

RoadPro

Road builder plugin for AutoCAD
User guide and command shortcuts

Version 3.2 · 09 October 2026

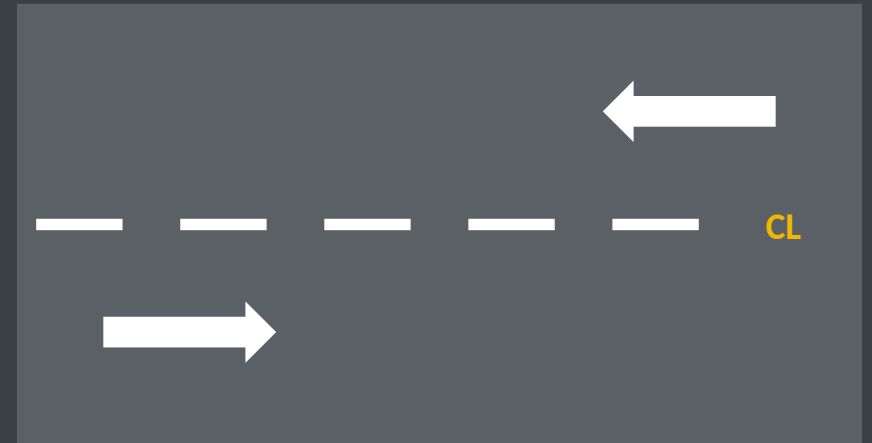
Type

RDP

to start

Developed by www.exceltokml.com

Plan view built by one command



One command builds the complete road



Road and edges

Width both sides of the CL, CL linetype, surface hatch, chainage



Turning radius

Every bend filleted, default 10 m at the centre line



Barricades

Red and white units, black outline, left / right / median



Widening, tapers, junctions

Extra lane (RDW), width change (RDT), junction (RDJ)



Signs and markings

Sign posts and schedule, lane and edge lines, arrows



Radius and sections

C1 curve data and S1 straight data on the plan



Cross sections

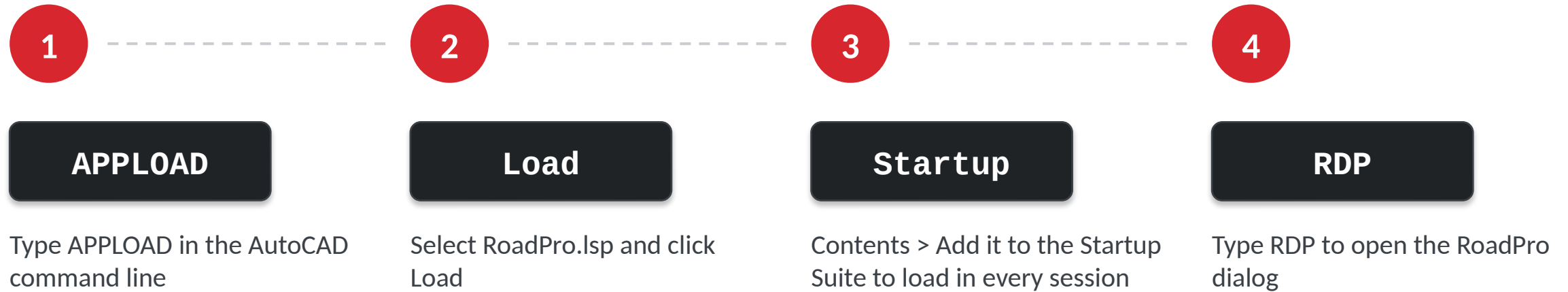
Layers, crossfall, barricade and sign heights, dims



Report and Excel

Tables in the drawing plus a CSV file for Excel

Install and load in under a minute



Before you start

- Full AutoCAD, Civil 3D or Map 3D 2013 or newer (AutoCAD LT is not supported)
- Type all sizes in metres. For millimetre drawings choose Millimeters in the dialog
- Save the DWG first: the Excel report is saved in the drawing folder

All commands and shortcuts

FULL COMMAND	SHORTCUT	WHAT IT DOES
ROADPRO	RDP	Build a complete road from a centre line
ROADREPORT	RDR	Report tables and Excel file for any RoadPro road
ROADRADIUS	RDRAD	Add radius, TC / CT and curve data to the plan
ROADSECTIONS	RDSEC	Add straight section labels S1, S2 ... to the plan
ROADXSEC	RDX	Cross sections: typical, one chainage, every interval
ROADWIDEN	RDW	Lane widening with taper, fillet or direct link
ROADTAPER	RDT	Road taper: wider or narrower from any start to end
ROADJUNCTION	RDJ	Join a new road: junction / tie-in with kerb returns
ROADMARK	RDM	Road markings: edge lines, lane line, draw or remove
ROADPRORESET	-	Restore all settings to the factory defaults

Useful AutoCAD keys

U

Undo the whole road in one step

F2

Show the summary and file path

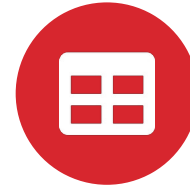
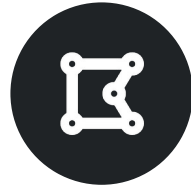
Enter

Finish the centre line or skip a prompt

Esc

Cancel the command

From centre line to finished drawing in six steps



1. Set options

RDP opens the dialog.
Defaults are ready,
press OK

2. Centre line

Pick points (Arc
allowed, Enter to
finish) or select a line

3. Auto build

Radius, edges, CL,
surface, barricades,
chainage

4. Signs and ends

Signs with IDs, tie-in or
road closed, lane
arrows

5. Report

Summary on screen,
Excel file saved, place
tables

6. Cross section

Pick a point to place
the typical section

Tip: the whole sequence runs from one command. Steps 5 and 6 ask for a placement point; press Enter to skip the drawing tables or the section. The Excel file is saved either way.

Dialog settings: road geometry, edge and centre

Road Geometry

Road name / ID	ROAD-01
Road width	7.30 m
Turning radius	Match existing / Manual
Radius measured at	Centre line (CL)
Drawing units	Meters or Millimeters
Centre line input	Pick points or select
Radius, TC / CT on plan	On
Straight sections on plan	On

Road Edge and Centre

Edge	Barricades / Cones / Kerb
Centre	Markings / Barricades / Cones
Unit length / cone spacing	2.00 m
Paved shoulder	0.50 m
Unit / cone / kerb width	0.50 m



Barricades alternate red and white. Cones and kerb are counted too. All show in plan and section.

Dialog settings: signs, surface, chainage and outputs

Signs and Markings		Surface, Markings, Chainage		Road Ends and Outputs	
Speed limit	30 km/h	Hatch road surface	SOLID, 50%	Start end	Tie-in line
Sizes by speed (HDS)	On	Centre marking	L1 / L2 / L2A	Finish end	Tie-in line
Bend ahead	Auto by speed	Chainage marks	On	Other options	Closed / None
Chevron boards	On	Interval	20 m	Report + Excel	On
Sign set	Permanent / Road works	Start chainage	0 m	Typical section	On
Delineator posts	On	Text height	1.0 m	Two-way traffic	On
At tie-in	STOP / GIVE WAY				
Symbol / spacing	2.0 m / 15 m				

Everything on its own layer



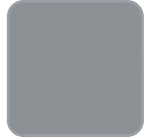
ROAD - CL

Centre line, CL linetype



ROAD - EDGE

Left and right edges



ROAD - SURFACE

Surface hatch



ROAD - BARRIER - RED

Red barricade fill



ROAD - BARRIER - WHITE

White barricade fill



ROAD - BARRIER - OUTLINE

Black outline



ROAD - CHAINAGE

Ticks and labels



ROAD - CURVE

Radius, TC / CT, C1



ROAD - SECTION

Straights S1, S2



ROAD - SIGN*

Posts, plates, symbols



ROAD - MARKING*

Lane arrows



ROAD - TIEIN

Tie-in line and E / N



ROAD - REPORT

Tables and legend



ROAD - XSEC*

Cross section parts



ROAD - WIDENING

Widening / taper labels



ROAD - JUNCTION

Junction labels, corner R

Signage placed automatically, traffic keeps right



Road works ahead

Entry of each direction



Speed limit

One spacing after entry



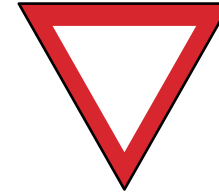
Bend ahead

Distance by speed



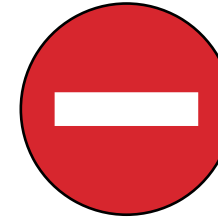
STOP

Before each tie-in



Give way

Option at tie-ins



No entry

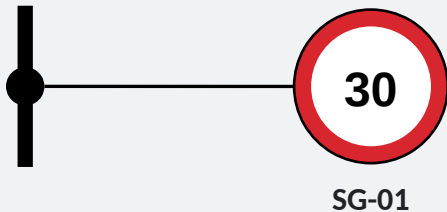
Far end, one-way road



Keep right

Median nose

How each sign is drawn on the plan



Post and plate

Black dot outside the barricade, plate faces the traffic

Leader, symbol and ID

IDs SG-01, SG-02 ... follow the chainage order

Also drawn

- Chevron boards on the outside of bends
- ROAD CLOSED boards at closed ends
- White lane arrows on straights
- Sign schedule with E / N of every post

Radius and road sections on the plan

Every curve

RDRAD

C1

R inner = 10.000 m
R CL = 13.650 m
R outer = 17.300 m
L (CL) = 21.441 m
A = 156.52 m²
Δ = 90°00'00"

Radius line with arrow from the centre point, R value on the line, TC and CT ticks across the road with chainage.

Every straight

RDSEC

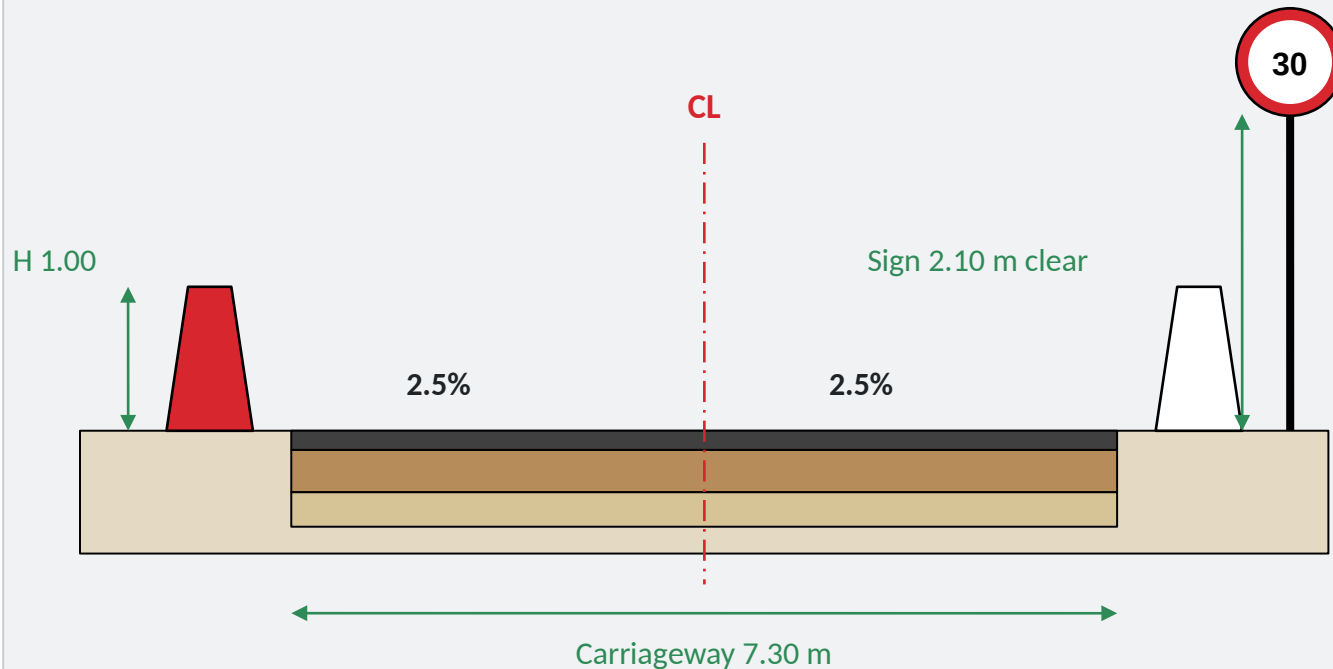
S1 STRAIGHT

L = 45.230 m
A = 330.18 m²
CH 0+012.000 - 0+057.230
BRG 45°12'30"

Extent bar with end ticks on the right side, label parallel to the road. Bearing is whole-circle from North.

Cross sections with widths and heights

Typical section (simplified)



RDX

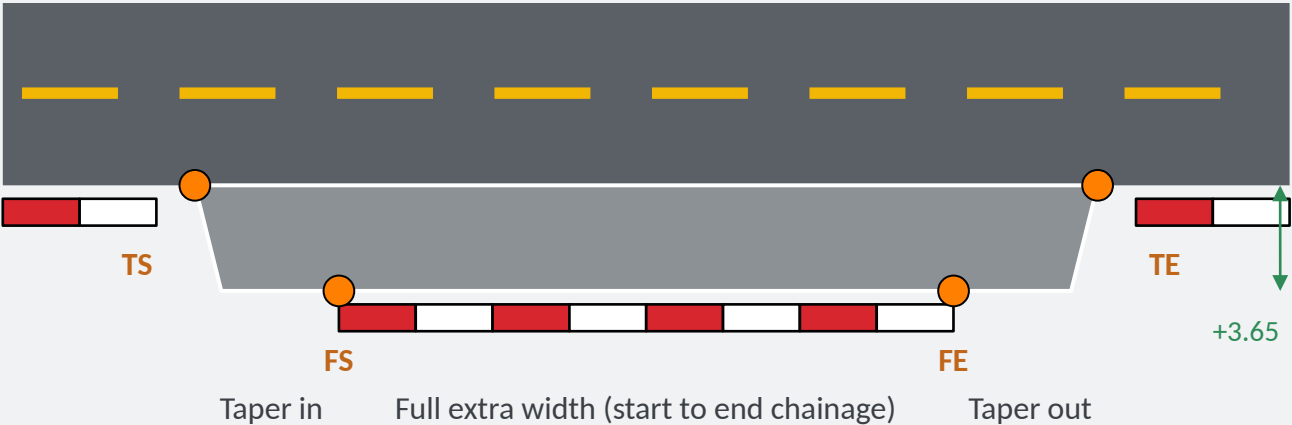
Three ways to draw

- 1 Typical**
One generic section for the whole road
- 2 One chainage**
Type the chainage, note shows curve or straight
- 3 Every interval**
A sheet of sections, 3 per row, up to 60

Defaults: crossfall 2.5%, layers 50 / 200 / 150 mm, barrier 1.00 m high, sign clearance 2.10 m. Replace with your project values.

Lane widening with tapers and match points

Plan view (right side widening)



RDW

Select the centre line

Side	Left / Right / Both
Extra width	3.65 m
Start / end chainage	your input
Taper in / out	30 m / 30 m
Taper type	Straight or Curve
Match point	Fillet R or Direct link
Fillet radius	30 m
Barricades	moved to new edge
Both sides	own chainage + R

Straight + fillet

Arc with radius R at all 4 match points (TS, FS, FE, TE). Too big? RoadPro reduces R to fit.

Straight + direct link

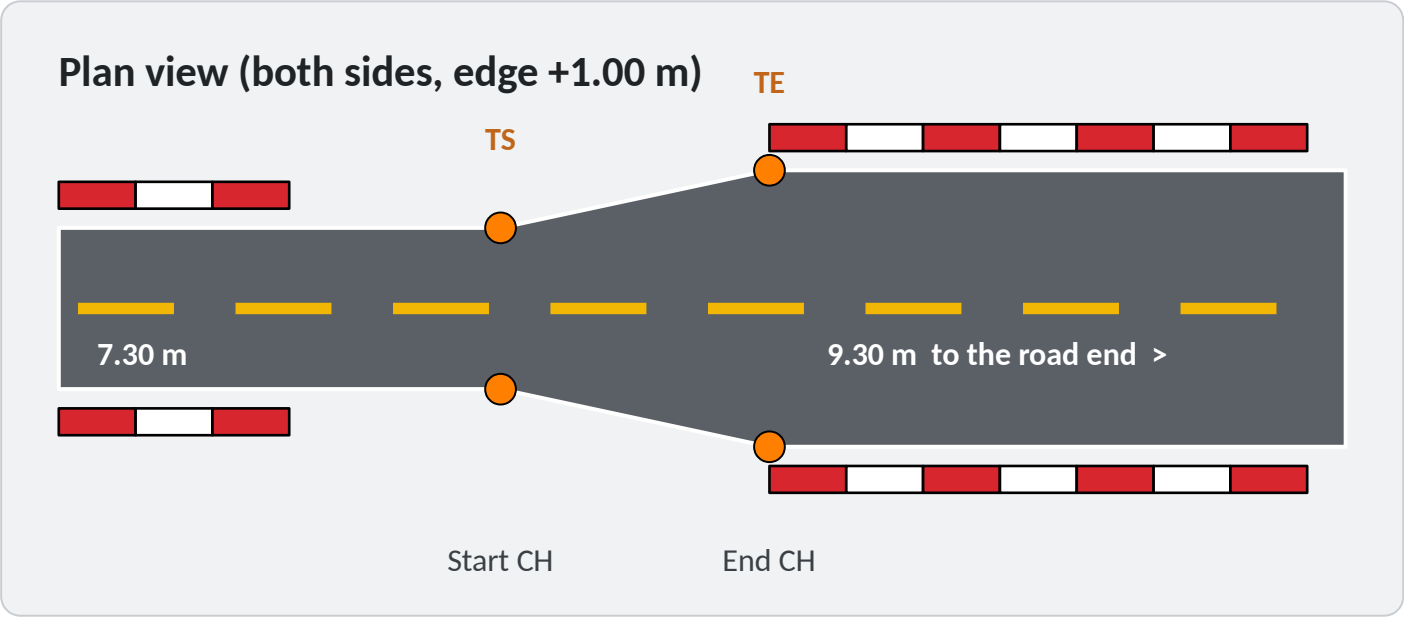
Sharp joints. The straight taper meets the edge directly at the match points.

Curve taper

Two reverse curves per taper, tangent at the match points, so no fillet is needed.

Also drawn: new edge, lane surface, lane arrow, width dimension, match points and R=.. radius marks. Run RDW again for more sections (W1, W2 ...).

Road taper anywhere: wider or narrower



Any start and end

Put the taper at any chainage: start, middle or end of the road.

Tapers add up

Run RDT again anywhere.
7.30 > 9.30 m, later 9.30 > 7.30 m.

Wider or narrower

+ shift adds hatched surface,
- shift wipes the old surface out.

RDT

Select the centre line

Side	Left / Right / Both
Taper start chainage	your input
Taper end chainage	your input
Edge shift per side	+ wider / - narrower
Taper type	Straight or Curve
Match point	Fillet R or Direct link
Fillet radius	30 m
Barricades	follow new edge
Both sides	own chainage + R

RDW = extra lane that comes back. RDT = width change that continues. Keep them on different chainage ranges of the same side.

Chainage input, both sides and radius marks

1. Type chainage your way

100

=

0+100

1250

=

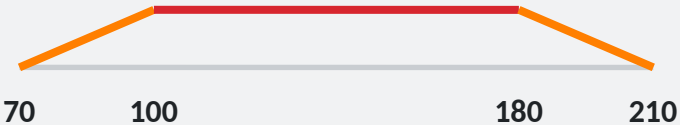
1+250

1250.5

=

1+250.5

The taper is added outside your chainages:



Start 100, End 180, tapers 30 m. Keep Start ≥ taper in, and End + taper out ≤ road end.

2. Both sides, own values

Side = Both sides, then tick Different chainage on right side.

	LEFT	RIGHT
Start / End	100 / 180	150 / 260
Taper in / out	30 / 30	20 / 40
Fillet radius	30 m	15 m

Extra width 3.65 m 3.65 m

Works in RDW and RDT. Each side gets its own match points, labels and report rows (W1-L, W1-R).

3. Every radius marked



Straight + fillet: R at every fillet

Curve taper: R on each reverse-curve arc

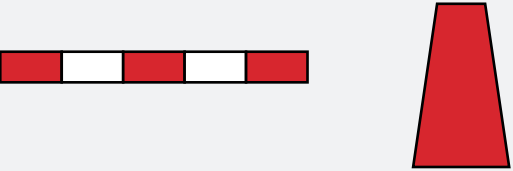
Direct link: no radius, no mark

Arrow points to the new edge, text on the pavement side. If RoadPro had to reduce R, the mark shows the real R drawn.

Road edge, paved shoulder and centre options

Barricades

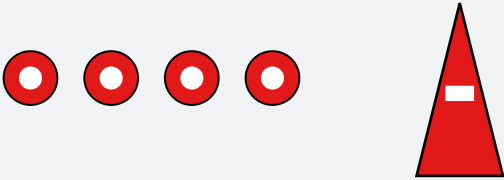
PLAN SECTION



Red / white units with black outline. Water-filled or New Jersey profile with its height in the section.

Traffic cones

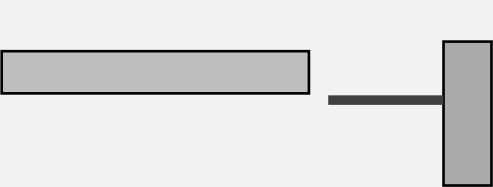
PLAN SECTION



Red cones with a white reflective band at your spacing. 0.75 m cone in the section.

Kerb stone

PLAN SECTION



Grey kerb band with black lines. Kerb with 150 mm upstand in the section.

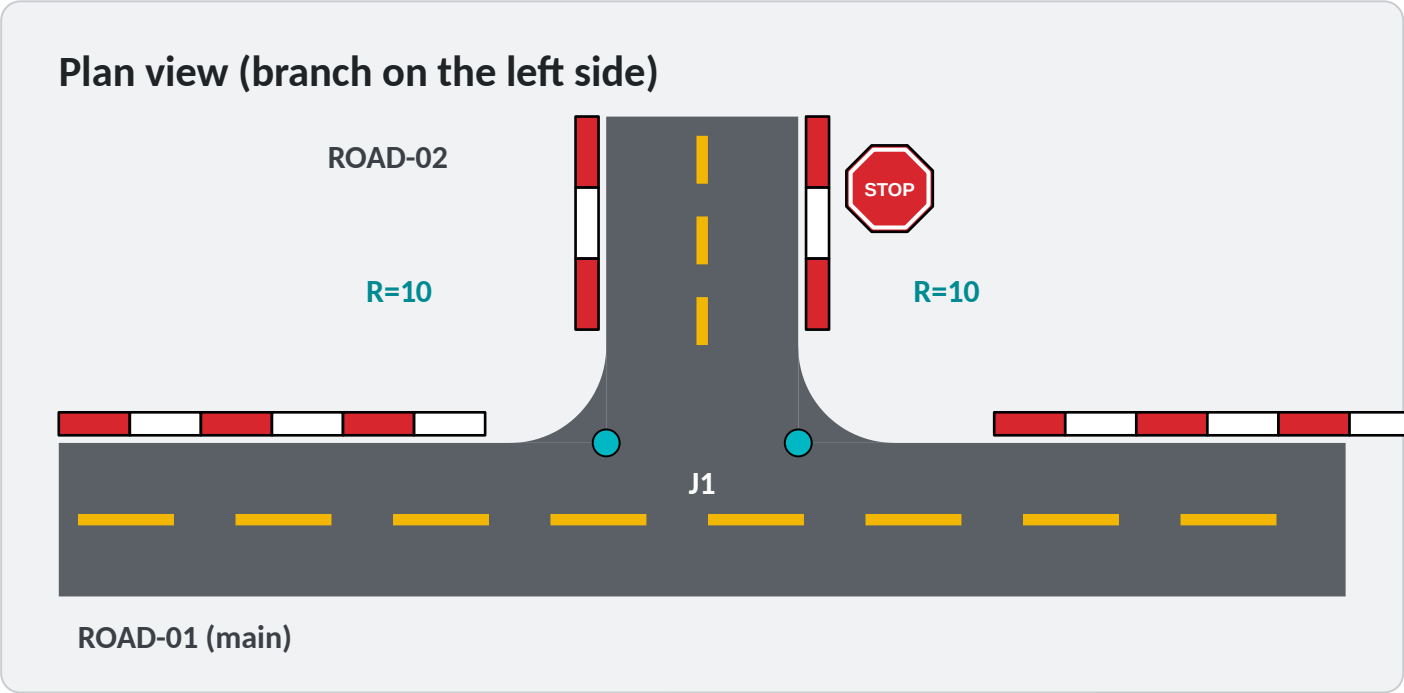
Paved shoulder

Hatched as pavement between the carriageway edge and the edge treatment, drawn with the asphalt layer in the cross section, area in the report. The yellow L4 edge line sits at the carriageway edge.

Centre

Centre line markings (no barrier) using the Centre marking setting, or a median of red / white barricades or traffic cones with KEEP RIGHT signs at the median nose.

Road junction / tie-in with kerb returns



Start on the main CL

Draw the branch from the main road centre line outward, or select a line.

Everything automatic

Edge opened, kerb returns, corner surface, barricades and STOP / GIVE WAY.

Report and setting-out

TC, IP and CT of each corner with E / N, in Excel and in the drawing.

RDJ

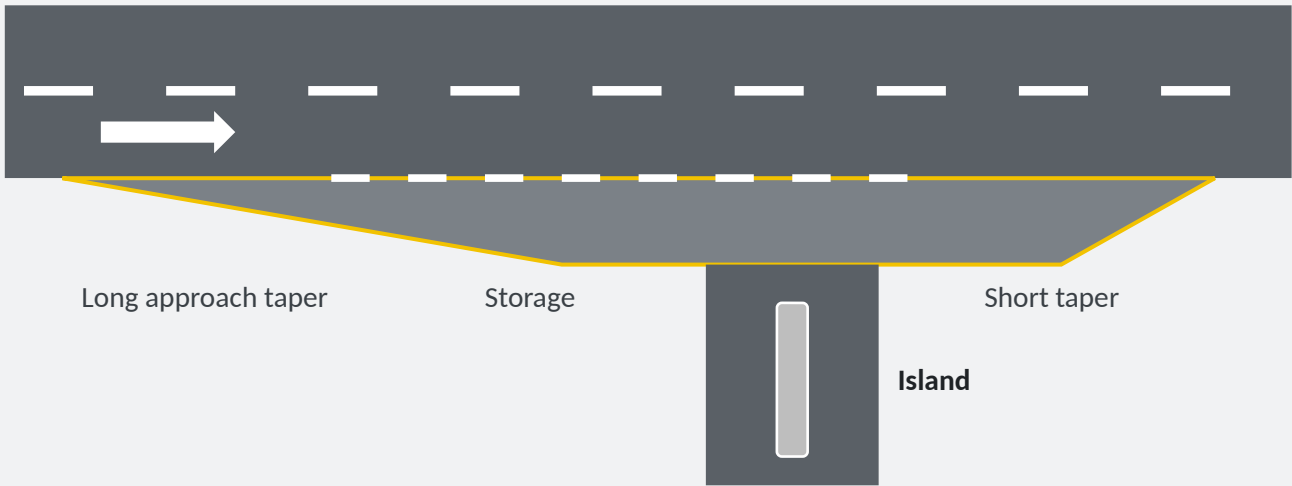
Select the MAIN road

Branch name	ROAD-02
Branch width	7.30 m
Branch centre line	Draw or select
Corner (kerb) radius	10 m
Control on branch	STOP / GIVE WAY
Corner barricades	On
Auxiliary lane	On, 60 / 30 m taper
Island	None / Kerbed / Painted
Turning-area markings	On

Run RDJ again for more branches (J1, J2 ...), on either side. For a crossroads add one branch on each side at the same chainage.

Junction: auxiliary lane and island

Plan view (branch on the right side, keep right)



Auxiliary lane

Added on the main road at the junction side: long approach taper (60 m), storage (30 m), the mouth, then a short taper (30 m).

Lines

Broken L5 (1 m / 1 m) between the through lane and the auxiliary lane; the yellow L4 edge line follows the new outer edge.

Splitter island

Kerbed (kerb outline, grey fill, KEEP RIGHT sign) or painted (white border with hatching). Stop / give-way line moves beside it.

RDJ

Dialog settings

Add auxiliary lane On

Lane width 3.65 m

Approach taper, long 60 m

Departure taper, short 30 m

Storage length 30 m

Island None / Kerbed / Painted

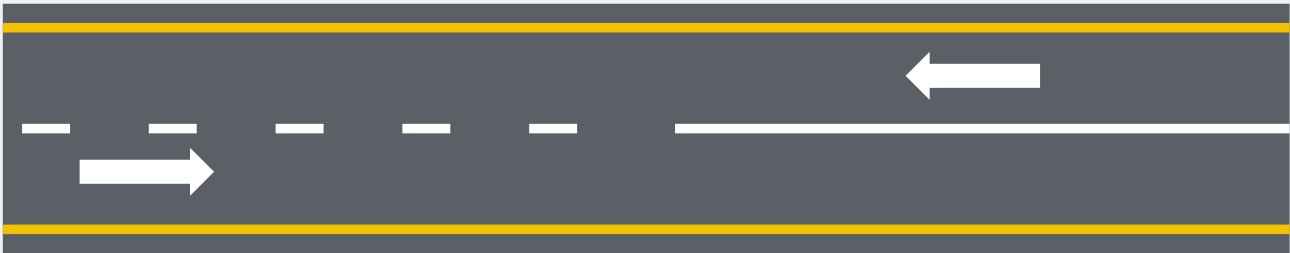
Island width 1.5 m

Island length 15 m

Keep right: for a branch on the right the long taper is before the junction, on the left it is after. RoadPro warns if lanes beside the island are under 2.75 m.

Road markings: lines, arrows and paint quantities

Along the road



L1 broken lane line, pattern by speed

L2 warning + L2A solid at bends

Turning area of a junction (RDJ)



L7 stop line + STOP (or L8 double give-way line + triangle), L2A 30 m on the approach, turn arrow, L5/3 across the mouth.

RDM

Draw or Remove

Centre lines White, 120 mm

Edge lines L4 Yellow, 120 mm

L1 lane line 2/6, 3/9, 4/12 m

Bends L2 warning + L2A

Junction approach L2A, 30 m

Mouth L5/3 600 / 300 mm

Lane arrows 5.0 / 7.5 m

Report Length + m2 paint

New roads: tick Road markings in the RDP dialog. Existing roads: run RDM. RDJ redraws the markings of both roads with the junction gaps.

Standard values used (Oman HDS 2017, Section 19)

Sign plate sizes by speed limit (mm) and warning distance

Speed	Triangle	Circle	STOP	GIVE WAY	Warning distance
50	600	600	750	750	50 m
60	750	750	900	750	75 m
80	900	750	1200	900	150 m
100	1200	900	-	-	200 m
120	1500	1200	-	-	300 m

Delineator post spacing on curves (S)

Radius (m)	500	300	200	100	75	50	25
Spacing S (m)	50	30	20	15	12	10	7

Approach tangents: 2S, 3S, 6S (max 100 m). Posts 0.30 m beyond the paved shoulder. Signs: lower edge 1.5 m above ground (2.1 m over a sidewalk). Warning triangles have a yellow background; permanent chevrons yellow / black, road-works chevrons black / yellow; cones red with a white band.

Road markings

Line	Use	Pattern
L1	Lane / centre line	2/6 - 3/9 - 4/12 m
L2	Warning (bends)	6/2 - 9/3 - 12/4 m
L2A	No overtaking	Continuous
L4	Edge (yellow)	Solid, 120 mm
L5	Beside aux lane	1 m / 1 m
L5/3	Across side road	600 / 300 mm
L7 / L8	Stop / give way	Line + STOP / triangle

Please note

Values follow the Oman Highway Design Standards 2017, Section 19 (GCC Manual based). For projects in Qatar, check against the Qatar Traffic Control Manual (QTCM). Every value can be changed in the dialogs.

Report and Excel file



Summary

General, geometry, barricades, signs, road ends, chainage



Curve data

TC / CT chainage, radius, arc, deflection, E / N



Road sections

Every straight and curve: length, edges, area



Setting-out

E / N of CL, left and right edge at every chainage



Sign schedule

ID, sign, chainage, side, facing, post E / N



Widening, taper and junction setting-out

New edge offset, kerb returns TC / IP / CT with E / N



Road markings

Edge and lane line lengths, paint area in m2



Where is the Excel file?

ROAD-01_RoadPro_Report.csv

- Saved in the same folder as the DWG
- Enter only skips the drawing tables, never the Excel file
- Close the old CSV in Excel before running again
- Press F2 to see the full path

Run again any time:

RDR

Quick fixes for common questions



Unknown command RDP

Load RoadPro.lsp with APPLOAD. Full AutoCAD only, not LT



Road is 1000 times too small or big

Choose Millimeters in Drawing units for mm drawings



Turning radius is too small

At the centre line, R must be more than half the road width



Black outline not visible

Dark background on screen. It still plots black



Excel file could not be saved

Close the old CSV in Excel, then run RDR again



Junction not formed

Start the branch ON the main road CL, away from widened or tapered edges



Widening runs outside the road

Start must be at least the taper in; End + taper out within the road



Chainage not accepted

Type 100 or 0+100. Older versions take plain metres only

Quick reference card

RDP
Build road

RDR
Report + Excel

RDRAD
Radius labels

RDSEC
Straight labels

RDX
Cross sections

RDW
Lane widening

RDT
Road taper

RDJ
Junction / tie-in

RDM
Road markings

U
Undo whole road

F2
Summary + path

Default values	
Road width	7.30 m
Turning radius	Match existing
Edge / centre	Barricades / lines
Paved shoulder	0.50 m
Speed limit	30 km/h
Sign sizes	By speed (HDS)
Widening / taper	3.65 m / 30 m
Reset all	ROADPRORESET

Type RDP, accept the defaults, draw the centre line. RoadPro does the rest.