

# Plan Preparation Guide

## Chapter 2

### Typical Sections - Pavement Design

Section	Description	Page
1	<a href="#">Typical Sections</a>	2-1
2	<a href="#">Secondary (“C” projects) Typical Sections</a>	2-3
3	<a href="#">Base Course</a>	2-4
4	<a href="#">Full Depth Asphalt Patching</a>	2-5
5	<a href="#">Maintenance of Roadway and Drives</a>	2-5
6	<a href="#">Curb Ramps</a>	2-5
7	<a href="#">Mill-in Rumble Strip</a>	2-5
8	<a href="#">Asphalt Weight and Thickness</a>	2-5
9	<a href="#">Pavement Designs</a>	2-6
10	<a href="#">Detectable Warnings</a>	2-7
11	<a href="#">Guidelines for Hot Mix Asphalt Selection</a>	2-15

## 1. Typical Sections

Typical sections shall meet the design criteria of the Highway Design Manual and other applicable Memorandums, Instructional Bulletins and Memos.

An example of a blank typical section sheet to be used on all projects is shown in [Figure 2-A](#). The Typical Section Sheet can be found in the border sheet library by the following description:

Directory: g:rd\_std  
File Name: Sctyp1.dgn

When any changes are made to the Typical Section Sheet throughout the project development process, the revised Typical Section Sheet must be resubmitted to the Pavement Design Engineer for review and approval.

When roadways have a design speed less than 50 mph, Standard Drawing No. 100-6 recommends a maximum superelevation rate of 0.06 foot per foot. This rate is preferred; however, there are conditions that warrant a 0.08 foot per foot maximum superelevation. Generally, on rural secondary roadways the design speed will be 45 mph, but the superelevation rate of 0.08 foot per foot is more desirable than the 0.06 foot per foot that is shown on our standard drawing.

Superelevation is to be calculated at the rate of 0.50% longitudinal gradient per Standard Drawing 100-6 for normal development. However, this rate may vary from 0.50% to a maximum of 0.74% determined on a case by case basis. The longitudinal gradient shall be provided with the curve data to prevent errors and/or misunderstanding by field personnel.

Although the preferred superelevation is shown on the standard drawing, the standard will be revised by adding the note shown below in order to allow the use of all acceptable superelevation rates with the specified design speed. The 0.10 and 0.12 tables will not be used.

<p><b>Note: The Design Speed and Rates shown on this standard are preferred. They may be varied but must conform to AASHTO publication “Geometric Design of Highways and Streets”</b></p>
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The minimum design speed criteria shall be included on the first typical section sheet only on all projects except “C” (secondary projects). “C” projects are divided into four groups as stated on Engineering Policy Memorandum No. 10. (See Group Coordinator for copy)

When plans are being prepared for either FAS or State ‘C’ roads, a note is to be added to the Typical Section Sheet noting to which road group the roadway belongs. The road group designation should be indicated by the Project Manager on the Design Plans Field Review (DPFR) Title Sheet at the location provided. If the group designation is not provided on the DPFR Title Sheet, the Design Group Coordinator should determine which road group is applicable and then verify with the Project Manager.

A cell has been created for each group type. They are named GROUP1, GROUP2, GROUP3, and GROUP4. The correct cell should be placed directly left of the Design Speed information block on the bottom right of the Typical Section Sheet. See the example shown below.

Cell Name - Group 1/Group2/Group3/Group4  
 Active Scale - 1  
 Weight - 2  
 Cell Origin - Upper Right Corner

<i>Road group designation          for this FAS Rural Route          or State "C" Road          per EDM PC-3 Is          Group 1</i>	RTE.		DESIGN SPEED		PAVEMENT DESIGN	<b>SOUTH CAROL          DEPARTMENT OF TRAN          ROAD DESIGN CC</b>	
	MPH	FROM STA.	TO STA.				
	EXCEPTIONS TO DESIGN SPEED				APPROVED BY	<b>TYPICAL SEC</b>	
					DATE		
						SCALE 1"V=	SCALE 1"H=

The Design Group Coordinator or Assistant Design Group Coordinator is to ensure that the Design Speed and pertinent information is recorded on the Field Review prints. The appropriate project engineer is responsible for the exceptions to the displayed Design Speed.

On projects where two (2) feet of shoulder is to be paved, the typical section should clearly show the "12' Travel Lane" dimension. See Figure 2-B. In areas of development (residential or business), on all roads whether in an urban or rural location, the Field Review Team will make recommendations of the fill slope and cut back slope ratios in curb and gutter and ditch sections respectively. The Field Review team will evaluate slopes with respect to Right-Way-Acquisition, significant tree policy, and property owner management of grassed areas. Slopes may be varied to fit specific situations adjacent to the roadway; however, continuity should be considered when selecting slope rates. In general, the fill and cut back slopes will be 2:1 unless revised during the Field Review. Where there are only a few developed areas when the slopes can be flattened, a note describing the isolated areas on the typical section sheet will be adequate, unless additional right of way is required.

The travel lane dimension shall also show on valley gutter sections. The "Lip" on valley gutter sections shall be shown on a 10:1 cross slope. The earth shoulder portion of a valley gutter section shall be 3 ft. on a 30:1 slope unless otherwise shown on the Field Review. See Figure 2-C. The back-lip of a Valley Gutter Section on the high side of superelevation should follow the superelevation rate. As the valley is in transition, valley grades must be checked in order to insure positive drainage.

On typical sections with sidewalk (slope of sidewalk 50:1) in locations of high pedestrian traffic, particularly in the area of schools, consideration has been given to requiring curb and gutter adjacent to sidewalk in all instances thus precluding a valley gutter with sidewalk section. However, this concept remains unwritten.

If Field Review plans are submitted recommending a valley gutter with sidewalk for the typical section, please make certain either the Project Development Engineer or the Preliminary Design/Secondary Road Engineer has approved the proposed concept by initialing and dating the proposed design. Their approval shall be required, and/or obtained, prior to proceeding with plans preparation.

Numbers shall show on the line drawing portion of the typical section to indicate the items in the pavement structure and a corresponding legend showing the items shall show on the bottom left of the sheet. See figures [2-B](#), [2-C](#) and [2-D](#).

Typical Sections are to show type of mix in pavement design. (See Guidelines for Hot Mix Asphalt Selection)

## **2. Secondary (“C” project) Typical Sections**

The Department’s design standards shall be those contained in the South Carolina Highway Design Manual.

The only exception to this policy shall be for Federal Aid Secondary and State Secondary, (C) Projects where the following typical section elements will be the minimum standard, other than urban or subdivision streets:

1. Right of way width - 66' (33' / 33')
2. Pavement width - 22'
3. Normal pavement crown slope – 48:1
4. Shoulder width - 6' (9.5' where guardrail is required)
5. Shoulder slope – 12:1
6. Distance to ditch line from centerline - 22'
7. Ditch front slope – 4:1 for 6' or less; 6:1 for greater than 6'  
\* See Typical Section note for variance of this slope for drainage.
8. Minimum cut or fill slope-2:1
9. Design speed – 55 mph (maximum)

Typical sections which provide for valley gutters or curbs and gutters shall be permitted in urban areas or subdivisions. Right of way widths of 50 feet minimum shall be acceptable in these areas. Design speeds in these areas shall be appropriate for existing or anticipated development.

It shall be required that the roadway (from Construction Line to Construction Line) be cleared and all improvements removed from the right of way. In compliance with state laws, all areas disturbed during construction and shoulders and slopes shall be seeded to obtain permanent vegetation for controlling erosion. Seeding shall be in accordance with the Standard Specifications for Highway Construction (2000) and as specified on the Field Review.

On secondary typical sections, show the full shoulder on a 12:1 slope and the drops from finished grade in feet as illustrated in figure [2-D](#)

### 3. Base Course

On projects where widening the existing pavement with the same material for base as the overlay (usually asphalt concrete surface course), do not use an extra 6" of base material beyond the edge of the surface course.

On projects where widening with a different material than the overlay use an extra 6" of width for the base course beyond the edge of the surface course.

Asphalt Aggregate Base Course shall be used on all projects that are widened 6' or less.

Sand Clay Base Course. Unless specifically requested otherwise and agreed upon during the Field Review, the contractor shall be required to furnish all materials and incidentals required to construct Sand Clay Base Courses in accordance with Section 303 of the Standard Specifications. To avoid problems during contract preparation and administration, all roads in a contract for which a Sand Clay Base is to be constructed shall have identical source requirements. The Project Engineer shall have the authority to approve necessary changes to ensure uniformity in the contract.

Sand Clay Base Course shall be used unless otherwise specified on the Field Review.

Graded Aggregate Base Course. When the Field Review recommends Graded Aggregate Base Course, the Contract shall not include alternate except for the following counties; Darlington, Dillon, Florence, Georgetown, Horry, Marion, Marlboro, and Williamsburg. Coquina Shell Base will be used as an alternate in these counties.

Earthwork quantities in the plans are for Graded Aggregate Base Course. If Coquina Base is selected, the grades will be adjusted in the field to compensate for the difference in base thickness, and quantities for "Unclassified Excavation" and "Borrow Excavation" will be adjusted prior to final payment. The following note will be placed on the General Construction Note Sheet when Coquina Base Course is used.

**Earthwork quantities in the plans are for the base alternate of Graded Aggregate Base Course. When Coquina Shell Base is to be placed, then the Department's field office will adjust the grade of the subgrade to compensate for the additional thickness. Quantities for "Unclassified Excavation" and "Borrow Excavation" will also be adjusted prior to final payment,**

Prime will be required to be calculated and added to the list of estimated quantities for projects using Graded Aggregate Base Course and Sand Clay Base Course. The rate will be 0.27 gallons per S.Y. When computing the Square Area, include the entire width of the base course. The pay item will be "Prime Coat" computed in gallon and the BAMS number is 4010005.

When setting up quantities of base material for drives in the inclusions, use only the term "Graded Aggregate Base Course" in lieu of stating all three alternates. The depth of base material will continue to be shown in the inclusions.

**4. Full Depth Asphalt Patching**

Full Depth Asphalt Pavement Patching has been revised to limit the depth of patching to 4", 6", and 8" Uniform. Problems have been incurred in the curing and compaction of the asphalt mix in the deeper patches.

**5. Maintenance of Roadway and Drives During Construction**

When material is needed to maintain traffic on the roadway or on driveways during construction, the bid item "Maintenance Stone" given in tons will be used. The selection of a specific aggregate for maintenance stone will not be made by the Department. Also, when full depth patching is required, quantity for maintenance stone (25 Tons per 100 S.Y.)

**6. Curb Ramps**

Curb Ramp notes, where applicable, shall be shown on the curb and gutter typical sections. The note shall read "Curb ramps are to be constructed in accordance with Standard Drawing 720-6". See Figure 2-E for a typical curb and gutter section. Also see page 2-7 for information about detectable warnings applicable to curb ramps.

**7. Mill-in Rumble Strips**

Mill-in Rumble Strips shall be used on all projects where there is a paved four foot or wider shoulder. This will include both the inside and outside shoulder where a paved four to ten foot shoulder is used. Mill-in Rumble Strips will not be used on a ramp, acceleration or deceleration lanes. A note will be placed on the plan sheet showing "Begin Mill-in Rumble Strip" and "End Mill-in Rumble Strip" with an arrow to the appropriate location. (See Special Drawing No. 100-4A).

**8. Asphalt Weight and Thickness**

Below is a table of conversion factors for the weight and thickness of asphalt base and surface courses.

Table of Conversion Factors from Lbs/SY to Equivalent Inches

<b>TYPE OF MATERIAL</b>	<b>APPROX. LBS/SY 1" THICK</b>	<b>EQUIV. INCHES PER 100 LBS/SY</b>
Asphalt Concrete Surface Course	105.0	0.95
Asphalt Concrete Binder Course	105.0	0.95
Bit. Stabilized Macadam Base Cr.	105.0	0.95
Asphalt Aggregate Base Course	105.0	0.95

## **9. Pavement Designs**

Pavement designs are requested by Design Groups in Road Design when required by roadway projects. The Pavement Design Engineer at the Research and Materials Laboratory completes the design and distributes it through the State Materials Engineer. As the Design Group develops typical sections for the project, the most current pavement design available will be used to establish the materials and rates to show on the Typical Section Sheet. The accuracy of the interpretation of the pavement design is very important to the success of its implementation during the construction phase and the life of the roadway. Therefore, when the Typical Section Sheet is prepared, a plan size original is to be sent to the Pavement Design Engineer at the Research and Materials Laboratory for review and approval. Upon signing and dating each Typical Section Sheet, the sheets are returned to the Design Group to be incorporated into the plans.

Quality Control Review worksheets for design field review plans, right-of-way plans, final construction plans, and the combination worksheet for right-of-way/construction plans have been amended to incorporate the check of the pavement design approval and date. Any Typical Section Sheet that has a pavement design approval date over three years old must be brought to the attention of the Pavement Design Engineer for a review and the Typical Section Sheet resigned and dated.

The Design Group Coordinators are requested to notify the Road Design Engineer whenever a concrete pavement is being considered as a final riding surface so that the Department can evaluate the life cycle cost, the availability of trained construction personnel, and the most current concrete design specifications.

The form entitled "Request For Traffic Data" follows. Under the heading "DATA REQUESTED:" a new line has been added called "Classification Count for Pavement Design". In the future, when traffic data is needed for a pavement design and a more accurate count of the trucks and other vehicular traffic is desired, then the person filling out the form will check, both, the top line "Traffic Loading for Pavement Design" and the second line "Classification Count for Pavement Design". If only a traffic loading count is wanted without the classification count then only the top line is checked.

If the second line is not checked, a historical truck count will still be provided as in the past. In all cases, the "Future ADT" under "Controls" should be requested for a 20 year forecast. The "Request For Traffic Data" form is to be sent to the Office of Traffic Counts in Traffic Engineering.

Projects that are described in the STIP by route/road number will require the additional classification count. Other projects will be reviewed on a project by project basis. Guidelines for these other type projects are:

- 1) The project is on a primary route.
- 2) The road/route has an unusually high ADT.
- 3) The road/route is in a particularly high growth area.

If it is unclear whether or not to do a classification count, one should be requested.

If the percent of trucks is all that is desired then only the second line "Classification Count for Pavement Design" will be checked and the usual location map is provided by the requestor.

Secondary roads typically do not have a formal pavement design developed for them. If a secondary road anticipates high growth or an inordinate number of trucks, then a pavement design may be needed, and a classification count will need to be requested with the traffic loading data in order to perform a pavement design.

At the time a Traffic Data Request is made, a Pavement Design Request with location map should be sent to the Pavement Design Office at the Research Materials Laboratory. The Traffic Data will be forwarded to the Pavement Design Office when it is obtained. Attached is a [Pavement Design Request Form](#) that should be used to request a new pavement design. This new form is available for electronic submittal of your pavement design request. The location map may also be sent in MicroStation format to the Pavement Design Office.

If pavement designs are three or more years old prior to the project being let to contract, then a "[Request for Traffic Data](#)" will be submitted to Traffic Engineering. The updated traffic data will then be sent to the Pavement Design Engineer so the pavement design can be reviewed and adjustments made to the original pavement design. A Pavement Design Request Form with a location map should be sent to the Pavement Design Office to request a review of an existing pavement design. When a review is requested, the original pavement design with the project's signed typical section sheets are to be sent to the Pavement Design Office in order to provide a thorough review. At the right of way plans stage, all projects with a pavement design should have their pavement designs checked for the date completed. If the three year period will end near the scheduled letting date of the project then the pavement design should be reviewed with newly acquired traffic data.

## **10. Detectable Warnings**

The American with Disabilities Act requires that detectable warnings now be incorporated in the surface of all curb ramps. All projects with curb ramps will require a new pay item of "Detectable Warning Surface" in the plans beginning with the May 2004 Highway Letting. Projects such as resurfacing, etc. when new ramps may not be constructed, the existing ramps will need to be retrofitted with the detectable warning surface. Measurement and payment will be by the square foot.

Generally, detectable warnings are to cover the full width of the ramp on the walking path directly adjacent to the street within 6" to 8" of the curb line extending away from the curb for 24". This application along with others are demonstrated on the new Standard Drawing 720-7 entitled "Detectable Warning Surface".

A special provision in the proposal will note the application of the new "Detectable Warning Surfaces" stating the two types that can be installed, cast-in-place and surface mounted. Contractors can choose whichever type they want to install. When necessary to retrofit to existing ramps, the surface mounted type should be used since no concrete work will be paid to retrofit the detectable warning surfaces on an existing ramp.

All surfaces of detectable warning surfaces are to provide a visual contrast with the adjacent walking surfaces. The Department has selected the color of all Detectable Warning Surfaces to be "safety yellow".



**REQUEST FOR TRAFFIC DATA**

**DATA REQUESTED:**

- Traffic Loading for Pavement Design
- Classification Count for Pavement Design
- Design Data
- Intersection Two-Way Traffic Flow (ADT)
- Intersection Turn Movements
- Other (Explain) \_\_\_\_\_  
\_\_\_\_\_

**LOCATION:** COUNTY \_\_\_\_\_ ROUTE/ROAD \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_  
(ATTACH MAP)

**CONTROLS:**

For Pavement Loading			For Design		
	<u>Year</u>	<u>ADT</u>		<u>Year</u>	<u>ADT</u>
Base Year	_____	_____	Present ADT	( )	_____
Middle Year	_____	_____	Future ADT	( )	_____
End Year	_____	_____	Design Speed (V)	_____	_____
No. of Lanes	_____	_____	K% _____ D% _____		
Pavement Type		_____	Trucks		
Rigid		_____	% ADT _____		
Flexible		_____	% DHV _____		
Road Group		_____	Other _____		
Lane Distribution		_____	_____		
Trucks (% ADT)		_____	_____		

FURNISH COPIES OF TRAFFIC DATA TO:

- Environmental Coordinator
- Road Design Engineer
- Bridge Design Engineer
- Project Manager
- Project Development Engineer
- Research & Materials Lab

Requested By: \_\_\_\_\_  
Section: \_\_\_\_\_  
Date: \_\_\_\_\_

03/11/2002

# PAVEMENT DESIGN REQUEST

Date Sent \_\_\_\_\_  
to P.D.  
(Mail or Email)

Date Received \_\_\_\_\_  
by P.D.

New Pavement Design \_\_\_\_\_ or Pavement Design Review \_\_\_\_\_

Road Design Group Coordinator / Program Manager: \_\_\_\_\_

Road/Route: \_\_\_\_\_ Intersection Roads: \_\_\_\_\_  
(List all over 500 LF)

From: \_\_\_\_\_

To: \_\_\_\_\_

County: \_\_\_\_\_

Type of Construction: \_\_\_\_\_

- WE - Widening with Earth Median
- WPC - Widening with Paved Median about Centerline
- WPV - Widening with Paved Median, Variable
- NL - New Location \*
- Other - Please Explain \*

\* Perform comparison of Flexible vs Rigid Pavement Design \_\_\_\_\_ (Yes/No)

Brief Description of Proposed Work: \_\_\_\_\_

Project Length: \_\_\_\_\_

Date Plans & Map Sent: (Mail / Email) \_\_\_\_\_

Comments: \_\_\_\_\_

Traffic Counts Requested? \_\_\_\_\_ (Yes/No) Classification Count Requested? \_\_\_\_\_ (Yes/No)

Date Design Needed: \_\_\_\_\_

Charge Code: \_\_\_\_\_

File Number: \_\_\_\_\_ Pin Number: \_\_\_\_\_

Proposed Letting Date: \_\_\_\_\_

Comments: \_\_\_\_\_

**TYPICAL SECTION OF IMPROVEMENT  
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION  
COLUMBIA, S.C.**

FED. RD. DIST. NO.	STATE	COUNTY	FILE NO.	ROAD/ROUTE NO.	SHEET NO.
3	SC				

RTE.	DESIGN SPEED		PAVEMENT DESIGN	SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION ROAD DESIGN COLUMBIA, S.C.
	MPH	FROM STA. TO STA.		
				TYPICAL SECTION
EXCEPTIONS TO DESIGN SPEED			APPROVED BY	
				SCALE 1"V= SCALE 1"H= RTE./RD.
			DATE	

ctyp14p

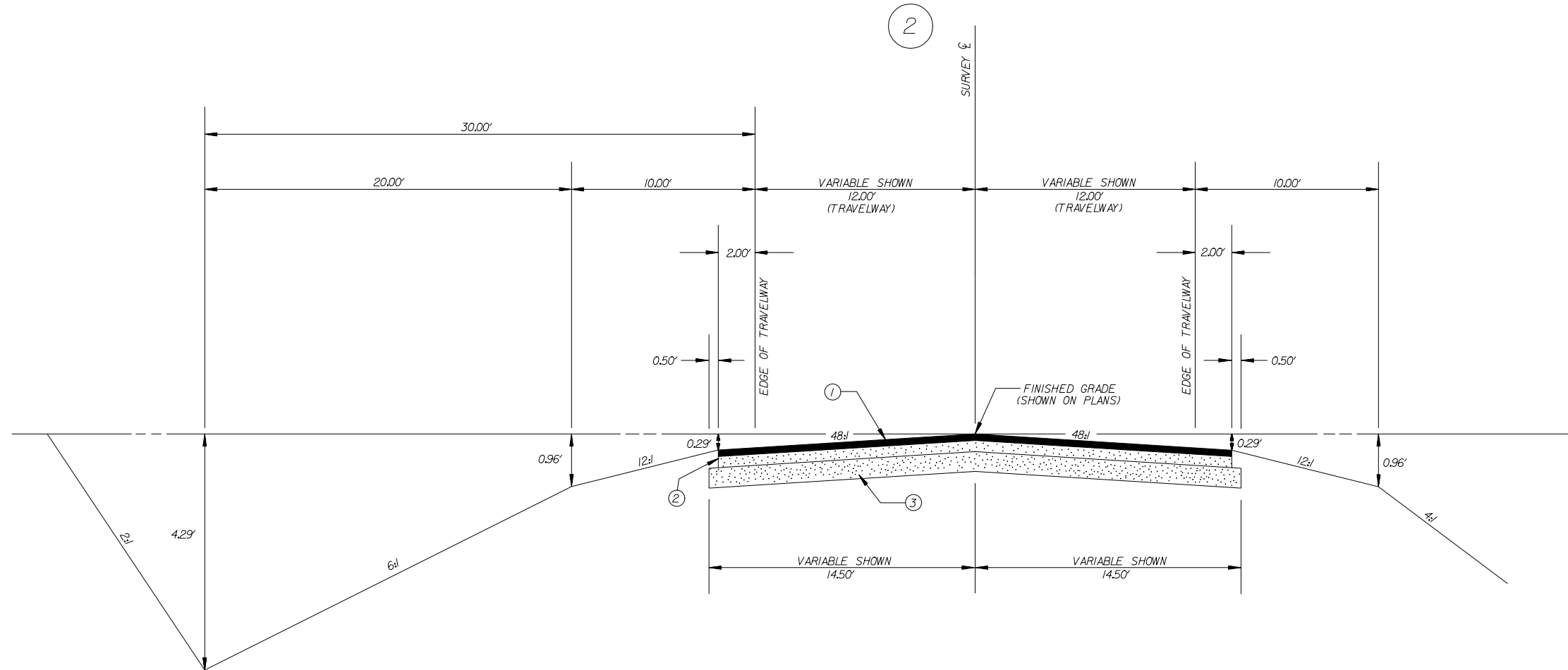
FIGURE 2-A  
2-10

RDS003B  
ZGA3:67,413R12045PF.DGN

PIN NO.12045

FED. RD. DIST. NO.	STATE	COUNTY	FILE NO.	ROAD/ROUTE NO.	SHEET NO.
3	SC	MARLBORO	35.5/3	15/401	3A

## TYPICAL SECTION OF IMPROVEMENT SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C.



USE THIS SECTION ON U.S. RTE. 15/401  
FROM STA. 426+00 ± TO STA. 436+00 ±

NOTE:

1. ALL DIMENSIONS AND PAVEMENT DESIGNS ARE DETERMINED BY INDIVIDUAL PROJECTS.
2. FILL SLOPES  
 6:1----0' TO 5' FILL  
 4:1----5' TO 10' FILL  
 2:1----OVER 10' FILL  
 IF 2:1 SLOPE IS USED, WIDEN SHOULDER 3.5' FOR GUARDRAIL

①	ASPHALT CONCRETE SURFACE COURSE (150 LBS. PER S.Y.)
②	ASPHALT CONCRETE BINDER COURSE (250 LBS. PER S.Y.)
③	ASPHALT AGGREGATE BASE COURSE (450 LBS. PER S.Y.)

RTE.	DESIGN SPEED	
	FROM STA.	TO STA.
55	426+00	436+00
EXCEPTIONS TO DESIGN SPEED		

PAVEMENT DESIGN
APPROVED BY _____
DATE _____

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION ROAD DESIGN COLUMBIA, S.C.
<b>TYPICAL SECTION</b>
SCALE 1"V=    SCALE 1"=    RTE./RD.

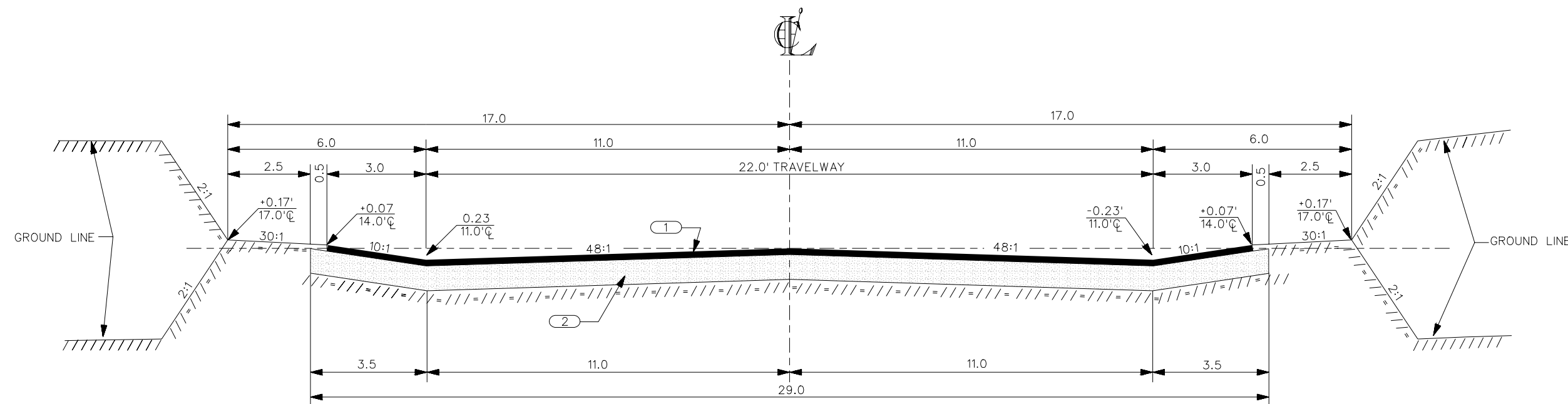
FIGURE 2-B  
2-11

RDS002D  
ZFA2:52.224R1879TY.DGN

FED. RD. DIST. NO.	STATE	COUNTY	FILE NO.	ROAD/ROUTE NO.	SHEET NO.
3	SC				

## TYPICAL SECTION OF IMPROVEMENT SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C.

### 28.0' VALLEY GUTTER SECTION



USE THIS SECTION ON  
RD. S-274 FROM STA. 0+12.2 TO STA. 21+34.5

LEGEND	
1	ASPHALT CONCRETE SURFACE COURSE (125 LBS. PER SY)
2	GRADED AGGREGATE BASE COURSE (6" UNIFORM)

NOTE:  
ALL DIMENSIONS AND PAVEMENT DESIGNS  
ARE DETERMINED BY INDIVIDUAL PROJECTS

<i>Road group designation for this FAS Rural Route or State 'C' Road per EDM PC-3 Is Group 1</i>	RTE.	DESIGN SPEED		PAVEMENT DESIGN	SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION ROAD DESIGN COLUMBIA, S.C.
	MPH	FROM STA.	TO STA.		
	35	0+12.2	21+34.5	APPROVED BY	
EXCEPTIONS TO DESIGN SPEED				DATE	TYPICAL SECTION
				SCALE 1"V=    SCALE 1"=H=    RTE./RD.	

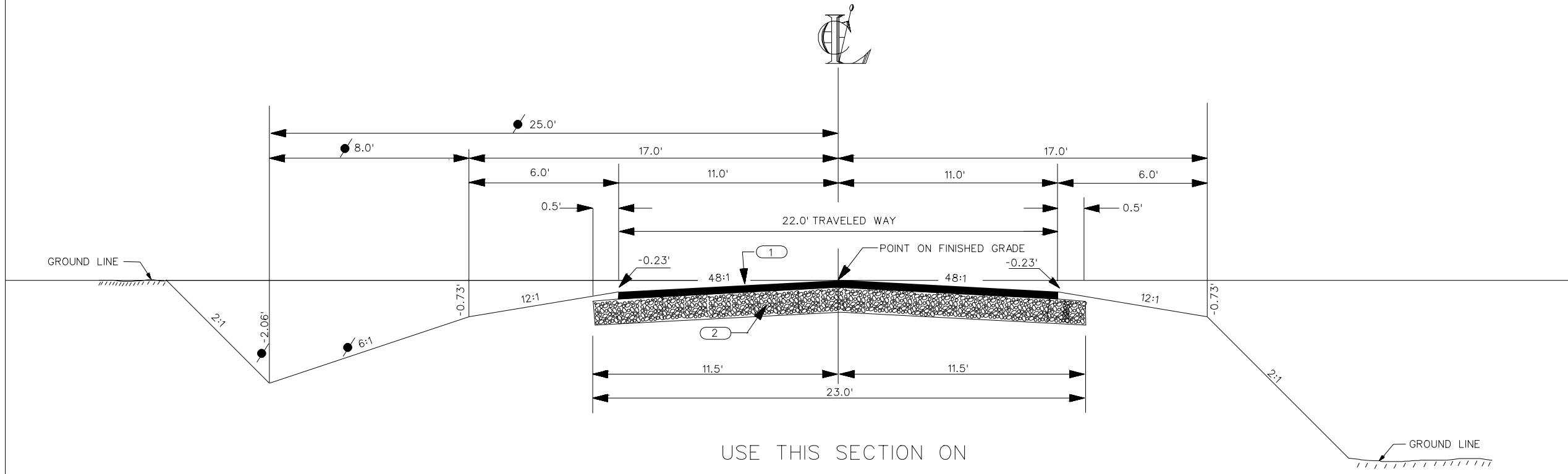
FIGURE 2-C  
2-12

RDS002d  
ZCA3167.1231  
R12982TY.DGN

FED. RD. DIST.	STATE	COUNTY	FILE NO.	ROAD/ROUTE NO.	SHEET NO.
3	SC				

**TYPICAL SECTION OF IMPROVEMENT  
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION  
COLUMBIA, S.C.**

**34'-50' SECTION**



USE THIS SECTION ON  
ROAD S-927 FROM STA. 0+10.0 TO STA. 88+74.0

**NOTE:**

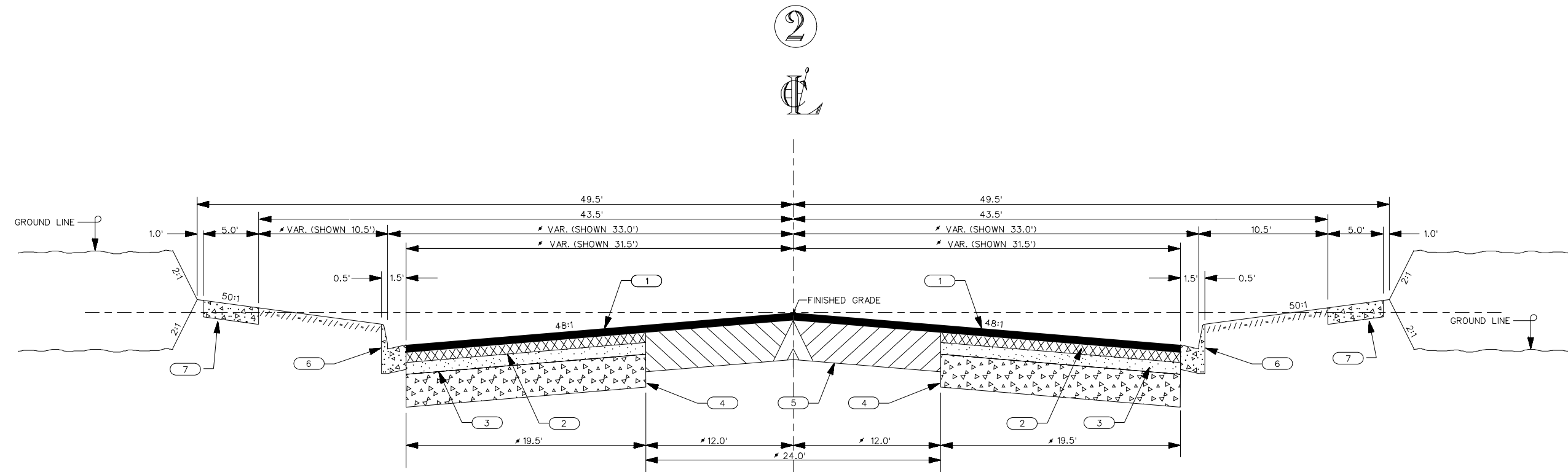
THIS SLOPE MAY BE VARIED WHEN A DEEPER DITCH IS NECESSARY FOR DRAINAGE PURPOSES, USING A MINIMUM SLOPE OF 12:1 AND A MAXIMUM SLOPE OF 4:1. WHERE A DEEPER DITCH THAN PROVIDED BY A 4:1 IS NECESSARY, THE DITCH SHALL BE PLACED FARTHER FROM THE  $\mathcal{Q}$  CONTINUING THE 4:1 SLOPE TO PROVIDE FOR THE NECESSARY DEPTH. SEE PROFILE FOR THE SPECIAL DITCH GRADES.

LEGEND	
1	ASPHALT CONCRETE SURFACE COURSE (125 LBS. PER SY)
2	GRADED AGGREGATE BASE COURSE

RTE.	DESIGN SPEED		PAVEMENT DESIGN	SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION ROAD DESIGN COLUMBIA, S.C.
MPH	FROM STA.	TO STA.		
55	0+10	88+74		TYPICAL SECTION
EXCEPTIONS TO DESIGN SPEED			APPROVED BY	
			DATE	SCALE 1"V= SCALE 1"=H= RTE./RD.

FIGURE 2-D  
2-13

## TYPICAL SECTION OF IMPROVEMENT SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C.



USE THIS SECTION ON  
ROAD S-37 (RED BANK ROAD) FROM: STA. 21+24.2 TO: STA. 57+50.0

LEGEND	
1	ASPHALT CONCRETE SURFACE COURSE (200 #/S.Y.)
2	ASPHALT CONCRETE BINDER COURSE (250 #/S.Y.)
3	ASPHALT AGGREGATE BASE COURSE COURSE (300#/S.Y.)
4	GRADED AGGREGATE BASE COURSE
5	RETAIN PAVEMENT IN PLACE
6	2.0' CONCRETE CURB AND GUTTER (MOUNTABLE)
7	5.0' CONCRETE SIDEWALK (4" UNIFORM)

**NOTES:** SEE STANDARD DRAWING NO. 720-1 FOR DETAIL OF MOUNTABLE CURB AND GUTTER (2'-0").  
SEE STANDARD DRAWING NO. 720-5 FOR DETAIL OF CONCRETE DRIVEWAYS.  
CURB RAMPS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING NO. 720-6.  
VARIABLE BASE AND SURFACING IN PLACE, TO BE RETAINED FROM STA. 49+00 TO STA. 57+50. SEE PLANS AND CROSS SECTIONS.  
ALL DIMENSIONS AND PAVEMENT DESIGNS ARE DETERMINED BY INDIVIDUAL PROJECTS.

RTE. S-37		DESIGN SPEED		PAVEMENT DESIGN	SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION ROAD DESIGN COLUMBIA, S.C.
MPH	FROM STA.	TO STA.			
45	0 + 50.0	67 + 35.2			TYPICAL SECTION
EXCEPTIONS TO DESIGN SPEED				APPROVED BY	
				DATE	
				SCALE 1"V=	SCALE 1"=H=
				RTE./RD.	

FIGURE 2-E  
2-14

**PROPOSED GUIDELINES FOR HOT MIX ASPHALT SELECTION**

TYPE COURSE	TYPE FACILITY							
	INTERSTATE	HEAVY DUTY PRIMARY (INCLUDES ALL NHS ROUTES)	PRIMARY & HIGH VOLUME SECONDARY	LOW VOLUME SECONDARY ROUTES 1500 VPD OR LESS		SPECIAL APPLICATION		
SURFACE	12.5 mm SUPERPAVE 1/2" MAX (12.5 MM) MIN. RATE 175 #/SY	TYPE - 1C MIN RATE 150 #/SY	TYPE - 1 MIN RATE 150 #/SY	TYPE - 3 MIN RATE 150 #/SY	TYPE - 4 MIN RATE 125 #/SY	OGFC MIN RATE 65 #/SY	TLSC MIN RATE 40 #/SY	
	FINE & COARSE CRUSHED AGGR. REQUIRED	FINE & COARSE CRUSHED AGGR. REQUIRED	FINE & COARSE CRUSHED AGGR. REQUIRED	UNCRUSHED GRAVEL AND LOCAL SAND PERMITTED	UNCRUSHED GRAVEL AND LOCAL SAND PERMITTED	COURSE CRUSHED AGGR. REQUIRED	FINE AGGREGATE MUST BE SCREENINGS	
LIQUID ASPHALT BINDER	5.1%	5.3%	6.2%	6.0%	6.3%	6.5%	6.50%	
INTERMEDIATE	19.0 mm SUPERPAVE 3/4" MAX (19 MM)	BINDER TYPE - 1	BINDER TYPE - 2					
	FINE & COARSE CRUSHED AGGR. REQUIRED	FINE & COARSE CRUSHED AGGR. REQUIRED	UNCRUSHED GRAVEL AND LOCAL SAND PERMITTED					
LIQUID ASPHALT BINDER	4.30%	5.00%	5.10%					
ASPHALT AGGREGATE BASE	ASPHALT AGGREGATE BASE CR. TYPE -1		ASPHALT AGGREGATE BASE CR. TYPE -2		HMA SAND ASPHALT BASE TYPE 3			
	FINE & COARSE CRUSHED AGGREGATE REQUIRED.		UNCRUSHED GRAVEL AND LOCAL SAND PERMITTED		FINE AGGREGATE MUST BE SCREENINGS			
LIQUID ASPHALT BINDER	4.2%		4.3%		5.70%			
LEVELING AND BUILD-UP BASE	SURFACE SUPERPAVE OR TYPE -1 OR TYPE -1C BINDER TYPE - 1 ASPHALT AGGREGATE BASE COURSE TYPE - 1		SURFACE TYPE -1, TYPE -3, TYPE -4, OR TYPE -5 BINDER TYPE -2 ASPHALT AGGR. BASE COURSE TYPE -2 (PERMITTED)					
ANTI STRIP	ADD HYDATED LIME : REQUIRED		ADD HYDRATED LIME (REQUIRED) - EXCEPT AS NOTED BELOW			ADD HYDATED LIME : REQUIRED		

NOTES:

- NO RECYCLED ASPHALT PAVEMENT (RAP) ALLOWED IN 12.5 MM SUPERPAVE OR OGFC MIX.
- SUPERPAVE 1/2" MAX. (12.5 mm) AND OGFC REQUIRE A PG 76-22 POLYMER MODIFIED BINDER.
- LIQUID ASPHALT BINDER IS THE PERCENTAGE USED FOR QUANTITY CALCULATIONS FOR LIQUID ASPHALT BINDER IN PAVING MIXTURES.
- SCREENINGS ARE REQUIRED IN SAND ASPHALT BASE COURSE T-3.
- HYDRATED LIME REQUIRED IN ALL MIXES EXCEPT SURFACE TYPE - 4.  
SURFACE COURSE TYPE -4 WOULD ALLOW LIQUID ANTI-STRIP ADDITIVE, EXCEPT WHERE USED ON LEVELING ON PRIMARY & HIGH VOLUME SECONDARY. HYDRATED LIME IS REQUIRED IN SURFACE COURSE TYPE -4 BEING USED AS A LEVELING COURSE ON PRIMARY AND HIGH VOLUME SECONDARY ROUTES.
- CRUSHED AGGREGATE IS DEFINED AS AN AGGREGATE HAVING TWO OR MORE MECHANICALLY INDUCED FRACTURED FACES ON LEAST 90 % BASED ON COUNT, OF THE MATERIAL RETAINED ON THE NO. 4 SIEVE.

REV. 1-20-05