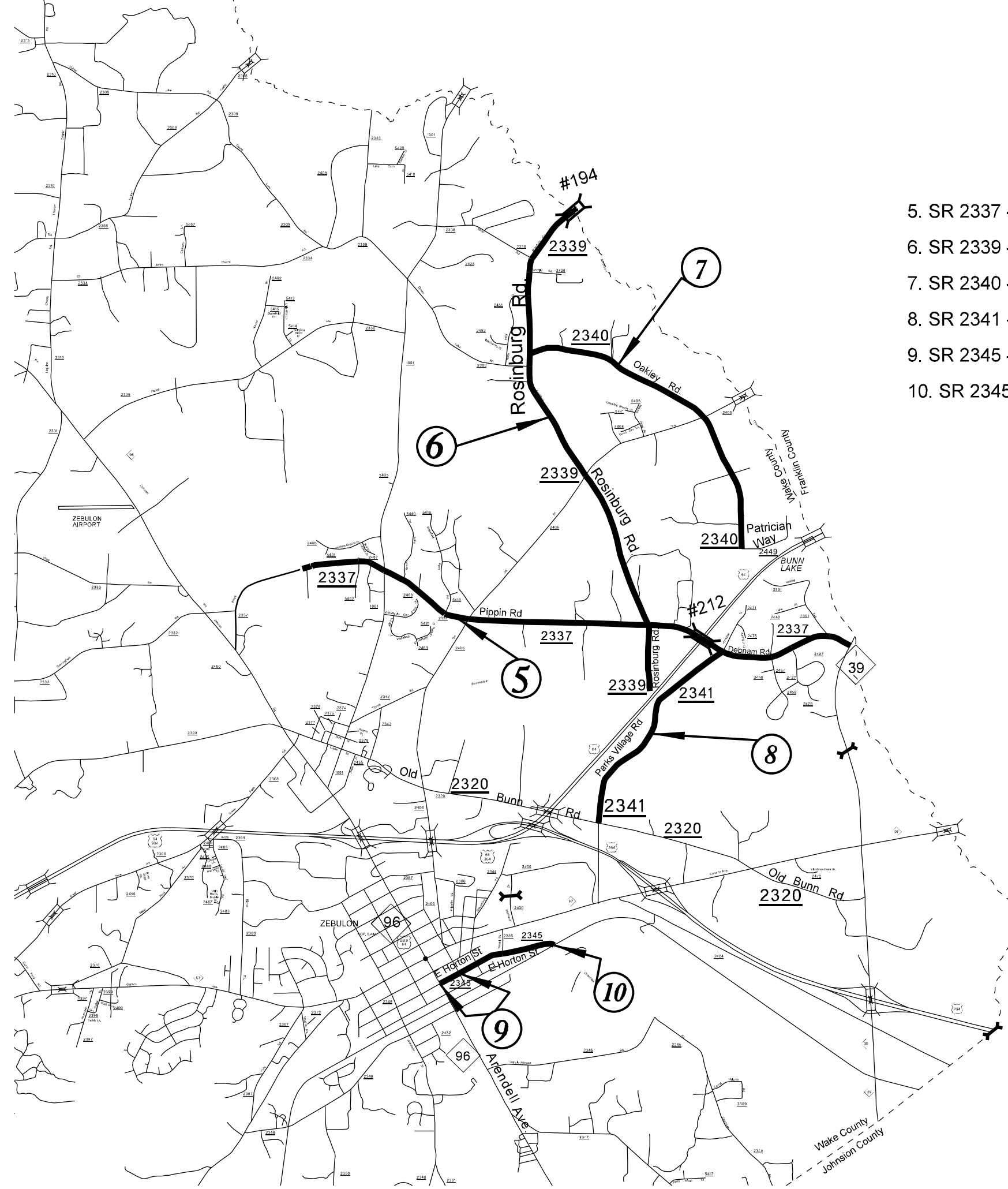


5/14/23
Mapset: S:\projects\2021\2021CPT\05.22.20921\Drawings\Drawings.dwg



- 5. SR 2337 - PIPPIN RD/ DEBNAM RD
- 6. SR 2339 - ROSINBURG RD
- 7. SR 2340 - OAKLEY RD
- 8. SR 2341 - PARKS VILLAGE RD
- 9. SR 2345 - E HORTON ST
- 10. SR 2345 - E HORTON ST

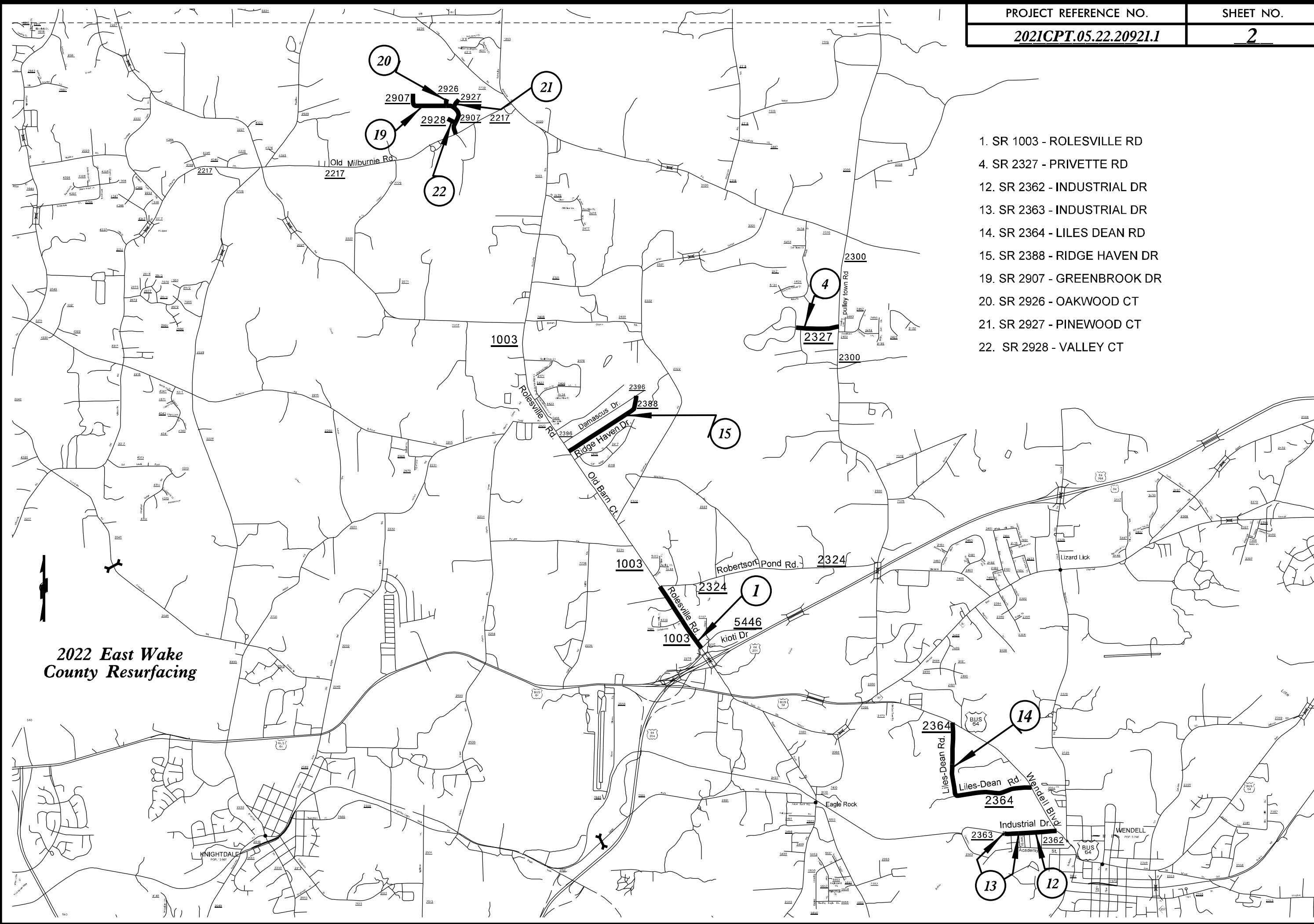
**2022 East Wake
County Resurfacing**

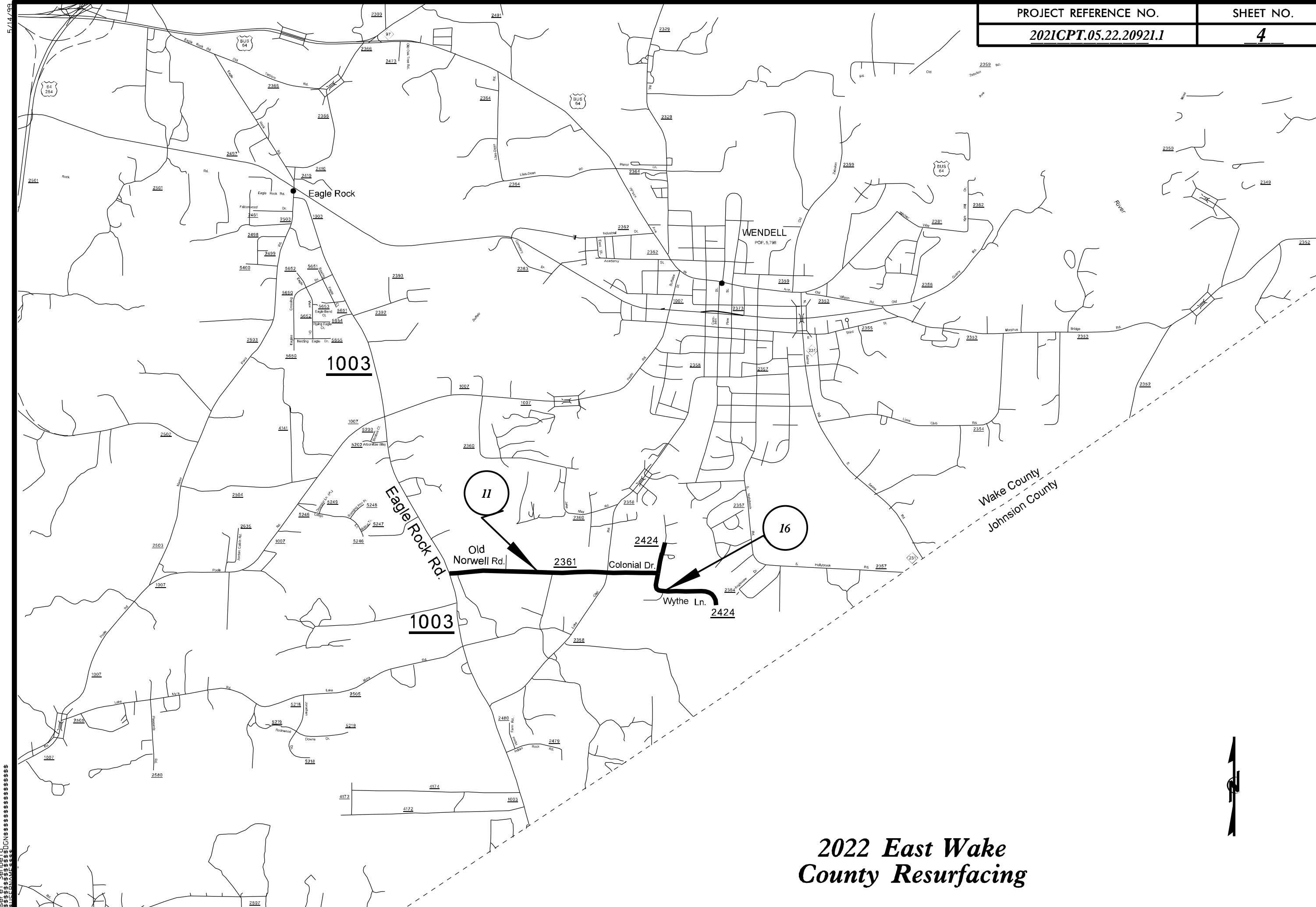


2022 East Wake County Resurfacing

- 1. SR 1003 - ROLESVILLE RD
- 4. SR 2327 - PRIVETTE RD
- 12. SR 2362 - INDUSTRIAL DR
- 13. SR 2363 - INDUSTRIAL DR
- 14. SR 2364 - LILES DEAN RD
- 15. SR 2388 - RIDGE HAVEN DR
- 19. SR 2907 - GREENBROOK DR
- 20. SR 2926 - OAKWOOD CT
- 21. SR 2927 - PINWOOD CT
- 22. SR 2928 - VALLEY CT

Meseret Sembeta





Meseret Senbeta

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022

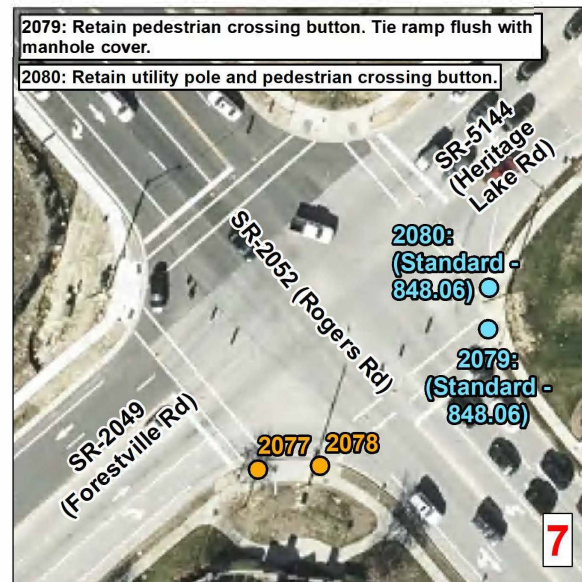
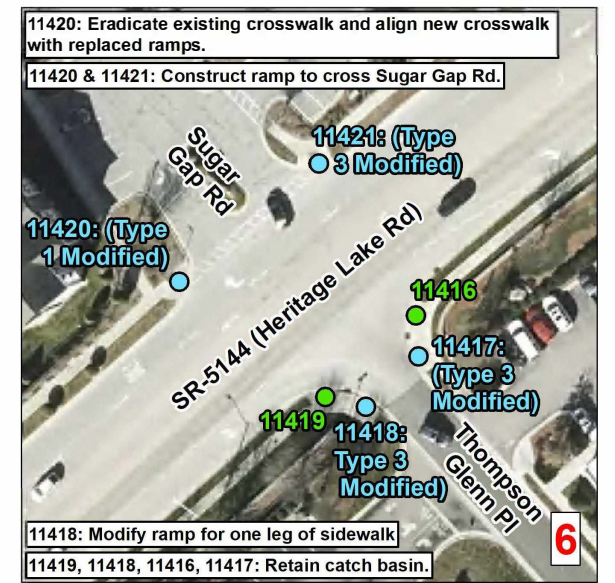
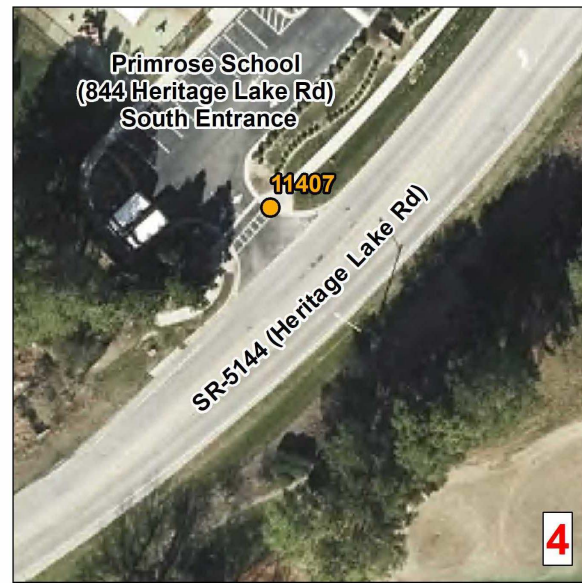
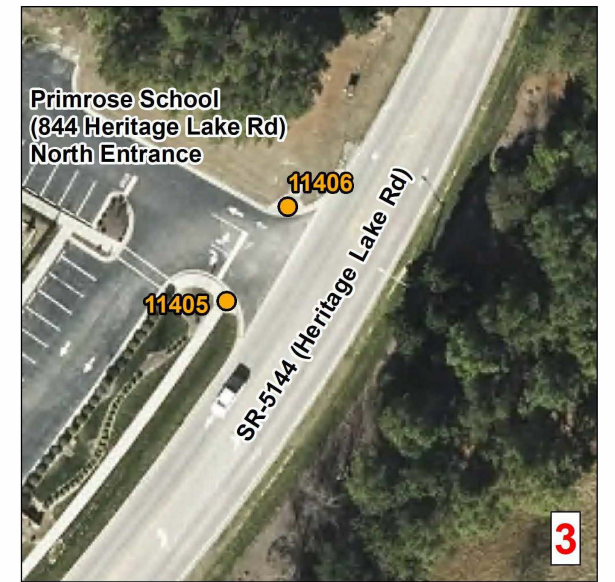
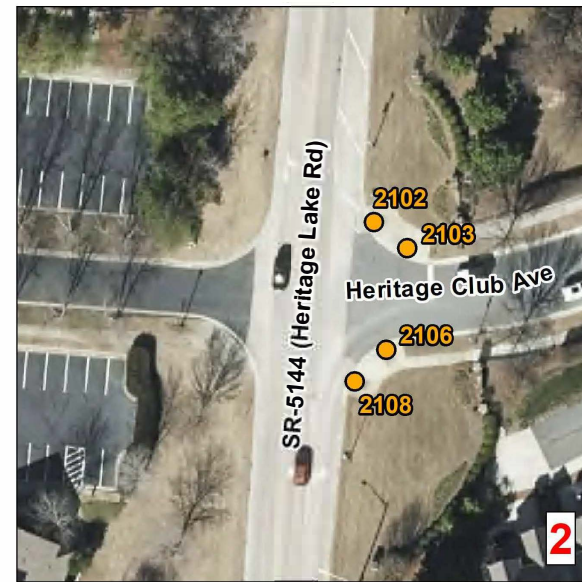
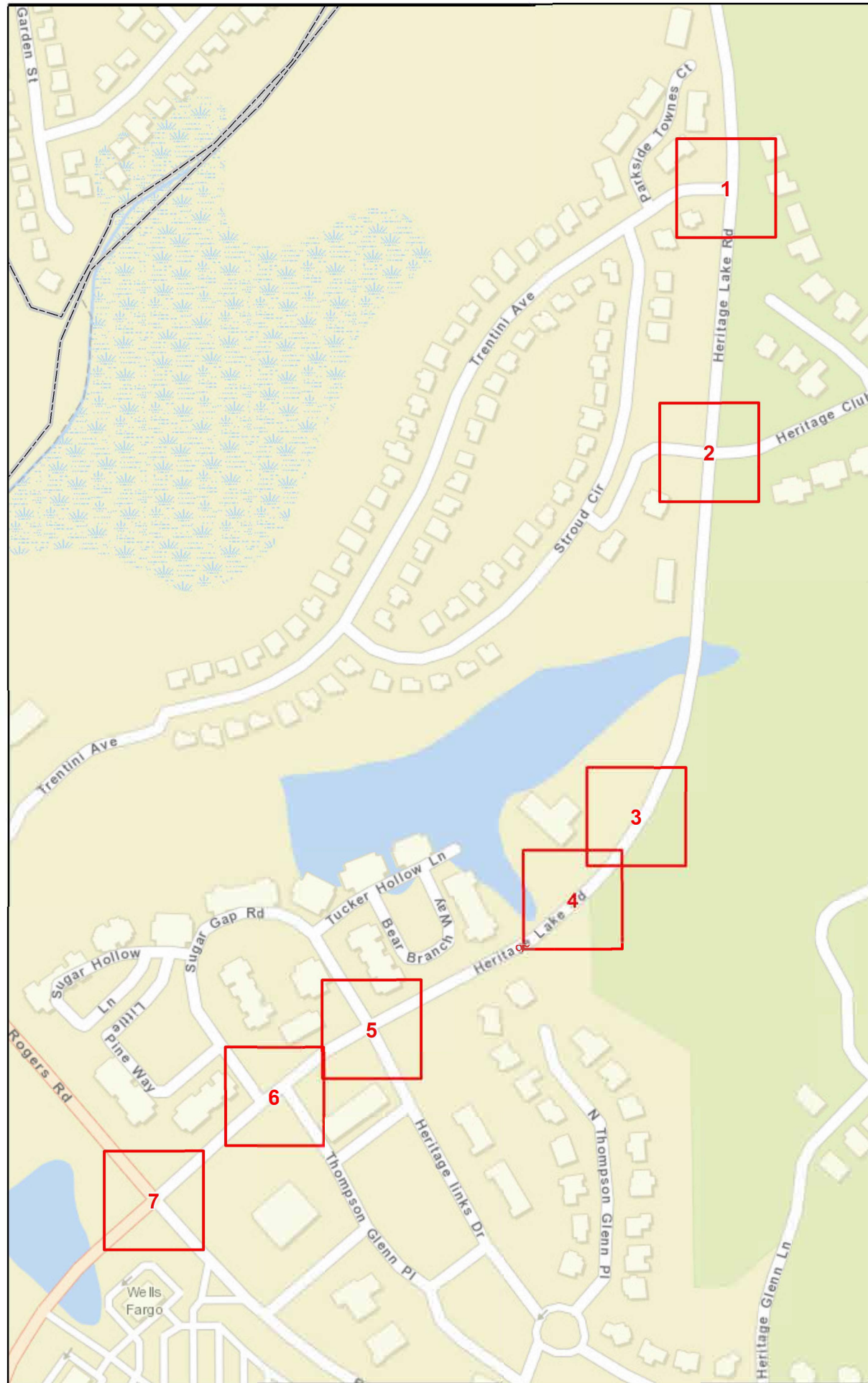
03/15/2022

03/15/2022

03/15/2022

03/15/2022

03/15/2022



Curb Ramps To Be Repaired

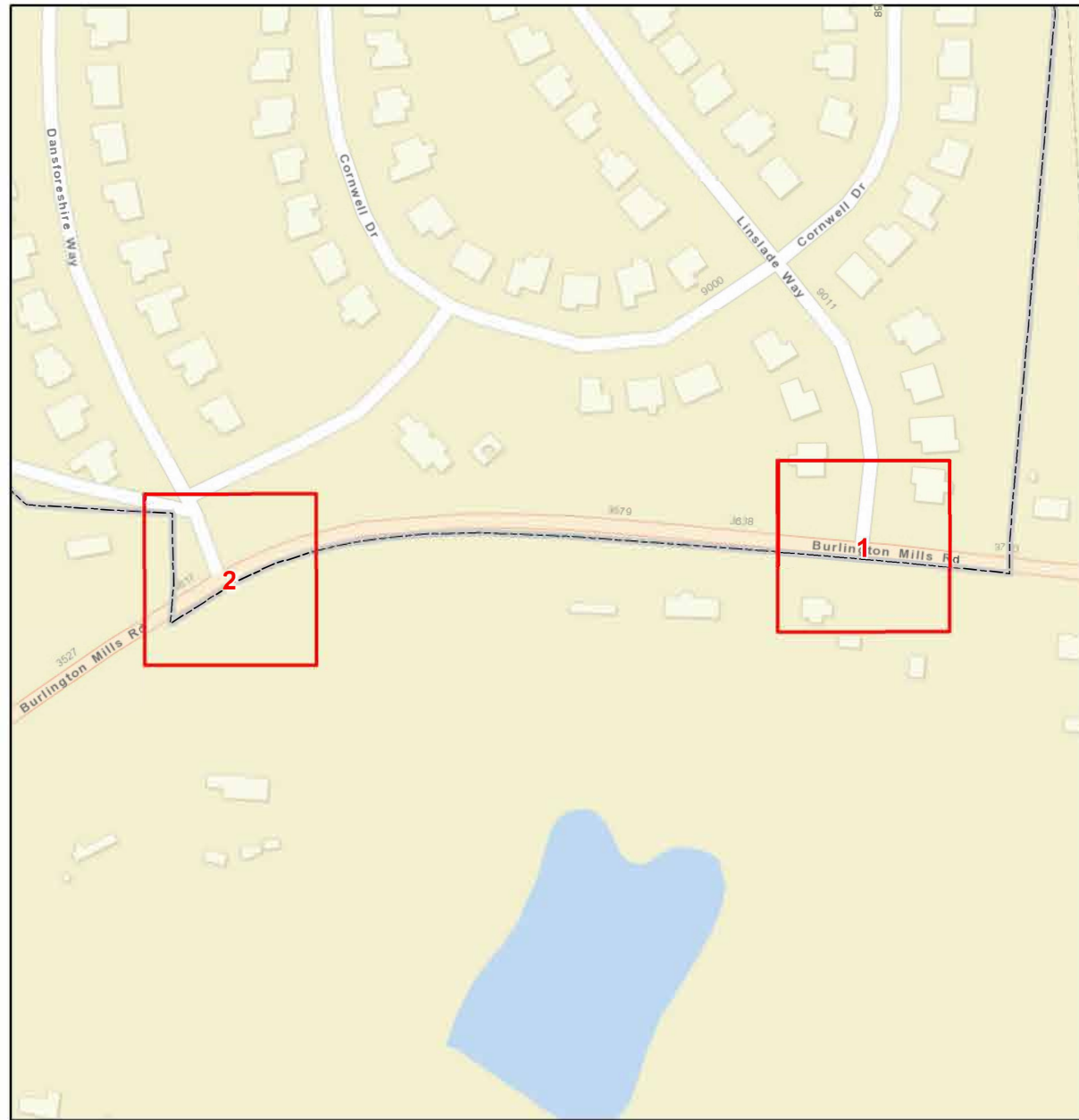
- Retrofit
- Remove and Replace
- New Curb Ramp
- Remove Ramp

Municipal Boundary
 NCHPO Historic Boundary (NR and LHD)

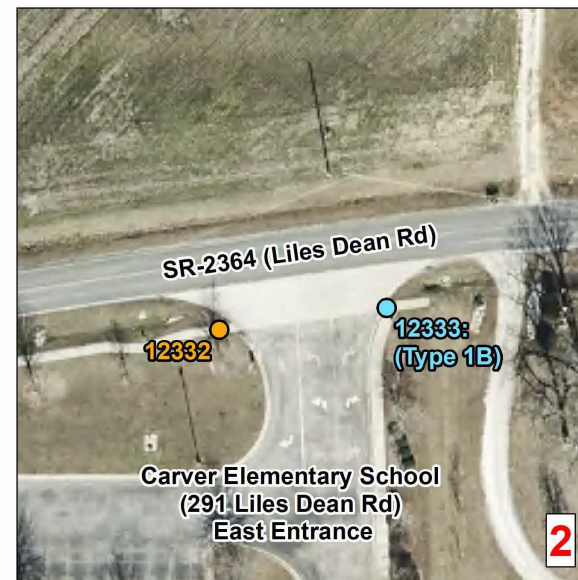
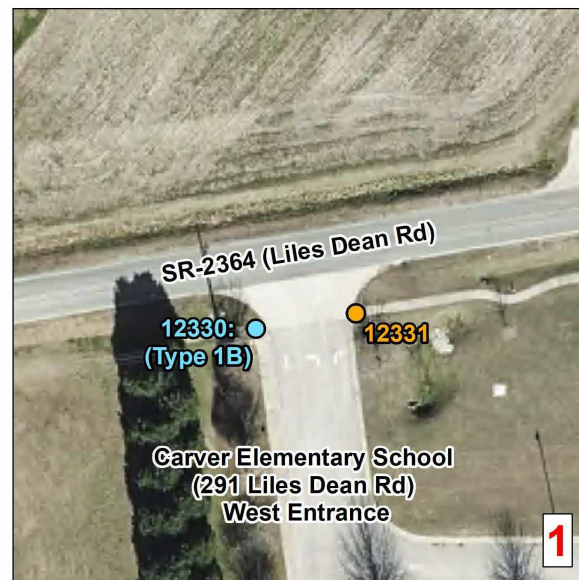
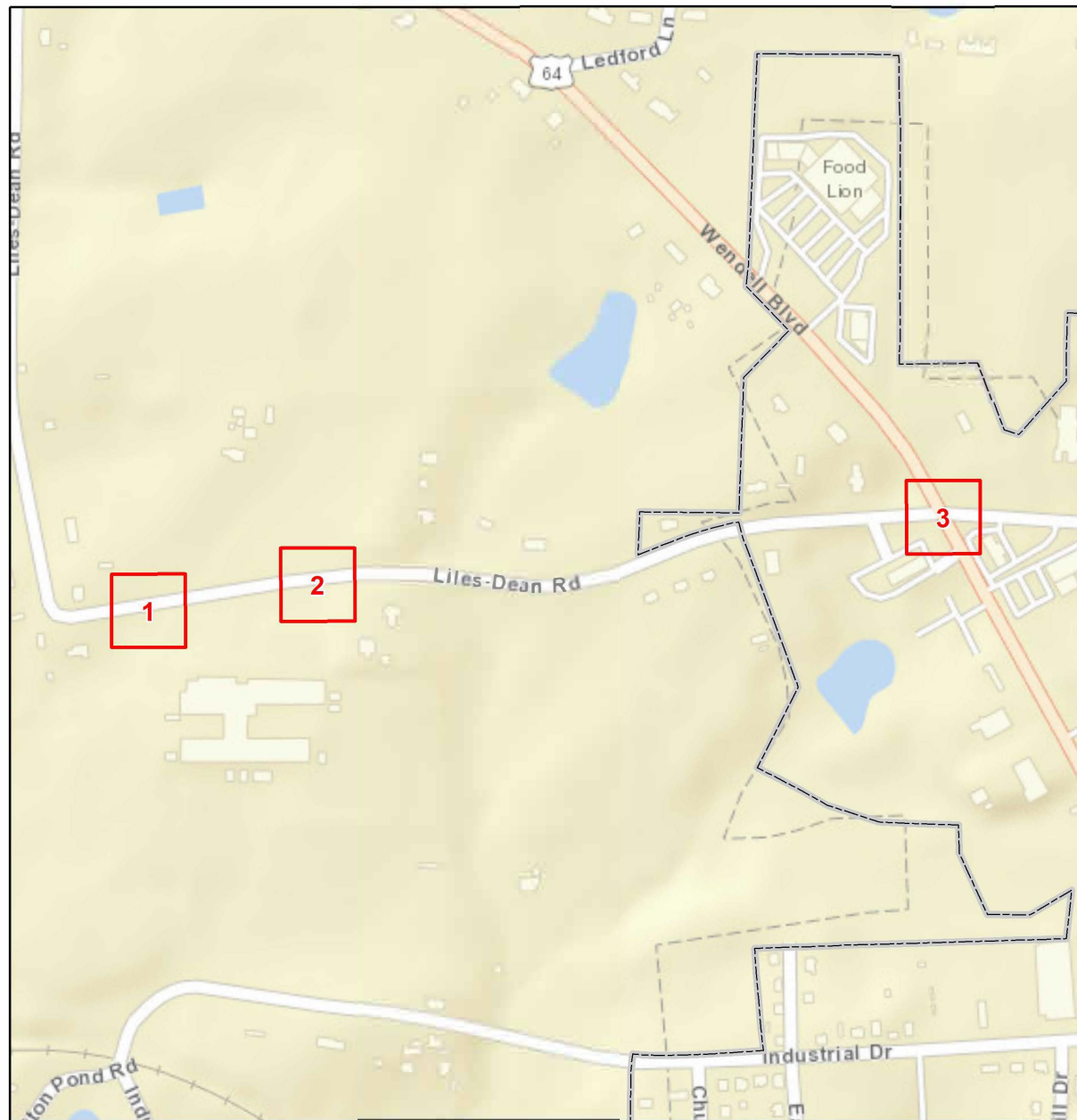
2022 East
WBS: 2021CPT.05.22.20921.1
Heritage Lake Rd
From SR 2052 To Beg C&G

NORTH CAROLINA DEPARTMENT
 OF TRANSPORTATION
 DIVISION 5

Source: NV5 Engineers and Consultants Inc., ESRI, NC OneMap, NCDOT, NCHPO



Curb Ramps To Be Repaired		
	Retrofit	
	Remove and Replace	
	New Curb Ramp	
	Remove Ramp	
	Municipal Boundary	
	NCHPO Historic Boundary (NR and LHD)	
2022 East		
WBS: 2021CPT.05.22.20921.1		
Burlington Mills Rd		
From US 1 To SR 2049		
	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION 5	
<small>Source: NV5 Engineers and Consultants Inc., ESRI, NC OneMap, NCDOT, NCHPO</small>		



Curb Ramps To Be Repaired

- Retrofit
- Remove and Replace
- New Curb Ramp
- Remove Ramp

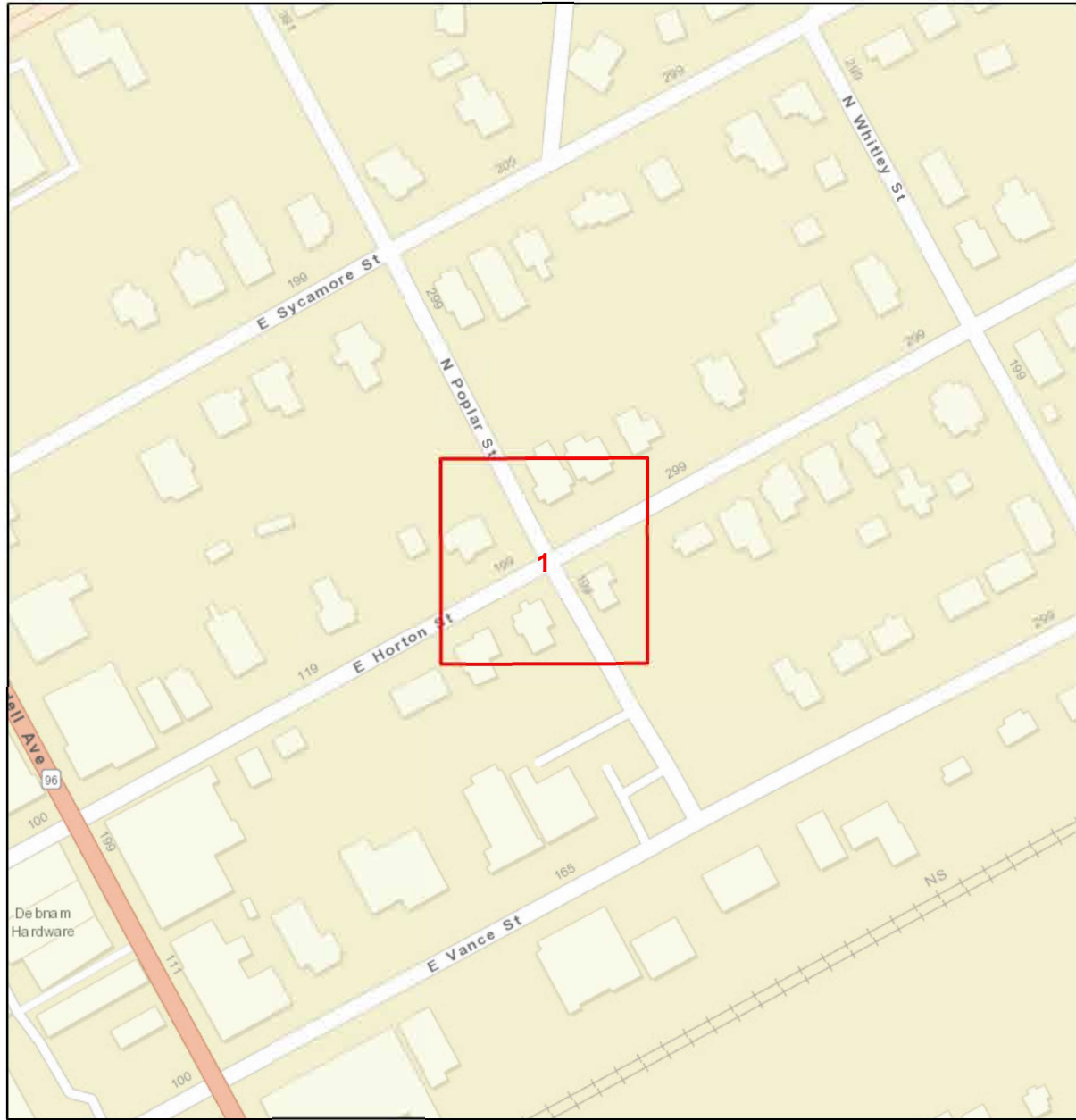
Municipal Boundary
 NCHPO Historic Boundary (NR and LHD)

2022 East
WBS: 2021CPT.05.22.20921.1

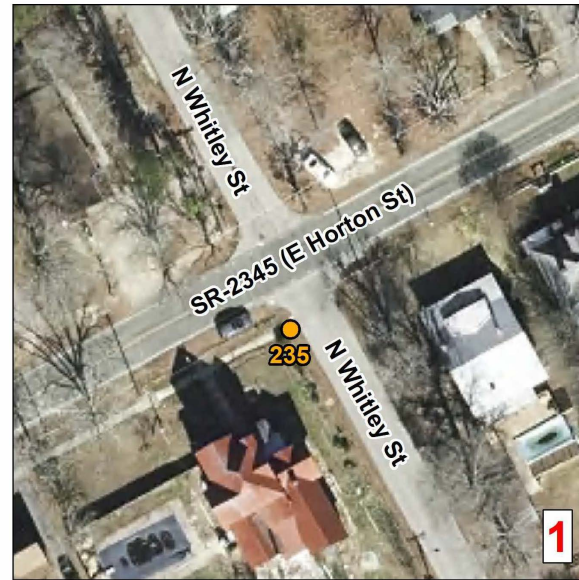
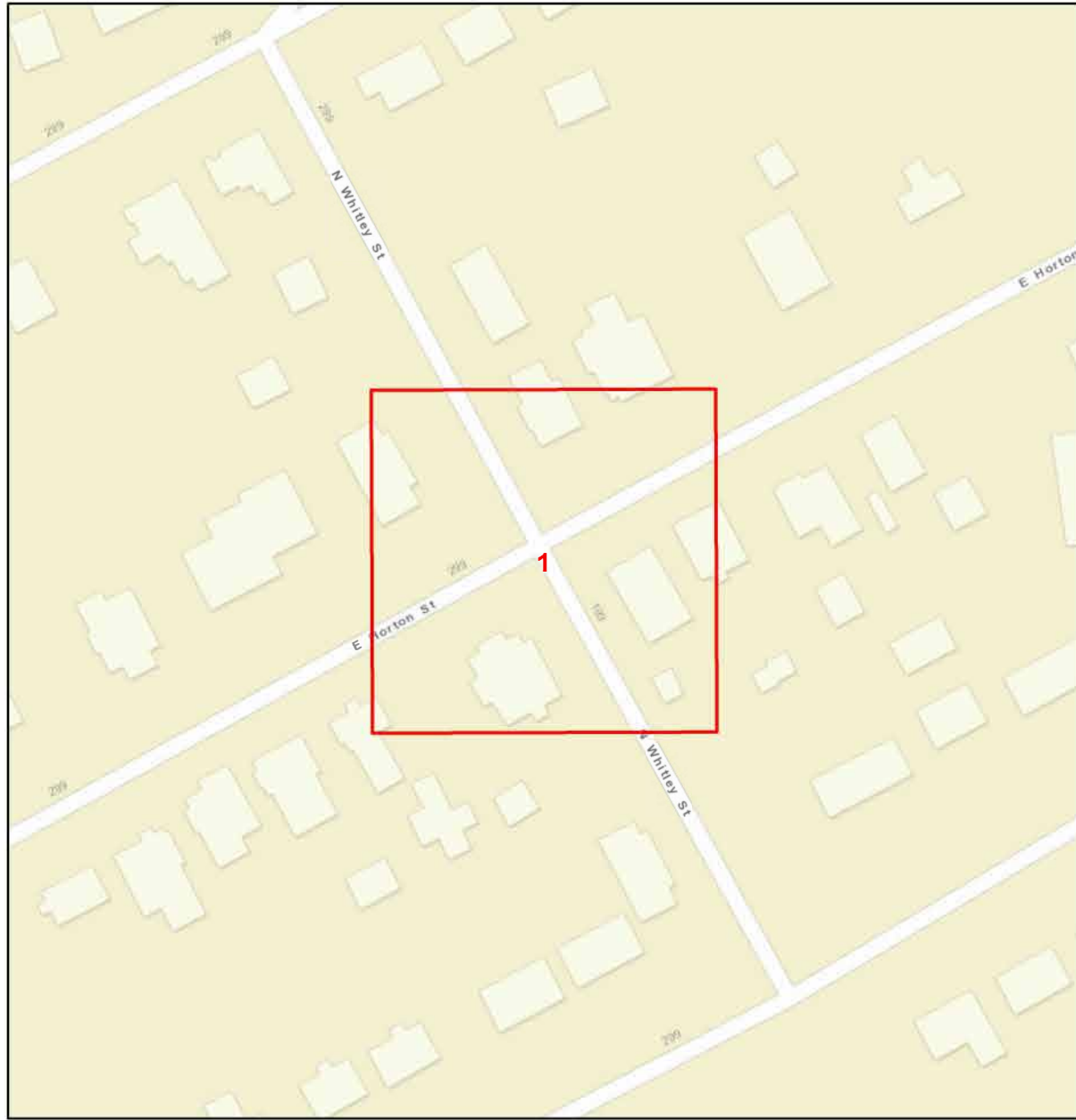
Liles Dean Rd
From US 64 BUS To US 64 BUS

NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION 5

Source: NV5 Engineers and Consultants Inc., ESRI, NC OneMap, NCDOT, NCHPO



Curb Ramps To Be Repaired		
	Retrofit	
	Remove and Replace	
	New Curb Ramp	
	Remove Ramp	
	Municipal Boundary	
	NCHPO Historic Boundary (NR and LHD)	
2022 East		
WBS: 2021CPT.05.22.20921.1		
E Horton St		
From NC 96 To END C&G		
	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION 5	
Source: NV5 Engineers and Consultants Inc., ESRI, NC OneMap, NCDOT, NCHPO		



Curb Ramps To Be Repaired		
	Retrofit	
	Remove and Replace	
	New Curb Ramp	
	Remove Ramp	
	Municipal Boundary	
	NCHPO Historic Boundary (NR and LHD)	
2022 East		
WBS: 2021CPT.05.22.20921.1		
E Horton St		
From END C&G To RR		
	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION 5	
Source: NV5 Engineers and Consultants Inc., ESRI, NC OneMap, NCDOT, NCHPO		

PAVEMENT SCHEDULE

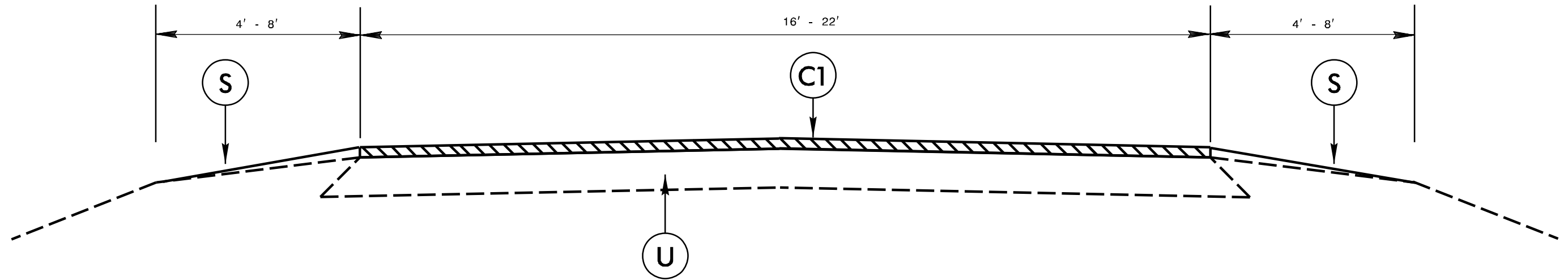
PROJECT REFERENCE NO.

SHEET NO.

2021CPT.05.22.20921.1

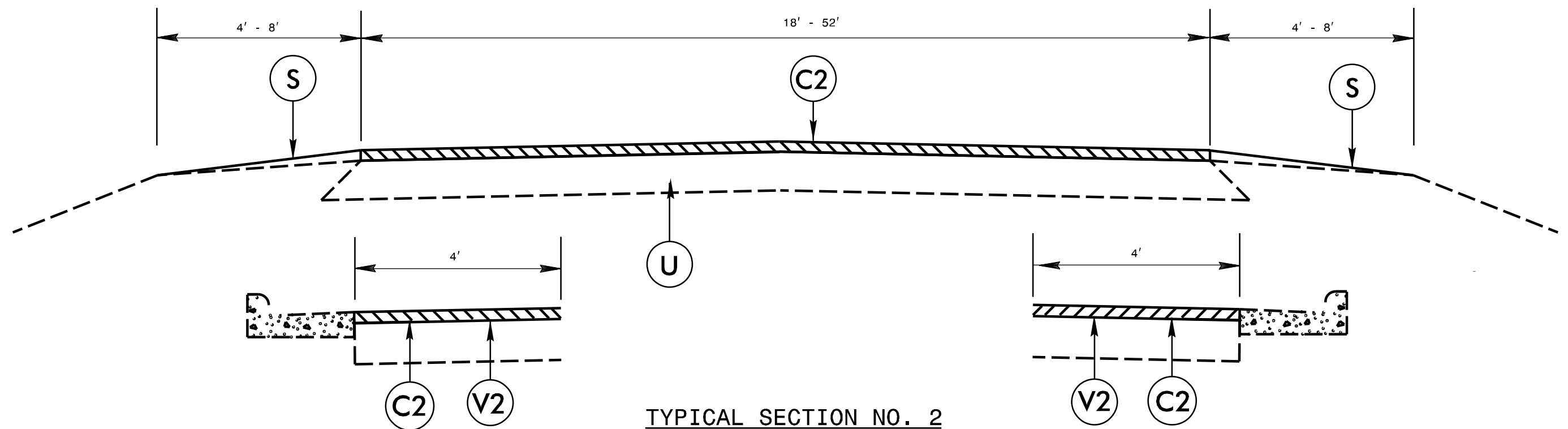
10

C1	1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	S	SHOULDER GRADING ASB REQUIRED (EXCEPT AT RESIDENTIAL AREAS)
C2	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
		V1	1½" MILLING
		V2	0" - 1 ½" MILLING



*Mill 1¼" +/- on map 5 Bridge # 212 and map 6 Bridge # 194 as directed by the engineer to resurface and not add any additional weight on the bridge.

TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2

PAVEMENT SCHEDULE

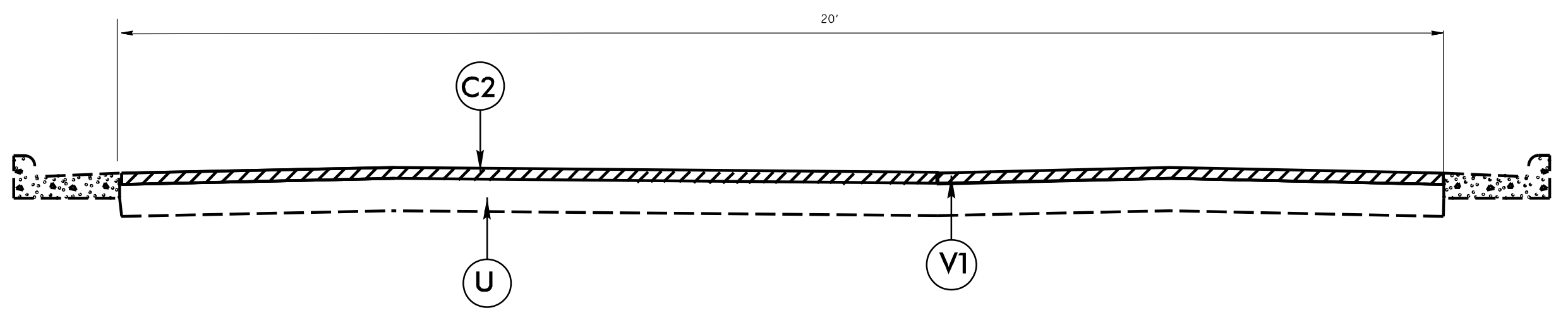
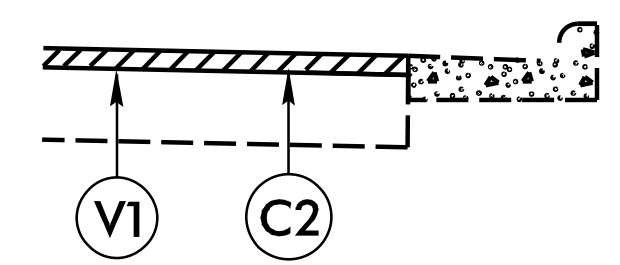
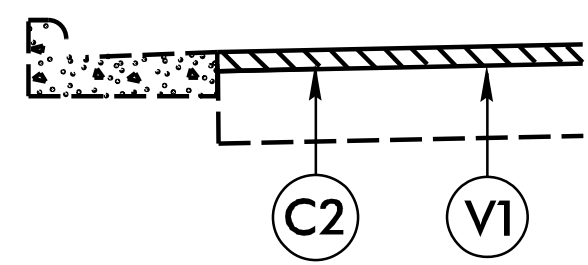
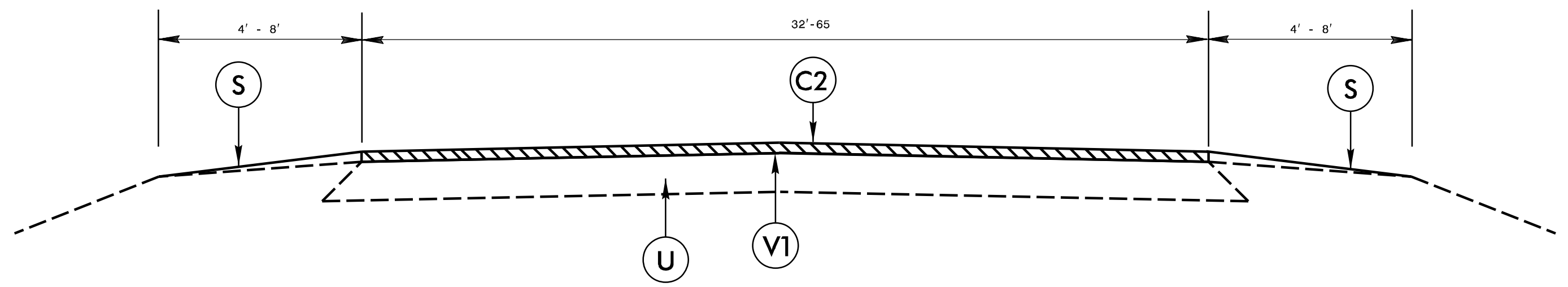
C1	1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	S	SHOULDER GRADING ASB REQUIRED (EXCEPT AT RESIDENTIAL AREAS)
C2	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
		V1	1½" MILLING
		V2	0" - 1 ½" MILLING

PROJECT REFERENCE NO.

2021CPT.05.22.20921.1

SHEET NO.

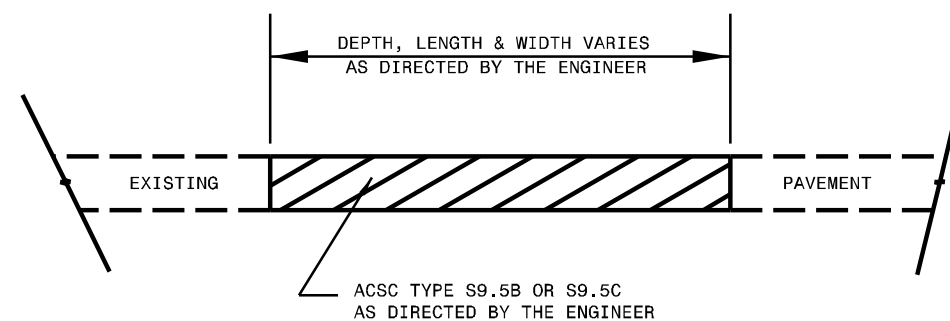
11



TYPICAL SECTION NO. 4

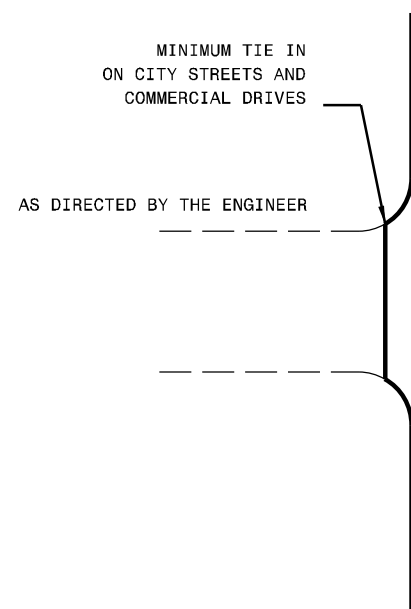
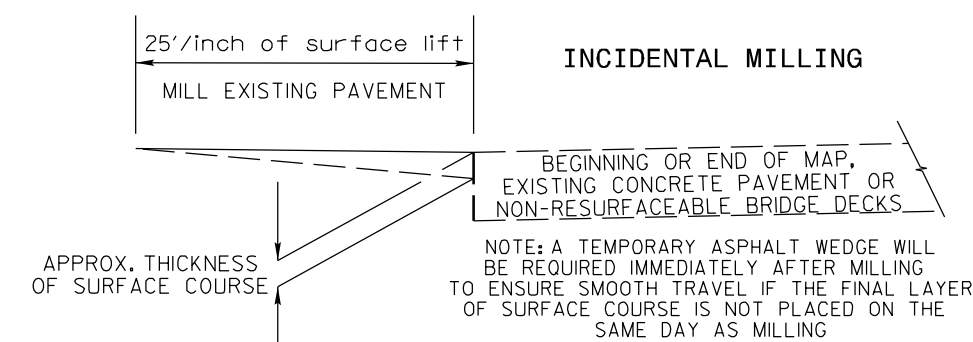
NOTES

ALL UNPAVED S.R. ROADS TO BE RESURFACED 50' FROM EDGE OF PAVEMENT OF MAIN PROJECT
ALL PAVED S.R. ROADS TO BE RESURFACED TO THE ENDS OF THE RADI, OR AS DIRECTED BY THE ENGINEER.
EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.
BRIDGES TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.

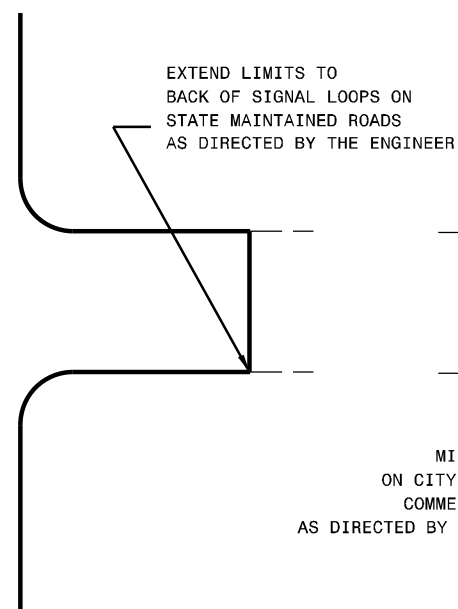


PATCHING EXISTING PAVEMENT

MILLING TO BE PERFORMED PRIOR TO PATCHING

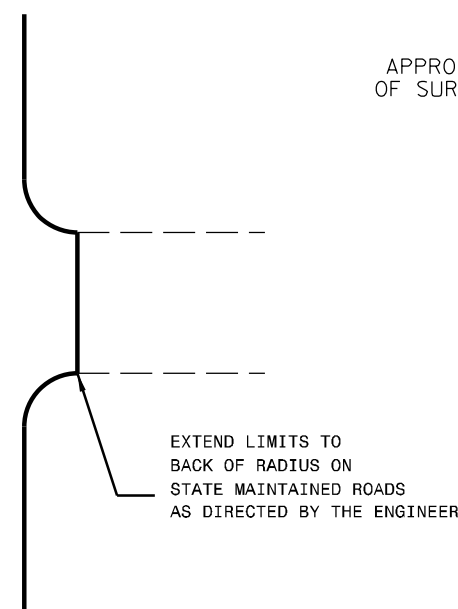


DETAIL OF PROJECT LIMITS AT SIGNALIZED Y LINES



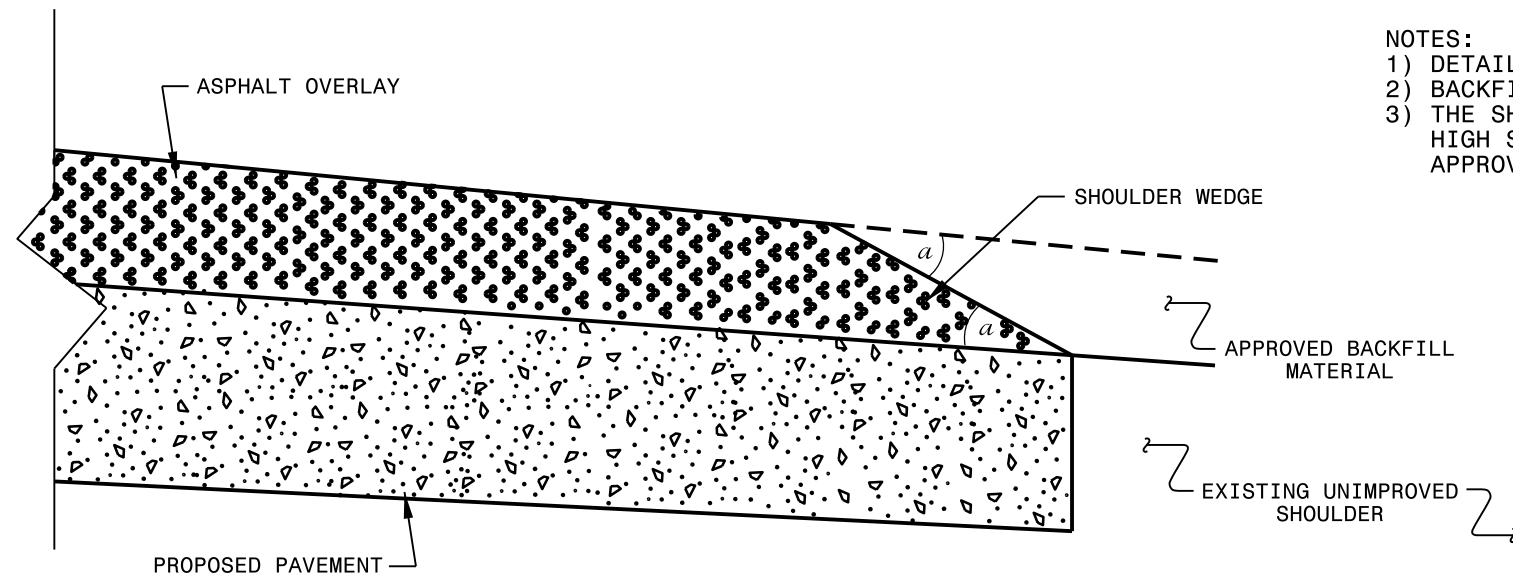
MINIMUM TIE IN ON CITY STREETS AND COMMERCIAL DRIVES AS DIRECTED BY THE ENGINEER

DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES



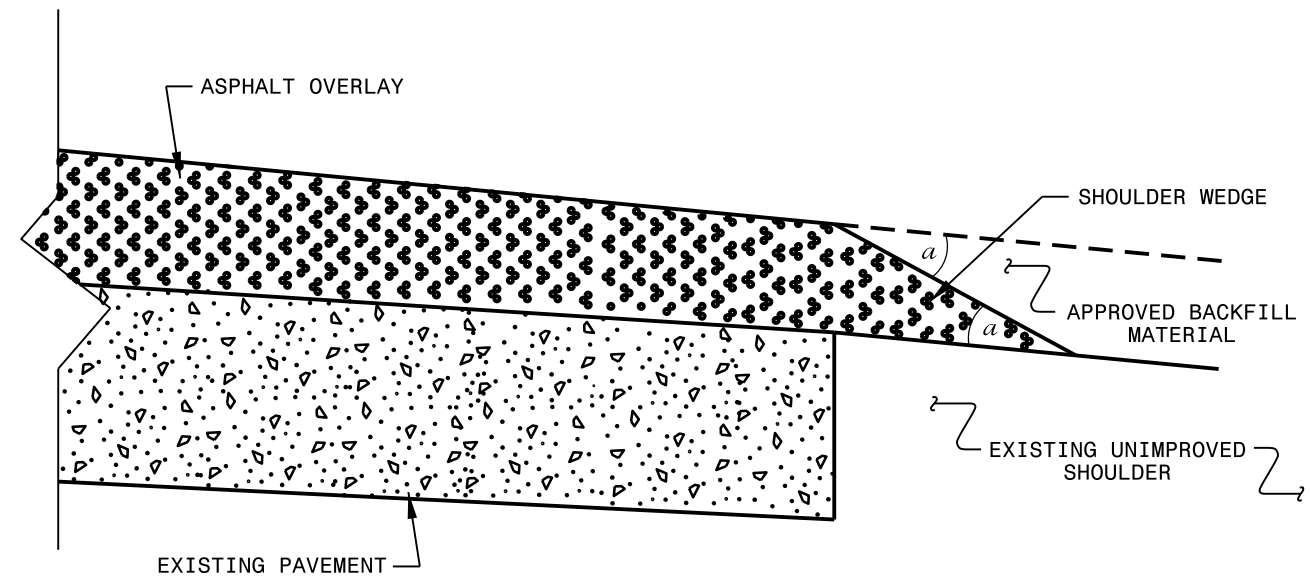
NOTES:

- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
- 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
- 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



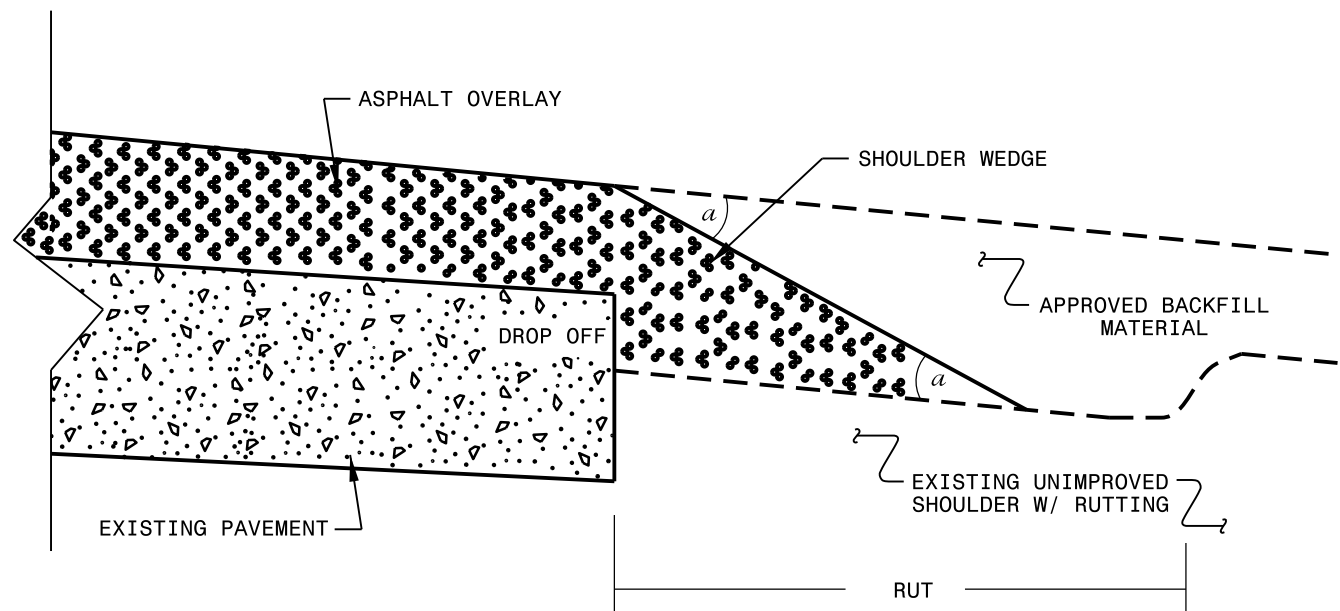
SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ Widening or with Existing Paved Shoulder having no dropoffs)



SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ NO Widening)



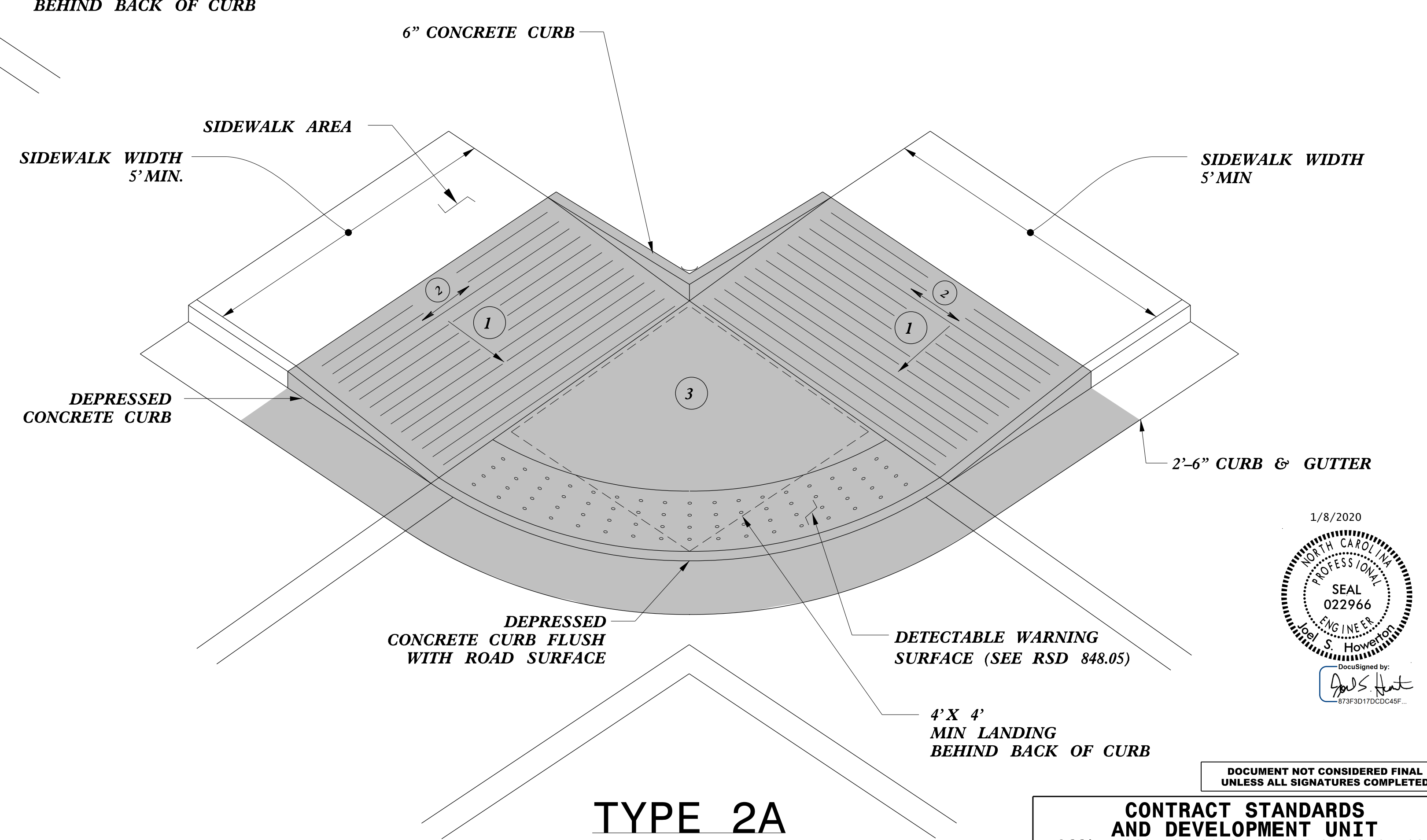
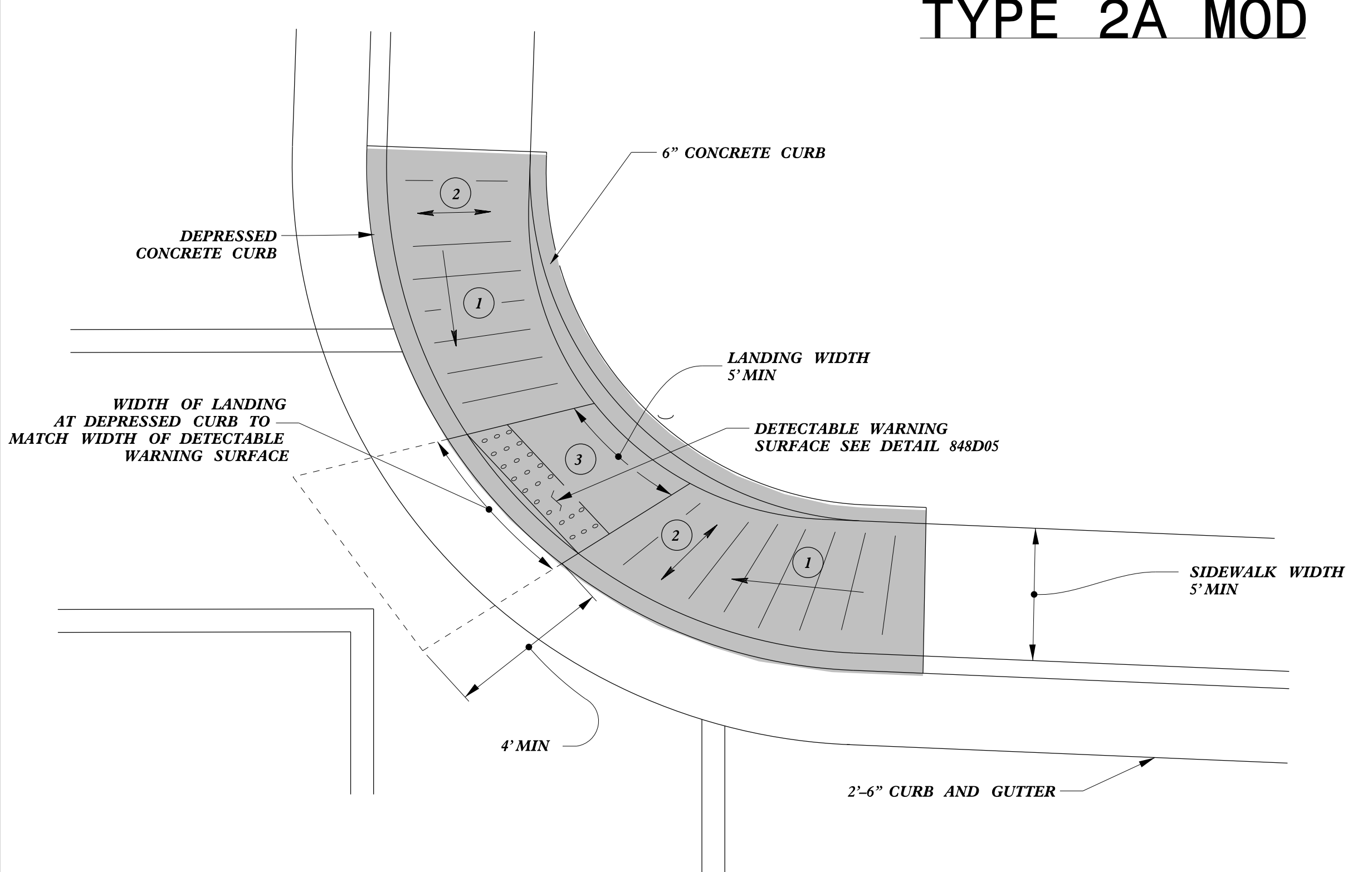
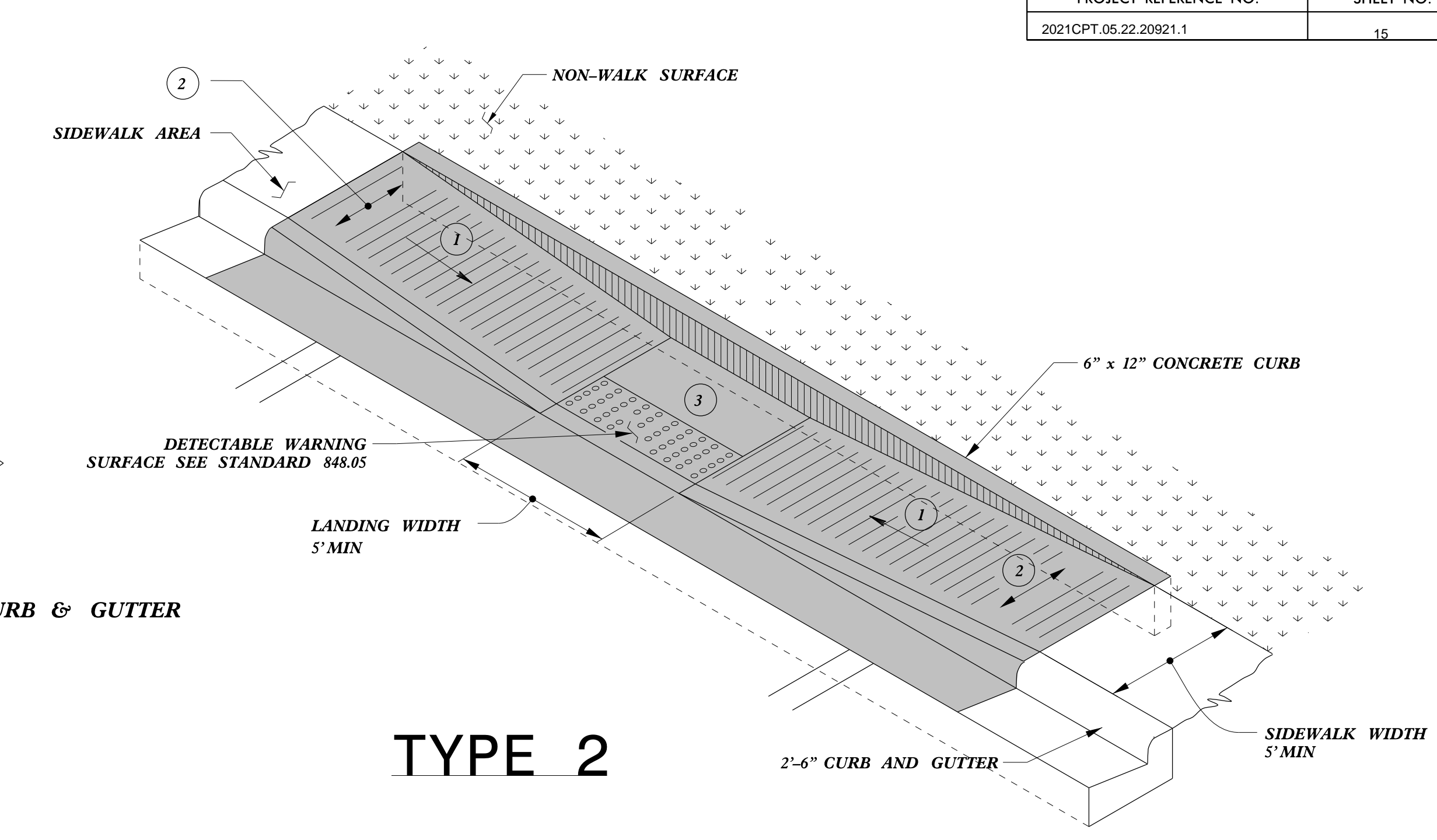
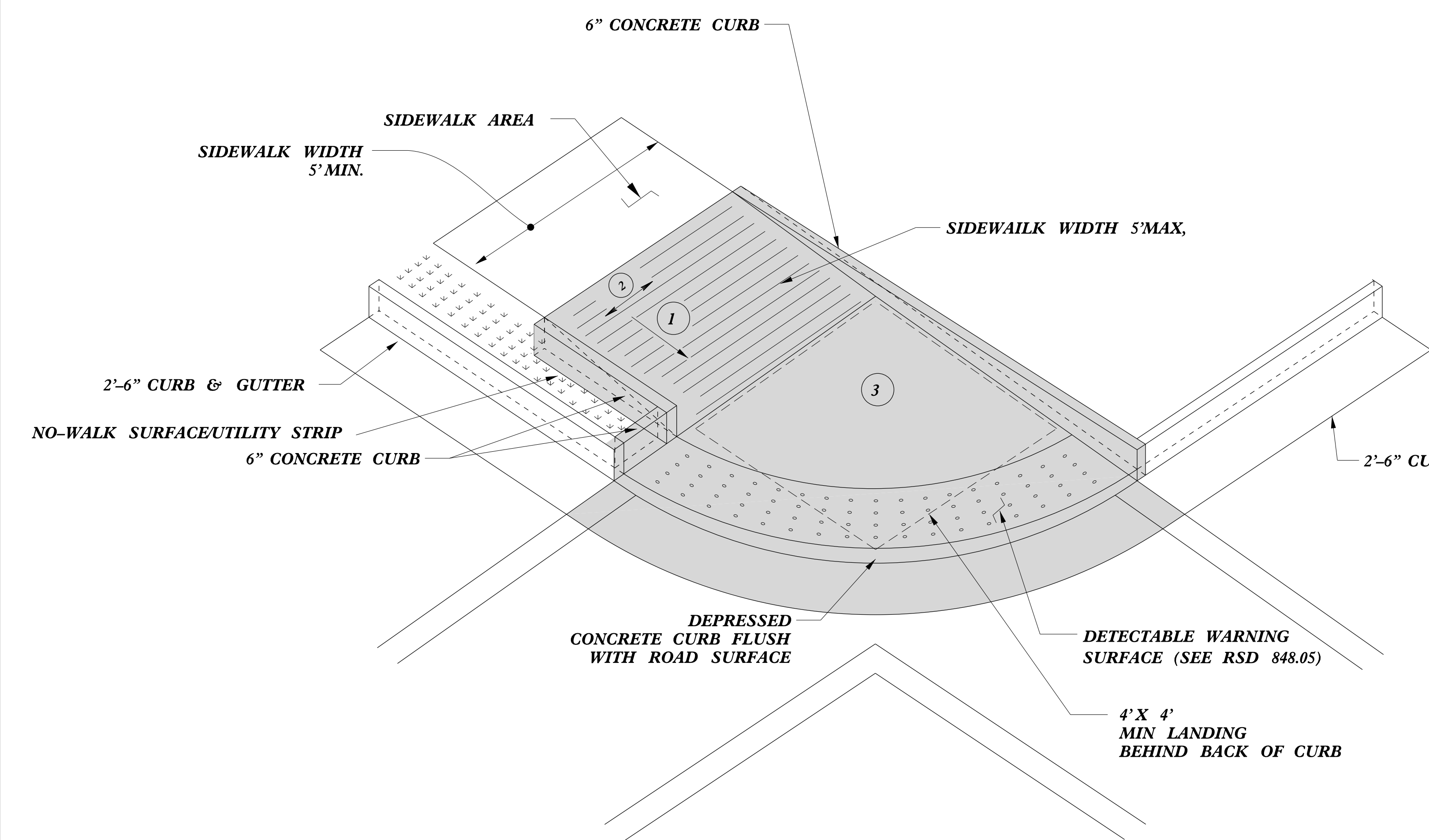
SHOULDER WEDGE DETAIL

(Resurfacing Adjacent to Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

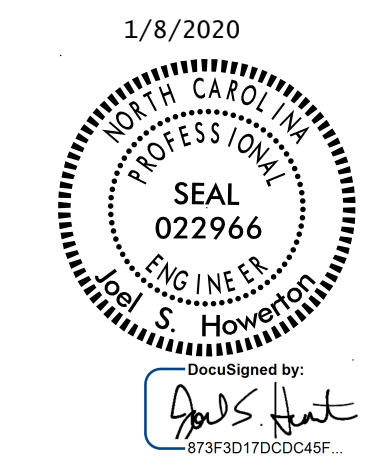
CONTRACT STANDARDS AND DEVELOPMENT UNIT		
Office 919-707-6950 FAX 919-250-4119		
SHOULDER WEDGE DETAILS		
ORIGINAL BY: T.SPELL	DATE: 7-19-11	
MODIFIED BY:	DATE: 2/2/16	
CHECKED BY:	DATE:	
FILE SPEC.: szusr/details/stand/shoulderwedgedetail.dgn		

5/14/99



- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

PAY LIMITS FOR 1 CURB RAMP

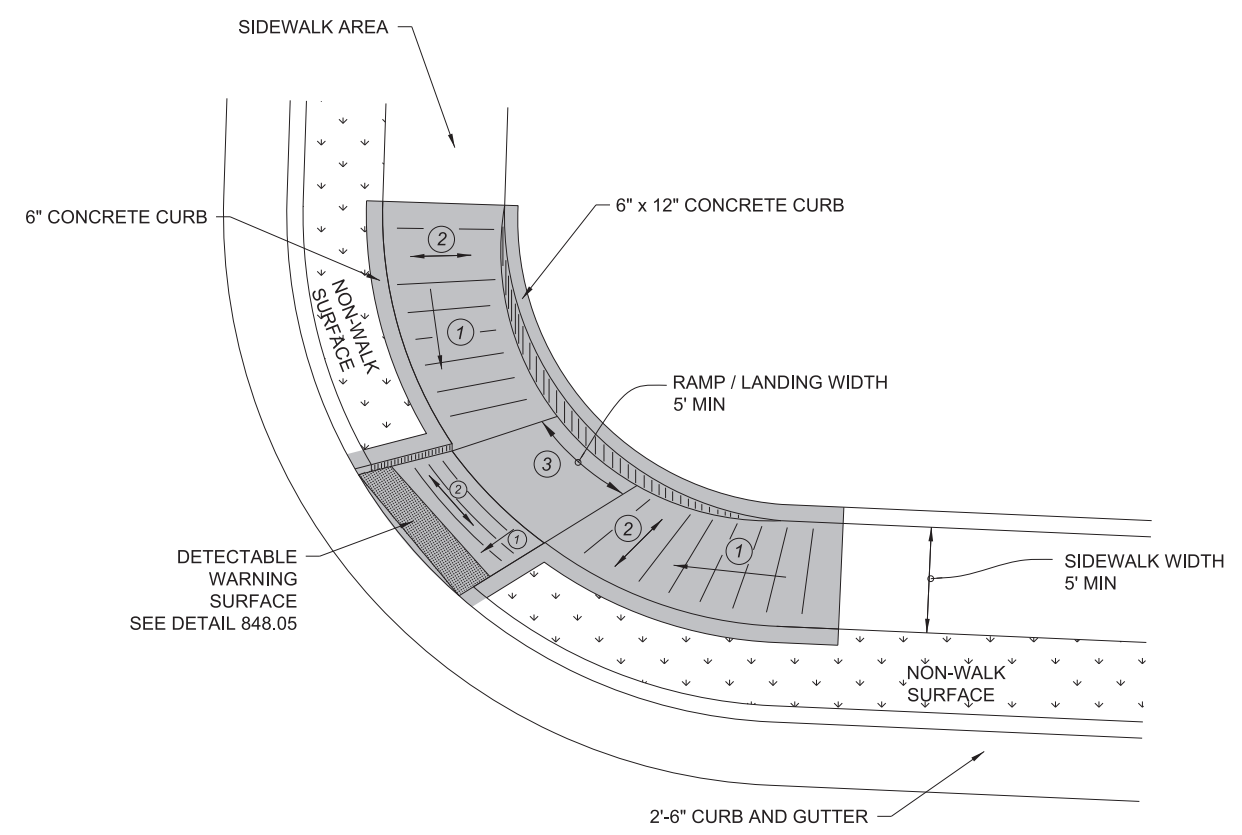


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

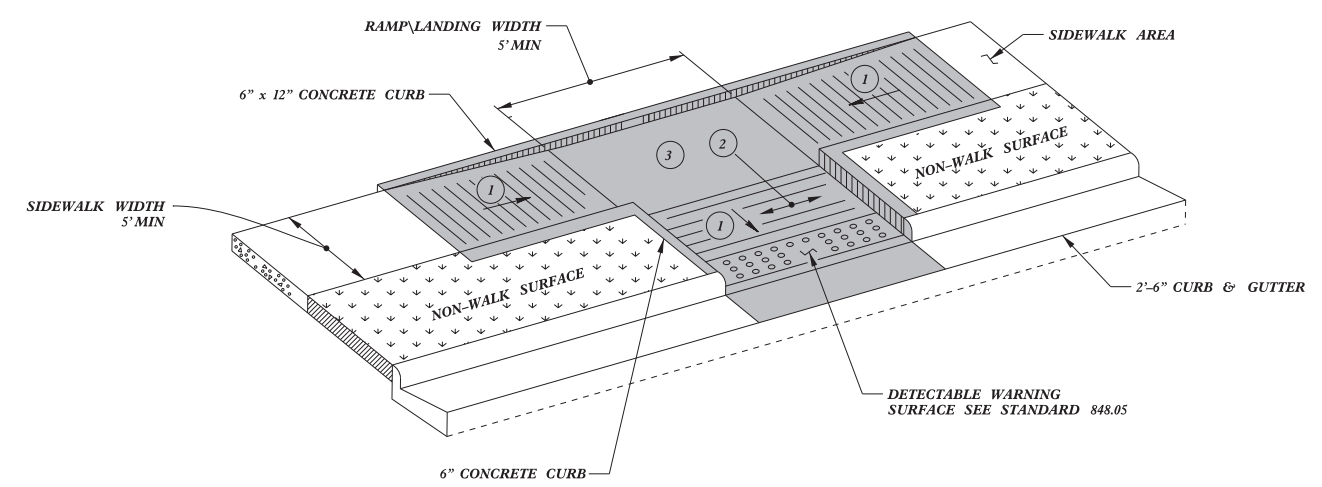
CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
CURB RAMPS	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC. :stds\2012CurbRamp\CurbRampDetails.dgn	

TIME: 11:58 AM 11/14/2020
 CURB RAMPS.dwg
 J:\PROJECTS\2021\2021CPT.05.22.20921.1\2021CPT.05.22.20921.1.dwg
 J.S. HOWERTON

PAY LIMITS FOR 1 CURB RAMP



**TYPE 3 MODIFIED
INSTALLATION IN A RADIUS**



TYPE 3

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

1/8/2020

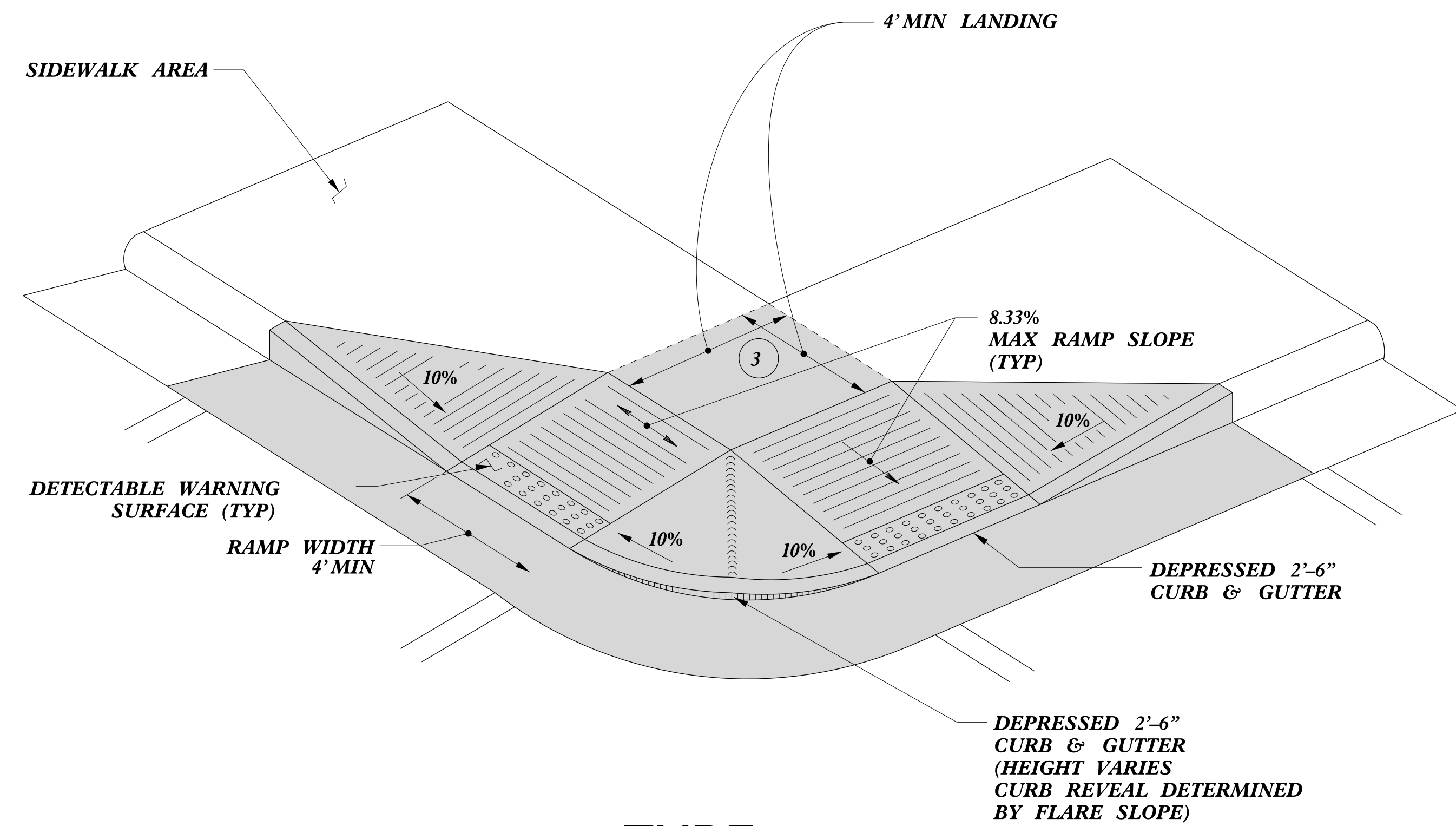


Designed by:
J.S. Howerton
873F3D17DCDC45F...

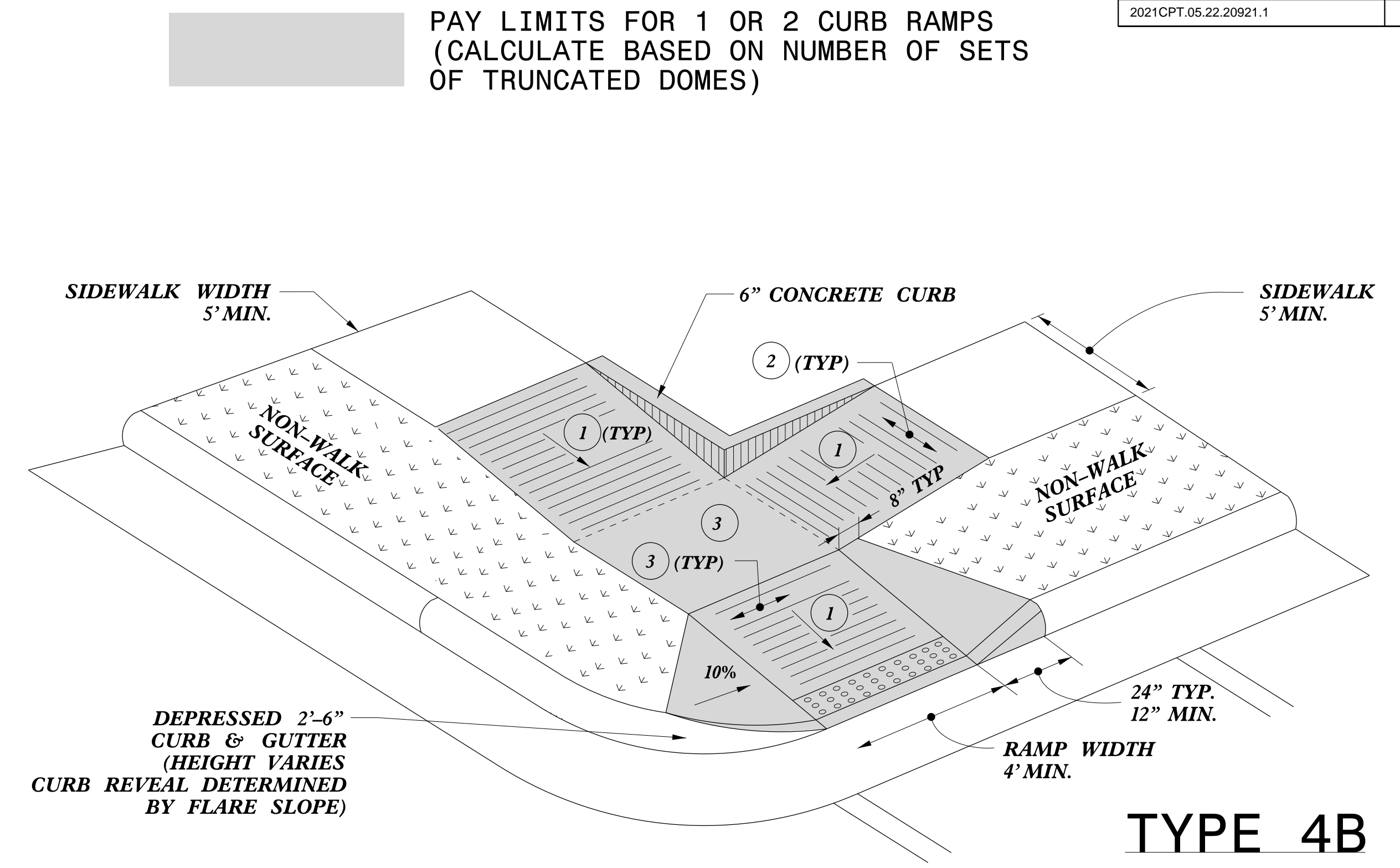
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
CURB RAMPS	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC: sids/2012CurbRamp/CurbRampDetails.dgn	

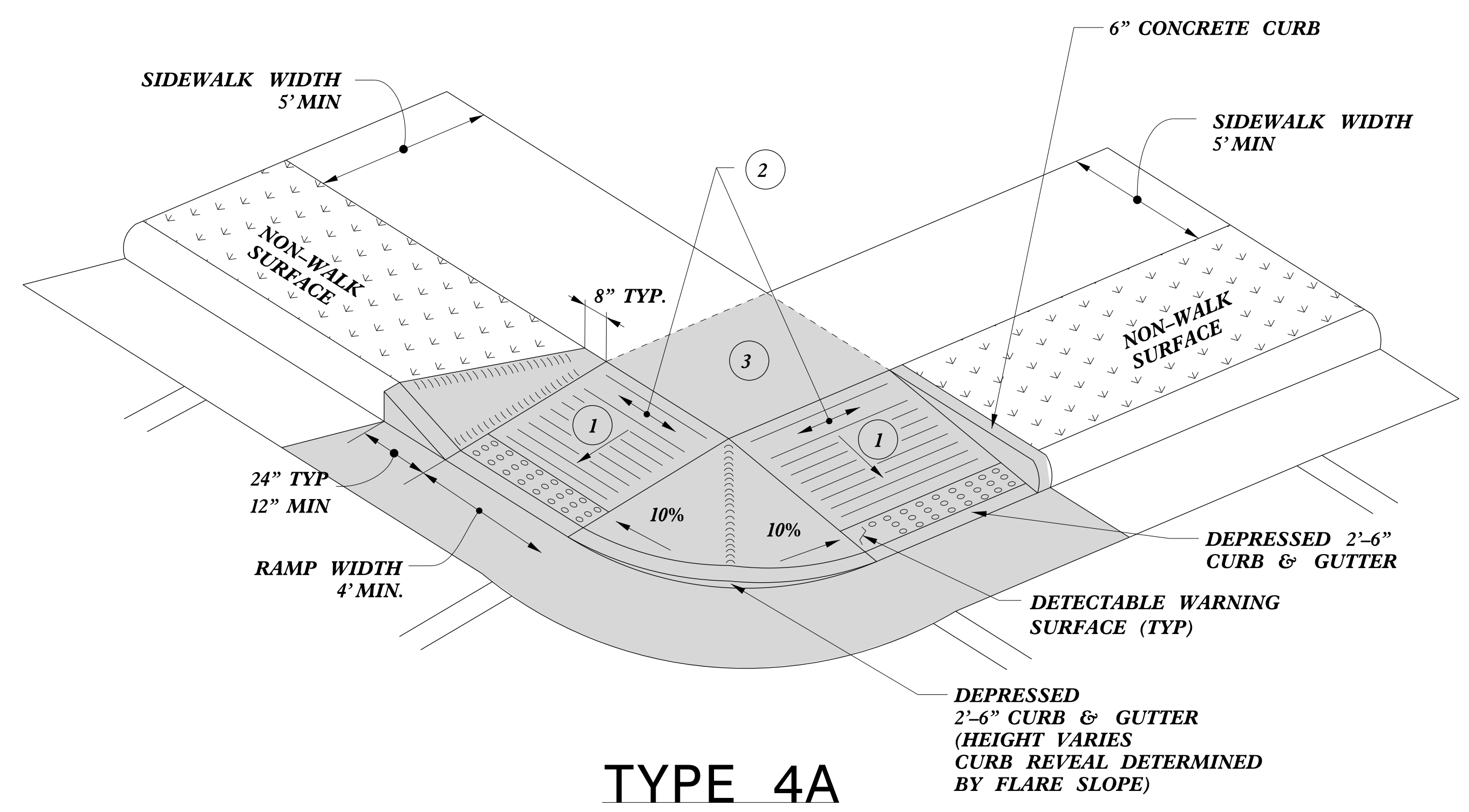
5/14/99
SY-CURB-RAMP-DETAILS.dwg
J.S. HOWERTON
1/8/2020



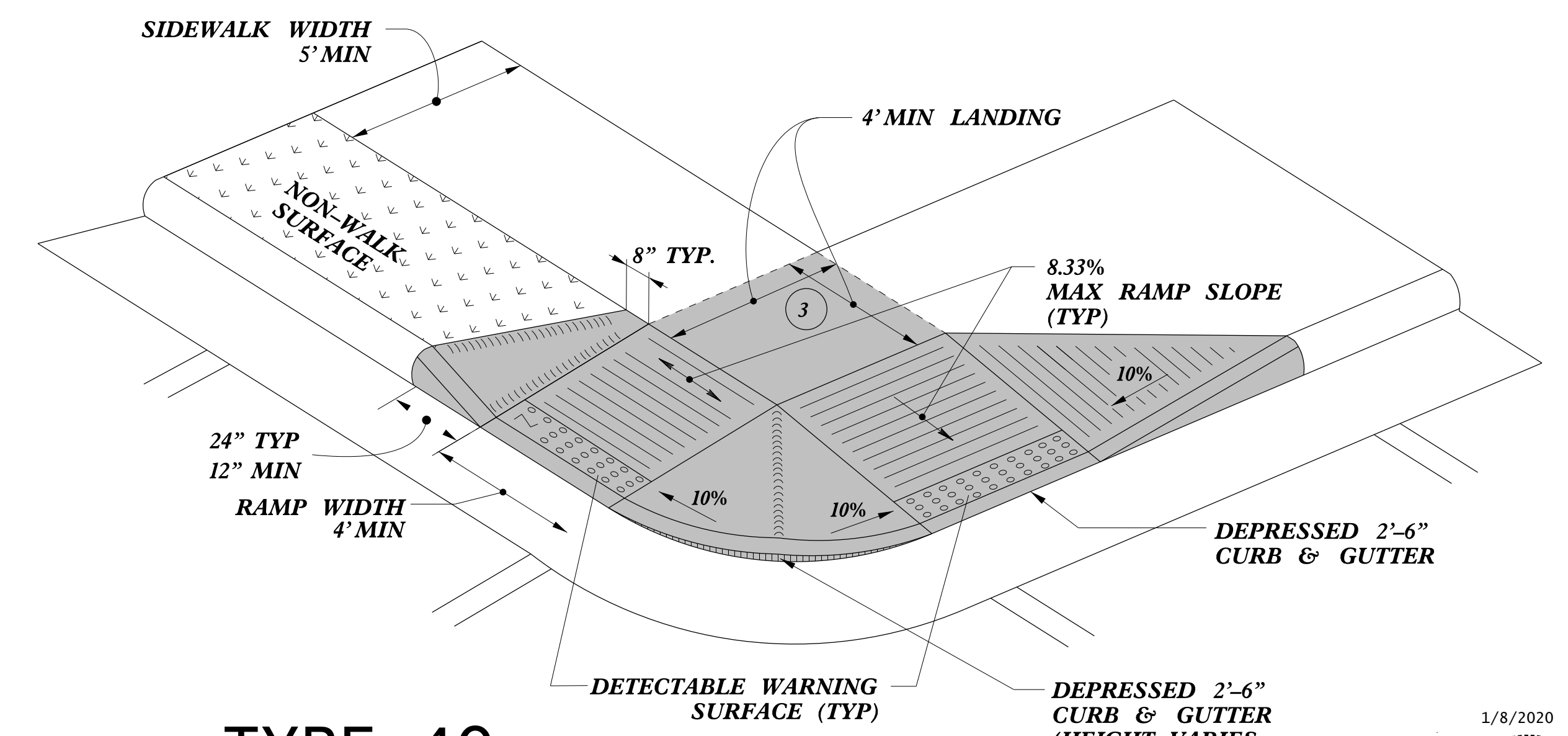
TYPE 4



TYPE 4B

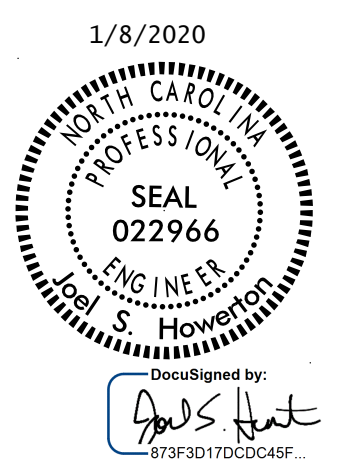


TYPE 4A



TYPE 4C

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

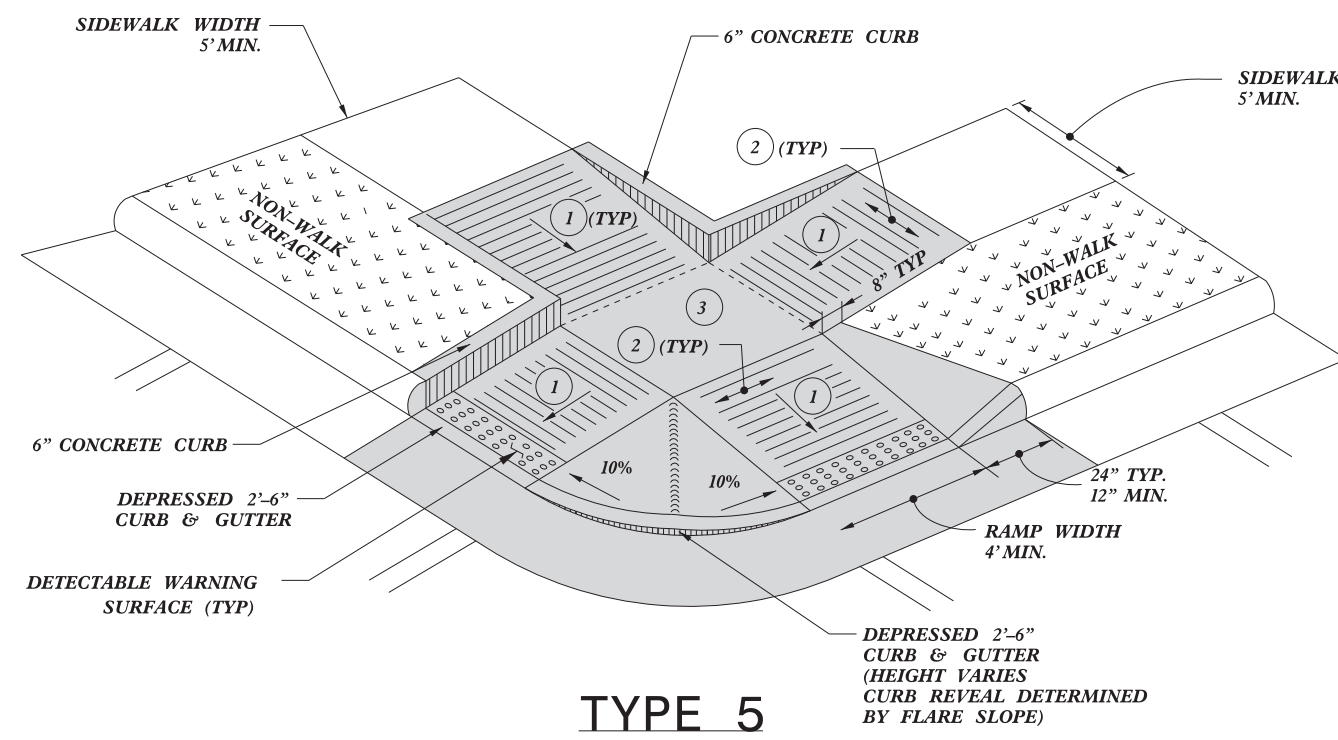
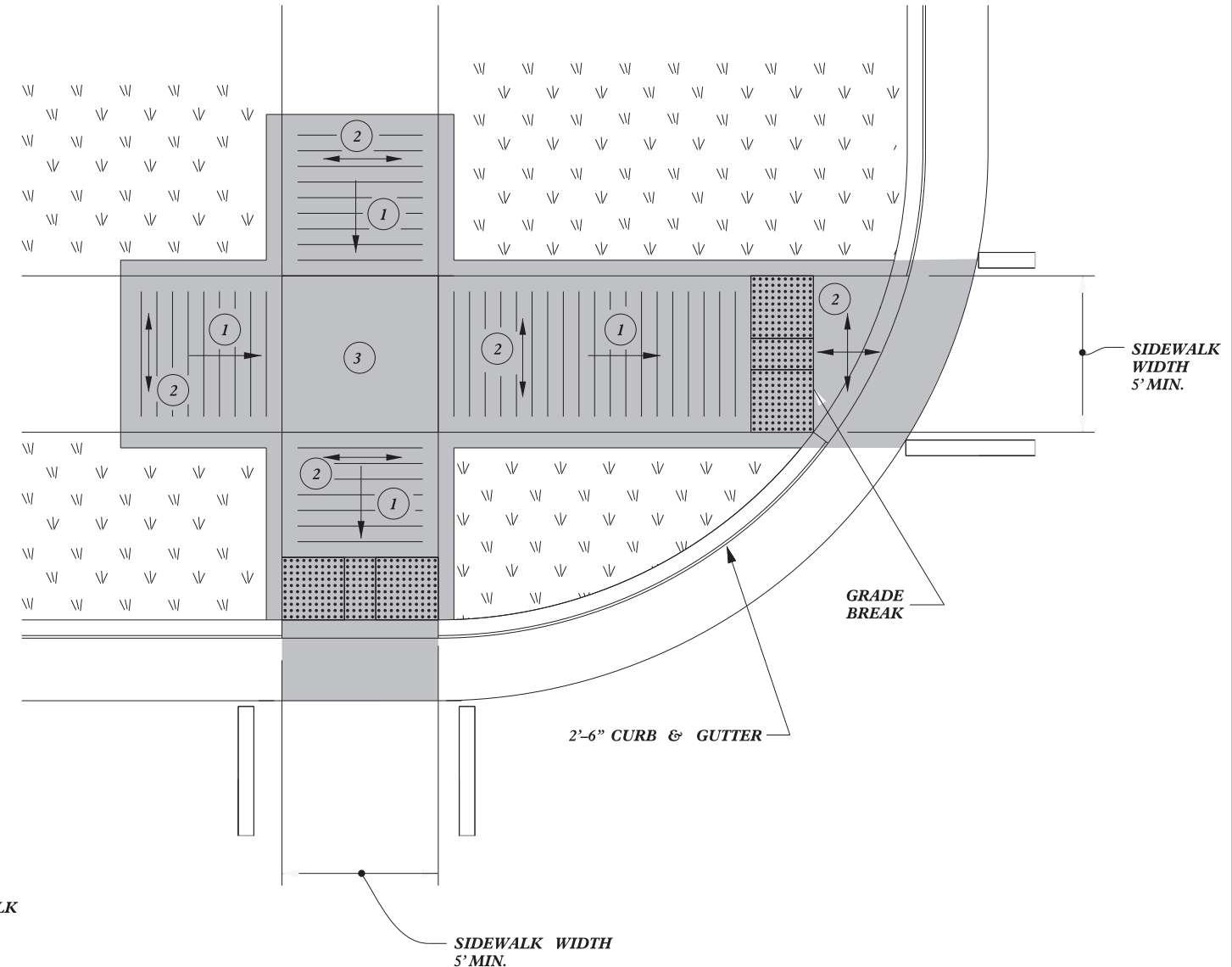
CURB RAMPS

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC: stds\2012CurbRamp\CurbRampDetails.dgn

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

5/14/99
 C:\P\2021\2021CPT.05.22.20921.1\DWG\CURB RAMPS\848.05 SHEET 3 OF 3.dwg
 USER: J.S. HOWERTON
 DATE: 7/7/11
 TIME: 10:00 AM

PAY LIMITS FOR 1 OR 2 CURB RAMPS
(CALCULATE BASED ON NUMBER OF SETS
OF TRUNCATED DOMES)



TYPE 5

TYPE 5A

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

1/8/2020



DocuSigned by:
J.S. Howerton
873F3D17DCDC45F...

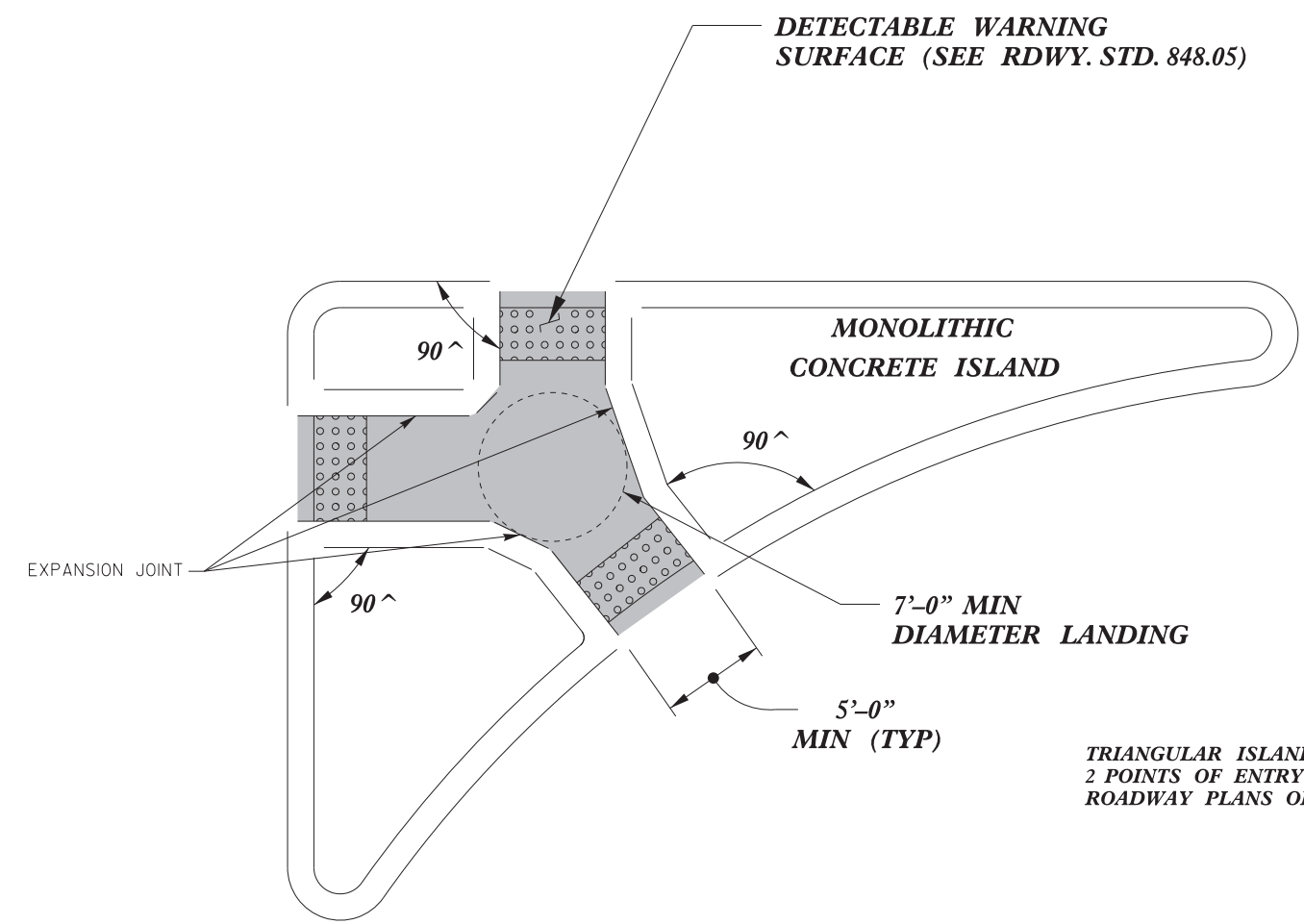
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
 MODIFIED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 FILE SPEC: sids/2012CurbRamp/CurbRampDetails.dgn

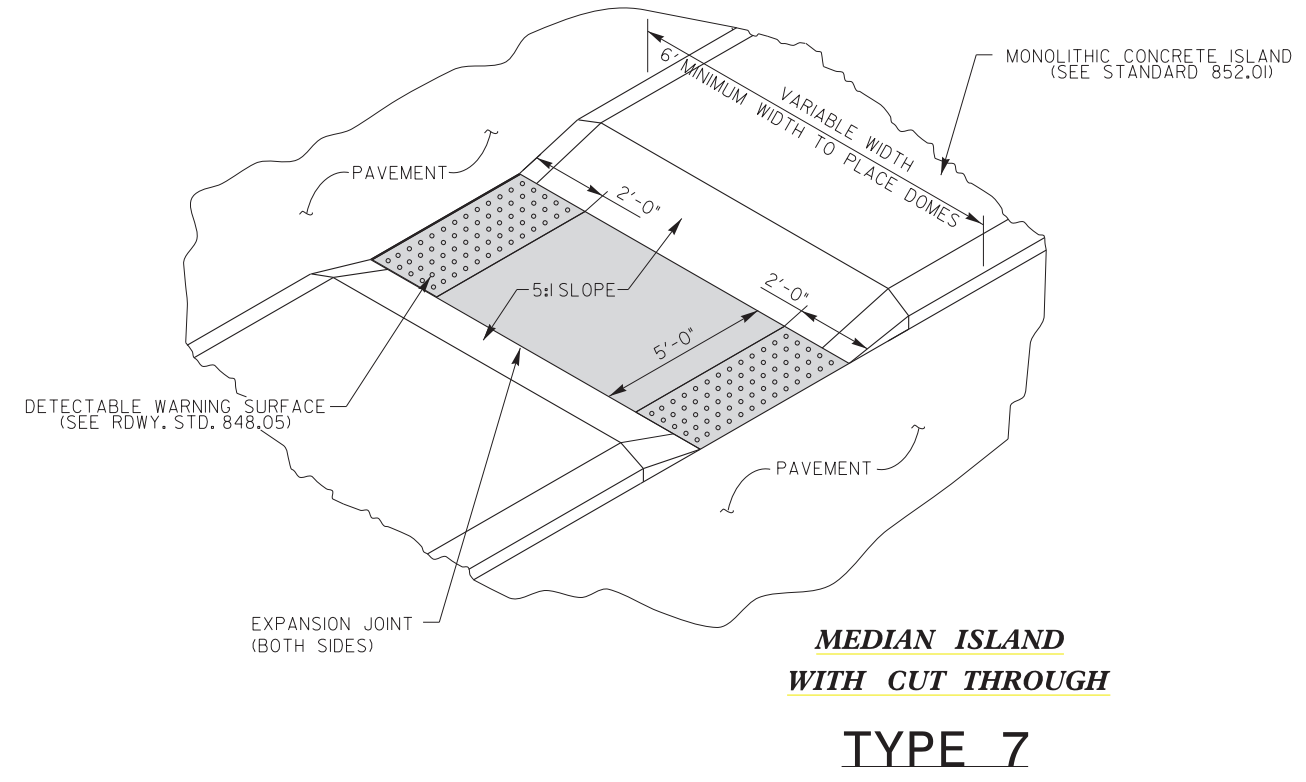
5/14/99
\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$CON\$\$\$\$\$
\$\$\$\$\$SERNAME\$\$\$\$\$

PAY LIMITS FOR 2 OR 3 CURB RAMPS
(CALCULATE BASED ON NUMBER OF
SETS OF TRUNCATED DOMES)

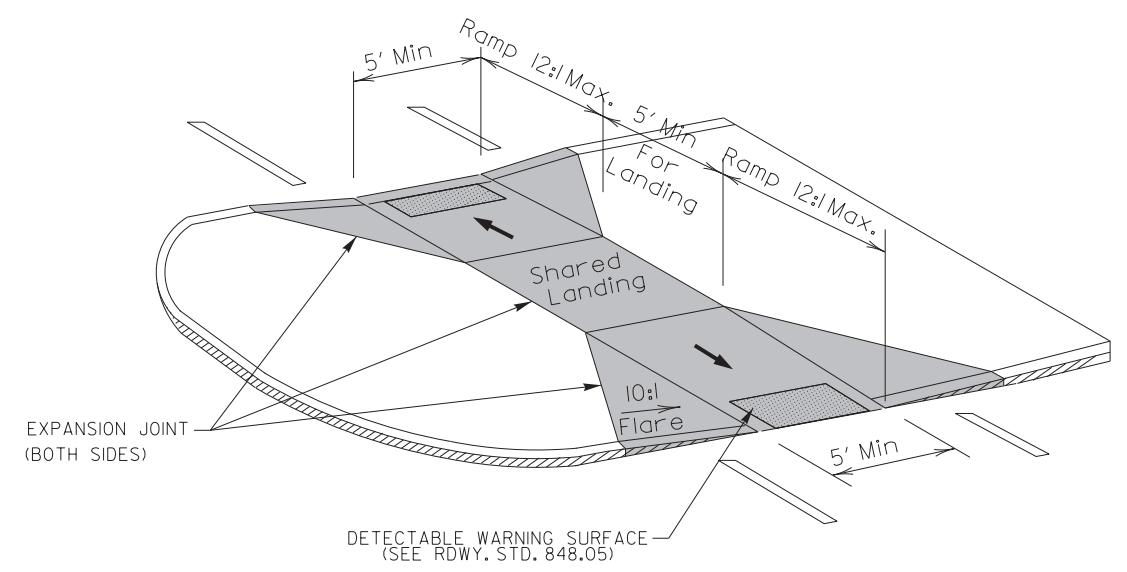


TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY
2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE
ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

**TRIANGULAR ISLAND
WITH CUT THROUGH
TYPE 6**



**MEDIAN ISLAND
WITH CUT THROUGH
TYPE 7**



**MEDIAN ISLAND
CURB RAMPS
TYPE 8
1/8/2020**

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS
Median or Turn Lane Islands

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: DATE: _____
CHECKED BY: DATE: _____
FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dgn

Professional Engineer Seal for J.S. Howerton, License No. 022966, State of North Carolina. Includes a signature and the alphanumeric code 873F3D17DCDC45F...

5/14/99
\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$CON\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

SUMMARY OF QUANTITIES - HERITAGE LAKE RD FROM SR 2052 TO BEG C&G

Municipality:	Wake Forest
Project Number:	2022 East
WBS Number:	2021CPT.05.22.20921.1
County:	Wake

Ramp ID	Inset Map Number	Route 1	Route 2	2549000000-E	2591000000-E	2830000000-N	4695000000-E	2600000000-N	2613000000-N	2759000000-E	Improvement Type
				2'-6" Concrete Curb & Gutter LF	4" Concrete Sidewalk SY	Adjustment of Manholes EA	8" X 90 MIL White Thermo LF	Retrofit Existing Curb Ramps EA	Remove and Replace Curb Ramps EA	Remove Curb Ramps EA	
11402	1	SR-5144 (Heritage Lake Rd)	Trentini Ave	20	8					1	Remove Ramp
11404	1	SR-5144 (Heritage Lake Rd)	Trentini Ave	20	8					1	Remove Ramp
2102	2	SR-5144 (Heritage Lake Rd)	Heritage Club Ave					1			RetrofitWarnings
2103	2	SR-5144 (Heritage Lake Rd)	Heritage Club Ave					1			RetrofitWarnings
2106	2	SR-5144 (Heritage Lake Rd)	Heritage Club Ave					1			RetrofitWarnings
2108	2	SR-5144 (Heritage Lake Rd)	Heritage Club Ave					1			RetrofitWarnings
11405	3	SR-5144 (Heritage Lake Rd)	Primrose School (844 Heritage Lake Rd) North Entrance					1			RetrofitWarnings
11406	3	SR-5144 (Heritage Lake Rd)	Primrose School (844 Heritage Lake Rd) North Entrance					1			RetrofitWarnings
11407	4	SR-5144 (Heritage Lake Rd)	Primrose School (844 Heritage Lake Rd) South Entrance					1			RetrofitWarnings
11412	5	SR-5144 (Heritage Lake Rd)	heritage Links Dr						1		Standard - 848.06
11413	5	SR-5144 (Heritage Lake Rd)	heritage Links Dr						1		Standard - 848.06
11414	5	SR-5144 (Heritage Lake Rd)	heritage Links Dr			1			1		Standard - 848.06
11415	5	SR-5144 (Heritage Lake Rd)	heritage Links Dr	17	7					1	Remove Ramp
11416	6	SR-5144 (Heritage Lake Rd)	Thompson Glenn Pl	16	8					1	Remove Ramp
11417	6	SR-5144 (Heritage Lake Rd)	Thompson Glenn Pl						1		Type3Modified
11418	6	SR-5144 (Heritage Lake Rd)	Thompson Glenn Pl						1		Type3Modified
11419	6	SR-5144 (Heritage Lake Rd)	Thompson Glenn Pl	18	8					1	Remove Ramp
11420	6	SR-5144 (Heritage Lake Rd)	Sugar gap road				140		1		Type1Modified
11421	6	SR-5144 (Heritage Lake Rd)	Sugar gap road						1		Type3Modified
2077	7	SR-2052 (Rogers Rd)	SR-5144 (Heritage Lake Rd)					1			RetrofitWarnings
2078	7	SR-2052 (Rogers Rd)	SR-5144 (Heritage Lake Rd)					1			RetrofitWarnings
2079	7	SR-2052 (Rogers Rd)	SR-5144 (Heritage Lake Rd)			1			1		Standard - 848.06
2080	7	SR-2052 (Rogers Rd)	SR-5144 (Heritage Lake Rd)						1		Standard - 848.06
Sub-Total for Heritage Lake Rd From SR 2052 To Beg C&G				91	39	2	140	9	9	5	

SUMMARY OF QUANTITIES - BURLINGTON MILLS RD FROM US 1 TO SR 2049

Municipality:	Wake Forest
Project Number:	2022 East
WBS Number:	2021CPT.05.22.20921.1
County:	Wake

Ramp ID	Inset Map Number	Route 1	Route 2	2549000000-E	2591000000-E	2830000000-N	4695000000-E	2600000000-N	2613000000-N	2759000000-E	Improvement Type
				2'-6" Concrete Curb & Gutter LF	4" Concrete Sidewalk SY	Adjustment of Manholes EA	8" X 90 MIL White Thermo LF	Retrofit Existing Curb Ramps EA	Remove and Replace Curb Ramps EA	Remove Curb Ramps EA	
2069	1	SR-2045 (Burlington Mills Rd)	Linslade Way						1		Type1Modified
2071	1	SR-2045 (Burlington Mills Rd)	Linslade Way						1		Type3Modified
2074	1	SR-2045 (Burlington Mills Rd)	Linslade Way	20	8					1	Remove Ramp
2053	2	SR-2045 (Burlington Mills Rd)	Dansforeshire Way						1		Type1Modified
2054	2	SR-2045 (Burlington Mills Rd)	Dansforeshire Way						1		Type3Modified
2056	2	SR-2045 (Burlington Mills Rd)	Dansforeshire Way	20	8					1	Remove Ramp
Sub-Total for Burlington Mills Rd From US 1 To SR 2049				40	16	0	0	0	4	2	

SUMMARY OF QUANTITIES - LILES DEAN RD FROM US 64 BUS TO US 64 BUS

Municipality:	Wendell / Outside Municipality
Project Number:	2022 East
WBS Number:	2021CPT.05.22.20921.1
County:	Wake

Ramp ID	Inset Map Number	Route 1	Route 2	2549000000-E	2591000000-E	2830000000-N	4695000000-E	2600000000-N	2613000000-N	2759000000-E	Improvement Type
				2'-6" Concrete Curb & Gutter LF	4" Concrete Sidewalk SY	Adjustment of Manholes EA	8" X 90 MIL White Thermo LF	Retrofit Existing Curb Ramps EA	Remove and Replace Curb Ramps EA	Remove Curb Ramps EA	
12330	1	SR-2364 (Liles Dean Rd)	Carver Elementary School (291 Liles Dean Rd) West Entrance						1		Type1B
12331	1	SR-2364 (Liles Dean Rd)	Carver Elementary School (291 Liles Dean Rd) West Entrance					1			RetrofitWarnings
12332	2	SR-2364 (Liles Dean Rd)	Carver Elementary School (291 Liles Dean Rd) East Entrance					1			RetrofitWarnings
12333	2	SR-2364 (Liles Dean Rd)	Carver Elementary School (291 Liles Dean Rd) East Entrance						1		Type1B
110	3	US-64-BUS (Wendell Blvd)	SR-2364 (Hanor Ln)					1			RetrofitWarnings
114	3	US-64-BUS (Wendell Blvd)	SR-2364 (Hanor Ln)						1		Type1B
Sub-Total for Liles Dean Rd From US 64 BUS To US 64 BUS				0	0	0	0	3	3	0	

SUMMARY OF QUANTITIES - E HORTON ST FROM NC 96 TO END C&G

Municipality:	Zebulon
Project Number:	2022 East
WBS Number:	2021CPT.05.22.20921.1
County:	Wake

Ramp ID	Inset Map Number	Route 1	Route 2	2549000000-E	2591000000-E	2830000000-N	4695000000-E	2600000000-N	2613000000-N	2759000000-E	Improvement Type
				2'-6" Concrete Curb & Gutter LF	4" Concrete Sidewalk SY	Adjustment of Manholes EA	8" X 90 MIL White Thermo LF	Retrofit Existing Curb Ramps EA	Remove and Replace Curb Ramps EA	Remove Curb Ramps EA	
236	1	SR-2345 (E Horton St)	N Poplar St					1			RetrofitWarnings
237	1	SR-2345 (E Horton St)	N Poplar St					1			RetrofitWarnings
Sub-Total for E Horton St From NC 96 To END C&G				0	0	0	0	2	0	0	

SUMMARY OF QUANTITIES - E HORTON ST FROM END C&G TO RR

Municipality:	Zebulon
Project Number:	2022 East
WBS Number:	2021CPT.05.22.20921.1
County:	Wake



Ramp ID	Inset Map Number	Route 1	Route 2	2549000000-E	2591000000-E	2830000000-N	4695000000-E	2600000000-N	2613000000-N	2759000000-E	Improvement Type
				2'-6" Concrete Curb & Gutter LF	4" Concrete Sidewalk SY	Adjustment of Manholes EA	8" X 90 MIL White Thermo LF	Retrofit Existing Curb Ramps EA	Remove and Replace Curb Ramps EA	Remove Curb Ramps EA	
235	1	SR-2345 (E Horton St)	N Whitley St					1			RetrofitWarnings
Sub-Total for E Horton St From END C&G To RR				0	0	0	0	1	0	0	

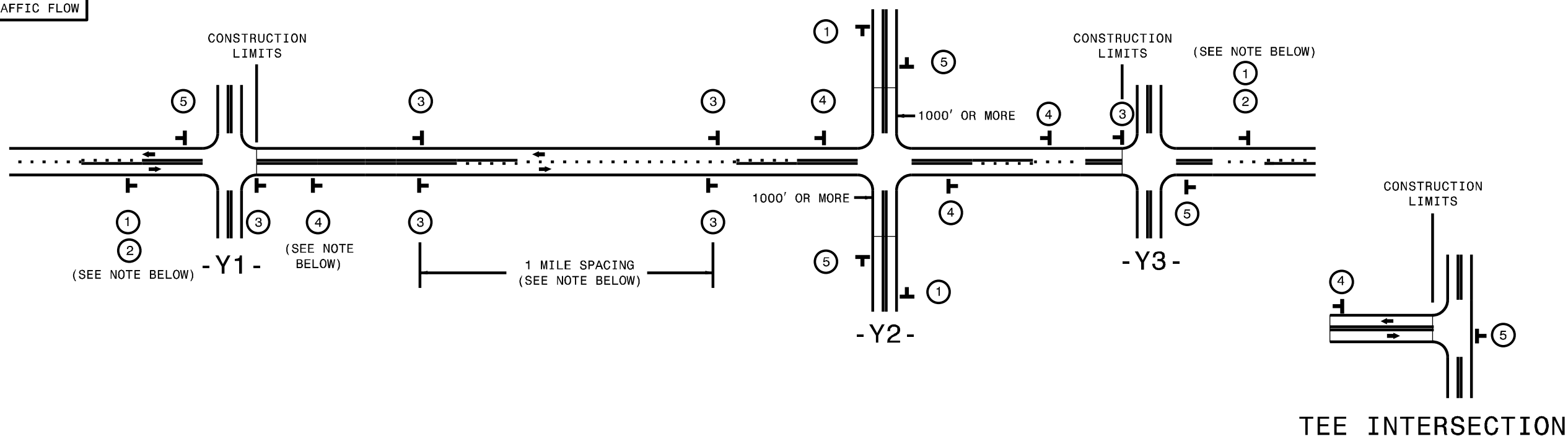
SUMMARY OF QUANTITIES

Project Number:	2022 East
WBS Number:	2021CPT.05.22.20921.1
County:	Wake

Project Number	County	Municipality	Resurfacing Route	2549000000-E	2591000000-E	2830000000-N	4695000000-E	2600000000-N	2613000000-N	2759000000-E
				2'-6" Concrete Curb & Gutter	4" Concrete Sidewalk	Adjustment of Manholes	8" X 90 MIL White Thermo	Retrofit Existing Curb Ramps	Remove and Replace Curb Ramps	Remove Curb Ramps
				LF	SY	EA	LF	EA	EA	EA
2022 East	Wake	Wake Forest	Heritage Lake Rd From SR 2052 To Beg C&G	91	39	2	140	9	9	5
2022 East	Wake	Wake Forest	Burlington Mills Rd From US 1 To SR 2049	40	16	0	0	0	4	2
2022 East	Wake	Wendell / Outside Municipality	Liles Dean Rd From US 64 BUS To US 64 BUS	0	0	0	0	3	3	0
2022 East	Wake	Zebulon	E Horton St From NC 96 To END C&G	0	0	0	0	2	0	0
2022 East	Wake	Zebulon	E Horton St From END C&G To RR	0	0	0	0	1	0	0
GRAND TOTAL				131	55	2	140	15	16	7







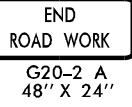
SIGNING FOR RESURFACING PROJECTS

LEGEND
 STATIONARY SIGN
 DIRECTION OF TRAFFIC FLOW



MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	①	 W20-1 48" X 48"	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE 2) SUBDIVISION ROADS 3) DEAD END ROADS <p>WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, PORTABLE ADVANCE WARNING SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  W20-1 48" X 48" PLACED 500' IN ADVANCE OF FLAGGER. </div> <div style="text-align: center;">  W20-7 A 48" X 48" PLACED 250' IN ADVANCE OF FLAGGER. </div> </div>
	②	 W7-3aP 24" X 18"	#2 SIGN ONLY USED WHEN CONSTRUCTION LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)	
	③	 SP 13107 48" X 48"	<ul style="list-style-type: none"> - PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER. - AT TEE INTERSECTIONS INSTALL INITIALLY 1/2 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER. 	
	④	 SP 13106 48" X 48"	<ul style="list-style-type: none"> - THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. - DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. - INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. - FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. - A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN. - FOR TEE INTERSECTIONS, INSTALL WITHIN 500' +/- OF THE INTERSECTION ALONG -L- LINE. 	
	⑤	 G20-2 A 48" X 24"	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS OR AS SHOWN WHEN WORK ENDS AT A 3-WAY TEE INTERSECTION.	
<p>THE ABOVE SIGNS ARE ALL THAT ARE REQUIRED FOR A CONTRACTOR TO BEGIN A RESURFACING CONTRACT. ANY ADDITIONAL SIGNS REQUESTED BY NCDOT DIVISIONS SHALL BE INSTALLED WITHIN 7 BUSINESS DAYS OF THE START OF CONTRACT WORK.</p>				
MAPS LESS THAN 2 MILES		<p>FOR RESURFACING MAPS WITH CONSTRUCTION LIMITS LESS THAN 2 MILES IN LENGTH, NO STATIONARY SIGNS ARE REQUIRED. USE PORTABLE "ROAD UNDER CONSTRUCTION" OR "ROAD WORK AHEAD" SIGNS IN LIEU OF STATIONARY ADVANCE WARNINGS SIGNS.</p>		



ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN 2-LANE ROADWAY RESURFACING

\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$DCON\$\$\$\$\$
 \$\$\$USERNAME\$\$\$\$\$

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

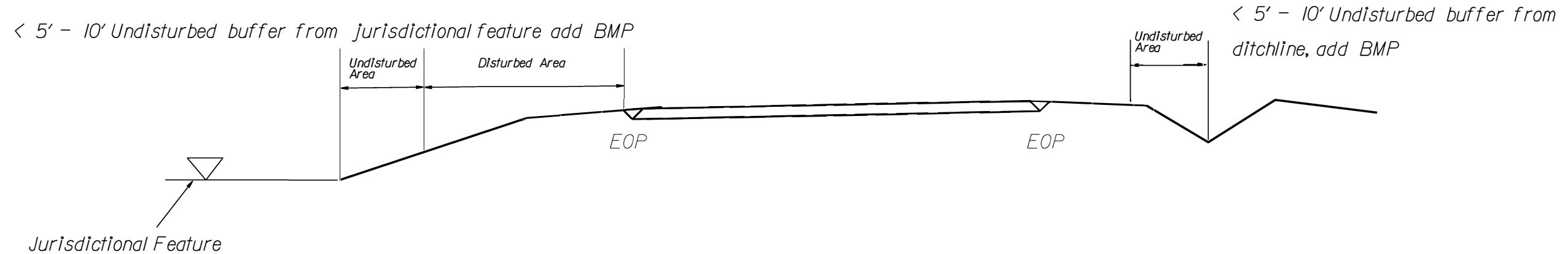
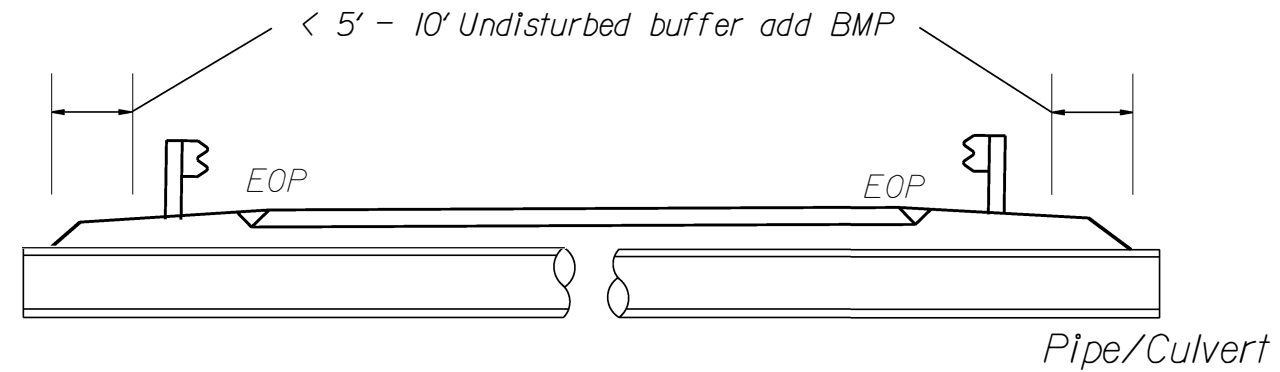
SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HOW ZONES.

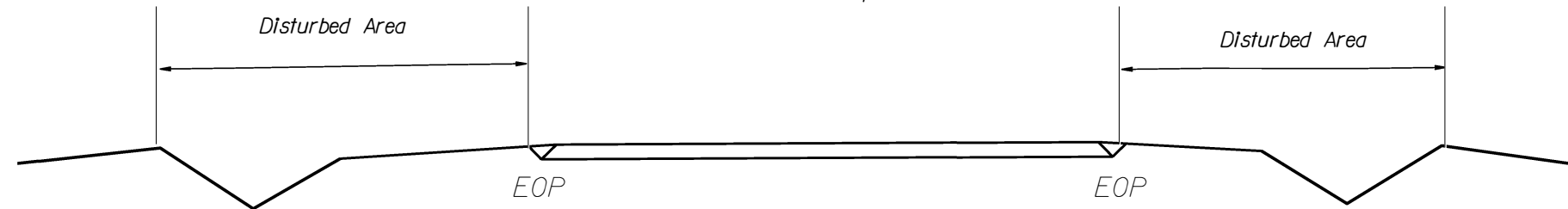
NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

BMP Options: Wattle, Silt Fence or Hardened Aggregate.

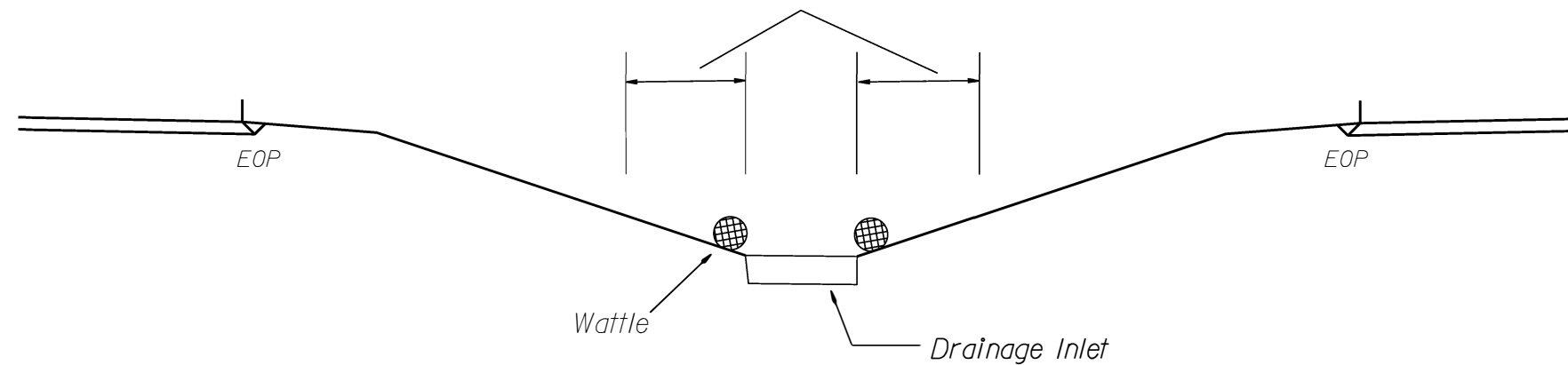
EROSION CONTROL DETAIL



Use BMP's if shoulders and/or frontslopes and/or ditchline and/or backslopes are disturbed

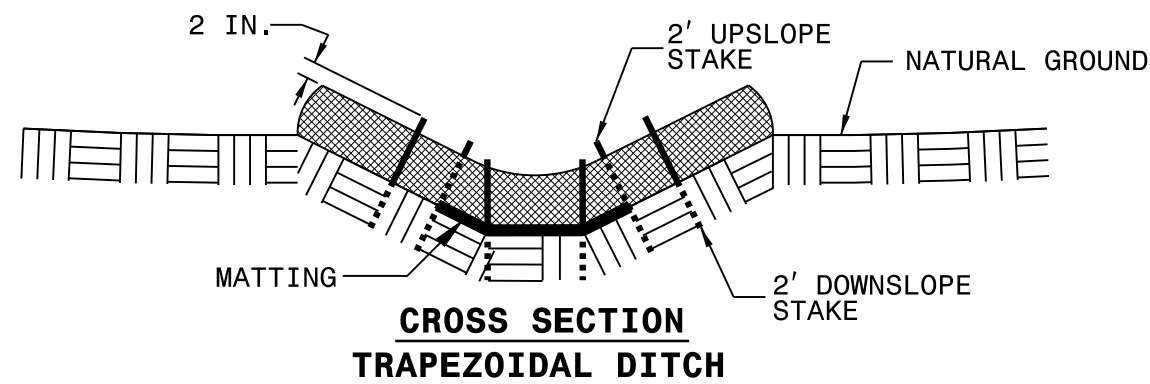
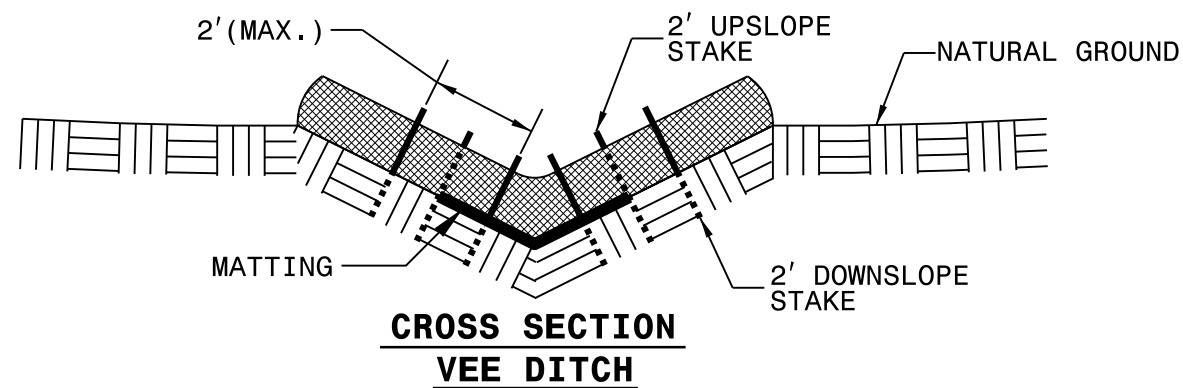
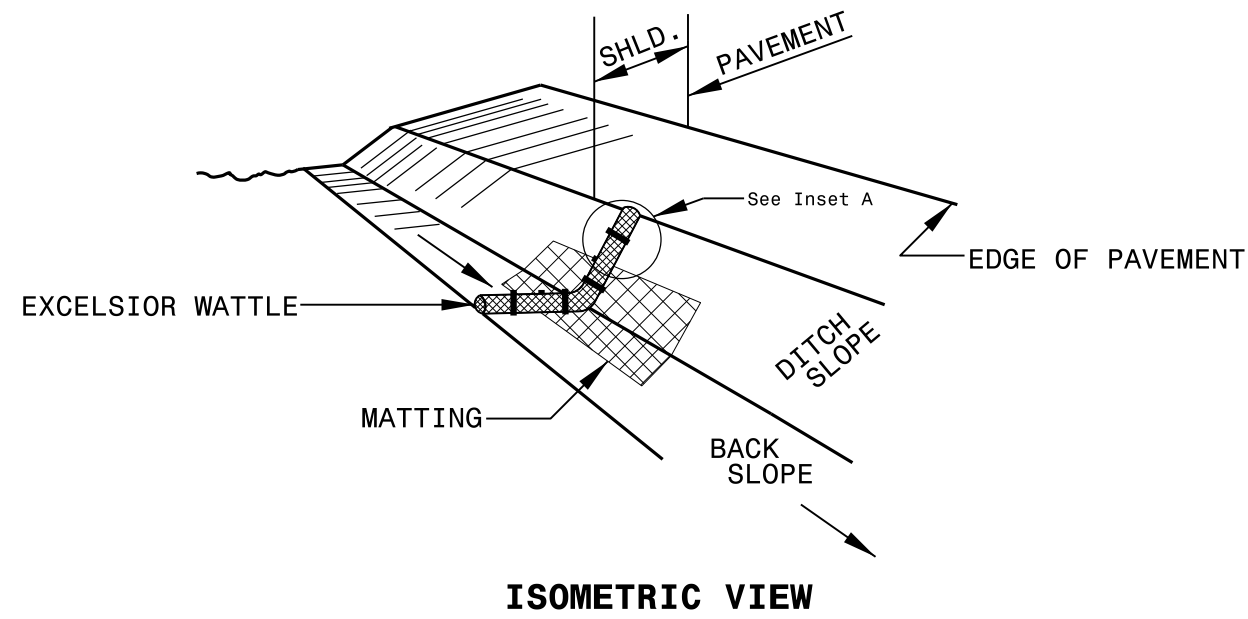


< 5' - 10' Undisturbed buffer from inlet, add wattle



NOT TO SCALE

WATTLE DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

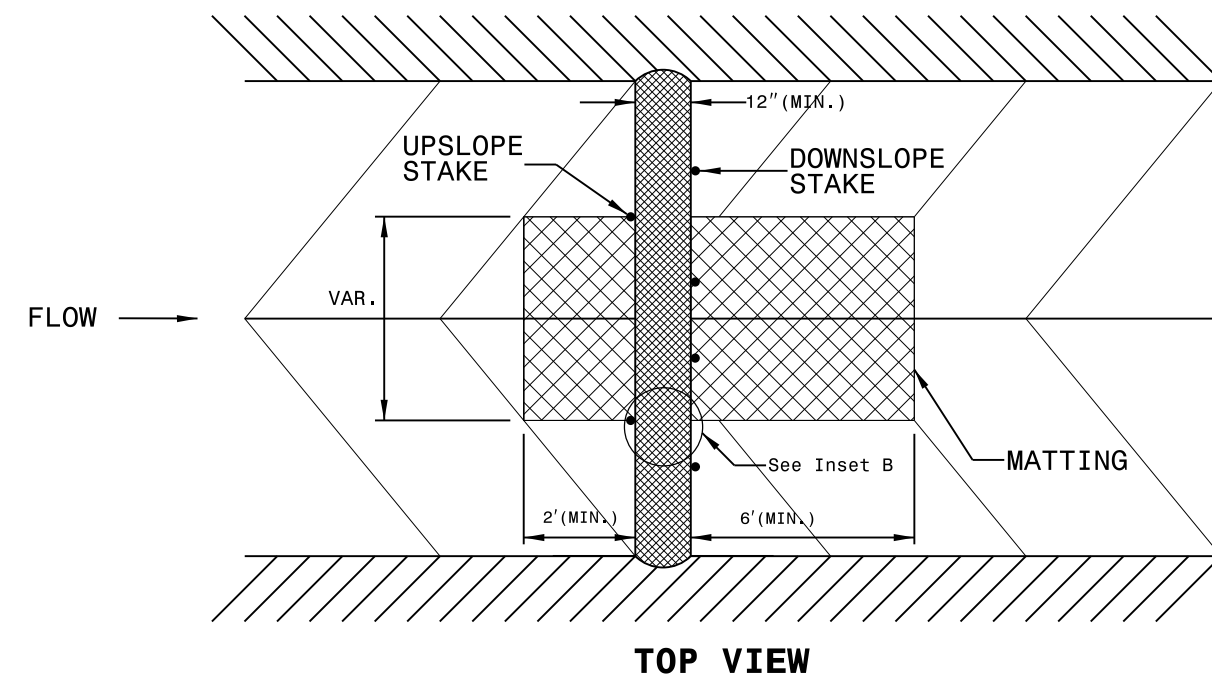
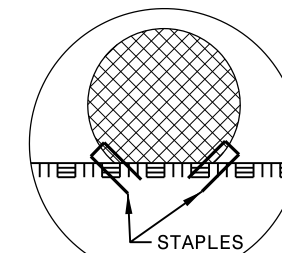
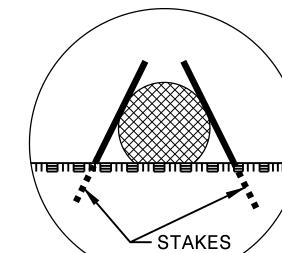
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

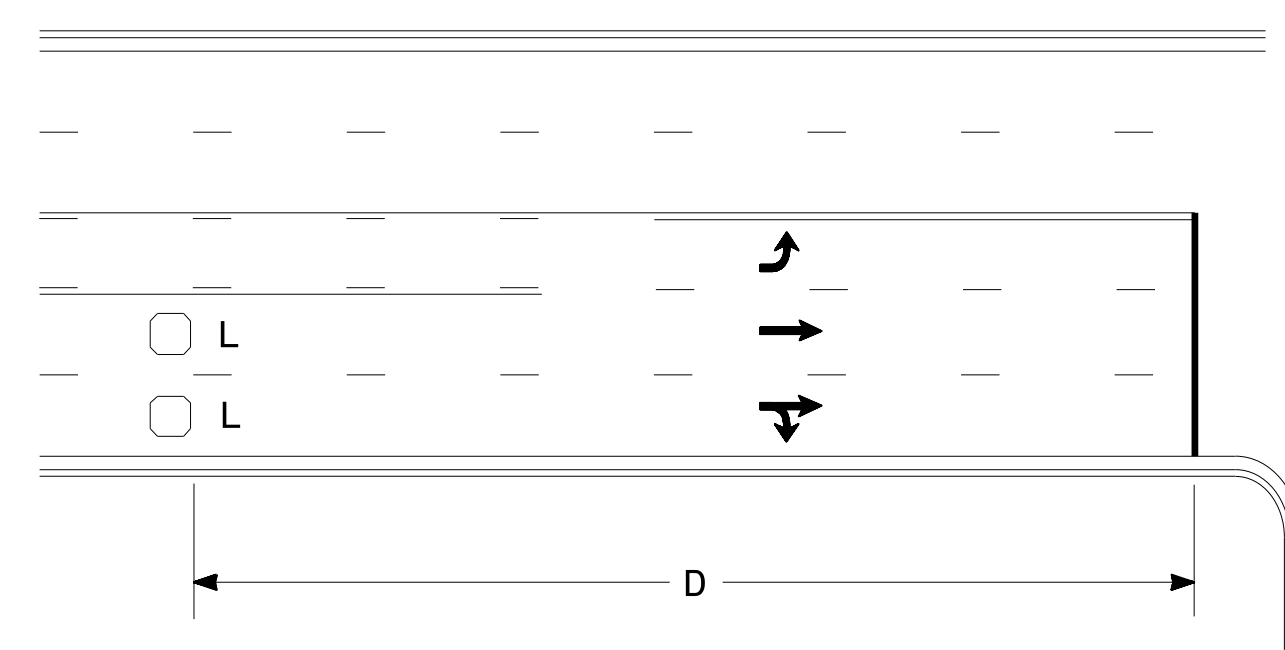
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



High Speed Detection (≥40 mph)

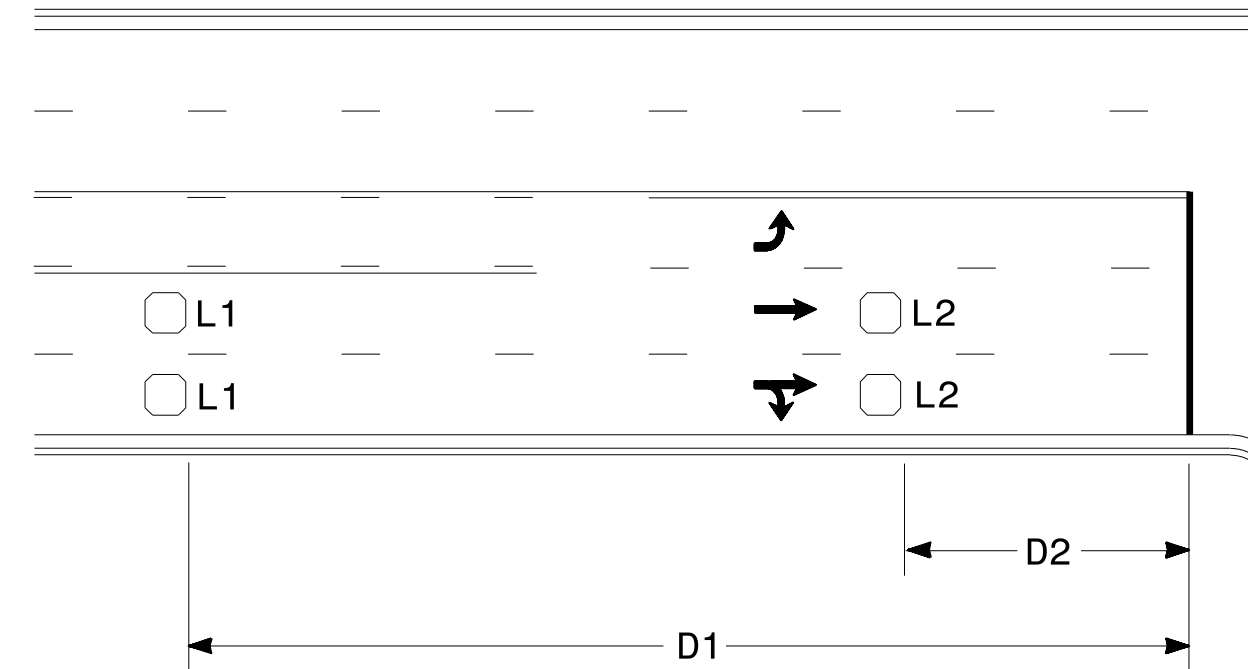


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

L = 6ft X 6ft
Wired in series for TS1
Controllers
Wired separately for TS2,
170, and 2070L Controllers

Volume Density Operation

OR

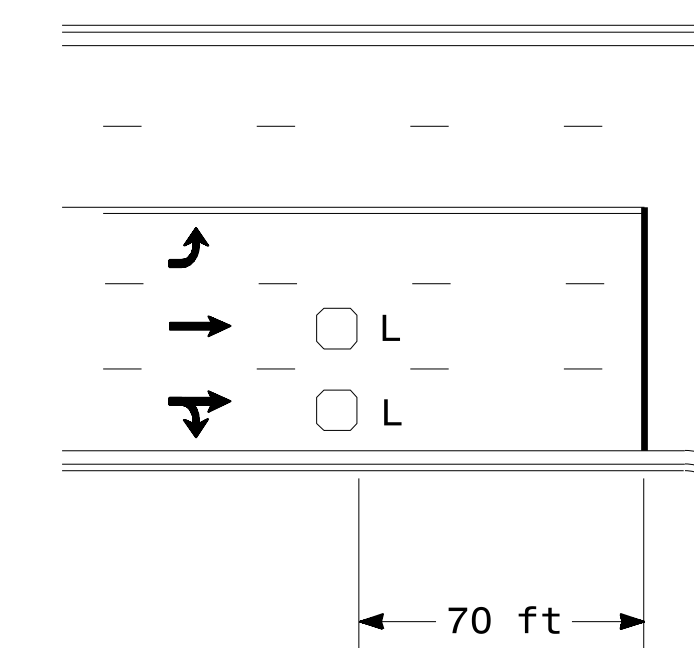


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

L1 = 6ft X 6ft
Wired in series
L2 = 6ft X 6ft
Wired in series

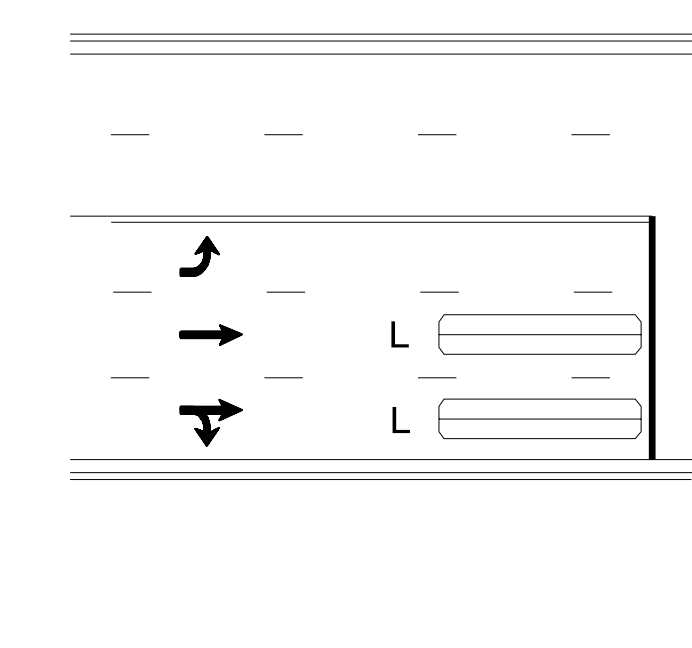
"Stretch" Operation

Low Speed Detection (≤35 mph)



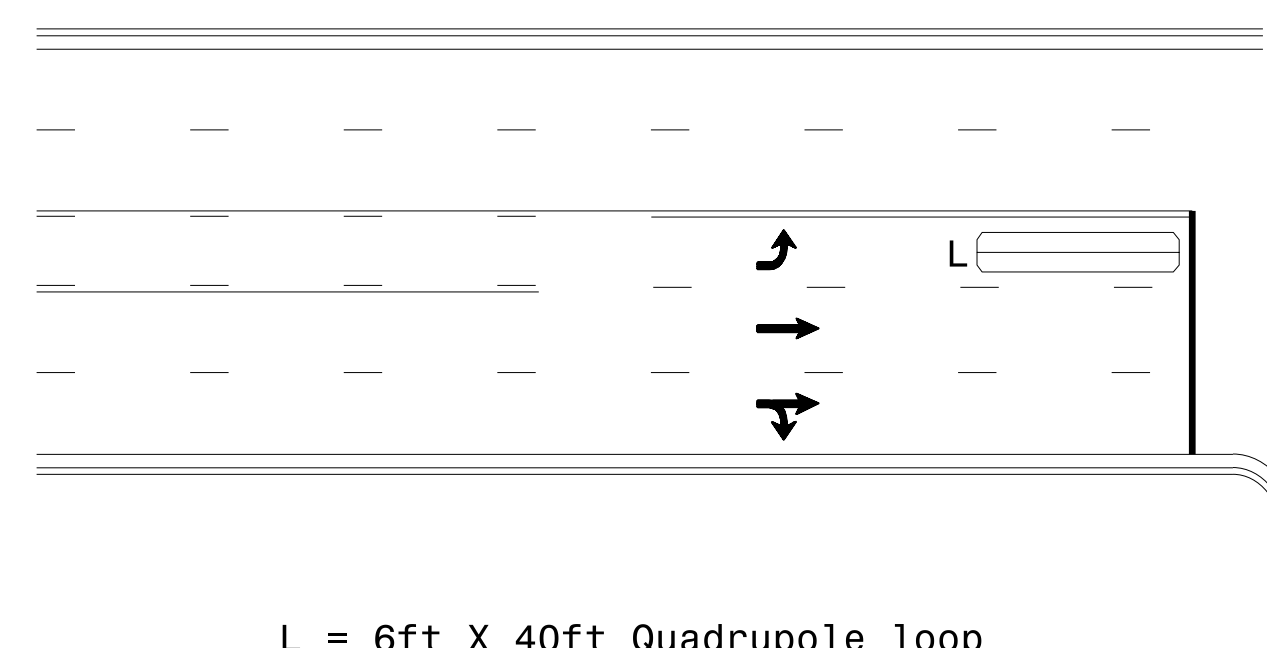
L = 6ft X 6ft
Wired in series

OR



L = 6ft X 40ft
Quadrupole loop, wired separately

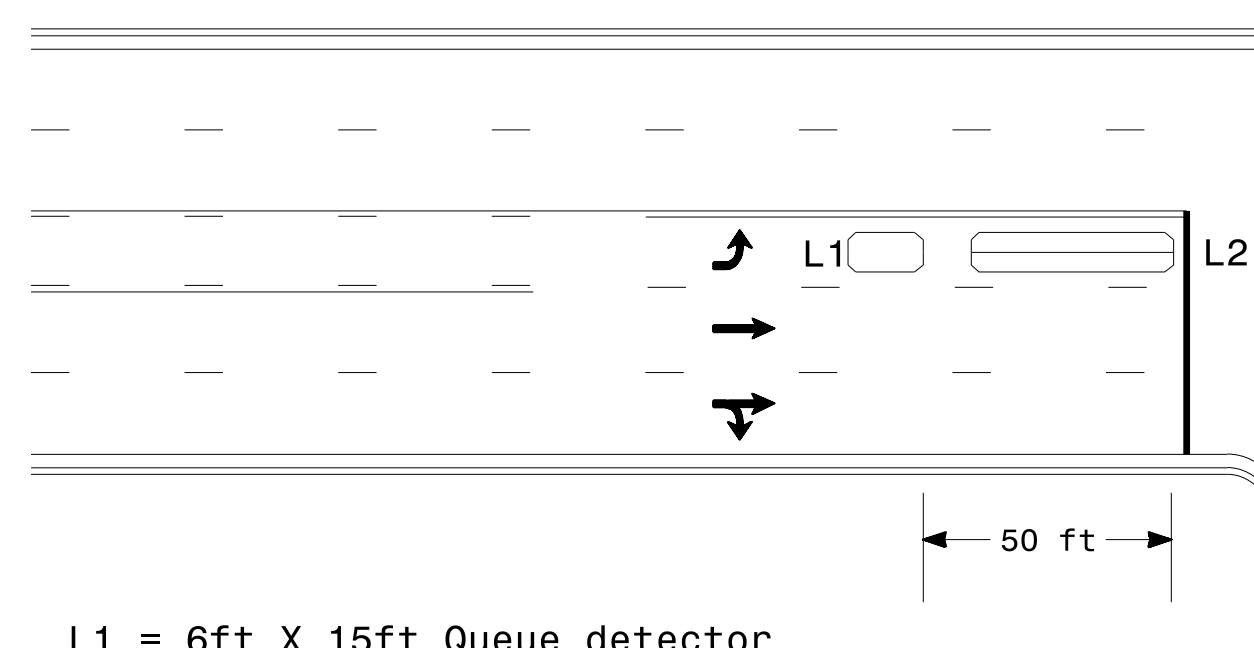
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

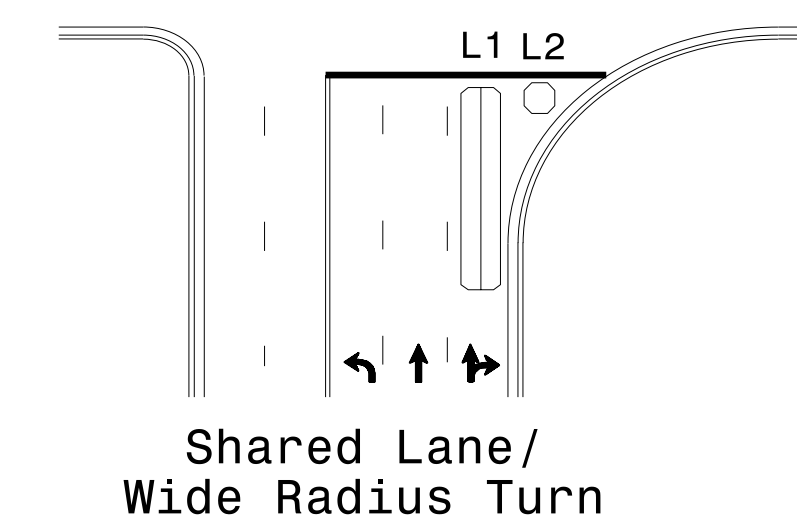
OR



L1 = 6ft X 15ft Queue detector
L2 = 6ft X 40ft Quadrupole loop

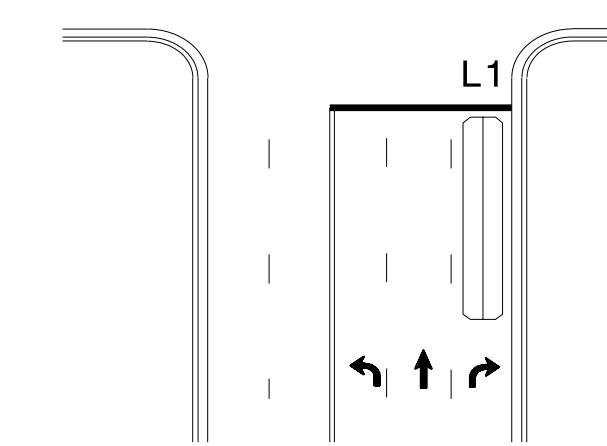
Queue Loop Detection

Right Turn Lane Detection

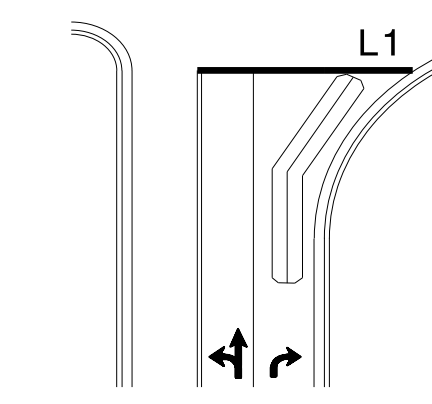


Shared Lane/
Wide Radius Turn

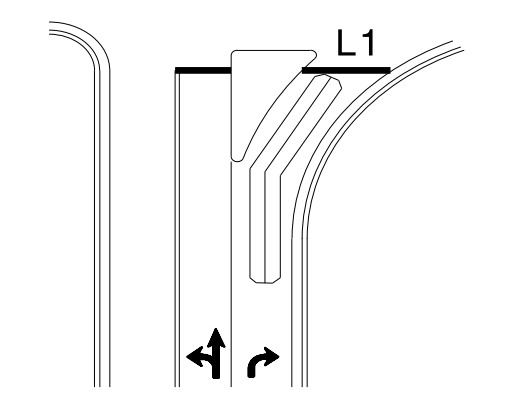
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

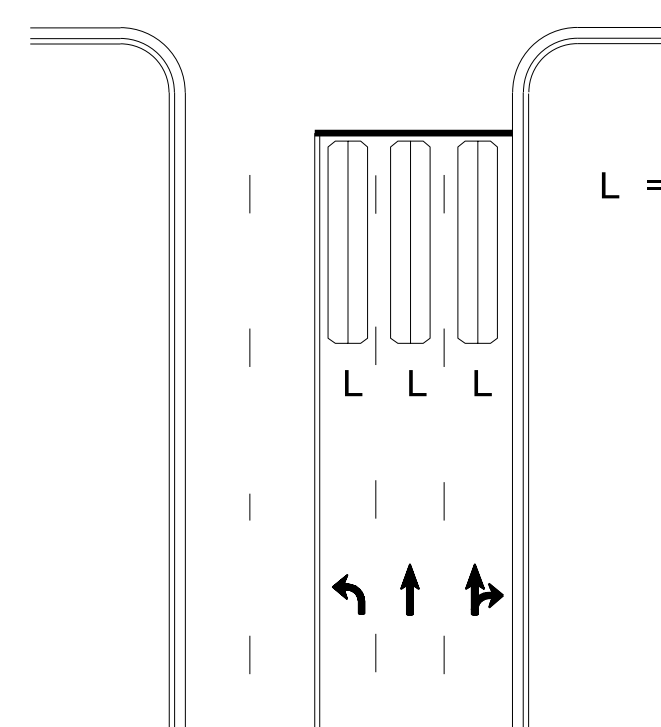


Wide Radius Turn



Channelized Turn

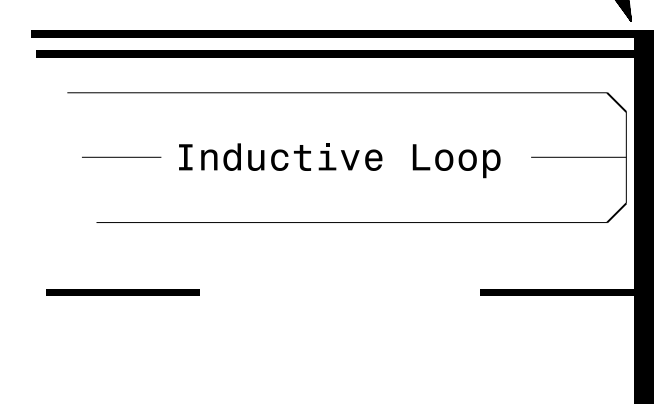
Side Street Detection



L = 6ft X 40ft
Quadrupole loop
Wired to separate
detectors/channels

Presence Loop Placement at Stop Lines

Locate loop slightly
behind leading
edge of stop line



Note:
Loop may be located in advance
of stop line under any of the
following conditions:
1) stop line is greater than 15'
from edge of intersecting
roadway
2) loop detects a permissive or
protected/permissive left turn
3) for an exclusive right turn
lane

Recommended Number of Turns

Single 6' X 6' loop
(when wired separately):

Length of Lead-in ft	Number of Turns
< 250	3
250-375	4
375-525	5
> 525	6

Quadrupole loops: Use 2-4-2 turns

6' X 15' Loops:
Lead-in < 150', use 2 turns
Lead-in > 150', use 3 turns

	<p>Prepared In the Offices of:</p> <p>TRANSPORTATION MOBILITY AND SAFETY DIVISION DEPARTMENT OF TRANSPORTATION SIGNAL DESIGN SECTION</p> <p>750 N. Greenfield Pkwy, Garner, NC 27529</p>		<p>SEAL NORTH CAROLINA PROFESSIONAL ENGINEER PAMELA L. ALEXANDER 23489</p>	
	<p>Typical Signal Loop Locations</p>		<p>PLAN DATE: January 2015 REVIEWED BY: JPG PREPARED BY: PLA REVIEWED BY:</p>	
<p>SCALE N/A</p>	<p>REVISIONS</p>	<p>INIT.</p>	<p>DATE</p>	<p>1/30/2015 DATE</p>