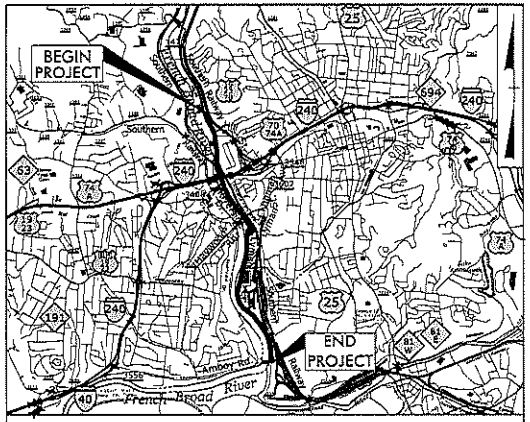
TIP PROJECT: U-5019

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



VICINITY MAP

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5019	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
	STP-1302(37)		

FHWA TIGER GRANT
NUMBER DTH6115G00010

RELEASE FOR CONSTRUCTION
SEE PLAN SHEETS FOR LIMITED
RELEASE STATION RANGES

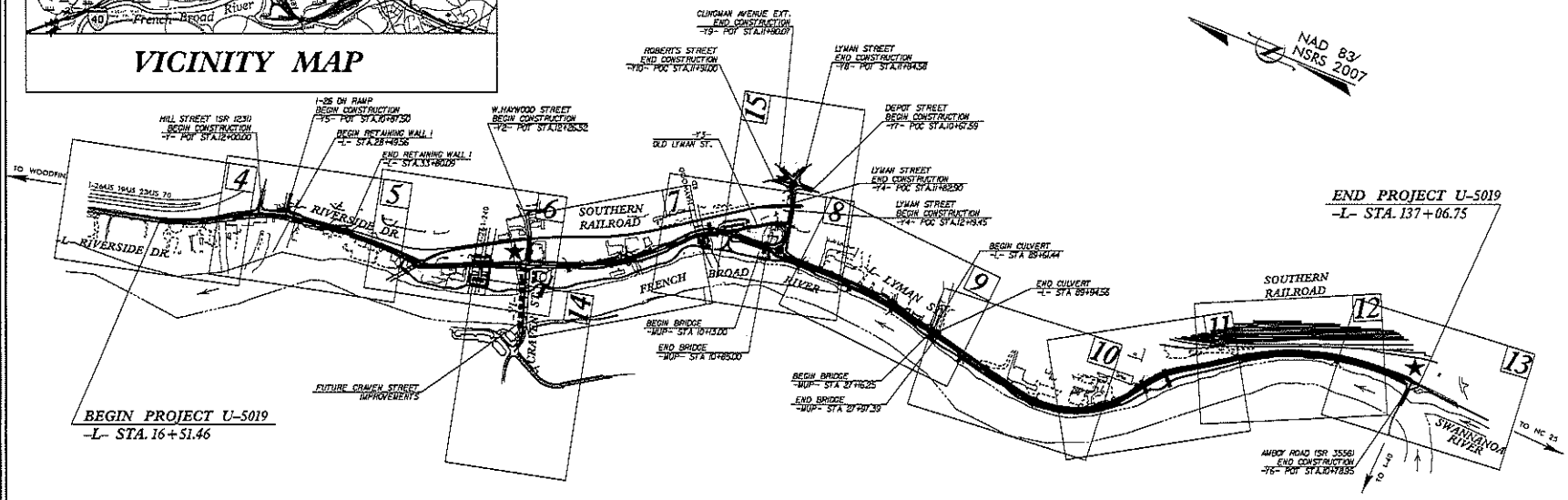
CITY OF ASHEVILLE

BUNCOMBE COUNTY

RIVER ARTS DISTRICT IMPROVEMENT PROJECT (RADTIP)

LOCATION: RIVERSIDE DRIVE FROM NORTH OF SR 1231 (HILL STREET) TO SR 3556 (AMBOY ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERTS, SIGNALS, GREENWAY AND STREETSCAPE



★ PROPOSED 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): 10 5 0 10 20

DESIGN DATA

ADT 2015 = 9300
ADT 2040 = 14500
DHV = 10 %
D = 60 %
T = 7 % *
V = 30 MPH
* TTST = 5 DUAL 2
FUNC CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5019 = 2.277 MILES
LENGTH CULVERT TIP PROJECT U-5019 = 0.006 MILES

TOTAL LENGTH OF TIP PROJECT U-5019 = 2.283 MILES

Prepared in the Office of:
CDM Smith
FOR THE CITY OF ASHEVILLE

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER 2015

LETTING DATE: MARCH 10, 2017

KIT A. PERSIANI, P.E.
PROJECT ENGINEER

DAVID J. CLODGO, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

CITY OF ASHEVILLE NORTH CAROLINA

CONFORMED PLANS SEPTEMBER 8, 201

PROJECT REFERENCE NO.	SHEET NO.
U-5019	1-A

ROADWAY DESIGN ENGINEER

2/24/2017

8/17/99

INDEX OF SHEETS

EFF. 01-17-2012
REV. 10-30-2012

2012 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, 2012 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
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
838.01	Concrete Endwall for Single and Double Pipe Culverts - 19" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
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
840.04	Concrete Open Throat Catch Basin - 12" thru 48" Pipe
840.05	Brick Open Throat Catch Basin - 12" thru 48" Pipe
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
840.18	Concrete Grated Drop Inlet Type "B" - 12" thru 36" Pipe
840.20	Frames and Wide Slot Five Grates
840.22	Frames and Wide Slot Say Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type "B" - 12" thru 36" Pipe
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37; Double Frame and Grates
840.40	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.05	Driveway Turnout - Drop Curb Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
850.01	Concrete Paved Ditches
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
852.01	Concrete Islands
852.04	Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
852.05	Median Curb for Catch Basin - for use with 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.04	Anchoring End of Guardrail - S-77 and S-83 Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

APP. 05-13-2014

2014 STANDARD SPECIFICATIONS AND DETAILS

The following Roadway Standards as appear in "STANDARD SPECIFICATIONS AND DETAILS MANUAL" CITY OF ASHEVILLE. Approved May 13, 2014 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
3.01	Standard Street Sections (Suburban Collector, Urban Collector & Local)
3.03	Roadway Widening
3.05	Standard Section without Curb & Gutter
3.06	Standard Shoulder Section without Sidewalk
3.10	A.B.C. Under 2'-6" Curb & Gutter
3.11	Standard Concrete Curb and Gutter
3.11A	Standard Stand-Up & Mountable Curb
3.11B	Median Island W/Standard Mountable Curb
3.13	Standard Method of Ending Curb and Gutter
3.15	Standard Driveway Apron with Sidewalk & Utility Strip
3.15A	Standard Driveway Apron with Sidewalk & Utility Strip
3.15B	Standard Driveway Access Apron With Curb & Gutter & Without Sidewalk
3.16	Standard Concrete Sidewalk
3.17	Standard Wheelchair Ramp
3.17A	Standard Wheelchair Ramp
3.17B	Standard Wheelchair Ramp
3.17C	Standard Wheelchair Ramp
3.20	High Visability Cross Walk
5.01	Pavement Removal and Replacement
5.04	Pavement Removal & Replacement for Perpendicular Cuts

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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.

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. ANY WORK OF THIS NATURE THAT IS NOT SHOWN IN THE PLANS WILL BE PAID FOR AS THE ALLOWANCE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

SHOULDER DRAINS:

SHOULDER DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 816.03 AND DETAILS IN PLANS AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

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 AS THE ALLOWANCE FOR "TEMPORARY SHORING".

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY, AT&T,

CITY OF ASHEVILLE, MSD, PIEDMONT NATURAL GAS, TIME WARNER CABLE

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 CONTRACT.

CURB RAMPS:

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.06 AND/OR 848.06.

CONCRETE ISLANDS:

ALL MONOLITHIC CONCRETE ISLANDS ARE MOUNTABLE AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH NCDOT STANDARD DRAWING 852.01.

SYSTEM: [illegible]

RELEASED FOR CONSTRUCTION

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
- Property Corner
- Property Monument
- Parcel/Sequence Number
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary
- Proposed Wetland Boundary
- Existing Endangered Animal Boundary
- Existing Endangered Plant Boundary
- Existing Historic Property Boundary
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

- Standard Gauge
- RR Signal Milepost
- Switch
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite RW Marker
- Proposed Control of Access Line with Concrete C/A Marker
- Existing Control of Access
- Proposed Control of Access
- Existing Easement Line
- Proposed Temporary Construction Easement
- Proposed Temporary Drainage Easement
- Proposed Permanent Drainage Easement
- Proposed Permanent Drainage / Utility Easement
- Proposed Permanent Utility Easement
- Proposed Temporary Utility Easement
- Proposed Aerial Utility Easement
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut
- Proposed Slope Stakes Fill
- Proposed Curb Ramp
- 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

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert
- Bridge Wing Wall, Head Wall and End Wall

MINOR:

- Head and End Wall
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB
- Paved Ditch Gutter
- Storm Sewer Manhole
- Storm Sewer

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box
- Utility Unknown U/G Line LOS B (S.U.E.*)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc.
- 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.

CONTRACT: TIP PROJECT: U-5019

SURVEY CONTROL SHEET U-5019

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5019	1-C	

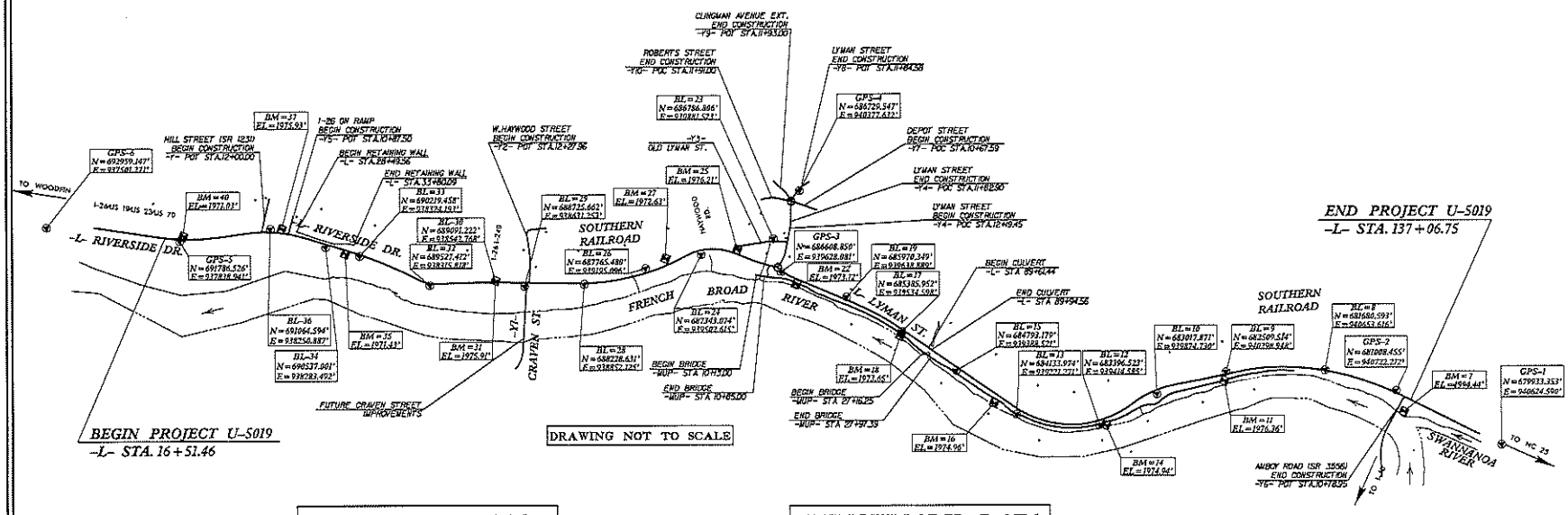
RELEASED FOR CONSTRUCTION

NAD 83/NSRS 2011

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY GPS/ VRS OBSERVATIONS FOR RIVERSIDE DR.
BASELINE CONTROL POINT #CPS4 ELEVATION OF 1996.70(FT) WITH NAD 83/ NSRS 2011 STATE PLANE GRID COORDINATES OF NORTHING: 686,729.547(FT) EASTING: 940,377.632(FT)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999794633.

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



BASELINE DATA

-BL- (RIVERSIDE DR.)

1	(CPS-1)	N 678633.3535 E 940624.5988 ELEV 1975.86 STA 0+00.00		23	(BL-23)	N 687790.8800 E 939681.5231 ELEV 1970.73 STA 88+89.65	
		COURSE FROM 1 TO 2 N 85°11'19.38" E DIST 1874.52				COURSE FROM 23 TO 24 N 24°19'49.12" W DIST 873.66	
2	(CPS-2)	N 681948.4653 E 941722.2128 ELEV 1964.31 STA 18+74.52		24	(BL-24)	N 687343.8744 E 939502.6146 ELEV 1974.28 STA 96+62.71	
		COURSE FROM 2 TO 8 N 85°49'39.24" W DIST 675.63				COURSE FROM 24 TO 26 N 26°53'19.93" W DIST 522.49	
8	(BL-8)	N 681888.5953 E 941653.6181 ELEV 1974.52 STA 22+58.15		26	(BL-26)	N 687768.4981 E 939195.8988 ELEV 1970.88 STA 92+05.29	
		COURSE FROM 8 TO 9 N 23°29'52.25" W DIST 981.61				COURSE FROM 26 TO 28 N 38°31'14.85" W DIST 376.31	
9	(BL-9)	N 682599.5143 E 941278.9477 ELEV 1968.75 STA 31+56.76		28	(BL-28)	N 688226.6310 E 938852.1247 ELEV 1971.47 STA 97+81.91	
		COURSE FROM 9 TO 10 N 24°58'48.03" W DIST 662.11				COURSE FROM 28 TO 29 N 29°57'34.12" W DIST 543.98	
10	(BL-10)	N 683017.8788 E 940874.7299 ELEV 1974.64 STA 38+18.87		29	(BL-29)	N 688725.6619 E 939031.2504 ELEV 1979.85 STA 103+23.41	
		COURSE FROM 10 TO 12 N 88°32'56.64" W DIST 555.91				COURSE FROM 29 TO 30 N 13°36'24.85" W DIST 376.12	
12	(BL-12)	N 683346.5204 E 939414.5850 ELEV 1978.78 STA 44+14.78		30	(BL-30)	N 689091.2208 E 938542.7984 ELEV 1971.99 STA 107+81.52	
		COURSE FROM 12 TO 13 N 14°41'28.87" W DIST 762.27				COURSE FROM 30 TO 32 N 27°24'18.47" W DIST 491.78	
13	(BL-13)	N 684133.4758 E 939221.2718 ELEV 1978.73 STA 51+77.15		32	(BL-32)	N 689527.4110 E 938015.8181 ELEV 1968.17 STA 111+93.22	
		COURSE FROM 13 TO 15 N 14°14'18.95" E DIST 880.89				COURSE FROM 32 TO 33 N 68°41'26.07" E DIST 692.18	
15	(BL-15)	N 684740.1742 E 939388.5218 ELEV 1978.78 STA 58+57.24		33	(BL-33)	N 690219.4578 E 938224.1901 ELEV 1969.07 STA 118+85.32	
		COURSE FROM 15 TO 17 N 13°58'37.03" E DIST 618.51				COURSE FROM 33 TO 34 N 87°18'14.85" W DIST 328.14	
17	(BL-17)	N 685288.7916 E 939534.5985 ELEV 1973.61 STA 64+57.75		34	(BL-34)	N 690537.8818 E 938283.4922 ELEV 1969.47 STA 122+85.46	
		COURSE FROM 17 TO 19 N 18°07'6.22" E DIST 940.63				COURSE FROM 34 TO 36 N 83°32'18.62" W DIST 528.68	
19	(BL-19)	N 685978.2488 E 939638.8891 ELEV 1972.56 STA 74+61.38		36	(BL-36)	N 691064.3948 E 938258.8873 ELEV 1973.18 STA 127+34.86	
		COURSE FROM 19 TO 3 N 88°59'11.88" W DIST 638.99				COURSE FROM 36 TO 5 N 24°42'25.83" W DIST 831.28	
3	(CPS-3)	N 686080.8583 E 939628.8812 ELEV 1972.79 STA 5+88.88		5	(CPS-5)	N 691785.5282 E 937808.9415 ELEV 1969.94 STA 135+85.26	
		-BY- (LYMAN ST) -BY STA				COURSE FROM 5 TO 6 N 15°03'51.67" W DIST 1220.27	
		-BL STA 76+99.67		6	(CPS-6)	N 692969.1479 E 937581.2710 ELEV 1967.51 STA 147+05.53	
3	(CPS-3)	N 686080.8583 E 939628.8812 ELEV 1972.79 STA 5+88.88					
		COURSE FROM 19 TO 4 N 88°31'6.71" E DIST 794.21					
4	(CPS-4)	N 686729.5474 E 940377.6321 ELEV 1996.78 STA 12+59.21					

▼ *INDICATES CONTROL REBAR WITH CAP USED OR SET FOR HORIZONTAL PROJECT BY CH ENGINEERING.*

PROJECT CONTROL ESTABLISHED USING NGS ONLINE USER POSITIONING SYSTEM (OPUS)

BENCHMARK DATA

7 ELEVATION = 1994.44
N 688671 E 940509
BL STATION 14+26.80 14ft LEFT
NAIL SET IN 14" ELM TREE

11 ELEVATION = 1976.36
N 682444 E 940218
BL STATION 31+47.88 72 LEFT
NAIL SET IN 18" SYCAMORE TREE

14 ELEVATION = 1974.94
N 683043 E 939435
BL STATION 43+65.88 28 LEFT
NAIL SET IN 8" ORNAMENTAL TREE

16 ELEVATION = 1974.46
N 684969 E 939242
BL STATION 54+84.88 36 LEFT
NAIL SET IN 16" SYCAMORE TREE

18 ELEVATION = 1973.65
N 685393 E 939494
BL STATION 64+55.88 39 LEFT
NAIL SET IN 18" SYCAMORE TREE

22 ELEVATION = 1973.12
N 686871 E 939529
BL STATION 75+31.88 60 LEFT
NAIL SET IN 28" SYCAMORE TREE

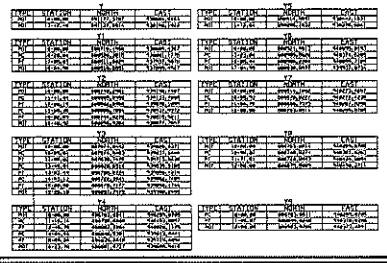
27 ELEVATION = 1972.03
N 687630 E 939347
BL STATION 98+87.88 43 RIGHT
BRICKNAIL SET IN TOP OF FOUNDATION

31 ELEVATION = 1975.91
N 688689 E 939579
BL STATION 105+44.88 11 RIGHT
BRICKNAIL SET IN TOP OF WALL

35 ELEVATION = 1971.43
N 690298 E 938246
BL STATION 128+18.88 11 LEFT
PK NAIL SET IN TOP OF PP

37 ELEVATION = 1975.92
N 690969 E 938289
BL STATION 136+36.88 32 RIGHT
X MARK IN LP BASE

40 ELEVATION = 1971.80
N 691778 E 937892
BL STATION 135+38.88 41 RIGHT
NAIL SET IN 12" SYCAMORE TREE



CONFORMED PLANS SEPTEMBER 8, 20

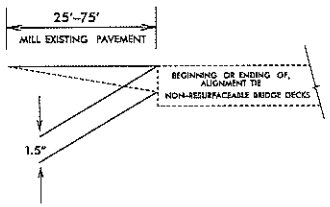
MILLING AT PAVEMENT TIE-INS

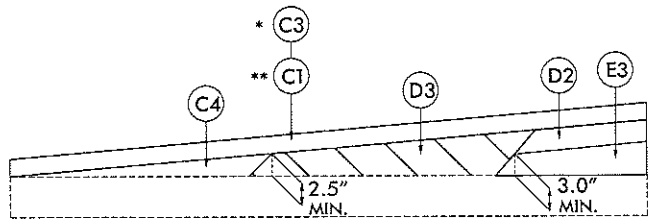
NOTES TO CONTRACTOR

For surface mixes over 1" in thickness, mill the existing pavement in accordance with the following sketch as directed by the Engineer.

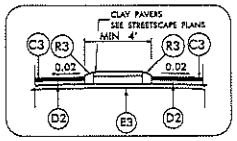
Locations shall include ties into bridge approaches where the bridge will not be resurfaced and at the beginning and ending point of alignment tie.

Perform the work in accordance with Section 607 of the January 2012 North Carolina Department of Transportation Standard Specifications for Roads and Structures.





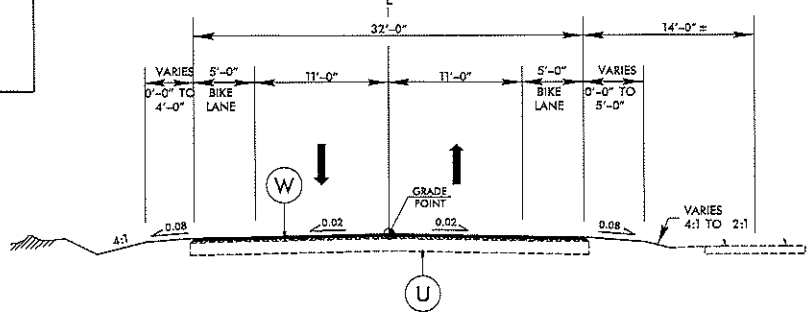
Wedging Detail For Resurfacing



CURBED ISLAND DETAIL

–L– STA 81+05.25 TO STA 88+59.87 (RIGHT)
–L– STA 93+04.25 TO STA 94+84.87 (RIGHT)

* USE FOR W WEDGING
** USE FOR W1 WEDGING



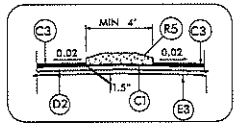
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1:
–L– STA 16+51.46 TO STA 19+01.41

RELEASED FOR CONSTRUCTION
SEE PLAN SHEETS FOR LIMITED RELEASE STATION RANGES

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



KEYED IN ISLAND DETAIL

–L– STA 69+06.33 TO STA 69+28.62 (CENTERLINE)
–L– STA 69+38.71 TO STA 69+48.61 (CENTERLINE)
–L– STA 69+53.65 TO STA 73+15.86 (CENTERLINE)
–L– STA 73+25.86 TO STA 73+43.86 (CENTERLINE)
–L– STA 74+52.89 TO STA 74+70.98 (CENTERLINE)
–L– STA 74+80.98 TO STA 75+03.27 (CENTERLINE)
–L– STA 74+86.41 TO STA 81+05.25 (RIGHT)
–L– STA 88+59.87 TO STA 93+04.25 (RIGHT)
–L– STA 94+84.87 TO STA 98+35.00 (RIGHT)
–L– STA 98+45.00 TO STA 107+85.00 (RIGHT)
–L– STA 107+95.00 TO STA 135+78.05 (RIGHT)
–Y2– STA 15+87.07 TO STA 16+07.42 (RIGHT)
–Y4– STA 10+54.99 TO STA 10+72.22 (CENTERLINE)
–Y4– STA 10+82.33 TO STA 11+04.50 (CENTERLINE)
–Y4– STA 15+19.48 TO STA 15+41.27 (CENTERLINE)
–Y4– STA 15+51.27 TO STA 15+69.28 (CENTERLINE)
–Y7– STA 11+45.50 TO STA 11+67.67 (CENTERLINE)
–Y7– STA 11+77.78 TO STA 11+95.01 (CENTERLINE)
–Y8– STA 10+54.55 TO STA 10+64.87 (CENTERLINE)
–Y8– STA 10+75.03 TO STA 11+16.20 (CENTERLINE)
–Y9– STA 10+55.03 TO STA 10+73.04 (CENTERLINE)
–Y9– STA 10+83.07 TO STA 11+07.07 (CENTERLINE)
–Y10– STA 10+55.06 TO STA 10+72.50 (CENTERLINE)
–Y10– STA 10+82.50 TO STA 11+04.50 (CENTERLINE)

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

A1	8" PORTLAND CEMENT CONCRETE PAVEMENT	E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	R4	8"x12" CONCRETE CURB.
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E3	PROP. VARIES DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, 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 5½" IN DEPTH.	R5	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	J1	PROP. 4" AGGREGATE BASE COURSE.	R6	2'-0" CONCRETE VALLEY GUTTER (CITY OF ASHEVILLE STD. NO. 3.10A)
C3	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 155 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	J2	PROP. 6" AGGREGATE BASE COURSE.	S	4" CONCRETE SIDEWALK.
C4	PROP. VARIES DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	J3	PROP. 8" AGGREGATE BASE COURSE.	T	EARTH MATERIAL.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	J4	PROP. 10" AGGREGATE BASE COURSE.	U	EXISTING PAVEMENT.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	1'-6" CONCRETE CURB AND GUTTER.	V1	MILLING BITUMINOUS PAVEMENT, 1 ½" DEPTH.
D3	PROP. VARIES DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	R2	2'x8" CONCRETE CURB AND GUTTER.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET)
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R3	9"x12" CONCRETE CURB.	W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET)

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

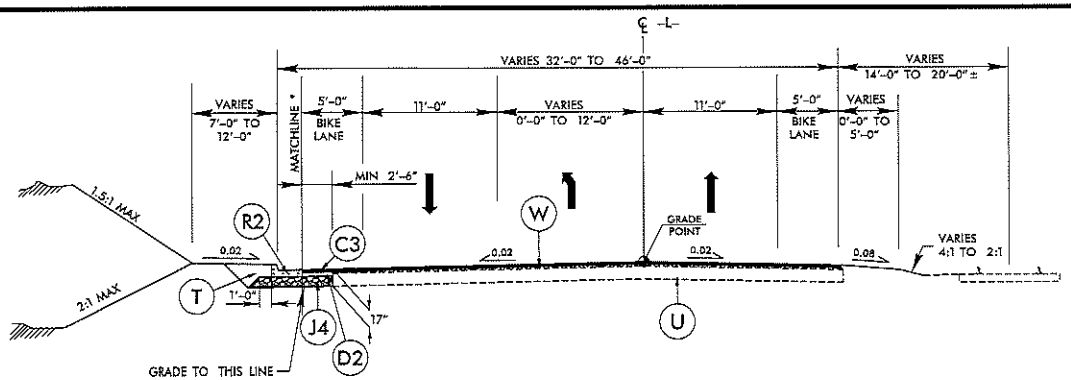
6/2/93

SYSTEM: U:\Projects\Proj\U5019_rdy_typ.dgn

RELEASED FOR CONSTRUCTION
SEE PLAN SHEETS FOR LIMITED RELEASE STATION RANGES

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

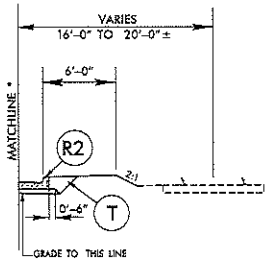
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 2

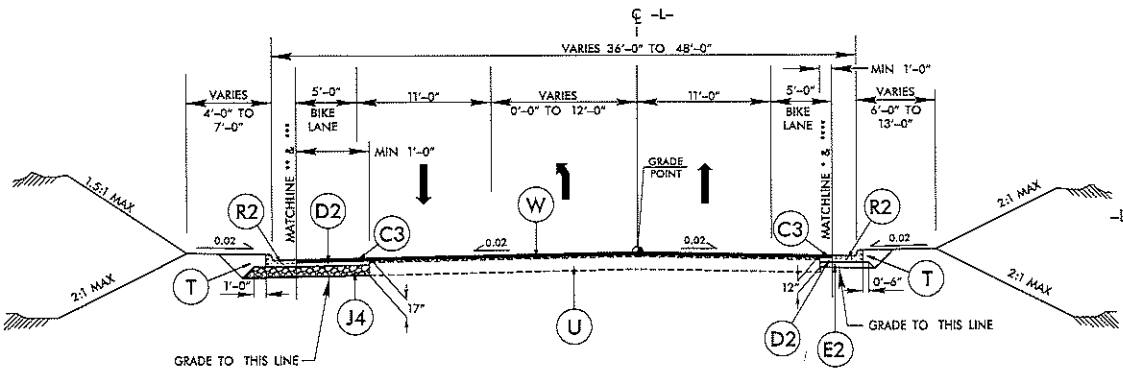
USE TYPICAL SECTION NO. 2:
-L- STA 19+01.41 TO STA 26+15.25

* SEE INSET E, SHEET 2A-10



INSET A

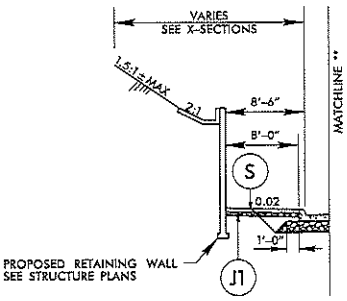
USE INSET A IN CONJUNCTION WITH TYPICAL SECTION NO. 3:
-L- STA 26+15.25 TO STA 30+65.13 RT



TYPICAL SECTION NO. 3

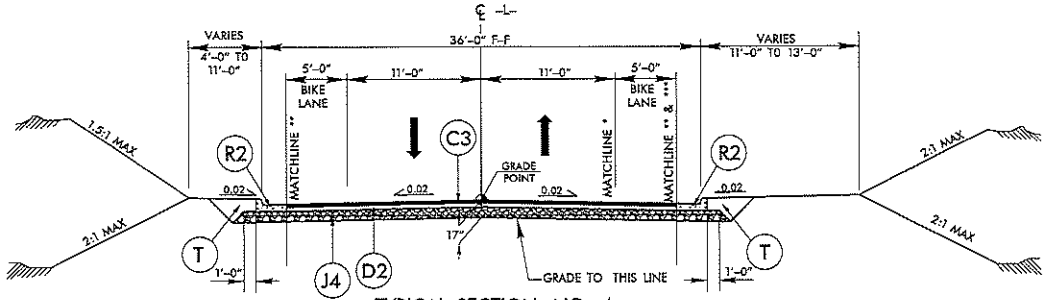
USE TYPICAL SECTION NO. 3:
-L- STA 26+15.25 TO STA 35+00.00

* SEE INSET A, THIS SHEET
** SEE INSET B, THIS SHEET
*** SEE INSET E, SHEET 2A-10
**** SEE INSET F, SHEET 2A-10



INSET B

USE INSET B IN CONJUNCTION WITH TYPICAL SECTION NO. 3:
-L- STA 28+61.96 TO STA 30+80.09 LT



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4:
-L- STA 35+00.00 TO STA 39+00.00
-L- STA 56+98.96 TO STA 61+00.00

* SEE INSET D, SHEET 2A-10
** SEE INSET E, SHEET 2A-10
*** SEE INSET F, SHEET 2A-10

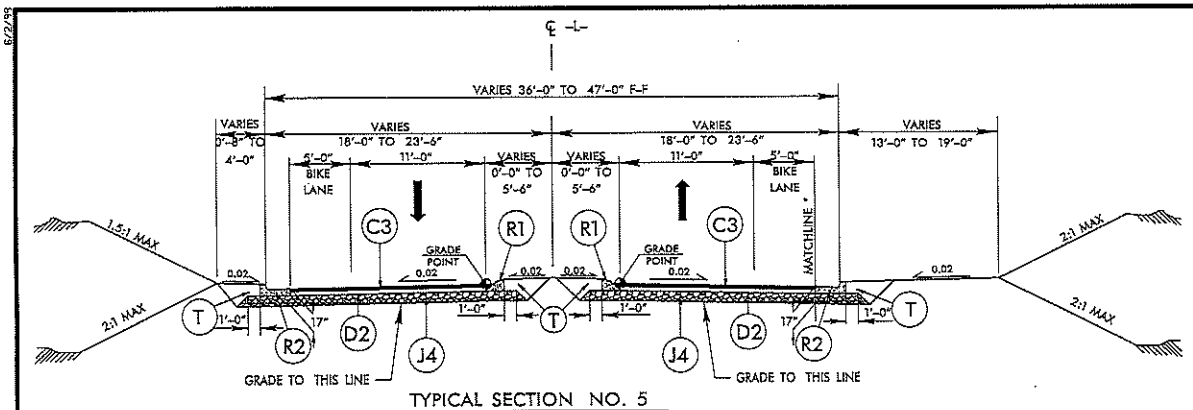
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
A1	8" CONC.
C1	1½" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIES S9.5B
D1	3" I19.0B
D2	4" I19.0B
D3	VARIES I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VARIES B25.0B
J1	4" ABC
J2	6" ABC
J3	8" ABC
J4	10" ABC
R1	1'-6" C&G
R2	2'-6" C&G
R3	9"x12" CURB
R4	8"x12" CURB
R5	5" MONO. CONC. ISLAND
R6	2'-0" CONC. VALLEY GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	1 ½" MILLING
W	WEDGING
W1	WEDGING

PAVEMENT EDGESLOPES TO UNLESS NOTED OTHERWISE

RELEASED FOR CONSTRUCTION
SEE PLAN SHEETS FOR LIMITED RELEASE STATION RANGES

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2A-3
ROADWAY DESIGN	PAVEMENT DESIGN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

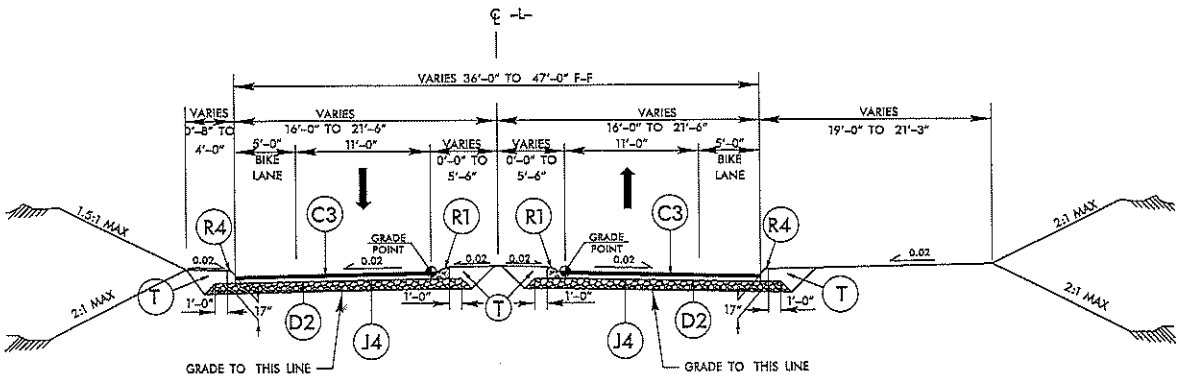


TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5:

-L- STA 39+00.00 TO STA 40+35.00

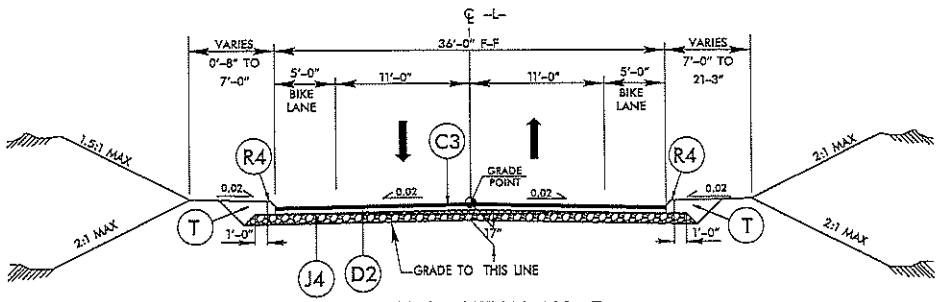
* SEE INSET F, SHEET 2A-10



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6:

-L- STA 40+35.00 TO STA 41+27.59



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7:

-L- STA 41+27.59 TO STA 43+00.00

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

A1	8" CONC.
C1	1½" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIES S9.5B
D1	3" I19.0B
D2	4" I19.0B
D3	VARIES I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VARIES B25.0B
J1	4" ABC
J2	6" ABC
J3	8" ABC
J4	10" ABC
R1	1'-6" C&G
R2	2'-6" C&G
R3	9"x12" CURB
R4	8"x12" CURB
R5	5" MONO. CONC. ISLAND
R6	2'-0" CONC. VALLEY GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	1 ½" MILLING
W	WEDGING
W1	WEDGING

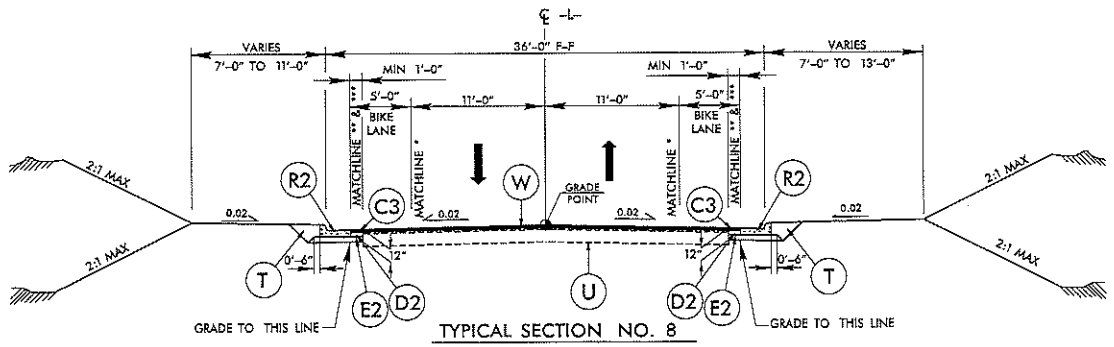
PAVEMENT EDGESLOPES 1:1 UNLESS NOTED OTHERWISE

CONFORMED PLANS SEPTEMBER 8, 2017

RELEASED FOR CONSTRUCTION
SEE PLAN SHEETS FOR LIMITED RELEASE STATION RANGES

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2A-4
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

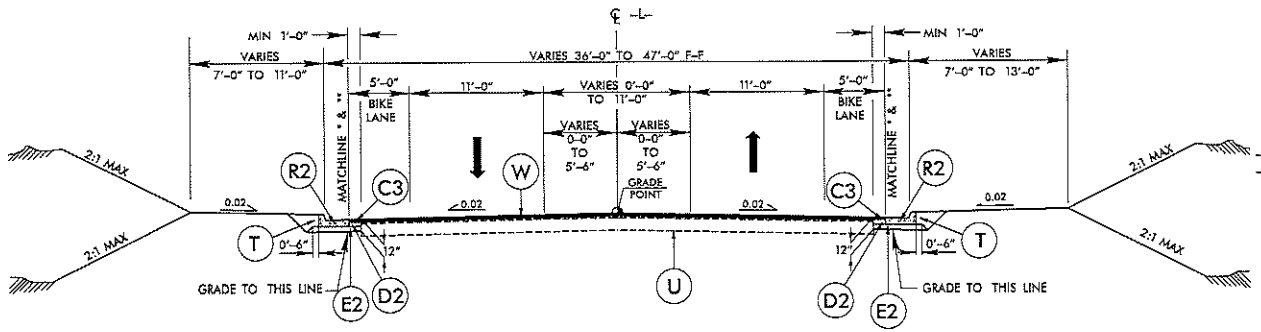
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8:
-L- STA 43+00.00 TO STA 47+67.54
-L- STA 53+91.68 TO STA 56+98.96
-L- STA 61+00.00 TO STA 69+22.00

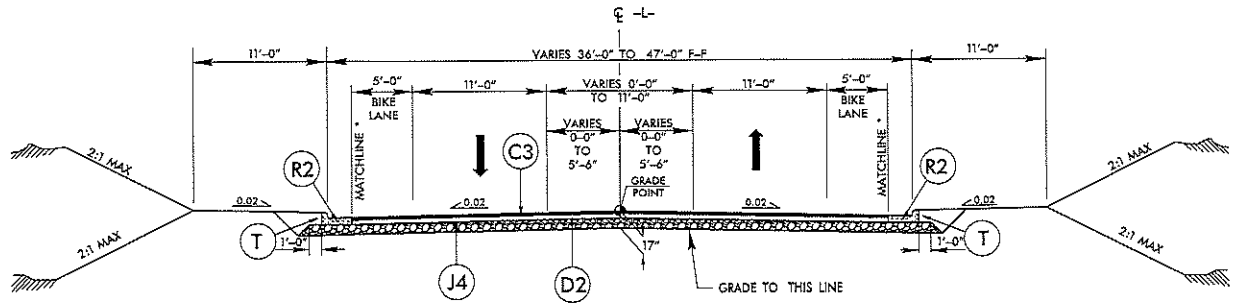
* SEE INSET D, SHEET 2A-10
** SEE INSET E, SHEET 2A-10
*** SEE INSET F, SHEET 2A-10



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9:
-L- STA 47+67.54 TO STA 51+00.00
-L- STA 53+00.00 TO STA 53+91.68

* SEE INSET E, SHEET 2A-10
** SEE INSET F, SHEET 2A-10



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10:
-L- STA 51+00.00 TO STA 53+00.00

* SEE INSET E, SHEET 2A-10

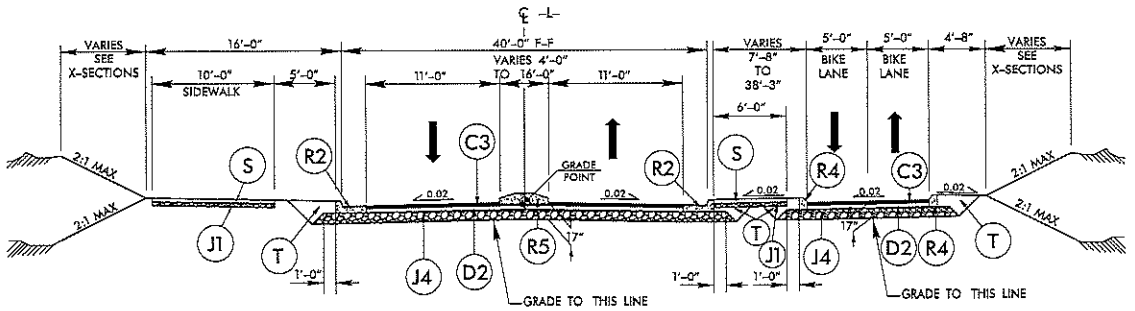
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
A1	8" CONC.
C1	1½" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIES S9.5B
D1	3" I19.0B
D2	4" I19.0B
D3	VARIES I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VARIES B25.0B
J1	4" ABC
J2	6" ABC
J3	8" ABC
J4	10" ABC
R1	1'-6" C&G
R2	2'-6" C&G
R3	9"x12" CURB
R4	8"x12" CURB
R5	5" MONO. CONC. ISLAND
R6	2'-0" CONC. VALLEY GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	1 ½" MILLING
W	WEDGING
W1	WEDGING

PAVEMENT EDGESLOPES T
UNLESS NOTED OTHERWIS

RELEASED FOR CONSTRUCTION
SEE PLAN SHEETS FOR LIMITED RELEASE STATION RANGES

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2A-5
ROADWAY DESIGN	PAVEMENT DESIGN

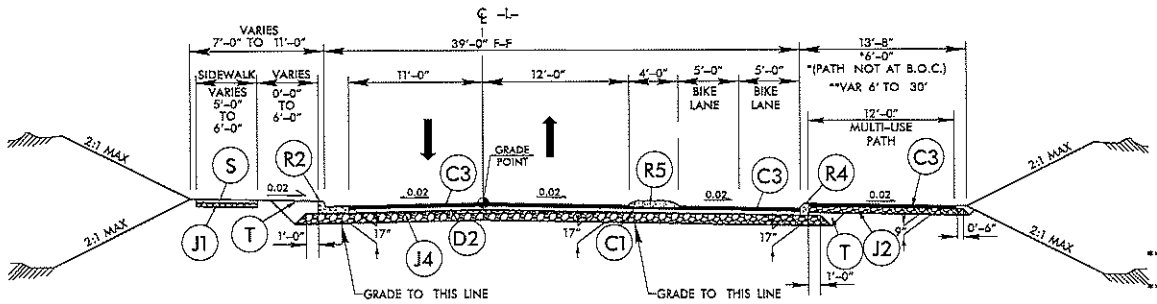
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11:

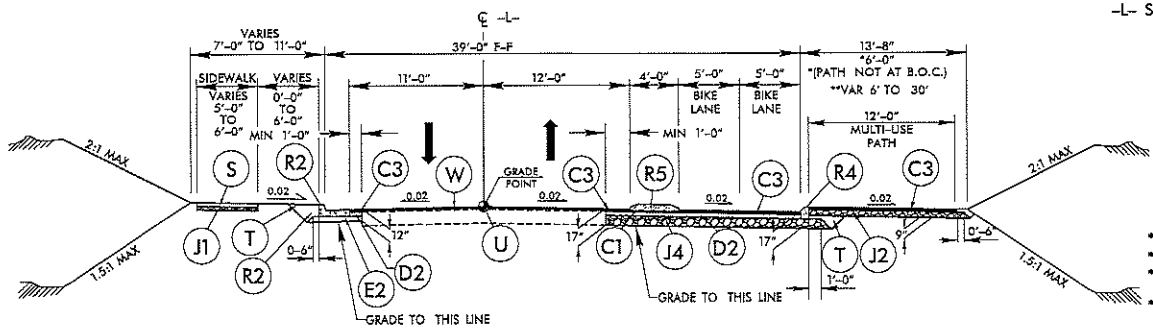
-L- STA 69+22.00 TO 73+45.86



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12:

**-L-	STA 75+00.00	TO	STA 75+91.26
-L-	STA 75+91.26	TO	STA 77+01.06
**-L-	STA 77+01.06	TO	STA 81+06.31
-L-	STA 82+38.31	TO	STA 83+87.87
*-L-	STA 89+00.00	TO	STA 93+04.87
*-L-	STA 94+84.87	TO	STA 97+00.00
**-L-	STA 97+00.00	TO	STA 97+50.00
-L-	STA 102+00.00	TO	STA 103+50.00
-L-	STA 107+00.00	TO	STA 108+50.00
-L-	STA 124+00.00	TO	STA 127+00.00



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13:

-L-	STA 74+50.89	TO	STA 75+00.00
-L-	STA 85+62.87	TO	STA 86+86.53
**-L-	STA 86+86.53	TO	STA 87+04.87
**-L-	STA 88+59.87	TO	STA 89+00.00
**-L-	STA 97+50.00	TO	STA 98+50.00
*-L-	STA 98+50.00	TO	STA 99+50.00
**-L-	STA 99+50.00	TO	STA 100+51.06
-L-	STA 100+51.06	TO	STA 102+00.00
-L-	STA 103+50.00	TO	STA 107+00.00
-L-	STA 108+50.00	TO	STA 109+00.00
*-L-	STA 109+00.00	TO	STA 122+50.00
-L-	STA 122+50.00	TO	STA 124+00.00
-L-	STA 127+00.00	TO	STA 135+61.50

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

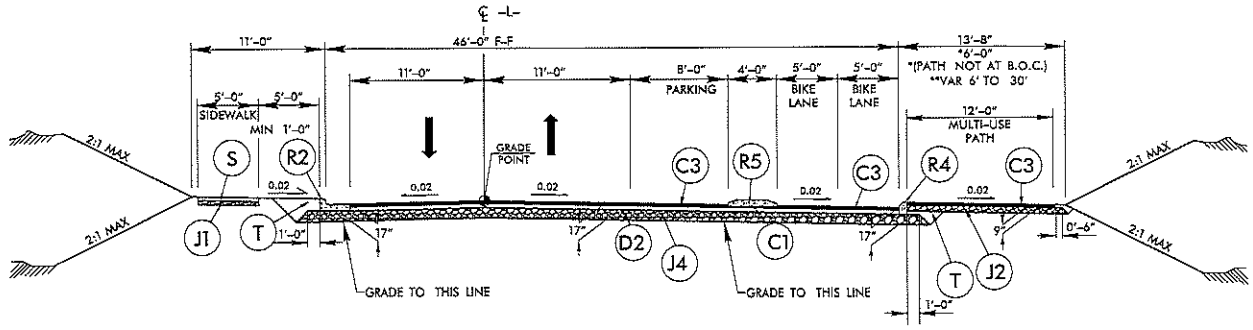
A1	8" CONC.
C1	1½" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIES S9.5B
D1	3" I19.0B
D2	4" I19.0B
D3	VARIES I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VARIES B25.0B
J1	4" ABC
J2	6" ABC
J3	8" ABC
J4	10" ABC
R1	1'-6" C&G
R2	2'-6" C&G
R3	9"x12" CURB
R4	8"x12" CURB
R5	5" MONO. CONC. ISLAND
R6	2'-0" CONC. VALLEY GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMEN
V1	1 ½" MILLING
W	WEDGING
W1	WEDGING

PAVEMENT EDGESLOPES UNLESS NOTED OTHERWI

RELEASED FOR CONSTRUCTION
SEE PLAN SHEETS FOR LIMITED RELEASE STATION RANGES

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2A-6
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

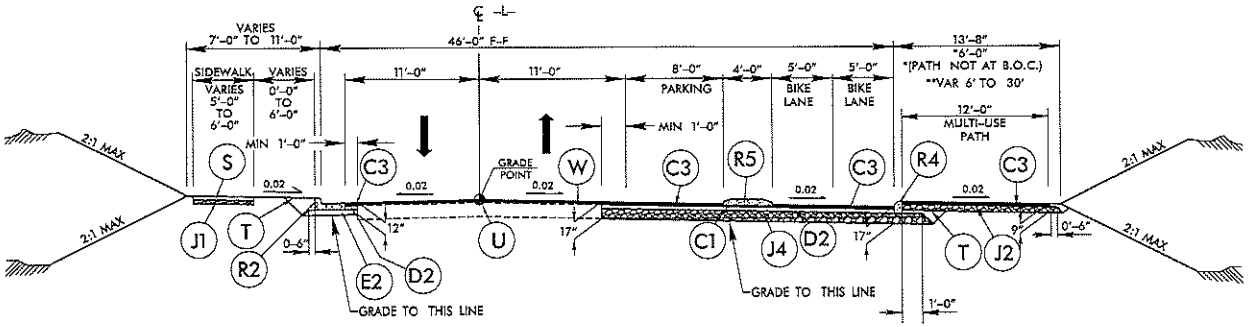
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14:

-L- STA 81+06.31 TO STA 82+38.31
-L- STA 83+84.87 TO STA 85+50.00
*-L- STA 93+04.87 TO STA 94+84.87



TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15:

-L- STA 85+50.00 TO STA 85+62.87
**-L- STA 87+04.87 TO STA 88+00.00
* -L- STA 88+00.00 TO STA 88+59.87

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

A1	8" CONC.
C1	1½" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIES S9.5B
D1	3" I19.0B
D2	4" I19.0B
D3	VARIES I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VARIES B25.0B
J1	4" ABC
J2	6" ABC
J3	8" ABC
J4	10" ABC
R1	1'-6" C&G
R2	2'-6" C&G
R3	9"x12" CURB
R4	8"x12" CURB
R5	5" MONO. CONC. ISLAND
R6	2'-0" CONC. VALLEY GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMEN
V1	1 ½" MILLING
W	WEDGING
W1	WEDGING

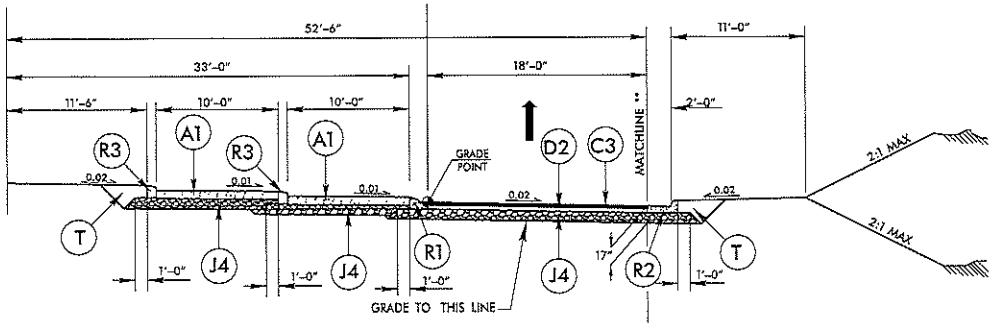
PAVEMENT EDGESLOPES
UNLESS NOTED OTHERWI

RELEASED FOR CONSTRUCTION
SEE PLAN SHEETS FOR LIMITED RELEASE STATION RANGES

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2A-7

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

℄ -ROUND1-, -ROUND2-

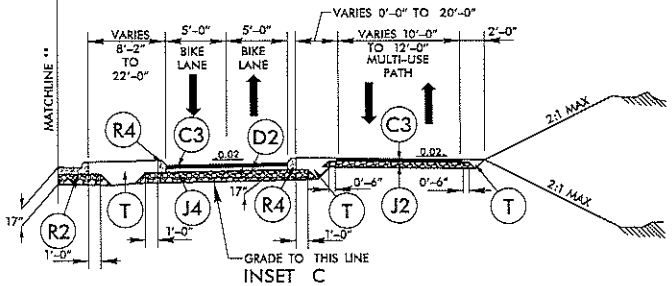


TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16:

-ROUND1- STA 10+00.00 TO STA 12+16.76
-ROUND2- STA 10+00.00 TO STA 12+16.76

**SEE INSET C, THIS SHEET

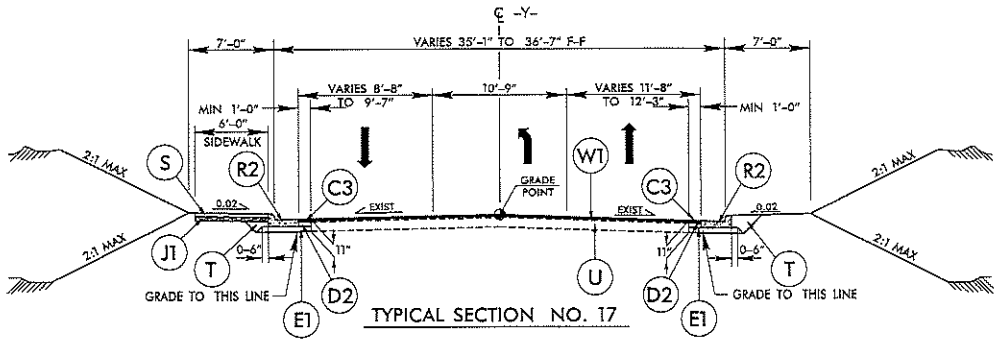


INSET C

USE INSET C IN CONJUNCTION WITH TYPICAL SECTION NO. 16:

-ROUND1- STA 10+34.94 TO STA 10+92.41

℄ -Y-



TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17:

-Y- STA 12+00.00 TO STA 12+83.52

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

A1	8" CONC.
C1	1½" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIES S9.5B
D1	3" I19.0B
D2	4" I19.0B
D3	VARIES I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VARIES B25.0B
J1	4" ABC
J2	6" ABC
J3	8" ABC
J4	10" ABC
R1	1'-6" C&G
R2	2'-6" C&G
R3	9"x12" CURB
R4	8"x12" CURB
R5	5" MONO. CONC. ISLAND
R6	2'-0" CONC. VALLEY GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMEN
V1	1 ½" MILLING
W	WEDGING
W1	WEDGING

PAVEMENT EDGESLOPES UNLESS NOTED OTHERWI

6/2/99

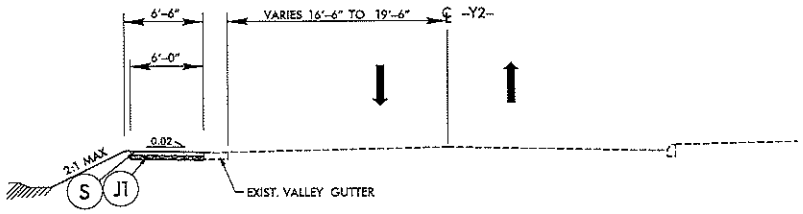
-XSTMP
-Project Files\Proj\U5019_rdy_typ.dgn
mgriffin

CONFORMED PLANS SEPTEMBER 8, 20

RELEASED FOR CONSTRUCTION
SEE PLAN SHEETS FOR LIMITED RELEASE STATION RANGES

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2A-8
ROADWAY DESIGN	PAVEMENT DESIGN

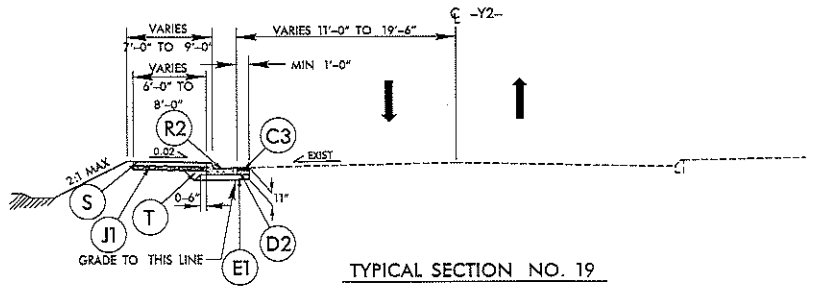
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18:

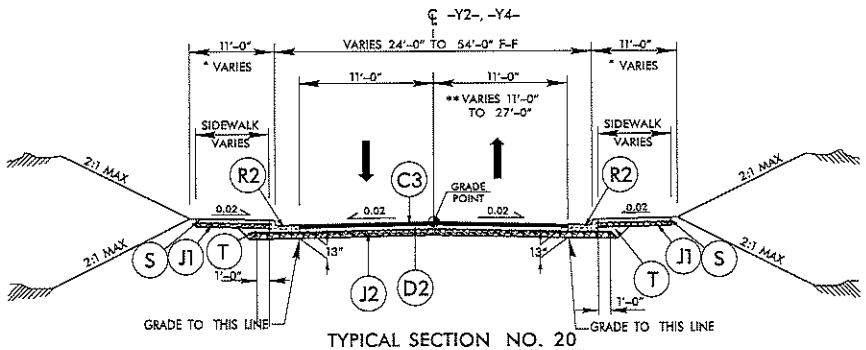
-Y2- STA 12+27.87 TO STA 13+50.00



TYPICAL SECTION NO. 19

USE TYPICAL SECTION NO. 19:

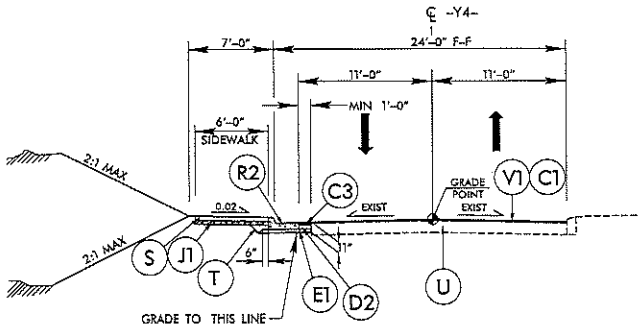
-Y2- STA 13+50.00 TO STA 14+01.00



TYPICAL SECTION NO. 20

USE TYPICAL SECTION NO. 20:

** -Y2- STA 14+45.92 TO STA 16+27.40
* -Y4- STA 10+52.50 TO STA 11+82.90
-Y4- STA 13+80.00 TO STA 15+71.29



TYPICAL SECTION NO. 21

USE TYPICAL SECTION NO. 21:

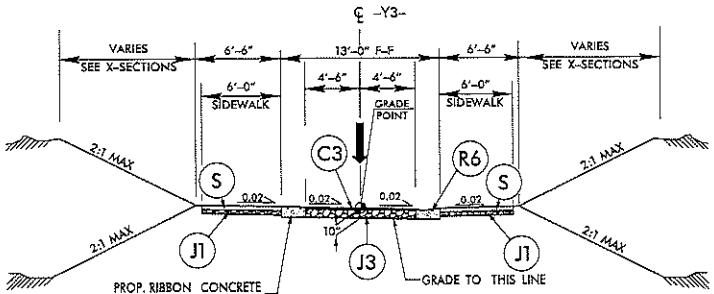
-Y4- STA 12+19.45 TO STA 13+80.00

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

A1	8" CONC.
C1	1½" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIES S9.5B
D1	3" I19.0B
D2	4" I19.0B
D3	VARIES I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VARIES B25.0B
J1	4" ABC
J2	6" ABC
J3	8" ABC
J4	10" ABC
R1	1'-6" C&G
R2	2'-6" C&G
R3	9"x12" CURB
R4	8"x12" CURB
R5	5" MONO. CONC. ISLAND
R6	2'-0" CONC. VALLEY GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMEN
V1	1 ½" MILLING
W	WEDGING
W1	WEDGING

PAVEMENT EDGESLOPES
UNLESS NOTED OTHERWI

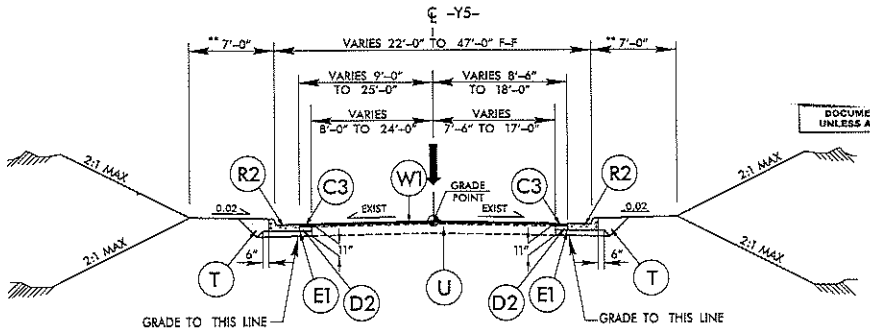
PROJECT REFERENCE NO.	SHEET NO.
U-5019	2A-9
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



TYPICAL SECTION NO. 22

USE TYPICAL SECTION NO. 22:

-Y3- STA 10+18.03 TO STA 15+09.15

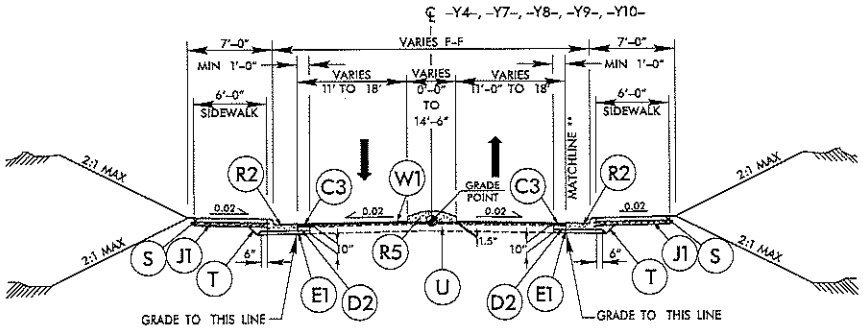


TYPICAL SECTION NO. 23

USE TYPICAL SECTION NO. 23:

-Y5- STA 10+87.50 TO STA 11+44.52

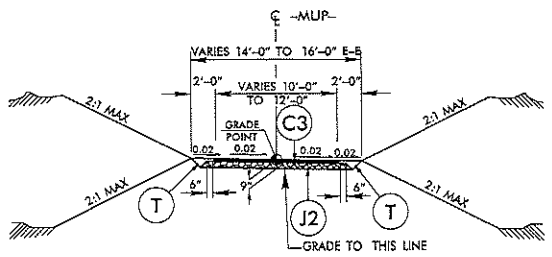
RELEASED FOR CONSTRUCTION
SEE PLAN SHEETS FOR LIMITED RELEASE STATION RANGES



TYPICAL SECTION NO. 24

USE TYPICAL SECTION NO. 24:

-Y7- STA 10+67.59 TO STA 11+97.50
-Y8- STA 10+52.50 TO STA 11+84.58
-Y9- STA 10+52.60 TO STA. 11+80.07
-Y10- STA 10+52.50 TO STA 11+91.00



TYPICAL SECTION NO. 25

USE TYPICAL SECTION NO. 25:

-MUP- STA 10+00.00 TO STA 63+74.02

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

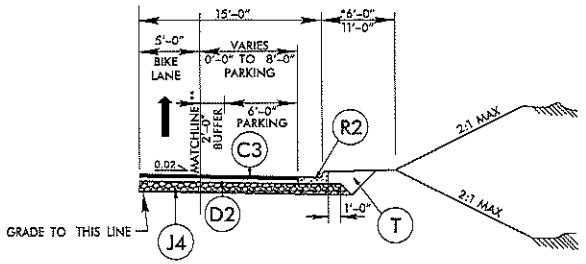
A1	8" CONC.
C1	1½" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIES S9.5B
D1	3" I19.0B
D2	4" I19.0B
D3	VARIES I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VARIES B25.0B
J1	4" ABC
J2	6" ABC
J3	8" ABC
J4	10" ABC
R1	1'-6" C&G
R2	2'-6" C&G
R3	9"x12" CURB
R4	8"x12" CURB
R5	5" MONO. CONC. ISLAND
R6	2'-0" CONC. VALLEY GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMEN
V1	1 ½" MILLING
W	WEDGING
W1	WEDGING

PAVEMENT EDGESLOPES UNLESS NOTED OTHERWI

RELEASED FOR CONSTRUCTION
SEE PLAN SHEETS FOR LIMITED RELEASE STATION RANGES

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2A-10
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

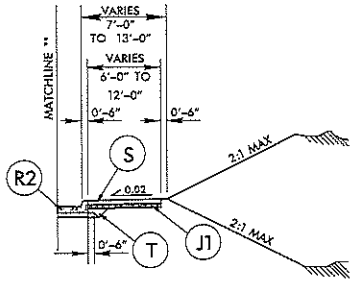
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



INSET D

USE INSET D IN CONJUNCTION WITH TYPICAL SECTION:

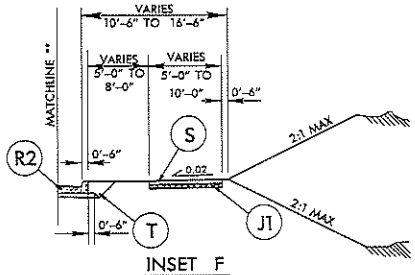
LEFT SIDE					RIGHT SIDE				
NO. 4 & 8	-L-	STA 60+04.36	TO	STA 61+49.64	NO. 8	-L-	STA 54+89.61	TO	STA 56+98.96
NO. 8	-L-	STA 61+91.36	TO	STA 63+56.64	NO. 4	-L-	STA 56+98.96	TO	STA 57+68.24
NO. 8	-L-	STA 63+69.78	TO	STA 68+12.17	NO. 4 & 8	-L-	STA 59+85.22	TO	STA 63+55.78



INSET E

USE INSET E IN CONJUNCTION WITH TYPICAL SECTION:

NO. 3	-L-	STA 26+06.03	TO	STA 27+41.14 LT
NO. 3	-L-	STA 28+34.25	TO	STA 34+05.33 LT
NO. 4/8	-L-	STA 45+23.89	TO	STA 47+69.54 LT
NO. 9	-L-	STA 47+69.54	TO	STA 50+12.88 LT
NO. 9/10	-L-	STA 50+95.79	TO	STA 53+91.68 LT
NO. 8	-L-	STA 53+91.68	TO	STA 56+98.96 LT
NO. 8/10	-L-	STA 56+98.96	TO	STA 69+22.00 LT
NO. 12/13	-L-	STA 121+46.20	TO	STA 127+85.42 LT
NO. 4/5	-L-	STA 40+74.40	TO	STA 42+12.77 RT
NO. 4	-L-	STA 42+12.77	TO	STA 45+39.22 RT
NO. 9/10	-L-	STA 50+98.74	TO	STA 52+12.22 RT
NO. 9/10	-L-	STA 52+86.22	TO	STA 53+91.68 RT
NO. 8	-L-	STA 53+91.68	TO	STA 56+98.96 RT
NO. 4/8	-L-	STA 56+98.96	TO	STA 65+94.82 RT
NO. 8	-L-	STA 67+13.59	TO	STA 69+22.00 RT



INSET F

USE INSET F IN CONJUNCTION WITH TYPICAL SECTION:

NO. 12/13	-L-	STA 74+50.89	TO	STA 121+46.20 LT
NO. 13	-L-	STA 127+85.42	TO	STA 135+61.50 LT
NO. 3	-L-	STA 33+92.97	TO	STA 37+18.77 RT
NO. 5	-L-	STA 37+18.77	TO	STA 40+74.40 RT
NO. 4/8	-L-	STA 45+39.92	TO	STA 47+69.54 RT
NO. 9	-L-	STA 47+69.54	TO	STA 49+68.47 RT

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
A1	8" CONC.
C1	1½" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VARIES S9.5B
D1	3" I19.0B
D2	4" I19.0B
D3	VARIES I19.0B
E1	4" B25.0B
E2	5" B25.0B
E3	VARIES B25.0B
J1	4" ABC
J2	6" ABC
J3	8" ABC
J4	10" ABC
R1	1'-6" C&G
R2	2'-6" C&G
R3	9"x12" CURB
R4	8"x12" CURB
R5	5" MONO. CONC ISLAND
R6	2'-0" CONC. VALLEY GUTTER
S	4" SIDEWALK
T	EARTH MATERIA
U	EXIST. PAVEME
V1	1 ½" MILLING
W	WEDGING
W1	WEDGING

PAVEMENT EDGESLOPES UNLESS NOTED OTHERW

RELEASED FOR CONSTRUCTION

NAD 83/NSRS 2011

PROJECT REFERENCE NO.	SHEET NO.
U-5019	28-1
RW SHEET NO.	

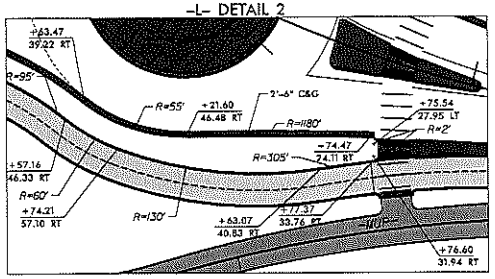
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

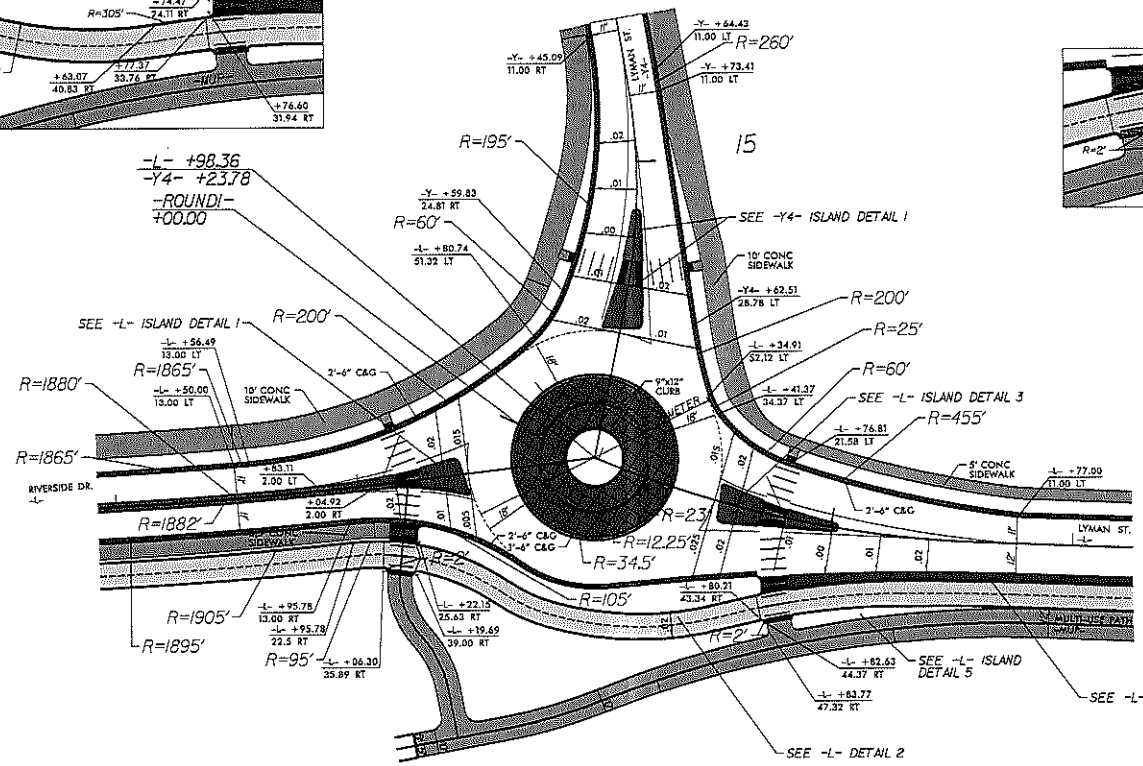
ROUNDABOUT 1 DETAIL
RIVERSIDE DR & LYMAN ST

8/17/99

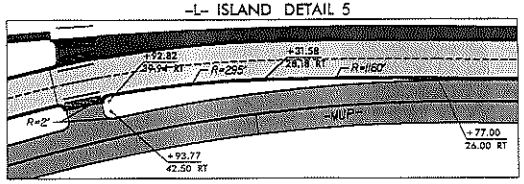
REVISIONS

-L- DETAIL 2

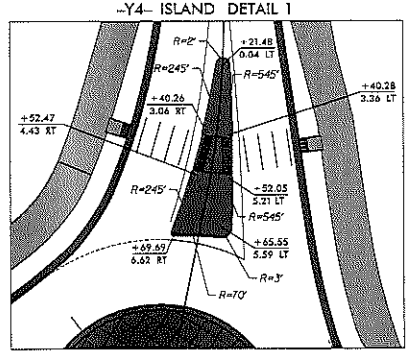




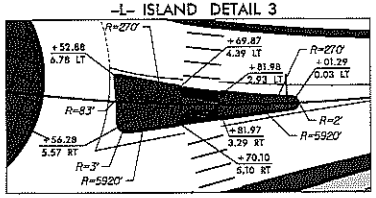
-L- ISLAND DETAIL 5



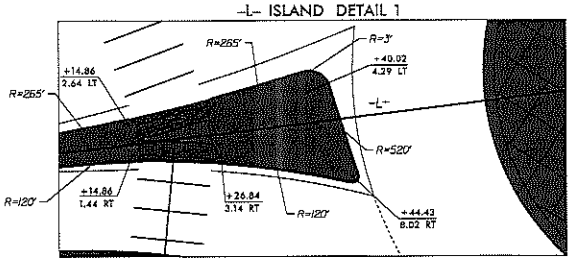
-Y4- ISLAND DETAIL 1



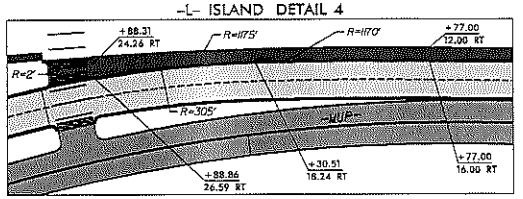
-L- ISLAND DETAIL 3



-L- ISLAND DETAIL 1



-L- ISLAND DETAIL 4



NOTE: ALL MONOLITHIC CONCRETE ISLANDS ARE MOUNTABLE AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH NCDOT STANDARD DRAWING 852.01.

NOTE: THIS DRAWING IS NOT TO SCALE

NOTE: ALL RADII ON ISLANDS ARE 1' UNLESS OTHERWISE LABELED

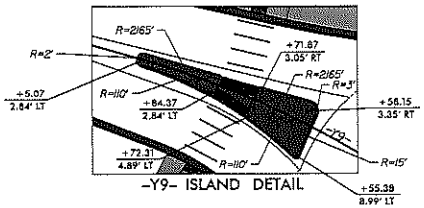
CONFORMED PLANS SEPTEMBER 8, 20

RELEASED FOR CONSTRUCTION

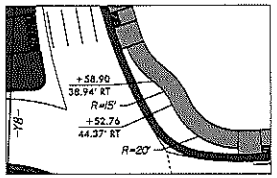
NAD 83/NSRS 2011

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2B-2
RW SHEET NO.	
ROADWAY DESIGN	

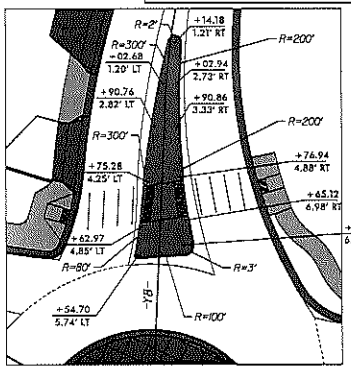
ROUNDABOUT 2 DETAIL
FIVE POINTS



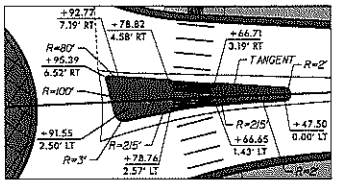
-Y9- ISLAND DETAIL



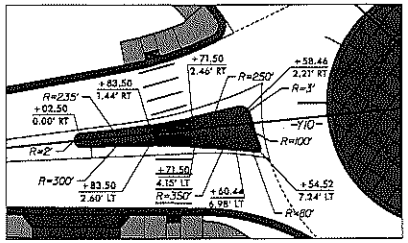
-Y8- SIDEWALK DETAIL



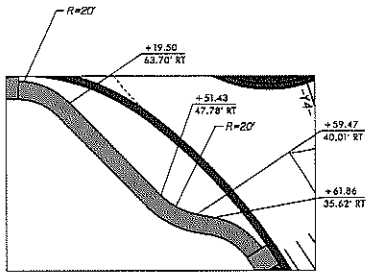
-Y8- ISLAND DETAIL



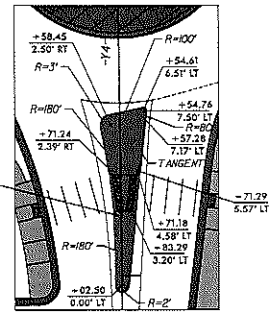
-Y7- ISLAND DETAIL



-Y10- ISLAND DETAIL



-Y4- SIDEWALK DETAIL



-Y4- ISLAND DETAIL

IMPROVEMENTS OUTSIDE OF PROPOSED ROADWAY CURB AND GUTTER SHALL BE CONSTRUCTED BY RADLOFTS, LLC

NOTE: ALL MONOLITHIC CONCRETE ISLANDS ARE MOUNTABLE AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH NCDOT STANDARD DRAWING 852.01.

NOTE: THIS DRAWING IS NOT TO SCALE

NOTE: ALL RADII ON ISLANDS ARE 1' UNLESS OTHERWISE LABELED

CONFORMED PLANS SEPTEMBER 8, 20

REVISIONS 8/17/99

SVG FILE
U5019_Rdy_pln_282.dgn

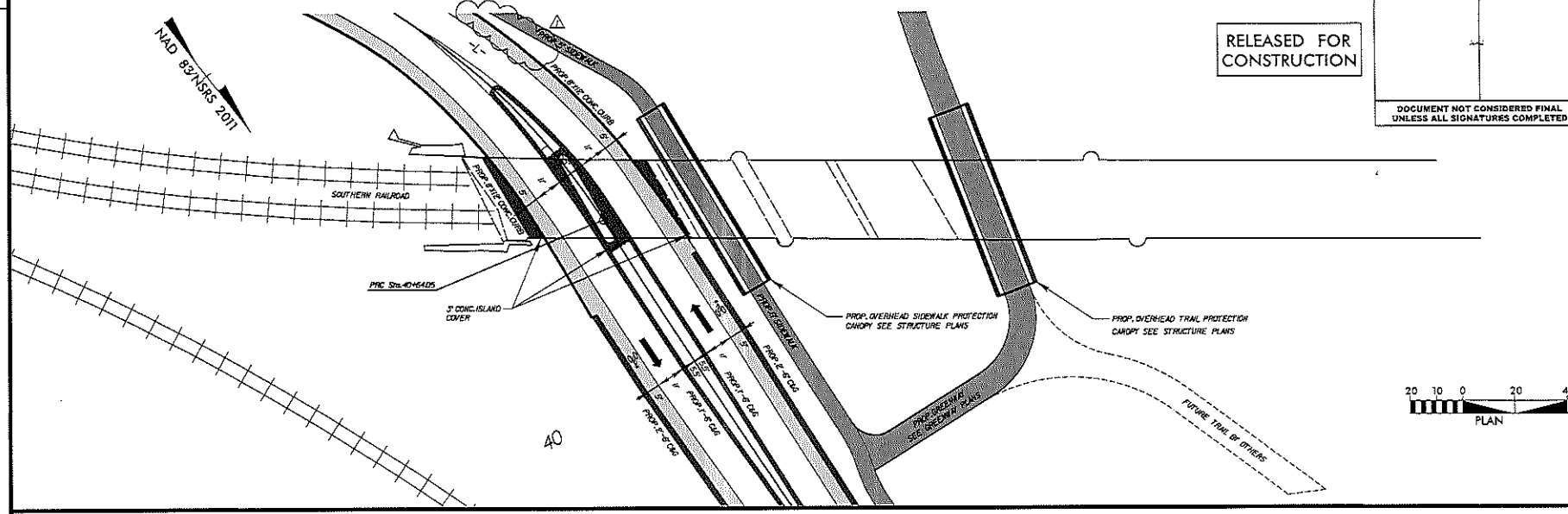
PROJECT REFERENCE NO.	SHEET NO.
U-5019	28-3

ROADWAY DESIGN ENGINEER

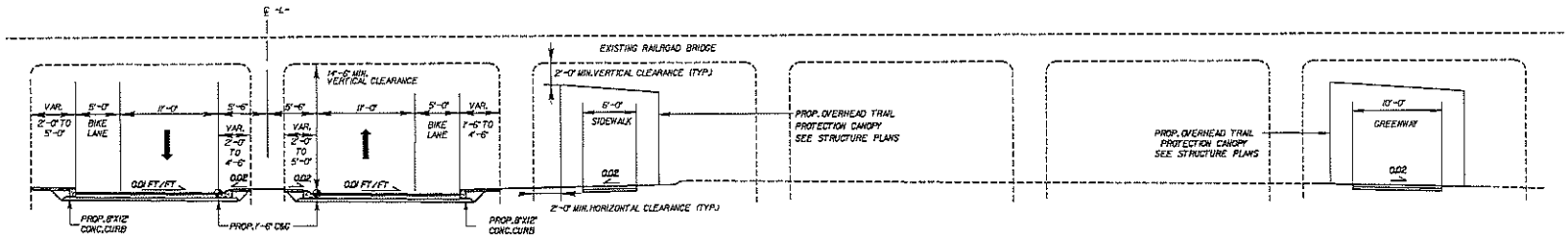
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RELEASED FOR CONSTRUCTION

PLAN VIEW AT NORFOLK SOUTHERN RAILROAD BRIDGE



TYPICAL SECTION UNDER NORFOLK SOUTHERN RAILROAD BRIDGE



NOTE: NOT TO SCALE.
SEE TYPICAL SECTIONS FOR PROPOSED PAVEMENT SCHEDULE AND DIMENSIONS.

REVISIONS
1 REMOVED WALL 3.

6/2/23

SYSTEM: [illegible] Proj. psh.283.dgn

REVISED PLANS APRIL 2, 2

PROJECT REFERENCE NO.	SHEET NO.
U-5019	28-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	

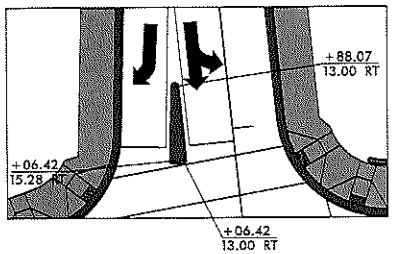
INTERSECTION DETAILS

NAD 83/NSRS 2011

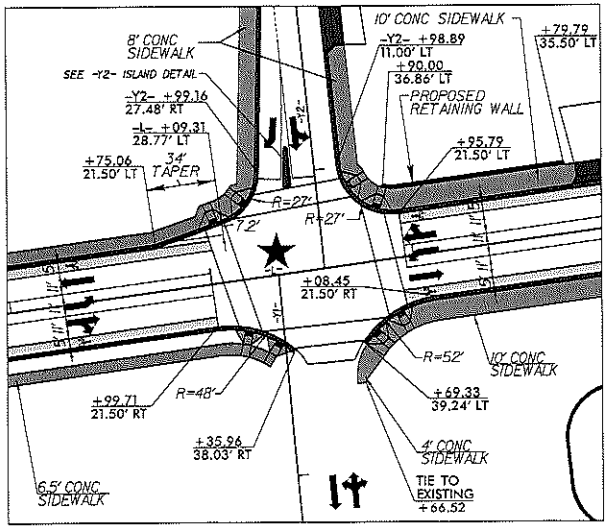
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RELEASED FOR CONSTRUCTION

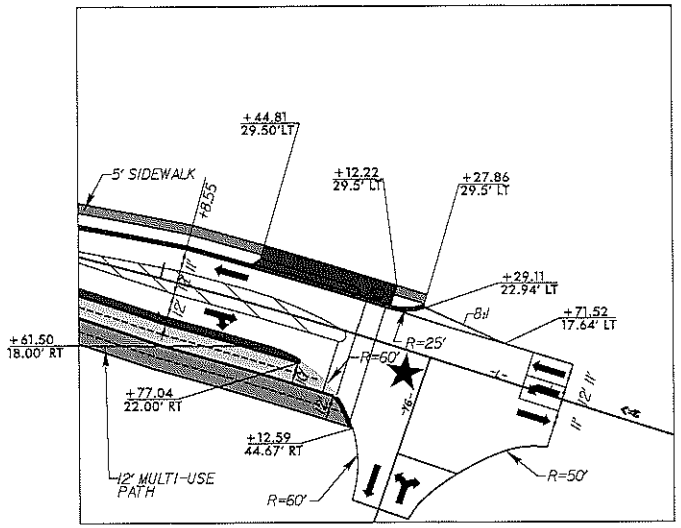
-Y2- ISLAND DETAIL



INTERSECTION DETAIL 1
RIVERSIDE DR, CRAVEN ST, & HAYWOOD ST



INTERSECTION DETAIL 2
LYMAN ST & AMBOY RD



NOTE: ALL MONOLITHIC CONCRETE ISLANDS ARE MOUNTABLE AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH NCDOT STANDARD DRAWING 852.01.

NOTE: THIS DRAWING IS NOT TO SCALE

NOTE: ALL RADII ON ISLANDS A 1' UNLESS OTHERWISE LABELE

CONFORMED PLANS SEPTEMBER 8, 2

REVISIONS

8/17/2018

SYSTEM INFO (U5019_Rdy_pth_284.dgn)

RELEASED FOR CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2B-5
R/W SHEET NO.	
ROADWAY DESIGN	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

△ ADDED RETAINING WALL LABELS.
△ REMOVED WALL 5 FROM DESIGN PLANS 14/2/2018.

NAD 83/NSRS 2011

PROPOSED RETAINING WALL WITH HANDRAIL
10'
GRADE POINT
PROPOSED SIDEWALK
PROPOSED PAVEMENT
RETAINING WALL
EXISTING GROUND

5' 11' 11' 11' 5'
-L- RIVERSIDE DR.
-W4-

END RETAINING WALL 4
-W4- PT STA 10+90.00 =
-L- STA 50+90.00, 36.86' LT

-W3- CURVE DATA
PI Sta 10+87.05
Δ = 26° 26' 39.1" (RT)
D = 440° 44' 12.4"
L = 6.00'
T = 3.05'
R = 13.00'

BEGIN RETAINING WALL 4
-W4- PT STA 10+00.00 =
-L- STA 49+97.95, 35.50' LT

-W4- PC STA 10+84.00 =
-L- STA 50+80.96, 35.56' LT

PROPOSED GRAVITY RETAINING WALL WITH PLAIN CONCRETE FINISH AND SAFETY RAIL SEE SHEET 2C-6 FOR WALL AND SAFETY RAIL DETAILS.

NOTE: SEE SHEET 6 FOR PLAN

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL.

WALL 4

APPROXIMATE WALL FACE AREA = 500 SF

PROPOSED TOP OF WALL
PI=1425.00 EL=1979.78
PI=1400.00 EL=1980.05
PI=1376.00 EL=1980.05

BEGIN RETAINING WALL 4
-W4- STA 10+00.00 =
-L- STA 51+79.79, 139.50' LT
EL = 1979.8' TOP
EL = 1972.82' BOTTOM

PROPOSED GROUND AT TOP OF WALL
EXISTING GROUND AT BOTTOM OF WALL

END RETAINING WALL 4
-W4- STA 10+90.46 =
-L- STA 50+90.00, 36.86' LT
EL = 1981.52' TOP
EL = 1980.0' BOTTOM

EL=1972.55'
EL=1974.09'
EL=1978.05'

1982
1978
1974
1970

10+00

GRAPHIC SCALES
20 10 0 20 40
PLANS
20 10 0 20 40
PROFILE (HORIZONTAL)
4 2 0 4 8
PROFILE (VERTICAL)

REVISED PLANS APRIL 2, 20

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2B-6
R/W SHEET NO.	
ROADWAY DESIGN	

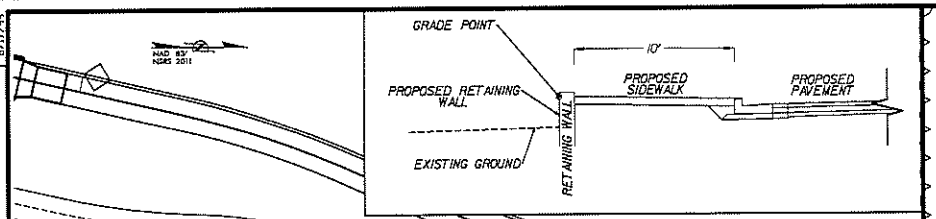
RELEASED FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8/17/99

REVISIONS

△REMOVED WALL 6 (4/12/2018).

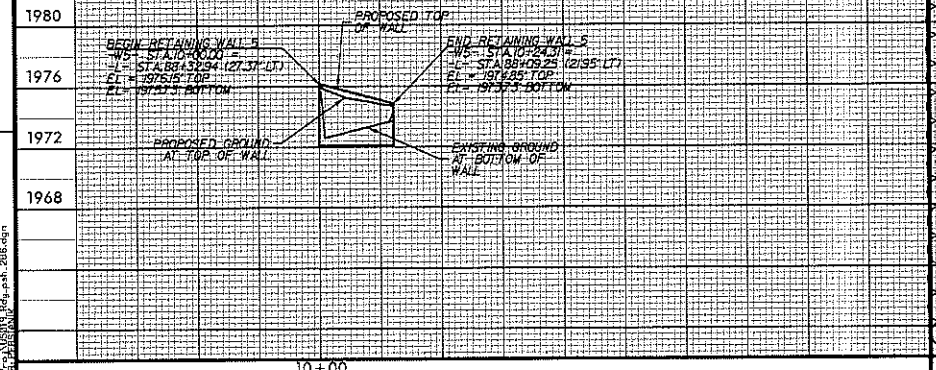


NOTE: SEE SHEET 9 FOR PLAN

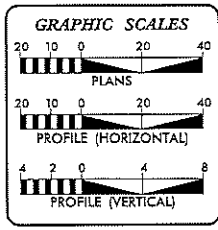
THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL.

WALL 5

APPROXIMATE WALL FACE AREA = 100 SF



GRAPHIC SCALES



STATE PROJECT U5019_Rdy_ash_206.dgn
USER: ashley.hall

REVISED PLANS APRIL 2, 20

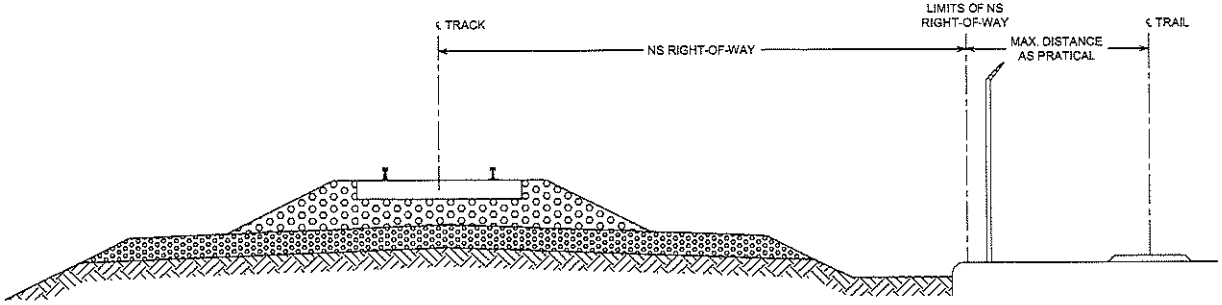
RELEASED FOR CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2C-1
R/W SHEET NO.	

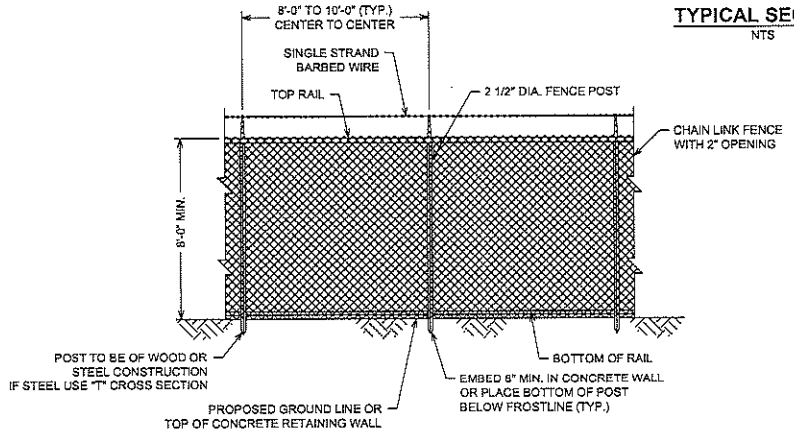
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8/17/99

REVISIONS



TYPICAL SECTION
NTS



CHAIN LINK FENCE ELEVATION
NTS

REVISIONS		
DATE	LTR	DESCRIPTION

NORFOLK SOUTHERN

PUBLIC PROJECTS MANUAL
TYPICAL DRAWINGS

RIGHT-OF-WAY FENCING

REF. NO.: N/A

DATE: AUGUST 1, 2015 | DRAWING NO.: 21

Filename: P:\026\600 - TECHNICAL\13 - PUBLIC PROJECTS MANUAL\STANDARD DRAWINGS\1_RIGHT-OF-WAY FENCING DETAILS.DWG

SYSTEM: [illegible] Rdy, psh, 2C1.dgn

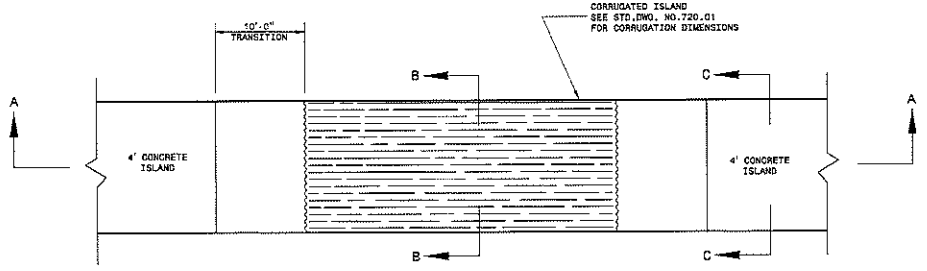
PROJECT REFERENCE NO.	SHEET NO.
U-5019	2C-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

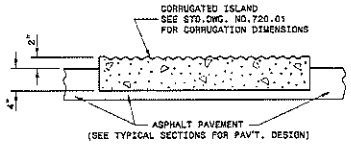
2/24/2017

8/17/99

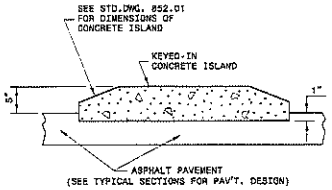
REVISIONS



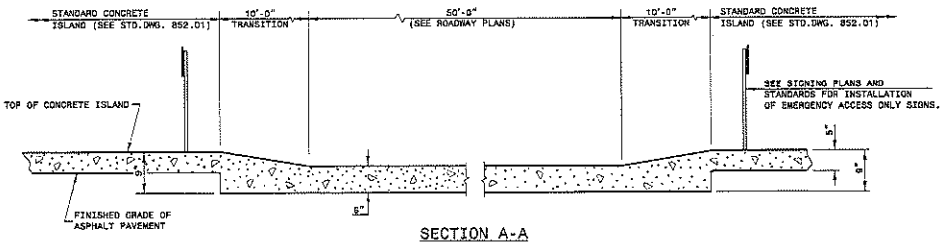
TOP VIEW



SECTION B-B



SECTION C-C



SECTION A-A

DETAIL OF EMERGENCY VEHICLE ACCESS

NOTES:

REFER TO SECTION 852 OF STANDARD SPECIFICATIONS FOR CONCRETE ISLANDS.

REFER TO STANDARD DRAWING 852.01 FOR CONTRACTION/EXPANSION JOINTS.

PLACE W8xW8 REINFORCING WIRE MESH IN THE BOTTOM 3RD OF THE EMERGENCY VEHICLE ACCESS PORTION OF THE CONCRETE ISLAND THAT MEETS SECTION 1070 OF THE STANDARD SPECIFICATIONS.

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

EMERGENCY VEHICLE ACCESS FOR CONCRETE ISLAND

ORIGINAL BY: T.J. WARD DATE: 12-00
MODIFIED BY: T.W.SHELL DATE: 12-06
CHECKED BY: DATE:
FILE SPEC.: ...\u5019_Rdy_pth_2C2_EMERGENCY_ACCESS.dgn

SVSTAFF
U5019_Rdy_pth_2C2.dgn

RELEASED FOR CONSTRUCTION

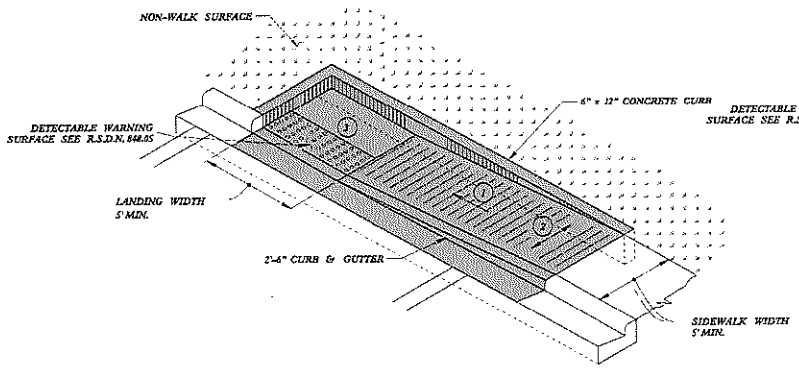
PROJECT REFERENCE NO.	SHEET NO.
U-5019	2C-3
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

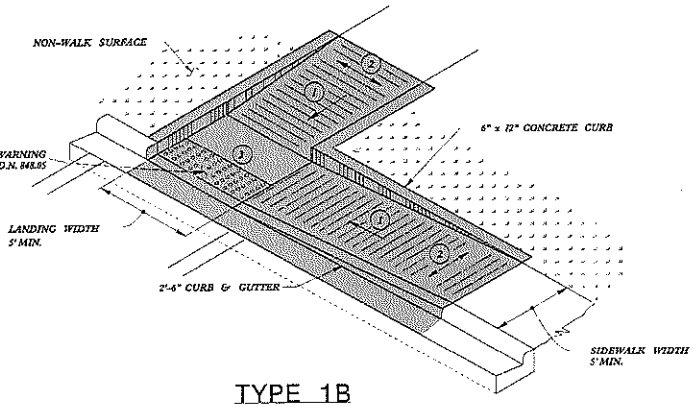
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8/17/99

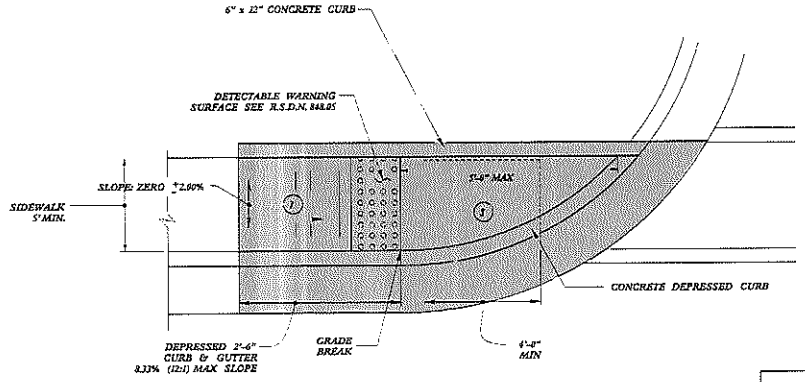
REVISIONS



TYPE 1A



TYPE 1B



TYPE 1

PAY LIMITS FOR 1 CURB RAMP

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

CURB RAMPS

Directional Ramps

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

SYSTEM: Roadway Design
FILE: C:\Roadway Dsg\Curb Ramp\curb ramp details 2012.dgn

RELEASED FOR CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2C-4
RW SHEET NO.	

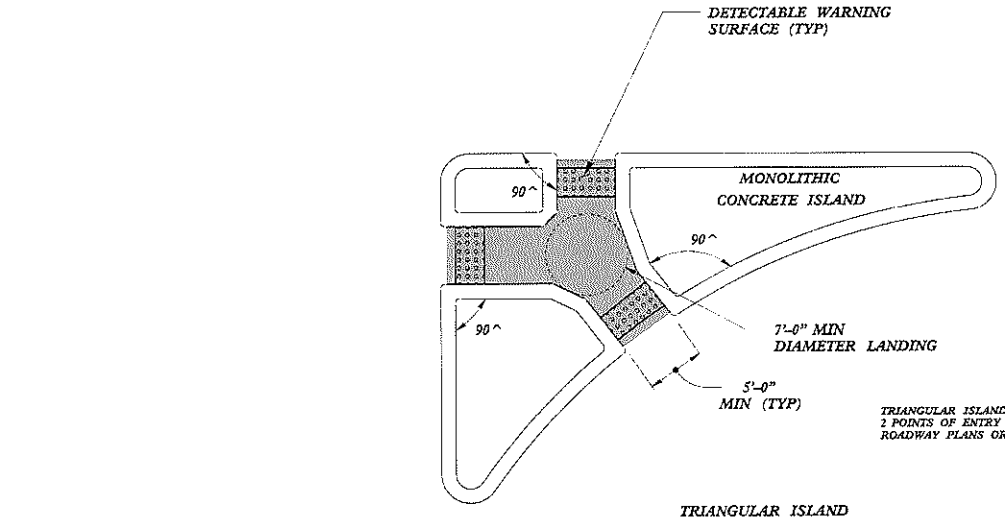
ROADWAY DESIGN ENGINEER

2/24/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS 8/17/99

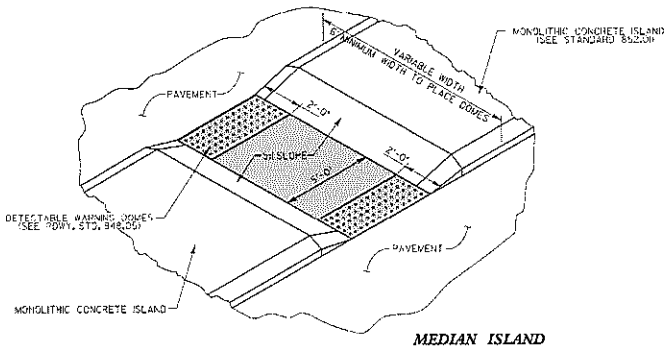
5/14/12



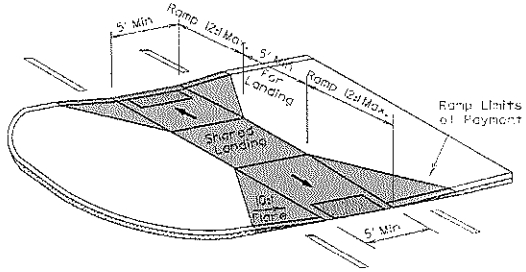
PAY LIMITS FOR 2 OR 3 CURB RAMPS (CALCULATE BASED ON NUMBER OF SETS OF TRUNCATED DOMES)

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-0950 FAX 919-250-4119

CURB RAMPS

Median or Turn Lane Islands

ORIGINAL BY: W.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC: ...\Kids\2012\CurbRamp\CurbRampDetails.dgn

SYSTEM: U-5019_Rdy_psh_2C4.dgn
USER: wshowerton

RELEASED FOR CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2C-5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

2/24/2017

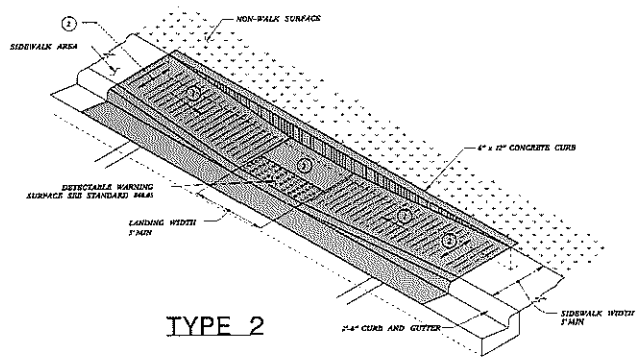
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8/17/99

REVISIONS

5/14/99

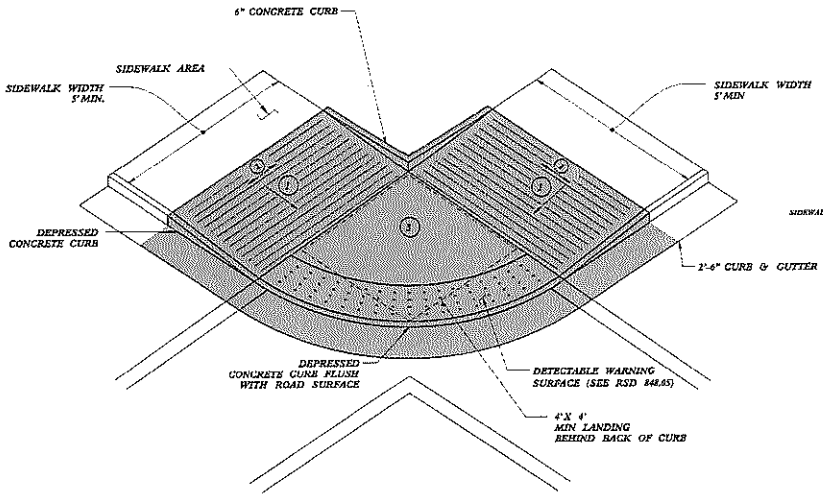
PROJECT REFERENCE NO.	SHEET NO.



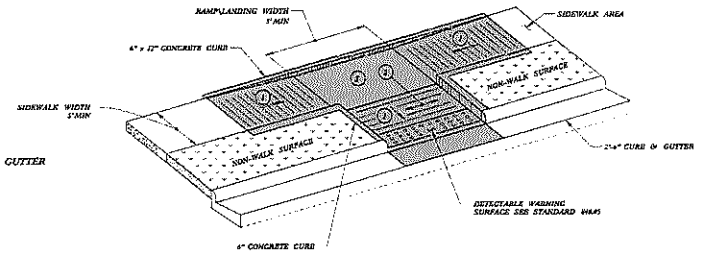
TYPE 2

PAY LIMITS FOR 1 CURB RAMP

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.



TYPE 2A



TYPE 3

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

CURB RAMPS

Parallel Ramps

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

U5019_Rdy_psh_2C5.dgn

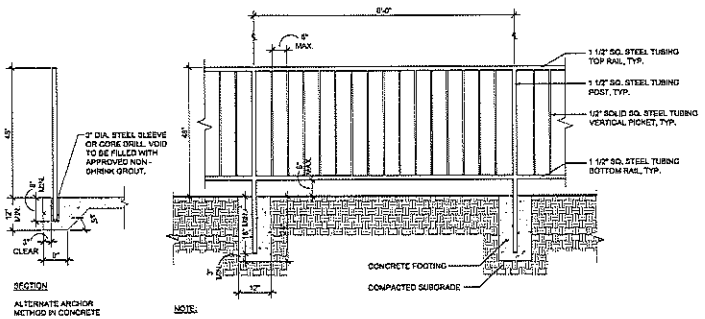
RELEASED FOR CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2C-6
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

4/21/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



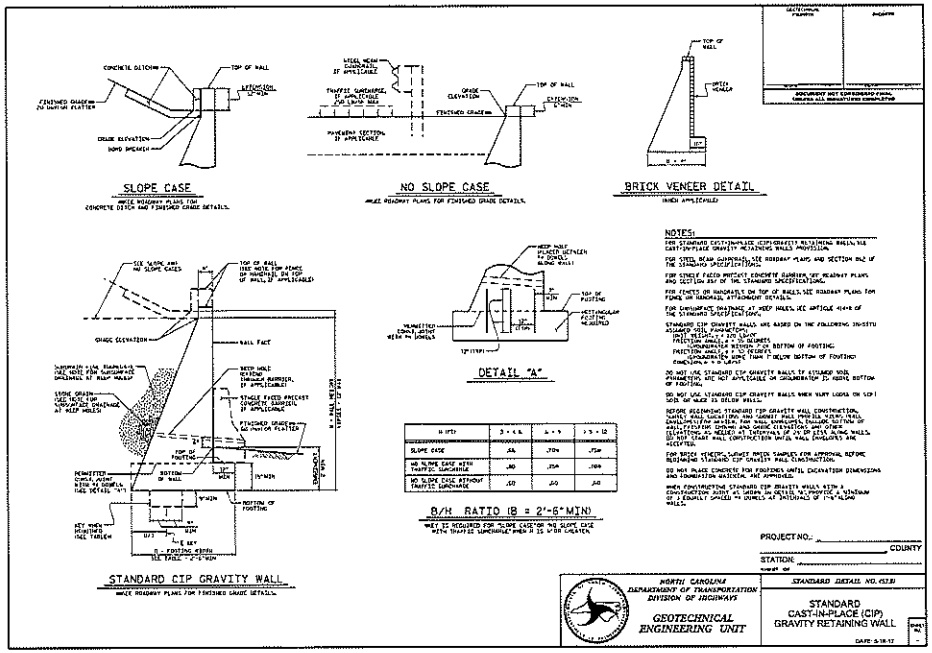
SECTION

ALTERNATE ANCHOR METHOD IN CONCRETE

NOTE:

1. SAFETY RAIL TO MEET 2012 AASHTO STANDARDS FOR THE DESIGN OF SHARED USE PATHS.
2. SAFETY RAIL STEEL TYPE & LENGTH MAY VARY DEPENDING ON PROJECT APPLICATION & LOCATION.
3. SEE TECHNICAL SPECIFICATIONS FOR SAFETY RAIL MATERIALS, PAINT & FINISHES.
4. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR REVIEW & FINAL APPROVAL

CITY OF ASHEVILLE STANDARD GREENWAY SAFETY RAIL



H (FT)	X = 0.5	X = 1	X = 1.5
SLOPE CASE	.55	.70H	.75H
NO SLOPE CASE WITH TRAFFIC SURCHARGE	.60	.75H	.80H
NO SLOPE CASE WITHOUT TRAFFIC SURCHARGE	.50	.50	.50

B/H RATIO (B = 2'-6" MIN)

WALL IS REQUIRED FOR "SLOPE CASE" OR "NO SLOPE CASE WITH TRAFFIC SURCHARGE" WHEN H IS 4'-0" OR GREATER.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 422.31

STANDARD CAST-IN-PLACE (CIP) GRAVITY RETAINING WALL

DATE: 5-18-17

REVISIONS

8/17/99

-SYSTEM
-USER:
-DGN:

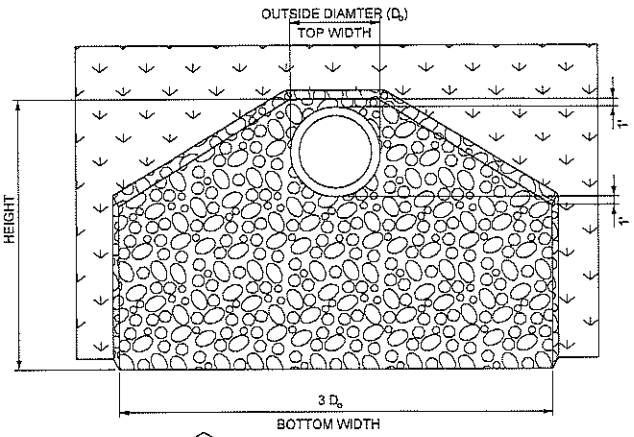
RELEASED FOR CONSTRUCTION

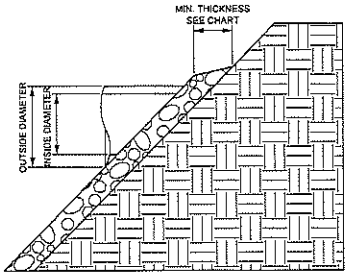
PROJECT REFERENCE NO.	SHEET NO.
U-5019	2D-1
RW SHEET NO.	

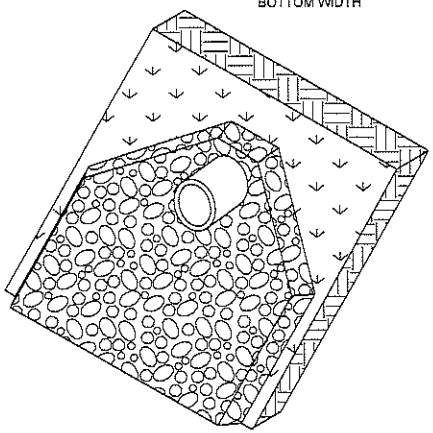
HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RIVER BANK RIPRAP DETAIL







NOTES:

1. OUTLET PROTECTION WILL HACE A WIDTH THREE TIMES THE OUTSIDE DIAMETER OF THE OUTLET PIPE AT THE BOTTOM WIDTH AS LABELED ON PLANS.

2. ADVANCE OUTLET PROTECTION UP THE SLOPE A MINIMUM OF 1 FT ABOVE THE TOP OF PIPE.

RIP RAP PLACEMENT WITH MINIMUM TAILWATER			
MINIMUM CLASS	D_{50} (FT)	MINIMUM THICKNESS (FT)	OUTSIDE PIPE DIAMETER
A	0.50	1.00	UP TO 24"
B	0.75	1.50	UP TO 84"

REVISIONS

△ UPDATED DETAIL

8/17/18

SYSTEM [illegible] Rdy.psh, 2Di.dgn

CONFORMED PLANS SEPTEMBER 8, 2

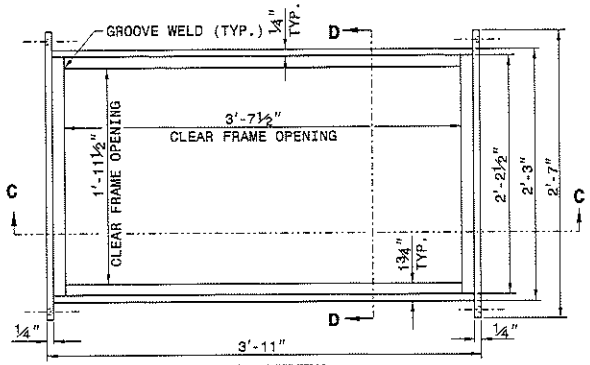
RELEASED FOR CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-5019	20-2
RW SHEET NO.	

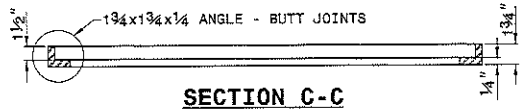
HYDRAULICS ENGINEER

8/17/99

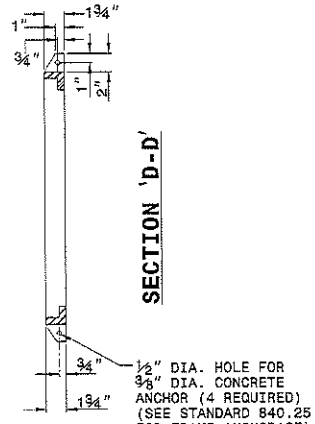
REVISIONS



PLAN VIEW



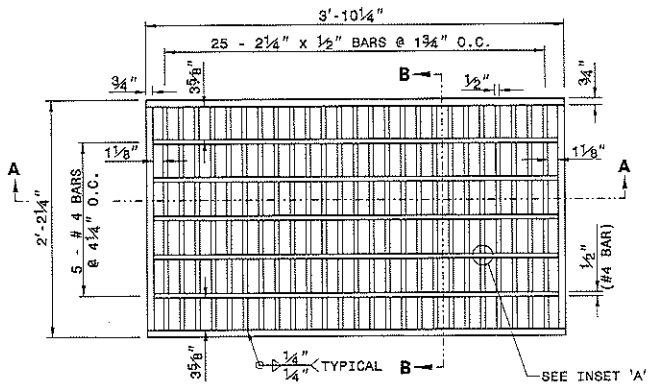
SECTION C-C
FRAME



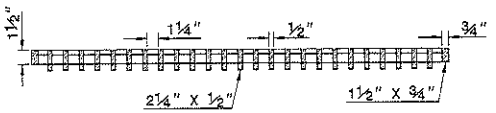
SECTION 'D-D'

NOTES:

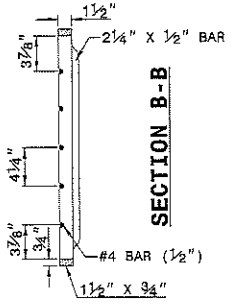
1. HOT DIP GALVANIZE FRAME AND GRATE IN ACCORDANCE WITH ASTM DESIGNATION A-123 AND AASHTO M-111.
2. GRATE SHOULD MEET HS-20 LOADING.
3. PROVIDE STEEL CONFORMING TO THE REQUIREMENTS OF A.S.T.M. DESIGNATION A-36.
4. WELD IN ACCORDANCE WITH THE ANSI/AASHTO/AWS D1.5 WELDING CODE. SEAL WELD ALL CONNECTIONS ALONG TOP AND BOTTOM HORIZONTAL SEAMS OF CONNECTIONS IN ADDITION TO ANY REQUIRED STRUCTURAL WELDS.
5. SEE STANDARD DRAWING 840.25 FOR FRAME ANCHORAGE.



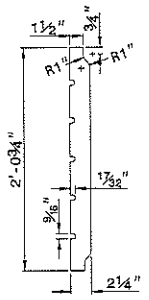
PLAN VIEW



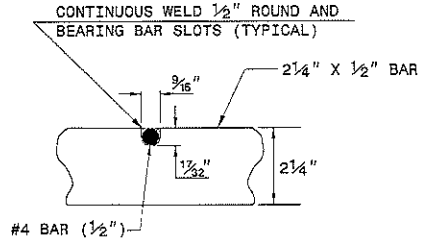
SECTION A-A
GRATE



SECTION B-B



DETAIL OF BEARING BAR



INSET 'A'

(17/32" X 9/16" NOTCH IN 2¼" X ½" BAR)

REVISED 10-10-02
FOR HS-20 LOADING

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

BICYCLE SAFE STEEL GRATE AND FRAME

ORIGINAL BY:	E.E. WARD	DATE:	11-12-98
MODIFIED BY:	E.E. WARD	DATE:	10-10-02
CHECKED BY:		DATE:	
FILE SPEC.:	/usr/stand/details/bicyclesafe.dgn		

CONFORMED PLANS SEPTEMBER 8, 20

-SYS1#-
-U5019_Rdy_psh_202.dgn-

12/06/07

COMPUTED BY: ______ DATE: ______
CHECKED BY: ______ DATE: ______

PROJECT REFERENCE NO.	SHEET NO.
U-5019	3B-1

RELEASED FOR CONSTRUCTION

SUMMARY OF PAVEMENT REMOVAL

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
-L-	57+04	61+09	LT	597.13
-L-	66+47	67+33	LT	13.31
-L-	69+12	69+79	LT	89.86
-L-	77+50	79+79	LT	29.79
-Y4-	14+00	14+54	LT	154.50
			TOTAL:	884.59
			SAY:	890

SUMMARY OF BREAKING EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
-L-	57+04	61+09	LT	
			TOTAL:	
			SAY:	

SUMMARY OF PEDESTRIAN SAFETY RAILING

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LF
-L-	41+34	42+53	RT	125
-L-	50+89	51+79	LT	90
-Y3-	13+45	13+83	LT	36
-L-	72+39	73+04	LT	64
-L-	72+47	72+94	RT	48
-L-	75+88	76+53	RT	65
-L-	77+66	78+65	RT	121
-L-	79+82	80+54	RT	59
-L-	86+57	89+51	RT	297
-L-	89+29	90+41	RT	112
-L-	89+47	90+03	LT	56
-L-	90+25	91+93	RT	169
-L-	99+20	100+03	RT	89
-L-	102+55	109+72	RT	753
-L-	110+44	111+45	RT	98
-L-	112+50	115+60	LT	307
-L-	118+25	118+75	LT	50
-L-	119+92	129+12	RT	904
-L-	132+41	136+20	RT	392
			TOTAL:	3833
			SAY:	3850

SUMMARY OF WOVEN WIRE FENCE & BARBED WIRE FENCE

STATION TO STATION	SIDE	A FABRIC L.F.	B END BRACE	C CORNER BRACE	D LINE BRACE	E 4" POSTS	F 5" POSTS
-L- STA 47+56.38 to -L- STA 50+31.61	RT.	275.23	2			22.60	2
-L- STA 49+04.62 to -L- STA 50+27.14	LT.	122.52	2		1	10.04	3
-L- STA 50+82.85 to -L- STA 66+84.18	LT.	1601.33	2	2	2	133.78	6
-L- STA 50+98.54 to -L- STA 57+81.63	RT.	683.09	2		1	56.76	3
-L- STA 61+43.06 to -L- STA 70+34.07	RT.	891.01	2	4	2	74.62	8
-L- STA 71+99.47 to -L- STA 73+95.79	RT.	196.32	2	1		16.19	3
-L- STA 73+31.32 to -L- STA 73+86.14	LT.	54.82	2			4.24	2
-L- STA 73+98.36 to -L- STA 83+17.49	RT.	919.13	2	1		76.43	3
-L- STA 73+98.36 to -L- STA 83+11.26	LT.	912.90	2	2	1	76.24	5
	TOTAL:	5656.35			TOTAL:	471.20	35
	SAY:	5657.00			SAY:	472	35

"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	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	B-77	EA	G	NG				
-L-	39+43.75	40+25.00	RT	12.5'			25'	24'	7.5'	NA	1'		1'				1						1							

CONFORMED PLANS SEPTEMBER 8, 20

..\Proj\05019_Rdy_sum_3B1.dgn

COMPUTED BY: R. NORRIS DATE: 2/2/2017
CHECKED BY: K. PERSIANI DATE: 2/24/2017

PROJECT REFERENCE NO.	SHEET NO.
U-5019	3B-2

RELEASED FOR CONSTRUCTION

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
-L- 43+00.00 TO 50+50.00 RT	139		457	318	
-L- 54+00.00 TO 65+50.00 RT	978	85	1,588	610	85
-L- 69+00.00 TO 73+45.86	124		1,457	1,333	
-ROUND1- 10+00.00 TO 11+00.00	3		660	657	
-L- 74+50.89 TO 87+75.00 RT	574		1,007	433	
-L- 97+50.00 TO 117+75.00 LT	427	1,754	6,358	5,931	1,754
-L- 117+75.00 TO 137+06.75 RT	205	977	8,089	7,884	977
-L- 33+00.00 TO 43+00.00 RT	1,607	284	481		1,410
SUBTOTAL	4,057	3,100	20,097	17,166	4,226
-L- 33+80.00 TO 43+00.00 LT	1,389	262	334		1,318
-L- 16+51.46 TO 33+80.00 LT	5,051	400	1,096		4,355
-L- 43+00.00 TO 50+50.00 LT	359		120		239
-L- 50+50.00 TO 69+00.00 LT	446	260	2,107	1,661	260
-Y4- 13+80.00 TO 15+71.28	400		63		337
-ROUND1- 11+00.00 TO 12+16.76	4		661	657	
-L- 74+50.89 TO 97+50.00 LT	100		4,195	4,095	
-L- 98+50.00 TO 117+75.00 RT	299	63	1,915	1,616	63
-L- 117+75.00 TO 137+06.75 LT	223	181	4,771	4,548	181
-Y2- 12+27.87 TO 14+01.00	12		25	13	
-Y2- 14+24.24 TO 16+27.40	271		129		142
-Y3- 10+18.03 TO 15+09.15	384		64		320
-Y- 12+00.00 TO 12+83.52	31		8		23
-Y5- 10+87.50 TO 11+44.52	21		13		8
-L- 87+75.00 TO 98+50.00 RT	370		853	483	
SUBTOTAL	9,360	1,166	16,354	13,073	7,245

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
-Y7- 10+67.59 TO 11+97.50 RT	32		13		19
-Y8- 10+52.50 TO 11+84.58 RT	47		22		25
-Y8- 10+52.50 TO 11+84.58 LT	80		0		80
-Y9- 10+52.60 TO 11+80.07 RT	32		3		29
-Y9- 10+52.60 TO 11+80.07 LT	25		169	144	
SUBTOTAL	216		207	144	153
-ROUND2- 10+00.00 TO 12+16.76	56		232	176	
-Y4- 10+52.50 TO 11+82.90	10		342	332	
-Y10- 10+52.50 TO 11+91.00	56		64	8	
-Y7- 10+67.59 TO 11+97.50 LT	21		64	43	
SUBTOTAL	143		702	559	
-L- 16+51.46 TO 33+00.00 RT	296	374	959	663	374
-L- 50+50.00 TO 54+00.00 RT	28	55	1,180	1,152	55
-L- 65+50.00 TO 69+00.00 RT	51		191	140	
-Y4- 12+19.45 TO 13+80.00	33		13		20
SUBTOTAL	408	429	2,342	1,954	449
TOTAL	14,184	4,695	39,702	32,896	12,073
MATERIAL FOR SHOULDER CONSTRUCTION					
LOSS DUE TO CLEARING & GRUBBING	-1,500			1,500	
ADDITIONAL UNDERCUT		3,280	3,772	3,772	3,280
ROCK WASTE TO REPLACE BORROW					
ADJUST FOR ROCK WASTE					
WASTE IN LIEU OF BORROW				-7,378	-7,378
PROJECT TOTAL	12,684	7,975	43,474	30,790	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				1,540	
GRAND TOTAL	12,684	7,975	43,474	32,330	
SAY	13,000	8,000		33,000	

ESTIMATED SHALLOW UNDERCUT CONTINGENCY = 500 CY
ESTIMATED SHALLOW UNDERCUT BY STATIONS = 0 CY
TOTAL SHALLOW UNDERCUT = 500 CY
CLASS IV SUBGRADE STABILIZATION = 1,000 TONS

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

CONFORMED PLANS SEPTEMBER 8, 20

5/9/16

SYSTEM: V8i (SELECTseries1)
U5019_Rdy_sum_3B2.dgn

DL-CYD-OC2

COMPUTED BY: Heather Harkoender DATE: 8/13/17

CHECKED BY: DATE:

PROJECT NO. U-5019 SHEET NO. 3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RELEASED FOR CONSTRUCTION

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	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	% MINIMUM REQUIRED SLOPE	R.C. PIPE CLASS III 12	R.C. PIPE CLASS III 15	R.C. PIPE CLASS III 18	R.C. PIPE CLASS III 30	R.C. PIPE CLASS IV 24	18" WELDED STEEL PIPE 0.5" THICK, GRADE B (UNDER RR)	QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH	5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	GRATE TYPE E	F	G	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	D.I. BEHIND RETAINING WALL	CONVERT EXISTING J.B. TO D.I.	REMARKS
L 21+55	19	LT	0401		1971.1										1			1			1							
			0401	0402		1966.1	1966.0			16																		
L 21+72	20	LT	0402		1971.1										1			1	1									
			0402	0404		1968.0	1968.0			4																		
L 21+95	22	LT	0403		1971.0										1			1			1							
			0403	0405		1967.8	1967.4							88														
L 21+70	20	LT	0404		1971.0										1			1	1									
			0404	0403		1968.0	1967.9			20																		
L 22+05	45	RT	0405																									OPEN ENDED PIPE
L 23+50	39	LT	0407		1971.4										1							1	1					
			0407	0403		1969.2	1967.0			156																		
Y 12+55	18	RT	0501		1974.0										1			1		1								
			0501	0504		1970.2	1968.5				40																	
Y 12+38	16	LT	0504		1974.3										1	0.7		1			1							EXISTING JUNCTION BOX
L 26+84	31	LT	0505																									
L 26+38	46	LT	0506		1974.8																		1				1	
Y5 10+96	10	RT	0507		1978.9										1	0.8		1		1								
			0507	0510		1971.3	1969.8	0.4			24																	
L 28+94	41	LT	0508																									EXISTING JUNCTION BOX
Y5 10+30	22	LT	0509		1981.6										1									1	1			
			0509	0521		1978.4	1971.9	0.7		64																		
Y5 11+15	24	RT	0510		1972.9										1									1	1			
			0510	0530		1969.3	1969.2						28															
Y5 10+96	11	LT	0511		1970.3										1			1			1							
			0511	0507		1971.4	1971.3	0.4			20																	
Y5 11+21	37	LT	0512		1971.9										1	1.5								1	1			
			0512	0530		1965.4	1965.0						80															
L 30+60	16	LT	0514		1971.1										1			1			1							
			0514	0529		1960.7	1960.0				228																	
L 30+30	16	RT	0515		1971.1										1			1		1								
			0515	0514		1967.8	1966.7				44																	
L 27+45	30	LT	0516		1974.5										1			1			1							
			0516	0530		1971.5	1971.4			12																		
L 31+81	34	LT	0517		1964.4										1	5.0	6.7									1		SEE STRUCTURE SHEET RW1-08 FOR DETAIL
			0517	0518		1967.7	1967.0	0.7	16																			
L 31+82	18	LT	0518		1970.5										1			1			1							
			0518	0514		1967.1	1966.7				120																	
L 32+40	18	RT	0519		1970.0										1			1		1								
			0519	0522		1967.0	1966.3			130																		
L 33+88	18	LT	0520		1970.0										1	3.0		1			1							
			0520	0522		1962.3	1962.3	0.1				30																
L 28+11	70	LT	0521		1974.7										1									1	1			
			0521	0511		1971.9	1971.4	0.8		12																		
L 33+79	18	RT	0522		1969.3										1	2.1		1		1								
			0522	0527		1962.3	1962.0	0.2				144																
L 33+75	27	RT	0523		1970.1										1							1	1					
			0523	0522		1966.4	1966.3	0.4		8																		
L 36+50	18	LT	0525		1968.0										1			1			1							
			0525	0520		1964.7	1964.0				36																	
L 36+50	18	RT	0526		1968.0										1	1.3		1		1								
SHEET TOTALS									16	428	512	160	108	68	24	14.2	6.7	17	2	6	9	2	3	4	4	1	1	

Other columns on the sheet (no entries on this sheet): R.C. PIPE CLASS III 24, 36, 42, 48, 54, 60, 66, 72, 78, 84; R.C. PIPE CLASS IV 12, 15, 18, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84; ST RU CT UR AL PL AT E PIP E; ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY; DRAINAGE STRUCTURE MASONRY CY; NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A+(1.3 X B); FRAME, GRATES, AND HOOD STD. 840.03; CONCRETE TRANSITIONAL SECTION 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; J.B. STD. 840.31 OR STD. 840.32; T.B.J.B. STD. 840.34; T.B.D.I. STD. 840.35; T.B.D.I. FOR STEEL GRATES STD. 840.36; BICYCLE SAFE STEEL FRAME & GRATE; M.H. STD. 840.51, STD. 840.52, OR STD. 840.53; M.H. FRAME AND COVER STD. 840.54; CONVERT EXISTING D.I. TO C.B.; CONVERT EXISTING C.B. TO J.B.; CONVERT EXISTING C.B. TO D.I.; CONVERT EXISTING D.I. TO J.B.; ADJUST C.B.; ADJUST D.I.; ADJUST M.H.; CONVERT EXISTING O.T.C.B. TO C.B.; PREFORMED SCOUR HOLE (PER EACH); ENERGY DISSIPATION BASIN; FLOWABLE FILL CY; CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY; PIPE REMOVAL LIN. FT.

ABBREVIATIONS
C.A.A. CORRUGATED ALUMINUM 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

REVISED PLANS APRIL 2, 2018

DocuSign Envelope ID: 34A2F19F-FB36-4C7E-B64F-444D54BCB8B7

DESIGN

COMPUTED BY: Heather Hollgarider DATE: 8/13/17

CHECKED BY: DATE:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-5019	2D-2

RELEASED FOR CONSTRUCTION

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	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	78	84	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	48	54	60	66	72	78	84	18" WELDED STEEL PIPE (UNDER RR)	ST = 1/4" PL = 3/8" PL = 1/2" PL = 5/8" PL = 3/4" THICK, GRADE B	ENDWALLS (STR. NOS. 1 THRU 4 ARE INCLUDED IN ROADWAY ITEMS) CY	MASONRY CY	DRAINAGE STRUCTURE	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (0.3 X B) A 0' THRU 6' LIN.FT.	B 6' THRU 15' LIN.FT.	B 15' AND ABOVE LIN. FT.	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE C.B. STD. 840.01 OR STD. 840.02	B	P	O	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.44 OR STD. 840.65	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "S" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. 840) FRAME W/ 2 GRATES STD. 840.22	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	BICYCLE SAFE STEEL FRAME & GRATE	D.I. BEHIND RETAINING WALL	M.H. STD. 840.55, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING D.I. TO D.I.	ADJUST C.B.	ADJUST D.I.	ADJUST M.H.	CONVERT EXISTING O.T.C.B. TO C.B.	PREFORMED SCOUR HOLE (PER EACH)	ENERGY DISSIPATION BASIN CY	FLOWABLE FILL CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 Lin. Ft.	PIPE REMOVAL	REMARKS
		0626	0624		1961.7	1961.4	0.2					172																																						
L 36+25	18 RT	0627		1966.6																																1	1.7		1		1																
		0627	0626		1962.0	1961.7	0.2					124																																						
L 32+09	28 RT	0626		1970.2																																1							1	1														
		0626	0618		1967.2	1967.0			36																																																		
L 29+23	38 LT	0629		1973.9																																1	3.3		1			1																
		0629	0612		1966.5	1965.4					24																																																
L 27+45	41 LT	0630		1974.4																																1	4.4																								
		0630	0606		1965.0	1964.7	0.4				52																																																
Y 12+55	26 RT	0631		1972.8																																1								1	1														
		0631	0601		1970.5	1970.5			8																																																		
L 33+83	60 LT	0635		N/A																																																								OPEN ENDED PIPE
		0635	0620		1962.5	1962.3	0.5																																																					BY OTHERS
L 38+25	19 LT	0601		1968.9																																1			1			1																		
		0601	0634		1960.3	1953.2				36																																																		
L 40+34	21 RT	0602		1969.4																																1																										SEE DETAIL SHEET 2D-2
		0602	0603		1961.4	1961.4					4																																																
L 40+30	21 RT	0603		1965.4																																1																										SEE DETAIL SHEET 2D-2
		0603	0633		1961.4	1961.3					96																																															
L 29+35	22 LT	0604		1965.0																																1			1			1																		
		0604	0633		1961.9	1961.7	0.3			48																																																		
L 38+39	198 RT	0605		1965.0																																																								5 TONS CL 'B' RIPRAP, 15 SY GEOTEXTILE
L 40+39	3 LT	0606		1965.6																																1			1	1																		
		0606	0625		1962.3	1962.3				4																																																	
L 41+25	19 RT	0607		1965.9																																1																										SEE DETAIL SHEET 2D-2
		0607	0606		1962.9	1961.6	0.3				260																																																
L 39+82	227 RT	0608																																																									2 TONS CL 'B' RIPRAP, 7 SY GEOTEXTILE
L 42+44	32 LT	0609		1968.0																																1								1	1														
		0609	0610		1965.5	1965.4				18																																																
L 42+45	14 LT	0610		1968.2																																1																										SEE DETAIL SHEET 2D-2
		0610	0611		1965.1	1965.0					28																																															
L 42+45	16 RT	0611		1968.0																																1																										SEE DETAIL SHEET 2D-2
		0611	0607		1964.8	1962.9					124																																															
L 44+45	10 RT	0612		1971.1																																1			1			1																		
		0613	0611		1968.1	1965.3					200																																															
L 45+62	27 LT	0614		1972.1																																1								1	1														
		0614	0615		1968.5	1968.4					8																																															
L 46+62	18 LT	0615		1971.9																																1			1			1																		
		0615	0636		1968.4	1968.0					70																																														
L 47+17	108 RT	0617		1974.9																																1	2.0																										
		0617	0619		1967.8	1967.0					24																																														
L 39+85	23 LT	0618		1965.4																																1			1			1																		
		0618	0604		1962.1	1961.9					48																																														
L 47+41	102 RT	0619																																																												2 TONS CL 'B' RIPRAP, 7 SY GEOTEXTILE
L 47+43	26 LT	0620		1974.1																																1			1			1																		
		0620	0621		1970.6	1970.4					40																																														
L 47+25	16 RT	0621		1973.8																																1			1			1																		
		0621	0617		1970.4	1969.9					84																																														
L 47+45	30 LT	0622		1973.1																																1								1	1														
		0622	0620		1970.9	1970.8				12																																															
		SHEET TOTALS							358	888		288																																														

2.300 22 11.4 10 1 2 7 5 5 1 1 1 3 3 1 1

REVISED PLANS APRIL 2, 2018

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINUM 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

COMPUTED BY: Heather Harkonnder DATE: 8/13/17
CHECKED BY: DATE:

PROJECT NO.	SHEET NO.
U-5019	3D-3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RELEASED FOR CONSTRUCTION

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 NO. FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	R.C. PIPE CLASS III 15	R.C. PIPE CLASS III 18	R.C. PIPE CLASS III 30	R.C. PIPE CLASS IV 24	R.C. PIPE CLASS IV 42	DRAINAGE STRUCTURES 0' THRU 5' EACH	5' THRU 10' LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	GRATE TYPE E	F	G	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	REMARKS
L 40+34	3 LT	0625		1966.6									1		1	1								
		0625	0602		1962.3	1961.9			28															
Y2 15+85	29 RT	0626		1979.4									1	0.7	1	1								
		0626	0627		1973.8	1973.5			40															
Y2 15+97	13 LT	0627		1979.7									1	1.2	1	1								
		0627	0632		1973.5	1973.3			44															
L 51+00	24 RT	0630		1980.0									1	2.0	1		1							
		0630	0716		1973.0	1972.5			108															
Y2 15+58	27 LT	0631		1978.9									1						1	1				
		0631	0627		1976.7	1976.6		10																
L 51+03	23 LT	0632		1980.0									1	1.7	1			1						
		0632	0630		1973.3	1973.0			44															
L 39+30	22 RT	0633		1965.7									1		1		1							
		0633	0805		1960.7	1960.1				200														
L 38+25	19 RT	0634		1966.9									1	0.6	1		1							
		0634	0833		1961.4	1961.2	0.2			104														
L 48+39	18 RT	0635		1972.6									1	0.5			1							
L 48+40	11 LT	0636		1972.9									1	0.4								1	1	
		0636	0635		1967.4	1967.3						29												
L 46+82	195 RT	0637		1971.8									1		1	1								
		0637	0617		1968.0	1968.1			100															
L 46+58	213 RT	0639		1972.3									1		1	1								PARKING LOT
		0639	0637		1968.8	1968.6			28															PARKING LOT
L 47+17	208 RT	0640		1967.0									1								1			BMP OUTLET RISER
		0640	0641		1964.4	1964.0		72																
L 46+63	259 RT	0641		1970.1									1	1.1							1		1	
		0641	0642		1964.0	1963.7		84																
L 45+82	233 RT	0642		1972.2									1	3.8							1		1	
L 45+17	85 RT	0645		1973.0									1		1	1								PARKING LOT
		0645	0647		1970.6	1969.5		100																PARKING LOT
L 45+86	200 RT	0646		1973.2									1		1	1								PARKING LOT
		0646	0648		1970.2	1970.2		4																PARKING LOT
L 48+16	102 RT	0647		1973.6									1	3.3								1	1	
L 45+90	201 RT	0648		1973.7									1	4.8							1		1	PARKING LOT
L 52+60	177 RT	0701		1970.0									1								1			BMP OUTLET RISER
		0701	0712		1965.3	1964.2	0.7		64															
L 54+10	33 LT	0702		1971.5									1						1	1				
		0702	0703		1969.2	1968.2	0.4	10																
L 54+18	16 LT	0703		1971.8									1		1	1								
		0703	0723		1967.4	1967.4					4													
L 54+18	16 RT	0704		1971.6									1		1	1								
		0704	0725		1967.3	1967.2					4													
L 54+26	63 RT	0705																						3 TONS CL 'B' RIPRAP, 11 SY GEOTEXTILE
L 54+97	34 LT	0706		1971.0									1						1	1				
		0706	0707		1968.8	1968.7		20																
L 54+87	18 LT	0707		1971.9									1		1		1							
		0707	0703		1968.3	1967.0	0.4		66															
L 58+70	16 LT	0708		1972.2									1		1			1						
		0708	0713		1968.2	1967.7		148																
L 59+50	66 LT	0709		1971.3									1						1	1				
SHEET TOTALS								460	524	304	8	29	27	20.4	15	9	5	2	4	4	5	2	5	

ABBREVIATIONS
- C.A.A. CORRUGATED ALUMINUM 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

REVISED PLANS APRIL 2, 2018

COMPUTED BY: Heather Horkenrider DATE: 8/13/17

CHECKED BY: DATE:

PROJECT NO. U-5019 SHEET NO. 2D-4

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RELEASED FOR CONSTRUCTION

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 %	R.C. PIPE CLASS III 15	R.C. PIPE CLASS III 18	R.C. PIPE CLASS IV 24	R.C. PIPE CLASS IV 30	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH	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	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	T.B.D.I. FOR STEEL GRATES STD. 840.36	BICYCLE SAFE STEEL FRAME & GRATE	REMARKS
		0713	0715		1966.6	1966.4					60												
L 65+40	18 RT	0714		1975.1									1	1			1						
		0714	0807		1970.4	1969.8		116															
L 60+17	41 RT	0715										2.300											
		0716	0713		1967.8	1967.5	0.4		44														
L 52+10	24 RT	0716		1978.4									1	1		1							
		0716	0725		1972.5	1967.7			204														
L 61+52	44 LT	0720		1970.7									1						1	1			
		0720	0721		1968.5	1967.8		28															
L 61+54	18 LT	0721		1970.8									1	1	1								
		0721	0726		1967.5	1967.5			4														
L 64+12	26 LT	0722		1973.5									1	1		1							
		0722	0724		1970.5	1968.0		178															
L 54+14	18 LT	0723		1971.6									1	1	1								
		0723	0704		1967.4	1967.3				38													
L 62+33	26 LT	0724		1971.0									1	1		1							
		0724	0725		1967.7	1967.5			80														
L 54+14	18 RT	0725		1971.8									1	1	1								
		0725	0705		1967.2	1967.0	0.5			48													
L 61+49	18 LT	0726		1970.8									1	1	1								
		0726	0711		1967.0	1966.7				72													
L 50+05	34 LT	0728		1971.0									1						1	1			
		0728	0729		1969.4	1969.4	0.3	16															
L 50+05	18 LT	0729		1972.4									1	1		1							
		0729	0707		1969.4	1968.8	0.5	116															
Y3 12+88	7 RT	0801		1973.8									1								1	1	SEE DETAIL SHEET 2D-2
		0801	0805		1971.3	1971.1		58															
L 67+47	44 LT	0802		1974.6									1						1	1			
		0802	0834		1969.7	1969.1	0.9			[illegible]													
L 67+44	18 RT	0803		1974.0									1	1	1								
		0803	0834		1969.1	1969.1			4														
L 67+45	42 RT	0804		1970.2								1.500											
Y3 13+25	7 RT	0805		1974.1									1								1	1	SEE DETAIL SHEET 2D-2
		0805	0809		1971.1	1971.0			48														
L 59+45	30 LT	0806		1975.1									1						1	1			
		0806	0802		1971.5	1970.5		212															
L 66+60	18 RT	0807		1974.5									1	1		1							
		0807	0803		1969.5	1969.1			80														
Y3 12+00	7 RT	0808		1973.9									1								1	1	SEE DETAIL SHEET 2D-2
		0808	0811		1971.5	1971.3		64															
Y3 13+48	45 RT	0809																					OPEN ENDED PIPE
Y3 11+45	7 RT	0810		1974.3									1								1	1	SEE DETAIL SHEET 2D-2
		0810	0808		1971.7	1971.5		52															
Y3 12+64	7 RT	0811		1973.6									1								1	1	SEE DETAIL SHEET 2D-2
		0811	0801		1971.3	1971.3		4															
Y3 11+00	32 LT	0812		1975.1									1	1	1								PARKING LOT
		0812	0817		1972.1	1971.7		72															
L 72+05	15 LT	0813		1975.1									1	1	1								
		0813	0814		1970.8	1970.7			16														
L 72+05	1 RT	0814		1975.5									1					1	1	1			
SHEET TOTALS								812	480	216	60	3.800	23	13	7	5	1	1	5	5	5	5	

ABBREVIATIONS
- C.A.A. CORRUGATED ALUMINUM ALLOY
- C.B. CATCH BASIN
- C.S. CORRUGATED STEEL
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- 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

CONFORMED PLANS SEPTEMBER 8, 2017

COMPUTED BY: Heather Harkenrider DATE: 8/13/17
CHECKED BY: DATE:

PROJECT NO.	SHEET NO.
U-5019	3D-5

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RELEASED FOR CONSTRUCTION

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	FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	R.C. PIPE CLASS III 15	R.C. PIPE CLASS III 18	R.C. PIPE CLASS IV 24	0' THRU 5' EACH	5' THRU 10' LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	GRATE TYPE E	GRATE TYPE F	GRATE TYPE G	D.I. STD. 852.04 OR STD. 852.06	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	M.H. FRAME AND COVER STD. 840.54	REMARKS
		0814	0840		1970.7	1969.2			64															
L 71+25	1 RT	0815		1976.0							1						1		1	1				
		0815	0836		1972.6	1970.7		72																
L 72+58	1 RT	0816		1975.6							1						1		1	1				
		0816	0814		1972.0	1970.7		52																
Y3 10+52	52 LT	0817		1976.0							1		1	1										PARKING LOT
		0817	0806		1971.7	1971.5		36																
Y4 13+40	13 RT	0818		1979.9							1		1		1									
		0818	0839		1976.9	1973.9		36																
Y4 15+04	18 RT	0819		1972.4							1		1	1										
		0819	0820		1969.1	1969.0			32															
Y4 15+04	15 LT	0820		1972.3							1		1	1										
		0820	0822		1969.0	1968.5			88															
Y3 13+63	29 RT	0821																						OPEN ENDED PIPE
ROUND1 11+43	22 RT	0822		1974.8							1	1.3	1	1										
		0822	0832		1968.5	1968.1			88															
L 77+71	13 LT	0823		1973.2							1		1	1										
		0823	0825		1970.0	1969.8			24															
L 76+24	13 LT	0824		1973.6							1	0.9	1			1								
		0824	0826		1967.7	1967.6	0.5			24														
L 77+71	13 RT	0825		1973.3							1								1	1				
		0825	0838		1969.8	1969.6			4															
L 70+22	13 RT	0826		1973.7							1	1.1					1		1	1				
		0826	0829		1967.6	1967.4	0.8			44														
L 70+24	32 LT	0827		1971.3							1							1						
		0827	0824		1967.9	1967.7	0.5			20														
L 77+69	28 RT	0828		1973.0							1							1						
		0828	0830		1969.7	1969.5			48															
L 76+18	56 RT	0829																						3 TONS CL 'B' RIPRAP, 11 SY GEOTEXTILE
L 77+98	64 RT	0830																						2 TONS CL 'B' RIPRAP, 7 SY GEOTEXTILE
L 66+24	125 RT	0831		1972.8							1		1	1										PARKING LOT
		0831	0833		1969.6	1969.3		52																PARKING LOT
L 74+68	37 RT	0832		1975.8							1	2.8						1						
		0832	0845		1968.0	1967.7			60															
L 68+78	139 RT	0833		1973.5							1		1	1										PARKING LOT
		0833	0846		1969.3	1969.0		60																PARKING LOT
L 67+49	18 RT	0834		1974.0							1		1	1										
		0834	0804		1969.1	1968.2	1.1			24														
L 72+01	15 LT	0835		1975.1							1		1	1										
		0835	0813		1970.8	1970.8		4																
L 72+00	1 RT	0836		1975.5							1								1	1				
		0836	0814		1970.7	1970.7		4																
L 77+67	13 LT	0837		1973.2							1		1	1										
		0837	0823		1970.0	1970.0			4															
L 77+67	13 RT	0838		1973.3							1						1		1	1				
		0838	0828		1969.8	1969.7			12															
Y3 14+05	0 CL	0839		1978.1							1											1	1	
		0839	0821		1973.8	1973.0		128																
L 72+25	61 RT	0840		1973.7							1										1		1	
		0840	0841		1969.2	1969.0			36															
						SHEET TOTALS		444	460	112	23	6.1	12	10	1	1	4	3	6	8	1	1	2	

ABBREVIATIONS
C.A.A. CORRUGATED ALUMINUM 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
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T.B.D.I. TRAFFIC BEARING DROP INLET
T.B.J.B. TRAFFIC BEARING JUNCTION BOX
W.S. WIDE SLOT

CONFORMED PLANS SEPTEMBER 8, 2017

COMPUTED BY: Heather Harkonnder DATE: 8/13/17

CHECKED BY: DATE:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. U-5010 SHEET NO. 3D-6

RELEASED FOR CONSTRUCTION

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	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	R.C. PIPE CLASS III 15	R.C. PIPE CLASS III 18	R.C. PIPE CLASS IV 24	R.C. PIPE CLASS IV 30	ENDWALLS CY	QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH	5' THRU 10' LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	GRATE TYPE F	D.I. STD. 852.04 OR STD. 852.06	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	REMARKS
L 72+59	62	RT	0841																			OPEN ENDED PIPE
			0842	0802		1971.9	1971.6	0.7			40											
L 77+90	28	RT	0843		1973.0									1					1			
			0843	0828		1970.1	1970.0		20													
L 72+03	36	LT	0844		1973.4									1						1	1	
			0844	0835		1970.9	1970.8		20													
L 74+85	88	RT	0845																			2 TONS CL 'B' RIPRAP, 7 SY GEOTEXTILE
L 68+70	100	RT	0848																			1 TONS CL 'B' RIPRAP, 5 SY GEOTEXTILE
L 81+08	20	RT	0901		1974.5									1	2.2			1		1	1	
			0901	0920		1967.3	1967.0				60											
L 80+25	13	LT	0902		1974.2									1		1	1					
			0902	0903		1968.6	1968.5			24												
L 80+25	13	RT	0903		1974.3									1				1		1	1	
			0903	0904		1969.5	1969.4			12												
L 80+25	28	RT	0904		1974.0									1					1			
			0904	0909		1969.4	1969.3			28												
L 82+10	32	LT	0906		1972.9									1					1			
			0906	0930		1969.7	1968.6	1.0		112												
L 85+48	20	RT	0908		1974.1									1	0.8			1		1	1	
			0908	0910		1968.3	1968.3					4										
L 80+18	56	RT	0909																			2 TONS CL 'B' RIPRAP, 7 SY GEOTEXTILE
L 85+52	20	RT	0910		1974.1									1	0.8					1	1	
			0910	0911		1968.3	1968.2					12										
L 85+50	35	RT	0911		1973.8									1	0.8				1			
			0911	0916		1968.2	1968.1					32										
L 84+95	29	LT	0912		1973.7									1						1	1	
			0912	0914		1968.4	1968.0				66											
L 83+25	32	LT	0913		1973.2									1						1	1	
			0913	0912		1970.7	1969.9			172												
L 85+62	20	LT	0914		1973.0									1	0.4					1	1	
			0914	0910		1968.5	1968.3					48										
L 86+46	29	LT	0915		1974.2									1						1	1	
			0915	0914		1972.0	1971.1		84													
L 83+90	20	RT	0916		1974.5									1						1	1	
			0916	0919		1971.0	1970.8		12													
L 87+08	20	RT	0917		1974.5									1						1	1	
			0917	0920		1970.6	1970.5			12												
L 85+50	65	RT	0918		1971.1								2,300									7 TONS CL 'B' RIPRAP, 17 SY GEOTEXTILE
L 83+90	34	RT	0919		1974.3									1					1			
			0919	0931		1970.8	1970.5		32													
L 87+05	35	RT	0920		1974.2									1	1.7				1			
			0920	0932		1967.5	1966.8			24												
L 87+24	14	LT	0921		1974.7									1		1	1					
			0921	0917		1971.0	1970.6			36												
L 90+75	13	LT	0922		1976.4									1		1	1					
			0922	0923		1973.2	1973.1			24												
L 90+75	13	RT	0923		1976.5									1				1		1	1	
			0923	0924		1973.1	1973.0			12												
L 90+75	28	RT	0924		1976.2									1					1			
			0924	0925		1972.8	1972.5			68												
SHEET TOTALS									168	524	164	96	2,300	22	6.5	3	3	4	7	12	12	

ABBREVIATIONS
- C.A.A. CORRUGATED ALUMINUM 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

CONFORMED PLANS SEPTEMBER 8, 2017

COMPUTED BY: Heather Hurkenrider DATE: 8/13/17
CHECKED BY: DATE:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. U-5010 SHEET NO. 30-7

RELEASED FOR CONSTRUCTION

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	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	R.C. PIPE CLASS III 15	R.C. PIPE CLASS III 18	R.C. PIPE CLASS IV 24	DRAINAGE STRUCTURE 0' THRU 5' EACH	5' THRU 10' LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	GRATE TYPE E	F	G	D.I. STD. 852.04 OR STD. 852.06	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING O.T.C.B. TO C.B.	REMARKS
L 90+10	20	RT	0925																					OPEN ENDED PIPE
L 81+24	74	RT	0926																					4 TONS CL'I' RIPRAP, 12 SY GEOTEXTILE
L 88+12	13	LT	0927		1975.1							1		1		1								
			0927	0921		1972.1	1971.2		88															
L 35+25	35	RT	0928		1973.8							1							1					
			0928	0911		1970.9	1970.8		24															
L 85+75	35	RT	0929		1973.6							1							1					
			0929	0911		1970.9	1970.8		24															
L 82+15	78	RT	0930																					2 TONS CL 'B' RIPRAP, 7 SY GEOTEXTILE
L 83+80	65	RT	0931																					1 TONS CL 'B' RIPRAP, 5 SY GEOTEXTILE
L 87+00	58	RT	0932																					2 TONS CL 'B' RIPRAP, 7 SY GEOTEXTILE
L 93+07	13	LT	1001		1977.8							1	3.2	1		1								
			1001	1002		1968.4	1968.2	0.5		32														
L 93+07	20	RT	1002		1977.5							1	4.0					1		1	1			
			1002	1003		1968.6	1968.5				12													
L 93+07	35	RT	1003		1977.2							1	3.6						1					
			1003	1004		1968.5	1968.3	0.3			48													
L 93+08	81	RT	1004																					4 TONS CL'I' RIPRAP, 12 SY GEOTEXTILE
L 94+15	37	LT	1005		1972.5							1								1	1			
			1005	1001		1969.9	1969.4	0.4		108														
L 95+85	13	LT	1006		1979.0							1	3.9	1		1								
			1006	1007		1970.1	1970.0			24														
L 95+85	13	RT	1007		1979.1							1	4.1					1		1	1			
			1007	1008		1970.0	1969.9			12														
L 95+85	28	RT	1008		1978.8							1	3.0						1					
			1008	1009		1969.9	1968.5			276														
L 96+08	36	LT	1010		1973.5							1								1	1			
			1010	1006		1970.3	1970.1	0.4	34															
L 97+43	35	LT	1011		1973.2							1								1	1			
			1011	1010		1971.0	1970.5	0.3	132															
L 100+58	13	LT	1012		1976.7							1	1.8	1	1									
			1012	1014		1972.0	1971.9				26													
L 98+55	28	RT	1013		1979.5							1							1					
			1013	1019		1976.6	1976.2		68															
L 100+56	15	RT	1014		1978.8							1	2.7					1		1	1			
			1014	1020		1071.9	1971.7				40													
L 99+85	13	LT	1015		1978.7							1		1			1							
			1015	1025		1975.7	1975.4		56															
L 101+05	13	LT	1016		1976.7							1	1.4	1		1								
			1016	1012		1972.3	1972.0				44													
L 99+57	9	RT	1017		1979.6																	1	1	
L 101+08	35	LT	1018		1974.9							1								1	1			
			1018	1016		1972.4	1972.3	0.5		20														
L 99+25	37	RT	1019		1979.1							1								1	1			
			1019	1017		1976.2	1976.0		44															
L 100+56	52	RT	1020																					3 TONS CL 'B' RIPRAP, 11 SY GEOTEXTILE
L 105+42	13	LT	1022		1979.0							1		1	1									
			1022	1023		1973.7	1973.6			28														
L 105+40	15	RT	1023		1979.5							1	0.0					1		1	1			
			1023	1024		1973.6	1973.3			44														
SHEET TOTALS									472	544	172	21	20.5	7	2	4	1	4	5	9	9	1	1	

ABBREVIATIONS
C.A.A. CORRUGATED ALUMINUM 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

CONFORMED PLANS SEPTEMBER 8, 2017

COMPUTED BY: Heather Herkenrider DATE: 8/13/17

CHECKED BY: DATE:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-5010	3D-8

RELEASED FOR CONSTRUCTION

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	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	R.C. PIPE CLASS III 15	R.C. PIPE CLASS III 18	R.C. PIPE CLASS IV 36	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH	5' THRU 10' LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	GRATE TYPE E	GRATE TYPE F	GRATE TYPE G	D.I. STD. 852.04 OR STD. 852.06	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	J.B. STD. 840.31 OR STD. 840.32	M.H. FRAME AND COVER STD. 840.54	PREFORMED SCOUR HOLE (PER EACH)	REMARKS
L 105+40	57	RT	1024																							2 TONS CL 'B' RIPRAP, 7 SY GEOTEXTILE
L 100+54	13	LT	1025		1978.7								1	1.0	1	1										
			1025	1012		1972.1	1072.0		4																	
L 105+38	13	LT	1020		1978.8								1		1	1										
			1026	1022		1973.7	1973.7			4																
L 107+68	13	LT	1101		1980.0								1	0.6	1		1									
			1101	1118		1974.3	1974.0			69																
L 106+50	15	RT	1102		1979.7								1	0.5					1		1	1				
			1102	1023		1974.1	1973.8			112																
L 106+50	30	LT	1103		1077.2								1								1	1				
			1103	1104		1975.0	1974.5		16																	
L 106+50	13	LT	1104		1978.8								1		1		1									
			1104	1102		1974.2	1974.1			28																
L 107+68	31	LT	1105		1977.2								1								1	1				
			1105	1101		1974.9	1974.8		20																	
L 110+74	13	RT	1106		1981.2								1								1	1				
			1106	1107		1077.5	1077.4			12																
L 110+74	28	RT	1107		1981.0								1	1.5						1						
			1107	1109		1974.5	1974.0			52																
L 111+50	13	RT	1108		1081.3								1								1	1				
			1108	1125		1977.9	1977.6			44																
L 110+68	78	RT	1109		1075.6																				1	
L 116+07	13	LT	1110		1981.0								1		1	1										
			1110	1111		1977.4	1077.3			24																
L 116+07	13	RT	1111		1981.1								1						1		1	1				
			1111	1112		1977.3	1977.2			12																
L 116+05	28	RT	1112		1980.8								1	2.5						1						
			1112	1115		1073.3	1973.1			48																
L 114+93	13	RT	1113		1981.3								1						1		1	1				
			1113	1117		1978.1	1977.3		108																	
L 117+00	13	RT	1114		1981.4								1						1		1	1				
			1114	1111		1977.8	1977.3		92																	
L 116+05	74	RT	1115		1974.6																				1	
L 116+03	13	LT	1116		1981.0								1		1	1										
			1116	1110		1977.7	1977.7		4																	
L 118+03	13	RT	1117		1981.1								1						1		1	1				
			1117	1111		1977.3	1977.3		4																	
L 107+70	56	RT	1118																							2 TONS CL 'B' RIPRAP, 7 SY GEOTEXTILE
L 111+29	44	LT	1119		1974.9							3.400														
			1119	1126		1971.0	1070.3	0.4			100															
L 118+50	36	LT	1120		1978.0							1.000														
			1120	1121		1976.5	1071.1			104																
L 118+50	67	RT	1121		1975.0								1										1	1		
			1121	1122		1071.1	1970.8			68																
L 117+85	78	RT	1122																							OPEN ENDED PIPE
L 110+99	85	RT	1123		1972.6							3.400														11 TONS CL 'B' RIPRAP, 20 SY GEOTEXTILE
L 111+04	13	RT	1125		1981.1								1								1	1				
			1125	1100		1977.0	1977.5			28																
L 111+15	55	RT	1126		1075.5								1	0.2							1	1				
			1126	1123		1970.3	1969.8	0.4			36															
SHEET TOTALS									248	604	136	7.800	20	6.9	8	4	2		5	2	11	11	1	1	2	

ABBREVIATIONS
- C.A.A. CORRUGATED ALUMINUM 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

CONFORMED PLANS SEPTEMBER 8, 2017

COMPUTED BY: Heather Harkenrider DATE: 6/13/17

CHECKED BY: DATE:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. U-5010 SHEET NO. 3D-6

RELEASED FOR CONSTRUCTION

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	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	R.C. PIPE CLASS III 15	R.C. PIPE CLASS III 18	R.C. PIPE CLASS IV 24	DRAINAGE STRUCTURES 0' THRU 5' EACH	5' THRU 10' LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	GRATE TYPE G	D.I. STD. 852.04 OR STD. 852.06	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	ENERGY DISSIPATION BASIN	REMARKS
L 119+87	13	LT	1201		1981.5							1		1	1								
			1201	1203		1978.3	1978.1			24													
L 121+57	13	RT	1202		1981.0							1				1		1	1				
			1202	1200		1977.3	1977.2		12														
L 119+87	13	RT	1203		1981.6							1				1		1	1				
			1203	1207		1978.1	1978.1			12													
L 122+80	13	RT	1204		1981.4							1						1	1				
			1204	1208		1978.2	1978.1		12														
L 124+50	13	RT	1205		1982.2							1				1		1	1				
			1205	1225		1979.0	1978.7		72														
L 121+55	28	RT	1206		1980.7							1					1						
			1206	1209		1978.0	1975.7			32													
L 119+87	27	RT	1207		1981.3							1					1						
			1207	1206		1978.1	1977.2			104													
L 122+80	28	RT	1208		1981.1							1					1						
			1208	1206		1978.1	1977.5		124														
L 121+55	58	RT	1209																				3 TONS CL 'B' RIPRAP, 11 SY GEOTEXTILE
L 120+37	13	RT	1210		1980.9							1	1.5			1		1	1				
			1210	1214		1974.3	1974.2				12												
L 130+10	33	LT	1211		1977.9							1								1	1		
			1211	1213		1974.9	1974.7			44													
L 127+25	13	RT	1212		1981.7							1				1		1	1				
			1212	1224		1978.3	1977.9		72														
L 130+05	13	RT	1213		1981.0							1	1.3			1		1	1				
			1213	1210		1974.7	1974.3	0.3		68													
L 129+35	27	RT	1214		1980.6							1	1.4				1					1	
			1214	1217		1974.2	1974.0				40												
L 128+00	27	RT	1215		1981.0							1					1						
			1215	1224		1978.1	1978.0		12														
L 131+00	27	RT	1216		1981.2							1					1						
			1216	1221		1978.3	1978.2		12														
L 120+35	65	RT	1217																				3 TONS CL 'B' RIPRAP, 11 SY GEOTEXTILE
L 120+50	28	LT	1218		1981.1							1						1	1				
			1218	1201		1978.8	1978.5		64														
L 126+45	13	RT	1219		1982.1							1				1		1	1				
			1219	1212		1978.9	1978.3		80														
L 128+50	13	RT	1220		1981.1							1				1		1	1				
			1220	1223		1977.7	1977.2		80														
L 131+00	13	RT	1221		1981.5							1				1		1	1				
			1221	1213		1978.2	1977.7		32														
L 121+53	13	RT	1222		1981.0							1				1		1	1				
			1222	1202		1977.3	1977.3		4														
L 129+33	13	RT	1223		1980.8							1	1.8			1		1	1				
			1223	1210		1974.3	1974.3			4													
L 126+00	13	RT	1224		1981.3							1				1		1	1				
			1224	1220		1977.9	1977.7		48														
L 123+75	13	RT	1225		1981.6							1				1		1	1				
			1225	1226		1978.7	1978.4		48														
L 123+25	13	RT	1226		1981.6							1				1		1	1				
			1226	1204		1978.4	1978.2		44														
SHEET TOTALS									776	348	52	24	5.9	1	1	14	6	16	16	1	1		

ABBREVIATIONS
- C.A.A. CORRUGATED ALUMINUM ALLOY
- C.B. CATCH BASIN
- C.S. CORRUGATED STEEL
- D.I. DROP INLET
- G.D.I. GRATED DROP INLET
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- 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. WOC SLOT

CONFORMED PLANS SEPTEMBER 8, 2017

COMPUTED BY: Heather Harkenrider DATE: 8/13/17

CHECKED BY: DATE:

PROJECT NO. U-5019 | SHEET NO. 30-10

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RELEASED FOR CONSTRUCTION

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	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	R.C. PIPE CLASS III 15"	R.C. PIPE CLASS III 18"	R.C. PIPE CLASS III 30"	R.C. PIPE CLASS IV 24"	R.C. PIPE CLASS IV 30"	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH	5' THRU 10' (A) LIN. FT.	10' AND ABOVE (B) LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	GRATE TYPE E	F	G	D.I. STD. 852.04 OR STD. 852.06	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	J.B. STD. 840.31 OR STD. 840.32	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING O.T.C.B. TO C.B.	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	REMARKS
L 129+00	27	RT	1227		1980.6										1								1							
			1227	1214		1977.7	1977.5		32																					
L 129+75	27	RT	1228		1980.6										1								1							
			1228	1214		1977.7	1977.5		40																					
L 132+00	13	RT	1301		1982.5										1							1		1	1					
			1301	1303		1979.3	1979.3		12																					
L 133+00	13	RT	1302		1985.4										1							1		1	1					
			1302	1304		1982.3	1982.2		12																					
L 132+92	28	RT	1303		1982.3										1								1							
			1303	1216		1979.3	1978.3		100																					
L 133+00	27	RT	1304		1985.2										1								1							
			1304	1303		1982.2	1979.3		56																					
Y8 11+82	15	RT	1501		1999.4										1	0.2							1							
			1501	1503		1994.1	1991.8	0.3	84																					
Y8 10+00	24	RT	1503		1994.8										1								1							
			1503	1504		1991.6	1991.2			48																				
Y8 10+09	23	LT	1504		1995.2										1								1							
			1504	1517		1991.2	1990.2			72																				
Y9 11+75	17	RT	1505		1998.8										1								1							
			1505	1515		1993.7	1993.5			32																				
Y9 11+14	19	RT	1506		1995.4																1							1		
			1506	1514		1992.7	1992.5					38																		
Y9 10+69	31	LT	1507		1993.7										1	5.0	1.5									1	1			
			1507	1508		1992.3	1991.8					64																		
Y10 11+47	29	RT	1508																											EXISTING JUNCTION BOX
Y7 11+07	32	LT	1509		1992.0										1			1		1										
			1509	1510		1987.2	1987.1		24																					
Y4 10+67	51	LT	1510		1988.8																									
Y4 10+55	31	RT	1511		1990.8										1			1	1											
			1511	1512		1987.5	1987.4		4																					
Y4 10+51	33	RT	1512		1990.7										1			1	1											
			1512	1509		1987.4	1987.2		72																					
Y9 11+20	20	LT	1514		1995.1										1	5.0	2.5	1		1										
			1514	1507		1992.5	1992.3					46																		
Y9 11+75	17	LT	1515		1996.7										1								1							
			1515	1514		1993.5	1991.7			58																				
ROUND2 11+91	22	RT	1517		1993.3										1									1	1					
			1517	1507		1990.2	1989.7			32																				
L 40+92	227	RT												3.100																
L 40+91	240	RT				1963.5	1963.2				28																			
L 40+95	240	RT				1963.5	1963.2				28																			
L 40+90	253	RT												3.100																8 TONS CL 'B' RIPRAP, 21 SY GEOTEXTILE
L 60+24	108	RT												3.400																
L 60+25	120	RT				1964.9	1963.0						24																	
L 60+25	131	RT												3.400																11 TONS CL 'B' RIPRAP, 28 SY GEOTEXTILE
L 113+50	41	LT												1.500																
L 113+50	48	RT				1974.6	1969.0					180																		
L 113+50	135	RT																												3 TONS CLASS 'B' RIPRAP, 11 SY GEOTEXTILE
L 21+87	27	LT																											0.065	
								SHEET TOTALS	476	240	56	348	24	14.500	17	10.2	4.0	4	2	2	1	2	9	3	3	1	1	1	0.065	

ABBREVIATIONS
- C.A.A. CORRUGATED ALUMINUM 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

CONFORMED PLANS SEPTEMBER 8, 2017

COMPUTED BY:	Heather Harkohnider	DATE:	6/13/17
CHECKED BY:		DATE:	

PROJECT NO.	SHEET NO.
U-5019	30-11

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RELEASED FOR CONSTRUCTION

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)

Column headings: LINE & STATION; SIZE; THICKNESS OR GAUGE; OFFSET; STRUCTURE NUMBER (FROM, TO); TOP ELEVATION (FT.); INVERT ELEVATION (FT.); INVERT ELEVATION (FT.); MINIMUM REQUIRED SLOPE (%); R.C. PIPE CLASS III (12, 15, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84); R.C. PIPE CLASS IV (12, 15, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84); STRUCTURAL PLATE PIPE; 18" WELDED STEEL PIPE 0.5" THICK, GRADE B (UNDER RR); ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY; DRAINAGE STRUCTURE MASONRY CY; QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)): 0' THRU 5' EACH, 5' THRU 10' LIN. FT. (A), 10' AND ABOVE LIN. FT. (B); 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. 852.04 OR STD. 852.06, C.B. STD. 852.05; OPEN THROAT C.B. STD. 840.04 OR STD. 840.05; D.I. STD. 840.14 OR STD. 840.15; D.I. FRAME AND GRATES STD. 840.16; G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27; G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.22; J.B. STD. 840.31 OR STD. 840.32; T.B.J.B. STD. 840.34; T.B.D.I. STD. 840.35; T.B.D.I. FOR STEEL GRATES STD. 840.36; BICYCLE SAFE STEEL FRAME & GRATE; D.I. BEHIND RETAINING WALL; M.H. STD. 840.51, STD. 840.52, OR STD. 840.53; M.H. FRAME AND COVER STD. 840.54; CONVERT EXISTING D.I. TO C.B.; CONVERT EXISTING C.B. TO J.B.; CONVERT EXISTING C.B. TO D.I.; CONVERT EXISTING D.I. TO J.B.; CONVERT EXISTING J.B. TO D.I.; ADJUST C.B.; ADJUST D.I.; ADJUST M.H.; CONVERT EXISTING O.T.C.B. TO C.B.; PREFORMED SCOUR HOLE (PER EACH); ENERGY DISSIPATION BASIN; FLOWABLE FILL (CY); CONCRETE AND BRICK PIPE PLUG STD. 840.71 (CY); PIPE REMOVAL (LIN. FT.); REMARKS.

LINE & STATION	OFFSET		FLOWABLE FILL CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 21+69	10	RT	5			
L 21+91	46	RT		0.066		
L 25+32	38	LT		0.065		
L 25+08	30	LT	5			
L 26+05	23	LT		0.065		
L 26+58	20	LT			20	
L 26+34	32	LT			27	
L 31+87	33	LT		0.029		
L 31+96	69	LT	2			
L 32+05	104	LT		0.029		
L 32+47	25	RT			226	
L 33+09	31	LT		0.029		
L 33+10	24	LT	1			
L 33+11	17	LT		0.029		
L 33+71	38	LT		0.029		
L 33+71	31	LT	1			
L 33+72	24	LT		0.029		
L 39+02	27	RT			20	
L 39+12	30	RT		0.110		
L 39+17	8	RT	6			
L 39+20	29	RT			11	
L 39+21	16	LT		0.110		
L 39+44	22	LT			27	
L 41+10	24	RT			9	
L 41+18	22	RT		0.045		
L 41+48	1	LT	3			
L 41+84	19	LT		0.045		
L 51+42	247	RT		0.065		
L 51+72	142	RT	14			
L 51+86	6	LT			37	
L 52+02	37	RT		0.065		
L 52+02	33	RT		0.065		
L 52+03	16	RT	2			
L 52+04	4	RT		0.065		
L 56+78	60	LT			33	
L 55+80	42	LT		0.045		
L 55+85	18	LT	2			
L 55+88	7	RT		0.045		
L 55+91	25	RT			34	
L 55+98	6	RT			19	
L 60+10	46	LT			42	
L 67+40	38	LT			90	
L 67+44	19	RT			26	
L 67+45	37	RT			9	
L 74+70	17	LT		0.065		
L 74+80	27	RT	6			
L 74+89	71	RT		0.065		
L 77+98	32	RT			73	
L 77+08	8	LT		0.066		
L 78+00	30	LT	2			
SHEET TOTALS			40	1.236	738	

ABBREVIATIONS
C.A.A. CORRUGATED ALUMINUM 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

CONFORMED PLANS SEPTEMBER 8, 2017

COMPUTED BY: Heather Harkender DATE: 8/13/17

CHECKED BY: DATE:

PROJECT NO. U-5019 | SHEET NO. 3D-12

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RELEASED FOR CONSTRUCTION

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)

ABBREVIATIONS
- C.A.A. CORRUGATED ALUMINUM 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

LINE & STATION	OFFSET		FLOWABLE FILL (CY)	CONCRETE AND BRICK PIPE PLUG STD. 840.71 (CY)	PIPE REMOVAL (LIN. FT.)	REMARKS
L 78+01	34	LT		0.065		
L 82+12	25	RT			98	
L 84+92	10	RT		0.065		
L 84+82	41	RT			83	
L 84+93	23	LT		0.065		
L 84+93	6	LT	2			
L 87+13	20	RT			29	
L 87+18	15	RT		0.045		
L 87+20	4	RT	1			
L 87+24	5	LT		0.045		
L 97+45	40	RT		0.065		
L 97+45	9	RT	4			
L 97+45	58	RT			38	
L 97+48	22	LT		0.065		
L 101+04	1	LT		0.045		
L 101+05	20	RT	2			
L 101+06	53	RT		0.045		
L 107+07	31	LT			108	
L 107+51	42	RT		0.045		
L 107+55	20	RT	2			
L 107+60	2	LT		0.045		
L 107+62	14	LT			23	
L 110+00	47	RT		0.045		
L 110+28	25	RT	3			
L 110+48	3	RT		0.045		
L 111+10	54	RT		0.065		
L 111+14	23	RT	4			
L 111+19	6	LT		0.065		
L 117+85	43	RT		0.182		
L 117+86	20	LT		0.182		
L 117+86	12	RT	11			
L 122+40	25	LT		0.065		
L 122+44	14	RT	5			
L 122+48	53	RT		0.065		
L 120+17	43	RT		0.045		
L 126+22	17	RT	2			
L 126+26	8	LT		0.045		
Y3 12+35	11	LT		0.020		
Y3 12+65	12	LT	2			
Y3 12+96	12	LT		0.020		
Y3 12+99	0	CL			23	
Y3 13+34	12	RT			70	
Y5 10+98	8	LT		0.045		
Y5 11+14	6	RT	2			
Y5 11+30	29	RT		0.045		
Y8 10+89	1	RT	2			
Y8 10+89	12	RT		0.065		
Y8 10+60	11	LT		0.065		
Y8 10+62	19	LT		0.065		
Y8 10+96	19	RT			9	
SHEET TOTALS			42	1.742	400	

CONFORMED PLANS SEPTEMBER 8, 2017

COMPUTED BY: Heather Hackenrider DATE: 8/13/17

CHECKED BY: DATE:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. U-5019 | SHEET NO. 3D-13

RELEASED FOR CONSTRUCTION

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	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	% MINIMUM REQUIRED SLOPE	R.C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	78	84
Y8 11+02	45 LT																				
Y8 11+00	72 LT																				
Y8 11+33	47 LT																				
SHEET TOTALS																					
PROJECT TOTALS								16	4740	4904		56									

LINE & STATION	R.C. PIPE CLASS IV 12	15	18	24	30	36	42	48	54	60	66	72	78	84	STRUCTURAL PLATE PIPE	18" WELDED STEEL PIPE 0.5" THICK, GRADE B (UNDER RR)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A+(1.3XB)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.
Y8 11+02																					
Y8 11+00																					
Y8 11+33																					
SHEET TOTALS																					
PROJECT TOTALS				1052	358	180	28									68	30,700		224	115.3	

LINE & STATION	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. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.22	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	BICYCLE SAFE STEEL FRAME & GRATE	D.I. BEHIND RETAINING WALL	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	ADJUST M.H.	CONVERT EXISTING O.T.C.B. TO C.B.	PREFORMED SCOUR HOLE (PER EACH)	ENERGY DISSIPATION BASIN	FLOWABLE FILL CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
Y8 11+02																															4			
Y8 11+00																																0.065		
Y8 11+33																																	64	
SHEET TOTALS																															4	0.065	64	
PROJECT TOTALS	69	37	30	24	34		32	73	74	6	6	8	3		10	10	1		11					1			1	1	3		95	3.108	1232	

ABBREVIATIONS
- C.A.A. CORRUGATED ALUMINUM 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

PROJECT NO.	SHEET NO.
U-5919	3D-14

COMPUTED BY: Heather Harkonider DATE: 8/13/17

CHECKED BY: DATE:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RELEASED FOR CONSTRUCTION

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 54 INCHES & OVER)

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	9.5'x7.5' REINFROCED CONCRETE BOX CULVERT (SEE STRUCTURAL PLANS)	1@6'x7', 2@11'x7' R.C.TRIPLE BOX CULVERT(SEE ST	REMARKS
L 72+72	0 CL				1907.6	1904.1		73		[illegible]
L 80+78	0 CL				1965.2	1964.6			55	[illegible]
					1965.2	1964.4			55	1.5 FT. OF NATIVE BACKFILL
					1965.2	1964.4			55	1.5 FT. OF NATIVE BACKFILL
SHEET TOTALS								73	165	
PROJECT TOTALS								73	165	

Other columns (no entries on this sheet): SIZE; THICKNESS OR GAUGE; R. C. PIPE CLASS III (12, 15, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84); R. C. PIPE CLASS IV (12, 15, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84); 18" WELDED STEEL PIPE 0.5" THICK, GRADE B (UNDER RR); ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY; MASONRY DRAINAGE STRUCTURE CY; QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A+(1.3 X B)) – 0' THRU 5' EACH, 5' THRU 10' LIN. FT. (A), 10' AND ABOVE LIN. FT. (B); 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. 852.04 OR STD. 852.06, C.B. STD. 852.05; OPEN THROAT C.B. STD. 840.04 OR STD. 840.05; D.I. STD. 840.14 OR STD. 840.15; D.I. FRAME AND GRATES STD. 840.16; G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27; G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.22; J.B. STD. 840.31 OR STD. 840.32; T.B.J.B. STD. 840.34; T.B.D.I. STD. 840.35; T.B.D.I. FOR STEEL GRATES STD. 840.36; BICYCLE SAFE STEEL FRAME & GRATE; D.I. BEHIND RETAINING WALL; M.H. STD. 840.51, STD. 840.52, OR STD. 840.53; M.H. FRAME AND COVER STD. 840.54; CONVERT EXISTING D.I. TO C.B.; CONVERT EXISTING C.B. TO J.B.; CONVERT EXISTING C.B. TO D.I.; CONVERT EXISTING D.I. TO J.B.; CONVERT EXISTING J.B. TO D.I.; ADJUST C.B.; ADJUST D.I.; ADJUST M.H.; PREFORMED SCOUR HOLE (PER EACH); ENERGY DISSIPATION BASIN; FLOWABLE FILL CY; CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY; PIPE REMOVAL LIN. FT.

ABBREVIATIONS
- C.A.A. CORRUGATED ALUMINUM 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

COMPUTED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____

PROJECT NO.	SHEET NO.
U-5019	3C-1

RELEASED FOR CONSTRUCTION

CITY OF ASHEVILLE

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	1500
				TOTAL LF:	1500

*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS

SUMMARY OF SETTLEMENT GAUGES

Gauge No.	LINE	Approx. Station	Approx. Offset
		TOTAL GAUGES (EACH):	

SUMMARY OF ROCK PLATING

LINE	Beginning Slope	Approx. Station	Ending Slope	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	SY
							TOTAL SY:	0

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

SUMMARY OF EMBANKMENT WAITING PERIODS

LINE	Station	Station	MONTHS

SUMMARY OF SURCHARGES AND SURCHARGE WAITING PERIODS

LINE	Station	Station	Surcharge Height FT	MONTHS

SUMMARY OF REINFORCED SOIL SLOPES (RSS)

LINE	Beginning Slope	Approx. Station	Ending Slope	Approx. Station	Location LT/RT	SY
					TOTAL SY:	0

SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION

LINE	Station	Station	SY
CONTINGENCY			
		TOTAL SY:	0

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	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	21+00	24+00					710		
L	29+50	32+50					680		
L	39+00	40+25					710		
L	53+00	55+00					530		
L	99+00	101+25					1200		
L	111+00	112+50					490		
CONTINGENCY			ASU		500	1000	3300		
				TOTAL CY/TONS/SY:	500	1000	7620*	0	0

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.

CONFORMED PLANS SEPTEMBER 8, 20

COMPUTED BY: DJC DATE: 7-25-2015
CHECKED BY: CJT DATE: 7-28-2015

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-5019	2P-1

RELEASED FOR CONSTRUCTION

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4, 5	City of Asheville
2	4, 5	Southern States Cooperative, INC
3	5	Omitted
4	5	Omitted
5	5	Housing Authority of the City of Asheville
6	5	Warren Anders and Marie Anders
7	5	Asheville Auto Auction, INC
8	5, 6	Asheville Auto Auction, INC
9	5, 6	W.F. Rogers, Heirs
10	6	Southern Region Ind Rlty
11	6	Southern Railroad Co.
12	6	233 Riverside, LLC
13	6	Samuel E. Stewart and Shirley P. Stewart
14	6	Warren Anders and Marie Anders
15	6	T & T Enterprises
16	6	Harriette G. Winner
17	6, 7	Jonathan & Liana Sheintal
18	6, 7	Railside, LLC
19	6, 7	Jim Richbourg and Becky Cronister
20	6, 7	City of Asheville
21	7	Riverlink, Inc
22	7	Riverlink, Inc
23	7	Derek Dominy and Denise Carbonell
24	7	Daniel Boone Council Boy Scouts of America
25	7	99 Riverside, LLC
26	7	City of Asheville
27	7, 8	City of Asheville
28	8	City of Asheville
29	8	Pattiy Torno
30	8	Christopher J. Peterson
31	8	Peter Mallett
32	8, 9	Mountain Energy Home Heat, LLC
33	8, 9	John & Nancy Reynolds Trust
34	9	McMahan Family LLC
35	9	Asheville Waste Paper Company, Inc.
36	9, 10	McMahan Family LLC
37	10	V.G. Enterprises, LLC
38	10, 11	V.J.'s Auto, Inc.
39	11	William E. Lawrence, JR and Patricia Ann Lawrence
40	11	Foundation Studios, LLC
41	11, 12	Southern Railroad Co.
42	12, 13	Southern Railroad Co.
43	12, 13	City of Asheville
44	13	Relliks Home and Garden LLC
45	15	Rad Lofts LLC
46	15	Clingman Ave, LLC
47	15	Five Fingers Partnership
48	15	Arthur F. Jenkins et al
49	8, 15	Southern Railroad Co.
50	15	Horizon Properties of Asheville LLC

SWP_INF_U5819_Rdy_pak_2P1.dgn
INFRA\Workspaces\...

CONFORMED PLANS SEPTEMBER 8, 20

NOT RELEASED – REVISIONS PENDING

PROJECT REFERENCE NO.	SHEET NO.
U-5019	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
4/3/2018	4/3/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2011

-L-
PI Sta 18+48.99
Δ = 15°46'04.0" (LT)
D = 2°58'40.5"
L = 563.07'
T = 283.56'
R = 1,924.02'
S.E. = 0.02
D.S. = 30 MPH

BEGIN PROJECT U-5019
-L- POC STA. 16+51.46

POT Sta. 10+00.00

PC Sta. 15+65.43

PT Sta. 21+28.50

SEE SHEET 5

-L- STA 24+00.00

MATCH LINE -L- STA 24+00.00

ADDED RAILROAD PHASED CONSTRUCTION NOTE (4/2/2018)

REVISIONS

6/17/19

S 17°07'45"E

S 85°53'45"E

TBM #40

TO WOODFIN

SR 1411 (RIVERSIDE DR) 32' PGT

CITY OF ASHEVILLE
REMOVE EXISTING FOUNDATION

FUTURE PHASE 3 CONSTRUCTION WITHIN RAILROAD RIGHT-OF-WAY

BERNARD COATES
KATHERYN COATES
DB 2235 PG 897

TERRY S. EURY
DB 3907 PG 712

TERRY S. EURY
DB 3726 PG 88

SOUTHERN STATES COOPERATIVE, INC.
DB 1422 PG 5

POSSIBLE DEED OVERLAP

POSSIBLE DEED GAP

EASTERN RIVER BANK / PROPERTY

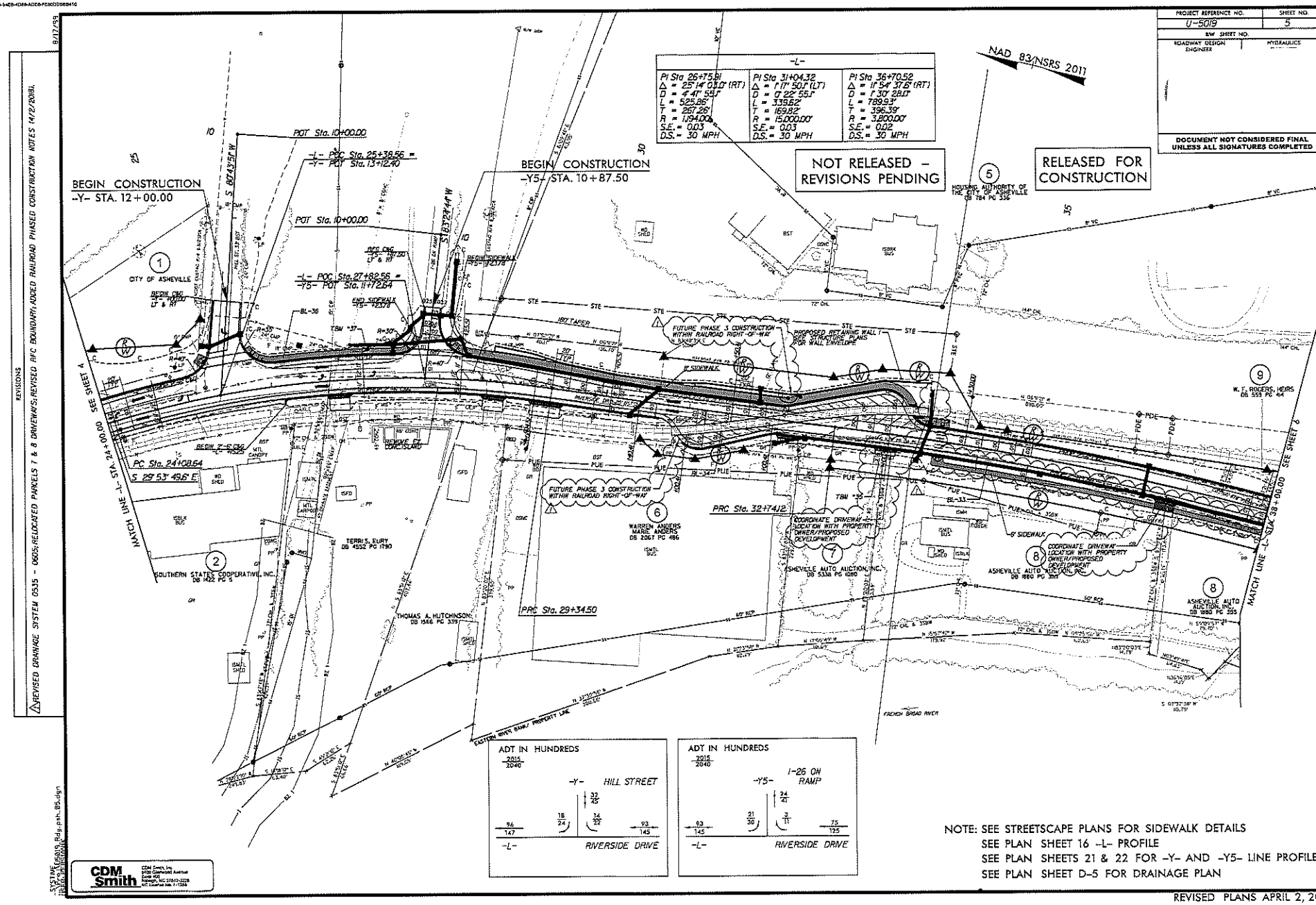
FRENCH BROAD RIVER

NOTE: SEE STREETSCAPE PLANS FOR SIDEWALK DETAI
SEE SHEET 16 FOR PROFILE
SEE SHEET D-4 FOR DRAINAGE PLAN

REVISED PLANS APRIL 2, 2

CDM Smith
CDM Smith, Inc.
1600 Glenwood Avenue
Suite 400
Raleigh, NC 27612-3208
NC License No. F-1255

S:\GIS\Projects\U-5019\Roadway\Plan\U-5019_Rdy_pln_04.dgn



NOTE: SEE STREETSCAPE PLANS FOR SIDEWALK DETAILS
SEE PLAN SHEET 16 -L- PROFILE
SEE PLAN SHEETS 21 & 22 FOR -Y- AND -Y5- LINE PROFILE
SEE PLAN SHEET D-5 FOR DRAINAGE PLAN

REVISED PLANS APRIL 2, 20

REVISIONS
8/17/99
REVISED DRAINAGE SYSTEM 0535 - 0605; RELOCATED PARCELS 7 & 8 DRIVEWAYS; REVISED RFC BOUNDARY; ADDED RAILROAD PHASED CONSTRUCTION NOTES 11/21/2018.

CDM Smith
CDM Smith Inc
8521 Six Forks Road
Suite 400
Raleigh, NC 27615-2725
NC License No. F-1253

SYSTEM (5819) Rdy.psh_B5.dgn

REVISIONS

△REVISED DRAINAGE SYSTEM 0835 - 0605; REMOVED WALL 3, REVISED 0666 - 0718 DRAINAGE SYSTEM PER RFI #001; ADDED RAILROAD PHASED CONSTRUCTION NOTES 14/12/2018

-L-		
PI Sta 36+70.52	PI Sta 41+34.29	PI Sta 44+95.80
△ = 11° 54' 37.6" (RT)	△ = 31° 23' 04.0" (LT)	△ = 4° 04' 05.2" (RT)
D = 1° 30' 28.0"	D = 22° 55' 05.9"	D = 0° 41' 25.1"
L = 789.93'	L = 136.94'	L = 589.36'
T = 396.39'	T = 70.24'	T = 294.80'
R = 3,800.00'	R = 250.00'	R = 8,300.00'
S.E. = 0.02	S.E. = 0.01	S.E. = 0.02
D.S. = 30 MPH	D.S. = 25 MPH	D.S. = 30 MPH

-Y2-	
PI Sta 11+83.41	PI Sta 14+35.68
△ = 92° 44' 59.0" (LT)	△ = 11° 00' 11.7" (RT)
D = 143° 14' 22.0"	D = 8° 11' 06.4"
L = 64.75'	L = 134.43'
T = 41.97'	T = 67.42'
R = 40.00'	R = 700.00'
S.E. = N/A	S.E. = N/A
D.S. = N/A	D.S. = 30 MPH

ADT IN HUNDREDS
2015 / 2040
-Y2- W HAYWOOD ST
-L-
RIVERSIDE DRIVE
-Y1- CRAVEN ST

PROJECT REFERENCE NO.	SHEET NO.
U-5019	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RELEASED FOR CONSTRUCTION

NAD 83/NSRS 2011

PC Sta. 11+41.44

PT Sta. 12+06.19

BEGIN CONSTRUCTION
-Y2- POT STA. 12+27.87

PC Sta. 13+68.26

PROPOSED PHASE 2 CONSTRUCTION WITHIN RAILROAD RIGHT-OF-WAY. CROSSING IMPROVEMENTS SHALL BE PERFORMED BY RAILROAD PRIOR TO ROADWAY IMPROVEMENTS BY CONTRACTOR.

PT Sta. 15+02.69

-L- POT Sta. 59+55.86
-Y2- POT Sta. 16+48.92
-L- POT Sta. 50+33.02
-Y1- POT Sta. 10+00.00

PRC Sta. 42+00.99

PRC Sta. 40+64.05

PT Sta. 47+30.36

MATCH LINE -L- STA. 38+00.00 SEE SHEET 5

MATCH LINE -L- STA. 52+00.00 SEE SHEET 7

MATCH LINE -Y1- STA. 13+00.00 SEE SHEET 14

PROPOSED PARKING LOT SEE GREENWAY PLANS

PROPOSED PHASE 1 CONSTRUCTION WITHIN RAILROAD RIGHT-OF-WAY

PROPOSED GREENWAY SEE GREENWAY PLANS

PROPOSED PARKING LOT SEE GREENWAY PLANS

PROPOSED BMP SEE PLANS BY OTHERS

FUTURE CRAVEN STREET IMPROVEMENTS

FUTURE BOAT LAUNCH AND PARKING LOT BY OTHERS

REMOVE EXISTING BUILDING

PROP. RAILROAD FENCING SEE DET 4A ON SHEET 23-4

PROP. OVERHEAD TRAIL PROTECTION CANOPY SEE STRUCTURE PLANS

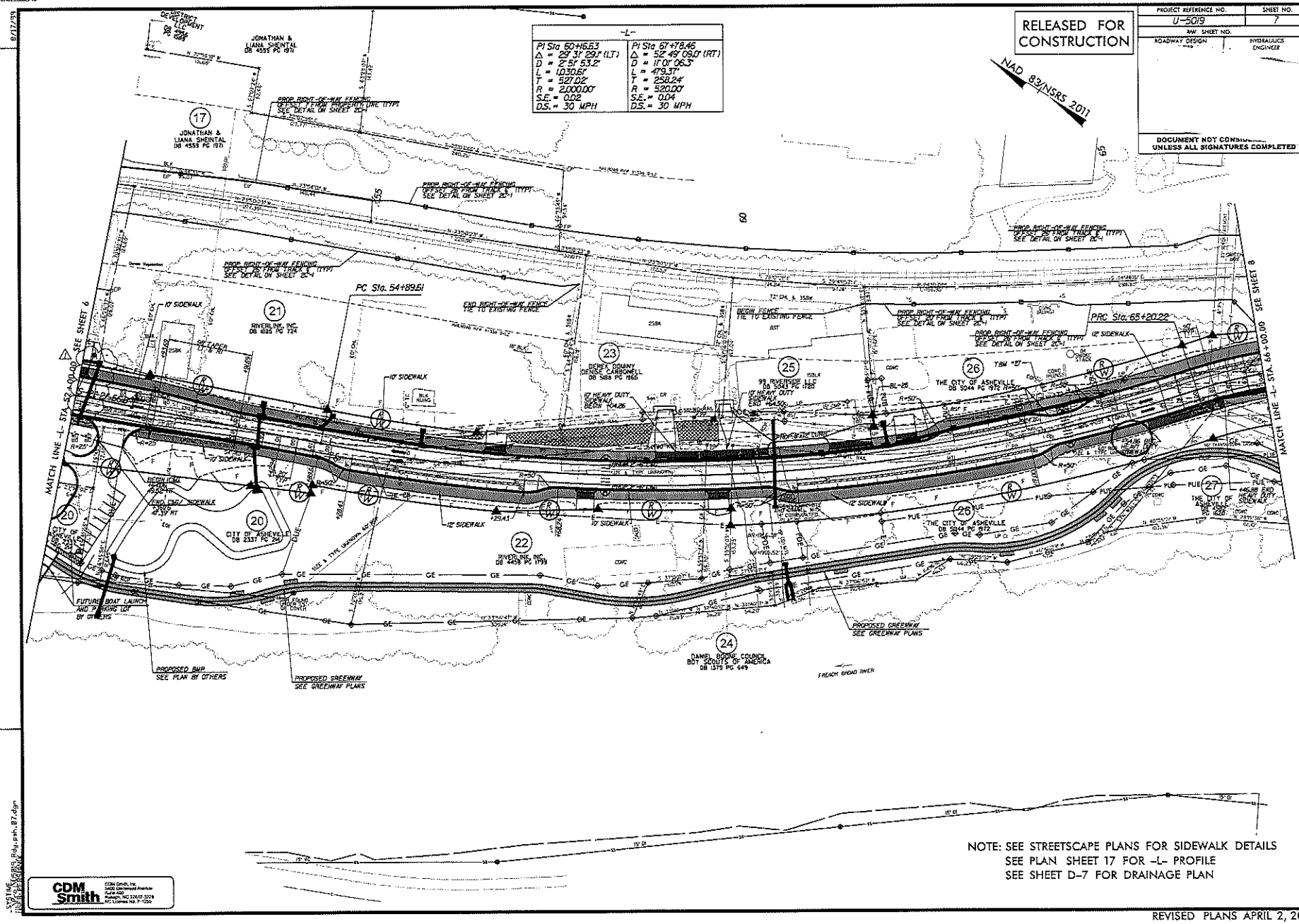
SIDEWALK CANOPY SEE STRUCTURES DETAILS

FUTURE PATH BY OTHERS

NOTE: SEE STREETSCAPE PLANS FOR SIDEWALK DETAILS
SEE PLAN SHEET 17 FOR -L- PROFILE
SEE PLAN SHEET 21 FOR -Y1- AND -Y2- PROFILE
SEE SHEET D-6 FOR DRAINAGE PLAN

CDM Smith
CDM Smith, Inc
1600 Glenwood Avenue
Suite 404
Raleigh, NC 27608-2276
NC License No. F-1255

SYSTIME = 8/17/2023 13:25:53 | USER = jpaul | C:\Users\jpaul\Desktop\Rdy_psh_R6.dgn



8/17/99

REVISIONS

△REVISED 0615 - CTIB DRAINAGE SYSTEM PER RFI 10(14/22/2018).

SYSTEMS\ENGINEERING\Roadway.sch.87.dgn

REVISIONS

△ RELEASE ENTIRE SHEET FOR CONSTRUCTION; REVISED PARCEL 31 EASEMENTS; ADDED RAILROAD PHASED CONSTRUCTION NOTE (4/2/2018).

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-5019	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

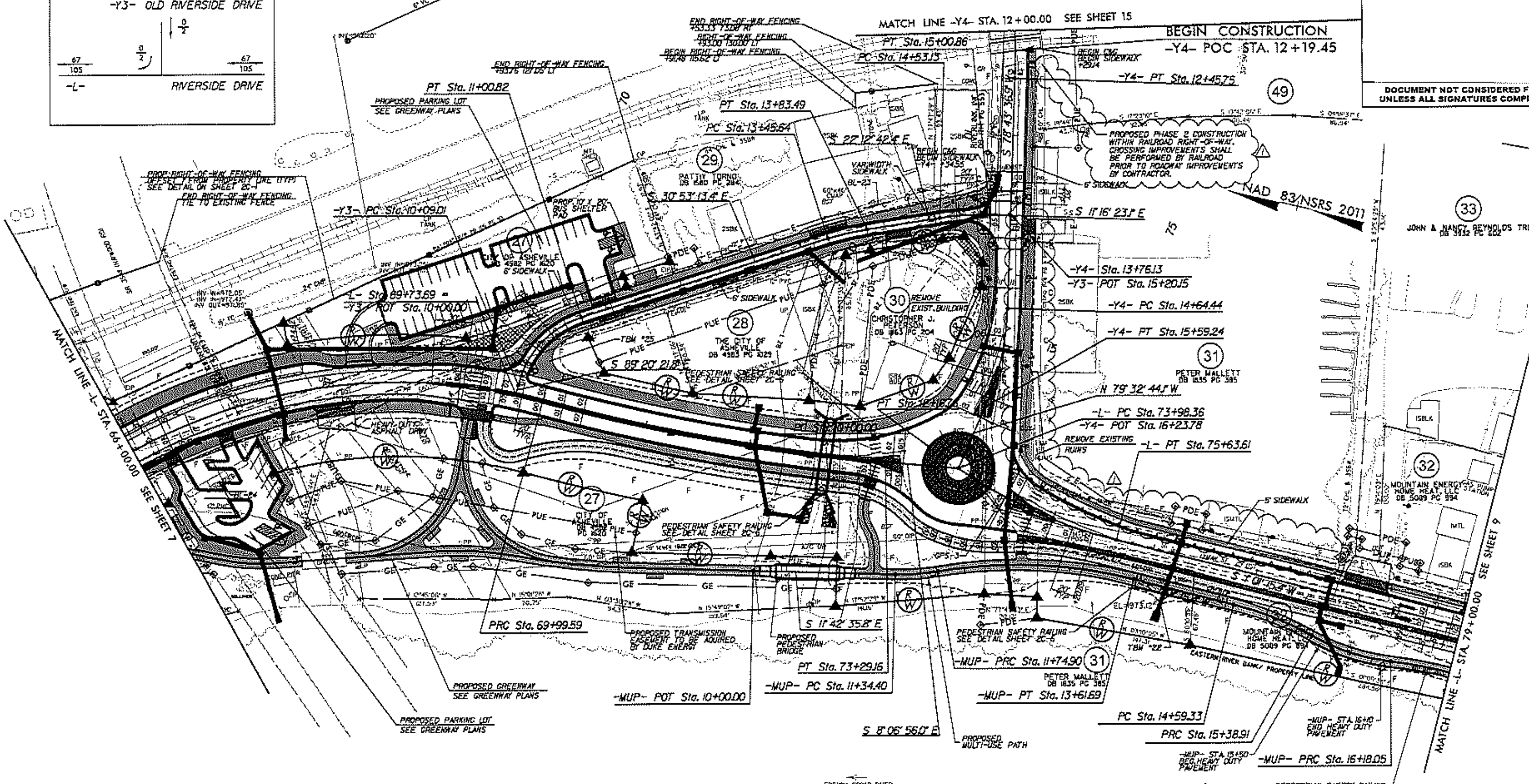
RELEASED FOR CONSTRUCTION

ADT IN HUNDREDS
2015 / 2040

-Y3- OLD RIVERSIDE DRIVE

-L- RIVERSIDE DRIVE

67/105, 0/2, 0/2, 67/105



-L-		
PI Sta 67+78.46	PI Sta 71+64.80	PI Sta 74+81.92
Δ = 52° 49' 09.0" (RT)	Δ = 10° 02' 39.0" (LT)	Δ = 2° 02' 22.1" (LT)
D = 11° 01' 06.3"	D = 3° 02' 51.5"	D = 12° 43' 56.6"
L = 479.37'	L = 329.57'	L = 165.24'
T = 258.24'	T = 165.21'	T = 83.56'
R = 520.00'	R = 1,880.00'	R = 450.00'
S.E. = 0.04	S.E. = 0.02	S.E. = 0.02
D.S. = 30 MPH	D.S. = 30 MPH	D.S. = 30 MPH

-Y3-		
PI Sta 10+59.36	PI Sta 13+64.60	PI Sta 14+77.07
Δ = 58° 27' 08.5" (RT)	Δ = 8° 40' 30.9" (RT)	Δ = 10° 56' 19.3" (RT)
D = 63° 39' 43.1"	D = 22° 55' 05.9"	D = 22° 55' 05.9"
L = 91.82'	L = 37.85'	L = 47.73'
T = 50.35'	T = 18.96'	T = 23.94'
R = 90.00'	R = 250.00'	R = 250.00'
S.E. = 0.02	S.E. = 0.02	S.E. = 0.02

-ROUND1-
PI Sta 10+00.00
Δ = 359° 59' 00.9" (LT)
D = 166° 04' 29.0"
L = 216.76'
T = 0.00'
R = 34.50'
S.E. = 0.02'
D.S. = 25 MPH

-Y4-	
PI Sta 11+80.63	PI Sta 15+12.42
Δ = 10° 41' 27.4" (RT)	Δ = 21° 43' 39.0" (RT)
D = 8° 11' 06.4"	D = 22° 55' 05.9"
L = 130.61'	L = 94.80'
T = 65.50'	T = 47.98'
R = 700.00'	R = 250.00'
S.E. = N/A	S.E. = N/A

-MUP-				
PI Sta 11+54.71	PI Sta 12+69.66	PI Sta 14+99.35	PI Sta 15+79.00	PI Sta 16+60.86
Δ = 11° 03' 05.3" (LT)	Δ = 23° 46' 56.4" (RT)	Δ = 15° 11' 55.4" (RT)	Δ = 22° 40' 19.2" (LT)	Δ = 12° 13' 06.8" (RT)
D = 27° 17' 01.3"	D = 12° 43' 56.6"	D = 19° 05' 54.9"	D = 28° 38' 52.4"	D = 14° 19' 26.2"
L = 40.51'	L = 186.79'	L = 79.58'	L = 79.14'	L = 85.30'
T = 20.32'	T = 94.76'	T = 40.03'	T = 40.09'	T = 42.81'
R = 210.00'	R = 450.00'	R = 300.00'	R = 200.00'	R = 400.00'
S.E. = 0.02	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02

ADT IN HUNDREDS
2015 / 2040

-Y4- LYMAN STREET

-L- RIVERSIDE DRIVE

LYMAN STREET

67/105, 15/26, 29/64, 14/39, 66/118

CDM Smith

NOTE: SEE PLAN SHEET 24 FOR -MUP- PROFILE
SEE STREETSCAPE PLANS FOR SIDEWALK DETAIL
SEE PLAN SHEET 18 FOR -L- PROFILE
SEE PLAN SHEET 21 FOR -Y3- PROFILE
SEE PLAN SHEET 22 FOR -Y4- PROFILE
SEE PLAN SHEET 22 FOR -ROUND1- PROFILE
SEE SHEET D-8 FOR DRAINAGE PLAN

REVISED PLANS APRIL 2, 20

△ RELEASED FOR CONSTRUCTION

NAD 83/NSRS 2011

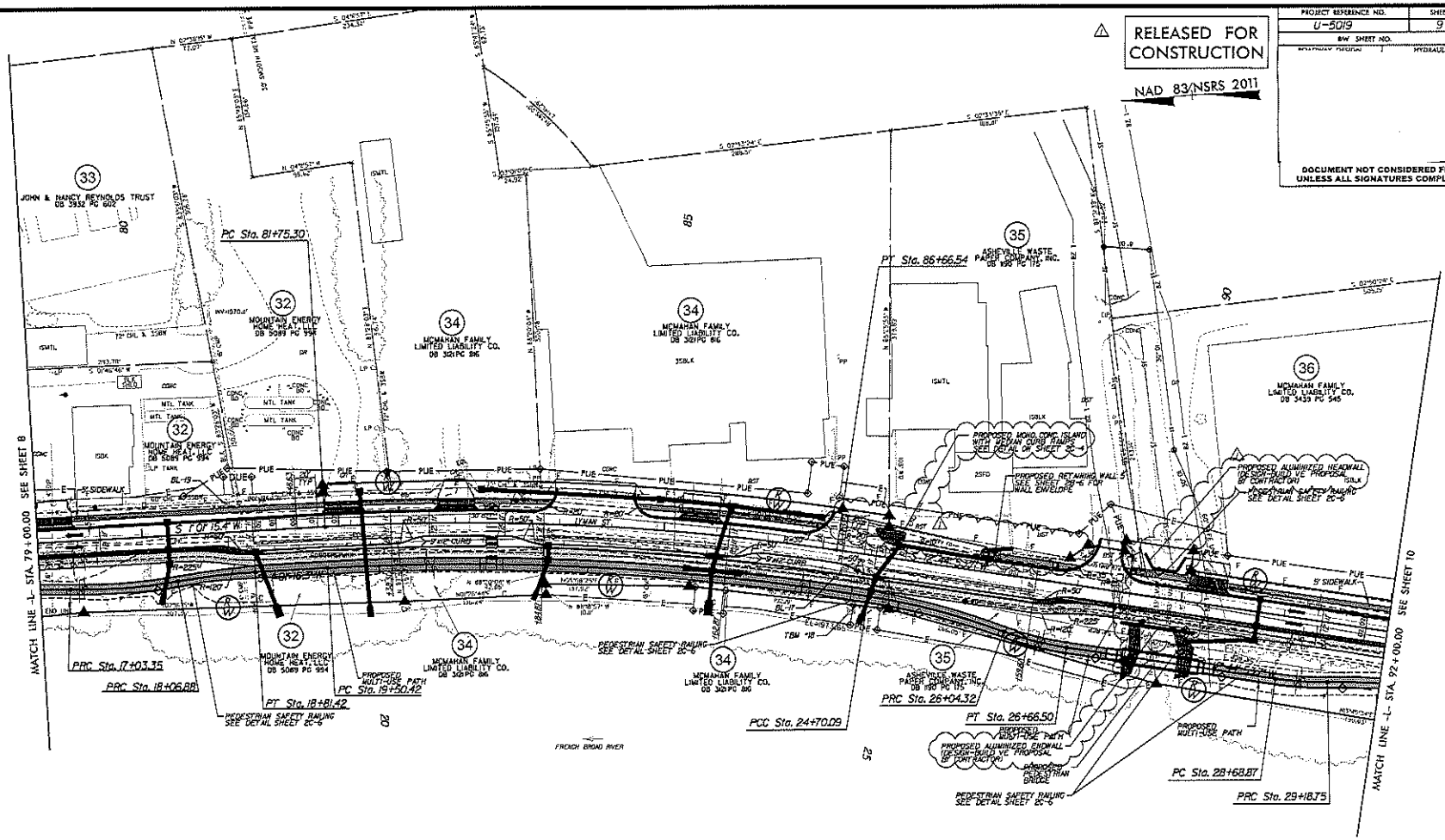
PROJECT REFERENCE NO.	SHEET NO.
U-5019	9
RW SHEET NO.	
HYDRAULICS	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

△ RELEASE ENTIRE SHEET FOR CONSTRUCTION; REVISED PARCEL 35 DRIVEWAY AND R/W; REVISED CULVERT 14/21/2018.

8/17/99



-L-
PI Sta 84+21.78
△ = 11° 43' 38.3" (RT)
D = 2° 23' 14.4"
L = 491.23'
T = 246.48'
R = 2,400.00'
S.E. = 0.02
D.S. = 30 MPH

-MUP-							
PI Sta 16+60.86	PI Sta 17+55.30	PI Sta 18+44.20	PI Sta 22+11.31	PI Sta 25+37.41	PI Sta 26+35.52	PI Sta 28+93.87	PI Sta 29+77.07
△ = 12° 13' 06.8" (RT)	△ = 11° 51' 47.5" (LT)	△ = 1° 07' 05.3" (RT)	△ = 12° 36' 53.4" (RT)	△ = 10° 59' 12.2" (RT)	△ = 11° 52' 28.2" (LT)	△ = 9° 31' 33.0" (LT)	△ = 9° 31' 33.0" (RT)
D = 14° 19' 26.2"	D = 11° 27' 33.0"	D = 9° 32' 57.5"	D = 2° 25' 38.8"	D = 8° 11' 06.4"	D = 19° 05' 54.9"	D = 19° 05' 54.9"	D = 8° 11' 06.4"
L = 85.30'	L = 103.53'	L = 74.54'	L = 519.68'	L = 134.23'	L = 62.17'	L = 49.88'	L = 116.38'
T = 42.81'	T = 51.95'	T = 37.32'	T = 260.89'	T = 67.32'	T = 31.20'	T = 25.00'	T = 58.32'
R = 400.00'	R = 500.00'	R = 600.00'	R = 2,360.33'	R = 700.00'	R = 300.00'	R = 300.00'	R = 700.00'
S.E. = 0.02	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02

NOTE: SEE STREETSCAPE PLANS FOR SIDEWALK
SEE PLAN SHEET 18 FOR PROFILE
SEE PLAN SHEET 24 FOR -MUP- PROFI
SEE SHEET D-9 FOR DRAINAGE PLAN

REVISED PLANS APRIL 2, 20

CDM Smith

PROJECT REFERENCE NO.	SHEET NO.
U-5019	10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

△ RELEASED FOR CONSTRUCTION

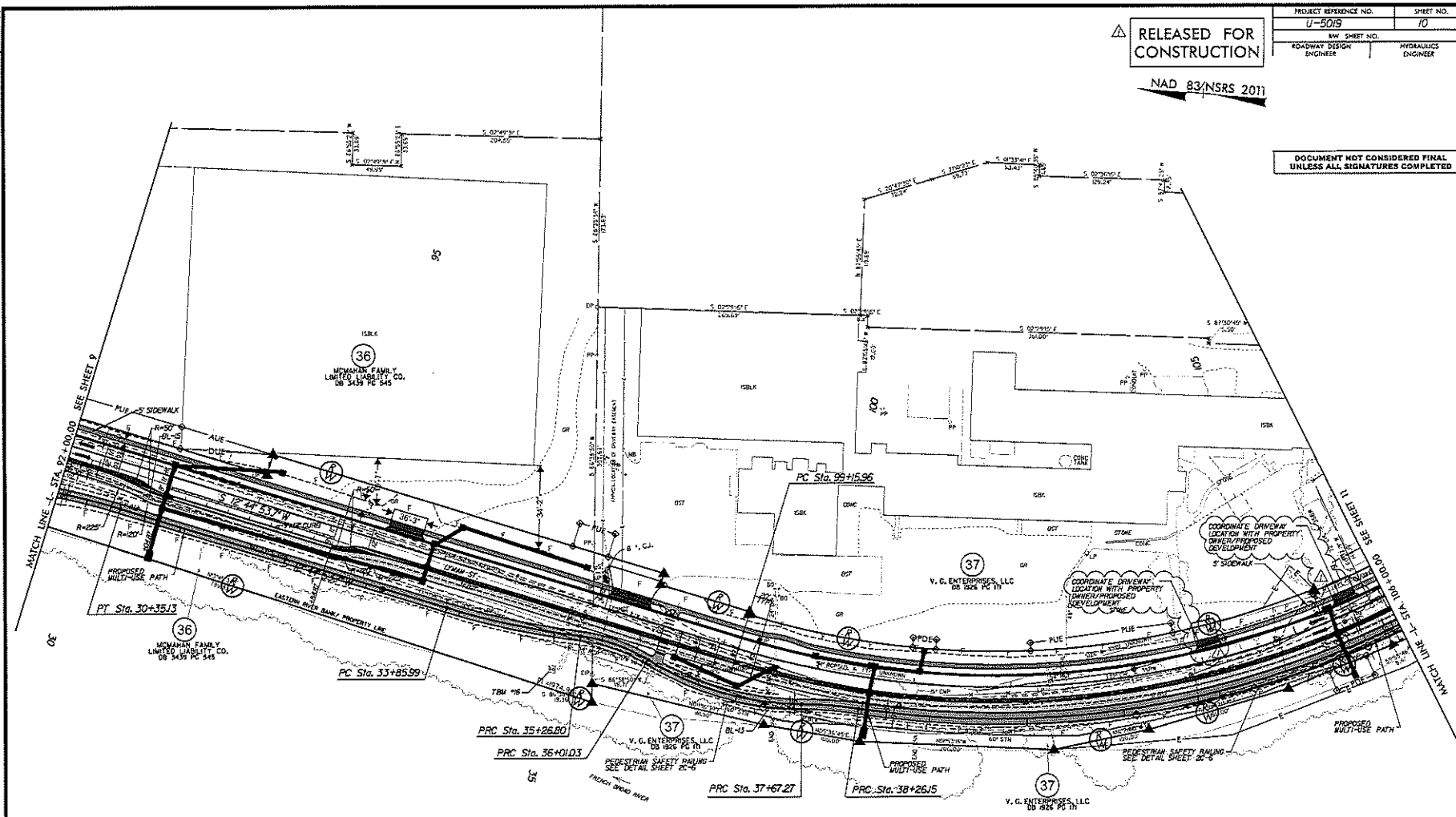
NAD 83/NSRS 2011

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8/17/99

REVISIONS

△ RELEASE ENTIRE SHEET FOR CONSTRUCTION; REVISED PARCEL 37 DRIVEWAYS 14/2/2018.



NOTE: SEE STREETSCAPE PLANS FOR SIDEWALK DETAILS
SEE PLAN SHEETS 24 & 25
FOR –MUP– PROFILE
SEE PLAN SHEET 19 FOR PROFILE
SEE SHEET D–10 FOR DRAINAGE PLAN

–L–	–MUP–				
PI Sta 105+75.48	PI Sta 29+77.07	PI Sta 34+56.58	PI Sta 35+64.51	PI Sta 36+86.34	PI Sta 37+96.76	PI Sta 42+13.50
Δ = 72° 28' 05.5" (LT)	Δ = 9° 31' 33.0" (RT)	Δ = 10° 05' 03.8" (LT)	Δ = 25° 01' 03.1" (RT)	Δ = 31° 44' 59.5" (LT)	Δ = 8° 26' 02.0" (RT)	Δ = 45° 06' 26.9" (LT)
D = 6° 21' 58.3"	D = 6° 11' 06.4"	D = 7° 09' 43.1"	D = 33° 42' 12.2"	D = 19° 05' 54.9"	D = 14° 19' 26.2"	D = 6° 08' 35.6"
L = 1138.33'	L = 116.38'	L = 140.80'	L = 74.23'	L = 166.24'	L = 58.88'	L = 734.26'
T = 659.52'	T = 58.32'	T = 70.58'	T = 37.72'	T = 85.32'	T = 29.49'	T = 367.35'
R = 900.00'	R = 700.00'	R = 800.00'	R = 170.00'	R = 300.00'	R = 400.00'	R = 932.67'
S.E. = 0.03	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02
D.S. = 30 MPH						

CDM Smith
CDM Smith, INC
4820 Lakewood Avenue
Suite 400
Raleigh, NC 27612-3229
NC License No. F-0256

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PROJECT REFERENCE NO.	SHEET NO.
U-5019	11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

RELEASED FOR CONSTRUCTION

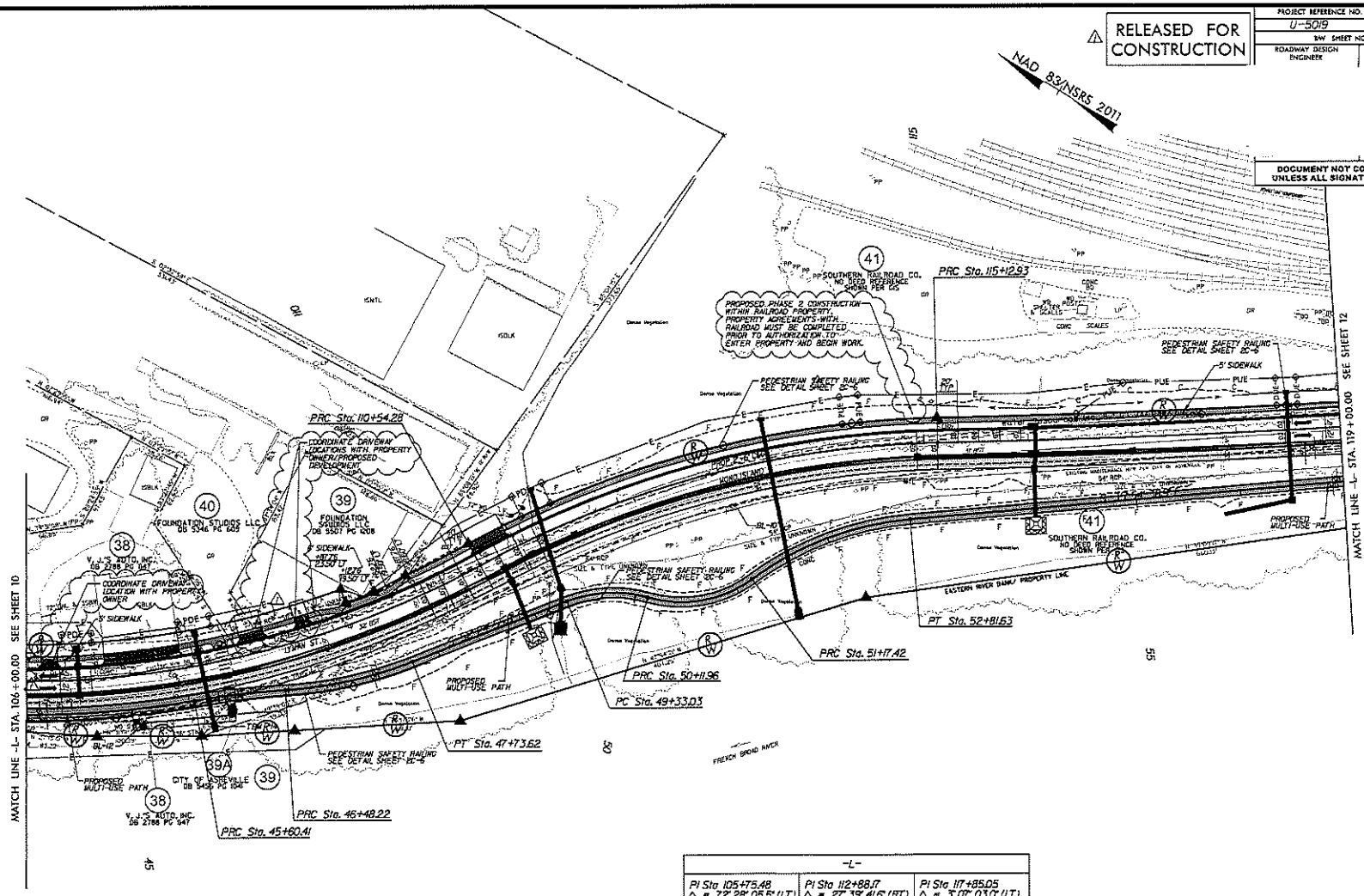
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2011

REVISIONS

△RELEASE ENTIRE SHEET FOR CONSTRACTION;REVISED PARCELS 38,39 & 40 DRIVEWAYS,ADDED RAILROAD PHASED CONSTRUCTION NOTE (4/2/2018).

8/17/99



-L-		
PI Sta 105+75.48	PI Sta 112+88.17	PI Sta 117+85.05
Δ = 72° 28' 05.5" (LT)	Δ = 27° 39' 41.6" (RT)	Δ = 3° 01' 03.0" (LT)
D = 6° 21' 58.3"	D = 6° 01' 52.1"	D = 0° 34' 22.6"
L = 1,138.33'	L = 458.65'	L = 544.11'
T = 659.52'	T = 233.88'	T = 272.12'
R = 900.00'	R = 950.00'	R = 10,000.00'
S.E. = 0.03	S.E. = 0.03	S.E. = 0.03
D.S. = 30 MPH	D.S. = 30 MPH	D.S. = 30 MPH

-MUP-					
PI Sta 42+13.50	PI Sta 46+04.36	PI Sta 47+11.44	PI Sta 49+73.98	PI Sta 50+68.73	PI Sta 52+01.64
Δ = 45° 06' 26.9" (LT)	Δ = 6° 17' 20.1" (RT)	Δ = 17° 57' 44.6" (LT)	Δ = 37° 41' 10.5" (RT)	Δ = 52° 32' 35.2" (LT)	Δ = 37° 21' 43.6" (RT)
D = 6° 08' 35.6"	D = 7° 09' 43.1"	D = 14° 19' 26.2"	D = 47° 44' 47.3"	D = 49° 49' 20.7"	D = 15° 05' 54.9"
L = 734.26'	L = 87.81'	L = 125.40'	L = 78.93'	L = 105.46'	L = 164.21'
T = 387.35'	T = 43.95'	T = 63.22'	T = 40.95'	T = 56.77'	T = 84.22'
R = 932.67'	R = 800.00'	R = 400.00'	R = 120.00'	R = 115.00'	R = 300.00'
S.E. = 0.02	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02	S.E. = 0.02

NOTE: SEE STREETSCAPE PLANS FOR SIDEWALK DETAILS

SEE PLAN SHEET 19 FOR -L- PROFILE

SEE PLAN SHEET 25 FOR -MUP- PROFILE

SEE SHEET D-11 FOR DRAINAGE PLAN

CDM Smith

CDM Smith, Inc
8600 Corporate Avenue
Suite 400
Raleigh, NC 27617-3276
NC License No. F-1258

SYSTEM: U5019_Roadway_Rdy_psh_11.dgn
USER: jmcdonald

REVISED PLANS APRIL 2, 20

RELEASED FOR CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-5019	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

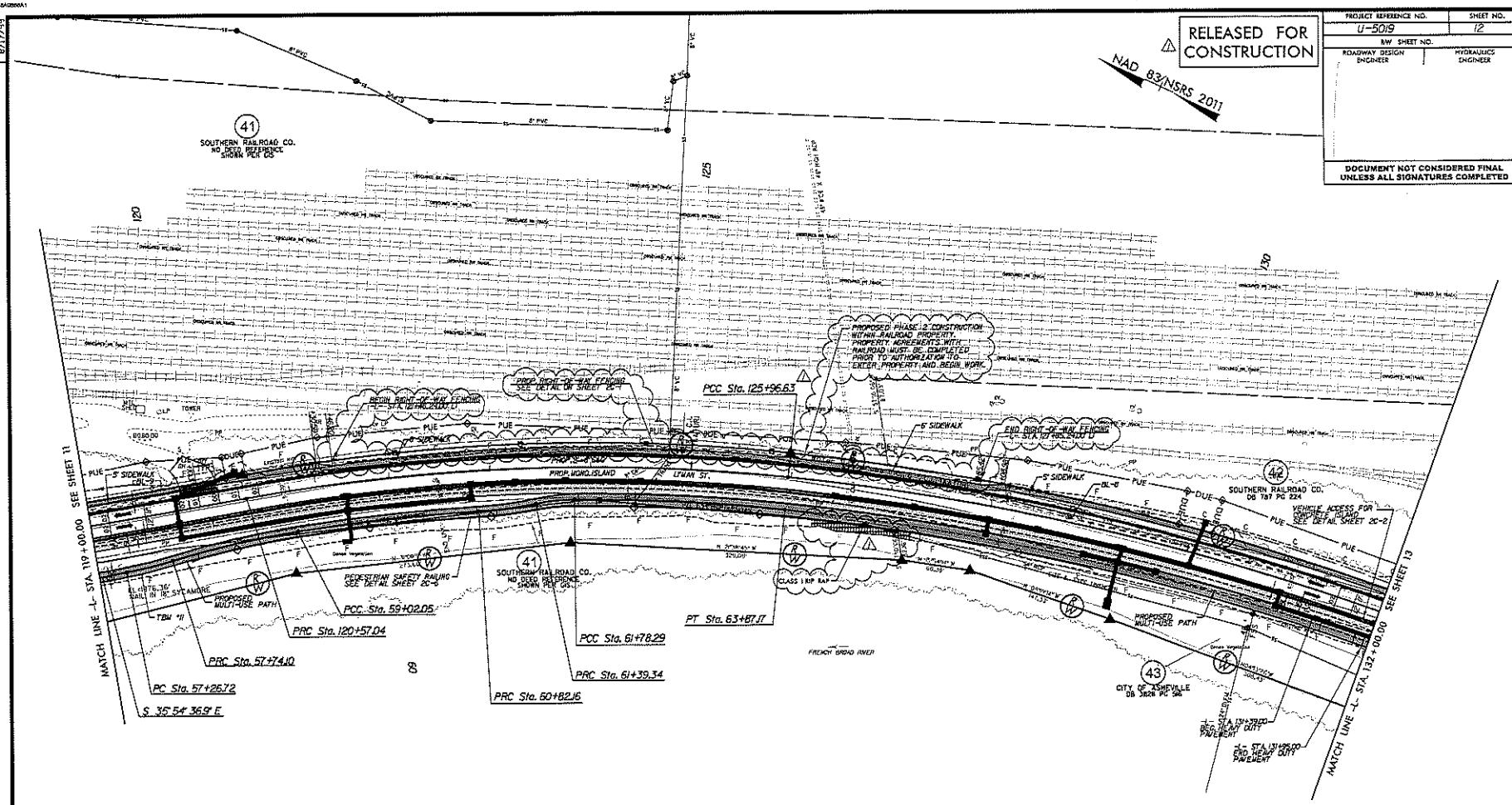
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2011

REVISIONS

△ RELEASE ENTIRE SHEET FOR CONSTRUCTION-REMOVED WALL 6 & REPLACED WITH RIP RAP SLOPE;ADDED RAILROAD R/W FENCING AND PHASED CONST.NOTE 14/2/2018.

8/17/99



-L-		
PI Sta 117+85.05 Δ = 3° 07' 03.0" (LT) D = 0° 34' 22.5" L = 544.11' T = 272.12' R = 10,000.00' S.E. = 0.03 D.S. = 30 MPH	PI Sta 123+28.70 Δ = 16° 25' 01.0" (RT) D = 3° 02' 34.1" L = 539.59' T = 271.68' R = 1,883.00' S.E. = 0.02 D.S. = 30 MPH	PI Sta 131+09.95 Δ = 23° 12' 23.1" (RT) D = 2° 17' 30.6" L = 1,012.57' T = 513.32' R = 2,500.00' S.E. = 0.02 D.S. = 30 MPH

-MUP-					
PI Sta 57+50.43 Δ = 6° 01' 56.1" (LT) D = 12° 43' 56.6" L = 47.38' T = 23.71' R = 450.00' S.E. = 0.02	PI Sta 58+38.18 Δ = 8° 08' 45.7" (RT) D = 6° 21' 58.3" L = 127.95' T = 64.09' R = 900.00' S.E. = 0.02	PI Sta 59+92.18 Δ = 5° 36' 08.8" (RT) D = 3° 06' 37.9" L = 180.11' T = 90.13' R = 1,842.00' S.E. = 0.02	PI Sta 61+10.80 Δ = 8° 11' 22.3" (LT) D = 14° 19' 26.2" L = 57.17' T = 28.64' R = 400.00' S.E. = 0.02	PI Sta 61+58.87 Δ = 11° 09' 25.3" (RT) D = 28° 38' 52.4" L = 38.96' T = 19.54' R = 200.00' S.E. = 0.02	PI Sta 62+82.84 Δ = 5° 28' 05.8" (RT) D = 3° 05' 47.4" L = 208.89' T = 104.56' R = 1,850.33' S.E. = 0.02

NOTE: SEE STREETSCAPE PLANS FOR SIDEWALK DETAIL
SEE PLAN SHEET 20 FOR PROFILE
SEE SHEET D-12 FOR DRAINAGE PLAN
SEE PLAN SHEET 25 FOR -MUP- PROFILE

CDM Smith

REVISED PLANS APRIL 2, 20

8/17/99

REVISIONS

△RELEASE ENTIRE SHEET FOR CONSTRUCTION; ADDED RAILROAD PHASED CONSTRUCTION NOTE. (4/2/2018).

△ RELEASED FOR CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-5019	15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2011

MATCH LINE -L- STA. 132+00.00 SEE SHEET 12

PROPOSED PHASE 2 CONSTRUCTION WITHIN RAILROAD PROPERTY. PROPERTY AGREEMENTS WITH RAILROAD MUST BE COMPLETED PRIOR TO AUTHORIZATION TO ENTER PROPERTY AND BEGIN WORK.

42 SOUTHERN RAILROAD CO. DB 787 PG 224

PT Sta. 136+09.20

-L- POT Sta. 136+38.70 = -Y6- POT Sta. 10+00.00

END PROJECT U-5019
-L- POT STA. 137+06.75

LYMAN ST.

PROP. ROAD (S) AND

43 CITY OF ASHEVILLE DB 3625 PG 256

LYMAN/MEADOW MULTI-USE PATH

PEDESTRIAN SAFETY RAILING SEE DETAIL SHEET 2C-5

FRENCH BROAD RIVER

44 PORSCHE CARROLL DB 869 PG 281

S 4°26'56.7" W

POT Sta. 144+06.75

TO NC 25

N 84°01'59.2" W

END CONSTRUCTION
-Y6- STA 10+78.95

DRAINAGE RIVER

PC Sta. 13+23.04

TO L-9

ADT IN HUNDREDS

2015/2040

LYMAN ST -L-		MEADOW ROAD	
70/118	21/30	91/123	140/211
	112/152		

AMBOY RD -Y6-

-L-
PI Sta 131+09.95
Δ = 23°12'23.1" (RT)
D = 2°17'30.6"
L = 1,012.57'
T = 513.32'
R = 2,500.00'
S.E. = 0.02
D.S. = 30 MPH

-Y6-
PI Sta 14+67.91
Δ = 31°28'45.6" (LT)
D = 11°08'49.3"
L = 282.40'
T = 144.86'
R = 514.00'
S.E. = N/A
D.S. = N/A

NOTE: SEE STREETSCAPE PLANS FOR SIDEWALK DETAIL
SEE PLAN SHEET 20 FOR PROFILE
SEE SHEET D-13 FOR DRAINAGE PLAN

REVISED PLANS APRIL 2, 2

CDM Smith

-SYSTEM-

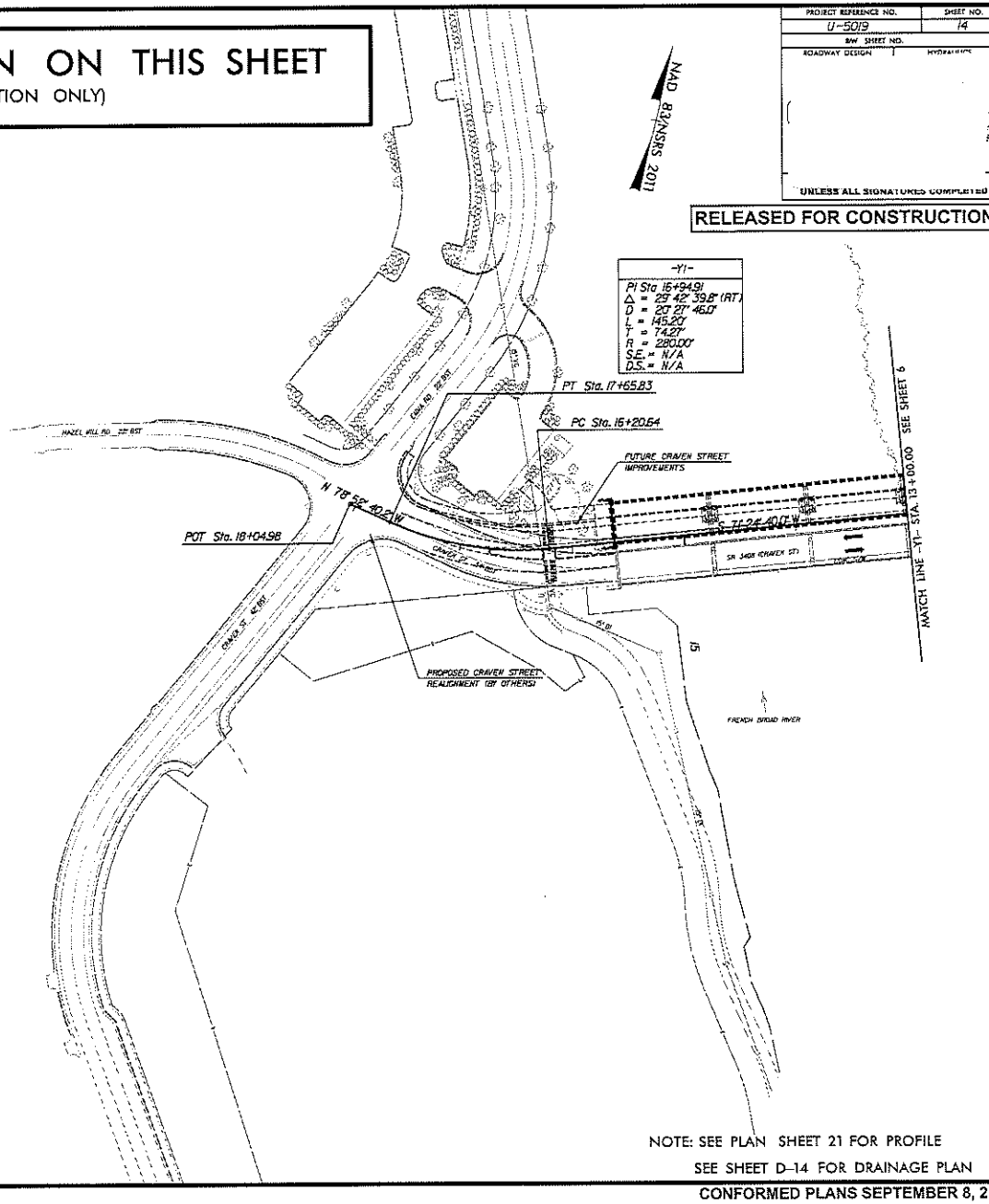
NO CONSTRUCTION ON THIS SHEET

(FUTURE CONSTRUCTION ONLY)

PROJECT REFERENCE NO.	SHEET NO.
U-5019	14
RW SHEET NO.	
ROADWAY DESIGN	HYDRAULICS

UNLESS ALL SIGNATURES COMPLETED

RELEASED FOR CONSTRUCTION



NOTE: SEE PLAN SHEET 21 FOR PROFILE

SEE SHEET D-14 FOR DRAINAGE PLAN

CONFORMED PLANS SEPTEMBER 8, 2

REVISIONS 8/17/99

SYSTEM ROUTE U-5019, Rdy_pln_14.dgn

CDM Smith

RELEASED FOR CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-5019	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-ROUND2-	-Y7-
PI Sta 10+00.00	PI Sta 11+05.37
Δ = 359° 59' 00.9" (LT)	Δ = 3° 32' 23.5" (LT)
D = 166° 04' 29.0"	D = 3° 34' 51.8"
L = 216.76'	L = 98.85'
T = 0.00'	T = 49.44'
R = 34.50'	R = 1600.00'
S.E. = N/A	S.E. = N/A
D.S. = N/A	D.S. = N/A

-Y8-	-Y9-
PI Sta 11+35.78	PI Sta 10+53.32
Δ = 24° 56' 08.0" (RT)	Δ = 24° 04' 45.8" (LT)
D = 34° 19' 43.0"	D = 22° 55' 05.9"
L = 72.64'	L = 105.07'
T = 36.90'	T = 53.32'
R = 166.90'	R = 250.00'
S.E. = N/A	S.E. = N/A
D.S. = N/A	D.S. = N/A

-Y10-
PI Sta 12+05.33
Δ = 35° 04' 43.2" (LT)
D = 22° 55' 05.9"
L = 153.08'
T = 79.01'
R = 250.00'
S.E. = N/A
D.S. = N/A

ADT IN HUNDREDS

2015 / 2040

-Y10- ROBERT'S ST

-Y9- CLINGMAN AVE

-Y4- LYMAN ST

-Y8- LYMAN ST

-Y7- DEPOT ST

IMPROVEMENTS OUTSIDE OF PROPOSED ROADWAY CURB AND GUTTER SHALL BE CONSTRUTED BY RADLOFTS, LLC

(45) RAD LOFTS LLC DB 5435 PG 317 PB 163 PG 3

END CONSTRUCTION -Y10- STA. 11+91.00 TIE TO PROPOSED IMPROVEMENTS BY OTHERS

PT Sta. 12+79.36

(46) CLINGMAN AVE, LLC DB 5417 PG 392 Tract 6 PG 22

POT Sta. 12+50.00

END CONSTRUCTION -Y9- STA. 11+80.07 TIE TO PROPOSED IMPROVEMENTS BY OTHERS

PC Sta. 11+26.32

PC Sta. 10+00.00 PT Sta. 12+16.76

PC Sta. 11+51.14

PT Sta. 11+05.07

PT Sta. 11+71.51

END CONSTRUCTION -Y8- STA. 11+84.58

POT Sta. 12+50.00

(47) FIVE FINGERS PARTNERSHIP DB 2072 PG 150

N 4° 36' 38" W

SOUTHERN RAILROAD CO. NO DEED FOUND SHOWN PER GIS

PC Sta. 10+98.87

PC Sta. 10+56.83

PT Sta. 11+54.78

PROPOSED PHASE 2 CONSTRUCTION WITHIN RAILROAD RIGHT-OF-WAY, CROSSING IMPROVEMENTS SHALL BE PERFORMED BY RAILROAD PRIOR TO ROADWAY IMPROVEMENTS BY CONTRACTOR.

POC Sta. 10+06.00

-Y4- POT Sta. 10+00.00
-Y7- POT Sta. 12+50.00
-Y8- POT Sta. 10+00.00
-Y9- POC Sta. 10+00.00
-Y10- POT Sta. 10+00.00

HORIZON PROPERTIES OF ASHEVILLE LLC DB 5435 PG 304 PB 163 PG 61

BEGIN CONSTRUCTION -Y7- STA. 10+67.59

END CONSTRUCTION -Y4- POC STA 11+82.90

(48) ARTHUR F JENKINS ET AL DB 1514 PG 241

MATCH LINE -Y4- STA. 12+00.00 SEE SHEET 8

NAD 83/NSRS 2011

NOTE: SEE STREETSCAPE PLANS FOR SIDEWALK DETAILS
SEE PLAN SHEET 23 FOR -ROUND2- PROFILE
SEE SHEET D-15 FOR DRAINAGE PLAN
SEE PLAN SHEET 22 FOR -Y4- PROFILE
SEE PLAN SHEET 23 FOR -Y7-, -Y8-, -Y9- & -Y10- PROFILE

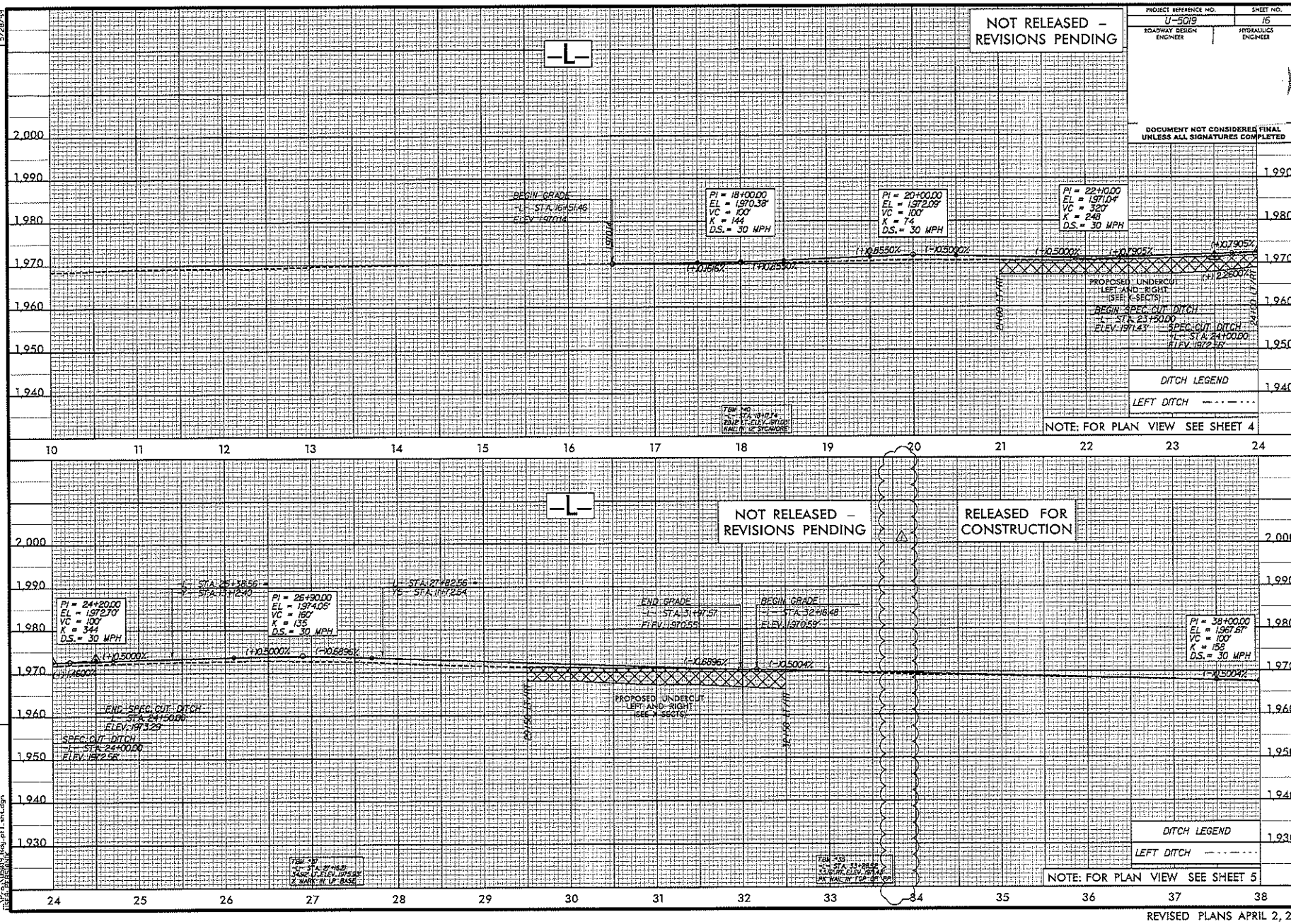
REVISIONS

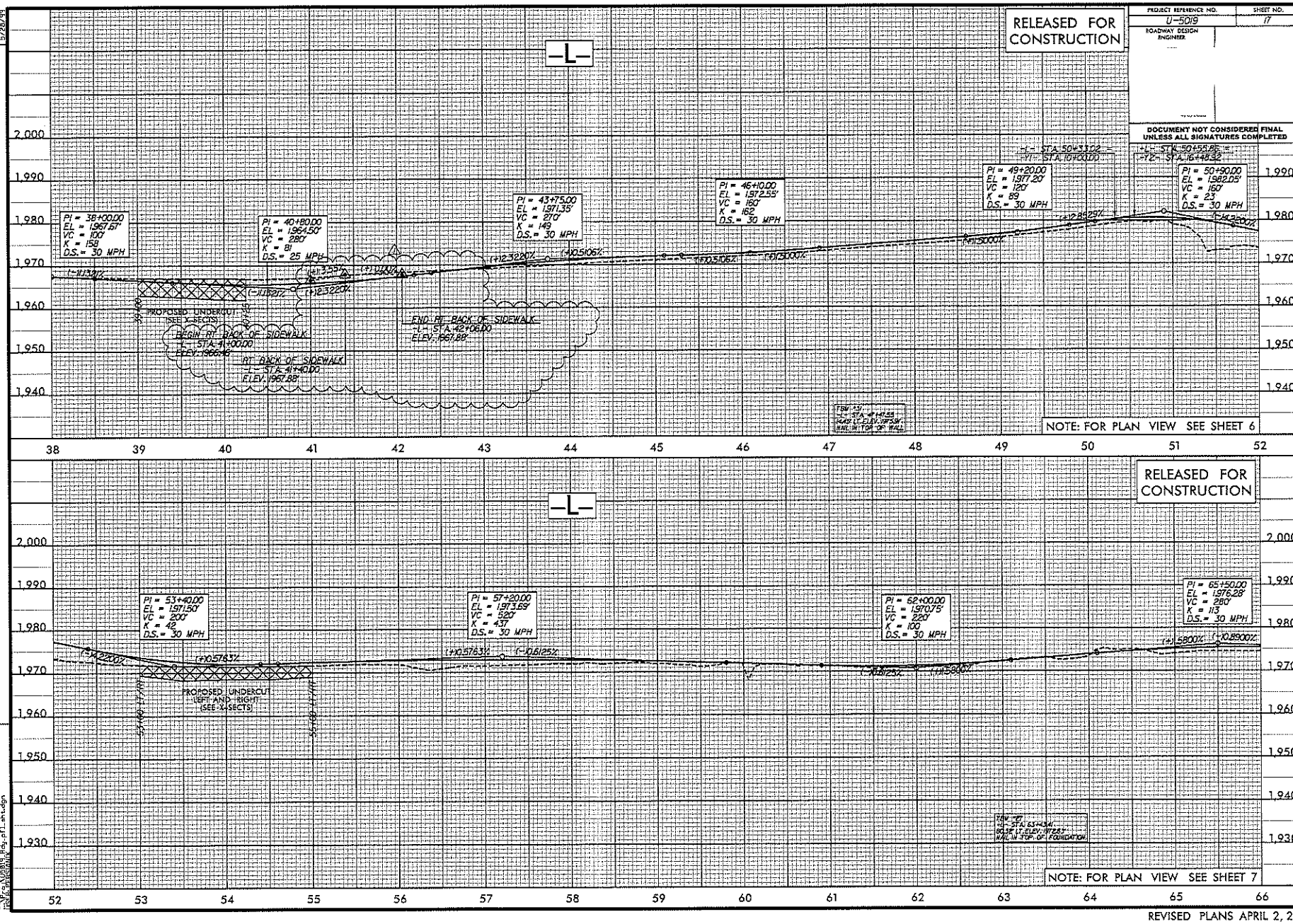
△ ADDED RAILROAD PHASED CONSTRUCTION NOTE 14/2/2018

8/17/99

CDM Smith

REVISED PLANS APRIL 2, 2





PROJECT REFERENCE NO.	SHEET NO.
U-5019	17

ROADWAY DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISED PLANS APRIL 2, 2

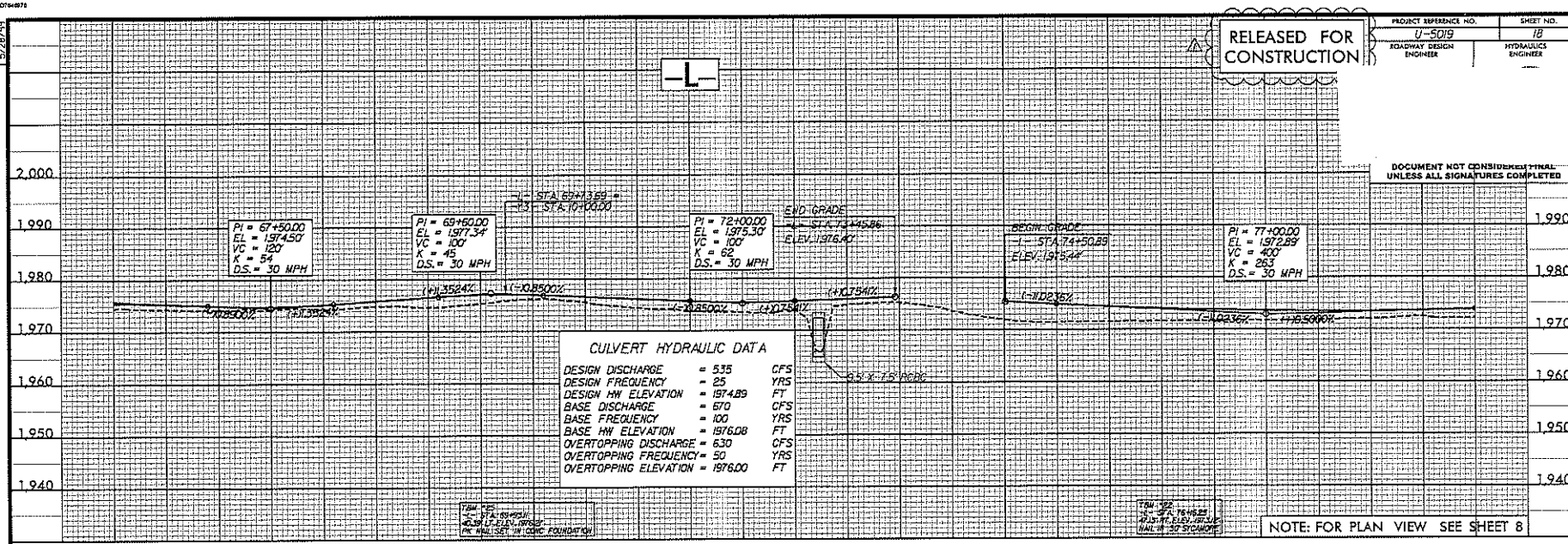
RELEASED FOR CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-5019	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

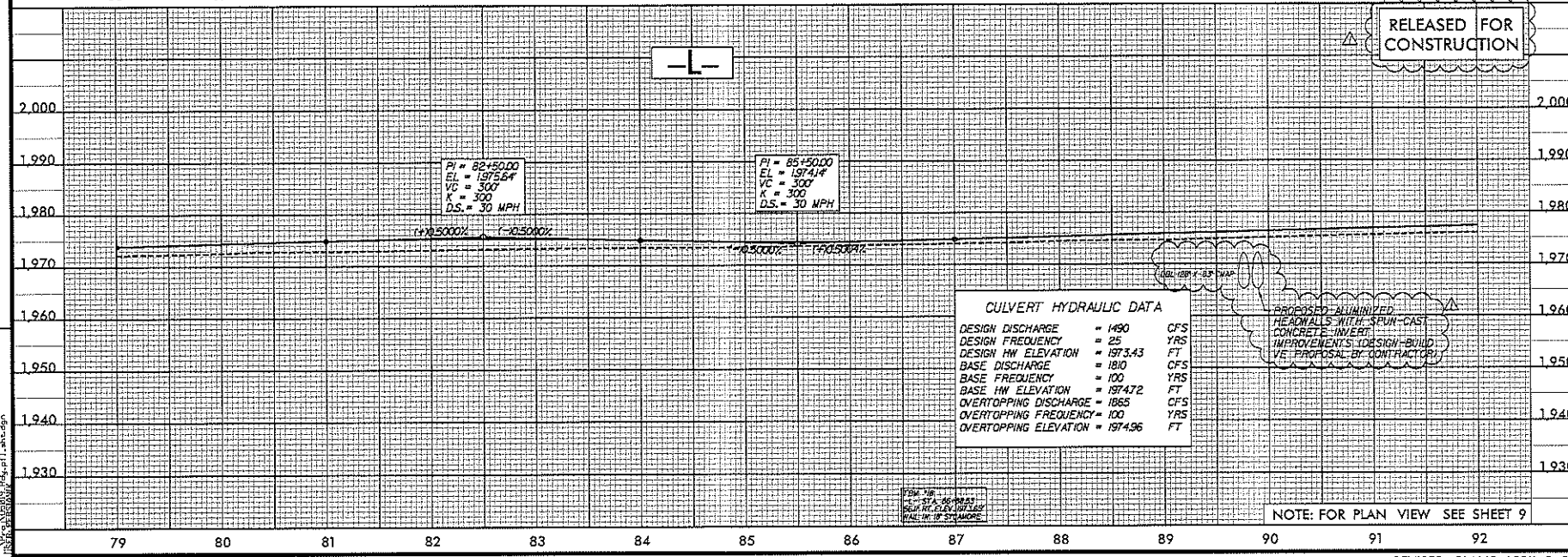
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/28/99 RELEASE ENTIRE SHEET FOR CONSTRUCTION; REVISED CULVERT 14/2/2018).



RELEASED FOR CONSTRUCTION



REVISED PLANS APRIL 2, 2

RELEASED FOR CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-5019	19

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/26/99

RELEASE ENTIRE SHEET FOR CONSTRUCTION 14/8/2018

—L—

PI = 97+65.00
EL = 1,980.22'
VC = 170'
K = 169
D.S. = 30 MPH

PI = 100+55.00
EL = 1,978.75'
VC = 280'
K = 288
D.S. = 30 MPH

PI = 102+85.00
EL = 1,979.90'
VC = 170'
K = 170
D.S. = 30 MPH

PI = 105+40.00
EL = 1,978.62'
VC = 340'
K = 339
D.S. = 30 MPH

+10.5004% (−)0.5069% (−)0.5069% (+)0.5000% (+)0.5000% (−)0.5020% (−)0.5020% (+)0.5062%

PROPOSED UNDERCUT LEFT (SEE X-SECTS)

NOTE: FOR PLAN VIEW SEE SHEET 10

92 93 94 95 96 97 98 99 100 101 102 103 104 105 106

RELEASED FOR CONSTRUCTION

—L—

PI = 113+25.00
EL = 1,982.55'
VC = 350'
K = 350
D.S. = 30 MPH

PI = 116+05.00
EL = 1,981.15'
VC = 170'
K = 170
D.S. = 30 MPH

PI = 118+65.00
EL = 1,982.45'
VC = 170'
K = 170
D.S. = 30 MPH

(+)0.5006% (−)0.5000% (−)0.5000% (+)0.5000% (−)0.5560% (+)0.5600%

(+)0.8800% (+)1.3200%

PROPOSED UNDERCUT LEFT (SEE X-SECTS)

BEGIN SPEC. LAT. 'V' DITCH -L- STA. 115+00.00 ELEV. 1976.18'

SPEC. LAT. 'V' DITCH -L- STA. 115+50.00 ELEV. 1976.52'

SPEC. LAT. 'V' DITCH -L- STA. 116+00.00 ELEV. 1976.13'

PROPOSED UNDERCUT LEFT (SEE X-SECTS)

SPEC. LAT. 'V' DITCH -L- STA. 118+50.00 ELEV. 1976.49'

SPEC. LAT. 'V' DITCH -L- STA. 119+00.00 ELEV. 1976.77'

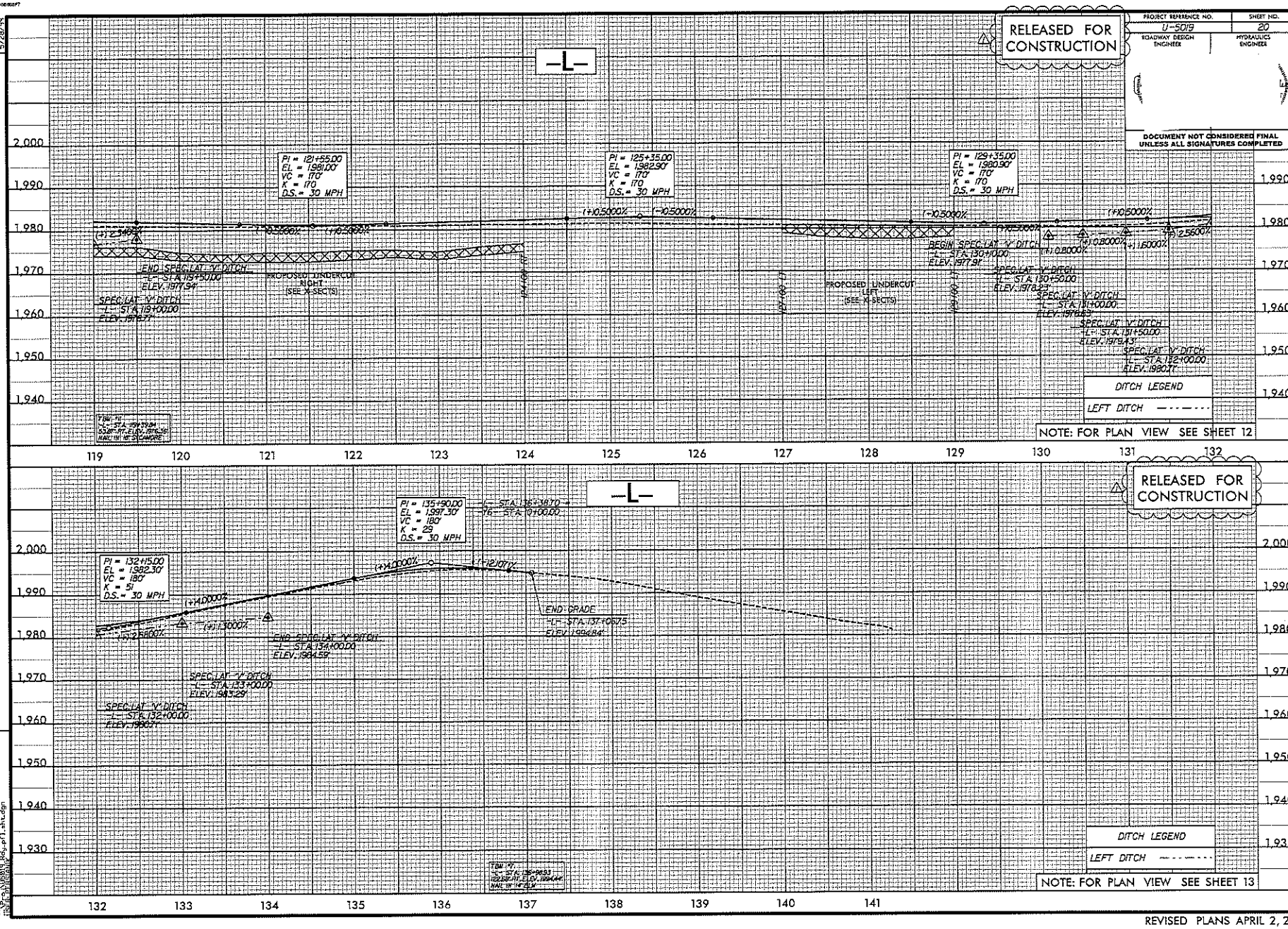
DITCH LEGEND

LEFT DITCH

NOTE: FOR PLAN VIEW SEE SHEET 11

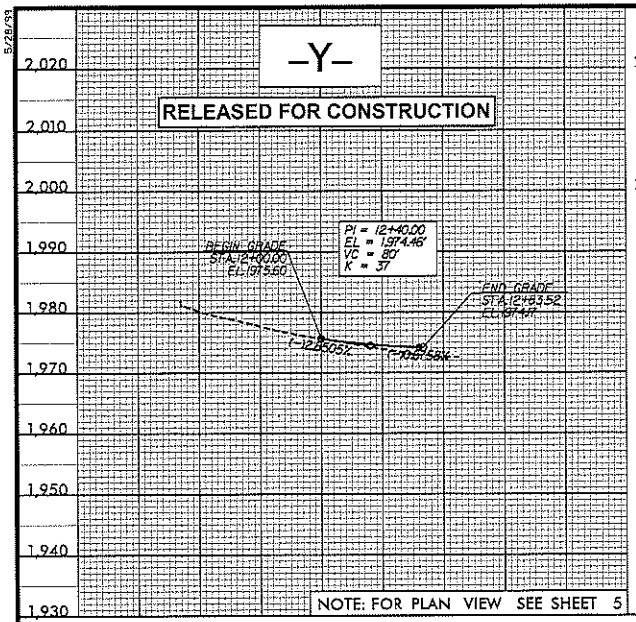
106 107 108 109 110 111 112 113 114 115 116 117 118 119

REVISED PLANS APRIL 2, 2

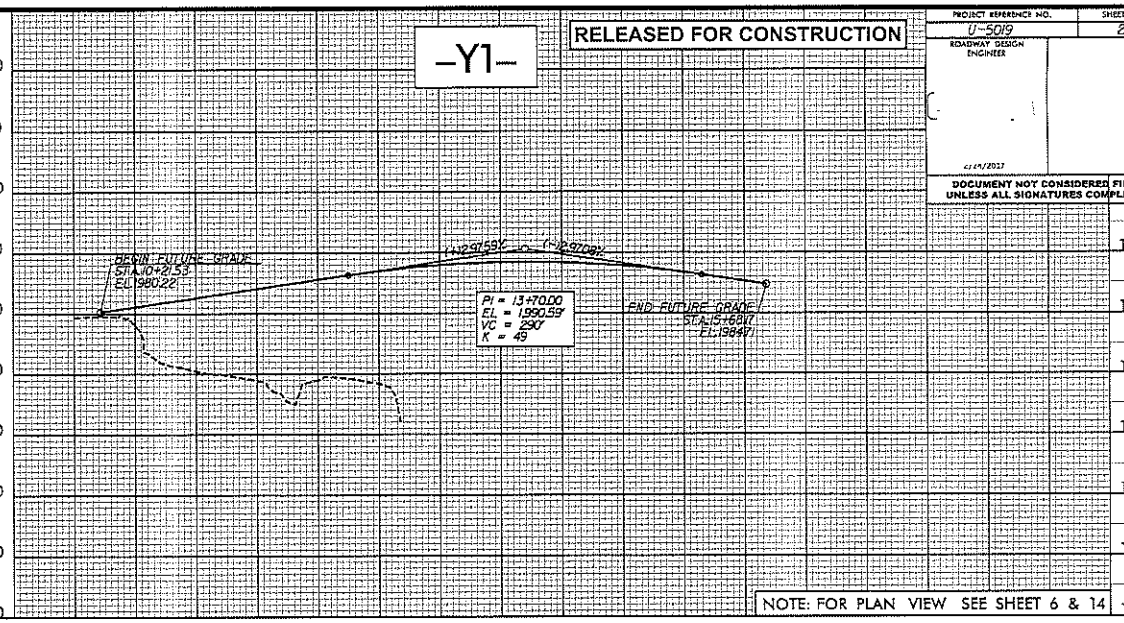


REVISED PLANS APRIL 2, 2

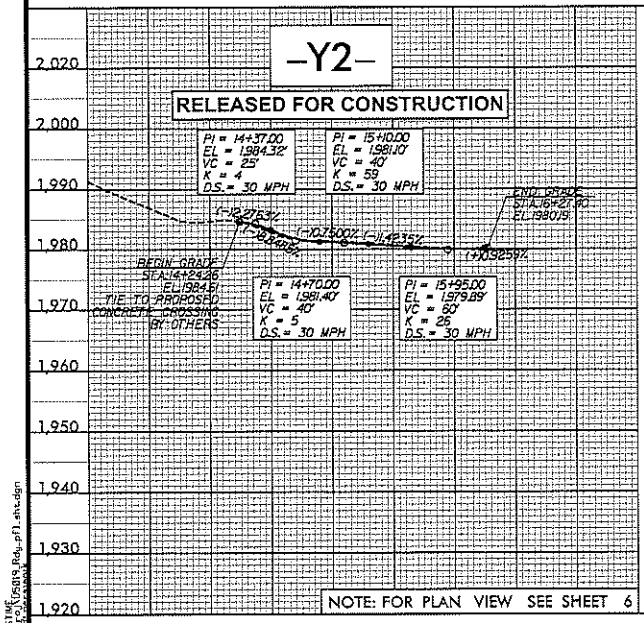
–Y–



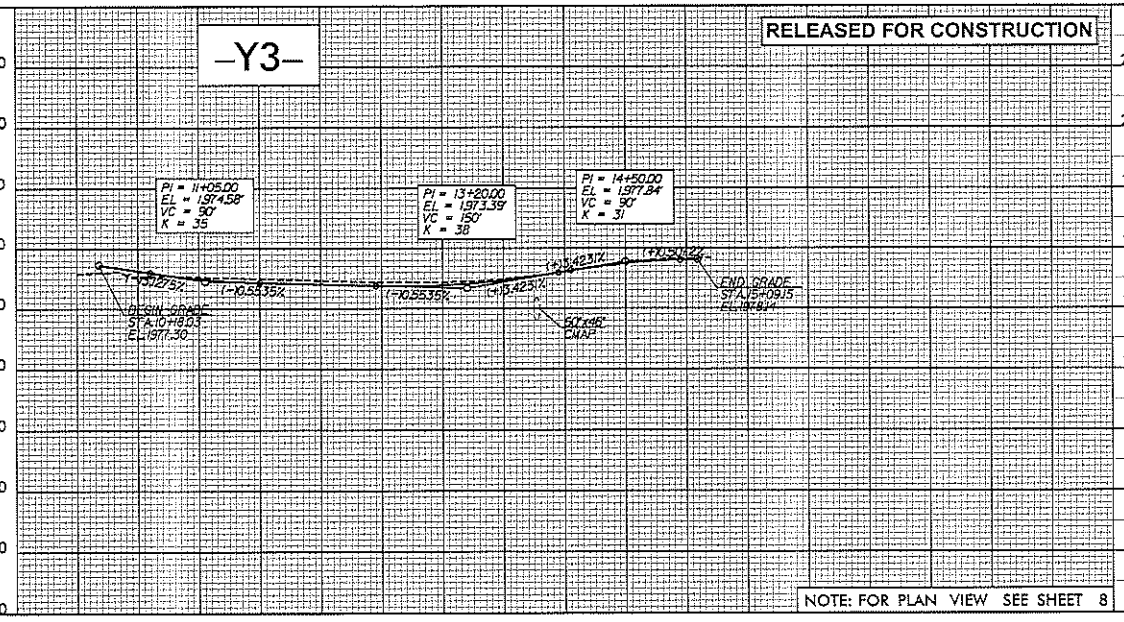
–Y1–



–Y2–



–Y3–



PROJECT REFERENCE NO.	SHEET NO.
U-5019	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

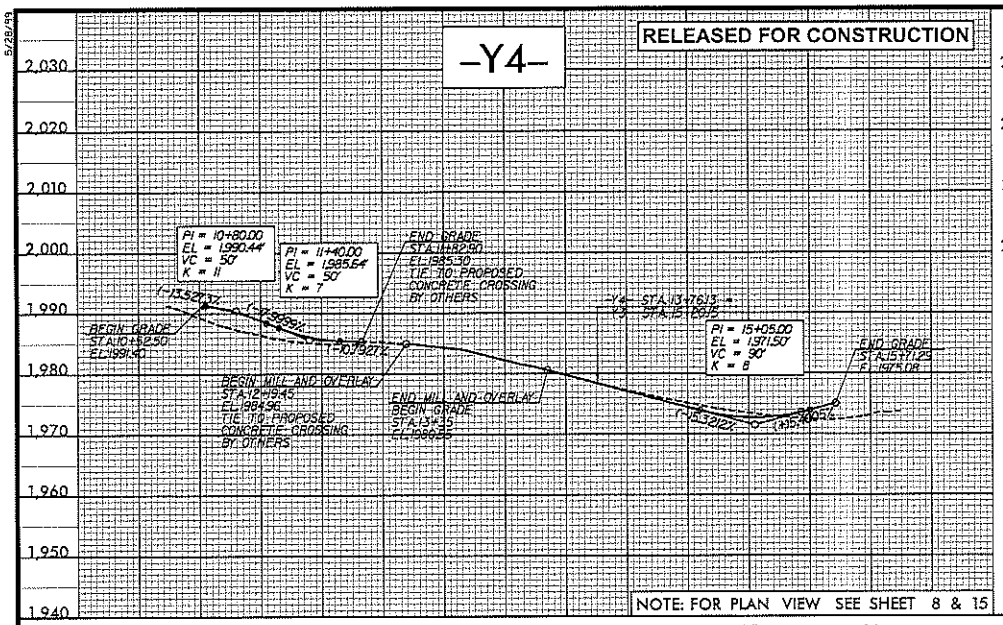
4/28/2017 4/28/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOT RELEASED - REVISIONS PENDING

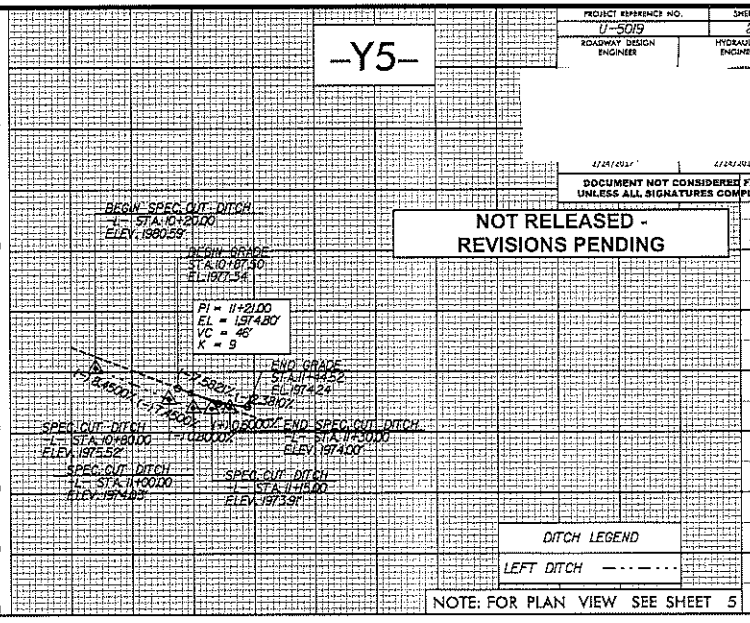
-Y4-

RELEASED FOR CONSTRUCTION



NOTE: FOR PLAN VIEW SEE SHEET 8 & 15

-Y5-



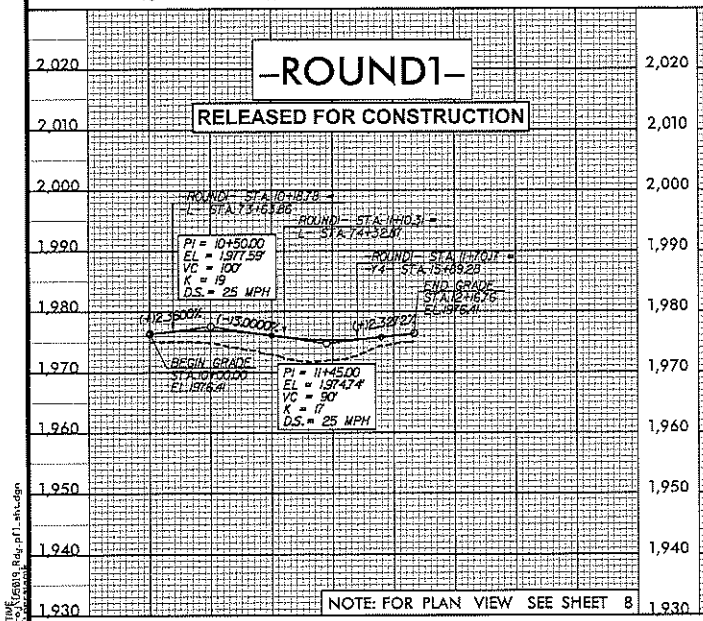
DITCH LEGEND

LEFT DITCH

NOTE: FOR PLAN VIEW SEE SHEET 5

-ROUND1-

RELEASED FOR CONSTRUCTION



NOTE: FOR PLAN VIEW SEE SHEET 8

PROJECT REFERENCE NO.	SHEET NO.
U-5019	23

ROADWAY DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

–ROUND2–

RELEASED FOR CONSTRUCTION

-ROUND2- STA 10+03.52 →
Y10 STA 10+34.30
-ROUND2- STA 10+65.75 →
Y4 STA 10+33.50
-ROUND2- STA 11+08.90 →
Y7 STA 12+15.30
-ROUND2- STA 11+55.12 →
Y8 STA 10+34.50
-ROUND2- STA 11+88.99 →
Y9 STA 10+34.53

PI = 11+55.00
EL = 1,994.35'
VC = 90'
K = 15

PI = 10+46.00
EL = 1,991.09'
VC = 70'
K = 12

BEGIN GRADE
STA 10+00.00
EL 1992.50

(-)1.06%
(+)2.99%
(-)2.99%
END GRADE
STA 12+16.76
EL 1992.50

NOTE: FOR PLAN VIEW SEE SHEET 15

–Y7–

RELEASED FOR CONSTRUCTION

PI = 11+00.00
EL = 1,991.18'
VC = 60'
K = 9'

BEGIN GRADE
STA 10+67.58
EL 1990.76

(+)2.69%
(-)3.01%
END GRADE
STA 11+97.50
EL 1993.05

NOTE: FOR PLAN VIEW SEE SHEET 15

–Y8–

RELEASED FOR CONSTRUCTION

PI = 11+32.50
EL = 1,986.81'
VC = 100'
K = 30

BEGIN GRADE
STA 10+82.50
EL 1994.22

(-)2.98%
(+)6.31%
END GRADE
STA 11+84.58
EL 1999.50

NOTE: FOR PLAN VIEW SEE SHEET 15

–Y9–

RELEASED FOR CONSTRUCTION

BEGIN GRADE
STA 10+32.50
EL 1993.45

(+)3.06%
END GRADE
STA 11+80.07
EL 1997.91

NOTE: FOR PLAN VIEW SEE SHEET 15

–Y10–

RELEASED FOR CONSTRUCTION

PI = 10+80.00
EL = 1,991.46'
VC = 50'
K = 16

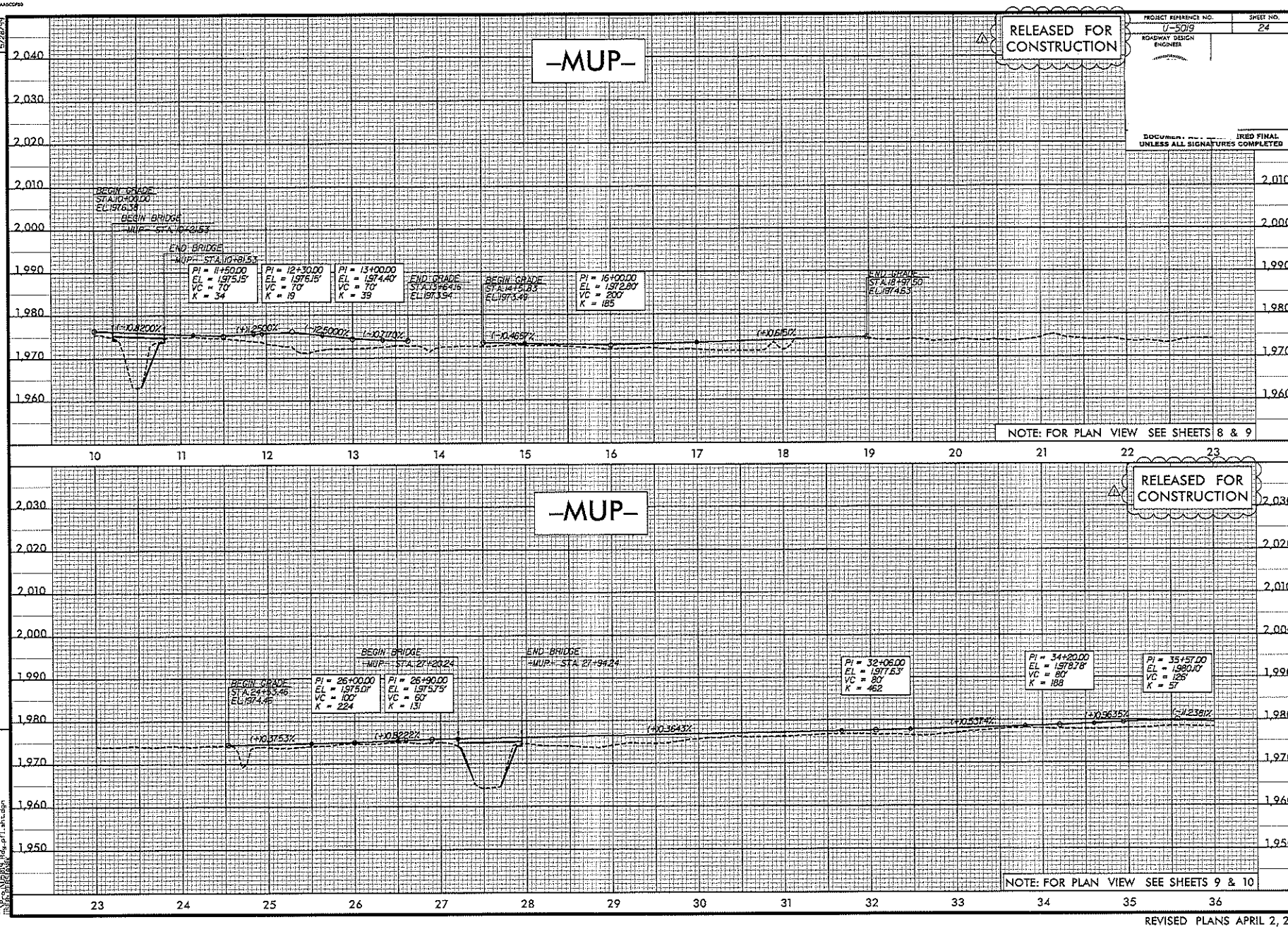
PI = 11+60.00
EL = 1,986.53'
VC = 60'
K = 17

BEGIN GRADE
STA 10+47.50
EL 1992.23

(-)2.56%
(-)6.16%
(-)2.56%
END GRADE
STA 11+98.06
EL 1985.75

NOTE: FOR PLAN VIEW SEE SHEET 15

CONFORMED PLANS SEPTEMBER 8, 20

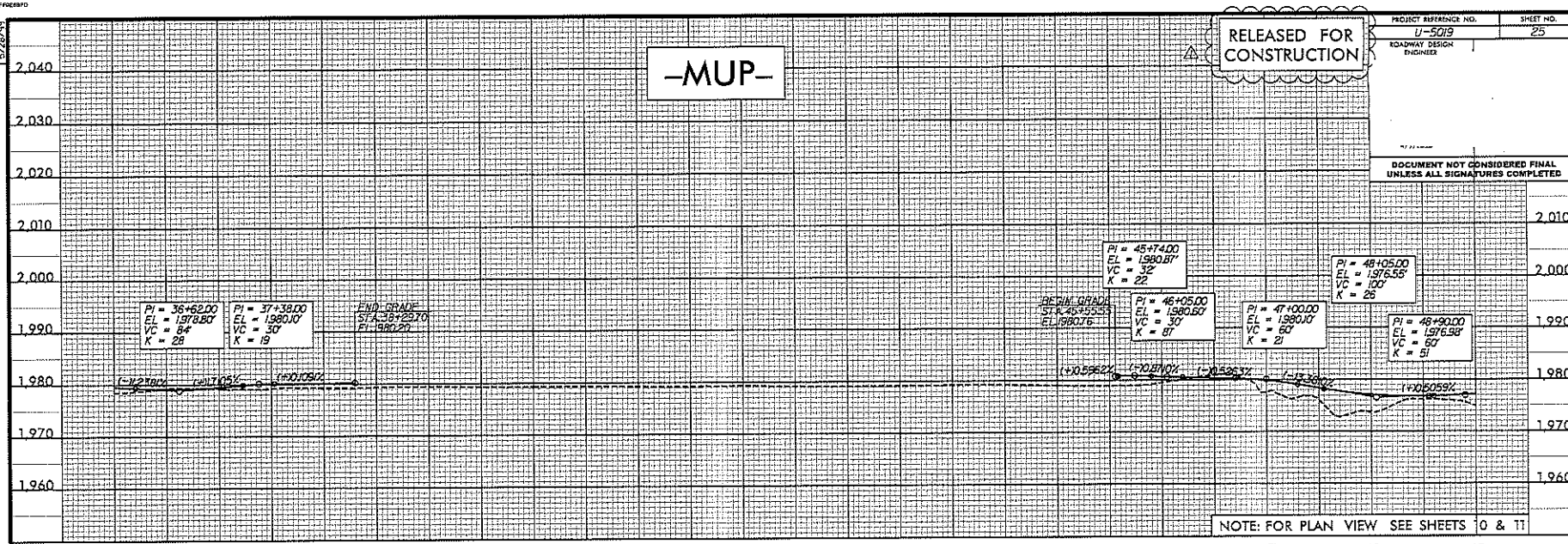


REVISIONS

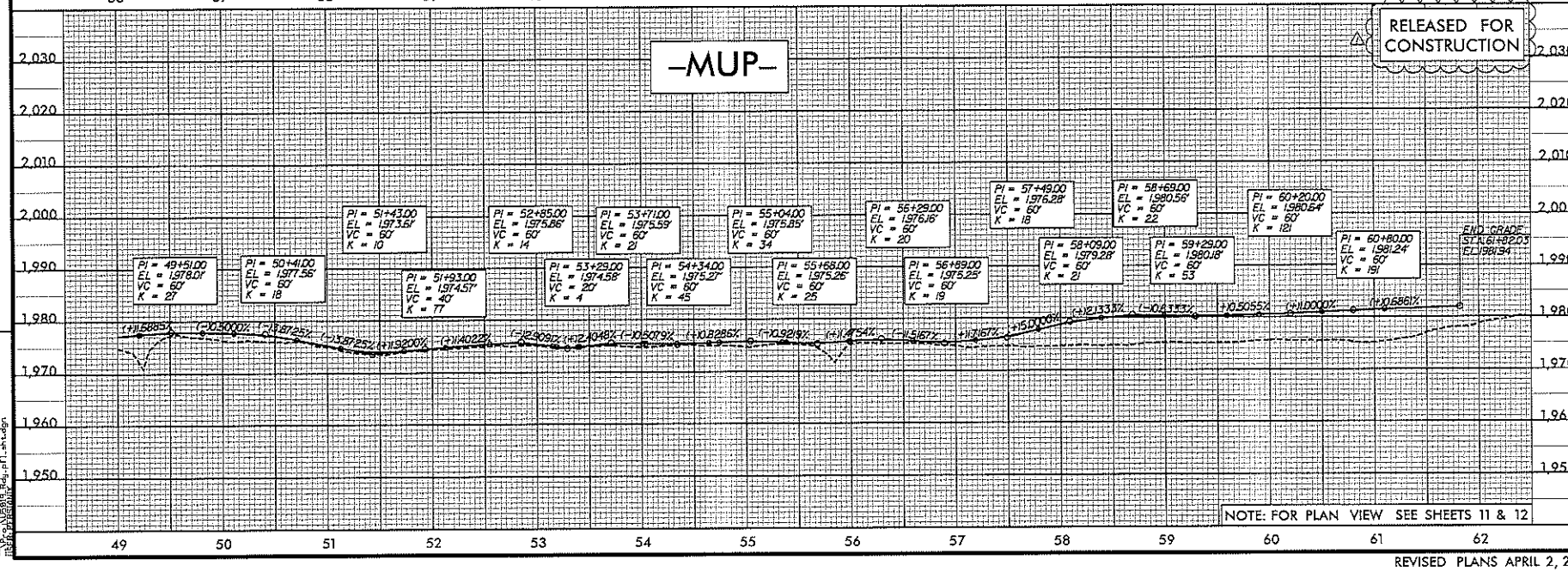
△RELEASE ENTIRE SHEET FOR CONSTRUCTION 14/2/2018

PROJECT REFERENCE NO.	SHEET NO.
U-5019	25

ROADWAY DESIGN ENGINEER



NOTE: FOR PLAN VIEW SEE SHEETS 10 & 11



NOTE: FOR PLAN VIEW SEE SHEETS 11 & 12

REVISED PLANS APRIL 2, 2

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-4
RW SHEET NO.	

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOT RELEASED - REVISIONS PENDING

CITY OF ASHEVILLE PERMIT #16-04809

NAD 83/ NSRS 2011

NORFOLK SOUTHERN RAILROAD DRAINAGE GENERAL NOTES:

1. THIS PROJECT DOES NOT CHANGE THE QUANTITY OF FLOW ONTO THE RAILWAY DITCHES AND/OR STRUCTURES.
2. THE CHARACTER OF FLOW HAS CHANGED ONLY UNDER THE NSRR BRIDGE WHERE WE TAKE THE ROADWAY WATER FROM AN OPEN SYSTEM (DITCHES) TO A CLOSED SYSTEM (PIPES).
3. MANY MAJOR AREAS OF THIS PROJECT WHERE NSRR PROPERTY AND/OR RAILWAY IS WITHIN THE FEMA 100 YR FLOODPLAIN OF THE FRENCH BROAD RIVER. WHERE AT ALL POSSIBLE THE RAILWAY DRAINAGE WAS ROUTED TO THE RIVER.

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

Type of Liner= Temp. Matting Min. D= 1 Ft. Max d= 1 Ft.

FROM -L- STA. 23+50 TO -L- STA. 24+50

BEGIN PROJECT U-5019
-L- POC STA. 16+51.46

SEE SHEET D-5

-L- STA. 24+00.00

CITY OF ASHEVILLE

SOUTHERN STATES COOPERATIVE, INC. DB 1422 PG 5

BERNARD COATES
KATHERYN COATES
DB 2235 PG 491

TERRIS EURY
DB 3907 PG 112

TERRIS EURY
DB 3726 PG 81

SR 1417 (RIVERSIDE DR) SR

TO WOODFIN

FRENCH BROAD RIVER

EASTERN RIVER BANK/ PROPERTY

NOTE: SEE SHEET 4 FOR ROADWAY PLA
SEE SHEET 16 FOR PROFILE

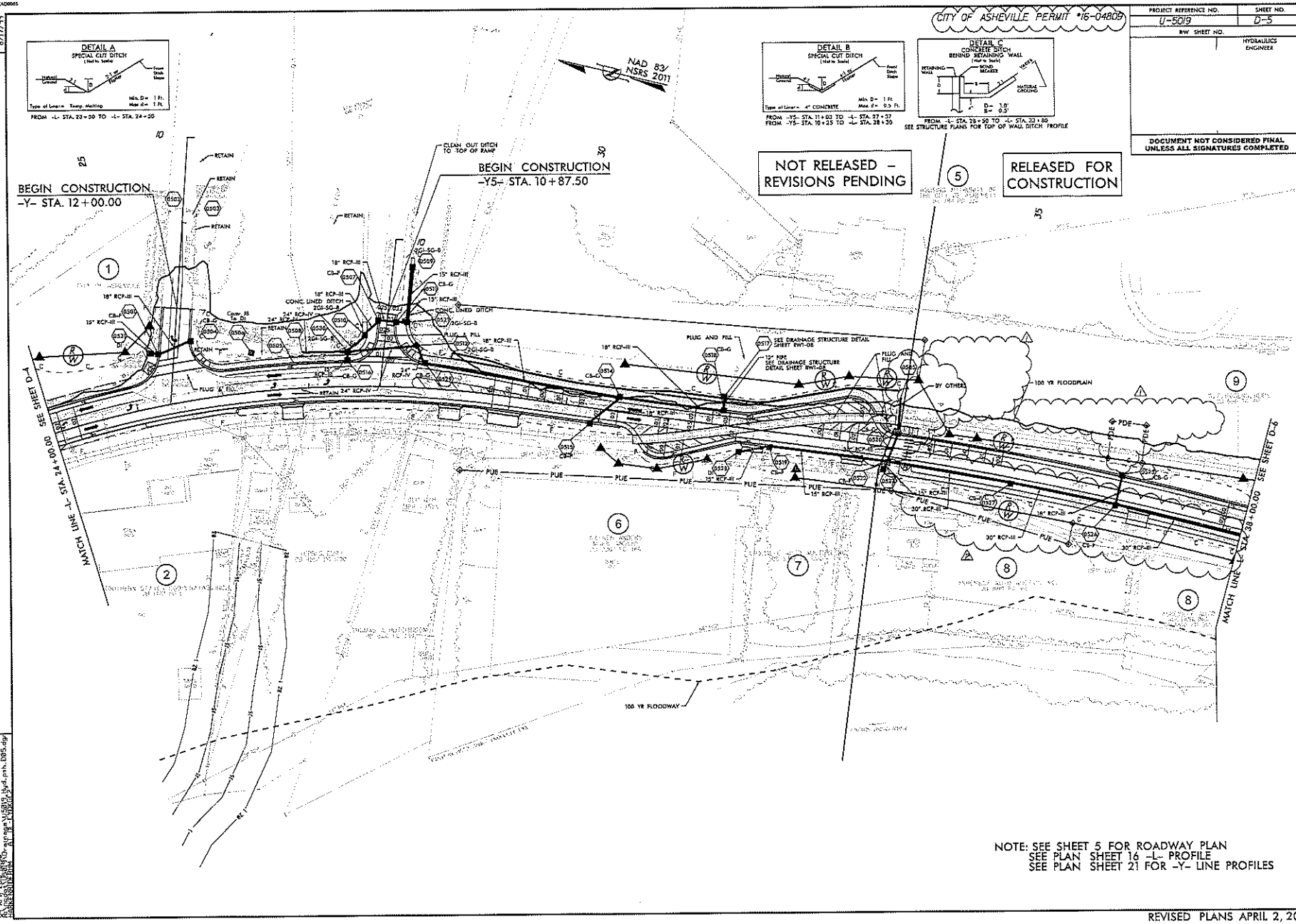
CONFORMED PLANS SEPTEMBER 8, 20

REVISIONS

8/17/99

ADDED NRGFOLK SOUTHERN NOTE AND DELETED RIPRAP NOTE FOR STRUCTURE #05

SYSTEM: ...\drainage\U5019_ftg-pnh.DB4.dgn



NOTE: SEE SHEET 5 FOR ROADWAY PLAN
SEE PLAN SHEET 16 -L- PROFILE
SEE PLAN SHEET 21 FOR -Y- LINE PROFILES

DocuSign Envelope ID: CAC45B7D-2779-4360-9206-63104DF6F6DA

RELEASED FOR CONSTRUCTION

CITY OF ASHEVILLE PERMIT #16-04809

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-6
R/W SHEET NO.	
	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

8/1/18

ADDED DRAINAGE STRUCTURE 666 TO PARCEL 18.

ADDED PIPE UNDER SPUR TRACK AND STRUCTURE 520 REVISED SYSTEM 10A/02/18

BEGIN CONSTRUCTION
-Y2- POT STA. 12+27.87

NAD 83/ NSRS 2011

MATCH LINE -L- STA. 38+00.00 SEE SHEET D-5

MATCH LINE -L- STA. 42+00.00 SEE SHEET D-7

MATCH LINE -Y1- STA. 13+00.00 SEE SHEET 14

100 YR FLOODPLAIN

100 YR FLOODWAY

FIELD LOCATED VERIFY LOCATION

RETAIN

PLUG & FILL

2 TONS CL 'B' RIP RAP
2 SY GEOTEXTILE
SEE DETAIL SHEET EC-3F
WIDTH AT END OF PIPE = 3 FT.
LENGTH = 6 FT.
THICKNESS = 1 FT.

5 TONS CL 'B' RIP RAP
16 SY GEOTEXTILE
WIDTH = 5.0 FT.
LENGTH = 10 FT.
THICKNESS = 1.5 FT.

2 TONS CL 'B' RIP RAP
7 SY GEOTEXTILE
SEE DETAIL SHEET 262-1
TOP WIDTH = 2.0 FT.
BOTTOM WIDTH = 5.8 FT.
HEIGHT = 10.0 FT.
THICKNESS = 1.5 FT.

8 TONS CL 'B' RIP RAP
21 SY GEOTEXTILE
ONLY PLACE RIP RAP ON SIDE SLOPE OF STREAM UP TO TOP OF PIPE
16 FT.

NOTE: SEE SHEET 6 FOR ROADWAY PLAN
SEE PLAN SHEET 17 FOR -L- PROFILE
SEE PLAN SHEET 21 FOR -Y2- PROFILE

REVISED PLANS APRIL 2, 2

CITY OF ASHEVILLE PERMIT #16-04809

RELEASED FOR CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-7
R/W SHEET NO.	

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

ADDED DRAINAGE STRUCTURE 730 AND A 15" RCP AND 18" RCP

RELEASED FOR CONSTRUCTION (04/02/18)

8/17/99

NAD 83/NSRS 2011

SEE SHEET D-6

MATCH LINE -L- STA. 52+00.00

SEE SHEET D-8

MATCH LINE -L- STA. 66+00.00

100 YR FLOODPLAIN

100 YR FLOODWAY

2 TONS CL "B" RIP RAP
7 SY GEOTEXTILE
SEE DETAIL SHEET SD-3
TOP WIDTH = 2.0 FT.
BOTTOM WIDTH = 5.8 FT.
HEIGHT = 12.0 FT.
THICKNESS = 1.5 FT.

3 TONS CL "B" RIP RAP
11 SY GEOTEXTILE
SEE DETAIL SHEET SD-2F
WIDTH AT END OF PIPE = 6 FT.
LENGTH = 9 FT.
THICKNESS = 1 FT.

11 TONS CLASS "B" RIP RAP
28 SY GEOTEXTILE
ONLY PLACE RIP RAP ON SIDE SLOPE OF STREAM
LIP TO TOP OF PIPE
L = 20 FT.

REVISED PLANS APRIL 2, 20

CITY OF ASHEVILLE PERMIT #16-04809

RELEASED FOR CONSTRUCTION

BEGIN CONSTRUCTION
-Y4- POC STA. 12+19.45

MATCH LINE -Y4- STA. 12+00.00 SEE SHEET D-15

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-8
R/W SHEET NO.	
HYDRAULICS ENGINEER	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

8/17/99

RELEASED FOR CONSTRUCTION (04/02/18)

NAD 83/ NSRS 2011

MATCH LINE -L- STA. 66+00.00 SEE SHEET D-7

MATCH LINE -L- STA. 79+00.00 SEE SHEET D-9

100 YR FLOODPLAIN

100 YR FLOODWAY

FIELD LOCATE VERIFY LOCATION

RETAIN

EXIST. RUBBLE RETAINING WALL TO BE REMOVED; REGRADE BANKS TO FORM 2:1 SLOPE EXPAND RCP/CONTRACT

173 TONS OF SPECIAL CLASS RIP RAP
84 TONS OF CLASS 1 RIP RAP
390 SY GEOTEXTILE
SPECIAL CLASS RIP RAP WIDTH (UP SIDE SLOPE ONLY) = 11.5 FT.
KEY IN SPECIAL CLASS RIP RAP 3 FT. BELOW THE STREAMBED
SPECIAL CLASS RIP RAP LENGTH = 30 FT.
SPECIAL CLASS RIP RAP THICKNESS = 4.8 FT.
CLASS 1 RIP RAP WIDTH (UP SIDE SLOPE ONLY) ABOVE SPECIAL CLASS RIP RAP = 13.5 FT.
CLASS 1 RIP RAP LEGNTH = 55 FT.
CLASS 1 RIP RAP THICKNESS = 2 FT.

RELAX BANK TO A 2:1 SLOPE AT PIPE OUTLET AND RIPRAP PAD
2 TONS CL "I" RIP RAP
8 SY GEOTEXTILE
SEE DETAIL SHEET 20-J
TOP WIDTH = 2.0 FT.
BOTTOM WIDTH = 5.8 FT.
HEIGHT = 12.0 FT.
THICKNESS = 1.5 FT.

5 TONS CL "3" RIP RAP
17 SY GEOTEXTILE
SEE DETAIL SHEET 20-J
TOP WIDTH = 2.5 FT.
BOTTOM WIDTH = 7.5 FT.
HEIGHT = 17.5 FT.
THICKNESS = 1.5 FT.

1 TONS CL "B" RIP RAP
5 SY GEOTEXTILE
SEE DETAIL SHEET 20-J
TOP WIDTH = 1.7 FT.
BOTTOM WIDTH = 4.9 FT.
HEIGHT = 10.7 FT.
THICKNESS = 1.5 FT.

2 TONS CL "B" RIP RAP
7 SY GEOTEXTILE
SEE DETAIL SHEET 20-J
TOP WIDTH = 2.0 FT.
BOTTOM WIDTH = 5.8 FT.
HEIGHT = 12.0 FT.
THICKNESS = 1.5 FT.

DETAIL D
SINGLE BARREL CULVERT
LOW FLOW
CHANNEL AND SILLS

NOTE: SEE PLAN SHEET 18 FOR -L- PROFILE
SEE PLAN SHEET 21 FOR -Y3- PROFILE
SEE PLAN SHEET 21 FOR -Y4- PROFILE
SEE PLAN SHEET 21 FOR -ROUND1- PROFILE
SEE SHEET 8 FOR ROADWAY PLAN

REVISED PLANS APRIL 2, 20

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-9
RW SHEET NO.	
HYDRAULICS ENGINEER	

CITY OF ASHEVILLE PERMIT #16-04809

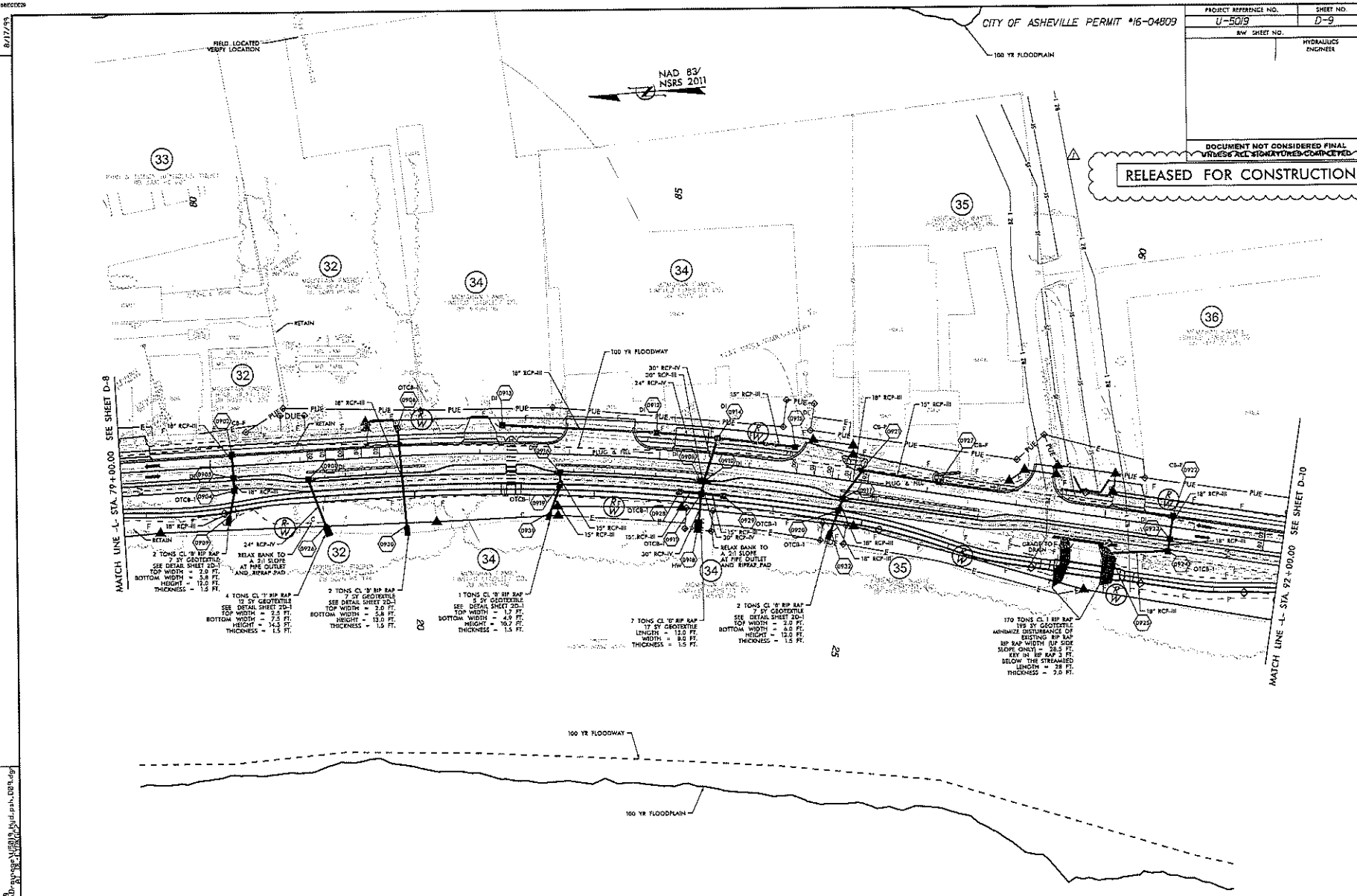
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RELEASED FOR CONSTRUCTION

REVISIONS

8/17/99

RELEASED FOR CONSTRUCTION (04/02/18)



NOTE: SEE PLAN SHEETS 18 & 19 FOR PROFILE
SEE SHEET 9 FOR ROADWAY PLAN

REVISED PLANS APRIL 2, 20

CITY OF ASHEVILLE PERMIT #16-04809

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-10
R/W SHEET NO.	

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RELEASED FOR CONSTRUCTION

REVISIONS

8/17/99

RELEASED FOR CONSTRUCTION 04/02/18!

04-APR-2018 09:53
C:\Users\jbrown\Desktop\U5019_Hyd_esh_D10.dgn
$USER
31.1 x 42.0 (ANSI D)

NAD 83/ NSRS 2011

SEE SHEET D-9

MATCH LINE -L- STA. 92+00.00

SEE SHEET D-11 MATCH LINE -L- STA. 106+00.00

FIELD LOCATED VERIFY LOCATION

RELAX BANK TO A 2:1 SLOPE AT PIPE OUTLET AND RIPRAP PAD

4 TONS CL 'I' RIP RAP
12 SY GEOTEXTILE
SEE DETAIL SHEET 20-1
TOP WIDTH = 2.5 FT.
BOTTOM WIDTH = 7.5 FT.
HEIGHT = 11.5 FT.
THICKNESS = 1.5 FT.

RELAX BANK TO A 1.5:1 SLOPE AT PIPE OUTLET AND RIPRAP PAD

2 TONS CL 'B' RIP RAP
11 SY GEOTEXTILE
SEE DETAIL SHEET 20-1
TOP WIDTH = 2.0 FT.
BOTTOM WIDTH = 7.5 FT.
HEIGHT = 13.5 FT.
THICKNESS = 1.5 FT.

2 TONS CL 'B' RIP RAP
7 SY GEOTEXTILE
SEE DETAIL SHEET 20-1
TOP WIDTH = 2.0 FT.
BOTTOM WIDTH = 5.0 FT.
HEIGHT = 11.0 FT.
THICKNESS = 1.5 FT.

RELAX BANK TO A 1.5:1 SLOPE AT PIPE OUTLET AND RIPRAP PAD

100 YR FLOODWAY

100 YR FLOODPLAIN

NOTE: SEE PLAN SHEET 19 FOR PROFILE
SEE SHEET 10 FOR ROADWAY PLAN

REVISED PLANS APRIL 2, 201

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-11
R/W SHEET NO.	

HYDRAULICS ENGINEER

CITY OF ASHEVILLE PERMIT #16-04809

REVISIONS

8/17/18 RELEASED FOR CONSTRUCTION (GH/DZ/IB)

PLOTTED BY: Gary Hall
DATE/TIME PLOTTED: 8/17/2018 8:05:53 AM
FILE NAME: C:\Projects\U5019_Hyds_psh_011.dgn
DESIGN ENGINEER: GH
PROJECT ENGINEER: DZ
R/W ENGINEER: IB

PREFORMED SCOUR HOLE
*NOT TO SCALE

PLAN VIEW

INSTALL LEVEL AND FLUSH WITH NATURAL GROUND

Pipe or Ditch Outlet

Square Preformed Scour Hole (PSH)

(Rip Rap in basin not shown for clarity)

B=3.75 ft.
D=0.63 ft.
W=4 ft.

SECTION A-A

PIPE Ø = 15" OR 18"

FILL VARIES

INFLOW

D

PSHm

B

NATURAL CREEPING

LINER CLASS B RIPRAP WITH GEOTEXTILE

MIN. 1' TUCK

259

-L- STA. 110+68.00 RT

DETAIL E
TOE PROTECTION
(Not to Scale)

NATURAL GROUND

2:1 OR FLATTER

GEOTEXTILE

d= 1.0 ft.

Type of Liner= Class 'A' Rip-Rap

FROM -L- STA. 112+50 TO -L- STA. 113+50

DETAIL F
TOE PROTECTION
(Not to Scale)

Natural Ground

2:1 or Flatter Fill Slope

PSHm

d= 1.0 ft.

Type of Liner= PSHm

FROM -L- STA. 113+50 TO -L- STA. 115+00

DETAIL G
SPECIAL LATERAL "V" DITCH
(Not to Scale)

Natural Ground

d

T

2:1 or Flatter

Fill Slope

Min. D= 2.0 ft.
Max. d= 1.0 ft.

Type of Liner= PSHm

FROM -L- STA. 115+00 TO -L- STA. 116+00

DETAIL H
SPECIAL LATERAL "V" DITCH
(Not to Scale)

Natural Ground

d

T

2:1 or Flatter

Fill Slope

Min. D= 2.0 ft.
Max. d= 1.0 ft.

Type of Liner= Temp. Matting

FROM -L- STA. 116+00 TO -L- STA. 119+50

NAD 83/ NSRS 2011

MATCH LINE -L- STA. 106+00.00 SEE SHEET D-10

MATCH LINE -L- STA. 119+00.00 SEE SHEET D-12

100 YR FLOODPLAIN

100 YR FLOODWAY

PLUG & FILL

PUE

RW

HW

DI

CB-S

PSH

OTCK

JB w/MH

15" RCP-III

18" RCP-III

24" RCP-IV

36" RCP-IV

8 TONS CL 'B' RIP RAP
11 SY GEOTEXTILE
SEE DETAIL SHEET 2D-1
TOP WIDTH = 2.5 FT.
BOTTOM WIDTH = 7.5 FT.
HEIGHT = 13.5 FT.
THICKNESS = 1.5 FT.

11 TONS CL 'B' RIP RAP
28 SY GEOTEXTILE
SEE DETAIL SHEET EC-2P
LENGTH = 15 FT.
HEIGHT UP SIDE SLOPES = TOP OF PIPE

2 TONS CL 'B' RIP RAP
7 SY GEOTEXTILE
SEE DETAIL SHEET 2D-1
TOP WIDTH = 2.0 FT.
BOTTOM WIDTH = 5.8 FT.
HEIGHT = 13.0 FT.
THICKNESS = 1.5 FT.

NOTE: SEE PLAN SHEETS 19 & 20 FOR -L- PROFILE
SEE PLAN SHEET 22 FOR -MUP- PROFILE
SEE SHEET 10 FOR ROADWAY PLAN

PREFORMED SCOUR HOLE
*NOT TO SCALE

PLAN VIEW

INSTALL LEVEL AND FLUSH WITH NATURAL GROUND

Pipe or Ditch Outlet

Square Preformed Scour Hole (PSH)

(Rip Rap in basin not shown for clarity)

B=3.75 ft.
D=0.63 ft.
W=4 ft.

SECTION A-A

PIPE Ø = 15" OR 18"

FILL VARIES

INFLOW

D

PSHm

B

NATURAL CREEPING

LINER CLASS B RIPRAP WITH GEOTEXTILE

MIN. 1' TUCK

259

-L- STA. 116+05.00 RT

REVISED PLANS APRIL 2, 20

CITY OF ASHEVILLE PERMIT #16-04809

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-12

RW SHEET NO.

HYDRAULICS ENGINEER

4/5/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RELEASED FOR CONSTRUCTION

DETAIL H
SPECIAL LATERAL "V" DITCH
(Not to Scale)

Min. D = 2.0 Ft.
Max. d = 1.0 Ft.

Type of Liner = Temp. Matting

FROM -L- STA. 116+00 TO -L- STA. 119+50

DETAIL J
SPECIAL LATERAL "V" DITCH
(Not to Scale)

Min. D = 1.0 Ft.
Max. d = 0.5 Ft.

Type of Liner = Temp. Matting

FROM -L- STA. 130+00 TO -L- STA. 134+00

NAD 83/ NSRS 2011

REVISIONS

RELEASED FOR CONSTRUCTION (04/02/18)

SEE SHEET D-11

MATCH LINE -L- STA. 119+00.00

SEE SHEET D-13

MATCH LINE -L- STA. 132+00.00

FIELD LOCATED VERIFY LOCATION

RETAIN

100 YR FLOODPLAIN

100 YR FLOODWAY

PLUG & FILL

CLASS I RIP RAP

3 TONS CL "I" RIP RAP
11 SY GEOTEXTILE
SEE DETAIL SHEET EC-2F
LENGTH = 9 FT.
HEIGHT UP SIDE SLOPES = TOP OF PIPE

3 TONS CL "I" RIP RAP
11 SY GEOTEXTILE
SEE DETAIL SHEET 20-1
TOP WIDTH = 2.5 FT.
BOTTOM WIDTH = 7.5 FT.
HEIGHT = 13.5 FT.
THICKNESS = 1.5 FT.

NOTE: SEE PLAN SHEET 20 FOR PROFILE
SEE SHEET 12 FOR ROADWAY PLAN

REVISED PLANS APRIL 2, 201

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-13
R/W SHEET NO.	
	HYDRAULICS ENGINEER

CITY OF ASHEVILLE PERMIT #16-04809

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RELEASED FOR CONSTRUCTION

REVISIONS

8/17/99

RELEASED FOR CONSTRUCTION (04/02/18)

DETAIL J
SPECIAL LATERAL "V" DITCH
(Not to Scale)

Type of Liner= Temp. Matting
Min. D= 1.0 Ft.
Max. d= 0.5 Ft.

FROM -L- STA. 130+00 TO -L- STA. 134+00

NAD 83/
NSRS 2011

100 YR FLOODPLAIN

100 YR FLOODWAY

MATCH LINE -L- STA. 132+00.00 SEE SHEET D-12

END PROJECT U-5019
-L- POT STA. 137+06.75

END CONSTRUCTION
-Y6- STA 10+78.95

NOTE: SEE PLAN SHEET 20 FOR PROFILE
SEE SHEET 13 FOR ROADWAY PLAN

REVISED PLANS APRIL 2, 20

NO CONSTRUCTION ON THIS SHEET

(FUTURE CONSTRUCTION ONLY)

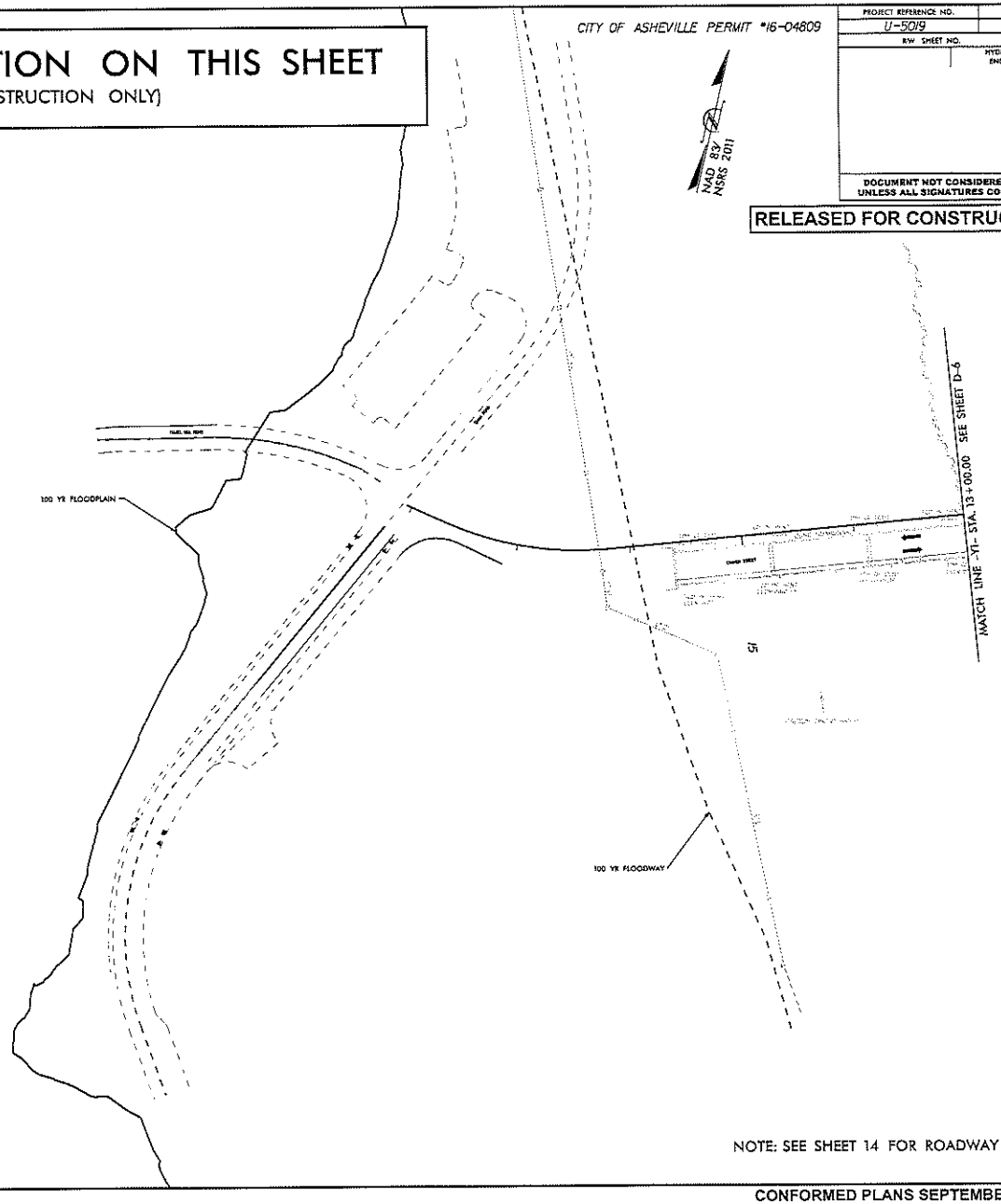
CITY OF ASHEVILLE PERMIT #16-04809

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-14
R/W SHEET NO.	
	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RELEASED FOR CONSTRUCTION

NAD 83/ NSRS 2011



NOTE: SEE SHEET 14 FOR ROADWAY PLAN

CONFORMED PLANS SEPTEMBER 8, 20

REVISIONS 8/17/99

17-FEB-2017 14:49
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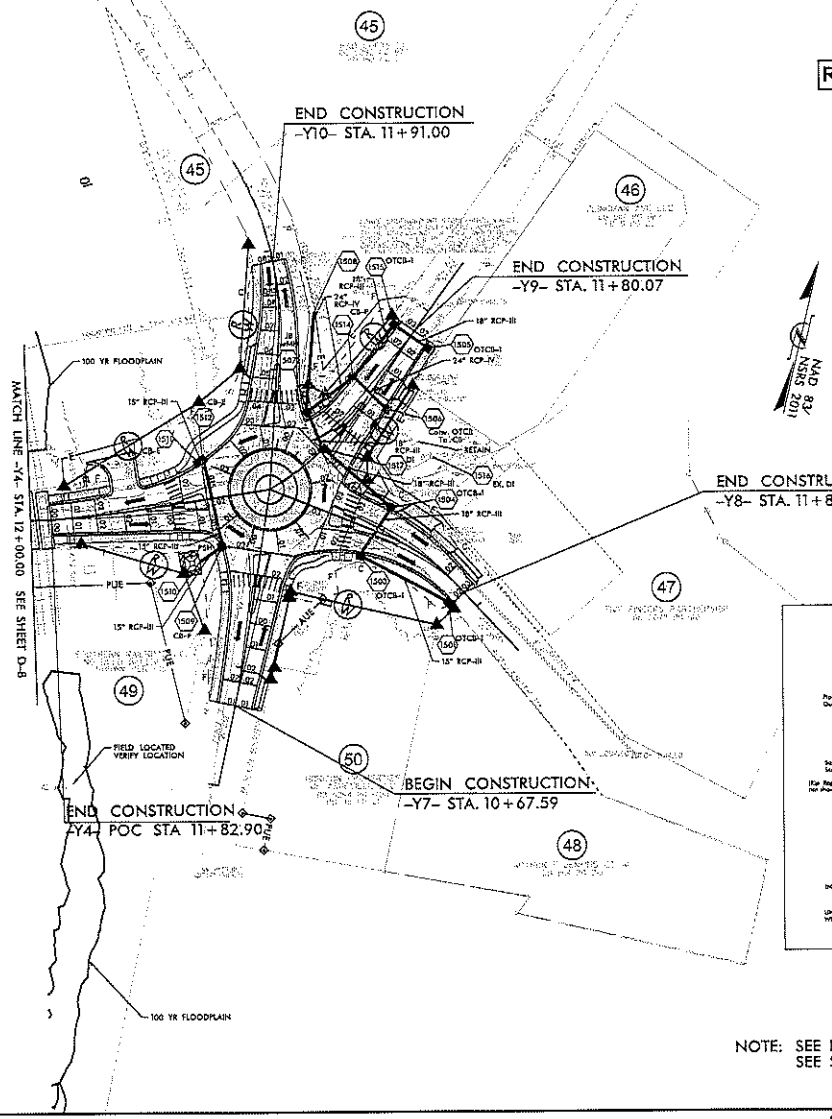
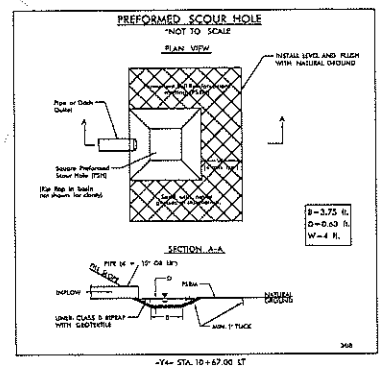
CITY OF ASHEVILLE PERMIT #16-04809

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-15
RW SHEET NO.	
HYDRAULICS	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RELEASED FOR CONSTRUCTION





NOTE: SEE PLAN SHEET 21 FOR PROFILE
SEE SHEET 15 FOR ROADWAY PLAN

CONFORMED PLANS SEPTEMBER 8, 20

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-16

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOT RELEASED – REVISIONS PENDING

NOT RELEASED – REVISIONS PENDING

RELEASED FOR CONSTRUCTION

REVISIONS

5/28/19 UPDATED STORM SYSTEM DATA

04/02/18 ADDED PIPE UNDER SPUR TRACK AND STRUCTURE 520 REVISED SYSTEM AND RELEASED FOR CONSTRUCTION

BEGIN GRADE -L- STA. 16+51.46 ELEV. 1970.14

END GRADE -L- STA. 31+97.57 ELEV. 1970.55

BEGIN GRADE -L- STA. 32+16.40 ELEV. 1970.49

NOTE: FOR PLAN VIEW SEE SHEET 4

NOTE: FOR PLAN VIEW SEE SHEET 5

REVISED PLANS APRIL 2,

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-17

HYDRAULICS ENGINEER

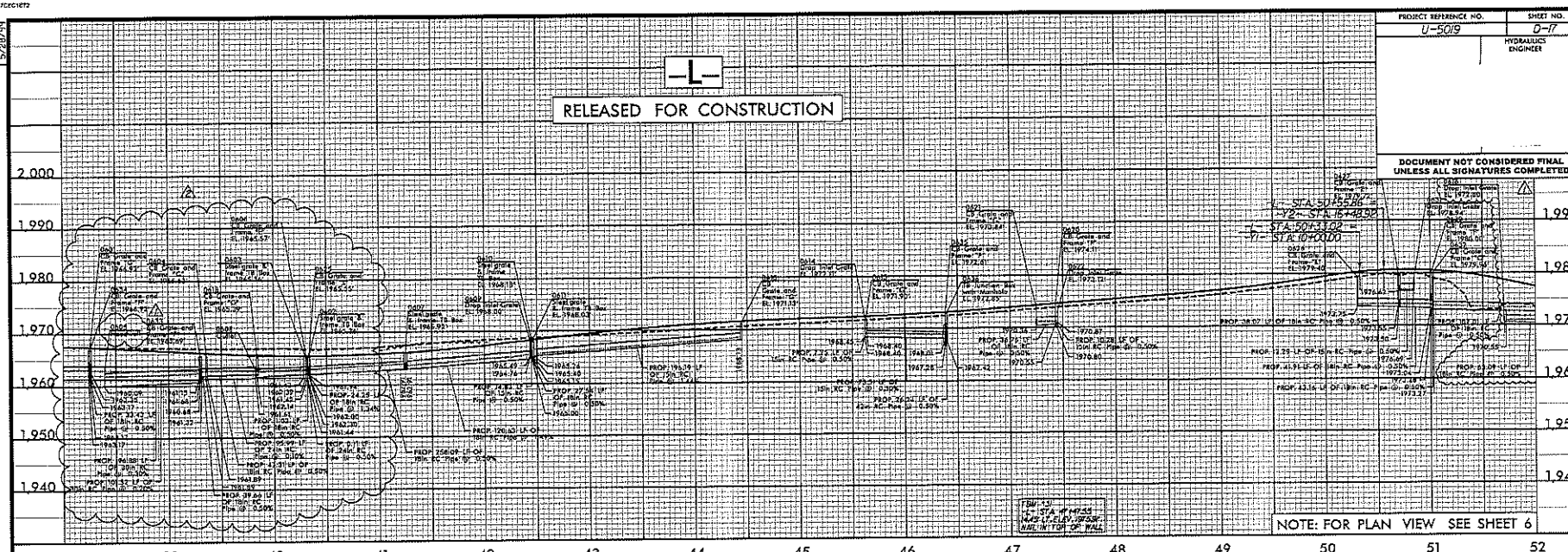
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/20/19 ⚠ ADDED DRAINAGE STRUCTURES 618 AND 730 AND A 15" RCP AND A 18" RCP AND REVISED STORM SYSTEM DATA

⚠ ADDED PIPE UNDER SPUR TRACK AND STRUCTURE 520 REVISED SYSTEM 10A/02/18)

RELEASED FOR CONSTRUCTION



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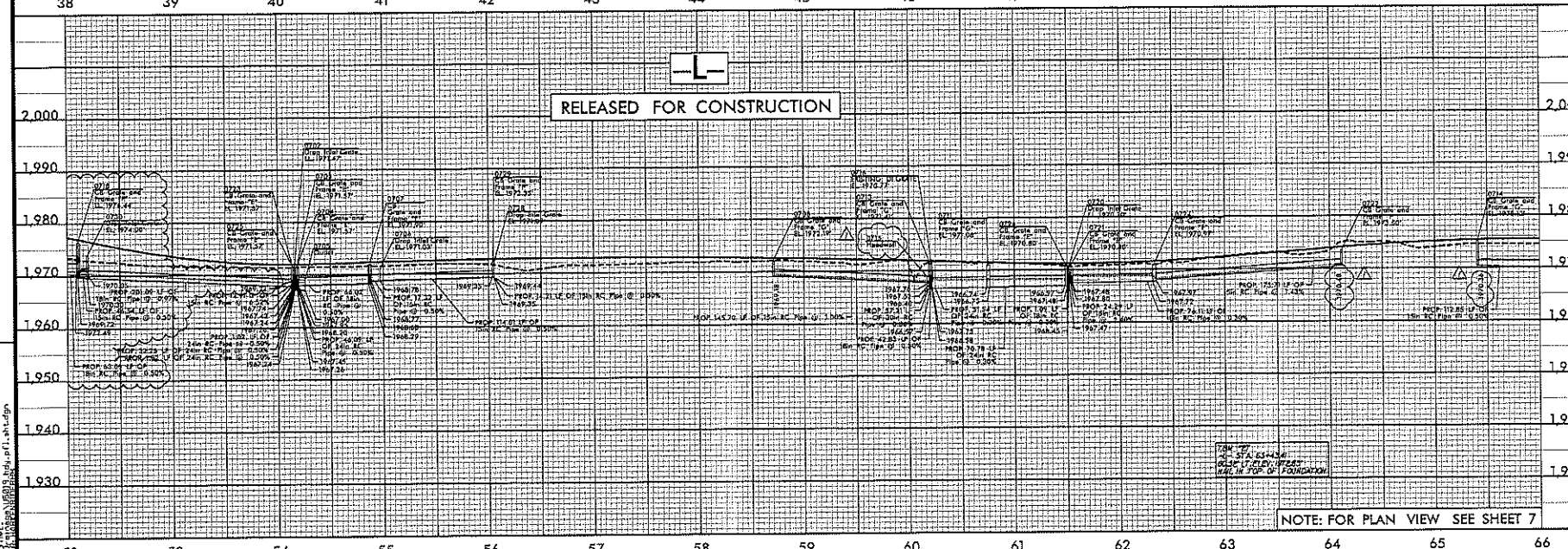


REVISED PLANS APRIL 2,

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-18

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/28/19

REVISIONS

UPDATED STORM SYSTEM DATA
RELEASED FOR CONSTRUCTION

RELEASED FOR CONSTRUCTION

-L-

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 535	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1974.89	FT
BASE DISCHARGE	= 670	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1976.08	FT
OVERTOPPING DISCHARGE	= 630	CFS
OVERTOPPING FREQUENCY	= 50	YRS
OVERTOPPING ELEVATION	= 1976.00	FT

-L- STA 69+71.69
-Y3- STA 70+00.00

END GRADE
-L- STA 73+45.86
ELEV. 1976.40

BEGIN GRADE
-L- STA 74+50.89
ELEV. 1975.44

NOTE: FOR PLAN VIEW SEE SHEET 8

RELEASED FOR CONSTRUCTION

-L-

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1490	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1973.43	FT
BASE DISCHARGE	= 1810	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1974.72	FT
OVERTOPPING DISCHARGE	= 1865	CFS
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING ELEVATION	= 1974.96	FT

BEGIN CULVERT
-L- STA 89+61.54

END CULVERT
-L- STA 89+94.56

NOTE: FOR PLAN VIEW SEE SHEET 9

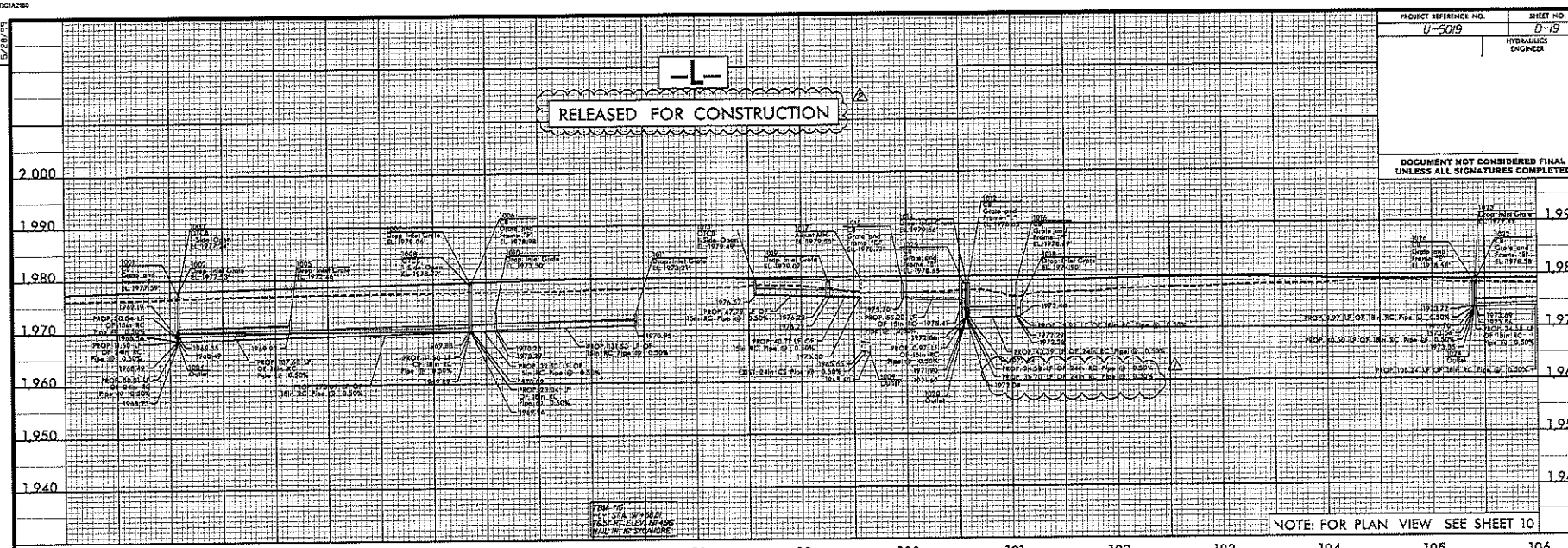
REVISED PLANS APRIL 2,

PROJECT REFERENCE NO.	SHEET NO.
U-5019	D-19

HYDRAULICS ENGINEER

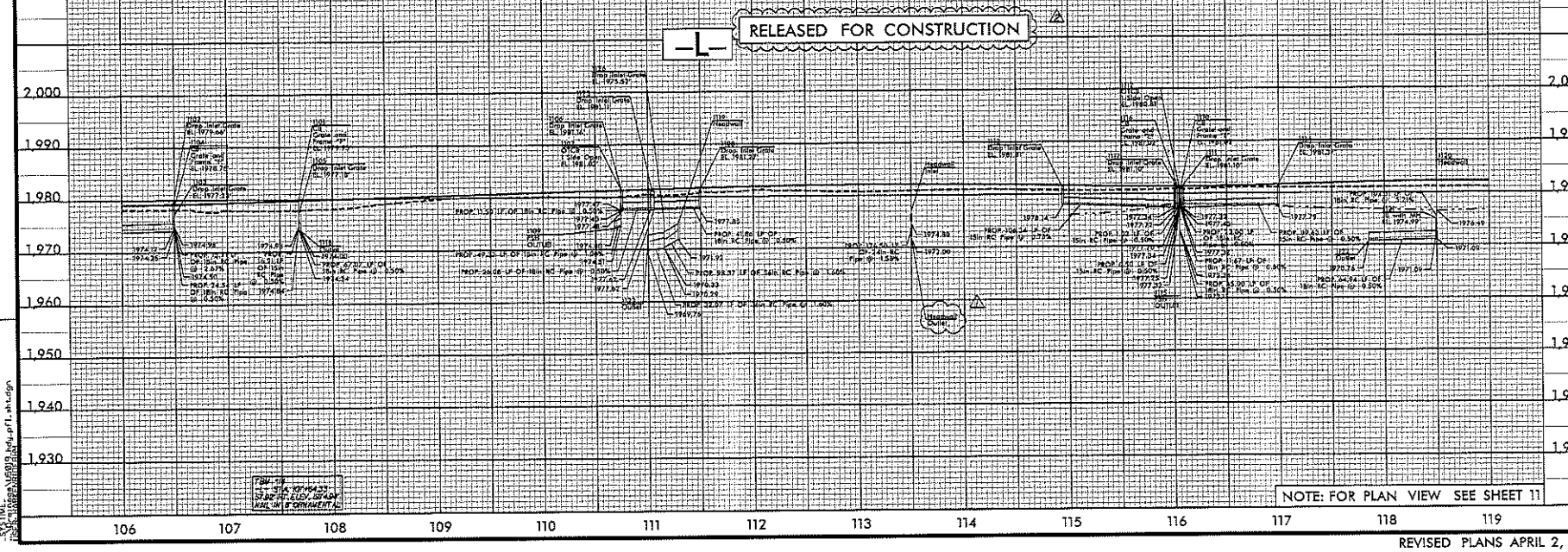
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RELEASED FOR CONSTRUCTION



NOTE: FOR PLAN VIEW SEE SHEET 10

RELEASED FOR CONSTRUCTION



NOTE: FOR PLAN VIEW SEE SHEET 11

REVISIONS

UPDATED STORM SYSTEM DATA
RELEASED FOR CONSTRUCTION

5/28/99

SYSTEM1 - Users\V6013\hd_drft_sht.dgn
USER: thompsonm
PLOT: 04/02/99 @ 07:51

REVISED PLANS APRIL 2,

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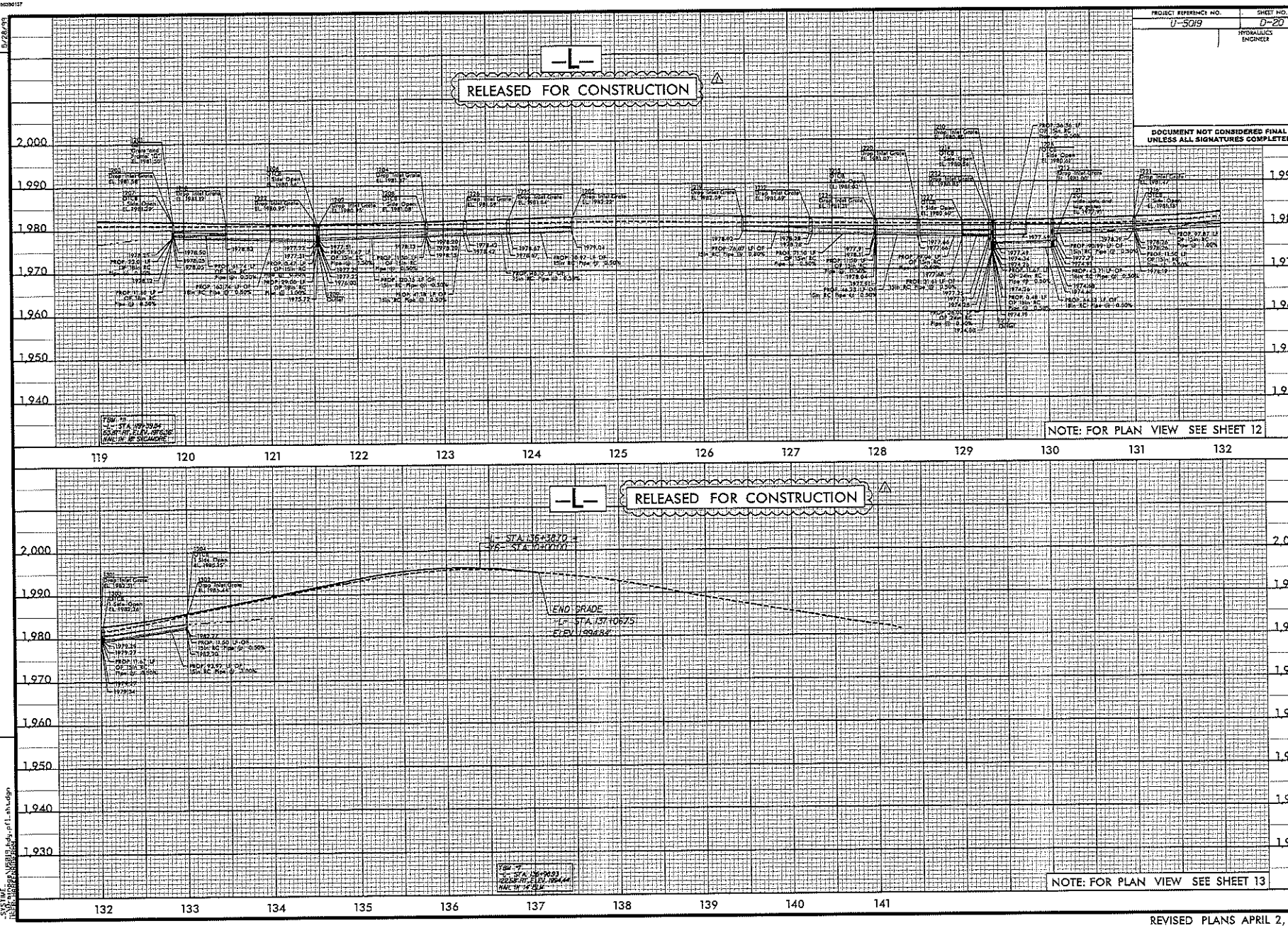

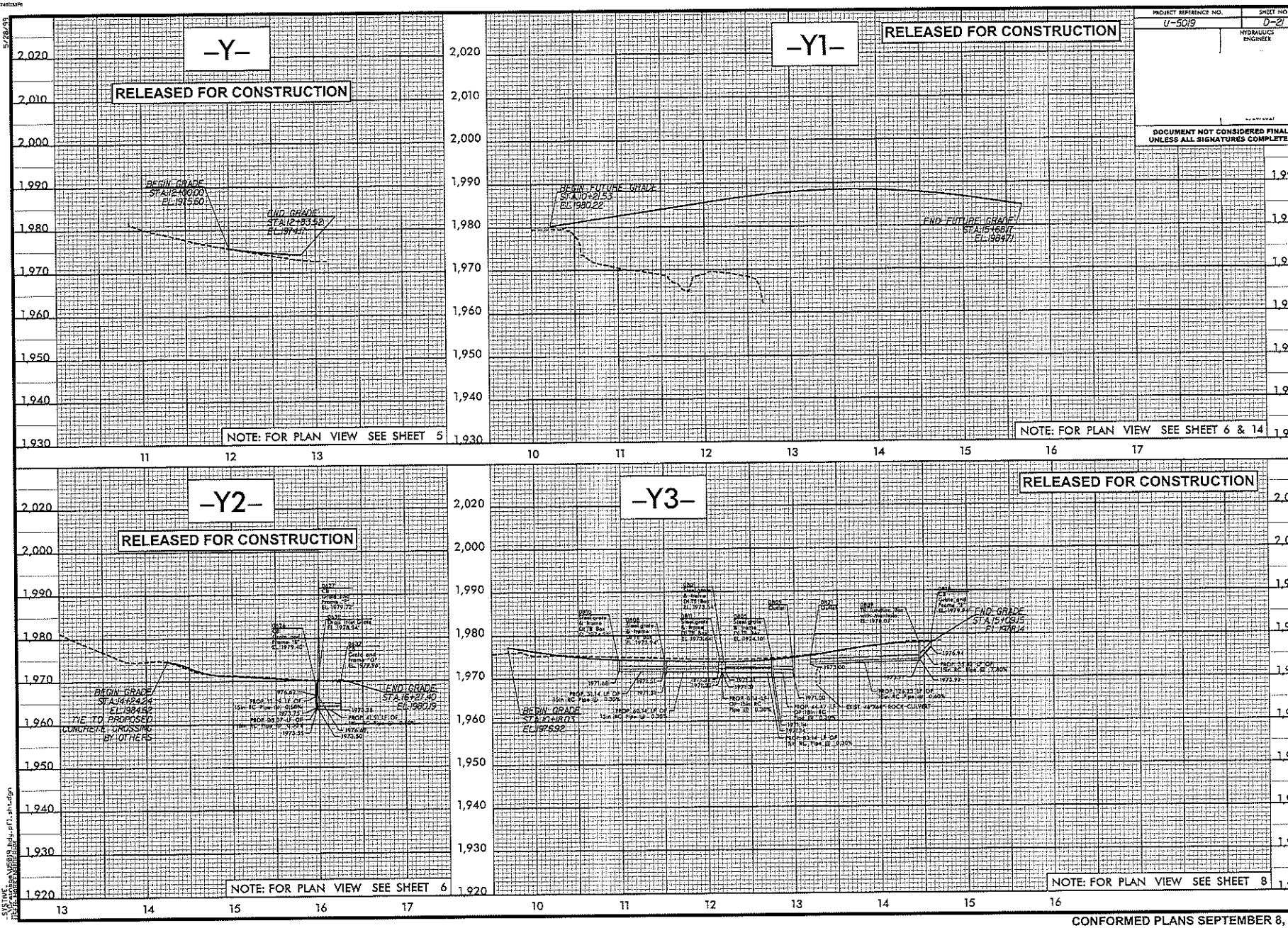

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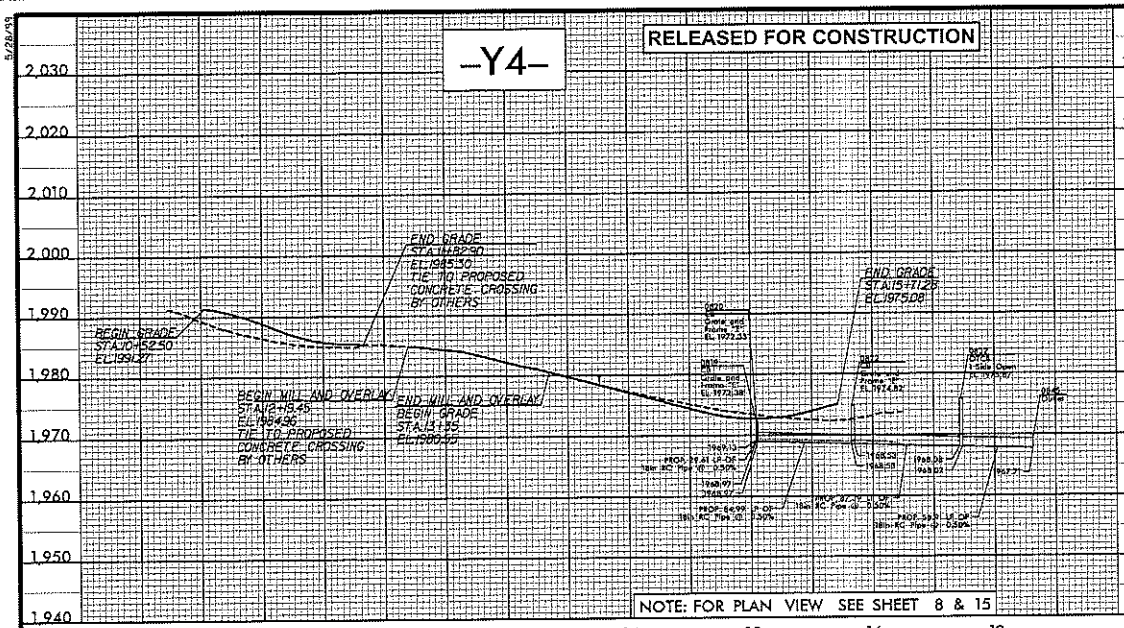
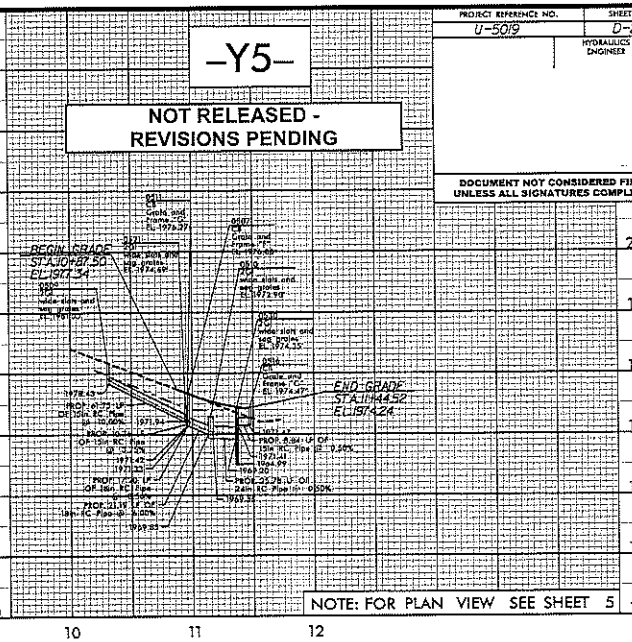


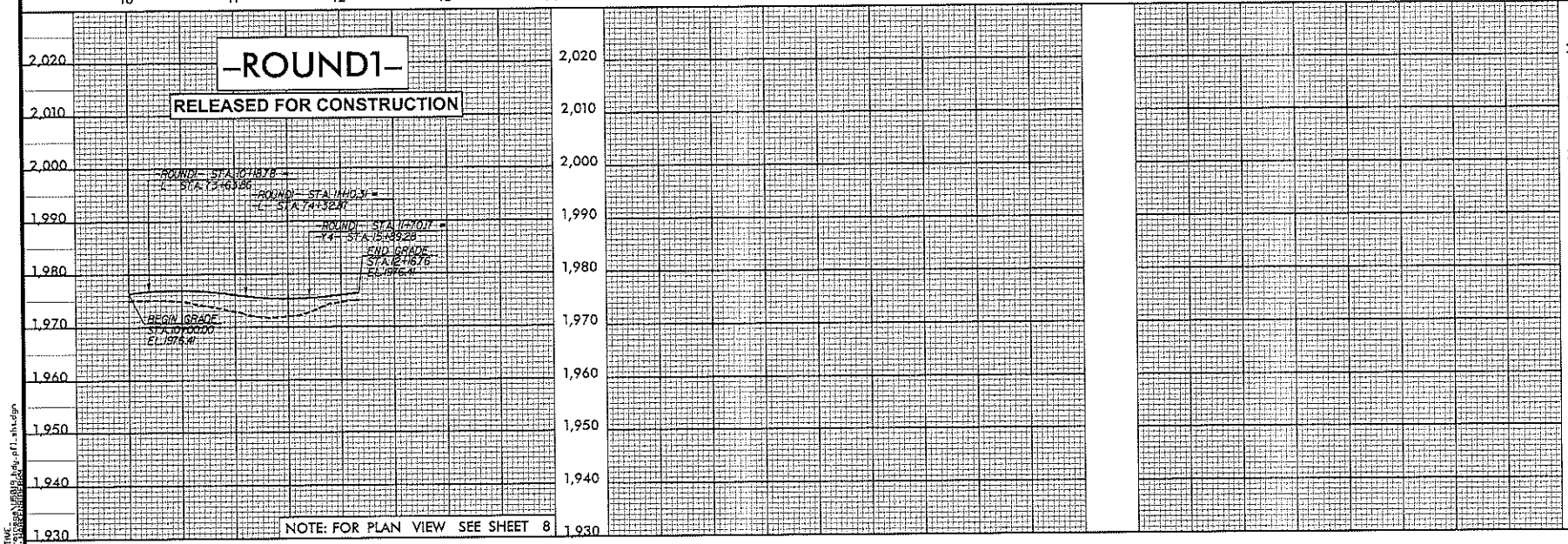
NOTE: FOR PLAN VIEW SEE SHEET 8 & 15

–Y5–



NOTE: FOR PLAN VIEW SEE SHEET 5

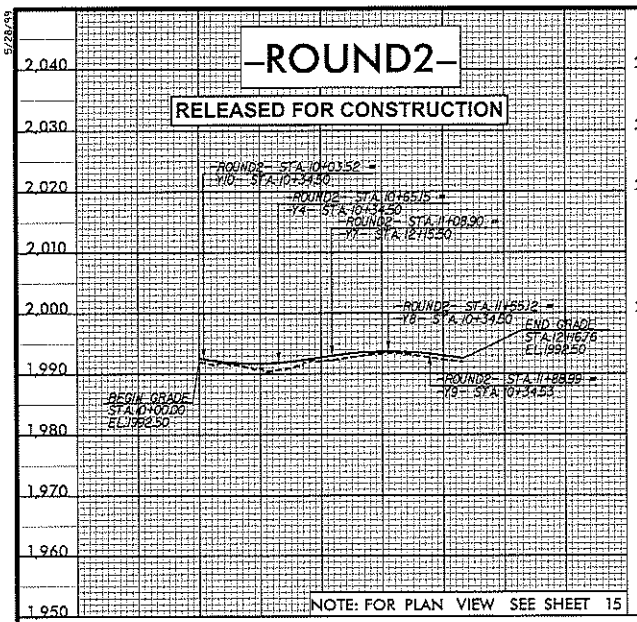
–ROUND1–



NOTE: FOR PLAN VIEW SEE SHEET 8

–ROUND2–

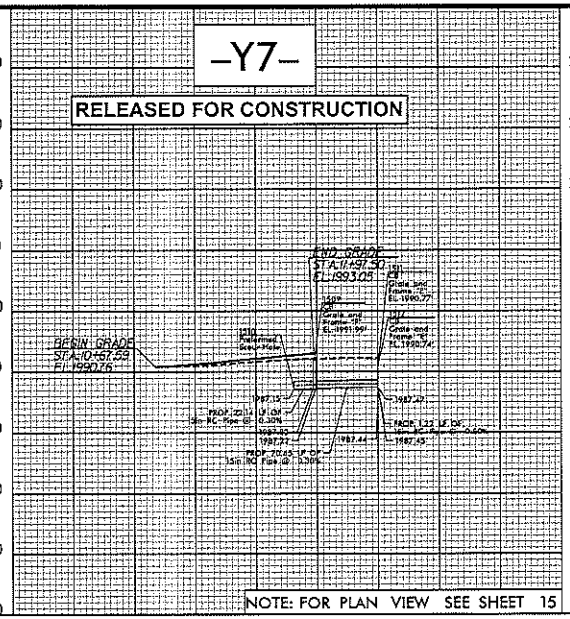
RELEASED FOR CONSTRUCTION



NOTE: FOR PLAN VIEW SEE SHEET 15

–Y7–

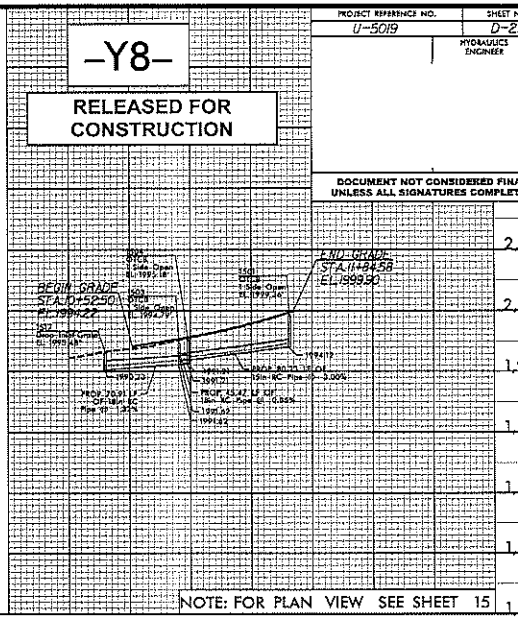
RELEASED FOR CONSTRUCTION



NOTE: FOR PLAN VIEW SEE SHEET 15

–Y8–

RELEASED FOR CONSTRUCTION



NOTE: FOR PLAN VIEW SEE SHEET 15

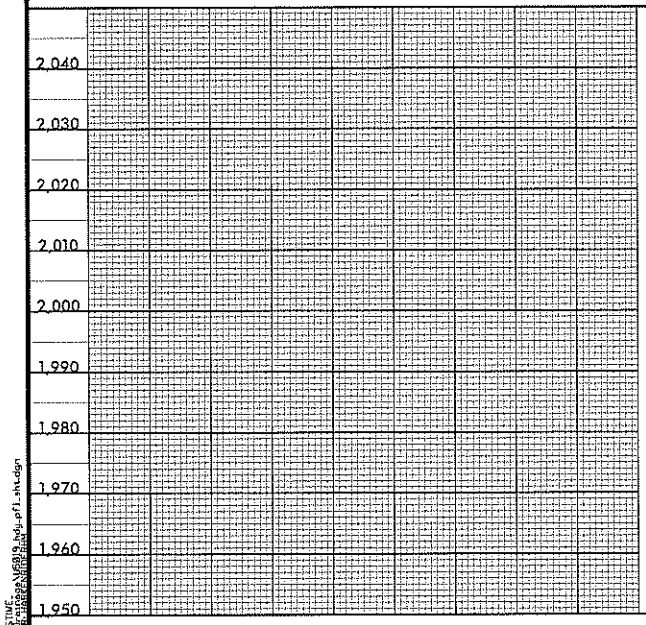
PROJECT REFERENCE NO. U-5019 | SHEET NO. D-2

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETE

–Y9–

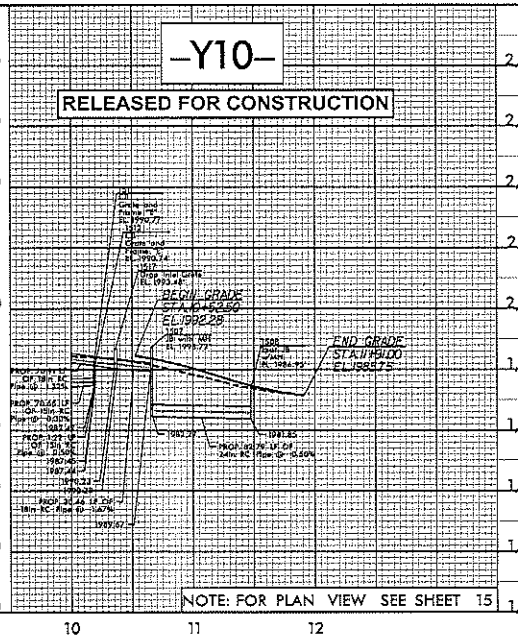
RELEASED FOR CONSTRUCTION



NOTE: FOR PLAN VIEW SEE SHEET 15

–Y10–

RELEASED FOR CONSTRUCTION



NOTE: FOR PLAN VIEW SEE SHEET 15

CONFORMED PLANS SEPTEMBER 8,