

TYPICAL SECTION TECHNICAL MEMORANDUM

Boggy Creek Road Alignment Study from Simpson Road to Narcoossee Road Osceola County

Osceola County Project Number: PS2011479-DG

Prepared for:

**Osceola County Board of County Commissioners
Osceola County, Florida**

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1.0 INTRODUCTION

The purpose of this Typical Section Memorandum is to develop feasible alternative typical sections for the proposed project based on appropriate roadway and drainage criteria and to identify the type of facility, design speed, traffic capacity, level-of-service (LOS), and required right-of-way (R/W), with consideration for the surrounding land use, business and residential development. Typical Sections will be developed with consideration of Complete Streets and to provide a context sensitive design.

1.1 Project Description

Osceola County is conducting a corridor alignment study to evaluate alternative roadway design and alignments for the widening of Boggy Creek Road from Simpson Road to Narcoossee Road, a distance of approximately 6-miles. A Project Location Map is shown in [Figure 1-1](#).

The purpose of the alignment study is to develop alternative conceptual design alignments, considering various typical sections for the widening of Boggy Creek Road from the existing 2-lane roadway to a 4-lane roadway to accommodate the future traffic volumes. The study will assess the need for capacity and operational improvements and identify all the environmental, physical, and cultural considerations of the proposed corridor, develop engineering refinements, and provide a conceptual design that will facilitate and support future development along Boggy Creek Road.

Figure 1-1: Project Location Map



2.0 TYPICAL SECTION DESIGN CRITERIA

2.1 Existing Conditions

Boggy Creek Road is an existing 2-lane undivided east-west collector roadway with 12-foot wide travel lanes and flush shoulders. There are existing left and right turn lanes at existing side streets, school entrances and commercial driveways along the corridor.

2.1.1 Roadway / Context Classification

According to Osceola County, Boggy Creek Road is classified as an Urban Major Collector roadway and has a C3R – Suburban Residential context classification.

2.1.2 Existing Posted Speeds

The posted speed limit along the corridor varies from 45 mph on the western limits to 55 mph on the eastern limits. From the beginning of the project at Simpson Road to just east of Turnberry Road, the speed limit is posted at 45 mph. From east of Turnberry Road to Narcoossee Road, the posted speed limit is 55 mph. There are two school zones located at East Lake Elementary School and the Renaissance Charter School.

2.1.3 Existing Right-of-Way

The existing right-of-way (R/W) width varies along the project corridor from 100-feet to 130-feet wide. The existing R/W widths are summarized in [Table 2-1](#).

Table 2-1: Existing Right-of-Way Widths

Limits		Approx Distance (feet)	R/W Width (LEFT) (feet)	R/W Width (RIGHT) (feet)	R/W Width (TOTAL) (feet)
From	To				
Simpson Rd	E of Morningside Dr	750	50	65	115
E of Morningside Dr	E of Fish Camp Rd	7,500	50	50	100
E of Fish Camp Rd	W of Holiday Woods	1,350	50	65	115
W of Holiday Woods	Elementary School Entrance	2,600	65	65	130
Elementary School Entrance	E of Turnberry	1,200	65	50	115
E of Turnberry	W of Rustic	10,300	50	50	100
W of Rustic	W of Rustic	350	50	55	105
W of Rustic	E of Rustic	1,250	50	50	100
E of Rustic	Fells Lane	3,400	50	65	115
Fells Lane	Narcoossee Road	2,500	65	50	115

2.1.4 Existing Multi-modal Facilities

The Osceola County Trail Network Feasibility Analysis identifies the Boggy Creek Road corridor as a future trail facility.

2.1.4.1 Pedestrian Facilities

Existing sidewalks are intermittent throughout the corridor. In general, sidewalks are located adjacent to the schools, Austin-Tindall Sports Complex and the newer subdivisions and developments. A 10-foot wide sidewalk is located adjacent to Tohopekaliga High School and the Renaissance Charter School.

2.1.4.2 Bicycle Facilities

There are no existing bicycle lanes or trails located in the study corridor. However, according to the Osceola County Trail Network Feasibility Analysis identifies the Boggy Creek Road corridor as a future trail facility.

2.1.4.3 Transit Facilities

There are no existing bus routes or facilities located in the study corridor.

2.2 Existing Land Use

The existing land use along the project corridor is mainly residential, with a mix of commercial and agricultural lands. Established commercial businesses along the corridor include Circle K, Family Dollar, Wawa, McDonalds and 7-11. Learning institutions include Tohopekaliga High School, East Lake Elementary School and the Renaissance Charter School. The Austin-Tindall Sports Complex is also located along the corridor. Access to the East Lake Fish Camp and The Floridian RV Resort are directly from Boggy Creek Road.

2.3 Typical Section Criteria

The *FDOT Design Manual (FDM)* and *Maintenance for Streets and Highways (Florida Greenbook)* are referenced as the primary guidance for the development of appropriate typical sections for the proposed project. In addition, the Osceola Land Development Code and Road Construction Specifications also provide design guidance. Osceola County criteria mirrors the FDOT criteria except that a seven-foot buffer is recommended between the back of curb and sidewalk/multi-use path to provide room for street trees. This buffer will be provided where possible based on project constraints. The roadway typical section design criteria is shown in [Table 2-2](#).

Table 2-2: Roadway Typical Section Design Criteria

Design Element	Design Standard	Design Sources
Context Classification	C3R-Suburban Residential	FDM, Part 2, Table 200.4.1
Osceola County Classification	Urban Major Collector	Osceola County
Design Speed	40-45 mph	FDM, Part 2, Chapter 240
Posted Speed	40-45 mph	Osceola County
Number of Travel Lanes	4	Per Scope
Minimum Travel Lane Width	11'	FDM, Part 2, Table 210.2.1
Travel Lane Cross Slope	0.02/0.03	FDM, Part 2, Figure 210.2.1
Minimum Median Width	15.5' – 40 mph 22' – 45 mph	FDM, Part 2, Table 210.3.1
Bike Lane Width	4' Min, 7' Max	FDM, Part 2, Sect. 223.2.1.1
Min. Sidewalk Width	6'	FDM, Part 2, Table 222.1.1
Multi-Use Path Width	10' Min, 14' Max	FDM, Part 2, Sect. 224.4
Max Sidewalk Cross Slope	0.02	FDM, Part 2, Sect 222.2.1.3
Max Multi-Use Path Cross Slope	0.02	FDM, Part 2, Sect 224.5
Outside Curb and Gutter	Type F	FDM, Part 2, Sect 210.5
Median Curb and Gutter	Type E	FDM, Part 2, Sect 210.5
Roadside Frontslope	1:2 Max, 1:6 Min	FDM, Part 2, Table 215.2.3
Roadside Backslope	1:2 Max, 1:6 Min	FDM, Part 2, Table 215.2.3
Clear Zone Width	18'-40 mph, 24'-45 mph	FDM, Part 2, Table 215.2.1
Min Lateral Offset	4' from Face of Curb	FDM, Part 2, Table 215.2.2
Minimum Border Width	14'	FDM, Part 2, Table 210.7.1

3.0 TYPICAL SECTION ALTERNATIVES

Various 4-lane divided, urban typical roadway sections, along with the No-Build alternative, were considered for the widening of Boggy Creek Road based on the traffic analysis, context classification and available right-of-way. The proposed typical section alternatives, except the No-Build alternative, will accommodate the projected traffic growth and provide an acceptable level-of-service (LOS) for the design year. For typical sections that include a multi-use path, the path will be located along the south side of the roadway to facilitate connection to the proposed Osceola County Trail Network and provide access to the Austin-Tindall Sports Complex. A summary of the typical section alternatives considered is shown in [Table 3-1](#).

Table 3-1: Summary of Typical Section Alternatives

No.	Context	Description	Design Speed	Min. R/W
1	Rural	No-Build, Existing 2-Lane Typical	45 mph	100'
2	Rural	40' Median, Paved Shoulders, Multi-Use Path South Side	65 mph	210'
3	Suburban	30' Median, Paved Shoulders, Multi-Use Path South Side	55 mph	160'
4	Suburban	15.5-22' Median, No Bike Lanes, 6' Sidewalk North Side, 10' Multi-Use Path South Side	40-45 mph	100'
5	Suburban	15.5-22' Median, No Bike Lanes, 8' Sidewalk Adjacent to Curb North Side, 10' Multi-Use Path South Side	40-45 mph	100'
6	Suburban	15.5-22' Median, 4' Bike Lanes, 10' Multi-Use Path Both Sides	40-45 mph	115'

3.1 Typical Section No. 1

Typical Section No. 1 is the No-Build alternative and would maintain the existing 2-lane undivided roadway with a 45 mph design speed, as shown in [Figure 3-1](#), with a 12-ft. wide travel lane and 6-ft. unpaved shoulder in each direction. This typical section would maintain the existing roadside swales for drainage, have intermittent pedestrian facilities and require a minimum of 100-ft. of right-of-way (R/W).

3.2 Typical Section No. 2

Typical Section No. 2 is a 4-lane divided rural roadway with a 65 mph design speed, as shown in [Figure 3-2](#), with two 12-ft. wide travel lanes and a 10-ft. wide (5-ft' paved) outside shoulder in each direction, separated by a 40-ft. depressed grass median. A 10-ft. multi-use path is provided along the south side. Open drainage ditches are provided along both sides of the roadway to convey stormwater runoff to offsite ponds. This typical section would require 210-ft. of R/W. This typical section was eliminated from further consideration due to the impacts associated with the required right-of-way width.

3.3 Typical Section No. 3

Typical Section No. 3 is a 4-lane divided suburban roadway with a 55 mph design speed, as shown in [Figure 3-3](#), with two 12-ft. wide travel lanes and an 8-ft. wide (5-ft. paved) outside shoulder in each direction, separated by 30-ft. wide raised grass median with Type E curb and

gutter, inclusive of 4-ft. wide paved inside shoulders. A 10-ft. wide multi-use path is proposed along the south side and a 6-ft. wide concrete sidewalk is proposed along the north side. Shallow drainage ditches are provided along both sides of the roadway to convey stormwater runoff to offsite ponds. This typical section requires 160-ft. of R/W. This typical section was eliminated from further consideration due to the impacts associated with the required right-of-way width.

3.4 Typical Section No. 4

Typical Section No. 4 is a 4-lane divided urban roadway with a 40-45 mph design speed, as shown in [Figure 3-4](#), with two 11-ft. wide travel lanes in each direction separated by a raised 15.5 to 22-ft. wide grassed median with Type E curb and gutter. There are no on-road bicycle lanes. A 10-ft. wide multi-use path is provided along the south side of the roadway and a 6-ft. wide concrete sidewalk is proposed along the north side. This typical section requires 100 to 115-ft. of R/W. This typical section will have a closed drainage system to convey stormwater runoff to offsite ponds.

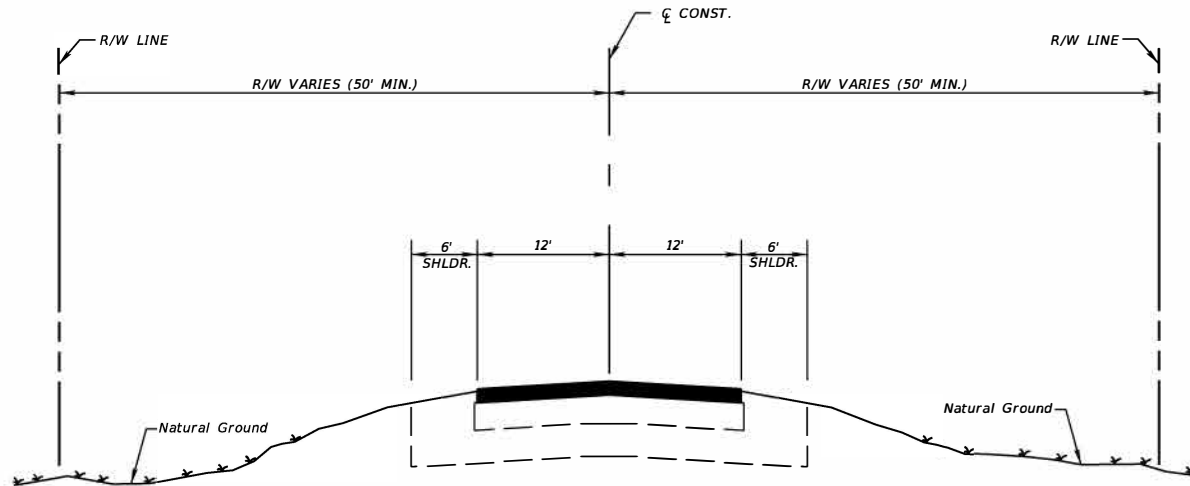
3.5 Typical Section No. 5

Typical Section No. 5, as shown in [Figure 3-5](#), is similar to Typical Section No. 4 except that it has an 8-ft. wide sidewalk located adjacent to the curb on the north side of the roadway. This typical section requires 100 to 115-ft. of R/W and will have a closed drainage system to convey stormwater runoff to offsite ponds.

3.6 Typical Section No. 6

Typical Section No. 6 is a 4-lane divided urban roadway with a 40-45 mph design speed, as shown in [Figure 3-6](#), with two 11-ft. wide travel lanes and a 4-ft. wide undesignated on-road bicycle lane in each direction, separated by a raised 15.5 to 22-ft. wide grassed median with Type E curb and gutter. A 10-ft. wide multi-use path is proposed along both sides of the roadway and requires 115 to 128-ft. of R/W. This typical section will have a closed drainage system to convey stormwater runoff to offsite ponds.

Figure 3-1: Typical Section No.: 1

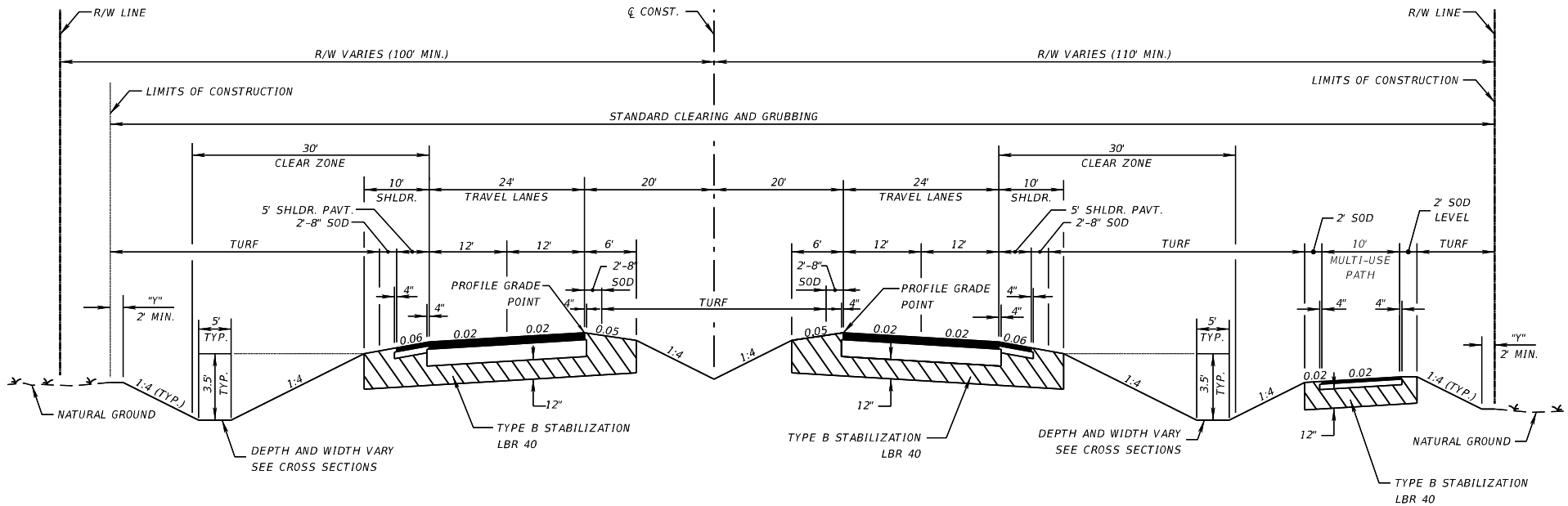


EXISTING TYPICAL SECTION (100' R/W)
2 LANE RURAL COLLECTOR



*Boggy Creek Road Widening
from Simpson Road to Narcoossee Road
Osceola County, Florida*

Figure 3-2: Typical Section No.: 2



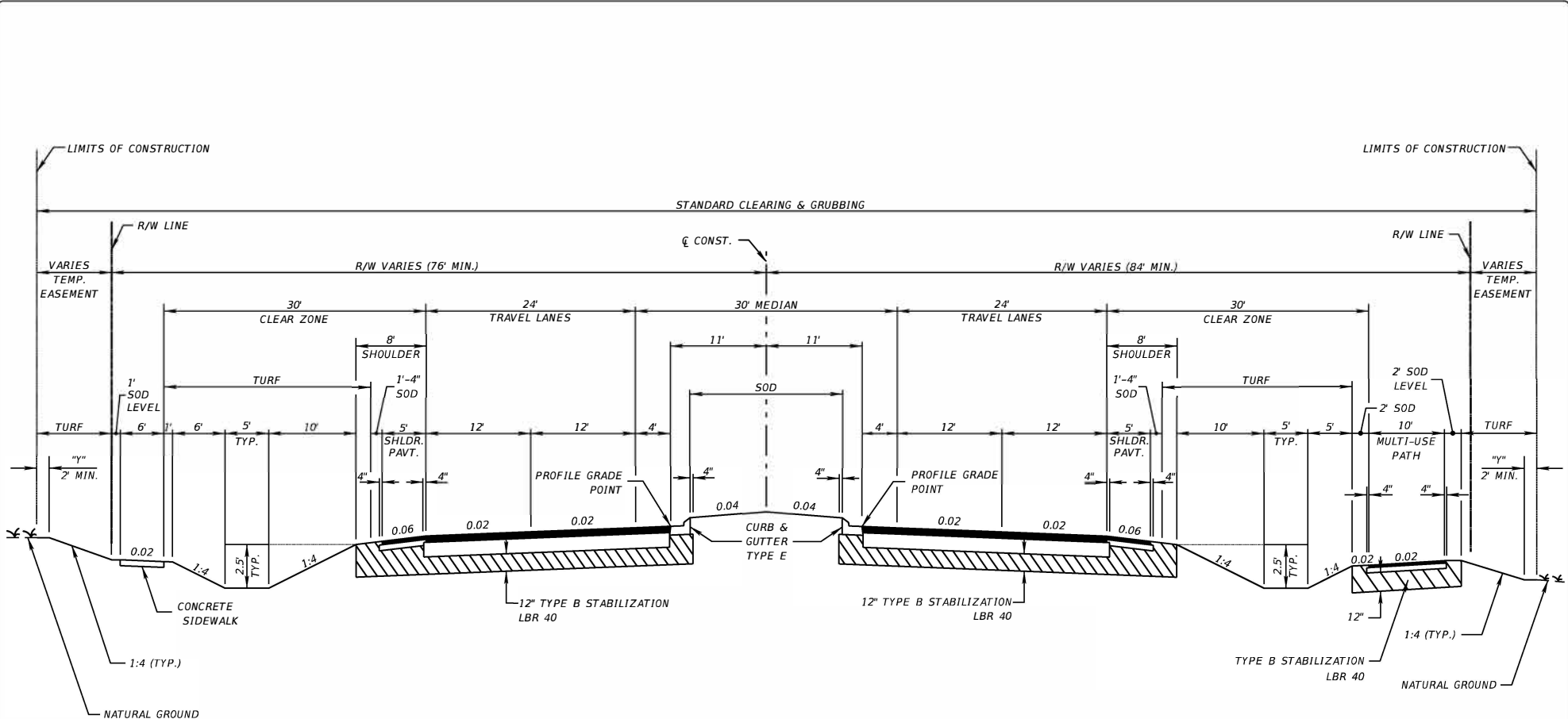
"Y" THE AREA DISTURBED BY CONSTRUCTION VARIES

TYPICAL SECTION (210' R/W)
 4 LANE DIVIDED MAJOR RURAL COLLECTOR ROADWAY WITH MULTI-USE PATH
 (40' MEDIAN)
 DESIGN SPEED = 65 MPH
 POSTED SPEED = 60 MPH



Boggy Creek Road Widening
 from Simpson Road to Narcoossee Road
 Osceola County, Florida

Figure 3-3: Typical Section No.: 3



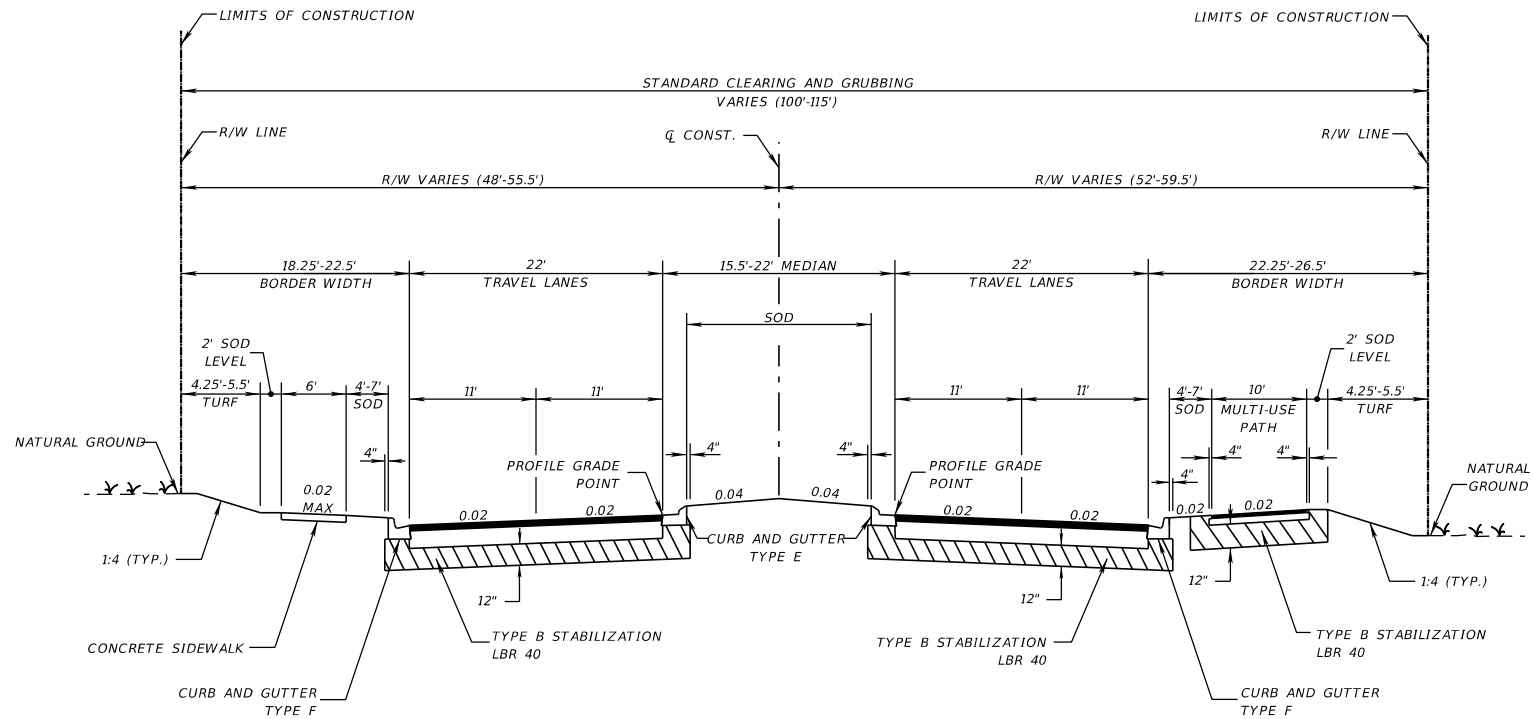
TYPICAL SECTION (160' R/W)
 4 LANE DIVIDED SUBURBAN COLLECTOR ROADWAY WITH MULTI-USE PATH, 6' SIDEWALK
 (30' MEDIAN)
 DESIGN SPEED = 55 MPH
 POSTED SPEED = 55 MPH

"Y" THE AREA DISTURBED BY CONSTRUCTION VARIES



Boggy Creek Road Widening
 from Simpson Road to Narcoossee Road
 Osceola County, Florida

Figure 3-4: Typical Section No.: 4

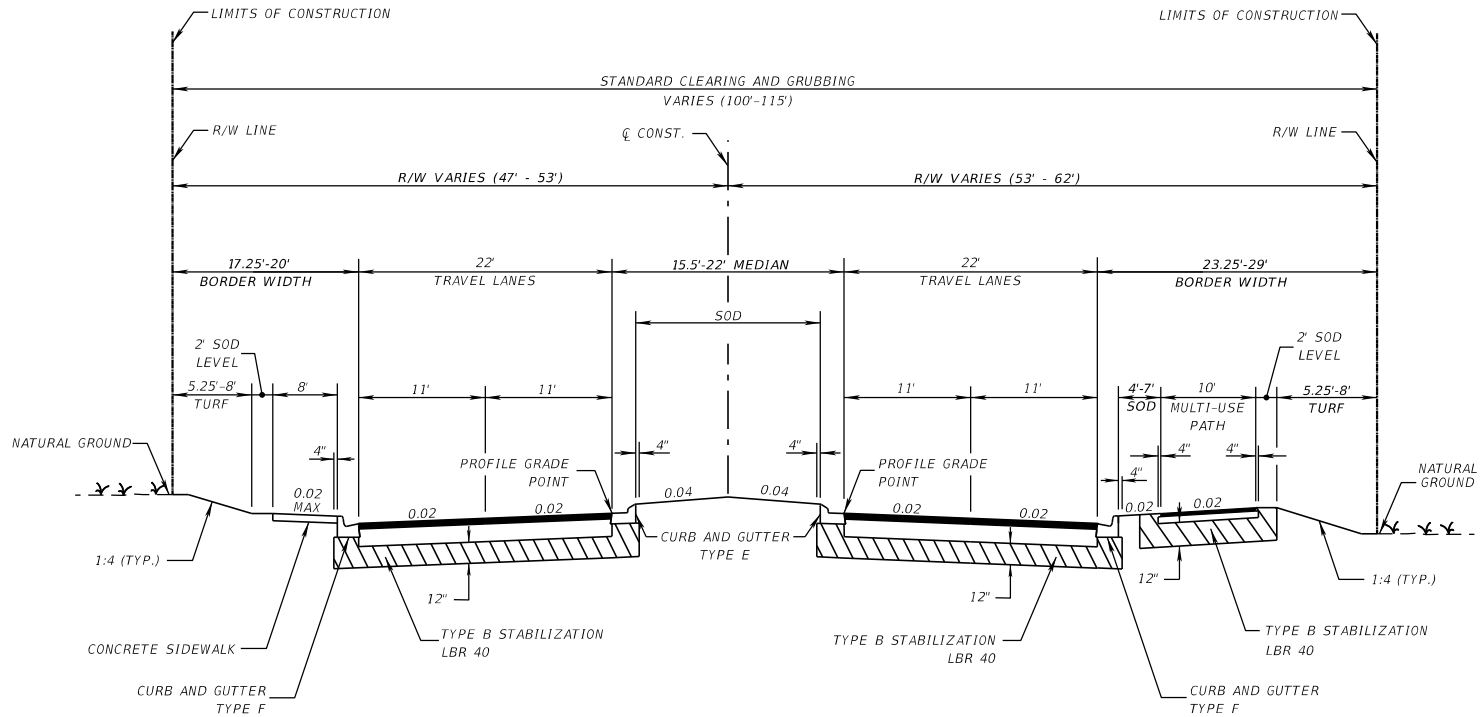


TYPICAL SECTION (100'-115' R/W)
 4 LANE DIVIDED URBAN MAJOR COLLECTOR ROADWAY WITH MULTI-USE PATH, 6' SIDEWALK
 (RAISED MEDIAN, 11' LANES)
 DESIGN SPEED = 40-45 MPH
 POSTED SPEED = 40-45 MPH



Boggy Creek Road Widening
 from Simpson Road to Narcoossee Road
 Osceola County, Florida

Figure 3-5: Typical Section No.: 5

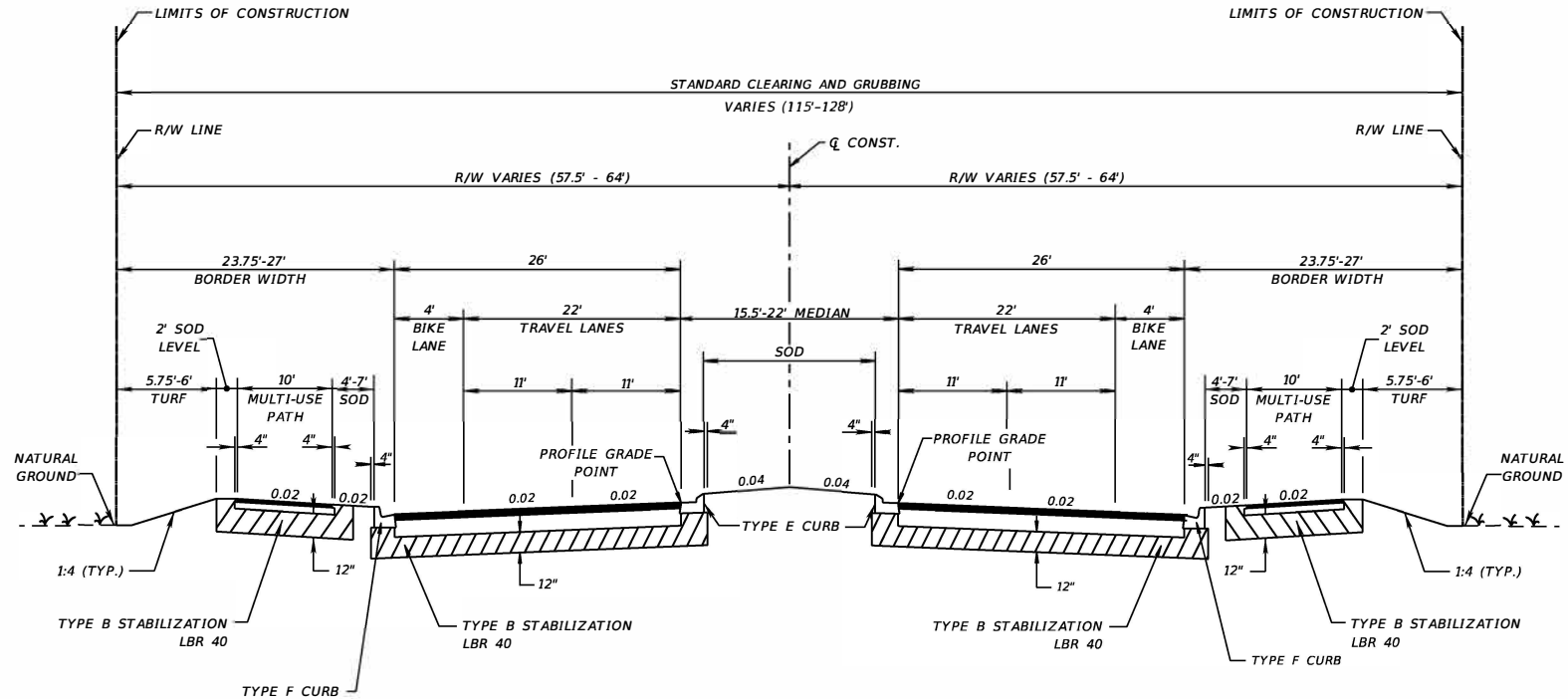


TYPICAL SECTION (110'-115' R/W)
 4 LANE URBAN MAJOR COLLECTOR ROADWAY WITH MULTI-USE PATH, 8' SIDEWALK
 (RAISED MEDIAN, 11' LANES)
 DESIGN SPEED = 40-45 MPH
 POSTED SPEED = 40-45 MPH



*Boggy Creek Road Widening
 from Simpson Road to Narcoossee Road
 Osceola County, Florida*

Figure 3-6: Typical Section No.: 6



TYPICAL SECTION (115'-128' R/W)
 4 LANE DIVIDED URBAN MAJOR COLLECTOR ROADWAY WITH 10' MULTI-USE PATHS
 (RAISED MEDIAN, 11' LANES, 4' BIKE LANE)
 DESIGN SPEED = 40-45 MPH
 POSTED SPEED = 40-45 MPH



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