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09/28/19

9:17:04 AM N:\Morrisonville\Jobs3\W-5522 Trinity Rd Ped\W5522Structures\Cadd\410_000_W5522_SMU_TS.dgn morrisonc

TIP PROJECT: W-5522

CONTRACT:

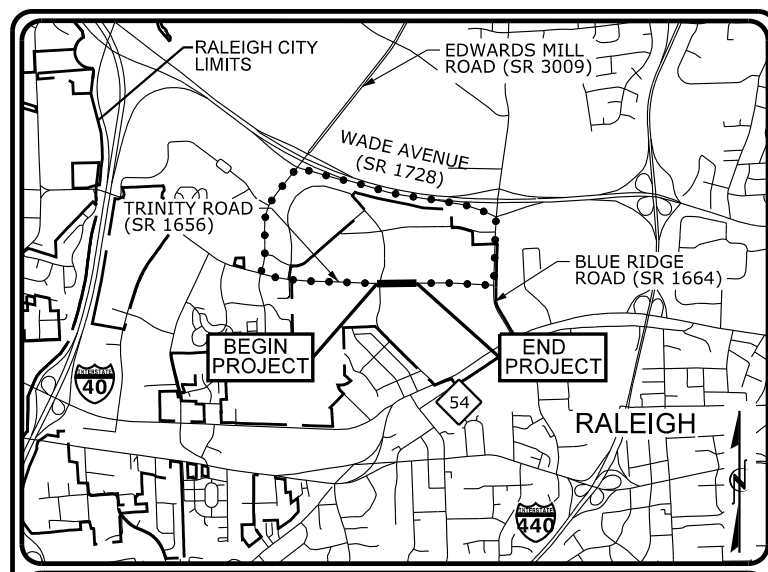
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

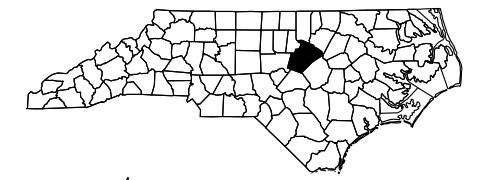
LOCATION: SR 1656 (TRINITY ROAD) AT SR 1658 (YOUTH CENTER DRIVE) INTERSECTION IN RALEIGH

TYPE OF WORK: GRADING, PAVING, STRUCTURES, AND DRAINAGE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5522	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50143.1.FD1	HSIP-1656(5)	PE	
50143.2.1	HSIP-1656(005)	ROW & UTIL	
50143.3.1	HSIP-1656(005)	CONST.	



VICINITY MAP
NOT TO SCALE



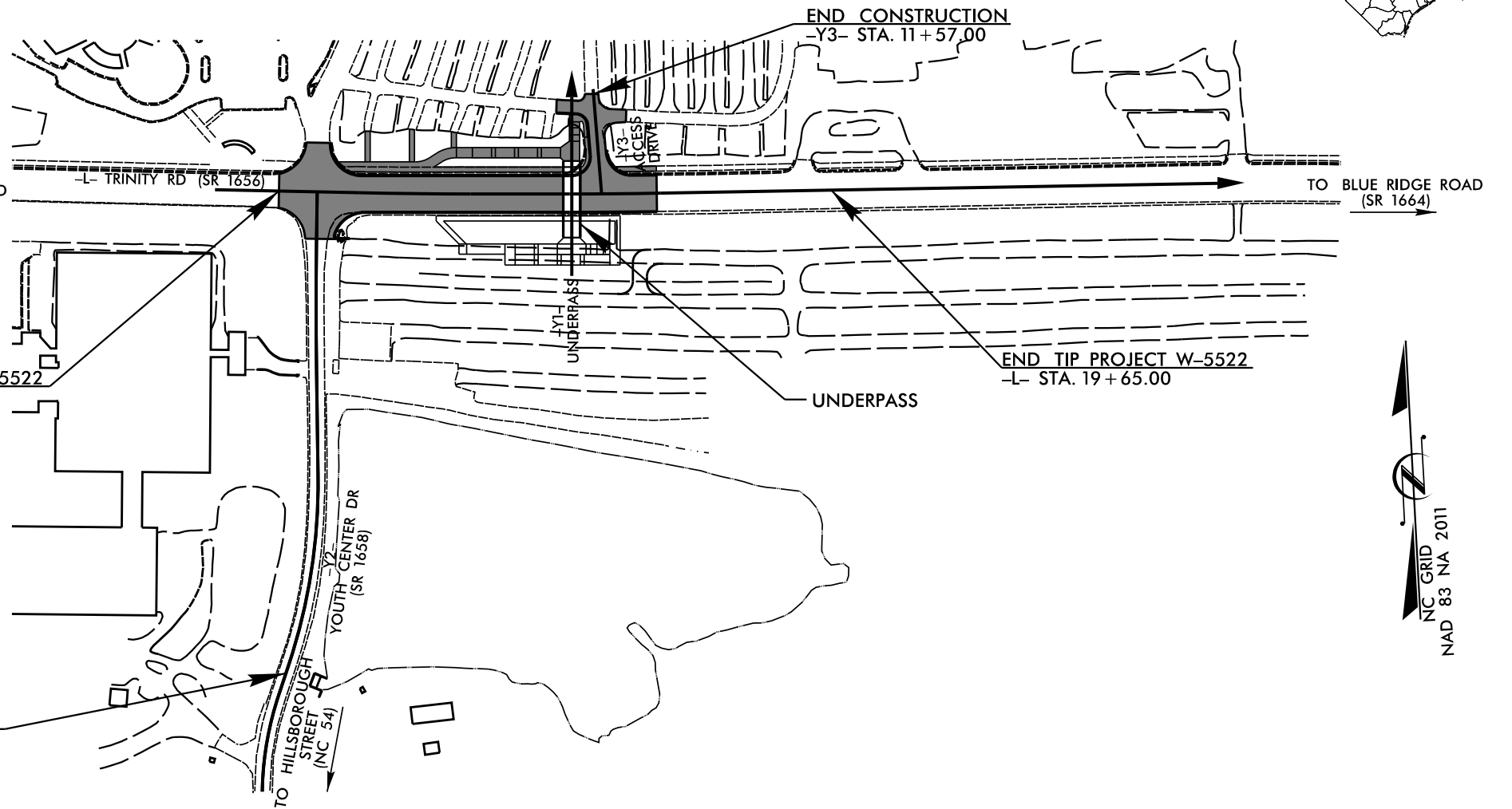
STRUCTURES

••• DETOUR ROUTE

TO EDWARDS MILL ROAD (SR 3009)

BEGIN TIP PROJECT W-5522
-L- STA. 11+00.00

BEGIN CONSTRUCTION
-Y2- STA. 11+90.00



NC GRID
NAD 83 NA 2011

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA
ADT 2013 = 6,000
FUNC CLASS =
MAJOR COLLECTOR
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT W-5522 = 0.159 MILES
LENGTH CULVERT TIP PROJECT W-5522 = 0.005 MILES
TOTAL LENGTH OF TIP PROJECT W-5522 = 0.164 MILES

Prepared in the Office of:
AECOM
NC FIRM LICENSE No: F-0342
701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 30, 2017

LETTING DATE:
JANUARY 16, 2018

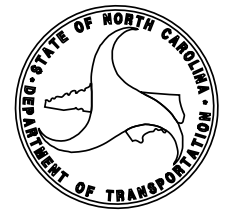
EDWARD G. EDENS, P.E.
PROJECT ENGINEER

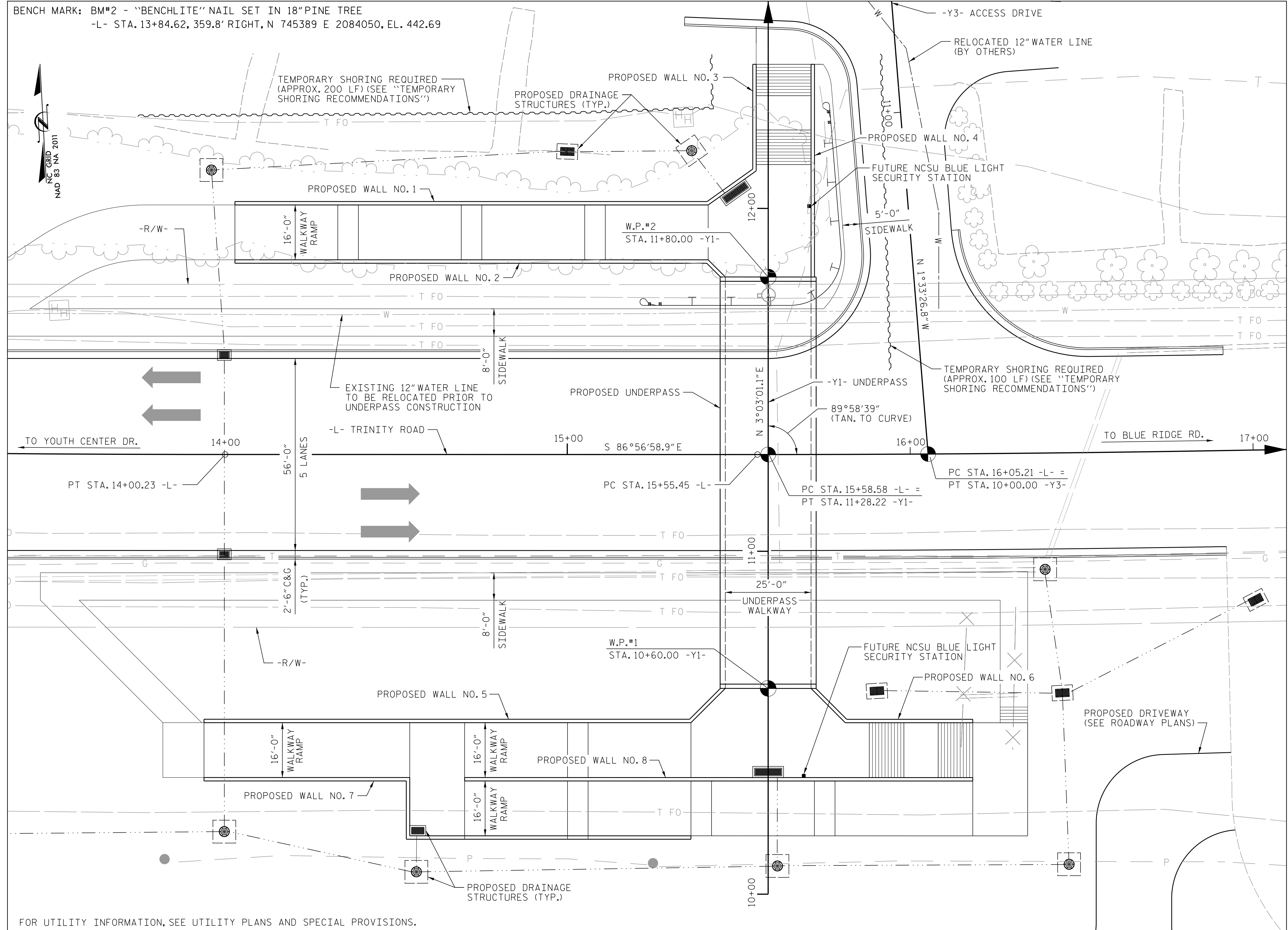
KIMBERLY KOIVUNIEMI, P.E.
PROJECT DESIGN ENGINEER

GARY LOVERING, P.E.
PROJECT ENGINEER
NCDOT CONTACT

STRUCTURES ENGINEER

JOHN C. MORRISON, P.E.





BENCH MARK: BM#2 - "BENCLITE" NAIL SET IN 18" PINE TREE
 -L- STA. 13+84.62, 359.8' RIGHT, N 745389 E 2084050, EL. 442.69

GENERAL NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING

UNDERPASS AND RETAINING WALLS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. RETAINING WALLS HAVE BEEN DESIGNED FOR A CONSTRUCTION SURCHARGE LOAD OF 250 PSF.

RETAINING WALLS AND UNDERPASS ARE LOCATED IN SEISMIC ZONE 1.

DESIGN FILL = 2.90 FT. MIN. / 4.53 FT. MAX. (WITHIN ROADWAY LIMITS)

DO NOT PLACE FOUNDATION CONDITIONING MATERIAL OR CONCRETE FOR RETAINING WALL FOUNDATIONS UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED BY ENGINEER.

USE CLASS AA (4500 PSI) CAST-IN-PLACE CONCRETE FOR UNDERPASS AND RETAINING WALLS; AND CLASS A (3000 PSI) CAST-IN-PLACE CONCRETE FOR WALKWAY, RAMPS AND STAIRS. ALL CONCRETE SHALL CONFORM TO SECTION 1000 OF THE STANDARD SPECIFICATIONS.

TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE UNDERPASS SECTION, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 70 FEET. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.

ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" U.N.O.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

AT THE CONTRACTOR'S OPTION, HE MAY SUBMIT TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX SECTION IN LIEU OF THE CAST-IN-PLACE UNDERPASS SHOWN IN THE PLANS. THE DESIGN SHALL PROVIDE THE SAME UNDERPASS LENGTH, OPENING DIMENSIONS, AND LUMINAIRE CAVITY DETAILS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX SECTION, SEE SPECIAL PROVISIONS.

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF RETAINING WALL COVERING THE ENTIRE LENGTH OF EXPANSION JOINTS.

- FOR DRAINAGE STRUCTURES AND DETAILS, SEE DRAINAGE PLANS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- DETAILED DRAWINGS FOR FALSEWORK AND FORMS SHALL BE SUBMITTED.
- FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTE (SN) SHEET.

TEMPORARY SHORING RECOMMENDATIONS:

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING ALONG WALL 1 & 3 AND ALONG WALL 4 FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:
 UNIT WEIGHT (γ) = 120 PCF COHESION (c) = 0 PSF
 FRICTION ANGLE (φ) = 30 DEGREES GROUNDWATER ELEVATION = 430 FT ±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING ALONG WALL 1 & 3 OR ALONG WALL 4. IT MAY BE PREFERRED TO USE TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

PROJECT NO. W-5522
WAKE COUNTY
 STATION: 15+58.58 -L-
11+28.22 -Y1-
 SHEET 1 OF 2

LOCATION SKETCH

GRADE DATA -L-

(+1.23500% +1.28841%)

PI 13+00.00
 EL. = 453.64
 V.C. = 100'

GRADE DATA -Y1-

(+1.00%)

BEGIN UNDERPASS STA. 10+60.00
 EL. 444.75

END UNDERPASS STA. 11+80.00
 EL. 445.95

HORIZONTAL CURVE DATA -L-

PI STA. 13+13.07
 Δ = 1°14'54.5" (LT)
 D = 0°42'58.3"
 L = 174.32'
 T = 87.16'
 R = 8000.00'

PI STA. 16+26.47
 Δ = 1°01'02.1" (LT)
 D = 0°42'58.3"
 L = 142.04'
 T = 71.02'
 R = 8000.00'

DRAWN BY : M. TOM DATE : 1/2018
 CHECKED BY : C. MORRISON DATE : 1/2018
 DESIGNED BY : M. TOM DATE : 1/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 AECOM TECHNICAL SERVICES, INC.
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 AECOM License No. F-0342

1/8/2018
 NORTH CAROLINA PROFESSIONAL SEAL
 030474
 ENGINEER
 JOHN C. MORRISON

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
 RALEIGH

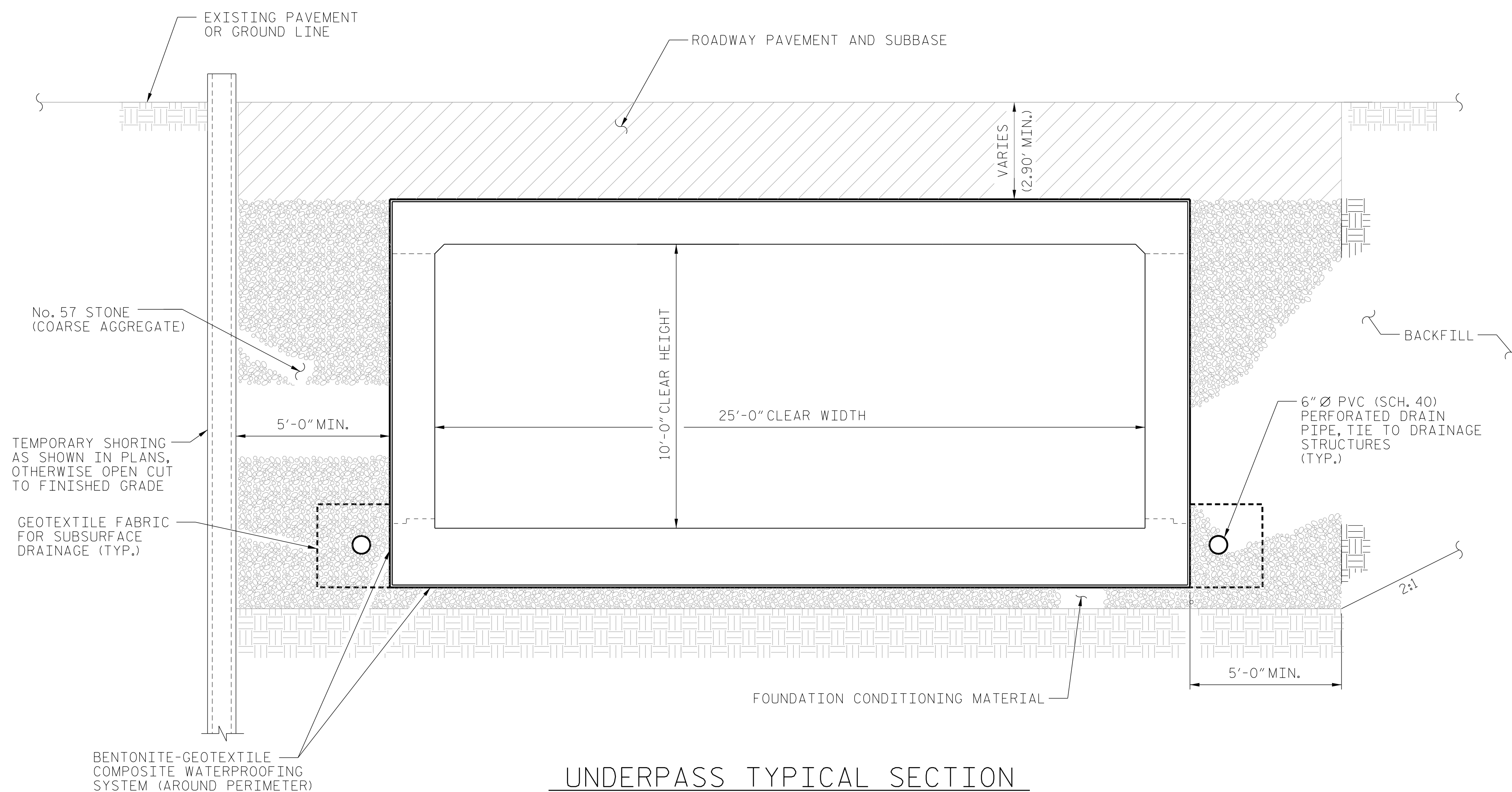
GENERAL DRAWING

SR 1656 (TRINITY ROAD)
 PEDESTRIAN UNDERPASS
 BETWEEN SR 1658 & SR 1664

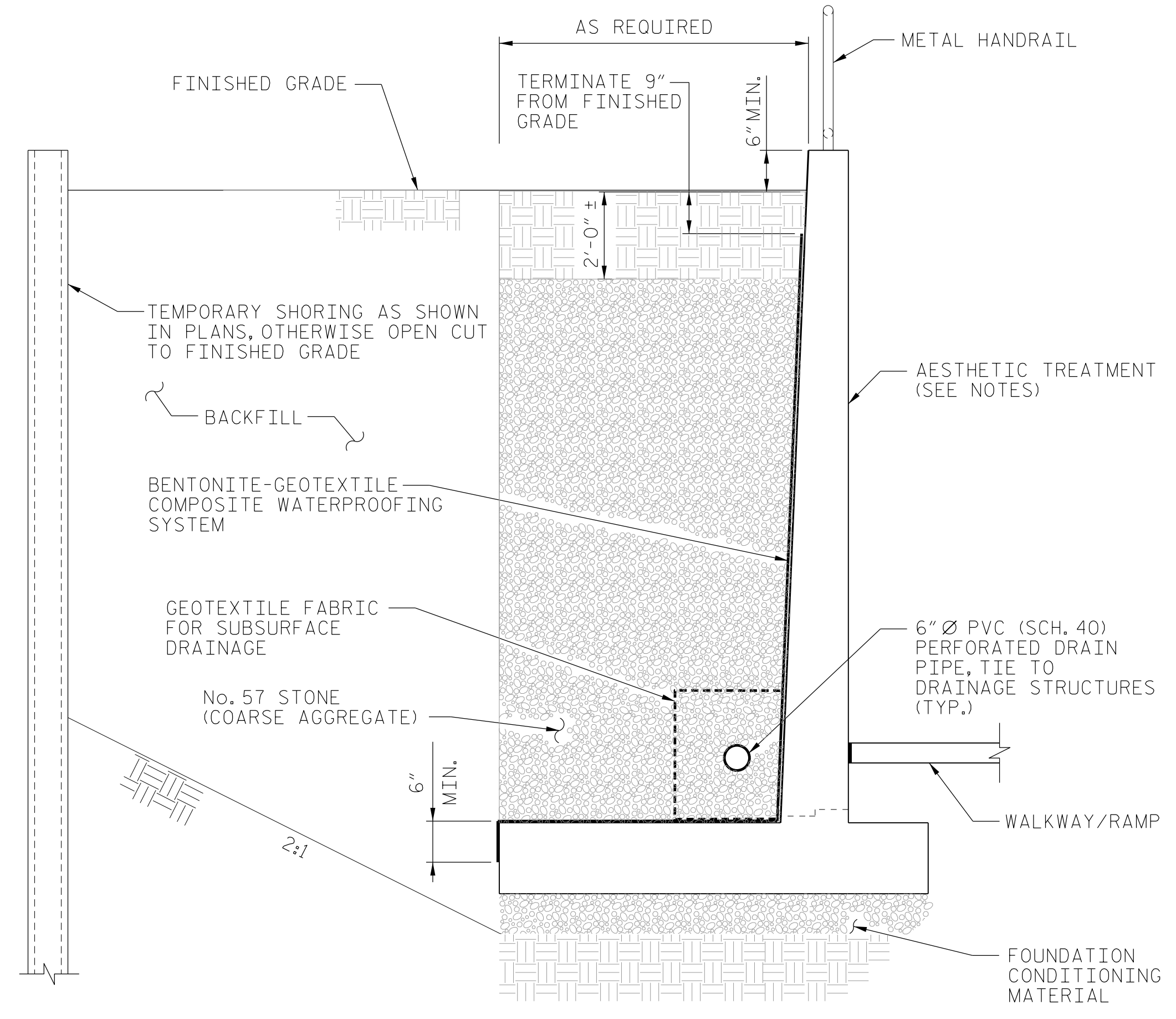
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. **S-01**
 TOTAL SHEETS 31

DATE: 1/8/2018 TIME: 4:26:12 PM USER: jcmorris Docu: W:\Projects\165622\Trinity Rd PedW5522\Structures\Code410_000_W5522_SML_S01_LOC.dgn



UNDERPASS TYPICAL SECTION



WALL TYPICAL SECTION
(CAST-IN-PLACE CANTILEVER RETAINING WALL)

DATE: 12/14/2017
TIME: 5:15:34 AM

USER: mcfarlane
DN: C:\Users\mcfarlane\Documents\Projects\W-5522 Trinity Rd Ped W-5522\Structures\Code\400_000_W5522_SML_S02_B01.dgn

TOTAL BILL OF MATERIAL

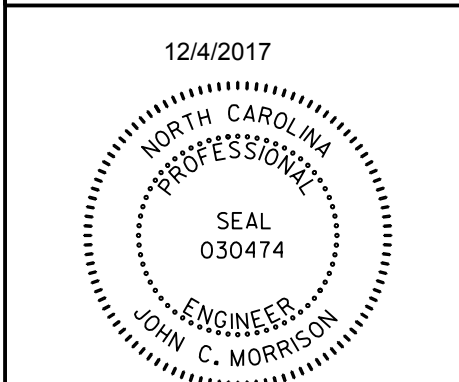
	TEMPORARY SHORING	No. 57 STONE	6" PERFORATED SUBDRAIN PIPE	6" OUTLET PIPE	FOUNDATION EXCAVATION, RETAINING WALL	UNCLASSIFIED STRUCTURE EXCAVATION, RAMPS, STAIRS & WALKWAYS	UNDERPASS EXCAVATION	FOUNDATION CONDITIONING MATERIAL, UNDERPASS	FOUNDATION CONDITIONING MATERIAL, RETAINING WALL	6" RAMPS & WALKWAYS
	SF	TON	LIN. FT.	LIN. FT.	CY	CY	CY	TON	TON	SY
SITE	5,200	—	1,100	90	—	—	—	—	—	—
UNDERPASS	—	1,185	—	—	—	—	5,705	237	—	—
RETAINING WALLS	—	4,460	—	—	13,920	—	—	—	1047	—
RAMPS, WALKWAYS & STAIRS	—	—	—	—	—	4,430	—	—	—	1,150
TOTAL	5,200	5,645	1,100	90	13,920	4,430	5,705	237	1047	1,150

	CLASS AA CONCRETE, UNDERPASS	CLASS AA CONCRETE, RETAINING WALL	CLASS A CONCRETE, STAIRS	REINFORCING STEEL, UNDERPASS	REINFORCING STEEL, RETAINING WALL	REINFORCING STEEL, STAIRS	BENTONITE GEOTEXTILE WATERPROOFING MEMBRANE	GEOTEXTILE FOR SUBSURFACE DRAINS	METAL HANDRAIL (TOP-MOUNTED)	METAL HANDRAIL (SIDE-MOUNTED)
	CY	CY	CY	LB	LB	LB	SY	SY	LIN. FT.	LIN. FT.
SITE	—	—	—	—	—	—	—	—	—	—
UNDERPASS	692	—	—	96,200	—	—	1,110	320	52.0	—
RETAINING WALLS	—	1159	—	—	169,451	—	1,675	1,136	892.3	944.0
RAMPS, WALKWAYS & STAIRS	—	—	36.1	—	—	1,564	—	—	243.7	—
TOTAL	692	1159	36.1	96,200	169,451	1,564	2,785	1,456	1188.0	944.0

GENERAL NOTES:

- ALL INTERNAL EXPOSED FACES OF CAST-IN-PLACE CONCRETE RETAINING WALLS SHALL RECEIVE AESTHETIC TREATMENT. THE CONTRACTOR SHALL UTILIZE VAC-U-FORM PLASTIC FORMLINER, PATTERN 16940 BY FITZGERALD FORMLINERS OR EQUIVALENT. STAIN INDIVIDUAL BRICK FACES WITH FEDERAL STANDARD 595, COLOR 30076. PATTERN AND STAIN COLOR SHALL BE APPROVED BY NCDOT RESIDENT ENGINEER PRIOR TO COMMENCING CONSTRUCTION. AESTHETIC TREATMENT SHALL TERMINATE 12" FROM TOP OF WALL. COST OF FORMLINER AND STAIN SHALL BE CONSIDERED INCIDENTAL TO UNIT PRICE FOR CLASS AA CONCRETE, RETAINING WALL.
- FOR TEMPORARY SHORING, SEE SPECIAL PROVISIONS.
- FOR No. 57 STONE, SEE SPECIAL PROVISIONS.
- FOR UNCLASSIFIED STRUCTURE EXCAVATION, SEE SPECIAL PROVISIONS.
- FOR FOUNDATION CONDITIONING MATERIAL, SEE SPECIAL PROVISIONS.
- FOR CLASS AA CONCRETE, UNDERPASS & CLASS AA CONCRETE, RETAINING WALL, SEE SPECIAL PROVISIONS.
- FOR REINFORCING STEEL, UNDERPASS & REINFORCING STEEL, STAIRS, SEE SPECIAL PROVISIONS.
- FOR BENTONITE GEOTEXTILE WATERPROOFING MEMBRANE, SEE SPECIAL PROVISIONS.
- FOR METAL HANDRAIL (TOP-MOUNTED) & METAL HANDRAIL (SIDE-MOUNTED), SEE SPECIAL PROVISIONS.

PROJECT NO. W-5522
WAKE COUNTY
 STATION: 15+58.58 -L-
11+28.22 -Y1-
 SHEET 2 OF 2

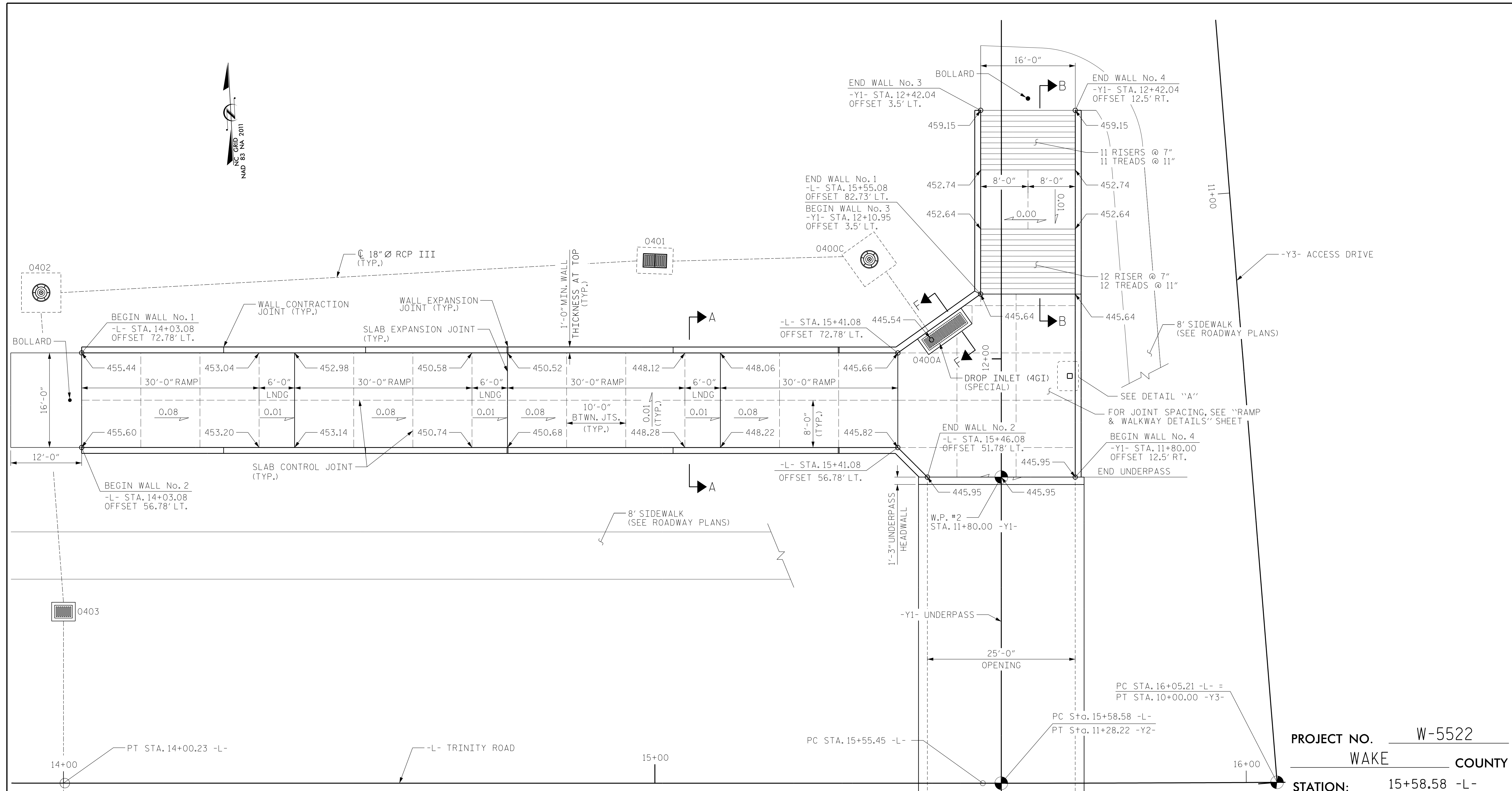


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 SR 1656 (TRINITY ROAD)
 PEDESTRIAN UNDERPASS
 BETWEEN SR 1658 & SR 1664

DRAWN BY: M.TOM DATE: 11/2017
 CHECKED BY: C.MORRISON DATE: 11/2017
 DESIGNED BY: C.MORRISON DATE: 11/2017

DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-02
1			3			TOTAL SHEETS
2			4			31



DATE: 12/14/2017
TIME: 5:16:35 AM

USER: jcmorris@ncdot.gov
DN: /CN=jcmorris@ncdot.gov

- NOTES:**
- ELEVATIONS SHOWN ARE FOR PROPOSED WALKWAY/RAMP FINISHED SURFACE.
 - FOR ROADWAY AND SIDEWALK DETAILS, SEE ROADWAY PLANS.
 - FOR DRAINAGE STRUCTURES, SEE DRAINAGE PLANS AND SPECIAL PROVISIONS.
 - FOR RETAINING WALL ELEVATIONS AND FOOTING LAYOUT, SEE "RETAINING WALL PLAN & ELEVATION" SHEETS.
 - FOR SECTION A-A AND B-B AND DETAIL "A", SEE "RAMP & WALKWAY SECTIONS & DETAILS" SHEETS.
 - FOR BOLLARD DETAILS, SEE ROADWAY PLANS.
 - FOR RETAINING WALL AESTHETIC TREATMENT, SEE "GENERAL NOTES" ON SHEET S-02.

RAMP & WALKWAY PLAN (NORTH SIDE)

DRAWN BY : M.TOM DATE : 09/2017
 CHECKED BY : C.MORRISON DATE : 09/2017
 DESIGNED BY : T.KLOTZ DATE : 09/2017

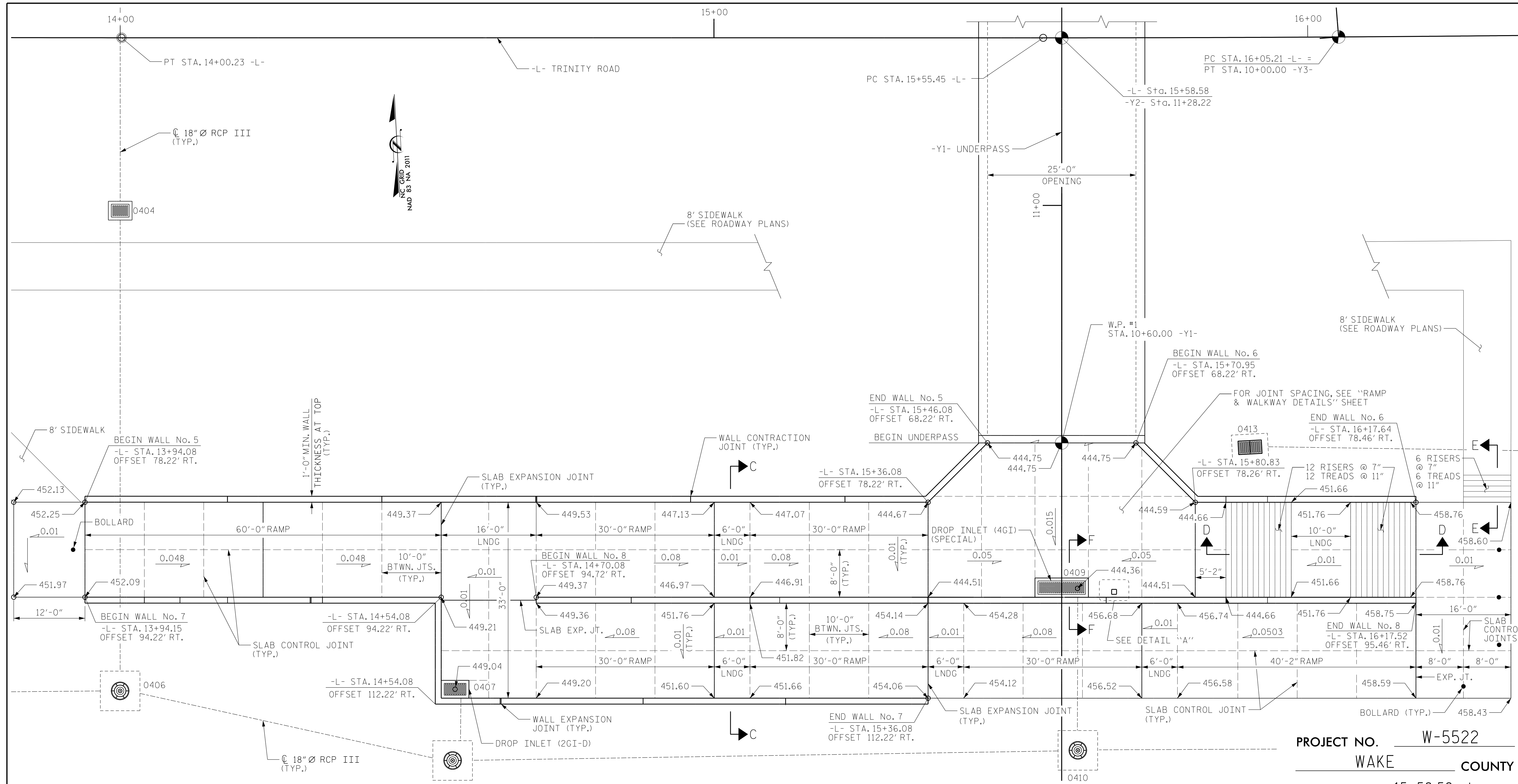
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AECOM TECHNICAL SERVICES, INC.
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 AECOM License No. F-0342

12/14/2017
 NORTH CAROLINA
 PROFESSIONAL
 SEAL
 030474
 ENGINEER
 JOHN C. MORRISON

PROJECT NO. W-5522
WAKE COUNTY
 STATION: 15+58.58 -L-
11+28.22 -Y1-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
RAMP & WALKWAY PLAN					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-03					TOTAL SHEETS 31



DATE: 12/14/2017
TIME: 9:55:37 AM

USER: jcmorrison
JOB: W-5522 Trinity Rd. Pav/W-5522 Structures/Code/40_020_W-5522_SKU_S04_WALK.dgn

NOTES:

ELEVATIONS SHOWN ARE FOR PROPOSED WALKWAY/RAMP FINISHED SURFACE.
 FOR ROADWAY AND SIDEWALK DETAILS, SEE ROADWAY PLANS.
 FOR DRAINAGE STRUCTURES, SEE DRAINAGE PLANS AND SPECIAL PROVISIONS.
 FOR RETAINING WALL ELEVATIONS AND FOOTING LAYOUT, SEE "RETAINING WALL PLAN & ELEVATION" SHEETS.
 FOR SECTION C-C, D-D AND E-E AND DETAIL "A", SEE "RAMP & WALKWAY SECTIONS & DETAILS" SHEETS. FOR SECTION F-F, SEE "MISCELLANEOUS DETAILS" SHEET.
 FOR BOLLARD DETAILS, SEE ROADWAY PLANS.
 FOR RETAINING WALL AESTHETIC TREATMENT, SEE "GENERAL NOTES" ON SHEET S-02.

DRAWN BY : M. TOM DATE : 09/2017
 CHECKED BY : C. MORRISON DATE : 09/2017
 DESIGNED BY : M. TOM DATE : 09/2017

RAMP & WALKWAY PLAN
(SOUTH SIDE)

PROJECT NO. W-5522
WAKE COUNTY
 STATION: 15+58.58 -L-
11+28.22 -Y1-
 SHEET 2 OF 2

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12/14/2017
 NORTH CAROLINA PROFESSIONAL SEAL
 030474
 ENGINEER
 JOHN C. MORRISON

DocuSigned by:
 John C. Morrison
 APDE142C2F4AB

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
 RALEIGH

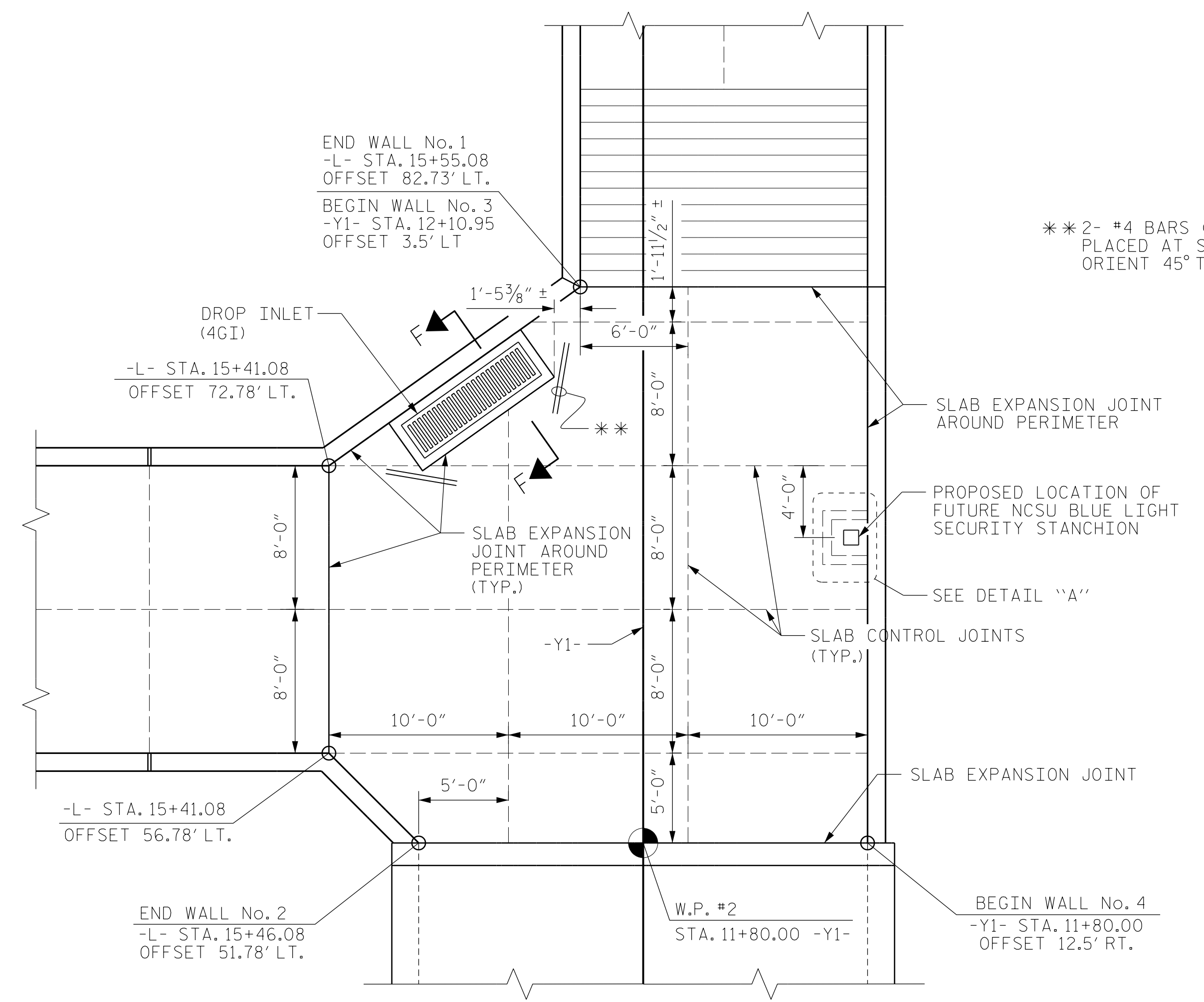
RAMP & WALKWAY
 PLAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			31
2			4			

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DATE: 12/14/2017
TIME: 5:05:35 AM

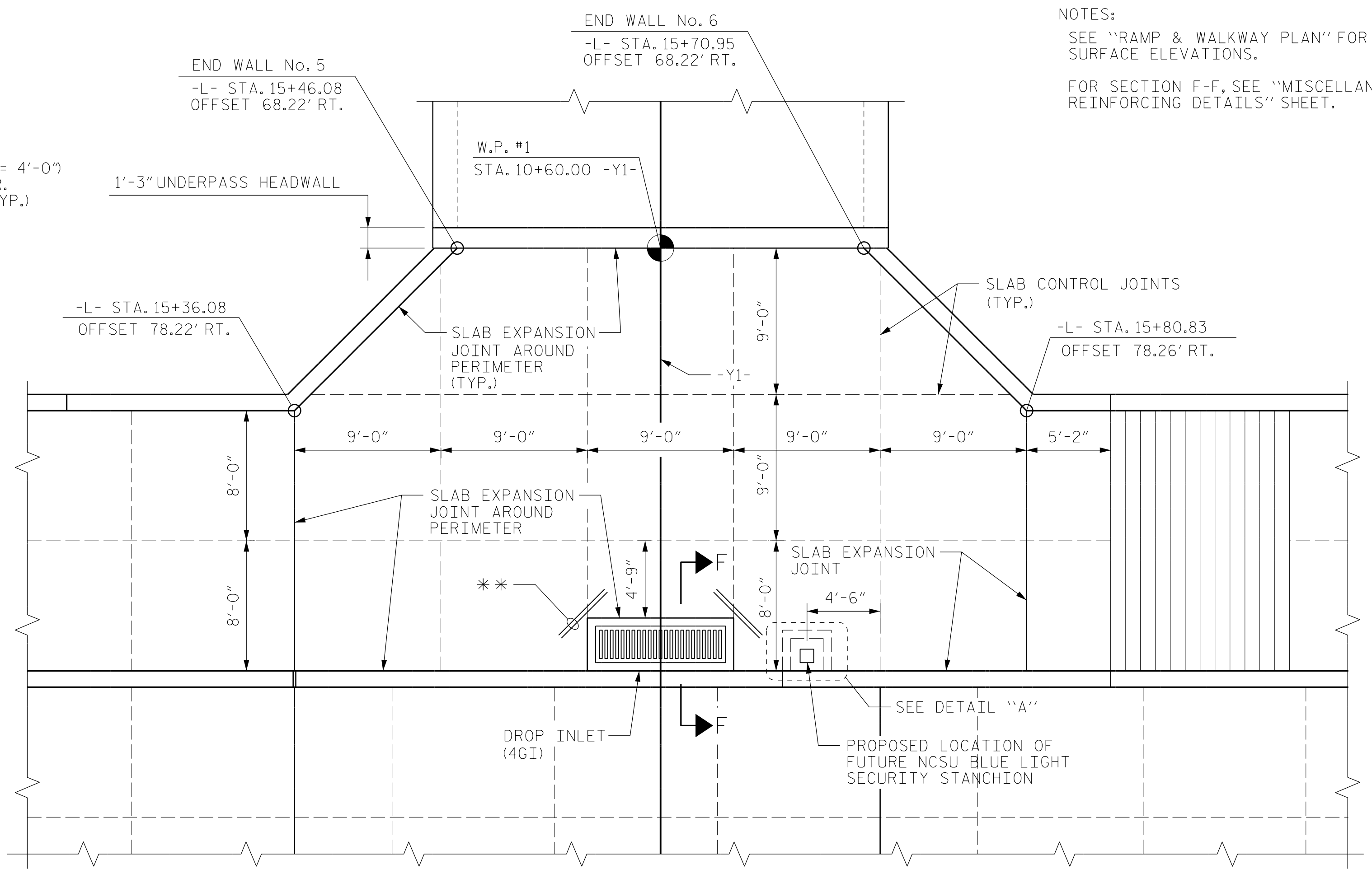
USER: jcmorris
CON: JCMorris\jcmorris\w-5522-Trinity_Rd_Pkg\W5522\Structures\Cadd\410_025_W5522-SKU_S05-WALK.dgn



JOINT PLAN AT NORTH END

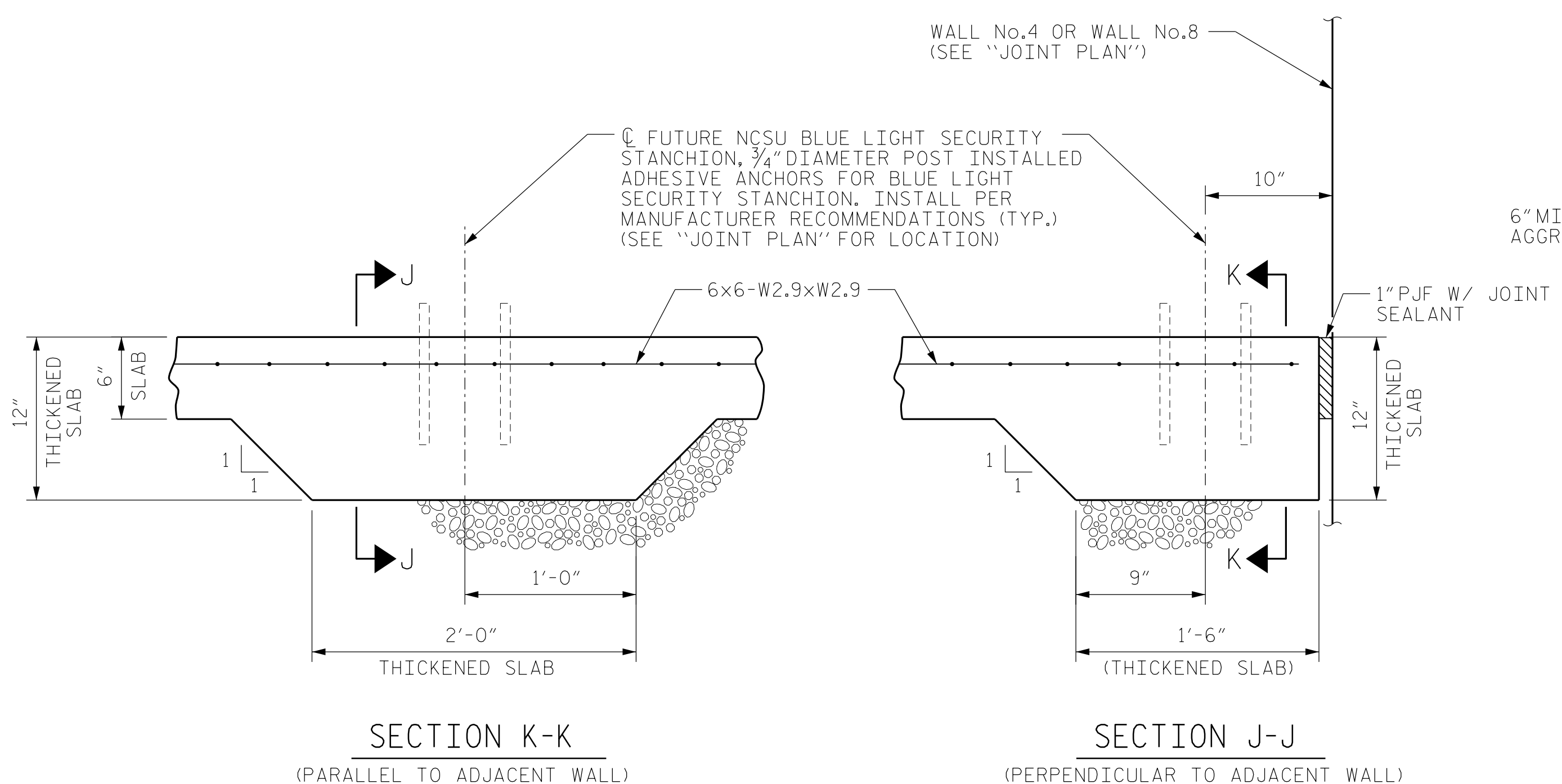
(SEE "RAMP & WALKWAY PLAN" FOR FINISHED SURFACE ELEVATIONS)

** 2- #4 BARS @ 3" o.c. (L = 4'-0")
PLACED AT SLAB CORNER,
ORIENT 45° TO JOINT (TYP.)



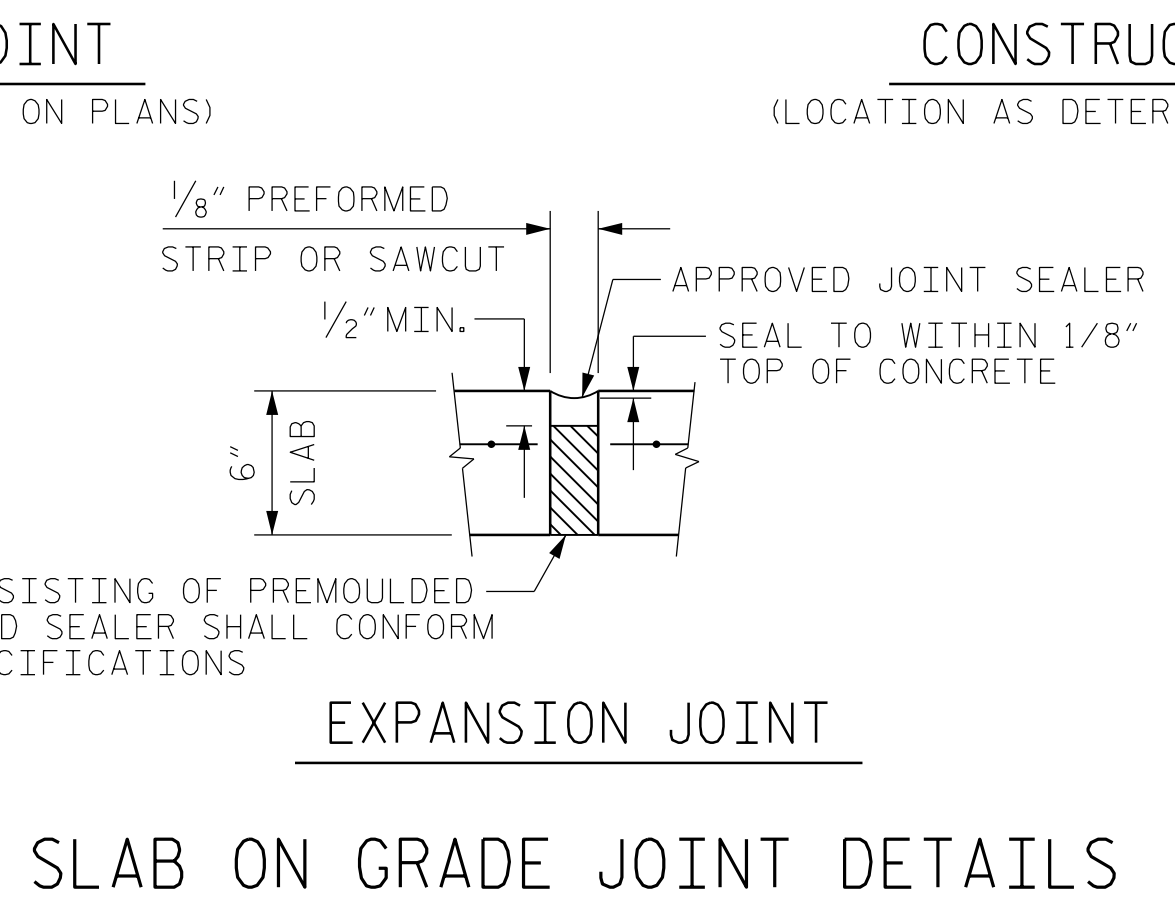
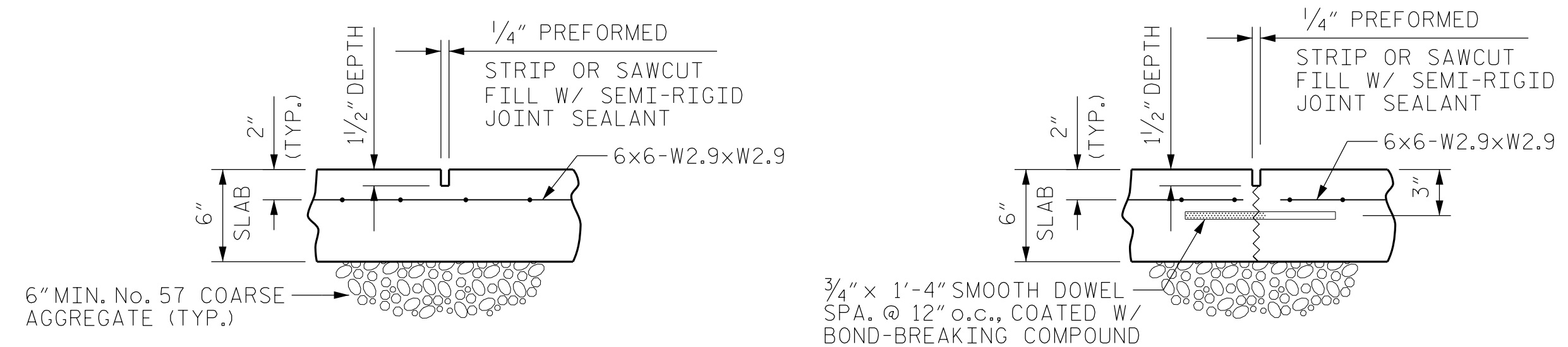
JOINT PLAN AT SOUTH END

NOTES:
SEE "RAMP & WALKWAY PLAN" FOR FINISHED SURFACE ELEVATIONS.
FOR SECTION F-F, SEE "MISCELLANEOUS REINFORCING DETAILS" SHEET.



DETAIL "A"

DRAWN BY : H. ROSEMOND DATE : 11/2017
CHECKED BY : C. MORRISON DATE : 11/2017
DESIGNED BY : C. MORRISON DATE : 11/2017



RAMP/WALKWAY SLABS	
TOTAL AREA	1,150.0 S.Y.

PROJECT NO. W-5522
WAKE COUNTY
STATION: 15+58.58 -L-
11+28.22 -Y1-
SHEET 1 OF 2

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12/14/2017

NORTH CAROLINA PROFESSIONAL SEAL 030474
ENGINEER JOHN C. MORRISON

DocuSigned by:
John C. Morrison
APFDE14262F4AB

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
RAMP, WALKWAY & STAIRS SECTIONS AND DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 31

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