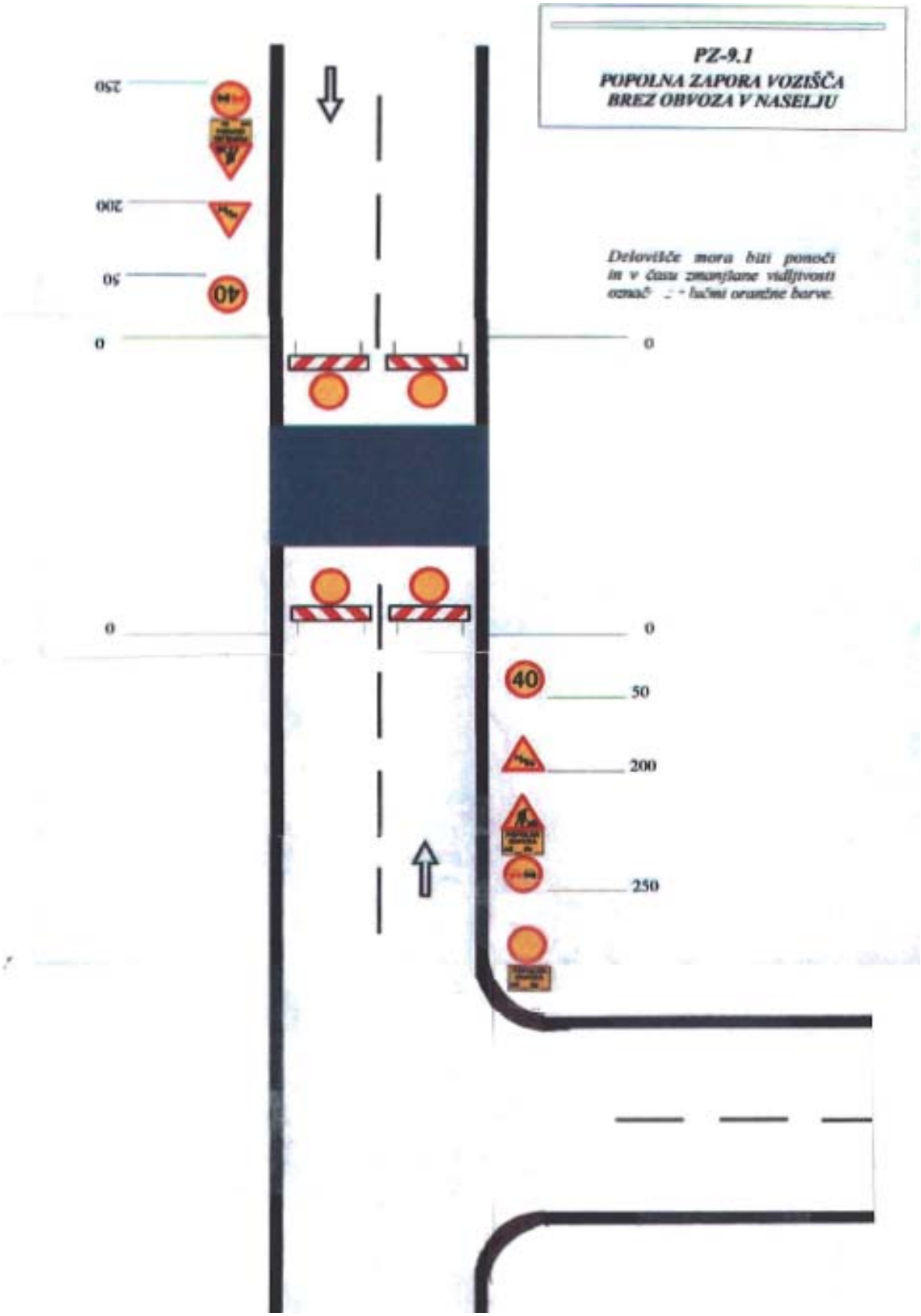
3.2.20.11 DP 4.1 - PARTIAL CLOSURE OF ONE OR MORE LANES - IN A POPULATED AREA



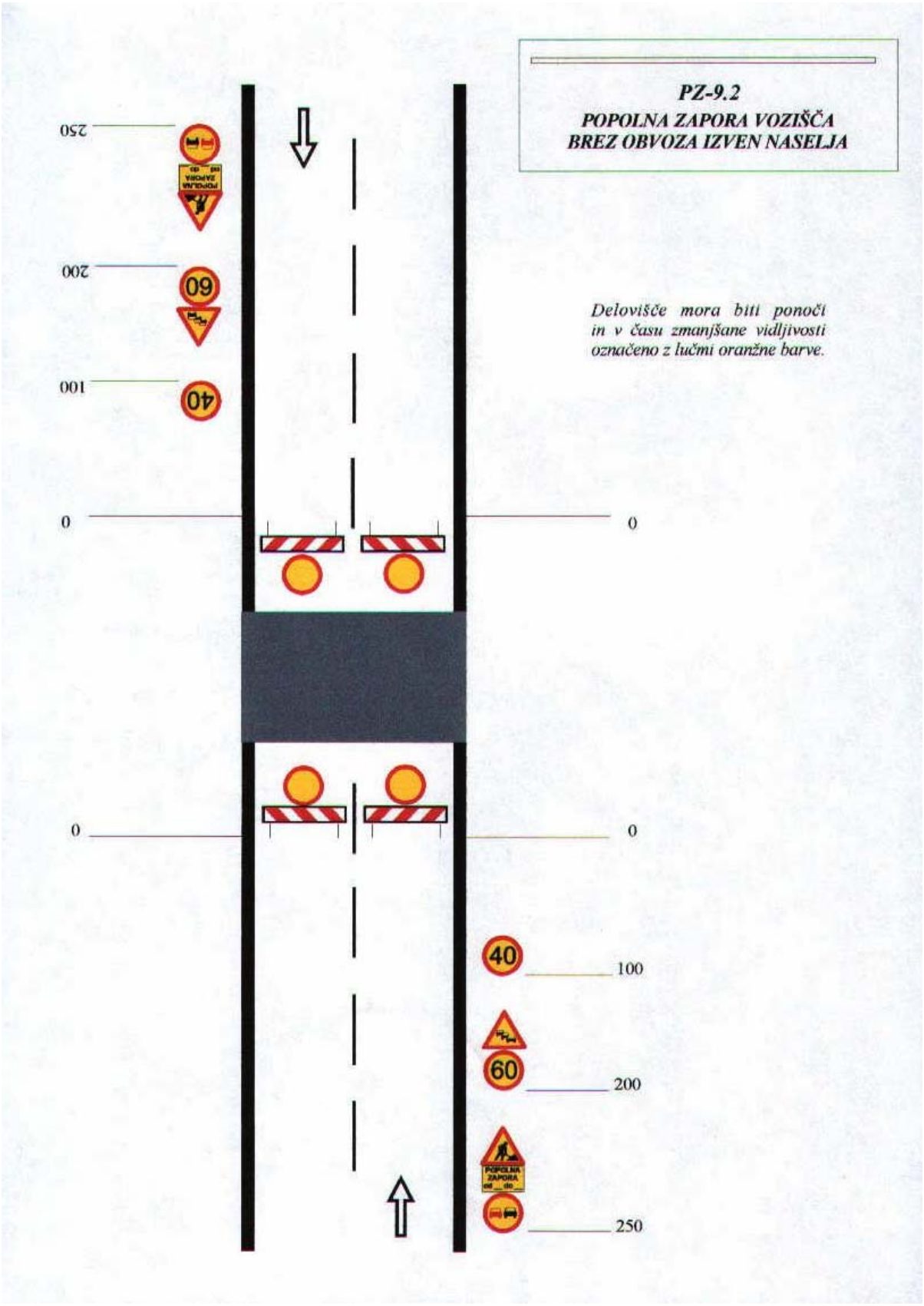
3.2.20.12 DP 4.2 - PARTIAL CLOSURE OF ONE OR MORE LANES - OUTSIDE POPULATED AREAS



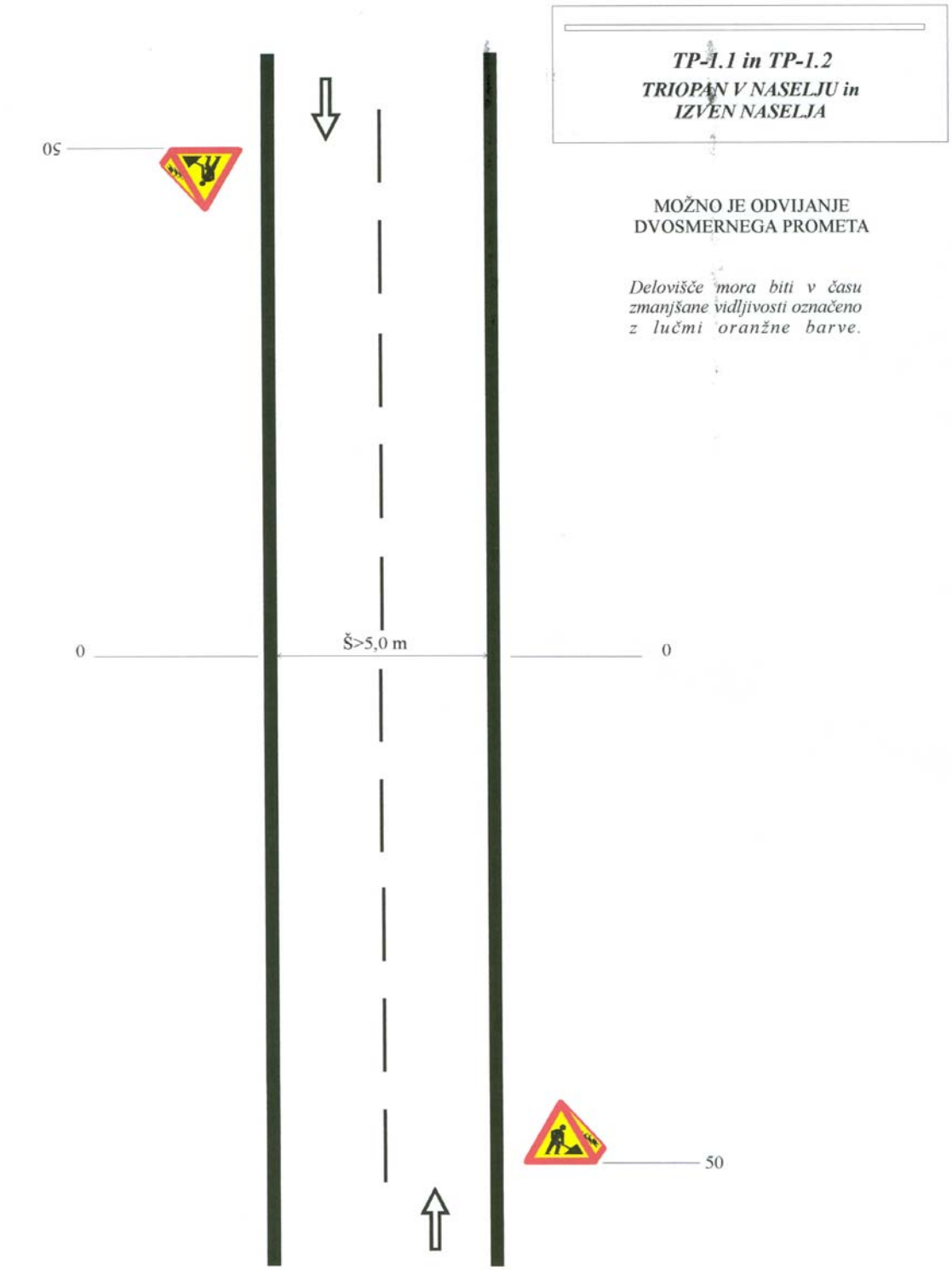
3.2.20.13 DP 9.1 FULL CARRIAGEWAY CLOSURE - IN A POPULATED AREA



3.2.20.14 DP 9.2 FULL CARRIAGEWAY CLOSURE - OUTSIDE POPULATED AREAS



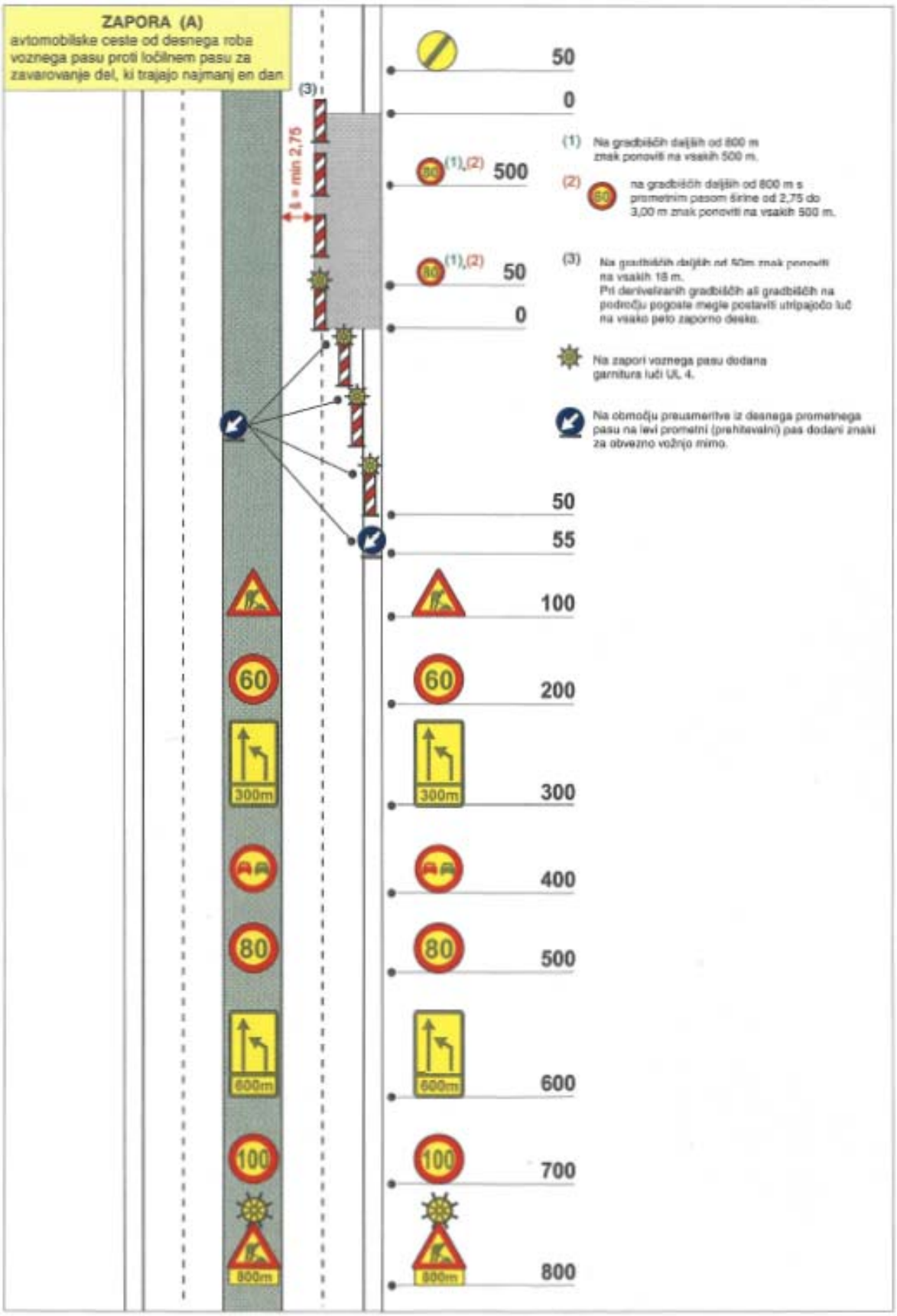
3.2.20.15 TP-1.1 I TP-1.2 - TRIOPAN SIGNS - IN OR OUTSIDE POPULATED AREAS



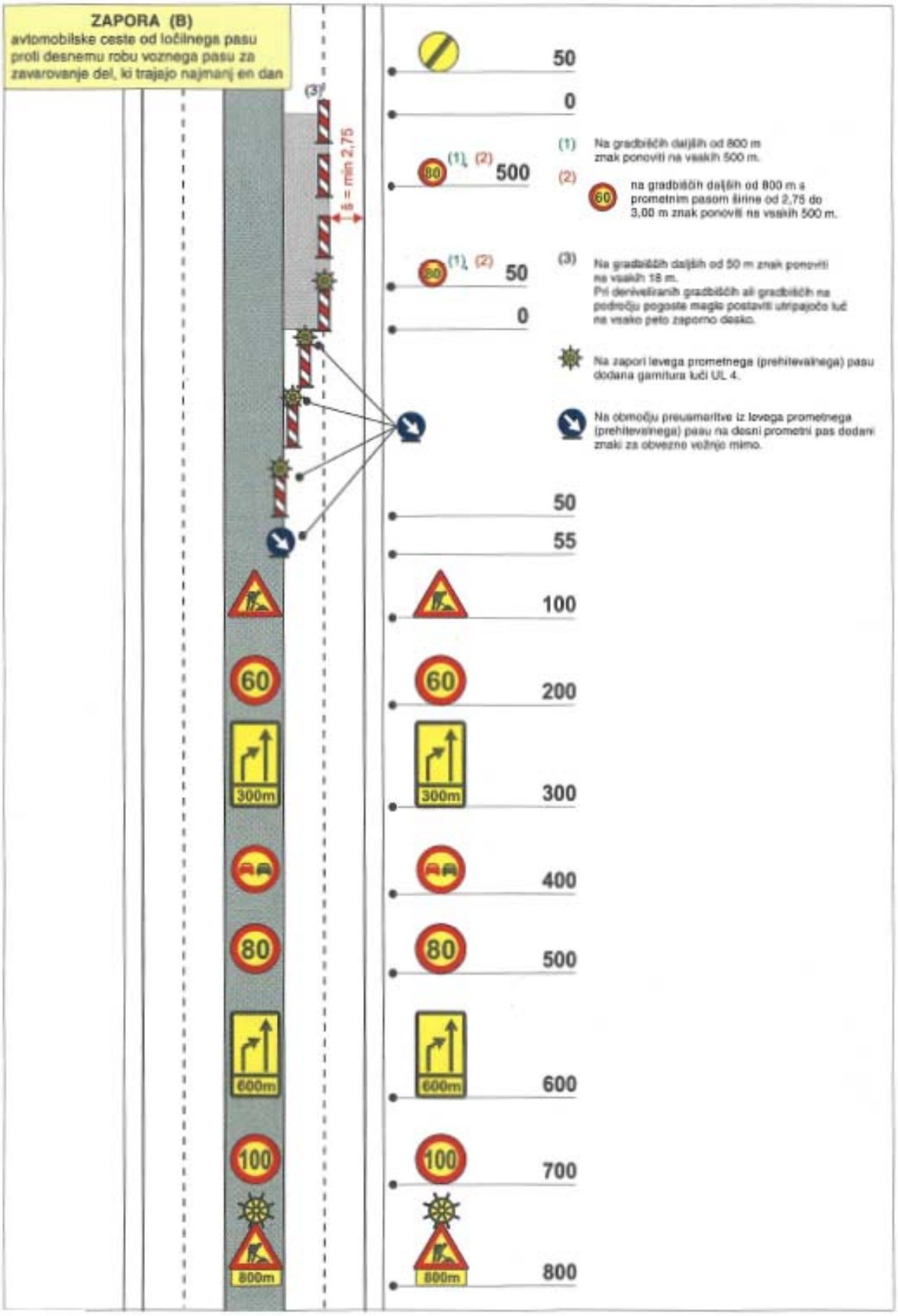
3.2.20.16 MZ-1.1 I MZ-1.2 - MOBILE CLOSURE - IN OR OUTSIDE POPULATED AREAS

3.2.20.17 MZ-2.1 I MZ-2.2 - MOBILE CLOSURE - IN OR OUTSIDE POPULATED AREAS – SURFACE MARKINGS

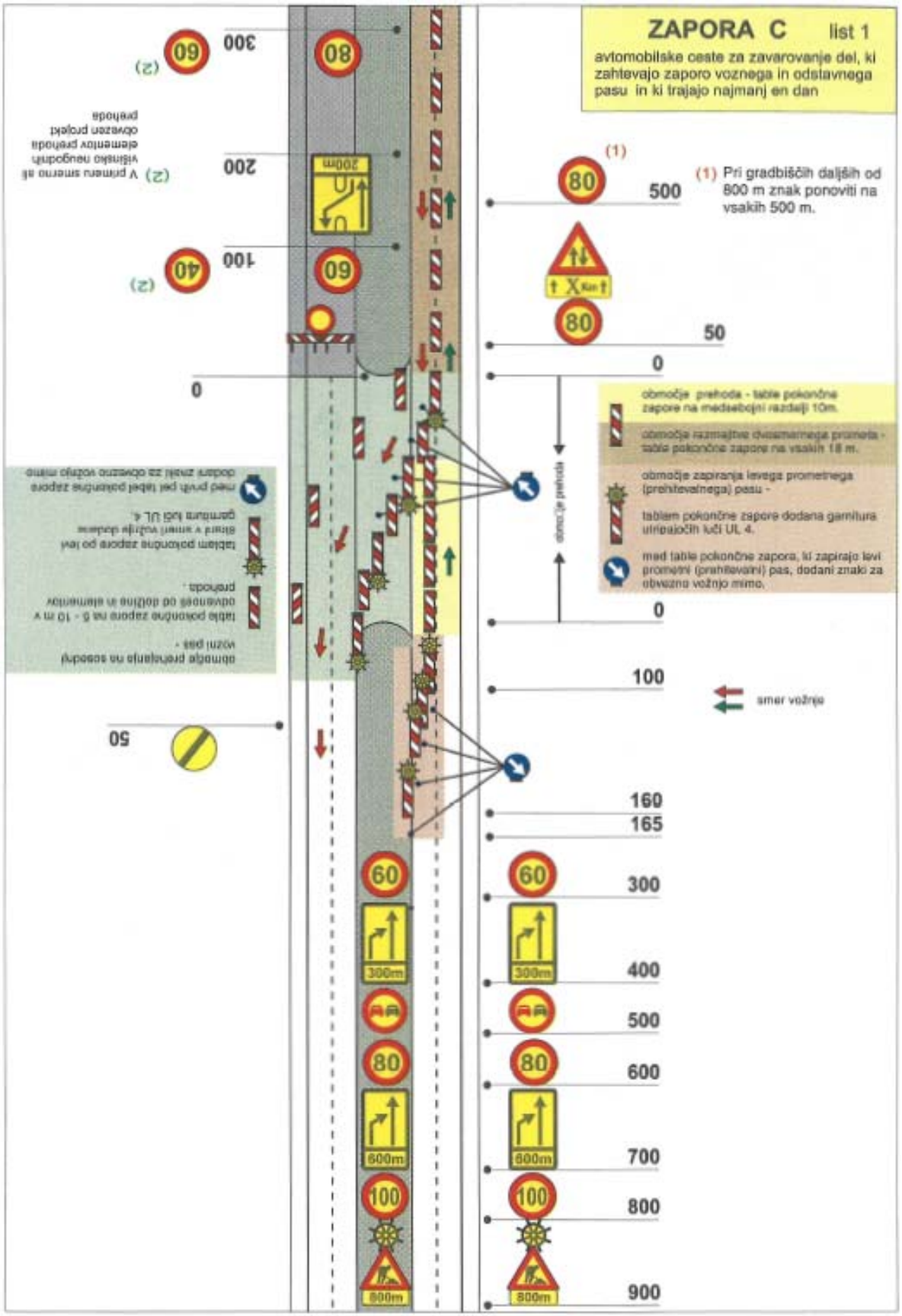
3.2.20.18 CLOSURE A ON MOTORWAY

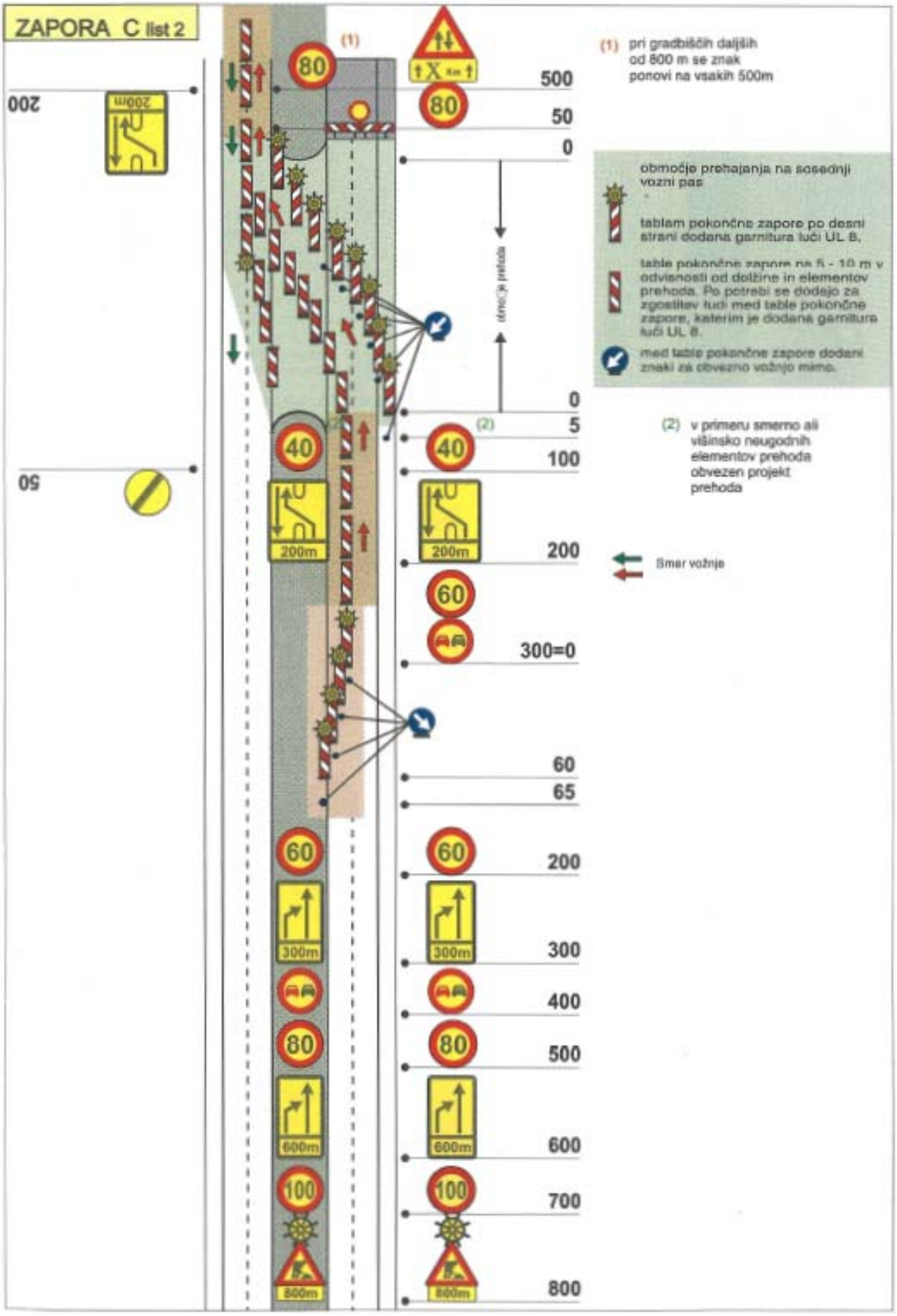

ZAPORA (A)
avtomobilske ceste od desnega roba voznega pasu proti ločilnem pasu za zavarovanje del, ki trajajo najmanj en dan
(3)
l = min 2,75
50
0
(1) Na gradbiščih daljših od 800 m znak ponoviti na vsakih 500 m.
(1),(2) 500
(2) na gradbiščih daljših od 800 m s prometnim pasom širine od 2,75 do 3,00 m znak ponoviti na vsakih 500 m.
(1),(2) 50
0
(3) Na gradbiščih daljših od 50m znak ponoviti na vsakih 18 m.
Pri deriviziranih gradbiščih ali gradbiščih na področju pogoste megle postaviti utripajočo luč na vsako peto zaporno desko.
Na zapori voznega pasu dodana garnitura luči UL 4.
Na območju preusmeritve iz desnega prometnega pasu na levi prometni (prehitevalni) pas dodani znaki za obvezno vožnjo mimo.
50
55
100
60
60
200
300m
300m
300
400
80
80
500
600m
600m
600
100
100
700
800m
800m
800

1. CLOSURE B ON MOTORWAY

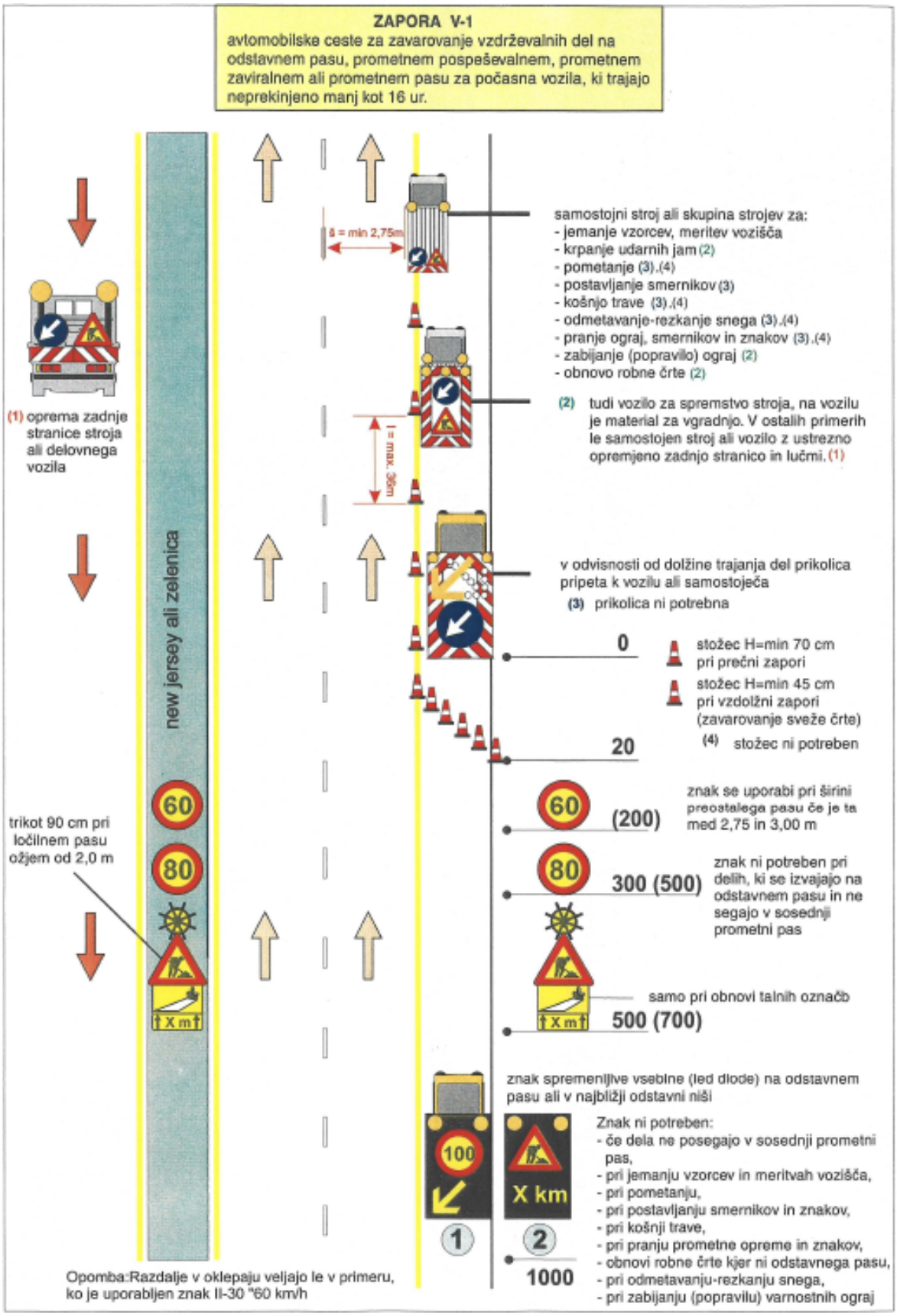


2. CLOSURE C ON MOTORWAY

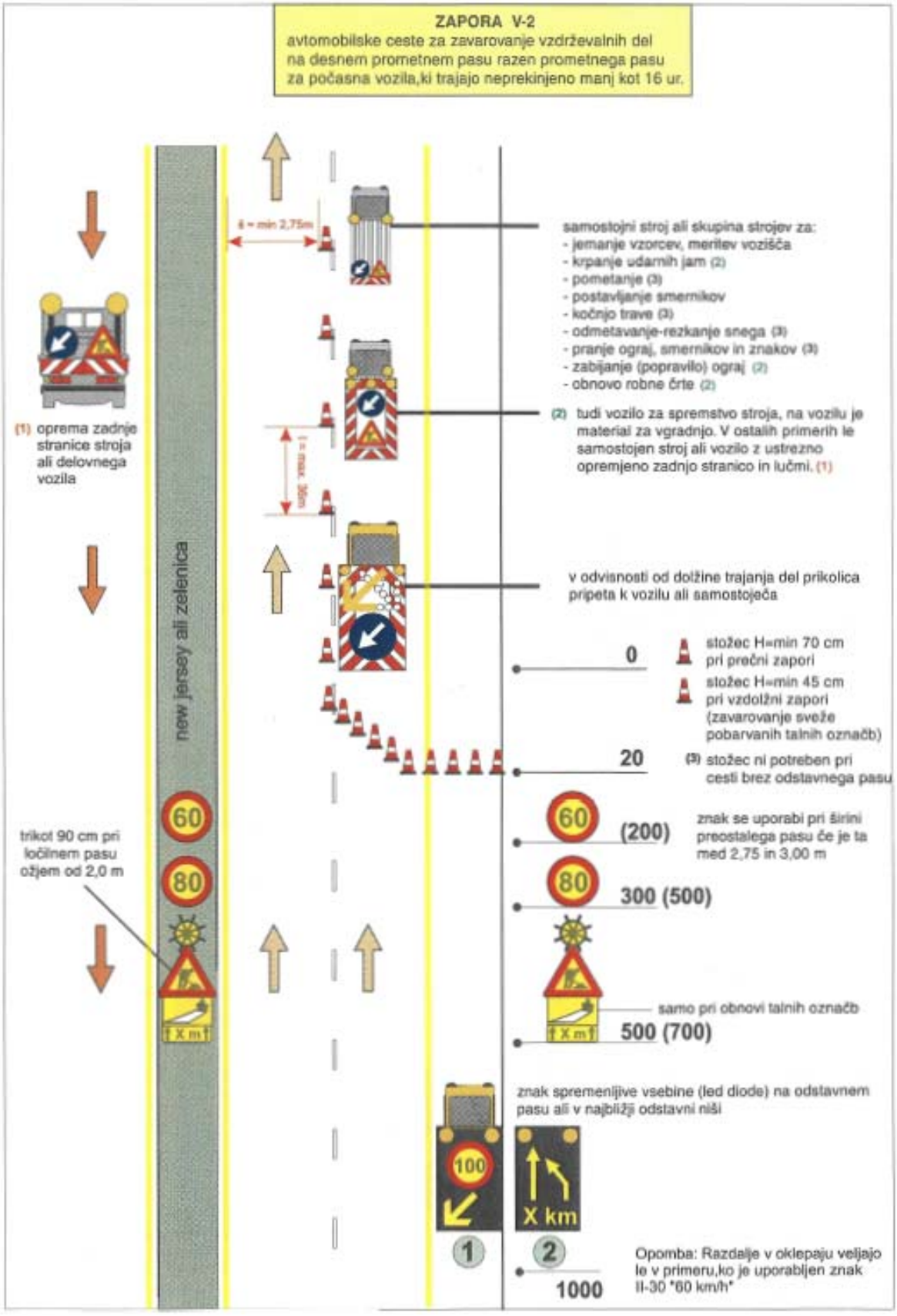



ZAPORA C list 2
(1) pri gradbiščih daljših od 800 m se znak ponovi na vsakih 500m
območje prehajanja na sosednji vozni pas
tablam pokončne zapore po desni strani dodana garnitura luči UL 8,
table pokončne zapore na 5 - 10 m v odvisnosti od dolžine in elementov prehoda. Po potrebi se dodajo za zgostitev luči med table pokončne zapore, katerim je dodana garnitura luči UL 8.
med table pokončne zapore dodani znaki za obvezno vožnjo mimo.
(2) v primeru smerno ali višinsko neugodnih elementov prehoda obvezen projekt prehoda
Smer vožnje
dolžina prehoda
200
50
500
50
0
0
5
100
200
300=0
60
65
200
300
400
500
600
700
800
200m
300m
600m
800m

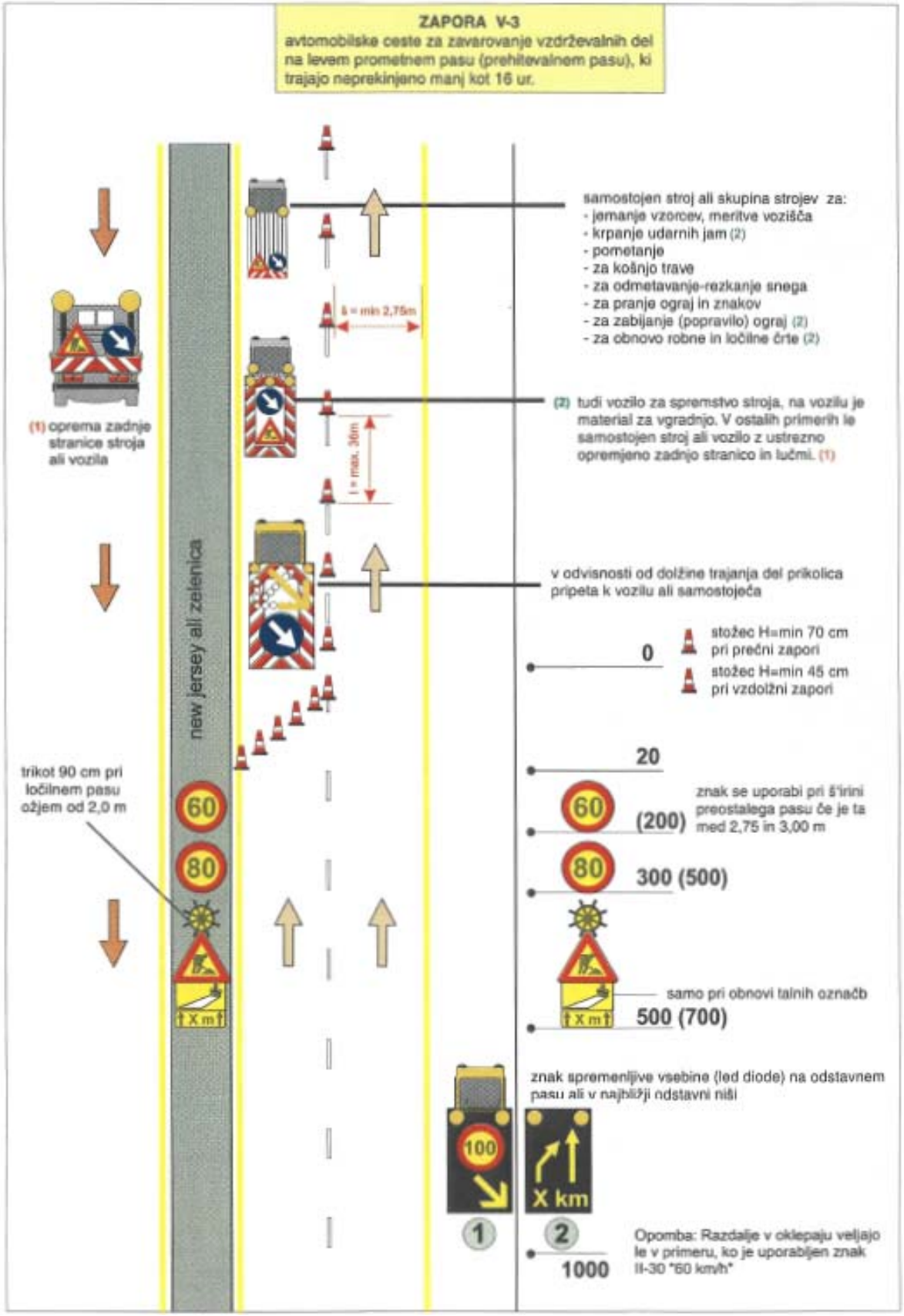
3.2.20.19 CLOSURE V-1 ON MOTORWAY



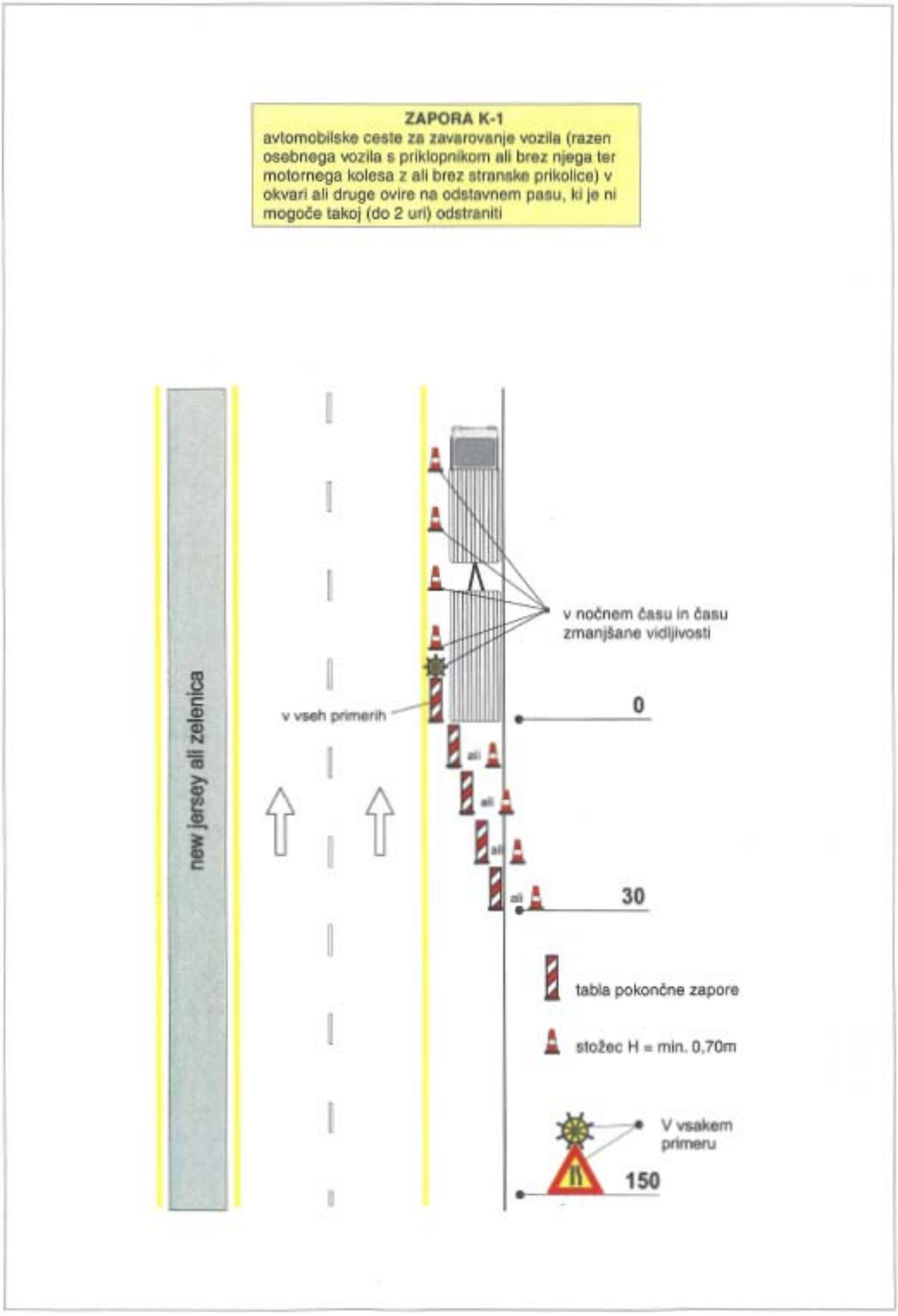
3.2.20.20 CLOSURE V-2 ON MOTORWAY



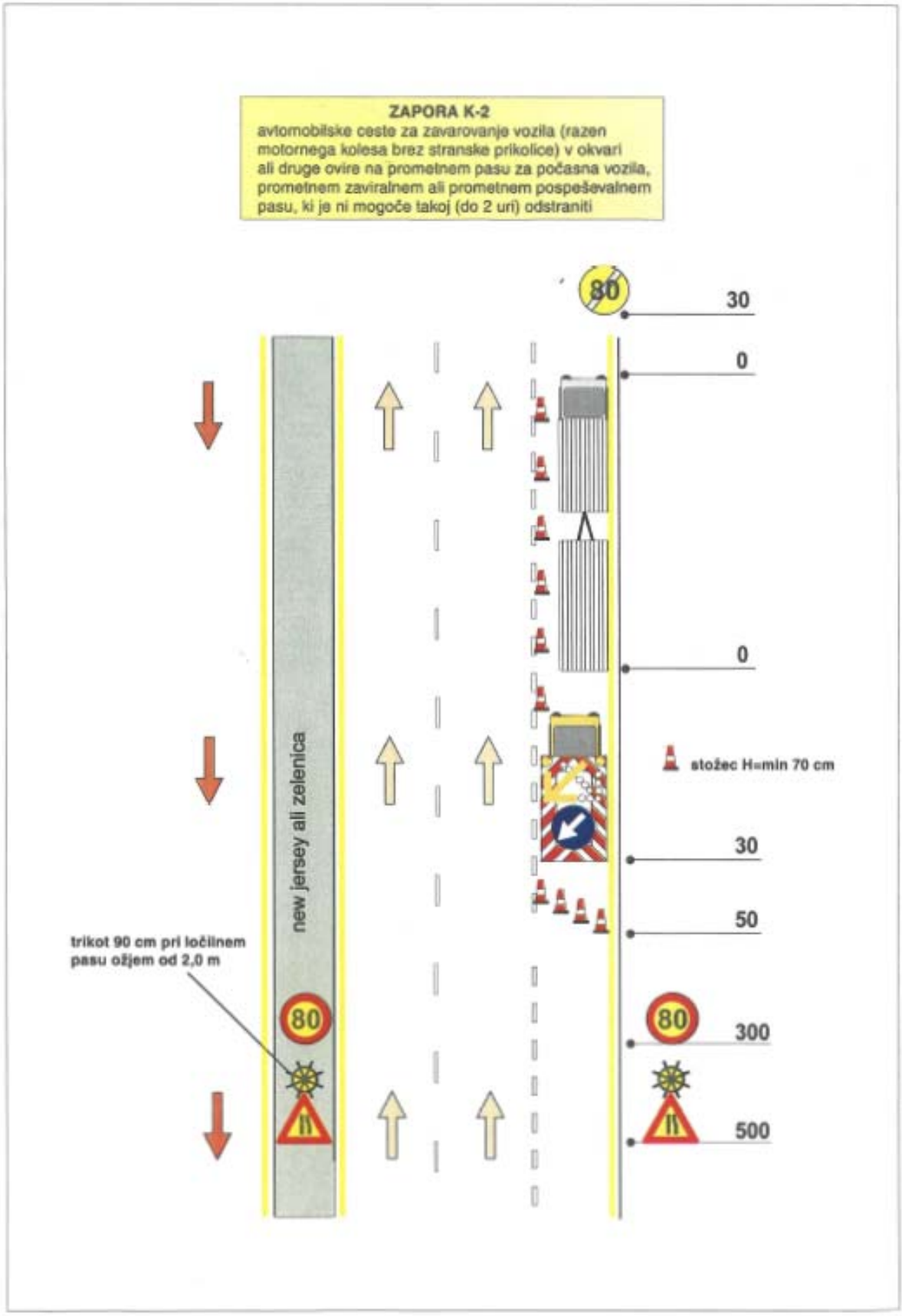
3.2.20.21 CLOSURE V-3 ON MOTORWAY



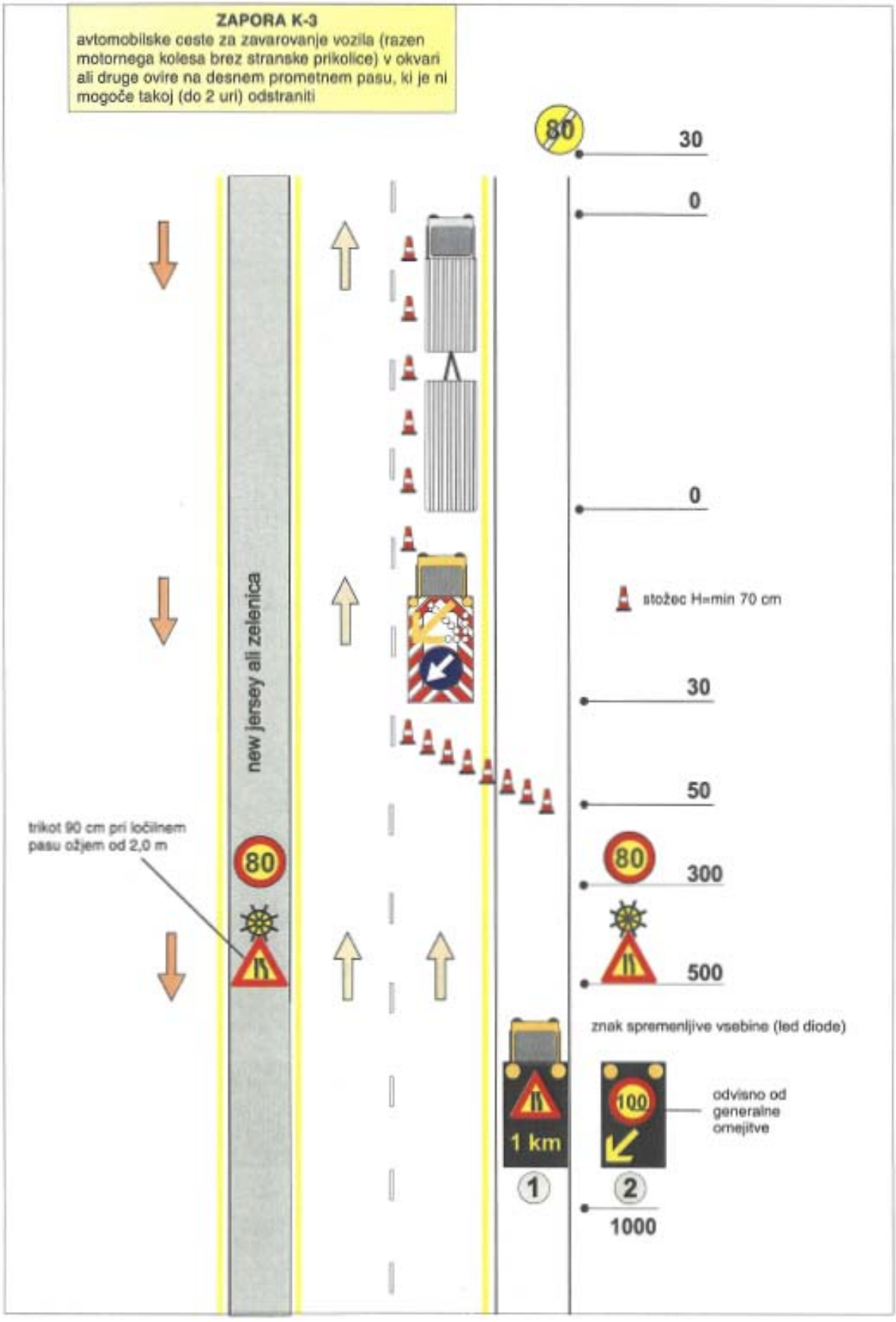
3.2.20.22 CLOSURE K-1 ON MOTORWAY



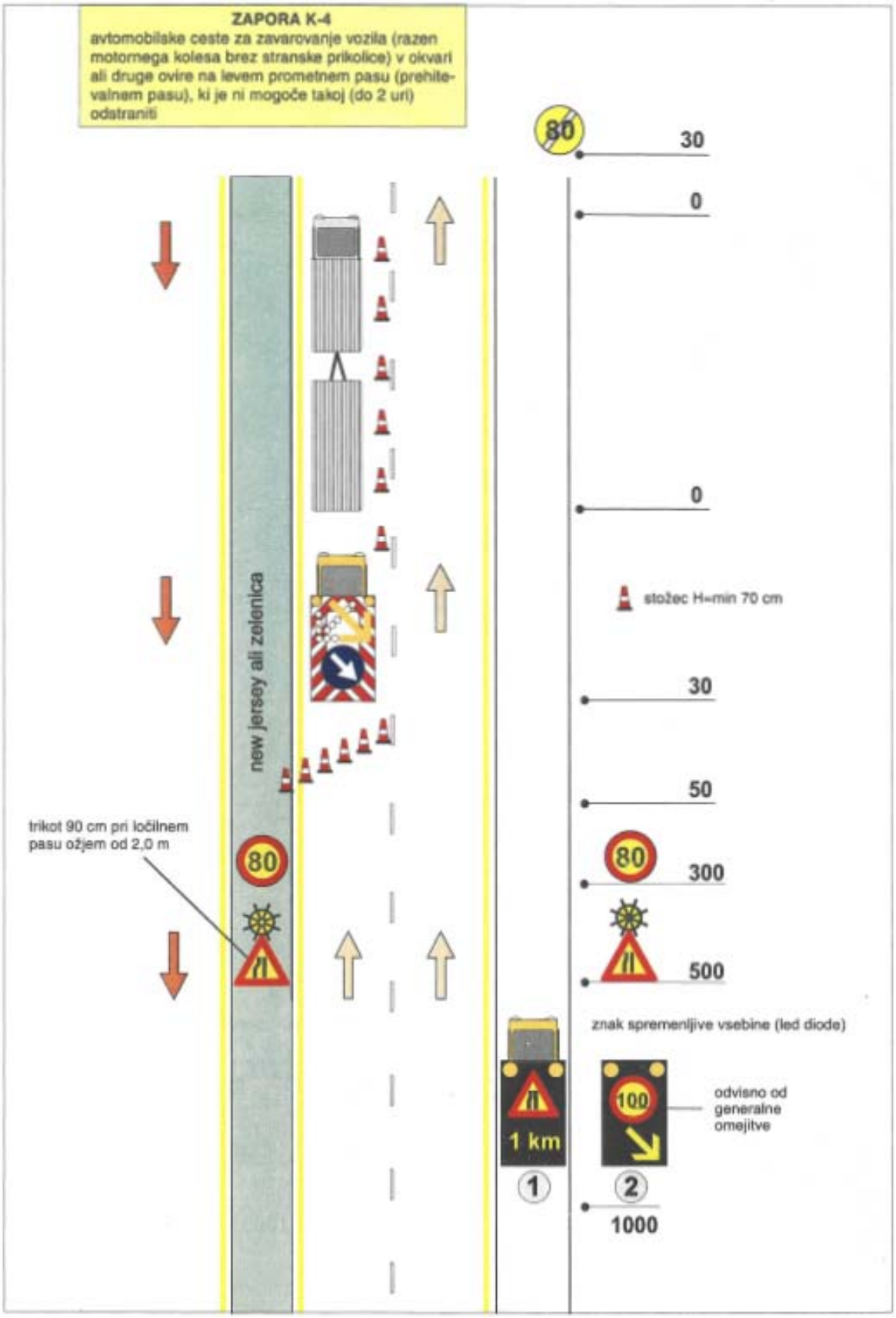
3.2.20.23 CLOSURE K-2 ON MOTORWAY



3.2.20.24 CLOSURE K-3 ON MOTORWAY



3.2.20.25 CLOSURE K-4 ON MOTORWAY



3.2.20.26 LIST OF TRAFFIC AND SPECIAL SIGNS

Tabela 1: PREGLED PROMETNIH IN POSEBNIH ZNAKOV, KI SE UPORABLJAJO PRI IZVEDBI ZAPOR TIPA A, B, C, K in V

ZNAK				
slika	šifra	pomen	dimenzija	opomba
	I-5.1 I-5.2	zoženje ceste z desne strani zoženje ceste z leve strani	t 120 (T 90)	folija tip II, višina postavitve 1,2- 1,4m
	I-19	delo na cesti	t 120 (T 90)	folija tip II, višina postavitve 1,2- 1,4m
	I-23	dvosmerni promet	t 120 (T 90)	folija tip II, višina postavitve 1,2- 1,4m
	II-3	prepovedan promet v obeh smereh	ti 90	folija tip II, višina postavitve 1,2- 1,4m
	II-28	prepovedano prehitevanje	ti 90	folija tip II, višina postavitve 1,2- 1,4m
	II-30	omejitev hitrosti	ti 90	folija tip II, višina postavitve 1,2- 1,4m
	II-45	obvezna vožnja mimo po desni strani	ti 90	folija tip II, višina postavitve 0,3m
	II-45.1	obvezna vožnja mimo po levi strani	ti 90	folija tip II, višina postavitve 0,3m
	III-27	preneha nje omejitve hitrosti	ti 90	folija tip II, višina postavitve 1,2- 1,4m
	III-29	preneha nje vseh prepovedi	ti 90	folija tip II, višina postavitve 1,2- 1,4m
	III-63.2 III-63.3	tabla čelne zapore	min 150/25	folija min. tip I, višina postavitve 1,0m
	III-63.6 III-63.7	tabla pokončne zapore	min 25/100	folija min. tip I, višina postavitve 0,1-0,3m
	III-71.2	zapiranje prometnega pasu	125/180 (90/130)	folija tip II, višina postavitve 1,2- 1,4m
	III-71.3	zapiranje prometnega pasu	125/180 (90/130)	folija tip II, višina postavitve 1,2- 1,4m
	III-72.2	predznak za preusmeritev prometa na cestah z dvema voznima pasovoma	125/180 (90/130)	folija tip II, višina postavitve 1,2- 1,4m
	III-72.3	predznak za preusmeritev prometa na cestah z dvema voznima pasovoma	125/180 (90/130)	folija tip II, višina postavitve 1,2- 1,4m
	III-72.4	predznak za preusmeritev prometa na cestah z dvema voznima pasovoma	125/180 (90/130)	folija tip II, višina postavitve 1,2- 1,4m
	IV-1	znak velja čez x m	120/35 (90/30)	folija tip II, višina postavitve 1,2- 1,4m
	IV-2	znak velja na dolžini x m	120/35 (90/30)	folija tip II, višina postavitve 1,2- 1,4m
	IV-6	barvanje ceste	120/60 (90/45)	folija tip II, višina postavitve 1,2- 1,4m

Opomba: Vrednosti v oklepaju se nanašajo na velikost znakov na levi strani voznega pasu AC pri katerih je ločilni pas ožji od 2,0 m!