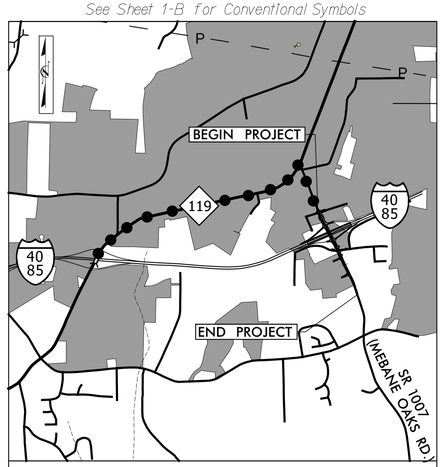
09/08/99

TIP PROJECT: I-5711

CONTRACT: C204352

See Sheet 1-A for Index of Sheets
See Sheet 1-B for Conventional Symbols



VICINITY MAP N.T.S.

MEBANE CITY LIMITS
OFF-SITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

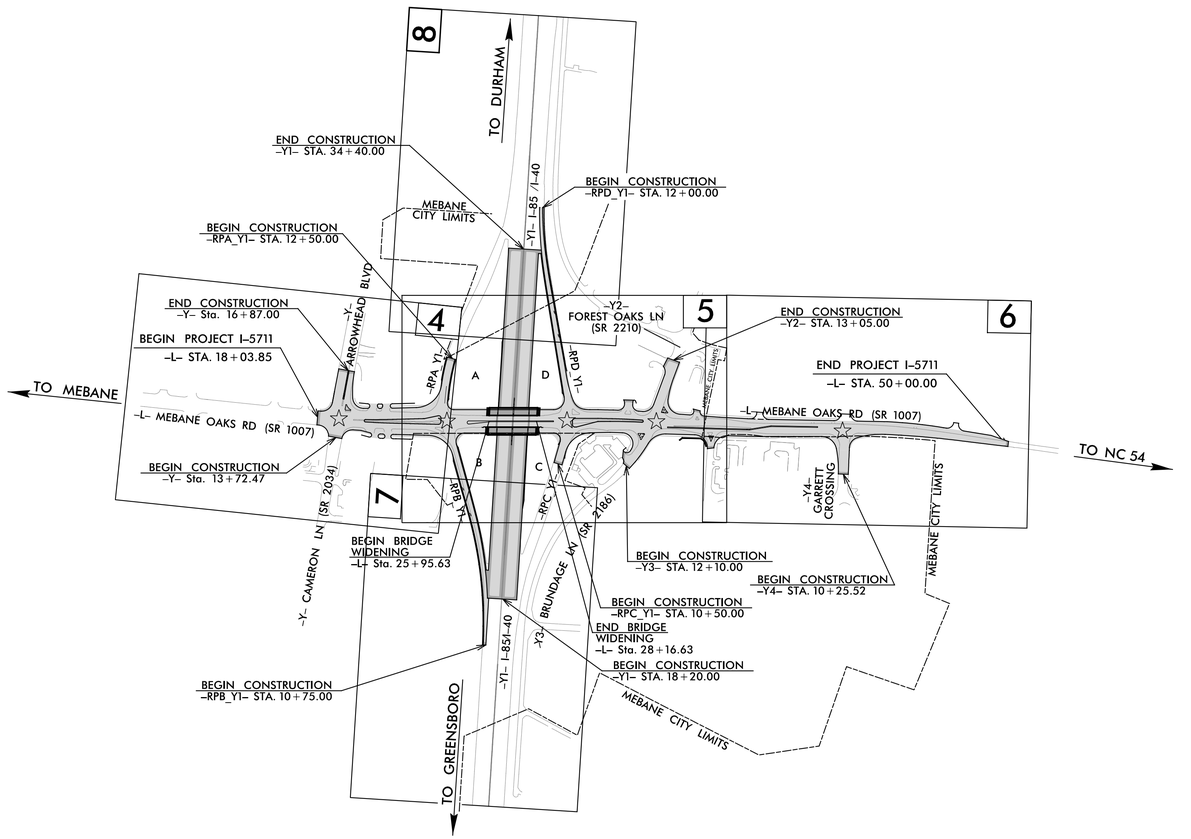
ALAMANCE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5711	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50401.1.FS1	NHPP-040-4(161)220	PE
50401.2.1	NHPP-040-4(161)220	R/W, UTIL
50401.3.GV1	NHPP-040-4(161)220	CONST.

LOCATION: INTERCHANGE IMPROVEMENTS AT I-40/I-85 AND SR 1007 (MEBANE OAKS RD) IN MEBANE

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE, SIGNALS AND PAVEMENT MARKINGS



NAD 83 /2011

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGE

TRAFFIC SIGNAL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 5 2.5 0 5 10

DESIGN DATA

ADT 2020 = 26,620
ADT 2040 = 30,200
K = 8 %
D = 55 %
T = 3 % *
V = 40 MPH
* TTST = 1 DUAL 2
FUNC CLASS = MAJOR COLLECTOR
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT – 0.563 mi
LENGTH BRIDGE PROJECT – 0.042 mi
TOTAL LENGTH PROJECT – 0.605 mi

Prepared In the Office of:

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPT. 28, 2018

LETTING DATE: MARCH 17, 2020

BRIAN K. EASON, PE
PROJECT ENGINEER

RODNEY KNIGHT
PROJECT DESIGN ENGINEER

LAURA SUTTON, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

DocuSigned by: Frank F Fleming 12/17/2019
SIGNATURE:

SEAL 20147 NORTH CAROLINA PROFESSIONAL ENGINEER FRANK F. FLEMING P.E.

ROADWAY DESIGN ENGINEER

DocuSigned by: Brian Eason 12/17/2019
SIGNATURE:

SEAL 25523 NORTH CAROLINA PROFESSIONAL ENGINEER BRIAN K. EASON P.E.

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

12/17/2019
I-5711_RDY_TSH_01.dgn
cyokeley

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5711	I-A

ROADWAY DESIGN ENGINEER
1/2/2020

NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER
Digitally signed by BRIAN K. EASON
Brian K Eason
09E0158D7ACC48E...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.02

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE CenturyLink, Spectrum,

Duke Energy, Piedmont EMC, City of Mebane, and PSNC

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

CURB RAMPS

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS.
CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

EFF. 01-16-2018
REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.02	Bridge Approach Fills - Type II Modified Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
610.01	Guide for Paving Shoulders Under Bridges - Method I
654.01	Pavement Repairs
665.01	Asphalt Shoulders - Milled Rumble Strips
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.22	Frames and Wide Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.03	Driveway Turnout - Drop Curb Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
848.06	Curb Ramp - Existing Curb & Gutter
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
852.10	Median Construction - with Curb and Gutter
854.05	Concrete Median Transition Barrier - Location of Overhead Assembly
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
866.02	Woven Wire Fence - with Wood Post
876.02	Guide for Rip Rap at Pipe Outlets

1/2/2020
I-5711BY_PSH_01-A.dgn
BRASON

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
I-5711	I-B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign (S)
- Well (W)
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch (FLOW)
- False Sump

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (CA)
- Existing Control of Access (CA)
- New Control of Access (CA)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (Vineyard)

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:

- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) (W)
- U/G Water Line LOS C (S.U.E*) (W)
- U/G Water Line LOS D (S.U.E*) (W)
- Above Ground Water Line (A/G Water)

TV:

- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- U/G TV Cable LOS B (S.U.E.*) (TV)
- U/G TV Cable LOS C (S.U.E.*) (TV)
- U/G TV Cable LOS D (S.U.E.*) (TV)
- U/G Fiber Optic Cable LOS B (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS C (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS D (S.U.E.*) (TV FO)

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) (G)
- U/G Gas Line LOS C (S.U.E.*) (G)
- U/G Gas Line LOS D (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (?UTL)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

6/2/99

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

PROJECT REFERENCE NO.	SHEET NO.
I-5711	2A-1

ROADWAY DESIGN ENGINEER
12/18/2019
NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRIAN K. EASON
DocuSigned by: Brian K. Eason
9AF015AD7ACC48F...

PAVEMENT DESIGN ENGINEER
12/18/2019
NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CHARLES S. MORRISON
DocuSigned by: Charles S. Morrison
8DA1450D1E9204C4...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

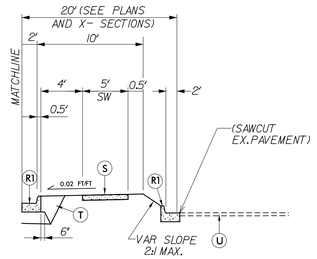
PAVEMENT SCHEDULE

FINAL PAVEMENT DESIGN, 10/16/19

C1	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL
C2	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5 1/2 ″ IN DEPTH.	U	EXISTING PAVEMENT
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2″ IN DEPTH.	K	PROPOSED 12″ CLASS IV SUBGRADE STABILIZATION	V1	1.5″ MILLING (SEE MILLING DETAIL - THIS SHEET)
C4	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	N	GEOTEXTILE FOR SOIL STABILIZATION	V2	3″ MILLING (SEE MILLING DETAIL - THIS SHEET)
C5	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	R1	2′-6″ CONCRETE CURB AND GUTTER	V3	INCIDENTAL MILLING (VARIABLE DEPTH - SEE DETAIL)
C6	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R2	5″ MONOLITHIC CONCRETE ISLAND	W	PAVEMENT WEDGING (SEE DETAILS - THIS SHEET)
D1	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R3	8″ x 12″ CONCRETE CURB	Y	MILLED RUMBLE STRIPS
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2″ IN DEPTH OR GREATER THAN 4″ IN DEPTH.	S	4″ CONCRETE SIDEWALK		

NOTE: ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

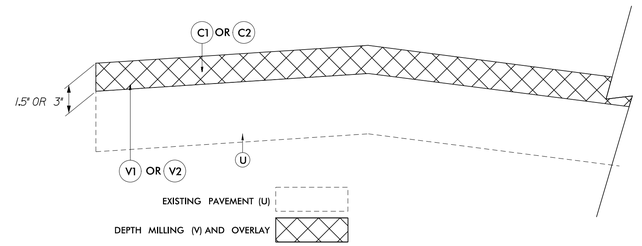
DETAIL A : CHANNELIZATION OF EXISTING PAVEMENT

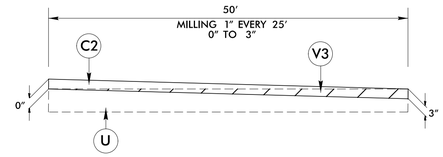


CHANNELIZATION OF EXISTING PAVEMENT DETAIL
–L– STA. 20+45 TO STA. 22+40

USE DETAIL A WITH TYPICAL SECTION NO. 1

MILLING DETAIL (V)

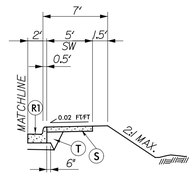




MILLING DETAIL
USE MILLING DETAIL AT RESURFACING TIES

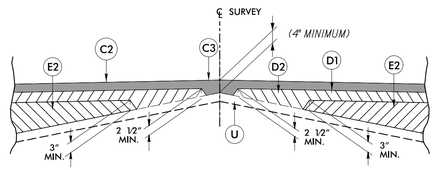
INCIDENTAL MILLING

DETAIL B : NARROW BERM DETAIL

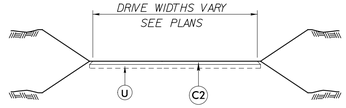


NARROW BERM DETAIL
–L– STA 19+33.61 TO STA 20+56+/– (RT)

USE DETAIL B WITH TYPICAL SECTION NO. 1



WEDGING DETAIL (W)



SEE PLANS FOR DRIVE LOCATIONS

DETAIL FOR ASPHALT DRIVES

12/7/2018
I-5711 RDY_TYP_02A.dgn
pwbailey

6/2/99

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

PROJECT REFERENCE NO.	SHEET NO.
I-5711	2A-2

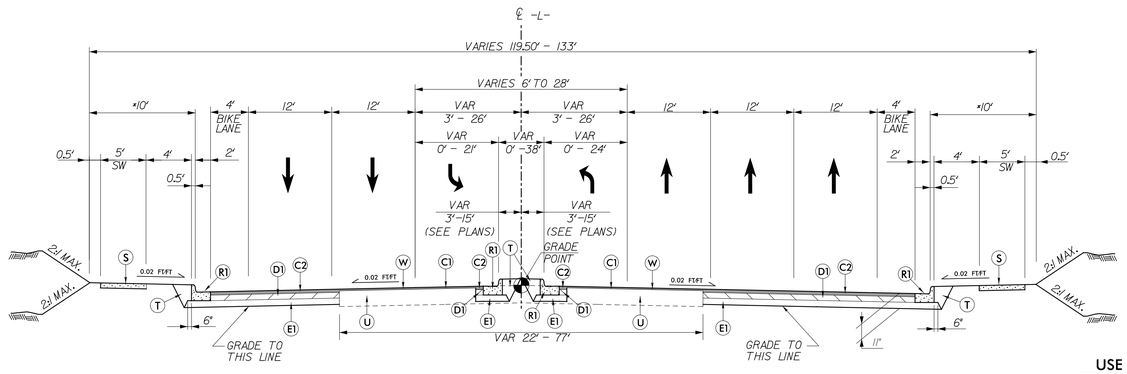
ROADWAY DESIGN ENGINEER
12/18/2019
NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRANDON KEITH EASON
DocuSigned by: Brandon Eason
DAF015AD7ACC48F...

PAVEMENT DESIGN ENGINEER
12/18/2019
NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON
DocuSigned by: Clark S. Morrison
D3A4160B94C8404...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE
FINAL PAVEMENT DESIGN, 10/16/19

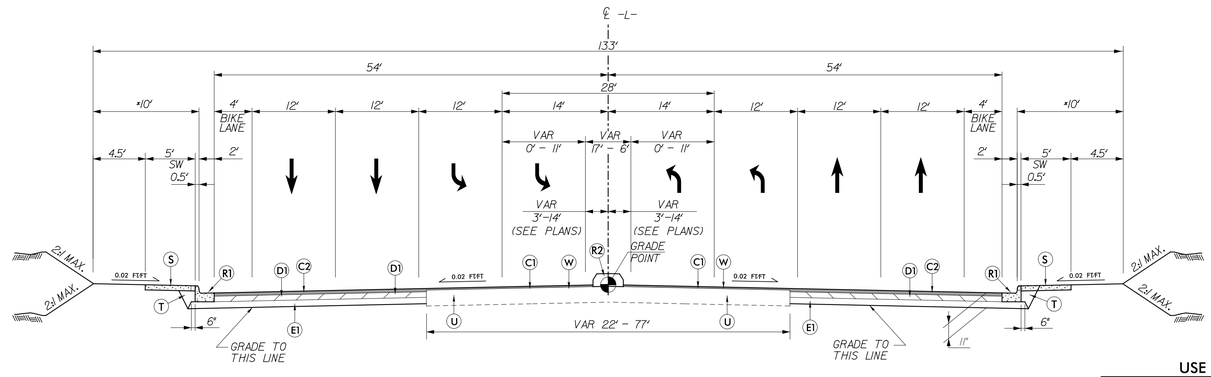
CODE	DESCRIPTION
C1	1.5" S9.5B
C2	3" S9.5B
D1	4" I19.0C
E1	4" B25.0C
R1	CONC C & G (2'-6")
R2	MONO. CONC ISLAND
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST PAVEMENT
V2	3" MILLING
W	WEDGING



TYPICAL SECTION NO. 1
-L- MEBANE OAKS RD.

* ADD 4' AT GUARDRAIL LOCATIONS

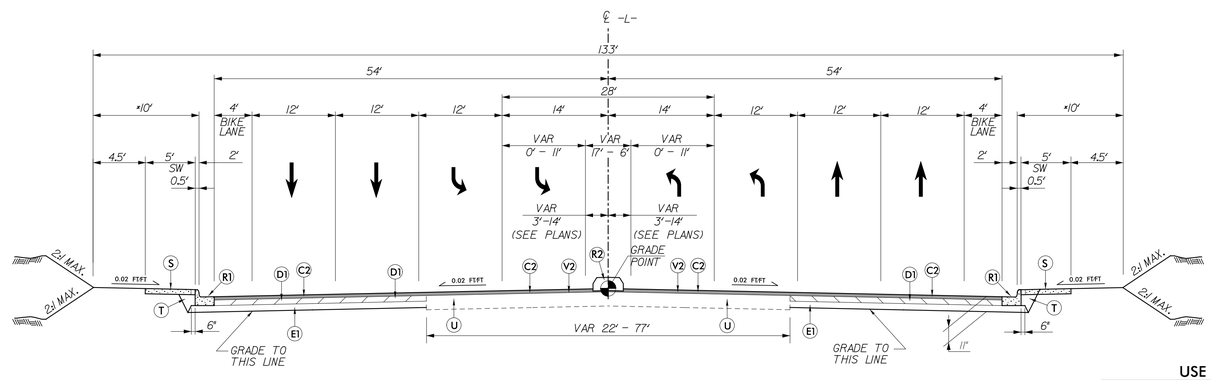
USE TYPICAL SECTION NO. 1 FOR:
-L- STA. 19+33.61 TO STA. 23+63.85



TYPICAL SECTION NO. 2
-L- MEBANE OAKS RD.

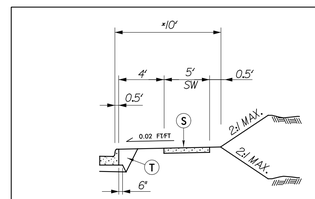
* ADD 4' AT GUARDRAIL LOCATIONS

USE TYPICAL SECTION NO. 2 FOR:
-L- STA. 23+63.85 TO STA. 25+95.63 (BEGIN BRIDGE)



TYPICAL SECTION NO. 3
-L- MEBANE OAKS RD.

* ADD 4' AT GUARDRAIL LOCATIONS



TYPICAL SECTION NO. 3A
-L- RT STA 29+82.78 TO 33+08.78
-L- LT STA 29+82.78 TO 33+08.78 (MIRROR)
*USE WITH TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 FOR:
-L- STA 28+16.63 (END BRIDGE) TO STA. 29+82.78

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pjackson
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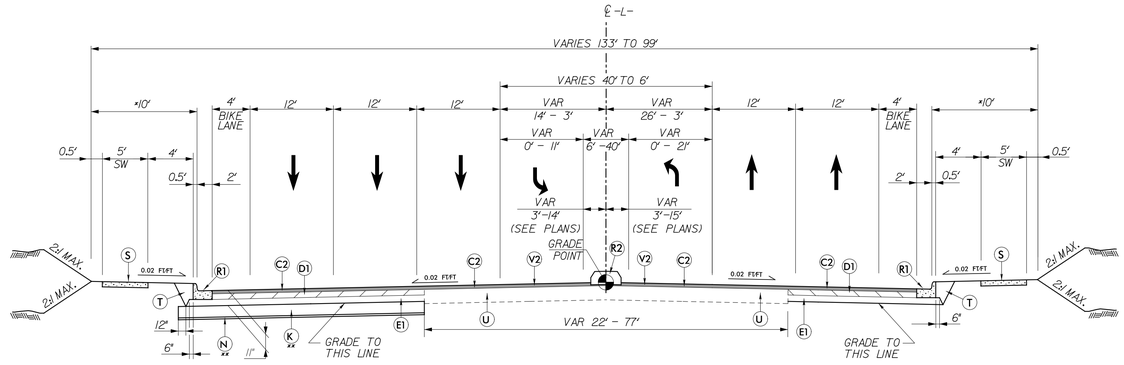
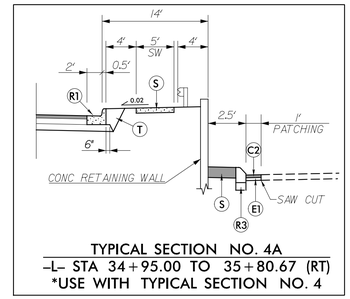
6/2/99



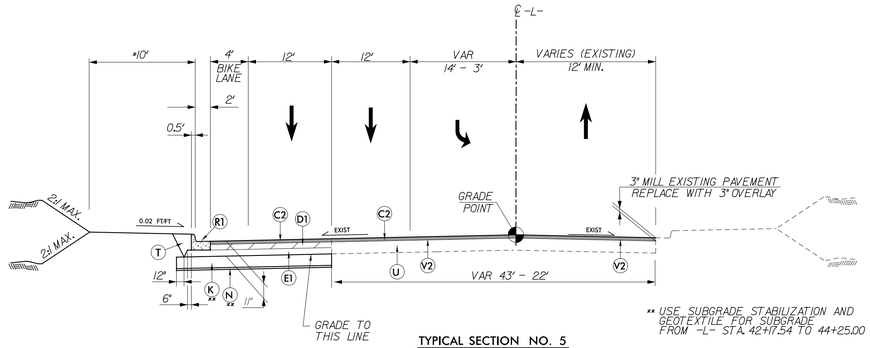
TYPICAL SECTION NO. 4
–L– MEBANE OAKS RD.

* ADD 4' AT GUARDRAIL LOCATIONS
** USE SUBGRADE STABILIZATION AND GEOTEXTILE FOR SUBGRADE FROM –L– STA. 41+75.00 TO 42+17.54

USE TYPICAL SECTION NO. 4 FOR:
–L– STA 33+08.78 TO 42+17.54



TYPICAL SECTION NO. 4A
–L– STA 34+95.00 TO 35+80.67 (RT)
*USE WITH TYPICAL SECTION NO. 4

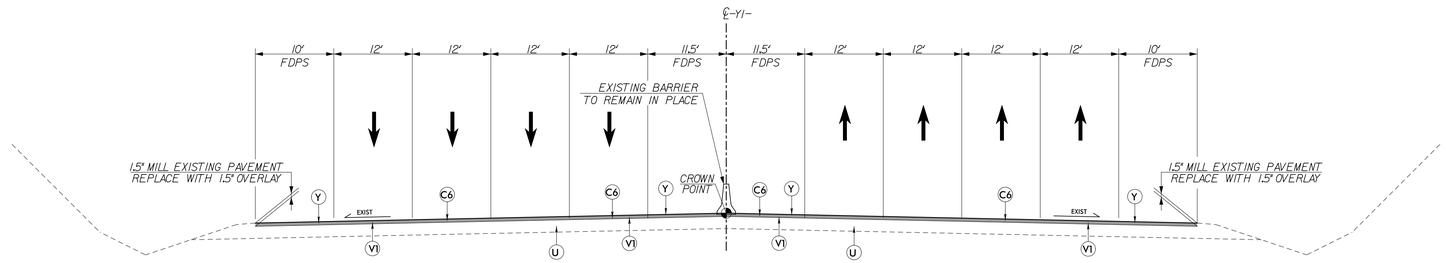


TYPICAL SECTION NO. 5
–L– MEBANE OAKS RD.

** USE SUBGRADE STABILIZATION AND GEOTEXTILE FOR SUBGRADE FROM –L– STA. 42+17.54 TO 44+25.00

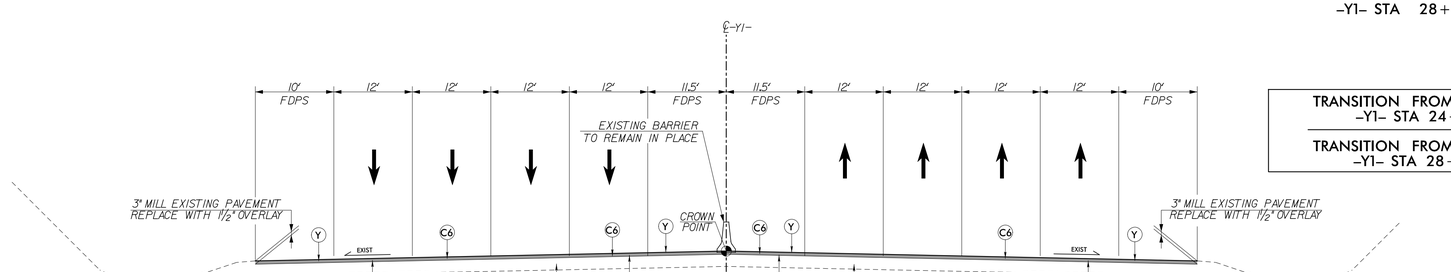
USE TYPICAL SECTION NO. 5 FOR:
–L– STA 42+17.54 TO 49+16.50

TRANSITION FROM TYPICAL NO. 5 TO EXISITNG
–L– STA 49+16.50 TO STA 50+00.00



TYPICAL SECTION NO. 6
–Y1– I–85 /I–40

USE TYPICAL SECTION NO. 6 FOR:
–Y1– STA 18+20.00 TO 24+11.00
–Y1– STA 28+80.23 TO 34+40.00

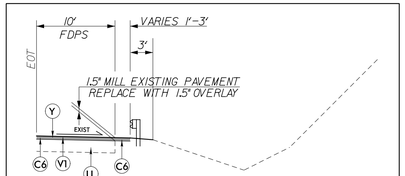


TYPICAL SECTION NO. 7
–Y1– I–85 /I–40

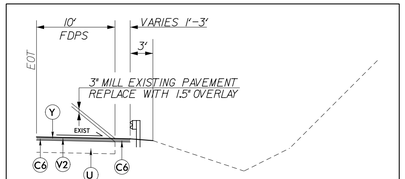
USE TYPICAL SECTION NO. 7 FOR:
–Y1– STA 24+86.00 TO 28+05.23

TRANSITION FROM MILLING 1.5" TO MILLING 3"
–Y1– STA 24+11.00 TO STA 24+86.00

TRANSITION FROM MILLING 3" TO MILLING 1.5"
–Y1– STA 28+05.23 TO STA 28+80.23

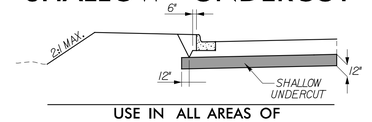


TYPICAL SECTION NO. 6A
–Y1– STA 22+83.95 TO 24+11.00 (RT)
–Y1– STA 28+80.23 TO 30+00.00
*USE WITH TYPICAL SECTION NO. 6



TYPICAL SECTION NO. 7A
–Y1– STA 24+11.00 TO 25+83.98 (RT)
–Y1– STA 27+00.55 TO 28+80.23
*USE WITH TYPICAL SECTION NO. 7

DETAIL FOR SHALLOW UNDERCUT



USE IN ALL AREAS OF SUBGRADE STABILIZATION

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

PROJECT REFERENCE NO.	SHEET NO.
I-5711	2A-3

ROADWAY DESIGN ENGINEER
1/8/2020
NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRIAN LEE EASON
DocuSigned by: Brian Eason
9AF015A0D7ACC48F...

PAVEMENT DESIGN ENGINEER
1/9/2020
NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CHARLES STEVEN MORRISON
DocuSigned by: Charles Morrison
B0A110DD1E0D4C4...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE
FINAL PAVEMENT DESIGN, 10/16/19

CODE	DESCRIPTION
C2	3" S9.5B
C6	1.5" S9.5D
D1	4" I19.0C
E1	4" B25.0C
K	SUBGRADE STABILIZATION
N	GEOTEXTILE FOR SOIL STAB.
R1	CONC C & G (2'-6")
R2	MONO. CONC ISLAND
R3	8"x12" CONC. CURB
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST PAVEMENT
V1	1½" MILLING
V2	3" MILLING
W	WEDGING
Y	MILLED RUMBLE STRIPS

1/8/2020
R-5711BDY_TYP_02A.dgn
BEASON

6/2/99

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

PROJECT REFERENCE NO.	SHEET NO.
I-5711	2A-4

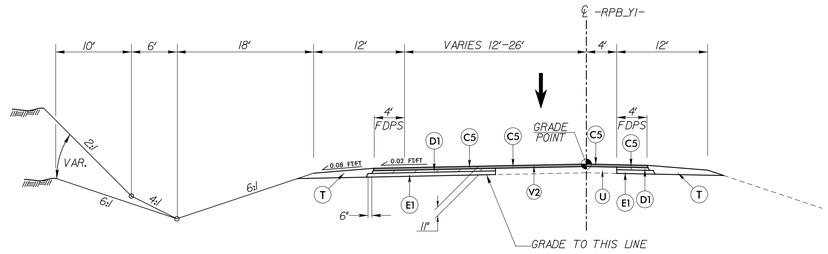
ROADWAY DESIGN ENGINEER
12/18/2019
NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRIAN K. EASON
DocuSigned by: Brian Eason
5AF01B8D7ACC45F...

PAVEMENT DESIGN ENGINEER
12/18/2019
NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON
DocuSigned by: Clark Morrison
B0A110DD1E004C4...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE
FINAL PAVEMENT DESIGN, 10/16/19

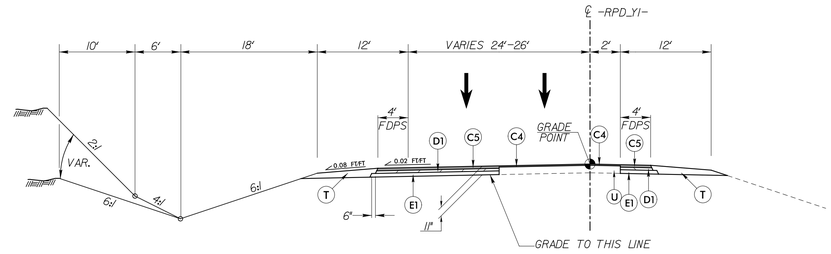
CODE	DESCRIPTION
C1	1.5" S9.5B
C2	3" S9.5B
C4	1.5" S9.5C
C5	3" S9.5C
D1	4" I19.0C
E1	4" B25.0C
R1	CONC C & G (2'-6")
R2	MONO. CONC ISLAND
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST PAVEMENT
V1	1½" MILLING
V2	3" MILLING
W	WEDGING



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8 FOR:
-RPB_Y1- STA 18+10.00 TO 20+72.91

TRANSITION FROM EXISITNG TO TYPICAL NO. 8
-RPB_Y1- STA 10+75.00 TO STA 18+10.00



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9 FOR:

** -RPD_Y1- STA 19+80.00 TO 21+42.67

**OVERLAY EXISTING -RPD_Y1- 1.5" (C4) AS FOLLOWS:
-RPD_Y1- STA 12+00.00 TO STA 19+80.00

TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10 FOR:
-RPA_Y1- STA 12+50.00 TO 14+89.10
-RPC_Y1- STA 10+50.00 TO 11+95.54

TYPICAL SECTION NO. 11
-Y2- FOREST OAKS LN.

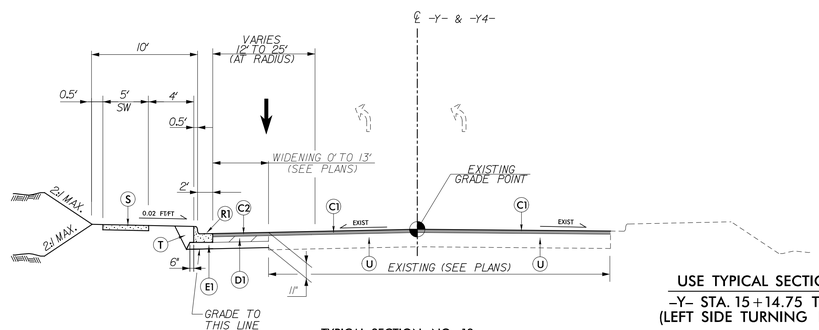
USE TYPICAL SECTION NO. 11 FOR:
-Y2- STA. 10+50.93 TO STA. 13+05.00

TYPICAL SECTION NO. 12
-Y3- BRUNDAGE LN.

USE TYPICAL SECTION NO. 12 FOR:
-Y3- STA. 12+50.00 TO STA. 13+95.01

TRANSITION FROM EXISTING TO TYPICAL NO. 12
-Y3- STA 12+10.00 TO STA 12+50.00

* USE 4' BERM WITH NO SIDEWALK FROM
-Y3- STA. 13+16 TO 13+95.01



TYPICAL SECTION NO. 13
(TURNING RADIUS WIDENING)
-Y- ARROWHEAD BLVD
-Y4- GARRETT CROSSING

USE TYPICAL SECTION NO. 13 FOR:
-Y- STA. 15+14.75 TO STA. 16+87.00
(LEFT SIDE TURNING RADIUS WIDENING)

-Y4- STA. 10+25.52 TO STA. 12+04.89
(RIGHT SIDE TURNING RADIUS WIDENING)

12/18/2019
I-5711RDY_TYP_02A.dgn
cjordan

5/14/99

INTERSECTION DETAIL
-L- SR 1007 (MEBANE OAKS) AND -Y- (ARROWHEAD BLVD.)

PROJECT REFERENCE NO.	SHEET NO.
I-5711	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
12/17/2019

NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER
Digitally signed by BRIAN K. EASON
Date: 2019.12.17 15:51:37 -05'00'
9AF015AD7ACC48F...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/2011

-Y- (ARROWHEAD BLVD.)

+65.09
44.81'
+67.79
55.99'
END SIDEWALK

+94.19
81.82'
TIE TO EXISTING

+29.85
46.09'
TIE TO EXISTING

+29.92
54.09'
TIE TO EXISTING

+10.08
42.17'
TIE TO EXISTING

+03.85
33.97'
TIE TO EXISTING

+29.03
20.72'

CONC. MONO. ISLAND

+09.37
23.58'

+53.42
46.80'

+14.67
57.29'

-L- PT Sta. 21+53.05

15+00

20+00

+25.46
5.33'

+25.43
5.33'

CONC. ISLAND COVER

-L- PC Sta. 17+58.42

-L-
-L- S 21° 14' 58.1" E

-L- SR 1007 (MEBANE OAKS)

+71.11
44.20'

+06.13
45.00'

+10.58
66.55'
TIE TO EXISTING

+72.43
29.84'
TIE TO EXISTING

-L- POC Sta. 19+03.88 =
-Y- POT Sta. 14+57.10
Δ = 96° 17' 22.6"

-Y- SR-2034 (CAMERON LN)

5' SIDEWALK
2'-6" C&G
4' BIKE LANE
50'R
10'R
5.5'R
2'R
5'R
CR

20' 0' 20' 40'
10'
1" = 20'

SEE SHEET 4 FOR ROADWAY PLAN VIEW

12/17/2019
I-5711_RDY_DET_02B-1.dgn
cjohnson

5/14/99

INTERSECTION DETAIL
-L- SR 1007 (MEBANE OAKS RD)
AND
RPA-Y1 AND RPB-Y1

PROJECT REFERENCE NO.	SHEET NO.
I-5711	2B-2
R/W SHEET NO.	___

ROADWAY DESIGN ENGINEER
12/17/2019

NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRIAN K. EASON

DocuSigned by: Brian K. Eason
DocuSigned by:...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/2011

-RPA_Y1-

-L- PT Sta. 21+53.05

-L- S 27° 10' 06.8" E

-L- S 65° 23' 57.5" W

15+00

-L- POT Sta. 23+88.21 =
-RPA_Y1- POT Sta. 15+43.15

-RPA_Y1- PT Sta. 14+78.52

-L- POT Sta. 24+12.80 =
-RPB_Y1- POT Sta. 21+28.91

-RPB_Y1- N 41° 28' 27.1" E

20+00

25+00

BEGIN BRIDGE
-L- STA 25+96.63

BEGIN APPROACH SLAB
-L- STA 25+85.31

+49.93
80.67'
10'R

+51.67
83.22'
TIE TO EXISTING

+60.86
63.44'

+50.20
80.67'

5' SIDEWALK

2'-6" C&G

4' BIKE LANE

+61.57
25.76'

+98.45
12.36'

11'R

+74.84
14.51'

RAISED GRASS ISLAND

+74.04
5.49'

+63.05
14.00'

+53.26
60.77'

+52.75
80.77'

+39.72
82.94'
END 2'-6" C&G

+15.15
64.82'

120'R

+39.37
19.27'
BEGIN 2'-6" C&G

+58.13
19.57'
BEGIN SIDEWALK

30'R

+34.25
63.44'

+00.36
61.50'
BEGIN BRIDGE

CONC. MONO. ISLAND

8.5'R

+03.00
5.50'

+03.00

100' TAPER

+50.97
79.99'

+92.90
61.54'
BEGIN BRIDGE

+41.72
20.43'
BEGIN SIDEWALK

40'R

+02.63
9.37'
BEGIN 2'-6" C&G

+72.29
9.87'
BEGIN 2'-6" C&G

+77.38
26.00'

+47.17
31.93'
BEGIN 2'-6" C&G

20' 0' 20' 40'
10'
1" = 20'

SEE SHEET 5 FOR ROADWAY PLAN VIEW

12/17/2019
I-5711_RDY_DET_02B-2.dgn
DocuSigned by:

5/14/99

INTERSECTION DETAIL
-L- SR 1007 (MEBANE OAKS RD) AND RPC-Y1 AND RPD-Y1

PROJECT REFERENCE NO.	SHEET NO.
I-5711	2B-3
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
12/17/2019

NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRIAN K. EASON

Docusigned by: Brian K. Eason
0AF016AD7ACC48F...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/2011

RPD-Y1

+44.53
14.00'

+64.37
8.00'
END 2'-6" C&G

+63.65
6J3'

END BRIDGE
-L- Sta. 28+15.65

END APPROACH SLAB
-L- Sta. 28+27.J3

50'R

2'-6" C&G

+94.39
54.00'

CR

5' SIDEWALK

4' BIKE LANE

12'

11'

-L- SR 1007 (MEBANE OAKS)

CONC. MONO. ISLAND

+93.00
0.00'

3'R

S 27° 10' 06.8" E

-RPD_Y1-
S 53° 35' 16.0" W

-L- POT Sta. 29+64.00 =
-RPC_Y1- POT Sta. 12+51.70
-RPD_Y1- POT Sta. 21+97.38

120'R

2'-6" C&G

+15.16
99.12'
END 2'-6" C&G

R42'

+81.57
54.00'

4' BIKE LANE

+91.36
52.20'

R30'

5' SIDEWALK

CR

+93.00
14.00'

+00.00
14.00'

-L- SR 1007 (MEBANE OAKS RD)

2'-6" C&G

11'R

30+00

+82.00
3.00'

RAISED GRASS ISLAND

CONC. ISLAND COVER

14'

+00.00
0.00'

+82.00
15.00'

92'

2'-6" C&G

24'

11'R

+93.00
26.00'

+00.72
26.00'

21'

12'

-Y1- N 66° 23' 31.3" E

-L- POT Sta. 27+02.26=
-Y1- POT Sta. 26+42.14
△ = 86° 26' 21.85"

+56.63
54.00'

4' BIKE LANE

5' SIDEWALK

CR

2'-6" C&G

+70.75
29.02'
END SIDEWALK

30'R

+37.95
18.03'
BEGIN 2'-6" C&G

+12.62
12.00'

RPC-Y1

-RPC_Y1-
N 78° 44' 45.3" E

+13.75
26.00'

+84.34
31.72'
BEGIN 2'-6" C&G

8'-6" C&G

120'R

+64.18
52.72'

+56.45
50.81'

+13.82
51.87'

-L- PC Sta. 31+56.45

20' 0' 20' 40'
10'
1" = 20'

SEE SHEET 5 FOR ROADWAY PLAN VIEW

12/17/2019
I-5711_RDY_DET_02B-3.dgn
gwickert

5/14/99

INTERSECTION DETAIL

-L- SR 1007 (MEBANE OAKS RD)
AND
Y2 SR 2210 (FOREST OAKS LN)
Y3 SR 2186 (BRUNDAGE LN)

PROJECT REFERENCE NO.	SHEET NO.
I-5711	2B-4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
12/17/2019

NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRIAN K. KEY

DocuSigned by: Brian K. Key
9AF015AD7ACC48F...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/2011

-L- POT Sta. 33+53.66 =
-Y2- POT Sta. 10+00.00

-L- POT Sta. 33+69.34 =
-Y3- POT Sta. 14+52.01

-Y2-
SR 2210 (FOREST OAKS LN)

-Y2-
N 82° 51' 27.7" E

-Y3-
S 85° 4' 38.1" E

-Y3-
SR 2186 (BRUNDAGE LN)

-L- SR 1007 (MEBANE OAKS)
S 24° 02' 57.2" E

-L- S 27° 10' 06.8" E

-L- PT Sta. 33+12.70

-L- PC Sta. 31+56.45

-Y3- PT Sta. 13+52.81

BEG. RET. WALL
-L- STA 34+82.39
(72.38' RT)

END RET. WALL
-L- STA 36+04.76
(94.03' RT)

CONC. ISLAND COVER

CONC. MONO. ISLAND

CONC. MONO ISLAND

5' SIDEWALK

2'-6" C&G

+15.16 99.12' TIE TO EXISTING
+58.26 94.11'
6.25'R
+69.93 196.04'
42'R
+21.04 83.78'
+73.22 87.41' TIE TO EXISTING
+57.34 77.81'
30'R
50'R
+81.20 25.45'
+91.36 52.20'
+85.73 50.35'
+33.36 61.71'
+85.06 22.61'
2'R
+67.29 46.86'
+60.45 22.61'
500'R
+26.22 28.81'
60'R
+31.71 71.81' END SIDEWALK
+36.66 13.41' TIE TO EXISTING
+70.86 67.12' TIE TO EXISTING
18'R
20'R
+88.26 44.41'
+76.26 46.61'
+21.37 45.72'
+03.90 9.99'
5'R
+03.69 0.00'
+56.44 50.81'
+13.82 51.81'
+79.48 21.00'
+66.30 43.94'
+51.18 21.00'
+05.00 44.52'
+95.00 45.71'
+76.69 56.21' TIE TO EXISTING
+80.00 43.09'
+87.35 32.35'
+78.83 31.37'
+70.00 36.81'
+50.00 18.00' TIE TO EXISTING
+52.20 18.00'
+16.24 48.13'
+50.20 44.61'
+14.97 47.10'
+37.06 46.54'
+26.58 69.33'
+09.80 105.41' TIE TO EXISTING
+43.86 100.08' TIE TO EXISTING
92'R
63'R
3'R
+24.01 16.91'
12'
14'
24'
VAR.

20' 0' 20' 40'
10'
1" = 20'

SEE SHEET 5 FOR ROADWAY PLAN VIEW

12/17/2019
12:16:11 PM
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quicker1

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5711	2B-5
R/W SHEET NO.	

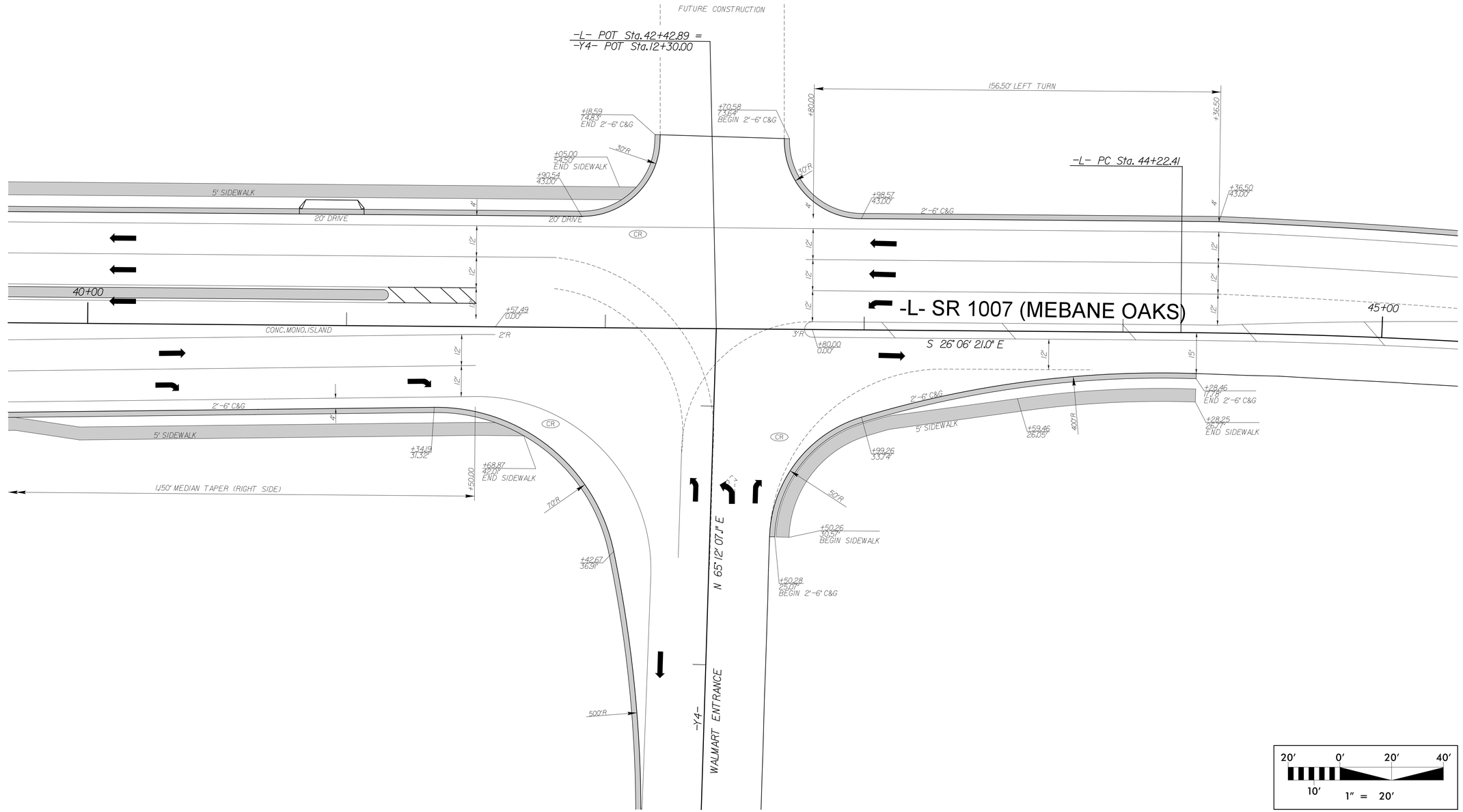
ROADWAY DESIGN ENGINEER
12/17/2019

NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER JONATHAN KEITH BARTLETT
9AF015AD7ACC48F...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INTERSECTION DETAIL
-L- SR 1007 (MEBANE OAKS RD)
AND
-Y4- (WALMART ENTRANCE)

NAD 83/2011



20' 0' 20' 40'
10'
1" = 20'

SEE SHEET 6 FOR ROADWAY PLAN VIEW

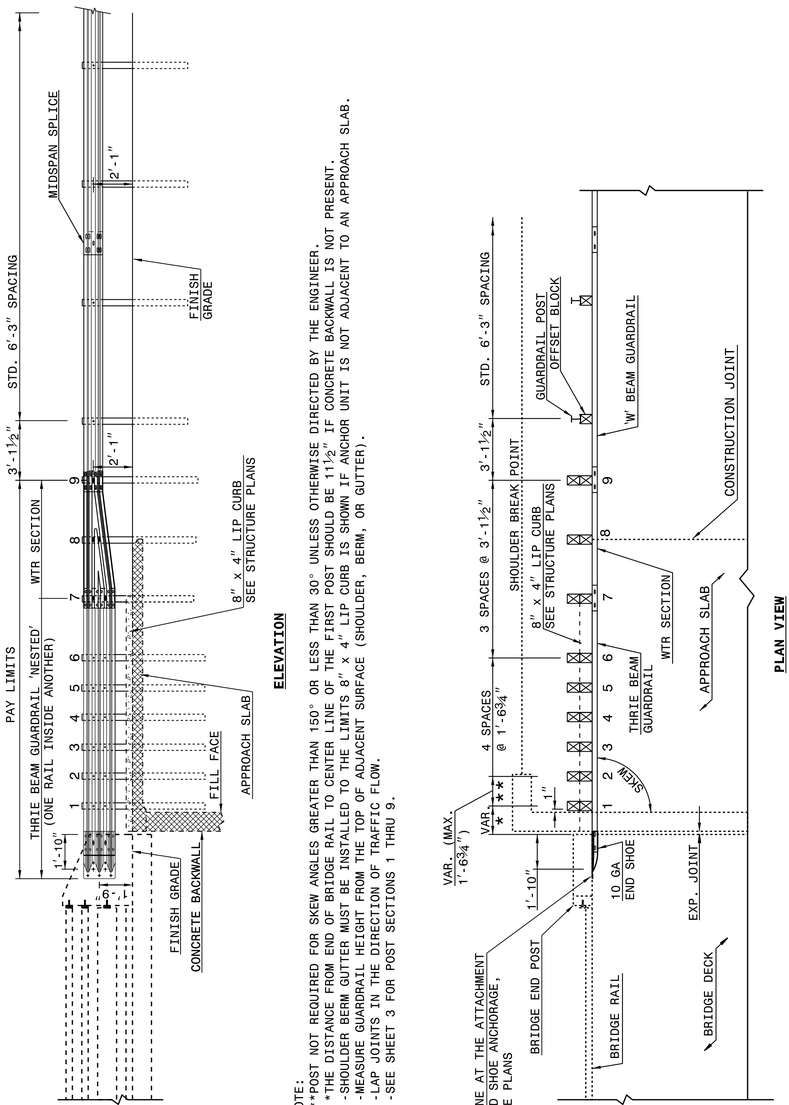
12/17/2019
I-5711_RDY_DET_02B-5.dgn
cwickert

PROJECT REFERENCE NO.	SHEET NO.

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
862D03



ELEVATION

PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

STATE OF
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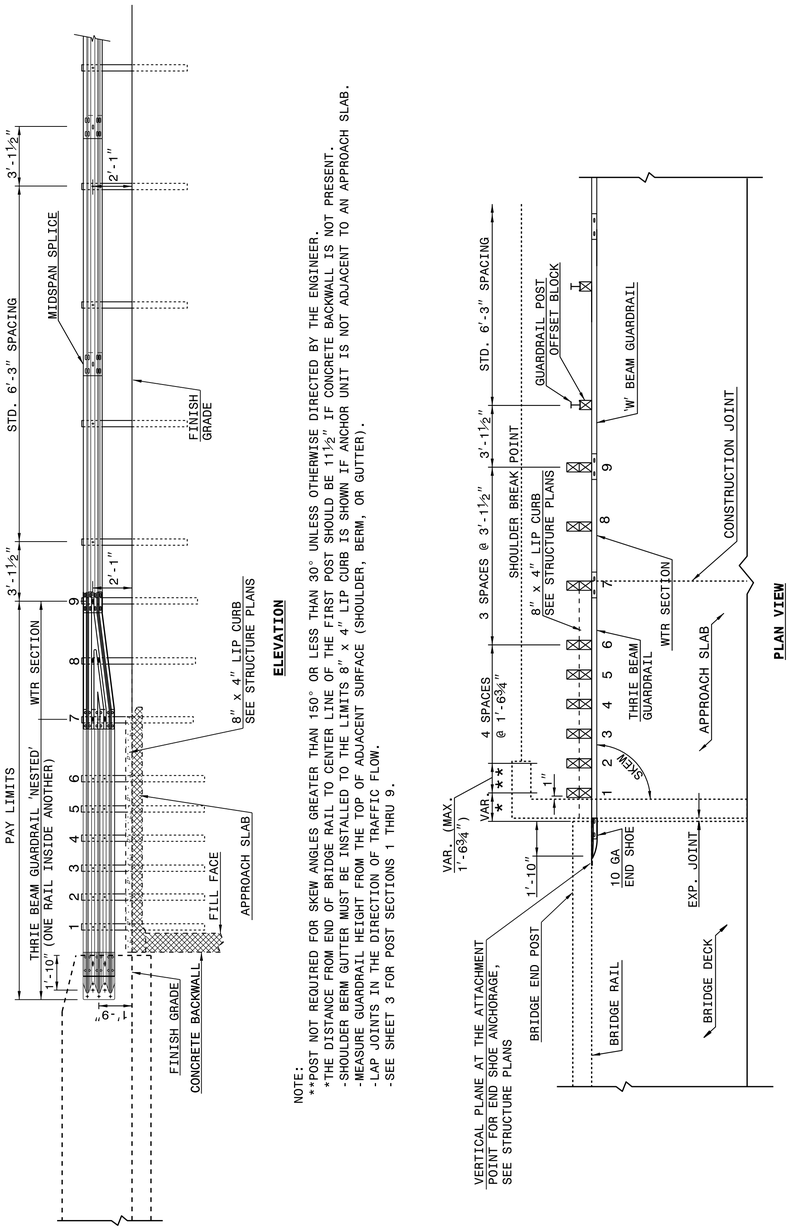
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862D03



ELEVATION

PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

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

SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

14-DEC-2017 10:36
S:\Contracts\Contracts\Special Details\jhowerton\Standard Drawings\2018 Standard Drawings\Details in Lieu of Standards\Division 8\0862d0301.dgn
jhowerton AT CSD-2425965

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STATE OF NORTH CAROLINA
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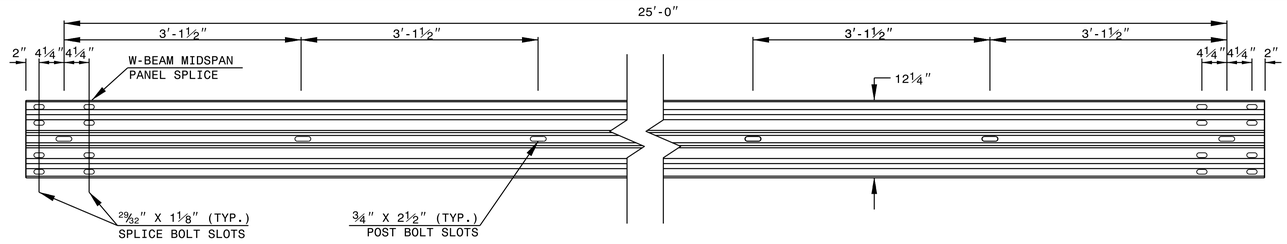
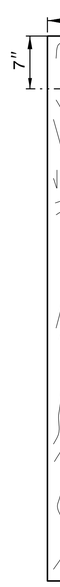
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



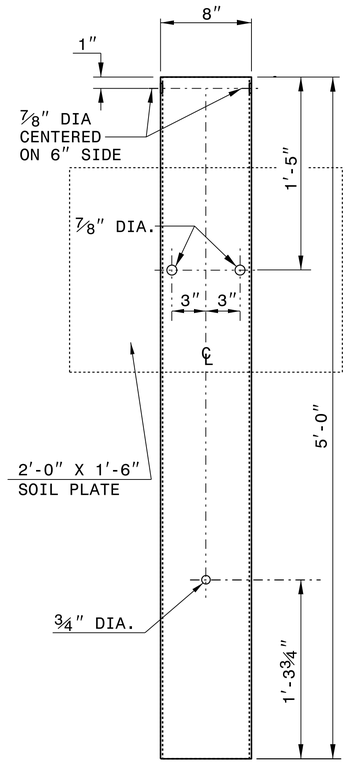
STANDARD W-BEAM GUARDRAIL



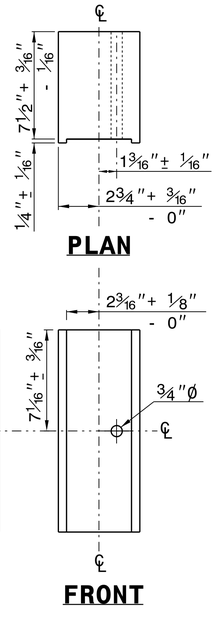
STANDARD LINE POST

WOOD OFFSET BLOCK
(FOR WOOD POSTS)

SHORT WOOD BREAKAWAY POST



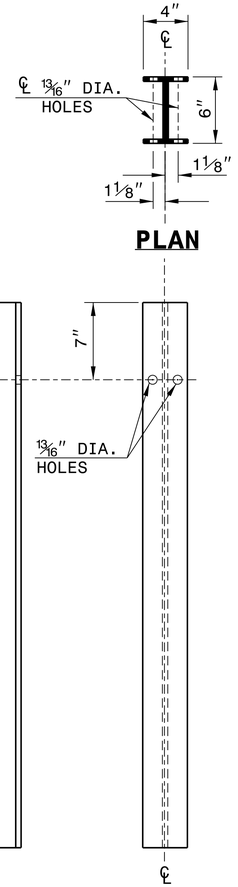
STEEL TUBE
TS 6"x8"x0.1875"



PLAN

SIDE **FRONT**

ROUTED OFFSET BLOCK



PLAN

SIDE **FRONT**

"W6" STEEL POST

SYSTEM PARTS

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOHN S. HOWERTON

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

SEE TITLE BLOCK

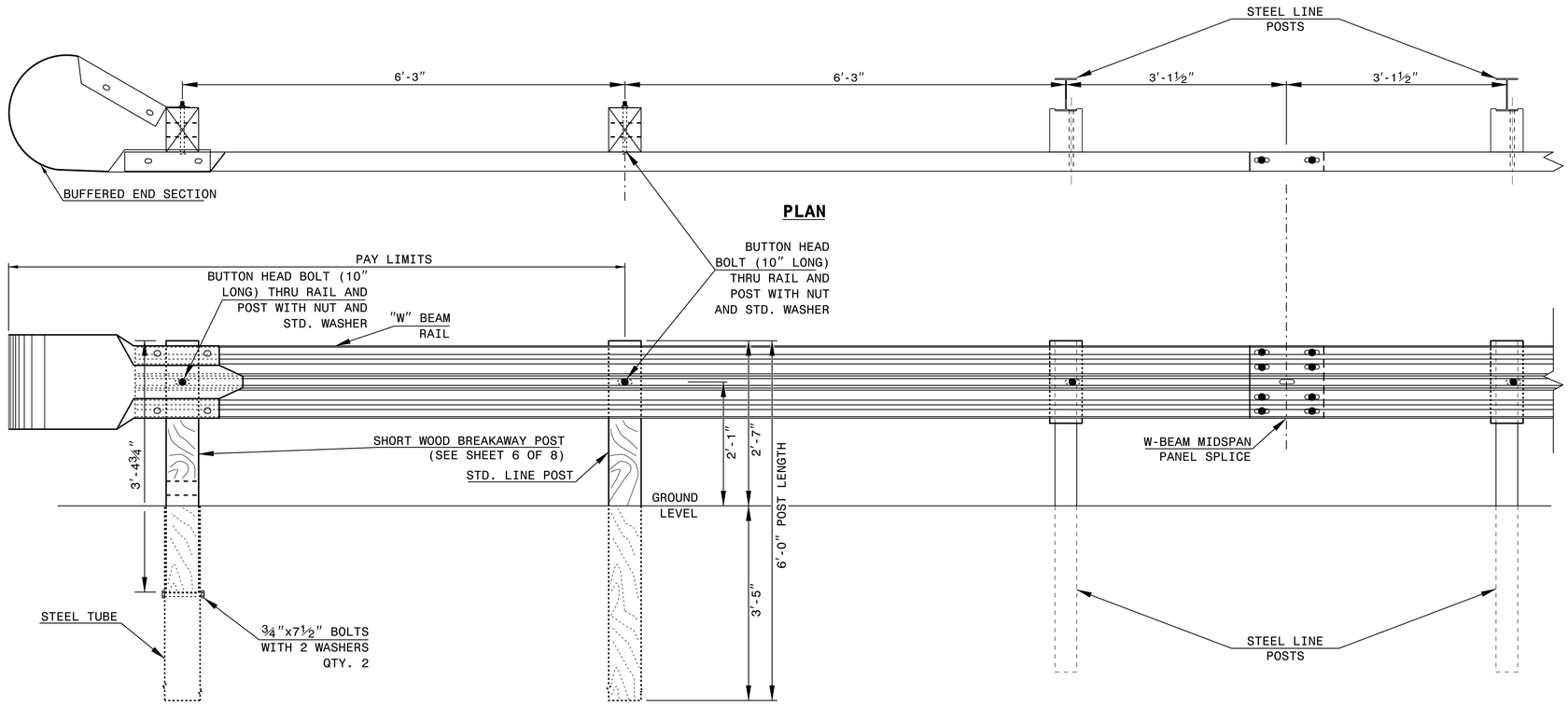
ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

PROJECT REFERENCE NO.	SHEET NO.

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



TRAILING END UNIT ASSEMBLY

A.T.-1 SYSTEM

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER DANIEL S. HOWERTON

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

A.T.-1 SYSTEM

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

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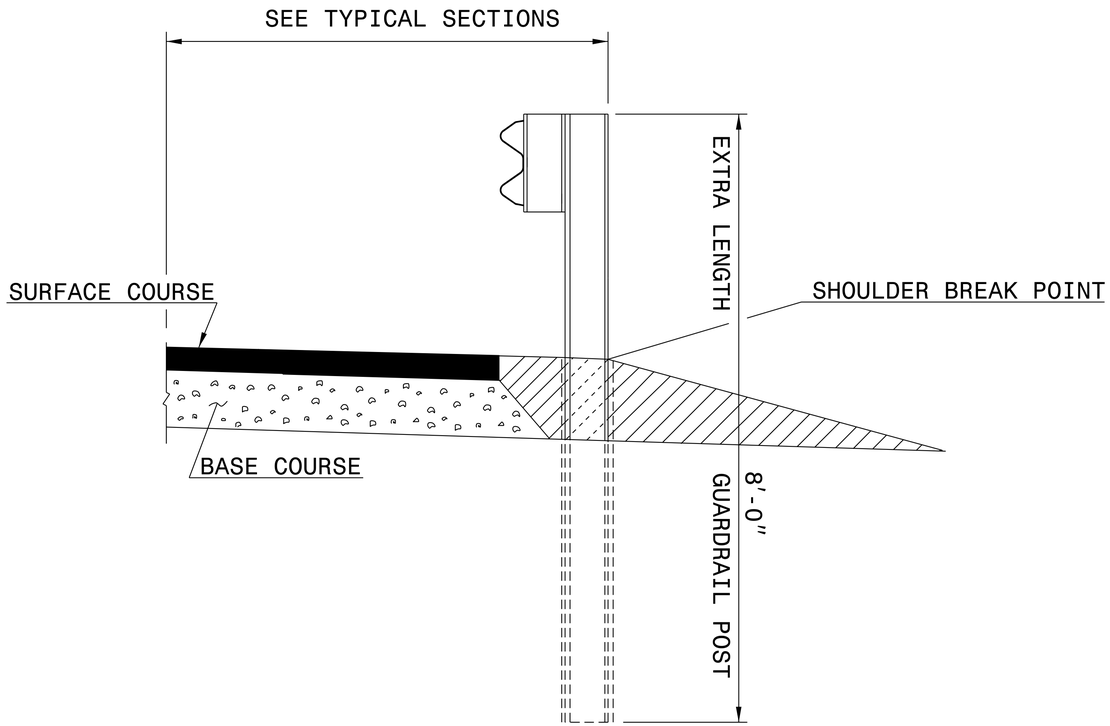
PROJECT REFERENCE NO.	SHEET NO.
I-5711	2C-4



NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
1/8/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

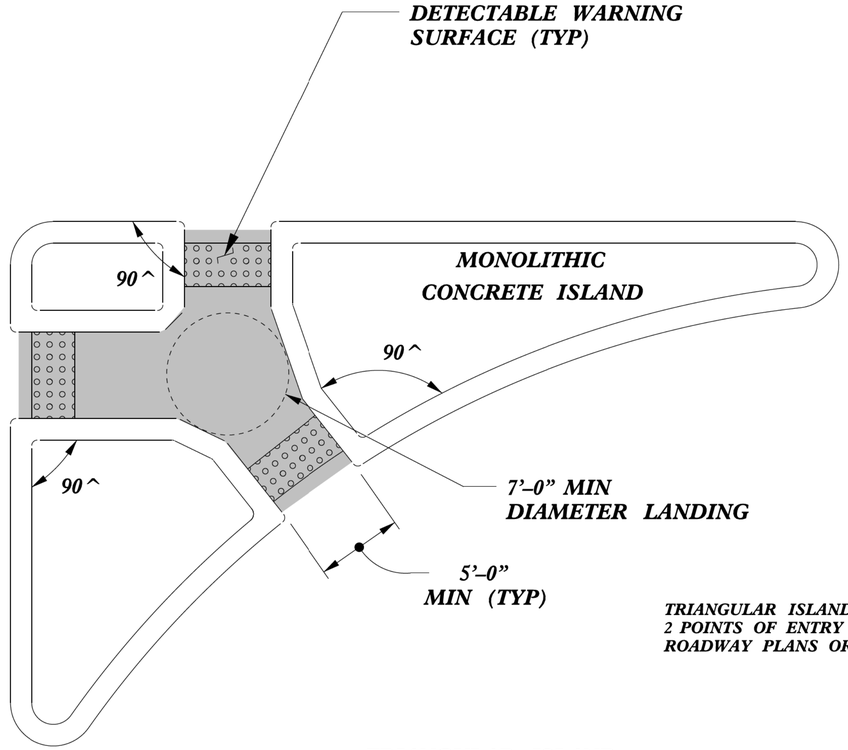
8′ GUARDRAIL POST

ORIGINAL BY: L. Robinson DATE: 1995
MODIFIED BY: L. Robinson DATE: Feb, 1996
CHECKED BY: DATE:
FILE SPEC.: s:7'postguardrail.dgn

09-MAY-2018 14:21
S:\Contracts\Contracts\Special Details\jhowerton\7'postguardrail.dgn
jhowerton AT CSD-242595

5/14/99

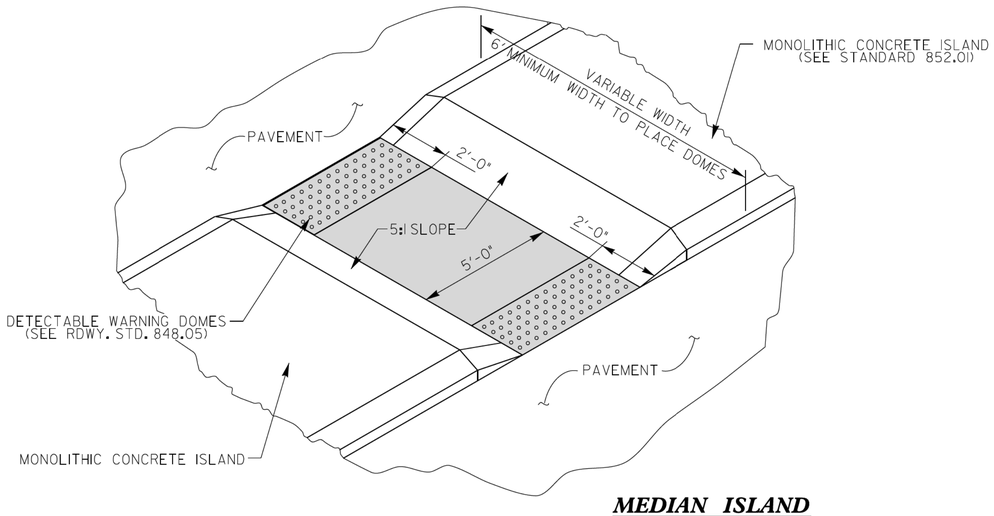
PROJECT REFERENCE NO.	SHEET NO.
I-5711	PMP-2A



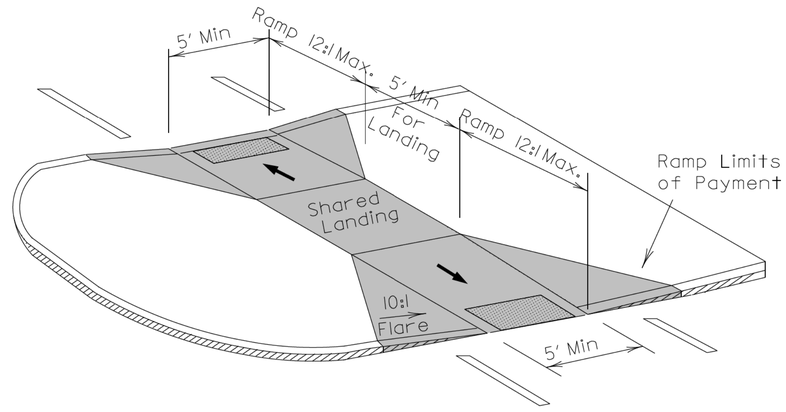
PAY LIMITS FOR 2 OR 3 CURB RAMPS (CALCULATE BASED ON NUMBER OF SETS OF TRUNCATED DOMES)

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



MEDIAN ISLAND WITH CUT THROUGH



MEDIAN ISLAND CURB RAMPS

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12/18/2019

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

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

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

CURB RAMPS

Median or Turn Lane Islands

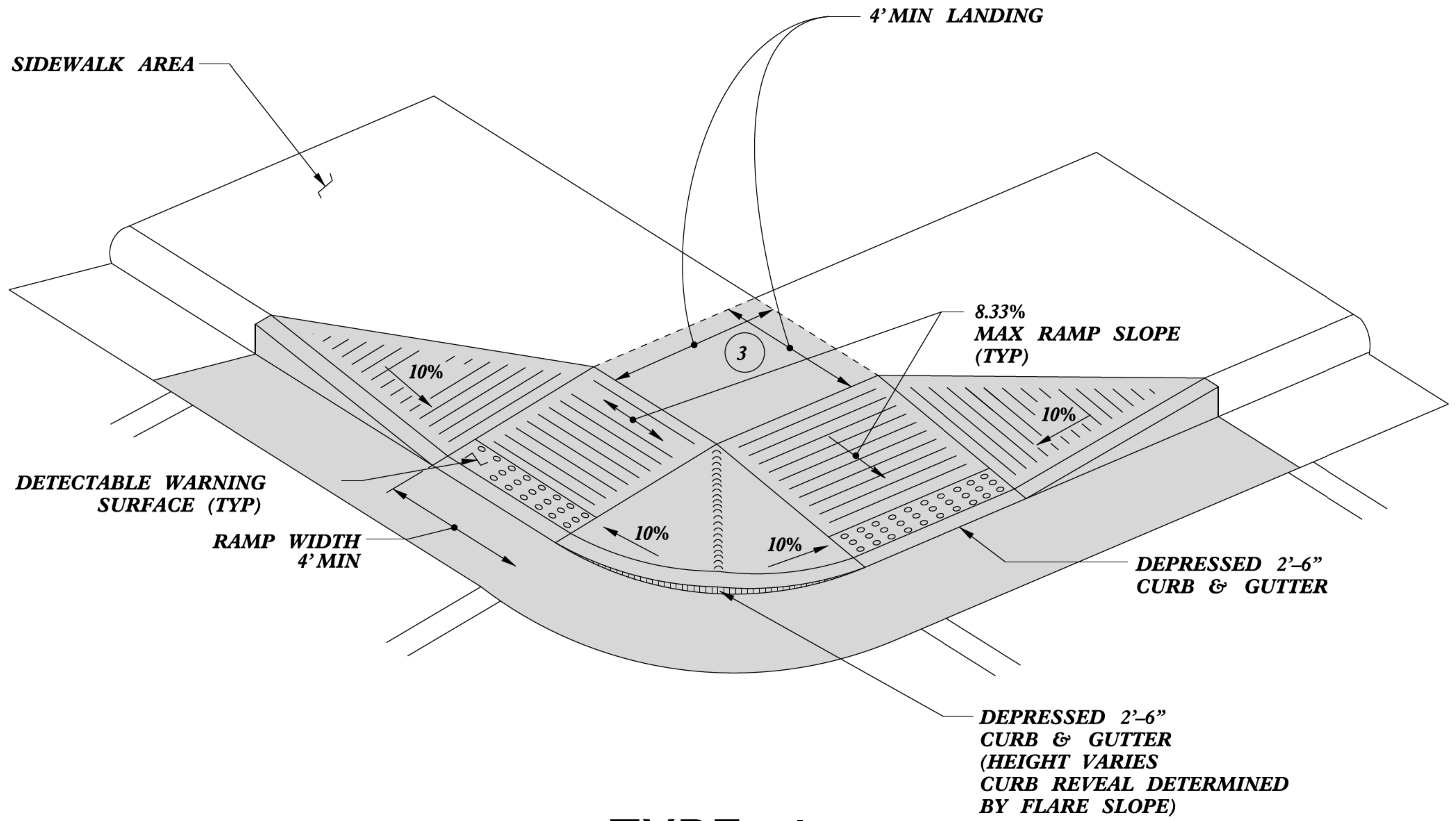
ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

>>STIMESAVE<<
>>FILENAME<<

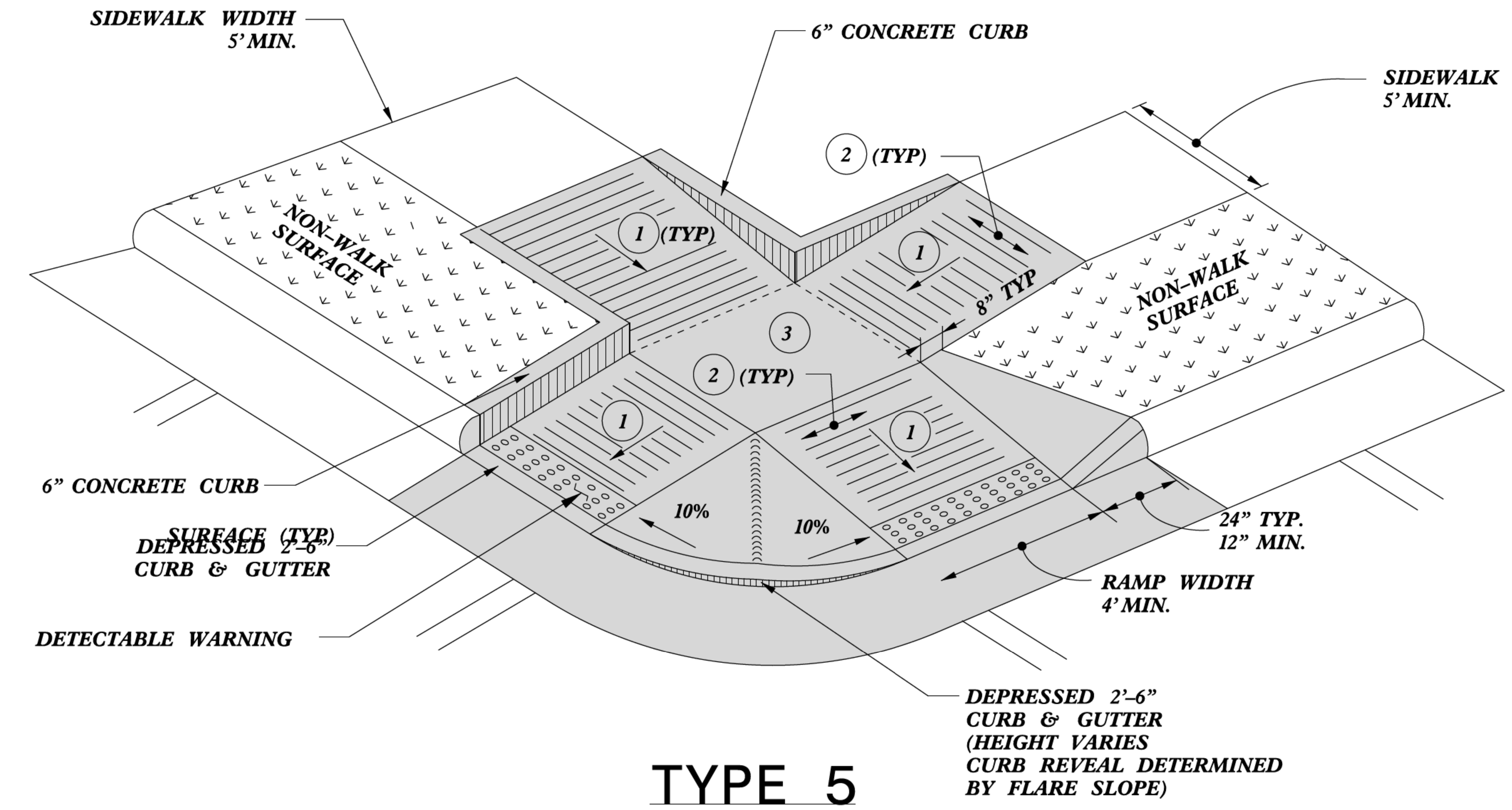
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5711	PMP-2C

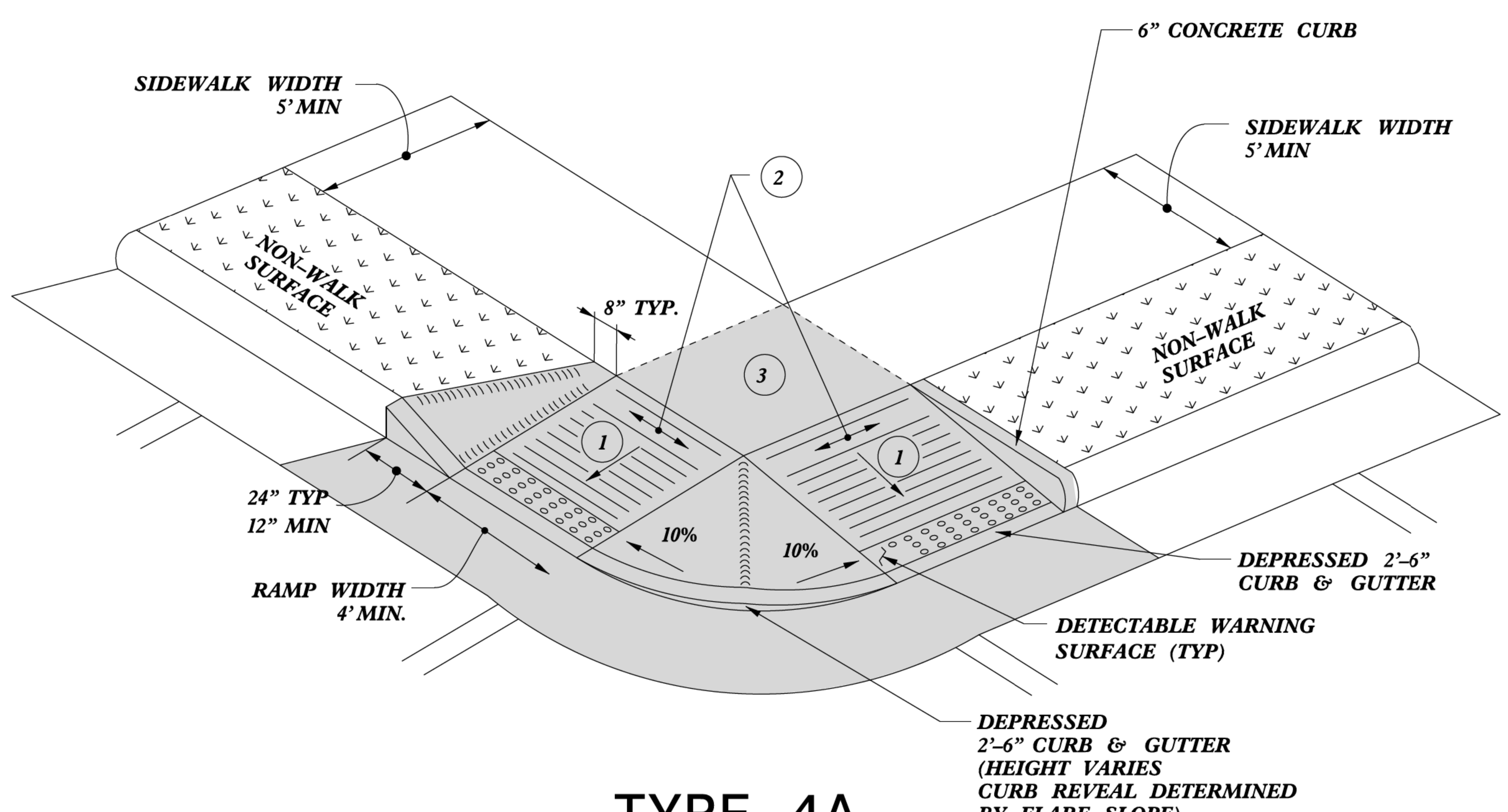
PAY LIMITS FOR 2 CURB RAMPS



TYPE 4



TYPE 5



TYPE 4A

(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

12/18/2019

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by:
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UNLESS ALL SIGNATURES COMPLETED

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

CURB RAMPS

Shared Landing

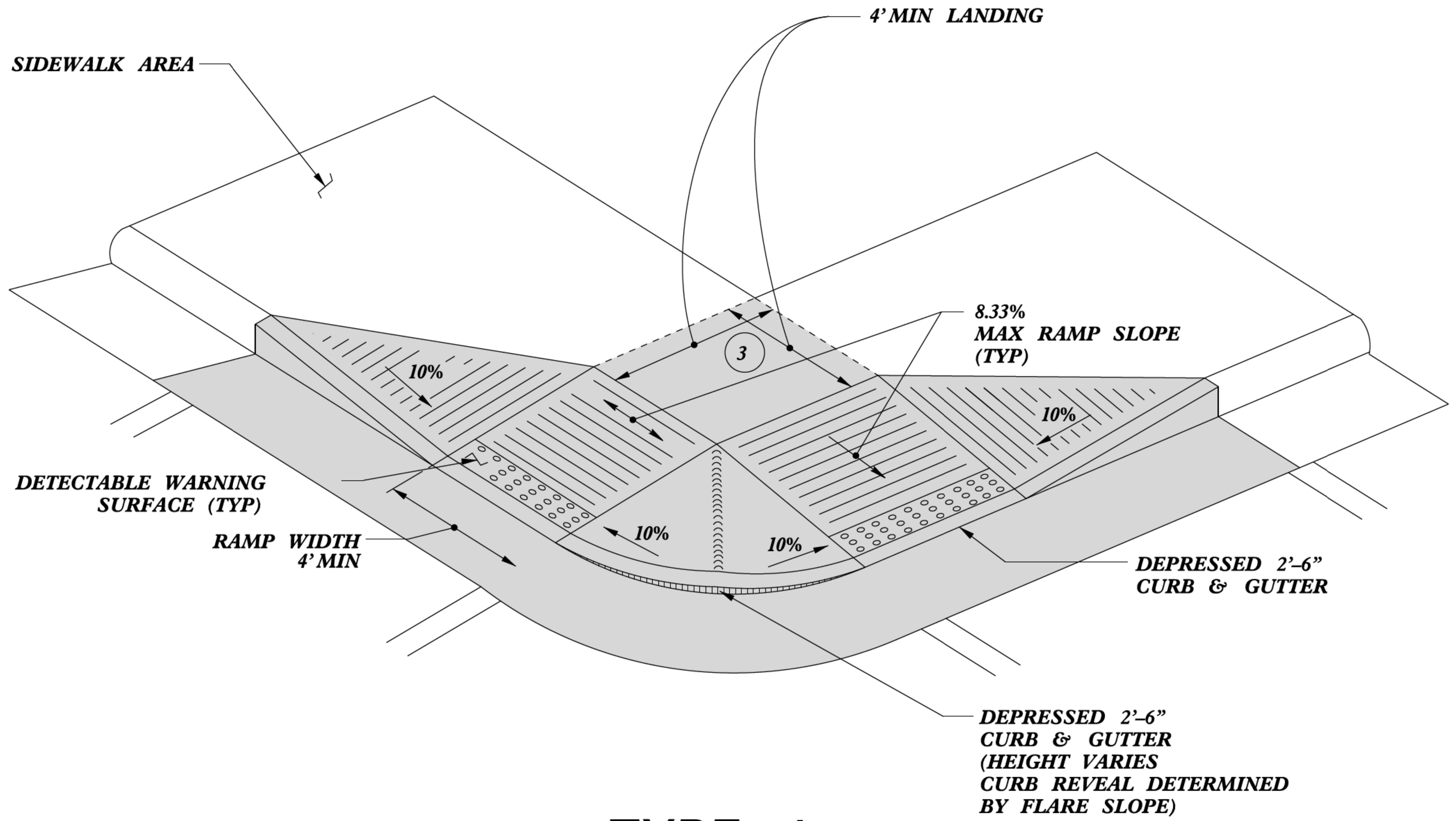
ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: ______ DATE: ______
CHECKED BY: ______ DATE: ______
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

$$$$SYSTIME$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

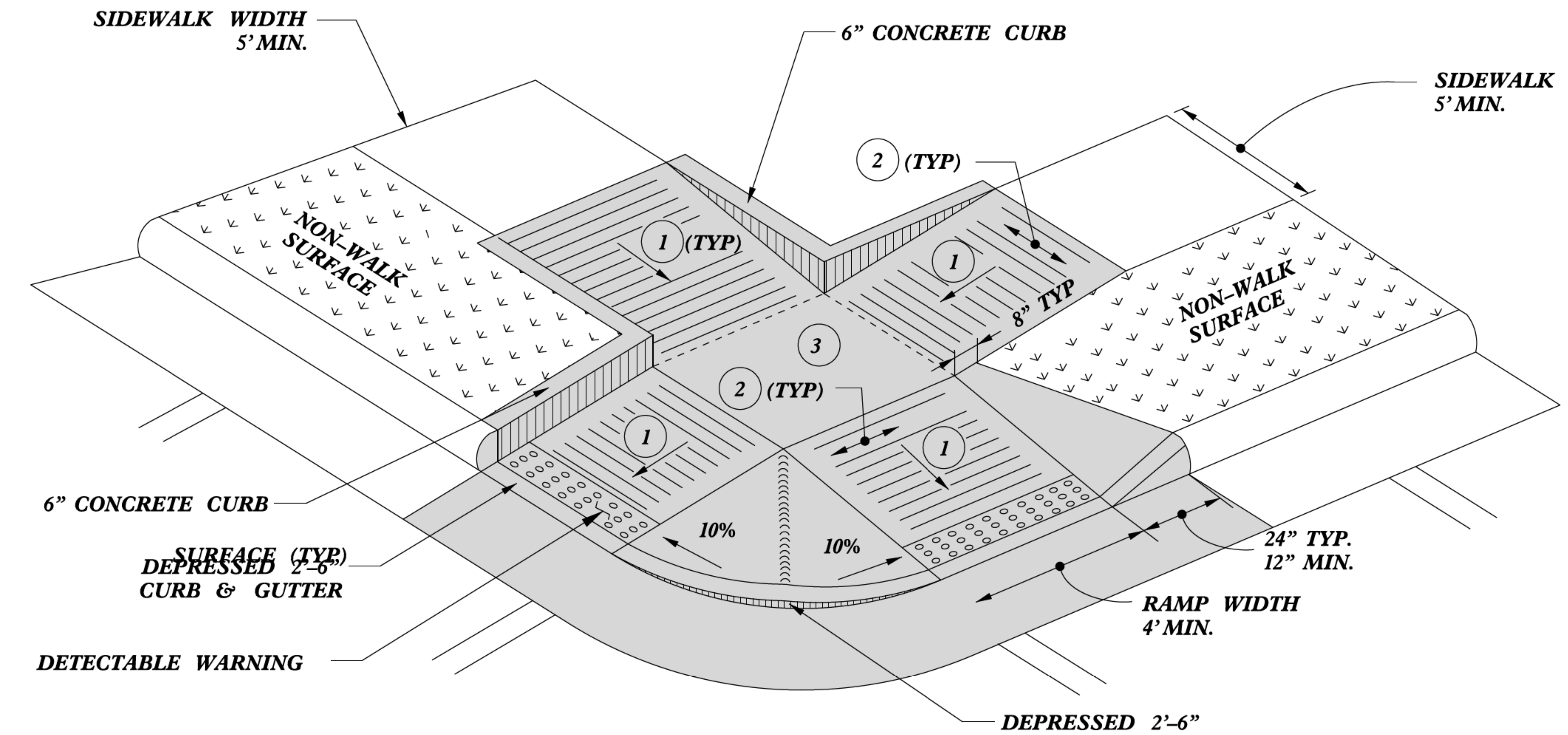
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5711	PMP-2C

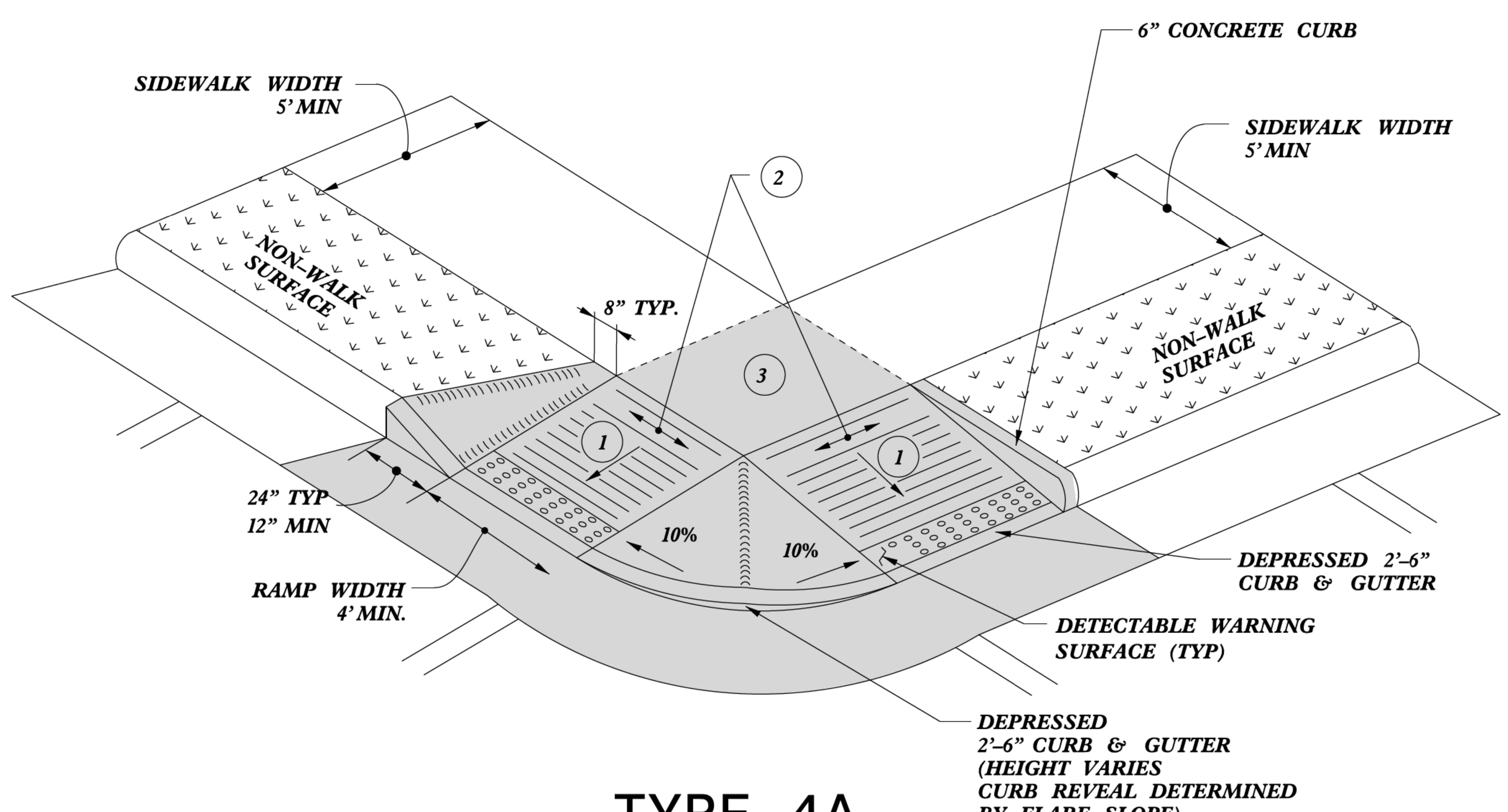
PAY LIMITS FOR 2 CURB RAMPS



TYPE 4



TYPE 5



TYPE 4A

(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

12/18/2019

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by:
8Z3E3D17DCDC45E

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

CURB RAMPS

Shared Landing

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

$$$$SYSTIME$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
I-5711	2G-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

DocuSigned by: Scott A. Hidden 6/26/2019
F76DC8E8E8E4423... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

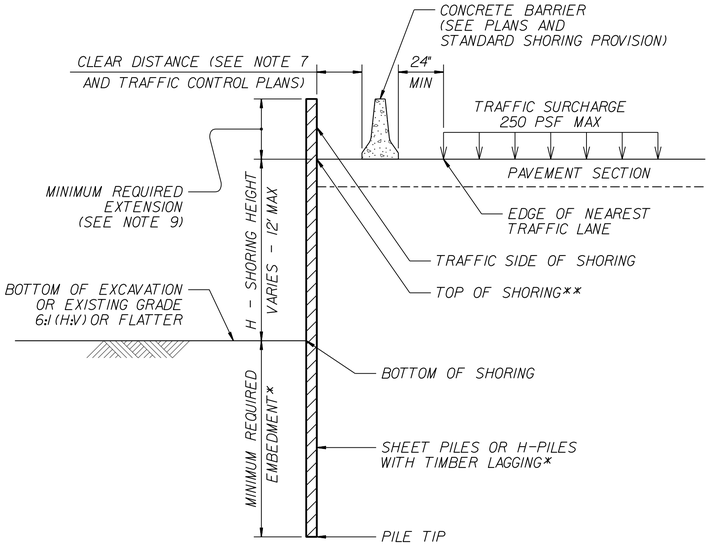
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BEWTEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
	12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

***DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".**

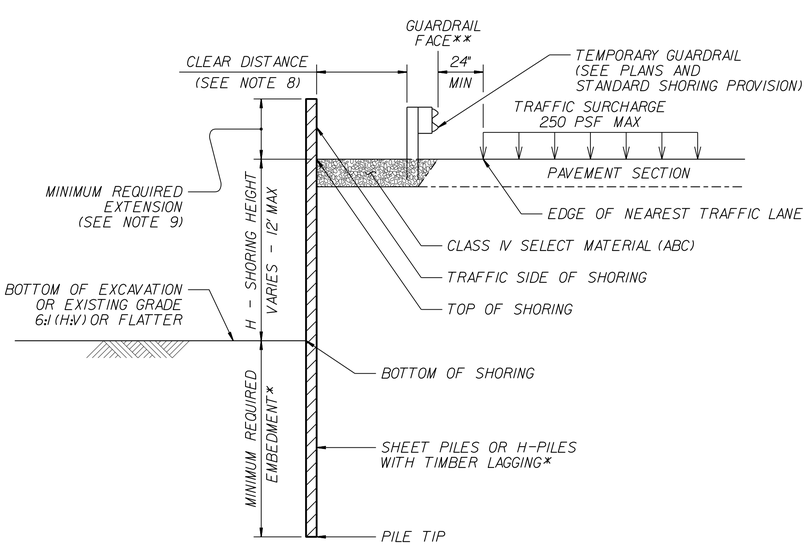
NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 PSF
4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
7. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
8. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
10. MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
11. SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



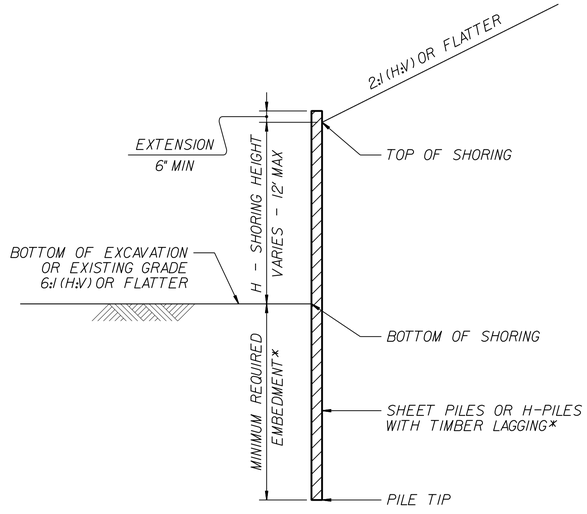
CONCRETE BARRIER

****TOP OF SHORING = EDGE OF PAVEMENT**



TEMPORARY GUARDRAIL

****GUARDRAIL FACE = EDGE OF PAVEMENT**



STANDARD TEMPORARY SHORING

(SLOPE CASE)
*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)
*SEE TABLE ABOVE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-19-13

5/9/06

COMPUTED BY: B. PEASE DATE: 05/13/2019
CHECKED BY: B. Eason DATE: 05 /13 /2019

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919) 571-7111
NC License Number F-0159

PROJECT REFERENCE NO.	SHEET NO.
I-5711	3B-1
R/W SHEET NO.	

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+20%	BORROW	SUITABLE WASTE	UNSUITABLE WASTE
SUMMARY 1 (LEFT SIDE)						
–L– 18+03.85 (LT) TO 25+96.62 (BEG. BRIDGE)	350	–	3,158	2,808	–	–
–Y– 13+72.47 TO 16+87.00	174	–	107	–	67	–
–RPA_Y1– 12+50.00 TO 14+89.10	31	–	1,368	1,337	–	–
SUMMARY 1 SUBTOTAL	555	–	4,633	4,145	67	–
SUMMARY 2 (LEFT SIDE)						
–L– 28+15.65 (LT) (END BRIDGE) TO 50+00.00 (LT)	600	–	3,979	3,479	–	100
–RPD_Y1– 19+80.09 TO 21+42.67	25	–	202	177	–	–
–Y2– 10+50.93 TO 13+05.00	12	–	522	510	–	–
SUMMARY 2 SUBTOTAL	637	–	4,703	4,165	–	100
SUMMARY 3 (RIGHT SIDE)						
–L– 18+03.85 (RT) TO 25+96.62 (BEG. BRIDGE)	143	–	1,164	1,021	–	–
–RPB_Y1– 10+75.00 TO 20+72.91	7,820	–	563	–	7,257	–
SUMMARY 3 SUBTOTAL	7,963		1,727	1,021	7,257	–

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+20%	BORROW	SUITABLE WASTE	UNSUITABLE WASTE
SUMMARY 4 (RIGHT SIDE)						
–L– 28+15.65 (RT) (END BRIDGE) TO 50+00.00 (RT)	1,055	–	1,488	433	–	–
–RPC_Y1– 10+50.00 TO 11+95.54	15	–	114	99	–	–
–Y3– 12+10.00 TO 13+95.01	63	–	37	–	26	–
–Y4– 10+25.52 TO 11+96.20	66	–	29	–	37	–
SUMMARY 4 SUBTOTAL	1,199	–	1,668	532	64	–
TOTAL:	10,354	–	12,731	9,864	7,388	100
LOSS DUE TO CLEARING AND GRUBBING:	–700	–	–	700	–	–
WASTE IN LIEU OF BORROW:	–	–	–	–131	–131	–
PROJECT TOTAL:	9,654	–	12,731	10,433	7,257	100
5% TO REPLACE TOPSOIL (EST):	–	–	–	522	–	–
PROJECT TOTAL:	9,654	–	12,731	10,955	7,257	100
SAY	9,700			11,000		

PER GEOTECH RECOMMENDATION, ESTIMATED 950CY OF UNDERCUT TO BE USED AT THE DISCRETION OF THE ENGINEER.
PER GEOTECH RECOMMENDATION, ESTIMATED 150CY OF SHALLOW UNDERCUT FROM –L– STA. 41+75 TO 44+25.
EARTHWORK QUANTITIES ARE CALCULATED BY LOCHNER. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
–RPB Y1–	14+21	17+28	RT	124.48
–RPD Y1–	12+87	18+25	RT	157.63
			TOTAL:	282.10
			SAY:	290

NOTE: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Clearing and Grubbing, Fine Grading, and Removal of Existing Asphalt Pavement will be paid for at the contract lump sum price for grading.

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GREU TL–3	B–77	TYPE III	CAT–1	VI MOD	BIC	AT–1	EA	G	NG				
L	24+60.50	25+96.62	RT	93.75′	43.75′		25+96.62 (BRIDGE)		7′–6″										1				1						
L	28+15.65	29+33.87	LT	68.75′	81.25′			28+15.65 (BRIDGE)	7′–6″										1				1						
L	24+48.06	25+94.81	RT																								178		
L	24+82.04	25+98.38	LT																								116		
L	28+14.08	29+04.40	RT																								91		
L	28+17.61	29+29.63	LT																								153		
L	21+67.80	22+34.00	RT																								67		
L	34+00.00	36+09.80	RT	175.00′	68.75		34+95 (WALL)		12′–0″								1						1						USE 8′ GUARDRAIL POSTS (40 EA)
Y1	22+84.00	25+84.00	RT	297.875′			22+84.00 (BRIDGE)		12′	15′	50.0′		1				1	1											
Y1	27+00.00	30+00.00	LT	297.875′				27+00.00 (BRIDGE)	12′	15′		50.0′		1			1	1											
			SUB–TOTAL	933.25′	193.75′																								
	LESS ANCHORS																												
	TYPE III SAU	2	@ 18.75′	–37.50′																									
	AT–1	3	@ 6.25′		–18.75′																								
	GREU TL–3	3	@ 50.0′	–150.0′																									
	B–77	2	@ 22.875′	–45.75′																									
TOTALS				700.00′	175.00′												3	2	2				3				605		
			SAY	700.00′	175.00′																						605		

ADDITIONAL POSTS = 5 EA 8′ POSTS (WITH ADDITIONAL) = 41 EA

Z9822

COMPUTED BY:	VHB	DATE:	12/17/2019
CHECKED BY:	VHB	DATE:	12/17/2019

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5711	3D-1

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	48	R. C. PIPE CLASS V 12	15	18	24	30	36	42	48
L 18+24	35	LT	0401		671.6																																								
			0401	0414		667.9	666.2	1.1		44								X	X																										
Y 15+32	47	LT	0402		669.6																																								
			0402	0412		665.2	665.1																										48												
Y 15+79	44	RT	0403		669.7																																								
			0403	0415		664.8	664.7																										48												
L 19+81	71	LT	0415		669.2																																								
			0415	0404		664.7	664.6																										24												
L 20+05	60	LT	0404		669.1																																								
			0404	0413		664.6	664.3	0.3																									84												
L 21+18	5	RT	0405		669.4																																								
			0405	0407		666.4	666.3																								52														
L 21+49	63	LT	0406		668.2																																								
			0406	0408		664.1	663.9	0.4																									48												
L 21+71	7	RT	0407		669.4																																								
			0407	0409		666.3	666.2																								28														
L 21+98	64	LT	0408		668.0																																								
			0408	0501		663.9	663.6	0.6																									60												
L 21+98	8	RT	0409		669.4																																								
			0409	0411		666.2	666.1																								16														
L 22+24	9	RT	0410		669.4																																								
			0410	0409		666.4	666.3																								24														
L 21+98	8	LT	0411		669.1																																								
			0411	0408		666.1	665.0																								56														
L 18+71	126	LT	0412		670.5																																								
			0412	0403		665.1	664.8																										88												
L 20+92	61	LT	0413		668.5																																								
			0413	0406		664.3	664.1	0.3																									56												
L 15+15	49	LT	0414		669.9																																								
			0414	0402		665.4	665.3																										16												
L 22+61	65	LT	0501		669.0																																								
			0501	0502		663.6	661.5	0.6				152						X	X																										
RPA_Y1 13+82	26	RT	0502		665.3																																								
			0502	0503		661.5	648.9	0.6				128																																	
RPA_Y1 12+62	55	RT	0503		653.6																																								
			0503	0504		648.9	647.0	0.6																									112												
L 23+29	68	RT	0505		668.7																																								
			0505	0506		665.7	659.3			128																																			
RPB_Y1 19+79	28	LT	0506		662.3																																								
			0506	0507		655.8	655.3			84																																			
L 24+34	56	LT	0508		667.5																																								
			0508	0509		664.5	664.4																								40														
L 24+74	56	LT	0509		667.4																																								
			0509	0510		663.9	657.3			56							X																											
L 25+14	56	LT	0511		667.5																																								
			0511	0509		664.5	664.4																								40														
L 25+79	56	LT	0512		667.8																																								
			0512	0511		664.8	664.5																								64														
L 25+10	56	RT	0513		667.5																																								
			0513	0514		664.5	661.4			84																																			
							SHEET TOTALS			396		280																			320		584												

STRUCTURE FROM	TO	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	T.B.D.I. FOR STEEL GRATES STD. 840.36	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	ADJUST C.B.	ADJUST D.I.	15" SIDE DRAIN ELBOW	18" SIDE DRAIN ELBOW	24" SIDE DRAIN ELBOW	30" SIDE DRAIN ELBOW	36" SIDE DRAIN ELBOW		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
0401																															1												
0401	0414																																										
0402			1			1	1																																				
0402	0412																																										
0403			1			1			1																																		
0403	0415																																										
0415			1			1			1																																		
0415	0404																																										
0404			1			1			1																																		
0404	0413																																										
0405			1			1			1																																		
0405	0407																																										
0406			1			1			1																																		
0406	0408																																										
0407			1			1			1																																		
0407	0409																																										
0408			1			1	1																																				
0408	0501																																										
0409			1			1	1																																				
0409	0411																																										
0410			1			1		1																																			
0410	0409																																										
0411			1			1	1																																				
0411	0408																																										
0412			1			1		1																																			
0412	0403																																										
0413			1			1			1																																		
0413	0406																																										
0414			1			1	1																																				
0414	0402																																										
0501			1	0.4		1		1																																			
0501	0502																																										
0502			1			1			1																																		
0502	0503																																										
0503			1														1						1																				
0503	0504																																										
0505			1			1		1																																			
0505	0506																																										
0506			1	1.5		1		1																																			
0506	0507																																										
0508			1			1			1																																		
0508	0509																																										
0509			1			1	1																																				
0509	0510																																	2											
0511			1			1		1																																			
0511	0509																																										
0512			1			1		1																																			
0512	0511																																										
0513			1			1			1																																		
0513	0514																																										
SHEET TOTALS			24	1.9		23	6	7	10								1						1								1		2										

NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

Z3822

COMPUTED BY: VHB DATE: 12/17/2019

CHECKED BY: VHB DATE: 12/17/2019

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5711	3D-2

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

| LINE & STATION | OFFSET | | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE: 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | THICKNESS OR GAUGE: DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC | R. C. PIPE CLASS III 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS V 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | DRAINAGE STRUCTURE MASONRY CY | QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) A: 0' THRU 5' EACH | B: 5' THRU 10' LIN. FT. | 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.06 OR STD. 852.06 | C.B. STD. 852.05 | OPEN THROAT C.B. STD. 840.04 OR STD. 840.05 | CONCRETE BRIDGE APPROACH D.I. STD. 840.13 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | T.B.D.I. FOR STEEL GRATES STD. 840.36 | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | ADJUST C.B. | ADJUST D.I. | 15" SIDE DRAIN ELBOW | 18" SIDE DRAIN ELBOW | 24" SIDE DRAIN ELBOW | 30" SIDE DRAIN ELBOW | 36" SIDE DRAIN ELBOW | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

Z9822

COMPUTED BY: VHB DATE: 12/17/2019

CHECKED BY: VHB DATE: 12/17/2019

PROJECT NO.	SHEET NO.
I-5711	3D-3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

| LINE & STATION | OFFSET | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE: 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC | R. C. PIPE CLASS III 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS V 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | DRAINAGE STRUCTURE MASONRY CY | QUANTITIES FOR DRAINAGE STRUCTURES (TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) A: 0' THRU 5' EACH | A: 5' THRU 10' LIN. FT. | B: 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.06 OR STD. 852.06 | C.B. STD. 852.05 | OPEN THROAT C.B. STD. 840.04 OR STD. 840.05 | CONCRETE BRIDGE APPROACH D.I. STD. 840.13 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | T.B.D.I. FOR STEEL GRATES STD. 840.36 | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | ADJUST C.B. | ADJUST D.I. | 15" SIDE DRAIN ELBOW | 18" SIDE DRAIN ELBOW | 24" SIDE DRAIN ELBOW | 30" SIDE DRAIN ELBOW | 36" SIDE DRAIN ELBOW | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

5/9/06

COMPUTED BY: B. Pease DATE: 03 /19 /2019
CHECKED BY: B. Eason DATE: 03 /19 /2019

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919) 571-7111
NC License Number F-0159

PROJECT REFERENCE NO.	SHEET NO.
I-5711	3G-1
R/W SHEET NO.	

SUMMARY OF AGGREGATE SUBGRADE /STABILIZATION

LOCATION	STATION	STATION	AGGREGATE TYPE* ASU/AST	AGGREGATE THICKNESS INCHES	SHALLOW UNDERCUT CY	CLASS IV SUBGRADE STABILIZATION TONS	GEOTEXTILE FOR SOIL STABILIZATION SY	STABILIZER AGGREGATE TONS	CLASS IV AGGREGATE STABILIZATION TONS
–L– LT	41+75.00	44+25.00	ASU		150	250	400		
CONTINGENCY			ASU		200	400	800		
			TOTAL CY/TONS/SY		350	650	1,200 **		

*ASU = Aggregate Subgrade
*AST = Aggregate Stabilization
**Total square yards of "Geotextile for Soil Stabilization" is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

12/30/2019
I-5711 R/W
pbakstad
I-5711_R-W_SUM_03G-1.dgn

PROJ. REFERENCE NO.	SHEET NO.
I-5711	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	PRIMAX PROPERTIES, LLC
2	4	MEBANE 8540, LLC
3	4	UNKNOWN OWNER
4	4, 5	QUALITY OIL COMPANY, LLC
5	5	GAMANBHAI B. PATEL
6	4	EAC INVESTMENTS, LLC
7	4	EVERETT O. SMITH
8	4, 5, 7	DAVID DOUGLAS SMITH
9	7	AMY C. WELCH
10	7	DISASH, LLC.
11	5	BROCONS LLC
12	5	WALKER HOLDING GROUP LLC
13	5	PHD MEBANE OAKS LLC
14	5	COOK OUT - MEBANE OAKS, INC
15	5	MURPHY OIL USA INC
16	6	RESTAURANT PROPERTY INVESTORS IV LLC
17	6	LECONITE EQUITIES GROUP LLC
18	6	TWIN CREEK PROPERTIES LLC
19	6	MEBANE OAKS ASSOCIATES
20	6	ROGER SHIELDS
21	6	OLIVIA JAROSZ
22	6	ELLEN GIAMPOCARO
23	6	SIGNATURE FLOORING INC
24	6	FRIED EGG LLC
25	6	WALMART REAL ESTATE BUSINESS
26	6	CAMDEN MEBANE ASSOCIATES
27	5, 6	HENDON TILLER MEBANE, LLC

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

8/17/99

REVISIONS

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
I-5711	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRADLEY E EASON
DocuSigned by: Bradley E Eason
9AF015AD7ACC48F...

HYDRAULICS ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER FRANK F FLEMING
DocuSigned by: Frank F Fleming
ABDA7A7727EC464...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/2011

-L- POT Sta. 10+00.00

-L- PC Sta. 17+58.42

-L- PI Sta 19+55.91
△ = 5° 55' 08.8" (LT)
D = 1° 29' 59.6"
L = 394.64'
T = 197.49'
R = 3,820.00'
e = 3% (Exist)
R.O. = 265' (53' Inc)

-L- S 21°14' 58.1" E 15+00

-Y- POT Sta. 19+80.00

-Y- ARROWHEAD BLVD.

-Y- N 72° 51' 30.1" E

BEGIN PROJECT I-5711
BEGIN CONSTRUCTION
BEGIN 1.5" MILL AND OVERLAY
-L- Sta. 18+03.85

END CONSTRUCTION
END 1.5" MILL AND OVERLAY
-Y- Sta. 16+87.00

-L- PT Sta. 21+53.05

MATCH TO SHEET 5
-L- STA. 22+50.00

-L- POC Sta. 19+03.88 =
-Y- POT Sta. 14+57.10
△ = 96° 17' 22.6"

BEGIN CONSTRUCTION
BEGIN 1.5" MILL AND OVERLAY
-Y- Sta. 13+72.47

-Y- POT Sta. 10+00.00

SR 2034 CAMERON LN

ALAMANCE REGIONAL MEDICAL CENTER, INC
NO DEED BK

MCDONALDS CORPORATION
DB 782 PG 112

MEBANE 8540,LLC
DB 2268 PG 256
PB 73 PG 326

1 PRIMAX PROPERTIES, LLC
DB 3504 PG 148
PB 63 PG 25

2 WAFFLE HOUSE, INC
DB 1275 PG 777
PB 61PG 119

RICH, RICH, & PHILLIPS
DB 2451PG 388
PB 64 PG 415

CAROLINAZ, LLC
DB 2292 PG 734
PB 64 PG 415

IRON PIPE FOUND

4 QUALTY OIL COMPANY, LLC
DB 2662 PG 548

5 GAMANBHAI B. PATEL
DB 443 PG 42

UNKNOWN OWNER

6 EAC INVESTMENTS, LLC
DB 2604 PG 854
PB 65 PG 85

7 EVERETT O. SMITH
DB 2226 PG 497
PB 5 PG 21

8 DAVID DOUGLAS SMITH
DB 3309 PG 210

TRAFFIC DATA

ARROWHEAD BLVD

12450 / 12600

2900 / 3400 | 8850 / 8100

21350 / 24600 | 28600 / 30600

-L- MEBANE OAKS RD.

800 / 1400 | 2100 / 2700

3600 / 5200

CAMERON LANE

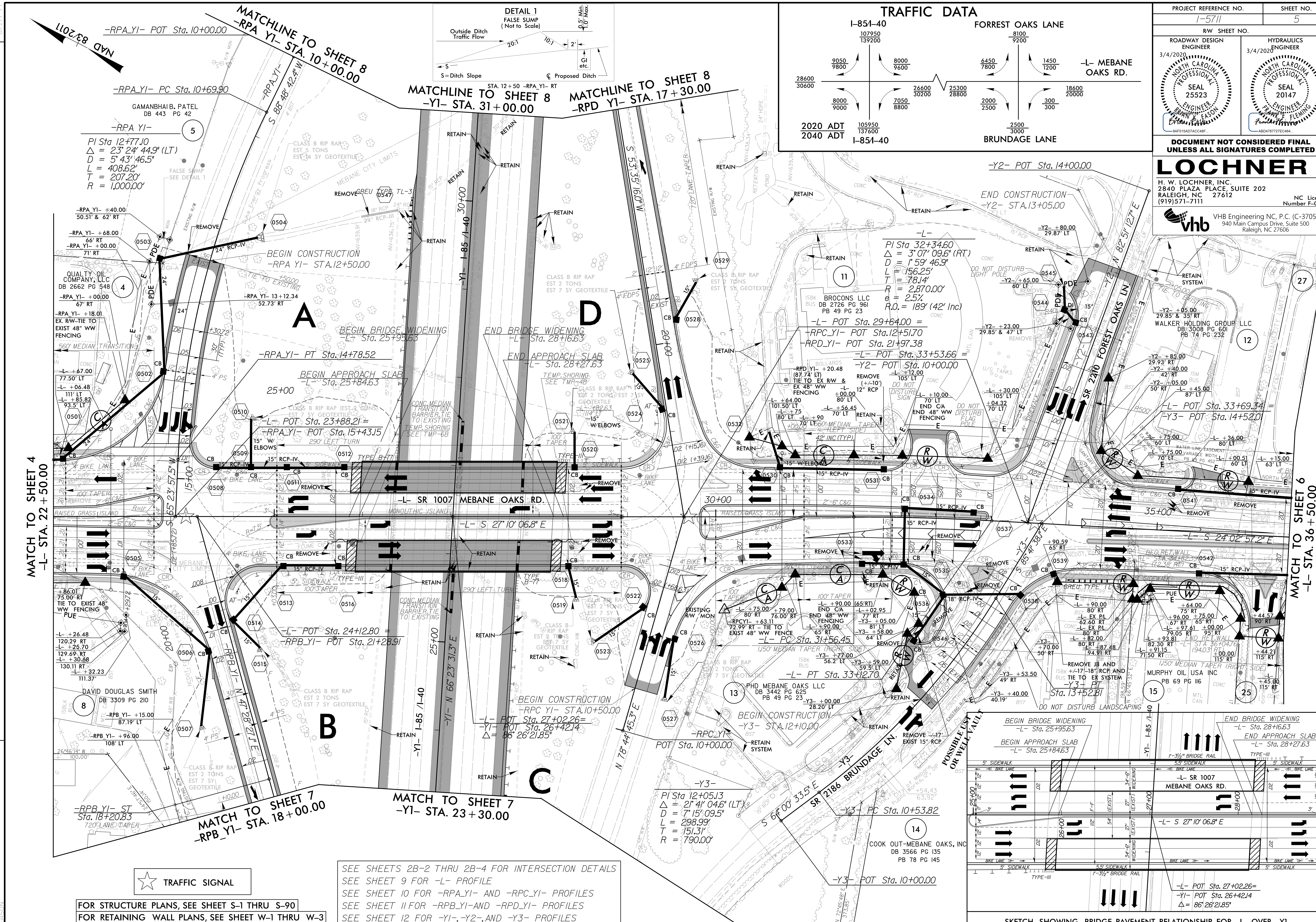
2020 ADT
2040 ADT

☆ TRAFFIC SIGNAL

NOTE: ALL DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET 2B-1 FOR INTERSECTION DETAIL
SEE SHEET 9 FOR -L- PROFILE

12/17/2019
I-5711 RDY_PSH_04.dgn
bradley.eason



TRAFFIC DATA

I-85/I-40 — FORREST OAKS LANE — -L- MEBANE OAKS RD. — BRUNDAGE LANE

2020 ADT
2040 ADT

PROJECT REFERENCE NO.	SHEET NO.
I-5711	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — 3/4/2020 — NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER — BRIAN E. EASON

HYDRAULICS ENGINEER — 3/4/2020 — NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER — FRANK E. FLEMING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111

NC License Number F-0159

vhb — VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

TRAFFIC SIGNAL

FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-90
FOR RETAINING WALL PLANS, SEE SHEET W-1 THRU W-3

SEE SHEETS 2B-2 THRU 2B-4 FOR INTERSECTION DETAILS
SEE SHEET 9 FOR -L- PROFILE
SEE SHEET 10 FOR -RPA_Y1- AND -RPC_Y1- PROFILES
SEE SHEET 11 FOR -RPB_Y1-AND -RPD_Y1- PROFILES
SEE SHEET 12 FOR -Y1-, -Y2-, AND -Y3- PROFILES

REVISIONS

8/17/99

3/4/2020 I-5711_RDY_PSH_05.dgn

REVISIONS 8/17/99

-L- MEBANE OAKS RD.
13700/14600 — 7250/8400 — 3100/4000 — 9550/10200 — 10300/12400
2020 ADT / 2040 ADT
GARRETT CROSSING

-L-
P.I. Sta. 38+23.80
Δ = 2° 03' 23.8" (LT)
D = 2° 59' 59.2"
L = 68.56'
T = 34.28'
R = 1,910.00'
e = NC (Exist)

P.I. Sta. 45+57.27
Δ = 6° 42' 41.3" (RT)
D = 2° 29' 28.0"
L = 269.42'
T = 134.86'
R = 2,300.00'
e = 6% (Exist)

NAD 83/2011

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VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
I-5711	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRIANNE EASON
DocuSigned by: Brianne Eason 9AF015AD7ACC48F...

HYDRAULICS ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER FRANK FLEMING
DocuSigned by: Frank Fleming ABD47877272EC464...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRAFFIC SIGNAL

MATCH TO SHEET 5
-L- STA. 36+50.00

-L- S 24° 02' 57.2" E

-L- PC Sta. 37+89.52
-L- PT Sta. 38+58.08
-L- POT Sta. 42+42.89 = -Y4- POT Sta. 12+30.00
-L- PC Sta. 44+22.41
-L- PT Sta. 46+91.82
-L- POT Sta. 50+50.00
-Y4- POT Sta. 10+00.00
-Y4- PT Sta. 10+25.52

-L- S 26° 06' 21.0" E

-L- S 19° 23' 39.7" E

N 65° 12' 07.1" E

BEGIN CONSTRUCTION
BEGIN 1.5" MILL AND OVERLAY
-Y4- STA. 10+25.52

END PROJECT I-5711
END CONSTRUCTION
-L- Sta. 50+00.00

27 HENDON TILLER MEBANE, LLC
DB 3855 PG 431
PB 80 PG 31

19 MEBANE OAKS ASSOCIATES
DB 805 PG 973

20 ROGER SHIELDS
DB 1774 PG 745

22 ELLEN GIAMPOCARO
DB 1224 PG 209

21 OLIVIA JAROSZ
DB 1363 PG 474

23 SIGNATURE FLOORING INC
DB 3585 PG 37
PB 4 PG 56

JEFFREY MEBANE
DB 5611PG 90
PB 27 PG 110

16 RESTAURANT PROPERTY INVESTORS IV LLC
DB 3527 PG 469
PB 69 PG 116

17 LECONITE EQUITIES GROUP LLC
DB 3452 PG 598
PB 69 PG 116

18 TWIN CREEK PROPERTIES LLC
DB 2746 PG 614
PB 69 PG 116

LECONITE EQUITIES GROUP LLC
DB 3452 PG 598
PB 69 PG 116

24 FRIED EGG LLC
DB 3470 PG 185
PB 69 PG 116

25 WALMART REAL ESTATE BUSINESS
DB 2146 PG 57
PB 69 PG 116

26 CAMDEN MEBANE ASSOCIATES
DB 3239 PG 515
PB 69 PG 116

BARBEE PROPERTIES LLC
DB 2380 PG 533
PB 70 PG 349

CLASS B RIP RAP
EST 2 TONS
EST 7 SY GEOTEXTILE

NOTE: ALL DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET 2B-5 FOR INTERSECTION DETAIL
SEE SHEET 10 FOR -L- PROFILE

12/17/2019
I-5711 PROJ_PSH_06.dgn
chucksley

8/17/99

REVISIONS

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
I-5711	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRIAN KEITH EASON
DocuSigned by: Brian Eason
84E0164DFACC48E...

HYDRAULICS ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER DANIEL WHITE FLEMING
DocuSigned by: Daniel White Fleming
ABD47B7727EC464...

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-RPB Y1-

PIs Sta 11+40.02	PI Sta 14+11.20	PIs Sta 16+80.85
Θs = 3° 15' 06.9"	Δ = 12° 24' 50.4" (LT)	Θs = 3° 15' 06.9"
Ls = 210.00'	D = 3° 05' 49.4"	Ls = 210.00'
LT = 140.02'	L = 400.83'	LT = 140.02'
ST = 70.02'	T = 201.20'	ST = 70.02'
	R = 1,850.00'	
	e = 0.07	
	V = 60 MPH	

KEYSTONE AT MEBANE OAKS, LLC
DB 3326 PG 670
PB 77 PG 395

10
DISASH, LLC
DB 3173 PG 780
PB 73 PG 350

9
P. CALVIN COBLE, JR & ETAL
DB 1838 PG 101

8
DAVID DOUGLAS SMITH
DB 3309 PG 210

CITY OF MEBANE
NO DB

RALPH T. COPPLE and CHARLOTTE COPPLE
DB 238 PG 45
DB 219 PG 203

ALLIANCE 2009, LLC
DB 3541 PG 894
PB 69 PG 116

ERWIN DISTRIBUTING CORPORATION
DB 331 PG 156

WILLIAM F. TATE JR. and JEAN W. TATE
DB 892 PG 703

NAD 83/2011

BEGIN CONSTRUCTION -RPB Y1- STA.10+75.00

-Y1- POT Sta. 10+00.00 +63.59 129.89'

-Y1- POT Sta. 15+28.31= -RPB_Y1- ST Sta. 10+00.00 55.00' LT

-RPB_Y1- SC Sta. 12+10.00

-RPB_Y1- CS Sta. 16+10.83

TIE TO EXISTING

-RPB Y1- +10.00 71.48' LT

-RPB Y1- +75.00 74' LT

-RPB Y1- +50.00 90' LT

-RPB Y1- +00.00 85' LT

-RPB Y1- +50.00 112' LT

+86.23 111.50' LT

+15.97 95' LT

POSSIBLE OVERLAP PB 77 PG 442

720' LANE TAPER

30' INC. (TYP.)

-RPB_Y1-

-Y1-

N 66°23'31.3" E

-Y1- I-85 /I-40

BEGIN 1.5" MILL AND REPLACE -Y1- STA.18+20.00

MATCH TO SHEET 5 -RPB_Y1- STA. 18+00.00

MATCH TO SHEET 5 -Y1- STA. 23+30.00

15+00

20+00

RETAIN SYSTEM

RETAIN

GRED TYPE TL-3

NOTE: ALL DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET 11 FOR -RPB_Y1- PROFILE
SEE SHEET 12 FOR -Y1- PROFILE

12/17/2019
I-5711 ROY_PSH_07.dgn
Dbaker1eu

8/17/99

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
I-5711	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRIAN W. EASON
DocuSigned by: Brian Eason
9AE015AD7ACC49F...

HYDRAULICS ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER FRANK F. FLEMING
DocuSigned by: Frank Fleming
ABD47B7227EC464...

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-RPD_Y1-

PIs Sta 11+40.02	PI Sta 13+08.46	PIs Sta 14+76.75
Θs = 3° 18' 19.9"	Δ = 6° 11' 35.5" (LT)	Θs = 3° 18' 19.9"
Ls = 210.00'	D = 3° 08' 53.2"	Ls = 210.00'
LT = 140.02'	L = 196.73'	LT = 140.02'
ST = 70.02'	T = 98.46'	ST = 70.02'
	R = 1,820.00'	
	e = EXIST	
	V = 60 MPH	

NAD 83/2011

MATCHLINE TO SHEET 5 -RPA Y1- STA. 10+00.00

MATCHLINE TO SHEET 5 -Y1- STA. 31+00.00

MATCHLINE TO SHEET 5 -RPD Y1- STA. 17+30.00

MEBANE CITY LIMITS

TICON THOMAS PARTNERSHIP
DB 3529 PG 629
PB 73 PG 375

TANGER PROPERTIES LMTD PARTNERSHIP
DB 3529 PG 629
PB 73 PG 375

-Y1- POT Sta. 40+00.00

END 1.5" MILL AND REPLACE -Y1- STA. 34+40.00

BEGIN CONSTRUCTION -RPD Y1- STA. 12+00.00

-Y1- N 66° 23' 31.3" E

-RPD_Y1- SC Sta. 12+10.00

-RPD_Y1- CS Sta. 14+06.73

-RPD_Y1- ST Sta. 16+16.73

-RPD_Y1- ST Sta. 10+00.00

S 53° 35' 16.0" W

720' LANE TAPER

RETAIN SYSTEM

HARRY D. RICHMOND
DB 2216 PG 460
DB 687 PG 286
PB 14 PG 60

HARRY D. RICHMOND
DB 370 PG 573

FLOYD B. REPASS
DB 493 PG 903

ANDREW S. MADDEN JR.
DB 311 PG 350

KAREN WILKERSON-BOWERS
DB 2342 PG 302

KOURY REALTY INVESTMENTS, LLC
DB 3336 PG 598
PB 14 PG 60

SEE SHEET 12 FOR -Y1- PROFILE

12/17/2019
I-5711_GEOMETRY_PSH_08.dgn
cbickel

5/28/99

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

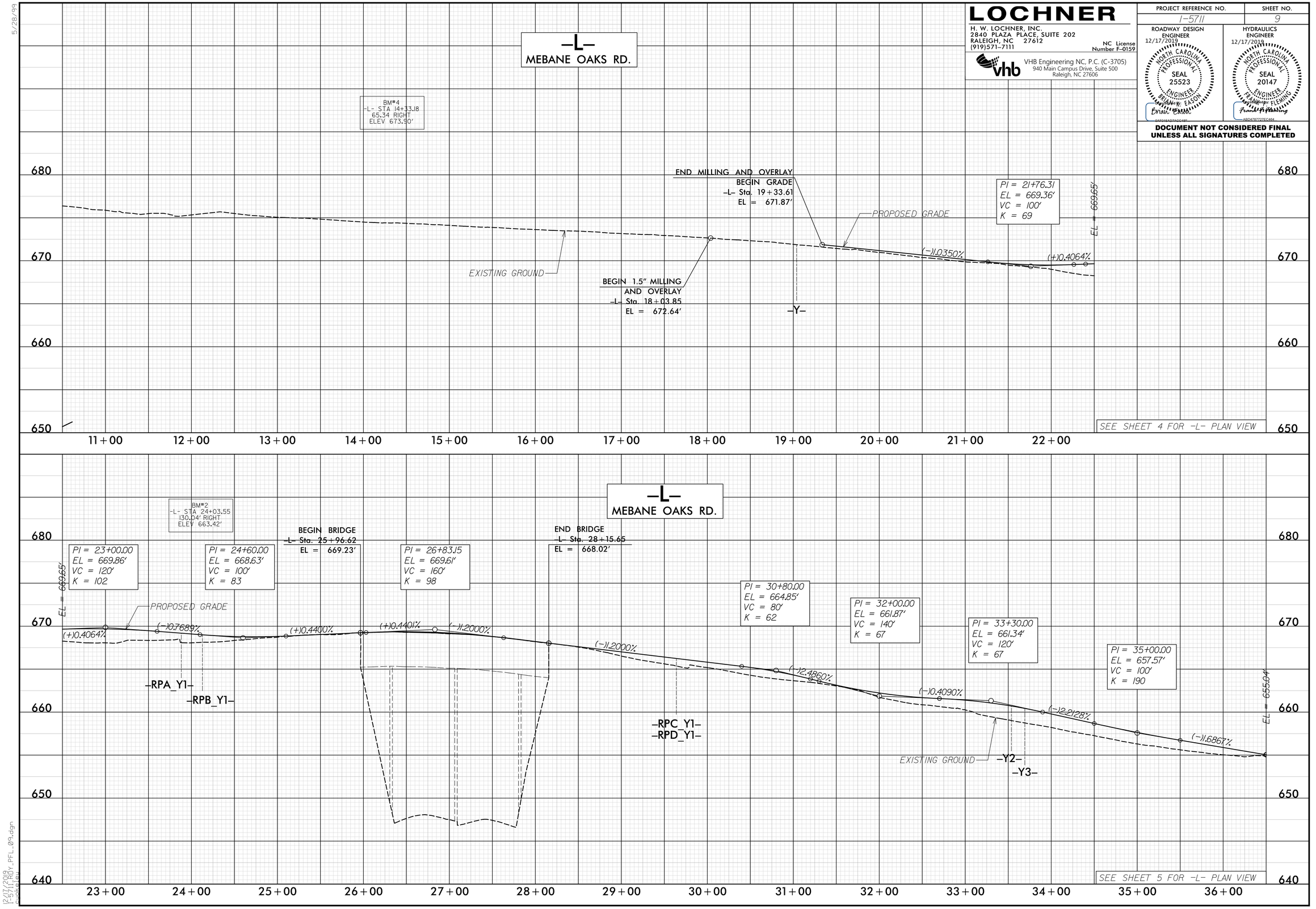
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
I-5711	9

ROADWAY DESIGN ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRANDON K. EASON
Brandon K. Eason
DAF016EAD7AGC48F

HYDRAULICS ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER FRANKLIN P. FLEMING
Franklin P. Fleming
ABD4787727EC464...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



12/17/2019
C:\Projects\...\...PFL_09.dgn
cjackson

5/28/99

–L–
MEBANE OAKS RD.

PI = 37+00.00
EL = 654.20'
VC = 100'
K = 97

PI = 38+00.00
EL = 653.54'
VC = 100'
K = 92

PI = 39+00.00
EL = 651.79'
VC = 100'
K = 330

PI = 40+70.00
EL = 649.34'
VC = 100'
K = 173

PI = 41+70.00
EL = 647.31'
VC = 100'
K = 81

EL = 655.04'

(–)1.6867%

(–)0.6600%

(–)1.7476%

(–)1.4447%

(–)2.0244%

(–)3.2526%

PROPOSED GRADE

EXISTING GROUND

END PROPOSED GRADE
BEGIN 3" MILLING OF EXISTING
–L– Sta. 42+87.38
EL = 643.49'

END 3" MILLING OF EXISTING
–L– Sta. 50+00.00
EL = 626.61'

EXISTING GROUND

SHALLOW UNDERCUT

SEE SHEET 6 FOR –L– PLAN VIEW

670 660 650 640 630 620

37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00

–RPA_Y1–

BEGIN GRADE
–RPA_Y1– Sta. 12+50.00
EL = 656.93'

PI = 13+00.00
EL = 658.92'
VC = 100'
K = 46

(+)3.9700%

(+)6.1400%

(+)2.0000%

(+)2.00%

PROPOSED GRADE

EXISTING GROUND

END GRADE
–RPA_Y1– Sta. 14+89.10
EL = 668.08'

PI = 14+30.00
EL = 666.90'
VC = 110'
K = 27 (STOP CONDITION)

SEE SHEET 5 FOR –RPA_Y1– PLAN VIEW

–RPC_Y1–

PI = 11+00.00
EL = 662.69'
VC = 100'
K = 148

(+)2.1058%

(+)2.7835%

(+)2.00%

PROPOSED GRADE

EXISTING GROUND

END GRADE
–RPC_Y1– Sta. 11+95.54
EL = 665.35'

BEGIN GRADE
–RPC_Y1– Sta. 10+50.00
EL = 661.63'

SEE SHEET 5 FOR –RPC_Y1– PLAN VIEW

670 660 650 640

10+00 11+00 12+00 13+00 14+00 15+00

10+00 11+00 12+00

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RALEIGH, NC 27612
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NC License Number F–0159

vhb VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
I–5711	10

ROADWAY DESIGN ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRIAN K. EASON
Brian Eason
DocuSigned by: 8A9015A2A7ACC4BF

HYDRAULICS ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER FRANK W. FLEMING
Frank Fleming
DocuSigned by: ABD6F8797E0464...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/28/99

–RPB_Y1–

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571–7111
NC License Number F–0159

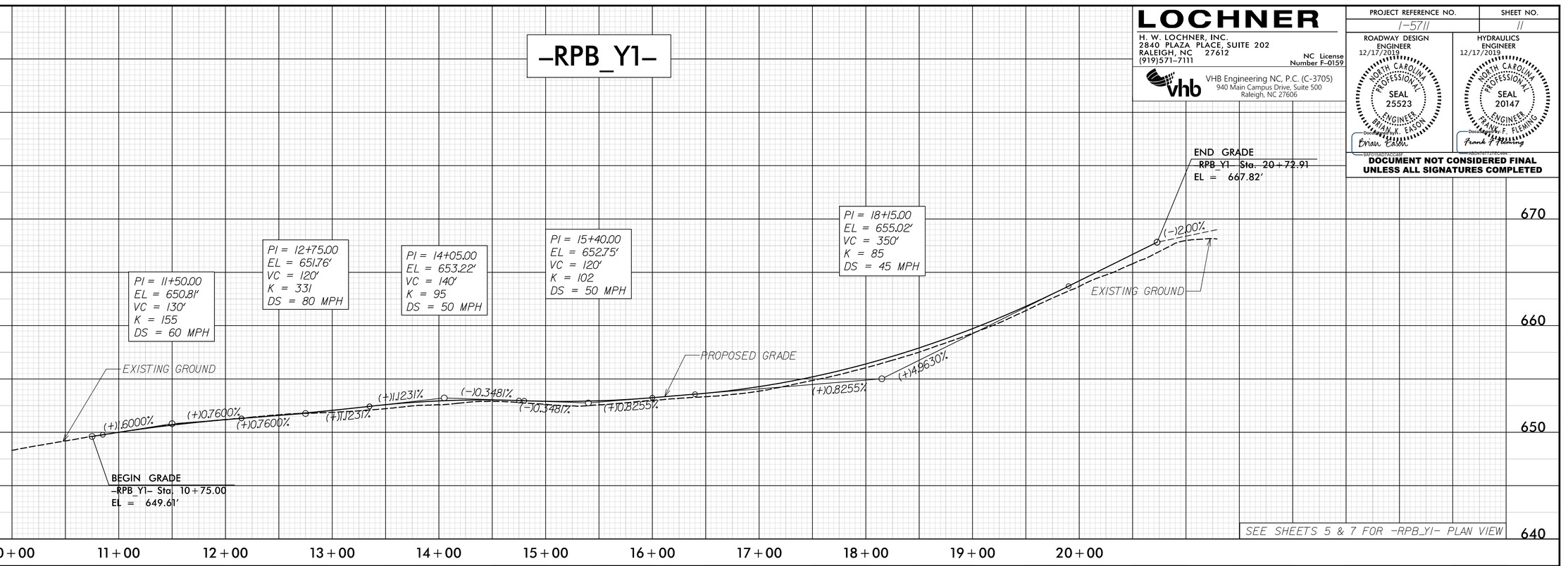
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
I–5711	11

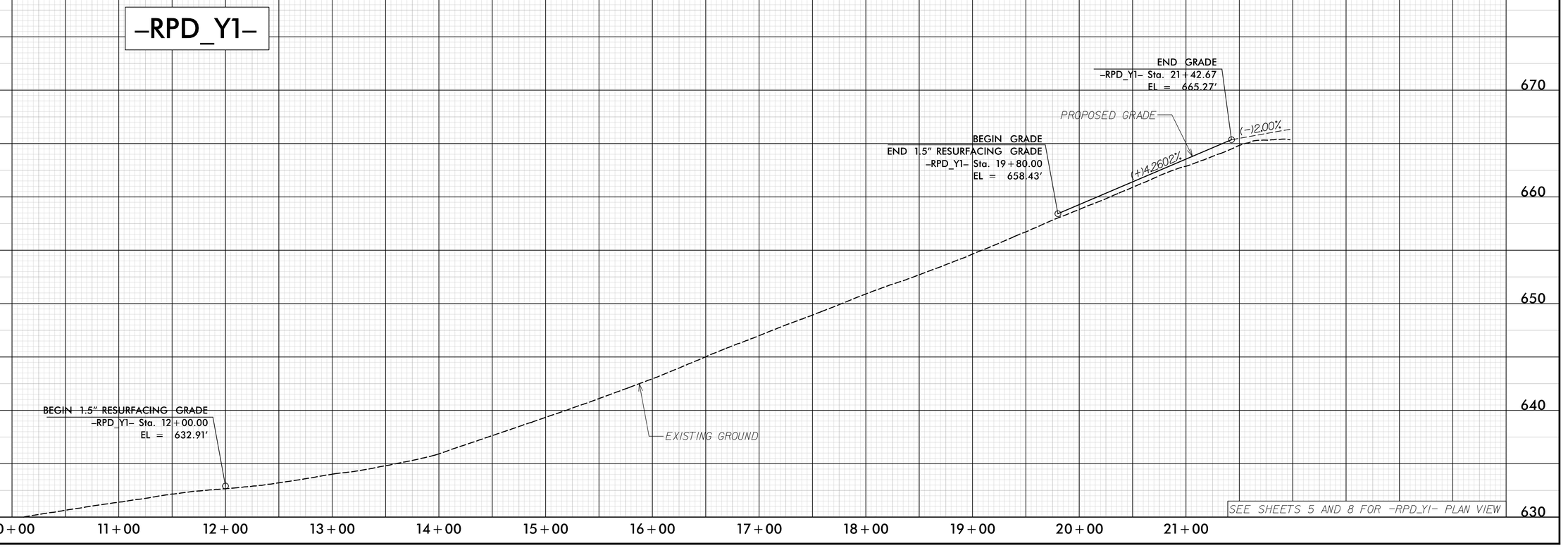
ROADWAY DESIGN ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRIAN K. EASON
Digitally signed by Brian Eason
8AF015AD7ADCC6BF

HYDRAULICS ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER FRANK F. FLEMING
Digitally signed by Frank F. Fleming
F8DA76F725EC4D6...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



–RPD_Y1–



12/17/2019
12:47:08 PM
C:\Projects\...\RPD_Y1_PFL_11.dgn
cbuckley

–Y2–
SR 2210 FOREST OAKS LN.

BEGIN GRADE
–Y2– Sta. 10+50.93
EL = 660.29'

(–)0.32%

(–)5.3200%

PI = 12+40.00
EL = 650.24'
VC = 130'
K = 69

PROPOSED GRADE

END GRADE
–Y2– Sta. 13+05.00
EL = 648.01'

(–)3.4244%

EXISTING GROUND

SEE SHEET 5 FOR –Y2– PLAN VIEW

–Y3–
SR 2186 BRUNDAGE LN.

BEGIN GRADE
–Y3– Sta. 12+50.00
EL = 661.97'

END GRADE
–Y3– Sta. 13+95.01
EL = 659.89

(–)0.3000%

(–)2.0314%

(+)2.00%

PI = 13+00.00
EL = 661.82'
VC = 100'
K = 58

EXISTING GROUND

PROPOSED GRADE

BEGIN 3" OVERLAY
–Y3– Sta. 12+10.00

SEE SHEET 5 FOR –Y3– PLAN VIEW

–Y1–
I–40

EXISTING GROUND

BEGIN 3" MILLING AND 3" OVERLAY
–Y1– Sta. 18+20.00 (EBL & WBL)
EL = 651.91'

SEE SHEETS 5 & 7 FOR –Y1– PLAN VIEW

–L–

–Y1–
I–40

BEGIN 1.50" OVERLAY
–Y1– Sta. 24+86.00 (EBL & WBL)
EL = 649.35'

END 3" OVERLAY
–Y1– Sta. 24+11.00 (EBL & WBL)
EL = 650.46'

75' TRANSITION

EXISTING GROUND

BEGIN 3" OVERLAY
–Y1– Sta. 28+80.23 (EBL & WBL)
EL = 644.07'

75' TRANSITION

END 1.50" OVERLAY
–Y1– Sta. 28+05.23 (EBL & WBL)
EL = 645.04'

END 3" MILLING AND 3" OVERLAY
–Y1– Sta. 34+40.00 (EBL & WBL)
EL = 635.74'

EXISTING GROUND

SEE SHEETS 5 & 8 FOR –Y1– PLAN VIEW

660 650 640 630

10+00 11+00 12+00 13+00 14+00 11+00 12+00 13+00 14+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571–7111
NC License Number F–0159

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
I–5711	12

ROADWAY DESIGN ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER BRIAN K. EASON
Digitally signed by Brian Eason
DocuSigned by: 9AE0154D74CC4BE...

HYDRAULICS ENGINEER
12/17/2019
NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER FRANK W. FLEMING
Digitally signed by Frank Fleming
DocuSigned by: A3D0AF8772EC464...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

12/17/2019
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cwickstein