Transportation

PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

June 09, 2016

Addendum No. 1
RE: Contract # C203751
WBS # 42263.3.1
F. A. # BRNHS-0070(119)
Wake County (B-5121, B-5317)
Bridge #227 On US-70/US-401/NC-50 Over Peace Street And
Bridge #213 On US-70/NC-50 Over US-401

July 19, 2016 (Advertisement extended from the June 21, 2016 Letting)

To Whom It May Concern:

Reference is made to the plans and proposal form furnished to you on this project.

The following revisions have been made to the Roadway plans and cross-sections:

Sheet No.	Revisions
Title Sheet	Revised to change the Letting Date to July 19, 2016
1A	Updated the Index of Sheets to change the description of the 2C-7 sheet and include the Street Lighting Conduit Plans, the Aesthetic Lighting System Plans and Landscaping Plans.
2B-4	Revised the reference for Detail 9 to reflect Detail 8
2C-7	The Detail for Steel Pipe Handrail (Culvert Mounted) was removed. This sheet is now the Detail of Temporary 1" Steel Cover Over Drainage Structure.
2C-12	Corrected the Typical Manhole Section view to remove the possible footing
2D-1	Removed the Detail 8 for rock plating and re-numbered the subsequent details 9 through 11 to 8 through 10.
3G-1	Revised the Summary of Rock Plating to reflect Class 2 Rip Rap instead of Class B.
5	Revised the temporary shoring to reflect revisions to the TMP plans and revised the 36" RCP-IV label to 36" DIP Sealed (no quantity adjustment needed).

7	Added "Remove Existing Wall" note for existing timber wall, removed Note 6 and its reference for bent removal, re-numbered the subsequent notes from 7 through 14 to 6 through 13, revised the notes for the ditch details to reflect re-numbering details 9 through 11 to 8 through 10 and revised note 13 to refer to the 2G-5 sheet for the rock plating.
TMP-1D	Added General Note QQ)
TMP-18A	Modified the Area II, Phase I, Steps 2B thru 2 F ICT box to remove the ICT duration
TMP-28	Removed the incorrect temporary shoring shown adjacent to SB Capital Blvd on the west side oat the proposed bridge
TMP-30	Changed the barrier shown to be temporary concrete barrier and added a crash cushion
TMP-31	Removed the incorrect temporary shoring shown adjacent to SB Capital Blvd on the west side oat the proposed bridge
TMP-33	Removed the incorrect temporary shoring shown adjacent to SB Capital Blvd on the west side oat the proposed bridge
TMP-35	Removed the incorrect temporary shoring shown adjacent to SB Capital Blvd on the west side oat the proposed bridge
TMP-38	Removed the incorrect temporary shoring shown adjacent to SB Capital Blvd on the west side oat the proposed bridge
TMP-41	Removed the incorrect temporary shoring shown adjacent to SB Capital Blvd on the west side oat the proposed bridge
TMP-44	Removed the incorrect temporary shoring shown adjacent to SB Capital Blvd on the west side oat the proposed bridge
SL-1 thru SL-3	New Sheets added to show details of Street Lighting Conduit (To be added after existing plan sheet PMP-7)
E-1 thru E-9	New Sheets added to show details of Aesthetic Lighting System (To be added after new Sheet SL-3)
L-1 thru L-5	New Sheets added to show the Landscape Plan (To be added after existing Sheet EC-14)
LD-1 thru LD-2	New Sheets added to show the Landscape Details (To be added after new sheet L-5)
UC-01 and UC-03 thru UC-16	Suspect contaminated area limit level shown on all sheets; Trenchless installations on Capital Blvd. below railroad bridge revised to open cut installations,; Replacement of -SS5- has been removed from the plans, and a manhole added to -SS6- as a result thereof; limits of disturbance shown on City of Raleigh property, where easement is not required; water meter sizes specified on plans, if not standard 5/8" diameter services; UbO design removed from all sheets; Limits of contaminated groundwater pipe protection measures shown on profiles
UO-2	Proposed light poles and conduit added; changed note 6 to update lighting information
UO-3	Proposed light poles and conduit added; changed note 6 to update lighting information
UO-4	Proposed light poles and conduit added. Proposed gas revised to retain existing gas line and spot adjust depths for drainage; changed note 6 to

	update lighting information
UO-5	Proposed light poles and conduit added; proposed gas crossing Wade Ave. near West Street removed; proposed AT&T bore under ramp revised due to rocky conditions. New AT&T location is along the R/W on the east side of the ramp; changed note 3 to update lighting information
UO-6	Proposed light poles and conduit added; changed note 4 to update lighting information; added note 5
X-56	Revised the Y2RPA cross sections on the right so the berm width reflects the typicals.
X-57	Revised the Y2RPA cross sections on the right so the berm width reflects the typicals.

Please void the above listed sheets in your plans and staple the revised sheets thereto. Please add the new sheets where indicated above.

The following revisions have been made to the Structure plans:

Sheet No.	Revisions
Title Sheet	Revised to change the Letting Date to July 19, 2016
S-2,S-3, S-10, S-14, S-40, S-41, S-47, S-65, S-93, S-96, S-107	Various revisions (mostly in the form of added notes) to address the addition of the metal fascia and lighting
S-42 thru S-43C	Added details for the "Architectural Metal Fascia"
S-46	Revised the note concerning removal of the existing substructure
S-109 thru S-110E	Added details for the "Architectural Metal Fascia"
C-1, C-3, C-5, C-6, C-8, C-10	Revisions to accommodate utility and drainage pipes passing through the proposed box culvert

The following revisions have been made to the proposal:

Page No.	Revisions
Proposal Cover	Note added that reads "Includes Addendum No. 1 Dated 06-09-16" and revised the let date to July 19, 2016
G-1	Revised the availability and completion date within the project special provision entitled "Contract Time and Liquidated Damages"
G-2	Revised the availability and completion date within the project special provision entitled "Intermediate Contract Time Number 1 Incentive and Disincentive"
G-12	Completion date within the project special provision entitled "Intermediate Contract Time Number 13 and Liquidated Damages" has been revised
G-16	The list within the project special provision entitled "Delay In Right Of Entry" has been revised
G-17	Revised to add new lighting items and Aesthetic items to the list of

Page No.	Revisions
	"Specialty Items" and revised the diesel fuel price within the project special provision entitled "Fuel Price Adjustment"
G-18	Revised the percentages within the project special provision entitled "Schedule of Estimated Completion Progress"
R-11	Revised the asphalt binder base price index within the project special provision entitled "Price Adjustment-Asphalt Binder For Plant Mix"
R-17 and R-18	Removed the project special provision entitled "Steel Pipe Handrail For Culvert"
R-62 and New R-63	Added the project special provision entitled "Exploratory Excavation"
GV-1 and GV-2	Revised to provide a central stockpile location for contaminated soil and to address contaminated groundwater should it be encountered
LT-1 and LT-2	Revised the first paragraph under Section 1.00,2.10 and 2.20 within the project special provision entitled "Lighting"
ALS-1 thru ALS-13	New pages added for the work of the Aesthetic Lighting System (Add after revised Page LT-2)
UC-3	Removed the sixth paragraph and revise the seventh paragraph under "Gravity Flow Sewer Pipe"
UC-4	Revised the first paragraph under "(C) Protecto 401 Ductile Iron Pipe Liner"
UC-19	Revised the last two paragraphs on this page
UC-20	Revised the first paragraph on this page and added a new paragraph
UC-27	Revised the first two paragraphs under "Measurement and Payment"
UC-29	Added section "14. Sewer Bypass Pumping Operations"
UC-30	Added new paragraph under section on Pipe Installation
UC-38	Under Sub-Article 1520-4 Measurement and Payment, revised the existing paragraph and added new paragraphs
UC-39	Under "Utility Manholes" added a new paragraph after(c)
UBO-1 thru UBO-6 (was previously 5 pages)	Various revisions throughout
L-1 thru L-8	New pages added to include the "Landscape" special provisions (Add after existing Page EC-19)
ST-1	Table of Contents revised to reflect the addition of the special provision entitled "Architectural Metal Fascia"
ST-37	Clarification made in the first paragraph of the project special provision entitled "Application of Bridge Coating"
ST-43 thru ST-46	Added the project special provisions entitled "Architectural Metal Fascia"
CSX-3	Clarification made on the type of trains in the special provision entitled "Railroad Site Data"

Please void the above listed pages in your proposal and replace with the revised pages. Please add new pages as indicated above.

On the item sheets the following pay items have been revised, added or deleted:

Item	Description	Old Quantity	New Quantity
096-2591000000-E-848	4" Concrete Sidewalk	11,510 SY	7,791 SY
100-2655000000-E-852	5" Monolithic Concrete Islands (Keyed In)	1,430 SY	1,154 SY
125-3575000000-E-SP	Steel Pipe Handrail (Culvert Mounted)	50 LF	**DELETED**
130-3635000000-E-876	Rip Rap, Class II	350 TON	660 TON
132-3656000000-E-876	Geotextile For Drainage	1,785 SY	3,465 SY
197-5265000000-E-SP	Street Lighting Conduit Installation (2" PVC)	10,000 LF	12,600 LF
198-5325800000-E-1510	8" Water Line	2,333 LF	2,468 LF
204-5648000000-N-1515	Relocate Water Meter	42 EA	43 EA
209-5691300000-E-1520	8" Sanitary Gravity Sewer	3,042 LF	2,423 LF
213-5775000000-E-1525	4' Dia. Utility Manhole	24 EA	25 EA
215-5777000000-E-1525	6' Dia. Utility Manhole	13 EA	12 EA
222-5801000000-E-1530	Abandon 8" Utility Pipe	3,976 LF	4,588 LF
225-5816000000-N-1530	Abandon Utility Manhole	14 EA	15 EA
226-5828000000-N-1530	Remove Utility Manhole	3 EA	4 EA
227-5835700000-E-1540	16" Encasement Pipe	586 LF	600 LF
229-5871900000-E-1550	Trenchless Installation of 16" In Soil	278 LF	285 LF
230-5871900000-E-1550	Trenchless Installation of 16" Not in Soil	278 LF	285 LF
231-5872200000-E-1550	Trenchless Installation of 24" in Soil	355 LF	265 LF
232-5872210000-E-1550	Trenchless Installation of 24" Not in Soil	355 LF	265 LF

317-8245000000-E-425	Reinforcing Steel (Culvert)	49,189 LB	49,779 LB
333-8147000000-E-420	Reinforced Concrete Deck Slab	14,212 SF	14,218 SF
335-8161000000-E-420	Grooving Bridge Floors	32,401.79 SF	31,190 SF
339-8217000000-E-425	Reinforcing Steel (Bridge)	81,284 LB	68,480 LB
340-8238000000-E-425	Spiral Column Reinforcing Steel (Bridge)	6,389 LB	6,384 LB
342-8280000000-E-440	Approx. ...LBS Structural Steel	644,500 LS	652,000 LS
343-8364000000-E-450	HP 12X53 Steel Piles	1,385 LF	2,135 LF
347-8531000000-E-462	4" Slope Protection	206.6 SY	210 SY
353-8867000000-E-SP	Concrete Parapet With Moment Slab	368.1 LF	367.62 LF
354-8892000000-E-SP	Precast Concrete Panels	1,090 SF	383 SF
355-2190000000-N-828	Temporary Steel Cover For Masonry Drainage Structure	**NEW ITEM**	25 EA
356-2542000000-E-846	1'-6" Concrete Curb & Gutter	**NEW ITEM**	592 LF
357-2738000000-E-SP	Concrete Paver Sidewalk	**NEW ITEM**	391 SY
358-2738000000-E-SP	Concrete Paver Median Island	**NEW ITEM**	297 SY
359-2738000000-E-SP	Concrete Sidewalk (Capital City Grid)	**NEW ITEM**	2,645 SY
360-3575000000-E-SP	Ornamental Fence	**NEW ITEM**	54 LF
361-6645000000-N-SP	Tree Well System	**NEW ITEM**	31 EA
362-0000910000-N-SP	Exploratory Excavation-Standard	**NEW ITEM**	600 HR
363-0000910000-N-SP	Exploratory Excavation-Vacuum	**NEW ITEM**	150 HR
364-5120000000-N-1407	Electric Service Poles 30' Class 4	**NEW ITEM**	3 EA
365-5125000000-E-1407	Electric Service Lateral (3,#10 USE)	**NEW ITEM**	45 LF
366-5270000000-N-SP	Lighting Control System, Type RW, 120/240VAC	**NEW ITEM**	3 EA

367-5155000000-E-1409	Electrical Duct, Type BD, Size 2"	**NEW ITEM**	370 LF
368-5160000000-E-1409	Electrical Duct, Type JA, Size 4"	**NEW ITEM**	150 LF
369-5170000000-E-1410	2 #8 W/G Feeder Circuit	**NEW ITEM**	320 LF
370-5205000000-E-1410	2 #8 W/G Feeder Circuit In 1 ½ "Conduit	**NEW ITEM**	2,930 LF
371-5270000000-N-SP	Electrical Junction Boxes Type PC18	**NEW ITEM**	2 EA
372-5270000000-N-SP	Electrical Junction Boxes Type PC30	**NEW ITEM**	2 EA
373-5252000000-N-1412	Underpass Luminaries (Type WM)	**NEW ITEM**	8 EA
374-5260000000-N-SP	Electrical Conduit System at Peace Street	**NEW ITEM**	LS
375-5270000000-N-SP	Spotlight Luminaire	**NEW ITEM**	8 EA
376-5270000000-N-SP	Aesthetic Lighting Luminaire	**NEW ITEM**	169 EA
377-5260000000-N-SP	Aesthetic Lighting System at Bridge Over Peace Street	**NEW ITEM**	LS
378-5260000000-N-SP	Aesthetic Lighting System at Wade Avenue Flyover	**NEW ITEM**	LS
379-8867000000-E-SP	Architectural Metal Fascia	**NEW ITEM**	718.75 LF

The Contractor's bid must include these new pay items and the pay item quantity revisions. The contract will be prepared accordingly.

Please delete the EBS file you previously downloaded for the June 21, 2016 letting and download the new EBS file listed for the July 19, 2016 letting. Please download the Expedite Addendum File and follow the instructions for applying the addendum to the file associated with the July 19, 2016 letting. Bid Express will not accept your bid unless the new EBS file associated with the July 19, 2016 letting with the addendum applied is used.

Sincerely,

DS

R. A. Garris, PE
Contract Officer

RAG/jag

cc:
Mr. Lamar Sylvester, PE
Mr. Joey Hopkins PE
Mr. Rodger Rochelle, PE
Mr. R.E. Davenport, PE
Mr. Ken Kennedy, PE
Ms. Jaci Kincaid
Project File (2)
Mr. Ray Arnold, PE
Ms. Theresa Canales, PE
Ms. Marsha Sample
Mr. Mike Gwyn
Mr. Mitchell Dixon
Ms. Penny Higgins
Ms. Lori Strickland

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

PROPOSAL

INCLUDES ADDENDUM No. 1 DATED 06-09-16

DATE AND TIME OF BID OPENING: **JULY 19, 2016 AT 2:00 PM**

CONTRACT ID	C203751
WBS	42263.3.1

FEDERAL-AID NO.	BRNHS-0070(119)
COUNTY	WAKE
T.I.P. NO.	B-5121, B-5317
MILES	0.820
ROUTE NO.	US 70
LOCATION	BRIDGE #227 ON US-70/US-401/NC-50 OVER PEACE STREET AND BRIDGE #213 ON US-70/NC-50 OVER US-401.
TYPE OF WORK	GRADING, DRAINAGE, PAVING, SIGNING, SIGNALS, AND STRUCTURES.

NOTICE:

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS $30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.

BIDS WILL BE RECEIVED AS SHOWN BELOW:

THIS IS A ROADWAY & STRUCTURE PROPOSAL

5% BID BOND OR BID DEPOSIT REQUIRED

PROJECT SPECIAL PROVISIONS

GENERAL

CONTRACT TIME AND LIQUIDATED DAMAGES:

(8-15-00) (Rev. 12-18-07) 108 SP1 G07 A

The date of availability for this contract is **August 29, 2016**, except that work in jurisdictional waters and wetlands shall not begin until a meeting between the DOT, Regulatory Agencies, and the Contractor is held as stipulated in the permits contained elsewhere in this proposal **and except as provided below in the Project Special Provision "Sequence of Construction Activities"**. This delay in availability has been considered in determining the contract time for this project.

The completion date for this contract is **April 29, 2020**.

Except where otherwise provided by the contract, observation periods required by the contract will not be a part of the work to be completed by the completion date and/or intermediate contract times stated in the contract. The acceptable completion of the observation periods that extend beyond the final completion date shall be a part of the work covered by the performance and payment bonds.

The liquidated damages for this contract are **Two Hundred Dollars ($200.00)** per calendar day. These liquidated damages will not be cumulative with any liquidated damages which may become chargeable under Intermediate Contract Time Number 1.

SEQUENCE OF CONSTRUCTION ACTIVITIES:

There are certain right of way parcels on the Area II (Peace Street) end of the project that will not be acquired by the date of availability of the project. Also in the Area II portion of the project, certain utility relocations, adjustments, or installations by others will not be completed by the date of availability. The Contractor may begin construction activities in Area I on the date of availability, but will not be allowed to begin activities in Area II until **July 1, 2017**, where work would be adversely impacted by right of way and/or utility delays, as determined by the Engineer.

If some of the Area II portion becomes available before the entire area, the Contractor may request to begin work on the subject portion, provided he executes a supplemental agreement to pursue the work without claims for additional time or compensation for delays or additional cost to his operations which result from the remaining right of way acquisition or utility relocations.

The expected right of way and utility conflicts delays in Area II are listed in the respective Project Special Provisions listed elsewhere in this Contract.

INTERMEDIATE CONTRACT TIME NUMBER 1 INCENTIVE AND DISINCENTIVE:
(3-27-07) (Rev. 5-17-16) 108 SPI 1-06

Except for that work required under the Project Special Provisions entitled *Planting, Reforestation and/or Permanent Vegetation Establishment* included elsewhere in this proposal, the Contractor shall complete all work included in this contract and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is **August 29, 2016**.

The completion date for this intermediate contract time is **November 1, 2019 (except PVE)**.

It is mutually agreed that time is of the essence in completing **Intermediate Contract Time #1** and opening same to traffic. It is further mutually agreed a delay in completing this work will result in damage due to increased engineering and inspection costs to the Department of Transportation, great hardship to the general public, public inconvenience, obstruction of traffic, interference with business, and increased cost of maintaining traffic.

By reason of the necessity of expeditious completion of the work included in **Intermediate Contract Time #1**, and placing and maintaining traffic on same, it is mutually agreed, the Contractor shall receive an incentive payment of **Ten Thousand Dollars ($10,000.00)** per calendar day for each day prior to **November 1, 2019** that this work is completed. Incentive payment shall be limited to a maximum of **Eight Hundred Thousand Dollars ($800,000.00)**. No incentive payment shall be allowed for any calendar day after **November 1, 2019** that this work remains incomplete. This **November 1, 2019** date shall be utilized in determining incentive payments and it shall not be revised for any reason whatsoever. Incentive payment determined to be due the Contractor shall be paid by the Department within forty-five (45) calendar days after completion of all work. No incentive payment shall be allowed if the contract is terminated under the provisions of Article 108-13 of the *2012 Standard Specifications*.

Disincentive of **Ten Thousand Dollars ($10,000.00)** per calendar day shall be assessed the Contractor for each day beyond **November 1, 2019** for **Intermediate Contract Time #1** that the work is not completed.

The Engineer shall withhold the disincentives as they accrue from the amount of monies due on work performed in the contract.

Upon apparent completion of all work required to be completed by this intermediate date, a final inspection will be held in accordance with Article 105-17 and upon acceptance, the Department will assume responsibility for maintenance of all work except *Planting, Reforestation and/or Permanent Vegetation Establishment.* The Contractor will be responsible for and shall make corrections of all damages to the completed roadway caused by planting operations, whether occurring prior to or after placing traffic through the project.

The liquidated damages are **Two Thousand Five Hundred Dollars** ($ **2,500.00**) per calendar day.

INTERMEDIATE CONTRACT TIME NUMBER 12 AND LIQUIDATED DAMAGES:
(2-20-07) (Rev. 6-18-13) 108 SP1 G14 H

The Contractor shall complete the work required of **Area I, Phase IV, Step #3** as described on Sheet TMP-4C and shall place and maintain traffic on same.

The work shall be completed in consecutive weekends of the Contractor's choosing, beginning at 9:00 p.m. on a Friday, and ending at 6:00 a.m. the following Monday for each weekend.

The date of availability for this intermediate contract time is **the Friday at 9:00 p.m. of the first weekend** the Contractor elects to begin the work.

The completion date for this intermediate contract time is **the Monday at 6:00 a.m. after the Contractor has completed the work required of Area I, Phase IV, Step #3.**

The liquidated damages are **Two Thousand Five Hundred Dollars** ($ **2,500.00**) per fifteen **(15)** minute time period.

INTERMEDIATE CONTRACT TIME NUMBER 13 AND LIQUIDATED DAMAGES:
(2-20-07) (Rev. 6-18-13) 108 SP1 G14 H

The Contractor shall complete the work required of **Area II, Phase I, Steps #2B thru #2F** as described on Sheet TMP-18A and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is the date the Contractor elects to begin the work.

The completion date for this intermediate contract time is the date which is **Three Hundred (300)** consecutive calendar days after and including the date the Contractor begins this work.

The liquidated damages are **Ten Thousand Dollars** ($ **10,000.00**) per calendar day.

INTERMEDIATE CONTRACT TIME NUMBER 14 AND LIQUIDATED DAMAGES:
(2-20-07) (Rev. 6-18-13) 108 SP1 G14 H

The Contractor shall complete the work required of **Area II, Phase IV, Steps #3B thru #3D** as described on Sheets TMP-18C & TMP-18D and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is the date the Contractor elects to begin the work.

The completion date for this intermediate contract time is the date which is **Ninety (90)** consecutive calendar days after and including the date the Contractor begins this work.

DELAY IN RIGHT OF ENTRY:
(7-1-95) (Rev. 7-15-14) 108 SP1 G22

The Contractor will not be allowed right of entry to the following parcel(s) prior to the listed date(s) unless otherwise permitted by the Engineer.

Parcel No.	Property Owner	Date
1	State of North Carolina	1-31-17
2	Wake County	1-31-17
4	Thomas E. Carter	1-31-17
5	William L. Carter and Wife	1-31-17
7	Archie Linwood King Successor Trustee	1-31-17
8	MCC Outdoor LLC & Morris Communication	1-31-17
10	Morris Communication	1-31-17
11	Margie Marie Fuller	1-31-17
13	City of Raleigh	1-31-17
14	State of North Carolina	1-31-17
15	The Cotton Mill Condo	1-31-17
16	622 Capital, LLC	1-31-17
17	Amerco Real Estate Company	1-31-17
19	Wilco Hess, LLC	1-31-17
23	Henry J. Vapala	6-27-16
30	Marlowe Farms & Land, Inc.	1-31-17
31	436 Partners, LLC	5-30-16
32	Formerly BWB West, LLC, Now Smokey Hollow, LLC	1-31-17
33	Hester & Hester	1-31-17
34	Mann Family Properties of Raleigh	1-31-17
35	Chaucher Investments, Inc.	1-31-17
36	Edwin E. Flythe, Jr.	1-31-17
37	Richard Gardner	1-31-17
38	Margaret Altman Mann	1-31-17
39	James H. Anderson Co.	1-31-17
40	The Crossland	1-31-17

NO MAJOR CONTRACT ITEMS:
(2-19-02) (Rev. 8-21-07) 104 SP1 G31

None of the items included in this contract will be major items.

SPECIALTY ITEMS:
(7-1-95)(Rev. 1-17-12) 108-6 SP1 G37

Items listed below will be the specialty items for this contract (see Article 108-6 of the *2012 Standard Specifications*).

Line #	Description
109 - 122	Guardrail
123 - 129	Fencing
133 - 150	Signing
174 - 181	Long-Life Pavement Markings
182 - 184	Removable Tape
194 - 195	Permanent Pavement Markers
197, 364 - 378	Lighting
198 - 234	Utility Construction
235 - 262	Erosion Control
263 - 312	Signals/ITS System
328 - 332	Drilled Piers
379	Architectural Metal Fascia

FUEL PRICE ADJUSTMENT:
(11-15-05) (Rev. 2-18-14) 109-8 SP1 G43

Revise the *2012 Standard Specifications* as follows:

Page 1-83, Article 109-8, Fuel Price Adjustments, add the following:

The base index price for DIESEL #2 FUEL is **$ 1.5868** per gallon. Where any of the following are included as pay items in the contract, they will be eligible for fuel price adjustment.

The pay items and the fuel factor used in calculating adjustments to be made will be as follows:

Description	Units	Fuel Usage Factor Diesel
Unclassified Excavation	Gal/CY	0.29
Borrow Excavation	Gal/CY	0.29
Class IV Subgrade Stabilization	Gal/Ton	0.55
Aggregate Base Course	Gal/Ton	0.55
Sub-Ballast	Gal/Ton	0.55
Asphalt Concrete Base Course, Type ____	Gal/Ton	2.90
Asphalt Concrete Intermediate Course, Type ____	Gal/Ton	2.90
Asphalt Concrete Surface Course, Type ____	Gal/Ton	2.90
Open-Graded Asphalt Friction Course	Gal/Ton	2.90
Permeable Asphalt Drainage Course, Type ____	Gal/Ton	2.90
Sand Asphalt Surface Course, Type ____	Gal/Ton	2.90
Aggregate for Cement Treated Base Course	Gal/Ton	0.55
Portland Cement for Cement Treated Base Course	Gal/Ton	0.55
__" Portland Cement Concrete Pavement	Gal/SY	0.245
Concrete Shoulders Adjacent to __" Pavement	Gal/SY	0.245

SCHEDULE OF ESTIMATED COMPLETION PROGRESS:

(7-15-08) (Rev. 5-19-15) 108-2 SP1 G58

The Contractor's attention is directed to the Standard Special Provision entitled *Availability of Funds Termination of Contracts* included elsewhere in this proposal. The Department of Transportation's schedule of estimated completion progress for this project as required by that Standard Special Provision is as follows:

2017	(7/01/16 - 6/30/17)	**37** % of Total Amount Bid
2018	(7/01/17 - 6/30/18)	**35** % of Total Amount Bid
2019	(7/01/18 - 6/30/19)	**23** % of Total Amount Bid
2020	(7/01/19 - 6/30/20)	**5** % of Total Amount Bid

The Contractor shall also furnish his own progress schedule in accordance with Article 108-2 of the *2012 Standard Specifications*. Any acceleration of the progress as shown by the Contractor's progress schedule over the progress as shown above shall be subject to the approval of the Engineer.

DISADVANTAGED BUSINESS ENTERPRISE:

(10-16-07)(Rev. 4-19-16) 102-15(J) SP1 G61

Description

The purpose of this Special Provision is to carry out the U.S. Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts financed in whole or in part with Federal funds. This provision is guided by 49 CFR Part 26.

Definitions

Additional DBE Subcontractors - Any DBE submitted at the time of bid that will not be used to meet the DBE goal. No submittal of a Letter of Intent is required.

Committed DBE Subcontractor - Any DBE submitted at the time of bid that is being used to meet the DBE goal by submission of a Letter of Intent. Or any DBE used as a replacement for a previously committed DBE firm.

Contract Goal Requirement - The approved DBE participation at time of award, but not greater than the advertised contract goal.

DBE Goal - A portion of the total contract, expressed as a percentage, that is to be performed by committed DBE subcontractor(s).

Disadvantaged Business Enterprise (DBE) - A firm certified as a Disadvantaged Business Enterprise through the North Carolina Unified Certification Program.

Goal Confirmation Letter - Written documentation from the Department to the bidder confirming the Contractor's approved, committed DBE participation along with a listing of the committed DBE firms.

Page 6-41, Subarticle 650-3(B), Mix Design Criteria, replace Table 650-1 with the following:

TABLE 650-1
OGAFC GRADATION CRITERIA

Sieve Size (mm)	*Type FC-1*	*Type FC-1 Modified*	*Type FC-2 Modified*
19.0	-	-	100
12.5	100	100	80 - 100
9.50	75 - 100	75 - 100	55 - 80
4.75	25 - 45	25 - 45	15 - 30
2.36	5 - 15	5 - 15	5 - 15
0.075	1.0 - 3.0	1.0 - 3.0	2.0 - 4.0

ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES:
(11-21-00) (Rev. 7-17-12) 609 SP6 R15

The approximate asphalt binder content of the asphalt concrete plant mixtures used on this project will be as follows:

Asphalt Concrete Base Course	Type B 25.0__	4.4%
Asphalt Concrete Intermediate Course	Type I 19.0__	4.8%
Asphalt Concrete Surface Course	Type S 4.75A	6.8%
Asphalt Concrete Surface Course	Type SA-1	6.8%
Asphalt Concrete Surface Course	Type SF 9.5A	6.7%
Asphalt Concrete Surface Course	Type S 9.5__	6.0%
Asphalt Concrete Surface Course	Type S 12.5__	5.6%

The actual asphalt binder content will be established during construction by the Engineer within the limits established in the *2012 Standard Specifications.*

ASPHALT PLANT MIXTURES:
(7-1-95) 609 SP6 R20

Place asphalt concrete base course material in trench sections with asphalt pavement spreaders made for the purpose or with other equipment approved by the Engineer.

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:
(11-21-00) 620 SP6 R25

Price adjustments for asphalt binder for plant mix will be made in accordance with Section 620 of the *2012 Standard Specifications.*

The base price index for asphalt binder for plant mix is **$ 332.86** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **June 1, 2016**.

Fabricate the extension arms from pressed steel or malleable wrought iron, or either of these materials in conjunction with a cast base. Provide a minimum weight of the arm material of 14 gauge. Provide a complete arm assembly of sufficient strength to support the barbed wire when stretched to proper tension. Galvanize all arms in accordance with ASTM A153.

Erect extension arms so as to point away from the pavement. Splicing of barbed wire between the arms will not be permitted. Use a method of attaching barbed wire to the arms acceptable to the Engineer.

Measurement and Payment

Chain Link Fence with Barbed Wire, 96" Fabric, Vinyl Coated will be measured and paid in linear feet of fence measured in place from center of each post or gate post to center of end post or gate post exclusive of gate sections that has been completed and accepted. No direct payment will be made for furnishing and installing the barbed wire and extension arms as the cost of such work shall be included in the price bid per linear foot for *Chain Link Fence with Barbed Wire, 96" Fabric, Vinyl Coated.*

Metal Line Posts, 96" Chain Link Fence, Vinyl Coated will be measured and paid in units of each for the several sizes and kinds of posts actually installed on the project. For extra length metal posts, the actual length of post in place in excess of the standard pay length for each post shall be measured in linear feet, and half of such length shall be converted to an equivalent number of standard length posts of the same size for which a pay item has been established. In converting to equivalent numbers of standard length posts, any fractional portion of a post remaining from the division of a total number of linear feet by a standard post length shall be considered as equal to one post.

Metal Terminal Posts, 96" Chain Link Fence, Vinyl Coated will be measured and paid in units of each for all end, corner and brace posts installed on the project.

Payment will be made under:

Pay Item	**Pay Unit**
Chain Link Fence with Barbed Wire, 96" Fabric, Vinyl Coated	Linear Foot
Metal Line Post, 96" Chain Link Fence, Vinyl Coated	Each
Metal Terminal Post, 96" Chain Link Fence, Vinyl Coated	Each

DETECTABLE WARNINGS FOR PROPOSED CURB RAMPS:

(6-15-10) (Rev. 8-16-11) 848 SP8 R126

Description

Construct detectable warnings consisting of integrated raised truncated domes on proposed concrete curb ramps in accordance with the *2012 Standard Specifications,* plan details, the requirements of the *28 CFR Part 36 ADA Standards for Accessible Design* and this provision.

Materials

Detectable warning for proposed curb ramps shall consist of integrated raised truncated domes. The description, size and spacing shall conform to Section 848 of the *2012 Standard Specifications.*

Use material for detectable warning systems as shown herein. Material and coating specifications must be stated in the Manufacturers Type 3 Certification and all Detectable Warning systems must be on the NCDOT Approved Products List.

Install detectable warnings created from one of the following materials: precast concrete blocks or bricks, clay paving brick, gray or ductile iron castings, mild steel, stainless steel, and engineered plastics, rubber or composite tile. Only one material type for detectable warning will be permitted per project, unless otherwise approved by the Engineer.

(A) Detectable Warnings shall consist of a base with integrated raised truncated domes, and when constructed of precast concrete they shall conform to the material requirements of Article 848-2 of the *2012 Standard Specifications.*

(B) Detectable Warnings shall consist of a base with integrated raised truncated domes, and may be comprised of other materials including, but not limited, to clay paving brick, gray iron or ductile iron castings, mild steel, stainless steel, and engineered plastics, rubber or composite tile, which are cast into the concrete of the curb ramps. The material shall have an integral color throughout the thickness of the material. The detectable warning shall include fasteners or anchors for attachment in the concrete and shall be furnished as a system from the manufacturer.

Percentage of Elapsed Contract Time	Percentage Additive
0% - 30%	30%
30.01% - 50%	15%

Percentage of elapsed contract time is defined as the number of calendar days from the date of availability of the contract to the date the permanent seeding and mulching is acceptably completed divided by the total original contract time.

EXPLORATORY EXCAVATION:

12-15-09 SPI 8-23

Description

This work consists of performing exploratory excavation to locate existing underground utilities and storm drain systems as directed by the Engineer. This work will allow minor adjustments to be made prior to the installation of proposed storm drain systems and other items of work to alleviate conflicts.

Construction Methods

Exploratory Excavation – Standard shall consist of removing asphalt, concrete, and earth material by use of standard construction equipment, materials, and laborers to locate accurately any existing underground utilities and storm drain systems. All excavations shall be backfilled with suitable material of the same type excavated. Use available unclassified excavation before using borrow excavation.

Exploratory Excavation – Vacuum shall consist of removing asphalt, concrete, and earth material by using a vacuum truck and any necessary laborers or contractor representatives to locate accurately any existing underground utilities and storm drain systems. All excavations shall be backfilled with suitable material of the same type excavated. Use available unclassified excavation before using borrow excavation.

Measurement and Payment

Exploratory Excavation – Standard and *Exploratory Excavation – Vacuum* will be measured and paid for at the contract unit price per hour. Such prices and payment shall be full compensation for satisfactorily excavating and removing existing material, backfilling with suitable previously excavated earth material and any necessary traffic control. Compensation for any additional earth material needed for backfill will be provided under the contract line items for unclassified excavation or borrow excavation, with available unclassified excavation being utilized before borrow excavation. Any pavement that is removed shall be paved back with an approved mix type being used on the project and payment will be made at the appropriate line item unit price established in the contract.

The Contractor at no cost to the Department will correct any damage to existing underground or above ground structures, storm drain facilities, or utilities due to the negligence of the Contractor.

Payment will be made under:

Pay Item	**Pay Unit**
Exploratory Excavation – Standard	Hour
Exploratory Excavation – Vacuum	Hour

PROJECT SPECIAL PROVISIONS
GEOENVIRONMENTAL

CONTAMINATED SOIL and GROUND WATER (6/2/2016)

The Contractor's attention is directed to the fact that soil contaminated with petroleum hydrocarbon compounds exist within the project area. The known areas of contamination are indicated on corresponding plans sheets. Information relating to these contaminated areas, sample locations, and investigation reports will be available at the following web address by navigating to the correct letting year and month then selecting, "Plans and Proposals", "Wake B-5121", "GeoEnv Postings":

http://dotw-xfer01.dot.state.nc.us/dsplan/

Petroleum contaminated soil may be encountered during any earthwork activities on the project. The Contractor shall only excavate those soils that the Engineer designates necessary to complete a particular task. The Engineer shall determine if soil is contaminated based on petroleum odors and unusual soil staining. Contaminated soil not required to be excavated shall remain in place and undisturbed. Undisturbed soil shall remain in place, whether contaminated or not. The Contractor shall transport all petroleum contaminated soil excavated from the project to a facility licensed to accept contaminated soil.

In the event that the Contractor chooses to stockpile the soil temporarily, the stockpile shall be created within the property boundaries of the source material and in accordance with the Stockpile Containment Detail found in the plans. If the volume of contaminated soil exceeds the available space onsite, the NCDEQ has agreed to a central stockpile location for petroleum contaminated soil. The central stockpile location is located on NCDOT Parcel 20 at –L- Station 40+00, 55' to 145' Right. The address is 902 Capital Boulevard. If this central stockpile location is unacceptable to Contractor, the Contractor shall obtain a permit from the NCDEQ UST Section's Regional Office for an alternative off-site temporary storage location. The Contractor shall provide disposal manifests and weigh tickets to the Engineer for review and approval. The Engineer will in turn provide the GeoEnvironmental Section with a copy of the disposal manifests and weigh tickets for their records.

If ground water is encountered and dewatering is required in areas of known contamination then the contractor shall containerize the ground water in vessels provided by the Department. The Department will be responsible for the sampling and disposal of the water.

Removal of potential hazardous materials in and around parcel 11
The Contractor's attention is directed to the fact that low levels of chlorinated compounds were detected in the soil and ground water within the project area. The known areas of contamination are indicated on corresponding plans sheets.

The Department's consultant shall screen and direct the Contractor to separate the potential contaminated soil from the other soil removed in the area. The separated soil shall be placed by the Contractor into vessels provided by the Department. The Department's Consultant shall test

the soil to determine the available disposal options. If the results indicate the soil is below regulatory levels, the soil shall be left onsite for use by the Contractor. If the results indicate the soil is above regulatory levels, the soil shall be properly disposed by the Department's Consultant.

Measurement and Payment:
The quantity of contaminated soil hauled and disposed shall be the actual number of tons of material, which has been acceptably transported and weighed with certified scales as documented by disposal manifests and weigh tickets. The quantity of contaminated soil shall be paid for at the contract unit price per ton for "Hauling and Disposal of Petroleum Contaminated Soil".

The above price and payment shall be full compensation for all work covered by this section, including, but not limited to loading, transportation, weighing, laboratory testing, disposal, equipment, decontamination of equipment, labor, and personal protective equipment.

Payment shall be made under:

Pay Item	**Pay Unit**
Hauling and Disposal of Petroleum Contaminated Soil	Ton

DocuSigned by:
Cyrus F. Parker
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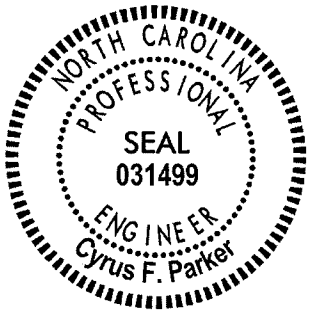

PROJECT SPECIAL PROVISIONS
LIGHTING

1.00 DESCRIPTION

The work covered by this Section consists of installing, connecting, and placing into satisfactory condition a street lighting conduit system along the subject project as shown on the plans. Perform all work in accordance with these Special Provisions, the Plans, the National Electrical Code, and North Carolina Department of Transportation "Standard Specifications for Roads and Structures" (*2012 Standard Specifications*). Erection of light standards, and installation of circuit conductors and light standard luminaires will be performed by Duke Energy Progress in coordination with NCDOT prime Contractor.

Perform all work in conformance with Division 14 of the *2012 Standard Specifications* except as modified or added to by these Special Provisions. Install all bore pits outside the clear zone, as defined in the AASHTO Roadside Design Guide or as directed by the Engineer.

In addition to the requirements of Division 1400, other specific Sections of the *2012 Standard Specifications* applicable to the work on this project are listed below.

Section 1409 Electrical Duct

2.00 STREET LIGHTING CONDUIT INSTALLATION

2.10 DESCRIPTION

Amend Article 1409-1 as shown below.
Install conduit for street lighting along the subject project as shown in the lighting plans including equipment and labor for trenching/open cut along the road shoulder and directional bore under roadway.

2.20 MATERIALS

Amend Article 1409-2 as shown below:
Duke Energy Progress will furnish 2" PVC conduit, elbows and sweeps as required to complete the street lighting conduit system along the subject project. Contractor will coordinate conduit installation work with Rick Whitaker of Duke Energy Progress ((919) 546-5096) or Dustin Brice of the City of Raleigh ((919) 996-4045).

Contractor shall notify Duke Energy Progress no less than six weeks before conduit is required. After conduit is delivered by Duke Energy Progress and accepted by the Contractor, the Contractor becomes the owner and is responsible for loss or damage to material until installation.

2.30 CONSTRUCTION METHODS

Same as Article 1409-3.

2.40 MEASUREMENT AND PAYMENT

Same as Article 1409-4.

Payment will be made under:

Pay Item	**Pay Unit**
Street Lighting Conduit Installation (2" PVC) _____	Linear Foot

DocuSigned by:
Paul Chan 6/6/2016
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PROJECT SPECIAL PROVISIONS
LIGHTING

1.00 DESCRIPTION

The work covered by this Section consists of furnishing, installing, connecting, and placing into satisfactory operating condition aesthetic and underpass lighting at locations shown on the plans.

Also covered by this Section, is work that consists of furnishing, installing, connecting, and placing into satisfactory condition a street lighting conduit system along Capital Blvd as shown on the plans. Erection of light standards, and installation of circuit conductors and light standard luminaires will be performed by Duke Energy Progress in coordination with NCDOT prime Contractor.

Perform all work in conformance with Division 14 of the *2012 Standard Specifications* except as modified or added to by these Special Provisions. Install all bore pits outside the clear zone, as defined in the AASHTO Roadside Design Guide or as directed by the Engineer.

In addition to the requirements of Division 1400, other specific Sections of the *2012 Standard Specifications* applicable to the work on this project are listed below.

Section 1407	Electric Service Pole and Lateral
Section 1408	Light Control System
Section 1409	Electrical Duct
Section 1410	Feeder Circuits
Section 1411	Electrical Junction Boxes
Section 1412	Underpass Lighting

2.00 CONSTRUCTION METHODS

Modify the fourth paragraph of Standard Specification 1400-4(F) to read as follows:

Install manufactured set screw type connectors, suitable for connecting multiple wires, and which are UL Listed (UL486D) for all phase conductor splices. These precise fit connectors are insulated with high–strength dielectric material and have removable access plugs over the set screws. Direct buried and/or submersible versions of these connectors, equipped with factory made waterproof insulating boots, are required for splicing inside junction boxes. Non-direct buried and/or non-submersible connectors may be used for phase conductor splicing in normally dry areas such as inside poles and transformer bases. After tightening set screw, tape down the access plugs to keep them securely in place. Split-bolt connectors may be used for ground wire splicing. Wire nut and compression type connectors will not be allowed.

Add the following to the end of Standard Specification 1400-4:

(K) Foundations
Form foundations with prefabricated cardboard forms down to 12" min. below top of ground.

3.00 BURN IN TEST

Add the following to the end of Standard Specification 1400-6:

The Contractor is responsible for all maintenance of the Department owned lighting system(s) installed or renovated as part of this contract until contract completion. The Department will assume maintenance responsibility for the completed lighting systems after the entire project is accepted and there is no chance of construction related damage.

4.00 ELECTRICAL JUNCTION BOXES

4.10 DESCRIPTION

Same as Article 1411-1.

4.20 MATERIALS

Same as Article 1411-2, except modify referenced Article 1091-5 as follows:

- Page 10-202, revise paragraph starting on line 9 to read "Provide polymer concrete (PC) boxes which have bolted covers and open bottoms. Provide vertical extensions of 6" to 12" as required by project special provisions."
- Page 10-202, revise sentence beginning on line 14 to read "Other thermoplastic materials may be used for components which are not normally exposed to sunlight."

4.30 CONSTRUCTION METHODS

Same as Article 1411-3.

4.40 MEASUREMENT AND PAYMENT

Electrical Junction Boxes ____ will be measured and paid as the actual number of the appropriate type and size junction boxes installed and accepted. Payment for the conduit, duct and wiring will be paid under other contract items. Items used for splicing are incidental to the junction boxes.

Payment will be made under:

Electrical Junction Boxes _____..... Each

5.00 LIGHT CONTROL SYSTEM

5.10 DESCRIPTION

Furnish and install an entire control system, including enclosure, control panel, photocell, switches, contactors, breakers, terminal blocks, wiring, concrete foundation, and lightning arrester. The control system contains standard electrical components in a weatherproof enclosure mounted on a metal pole with a concrete foundation as shown in the plans.

5.20 MATERIALS

Use a 60 Amp meter base. Use a combination lighting controller/service entrance equipment (combination panel) equal to Square D Class 8903 Night-Master. Manufacturer's name and model number are given for descriptive purposes, to indicate a quality standard and are not intended to limit products to a particular manufacturer. Products deemed equal and approved by the Engineer will be accepted. The combination panel must be UL listed, include one main circuit breaker, solid neutral bar, contactor, photocontrol, selector switch, fused control circuitry and a lightning arrester (mounted external to cabinet) in a NEMA 3R enclosure, labeled as suitable for use as service entrance equipment. Required sizes and ratings are as shown in the plans. Components should be factory installed and not field assembled.

Use a combination panel enclosure with a flange mounted operator handle that is lockable in the OFF position and is interlocked with the door and main circuit breaker, so that the door cannot be opened when the breaker is in the ON position. The enclosure shall have an internal removable back panel for mounting components and shall have external mounting brackets.

The combination panel must be rated 120/240 VAC, single phase, two pole, three-wire, service entrance. The main circuit breaker must have an interrupting capacity rating of not less than 10,000 amperes RMS symmetrical. The control relay shall be 120 Volts and shall have an amperage rating of 10 A. The electrically operated, mechanically held contactor shall be 4 pole, 240 Volts with a current rating of 60 A. Both the control relay and the electrically operated, mechanically held contactor shall have 120 VAC coils. The feeder circuit breakers for all circuits shall be 2 pole, 240 Volts and have an amperage rating for 15 A. The service circuit breaker shall be 2 pole, 240 Volts and have an amperage rating of 60 A. The control circuit breaker shall be 1 pole, 120 Volts and have an amperage rating of 15 A. The selector switch must be a heavy duty HAND-OFF-ON unit including contacts and handle mounted on the back panel of the enclosure.

The lightning arrester must be the thyrite type, designed to contain and snuff out an arc of 10,000 amps, and have conduit threads for mounting in the combination panel enclosure.

The ground rod must be copper clad steel, with a clamp rated for direct burial.

Use a 4" Rigid Galvanized Steel Conduit with cap, embedded in concrete as shown in the plans for mounting the lighting controller. Use galvanized slotted steel framing channel with straps

and bolts, for the mounting brackets and hardware for attaching the lighting controller to the pole.

Use mastic that is a permanent, non-hardening, water sealing compound that adheres to metal, plastic, and concrete.

Use zinc rich paint conforming to Section 1080-9 of the Standard Specifications.

5.30 CONSTRUCTION METHODS

Contact the local utility company and obtain the required electrical service, as stated in section 1400-9 of the Standard Specifications.

Locate the combination panel as shown on the plans. Install all non-factory installed components of the combination panel securely, with all conductors properly terminated and identified. Attach all components to the post with galvanized or stainless steel hardware. Provide and install a padlock for the controller, with eight keys all keyed alike.

Operate the lighting system without interruption or failure attributable to poor workmanship or defective material for 2 consecutive weeks, as stated in section 1400-6 of the Standard Specifications. The Engineer will perform insulation resistance tests, as stated in section 1400-5 of the Standard Specifications.

The Engineer must inspect and approve all work before concealment.

5.40 MEASUREMENT AND PAYMENT

The control system measured as provided above will be paid for at the contract unit price per each "Lighting Control System, Type ____". Such price and payment will be considered full compensation for all materials, equipment and labor for installing a new combination panel as described in the preceding sections, as well as all connecting hardware and conduit, construction of foundation and support structure and all incidentals necessary to complete the work.

The quantity of lighting control systems to be paid for will be the actual number which have been installed and accepted

Payment will be made under:

Lighting Control System, Type _____.....Each

6.00 AESTHETIC LIGHTING SYSTEM

6.10 DESCRIPTION

6.11 Aesthetic Lighting Luminaire

Furnish, install and place into satisfactory operation aesthetic lighting luminaires on a bracket arm directly mounted to the girder, complete with all light sources, drivers, jumpers and wiring from circuit conductors to luminaire.

The Contractor shall supply LED aesthetic lighting luminaires as specified below or approved equal. A sample of any proposed luminaire must be submitted to the Department for review during the submittal review process. Manufacturer's name and model number are given for descriptive purposes, to indicate a quality standard and are not intended to limit products to a particular manufacturer. Products deemed equal and approved by the Engineer will be accepted.

# of Fixtures	Philips Product description	Philips Part Number
169	eW Graze MX Powercore, **, 30° X 60° beam angle	523-000080-**

** Note: The Color Temperature will be determined after mock-up as describe in section 6.31. (Different Color Temperature will have different part number.)

6.12 Spotlight Luminaire

Furnish, install and place into satisfactory operation, spotlight LED luminaires on a concrete foundation as detailed in these Special Provisions.

The Contractor shall supply LED spotlight luminaires similar to the one specified below or approved equal. Manufacturer's name and model number are given for descriptive purposes, to indicate a quality standard and are not intended to limit products to a particular manufacturer. Products deemed equal and approved by the Engineer will be accepted.

# of Fixtures	Philips Product description	Philips Part Number
8	eW Burst Powercore Architectural, **, with 14° spread lens	523-000036-**

** Note: Use the same (or as close as possible) Color Temperature as used for the aesthetic lighting luminaire. (Different Color Temperature will have different part number.)

Any alternate luminaire submitted for approval must meet the minimum requirements below.

6.20 MATERIALS

6.21 Aesthetic Lighting Luminaire

A. General Requirements

- Luminaire with driver shall accept power input range of 100 to 277VAC including fluctuations of ± 10%.
- Luminaire shall have the color temperature select at the mock-ups.
- Power consumption shall be no greater than 15W per foot.

- Nominal luminaire input wattage shall account for nominal applied voltage and any reduction in driver efficiency due to sub-optimal driver loading.
- Luminaire electrical components (driver and surge protection) shall meet the dust and moisture requirements of ingress protection (IP) rating of IP66.
- Luminaires shall start and operate in -20°C to +50°C ambient.
- Luminaires shall be rated for continuous service at an ambient temperature of 40°C (104°F)
- Electrically test fully assembled luminaires before shipment from factory.
- The luminaire manufacturer shall have no less than five (5) years of experience in manufacturing LED-based lighting products and the manufacturing facility must be ISO 9001 certified.
- Luminaire shall have a Beam angle of 30° with a 60° fan.
- Luminaire shall have multi-positional, constant torque locking hinge mounting hardware and comply with luminaire attachment details as shown in the Lighting Detail Plan Sheets E6-E9.
- Luminaire shall conform to ANSI C136.31 roadway and area lighting luminaire vibration resistance standards.
- Luminaire shall have integral male/female waterproof connectors. Provide waterproof and dustproof boots for any unused connectors.
- Luminaire shall have a L70 rating of 60,000 hours minimum at 25°C.
- Jumper cables between fixtures and leader cable to connect fixture to power source.

B. Electromagnetic interference
- Luminaires shall have a maximum Total Harmonic Distortion (THD) of 20% at full input power and across specified voltage range.
- Luminaires shall comply with FCC 47 CFR part 15 non-consumer RFI/EMI standards.

C. Electrical safety testing
- Luminaires shall be listed for wet locations.
- Luminaires shall be UL listed and labeled.

D. Finish
- Luminaires shall be painted with a corrosion resistant polyester powdered paint with a minimum 2.0 mil thickness.
- Luminaires shall exceed a rating of six per ASTM D1654 after 1000 hours of salt spray fog testing per ASTM B117.
- The coating shall exhibit no greater than 30% reduction of gloss per ASTM D523, after 500 hours of QUV testing at ASTM G154 Cycle 6.
- Exterior surfaces shall be smooth and free of burrs.
- Luminaire housing shall be made of extruded anodized aluminum

E. Color Quality
- Minimum Color Rendering Index (CRI) of 81 with the Correlated Color Temperature (CCT) determined after the mock-up.

F. Optics
- Transmissive optical components shall be applied in accordance with OEM design guidelines to ensure suitability for the thermal/mechanical/chemical environment.

G. Thermal management
- Mechanical design of protruding external surfaces (heat sink fins) shall facilitate hose-down cleaning and discourage debris accumulation.

H. Manufacturer or local sales representative shall provide installation and troubleshooting support via telephone and/or email.

I. Warranty
- Provide a minimum five-year warranty covering maintained integrity and functionality of the luminaire housing, wiring, and connections, LED light source(s) and LED driver. Negligible light output from more than 10 percent of the LED packages constitutes luminaire failure.
- Warranty period shall begin after project acceptance by the Department. Supplier shall furnish documentation of warranty procedures to the Contractor stating that warranty is for NCDOT.

6.22 Spotlight Luminaire

A. General Requirements
- Spotlight luminaire shall have exchangeable optical spread lens available in 14°, 23° and 41° angles to allow field modification if necessary.
- Spotlight luminaire shall have an integrated yoke with a canopy base capable of mounting to a standard junction box or a flat surface.
- The spotlight luminaire and driver shall accept power input range of 100 to 277VAC including fluctuations of ± 10%. .
- Spotlight luminaires shall comply with vibration resistance, per ANSI C136.31.
- Spotlight luminaires maximum total power consumption shall not exceed the values shown in the plans. Nominal luminaire input wattage shall account for nominal applied voltage and any reduction in driver efficiency due to sub-optimal driver loading.
- Spotlight luminaire shall meet dust and moisture rating of IP-66, minimum.
- Electrically test fully assembled luminaires before shipment from factory.
- The luminaire manufacturer shall have no less than five (5) years of experience in manufacturing LED-based lighting products and the manufacturing facility must be ISO 9001 certified.
- Spotlight luminaire shall have a L70 rating of 90,000 hours minimum at 25°C. Provide a summary of reliability testing performed for LED driver.

- Spotlight luminaire shall start and operate in -20°C to +50°C ambient.
- Spotlight luminaire shall have a minimum Power Factor (PF) of 0.90 at full input power and across specified voltage range.

B. Electromagnetic interference
- Luminaires shall have a maximum Total Harmonic Distortion (THD) of 20% at full input power and across specified voltage range.
- Luminaires shall comply with FCC 47 CFR part 15 non-consumer RFI/EMI standards.

C. Electrical safety testing
- Luminaires shall be listed for wet locations.
- Luminaires shall be UL listed and labeled.

D. Finish
- Luminaires shall be painted with a corrosion resistant polyester powdered paint with a minimum 2.0 mil thickness.
- Luminaires shall exceed a rating of six per ASTM D1654 after 1000 hours of salt spray fog testing per ASTM B117.
- The coating shall exhibit no greater than 30% reduction of gloss per ASTM D523, after 500 hours of QUV testing at ASTM G154 Cycle 6.

E. Color Quality
- Minimum Color Rendering Index (CRI) of 80. Use same Correlated Color Temperature (CCT) selected for the Aesthetic Lighting Luminaires.

F. Optics
- Transmissive optical components shall be applied in accordance with OEM design guidelines to ensure suitability for the thermal/mechanical/chemical environment.

G. The following shall be in accordance with corresponding sections of ANSI C136.37
- All internal components shall be assembled and pre-wired using modular electrical connections.

H. Manufacturer or local sales representative shall provide installation and troubleshooting support via telephone and/or email.

I. Warranty
- Provide a minimum five-year warranty covering maintained integrity and functionality of the luminaire housing, wiring, and connections, LED light source(s) and LED driver. Negligible light output from more than 10 percent of the LED packages constitutes luminaire failure.
- Warranty period shall begin after project acceptance by the Department.

6.23 Electrical Conduit System for Aesthetic LED Lights

Non-metallic conduit shall be rigid PVC (Polyvinyl chloride) heavy wall approved for above ground and for underground use by direct burial or encasement in concrete per UL 651 "Rigid Non-Metallic Conduit". Use terminations designed for PVC conduit to seal and stub out each PVC conduit, and to provide watertight protection. Provide UL listed PVC expansion fittings of the appropriate size at all construction joints and bent expansion joints, as noted in the plans. Expansion fittings shall be weatherproof, designed for non-metallic conduit and provide 4" minimum of conduit movement.

Cast iron junction box (CIJB) shall be NEMA Type-4, hot-dipped galvanized sized as shown on the plans. The CIJB shall have a neoprene gasketed cover with brass or stainless steel screws and shall be suitable for a water tight installation. A mounting button with a blind tapped bolt hole shall be provided on the interior for connection of a ground lug. The CIJB shall have a continuous hinge on the lid.

6.24 Bracket Assemblies

See Structure Plan Sheets for bracket types and details.

6.30 CONSTRUCTION METHODS

6.31 Aesthetic Lighting Luminaire

The Contractor shall provide four sets of four Aesthetic Lighting Luminaires for the mock-up of the "Architectural Metal Fascia" mounted on the concrete and steel girders. Each set of four shall have a different correlated color temperature of either 2700K, 3500K, 4000K or 5500K. This mock-up is to determine which correlated color temperature to order all the Aesthetic Lighting Luminaires and spotlights. The correlated color temperature will be selected by the City of Raleigh and the Engineer after the mock-up.

Refer to Structure Plan Sheets for brackets to mount Aesthetic Lighting Luminaires to concrete girder on Capital Boulevard Bridge over Peace Street and for brackets to mount Aesthetic Lighting Luminaires to steel girders on the Wade Avenue Flyover Bridge.

Use "Medallion Luminaire Bracket at Central Pilaster" to mount Aesthetic Lighting Luminaire to illuminate concrete decorative medallions installed on the bridge over Peace Street. Use "Medallion Luminaire Bracket at Bent Pilaster" to mount Aesthetic Lighting Luminaire to illuminate concrete decorative medallions installed on the Wade Avenue Bridge. Refer to Structures Plans for dimensions of these brackets and structural attachment details.

Level and secure each luminaire in all directions. Adjust any luminaires, as directed by the Engineer, to provide optimal illumination distribution.

All LED packages on all luminaires must be operating normally at contract completion. Any luminaire displaying improper operating characteristics prior to contract completion will be replaced by the Contractor at no additional cost to the Department.

Install Electrical Conduit System for Aesthetic Lighting Luminaires at Peace Street. Use PVC Conduit from JB1 to CIJB. Install RGS conduit from the CIJB, located behind coping of MSE abutment wall, to 4" round metal junction box at concrete girder. See Lighting Details Plan Sheets E6 & E7 for details.

Install Electrical Conduit System for Aesthetic Lighting Luminaires at Wade Avenue. Use PVC conduit from junction box JB3 & JB4 to the CIJB, located behind coping of MSE abutment wall. Install RGS conduit from CIJB to 4" round metal junction box at steel girder. See Lighting Detail Plan Sheets E8 & E9 for details.

Coordinate conduit installation behind MSE abutment wall at both structure locations with Prime Contractor to ensure conduit is properly placed and secured as MSE abutment wall is constructed.

6.32 Spotlight Luminaire

Spotlight luminaire foundation is type R1S which is equal to type R1 on Standard Drawing 1405.01 and described in Section 1405 of the Standard Specifications except as modified below.

The type R1S foundation shall be 16" diameter by 32" deep. Integral anchor bolts are not required.

Spotlight luminaire shall be mounted on a 4" metal round junction box. Junction box shall be cast into the concrete base, level with top face of foundation. Follow manufacturer's installation instructions for securing fixture and sealing fixture to prevent water infiltration.

Install PVC conduit from ground mounted junction box to and in foundation to 4" round metal junction box cast in the foundation. See Roadway Lighting Plan Sheet E4 for details.

Level and secure each spotlight luminaire in all directions. Securely terminate the wiring for each spotlight luminaire and include an equipment grounding conductor to bond the housing to the supply cord grounding conductor.

Adjust any spotlight luminaires, as directed by the Engineer, to provide optimal illumination distribution.

All LED spotlights luminaires must be operating normally at contract completion. Any spotlight luminaire displaying improper operating characteristics prior to contract completion will be replaced by the Contractor at no additional cost to the Department.

6.40 MEASUREMENT AND PAYMENT

The aesthetic lighting systems measured as provided above will be paid for at the contract unit price per each "Aesthetic Lighting System at _____", "Aesthetic Lighting Luminaire" and "Spotlight Luminaire".

Such price and payment for the "Aesthetic Lighting System at _____" will be considered full compensation for providing and installing RGS conduit, junction boxes and conductor from the cast iron junction box mounted behind the coping of the MSE abutment wall and all incidentals. At Wade Avenue the cast iron junction box mounted behind the coping of the MSE abutment wall, as well as the conduit and conductors from the in ground junction box to the cast iron junction box mounted behind the coping of the MSE abutment wall are also included.

Such price and payment for the "Aesthetic Lighting Luminaire" will be considered full compensation for providing and installing the LED aesthetic lighting luminaires including the jumpers and hinge brackets.

Such price and payment for the "Spotlight Luminaire" will be considered full compensation for providing and installing the LED spotlight luminaires including the R1S foundation as described above.

Aesthetic Lighting Luminaires required for the mock-up shall be consider incidental to the Aesthetic Lighting System.

Payment will be made under:

Aesthetic Lighting System at _____ .....LS

Aesthetic Lighting Luminaire .....EA

Spotlight Luminaire .....EA

7.00 ELECTRICAL CONDUIT SYSTEM FOR UNDERPASS LIGHTING AT PEACE STREET

7.10 DESCRIPTION

The work covered by this section consists of furnishing and installing one conduit system embedded in the coping on the MSE abutment wall under the bridge over Peace Street for underpass lighting, as shown in the plans.

7.20 MATERIALS

Non-metallic conduit shall be rigid PVC (Polyvinyl chloride) heavy wall approved for above ground and for underground use by direct burial or encasement in concrete per UL 651 "Rigid Non-Metallic Conduit". Use terminations designed for PVC conduit to seal and stub out each PVC conduit, and to provide watertight protection. Provide UL listed PVC expansion fittings of the appropriate size at all parapet construction joints and bent expansion joints, as noted in the plans. Expansion fittings shall be weatherproof, designed for non-metallic conduit and provide 4" minimum of conduit movement.

Use CIJB as describe in Section 6.23 already defined.

Use mastic that is a permanent, non-hardening, water sealing compound that adheres to metal, plastic, and concrete.

Provide jute that is a burlap-like material used for filling voids and protecting components from waterproofing and adhesive compounds.

Provide zinc rich paint conforming to Section 1080-9 of the Standard Specifications.

Provide pull lines specifically designed for pulling rope through conduit. Use pull lines made of 2-ply line, with a tensile strength of (240 pounds) minimum. Use rot and mildew resistant pull lines that are resistant to tangling when being dispensed.

7.30 CONSTRUCTION METHODS

Securely fasten all conduit and boxes prior to placing any concrete. Each conduit run between termination points should be as straight as possible. The total angular deflection of all bends in a conduit run should not exceed 180 degrees. Total deflection greater than 180 degrees requires advanced approval by the Engineer. After the conduit is encased in concrete, clean each conduit by snaking with a steel band that has an approved tube cleaner, equipped with a mandrel of a diameter not less than ½" of the nominal inside diameter of the conduit.

Stub the conduit out in junction boxes as shown in the plans. Use threaded adapter and PVC bushing at all junction box to conduit connections. Install a pull line in each conduit for future use. Leave sufficient slack for attachment of a rope that will be used to install conductors. Coordinate electrical conduit system work with work by others.

Install circuit conductors sized as shown in the Lighting Plans to serve the wallpack underpass luminaires.

All work must be inspected and approved by the Engineer before concealment.

7.40 MEASUREMENT AND PAYMENT

No direct measurement will be made for the conduit system(s), since it will be paid for on a lump sum basis.

Payment for the conduit system will be made at the contract lump sum price for "Electrical Conduit System at Peace Street ".

Such price and payment for the conduit system as provided above will be considered full compensation for all materials, equipment, and labor necessary to complete the work in accordance with the plans and these special provisions.

Payment will be made under:

Electrical Conduit System at Peace Street.....Lump Sum

PROJECT SPECIAL PROVISIONS
Utility Construction

Nominal pipe length shall be a minimum of 13 feet.

- Page 10-57; Section 1034-4(A), Gravity Flow Sewer Pipe, replace the entire section with the following:

(1) Pipe and fittings shall conform to the following requirements:

Size shall be as indicated on the Drawings.

Minimum pipe pressure class shall be 350 for pipes 6-inch to 12-inch diameter, and a minimum pressure class 250 for pipes 16-inch and larger.

Suitable for a system working pressure of 250 psi minimum for gravity sewer, 150 psi for force mains.

Pipe shall be supplied in nominal lengths of 18 or 20 feet.

~~Cement mortar lined with seal coat in accordance with AWWA C104 for pipes smaller than 12 inches.~~

Interior of pipes and fittings for pipes ~~12 inches and larger~~ shall be lined with ~~PROTECTO~~ **Protecto** 401 ceramic epoxy as described in paragraph in this section.

Pipe pressure/thickness class shall be suitable for the type laying condition and at the depth indicated on the Drawings. The proper pressure/thickness class shall be at a minimum as shown on the Contract Drawings. Pipe manufacturer to verify pipe selection, and document to Engineer, prior to ordering and manufacture of pipe.

Note: The pipe pressure classes shown on the Contract Drawings were determined with the use of the pipe liner as specified above. If this specified pipe liner is modified or changed for any reason, then the Engineer and Pipe Manufacturer, prior to the Contractor ordering the pipe, shall reevaluate the pressure class.

Provide mechanical joint fittings, unless noted otherwise on the Drawings.

Pipe class shall not transition between manholes and shall be the highest pressure/thickness class required for that reach with exception to sections between manholes including jacking pipe as indicated on the Drawings.

Ductile Iron may be used for gravity sewers and force mains.

PROJECT SPECIAL PROVISIONS
Utility Construction

(2) Ductile-iron pipe for below ground service shall have push-on or mechanical joints, unless noted otherwise on the Drawings, conforming to AWWA C150 and C151, and to the following requirements:

Provide mechanical joint fittings for push-on or mechanical joint pipe, unless noted otherwise on the Drawings.

(3) Ductile-iron pipe for above ground service shall have flanged joints, unless noted otherwise on the Drawings, and conform to AWWA C115.

Pipes to be painted shall have only a shop primer on the outside by the manufacturer. Verify that proposed manufacturer's primer is compatible with the proposed paint system.

- Page 10-57; Section 1034-4, add the following Sub-article:

(C) Protecto 401 Ductile Iron Pipe Liner

The interior wall of ductile iron sewer pipe ~~12" and larger in diameter~~ shall be protected by the Protecto 401 Ceramic Epoxy liner.

The lining shall meet the manufacturer's recommendations and the following requirements as a minimum.

The liner manufacturer shall have a minimum of ten (10) years of successful experience and be able to demonstrate successful performance on comparable projects.

The material shall be an amine cured novalac epoxy containing at least 20% by volume of ceramic quartz pigment.

Permeability rating of 0.00 when tested according to Method A of ASTM E-96-66, Procedure A with a test duration of 30 days.

The following tests must be run on coupons from factory lined ductile iron pipe:

(a) ASTM B-117 Salt Spray (scribed panel) – Results to equal 0.0 undercutting after two years.

(b) ASTM G-95 Cathodic Disbondment 1.5 volts @ 77°F. Results to equal no more than 0.5mm undercutting after 30 days.

PROJECT SPECIAL PROVISIONS
Utility Construction

18	23.75	¾	75,000
20	25.75	¾	92,000
24	30.25	¾	130,000
30	36.50	1	200,000
36	43.00	1	290,000
42	49.50	1¼	390,000
48	56.50	1¼	510,000
54	63.00	1½	650,000
60	70.25	1½	745,000

All reinforcing steel shall be Grade 60 in accordance with Article 1070-2. All concrete shall be Class AA in accordance with Article 1000-4.

Valves on ductile iron lines 16-inches or greater and dead end mains shall be anchored with thrust collars as shown in Detail W-8.

(H) Reaction Blocking

All fittings or components subject to hydrostatic thrust shall be securely anchored by the use of concrete thrust blocks poured in place, unless otherwise directed by the Engineer. Where concrete must be reinforced, the Contractor shall furnish such reinforcing as is required.

Required thrust block sizing shall be per the schedule provided on the plans and installation shall be per the detail notes; see Details 0222114R and 0222108.

Material for reaction blocking shall be transit-mixed concrete. This concrete shall have a twenty-eight day compressive strength of 3000 psi. Any metal used to resist thrust which is not encased in concrete shall be "hot dipped" galvanized.

(I) Nitrile Gaskets **and Polyethylene Encasement**

Gaskets of the Viton nitrile type, or equal, **and polyethylene encasement** shall be installed on both water and sewer pipe if contaminated soil and/or groundwater are detected during excavation, or as directed by the Engineer. The use of nitrile gaskets shall extend at least forty (40) feet beyond the limit of ~~petroleum~~ contamination.

- Page 15-4; Sub-article 1505-6, Measurement and Payment, add the following after Line 43:

Concrete thrust collars required for the Project shall be ~~included and paid for as part of~~ **considered incidental to** the ____" Water Line pay item. No additional

measurement nor payment will be made.

Polyethylene encasement shall be ~~included and paid for as part of~~**considered incidental to** the ____" Water Line pay item. No additional **measurement nor** payment will be made.

Nitrile gaskets shall be considered incidental to the ____" Water Line pay item. No additional measurement nor payment will be made.

3. SECTION 1510 - WATER LINES

- Page 15-5; Sub-article 1510-3 (A), General, add the following:

Fittings shall be set at locations shown on the plans, with care being taken to properly "bell-up" joints and support the body of the fitting. All dead-end lines shall be plugged with mechanical joint plugs or caps and anchored by using thrust collars and blocking as shown on Details W-8, 0222114R, and 0222108.

Ductile Iron Pipe

Install pipe in conformance with AWWA C600 and the following:

For laying pipe in a vertical or horizontal curve, each full length pipe may be deflected by the following offset distance unless the pipe manufacturer's recommended distances are less:

(i) Push-on joint

- 3 to 12-inch pipe: 14-inch offset
- 14 to 36-inch pipe: 8-inch offset

(ii) Mechanical joint

- 3 to 6-inch pipe: 20-inch offset
- 8 to 12-inch pipe: 15-inch offset
- 14 to 20-inch pipe: 8-inch offset
- 24 to 36-inch pipe: 6-inch offset

For laying restrained joint pipe in a vertical or horizontal curve, except for horizontal directional drills (HDD), each full length pipe may be deflected by the following offset distance:

- 6 to 12-inch pipe: 11-inch offset
- 16 to 20-inch pipe: 7-inch offset
- 24 to 30-inch pipe: 5-inch offset

PROJECT SPECIAL PROVISIONS
Utility Construction

Hydrants shall be bagged, to indicate "out of service", until all testing is complete and the mains are placed in service. Bags shall be large enough to cover the entire hydrant and shall be black in color. Bags shall be secured with duct tape at the base of the hydrant and shall be removed immediately after the hydrants are placed in service.

- Page 15-9, Article 1515-4, Measurement and Payment , add the following after Line 10:

All *MJ Solid Sleeve Couplings* and *MJ Transition Sleeve Couplings* required for the Project shall be ~~included and paid for as part of~~ **considered incidental to** the ____" Water Line pay item. No additional **measurement nor** payment will be made.

All *Mechanical Joint Restraints* shall be ~~included and paid for as part of~~**considered incidental to** the ____" Water Line pay item.~~ and n~~No additional **measurement nor** payment will be made.

All miscellaneous connections to existing pipe shall be installed in accordance with Article 1036-8 (B) and shall be considered as incidental to the Project and no additional payment will be made.

12" Insertion Valve Assembly: The Work shall include the total amount of pipe, fittings, valves, couplings, mechanical joint restraints, adapters, sleeves, transition pieces, plugs, rodding, concrete, excavation and backfill, crushed stone, and appurtenances shown on the Plans and as required for a complete and operable 12" Insertion Valve Assembly. All piping and fittings shall be ductile iron, unless otherwise shown on the Plans.

All other Work required to complete the 12" Insertion Valve Assembly installation shall be considered as incidental to the project and no specific payment will be made. Payment for completing the work specified herein and as shown on the Plans shall be measured and paid for at the contract unit price per each, for each size of associated connection pipe.

2" Air Release Valve: The Work shall include the total amount of pipe, fittings, valves, hydrants, couplings, mechanical joint restraints, adapters, sleeves, transition pieces, plugs, rodding, concrete, excavation and backfill, crushed stone, and appurtenances shown on the Plans and as required for a complete and operable 2" Air Release Valve. All piping and fittings shall be ductile iron, unless otherwise shown on the Plans.

All other Work required to complete the 2" Air Release Valve detail shall be considered as incidental to the project and no specific payment will be made. Payment for completing the work specified herein and as

PROJECT SPECIAL PROVISIONS
Utility Construction

12. Lay sewer pipe to true lines and grades by using laser beam equipment or other acceptable means.

13. Minimum Separation Distances:

    a. In general, 100-foot horizontal separation from wells or other water supplies. If sewer pipe is installed within 50 foot of a public well or water supply or 25 foot of a private well or water supply, ferrous pipe must be used. Manholes shall not be located within 50-foot of a public well or water supply or 25 foot from a private well or water supply.

    b. 24-inch vertical separation from storm sewers or ferrous pipe shall be used.

14. Sewer Bypass Pumping Operations

a. In all Sewer Bypass Pumping operations, a bypass plan sealed by a N.C. Professional Engineer must be submitted for approval to the Public Utilities Department prior to pumping operations (Plans may be submitted to administration staff at One Exchange Plaza, Suite 620, Raleigh, NC 27601) Pumps should be sized to handle the peak daily flow (2.5 times the average daily flow) for the line or area of work. The contractor shall secure pumps from a pump supplier according to the provided flow information. Pumping operations must be monitored 24 hours a day for each day of the pumping operation by qualified personnel in order to respond to problems or failures. 100% redundancy is required for pumping operations. In addition, back up pumps are to be connected to the bypass force main to facilitate immediate use upon failure of the primary pumps. Sewer service outages must be scheduled one week in advance and may not last longer than eight hours.

b. While working on any part of an existing sewer main, the Contractor shall maintain the existing sewage flow. No discharge of sewage to the storm waters will be allowed. Water for the flushing of new sanitary sewer mains must be obtained through a fire hydrant meter and must be pumped out and may not be discharged into the sanitary sewer system. Construction requiring existing sewer flow to be pumped from existing manholes shall be the responsibility of the contractor and must be approved prior to proceeding by the Public Utilities Director or the City Inspector.

- Page 15-10; Sub-article 1520-3(A)(1), Pipe Installation, add the following:

PROJECT SPECIAL PROVISIONS
Utility Construction

Install Fiberglass Reinforced Pipe in accordance with ASTM D3839 and the manufacturer's instructions. Bedding shall be in accordance with Detail 0222132.

Sewer Construction Plugs

A sewer plug permit must be obtained prior to beginning construction.

Mechanical plugs (non-pneumatic) must be installed throughout the time of construction of any sanitary sewer extension. Plugs are to be installed on the downstream end of the new main at the first manhole from the existing tie-in, until final acceptance.

All plugs must be securely tied off with steel cable within the manhole and must have a secure marking attached to the plug indicating the utility Contractor to whom the plug belongs.

All plugs must be monitored during construction to insure the plug is functioning as required.

Prior to removing the plug, the Contractor must sign a plug removal form verifying that the sewer facilities are sufficient and functionally complete. All plugs must be removed by the Contractor upon acceptance that the sewer facilities are sufficiently functionally complete to accept flow and PRIOR to the mains above the plug location being placed into service and/or accepting any flow of sewage.

Gaskets of the Viton nitrile type, or equal, and polyethylene encasement shall be installed on sewer pipe if contaminated soil and/or groundwater are detected during excavation, or as directed by the Engineer. The use of nitrile gaskets and polyethylene encasement shall extend at least forty (40) feet beyond the limit of contamination.

a. Sewer Services

Provide PVC wye sewer saddles for services on PVC mains. Saddles shall be solvent welded and fastened with double stainless steel bands.

Provide a cast or ductile iron wye sewer saddle for services on ductile iron main. Saddles shall be per the City of Raleigh Public Utilities Handbook (pg. 117), consisting of a virgin SBR gasket compounded for sewer service, a ductile iron saddle casting, a 304 stainless steel adjustable strap for fastening the gasket and the saddle casting to the sewer main, and a 304 stainless steel adjustable circle clamp for securing the service line into the SBR gasket.

PROJECT SPECIAL PROVISIONS
Utility Construction

Where sanitary gravity sewer is to be replaced in place, the removal of existing sanitary gravity sewer shall be ~~paid for as part of the~~**considered incidental to the ___"** Sanitary Gravity Sewer pay item. ~~and n~~No additional **measurement nor** payment shall be made.

The mobilization, set-up, operation, demobilization, and all appurtenances associated with temporary bypass sewer bypass pumping operations shall be considered incidental to the ___" Sanitary Gravity Sewer pay item and no additional measurement nor payment shall be made.

Polyethylene encasement shall be considered incidental to the ____" Sanitary Gravity Sewer pay item. No additional measurement nor payment will be made.

Nitrile gaskets shall be considered incidental to the ____" Sanitary Gravity Sewer pay item. No additional measurement nor payment will be made.

6. SECTION 1525 – UTILITY MANHOLES

- Page 15-13; Sub-article 1525-2, Materials, replace the last three paragraphs with the following:

Provide manholes made of precast concrete sections in conformance with ASTM C478, the Drawings, the City of Raleigh Public Utilities Handbook, NC Department of Transportation, and the following requirements:

(1) General

Provide manholes to the depth as indicated on the Drawings. Manhole style, type, and inside diameter shall be as noted on the Drawings.

Manholes on lines 12" and larger in diameter, as well as manholes that directly receive a force main discharge, shall be internally coated with a polyurea coating. Coating shall be per the City of Raleigh Public Utilities Handbook (pg. 103). Coatings may be applied by brush, spray, or roller. Coating shall be provide in three separate parts; primer, intermediate coat, and top coat.

(a) Primer coat shall be a 20% solids, deeply penetrating, dual-component polyurea primer applied to 0.5 – 1.0 mils dry film thickness (150 ft^2/gal).

(b) Intermediate coat shall be a dual component polyurea applied at 50 – 100 mils dry film thickness (50 ft2/gal).

PROJECT SPECIAL PROVISIONS
Utility Construction

(c) Top coat shall be a 65% solids, two-part polyurea applied at 7.5 – 10 mils dry film thickness (125 ft2/gal).

Manholes with invert depths greater than or equal to 10' below existing grade within the limits of suspected groundwater and soil contamination shall be precast with a crystalline waterproofing additive. Concrete waterproofing system shall be of the crystalline type that chemically controls and permanently fixes a non-soluble crystalline structure throughout the capillary voids of the concrete. The system shall cause the concrete to become sealed against the penetration of liquids from any direction, and shall protect the concrete from deterioration due to harsh environmental conditions.

Precast concrete manholes shall be as manufactured by Tindall Concrete Products, Inc., Adams Concrete, Hanson Pipe and Precast, D & M Concrete Specialties, Inc., N. C. Products Corp., Stay Right Tank, or approved substitute.

T-series manholes as manufactured by Tindall Concrete Products or approved equal shall be an acceptable substitute to round manholes as specified herein. The T-series shall be the same size manhole as shown on the Drawings for round manholes (e.g., 6' ID manhole, etc.) and shall meet all applicable requirements of the specifications. No reduction in size of the riser sections and top slab shall be allowable.

(2) Precast Concrete Sections

Minimum wall thickness shall be 5-inches.

Base: Cast monolithically without construction joints or with an approved PVC waterstop in the cold joint between the base slab and the walls. Minimum thickness of base shall be 6-inches.

The width of the base extensions on Extended Base Manholes shall be no less than the base slab thickness. Extended bases shall comply with the details on Drawings.

Riser: Minimum lay length of 16 inches.

Cone: Eccentric or concentric cones may be used on 8 through 12-inch mains. Concentric cones shall be used on all 15-inch and larger mains.

Transition Slab: Provide a flat transition from 60-inch and larger manholes to 48-inch diameter risers, cones, and flat slab top sections. The maximum height of manhole over the transition top section shall be 12 feet. Transition sections shall not be used in areas subject to vehicle traffic.

PROJECT SPECIAL PROVISIONS
Utilities by Others

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Rhonda Lemon, 919-367-2755
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The conflicting facilities of these concerns will be relocated in phases coordinating with the Contractor's work. **The Contractor shall meet with the utility representatives within two weeks after the contract date of availability to coordinate work schedules.**

All utility work listed herein will be done by the utility owners. All utilities are shown on the plans from the best available information.

Contractor shall perform all work in compliance with the Underground Utility Safety and Damage Prevention Act (Chapter 87 Article 8A GS § 87-115 thru GS § 87-130).

The Contractor's attention is directed to Article 105.8 of the Standard Specifications.

PROJECT SPECIAL PROVISIONS
Utilities by Others

Utilities Requiring Adjustment:

A) Duke Energy (Power Transmission)
Duke Energy's transmission relocation work will begin prior to the date of availability. The completion date for the transmission work is 1 June 2017.

1) The contractor must contact Mr. Bruce Pait with Duke Energy Asset Protection (O: 919.329.5928 M: 919.219.9567 bruce.pait@duke-energy.com) two weeks prior to performing any work under the transmission lines.

B) Duke Energy (Power Distribution)
Duke Energy's relocation work will be conducted in phases as the Contractor completes demolition and utility construction. The Contractor shall meet with the Duke Energy representative within two weeks of the date of availability to coordinate work schedules.

1) The overhead power crossing Wade Avenue on the west side of Capital Boulevard will be relocated prior to the date of availability. See sheet UO-5 for details.
2) The streetlights at parcels 24-28 and -Y2RPB- will be removed and the underground power serving them will be de-energized and abandoned prior to the installation of the proposed water and sewer by the Contractor. The Contractor shall give Duke Energy one week notice and one week to complete this work. See sheet UO-5 for details.
3) Streetlights and underground power at parcels 24-28 and -Y2RPB- shall be installed when all curb, drainage, and utility construction is complete for that area. The contractor shall install the power conduit along Capital Boulevard and -Y2RPB-. Streetlights and power cables will be installed by Duke Energy under the terms of the Lighting Special Provisions. **See the Lighting Special Provisions for details.**
4) The temporary overhead power on West Johnson Street will be installed after the Contractor has completed the demolition of the buildings on parcels 7, 33, and 41. The Contractor shall give Duke Energy two weeks notice and two weeks to complete this work. See sheets UO-3 and UO-6 for details.
5) The permanent overhead power on West Johnson Street will be installed when all curb, drainage, and utility construction is complete for that area. The Contractor shall notify Duke Energy two weeks prior to when the work is complete and the area is clear for the permanent utility installation. The contractor shall allow two weeks for Duke Energy to complete this work. See sheets UO-3 and UO-6 for details.
6) The underground power on -Y1RPC- will be installed after the Contractor has completed the demolition of the buildings on parcels 8 and 10. The Contractor shall give Duke Energy two weeks notice and two weeks to complete this work. See Sheet UO-3 for details.
7) The temporary overhead power on Peace Street will be installed when the necessary right of way and easements are acquired and the Contractor is ready

to begin phase one of the culvert construction. The Contractor shall give Duke Energy two weeks notice and two weeks to complete this work. AT&T and Time Warner Cable will be joint use on these poles. See Sheet UO-6 for details.

8) The relocation of overhead power on Peace Street for phase two of the culvert construction will be performed after phase one is complete. The Contractor shall give Duke Energy two weeks notice prior to phase one completion and allow Duke Energy two weeks to complete this work. See sheet UO-6 for details.
9) The Contractor shall coordinate with Duke Energy for the construction of the drainage structures on parcels 36 and 39. A Ver-T-Pol, or similar device will be installed to support the existing pole while the drainage structures are installed. When the installation is complete the proposed pole will be set and the overhead utilities transferred to the new pole. The contractor shall give Duke two weeks notice and one week to complete their work.
10) Streetlights and underground conduit along the east side of Capital Boulevard shall be installed when all curb, drainage, and utility installation is complete for that area. The contractor shall install the power conduit along Capital Boulevard including the ramps, loop, and flyover. Streetlights and power cables will be installed by Duke Energy under the terms of the Lighting Special Provisions. **See the Lighting Special Provisions for details.**
11) Streetlights and underground conduit along the west side of Capital Boulevard shall be installed as curb, drainage, and utility installation work is completed. The contractor shall install the power conduit along Capital Boulevard including the ramps, loop, and flyover. Streetlights and power cables will be installed by Duke Energy under the terms of the Lighting Special Provisions.
12) Streetlights and underground conduit for streetlights at Peace Street, Harrington Street, and Johnston Street will be installed by Duke Energy after the project is complete. **See the Lighting Special Provisions for details.**

C) AT&T (Telephone)

AT&T's relocation work will be conducted in phases as the Contractor completes demolition and utility construction. The Contractor shall meet with the AT&T representative within two weeks of the date of availability to coordinate work schedules.

1) The underground telephone crossing the Wade Avenue flyover on the east side of Capital Boulevard will be relocated prior to the date of availability. See sheet UO-5 for details.
2) Temporary telephone service will be installed for parcels 24-28 and the existing underground facilities will be removed or abandoned when the necessary right of way and easements are acquired and the Contractor is ready to begin the installation of the proposed water and sewer. The

PROJECT SPECIAL PROVISIONS
Utilities by Others

Contractor shall give AT&T three weeks notice and two weeks to complete this work. See sheet UO-5 for details.

3) Permanent underground telephone for parcels 24-28 shall be installed when all curb, drainage, and utility construction is complete for that area. The Contractor shall notify AT&T three weeks prior to when the work is complete and the area is clear for the permanent telephone installation. The contractor shall allow two weeks for AT&T to complete this work.
4) The proposed underground telephone installation along the east side of Capital Boulevard shall begin after the Contractor has completed installing the proposed water, PSNC Energy has completed relocation work, and TWC has completed relocation work. The Contractor shall give AT&T three weeks notice prior to TWC completing their work and allow AT&T ten weeks to complete this work. See sheets UO-3 - UO-5.
5) The proposed underground telephone along the east side of -Y1RPC- will begin after the Contractor has completed the demolition of the buildings on parcels 8 and 10. The Contractor shall give AT&T three weeks notice and four weeks to complete this work. See Sheet UO-3 for details.
6) The temporary overhead telephone on Peace Street will be installed when the necessary right of way and easements are acquired and the Contractor is ready to begin phase one of the culvert construction. AT&T will be joint use on Duke Energy poles. The Contractor shall give AT&T three weeks notice and two weeks to complete this work. See Sheet UO-6 for details.
7) The relocation of overhead telephone on Peace Street for phase two of the culvert construction will be performed after phase one is complete. The Contractor shall give AT&T three weeks notice and two weeks to complete this work. See sheet UO-6 for details.
8) The Contractor shall coordinate with AT&T for the construction of the drainage structures on parcels 36 and 39. A Ver-T-Pol, or similar device will be installed by Duke Energy to support the existing pole while the drainage structures are installed. When the installation is complete the proposed pole will be set and the overhead utilities transferred to the new pole. The contractor shall give AT&T three weeks notice and one week to complete their work.

D) **Level 3 Communications (Telephone)**
Level 3's overhead telephone lines are currently attached to Duke Energy poles at ± -L- 33+12. They will be relocated to the new Duke Energy poles after Duke has completed the installation. They will require one week notice and one week to complete this work.

E) **Time Warner Cable (CATV)**
Time Warner Cable's relocation work will be conducted in phases as the Contractor completes demolition and utility construction. The Contractor shall

meet with the Time Warner Cable representative within two weeks of the date of availability to coordinate work schedules.

1) Temporary CATV service will be installed for parcels 24-28 and the existing underground facilities will be removed or abandoned prior to the installation of the proposed water and sewer by the Contractor. The Contractor shall give TWC two weeks notice and two weeks to complete this work. See sheet UO-5 for details.
2) Permanent underground CATV for parcels 24-28 shall be installed when all curb, drainage, and utility construction is complete for that area. The Contractor shall notify Time Warner Cable two weeks prior to when the work is complete and the area is clear and allow TWC two weeks to complete the permanent utility installation.
3) The temporary overhead CATV on West Johnson Street is attached to Duke Energy poles and will be installed after Duke Energy has completed their work. The Contractor shall give TWC two weeks notice and two weeks to complete this work. See sheets UO-3 and UO-6 for details.
4) The permanent overhead CATV on West Johnson Street will be installed when all curb, drainage, and utility construction is complete and Duke Energy has installed the permanent poles. The Contractor shall give TWC two weeks notice and two weeks to complete this work. See sheets UO-3 and UO-6 for details.
5) The temporary overhead CATV on Peace Street will be installed when the necessary right of way and easements are acquired and the Contractor is ready to begin phase one of the culvert construction. TWC will be joint use on Duke Energy poles. The Contractor shall give TWC two weeks notice and two weeks to complete this work. See Sheet UO-6 for details.
6) The relocation of overhead CATV on Peace Street for phase two of the culvert construction will be performed after phase one is complete. The Contractor shall give TWC two weeks notice prior to the completion of phase one and allow TWC two weeks to complete this work. See sheet UO-6 for details.
7) The proposed underground CATV along the east side of Capital Boulevard shall begin after the Contractor has completed installing the proposed water and PSNC Energy has completed their relocation work. The Contractor shall give TWC two weeks notice prior to the completion of PSNC Energy's work and allow TWC four weeks to complete this work. See Sheets UO-3 - UO-5.
8) The Contractor shall coordinate with TWC for the construction of the drainage structures on parcels 36 and 39. A Ver-T-Pol, or similar device will be installed by Duke Energy to support the existing pole while the drainage structures are installed. When the installation is complete the proposed pole will be set and the overhead utilities transferred to the new pole. The contractor shall give TWC two weeks notice and one week to complete their work.

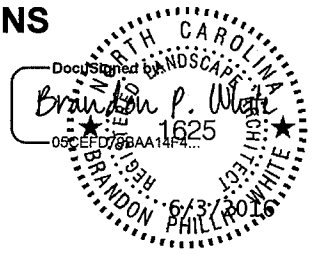
F) PSNC Energy(Gas)

PROJECT SPECIAL PROVISIONS
Utilities by Others

PSNC's relocation work will be conducted in phases as the Contractor completes demolition and utility construction. The Contractor shall meet with the PSNC representative within two weeks of the date of availability to coordinate work schedules.

1) The existing underground gas crossing under Wade Avenue on the west side of Capital Boulevard will be retired and filled with grout prior to the date of availability. See sheet UO-5.
2) The installation of the proposed underground gas on West Johnson Street will be complete prior to the date of availability. See sheets UO-3 and UO-6 for details.
3) The installation of the proposed underground gas along the east side of Capital Boulevard shall begin after the Contractor has completed installing the proposed water. This work includes the proposed gas along the ramp to the north side of Peace Street and the tie into the existing gas main. The Contractor shall provide PSNC Energy two weeks notice prior to the completion of the proposed water and allow PSNC Energy four weeks to complete this work. See Sheet UO-3.
4) The existing underground gas on Peace Street at the culvert will be abandoned prior to the date of availability. See sheet UO-6.

LANDSCAPE SPECIAL PROVISIONS



Concrete Paver Sidewalk

Description

Concrete pavers shall be installed in the locations at project site designated on the plans and in accordance with the details shown in the plans.

Concrete pavers installation shall consist of a 24" wide band located between the concrete sidewalk and curb, parallel to the adjoining street. The layout shall consist of an offset running bond pattern perpendicular to the direction of travel for the street or sidewalk.

Concrete Paver:
Paver Size & Type: 60MM Holland Stone (4" x 8" x 2 3/8") by Belgard or approved equal. Material shall comply with ASTM C936 standards. Average compressive strength shall be 8,000 psi per ASTM C140. Average Water Absorption shall be 5% with not unit greater than 7% per ASTM C140. Freeze / Thaw Resistance shall comply with ASTM C1645.

Color: "Capital Blend". Color pigment shall comply with ASTM C979 standards.

Bedding Course: Washed, clean, non-plastic, free from deleterious or foreign matter, symmetrically shaped, natural or manufactured from crushed rock. Do NOT use limestone screenings, stone dust, or sand that does not conform to the grading requirements of ASTM C33. Do NOT use mason sand or sand conforming to ASTM C144 for the bedding sand.

Aggregate Base Course: Coarse aggregate base course (CABC) approved by NCDOT compacted to at least 98 modified Proctor density per ASTM D698

Geotextile Fabric: Non-woven, 4 oz. fabric used for separation and approved by NCDOT.

Joint Material: RG+ Polymeric Sand by Techniseal or approved equal.

Related Sections

1. City of Raleigh Standard Detail, T-30.03, Concrete / Brick Paver Sidewalk

Quality Assurance

The Contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified. The Contractor shall provide onsite supervision during all phases of the concrete paver installation with

a current certificate of completion from the Interlocking Concrete Pavement Institute (ICPI) Concrete Paver Installer Certification program.

Submittals

The Contractor shall submit the following:

1. Three (3) actual concrete paver units represent each type, size, color and finish to the Project Landscape Architect for review and approval prior to purchasing product.

2. Independent laboratory test results for CABC, Bedding or Setting Bed, and Joint Sand materials.

3. Product Data, Independent laboratory test results for compliance of concrete pavers with ASTM C936.

4. Certificate for Subcontractor's completion from the Interlocking Concrete Pavement Institute (ICPI) Concrete Paver Installer Certification program

Measurement and Payment

The quantity of these items as described in this special provision section will be paid for at the contract unit price per square yard, completed, and accepted, which price will be full compensation for all labor, materials, equipment, tools, and any incidentals per this special provisions section.

Payment will be made under:

Concrete Paver Sidewalk ..... Square Yard

Concrete Paver Median Island

Description

Concrete Paver Median Islands shall be installed in the locations at project site designated on the plans and in accordance with the details shown in the plans.

Concrete Paver Median Islands installation shall consist of a raised median with concrete curb and gutter with a concrete paver field inset. The layout shall consist of an offset running bond pattern perpendicular to the direction of travel for the street or sidewalk.

Concrete Paver:
Paver Size & Type: 60MM Holland Stone (4" x 8" x 2 3/8") by Belgard or approved equal. Material shall comply with ASTM C936 standards. Average compressive strength shall

be 8,000 psi per ASTM C140. Average Water Absorption shall be 5% with not unit greater than 7% per ASTM C140. Freeze / Thaw Resistance shall comply with ASTM C1645.

Color: "Capital Blend". Color pigment shall comply with ASTM C979 standards.

Bedding Course: Washed, clean, non-plastic, free from deleterious or foreign matter, symmetrically shaped, natural or manufactured from crushed rock. Do NOT use limestone screenings, stone dust, or sand that does not conform to the grading requirements of ASTM C33. Do NOT use mason sand or sand conforming to ASTM C144 for the bedding sand.

Bituminous Setting Bed: Asphalt cement mix design to be used shall conform to ASTM D3381 and approved by NCDOT.

Aggregate Base Course: Coarse aggregate base course (CABC) approved by NCDOT compacted to at least 98 modified Proctor density per ASTM D698

Geotextile Fabric: Non-woven, 4 oz. fabric used for separation and approved by NCDOT.

Joint Material: RG+ Polymeric Sand by Techniseal or approved equal.

Related Sections

1. City of Raleigh Standard Detail, T-30.03, Concrete / Brick Paver Sidewalk

Quality Assurance

The Contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified. The Contractor shall provide onsite supervision during all phases of the concrete paver installation with a current certificate of completion from the Interlocking Concrete Pavement Institute (ICPI) Concrete Paver Installer Certification program.

Submittals

The Contractor shall submit the following:

1. Three (3) actual concrete paver units represent each type, size, color and finish to the Project Landscape Architect for review and approval prior to purchasing product.

2. Independent laboratory test results for CABC, Bedding or Setting Bed, and Joint Sand materials.

3. Product Data, Independent laboratory test results for compliance of concrete pavers with ASTM C936.

4. Certificate for Subcontractor's completion from the Interlocking Concrete Pavement Institute (ICPI) Concrete Paver Installer Certification program

Measurement and Payment

The quantity of these items as described in this special provision section will be paid for at the contract unit price per square yard, completed, and accepted, which price will be full compensation for all labor, materials, equipment, tools, and any incidentals per this special provisions section.

Payment will be made under:

Concrete Paver Median Island ..... Square Yard

Concrete Sidewalk (Capital City Grid)

Description

Concrete pavement with the Capital City Grid pattern shall be installed in the locations at project site designated on the plans and in accordance with the details shown in the plans.

The Capital City Grid pattern shall consist of a 24" x 24" grid laid out perpendicular and parallel to the adjoining sidewalk and street alignment. Pattern shall consist of troweled control joints with a "picture frame" appearance. Pattern shall be extended the full width of the adjoining sidewalk or as shown on the Hardscape Plans.

Concrete sidewalk pavement (Capital City Grid) shall meet all performance criteria set forth in the contract documents and in accordance with the City of Raleigh Standard Detail T-30.01, Concrete Sidewalk, whichever is greater.

Related Sections

1. City of Raleigh Standard Detail, T-30.01, Concrete Sidewalk

Quality Assurance

The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

Measurement and Payment

The quantity of these items as described in this special provision section will be paid for at the contract unit price per each, completed, and accepted, which price will be full compensation for all labor, materials, equipment, tools, and any incidentals per this special provisions section.

Payment will be made under:

Concrete Pavement (Capital City Grid) ..... Square Yard

Ornamental Fencing

Description

Ornamental fencing shall be installed in the locations at project site designated on the plans and in accordance with the details shown in the plans.

Ornamental fencing shall include all components necessary for a complete installation, including posts, caps, rails, pickets, and associated mounting hardware. Fence shall be a welded and rackable commercial grade, 3-rail fence with an overall height of 4'-0" and constructed from steel. Post caps shall be welded to the top of all posts. Picket spacing shall be constructed such that no opening will allow a 4" sphere to pass through except where there shall be a maximum 2" gap between the bottom of the picket and finish grade below the fencing.
Steel material for fence panels, and posts shall conform to the requirements of ASTM A653 / A653M, with a minimum yield strength of 45,000 PSI and minimum zinc (hot-dip galvanized) coating weight of 0.90 oz/ft2, Coating Designation G-90.

Fence posts shall be 2.5" square constructed with 12 Ga steel. All fence rails shall be 1.75" x 1.75" steel channel pre-punched to receive 1" square x 14 Ga steel pickets. Pickets shall be welded to rail with a uniform and neat appearance.

All fence components shall meet or exceed the vertical load, horizontal load, and infill performance for industrial weight fences under ASTM F2408.

All fence components shall receive a zinc phosphate pretreatment, primer, and acrylic topcoat with a minimum finish thickness of 2 mils. Color: Black. Finish shall meet or exceed the coating performance criteria of ASTM F2408.

Quality Assurance

The Contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified. Ornamental fencing shall be obtained from a single source with resources to provide components of consistent quality in appearance and physical properties.

Submittals

The Contractor shall provide the following submittals for review and approval by the project landscape architect prior to ordering or fabricating any ornamental fencing. The contractor shall make such submittals within 60 days from receiving a Notice to Proceed.

1. Shop Drawings
2. Finish Samples for all components

Delivery, Storage, and Handling

Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in original undamaged packages and containers until ready for installation to protect against damage, weather, vandalism, and theft.

Warranty

The Contractor shall provide a five year warranty against defects in materials or workmanship on the ornamental fencing. This warranty period shall begin at substantial completion of the project.

Measurement and Payment

The quantity of these items as described in this special provision section will be paid for at the contract unit price per linear feet, completed, and accepted, which price will be full compensation for all labor, materials, equipment, tools, and any incidentals per this special provisions section.

Payment will be made under:

Ornamental Fence..... Linear Foot

Tree Well System

Description

Tree well systems as specified herein shall be installed in the locations at project site designated on the plans and in accordance with the details shown in the plans.

This Section includes the following:

1. Silva Cell2 System
2. Tree Well Underdrains
3. Root Barrier
4. Tree Well Frame and Grate System

Project Conditions

Tree Well Systems occur along the project corridor in close proximity to existing and proposed utility infrastructure. The Contractor shall coordinate tree well excavations with utility locate services and other trades. The Contractor shall coordinate the installation of the underdrainage to facilitate connections to adjacent stormwater structures. The Contractor shall coordinate the installation of the Silva Cell2 System

and structural soils with all utility providers to insure continuation of service, accommodation of proposed service lines, and prevention of contamination to structural soils from additional excavation.

Materials & Performance

1. The Contractor shall install the nineteen (19) 3x SilvaCell2 System per each Tree Well System per manufacturer's specifications.

2. The Contractor shall install 600 cubic feet of planting soil per each Tree Well System. Install planting soil mix per Silva Cell2 manufacturer's specifications.

3. The Contractor shall install 4" diameter, Schedule 40 PVC perforated underdrains along the perimeter of each Tree Well System and connect to the next adjacent downstream stormwater structure using 4" diameter, Schedule 40 PVC pipe. The Tree Well subgrade shall be sloped towards the underdrains for positive drainage. Perforated pipe sections shall be encased in a pre-manufactured permeable sock fabric. All pipe joints shall be solvent welded.

4. The Contractor shall install a Root Barrier lengthways, opposite the curbside of each Tree Well for the length of the Tree Well or approximately 6'.

5. The Contractor shall install a Frame and Grate System per Tree Well System. System shall meet or exceed current accessibility design guidelines per the ADA. Concrete edge restraint shall be installed as a part of and incidental to the System.

   The Frame and Grate System shall be Model R-8815-1 Cast Iron, 48" x 72" with an 18" expandable tree opening, 3/8" slot openings by Neenah Foundry (800 558 5076 or nfco.com) or approved equal. Color: No Paint (natural patina finish).

   The Contractor shall bolt both Grate halves together on the underside using the bolt slots provided.

Quality Assurance

The Contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

Submittals

The Contractor shall provide the following submittals for review and approval by the Project Landscape Architect. The contractor shall make such submittals within 60 days from receiving a Notice to Proceed.

1. Shop Drawings for Silva Cell2 System.
2. Product data sheets for the planting soil.
3. Shop Drawings for Tree Well Underdrains

4. Product data sheets for Root Barrier.
5. Shop Drawings for the Tree Well Frame and Grate System

Measurement and Payment

The quantity of Tree Well Systems as described in this special provision section will be paid for at the contract unit price per each, completed, and accepted, which price will be full compensation for all labor, materials, equipment, tools, and any incidentals per this special provisions section. The Silva Cell2 System, Structural Soils, Tree Well Underdrains, Root Barrier, and Tree Well Frame and Grate System shall be incidental to the Tree Well System.

Payment will be made under:

Tree Well System ..... Each

ST-1

Project B-5121 / B-5317 **Wake County**

Project Special Provisions
Structures and Culvert

Table of Contents

For Piles, Drilled Piers, and MSE Retaining Walls,
see Geotechnical special provisions.

6/6/2016

NORTH CAROLINA PROFESSIONAL SEAL 022506 ENGINEER JESSE McARTHUR BAILEY

DocuSigned by:
J. M. Bailey
9026554D952B471...

For all except "Architectural Metal Fascia"

6/6/2016

NORTH CAROLINA PROFESSIONAL SEAL 038447 ENGINEER ANDREW S. MILLER

DocuSigned by:
Andrew S. Miller
C5D97672AC5E436...

Only for "Architectural Metal Fascia"

B-5121 / B-5317 Wake Co.

PRECAST CONCRETE PANELS (SPECIAL)

Construct and erect the "Precast Panels" as detailed in the plans, in accordance with applicable parts of the Standard Specifications, and as outlined in these special provisions.

All exposed surfaces which are not satisfactory to the Engineer as to uniformity of color and texture or because of excessive patching shall be corrected as required by the Engineer. All surfaces of the precast concrete panels shall be given a Class I surface finish in accordance with the Standard Specifications unless directed otherwise by the Engineer.

Payment
The price and payment below will be full compensation for all items required to construct and erect the "Precast Concrete Panels", including but not limited to, materials, admixtures, forms, falsework, curing, surface finish, tools, labor, equipment and incidentals.

The "Precast Panels will be paid as the number of square feet shown on the plans.

Payment will be made under:

Pay Item	Pay Unit
Precast Concrete Panels	Square Feet

APPLICATION OF BRIDGE COATING (SPECIAL)

GENERAL

This work consists of preparing and cleaning concrete and galvanized surfaces as well as furnishing and applying a colored base coating with a compatible anti-graffiti finish coating to the surfaces described herein for the structure at Sta. 22+06.91 –L- (Bridge On Capital Blvd. Over Peace St.). The base coating and anti-graffiti coating shall be applied to all surfaces indicated in the provision and shall be applied only after the surface preparation specified herein has been completed, inspected and approved by the Engineer.

Alternate coating methods may be submitted for review and approval.

MATERIALS

The base coating shall be compatible with the anti-graffiti finish coating and must be designed specifically for coating galvanized surfaces or damp, uncured concrete. The coating material shall be delivered to the job site in sealed containers bearing the manufacturer's original labels. The brand, color, and type shall be clearly marked on each container. A copy of the manufacturer's Materials Safety Data Sheet and a copy of the manufacturer's printed instructions shall be presented to the Engineer at the time of delivery.

B-5121 / B-5317 Wake Co.

ARCHITECTURAL METAL FASCIA (SPECIAL)

1.0 GENERAL

"Architectural Metal Fascia" shall be in accordance with applicable parts of the Standard Specifications, the details shown on the plans and as outlined in these special provisions.

The work shall consist of computer-aided manufacturing (CAM) cutting a specified pattern as indicated in the plans by laser, HD plasma, or water jet into stainless steel panels. These panels will mount to structural steel frames which will attach to the exterior girders of both the Wade Avenue and Peace Street bridges as shown in the plans.

The work shall include CAM cutting the stainless steel fascia panels, and fabricating all elements necessary to complete and attach the metal fascias to the bridge girders. The work shall also include fabricating the brackets for the aesthetic lighting to the bridge girders of both bridges, to the center edge beam of the Peace Street bridge, and to the ends of the bent caps of the Wade Avenue bridge.

2.0 QUALIFICATIONS

The CAM Cutting specialist shall furnish documented evidence, including current contact information, of a minimum of 5 years' experience performing work of similar size, complexity and scope to that proposed and detailed herein and on the plans for this project.

The fabricator of the steel frames and connections shall be AISC certified in Simple Steel Bridges.

Fabrication processes shall not infringe on any copyrights or on proprietary processes or licenses whatsoever.

3.0 MATERIALS

Fascia Panels: The "Architectural Metal Fascia" panels shall be fabricated from ½-inch thick ASTM A240 Type AISI 304L stainless steel with a #4 finish on the out facing surface (the surface visible to traveling vehicles).

Framing and Brackets: The structural steel fascia framing, connection angles, plates, and brackets shall be fabricated from AASHTO M270 Grade 36 steel. Structural steel frames and connection angles or plates and brackets shall be metallized in accordance with "Thermal Sprayed Coatings (Metallization), see Special Provisions. Luminaire brackets may be either hot dip galvanized or metallized. All fasteners for the Architectural Metal Fascia panels and frames and fasteners for the aesthetic luminaire fixtures and brackets shall be galvanized unless otherwise noted on the plans.

4.0 INTEGRATED SHOP DRAWINGS

Shop drawings for the "Architectural Metal Fascia" panels, frames and hardware shall include the layout of all panels on the bridge girders in their as-built geometry and shall be fully integrated to include all items connected to or internal to the girders upon which the panels will

be attached to demonstrate that the panel connections will not conflict with these items. The integrated shop drawings will include all luminaire fixture brackets.

Preliminary shop drawings may be submitted for preliminary approval of all information except final field verified location of connection holes. These preliminary shop drawings shall be based on the theoretical geometry of the girders after the placement of the deck, railings and sidewalk, if any, have occurred. If preliminary approval is granted, the preliminary shop drawings shall be revised as needed based on field verification of connection locations as indicated in section 7.0 Fabrication and Construction.

5.0 ARTWORK SHOP DRAWINGS

Shop drawings for the "Architectural Metal Fascia" panels artwork which will be cut into the stainless steel fascia panels shall be prepared and submitted as part of the integrated shop drawing or as a separate package. The artwork shop drawings shall include pictorial and numeric pattern maps for ease of review and accuracy. As part of this submittal, electronic files in MicroStation, AutoCAD, or Adobe Illustrator format may also be submitted to aid in the review. No work may be started on fabrication of the "Architectural Metal Fascia" panels until the vector drawings of the artwork have been obtained from the Department.

6.0 MOCK-UP REQUIREMENTS

Fabricate four (4) "Architectural Metal Fascia" with frames and all hardware with art pattern as indicated in the plans as mock ups for each bridge (four (4) for the Peace Street Bridge and four (4) for the Wade Avenue Bridge). These panels shall be mounted on the production girders for each bridge or a girder of similar proportions if approved by the Engineer. The panels shall be mounted using the same attachments as production panels, to the extent possible, and the panels shall be illuminated with bridge lighting fixtures as indicated in the lighting special provisions.

The concrete girder for the Peace Street bridge mock-up shall be stained. For "Application of Bridge Coating", see the Special Provisions.

Submit documentation including working drawings and text files indicating how and where mock-ups will be assembled. Submit this documentation to the Engineer for approval 30 calendar days prior to start of fabrication of the mock-ups.

The mock-up for each bridge must be approved by the City of Raleigh and the Engineer before beginning fabrication of production panels for that bridge. Provide 14 calendar days' notice of assembly of mock-up on girders to the Engineer and provide the location where the mock-up can be viewed for review and approval.

7.0 FABRICATION & CONSTRUCTION

The "Architectural Metal Fascias" shall closely follow vertical curvature of the exterior girders of each bridge. The panels shall not be bent to match the horizontal curvature of the Wade Avenue bridge girders but will be placed on chords of the curve. Form sections true to shape, accurate in size, and free from distortion or defects

Protect finishes by applying heavy duty removable plastic film during production. Package all parts for delivery to protect against transportation damage. Provide markings to identify components consistently with drawings. Exercise care in loading, unloading, storing and installing panels to prevent bending, warping, twisting, and surface damage.

The "Architectural Metal Fascias" are spaced as indicated in the plans with a ½ inch nominal gap between panel frames. This gap may vary from top to bottom by +/- ¼ inch.

After deck, railing and sidewalk, if any, placement has occurred for each bridge, and within seven (7) days from the removal of the overhang brackets, the Architectural Fascia locations and locations of the pre-formed or shop drilled connection holes as well as any relevant girder and framing geometry and interfaces with other work shall be field measured and verified. Fabrication of the panels or their frames shall not begin until after this field verification has been completed and any adjustments have been made to previously submitted shop drawings and the revised shop drawings approved.

Fasten "Architectural Metal Fascias" to girders, as indicated in the plans, maintaining the following installation tolerances:

- Variation from plane or location: ½ inch in 30 feet (10 mm in 10 m) of length and up to ¾ inch in 300 feet, maximum.
- Deviation of horizontal and vertical alignment of installed metal panels: ¼ inch in 20 feet, noncumulative.
- Offset From true alignment between two adjacent members abutting end to end, in line: 1/16 inch, maximum.

Do not install panels that are defective, including warped, bowed, dented, and broken members, and/or members with damaged finishes. Do not rout, bend, or otherwise form the panels in the field without approval by the Engineer.

Remove site cuttings from finish surfaces. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water. Clean stainless steel surfaces with non-abrasive detergents, soap, ammonia and warm water; rinse with clean water.

8.0 MEASUREMENT

The quantity to be paid for under this item shall be the actual number of linear feet of "Architectural Metal Fascia", complete in place and accepted, measured continuously along the outside face of completed fascia from end to end without deductions for spaces between panels.

9.0 PAYMENT

The quantity, measured as described above, will be paid for at the contract unit price per linear foot bid for "Architectural Metal Fascia", which price and payment shall be full compensation for submittals, labor, tools, equipment, all materials, mock-ups, and incidentals necessary to complete the item including fabrication of the brackets for the aesthetic lighting attached to the

bridge girders, to the center edge beam of the Peace Street bridge, and to the ends of the bent caps of the Wade Avenue bridge.

CSXT **and** the Department at the addresses below, and **forwarded to the Department** for its review and transmittal to CSXT. No work will be permitted by CSXT on its right-of-way until it has reviewed and approved the evidence of insurance required herein.

DEPARTMENT:
Department of Transportation
Rail Division
C/O Meredith McLamb
1556 Mail Service Center
Raleigh NC 27699-1556

RAILROAD:
CSX Transportation, Inc.
insurancedocuments@csx.com

C. All insurance herein before specified shall be carried until the final inspection and acceptance of the project, or that portion of the project within railroad right-of-way, by the Department of Transportation or, in the case of subcontractors, until the Contractor furnishes a letter to the Engineer stating that the subcontractor has completed his subcontracted work within railroad right-of-way to the satisfaction of the Contractor and that the Contractor will accomplish any additional work necessary on railroad right-of-way with his own forces. It is understood that the amounts specified are minimum amounts and that the Contractor may carry insurance in larger amounts if he so desires. As to "aggregate limits", if the insurer establishes loss reserves equal to or in excess of the aggregate limit specified in any of the required insurance policies, Contractor shall immediately notify the Department of Transportation and shall cease all operations until the aggregate limit is reinstated. If the insurer establishes loss reserves equal to or in excess of one/half of the aggregate limit, Contractor shall arrange to restore the aggregate limit to at least the minimum amount stated in these requirements. Any insurance policies and certificates taken out and furnished due to these requirements shall be approved by the Department of Transportation and the Railroad Company as to form and amount prior to beginning work on railroad right-of-way.
No extra allowance will be made for the insurance required hereunder; the entire cost of same is to be included in the unit contract price bids for the several pay items.

D. The insurance required herein shall in no way serve to limit the liability of Department or its Contractors under the terms of this agreement.

RAILROAD SITE DATA:

The following information is provided as a convenience to the Contractor. This information is subject to change and the Contractor should contact the Railroad to verify the accuracy. Since this information is shown as a convenience to the Contractor but is subject to change, the Contractor shall have no claims whatsoever against either the Railroad or the Department of Transportation for any delays or additional costs incurred based on changes in this information.

Number of tracks	-	**1**
Number of trains per day	-	**8** (Freight)
Maximum speed of trains	-	**20** mph

County : Wake

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
			ROADWAY ITEMS			
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum	L.S.	
0003	0000900000-N	SP	GENERIC MISCELLANEOUS ITEM UTILITY COORDINATOR	Lump Sum	L.S.	
0004	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	Lump Sum	L.S.	
0005	0008000000-E	200	SUPPLEMENTARY CLEARING & GRUBBING	1 ACR		
0006	0022000000-E	225	UNCLASSIFIED EXCAVATION	44,700 CY		
0007	0036000000-E	225	UNDERCUT EXCAVATION	3,198 CY		
0008	0106000000-E	230	BORROW EXCAVATION	32,000 CY		
0009	0134000000-E	240	DRAINAGE DITCH EXCAVATION	240 CY		
0010	0141000000-E	240	BERM DITCH CONSTRUCTION	260 LF		
0011	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	13,900 SY		
0012	0163000000-E	250	REMOVAL OF EXISTING CONCRETE PAVEMENT	36,900 SY		
0013	0177000000-E	250	BREAKING OF EXISTING ASPHALT PAVEMENT	3,100 SY		
0014	0192000000-N	260	PROOF ROLLING	10 HR		
0015	0195000000-E	265	SELECT GRANULAR MATERIAL	4,400 CY		
0016	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	25,300 SY		
0017	0199000000-E	SP	TEMPORARY SHORING	8,717 SF		
0018	0223000000-E	275	ROCK PLATING	380 SY		
0019	0255000000-E	SP	GENERIC GRADING ITEM HAULING & DISPOSAL OF PETROLEUM CONTAMINTED SOIL	500 TON		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0020	0314000000-E	SP	SELECT MATERIAL, CLASS ***** (IV)	70 TON		
0021	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	2,550 TON		
0022	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	8,350 SY		
0023	0342000000-E	310	**" SIDE DRAIN PIPE (42")	76 LF		
0024	0342000000-E	310	**" SIDE DRAIN PIPE (60")	48 LF		
0025	0342000000-E	310	**" SIDE DRAIN PIPE (8")	12 LF		
0026	0343000000-E	310	15" SIDE DRAIN PIPE	712 LF		
0027	0344000000-E	310	18" SIDE DRAIN PIPE	76 LF		
0028	0345000000-E	310	24" SIDE DRAIN PIPE	56 LF		
0029	0348000000-E	310	**" SIDE DRAIN PIPE ELBOWS (15")	2 EA		
0030	0354000000-E	310	***" RC PIPE CULVERTS, CLASS ***** (15", V)	596 LF		
0031	0354000000-E	310	***" RC PIPE CULVERTS, CLASS ***** (18", V)	800 LF		
0032	0354000000-E	310	***" RC PIPE CULVERTS, CLASS ***** (24", V)	176 LF		
0033	0448000000-E	310	*****" RC PIPE CULVERTS, CLASS IV (48")	724 LF		
0034	0448000000-E	310	*****" RC PIPE CULVERTS, CLASS IV (54")	128 LF		
0035	0448000000-E	310	*****" RC PIPE CULVERTS, CLASS IV (60")	412 LF		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0036	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	4,040 LF		
0037	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	2,800 LF		
0038	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	948 LF		
0039	0448600000-E	310	36" RC PIPE CULVERTS, CLASS IV	252 LF		
0040	0448700000-E	310	42" RC PIPE CULVERTS, CLASS IV	396 LF		
0041	0542000000-E	310	**" PVC PIPE CULVERTS (8")	8 LF		
0042	0582000000-E	310	15" CS PIPE CULVERTS, 0.064" THICK	60 LF		
0043	0588000000-E	310	18" CS PIPE CULVERTS, 0.064" THICK	60 LF		
0044	0636000000-E	310	**" CS PIPE ELBOWS, ****** THICK (15", 0.064")	2 EA		
0045	0636000000-E	310	**" CS PIPE ELBOWS, ****** THICK (18", 0.064")	2 EA		
0046	0973100000-E	330	**" WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (42", 0.625")	48 LF		
0047	0973100000-E	330	**" WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (60", 0.875")	50 LF		
0048	0973300000-E	330	**" WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (42", 0.625")	48 LF		
0049	0973300000-E	330	**" WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (60", 0.875")	50 LF		
0050	0986000000-E	SP	GENERIC PIPE ITEM 16" DUCTILE IRON PIPE, CLASS 250, SEALED	208 LF		
0051	0986000000-E	SP	GENERIC PIPE ITEM 18" DUCTILE IRON PIPE, CLASS 250, SEALED	52 LF		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0052	0986000000-E	SP	GENERIC PIPE ITEM 24" DUCTILE IRON PIPE, CLASS 200, SEALED	248 LF		
0053	0986000000-E	SP	GENERIC PIPE ITEM 36" DUCTILE IRON PIPE, CLASS 150, SEALED	176 LF		
0054	0992000000-E	SP	GENERIC PIPE ITEM BOOTS FOR SEALED DRAINAGE STRUCTURES	16 EA		
0055	0995000000-E	340	PIPE REMOVAL	3,128 LF		
0056	1000000000-E	462	6" SLOPE PROTECTION	57 SY		
0057	1011000000-N	500	FINE GRADING	Lump Sum	L.S.	
0058	1099500000-E	505	SHALLOW UNDERCUT	6,818 CY		
0059	1099700000-E	505	CLASS IV SUBGRADE STABILIZATION	13,800 TON		
0060	1110000000-E	510	STABILIZER AGGREGATE	500 TON		
0061	1115000000-E	SP	GEOTEXTILE FOR PAVEMENT STABILIZATION	5,961 SY		
0062	1121000000-E	520	AGGREGATE BASE COURSE	430 TON		
0063	1220000000-E	545	INCIDENTAL STONE BASE	500 TON		
0064	1297000000-E	607	MILLING ASPHALT PAVEMENT, ***" DEPTH (1-1/2")	2,250 SY		
0065	1308000000-E	607	MILLING ASPHALT PAVEMENT, ***" TO *******" (0" TO 1-1/2")	1,170 SY		
0066	1330000000-E	607	INCIDENTAL MILLING	2,580 SY		
0067	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	5,380 TON		
0068	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	12,660 TON		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0069	1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	3,910 TON		
0070	1503000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	8,760 TON		
0071	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	5,310 TON		
0072	1523000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	6,510 TON		
0073	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	2,105 TON		
0074	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	6,620 TON		
0075	2000000000-N	806	RIGHT OF WAY MARKERS	87 EA		
0076	2253000000-E	840	PIPE COLLARS	0.553 CY		
0077	2264000000-E	840	PIPE PLUGS	0.065 CY		
0078	2275000000-E	SP	FLOWABLE FILL	688 CY		
0079	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	183 EA		
0080	2297000000-E	840	MASONRY DRAINAGE STRUCTURES	58.845 CY		
0081	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	85.8 LF		
0082	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	14 EA		
0083	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	2 EA		
0084	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	30 EA		
0085	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	17 EA		
0086	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	66 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0087	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	54 EA		
0088	2396000000-N	840	FRAME WITH COVER, STD 840.54	17 EA		
0089	2418000000-E	SP	FRAME WITH GRATES, DRIVEWAY DROP INLET	168 LF		
0090	2451000000-N	852	CONCRETE TRANSITIONAL SECTION FOR DROP INLET	10 EA		
0091	2473000000-N	SP	GENERIC DRAINAGE ITEM MASONRY DRAINAGE STRUCTURES (SEALED)	8 EA		
0092	2484000000-E	SP	GENERIC DRAINAGE ITEM MASONRY DRAINAGE STRUCTURES (SEALED)	3.2 LF		
0093	2535000000-E	846	***X ** CONCRETE CURB (8" X 12")	470 LF		
0094	2535000000-E	846	***X ** CONCRETE CURB (8" X 18")	1,420 LF		
0095	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	18,310 LF		
0096	2591000000-E	848	4" CONCRETE SIDEWALK	7,791 SY		
0097	2605000000-N	848	CONCRETE CURB RAMP	71 EA		
0098	2612000000-E	848	6" CONCRETE DRIVEWAY	1,120 SY		
0099	2619000000-E	850	4" CONCRETE PAVED DITCH	95 SY		
0100	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	1,154 SY		
0101	2724000000-E	857	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED	631 LF		
0102	2753000000-E	846	GENERIC PAVING ITEM 2'-6" CONCRETE CURB & GUTTER (SPECIAL)	8,100 LF		
0103	2800000000-N	858	ADJUSTMENT OF CATCH BASINS	5 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0104	2830000000-N	858	ADJUSTMENT OF MANHOLES	8 EA		
0105	2845000000-N	858	ADJUSTMENT OF METER BOXES OR VALVE BOXES	2 EA		
0106	2893000000-N	859	CONVERT EXISTING CATCH BASIN TO JUNCTION BOX WITH MANHOLE	1 EA		
0107	2965000000-N	859	CONVERT EXISTING JUNCTION BOX TO CATCH BASIN	1 EA		
0108	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXISTING JUNCTION BOX TO SLAB TOP JUNCTION BOX	2 EA		
0109	3000000000-N	SP	IMPACT ATTENUATOR UNIT, TYPE 350	6 EA		
0110	3030000000-E	862	STEEL BM GUARDRAIL	2,675 LF		
0111	3045000000-E	862	STEEL BM GUARDRAIL, SHOP CURVED	25 LF		
0112	3105000000-N	862	STEEL BM GUARDRAIL TERMINAL SECTIONS	2 EA		
0113	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	15 EA		
0114	3195000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE AT-1	1 EA		
0115	3215000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE III	10 EA		
0116	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	11 EA		
0117	3317000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE B-77	6 EA		
0118	3360000000-E	863	REMOVE EXISTING GUARDRAIL	1,027 LF		
0119	3380000000-E	862	TEMPORARY STEEL BM GUARDRAIL	275 LF		
0120	3387000000-N	862	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ********** (AT-1)	1 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0121	3387000000-N	862	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ********** (W-BEAM)	1 EA		
0122	3389100000-N	SP	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350	2 EA		
0123	3524000000-E	SP	VINYL COATED CHAIN LINK FENCE, *** FABRIC (60")	5,120 LF		
0124	3575000000-E	SP	GENERIC FENCING ITEM CHAIN LINK FENCE WITH BARBED WIRE, 96" FABRIC, VINYL COATED	590 LF		
0126	3578000000-N	SP	GENERIC FENCING ITEM METAL LINE POST, 60" CHAIN LINK FENCE, VINYL COATED	427 EA		
0127	3578000000-N	SP	GENERIC FENCING ITEM METAL LINE POST, 96" CHAIN LINK FENCE, VINYL COATED	50 EA		
0128	3578000000-N	SP	GENERIC FENCING ITEM METAL TERMINAL POST, 60" CHAIN LINK FENCE, VINYL COATED	36 EA		
0129	3578000000-N	SP	GENERIC FENCING ITEM METAL TERMINAL POST, 96" CHAIN LINK FENCE, VINYL COATED	6 EA		
0130	3635000000-E	876	RIP RAP, CLASS II	660 TON		
0131	3649000000-E	876	RIP RAP, CLASS B	110 TON		
0132	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	3,465 SY		
0133	4048000000-E	902	REINFORCED CONCRETE SIGN FOUNDATIONS	4 CY		
0134	4054000000-E	902	PLAIN CONCRETE SIGN FOUNDATIONS	1 CY		
0135	4057000000-E	SP	OVERHEAD FOOTING	37 CY		
0136	4060000000-E	903	SUPPORTS, BREAKAWAY STEEL BEAM	1,496 LB		
0137	4066000000-E	903	SUPPORTS, SIMPLE STEEL BEAM	1,957 LB		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0138	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	1,373 LF		
0139	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ****** (30+74 NBL)	Lump Sum	L.S.	
0140	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ****** (40+28 NBL)	Lump Sum	L.S.	
0141	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ****** (50+00 NBL)	Lump Sum	L.S.	
0142	4096000000-N	904	SIGN ERECTION, TYPE D	4 EA		
0143	4102000000-N	904	SIGN ERECTION, TYPE E	60 EA		
0144	4108000000-N	904	SIGN ERECTION, TYPE F	8 EA		
0145	4109000000-N	904	SIGN ERECTION, TYPE *** (OVERHEAD) (A)	5 EA		
0146	4110000000-N	904	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)	11 EA		
0147	4149000000-N	907	DISPOSAL OF SIGN SYSTEM, OVERHEAD	1 EA		
0148	4152000000-N	907	DISPOSAL OF SIGN SYSTEM, STEEL BEAM	2 EA		
0149	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	58 EA		
0150	4234000000-N	907	DISPOSAL OF SIGN, A OR B (OVERHEAD)	1 EA		
0151	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	3,930 SF		
0152	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	3,342 SF		
0153	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	374 SF		
0154	4415000000-N	1115	FLASHING ARROW BOARD	6 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0155	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	14 EA		
0156	4430000000-N	1130	DRUMS	635 EA		
0157	4435000000-N	1135	CONES	93 EA		
0158	4445000000-E	1145	BARRICADES (TYPE III)	656 LF		
0159	4450000000-N	1150	FLAGGER	7,680 HR		
0160	4465000000-N	1160	TEMPORARY CRASH CUSHIONS	6 EA		
0161	4470000000-N	1160	RESET TEMPORARY CRASH CUSHION	4 EA		
0162	4480000000-N	1165	TMA	6 EA		
0163	4485000000-E	1170	PORTABLE CONCRETE BARRIER	4,550 LF		
0164	4490000000-E	1170	PORTABLE CONCRETE BARRIER (ANCHORED)	135 LF		
0165	4500000000-E	1170	RESET PORTABLE CONCRETE BARRIER	2,260 LF		
0166	4507000000-E	1170	WATER FILLED BARRIER	4,377 LF		
0167	4508000000-E	1170	RESET WATER FILLED BARRIER	33,884 LF		
0168	4510000000-N	SP	LAW ENFORCEMENT	990 HR		
0169	4516000000-N	1180	SKINNY DRUM	229 EA		
0170	4520000000-N	1266	TUBULAR MARKERS (FIXED)	46 EA		
0171	4570000000-E	SP	TEMPORARY GLARE SCREEN	1,580 LF		
0172	4589000000-N	SP	GENERIC TRAFFIC CONTROL ITEM PROTECTIVE CANOPY	Lump Sum	L.S.	
0173	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	2,082 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0174	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	29 LF		
0175	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	11,992 LF		
0176	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	2,303 LF		
0177	4697000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS)	880 LF		
0178	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	4,485 LF		
0179	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	20 EA		
0180	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	90 EA		
0181	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (II)	709 LF		
0182	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)	1,250 LF		
0183	4800000000-N	1205	COLD APPLIED PLASTIC PAVEMENT MARKING CHARACTER, TYPE ** (IV)	8 EA		
0184	4805000000-N	1205	COLD APPLIED PLASTIC PAVEMENT MARKING SYMBOL, TYPE ** (IV)	4 EA		
0185	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	162,912 LF		
0186	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	19,280 LF		
0187	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	5,930 LF		
0188	4840000000-N	1205	PAINT PAVEMENT MARKING CHARAC-TER	116 EA		
0189	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	274 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0190	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	35,060 LF		
0191	4860000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (8")	3,170 LF		
0192	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	50 LF		
0193	4875000000-N	1205	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS	65 EA		
0194	4900000000-N	1251	PERMANENT RAISED PAVEMENT MARKERS	15 EA		
0195	4905000000-N	1253	SNOWPLOWABLE PAVEMENT MARKERS	294 EA		
0196	5255000000-N	1413	PORTABLE LIGHTING	Lump Sum	L.S.	
0197	5265000000-E	SP	GENERIC LIGHTING ITEM STREET LIGHTING CONDUIT IN-STALLATION (2" PVC)	12,600 LF		
0198	5325800000-E	1510	8" WATER LINE	2,468 LF		
0199	5326200000-E	1510	12" WATER LINE	6,108 LF		
0200	5546000000-E	1515	8" VALVE	16 EA		
0201	5558000000-E	1515	12" VALVE	21 EA		
0202	5600000000-E	1515	** BLOW OFF (12")	4 EA		
0203	5606800000-E	1515	8" BLOW OFF	3 EA		
0204	5648000000-N	1515	RELOCATE WATER METER	43 EA		
0205	5649000000-N	1515	RECONNECT WATER METER	2 EA		
0206	5666000000-E	1515	FIRE HYDRANT	4 EA		
0207	5672000000-N	1515	RELOCATE FIRE HYDRANT	10 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0208	5691000000-E	1520	**" SANITARY GRAVITY SEWER (36")	2,010 LF		
0209	5691300000-E	1520	8" SANITARY GRAVITY SEWER	2,423 LF		
0210	5691500000-E	1520	12" SANITARY GRAVITY SEWER	2,051 LF		
0211	5691700000-E	1520	18" SANITARY GRAVITY SEWER	24 LF		
0212	5768000000-N	1520	SANITARY SEWER CLEAN-OUT	47 EA		
0213	5775000000-E	1525	4' DIA UTILITY MANHOLE	25 EA		
0214	5776000000-E	1525	5' DIA UTILITY MANHOLE	2 EA		
0215	5777000000-E	1525	6' DIA UTILITY MANHOLE	12 EA		
0216	5778000000-E	1525	8' DIA UTILITY MANHOLE	3 EA		
0217	5781000000-E	1525	UTILITY MANHOLE WALL, 4' DIA	51 LF		
0218	5782000000-E	1525	UTILITY MANHOLE WALL, 5' DIA	17 LF		
0219	5783000000-E	1525	UTILITY MANHOLE WALL, 6' DIA	98 LF		
0220	5784000000-E	1525	UTILITY MANHOLE WALL, 8' DIA	24 LF		
0221	5800000000-E	1530	ABANDON 6" UTILITY PIPE	336 LF		
0222	5801000000-E	1530	ABANDON 8" UTILITY PIPE	4,588 LF		
0223	5804000000-E	1530	ABANDON 12" UTILITY PIPE	6,150 LF		
0224	5813000000-E	1530	ABANDON 24" UTILITY PIPE	1,411 LF		
0225	5816000000-N	1530	ABANDON UTILITY MANHOLE	15 EA		
0226	5828000000-N	1530	REMOVE UTILITY MANHOLE	4 EA		
0227	5835700000-E	1540	16" ENCASEMENT PIPE	600 LF		
0228	5836000000-E	1540	24" ENCASEMENT PIPE	740 LF		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0229	5871900000-E	1550	TRENCHLESS INSTALLATION OF 16" IN SOIL	285 LF		
0230	5871910000-E	1550	TRENCHLESS INSTALLATION OF 16" NOT IN SOIL	285 LF		
0231	5872200000-E	1550	TRENCHLESS INSTALLATION OF 24" IN SOIL	265 LF		
0232	5872210000-E	1550	TRENCHLESS INSTALLATION OF 24" NOT IN SOIL	265 LF		
0233	5882000000-N	SP	GENERIC UTILITY ITEM 12" INSERTION VALVE ASSEMBLY	5 EA		
0234	5882000000-N	SP	GENERIC UTILITY ITEM 2" AIR RELEASE VALVE	1 EA		
0235	6000000000-E	1605	TEMPORARY SILT FENCE	25,000 LF		
0236	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	400 TON		
0237	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	70 TON		
0238	6012000000-E	1610	SEDIMENT CONTROL STONE	2,300 TON		
0239	6015000000-E	1615	TEMPORARY MULCHING	24 ACR		
0240	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	1,200 LB		
0241	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEEDING	7 TON		
0242	6024000000-E	1622	TEMPORARY SLOPE DRAINS	200 LF		
0243	6029000000-E	SP	SAFETY FENCE	200 LF		
0244	6030000000-E	1630	SILT EXCAVATION	1,290 CY		
0245	6036000000-E	1631	MATTING FOR EROSION CONTROL	15,000 SY		
0246	6037000000-E	SP	COIR FIBER MAT	100 SY		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0247	6042000000-E	1632	1/4" HARDWARE CLOTH	10,000 LF		
0248	6045000000-E	SP	*** TEMPORARY PIPE (24")	400 LF		
0249	6070000000-N	1639	SPECIAL STILLING BASINS	4 EA		
0250	6071020000-E	SP	POLYACRYLAMIDE (PAM)	10 LB		
0251	6071030000-E	1640	COIR FIBER BAFFLE	225 LF		
0252	6071050000-E	SP	*** SKIMMER (2")	1 EA		
0253	6084000000-E	1660	SEEDING & MULCHING	18 ACR		
0254	6087000000-E	1660	MOWING	15 ACR		
0255	6090000000-E	1661	SEED FOR REPAIR SEEDING	250 LB		
0256	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.75 TON		
0257	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	375 LB		
0258	6108000000-E	1665	FERTILIZER TOPDRESSING	11.25 TON		
0259	6111000000-E	SP	IMPERVIOUS DIKE	55 LF		
0260	6114500000-N	1667	SPECIALIZED HAND MOWING	40 MHR		
0261	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	50 EA		
0262	6132000000-N	SP	GENERIC EROSION CONTROL ITEM CONCRETE WASHOUT STRUCTURE	8 EA		
0263	7048500000-E	1705	PEDESTRIAN SIGNAL HEAD (16", 1 SECTION W/COUNTDOWN)	20 EA		
0264	7060000000-E	1705	SIGNAL CABLE	6,625 LF		
0265	7108000000-E	1705	VEHICLE SIGNAL HEAD (12", 1 SECTION)	4 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0266	7120000000-E	1705	VEHICLE SIGNAL HEAD (12", 3 SECTION)	23 EA		
0267	7132000000-E	1705	VEHICLE SIGNAL HEAD (12", 4 SECTION)	1 EA		
0268	7144000000-E	1705	VEHICLE SIGNAL HEAD (12", 5 SECTION)	3 EA		
0269	7252000000-E	1710	MESSENGER CABLE (1/4")	500 LF		
0270	7279000000-E	1715	TRACER WIRE	1,800 LF		
0271	7288000000-E	1715	PAVED TRENCHING (**********) (1, 2")	25 LF		
0272	7300000000-E	1715	UNPAVED TRENCHING (**********) (1, 2")	800 LF		
0273	7300000000-E	1715	UNPAVED TRENCHING (**********) (2, 2")	225 LF		
0274	7300100000-E	1715	UNPAVED TRENCHING FOR TEMP-ORARY LEAD-IN	350 LF		
0275	7301000000-E	1715	DIRECTIONAL DRILL (**********) (1, 2")	675 LF		
0276	7301000000-E	1715	DIRECTIONAL DRILL (**********) (2, 2")	1,725 LF		
0277	7301000000-E	1715	DIRECTIONAL DRILL (**********) (3, 2")	50 LF		
0278	7324000000-N	1716	JUNCTION BOX (STANDARD SIZE)	31 EA		
0279	7348000000-N	1716	JUNCTION BOX (OVER-SIZED, HEA-VY DUTY)	8 EA		
0280	7360000000-N	1720	WOOD POLE	2 EA		
0281	7372000000-N	1721	GUY ASSEMBLY	5 EA		
0282	7430000000-N	1722	HEAT SHRINK TUBING RETROFIT KIT	1 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0283	7432000000-E	1722	2" RISER WITH HEAT SHRINK TUBING	4 EA		
0284	7444000000-E	1725	INDUCTIVE LOOP SAWCUT	4,025 LF		
0285	7456000000-E	1726	LEAD-IN CABLE (**********) (14-2)	5,425 LF		
0286	7516000000-E	1730	COMMUNICATIONS CABLE (**FIBER) (12)	1,200 LF		
0287	7516000000-E	1730	COMMUNICATIONS CABLE (**FIBER) (48)	2,100 LF		
0288	7540000000-N	1731	SPLICE ENCLOSURE	3 EA		
0289	7541000000-N	1731	MODIFY SPLICE ENCLOSURE	3 EA		
0290	7552000000-N	1731	INTERCONNECT CENTER	3 EA		
0291	7566000000-N	1733	DELINEATOR MARKER	5 EA		
0292	7575160000-E	1734	REMOVE EXISTING COMMUNICATIONS CABLE	1,400 LF		
0293	7575180000-N	1735	CABLE TRANSFER	1 EA		
0294	7588000000-N	SP	METAL POLE WITH SINGLE MAST ARM	5 EA		
0295	7590000000-N	SP	METAL POLE WITH DUAL MAST ARM	3 EA		
0296	7613000000-N	SP	SOIL TEST	8 EA		
0297	7614100000-E	SP	DRILLED PIER FOUNDATION	48 CY		
0298	7631000000-N	SP	MAST ARM WITH METAL POLE DESIGN	8 EA		
0299	7636000000-N	1745	SIGN FOR SIGNALS	12 EA		
0300	7642100000-N	1743	TYPE I POST WITH FOUNDATION	1 EA		
0301	7642200000-N	1743	TYPE II PEDESTAL WITH FOUNDATION	14 EA		

County : Wake

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0302	7642300000-N	1743	TYPE III PEDESTAL WITH FOUND-ATION	2 EA		
0303	7648000000-N	1746	RELOCATE EXISTING SIGN	4 EA		
0304	7684000000-N	1750	SIGNAL CABINET FOUNDATION	3 EA		
0305	7756000000-N	1751	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)	3 EA		
0306	7780000000-N	1751	DETECTOR CARD (TYPE 2070L)	14 EA		
0307	7901000000-N	1753	CABINET BASE EXTENDER	3 EA		
0308	7960000000-N	SP	METAL POLE FOUNDATION REMOVAL	3 EA		
0309	7972000000-N	SP	METAL POLE REMOVAL	3 EA		
0310	7980000000-N	SP	GENERIC SIGNAL ITEM 900MHZ SPREAD SPECTRUM ETHER-NET RADIO	2 EA		
0311	7980000000-N	SP	GENERIC SIGNAL ITEM ETHRNET EDGE SWITCH	3 EA		
0312	7980000000-N	SP	GENERIC SIGNAL ITEM RELOCATE FLASHER CABINET/SOLAR ASSEMBLY/RADIO ASSEMBLY	1 EA		
0355	2190000000-N	828	TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE	25 EA		
0356	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	592 LF		
0357	2738000000-E	SP	GENERIC PAVING ITEM CONCRETE PAVER SIDEWALK	391 SY		
0358	2738000000-E	SP	GENERIC PAVING ITEM CONCRETE PAVER MEDIAN ISLAND	297 SY		
0359	2738000000-E	SP	GENERIC PAVING ITEM CONCRETE SIDEWALK (CAPITAL CITY GRID)	2,645 SY		
0360	3575000000-E	SP	GENERIC FENCING ITEM ORNAMENTAL FENCE	54 LF		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0361	6645000000-N	SP	GENERIC PLANTING ITEM TREE WELL SYSTEM	31 EA		
0362	0000910000-N	SP	GENERIC MISCELLANEOUS ITEM EXPLORATORY EXCAVATION - STANDARD	600 HR		
0363	0000910000-N	SP	GENERIC MISCELLANEOUS ITEM EXPLORATORY EXCAVATION - VACUUM	150 HR		
0364	5120000000-N	1407	ELECTRIC SERVICE POLE **** ******** (30', CLASS 4)	3 EA		
0365	5125000000-E	1407	ELECTRIC SERVICE LATERAL ********** (3, #1/0 USE)	45 LF		
0366	5270000000-N	SP	GENERIC LIGHTING ITEM LIGHT CONTROL SYSTEM, TYPE RW, 120/240V	3 EA		
0367	5155000000-E	1409	ELECTRICAL DUCT, TYPE BD, SIZE ***** (2")	370 LF		
0368	5160000000-E	1409	ELECTRICAL DUCT, TYPE JA, SIZE ***** (4")	150 LF		
0369	5170000000-E	1410	** #8 W/G FEEDER CIRCUIT (2)	320 LF		
0370	5205000000-E	1410	** #8 W/G FEEDER CIRCUIT IN ******" CONDUIT (2, 1-1/2")	2,930 LF		
0371	5270000000-N	SP	GENERIC LIGHTING ITEM ELECTRICAL JUNCTION BOXES TYPE PC18	2 EA		
0372	5270000000-N	SP	GENERIC LIGHTING ITEM ELECTRICAL JUNCTION BOXES TYPE PC30	2 EA		
0373	5252000000-N	1412	UNDERPASS LUMINARIES ********* (TYPE WM)	8 EA		
0374	5260000000-N	SP	GENERIC LIGHTING ITEM ELECTRICAL CONDUIT SYSTEM AT PEACE ST	Lump Sum	L.S.	

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0375	5270000000-N	SP	GENERIC LIGHTING ITEM SPOTLIGHT LUMINAIRE	8 EA		
0376	5270000000-N	SP	GENERIC LIGHTING ITEM AESTHETIC LIGHTING LUMINAIRE	169 EA		
0377	5260000000-N	SP	GENERIC LIGHTING ITEM AESTHETIC LIGHTING SYSTEM AT BRIDGE OVER PEACE ST	Lump Sum	L.S.	
0378	5260000000-N	SP	GENERIC LIGHTING ITEM AESTHETIC LIGHTING SYSTEM AT WADE AVE FLYOVER	Lump Sum	L.S.	
			CULVERT ITEMS			
0313	8056000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ********** (15+13.11-Y1-)	Lump Sum	L.S.	
0314	8126000000-N	414	CULVERT EXCAVATION, STA ****** (15+13.11-Y1-)	Lump Sum	L.S.	
0315	8133000000-E	414	FOUNDATION CONDITIONING MATERIAL, BOX CULVERT	258 TON		
0316	8196000000-E	420	CLASS A CONCRETE (CULVERT)	331.2 CY		
0317	8245000000-E	425	REINFORCING STEEL (CULVERT)	49,779 LB		
			WALL ITEMS			
0318	8801000000-E	SP	MSE RETAINING WALL NO **** (2)	4,230 SF		
0319	8801000000-E	SP	MSE RETAINING WALL NO **** (3)	4,150 SF		
0320	8801000000-E	SP	MSE RETAINING WALL NO **** (4)	3,305 SF		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0321	8801000000-E	SP	MSE RETAINING WALL NO **** (5)	2,535 SF		
			******* BEGIN SCHEDULE IA ******* ******* (2 ALTERNATES) *******			
0322 IA1	8801000000-E	SP	MSE RETAINING WALL NO **** (1)	3,910 SF		
			*** OR ***			
0323 IA2	8802014000-E	SP	SOLDIER PILE RETAINING WALLS	3,595 SF		
			***** END SCHEDULE IA *****			
			STRUCTURE ITEMS			
0324	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ********** (20+19.94 -FLYOVER-)	Lump Sum	L.S.	
0325	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ********** (22+06.91-L-)	Lump Sum	L.S.	
0326	8096000000-E	450	PILE EXCAVATION IN SOIL	191 LF		
0327	8097000000-E	450	PILE EXCAVATION NOT IN SOIL	76 LF		
0328	8105540000-E	411	3'-6" DIA DRILLED PIERS IN SOIL	112 LF		
0329	8105640000-E	411	3'-6" DIA DRILLED PIERS NOT IN SOIL	70 LF		
0330	8112730000-N	450	PDA TESTING	2 EA		
0331	8113000000-N	411	SID INSPECTIONS	2 EA		
0332	8115000000-N	411	CSL TESTING	2 EA		
0333	8147000000-E	420	REINFORCED CONCRETE DECK SLAB	14,218 SF		
0334	8154000000-E	420	REINFORCED CONCRETE DECK SLAB (SAND LIGHTWEIGHT CONC)	16,350 SF		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0335	8161000000-E	420	GROOVING BRIDGE FLOORS	31,190 SF		
0336	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	441.5 CY		
0337	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ********** (20+19.94-FLYOVER-)	Lump Sum	L.S.	
0338	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ********** (22+06.91-L-)	Lump Sum	L.S.	
0339	8217000000-E	425	REINFORCING STEEL (BRIDGE)	68,480 LB		
0340	8238000000-E	425	SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	6,384 LB		
0341	8277000000-E	430	MODIFIED 72" PRESTRESSED CONC GIRDERS	1,840.71 LF		
0342	8280000000-E	440	APPROX ..... LBS STRUCTURAL STEEL	652,000 LS		
0343	8364000000-E	450	HP12X53 STEEL PILES	2,135 LF		
0344	8391000000-N	450	STEEL PILE POINTS	50 EA		
0345	8517000000-E	460	1'-**"X ******" CONCRETE PARA-PET (1'-4" X 3'-6")	182.71 LF		
0346	8522000000-E	460	GENERIC STRUCTURE ITEM DECORATIVE CONCRETE PARAPET	775.24 LF		
0347	8531000000-E	462	4" SLOPE PROTECTION	210 SY		
0348	8654000000-N	SP	DISC BEARINGS	Lump Sum	L.S.	
0349	8657000000-N	430	ELASTOMERIC BEARINGS	Lump Sum	L.S.	
0350	8706000000-N	SP	EXPANSION JOINT SEALS	Lump Sum	L.S.	
0351	8860000000-N	SP	GENERIC STRUCTURE ITEM APPLICATION OF BRIDGE COATING	Lump Sum	L.S.	
0352	8860000000-N	SP	GENERIC STRUCTURE ITEM ASBESTOS ASSESSMENT	Lump Sum	L.S.	

County : Wake

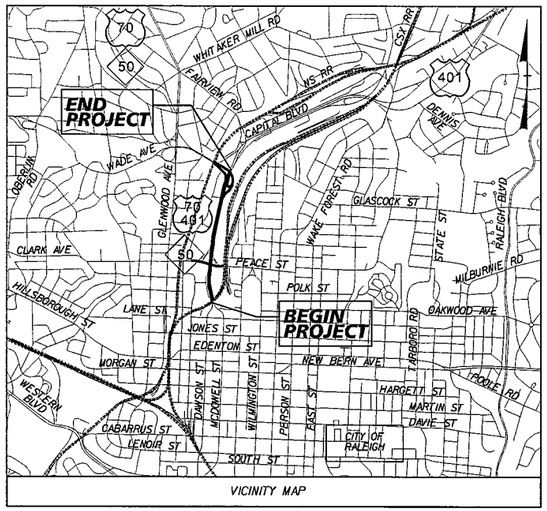
Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0353	8867000000-E	SP	GENERIC STRUCTURE ITEM CONC PARAPET WITH MOMENT SLAB	367.62 LF		
0354	8892000000-E	SP	GENERIC STRUCTURE ITEM PRECAST CONCRETE PANELS	383 SF		
0379	8867000000-E	SP	GENERIC STRUCTURE ITEM ARCHITECTURAL METAL FASCIA	718.75 LF		

0845/Jun09/Q1666880.793/D1723556204000/E378 **Total Amount Of Bid For Entire Project :**

6/07/2016

CONTRACT: C203751 TIP PROJECT: B-5121 / B-5317

SEE SHEET 1A FOR INDEX OF SHEETS
SEE SHEET 1B FOR CONVENTIONAL PLAN SHEET SYMBOLS



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

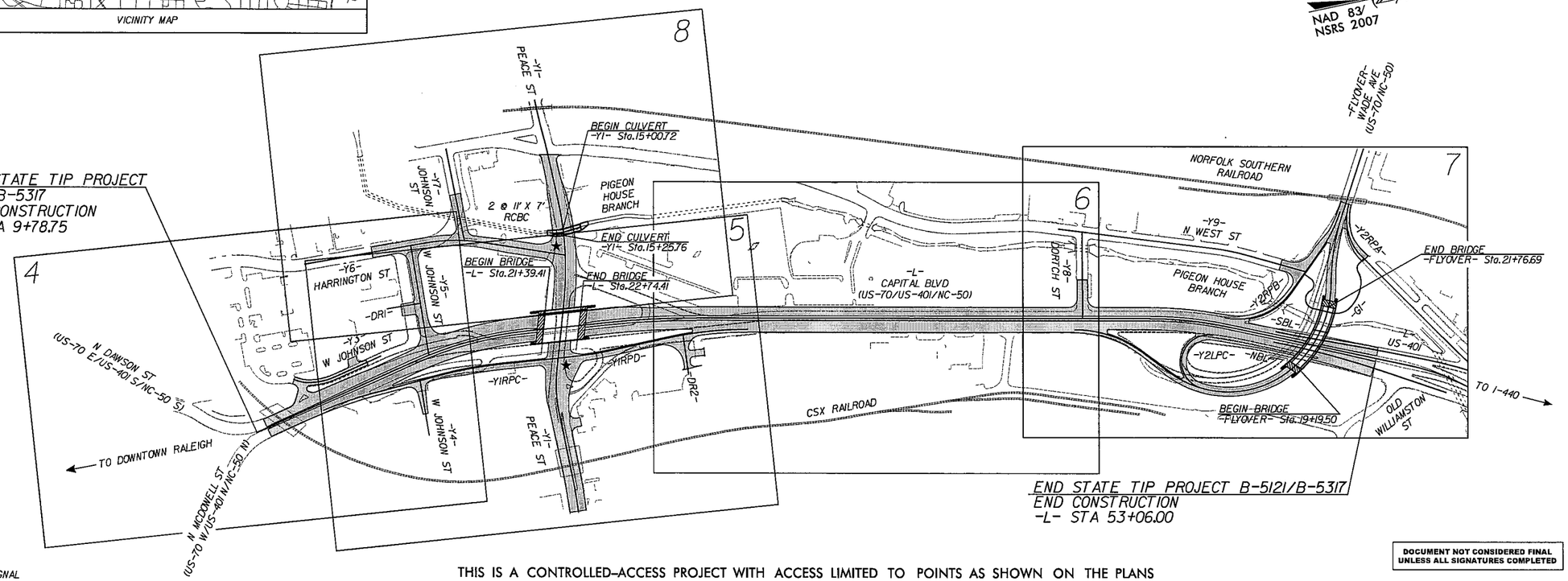
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5121/B-5317	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42263.1.1	BRNHS-0070(119)	P.E. (B-5121)
46031.1.1	BRSTP-0070(149)	P.E. (B-5317)
42263.2.1	BRNHS-0070(119)	R/W (B-5121/B-5317)
42263.2.U1	BRNHS-0070(119)	UTL (B-5121/B-5317)
42263.3.1	BRNHS-0070(119)	CONST (B-5121/B-5317)

LOCATION: *BRIDGE NO. 227 ON US-70/US-401/NC-50 (CAPITAL BOULEVARD) OVER PEACE STREET AND BRIDGE NO. 213 ON US-70/NC-50 (WADE AVENUE) OVER US 401 (CAPITAL BOULEVARD)*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERT, SIGNALS, AND SIGNING*

NAD 83/
NSRS 2007

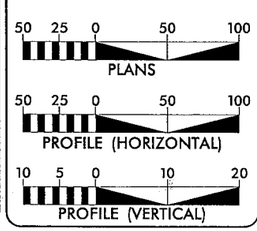


★ TRAFFIC SIGNAL

THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS LIMITED TO POINTS AS SHOWN ON THE PLANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

AADT 2016 = 58,083
AADT 2036 = 70,416
K = 10%
D = 55%
T = 5%*
V = 40 MPH

CLASSIFICATION: URBAN ARTERIAL

* 1% TTST 4% DUAL

STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5121/B-5317	=	0.794 MILES
LENGTH STRUCTURE TIP PROJECT B-5121/B-5317	=	0.026 MILES
TOTAL LENGTH TIP PROJECT B-5121/B-5317	=	0.820 MILES

PLANS PREPARED FOR THE NCDOT BY: Kimley»Horn ©2016

NC LICENSE #F-0102
P.O. BOX 33068
RALEIGH, NORTH CAROLINA 27636
PHONE: (919) 677-2000

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 30, 2015

LETTING DATE: JULY 19, 2016

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

J. JASON PACE, P.E.
PROJECT DESIGN ENGINEER

REKHA PATEL, P.E.
PROJECT ENGINEER
NCDOT ROADWAY DESIGN
ENGINEERING COORDINATION SECTION

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032615 JASON D. LAMING

SIGNATURE: 6/7/2016 P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024436 JEFFREY W. MOORE

SIGNATURE: 6/7/2016 P.E.

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	1A

ROADWAY DESIGN ENGINEER

6/7/2016

REVISIONS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

B-5121/B-5317
WAKE COUNTY

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, LIST OF ROADWAY STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS SHEET
1C-1 THRU 1C-3	SURVEY CONTROL SHEETS
2A-1 THRU 2A-7	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND MISCELLANEOUS DETAILS
2B-1	HORIZONTAL ALIGNMENT CURVE DATA
2B-2 THRU 2B-3	INTERSECTION DETAILS
2B-4	GREENWAY DETAIL
2B-5 THRU 2B-7	DETOUR AND TEMPORARY PAVEMENT PLANS
2C-1 THRU 2C-4	CURB RAMP DETAILS - NCDOT
2C-5	CURB RAMP DETAILS - CITY OF RALEIGH
2C-6	DETAIL FOR SPECIAL 2'-6" CURB & GUTTER
2C-7	DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE
2C-8	DETAIL FOR MINIMUM DEPTH CONCRETE CATCH BASIN
2C-9	DETAIL FOR CHAIN LINK FENCE WITH BARBED WIRE
2C-10	DETAIL FOR TYPE III STRUCTURE ANCHOR UNITS
2C-11	DETAIL FOR TRAFFIC BEARING DROP INLET
2C-12	DETAIL FOR PRECAST MANHOLE 8' AND 9' DIAMETER
2C-13	DETAIL FOR B-77 STRUCTURE ANCHOR UNIT
2C-14	CURB RAMP DETAILS
2C-15	DETAIL FOR TEMPORARY W BEAM ANCHOR UNIT
2C-16	DETAIL TO CONVERT EXISTING DI, CB, OTCB, OR GI TO JUNCTION BOX
2C-17	DETAIL FOR CONVERSION OF DROP INLET OR JUNCTION BOX TO CATCH BASIN
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2G-2	DETAIL FOR STANDARD TEMPORARY WALL (1 OF 3)
2G-3	DETAIL FOR STANDARD TEMPORARY WALL (2 OF 3)
2G-4	DETAIL FOR STANDARD TEMPORARY WALL (3 OF 3)
2G-5	DETAIL FOR STANDARD ROCK PLATING
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3B-2	SUMMARY OF GUARDRAIL
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9 THRU 17	PROFILE SHEETS
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SIG-SCP1 THRU SIG-SCP11	SIGNAL COMMUNICATION PLANS
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UO-1 THRU UO-6	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION INDEX
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GENERAL NOTES

2012 SPECIFICATIONS

EFFECTIVE: 01-17-12
REVISED: 07/30/12

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. IN AREAS WITH PERMANENT UTILITY EASEMENTS, CLEARING SHALL EXTEND TO THE RIGHT-OF-WAY LIMITS.

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

BERM DITCHES:

BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

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

GUARDRAIL:

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

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:
DUKE ENERGY PROGRESS - POWER (DISTRIBUTION AND TRANSMISSION)
TIME WARNER CABLE, AT&T, PSNC GAS, CITY OF RALEIGH PUBLIC UTILITIES (WATER AND SEWER)
LEVEL 3 COMMUNICATIONS

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

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS SHALL BE PLACED BY CONTRACT.

CURB RAMPS:

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS IN ACCORDANCE WITH STD. NO. 848.05 AND/OR DETAILS IN THE PLANS.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 840 OF THE 2012 STANDARD SPECIFICATIONS. PROVIDE A FRAME AND COVER WITH THE COVER BOLTED INTO THE FRAME. PROVIDE 2⅝" STAINLESS STEEL BOLTS FOR EACH FRAME WITH COVER THAT MEET THE REQUIREMENTS OF SEC. 1072-5 OF THE 2012 STANDARD SPECIFICATIONS.

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
DIVISON 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
225.06	METHOD OF GRADING SIGHT DISTANCE AT INTERSECTIONS
240.01	GUIDE FOR BERM DITCH CONSTRUCTION
DIVISION 3 - PIPE CULVERTS	
300.01	METHOD OF PIPE INSTALLATION
DIVISION 5 - SUBGRADE, BASES, AND SHOULDERS	
560.02	METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPERELEVATED CURVE - METHOD II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	PAVEMENT REPAIRS
DIVISION 8 - INCIDENTALS	
806.01	CONCRETE RIGHT-OF-WAY MARKER
806.02	GRANITE RIGHT-OF-WAY MARKER
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
840.24	FRAMES AND NARROW SLOT SAG GRATES
840.25	ANCHORAGE FOR FRAMES - BRICK OR CONCRETE OR PRECAST
840.27	BRICK GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE
840.29	FRAMES AND NARROW SLOT FLAT GRATES
840.30	DRIVEWAY DROP INLET
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
840.45	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
848.02	DRIVEWAY TURNOUT - RADIUS 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
852.06	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 - B-77 AND B-83 ANCHOR UNITS
866.01	CHAIN LINK FENCE - 4', 5' AND 6' HIGH FENCE
876.01	RIP RAP IN CHANNELS
876.02	GUIDE FOR RIP RAP AT PIPE OUTLETS
876.04	DRAINAGE DITCHES WITH CLASS 'B' RIP RAP

6/07/2016

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2B-4
R/W SHEET NO.	

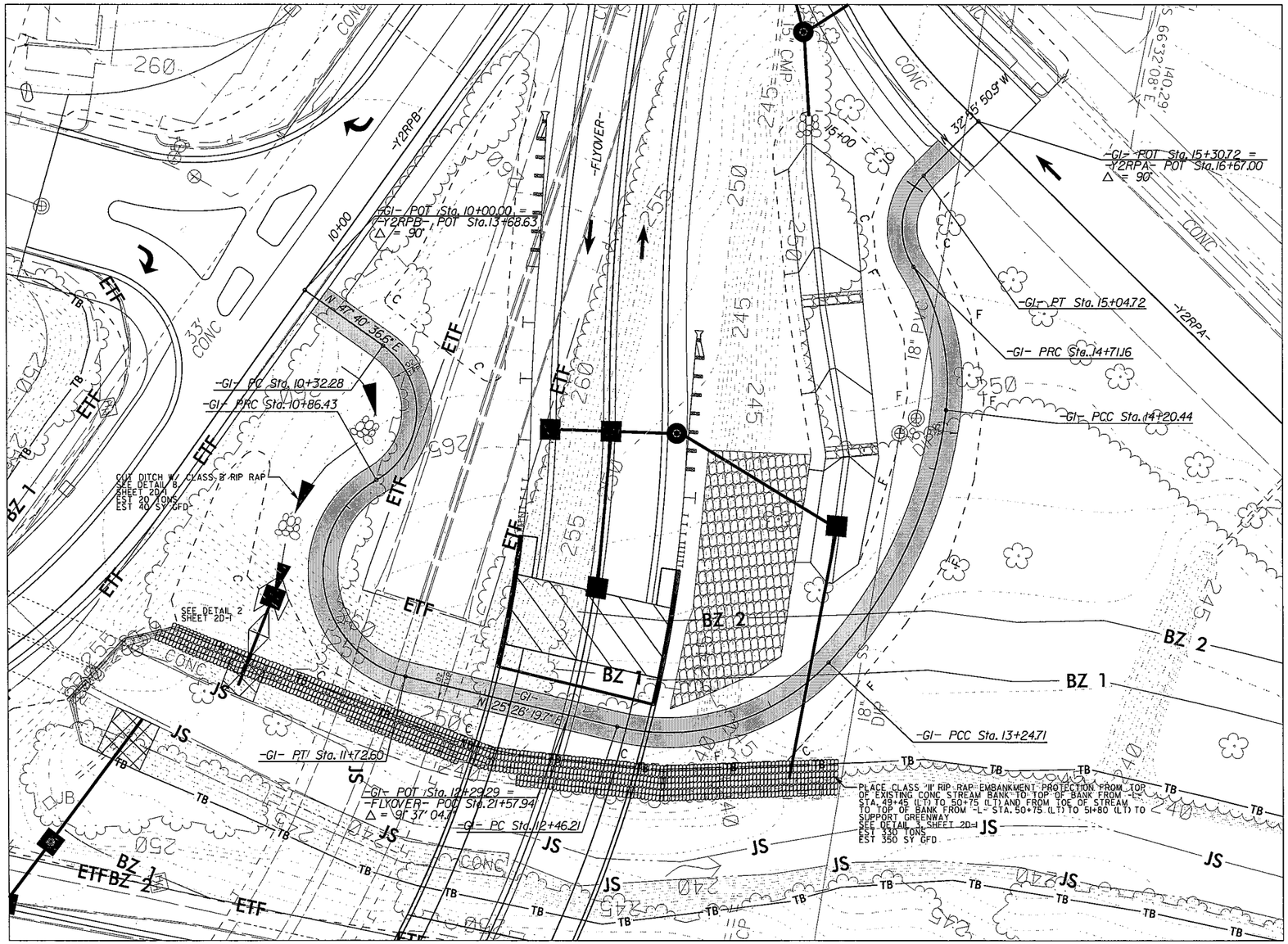
ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W. MOORE — 6/1/2016

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 037615 ENGINEER JASON D. LAWING — 6/1/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

GREENWAY DETAIL

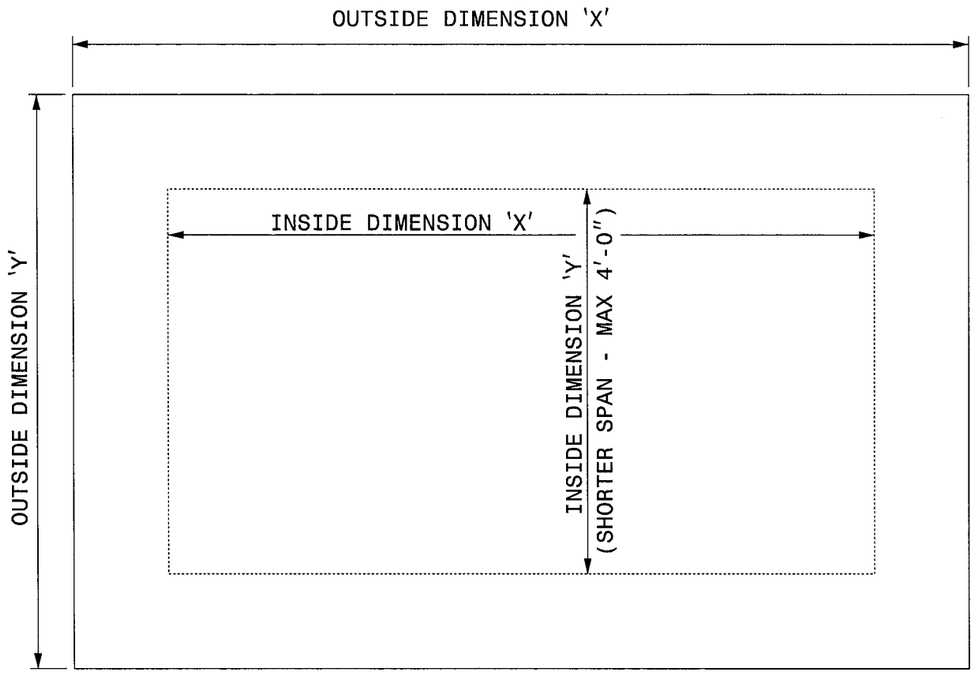


20 10 0 20 40

SEE SHEET 7 FOR -FLYOVER-, -Y2RPA-, AND -Y2RPB- PLAN
SEE SHEET 17 FOR -GI- PROFILE

6/01/2016

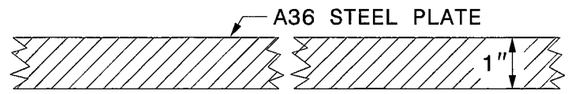
PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-7



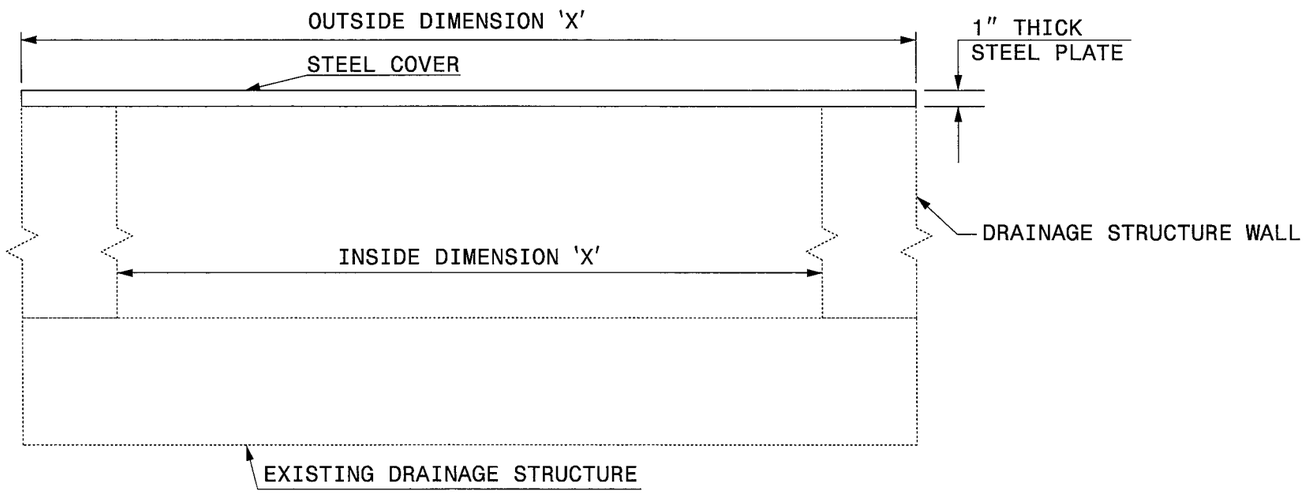
PLAN VIEWS

GENERAL NOTES:

-USE GRADE A36 STEEL
-STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
-FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
-SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
-QUANTITES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.



SECTION VIEW OF STEEL TOP PLATE



ELEVATION VIEWS

6/3/2016 6:02 PM

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 875F3D17DCDC45F...

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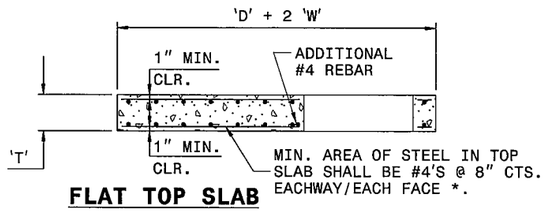
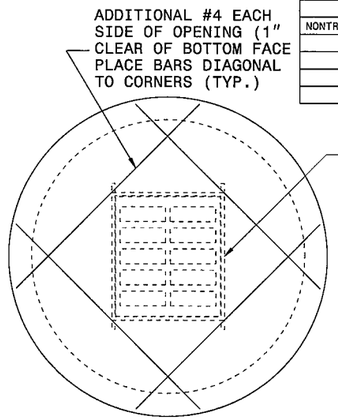
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

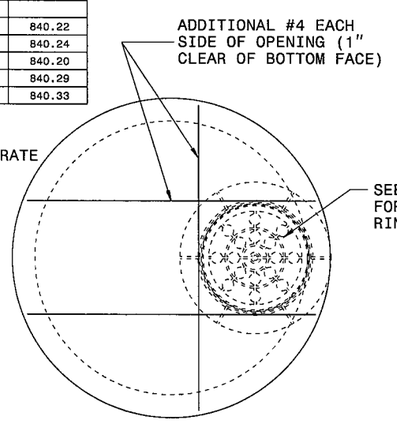
DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE

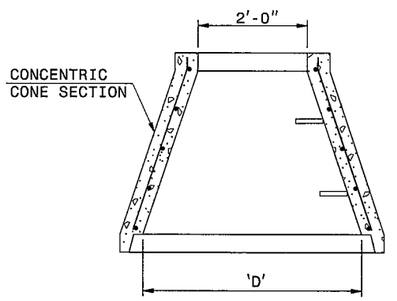
ORIGINAL BY: E.E. WARD DATE: 2-2-98
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: eric:/usr/details/metric/stand/stlcvr2.dgn

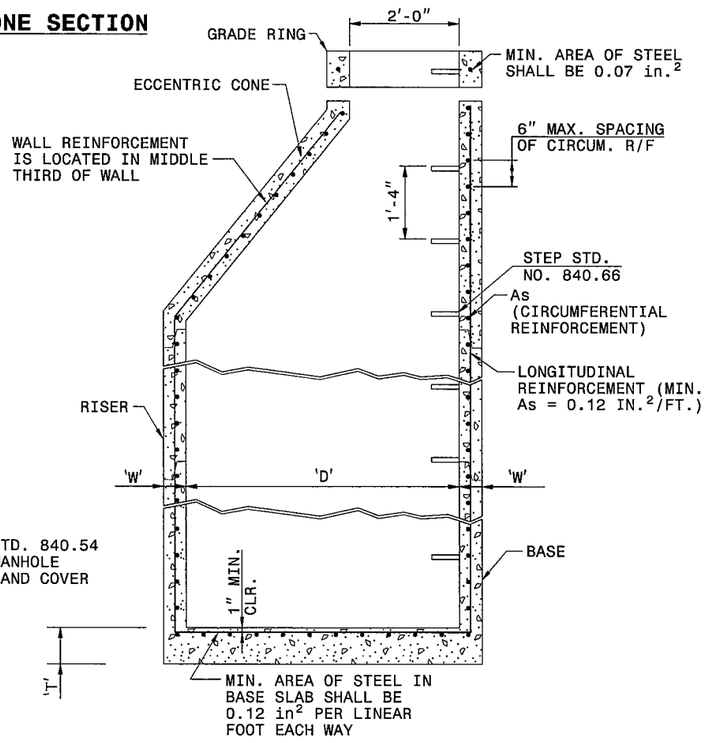
$$$$$$$SYSTIME$$$$
$$$$$$$USERNAME$$$$
$$$$$$$DGNNAME$$$$











PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-12

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

ENGLISH DETAIL DRAWING FOR
PRECAST MANHOLE 8' AND 9' DIAMETER

SHEET 1 OF 1
840D52

GENERAL NOTES

USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE.

DESIGN, FABRICATE AND ASSEMBLE PRECAST MANHOLE COMPONENTS IN ACCORDANCE WITH AASHTO M199.

ASSEMBLE RISER AND GRADE RINGS WITH STEPS SPACED 16" FROM THE TOP TO THE BOTTOM OF THE MANHOLE.

WHERE THE MANHOLE IS EXPOSED TO ROAD TRAFFIC, THE TOP OF THE MANHOLE IS TO BE FLUSH WITH THE GROUND. AT OTHER LOCATIONS IT SHOULD BE A MINIMUM OF 9" ABOVE THE GROUND.

DEPTH OF FILL LIMITED TO 30'-0" FROM FINSH GRADE TO TOP OF BOTTOM SLAB.

THE MIN. SLAB THICKNESS 'T' SHALL BE THE DIMENSION OF THE THINNEST PORTION OF THE TOP/BOTTOM SLAB.

* TOP MAT OF REINFORCEMENT MAY BE NEGLECTED IF TOP SLAB HAS A DISTINGUISHABLE TOP AND BOTTOM.

ALTERNATE CONE SECTION

D	W	T	As
INTERNAL DIAMETER (FT.)	MIN. WALL THICKNESS (IN.)	MIN. TOP/BOTTOM SLAB THICKNESS (IN.)	MIN. CIRCUMFERENTIAL AREA OF STEEL PER VERTICAL FT. (SQ. IN.)
8	8.5	8	0.24
9	9.0	9	0.27

FLAT TOP SLAB

FRAME AND GRATES	STD. NO.
TRAFFIC BEARING	840.37
NONTRAFFIC BEARING:	840.22
	840.24
	840.20
	840.29
	840.33

GRATED INLET OPTION

MANHOLE OPTION

TYPICAL MANHOLE SECTION

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

ENGLISH DETAIL DRAWING FOR
PRECAST MANHOLE 8' AND 9' DIAMETER

SHEET OF
840D52

6/7/2016

SEAL
022966
Joel S. Howerton

DocuSigned by:
Joel Howerton
873F3D17DCDC45F

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE PLATE FOR TITLE

ORIGINAL BY: T.S.Spell DATE: 7-17-00
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: ds174:usr/details/stand/840d52_8&9.dgn

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2D-1
RW SHEET NO.	

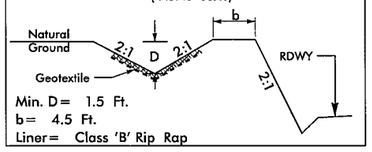
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 022436 ENGINEER JEFFREY W. MOORE — 6/1/2016

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 032645 ENGINEER JASON D. LAWING — 6/1/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

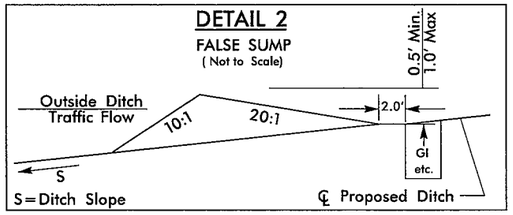
DRAINAGE DETAILS

DETAIL 1
BERM 'V' DITCH
(Not to Scale)



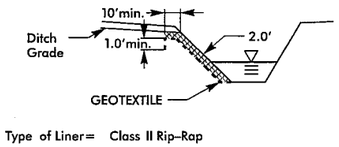
FROM –Y1– STA. 20+65 TO STA. 21+50 (RT)
FROM –Y1RPC– STA. 16+65 TO STA. 18+33.19 (RT)
SEE SHEET 5

DETAIL 2
FALSE SUMP
(Not to Scale)



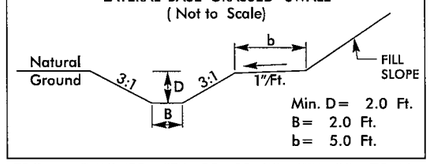
–Y1RPD– 13+00 (LT)
SEE SHEET 5
–G1– 11+37 (RT)
SEE SHEETS 2B–4 AND 7

DETAIL 3
RIP RAP AT EMBANKMENT
(Not to Scale)



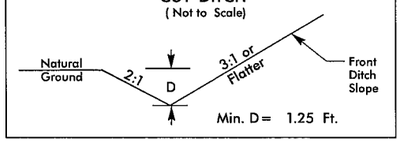
FROM –L– STA 49+45 TO 51+80 (LT)
–Y8– STA 10+95 (LT)
SEE SHEETS 2B–4 AND 7

DETAIL 4
LATERAL BASE GRASSED SWALE
(Not to Scale)



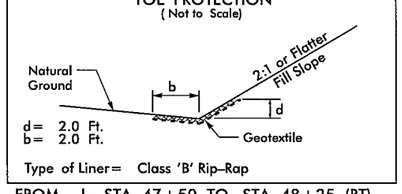
FROM –FLYOVER– STA 22+12 TO STA 23+70 (RT)
SEE SHEET 7

DETAIL 5
CUT DITCH
(Not to Scale)



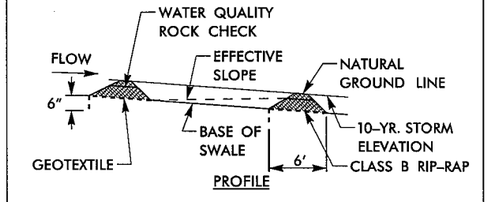
FROM –L– STA 51+00 TO STA 52+90 (RT)
FROM –FLYOVER– STA 13+25 TO STA 14+70 (RT)
SEE SHEET 7
FROM –Y1– STA 16+70 TO STA 17+27 (LT)
SEE SHEETS 5 AND 8

DETAIL 6
TOE PROTECTION
(Not to Scale)



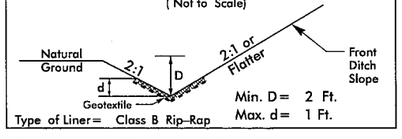
FROM –L– STA 47+50 TO STA 48+25 (RT)
SEE SHEET 7

DETAIL 7
SPECIAL ROCK CHECK DAM
(Not to Scale)



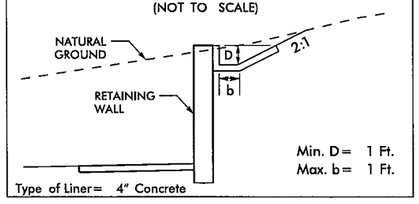
FROM –FLYOVER– STA 22+12 TO STA 23+70 (RT)
SEE SHEET 7

DETAIL 8
CUT DITCH
(Not to Scale)



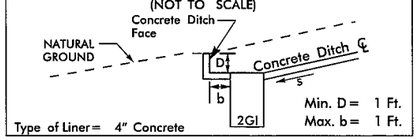
FROM –G1– STA 10+25 TO STA 11+28 (RT)
SEE SHEET 7 AND SHEET 2B–4

DETAIL 9
SPECIAL BACK OF WALL DITCH
(NOT TO SCALE)



FROM –FLYOVER– STA 14+70 TO STA 15+71 (RT)
FROM –FLYOVER– STA 17+11 TO STA 17+60 (RT)
SEE SHEET 7

DETAIL 10
DITCH BLOCK
(NOT TO SCALE)



–FLYOVER– STA 17+62 (RT)
SEE SHEET 7

6/01/2016

5/29/99

COMPUTED BY: RSH DATE: 5/31/16
CHECKED BY: JWM DATE: 5/31/16

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	3G-1

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GEOTECHNICAL SUMMARIES

SUMMARY OF ROCK PLATING

LINE	BEGINNING SLOPE	APPROX. STATION	END SLOPE	APPROX. STATION	LOCATION (LT/RT)	ROCK PLATING DETAIL NO. 1/2/3/4	RIP RAP CLASS 1/2/B	SQUARE YARDS
–FLYOVER–	1.5:1 (H:V)	21+68+/–	2:1 (H:V)	22+50+/–	RT	2	2	380

SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION

LINE	STATION	STATION	SY
–L–	19+25	21+39	1236
–L–	23+25	30+00	3375
–FLYOVER–	18+25	19+20	570
–FLYOVER–	21+77	23+25	780
CONTINGENCY			
		TOTAL SY:	5961

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 SY
–DR2–	10+25	11+29			132	400	400		
–L–	32+46	41+61			708	1,400	1,900		
–Y5–	10+21	11+10			155	400	500		
–Y5–	12+91	13+51			38	200	400		
–Y6–	15+21	19+58			785	1,600	2,600		
CONTINGENCY			ASU	12	5,000	9,800	15,000		
CONTINGENCY			AST	3			2,000	500	
			TOTAL CY/TONS/SY		6,818	13,800	22,800	500	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.

3/02/2016

5/14/99

REVISIONS

②	WAKE COUNTY DB 12835 - PG 2740 BM 1960 - PG 241
⑥	ED. CHARITABLE DVLPMTS PROJ. INC DB 7559 - PG 768
⑦	ARCHIE LINWOOD KING SUCCESSOR TRUSTEE DB 5369 PG 541 BM 1947 PG 73
⑧	MCC OUTDOOR LLC DB 11239 - PG 2535
⑩	MORRIS COMMUNICATIONS CORP DB 3521 - PG 669 DB 13727 - PG 2236
⑪	MARGIE MARIE FULLER DB 10559 - PG 1762
⑫	MCKNITT & ASSOCIATES LLC DB 8614 - PG 460 DB 2008 - PG 180
⑬	CITY OF RALEIGH DB 12531 - PG 472 BM 2007 - PG 117 BM 1959 - PG 116
⑭	STATE OF NORTH CAROLINA BM 2008 - PG 180
⑯	622 CAPITAL LLC DB 14601 - DB 1647

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Jeff Moore SEAL 024436 JEFFREY W. MOORE 6/1/2016	Jason Lawing SEAL 032615 JASON D. LAWING 6/1/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

6/01/2016

NOTES:
1. END SPILL CURB -L- STA. 16+38 (42' LT)
2. REMOVE 65 LF. OF EXIST 60" RCP
TIE JB W/ MH TO EXIST SYSTEM
3. BEGIN SPILL CURB -YIRPC- STA. 13+57 (6' LT)
4. BEGIN SPILL CURB -YIRPC- STA. 17+46 (20' RT)
5. END SPILL CURB -YIRPD- STA. 14+78 (4' RT)
BEGIN SPILL CURB -YIRPD- STA. 14+78 (20' LT)
6. END SPILL CURB -YIRPD- STA. 16+45 (35' LT)
7. REMOVE MH, PLUG AND FILL EXISTING SYSTEMS
8. TEMPORARY SHORING (TYP)
(SEE TRANSPORTATION MANAGEMENT PLANS)
9. MATCH -DR2- PAVEMENT SECTION FOR
DRIVEWAY AT -DR2- STA 10+75 (LT)
10. REMOVE DI, PLUG, FILL AND ABANDON SYSTEM
11. CONSTRUCT 3' X 5' CONCRETE SIDEWALK AT
-Y1- STA. 17+50 (RT) FOR BUILDING ACCESS

★ TRAFFIC SIGNAL

RADII DIMENSIONS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED

ANY PIPE OR PORTION OF PIPES THAT ARE FILLED AND LATER FOUND TO BE IN CONFLICT SHALL BE REMOVED WITH NO ADDITIONAL COMPENSATION

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEETS 2B-2 AND 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 2C-6 FOR SPILL CURB DETAIL
SEE SHEET 2D-1 FOR DRAINAGE DETAILS
SEE SHEET 9 FOR -L- PROFILE
SEE SHEET 11 FOR -Y1- PROFILE
SEE SHEET 12 FOR -YIRPC- AND -YIRPD- PROFILES
SEE SHEET 14 FOR -Y4- AND -Y5- PROFILES
SEE SHEET 15 FOR -DR1- AND -DR2- PROFILES
SEE SHEETS S-1 THRU S-43 FOR STRUCTURE PLANS

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	7
R/W SHEET NO.	

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ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024436 JEFFREY W. MOORE — 6/1/2016

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032615 JASON D. LAWING — 6/1/2016

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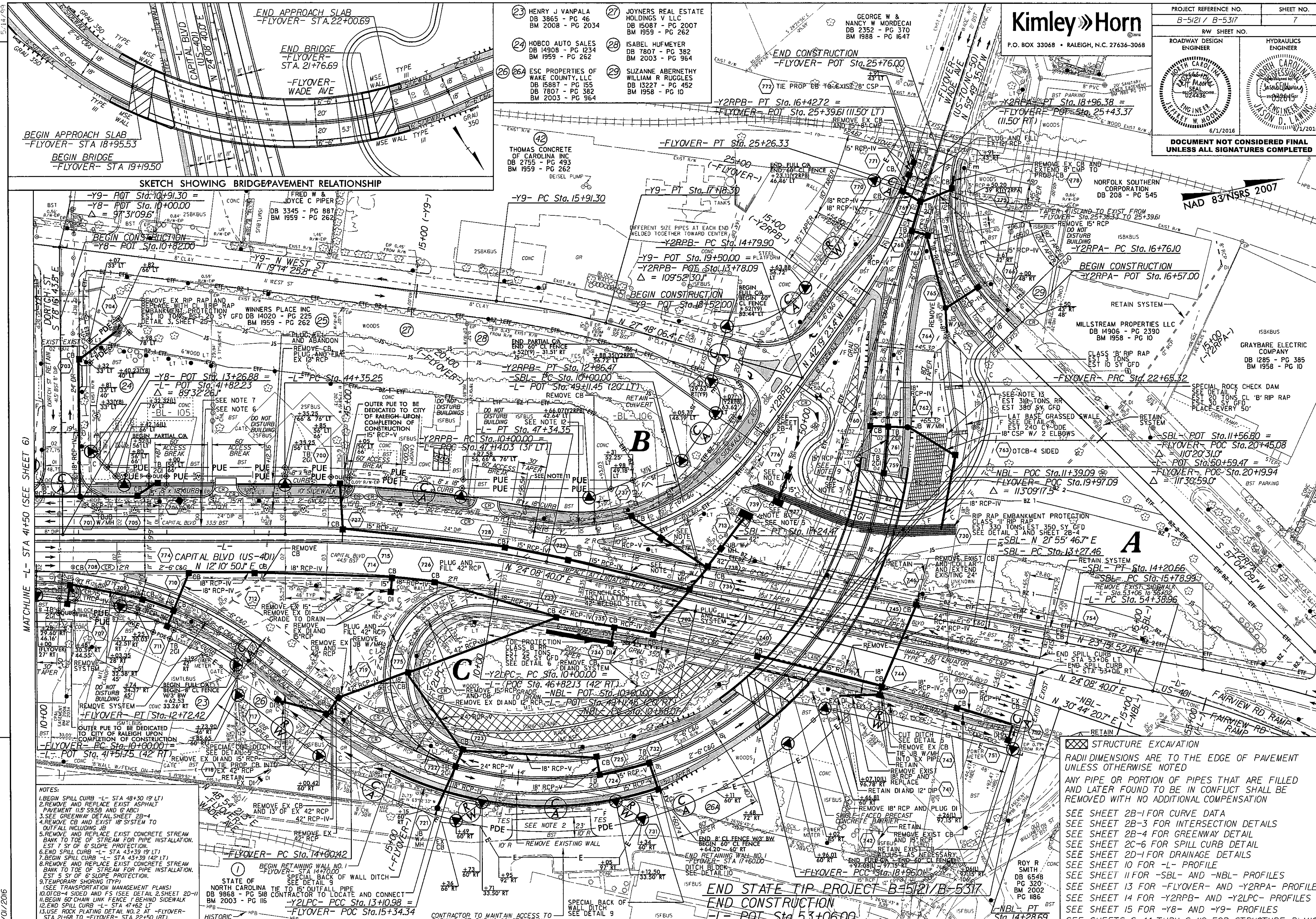

NOTES:
1. BEGIN SPILL CURB -L- STA 48+30 (9' LT)
2. REMOVE AND REPLACE EXIST ASPHALT PAVEMENT (1.5" S9.5B AND 6" ABC)
3. SEE GREENWAY DETAIL, SHEET 2B-4
4. REMOVE CB AND EXIST 18" SYSTEM TO OUTFALL INCLUDING JB
5. REMOVE AND REPLACE EXIST CONCRETE STREAM BANK TO TOE OF STREAM FOR PIPE INSTALLATION. EST 7 SY OF 6" SLOPE PROTECTION.
6. END SPILL CURB -L- STA 43+39 (9' LT)
7. BEGIN SPILL CURB -L- STA 43+39 (42' LT)
8. REMOVE AND REPLACE EXIST CONCRETE STREAM BANK TO TOE OF STREAM FOR PIPE INSTALLATION. EST 5 SY OF 6" SLOPE PROTECTION.
9. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
10. OTCB-4 SIDED AND FS (SEE DETAIL 2, SHEET 2D-1)
11. BEGIN 60" CHAIN LINK FENCE 1' BEHIND SIDEWALK
12. END SPILL CURB -L- STA 47+62 LT
13. USE ROCK PLATING DETAIL NO. 2 AT -FLYOVER- STA 21+68 TO -FLYOVER- STA 22+50 (RT). SEE SHEET 2G-5

STRUCTURE EXCAVATION

RADII DIMENSIONS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED

ANY PIPE OR PORTION OF PIPES THAT ARE FILLED AND LATER FOUND TO BE IN CONFLICT SHALL BE REMOVED WITH NO ADDITIONAL COMPENSATION

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 2B-4 FOR GREENWAY DETAIL
SEE SHEET 2C-6 FOR SPILL CURB DETAIL
SEE SHEET 2D-1 FOR DRAINAGE DETAILS
SEE SHEET 10 FOR -L- PROFILE
SEE SHEET 11 FOR -SBL- AND -NBL- PROFILES
SEE SHEET 13 FOR -FLYOVER- AND -Y2RPA- PROFILES
SEE SHEET 14 FOR -Y2RPB- AND -Y2LPC- PROFILES
SEE SHEET 15 FOR -Y8- AND -Y9- PROFILES
SEE SHEETS S-44 THRU S-110 FOR STRUCTURE PLANS

REVISIONS

6/01/2016

PROJ. REFERENCE NO.	SHEET NO.
B-5121/B-5317	TMP-1D

GENERAL NOTES / LOCAL NOTES (CONT)

TRAFFIC BARRIER

V) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRAFFIC CONTROL PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION, PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW, BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW, BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

W) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED IMPACT ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS:

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45-50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

TRAFFIC CONTROL DEVICES

X) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

Y) PLACE TYPE III BARRICADES WITH "ROAD CLOSED" SIGN R11-2 ATTACHED OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

Z) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES (DRUMS, CONES OR SKINNY DRUMS) PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 200 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

AA) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
1. ALL ASPHALT PAVEMENT	PAINT	TEMPORARY RAISED
2. PROPOSED BRIDGE DECKS	COLD APPLIED PLASTIC TYPE IV (REMOVABLE TAPE)	TEMPORARY RAISED

BB) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

CC) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

DD) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

EE) TRACE THE EXISTING AND/OR PROPOSED MONOLITHIC ISLAND LOCATIONS WITH THE PROPER COLOR PAVEMENT MARKING PRIOR TO REMOVAL AND/OR INSTALLATION. PLACE DRUMS TO DELINEATE ANY EXISTING AND/OR PROPOSED MONOLITHIC ISLANDS AFTER REMOVAL AND/OR BEFORE INSTALLATION.

MISCELLANEOUS

FF) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS, AS DIRECTED BY THE ENGINEER.

GG) ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.

HH) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIME AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).

II) WHEN CONSTRUCTING DRAINAGE STRUCTURES ADJACENT TO TRAFFIC, INSTALL TEMPORARY STEEL PLATES, AS DIRECTED BY THE ENGINEER, MAY WORK EACH LOCATION INDEPENDENTLY OR CONCURRENTLY, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. WORK IN A CONTINUOUS MANNER TO PERFORM THE WORK IN THE FOLLOWING SEQUENCE, IN STEPS 'A' THRU 'E'.

A: CLOSE THE APPROPRIATE TRAVEL LANE TO TRAFFIC USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEETS 1, 2, 3, 8 & 10 OF 15.

B: CONSTRUCT PROPOSED STRUCTURE OR INSTALL PRE-CAST DRAINAGE STRUCTURE AS SHOWN IN THE CONSTRUCTION PLANS AND COVER WITH STEEL PLATES TO PROTECT STRUCTURE DURING CURING.

C: OPEN TRAVEL LANE TO EXISTING TRAFFIC PATTERN BY THE END OF EACH WORK PERIOD.

D: WHEN PROPERLY CURED, CLOSE THE APPROPRIATE TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEETS 1, 2, 3, 8 & 10 OF 15. BACKFILL & PAVE, IF REQUIRED, UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT (SEE CONSTRUCTION PLANS).

E: OPEN TRAVEL LANE TO EXISTING TRAFFIC PATTERN BY THE END OF THE WORK PERIOD.

JJ) CONSTRUCT ALL PAVEMENT (TEMPORARY AND/OR PROPOSED) TO MAINTAIN DRAINAGE AND NOT POND WATER IN THE TRAFFIC LANES.

KK) TEMPORARY PAVEMENT MAY BE UTILIZED IN THE CONSTRUCTION OF THE PROPOSED AS DIRECTED BY THE ENGINEER.

LL) PLACE TRAFFIC BACK INTO EXISTING PATTERN AT THE END OF EACH WORK PERIOD.

MM) PLACE TYPE III BARRICADES & DRUMS AT ALL -Y- LINES AND DRUMS AT ALL DRIVEWAYS TO KEEP PROPOSED/TEMPORARY WIDENING CLOSED TO TRAFFIC.

NN) TEMPORARY SHORING MAY BE ADJUSTED SO AS NOT TO CONFLICT WITH EXISTING UTILITIES.

OO) INSTALL TEMPORARY GLARE SCREEN ON PORTABLE CONCRETE BARRIER THAT SEPARATES TWO-WAY TRAFFIC ON CAPITAL BLVD.

PP) PROTECT PEDESTRIANS FROM FALLING DEBRIS ALONG EXISTING SIDEWALKS BENEATH THE US 70/US 401/NC 50 BRIDGE STRUCTURES AT ALL TIMES DURING CONSTRUCTION (SEE SPECIAL PROVISIONS).

QQ) MOUNT 35 MPH ADVISORY SPEED PLAQUES (W13-1, BLACK ON ORANGE) BELOW ALL "TRAFFIC SHIFT" SIGNS (W1-4) ON CAPITAL BLVD. (-L-), UNLESS OTHERWISE SHOWN IN THE TMP. IN ADDITION, MOUNT 35 MPH ADVISORY SPEED PLAQUES (W13-1, BLACK ON ORANGE) BELOW ALL "LEFT/RIGHT LANE CLOSED AHEAD" SIGNS (W20-5), "LEFT/RIGHT LANE CLOSED" SIGNS (W20-5), "LEFT/RIGHT TWO LANES CLOSED AHEAD" SIGNS (W20-5a) AND "LEFT/RIGHT TWO LANES CLOSED" SIGNS (W20-5a) WHEN UTILIZING LANE CLOSURES ON CAPITAL BLVD. (-L-).

IF THE MERGE TAPER OR SIGNS FOR THE LANE CLOSURE ON CAPITAL BLVD. FALLS WITHIN THE LIMITS OF THE INSTALLED 25 MPH ADVISORY SPEED PLAQUES (W13-1, BLACK ON ORANGE) SHOWN IN THE PLAN (SEE SHEETS TMP-29 AND TMP-30), THEN DO NOT MOUNT THE 35 MPH ADVISORY SPEED PLAQUES BELOW THE LANE CLOSURE SIGNS.

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APPROVED:_____ DATE:_____

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 30773 EDWARD G. WETHERILL Edward G. Wetherill 6/1/2016

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

GENERAL NOTES AND PROJECT NOTES

PROJ. REFERENCE NO.	SHEET NO.
B-5121/B-5317	TMP-18A

-- BEGIN CONSTRUCTION OF PROPOSED OFF-RAMP -Y1RPC-:

A. CLOSE EXISTING W. JOHNSON ST./SERVICE RD. AT STA. 14+25 +/- -Y1RPC- AND EXISTING NORTH EXIT RIGHT OF STA. 19+00 +/- -L- (SEE SHEETS TMP-19 & TMP-20).

NOTE: UTILIZE SOUTH ENTRANCE TO MAINTAIN ACCESS TO W. JOHNSON ST./SERVICE RD. AND W. JOHNSON ST. (-Y4-) AS DIRECTED BY THE ENGINEER DURING CONSTRUCTION.

NOTE: EXISTING SIDEWALK ALONG NORTHBOUND CAPITAL BLVD. (-L-) SHALL BE CLOSED. SEE PEDESTRIAN OFF-SITE DETOUR ON SHEET TMP-46F.

B. BEGIN CONSTRUCTION (USING TEMPORARY SHORING) PROPOSED OFF-RAMP -Y1RPC- FROM STA. 14+25 +/- -Y1RPC- TO STA. 18+70 +/- -Y1RPC- UP TO, BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE (SEE ROADWAY PLANS AND SHEETS TMP-19 & TMP-20).

BEGIN CONSTRUCTION OF PROPOSED OFF-RAMP -Y1RPC- FROM STA. 10+21 +/- -L- TO STA. 14+25 +/- -Y1RPC- AND PROPOSED W. JOHNSON ST. (-Y4-). SINCE THIS SECTION OF ROADWAY IS IN A CUT AND THERE IS NO OUTLET, THE CONTRACTOR SHALL, AS DIRECTED BY THE ENGINEER & USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEETS 1 & 10 OF 15, CONSTRUCT PROPOSED ROADWAY UP TO, BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. PLACE TEMPORARY PAVEMENT MARKINGS/MARKERS AND OPEN TO TRAFFIC (SEE ROADWAY PLANS AND SHEET TMP-19).

NOTE: UTILIZE TEMPORARY PAVEMENT MARKINGS/MARKERS AND/OR DRUMS TO DELINEATE TRAVEL WAY DURING CONSTRUCTION.

-- BEGIN CONSTRUCTION OF RIGHT SIDE OF PROPOSED W. PEACE ST. (-Y1-) AS MUCH AS POSSIBLE UP TO, BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM STA. 19+75 +/- -Y1- TO STA. 23+20 +/- (NOT INCLUDING PROPOSED CONCRETE MONOLITHIC ISLANDS) (SEE ROADWAY PLANS AND SHEET TMP-20).

NOTE: REMOVE EXISTING CONCRETE ISLANDS ON W. PEACE ST. (-Y1-) FROM STA. 21+40 +/- -Y1- TO STA. 23+20 +/- -Y1-, REPAIR EXISTING PAVEMENT (IF REQUIRED) AND INSTALL TUBULAR MARKERS TO MAINTAIN EXISTING TRAFFIC PATTERN (SEE SHEET TMP-20).

-- BEGIN CONSTRUCTION/INSTALLATION OF PROPOSED/TEMPORARY SIGNAL (BUT DO NOT ACTIVATE) AT THE INTERSECTION OF PROPOSED OFF-RAMP -Y1RPC- AND W. PEACE ST. (-Y1-) (SEE SIGNAL PLANS AND SHEET TMP-28).

STEP 2: - CONSTRUCTION OF PROPOSED W. PEACE ST. (-Y1-) FROM STA. 12+15 +/- -Y1- TO STA. 18+75 +/- -Y1-.

A. USING ROADWAY STANDARD DRAWING NOS. 1101.02, SHEET 8 OF 15, CONSTRUCT TEMPORARY PAVEMENT RIGHT SIDE OF W. PEACE ST. (-Y1-) UP TO THE EDGE AND ELEVATION OF EXISTING (SEE ROADWAY PLANS AND SHEET TMP-22).

NOTE: EXISTING SIDEWALK ALONG EB W. PEACE ST. (-Y1-) SHALL BE CLOSED AND PEDESTRIANS SHALL BE DETOURED TO THE EXISTING SIDEWALK ALONG WB PEACE ST. (-Y1-)(SEE SHEETS TMP-20 & TMP-22).

CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK IN AREA II, PHASE I, STEPS 2B THRU 2F. (SEE INTERMEDIATE CONTRACT TIME AND SPECIAL PROVISIONS).

B. USING ROADWAY STANDARD DRAWING NOS. 1101.02, SHEETS 3 & 8 OF 15:

1. REMOVE EXISTING PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKINGS/MARKERS AND SHIFT W. PEACE ST. (-Y1-) TO A TEMPORARY TWO-WAY, THREE-LANE TRAFFIC PATTERN (SEE SHEET TMP-22A).

2. INSTALL WATER FILLED BARRIER AND TEMPORARY SHORING AS SHOWN ON SHEET TMP-22A.

3. DIRECT PEDESTRIANS TO EXISTING/TEMPORARY SIDEWALK ALONG EB W. PEACE ST. (-Y1-) AND CLOSED SIDEWALK ALONG WB PEACE ST. (-Y1-)(SEE SHEETS TMP-22A & TMP-22B).

C. USING ROADWAY STANDARD DRAWING NOS. 1101.02, SHEETS 1 & 2 OF 15, AS REQUIRED, CONSTRUCT STAGE I OF PROPOSED CULVERT AT STA. 15+00 +/- -Y1- AND LEFT SIDE OF PROPOSED W. PEACE ST. (-Y1-)(INCLUDING PROPOSED DRAINAGE, PROPOSED CURB & GUTTER & PROPOSED SIDEWALK) FROM STA. 12+15 +-/ -Y1- TO STA. 16+40 +/- -Y1-, UP TO, BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE (SEE ROADWAY PLANS AND SHEETS TMP-22A & TMP-22B).

D. USING ROADWAY STANDARD DRAWING NOS. 1101.02, SHEET 2 OF 15, AS REQUIRED:

1. INSTALL PORTABLE CONCRETE BARRIER & PLACE TEMPORARY PAVEMENT MARKINGS/MARKERS ON THE NEWLY COMPLETED LEFT SIDE OF W. PEACE ST. (-Y1-) AND SHIFT W. PEACE ST. (-Y1-) TO A TEMPORARY TWO-WAY, THREE-LANE TRAFFIC PATTERN (SEE SHEETS TMP-22C & TMP-22D).

2. DIRECT PEDESTRIANS TO PROPOSED SIDEWALK ALONG WB W. PEACE ST. (-Y1-) AND CLOSE SIDEWALK ALONG EB PEACE ST. (-Y1-)(SEE SHEETS TMP-22C & TMP-22D).

E. USING ROADWAY STANDARD DRAWING NOS. 1101.02, SHEETS 1 & 2 OF 15, AS REQUIRED, REMOVE WATER FILLED BARRIER, CONSTRUCT STAGE II OF PROPOSED CULVERT AT STA. 15+00 +/- -Y1- AND RIGHT SIDE OF PROPOSED W. PEACE ST. (-Y1-)(INCLUDING PROPOSED DRAINAGE, PROPOSED CURB & GUTTER & PROPOSED SIDEWALK) FROM STA. 12+15 +-/ -Y1- TO STA. 18+75 +/- -Y1-, AND FROM STA. 19+00 +/ -Y6- TO STA. 19+50 +/- -Y6-, UP TO, BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE (SEE ROADWAY PLANS AND SHEETS TMP-22C & TMP-22D).

F. USING ROADWAY STANDARD DRAWING NOS. 1101.02, SHEETS 1, 2, 3 & 7 OF 15, REMOVE PORTABLE CONCRETE BARRIER AND PLACE TEMPORARY PAVEMENT MARKINGS/MARKERS ON THE NEWLY COMPLETED W. PEACE ST. (-Y1-) IN THE TEMPORARY TRAFFIC PATTERN AS SHOWN ON SHEETS TMP-24 & TMP-26 AND OPEN TO TRAFFIC.

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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED:_____ DATE:_____

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10772 Edward G. Wetherill 6/1/2016 EDWARD G. WETHERILL

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

AREA II PHASING

6/1/2016
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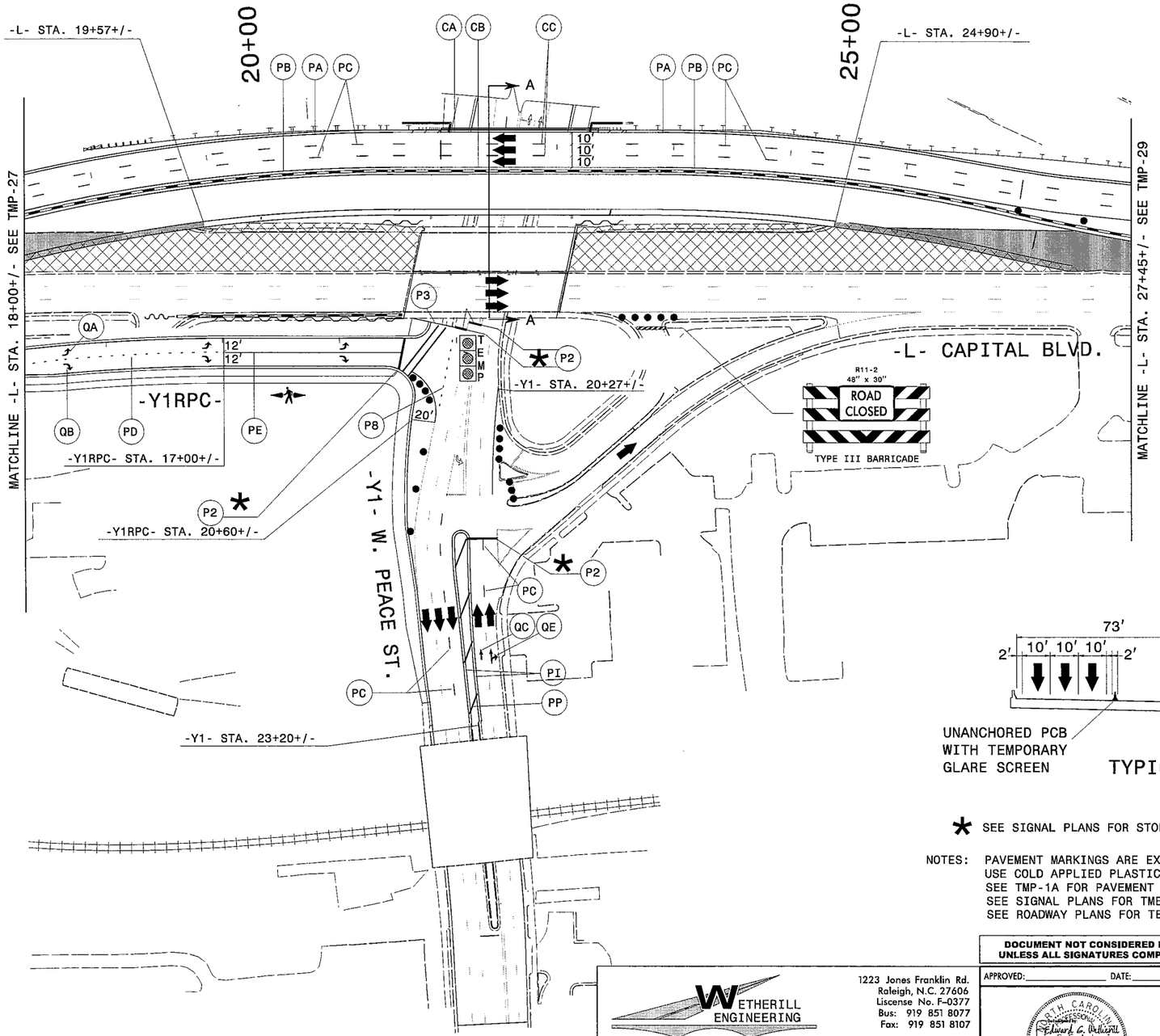
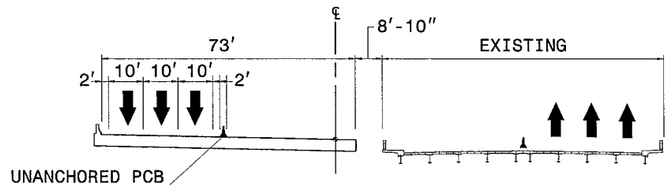
PROJ. REFERENCE NO.	SHEET NO.
B-5121/B-5317	TMP-28





TYPICAL SECTION A-A

-L- STA. 22+00+/-

✱ SEE SIGNAL PLANS FOR STOP-BAR LOCATIONS.

NOTES:
- PAVEMENT MARKINGS ARE EXISTING UNLESS OTHERWISE NOTED.
- USE COLD APPLIED PLASTIC TYPE 4 - REMOVABLE TAPE ON CONCRETE BRIDGE DECK.
- SEE TMP-1A FOR PAVEMENT MARKING SCHEDULE.
- SEE SIGNAL PLANS FOR TMEPORARY SIGNAL DESIGN.
- SEE ROADWAY PLANS FOR TEMPORARY-DETNB- AND -DETSB- ALIGNMENTS.

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AREA II - PHASE III TEMPORARY TRAFFIC CONTROL DETAIL

6/1/2016
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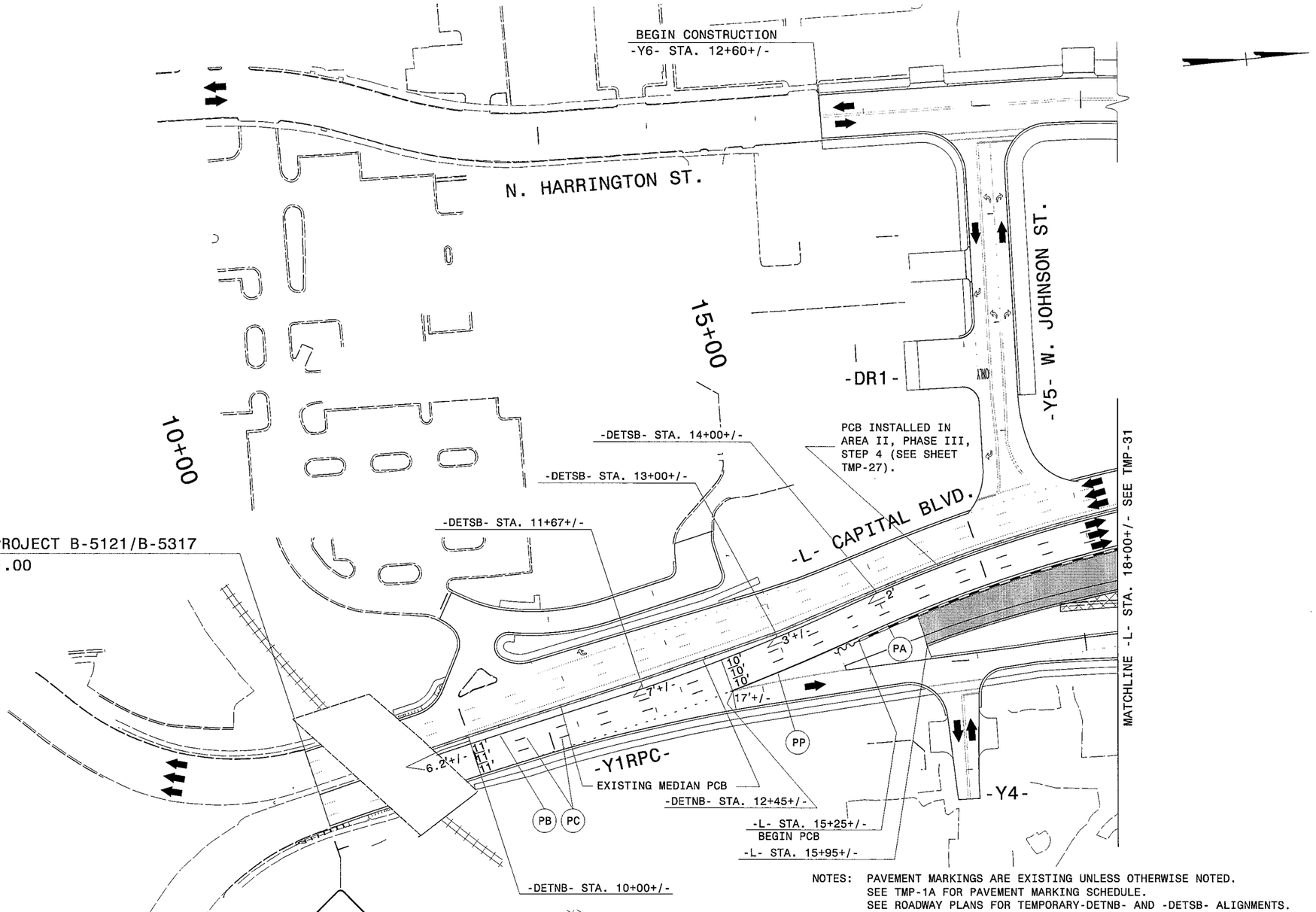
PROJ. REFERENCE NO.	SHEET NO.
B-5121/B-5317	TMP-30



NOTES: PAVEMENT MARKINGS ARE EXISTING UNLESS OTHERWISE NOTED.
SEE TMP-1A FOR PAVEMENT MARKING SCHEDULE.
SEE ROADWAY PLANS FOR TEMPORARY-DETNB- AND -DETSB- ALIGNMENTS.

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AREA II - PHASE IV TEMPORARY TRAFFIC CONTROL DETAIL

6/1/2016
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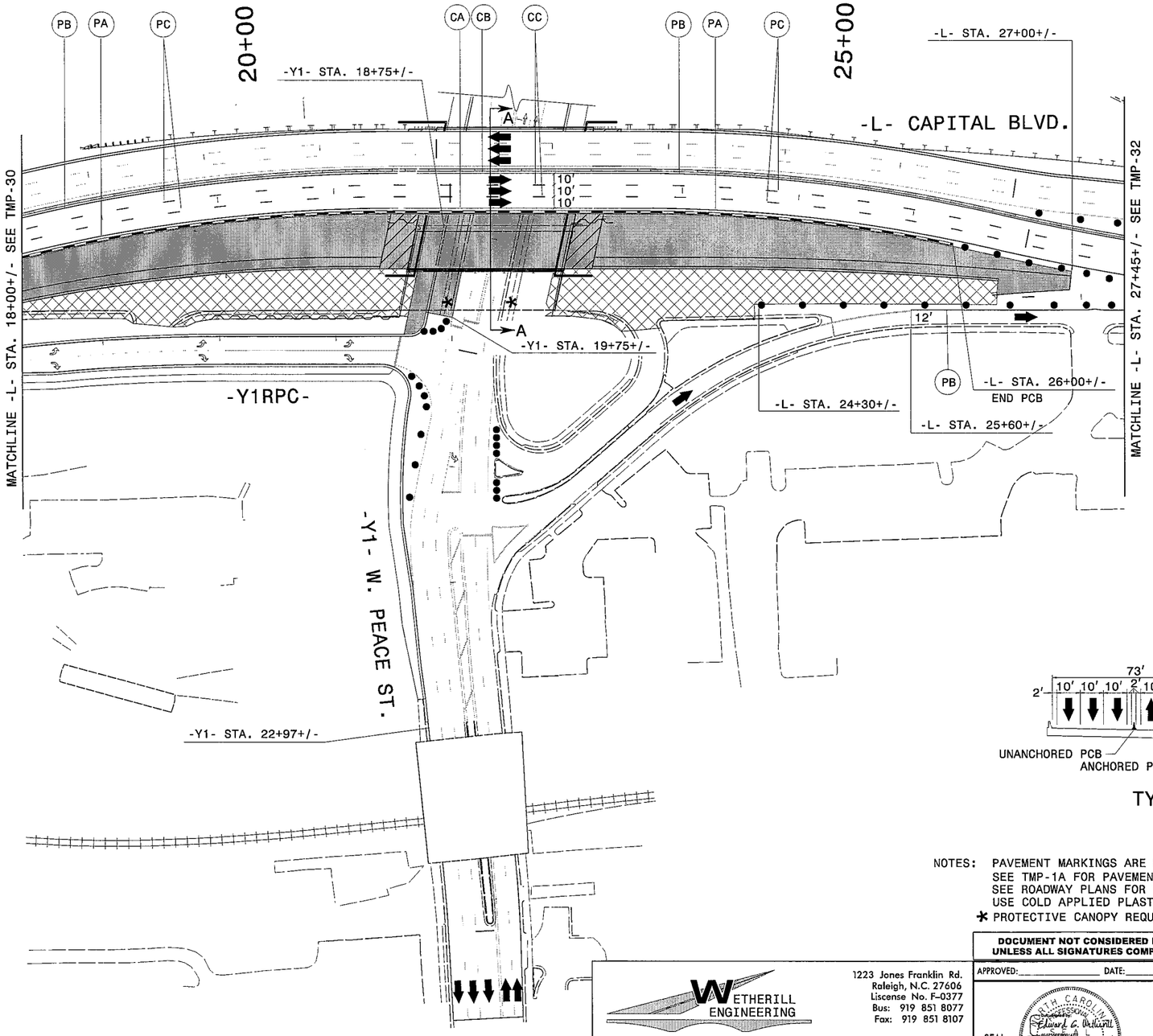
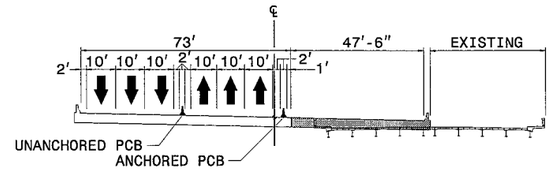
PROJ. REFERENCE NO.	SHEET NO.
B-5121/B-5317	TMP-31





TYPICAL SECTION A-A
-L- STA. 22+00+/-

NOTES: PAVEMENT MARKINGS ARE EXISTING UNLESS OTHERWISE NOTED.
SEE TMP-1A FOR PAVEMENT MARKING SCHEDULE.
SEE ROADWAY PLANS FOR TEMPORARY-DETNB- AND -DETSB- ALIGNMENTS.
USE COLD APPLIED PLASTIC TYPE 4 - REMOVABLE TAPE ON CONCRETE BRIDGE DECK.
✱ PROTECTIVE CANOPY REQUIRED, SEE SPECIAL PROVISIONS.

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APPROVED:_____ DATE:_____

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DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

AREA II- PHASE IV TEMPORARY TRAFFIC CONTROL DETAIL

6/1/2016
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PROJ. REFERENCE NO.	SHEET NO.
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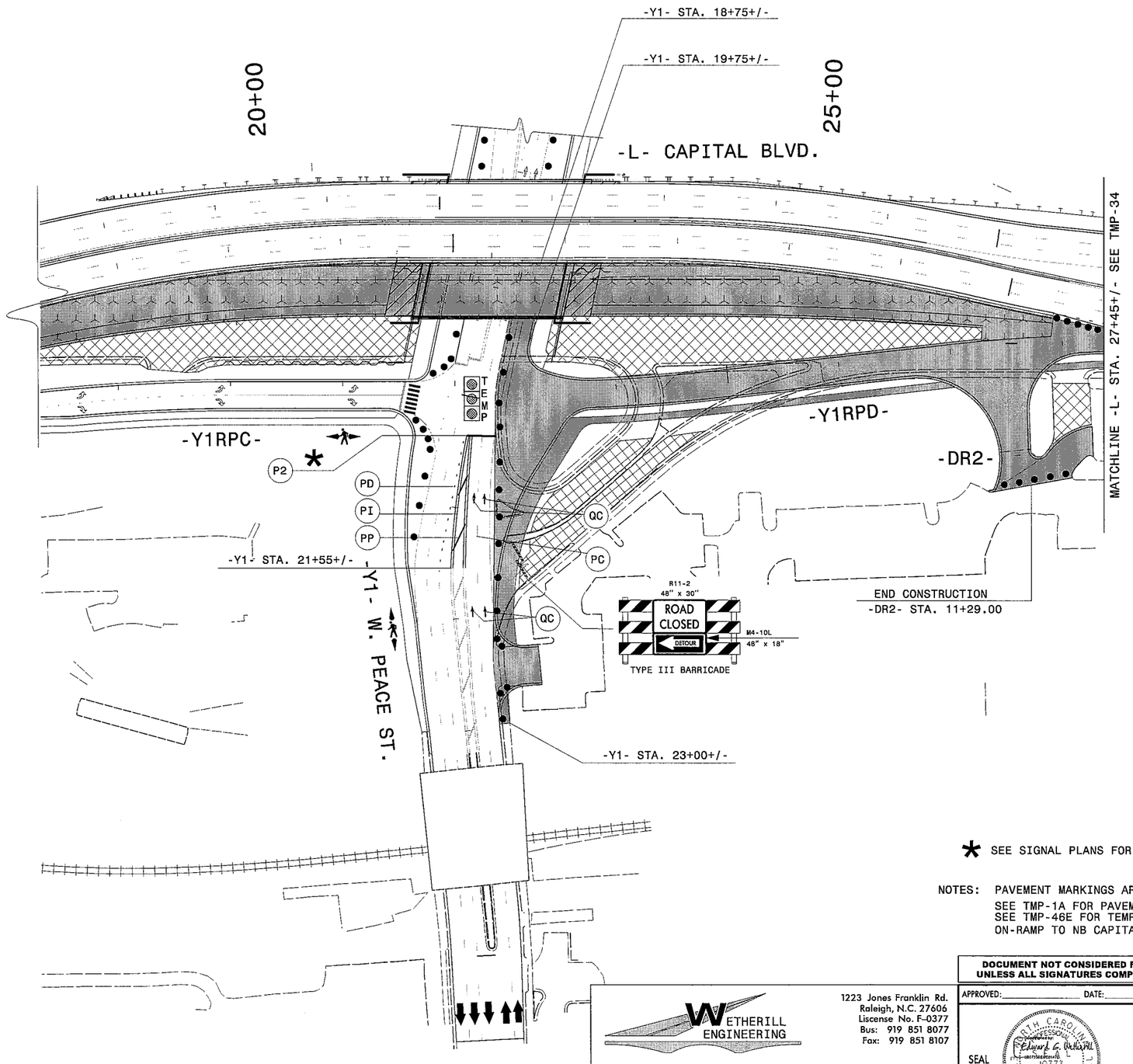

* SEE SIGNAL PLANS FOR STOP-BAR LOCATIONS.

NOTES: PAVEMENT MARKINGS ARE EXISTING UNLESS OTHERWISE NOTED.
SEE TMP-1A FOR PAVEMENT MARKING SCHEDULE.
SEE TMP-46E FOR TEMPORARY OFF-SITE DETOUR FOR EXISTING PEACE ST. ON-RAMP TO NB CAPITAL BLVD.

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SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10772 EDWARD G. WETHERILL 6/1/2016

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AREA II - PHASE IV TEMPORARY TRAFFIC CONTROL DETAIL

6/1/2016
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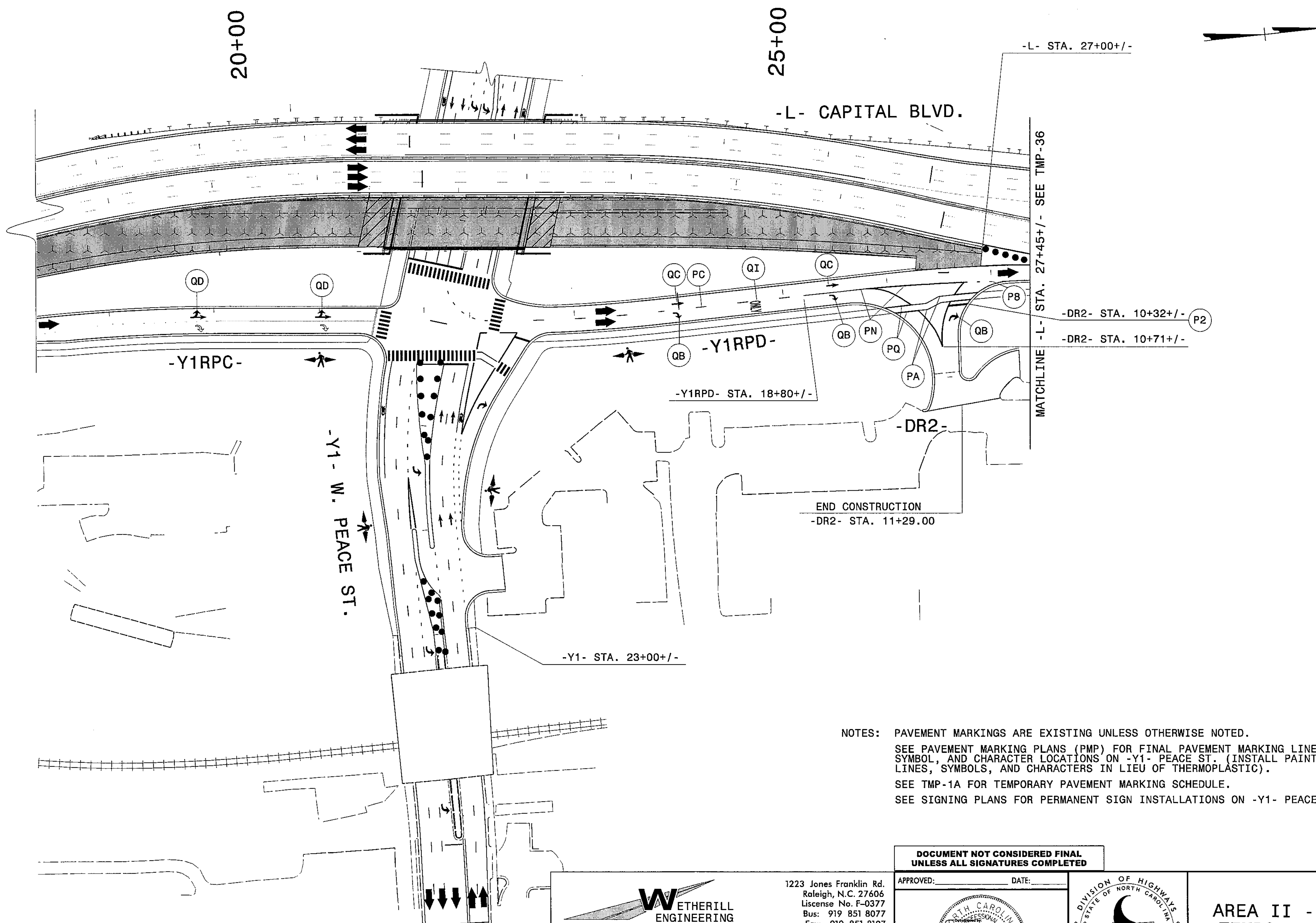

NOTES: PAVEMENT MARKINGS ARE EXISTING UNLESS OTHERWISE NOTED.

SEE PAVEMENT MARKING PLANS (PMP) FOR FINAL PAVEMENT MARKING LINE,STOP BARS, SYMBOL, AND CHARACTER LOCATIONS ON -Y1- PEACE ST. (INSTALL PAINT MARKING LINES, SYMBOLS, AND CHARACTERS IN LIEU OF THERMOPLASTIC).

SEE TMP-1A FOR TEMPORARY PAVEMENT MARKING SCHEDULE.

SEE SIGNING PLANS FOR PERMANENT SIGN INSTALLATIONS ON -Y1- PEACE ST.

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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED:__________ DATE:______

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER EDWARD G. WETHERILL 10773 6/2/2016

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

AREA II - PHASE IV TEMPORARY TRAFFIC CONTROL DETAIL

6/2/2016
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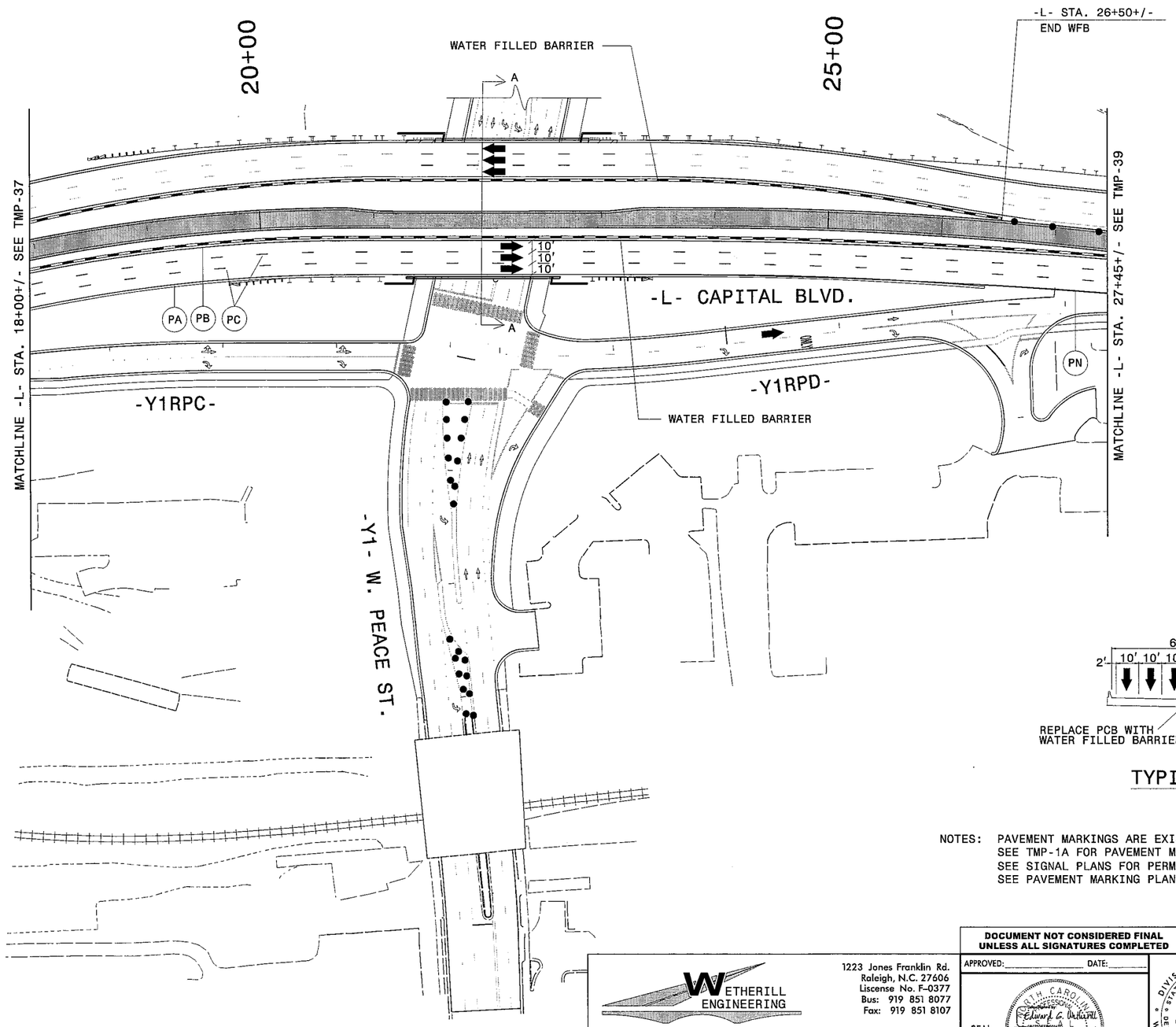
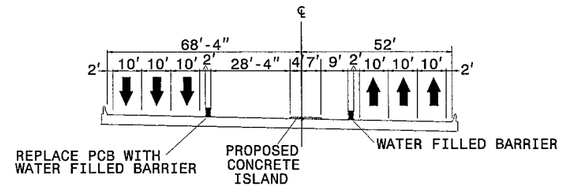
User:skennedy

PROJ. REFERENCE NO.	SHEET NO.
B-5121/B-5317	TMP-38





TYPICAL SECTION A-A

-L STA. 22+00+/-

NOTES: PAVEMENT MARKINGS ARE EXISTING UNLESS OTHERWISE NOTED.
SEE TMP-1A FOR PAVEMENT MARKING SCHEDULE.
SEE SIGNAL PLANS FOR PERMANENT SIGNAL DESIGN.
SEE PAVEMENT MARKING PLANS FOR FINAL TRAFFIC PATTERN ON PEACE ST.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Liscense No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10773 EDWARD G. WETHERILL 6/2/2016

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

AREA II - PHASE V TEMPORARY TRAFFIC CONTROL DETAIL

6/2/2016
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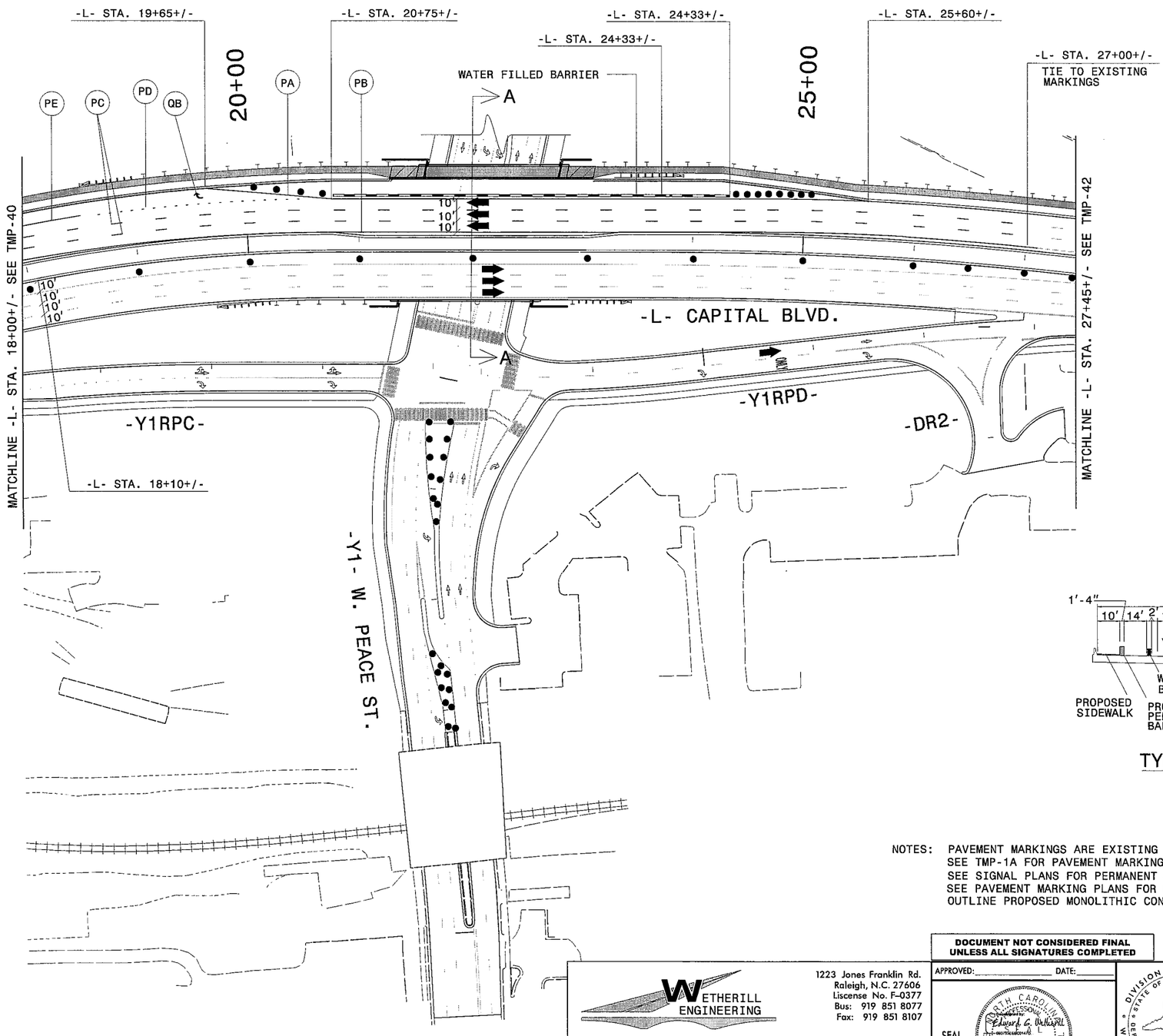

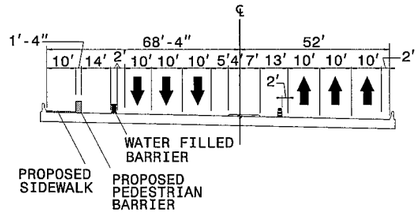

TYPICAL SECTION A-A

-L- STA 22+00+/-

NOTES: PAVEMENT MARKINGS ARE EXISTING UNLESS OTHERWISE NOTED.
SEE TMP-1A FOR PAVEMENT MARKING SCHEDULE.
SEE SIGNAL PLANS FOR PERMANENT SIGNAL DESIGN.
SEE PAVEMENT MARKING PLANS FOR FINAL TRAFFIC PATTERN ON PEACE ST.
OUTLINE PROPOSED MONOLITHIC CONCRETE ISLANDS WITH YELLOW PAINT MARKING.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL Edward G. Wetherill 10773 6/2/2016 EDWARD G. WETHERILL

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

AREA II-PHASE V TEMPORARY TRAFFIC CONTROL DETAIL

6/2/2016
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PROJ. REFERENCE NO.	SHEET NO.
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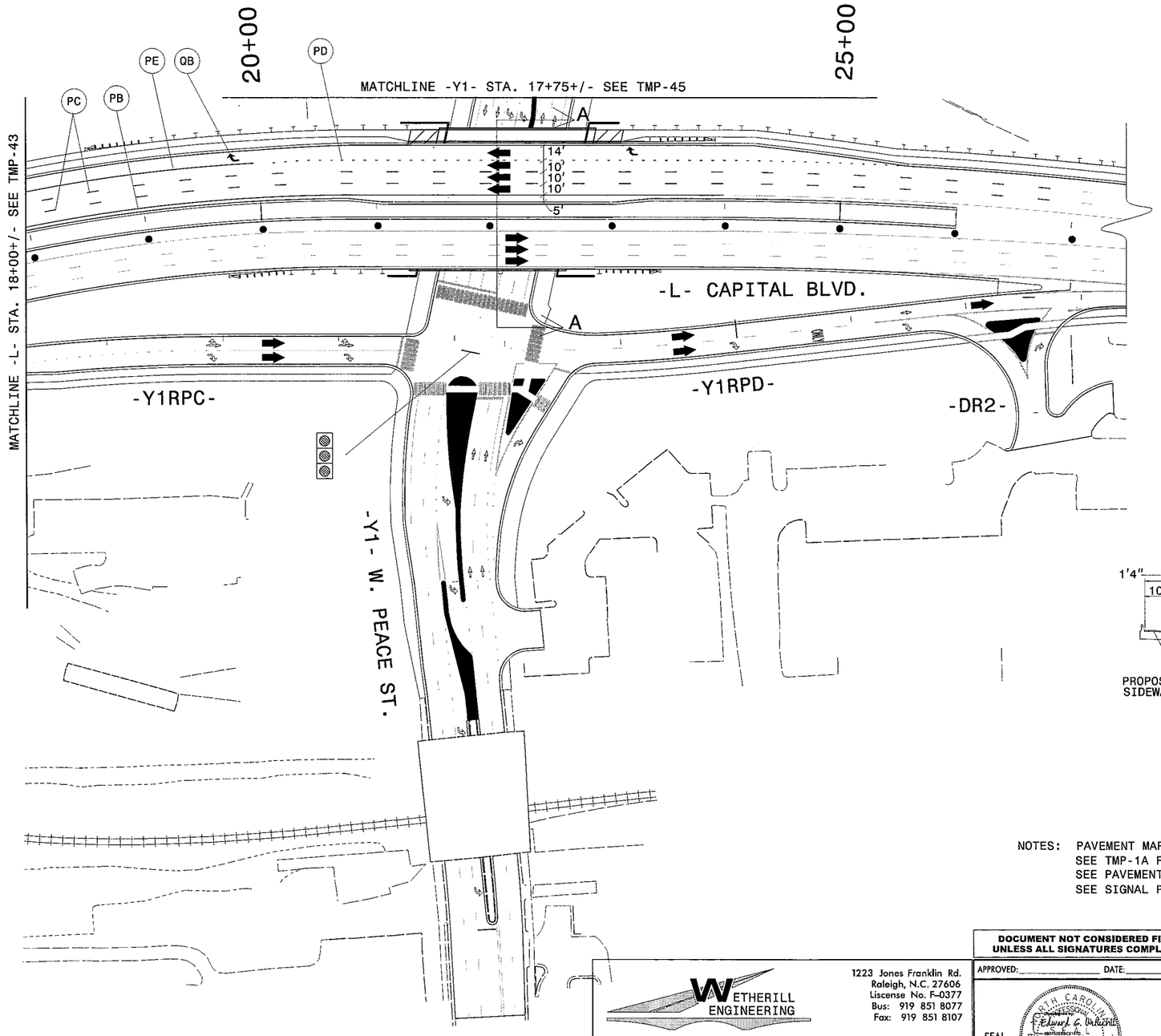

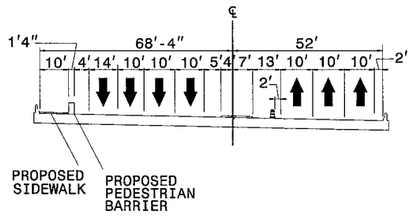

TYPICAL SECTION A-A

-L- STA 22+00+/-

NOTES: PAVEMENT MARKINGS ARE EXISTING UNLESS OTHERWISE NOTED.
SEE TMP-1A FOR PAVEMENT MARKING SCHEDULE.
SEE PAVEMENT MARKING PLANS FOR FINAL MARKINGS ON PEACE ST.
SEE SIGNAL PLANS FOR PERMANENT SIGNAL DESIGN ON PEACE ST.

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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED:_____ DATE:_____

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10773 EDWARD G. WETHERILL
Edward G. Wetherill
10773
6/2/2016
ENGINEER

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

AREA II-PHASE V TEMPORARY TRAFFIC CONTROL DETAIL

6/2/2016
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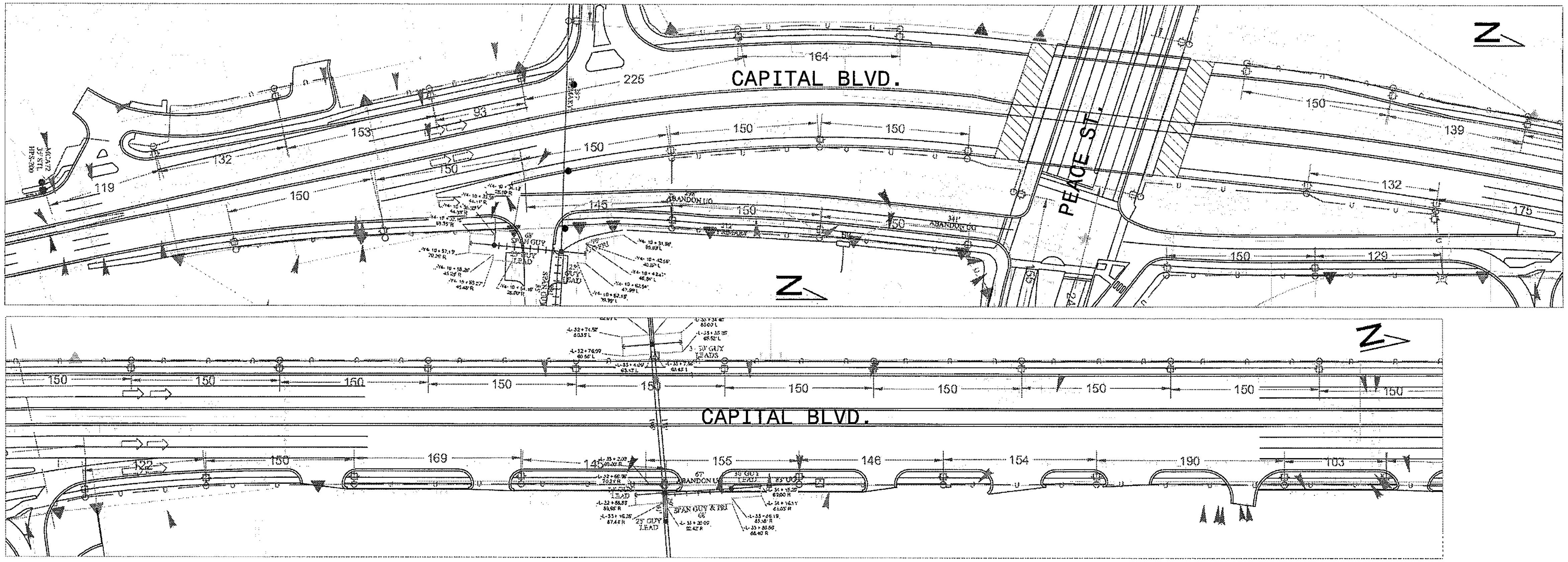
USE FOR LIGHTING CONSTRUCTION ONLY

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	SL1



NOTES

1. THE NCDOT 2012 STANDARD SPECIFICATIONS AND DRAWINGS FOR ROADS AND STRUCTURES AND LIGHTING SPECIAL PROVISIONS SHALL GOVERN THIS STREET LIGHTING CONDUIT INSTALLATION.
2. INSTALLATION OF THE STREET LIGHTING CONDUIT SHALL COMPLY WITH DUKE ENERGY PROGRESS CONSTRUCTION STANDARD DRAWINGS AND SPECIFICATIONS.
3. THE INSTALLATION OF THE STREET LIGHTING CONDUIT WILL BE PERFORMED BY NCDOT ROADWAY CONTRACTOR. REFER TO THE UTILITIES BY OTHERS (UBO) PLANS AND SPECIAL PROVISIONS FOR COORDINATION, CONSTRUCTION SEQUENCE, AND INSTALLATION OF STREET LIGHTING CONDUIT. STREET LIGHTING CONDUIT IS SHOWN AS PROPOSED UNDERGROUND POWER CONDUIT IN THE UTILITY EASEMENT DETAIL ON THE UBO PLANS.
4. COORDINATE THE STREET LIGHTING CONDUIT INSTALLATION IN THESE AREAS TO AVOID CONFLICTS AND DAMAGES TO THE 14' DECORATIVE SIDEWALKS.
5. STREET LIGHTING CONDUIT IS A 2" PVC CONDUIT, FURNISHED BY DUKE ENERGY, AND INSTALLED 36" BELOW GRADE BY NCDOT ROADWAY CONTRACTOR. DUKE ENERGY WILL RETURN ON SITE AT A LATER DATE TO LOCATE THE CONDUIT, INSTALL FITTINGS, PULL CONDUCTORS AND ERECT LIGHT POLES TO PROVIDE AN OPERATIONAL LIGHTING SYSTEM PRIOR TO THE COMPLETION OF THE ROADWAY PROJECT.
6. MARK UNDERGROUND STREET LIGHTING CONDUIT FOR EACH PROPOSED LIGHT POLE LOCATION WITH A PIECE OF VERTICAL PIPE BURIED AND EXTENDED ABOVE GRADE.

LEGEND

Symbol	Description
(light standard symbol)	STREET LIGHT STANDARD PROVIDED AND INSTALLED BY DUKE ENERGY
—— U —— U	2" PVC CONDUIT FURNISHED BY DUKE ENERGY FOR INSTALLATION ALONG CAPITAL BOULEVARD.

NO.	DATE	REVISION	BY

LIGHTING DESIGN TOLERANCE

The calculated illuminance light levels in this lighting design are predicted values and are based on specific information that has been supplied to Duke Energy. Any inaccuracies in the supplied information, differences in luminaire installation, lighted area geometry including elevation differences, reflective properties of surrounding surfaces, obstructions (foliage or otherwise) in the lighted area, or lighting from sources other than listed in this design may produce different results from the predicted values. Normal tolerances of voltage, lamp output, and ballast and luminaire manufacturers will also affect results.

DUKE ENERGY. PROGRESS

STREET LIGHTING ARRANGEMENT FOR
CAPITAL BLVD (US 401)

Designed by DUKE ENERGY PROGRESS LIGHTING SOLUTIONS
Reviewed by STEPHEN SHORT Scale 1" = 50'
Date 5/23/2016 Size Drawing size "D"
Description N/A
Drawing No. ##-##### Sht. 1 OF 2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

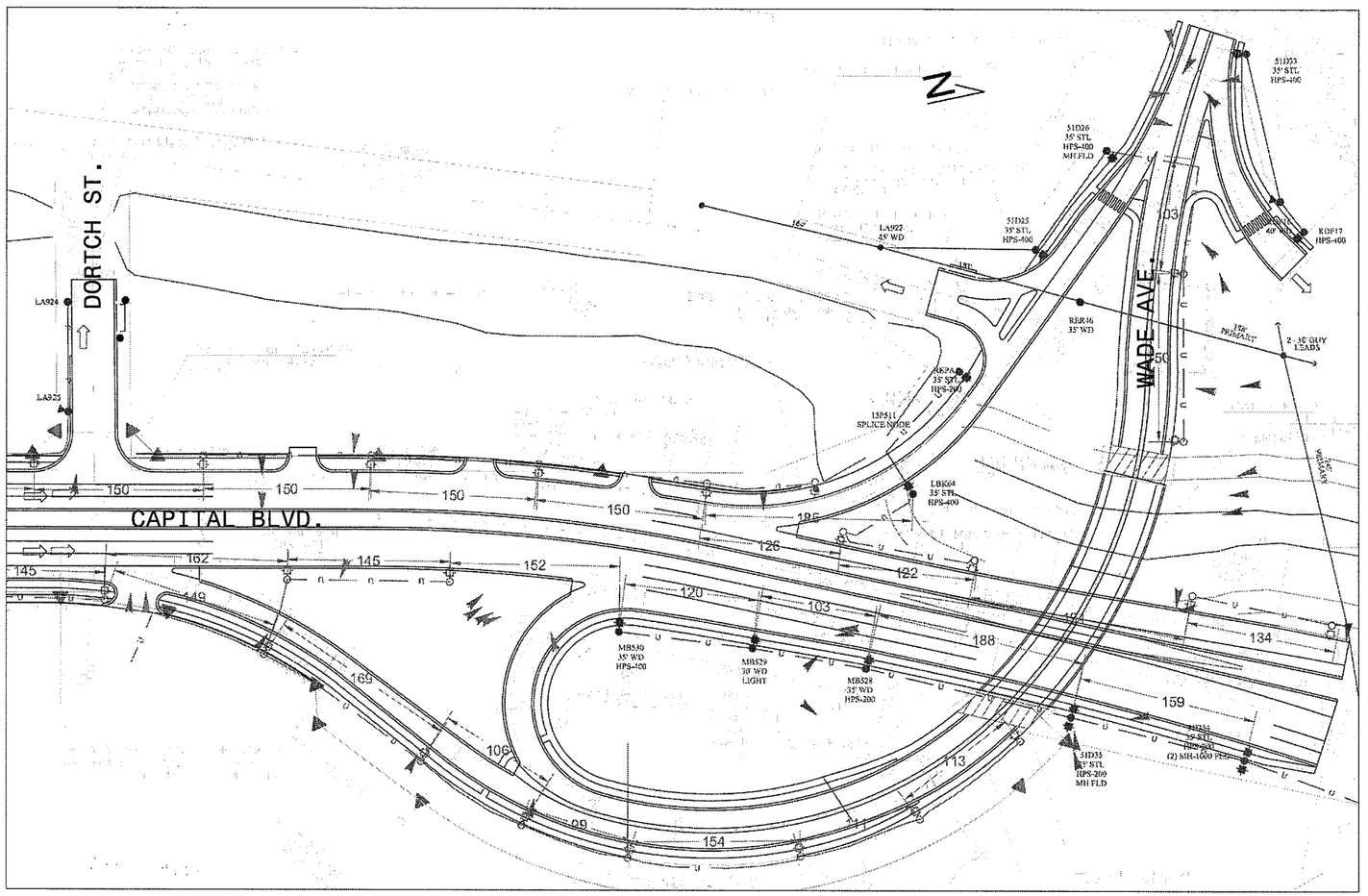
STREET LIGHTING
CONDUIT INSTALLATION

WAKE COUNTY

Drawn By:	Approved By:	Dwg No.:
AB		

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	SL2

USE FOR LIGHTING CONSTRUCTION ONLY



SEE SHEET "SL1" FOR △ NOTES

LEGEND

STREET LIGHT STANDARD PROVIDED AND INSTALLED BY DUKE ENERGY

—— U —— U —— 2" PVC CONDUIT FURNISHED BY DUKE ENERGY FOR INSTALLATION ALONG CAPITAL BOULEVARD.

NO.	DATE	REVISION	BY

LIGHTING DESIGN TOLERANCE

The calculated footcandle (lux) levels in this lighting design are predicted values and are based on specific information that has been supplied to Duke Energy. Any inaccuracies in the supplied information, discrepancies in luminaire installation, lighted area geometry including mounting reflectance, reflective properties of surrounding surfaces, obstructions (trees or otherwise) in the lighted area, or lighting from sources other than those in this design may produce variances results from the predicted values. Normal tolerances or voltage, lamp output and ballast and luminaire manufacturer will also affect results.

DUKE ENERGY. PROGRESS

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STREET LIGHTING ARRANGEMENT FOR
CAPITAL BLVD (US 401)
WADE AVE BRIDGE STREET LIGHT REMOVALS

Designed by DUKE ENERGY PROGRESS LIGHTING SOLUTIONS
Reviewed by STEPHEN SHORT Scale 1" = 50'
Date 5/23/2016 Size Drawing size "D"
Description N/A
Drawing No. ## ##### Sht. 2 OF 2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

STREET LIGHTING

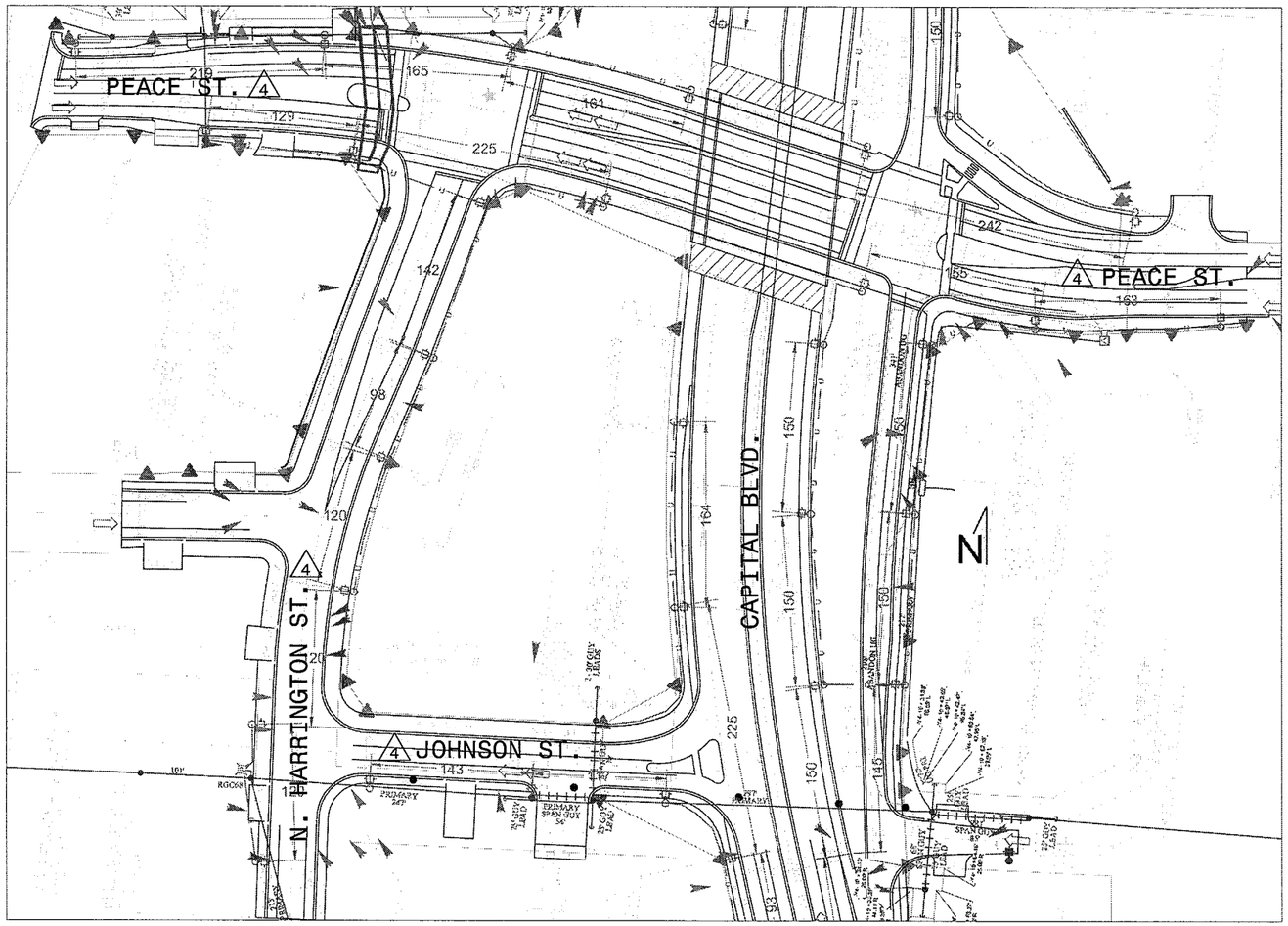
CONDUIT INSTALLATION

WAKE COUNTY

Drawn By:	Approved By:	Dwg No.:
AB		

USE FOR LIGHTING CONSTRUCTION ONLY

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	SL3



LEGEND

STREET LIGHT STANDARD PROVIDED BY DUKE ENERGY

2" PVC CONDUIT FURNISHED BY DUKE ENERGY FOR INSTALLATION ALONG CAPITAL BOULEVARD.

SEE SHEET "SL1" FOR △ NOTES

NO.	DATE	REVISION	BY

LIGHTING DESIGN TOLERANCE

The calculated footcandle light levels in this lighting design are predicted values and are based on specific information that has been supplied to Duke Energy. Any inaccuracies in the supplied information, differences in luminaire installation, lighted area geometry including elevation differences, reflective properties of surrounding surfaces, obstructions (foliage or otherwise) in the lighted area, or lighting from sources other than listed in this design may produce different results from the predicted values. Normal tolerances of voltage, lamp output, and normal ever luminaire maintenance will also affect results.

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STREET LIGHTING ARRANGEMENT FOR
CAPITAL BLVD (US 401)
PEACE ST SECTION

Designed by DUKE ENERGY PROGRESS LIGHTING SOLUTIONS
Reviewed by STEPHEN SHORT Scale 1" = 50'
Date 5/23/2016 Size Drawing size "D"
Description N/A
Drawing No. ##-##### Sht. 1 OF 1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

STREET LIGHTING
CONDUIT INSTALLATION

WAKE COUNTY

Drawn By:	Approved By:	Dwg No.:
AB		

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	E1

PLANS AND DETAILS FOR PROPOSED LIGHTING /ELECTRICAL CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-BUN CHAN

DocuSigned by: Paul Chan 6/3/2016

△ NOTES

1. LOCATE PROPOSED CONTROL SYSTEM IN AN AREA ACCESSIBLE FOR MAINTENANCE VEHICLES AND OUTSIDE OF CLEAR ZONE AS DEFINED BY THE 2011 AASHTO ROADSIDE DESIGN GUIDE.
2. INSTALL ALL BORE PITS OUTSIDE THE CLEAR ZONE, AS DEFINED BY THE 2011 AASHTO ROADSIDE DESIGN GUIDE OR AS DIRECTED BY THE ENGINEER.
3. LOCATE ALL JUNCTION BOXES OUTSIDE CLEAR ZONE AND IN AN AREA UNLIKELY TO BE USED BY TRAFFIC.
4. SEE LIGHTING DETAILS PLAN SHEETS E6-E7 FOR CAPITAL BOULEVARD BRIDGE OVER PEACE STREET AND SHEETS E8-E9 FOR THE WADE AVENUE FLYOVER BRIDGE RESPECTIVELY, FOR CONDUIT AND AESTHETIC LIGHTING LUMINAIRES ATTACHMENT DETAILS.
5. INSTALL RIGID GALVANIZED CONDUIT (RGC) ABOVE GROUND, AND POLYVINYL CHLORIDE (PVC) SCHEDULE 40 CONDUIT UNDERGROUND, EXCEPT AS MODIFIED ON THESE PLAN SHEETS OR IN APPLICABLE SECTIONS OF THE ROADWAY STANDARD DRAWINGS FOR THIS PROJECT.
6. TYPE PC30 JUNCTION BOXES ARE 30" L X 17" W X 18" H.
7. TYPE PC18 JUNCTION BOXES ARE 18" L X 12" W X 18" H.
8. REFER TO LIGHTING DETAILS PLAN SHEETS E6 & E7 FOR DETAILS ON CONNECTING CONDUCTORS TO THE WALLPACK LED LUMINAIRES AND TO THE AESTHETIC LIGHTING LUMINAIRE CIRCUITS AL1 & AL2 ON THE CAPITAL BOULEVARD BRIDGE OVER PEACE STREET.
9. REFER TO LIGHTING DETAILS PLAN SHEETS E8 & E9 FOR DETAILS ON CONNECTING CONDUCTORS TO THE AESTHETIC LIGHTING LUMINAIRE CIRCUITS AL3/AL4 & AL5/AL6 ON THE WADE AVENUE BRIDGE OVER CAPITAL BOULEVARD.
10. THE SPOTLIGHT LUMINAIRE SHALL HAVE A LIGHT BEAM SPREAD THAT HIGHLIGHTS THE DECORATIVE MEDALLION FROM THE GROUND AND SPREADS LIGHT UP THE FACE OF THE WALL. RECOMMENDED LIGHT SPREAD ANGLE IS 14 DEGREES.
11. INSTALL CONDUIT AND CONDUCTORS UNDER SIDEWALK. COORDINATE WORK WITH PRIME CONTRACTOR TO INSTALL CONDUIT PRIOR TO POURING SIDEWALK.
12. INSTALL CONTROL SYSTEM 5.5' FROM FACE OF PROPOSED GUARDRAIL.
13. SPOTLIGHT LUMINAIRE SPL6 TO BE INSTALLED IN AREA WITH RIP RAP. FOUNDATION MAY BE NEAR FLUSH WITH RIP RAP AT THIS LOCATION.
14. INSTALL PC18 JUNCTION BOX WITHIN 2 FEET OF SPOTLIGHT FOUNDATION.
15. TYPE CAST IRON JUNCTION BOXES (CIJB) ARE 12"L X 12"W X 8"H. CIJB SHALL HAVE A CONTINUOUS HINGE ON THE LID.

SCOPE OF WORK

THIS PROJECT INCLUDES PROVIDING AND INSTALLING CONDUIT, JUNCTION BOXES, CONTROL SYSTEMS AND DECORATIVE LIGHTING AT TWO STRUCTURES ALONG THE PROJECT CORRIDOR. DECORATIVE LIGHTING IS AS FOLLOWS:

CAPITAL BOULEVARD BRIDGE OVER PEACE STREET

LED WALL MOUNT UNDERPASS LIGHTS

LED AESTHETIC LIGHTING LUMINAIRES FOR BACK LIGHTING OF ARCHITECTURAL METAL FASCIA ATTACHED TO THE GIRDER ON BOTH SIDES

LED SPOTLIGHTS FOR MEDALLIONS/WALL WASH AT THE END BENTS

WADE AVENUE BRIDGE OVER PEACE STREET

LED AESTHETIC LIGHTING LUMINAIRES FOR BACK LIGHTING OF ARCHITECTURAL METAL FASCIA ATTACHED TO THE GIRDER ON BOTH SIDES

LED SPOTLIGHTS FOR MEDALLIONS/WALL WASH AT THE END BENTS

DESIGN CRITERIA

2005 AASHTO ROADWAY LIGHTING DESIGN GUIDE

2014 NATIONAL ELECTRICAL CODE

2011 AASHTO ROADSIDE DESIGN GUIDE

ROADWAY STANDARDS

THE FOLLOWING ROADWAY ENGLISH STANDARDS AS APPEAR IN "NCDOT ROADWAY STANDARD DRAWINGS", ROADWAY DESIGN UNIT-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
1407.01	ELECTRIC SERVICE POLE AND LATERAL
1408.01	LIGHT CONTROL SYSTEM (SHEET 3 ONLY)
1409.01	ELECTRICAL DUCT
1410.01	FEEDER CIRCUITS
1411.01	ELECTRICAL JUNCTION BOXES
1412.01	UNDERPASS LIGHTING

ALL WORK SHALL BE IN CONFORMANCE WITH DIVISION 14 OF THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, DATED JANUARY 2012.

LEGEND

- PROPOSED CONTROL SYSTEM, SEE DETAIL SHEET E5. BREAKER SIZE SHOWN IN LOAD SCHEDULES, SHEETS E2 & E3
- PROPOSED WALL PACK LUMINAIRE, TYPE IV WM,LED,BUG RATING B1-U3-G4, 75W MAX., 4200 LUMENS MIN.
- PROPOSED SPOTLIGHT LUMINAIRE, 30W LED MAX, 1280 LUMENS, SEE SPECIAL PROVISIONS FOR COLOR TEMPERATURE SEE NOTE 10 FOR RECOMMENDED LIGHT SPREAD ANGLE. SEE SHEET E4 FOR INSTALLATION DETAILS.
- JB1 PROPOSED ELECTRICAL JUNCTION BOX, SEE TABLE B, THIS SHEET
- △1 REFERENCE TO CORRESPONDING NOTE AS NUMBERED
- PROPOSED 4 FT LED AESTHETIC LIGHTING LUMINAIRE, 15W/775 LUMENS MINIMUM PER FOOT, 30 DEG. X 60 DEG. BEAM ANGLE. (COLOR TEMPERATURE TO BE DETERMINED AT MOCK-UP) SYMBOL DOES NOT REPRESENT A SPECIFIC NUMBER OF 4FT LUMINAIRES. REFER TO LOAD SCHEDULES FOR ACTUAL NUMBER OF LUMINAIRES.
- A1 6 PROPOSED FEEDER CIRCUIT CONTROL SYSTEM(A), CIRCUIT(1) PLAN SYMBOL (6) SEE TABLE A, THIS SHEET
- 3#2 USE 2" PROPOSED SERVICE POLE AND LATERAL 30' CLASS 4 3#1/0 USE CONDUCTORS 2" CONDUIT
- 2", 3" OR 4" ELEC. DUCT JA & BD PROPOSED ELECTRICAL DUCT SIZE 2", 3" OR 4" TYPE (JA) OR (BD) LOCATION: SEE TABLE C, THIS SHEET

TABLE "A"
CIRCUITRY CONDUCTOR CONDUIT TYPE & SIZE

PLAN SYMBOL	DESCRIPTION		CONTRACT ITEM
8	2 #8 Ø 1 #10G 1.5" P	2 AWG SIZE 8 CONDUCTOR (BK & RD) 1 AWG SIZE 10 GROUNDING CONDUCTOR 1.5" PVC CONDUIT	2 - 8 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*8	2 #8 Ø 1 #10G	2 AWG SIZE 8 CONDUCTOR (BK & RD) 1 AWG SIZE 10 GROUNDING CONDUCTOR	2 - 8 W/G FEEDER CIRCUIT

TABLE "B"
JUNCTION BOX SUMMARY △6 △7

NUMBER	LOCATION	TYPE		SHEET
JB1	17+85 -Y1- 70' LT		PC30	E2
JB2	17+85 -Y1- 70' RT		PC30	E2
JB3	22+10 -FLYOVER- 50' LT	PC18		E3
JB4	18+90 -FLYOVER- 50' RT	PC18		E3
TOTALS		2	2	

TABLE "C"
ELECTRICAL DUCT SUMMARY
(ESTIMATED LENGTH IN FEET)

LOCATION	RACEWAY △1	SHEET	TYPE					
			JACKED (JA) FEET			BURIED (BD) FEET		
			SIZE 2"	SIZE 3"	SIZE 4"	SIZE 2"	SIZE 3"	SIZE 4"
17+85 -Y1-		E2			150			
17+85 -Y1-	JB1 - JB2	E2				170		
17+85 -Y1-	JB1 - CIJB	E2				60		
22+10 -FLYOVER-	JB3 - CIJB	E3				70		
18+90 -FLYOVER-	JB4 - CIJB	E3				70		
TOTALS					150	370		

ABBREVIATIONS

BD	BURIED	PVC	PVC SCHEDULE 40 CONDUIT
LT	LIGHT	RGS/RGC	RIGID GALVANIZED STEEL CONDUIT
JA	JACKED	CON	CONDUIT
MH	MOUNTING HEIGHT	CKT	CIRCUIT
Ø	PHASE	N	NEUTRAL
SER LAT	SERVICE LATERAL	G	GROUND
		HM	HIGH MAST
CIJB	CAST IRON JUNCTION BOX		

COMPUTED BY: AB DATE:

CHECKED BY: PKC DATE:

03-JUN-2016 10:43
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PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	E2

USE FOR LIGHTING CONSTRUCTION ONLY

SEE SHEET "E1" FOR LEGEND & △ NOTES

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-BUN CHAN

DocuSigned by: Paul Chan 6/3/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

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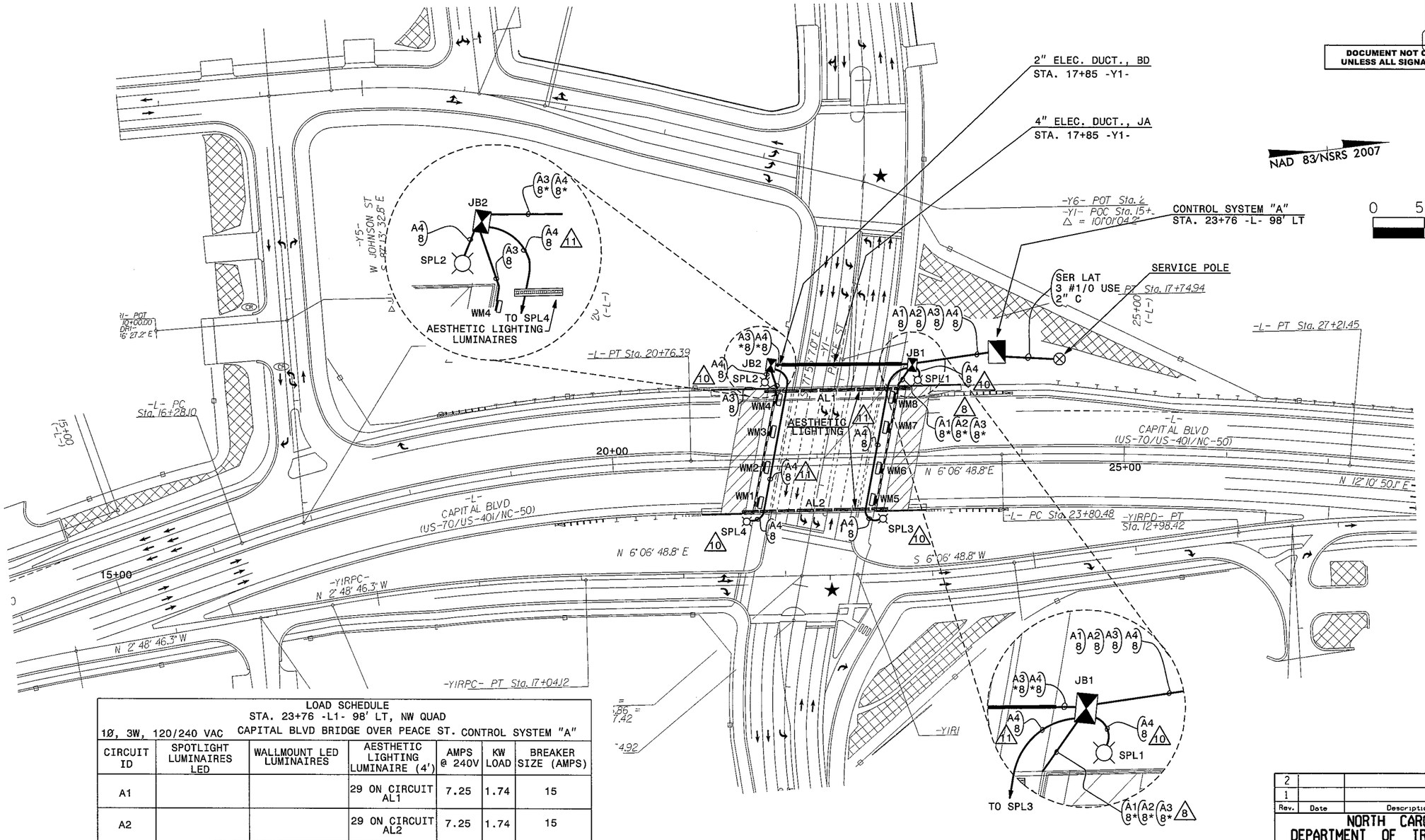

LOAD SCHEDULE
STA. 23+76 -L1- 98' LT, NW QUAD
1Ø, 3W, 120/240 VAC CAPITAL BLVD BRIDGE OVER PEACE ST. CONTROL SYSTEM "A"

CIRCUIT ID	SPOTLIGHT LUMINAIRES LED	WALLMOUNT LED LUMINAIRES	AESTHETIC LIGHTING LUMINAIRE (4')	AMPS @ 240V	KW LOAD	BREAKER SIZE (AMPS)
A1			29 ON CIRCUIT AL1	7.25	1.74	15
A2			29 ON CIRCUIT AL2	7.25	1.74	15
A3		WM1-WM8		2.50	0.60	15
A4	SPL1,SPL2 SPL3,SPL4			0.80	0.19	15
SPARE						15
TOTAL	4	8	58	17.80	4.27	

Rev.	Date	Description	Approved
2			
1			

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

LIGHTING LAYOUT

REPLACE BRIDGE NO.227 OVER PEACE ST. ON US 70/401 (CAPTIAL BOULEVARD)

WAKE COUNTY

Drawn By: AB	Approved By: PKC	Dwg No.:

03-JUN-2016 10:45
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lebrown AT RD-293515

USE FOR LIGHTING CONSTRUCTION ONLY

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	E3

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-BUN CHAN

Docusigned by: Paul Chan 6/3/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LOAD SCHEDULE
STA. 23+05 -FLYOVER- 50' LT, SW QUAD
1Ø, 3W, 120/240 VAC — CONTROL SYSTEM "B"

CIRCUIT ID	SPOTLIGHT LUMINAIRES LED	AESTHETIC LIGHTING LUMINAIRES (4')	AMPS @ 240V	KW LOAD	BREAKER SIZE (AMPS)
B1		28 ON CIRCUIT AL3	7.00	1.68	15
B2		28 ON CIRCUIT AL4	7.00	1.68	15
B3	SPL5,SPL6		0.40	0.10	15
SPARE					15
TOTAL	2	56	14.40	3.46	

LOAD SCHEDULE
STA. 18+50 -FLYOVER- 55' RT, NE QUAD
1Ø, 3W, 120/240 VAC — CONTROL SYSTEM "C"

CIRCUIT ID	SPOTLIGHT LUMINAIRES LED	AESTHETIC LIGHTING LUMINAIRES (4')	AMPS @ 240V	KW LOAD	BREAKER SIZE (AMPS)
C1		28 ON CIRCUIT AL5	7.00	1.68	15
C2		27 ON CIRCUIT AL6	6.75	1.62	15
C3	SPL7,SPL8		0.40	0.10	15
SPARE					15
TOTAL	2	55	14.15	3.40	

0 50 100

NAD 83/NSRS 2007

SEE SHEET "E1" FOR LEGEND & △ NOTES

Rev.	Date	Description	Approved
2			
1			

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN — LIGHTING/ELECTRICAL SECTION

LIGHTING LAYOUT

REPLACE WADE AVENUE BRIDGE NO.213 OVER US 70/401 (CAPTIAL BOULEVARD)

WAKE COUNTY

Drawn By:	Approved By:	Dwg No.:
AB	PKC	

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USE FOR LIGHTING CONSTRUCTION ONLY

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	E4

NTS

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-BUN CHAN

Docusigned by: Paul Chan 6/3/2016

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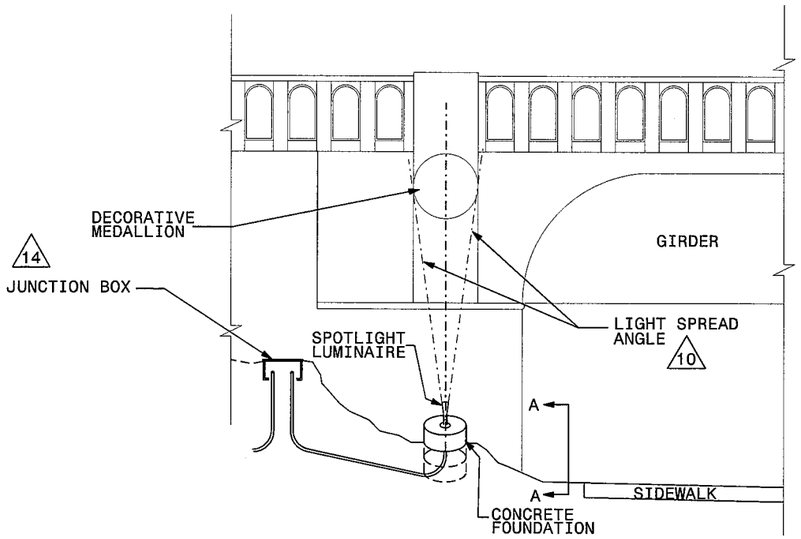
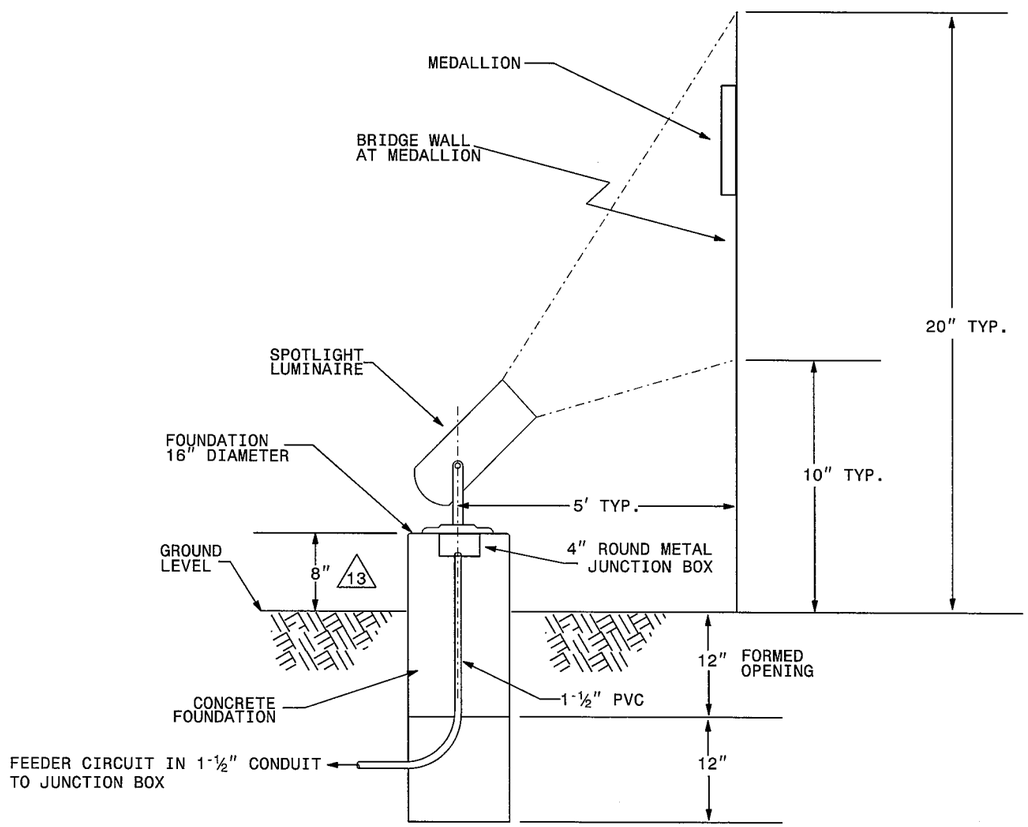
SEE SHEET "E1" FOR LEGEND & △ NOTES





VIEW A-A

Rev.	Date	Description	Approved
2			
1			

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

LIGHTING DETAILS

SPOTLIGHT LUMINAIRE PLACEMENT (TYPICAL)

WAKE COUNTY

Drawn By:	Approved By:	Dwg No.:
AB		

02/03/98

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	E5

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-BUN CHAN

DocuSigned by: Paul Chan 6/3/2016

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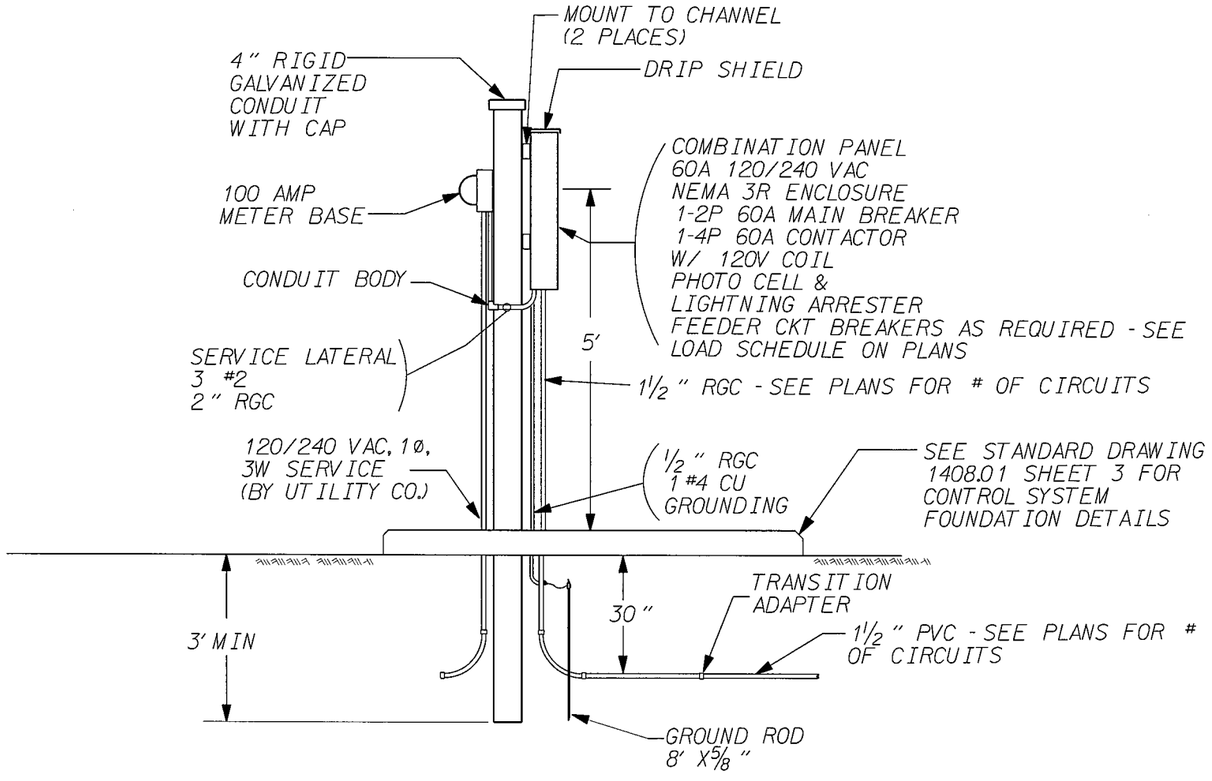


LIGHTING CONTROLLER/SERVICE ENTRANCE EQUIPMENT

SQUARE D NIGHT-MASTER CLASS 8903 LONG VERSION OR APPROVED EQUAL

Rev.	Date	Description	Approved
2			
1			

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN — LIGHTING/ELECTRICAL SECTION

120/240V LIGHT CONTROL SYSTEM DETAILS AND NIGHTMASTER CONTROL SYSTEM

WAKE COUNTY

Drawn By:	Approved By:	Dwg No.:
AB		

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

1-12

ENGLISH STANDARD DRAWING FOR
LIGHT CONTROL SYSTEM
SCHEMATIC

SHEET 1 OF 3 — 1408D01

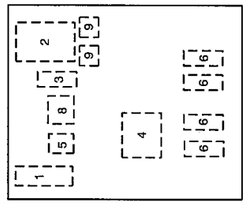
NOTES

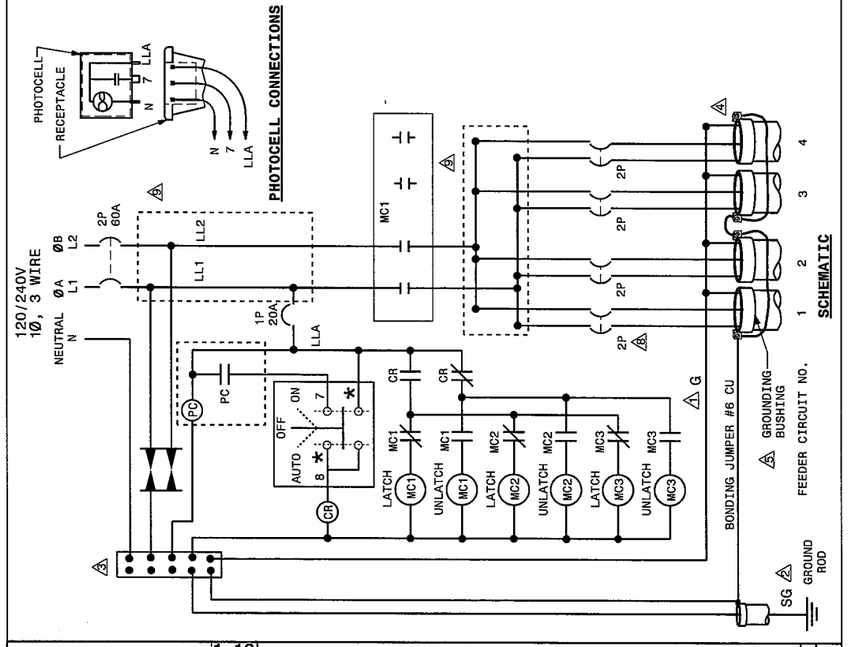
1. EQUIPMENT GROUNDS (G) SHALL BE SIZED ACCORDING TO CIRCUIT DESCRIPTION. SEE PLANS.
2. SYSTEM GROUND (SG) SHALL BE CONTINUOUS FROM THE NEUTRAL BAR TO THE GROUNDING ELECTRODE (GROUND ROD).
3. THE NEUTRAL BAR SHALL BE BONDED TO THE PANEL.
4. FEEDER CIRCUITS NOT SHOWN ON THE PLANS SHALL NOT BE INSTALLED, BUT CONDUIT SHALL BE INSTALLED AND CAPPED.
5. INSTALL A GROUNDING BUSHING ON EACH METAL CONDUIT. CONNECT BONDING JUMPER AS REQUIRED BY NEC. SEE STANDARD DRAWING 1408.01 SHEET 3 OF 3 FOR ENCLOSURE.
6. THE CONTROL SYSTEM MUST BE LABELED "SUITABLE FOR USE AS SERVICE EQUIPMENT." REFER TO STANDARD SPECIFICATION 1408-2 FOR OTHER REQUIREMENTS.
7. SEE PLANS FOR BREAKER SIZES.
8. PROVIDE MULTI-TAP LOAD LUGS OR POWER DISTRIBUTION BLOCKS.
9. PROVIDE MANUFACTURER SUPPLIED MOUNTING BRACKETS OR SCREW STUDS PERMANENTLY ATTACHED TO THE BACK PANEL, FOR MOUNTING COMPONENTS.
10. INSTALL LIGHTNING ARRESTOR ON OUTSIDE OF CABINET ASSEMBLY.

COMPONENT LIST

#	QTY	DESCRIPTION	SPECIFICATIONS
1	1	NEUTRAL BAR	
2	1	SERVICE CIRCUIT BREAKER	2P, 240V, 60A
3	1	CONTROL CIRCUIT BREAKER	1P, 120V, 15A
4	1	MECHANICALLY HELD CONTACTORS	4P, 240V, 60A W/120V COIL
5	1	CONTROL RELAY W/NC & NO CONTACT	120V, 10A, W/120V COIL
6	4	FEEDER CIRCUIT BREAKERS	2P, 240V, 50A MAX
7	1	LIGHTNING ARRESTER	
8	1	SELECTOR SWITCH (ON-OFF-AUTO)	120V, 10A
9	4	POWER DISTRIBUTION LUGS OR BLOCKS	
		MOUNTING BRACKETS OR SCREW STUDS	

INTERIOR PANEL
COMPONENT LAYOUT





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

1-12

ENGLISH STANDARD DRAWING FOR
LIGHT CONTROL SYSTEM
SCHEMATIC

SHEET 1 OF 3 — 1408D01

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USE FOR LIGHTING CONSTRUCTION ONLY

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	E6

NTS

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-RUN CHAN

DocuSigned by: Paul Chan 6/3/2016

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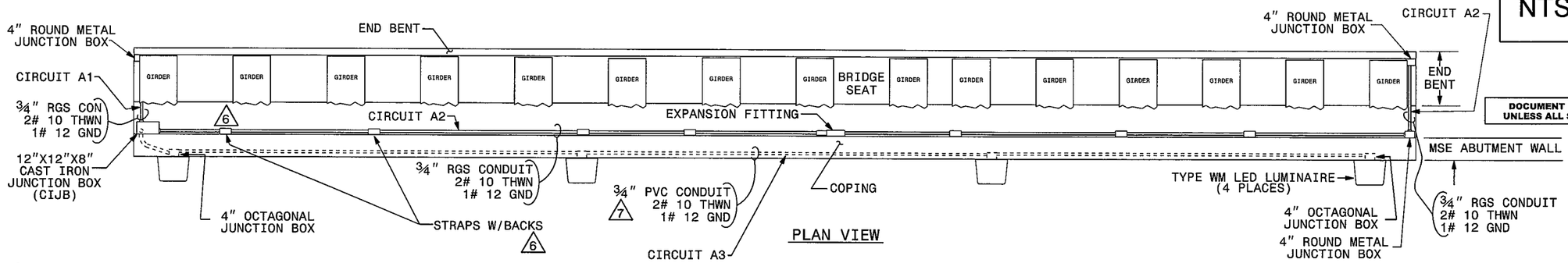

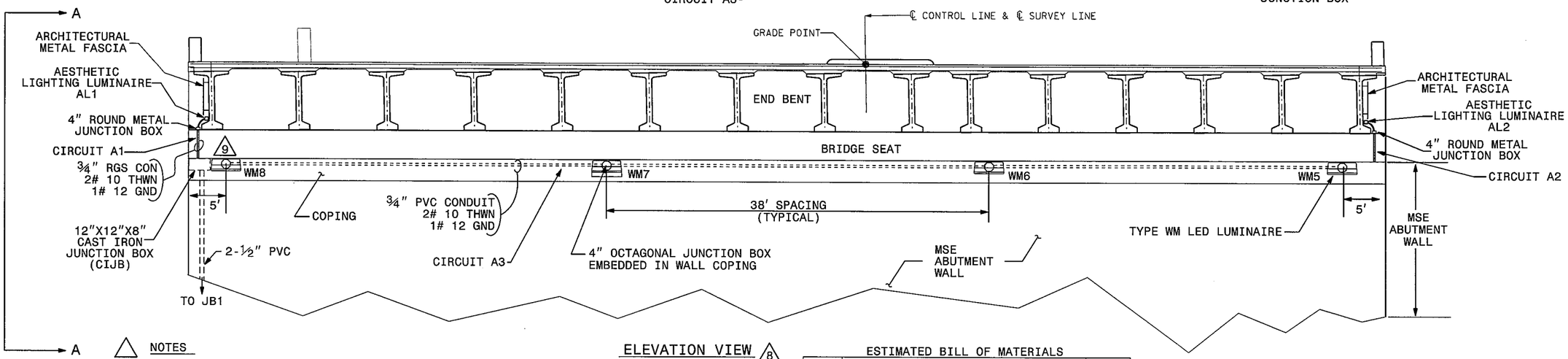

A
SEE PLAN SHEET E7

ELEVATION VIEW (8)
FRONT VIEW

NOTES

1. ATTACH CONDUIT TO BACK OF MSE ABUTMENT WALL.
2. COORDINATE WITH PRIME CONTRACTOR TO INSTALL CONDUIT ON BACK OF MSE ABUTMENT WALL PRIOR TO PLACEMENT OF FILL.
3. CONDUIT ENCASED IN COPING SHALL BE ¾" SCHEDULE 40 PVC AND SHALL HAVE A MINIMUM 2" OF CONCRETE COVER.
4. SEE STANDARD DRAWING 1412.01 FOR ADDITIONAL INSTALLATION DETAILS.
5. SPOTLIGHT LUMINAIRES ARE NOT SHOWN. SEE PLAN SHEET E4.
6. ATTACH CONDUIT USING STRAPS W/BACKS SPACED IN ACCORDANCE WITH REQUIREMENTS OF NEC ARTICLE 344.
7. DASHED CONDUITS INDICATE CONDUIT IS MOUNTED TO BACK OF MSE ABUTMENT WALL OR EMBEDDED IN WALL COPING.
8. MIRROR INSTALLATION OF WALL MOUNT LUMINAIRES (WM1-WM4) INCLUDING CONDUIT FROM GROUND MOUNTED JUNCTION BOX TO CIJB, THE CIJB AND THE OCTAGONAL JUNCTION BOXES, AND CONDUIT EMBEDDED IN THE COPING, ON THE SOUTHSIDE OF STRUCTURE. (ONLY CIRCUIT A3 IS INSTALLED ON THE SOUTHSIDE.)
9. ¾" RGS CONDUIT IS INSTALLED BEHIND WALL COPING. NOT SHOWN.
10. SEE STRUCTURES PLANS FOR AESTHETIC LIGHTING BRACKETS AND STRUCTURAL ATTACHMENT.
11. NOTE REMOVED
12. SEE LIGHTING PROJECT SPECIAL PROVISIONS SECTION 6.00 "AESTHETIC LIGHTING SYSTEM" FOR ADDITIONAL DETAILS.
13. COIL EXTRA JUMPER LENGTH AND STRAP TO LUMINAIRE BRACKET.

ESTIMATED BILL OF MATERIALS

UNIT	ITEM	QNTY
EA	CIJB: 12"X12"X8" CAST IRON JUNCTION BOX WITH HINGE	2
EA	4" ROUND METAL JUNCTION BOXES	3
EA	4" OCTAGONAL JUNCTION BOXES	8
EA	GALVANIZED IRON 3/4" CONDUIT BODY WITH COVER & GASKET	4
FT	3/4" RGS CONDUIT	150
FT	3/4" PVC CONDUIT	260
FT	2-1/2" PVC CONDUIT WITH BELL ENDS	80
EA	2-1/2" PVC 90 BELL ELBOW	2
FT	PULL LINE	500
EA	LED AESTHETIC LIGHTING LUMINAIRE 4' LONG,15W/FT, * K, 30 DEG X 60 DEG BEAM ANGLE	58
EA	AESTHETIC LIGHTING LUMINAIRE JUMPER CABLE (1-FT)	52
EA	AESTHETIC LIGHTING LUMINAIRE JUMPER CABLE (10-FT)	4
EA	AESTHETIC LIGHTING LUMINAIRE LEADER CABLE (10-FT)	2
EA	3/4" RGS EXPANSION FITTING	2

* NOTE: THE COLOR TEMPERATURE FOR THE LED AESTHETIC LIGHTING LUMINAIRE WILL BE DETERMINED FROM THE MOCK-UP.

Rev.	Date	Description	Approved
2			
1			

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

LIGHTING DETAILS
REPLACE BRIDGE NO.227 OVER PEACE ST. ON US 70/401 (CAPTIAL BOULEVARD)

WAKE COUNTY

Drawn By:	Approved By:	Dwg No.:
AB		

DRAWN BY : AB DATE :
CHECKED BY : PKC DATE :

03-JUN-2016 10:51
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USE FOR LIGHTING CONSTRUCTION ONLY

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	E7

NTS

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-SUN CHAN

DocuSigned by: Paul Chan 6/3/2016

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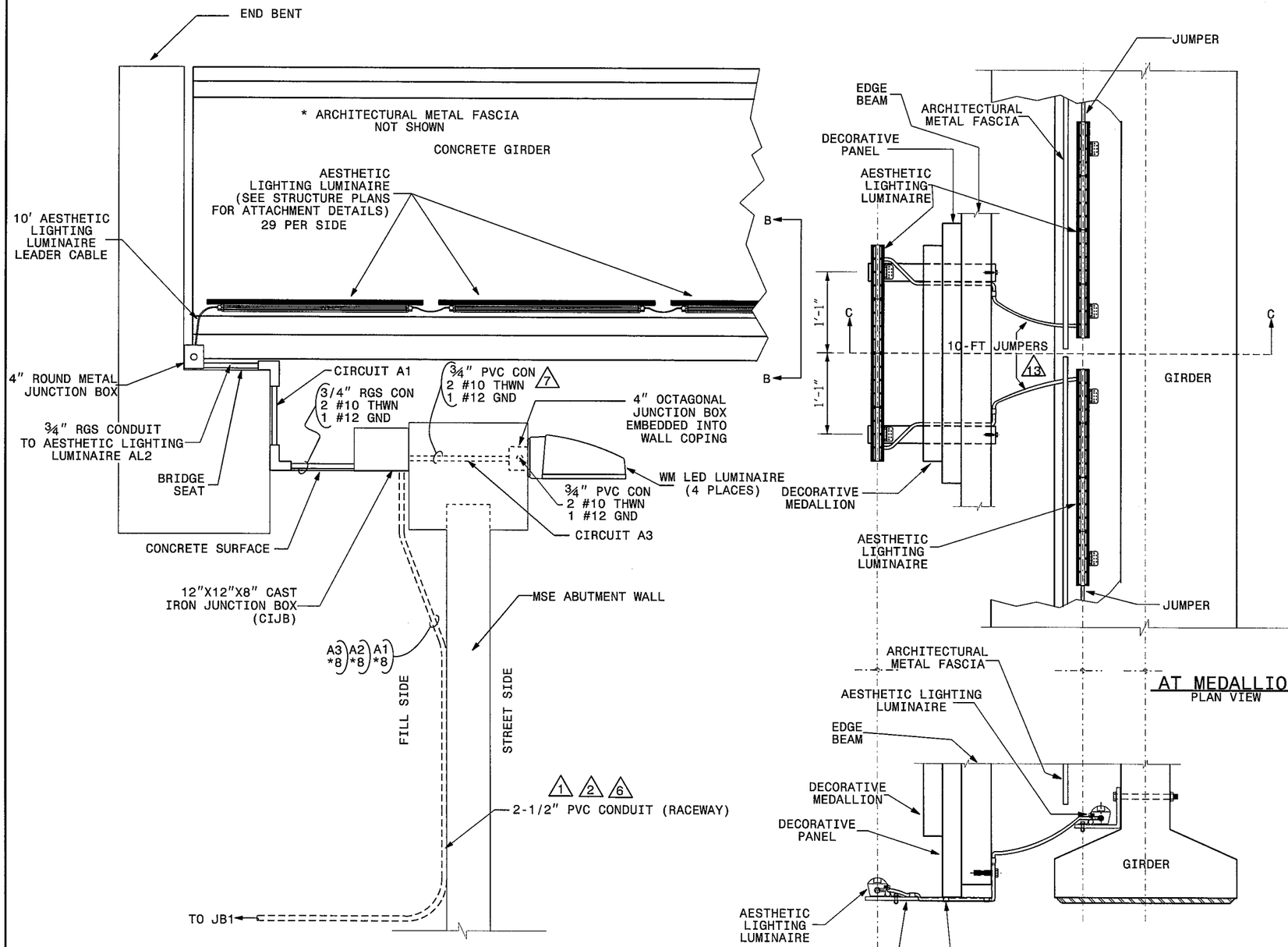


VIEW A-A

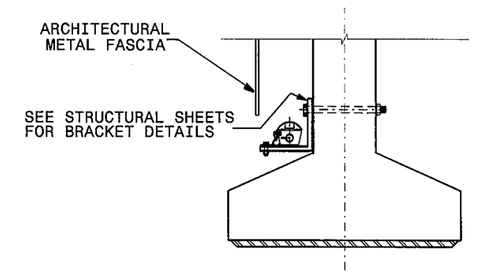
FROM SHEET E6 8

AT MEDALLION

PLAN VIEW

VIEW C-C 10

SIDE VIEW



VIEW B-B

SEE SHEET "E6" FOR △ NOTES

Rev.	Date	Description	Approved
2			
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

LIGHTING DETAILS

REPLACE BRIDGE NO. 227 OVER PEACE ST. ON US 70/401 (CAPTIAL BOULEVARD)

WAKE COUNTY

Drawn By:	Approved By:	Dwg No.:
AB		

DRAWN BY : AB DATE :

CHECKED BY : PKC DATE :

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USE FOR LIGHTING CONSTRUCTION ONLY

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	E8

NTS

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-BUM CHAN
DocuSigned by: Paul Chan 6/3/2016

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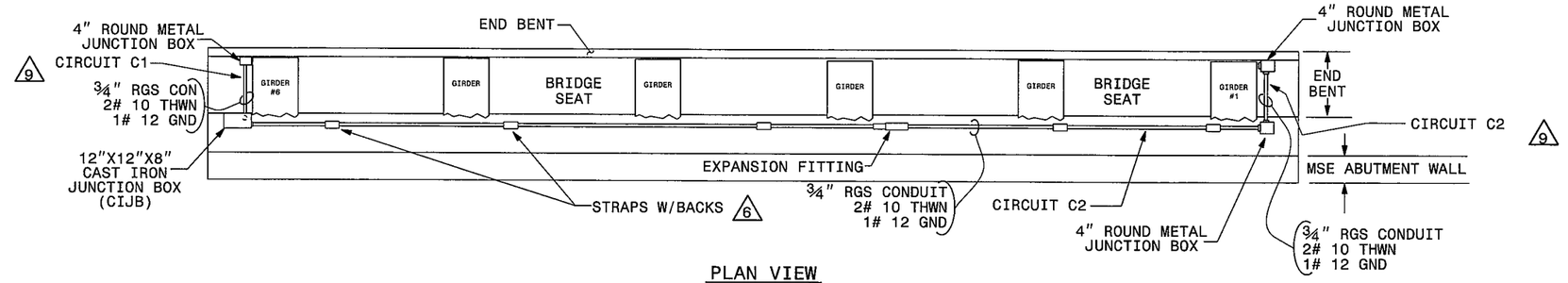
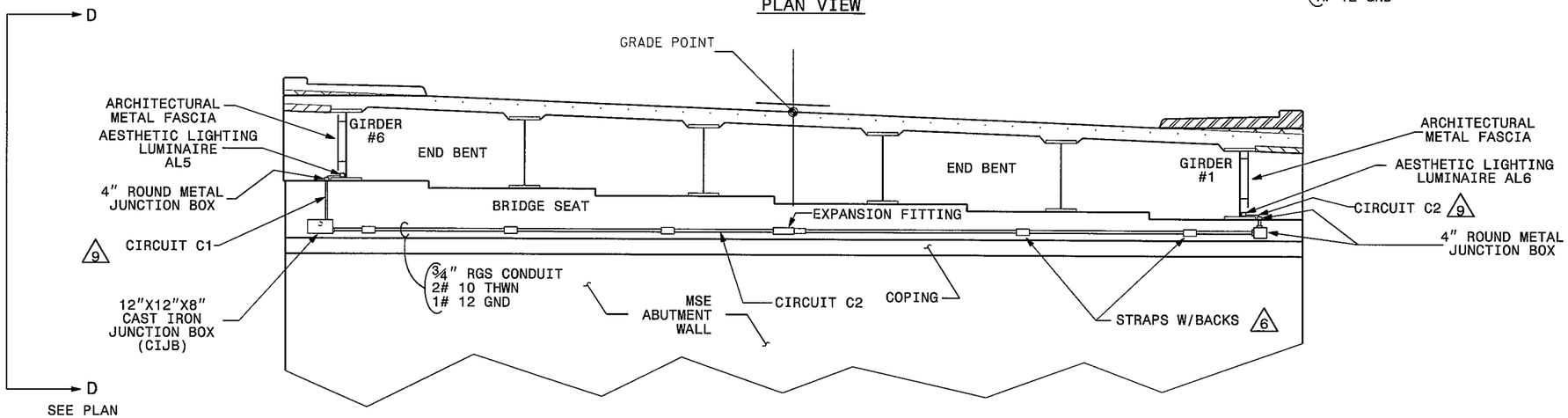


PLAN VIEW



ELEVATION VIEW

NOTES

1. ATTACH CONDUIT TO END BENT CAP USING STRAPS WITH BACKS.
2. COORDINATE WITH PRIME CONTRACTOR TO INSTALL CONDUIT BEHIND THE MSE ABUTMENT WALL PRIOR TO PLACEMENT OF FILL.
3. PROVIDE EXPANSION FITTING PER STANDARD DRAWING 1412.01.
4. SEE STANDARD DRAWING 1412.01 FOR ADDITIONAL INSTALLATION DETAILS.
5. SPOTLIGHT LUMINAIRES ARE NOT SHOWN. SEE ROADWAY LIGHTING PLAN SHEET E4.
6. ATTACH CONDUIT USING STRAPS W/BACKS SPACED IN ACCORDANCE WITH REQUIREMENTS OF NEC ARTICLE 344.
7. DASHED CONDUITS INDICATE CONDUIT IS MOUNTED BEHIND MSE ABUTMENT WALL.
8. SEE STRUCTURES PLANS FOR AESTHETIC LIGHTING BRACKETS AND STRUCTURAL ATTACHMENT.
9. MIRROR DETAILS FOR CONTROL SYSTEM "C" ON EAST SIDE OF CAPITAL BLVD. FOR CONTROL SYSTEM "B" ON WEST SIDE OF CAPITAL BLVD AS SHOWN IN WADE AVENUE PLAN SHEETS E8 AND E9. CIRCUITS B1, B2 AND C1 SHALL HAVE 27 AESTHETIC LIGHT LUMINAIRES PLUS 1 AESHETIC LIGHT LUMINAIRE FOR DECORATIVE MEDALLION. CIRCUIT C2 SHALL HAVE 26 AESTHETIC LIGHT LUMINAIRES PLUS 1 AESHETIC LIGHT LUMINAIRE FOR DECORATIVE MEDALLION. ONE CIRCUIT RUN PER CONTROL SYSTEM ON EACH SIDE OF WADE AVE BRIDGE. SEE PLAN SHEET E9 FOR LIGHTING DETAILS OF MEDALLION.
10. FINAL DIMENSION TO BE DETERMINED PRIOR TO GIRDER FABRICATION BY THE ENGINEER.
11. SEE LIGHTING PROJECT SPECIAL PROVISIONS SECTION 6.00 "AESTHETIC LIGHTING SYSTEM" FOR ADDITIONAL DETAILS.
12. COIL EXTRA JUMPER LENGTH AND STRAP TO LUMINAIRE BRACKET.

ESTIMATED BILL OF MATERIALS

UNIT	ITEM	QNTY
EA	CIJB: 12"X12"X8" CAST IRON JUNCTION BOX WITH HINGE	2
EA	4" ROUND METAL JUNCTION BOXES	6
EA	GALVANIZED IRON 3/4" CONDUIT BODY WITH COVER & GASKET	8
FT	3/4" RGS CONDUIT	150
FT	2" PVC CONDUIT WITH BELL ENDS	60
EA	2" PVC 90 BELL ELBOW	2
FT	PULL LINE	500
EA	LED AESTHETIC LIGHTING LUMINAIRE 4' LONG,15W/FT, * K, 30 DEG X 60 DEG BEAM ANGLE	111
EA	AESTHETIC LIGHTING LUMINAIRE JUMPER CABLE (1-FT)	99
EA	AESTHETIC LIGHTING LUMINAIRE JUMPER CABLE (10-FT)	8
EA	AESTHETIC LIGHTING LUMINAIRE LEADER CABLE (10-FT)	4
EA	3/4" RGS EXPANSION FITTING	2

* NOTE: THE COLOR TEMPERATURE FOR THE LED AESTHETIC LIGHTING LUMINAIRE WILL BE DETERMINED FROM THE MOCK-UP.

Rev.	Date	Description	Approved
2			
1			

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

LIGHTING DETAILS

REPLACE BRIDGE NO.213 OVER WADE AVENUE ON US 70/401 (CAPTIAL BOULEVARD)

WAKE COUNTY

Drawn By:	Approved By:	Dwg No.:
AB		

DRAWN BY : AB DATE :
CHECKED BY : PKC DATE :

03-JUN-2016 10:53
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USE FOR LIGHTING CONSTRUCTION ONLY

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	E9

NTS

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL K. CHAN

DocuSigned by: Paul Chan 6/3/2016

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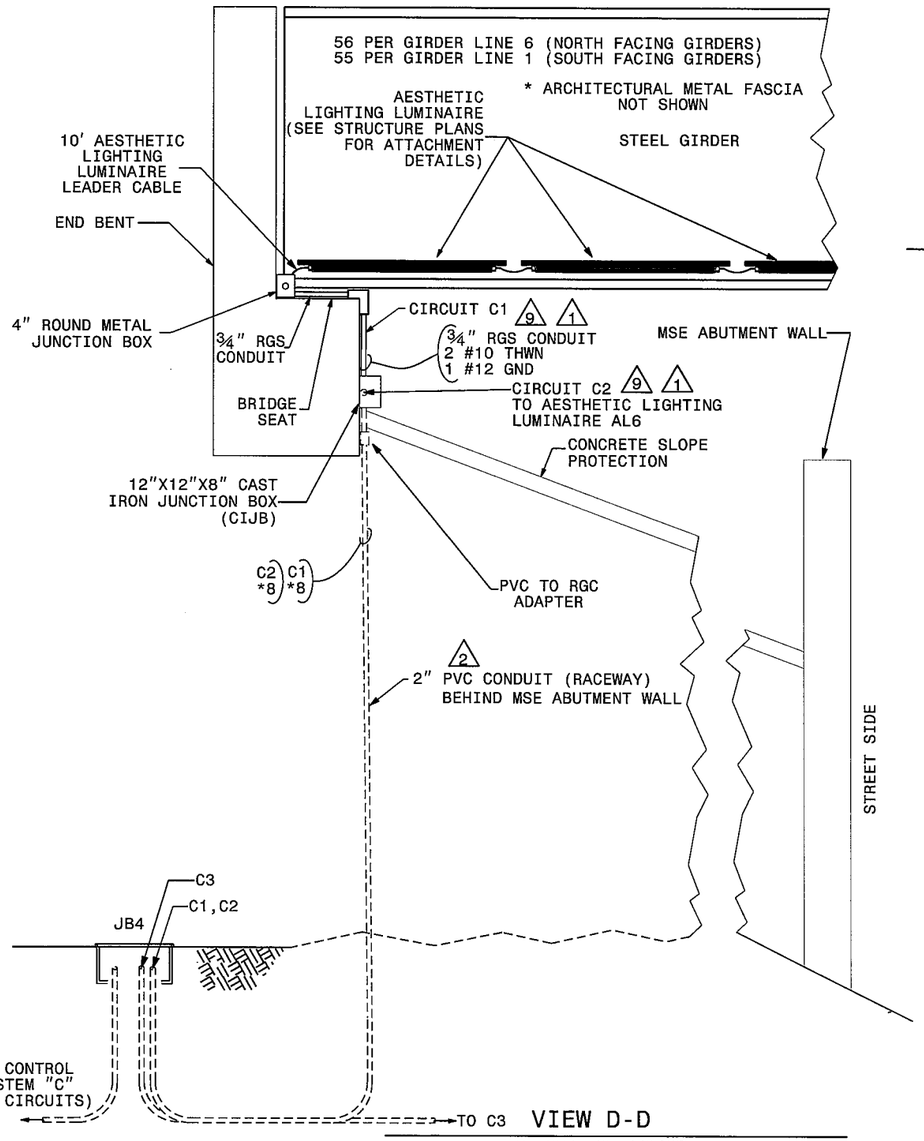
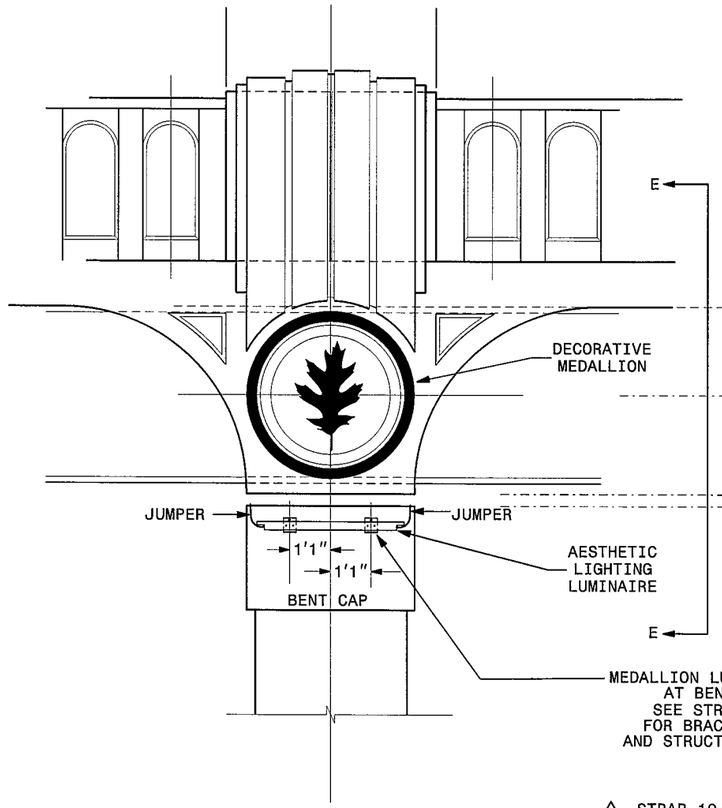
SEE SHEET "E8" FOR △ NOTES



VIEW D-D

EAST SIDE OF BRIDGE
MIRROR ON WEST SIDE OF BRIDGE



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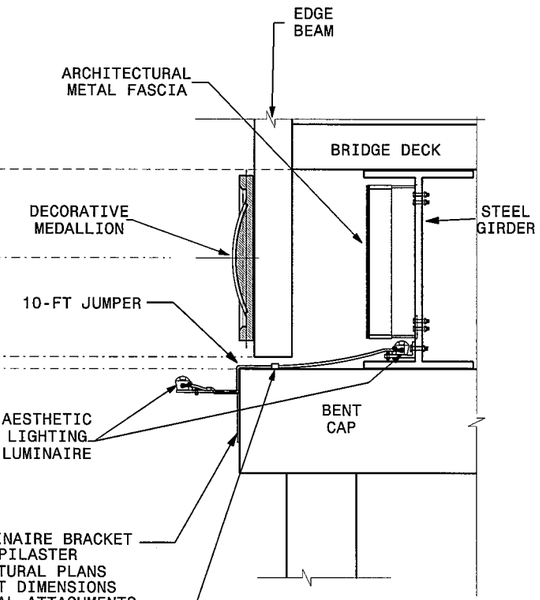

VIEW E-E 10

SIDE VIEW

Rev.	Date	Description	Approved
2			
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

LIGHTING DETAILS

REPLACE BRIDGE NO.213 OVER WADE AVENUE ON US 70/401 (CAPTIAL BOULEVARD)

WAKE COUNTY

Drawn By:	Approved By:	Dwg No.:
AB		

DRAWN BY : AB DATE :

CHECKED BY : PKC DATE :

03-JUN-2016 10:54
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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	L-1

SHEET TITLE: LANDSCAPE KEY PLAN

LANDSCAPE ARCHITECT

NORTH CAROLINA LANDSCAPE ARCHITECT REGISTERED 1625 BRANDON PHILLIP WHITE

6/2/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

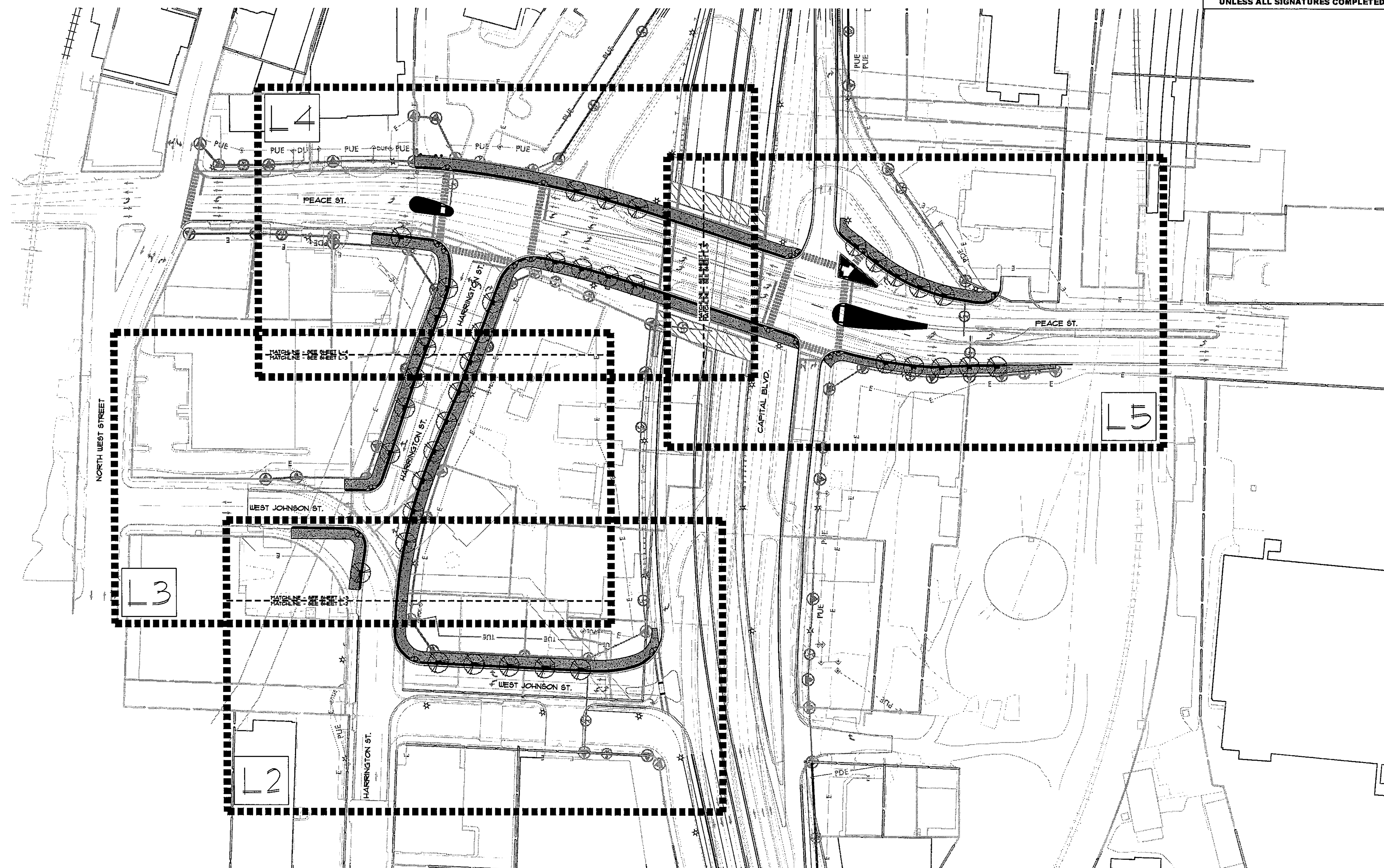
GRAPHIC SCALE IN FEET 0 30 60 120

NORTH

REVISIONS

5/14/99

06/02/2016



LEGEND

- CONCRETE SIDEWALK — SEE DETAIL 1 / LD-1
- CONCRETE PAVERS — SEE DETAIL 4 / LD-1 & DETAIL 6 / LD-2
- DETECTABLE WARNING PANEL — SEE DETAIL 5 / LD-2
- TREE GRATE — SEE DETAIL 6 / LD-1
- STREET LIGHT (BY OTHERS)
- ORNAMENTAL FENCE — SEE DETAIL 7 / LD-2

PLANT MATERIAL (PROVIDED BY OTHERS)

OVERALL PLANT SCHEDULE

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
	QUE GLF	39	Quercus lyrata 'QLFTB' P.P.#34710	Highbeam Overcup Oak	B&B	3.5"Cal	14'-16' HT.

PLANT SCHEDULE SHEET L1

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
	QUE GLF	5	Quercus lyrata 'QLFTB' P.P.#34710	Highbeam Overcup Oak	B&B	3.5"Cal	14'-16' HT.

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	L-2

SHEET TITLE: LANDSCAPE PLAN

LANDSCAPE ARCHITECT

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT — BRANDON P. WHITE — SEAL 1625 — 6/2/2016

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GRAPHIC SCALE IN FEET 0 10 20 40 — NORTH

REVISIONS 5/14/99

05/02/2015

MATCHLINE - SEE SHEET L-3
MATCHLINE - SEE SHEET L-2

WEST JOHNSON ST

HARRINGTON ST

CITY STANDARD CURB RAMP (TYP.)

CONCRETE SIDEWALK (1 / LD-1)

CONCRETE PAVERS (4 / LD-1)

TREE GRATE (6 / LD-1)

(5) QUE GLF

(3) SIDEWALK LAYOUT LD-1 PATTERN

DETECTABLE WARNING PANELS (5 / LD-2)

TIE TO STANDARD CONCRETE SIDEWALK (TYP.)

SEE ROADWAY PLANS FOR STANDARD NCDOT SIDEWALK

MONOLITHIC CONCRETE ISLAND, SEE ROADWAY PLANS

STREET LIGHT BY OTHERS (TYP.)

REVISIONS

5/14/99

LEGEND

CONCRETE SIDEWALK	SEE DETAIL 1 / LD-1	TREE GRATE	SEE DETAIL 6 / LD-1
CONCRETE PAVERS	SEE DETAIL 4 / LD-1 & DETAIL 6 / LD-2	STREET LIGHT	(BY OTHERS)
DETECTABLE WARNING PANEL	SEE DETAIL 5 / LD-2	ORNAMENTAL FENCE	SEE DETAIL 7 / LD-2

PLANT MATERIAL (PROVIDED BY OTHERS)

OVERALL PLANT SCHEDULE

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
	QUE QLF	39	Quercus lyrata 'QLFTB' P.P.#13470	Highbeam Overcup Oak	B&B	3.5"Cal	14'-16' HT.

PLANT SCHEDULE SHEET L2

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
	QUE QLF	11	Quercus lyrata 'QLFTB' P.P.#13470	Highbeam Overcup Oak	B&B	3.5"Cal	14'-16' HT.

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	L-3

SHEET TITLE: LANDSCAPE PLAN

LANDSCAPE ARCHITECT

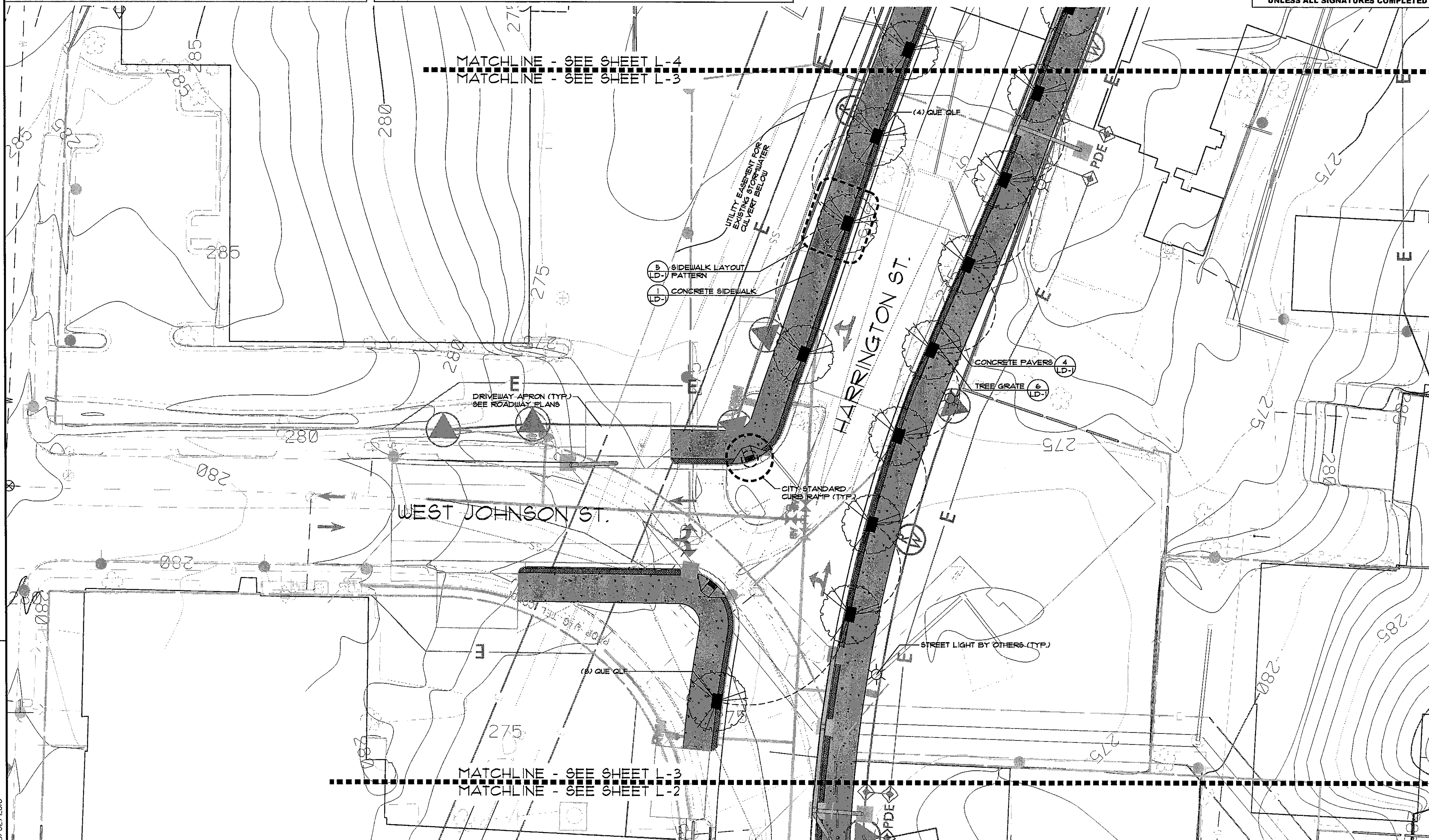
NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1625 BRANDON PHILLIP WHITE

6/2/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALE IN FEET
0 10 20 40

NORTH



06/02/2016

LEGEND

- CONCRETE SIDEWALK — SEE DETAIL 1 / LD-1
- CONCRETE PAVERS — SEE DETAIL 4 / LD-1 & DETAIL 6 / LD-2
- DETECTABLE WARNING PANEL — SEE DETAIL 5 / LD-2
- TREE GRATE — SEE DETAIL 6 / LD-1
- STREET LIGHT (BY OTHERS)
- ORNAMENTAL FENCE — SEE DETAIL 7 / LD-2

PLANT MATERIAL (PROVIDED BY OTHERS)

OVERALL PLANT SCHEDULE

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
	QUE QLF	39	Quercus lyrata 'QLFTB9' P.P.#34,740	Highbeam Overcup Oak	B&B	3.5"Cal	14'-16' HT.

PLANT SCHEDULE SHEET L3

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
	QUE QLF	13	Quercus lyrata 'QLFTB9' P.P.#34,740	Highbeam Overcup Oak	B&B	3.5"Cal	14'-16' HT.

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	L-4

SHEET TITLE: LANDSCAPE PLAN

LANDSCAPE ARCHITECT

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1625 BRANDON PHILLIP WHITE
6/2/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALE IN FEET 0 10 20 40

NORTH

REVISIONS 5/14/99

05/02/2016

PEACE ST.

HARRINGTON ST.

ORNAMENTAL FENCE (7 / LD-2)

CONCRETE PAVERS

DETECTABLE WARNING PANEL (5 / LD-2)

CITY STANDARD CURB RAMP (TYP.)

(3) QUE QLF

DRIVEWAY APRON (TYP.) SEE ROADWAY PLANS

(4) QUE QLF

CONCRETE SIDEWALK (1 / LD-1)

SIDEWALK LAYOUT PATTERN (5 / LD-1)

UTILITY EASEMENT FOR EXISTING STORMWATER CULVERT BELOW

STREET LIGHT BY OTHERS (TYP.)

CONCRETE PAVERS (4 / LD-1)

TREE GRATE (6 / LD-1)

(2) QUE QLF

LIMITS OF STREETSCAPE IMPROVEMENTS BENEATH CAPITAL BLVD. BRIDGE

MATCHLINE - SEE SHEET L-4
MATCHLINE - SEE SHEET L-3

MATCHLINE - SEE SHEET L-4
MATCHLINE - SEE SHEET L-3

5/14/09

REVISIONS

LEGEND

- CONCRETE SIDEWALK — SEE DETAIL 1 / LD-1
- TREE GRATE — SEE DETAIL 6 / LD-1
- CONCRETE PAVERS — SEE DETAIL 4 / LD-1 & DETAIL 6 / LD-2
- STREET LIGHT (BY OTHERS)
- DETECTABLE WARNING PANEL — SEE DETAIL 5 / LD-2
- ORNAMENTAL FENCE — SEE DETAIL 7 / LD-2

PLANT MATERIAL (PROVIDED BY OTHERS)

OVERALL PLANT SCHEDULE

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
	QUE QLF	39	Quercus lyrata #QLFTB# P.P.#5470	Highbeam Overcup Oak	B+B	3.5"Cal	14#-16# HT.

PLANT SCHEDULE SHEET L4

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
	QUE QLF	10	Quercus lyrata #QLFTB# P.P.#5470	Highbeam Overcup Oak	B+B	3.5"Cal	14#-16# HT.

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GRAPHIC SCALE IN FEET
0 10 20 40

NORTH

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	L-5

SHEET TITLE: LANDSCAPE PLAN

LANDSCAPE ARCHITECT

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1625 BRANDON PHILLIP WHITE

DocuSigned by: Brandon P. White 05CEFD7CBAA14F4...

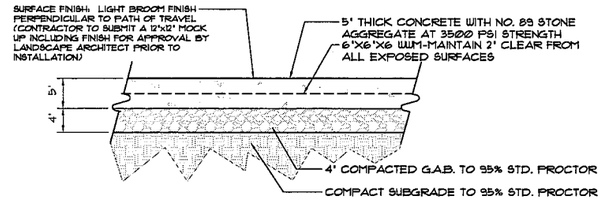
6/2/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

06/02/2016

5/14/09

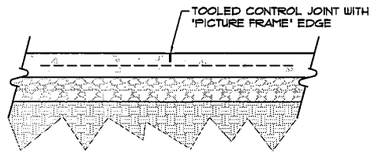
REVISIONS



1 / LD-1 CONCRETE SIDEWALK
SCALE: 1"=1'-0" SECTION

CONCRETE SIDEWALK NOTE:
SEE DETAIL 1, LD-1 FOR SIMILAR CONSTRUCTION

CONTROL JOINT NOTE:
SEE HARDSCAPE PLANS FOR LOCATIONS AND PATTERN SHALL BE (CAPITAL CITY GRID) PER DETAIL 5, LD-1.



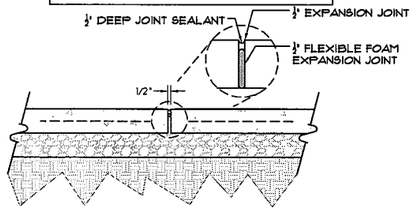
2 / LD-1 CONCRETE SIDEWALK CONTROL JOINT
SCALE: 1"=1'-0" SECTION

CONCRETE FLATWORK NOTE:
SEE DETAIL 1, LD-1 FOR SIMILAR CONSTRUCTION

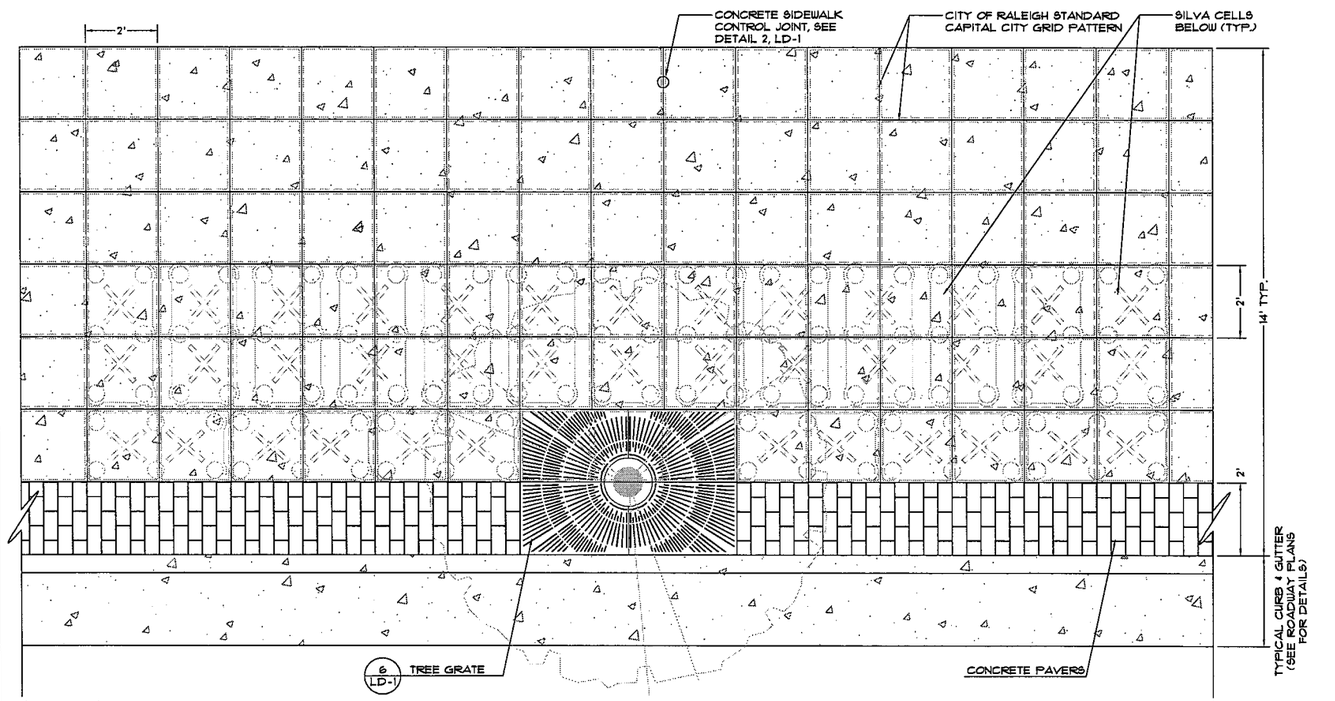
EXPANSION JOINT NOTE:
SEE HARDSCAPE PLANS FOR LOCATIONS AND PATTERN, MAX. 30' O.C

EXPANSION JOINT MATERIAL NOTE:
MANUFACTURER: W.R. MEADOWS
PRODUCT: 'SNAP-CAP' EXPANSION JOINT CAP (½" WIDE X ½" DEEP)
PRODUCT: CERAMAR

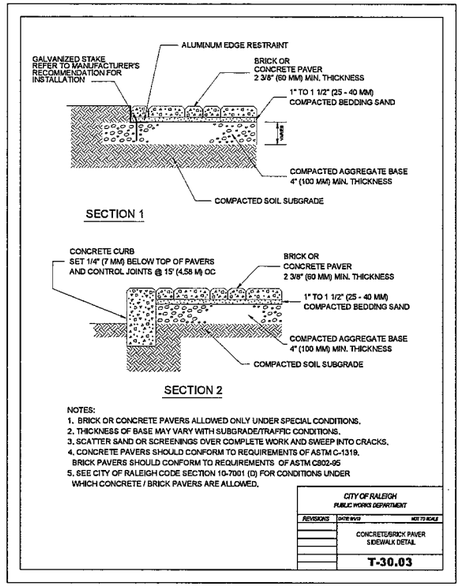
EXPANSION JOINT SEALANT NOTE:
MANUFACTURER: SIKA
PRODUCT: SIKAFLEX-1C SL
COLOR: 'LIMESTONE' (STANDARD)



3 / LD-1 CONCRETE SIDEWALK EXPANSION JOINT
SCALE: 1"=1'-0" SECTION



5 / LD-1 SIDEWALK LAYOUT PATTERN (CAPITAL CITY GRID)
SCALE: ½"=1'-0" PLAN

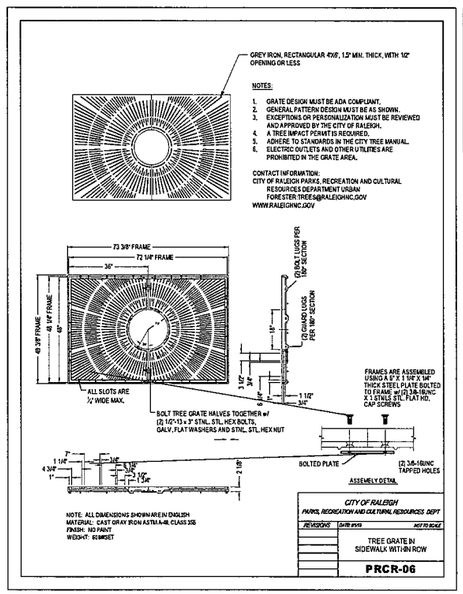


NOTES:
1. BRICK OR CONCRETE PAVERS ALLOWED ONLY UNDER SPECIAL CONDITIONS.
2. THICKNESS OF BASE MAY VARY WITH SUBGRADE/TRAFFIC CONDITIONS.
3. SCATTER SAND OR SCREENINGS OVER COMPLETE WORK AND SWEEP INTO CRACKS.
4. CONCRETE PAVERS SHOULD CONFORM TO REQUIREMENTS OF ASTM C-1319. BRICK PAVERS SHOULD CONFORM TO REQUIREMENTS OF ASTM C902-05
5. SEE CITY OF RALEIGH CODE SECTION 10-7001 (D) FOR CONDITIONS UNDER WHICH CONCRETE / BRICK PAVERS ARE ALLOWED.

CITY OF RALEIGH
PUBLIC WORKS DEPARTMENT

REVISIONS	DATE MM/D	NOT TO SCALE
		CONCRETE/BRICK PAVER SIDEWALK DETAIL
		T-30.03

4 / LD-1 CONCRETE PAVERS-SIDEWALK
SCALE: NOT TO SCALE SECTION



NOTE: ALL DIMENSIONS SHOWN ARE IN ENGLISH
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
FINISH: NO PAINT
WEIGHT: 81 LBS/SET

CITY OF RALEIGH
PARKS, RECREATION AND CULTURAL RESOURCES DEPT

REVISIONS	DATE MM/D	NOT TO SCALE
		TREE GRATE IN SIDEWALK WITHIN ROW
		PRCR-06

PRODUCT INFORMATION:
MANUFACTURER: NEENAH FOUNDARY (OR APPROVED EQUAL)

PRODUCT: R-8815-1, 48"X12"X18" 6 OPENING, TYPE U FRAME

COLOR: NATURAL PATINA FINISH

NOTE: FRAME AND GRATE SHALL BE ADA COMPLIANT.

6 / LD-1 TREE GRATE
SCALE: NOT TO SCALE PLAN & SECTION

05/02/2016

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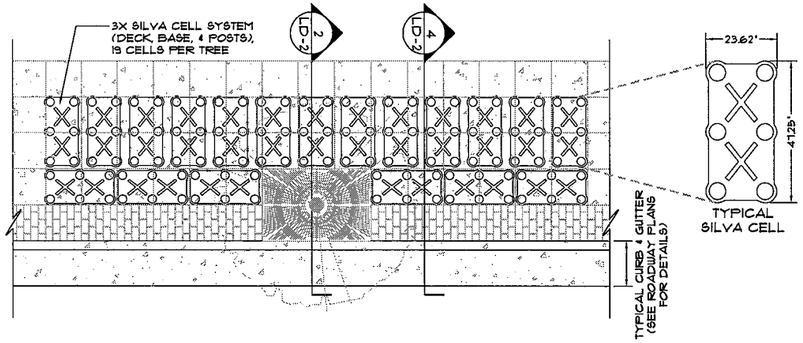
PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	LD-1
SHEET TITLE: LANDSCAPE DETAILS	
LANDSCAPE ARCHITECT	

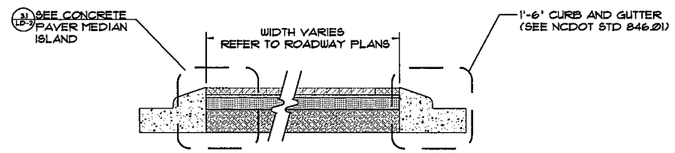
NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1625 BRANDON PHILLIP WHITE
6/2/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

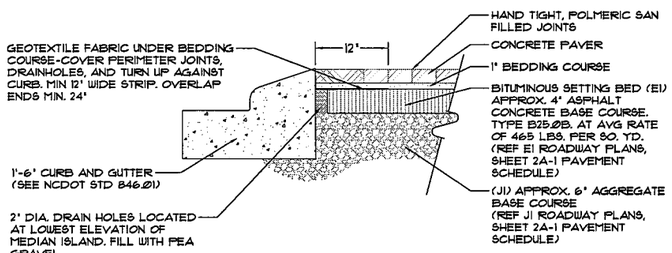
REVISIONS
5/14/99



1 LD-2 TREE PIT - SILVA CELL LAYOUT
SCALE: 1/4"=1'-0" PLAN

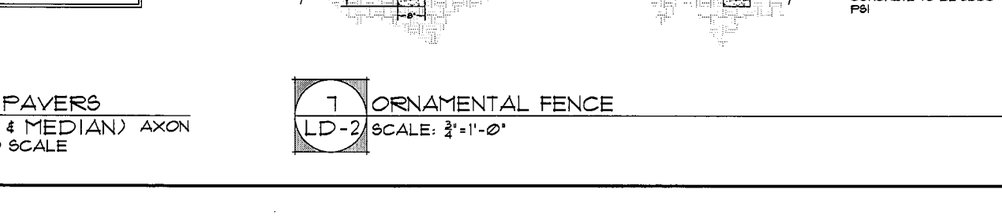


3 LD-2 CONCRETE PAVER MEDIAN ISLAND - MOUNTABLE CURB
SCALE: 1/2"=1'-0" SECTION

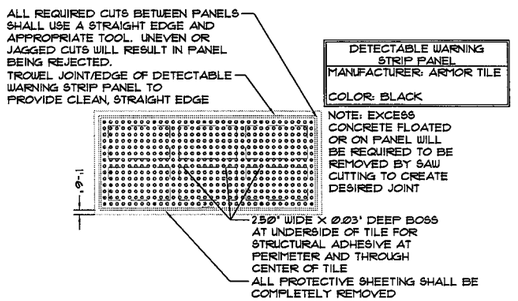


3.1 LD2 CONCRETE PAVER MEDIAN ISLAND
SCALE:1"=1'-0" SECTION

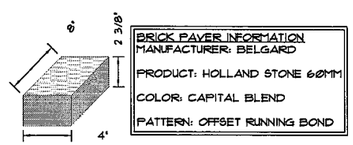
2 LD-2 TREE PIT SILVA CELLS AT TREE GRATE
SCALE: 1/2" = 1'-0" SECTION



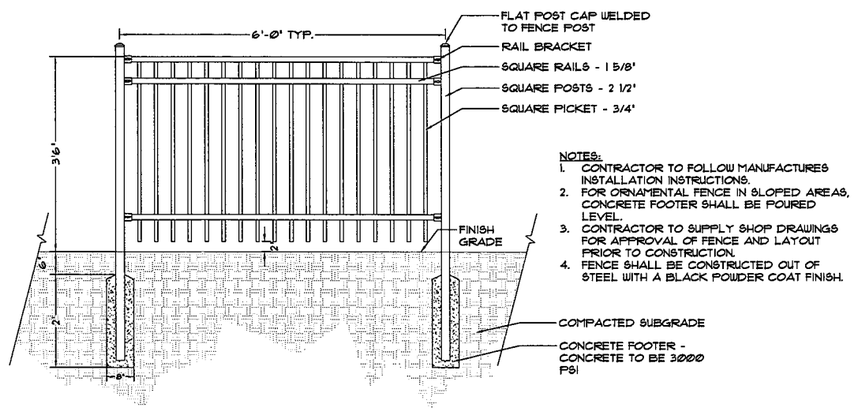
4 LD-2 TREE PIT - SILVA CELLS BEYOND TREE GRATE
SCALE: 1/2" = 1'-0" SECTION



5 LD-2 DETECTABLE WARNING PANEL
SCALE: NOT TO SCALE PLAN



6 LD-2 CONCRETE PAVERS (SIDEWALK & MEDIAN) AXON
SCALE: NOT TO SCALE



7 LD-2 ORNAMENTAL FENCE
SCALE: 3/4"=1'-0" SECTION

06/02/2016

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	LD-2

SHEET TITLE: LANDSCAPE DETAILS

LANDSCAPE ARCHITECT
NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT
BRANDON PHILLIP WHITE
SEAL 1625
6/2/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

T.I.P. NO.	SHEET NO.
B-5121 / B-5317	UC-1

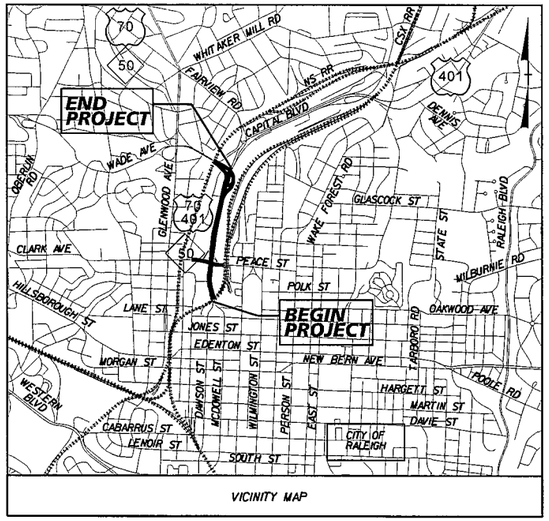
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
WAKE COUNTY

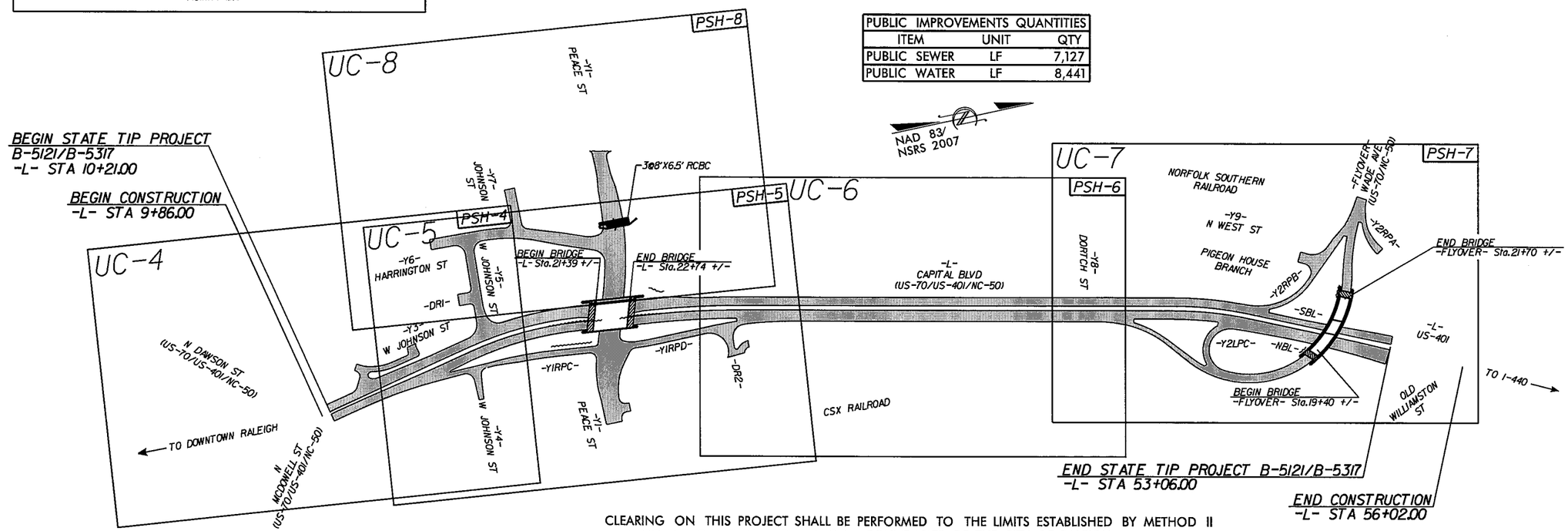
LOCATION: BRIDGE NO. 227 ON US-70/US-401/NC-50 (CAPITAL BLVD.) OVER PEACE ST. AND BRIDGE NO. 213 ON US-70/NC-50 (WADE AVE.) OVER US 401 (CAPITAL BLVD.)

TYPE OF WORK: UTILITY RELOCATIONS

CONTRACT: TIP PROJECT: B-5121 / B-5317



PUBLIC IMPROVEMENTS QUANTITIES		
ITEM	UNIT	QTY
PUBLIC SEWER	LF	7,127
PUBLIC WATER	LF	8,441



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF RALEIGH

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 5 2.5 0 5 10

INDEX OF SHEETS

WATER AND SEWER OWNERS ON PROJECT

(1) WATER: CITY OF RALEIGH
(2) SEWER: CITY OF RALEIGH

PLANS PREPARED FOR THE NCDOT BY:

Kimley»Horn ©2016
NC LICENSE #F-0102
P.O. BOX 33068
RALEIGH, NORTH CAROLINA 27636
PHONE: (919) 677-2000

Jeremy A. Rivenbark, P.E. UTILITIES PROJECT ENGINEER
Daniel G. Bula, EIT UTILITIES PROJECT DESIGNER

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER JEREMY A. RIVENBARK
Jeremy Rivenbark
6/6/2016

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING

1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
James S. McKee, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Jamshid Hafshejani UTILITIES PROJECT DESIGNER

K:\RAL_Roadway\Oll0362256 - Capital Boulevard\Utilities\Engineering\UC\Proj\B5121_B5317_ut_lsh_uc01_pshdgn
6/6/2016

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2012.

2. THE CITY OF RALEIGH OWN AND OPERATE THE EXISTING WATER AND SEWER UTILITIES.

3. ALL WATER LINES ARE TO BE INSTALLED IN COMPLIANCE WITH THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES ARE TO BE INSTALLED IN COMPLIANCE WITH THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. THE CONTRACTOR SHALL PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPROTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

7. THE DRAWINGS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITONAL COST TO THE DEPARTMENT.

8. PRIOR TO PLACEMENT OF PROPOSED SANITARY GRAVITY SEWER THE CONTRACTOR SHALL LOCATE ALL EXISTING SEWER SERVICE LATERALS (DEPTH AND PIPE DIAMETER) AND NOTIFY THE RESIDENT ENGINEER IF THERE ARE COMPLICATIONS WITH CONNECTING TO THE PROPOSED SANITARY GRAVITY SEWER. THE CONTRACTOR'S COST FOR ALL WORK ASSOCIATED WITH SEWER SERVICES, IS INCIDENTAL TO SEWER SERVICE PAYMENT ITEM.

9. PRIOR TO PLACEMENT OF PROPOSED WATERLINE THE CONTRACTOR SHALL LOCATE ALL EXISTING WATER SERVICE LATERALS (DEPTH AND PIPE DIAMETER) AND NOTIFY THE RESIDENT ENGINEER IF THERE ARE COMPLICATIONS WITH CONNECTING TO THE PROPOSED WATERLINE. THE CONTRACTOR'S COST FOR ALL WORK ASSOCIATED WITH WATER SERVICES, IS INCIDENTAL TO WATER SERVICE PAYMENT ITEM.

10. THE CONTRACTOR SHALL COORDINATE (INCLUDING SEQUENCE) THE INSTALLATION OF WATER AND SEWER IMPROVEMENTS WITH OTHER WORK INCLUDING GRADING, RETAINING WALL PLACEMENT, BRIDGE WORK, ETC. TO AVOID DAMAGE TO THE UTILITIES.

11. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

12. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, "SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

13. THE CONTRACTOR SHALL REFER TO THE "UTILITIES BY OTHERS" PLANS FOR PROPOSED GAS, TELECOMMUNICATION, AND POWER UTILITY RELOCATIONS.

PROJECT SPECIFIC NOTES:

1. ALL PROPOSED WATER LINE 2" IN DIAMETER SHALL BE COPPER PIPE. ALL PROPOSED WATER LINE 4"-12" IN DIAMETER SHALL BE DI (DUCTILE IRON PUSH-ON) PC 350 PIPE, UNLESS SPECIFIED TO BE RESTRAINED JOINT PIPE AND/OR SPECIAL THICKNESS CLASS AS SHOWN ON THE PLAN/PROFILE. ALL PROPOSED WATER LINE 16" IN DIAMETER AND LARGER SHALL BE DI (DUCTILE IRON PUSH-ON) PC 250 PIPE, UNLESS SPECIFIED TO BE RESTRAINED JOINT PIPE AND/OR SPECIAL THICKNESS CLASS AS SHOWN ON THE PLAN/PROFILE.

2. ALL PROPOSED GRAVITY SEWER LINES 12" IN DIAMETER AND SMALLER SHALL BE PROTECTO 401 LINED DI (DUCTILE IRON PUSH-ON) PC 350 PIPE UNLESS OTHERWISE SPECIFIED. ALL PROPOSED GRAVITY SEWER LINES 16" IN DIAMETER AND GREATER SHALL BE PROTECTO 401 LINED DI (DUCTILE IRON PUSH-ON) PC 250 PIPE, UNLESS OTHERWISE SPECIFIED. ALL PROPOSED GRAVITY SEWER 30" IN DIAMETER AND GREATER SHALL BE FIBERGLASS REINFORCED PIPE STIFFNESS CLASS SN 72 INSTALLED IN ACCORDANCE WITH DETAIL 0222132 UNLESS OTHERWISE SPECIFIED.

3. ALL VALVES 16 INCHES AND SMALLER SHALL BE 250 PSI RESILIENT SEAT GATE VALVES. ALL VALVES LARGER THAN 16 INCHES SHALL BE CLASS 150B BUTTERFLY VALVES, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

4. ALL WATER METERS TO BE RELOCATED OR RECONNECTED ARE 5/8" DIAMETER SERVICES UNLESS OTHERWISE DENOTED ON THE PLANS.

5. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THE BORING AND JACKING DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.

6. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	UC-3

DESIGNED BY: DGB
DRAWN BY: JGB
CHECKED BY: JRP
APPROVED BY: JAR
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919)707-6690
FAX: (919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER JEREMY A. RAVENBARK 6/6/2016

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

CITY OF RALEIGH

All Construction must be in accordance with all Local, State, and Federal Rules and Regulations.

TRANSPORTATION SERVICES ______
PUBLIC UTILITIES ______
STORMWATER ______
PLANNING ______
FIRE ______
URBAN FORESTRY ______

PUBLIC
WATER DISTRIBUTION / EXTENSION SYSTEM

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC WATER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # ______
AUTHORIZATION TO CONSTRUCT ______
DATE ______

PUBLIC
SEWER COLLECTION / EXTENSION SYSTEM

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC SEWER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # ______
AUTHORIZATION TO CONSTRUCT ______

REVISIONS

K:\RAL_Roadway\011036256 - Capital Boulevard\Utilities\Engineering\UC\Proj\B5121_B5317_ut_notes_uc03.pshdgn

6/6/2016

PROJECT REFERENCE NO.	SHEET NO.
B-5121/ B-5317	UC-4

Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

DESIGNED BY: DGB
DRAWN BY: JGB
CHECKED BY: JRP
APPROVED BY: JAR
REVISED:

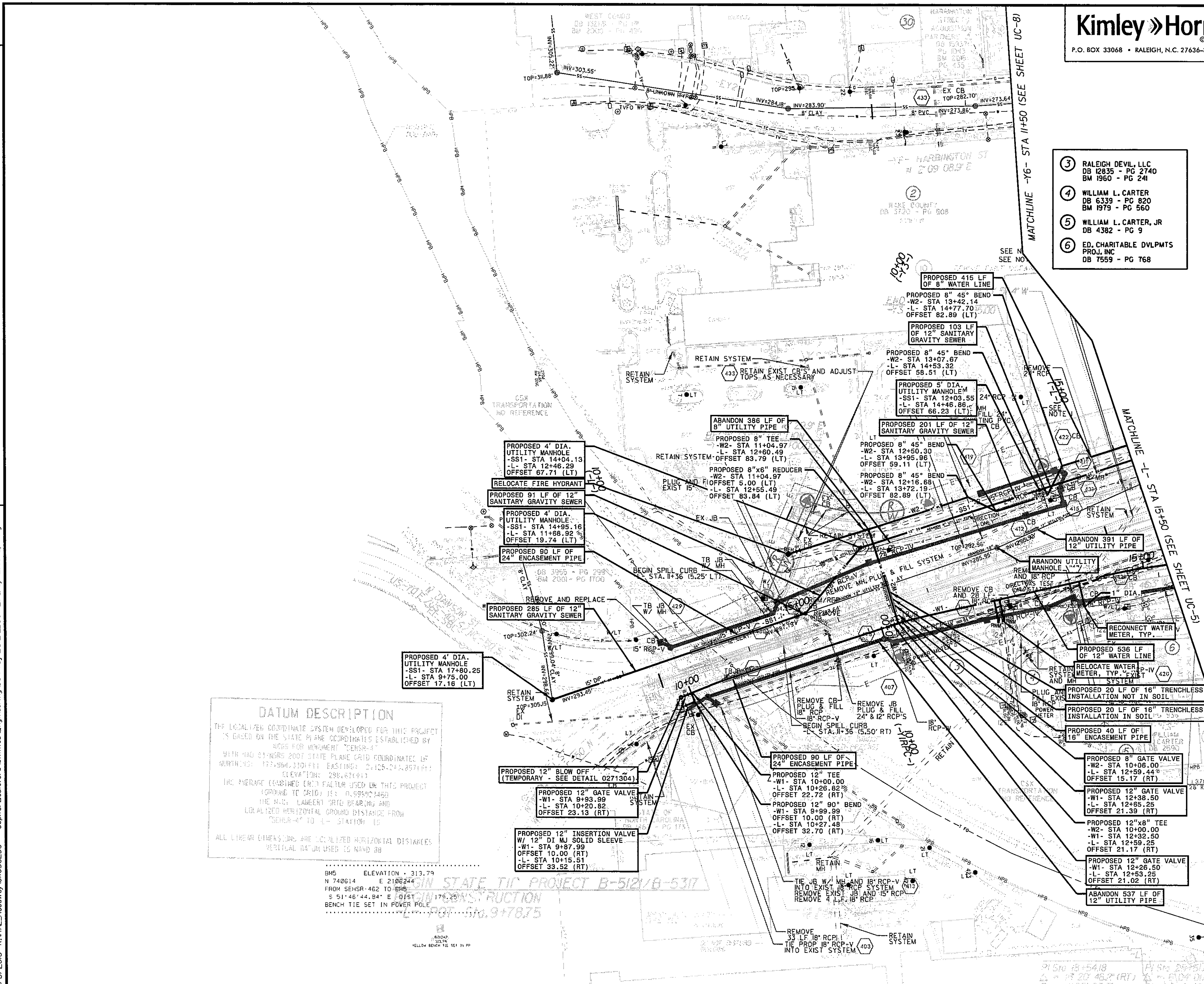
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030001
6/8/2016

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

REVISIONS



NAD 83/NSRS 2007
MATCHLINE -Y6- STA 11+50 (SEE SHEET UC-8)
MATCHLINE -L- STA 15+50 (SEE SHEET UC-5)
③ RALEIGH DEVIL, LLC DB 12835 - PG 2740 BM 1960 - PG 241
④ WILLIAM L. CARTER DB 6339 - PG 820 BM 1979 - PG 560
⑤ WILLIAM L. CARTER, JR DB 4382 - PG 9
⑥ ED. CHARITABLE DVLPMTS PROJ. INC DB 7559 - PG 768
PROPOSED 415 LF OF 8" WATER LINE
PROPOSED 8" 45° BEND -W2- STA 13+42.14 -L- STA 14+77.70 OFFSET 82.89 (LT)
PROPOSED 103 LF OF 12" SANITARY GRAVITY SEWER
PROPOSED 8" 45° BEND -W2- STA 13+07.67 -L- STA 14+53.32 OFFSET 58.51 (LT)
PROPOSED 5' DIA. UTILITY MANHOLE -SS1- STA 12+03.55 -L- STA 14+46.86 OFFSET 66.23 (LT)
PROPOSED 201 LF OF 12" SANITARY GRAVITY SEWER
PROPOSED 8" 45° BEND -W2- STA 12+50.30 -L- STA 13+95.96 OFFSET 59.11 (LT)
PROPOSED 8" 45° BEND -W2- STA 12+16.68 -L- STA 13+72.19 OFFSET 82.89 (LT)
ABANDON 386 LF OF 8" UTILITY PIPE
PROPOSED 8" TEE -W2- STA 11+04.97 -L- STA 12+60.49 OFFSET 83.79 (LT)
PROPOSED 8"x6" REDUCER -W2- STA 11+04.97 OFFSET 5.00 (LT) -L- STA 12+55.49 OFFSET 83.84 (LT)
RETAIN SYSTEM
RETAIN EXIST CB'S AND ADJUST TOPS AS NECESSARY
PROPOSED 4' DIA. UTILITY MANHOLE -SS1- STA 14+04.13 -L- STA 12+46.29 OFFSET 67.71 (LT)
RELOCATE FIRE HYDRANT
PROPOSED 91 LF OF 12" SANITARY GRAVITY SEWER
PROPOSED 4' DIA. UTILITY MANHOLE -SS1- STA 14+95.16 -L- STA 11+68.92 OFFSET 19.74 (LT)
PROPOSED 90 LF OF 24" ENCASEMENT PIPE
BEGIN SPILL CURB -L- STA. 11+36 (5.25' LT)
REMOVE MH, PLUG & FILL SYSTEM
REMOVE AND REPLACE
PROPOSED 285 LF OF 12" SANITARY GRAVITY SEWER
PROPOSED 4' DIA. UTILITY MANHOLE -SS1- STA 17+80.25 -L- STA 9+75.00 OFFSET 17.16 (LT)
ABANDON 391 LF OF 12" UTILITY PIPE
ABANDON UTILITY MANHOLE
RECONNECT WATER METER, TYP.
PROPOSED 536 LF OF 12" WATER LINE
RELOCATE WATER METER, TYP.
PROPOSED 20 LF OF 16" TRENCHLESS INSTALLATION NOT IN SOIL
PROPOSED 20 LF OF 16" TRENCHLESS INSTALLATION IN SOIL
PROPOSED 40 LF OF 16" ENCASEMENT PIPE
PROPOSED 8" GATE VALVE -W2- STA 10+06.00 -L- STA 12+59.44 OFFSET 15.17 (RT)
PROPOSED 12" GATE VALVE -W1- STA 12+38.50 -L- STA 12+65.25 OFFSET 21.39 (RT)
PROPOSED 12"x8" TEE -W2- STA 10+00.00 -W1- STA 12+32.50 -L- STA 12+59.25 OFFSET 21.17 (RT)
PROPOSED 12" GATE VALVE -W1- STA 12+26.50 -L- STA 12+53.25 OFFSET 21.02 (RT)
ABANDON 537 LF OF 12" UTILITY PIPE
REMOVE CB PLUG & FILL 18" RCP 18" RCP-V
REMOVE JB PLUG & FILL 24" & 12" RCP'S
BEGIN SPILL CURB -L- STA. 11+36 (5.50' RT)
PROPOSED 90 LF OF 24" ENCASEMENT PIPE
PROPOSED 12" TEE -W1- STA 10+00.00 -L- STA 10+26.82 OFFSET 22.72 (RT)
PROPOSED 12" 90° BEND -W1- STA 9+99.99 OFFSET 10.00 (RT) -L- STA 10+27.48 OFFSET 32.70 (RT)
PROPOSED 12" BLOW OFF (TEMPORARY - SEE DETAIL 0271304)
PROPOSED 12" GATE VALVE -W1- STA 9+93.99 -L- STA 10+20.82 OFFSET 23.13 (RT)
PROPOSED 12" INSERTION VALVE W/ 12" DI MJ SOLID SLEEVE -W1- STA 9+87.99 OFFSET 10.00 (RT) -L- STA 10+15.51 OFFSET 33.52 (RT)
TIE JB W/ MH AND 18" RCP-V AT INTO EXIST 18" RCP SYSTEM REMOVE EXIST JB AND 15" RCP REMOVE 4 LF 18" RCP
REMOVE 33 LF 18" RCP TIE PROP 18" RCP-V INTO EXIST SYSTEM
RETAIN SYSTEM
CSX TRANSPORTATION NO REFERENCE
DATUM DESCRIPTION
BM5 ELEVATION = 313.79 N 740614 E 2106244 FROM SEHSR-462 TO BM5 S 51°46'44.84" E DIST 176.25' BENCH TIE SET IN POWER POLE
BEGIN STATE TIP PROJECT B-5121/B-5317 BEGIN CONSTRUCTION -L- POT Sta. 9+78.75

QUANTITY TOTALS	
RELOCATE FIRE HYDRANT:	1
RELOCATE WATER METER:	2
RECONNECT WATER METER:	2
SANITARY SEWER CLEAN-OUT:	4

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

PUBLIC
WATER DISTRIBUTION / EXTENSION SYSTEM

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC WATER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # ____________
AUTHORIZATION TO CONSTRUCT ____________
DATE ____________

PUBLIC
SEWER COLLECTION / EXTENSION SYSTEM

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC SEWER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # ____________
AUTHORIZATION TO CONSTRUCT ____________
DATE ____________

INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL
CITY OF RALEIGH – PLANS AUTHORIZED FOR CONSTRUCTION

All Construction must be in accordance with all Local, State, and Federal Rules and Regulations.

TRANSPORTATION SERVICES ____________
PUBLIC UTILITIES ____________
STORMWATER ____________
PLANNING ____________
FIRE ____________
URBAN FORESTRY ____________

6/8/2016 K:\RAL_Roadway\011036256 - Capital Boulevard\Utilities\Engineering\UC\Proj\B5121_B5317_ut_rdy4_uc04_psh.dgn

REVISIONS

Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	UC-5

DESIGNED BY: DGB
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CHECKED BY: JRP
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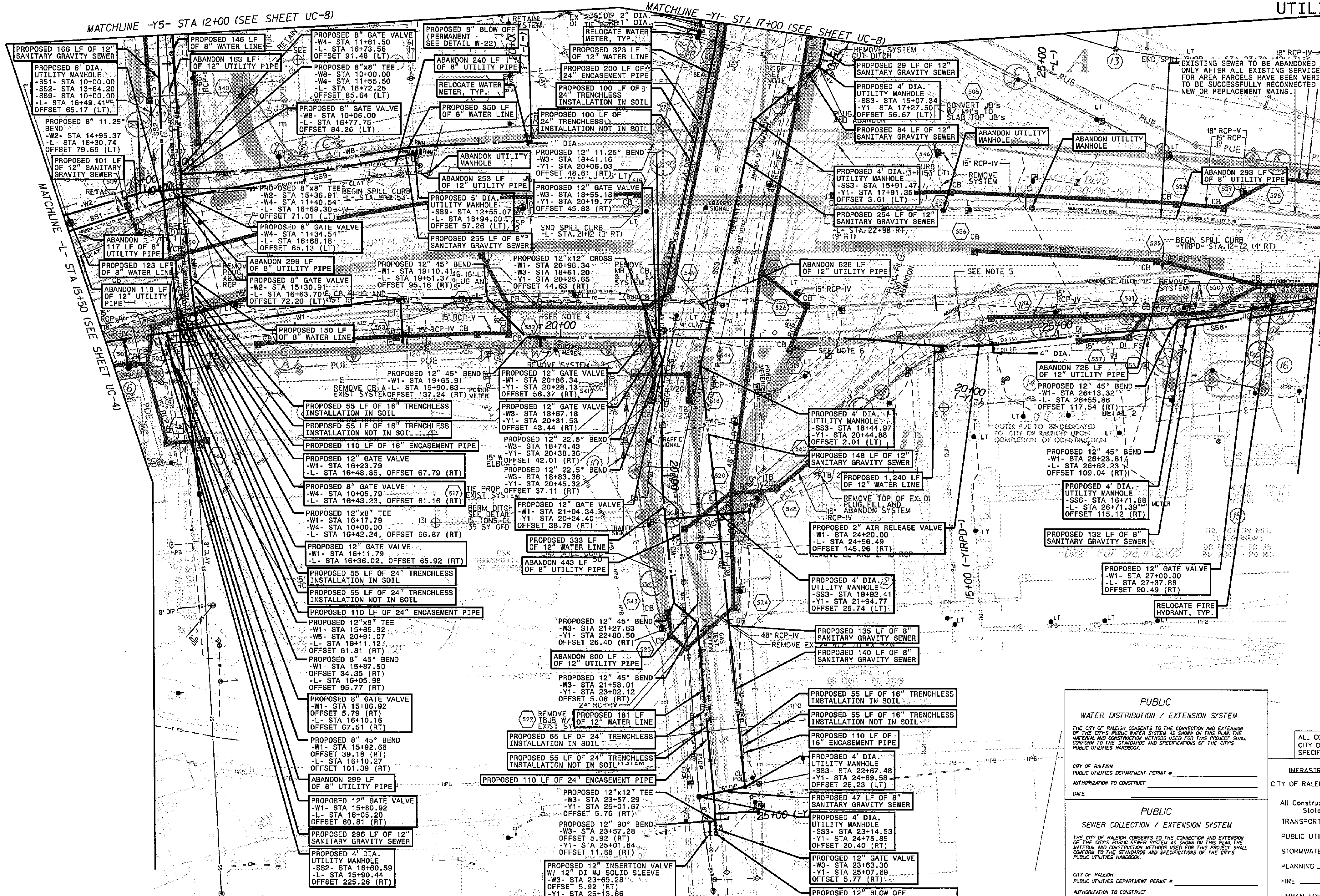
NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER
6/8/2016
UTILITY CONSTRUCTION PLANS ONLY

QUANTITY TOTALS

RELOCATE FIRE HYDRANT: 3
RELOCATE WATER METER: 12
SANITARY SEWER CLEAN-OUT: 15

NAD 83/NSRS 2007

UTILITY CONSTRUCTION



2	WAKE COUNTY DB 12835 - PG 2740 BM 1960 - PG 241
7	ARCHIE LINWOOD SUCCESSOR KING TRUSTEE DB 262 PG UNKNOWN
8	MCC OUTDOOR LLC DB 11239 - PG 2535
9	ARCHIE LINWOOD SUCCESSOR KING TRUSTEE DB 5369 - PG 541
10	MORRIS COMMUNICATIONS CORP DB 3521 - PG 669 DB 13727 - PG 2236
11	MARGIE MARIE FULLER DB 10559 - PG 1762
12	MCKNITT & ASSOCIATES LLC DB 8614 - PG 460 DB 2008 - PG 180
13	CITY OF RALEIGH DB 12531 - PG 472 BM 2007 - PG 117 BM 1959 - PG 116
14	STATE OF NORTH CAROLINA NO DEED REF BM 2008 - PG 180
16	622 CAPITAL LLC DB 14601 - DB 1647

PUBLIC

WATER DISTRIBUTION / EXTENSION SYSTEM

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CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT # ______
AUTHORIZATION TO CONSTRUCT ______
DATE ______

PUBLIC

SEWER COLLECTION / EXTENSION SYSTEM

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CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT # ______
AUTHORIZATION TO CONSTRUCT ______
DATE ______

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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TRANSPORTATION SERVICES ______
PUBLIC UTILITIES ______
STORMWATER ______
PLANNING ______
FIRE ______
URBAN FORESTRY ______

6/8/2016 K:\RAL_Roadway\011036256 - Capital Boulevard\Utilities\Engineering\UC\Pro\B5121_B5317_ut_rdy5_uc05.pshdgn

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	UC-6

Kimley»Horn
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NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER
6/8/2016

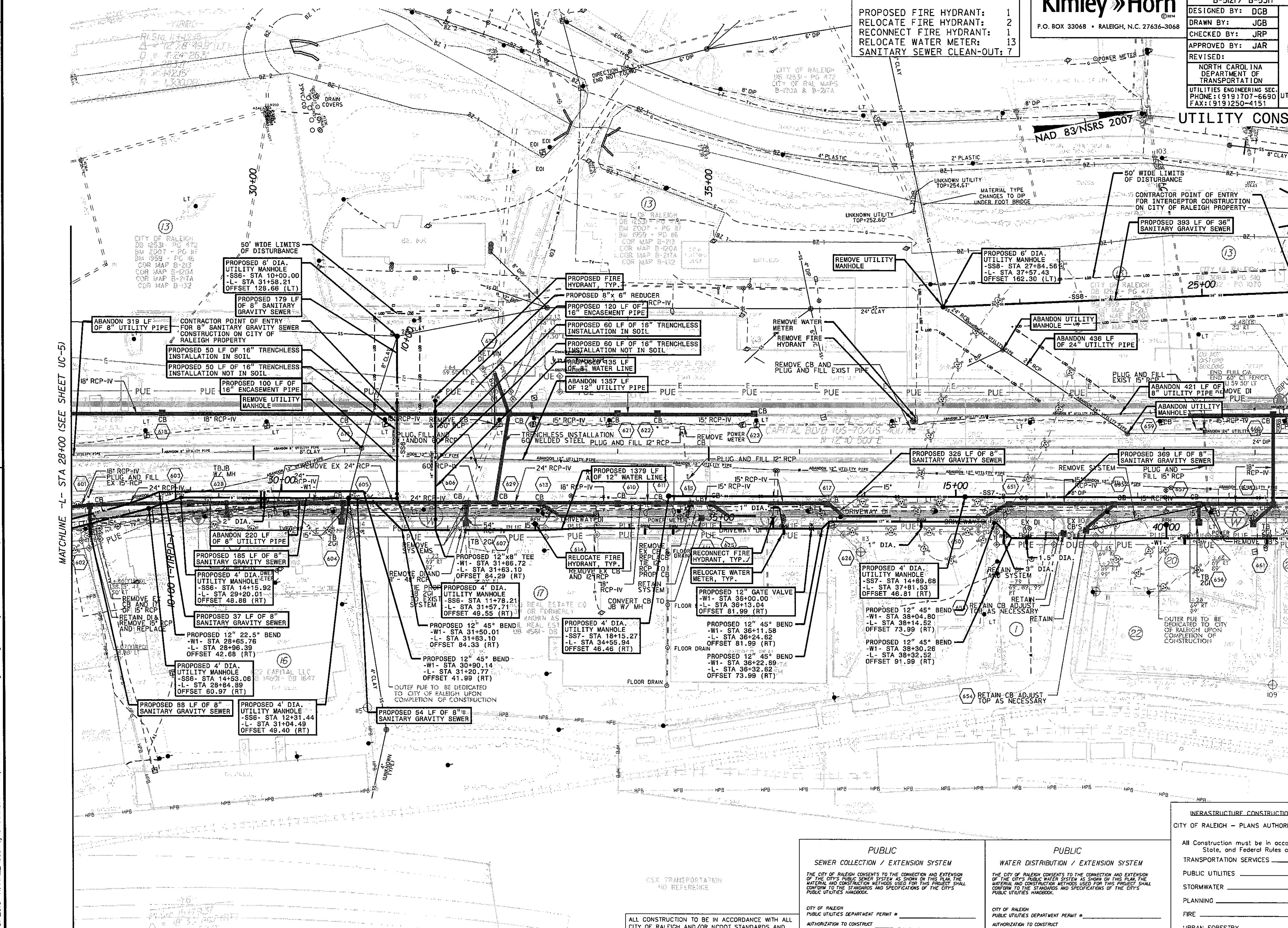
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

QUANTITY TOTALS

PROPOSED FIRE HYDRANT:	1
RELOCATE FIRE HYDRANT:	2
RECONNECT FIRE HYDRANT:	1
RELOCATE WATER METER:	13
SANITARY SEWER CLEAN-OUT:	7

REVISIONS



NAD 83/NSRS 2007
MATCHLINE -L- STA 28+00 (SEE SHEET UC-5)
MATCHLINE -L- STA 41+50 (SEE SHEET UC-7)
50' WIDE LIMITS OF DISTURBANCE
PROPOSED 6' DIA. UTILITY MANHOLE -SS6- STA 10+00.00 -L- STA 31+58.21 OFFSET 128.66 (LT)
PROPOSED 179 LF OF 8" SANITARY GRAVITY SEWER
ABANDON 319 LF OF 8" UTILITY PIPE
CONTRACTOR POINT OF ENTRY FOR 8" SANITARY GRAVITY SEWER CONSTRUCTION ON CITY OF RALEIGH PROPERTY
PROPOSED 50 LF OF 16" TRENCHLESS INSTALLATION IN SOIL
PROPOSED 50 LF OF 16" TRENCHLESS INSTALLATION NOT IN SOIL
PROPOSED 100 LF OF 16" ENCASEMENT PIPE
REMOVE UTILITY MANHOLE
PROPOSED FIRE HYDRANT, TYP.
PROPOSED 8"x 6" REDUCER
PROPOSED 120 LF OF 16" ENCASEMENT PIPE
PROPOSED 60 LF OF 16" TRENCHLESS INSTALLATION IN SOIL
PROPOSED 60 LF OF 16" TRENCHLESS INSTALLATION NOT IN SOIL
PROPOSED 135 LF OF 8" WATER LINE
ABANDON 1357 LF OF 12" UTILITY PIPE
TRENCHLESS INSTALLATION 60 WELDED STEEL
PROPOSED 1379 LF OF 12" WATER LINE
REMOVE WATER METER
REMOVE FIRE HYDRANT
REMOVE CB AND PLUG AND FILL EXIST PIPE
REMOVE UTILITY MANHOLE
PROPOSED 6' DIA. UTILITY MANHOLE -SS8- STA 27+84.56 -L- STA 37+57.43 OFFSET 162.30 (LT)
ABANDON UTILITY MANHOLE
ABANDON 436 LF OF 24" UTILITY PIPE
PLUG AND FILL EXIST 15" RCP
ABANDON 421 LF OF 8" UTILITY PIPE
ABANDON UTILITY MANHOLE
50' WIDE LIMITS OF DISTURBANCE
CONTRACTOR POINT OF ENTRY FOR INTERCEPTOR CONSTRUCTION ON CITY OF RALEIGH PROPERTY
PROPOSED 393 LF OF 36" SANITARY GRAVITY SEWER
UNKNOWN UTILITY TOP=254.67'
MATERIAL TYPE CHANGES TO DIP UNDER FOOT BRIDGE
UNKNOWN UTILITY TOP=252.60'
PROPOSED 326 LF OF 8" SANITARY GRAVITY SEWER
PROPOSED 369 LF OF 8" SANITARY GRAVITY SEWER
ABANDON 220 LF OF 8" UTILITY PIPE
PROPOSED 185 LF OF 8" SANITARY GRAVITY SEWER
PROPOSED 4' DIA. UTILITY MANHOLE -SS6- STA 14+15.92 -L- STA 29+20.01 OFFSET 48.88 (RT)
PROPOSED 37 LF OF 8" SANITARY GRAVITY SEWER
PROPOSED 12" 22.5° BEND -W1- STA 28+65.76 -L- STA 28+96.39 OFFSET 42.68 (RT)
PROPOSED 4' DIA. UTILITY MANHOLE -SS6- STA 14+53.06 -L- STA 28+84.89 OFFSET 60.97 (RT)
PROPOSED 88 LF OF 8" SANITARY GRAVITY SEWER
PROPOSED 4' DIA. UTILITY MANHOLE -SS6- STA 12+31.44 -L- STA 31+04.49 OFFSET 49.40 (RT)
PROPOSED 12"x8" TEE -W1- STA 31+86.72 -L- STA 31+63.10 OFFSET 84.29 (RT)
PROPOSED 4' DIA. UTILITY MANHOLE -SS6- STA 11+78.21 -L- STA 31+57.71 OFFSET 49.55 (RT)
PROPOSED 12" 45° BEND -W1- STA 31+50.01 -L- STA 31+63.10 OFFSET 84.33 (RT)
PROPOSED 12" 45° BEND -W1- STA 30+90.14 -L- STA 31+20.77 OFFSET 41.89 (RT)
PROPOSED 54 LF OF 8" SANITARY GRAVITY SEWER
OUTER PUE TO BE DEDICATED TO CITY OF RALEIGH UPON COMPLETION OF CONSTRUCTION
RELOCATE FIRE HYDRANT, TYP.
RECONNECT FIRE HYDRANT, TYP.
RELOCATE WATER METER, TYP.
PROPOSED 4' DIA. UTILITY MANHOLE -SS7- STA 18+15.27 -L- STA 34+55.94 OFFSET 46.46 (RT)
PROPOSED 12" GATE VALVE -W1- STA 36+00.00 -L- STA 36+13.04 OFFSET 81.99 (RT)
PROPOSED 12" 45° BEND -W1- STA 36+11.58 -L- STA 36+24.62 OFFSET 81.99 (RT)
PROPOSED 12" 45° BEND -W1- STA 36+22.89 -L- STA 36+32.62 OFFSET 73.99 (RT)
PROPOSED 4' DIA. UTILITY MANHOLE -SS7- STA 14+89.68 -L- STA 37+81.53 OFFSET 46.81 (RT)
PROPOSED 12" 45° BEND -W1- STA 38+04.80 -L- STA 38+14.52 OFFSET 73.99 (RT)
PROPOSED 12" 45° BEND -W1- STA 38+30.26 -L- STA 38+32.52 OFFSET 91.99 (RT)
RETAIN CB ADJUST TOP AS NECESSARY
OUTER PUE TO BE DEDICATED TO CITY OF RALEIGH UPON COMPLETION OF CONSTRUCTION
CAPITAL BLVD (US 70/US 401)
CSX TRANSPORTATION NO REFERENCE

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

PUBLIC
SEWER COLLECTION / EXTENSION SYSTEM

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CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # ____
AUTHORIZATION TO CONSTRUCT ____
DATE ____

PUBLIC
WATER DISTRIBUTION / EXTENSION SYSTEM

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC WATER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # ____
AUTHORIZATION TO CONSTRUCT ____
DATE ____

INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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TRANSPORTATION SERVICES ____
PUBLIC UTILITIES ____
STORMWATER ____
PLANNING ____
FIRE ____
URBAN FORESTRY ____

6/8/2016 K:\RAL_Roadway\011036256 - Capital Boulevard\Utilities\Engineering\UC\Proj\B5121_B5317_ut_rdy6_uc06.pshdgn

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 10 FOR -L- PROFILE
SEE SHEET 11 FOR -SBL- AND -NBL- PROFILES
SEE SHEET 13 FOR -FLYOVER- AND -Y2RPA- PROFILES
SEE SHEET 14 FOR -Y2RPB- AND -Y2LPC- PROFILES
SEE SHEET 15 FOR -Y8- AND -Y9- PROFILES

26	LISTON E & SUSAN S MALPASS DB 7807 - PG 382 BM 2003 - PG 964	28	ISABEL HUFMEYER DB 7807 - PG 382 BM 2003 - PG 964
27	JOYNERS REAL ESTATE HOLDINGS V LLC DB 15087 - PG 2007 BM 1959 - PG 262	29	SUZANNE ABERNETHY WILLIAM R RUGGLES DB 13227 - PG 452 BM 1958 - PG 10

Kimley»Horn

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	UC-7

DESIGNED BY: DGB
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NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER
6/8/2016

UTILITY CONSTRUCTION PLANS ONLY

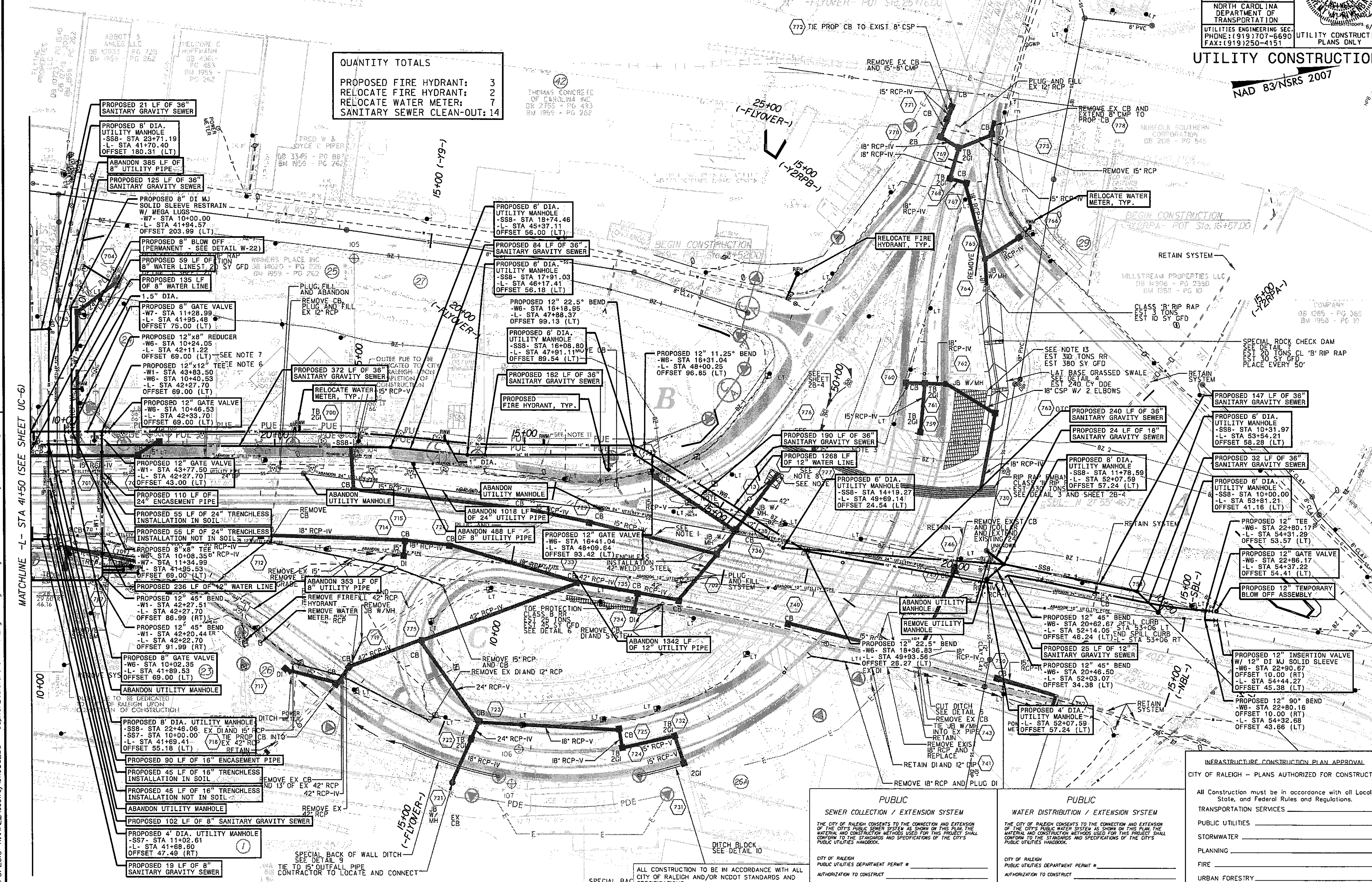
UTILITY CONSTRUCTION

NAD 83/NSRS 2007

REVISIONS

QUANTITY TOTALS

PROPOSED FIRE HYDRANT:	3
RELOCATE FIRE HYDRANT:	2
RELOCATE WATER METER:	7
SANITARY SEWER CLEAN-OUT:	14



MATCHLINE -L- STA 41+50 (SEE SHEET UC-6)
PROPOSED 21 LF OF 36" SANITARY GRAVITY SEWER
PROPOSED 8' DIA. UTILITY MANHOLE -SS8- STA 23+71.19 -L- STA 41+70.40 OFFSET 180.31 (LT)
ABANDON 385 LF OF 8" UTILITY PIPE
PROPOSED 125 LF OF 36" SANITARY GRAVITY SEWER
PROPOSED 8" DI MJ SOLID SLEEVE RESTRAIN W/ MEGA LUGS -W7- STA 10+00.00 -L- STA 41+94.57 OFFSET 203.99 (LT)
PROPOSED 8" BLOW OFF (PERMANENT - SEE DETAIL W-22)
PROPOSED 59 LF OF 8" WATER LINE
PROPOSED 135 LF OF 8" WATER LINE
1.5" DIA.
PROPOSED 8" GATE VALVE -W7- STA 11+28.99 -L- STA 41+95.48 OFFSET 75.00 (LT)
PROPOSED 12"x8" REDUCER -W6- STA 10+24.05 -L- STA 42+11.22 OFFSET 69.00 (LT)
PROPOSED 12"x12" TEE -W1- STA 43+83.50 -W6- STA 10+40.53 -L- STA 42+27.70 OFFSET 69.00 (LT)
PROPOSED 12" GATE VALVE -W6- STA 10+46.53 -L- STA 42+33.70 OFFSET 69.00 (LT)
PROPOSED 12" GATE VALVE -W1- STA 43+77.50 -L- STA 42+27.70 OFFSET 43.00 (LT)
PROPOSED 110 LF OF 24" ENCASEMENT PIPE
PROPOSED 55 LF OF 24" TRENCHLESS INSTALLATION IN SOIL
PROPOSED 55 LF OF 24" TRENCHLESS INSTALLATION NOT IN SOIL
PROPOSED 8"x8" TEE -W6- STA 10+08.35 -W7- STA 11+34.99 -L- STA 41+95.53 OFFSET 69.00 (LT)
PROPOSED 236 LF OF 12" WATER LINE
PROPOSED 12" 45° BEND -W1- STA 42+27.51 -L- STA 42+27.70 OFFSET 86.99 (RT)
PROPOSED 12" 45° BEND -W1- STA 42+20.44 -L- STA 42+22.70 OFFSET 91.99 (RT)
PROPOSED 8" GATE VALVE -W6- STA 10+02.35 -L- STA 41+89.53 OFFSET 69.00 (LT)
ABANDON UTILITY MANHOLE
PROPOSED 8' DIA. UTILITY MANHOLE -SS8- STA 22+46.06 -SS7- STA 10+00.00 -L- STA 41+69.41 OFFSET 55.18 (LT)
PROPOSED 90 LF OF 16" ENCASEMENT PIPE
PROPOSED 45 LF OF 16" TRENCHLESS INSTALLATION IN SOIL
PROPOSED 45 LF OF 16" TRENCHLESS INSTALLATION NOT IN SOIL
ABANDON UTILITY MANHOLE
PROPOSED 102 LF OF 8" SANITARY GRAVITY SEWER
PROPOSED 4' DIA. UTILITY MANHOLE -SS7- STA 11+02.61 -L- STA 41+68.60 OFFSET 47.49 (RT)
PROPOSED 19 LF OF 8" SANITARY GRAVITY SEWER
PROPOSED 6' DIA. UTILITY MANHOLE -SS8- STA 18+74.46 -L- STA 45+37.11 OFFSET 56.00 (LT)
PROPOSED 84 LF OF 36" SANITARY GRAVITY SEWER
PROPOSED 6' DIA. UTILITY MANHOLE -SS8- STA 17+91.03 -L- STA 46+17.41 OFFSET 56.18 (LT)
PROPOSED 12" 22.5° BEND -W6- STA 16+18.95 -L- STA 47+88.37 OFFSET 99.13 (RT)
PROPOSED 6' DIA. UTILITY MANHOLE -SS8- STA 16+08.80 -L- STA 47+91.11 OFFSET 89.54 (LT)
PROPOSED 182 LF OF 36" SANITARY GRAVITY SEWER
PROPOSED FIRE HYDRANT, TYP.
PROPOSED 372 LF OF 36" SANITARY GRAVITY SEWER
RELOCATE WATER METER, TYP.
PROPOSED 12" 11.25° BEND -W6- STA 16+31.04 -L- STA 48+00.25 OFFSET 96.85 (LT)
RELOCATE FIRE HYDRANT, TYP.
ABANDON UTILITY MANHOLE
ABANDON UTILITY MANHOLE
ABANDON 1018 LF OF 24" UTILITY PIPE
ABANDON 488 LF OF 8" UTILITY PIPE
PROPOSED 12" GATE VALVE -W6- STA 16+41.04 -L- STA 48+09.64 OFFSET 93.42 (LT)
ABANDON 353 LF OF 8" UTILITY PIPE
REMOVE FIRE HYDRANT
REMOVE WATER METER
ABANDON 1342 LF OF 12" UTILITY PIPE
PROPOSED 190 LF OF 36" SANITARY GRAVITY SEWER
PROPOSED 1268 LF OF 12" WATER LINE
PROPOSED 6' DIA. UTILITY MANHOLE -SS8- STA 14+19.27 -L- STA 49+69.14 OFFSET 24.54 (LT)
PROPOSED 12" 22.5° BEND -W6- STA 18+36.83 -L- STA 49+93.56 OFFSET 26.27 (LT)
ABANDON UTILITY MANHOLE
REMOVE UTILITY MANHOLE
PROPOSED 240 LF OF 36" SANITARY GRAVITY SEWER
PROPOSED 24 LF OF 18" SANITARY GRAVITY SEWER
PROPOSED 8' DIA. UTILITY MANHOLE -SS8- STA 11+78.59 -L- STA 52+07.59 OFFSET 57.24 (LT)
PROPOSED 12" 45° BEND -W6- STA 20+62.67 -L- STA 52+14.05 OFFSET 46.24 (LT)
PROPOSED 25 LF OF 12" SANITARY GRAVITY SEWER
PROPOSED 12" 45° BEND -W6- STA 20+46.50 -L- STA 52+03.07 OFFSET 34.38 (LT)
PROPOSED 4' DIA. UTILITY MANHOLE -L- STA 52+07.59 OFFSET 57.24 (LT)
PROPOSED 147 LF OF 36" SANITARY GRAVITY SEWER
PROPOSED 6' DIA. UTILITY MANHOLE -SS8- STA 10+31.97 -L- STA 53+54.21 OFFSET 58.28 (LT)
PROPOSED 32 LF OF 36" SANITARY GRAVITY SEWER
PROPOSED 6' DIA. UTILITY MANHOLE -SS8- STA 10+00.00 -L- STA 53+81.21 OFFSET 41.16 (LT)
PROPOSED 12" TEE -W6- STA 22+80.17 -L- STA 54+31.29 OFFSET 53.57 (LT)
PROPOSED 12" GATE VALVE -W6- STA 22+86.17 -L- STA 54+37.22 OFFSET 54.41 (LT)
PROPOSED 12" TEMPORARY BLOW OFF ASSEMBLY
PROPOSED 12" INSERTION VALVE W/ 12" DI MJ SOLID SLEEVE -W6- STA 22+90.67 OFFSET 10.00 (RT) -L- STA 54+44.27 OFFSET 45.38 (LT)
PROPOSED 12" 90° BEND -W6- STA 22+80.16 OFFSET 10.00 (RT) -L- STA 54+32.68 OFFSET 43.66 (LT)
RELOCATE WATER METER, TYP.
TIE PROP CB TO EXIST 8" CSP
REMOVE EX CB AND 15"-8" CMP
PLUG AND FILL EX 12" RCP
REMOVE EX CB AND EXTEND 8" CMP TO PROP CB
REMOVE 15" RCP
RETAIN SYSTEM
CLASS 'B' RIP RAP EST 3 TONS EST 10 SY GFD
SPECIAL ROCK CHECK DAM SEE DETAIL 7 EST 20 TONS CL 'B' RIP RAP EST 30 SY GFD PLACE EVERY 50'
SEE NOTE 13 EST 310 TONS RR EST 380 SY GFD
LAT BASE GRASSED SWALE SEE DETAIL 4 EST 240 CY DDE
18" CSP W/ 2 ELBOWS
BEGIN CONSTRUCTION -Y2RPA- POT Sta. 16+57.00
BEGIN CONSTRUCTION -Y2RPB- POT Sta. 14+52.00
25+00 (-FLYOVER-)
15+00 (-Y2RPB-)
15+00 (-Y2RPA-)
15+00 (-Y9-)
20+00 (-FLYOVER-)
15+00 (-FLYOVER-)
15+00 (-SBL-)
15+00 (-NBL-)
10+00
TOE PROTECTION CLASS B RR EST 25 TONS EST 25 SY GFD SEE DETAIL 6
REMOVE 15" RCP
REMOVE EX DI AND 12" RCP
CUT DITCH SEE DETAIL 5
REMOVE EX CB
TIE JB W/MH INTO EX PIPE
RETAIN
REMOVE EXIST 18" RCP AND REPLACE
RETAIN DI AND 12" DIP
REMOVE 18" RCP AND PLUG DI
SPECIAL BACK OF WALL DITCH SEE DETAIL 9
TIE TO 15" OUTFALL PIPE CONTRACTOR TO LOCATE AND CONNECT
DITCH BLOCK SEE DETAIL 10
THOMAS CONCRETE OF CAROLINA INC DB 2755 - PG 483 BM 1959 - PG 262
NORFOLK SOUTHERN CORPORATION
MILLSTREAM PROPERTIES LLC

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

PUBLIC SEWER COLLECTION / EXTENSION SYSTEM

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC SEWER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # ______
AUTHORIZATION TO CONSTRUCT ______
DATE ______

PUBLIC WATER DISTRIBUTION / EXTENSION SYSTEM

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC WATER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # ______
AUTHORIZATION TO CONSTRUCT ______
DATE ______

INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL

CITY OF RALEIGH – PLANS AUTHORIZED FOR CONSTRUCTION

All Construction must be in accordance with all Local, State, and Federal Rules and Regulations.

TRANSPORTATION SERVICES ______
PUBLIC UTILITIES ______
STORMWATER ______
PLANNING ______
FIRE ______
URBAN FORESTRY ______

6/8/2016 K:\RAL_Roadway\011036256 - Capital Boulevard\Utilities\Engineering\UC\Proj\B5121_B5317_ut_rdy7_uc07_psh.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	UC-8

Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

DESIGNED BY:	DGB
DRAWN BY:	JGB
CHECKED BY:	JRP
APPROVED BY:	JAR
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919)707-6690
FAX: (919)250-4151

UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER 6/8/2016

UTILITY CONSTRUCTION

REVISIONS

QUANTITY TOTALS

RELOCATE FIRE HYDRANT:	2
RELOCATE WATER METER:	11
SANITARY SEWER CLEAN-OUT:	10

(33) HESTER & HESTER DB 8181 - PG 1853 BM 1885 - PG 104

(34) MANN FAMILY PROPERTIES OF RALEIGH DB 11802 - PG 1658

(35) CHAUCER INVESTMENTS INC DB 13332 - PG 957 BM 1997 - PG 799

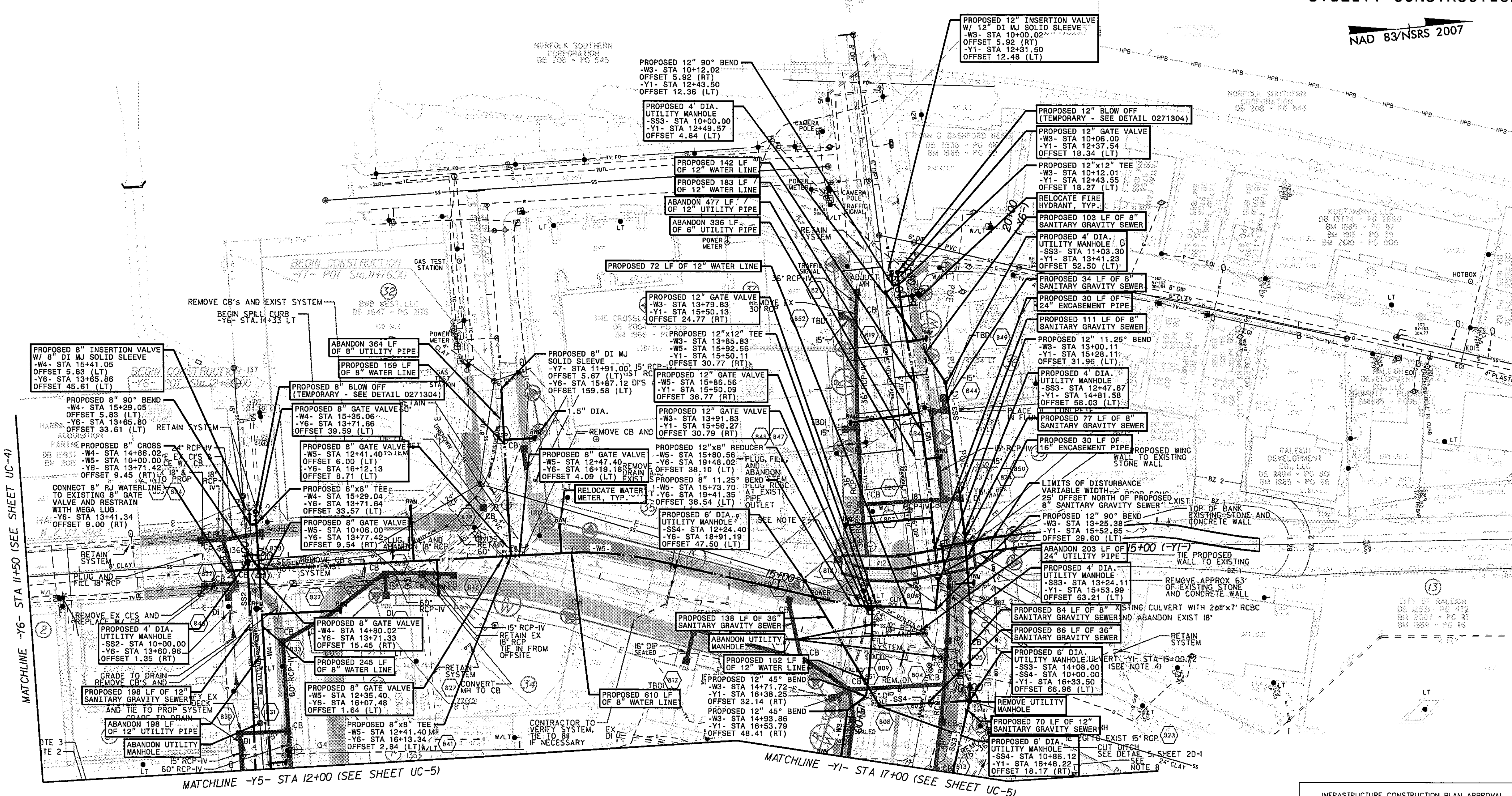
(36) EDWIN E FLYTHE, JR DB 3726 - PG 580 BM 1885 - PG 82 BM 1977 - PG 393

(37) RICHARD GARDNER DB 8613 - PG 2425

(38) MARGARET ALTMAN MANN DB 2989 - PG 318

(39) JAMES H ANDERSON CO DB 5940 - PG 289 BM 1993 - PG 1441

(41) ARCHIE LINWOOD KING SUCCESSOR TRUSTEE DB 5369 - PG 541 BM 1947 - PG 73



NAD 83/NSRS 2007
NORFOLK SOUTHERN CORPORATION DB 206 - PG 545
PROPOSED 12" INSERTION VALVE W/ 12" DI MJ SOLID SLEEVE -W3- STA 10+00.02 OFFSET 5.92 (RT) -Y1- STA 12+31.50 OFFSET 12.48 (LT)
PROPOSED 12" 90° BEND -W3- STA 10+12.02 OFFSET 5.92 (RT) -Y1- STA 12+43.50 OFFSET 12.36 (LT)
PROPOSED 4' DIA. UTILITY MANHOLE -SS3- STA 10+00.00 -Y1- STA 12+49.57 OFFSET 4.84 (LT)
PROPOSED 12" BLOW OFF (TEMPORARY - SEE DETAIL 0271304)
PROPOSED 12" GATE VALVE -W3- STA 10+06.00 -Y1- STA 12+37.54 OFFSET 18.34 (LT)
PROPOSED 12"x12" TEE -W3- STA 10+12.01 -Y1- STA 12+43.55 OFFSET 18.27 (LT)
RELOCATE FIRE HYDRANT, TYP.
PROPOSED 142 LF OF 12" WATER LINE
PROPOSED 183 LF OF 12" WATER LINE
ABANDON 477 LF OF 12" UTILITY PIPE
ABANDON 336 LF OF 6" UTILITY PIPE
PROPOSED 103 LF OF 8" SANITARY GRAVITY SEWER
PROPOSED 4' DIA. UTILITY MANHOLE -SS3- STA 11+03.30 -Y1- STA 13+41.23 OFFSET 52.50 (LT)
PROPOSED 72 LF OF 12" WATER LINE
PROPOSED 34 LF OF 8" SANITARY GRAVITY SEWER
PROPOSED 30 LF OF 24" ENCASEMENT PIPE
PROPOSED 111 LF OF 8" SANITARY GRAVITY SEWER
PROPOSED 12" 11.25° BEND -W3- STA 13+00.11 -Y1- STA 15+28.11 OFFSET 31.96 (LT)
PROPOSED 4' DIA. UTILITY MANHOLE -SS3- STA 12+47.87 -Y1- STA 14+81.58 OFFSET 58.03 (LT)
PROPOSED 77 LF OF 8" SANITARY GRAVITY SEWER
PROPOSED 30 LF OF 16" ENCASEMENT PIPE
PROPOSED WING WALL TO EXISTING STONE WALL
LIMITS OF DISTURBANCE VARIABLE WIDTH 25' OFFSET NORTH OF PROPOSED 8" SANITARY GRAVITY SEWER
PROPOSED 12" 90° BEND -W3- STA 13+25.38 -Y1- STA 15+52.65 OFFSET 29.60 (LT)
TOP OF BANK EXISTING STONE AND CONCRETE WALL
ABANDON 203 LF OF 24" UTILITY PIPE
TIE PROPOSED WALL TO EXISTING
PROPOSED 4' DIA. UTILITY MANHOLE -SS3- STA 13+24.11 -Y1- STA 15+53.99 OFFSET 63.21 (LT)
REMOVE APPROX 63' OF EXISTING STONE AND CONCRETE WALL
PROPOSED 84 LF OF 8" SANITARY GRAVITY SEWER
EXISTING CULVERT WITH 2@11'x7' RCBC AND ABANDON EXIST 18"
PROPOSED 86 LF OF 36" SANITARY GRAVITY SEWER
RETAIN SYSTEM
PROPOSED 6' DIA. UTILITY MANHOLE -SS3- STA 14+08.00 -SS4- STA 10+00.00 -Y1- STA 16+33.50 OFFSET 66.96 (LT)
REMOVE UTILITY MANHOLE
PROPOSED 70 LF OF 12" SANITARY GRAVITY SEWER
PROPOSED 6' DIA. UTILITY MANHOLE -SS4- STA 10+86.12 -Y1- STA 16+46.22 OFFSET 18.17 (RT)
CUT DITCH SEE DETAIL 5, SHEET 2D-1
BEGIN CONSTRUCTION -Y7- POT Sta. 11+76.00
GAS TEST STATION
REMOVE CB's AND EXIST SYSTEM
BEGIN SPILL CURB -Y6- STA 14+33 LT
PROPOSED 12" GATE VALVE -W3- STA 13+79.83 -Y1- STA 15+50.13 OFFSET 24.77 (RT)
PROPOSED 12"x12" TEE -W3- STA 13+85.83 -W5- STA 15+92.56 -Y1- STA 15+50.11 OFFSET 30.77 (RT)
PROPOSED 8" DI MJ SOLID SLEEVE -Y7- STA 11+91.00 OFFSET 5.67 (LT) -Y6- STA 15+87.12 OFFSET 159.58 (LT)
PROPOSED 12" GATE VALVE -W5- STA 15+86.56 -Y1- STA 15+50.09 OFFSET 36.77 (RT)
PROPOSED 12" GATE VALVE -W3- STA 13+91.83 -Y1- STA 15+56.27 OFFSET 30.79 (RT)
PROPOSED 12"x8" REDUCER -W5- STA 15+80.56 -Y6- STA 19+48.02 OFFSET 38.10 (LT)
PROPOSED 8" 11.25° BEND -W5- STA 15+73.70 -Y6- STA 19+41.35 OFFSET 36.54 (LT)
PROPOSED 8" GATE VALVE -W5- STA 12+47.40 -Y6- STA 16+19.18 OFFSET 4.09 (LT)
RELOCATE WATER METER, TYP.
PROPOSED 6' DIA. UTILITY MANHOLE -SS4- STA 12+24.40 -Y6- STA 18+91.19 OFFSET 47.50 (LT)
ABANDON 364 LF OF 8" UTILITY PIPE
PROPOSED 159 LF OF 8" WATER LINE
PROPOSED 8" INSERTION VALVE W/ 8" DI MJ SOLID SLEEVE -W4- STA 15+41.05 OFFSET 5.83 (LT) -Y6- STA 13+65.86 OFFSET 45.61 (LT)
PROPOSED 8" BLOW OFF (TEMPORARY - SEE DETAIL 0271304)
PROPOSED 8" 90° BEND -W4- STA 15+29.05 OFFSET 5.83 (LT) -Y6- STA 13+65.80 OFFSET 33.61 (LT)
PROPOSED 8" GATE VALVE -W4- STA 15+35.06 -Y6- STA 13+71.66 OFFSET 39.59 (LT)
PROPOSED 8" GATE VALVE -W5- STA 12+41.40 OFFSET 6.00 (LT) -Y6- STA 16+12.13 OFFSET 8.71 (LT)
PROPOSED 8" CROSS -W4- STA 14+86.02 -W5- STA 10+00.00 -Y6- STA 13+71.42 OFFSET 9.45 (RT)
PROPOSED 8"x8" TEE -W4- STA 15+29.04 -Y6- STA 13+71.64 OFFSET 33.57 (LT)
CONNECT 8" RJ WATERLINE TO EXISTING 8" GATE VALVE AND RESTRAIN WITH MEGA LUG -Y6- STA 13+41.34 OFFSET 9.00 (RT)
PROPOSED 8" GATE VALVE -W5- STA 10+06.00 -Y6- STA 13+77.42 OFFSET 9.54 (RT)
PROPOSED 4' DIA. UTILITY MANHOLE -SS2- STA 10+00.00 -Y6- STA 13+60.96 OFFSET 1.35 (RT)
PROPOSED 8" GATE VALVE -W4- STA 14+80.02 -Y6- STA 13+71.33 OFFSET 15.45 (RT)
PROPOSED 245 LF OF 8" WATER LINE
PROPOSED 198 LF OF 12" SANITARY GRAVITY SEWER
GRADE TO DRAIN REMOVE CB's AND REPLACE
ABANDON 198 LF OF 12" UTILITY PIPE
ABANDON UTILITY MANHOLE
PROPOSED 8" GATE VALVE -W5- STA 12+35.40 -Y6- STA 16+07.48 OFFSET 1.64 (LT)
PROPOSED 8"x8" TEE -W5- STA 12+41.40 -Y6- STA 16+13.34 OFFSET 2.84 (LT)
CONTRACTOR TO VERIFY SYSTEM, TIE TO 8B IF NECESSARY
PROPOSED 138 LF OF 36" SANITARY GRAVITY SEWER
ABANDON UTILITY MANHOLE
PROPOSED 152 LF OF 12" WATER LINE
PROPOSED 12" 45° BEND -W3- STA 14+71.72 -Y1- STA 16+38.25 OFFSET 32.14 (RT)
PROPOSED 12" 45° BEND -W3- STA 14+93.86 -Y1- STA 16+53.79 OFFSET 48.41 (RT)
PROPOSED 610 LF OF 8" WATER LINE
RETAIN EX 18" RCP TIE IN FROM OFFSITE
CONVERT MH TO CB
MATCHLINE -Y6- STA 11+50 (SEE SHEET UC-4)
MATCHLINE -Y5- STA 12+00 (SEE SHEET UC-5)
MATCHLINE -Y1- STA 17+00 (SEE SHEET UC-5)
RALEIGH DEVELOPMENT CO., LLC DB 8494 - PG 801 BM 1885 - PG 96
CITY OF RALEIGH

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

PUBLIC
SEWER COLLECTION / EXTENSION SYSTEM

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CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # ____
AUTHORIZATION TO CONSTRUCT ____
DATE ____

PUBLIC
WATER DISTRIBUTION / EXTENSION SYSTEM

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CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # ____
AUTHORIZATION TO CONSTRUCT ____
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INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL
CITY OF RALEIGH – PLANS AUTHORIZED FOR CONSTRUCTION

All Construction must be in accordance with all Local, State, and Federal Rules and Regulations.

TRANSPORTATION SERVICES ____
PUBLIC UTILITIES ____
STORMWATER ____
PLANNING ____
FIRE ____
URBAN FORESTRY ____

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Kimley»Horn

P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
B-5121/ B-5317	UC-9

DESIGNED BY:	DGB
DRAWN BY:	JGB
CHECKED BY:	JRP
APPROVED BY:	JAR
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

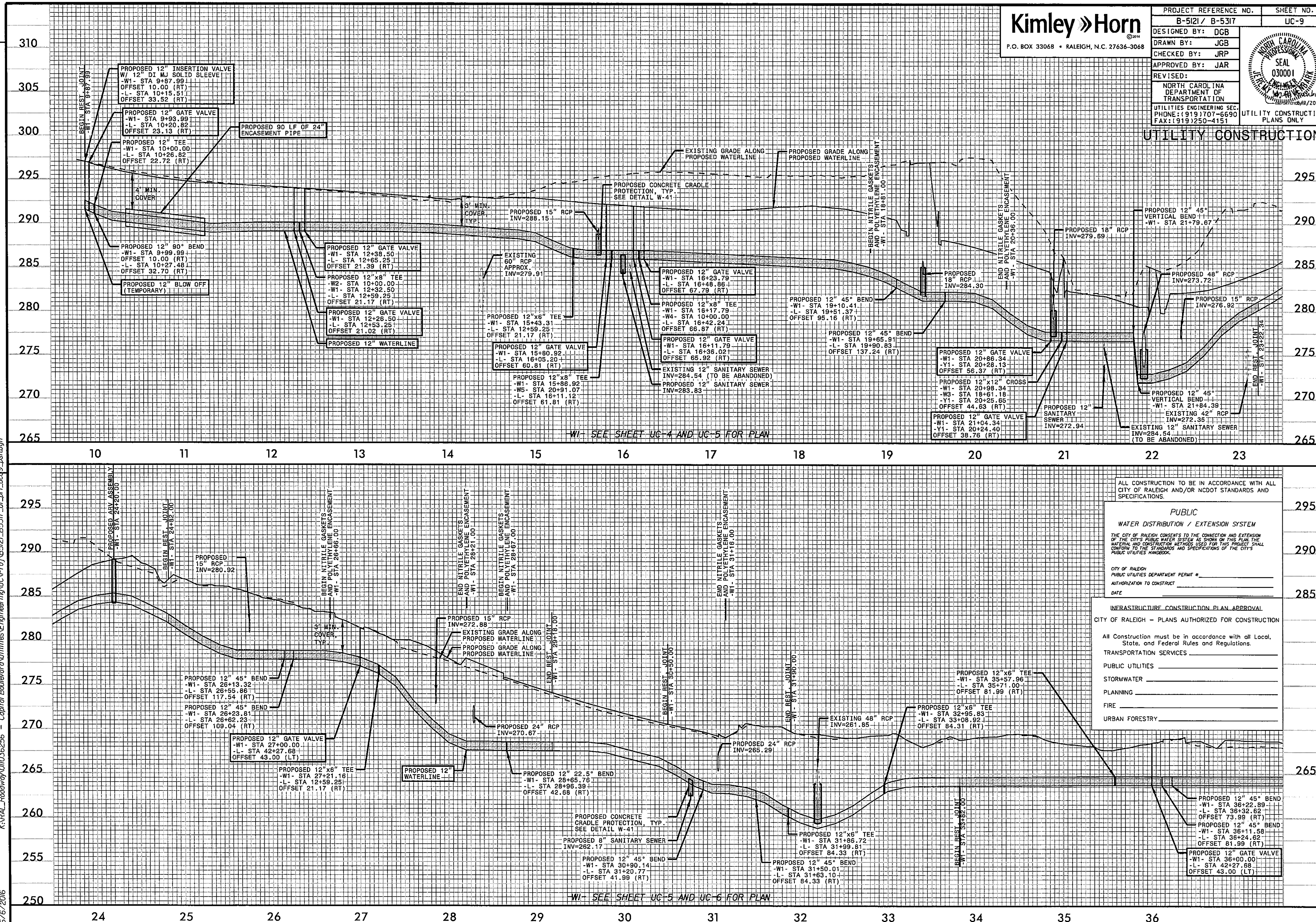
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030001

UTILITY CONSTRUCTION

REVISIONS



BEGIN REST. JOINT -W1- STA 9+87.99
PROPOSED 12" INSERTION VALVE W/ 12" DI MJ SOLID SLEEVE -W1- STA 9+87.99 OFFSET 10.00 (RT) -L- STA 10+15.51 OFFSET 33.52 (RT)
PROPOSED 12" GATE VALVE -W1- STA 9+93.99 -L- STA 10+20.82 OFFSET 23.13 (RT)
PROPOSED 90 LF OF 24" ENCASEMENT PIPE
PROPOSED 12" TEE -W1- STA 10+00.00 -L- STA 10+26.82 OFFSET 22.72 (RT)
4' MIN. COVER
PROPOSED 12" 90° BEND -W1- STA 9+99.99 OFFSET 10.00 (RT) -L- STA 10+27.48 OFFSET 32.70 (RT)
PROPOSED 12" BLOW OFF (TEMPORARY)
PROPOSED 12" GATE VALVE -W1- STA 12+38.50 -L- STA 12+65.25 OFFSET 21.39 (RT)
PROPOSED 12"x8" TEE -W2- STA 10+00.00 -W1- STA 12+32.50 -L- STA 12+59.25 OFFSET 21.17 (RT)
PROPOSED 12" GATE VALVE -W1- STA 12+26.50 -L- STA 12+53.25 OFFSET 21.02 (RT)
PROPOSED 12" WATERLINE
3' MIN. COVER (TYP.)
EXISTING 60" RCP APPROX. INV=279.91
PROPOSED 15" RCP INV=288.15
EXISTING GRADE ALONG PROPOSED WATERLINE
PROPOSED GRADE ALONG PROPOSED WATERLINE
PROPOSED CONCRETE CRADLE PROTECTION, TYP. SEE DETAIL W-41
PROPOSED 12"x6" TEE -W1- STA 15+43.31 -L- STA 12+59.25 OFFSET 21.17 (RT)
PROPOSED 12" GATE VALVE -W1- STA 15+80.92 -L- STA 16+05.20 OFFSET 60.81 (RT)
PROPOSED 12"x8" TEE -W1- STA 15+86.92 -W5- STA 20+91.07 -L- STA 16+11.12 OFFSET 61.81 (RT)
PROPOSED 12" GATE VALVE -W1- STA 16+23.79 -L- STA 16+48.86 OFFSET 67.79 (RT)
PROPOSED 12"x8" TEE -W1- STA 16+17.79 -W4- STA 10+00.00 -L- STA 16+42.24 OFFSET 66.87 (RT)
PROPOSED 12" GATE VALVE -W1- STA 16+11.79 -L- STA 16+36.02 OFFSET 65.92 (RT)
EXISTING 12" SANITARY SEWER INV=284.54 (TO BE ABANDONED)
PROPOSED 12" SANITARY SEWER INV=283.83
BEGIN NITRILE GASKETS AND POLYETHYLENE ENCASEMENT -W1- STA 18+81.00
PROPOSED 12" 45° BEND -W1- STA 19+10.41 -L- STA 19+51.37 OFFSET 95.16 (RT)
PROPOSED 18" RCP INV=284.30
PROPOSED 12" 45° BEND -W1- STA 19+65.91 -L- STA 19+90.83 OFFSET 137.24 (RT)
END NITRILE GASKETS AND POLYETHYLENE ENCASEMENT -W1- STA 20+36.00
PROPOSED 12" GATE VALVE -W1- STA 20+86.34 -Y1- STA 20+28.13 OFFSET 56.37 (RT)
PROPOSED 12"x12" CROSS -W1- STA 20+98.34 -W3- STA 18+61.18 -Y1- STA 20+25.65 OFFSET 44.63 (RT)
PROPOSED 12" GATE VALVE -W1- STA 21+04.34 -Y1- STA 20+24.40 OFFSET 38.76 (RT)
PROPOSED 18" RCP INV=279.69
PROPOSED 12" SANITARY SEWER INV=272.94
EXISTING 12" SANITARY SEWER INV=284.54 (TO BE ABANDONED)
PROPOSED 12" 45° VERTICAL BEND -W1- STA 21+79.67
PROPOSED 48" RCP INV=273.72
PROPOSED 15" RCP INV=276.92
PROPOSED 12" 45° VERTICAL BEND -W1- STA 21+84.39
EXISTING 42" RCP INV=272.35
END REST. JOINT -W1- STA 23+22.34
-W1- SEE SHEET UC-4 AND UC-5 FOR PLAN
PROPOSED ARV ASSEMBLY -W1- STA 24+20.00
BEGIN REST. JOINT -W1- STA 24+82.00
PROPOSED 15" RCP INV=280.92
BEGIN NITRILE GASKETS AND POLYETHYLENE ENCASEMENT -W1- STA 26+66.00
3' MIN. COVER, TYP.
END NITRILE GASKETS AND POLYETHYLENE ENCASEMENT -W1- STA 28+21.00
BEGIN NITRILE GASKETS AND POLYETHYLENE ENCASEMENT -W1- STA 28+67.00
PROPOSED 15" RCP INV=272.88
EXISTING GRADE ALONG PROPOSED WATERLINE
PROPOSED GRADE ALONG PROPOSED WATERLINE
END REST. JOINT -W1- STA 29+18.00
PROPOSED 12" 45° BEND -W1- STA 26+13.32 -L- STA 26+55.86 OFFSET 117.54 (RT)
PROPOSED 12" 45° BEND -W1- STA 26+23.81 -L- STA 26+62.23 OFFSET 109.04 (RT)
PROPOSED 12" GATE VALVE -W1- STA 27+00.00 -L- STA 42+27.68 OFFSET 43.00 (LT)
PROPOSED 12"x6" TEE -W1- STA 27+21.16 -L- STA 12+59.25 OFFSET 21.17 (RT)
PROPOSED 12" WATERLINE
PROPOSED 24" RCP INV=270.67
PROPOSED 12" 22.5° BEND -W1- STA 28+65.76 -L- STA 28+96.39 OFFSET 42.68 (RT)
BEGIN REST. JOINT -W1- STA 30+50.00
END NITRILE GASKETS AND POLYETHYLENE ENCASEMENT -W1- STA 31+16.00
PROPOSED CONCRETE CRADLE PROTECTION, TYP. SEE DETAIL W-41
PROPOSED 8" SANITARY SEWER INV=262.17
PROPOSED 12" 45° BEND -W1- STA 30+90.14 -L- STA 31+20.77 OFFSET 41.98 (RT)
PROPOSED 24" RCP INV=265.29
END REST. JOINT -W1- STA 31+90.00
EXISTING 48" RCP INV=261.85
PROPOSED 12"x6" TEE -W1- STA 31+86.72 -L- STA 31+99.81 OFFSET 84.33 (RT)
PROPOSED 12" 45° BEND -W1- STA 31+50.01 -L- STA 31+63.10 OFFSET 84.33 (RT)
PROPOSED 12"x6" TEE -W1- STA 32+95.83 -L- STA 33+08.92 OFFSET 84.31 (RT)
BEGIN REST. JOINT -W1- STA 33+82.00
PROPOSED 12"x6" TEE -W1- STA 35+57.96 -L- STA 35+71.00 OFFSET 81.99 (RT)
PROPOSED 12" 45° BEND -W1- STA 36+22.89 -L- STA 36+32.62 OFFSET 73.99 (RT)
PROPOSED 12" 45° BEND -W1- STA 36+11.58 -L- STA 36+24.62 OFFSET 81.99 (RT)
PROPOSED 12" GATE VALVE -W1- STA 36+00.00 -L- STA 42+27.68 OFFSET 43.00 (LT)
-W1- SEE SHEET UC-5 AND UC-6 FOR PLAN

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PUBLIC
WATER DISTRIBUTION / EXTENSION SYSTEM

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CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # ______
AUTHORIZATION TO CONSTRUCT ______
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INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL
CITY OF RALEIGH – PLANS AUTHORIZED FOR CONSTRUCTION

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TRANSPORTATION SERVICES ______
PUBLIC UTILITIES ______
STORMWATER ______
PLANNING ______
FIRE ______
URBAN FORESTRY ______

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REVISIONS

REVISIONS

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6/6/2016

Kimley»Horn ©2014

P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	UC-10
DESIGNED BY: DGB	
DRAWN BY: JGB	
CHECKED BY: JRP	
APPROVED BY: JAR	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER JEFFREY A. RIVENBARK

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

PROPOSED 12"x8" TEE
-W2- STA 10+00.00
-W1- STA 12+32.50
-L- STA 12+59.25
OFFSET 21.17 (RT)

PROPOSED 8" GATE VALVE
-W2- STA 10+06.00
-L- STA 12+59.44
OFFSET 15.17 (RT)

PROPOSED 40 LF 16" ENCASEMENT PIPE

PROPOSED 20 LF OF 16" TRENCHLESS INSTALLATION IN SOIL

PROPOSED 20 LF OF 16" TRENCHLESS INSTALLATION NOT IN SOIL

PROPOSED 8" 45° BEND
-W2- STA 12+18.68
-L- STA 13+72.19
OFFSET 82.99 (LT)

PROPOSED GRADE ALONG
PROPOSED WATERLINE

EXISTING GRADE ALONG
PROPOSED WATERLINE

PROPOSED 8" 45°
VERTICAL BEND
-W1- STA 10+84.18

PROPOSED 8" TEE
-W2- STA 11+04.97
-L- STA 12+60.49
OFFSET 83.79 (LT)

PROPOSED 8" 45° BEND
-W2- STA 12+50.30
-L- STA 13+95.96
OFFSET 59.11 (LT)

PROPOSED 8" 45°
VERTICAL BEND
-W1- STA 12+72.34

PROPOSED 24" RCP
INV=287.01

PROPOSED 8" 45°
VERTICAL BEND
-W1- STA 12+97.77

PROPOSED 8" 45° BEND
-W2- STA 13+42.14
-L- STA 14+77.70
OFFSET 82.89 (LT)

PROPOSED 8"x8" TEE
-W2- STA 15+36.91
-W4- STA 11+40.54
-L- STA 16+69.30
OFFSET 71.01 (LT)

PROPOSED 8" GATE VALVE
-W2- STA 15+30.91
-L- STA 16+63.70
OFFSET 72.20 (LT)

PROPOSED 8"
WATERLINE

END NITRILE GASKETS AND POLYETHYLENE ENCASEMENT -W1- STA 38+48.00

END REST. JOINT -W1- STA 38+70.26

BEGIN NITRILE GASKETS AND POLYETHYLENE ENCASEMENT -W1- STA 38+98.00

PROPOSED 12"x6" TEE
-W1- STA 40+00.15
-L- STA 40+02.42
OFFSET 92.00 (RT)

BEGIN REST. JOINT -W1- STA 41+33.50

PROPOSED 15" RCP
INV=259.78

END NITRILE GASKETS AND POLYETHYLENE ENCASEMENT -W1- STA 42+93.00

PROPOSED 15" RCP
INV=259.38

END REST. JOINT -W1- STA 43+83.50

PROPOSED 12" GATE VALVE
-W1- STA 43+77.50
-L- STA 42+27.70
OFFSET 43.00 (LT)

PROPOSED 12"x12" TEE
-W1- STA 43+83.50
-W6- STA 10+40.51
-L- STA 42+27.70
OFFSET 49.00 (LT)

PROPOSED 12" 45°
VERTICAL BEND
-W1- STA 43+61.50

PROPOSED 12" 45°
VERTICAL BEND
-W1- STA 43+57.72

PROPOSED 12" 45° BEND
-W1- STA 38+30.26
-L- STA 38+32.52
OFFSET 91.99 (RT)

PROPOSED 12" 45° BEND
-W1- STA 38+04.80
-L- STA 38+14.52
OFFSET 73.99 (RT)

PROPOSED 12"
WATERLINE

4' MIN. COVER

PROPOSED 12" 45° BEND
-W1- STA 42+20.44
-L- STA 42+22.70
OFFSET 91.99 (RT)

PROPOSED 12" 45° BEND
-W1- STA 42+27.51
-L- STA 42+27.70
OFFSET 86.99 (RT)

PROPOSED 110 LF OF 24" ENCASEMENT PIPE

PROPOSED 55 LF OF 24" TRENCHLESS INSTALLATION IN SOIL

PROPOSED 55 LF OF 24" TRENCHLESS INSTALLATION NOT IN SOIL

EXISTING SANITARY SEWER
INV=248.12

PROPOSED 36" SANITARY SEWER
INV=247.75

BEGIN REST. JOINT -W2- STA 10+00.00

EXISTING SANITARY SEWER
INV=286.88

PROPOSED 8" 45°
VERTICAL BEND
-W1- STA 10+57.00

PROPOSED 8" 45°
VERTICAL BEND
-W1- STA 10+60.00

PROPOSED 24" RCP
INV=288.61

PROPOSED CONCRETE CRADLE PROTECTION, TYP. SEE DETAIL W-41

PROPOSED 12" SANITARY SEWER
INV=283.18

PROPOSED 8" 45°
VERTICAL BEND
-W1- STA 10+80.00

EXISTING 36" RCP
INV=284.53

EXISTING 36" RCP
INV=287.14

PROPOSED 12" SANITARY SEWER
INV=279.94

PROPOSED 8" 45°
VERTICAL BEND
-W1- STA 12+75.62

PROPOSED 8" 45°
VERTICAL BEND
-W1- STA 12+95.62

PROPOSED 12" SANITARY SEWER
INV=276.32

PROPOSED 8" 45° BEND
-W2- STA 13+07.67
-L- STA 14+53.32
OFFSET 58.51 (LT)

PROPOSED 8" 11.25° BEND
-W2- STA 14+95.37
-L- STA 16+30.74
OFFSET 79.69 (LT)

EXISTING 60" RCP
INV=276.68

PROPOSED 12" SANITARY SEWER
INV=273.19

EXISTING SANITARY SEWER
INV=274.33

END REST. JOINT -W2- STA 15+36.91

-W1- SEE SHEET UC-6 AND UC-7 FOR PLAN

-W2- SEE SHEET UC-4 AND UC-5 FOR PLAN

PROPOSED 12" BLOW OFF (TEMPORARY)

PROPOSED 12" GATE VALVE
-W3- STA 10+06.00
-Y1- STA 12+37.54
OFFSET 18.34 (LT)

PROPOSED 12"x12" TEE
-W3- STA 10+12.01
-Y1- STA 12+43.55
OFFSET 18.27 (LT)

PROPOSED 12"x6" TEE
-W3- STA 10+23.76

PROPOSED 12" INSERTION VALVE W/ 12" DI MJ SOLID SLEEVE
-W3- STA 10+00.02
-Y1- STA 12+31.50
OFFSET 12.48 (LT)

PROPOSED 12" 90° BEND
-W3- STA 10+12.02
OFFSET 5.92 (RT)
-Y1- STA 12+43.50
OFFSET 12.36 (LT)

BEGIN REST. JOINT -W3- STA 10+00.00

PROPOSED 12"
SANITARY
SEWER
INV=276.84

PROPOSED 12"
WATERLINE

PROPOSED
18" RCP
INV=268.21

PROPOSED CONCRETE CRADLE PROTECTION, TYP. SEE DETAIL W-41

PROPOSED 40 LF 24" ENCASEMENT PIPE

PROPOSED 8" 90° BEND
-W3- STA 13+25.38
-Y1- STA 15+52.65
OFFSET 29.60 (LT)

PROPOSED 12" GATE VALVE
-W3- STA 13+91.83
-Y1- STA 15+56.27
OFFSET 30.79 (RT)

PROPOSED 12" GATE VALVE
-W3- STA 13+79.83
-Y1- STA 15+50.13
OFFSET 24.77 (RT)

PROPOSED 12"x8" TEE
-W3- STA 13+85.83
-W3- STA 15+92.56
-Y1- STA 15+50.11
OFFSET 30.77 (RT)

PROPOSED 8" 11.25° BEND
-W3- STA 13+00.11
-Y1- STA 15+28.11
OFFSET 31.96 (LT)

BEGIN NITRILE GASKETS AND POLYETHYLENE ENCASEMENT -W3- STA 13+79.83

END NITRILE GASKETS AND POLYETHYLENE ENCASEMENT -W3- STA 14+93.00

EXISTING 8" SANITARY SEWER
INV=262.44

PROPOSED 36" SANITARY SEWER
INV=261.02

PROPOSED 36" RCP
INV=265.17

PROPOSED 36" RCP
INV=265.64

EXISTING GRADE ALONG
PROPOSED WATERLINE

PROPOSED GRADE ALONG
PROPOSED WATERLINE

EXISTING 36" RCP
INV=266.87

PROPOSED 12" 45° BEND
-W3- STA 14+93.86
-Y1- STA 16+53.79
OFFSET 48.61 (RT)

PROPOSED 12" 45° BEND
-W3- STA 14+71.72
-Y1- STA 16+38.25
OFFSET 32.14 (RT)

PROPOSED 200 LF 24" ENCASEMENT PIPE

PROPOSED 100 LF OF 24" TRENCHLESS INSTALLATION IN SOIL

PROPOSED 100 LF OF 24" TRENCHLESS INSTALLATION NOT IN SOIL

PROPOSED 12" GATE VALVE
-W3- STA 18+55.18
-Y1- STA 20+19.77
OFFSET 45.83 (RT)

PROPOSED 12" 11.25° BEND
-W3- STA 18+41.16
-Y1- STA 20+06.03
OFFSET 48.61 (RT)

PROPOSED 12"x12" CROSS
-W1- STA 20+98.34
-W3- STA 18+61.18
-Y1- STA 20+25.65
OFFSET 44.63 (RT)

PROPOSED
GAS LINE

PROPOSED
COMMUNICATION LINE

PROPOSED
18" RCP
INV=276.72

PROPOSED
18" RCP
INV=280.74

PROPOSED 12" 45° BEND
-W3- STA 21+27.63
-Y1- STA 22+80.50
OFFSET 26.40 (RT)

EXISTING 8" SANITARY SEWER
INV=287.77
(TO BE ABANDONED)

PROPOSED 12" 45° BEND
-W3- STA 21+58.01
-Y1- STA 23+02.12
OFFSET 5.06 (RT)

PROPOSED 48" RCP
INV=282.60

PROPOSED 12" 22.5° BEND
-W3- STA 18+83.36
-Y1- STA 20+45.32
OFFSET 37.11 (RT)

PROPOSED 12" 22.5° BEND
-W3- STA 18+74.43
-Y1- STA 20+38.36
OFFSET 42.01 (RT)

PROPOSED 12" GATE VALVE
-W3- STA 18+67.18
-Y1- STA 20+31.53
OFFSET 43.44 (RT)

-W3- SEE SHEET UC-5 AND UC-8 FOR PLAN

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL

CITY OF RALEIGH – PLANS AUTHORIZED FOR CONSTRUCTION

All Construction must be in accordance with all Local, State, and Federal Rules and Regulations.

TRANSPORTATION SERVICES _____

PUBLIC UTILITIES _____

STORMWATER _____

PLANNING _____

FIRE _____

URBAN FORESTRY _____

PUBLIC

WATER DISTRIBUTION / EXTENSION SYSTEM

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC WATER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # _____

AUTHORIZATION TO CONSTRUCT _____

DATE _____

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P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	UC-11
DESIGNED BY: DGB	
DRAWN BY: JGB	
CHECKED BY: JRP	
APPROVED BY: JAR	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER JEFFREY A. RIVERA 6/6/2016

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

REVISIONS

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6/6/2016

PROPOSED TRENCHLESS INSTALLATION OF 55 LF IN SOIL
PROPOSED TRENCHLESS INSTALLATION OF 55 LF NOT IN SOIL
PROPOSED 110 LF OF 24" ENCASEMENT PIPE
4' MIN. COVER
PROPOSED 12" SANITARY SEWER INV=288.88
PROPOSED 12" WATERLINE
PROPOSED 12"x12" TEE -W3- STA 23+57.29 -Y1- STA 25+01.67 OFFSET 5.76 (RT)
PROPOSED 12" INSERTION VALVE W/ 12" DI MJ SOLID SLEEVE -W3- STA 23+69.28 OFFSET 5.92 (RT) -Y1- STA 25+13.66 OFFSET 11.69 (RT)
PROPOSED 12" BLOW OFF (TEMPORARY)
PROPOSED 12" GATE VALVE -W3- STA 23+63.30 -Y1- STA 25+07.69 OFFSET 5.77 (RT)
PROPOSED 12" 45° BEND -W3- STA 23+57.28 OFFSET 5.92 (RT) -Y1- STA 25+01.64 OFFSET 11.68 (RT)
END REST. JOINT -W3- STA 23+69.28
W3- SEE SHEET UC-5 FOR PLAN

PROPOSED 15" RCP INV=288.71
PROPOSED 55 LF OF 16" TRENCHLESS INSTALLATION IN SOIL
PROPOSED 55 LF OF 16" TRENCHLESS INSTALLATION NOT IN SOIL
PROPOSED 110 LF OF 16" ENCASEMENT PIPE
PROPOSED 8" GATE VALVE -W4- STA 11+34.54 -L- STA 16+68.18 OFFSET 65.13 (LT)
PROPOSED 8"x8" TEE -W2- STA 15+36.91 -W4- STA 11+40.54 -L- STA 16+69.30 OFFSET 71.01 (LT)
PROPOSED 18" RCP INV=289.52
PROPOSED 8" GATE VALVE -W4- STA 11+61.50 -L- STA 16+73.56 OFFSET 91.48 (LT)
PROPOSED 8" SANITARY SEWER INV=281.38
EXISTING 12" SANITARY SEWER INV=281.61
BEGIN REST. JOINT -W4- STA 10+00.00
PROPOSED 8"x8" TEE -W8- STA 10+00.00 -W4- STA 11+55.50 -L- STA 16+72.25 OFFSET 85.64 (LT)
PROPOSED 8" GATE VALVE -W4- STA 10+05.79 -L- STA 16+43.23 OFFSET 61.16 (RT)
PROPOSED 12"x8" TEE -W1- STA 16+17.79 -W4- STA 10+00.00 -L- STA 16+42.24 OFFSET 66.87 (RT)
EXISTING 60" RCP INV=275.27
PROPOSED 8" WATERLINE
PROPOSED 15" RCP INV=272.32
PROPOSED 8"x6" TEE -W4- STA 14+48.60 -Y6- STA 13+70.86 OFFSET 46.87 (RT)
PROPOSED 8" GATE VALVE -W4- STA 14+80.02 -Y6- STA 13+71.33 OFFSET 15.45 (RT)
PROPOSED 8" CROSS -W4- STA 14+86.02 -W5- STA 10+00.00 -Y6- STA 13+71.42 OFFSET 9.45 (RT)
PROPOSED 8" INSERTION VALVE W/ 8" DI MJ SOLID SLEEVE -W4- STA 15+41.05 OFFSET 5.83 (LT) -Y6- STA 13+65.86 OFFSET 45.61 (LT)
PROPOSED 8" GATE VALVE -W4- STA 15+35.66 -Y6- STA 13+71.66 OFFSET 39.59 (LT)
PROPOSED 8" 90° BEND -W4- STA 15+29.05 OFFSET 5.83 (LT) -Y6- STA 13+65.80 OFFSET 33.61 (LT)
END REST. JOINT -W4- STA 15+41.05
PROPOSED 8" BLOW OFF (TEMPORARY)
PROPOSED 8"x8" TEE -W4- STA 15+29.04 -Y6- STA 13+71.64 OFFSET 39.57 (LT)
PROPOSED PIPELINE CROSSING, TYP. SEE DETAIL W-41
PROPOSED 24" RCP INV=268.31
-W4- SEE SHEET UC-5 AND UC-8 FOR PLAN

EXISTING 6" GATE VALVE
CONNECT 8" WATERLINE TO EXISTING 8" GATE VALVE AND RESTRAIN WITH MEGA LUG -Y6- STA 13+41.34 OFFSET 9.00 (RT)
PROPOSED 8" CROSS -W4- STA 14+86.02 -W5- STA 10+00.00 -Y6- STA 13+71.42 OFFSET 9.45 (RT)
PROPOSED 8" GATE VALVE -W5- STA 10+08.00 -Y6- STA 13+77.42 OFFSET 9.54 (RT)
BEGIN REST. JOINT -W5- STA 10+00.00
EXISTING 60" RCP INV=265.95
PROPOSED 8" GATE VALVE -W5- STA 12+35.40 -Y6- STA 16+07.48 OFFSET 1.64 (LT)
PROPOSED 8" GATE VALVE -W5- STA 12+47.40 -Y6- STA 16+19.18 OFFSET 4.09 (LT)
PROPOSED 8"x8" TEE -W5- STA 12+41.40 -Y6- STA 16+13.34 OFFSET 2.84 (LT)
PROPOSED PIPELINE CROSSING, TYP. SEE DETAIL W-41
PROPOSED 8" WATERLINE
PROPOSED 12"x8" TEE -W3- STA 13+85.83 -W5- STA 15+92.56 -Y1- STA 15+50.11 OFFSET 30.77 (RT)
PROPOSED 12" GATE VALVE -W5- STA 15+86.56 -Y1- STA 15+50.09 OFFSET 36.77 (RT)
PROPOSED 12"x8" REDUCER -W5- STA 15+80.56 -Y6- STA 19+48.02 OFFSET 38.10 (LT)
PROPOSED GRADE ALONG PROPOSED WATERLINE
EXISTING GRADE ALONG PROPOSED WATERLINE
PROPOSED 36" SANITARY SEWER INV=261.21
PROPOSED 8" 11.25° BEND -W5- STA 15+73.70 -Y6- STA 19+41.35 OFFSET 36.54 (LT)
END REST. JOINT -W5- STA 15+92.56
W5- SEE SHEET UC-8 FOR PLAN

PROPOSED 12" BLOW OFF (PERMANENT) -W6- STA 9+63.36
PROPOSED CONCRETE CRADLE PROTECTION, TYP., SEE DETAIL W-41
PROPOSED 12"x8" REDUCER -W6- STA 10+24.05 -L- STA 42+11.22 OFFSET 69.00 (LT)
PROPOSED 12" GATE VALVE -W6- STA 10+46.53 -L- STA 42+33.70 OFFSET 69.00 (LT)
END REST. JOINT -W6- STA 12+64.58
EXISTING GRADE ALONG PROPOSED WATERLINE
PROPOSED GRADE ALONG PROPOSED WATERLINE
BEGIN REST. JOINT -W6- STA 14+23.04
END NITRILE GASKETS AND POLYETHYLENE ENCASEMENT -W6- STA 14+57.00
PROPOSED 12"x12" TEE -W1- STA 43+63.50 -W6- STA 10+40.53 -L- STA 42+27.70 OFFSET 69.00 (LT)
PROPOSED 12"x6" TEE -W6- STA 10+32.53
PROPOSED 12"x6" TEE -W6- STA 13+19.21 -L- STA 45+03.11 OFFSET 68.88 (LT)
PROPOSED 12" WATERLINE
PROPOSED 12"x6" TEE -W6- STA 15+91.26 -L- STA 47+61.25 OFFSET 93.54 (LT)
BEGIN REST. JOINT, NITRILE GASKETS, AND POLYETHYLENE ENCASEMENT -W6- STA 9+63.36
PROPOSED 18" RCP INV=257.62
PROPOSED 8"x8" TEE -W6- STA 10+08.35 -W7- STA 11+34.99 -L- STA 41+95.53 OFFSET 69.00 (LT)
PROPOSED 8" GATE VALVE -W6- STA 10+02.35 -L- STA 41+89.53 OFFSET 69.00 (LT)
PROPOSED 36" INTERCEPTOR INV=248.40
W6- SEE SHEET UC-7 FOR PLAN

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

PUBLIC
WATER DISTRIBUTION / EXTENSION SYSTEM

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC WATER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT # _____
AUTHORIZATION TO CONSTRUCT _____
DATE _____

INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL
CITY OF RALEIGH – PLANS AUTHORIZED FOR CONSTRUCTION
All Construction must be in accordance with all Local, State, and Federal Rules and Regulations.
TRANSPORTATION SERVICES _____
PUBLIC UTILITIES _____
STORMWATER _____
PLANNING _____
FIRE _____
URBAN FORESTRY _____

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P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	UC-12
DESIGNED BY: DGB	
DRAWN BY: JGB	
CHECKED BY: JRP	
APPROVED BY: JAR	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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FAX: (919) 250-4151

NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER JEFFREY A. RIVENBARK
6/6/2016
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

REVISIONS

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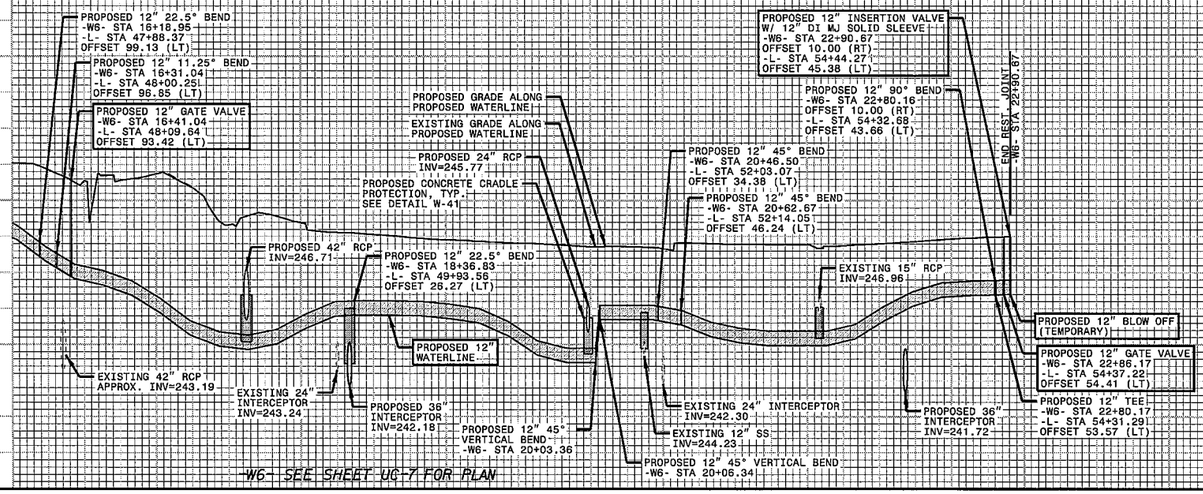
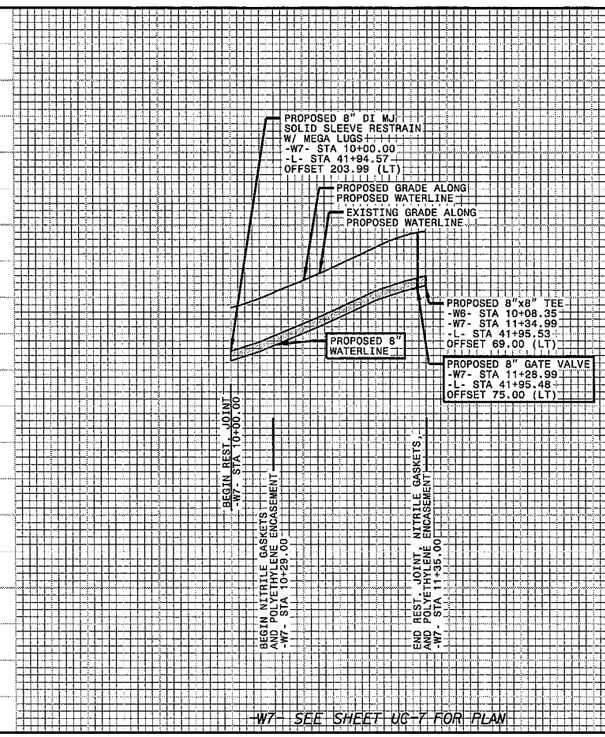
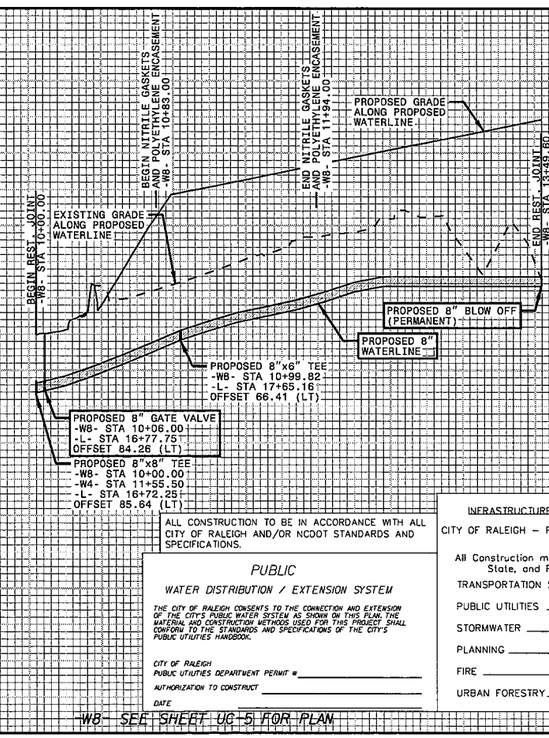
6/6/2016







ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

PUBLIC

WATER DISTRIBUTION / EXTENSION SYSTEM

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC WATER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # _____
AUTHORIZATION TO CONSTRUCT _____
DATE _____

INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL

CITY OF RALEIGH – PLANS AUTHORIZED FOR CONSTRUCTION

All Construction must be in accordance with all Local, State, and Federal Rules and Regulations.

TRANSPORTATION SERVICES _____
PUBLIC UTILITIES _____
STORMWATER _____
PLANNING _____
FIRE _____
URBAN FORESTRY _____

PROJECT REFERENCE NO.	SHEET NO.
B-5121/ B-5317	UC-13

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REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
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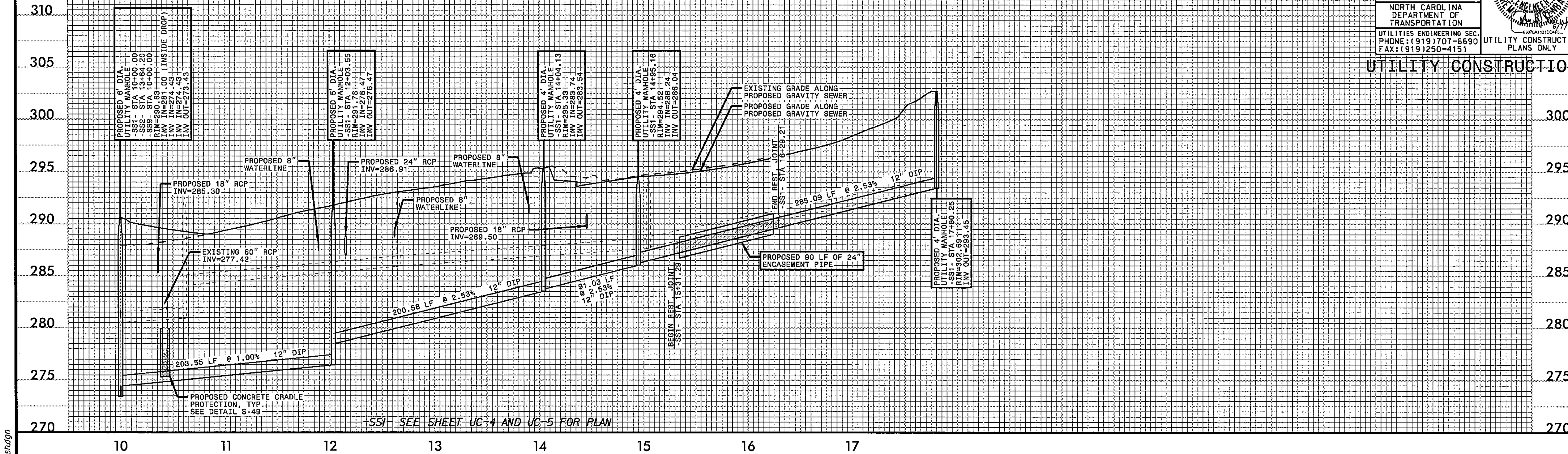
FAX:(919)250-4151

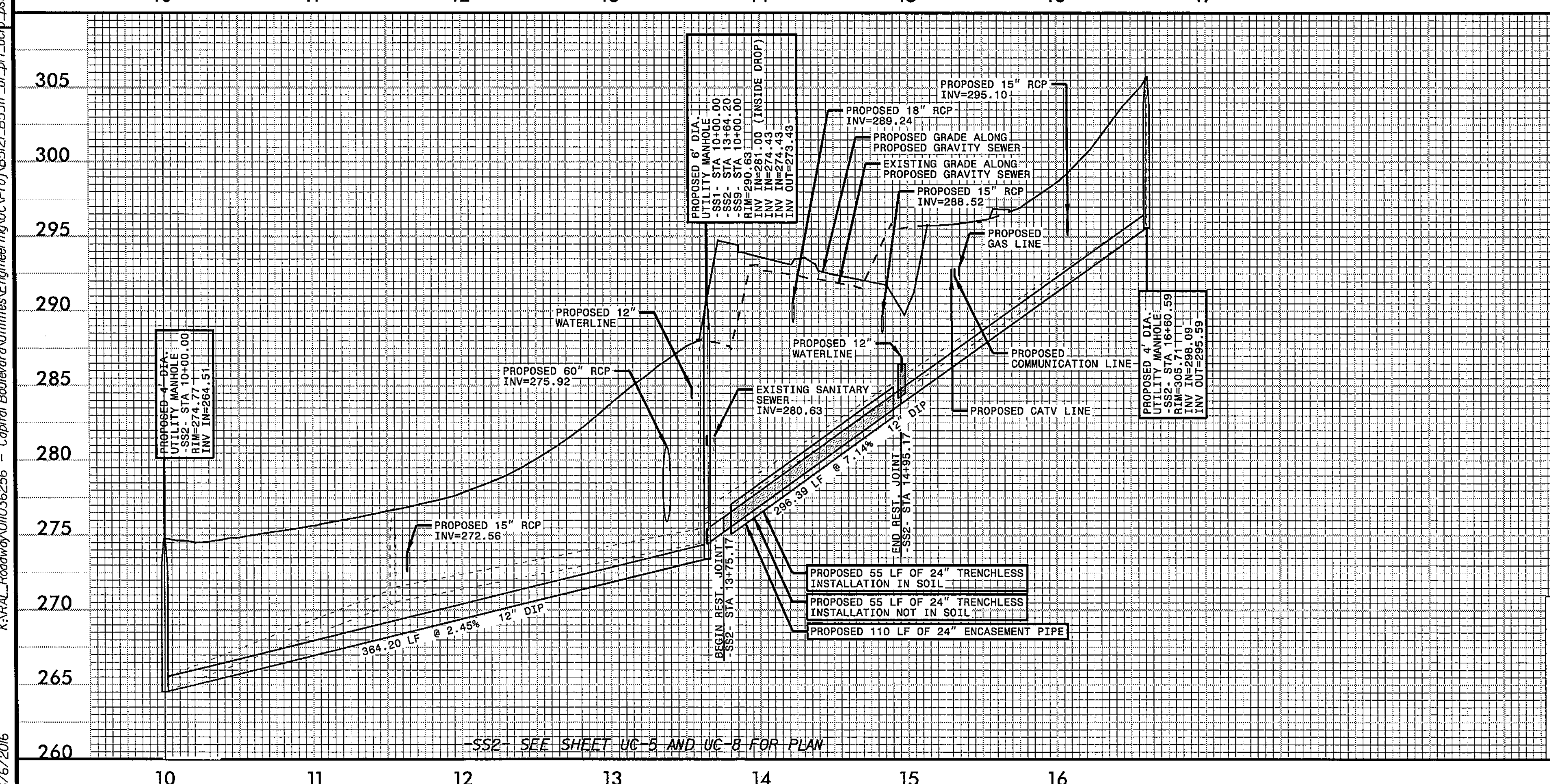
NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER JEREMY A. RIVENBARK 6/7/2016

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

REVISIONS





ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

PUBLIC

SEWER COLLECTION / EXTENSION SYSTEM

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC SEWER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # ____________
AUTHORIZATION TO CONSTRUCT ____________
DATE ____________

INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL

CITY OF RALEIGH – PLANS AUTHORIZED FOR CONSTRUCTION

All Construction must be in accordance with all Local, State, and Federal Rules and Regulations.

TRANSPORTATION SERVICES ____________
PUBLIC UTILITIES ____________
STORMWATER ____________
PLANNING ____________
FIRE ____________
URBAN FORESTRY ____________

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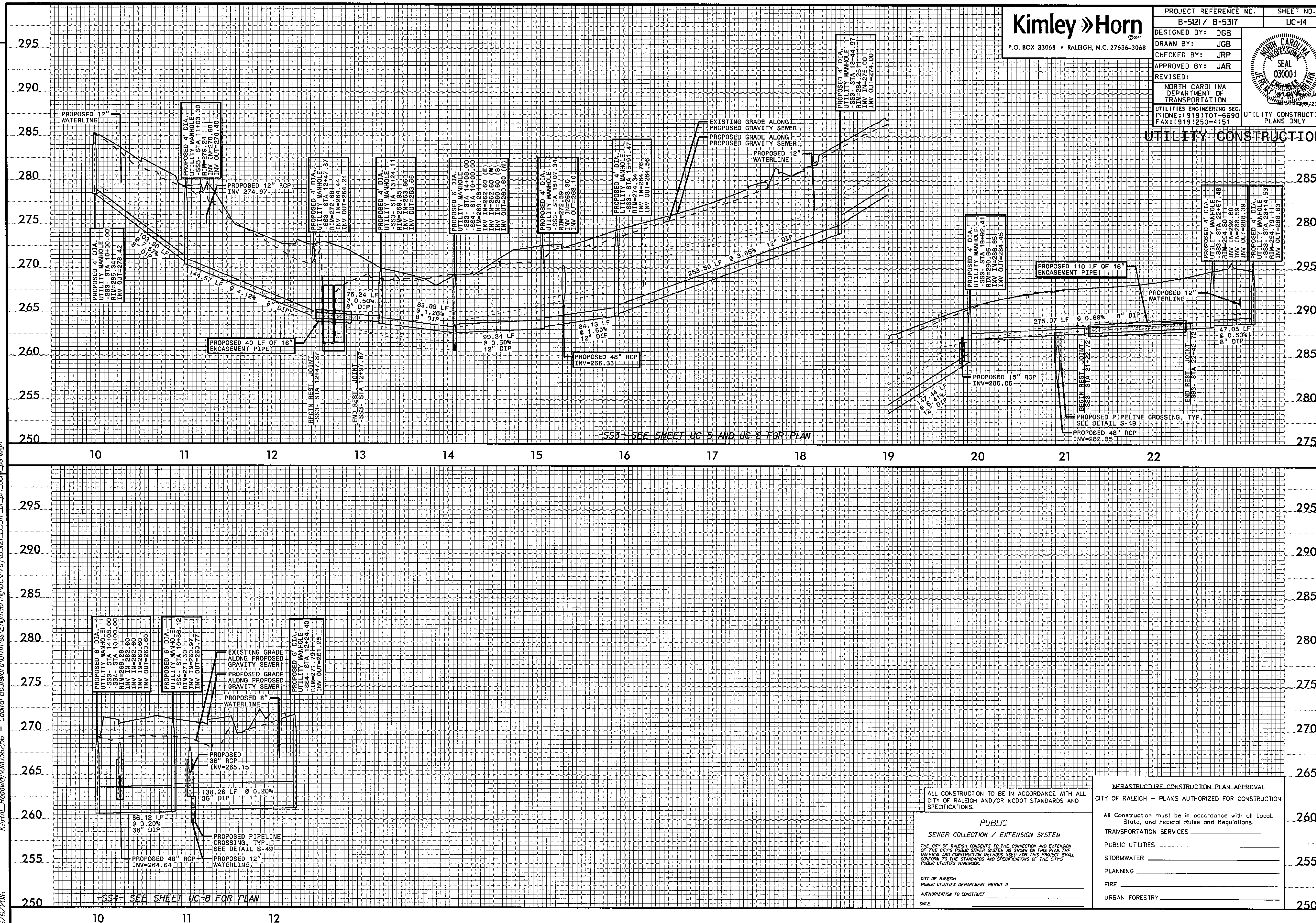

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	UC-14

DESIGNED BY: DGB
DRAWN BY: JGB
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER

UTILITY CONSTRUCTION

REVISIONS

K:\RAL_Roadway\011036256 - Capital Boulevard\Utilities\Engineering\UC\Pro\B5121_B5317_ut_pf_uc14_psh.dgn

6/6/2016

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

PUBLIC
SEWER COLLECTION / EXTENSION SYSTEM

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC SEWER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT # ____
AUTHORIZATION TO CONSTRUCT ____
DATE ____

INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL
CITY OF RALEIGH – PLANS AUTHORIZED FOR CONSTRUCTION

All Construction must be in accordance with all Local, State, and Federal Rules and Regulations.

TRANSPORTATION SERVICES ____
PUBLIC UTILITIES ____
STORMWATER ____
PLANNING ____
FIRE ____
URBAN FORESTRY ____

Kimley»Horn ©2014
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	UC-15
DESIGNED BY: DGB	
DRAWN BY: JGB	
CHECKED BY: JRP	
APPROVED BY: JAR	
REVISED:	

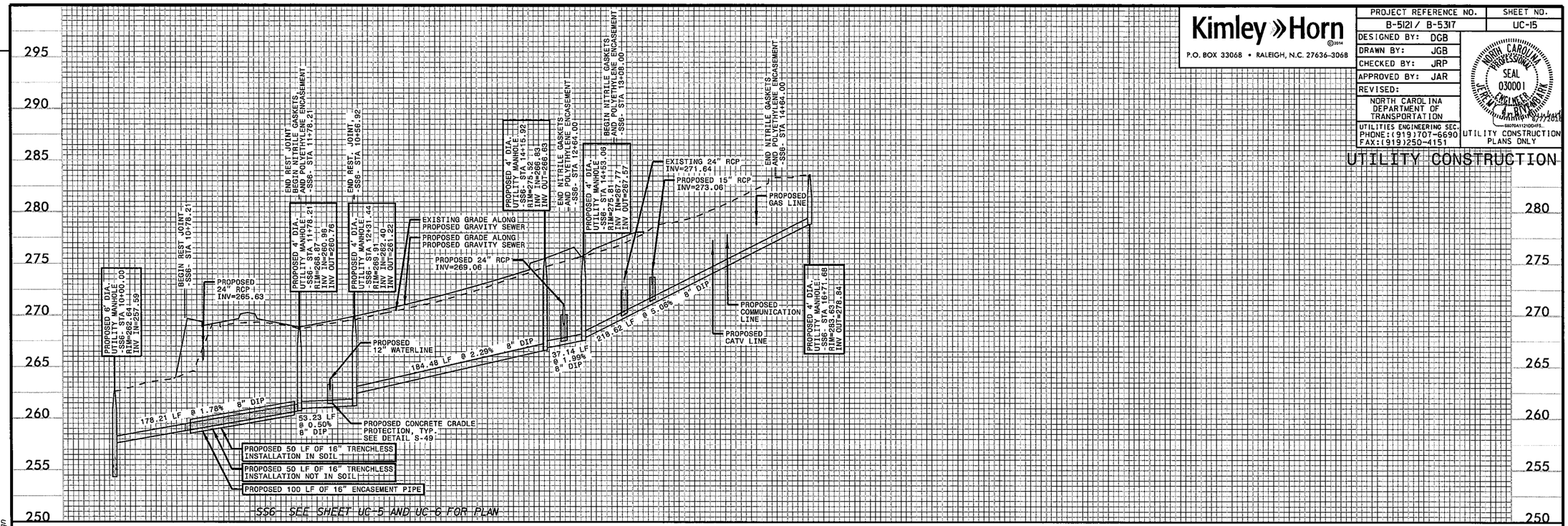
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151

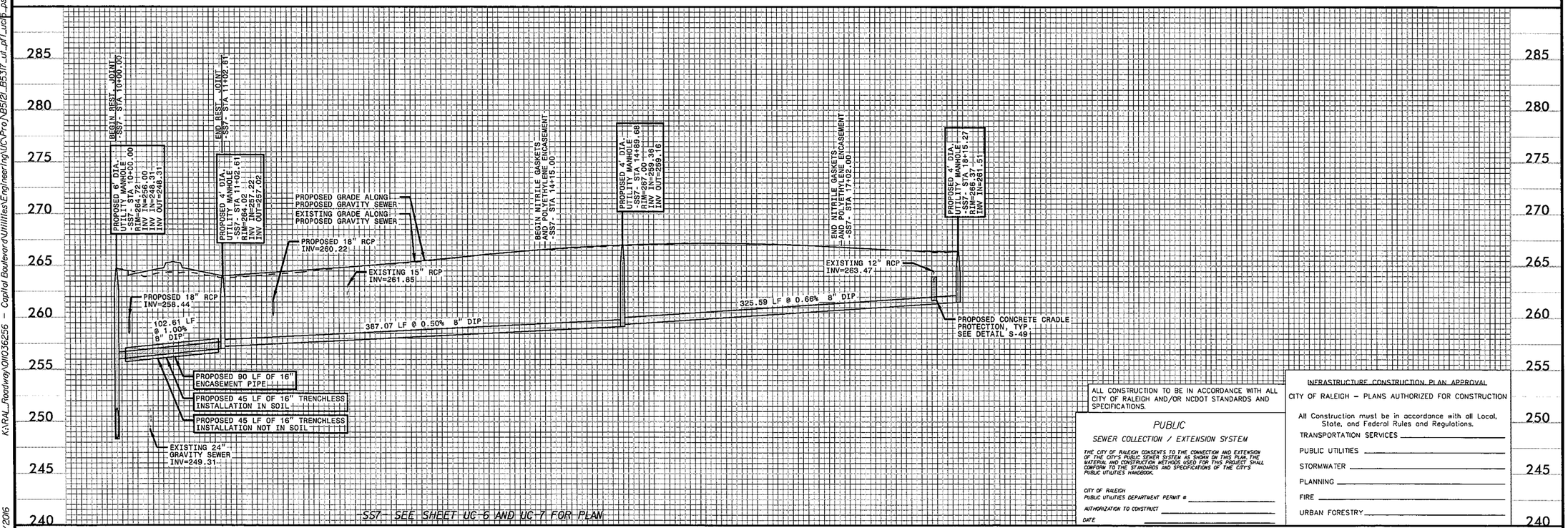
NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER JAMES R. RIVENBARK
6/7/2016

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

REVISIONS





ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

PUBLIC

SEWER COLLECTION / EXTENSION SYSTEM

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CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT # _____

AUTHORIZATION TO CONSTRUCT _____

DATE _____

INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL

CITY OF RALEIGH – PLANS AUTHORIZED FOR CONSTRUCTION

All Construction must be in accordance with all Local, State, and Federal Rules and Regulations.

TRANSPORTATION SERVICES _____

PUBLIC UTILITIES _____

STORMWATER _____

PLANNING _____

FIRE _____

URBAN FORESTRY _____

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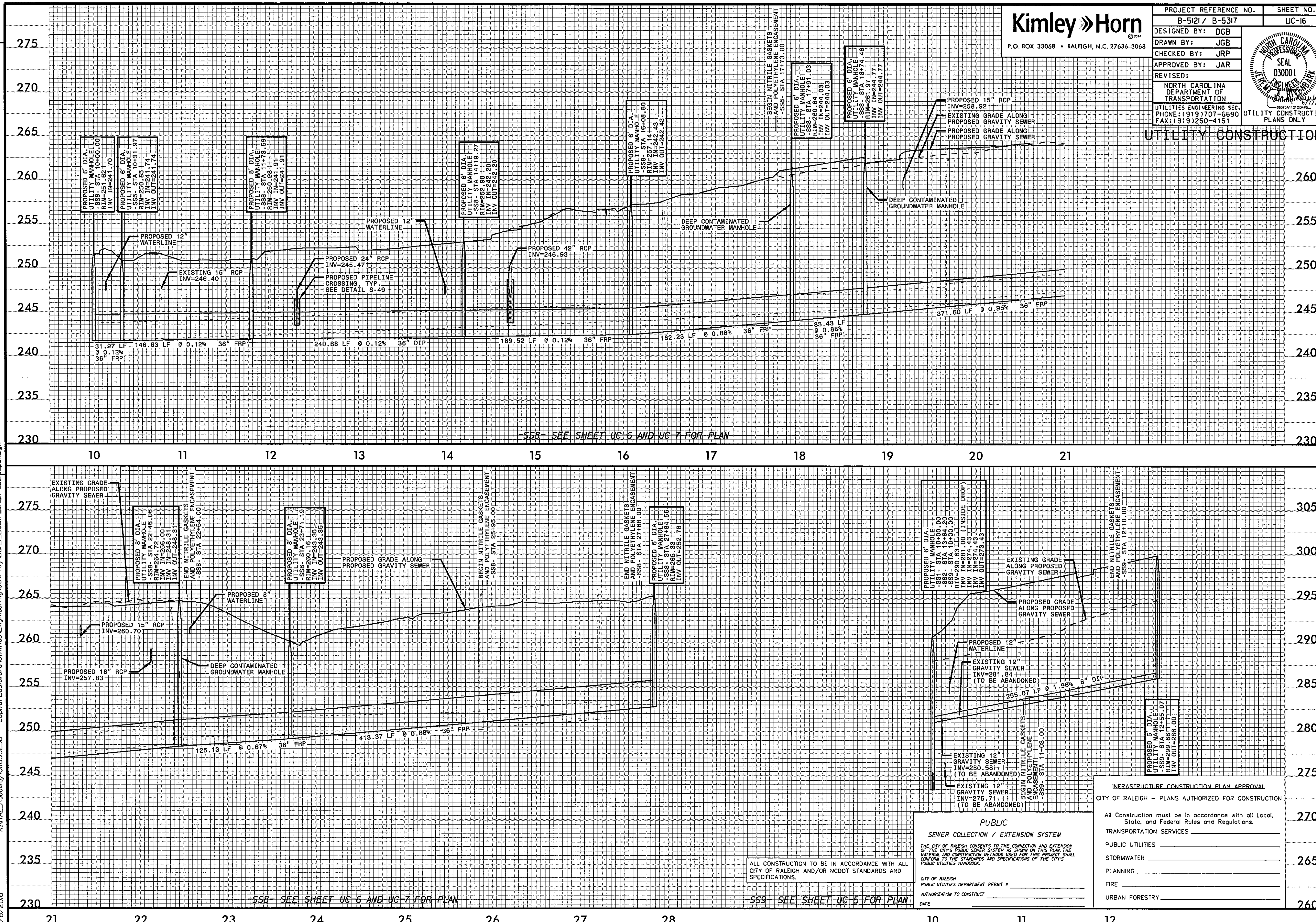
6/6/2016

REVISIONS



Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
B-5121/ B-5317	UC-16

DESIGNED BY: DGB
DRAWN BY: JGB
CHECKED BY: JRP
APPROVED BY: JAR
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919)707-6690
FAX: (919)250-4151

UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 030001 ENGINEER
6/7/2016

UTILITY CONSTRUCTION

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

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SEWER COLLECTION / EXTENSION SYSTEM

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CITY OF RALEIGH
PUBLIC UTILITIES DEPARTMENT PERMIT # ____
AUTHORIZATION TO CONSTRUCT ____
DATE ____

INFRASTRUCTURE CONSTRUCTION PLAN APPROVAL
CITY OF RALEIGH – PLANS AUTHORIZED FOR CONSTRUCTION

All Construction must be in accordance with all Local, State, and Federal Rules and Regulations.

TRANSPORTATION SERVICES ____
PUBLIC UTILITIES ____
STORMWATER ____
PLANNING ____
FIRE ____
URBAN FORESTRY ____

6/6/2016 K:\RAL_Roadway\011036256 - Capital Boulevard\Utilities\Engineering\UC\Proj\B5121_B5317_ut_pfl_uc16_pshdgn

PROJECT REFERENCE NO.	SHEET NO.
B-5121/ B-5317	UO-2

UTILITIES BY OTHERS

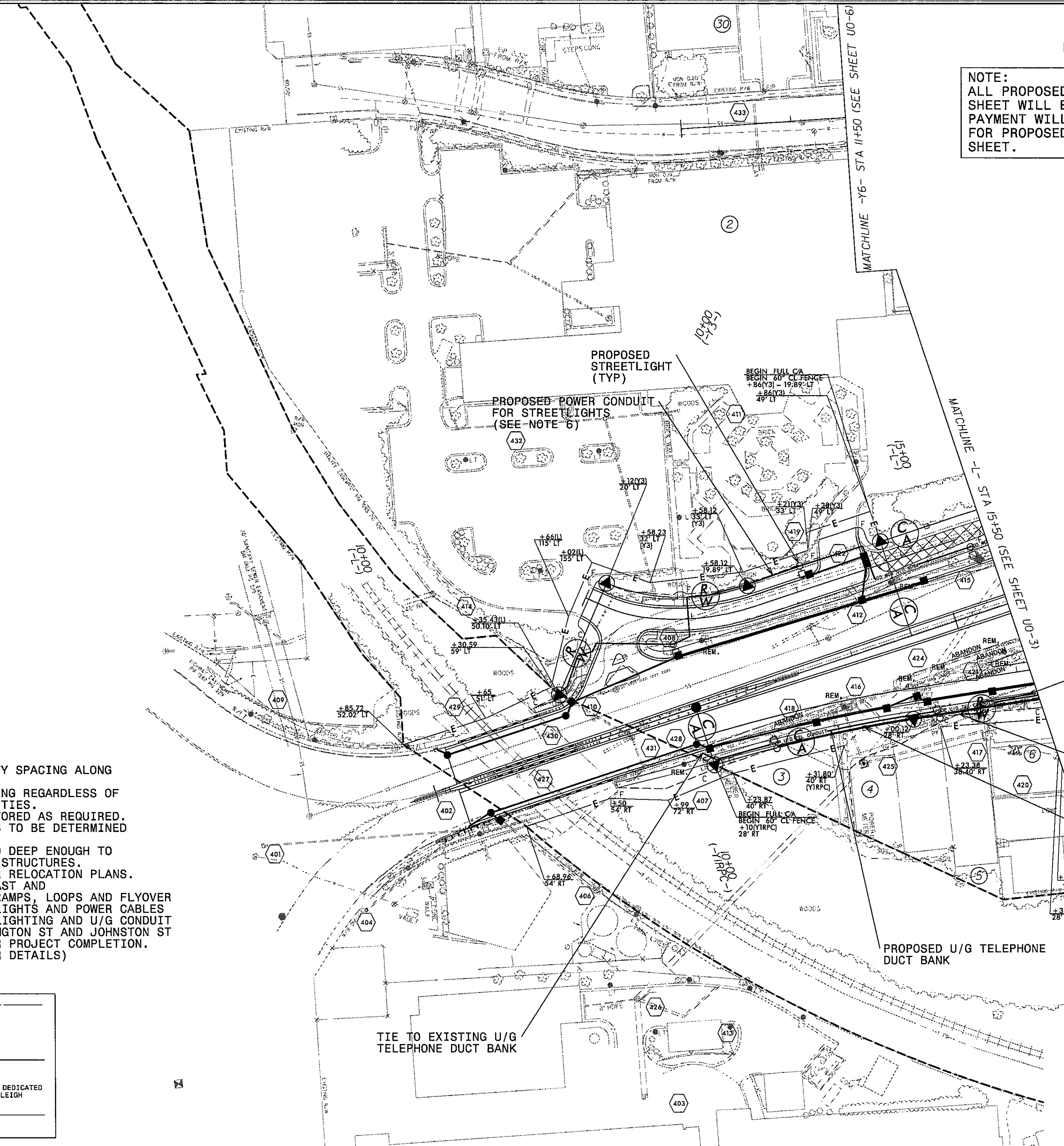
NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

(3) RALEIGH DEVIL, LLC
DB 12835 - PG 2740
BM 1960 - PG 241

(4) WILLIAM L. CARTER
DB 6339 - PG 820
BM 1979 - PG 560

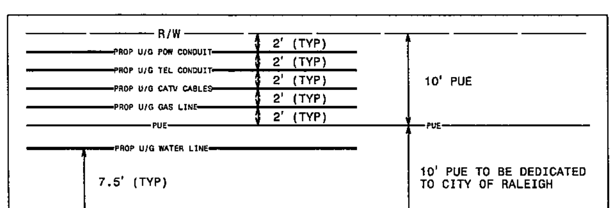
(5) WILLIAM L. CARTER, JR
DB 4382 - PG 9

(6) ED. CHARITABLE DVLPMTS PROJ. INC
DB 7559 - PG 768



NOTES:

1. SEE UTILITY EASEMENT DETAIL FOR UTILITY SPACING ALONG NORTHBOUND CAPITAL BOULEVARD.
2. UTILITIES TO MAINTAIN DESIGNATED SPACING REGARDLESS OF THE PRESENCE OR ABSENCE OF OTHER UTILITIES.
3. UTILITY SERVICE CONNECTIONS TO BE RESTORED AS REQUIRED. ACTUAL LOCATION OF SERVICE CONNECTIONS TO BE DETERMINED IN THE FIELD.
4. PROPOSED U/G UTILITIES TO BE INSTALLED DEEP ENOUGH TO AVOID CONFLICT WITH PROPOSED DRAINAGE STRUCTURES.
5. SEE UC PLAN SHEETS FOR WATER AND SEWER RELOCATION PLANS.
6. U/G CONDUIT FOR STREETLIGHTS ON THE EAST AND WEST SIDES OF CAPITAL BLVD INCLUDING RAMPS, LOOPS AND FLYOVER TO BE INSTALLED BY CONTRACTOR. STREETLIGHTS AND POWER CABLES TO BE INSTALLED BY DUKE ENERGY. STREETLIGHTING AND U/G CONDUIT FOR STREETLIGHTING AT PEACE ST, HARRINGTON ST AND JOHNSTON ST WILL BE INSTALLED BY DUKE ENERGY AFTER PROJECT COMPLETION. (SEE LIGHTING PLANS AND PROVISIONS FOR DETAILS)



UTILITY EASEMENT DETAIL

PROJECT REFERENCE NO.	SHEET NO.
B-5121/ B-5317	UO-3

UTILITIES BY OTHERS

NOTE:
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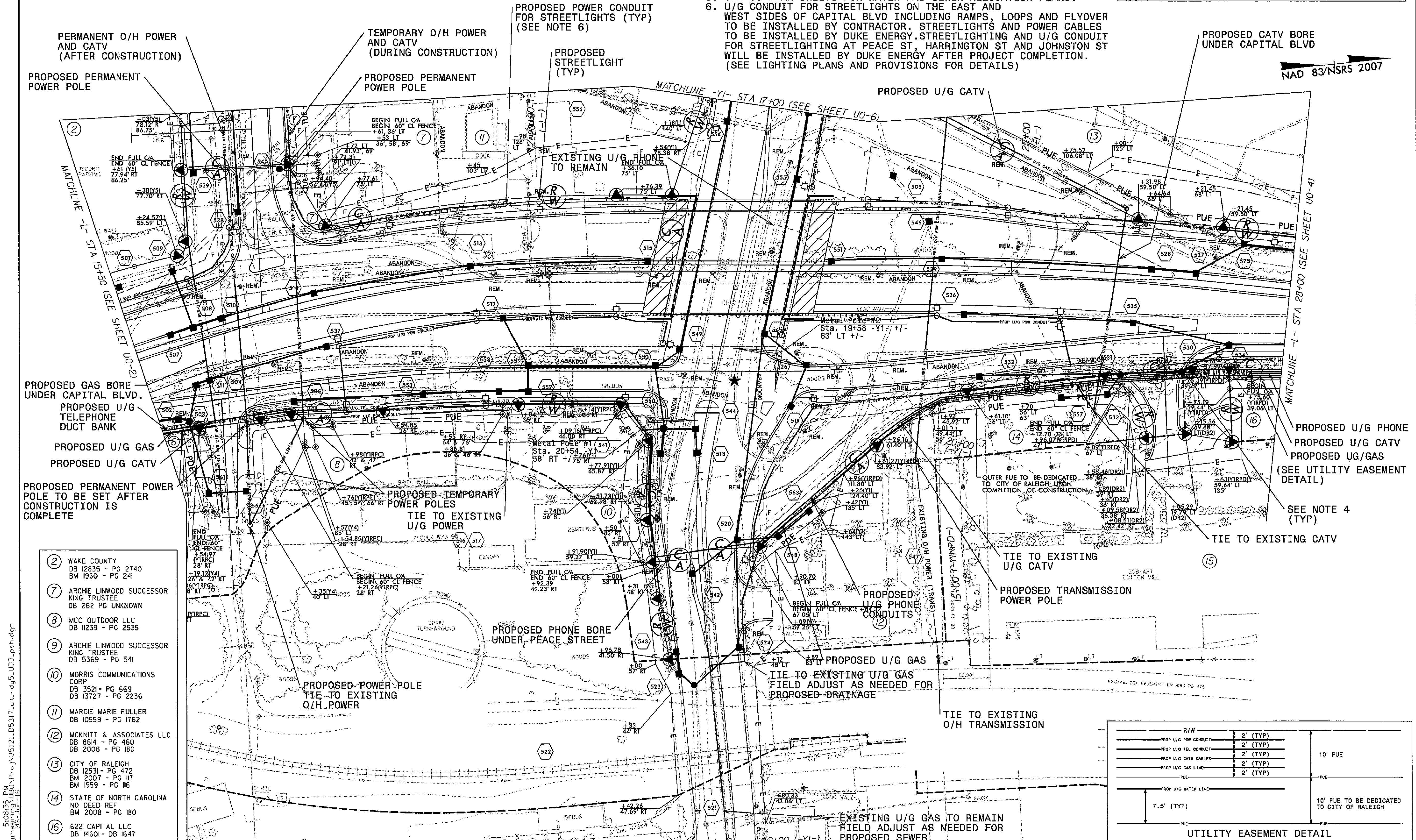

(2)	WAKE COUNTY DB 12835 - PG 2740 BM 1960 - PG 241
(7)	ARCHIE LINWOOD SUCCESSOR KING TRUSTEE DB 262 PG UNKNOWN
(8)	MCC OUTDOOR LLC DB 11239 - PG 2535
(9)	ARCHIE LINWOOD SUCCESSOR KING TRUSTEE DB 5369 - PG 541
(10)	MORRIS COMMUNICATIONS CORP DB 3521 - PG 669 DB 13727 - PG 2236
(11)	MARGIE MARIE FULLER DB 10559 - PG 1762
(12)	MCKNITT & ASSOCIATES LLC DB 8614 - PG 460 DB 2008 - PG 180
(13)	CITY OF RALEIGH DB 12531 - PG 472 BM 2007 - PG 117 BM 1959 - PG 116
(14)	STATE OF NORTH CAROLINA NO DEED REF BM 2008 - PG 180
(16)	622 CAPITAL LLC DB 14601 - DB 1647

UTILITY EASEMENT DETAIL

R/W		
PROP U/G POW CONDUIT	2' (TYP)	10' PUE
PROP U/G TEL CONDUIT	2' (TYP)	
PROP U/G CATV CABLES	2' (TYP)	
PROP U/G GAS LINE	2' (TYP)	
PUE		
PROP U/G WATER LINE	7.5' (TYP)	10' PUE TO BE DEDICATED TO CITY OF RALEIGH
PUE		

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-5121/ B-5317	U0-4

NAD 83/NSRS 2007

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

NOTES:

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3. UTILITY SERVICE CONNECTIONS TO BE RESTORED AS REQUIRED. ACTUAL LOCATION OF SERVICE CONNECTIONS TO BE DETERMINED IN THE FIELD.
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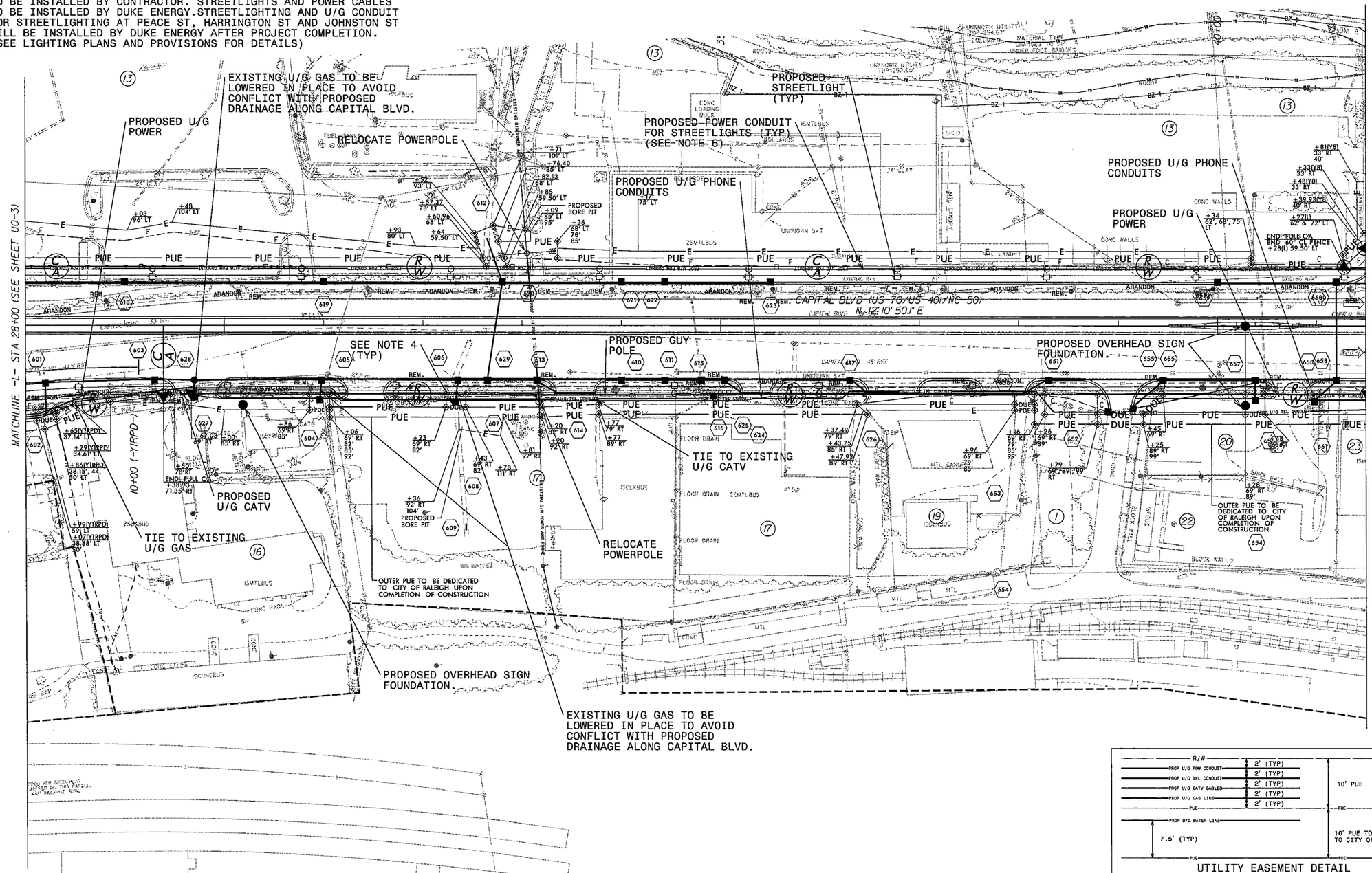

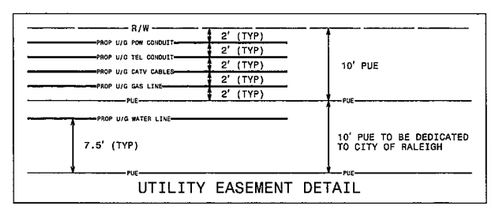

UTILITY EASEMENT DETAIL

PROJECT REFERENCE NO.	SHEET NO.
B-5121/ B-5317	UO-5

UTILITIES BY OTHERS

NOTE:
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NOTES:

1. UTILITY SERVICE CONNECTIONS TO BE RESTORED AS REQUIRED. ACTUAL LOCATION OF SERVICE CONNECTIONS TO BE DETERMINED IN THE FIELD.
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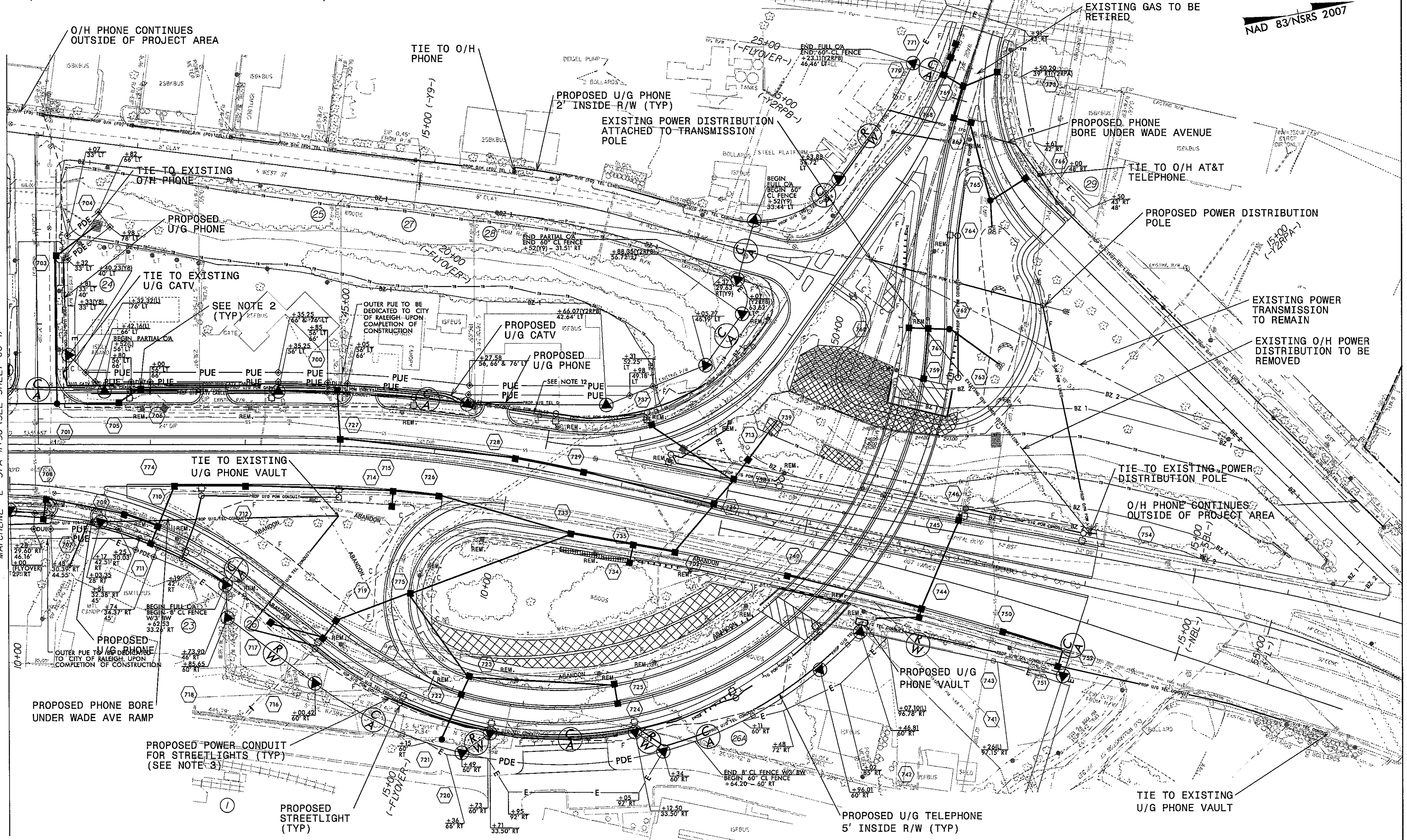
(26) LISTON E & SUSAN S MALPASS DB 7807 - PG 382 BM 2003 - PG 964	(28) ISABEL HUFMEYER DB 7807 - PG 382 BM 2003 - PG 964
(27) JOYNERS REAL ESTATE HOLDINGS V LLC DB 15087 - PG 2007 BM 1959 - PG 262	(29) SUZANNE ABERNETHY WILLIAM R RUGGLES DB 13227 - PG 452 BM 1958 - PG 10



UTILITIES BY OTHERS

NOTE:
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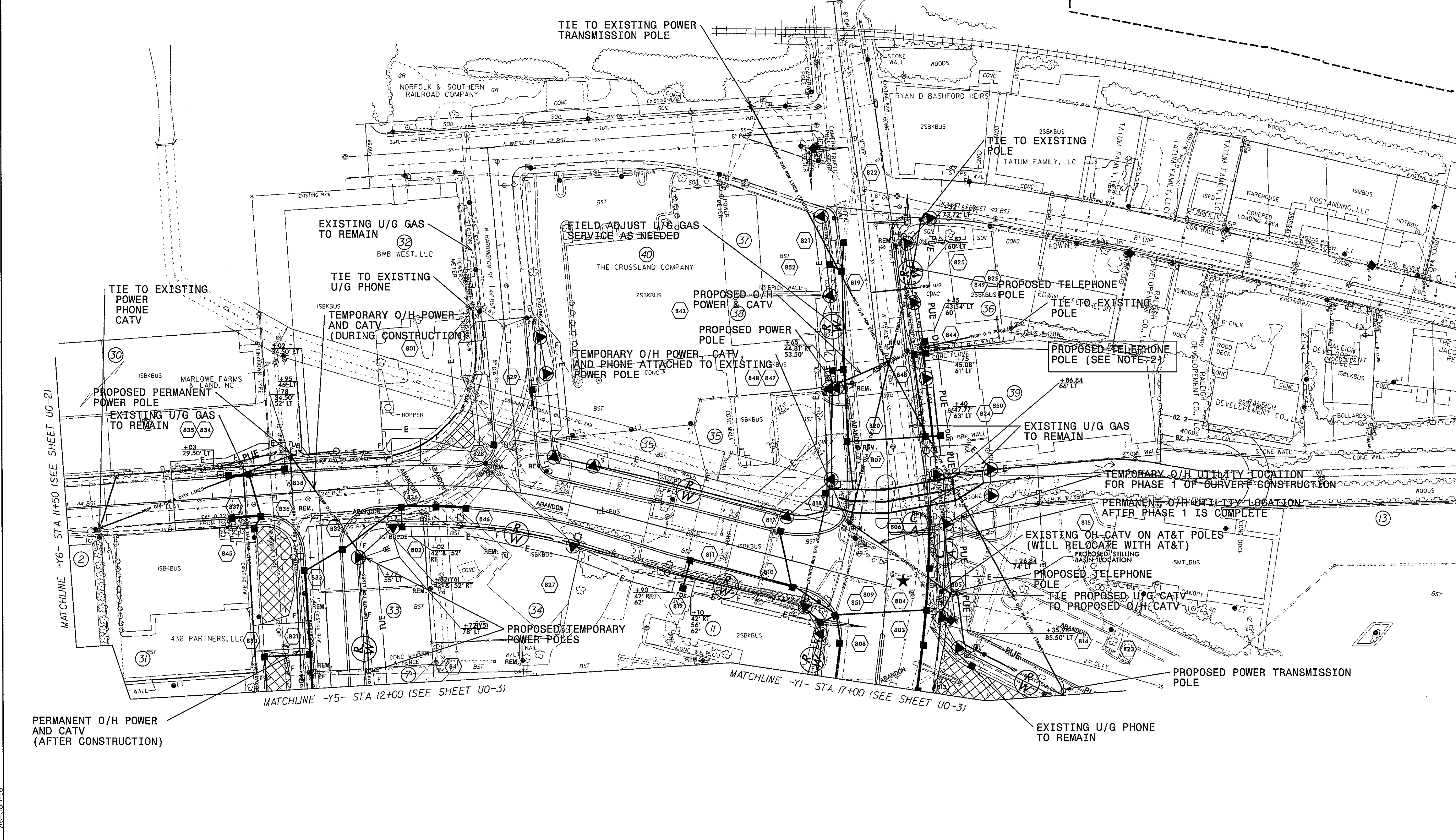
(33) HESTER & HESTER DB 8181 - PG 1853 BM 1885 - PG 104	(36) EDWIN E FLYTHE, JR DB 3726 - PG 580 BM 1885 - PG 82 BM 1977 - PG 393	(39) JAMES H ANDERSON CO DB 5940 - PG 289 BM 1993 - PG 1441
(34) MANN FAMILY PROPERTIES OF RALEIGH DB 11802 - PG 1658	(37) RICHARD GARDNER DB 8613 - PG 2425	(41) ARCHIE LINWOOD KING SUCCESSOR TRUSTEE DB 5369 - PG 541 BM 1947 - PG 73
(35) CHAUCER INVESTMENTS INC DB 13332 - PG 957 BM 1997 - PG 799	(38) MARGARET ALTMAN MANN DB 2989 - PG 318	

NOTES:

1. UTILITY SERVICE CONNECTIONS TO BE RESTORED AS REQUIRED. ACTUAL LOCATION OF SERVICE CONNECTIONS TO BE DETERMINED IN THE FIELD.
2. CONTRACTOR TO COORDINATE WITH AT&T TO SUPPORT POLE WHILE PROPOSED DRAINAGE BOXES ARE BEING INSTALLED.
3. PROPOSED U/G UTILITIES TO BE INSTALLED DEEP ENOUGH TO AVOID CONFLICT WITH PROPOSED DRAINAGE STRUCTURES.
4. STREETLIGHTING AND U/G CONDUIT FOR STREETLIGHTING AT PEACE ST, HARRINGTON ST AND JOHNSTON ST WILL BE INSTALLED BY DUKE ENERGY AFTER PROJECT COMPLETION. (SEE LIGHTING PLANS AND PROVISIONS FOR DETAILS)
5. THE CONTRACTOR MUST CONTACT MR. BRUCE PAIT WITH DUKE ENERGY ASSET PROTECTION (O: 919.329.5928 M: 919.219.9567 BRUCE.PAIT@DUKE-ENERGY.COM) TWO WEEKS PRIOR TO PERFORMING ANY WORK UNDER THE TRANSMISSION LINES.

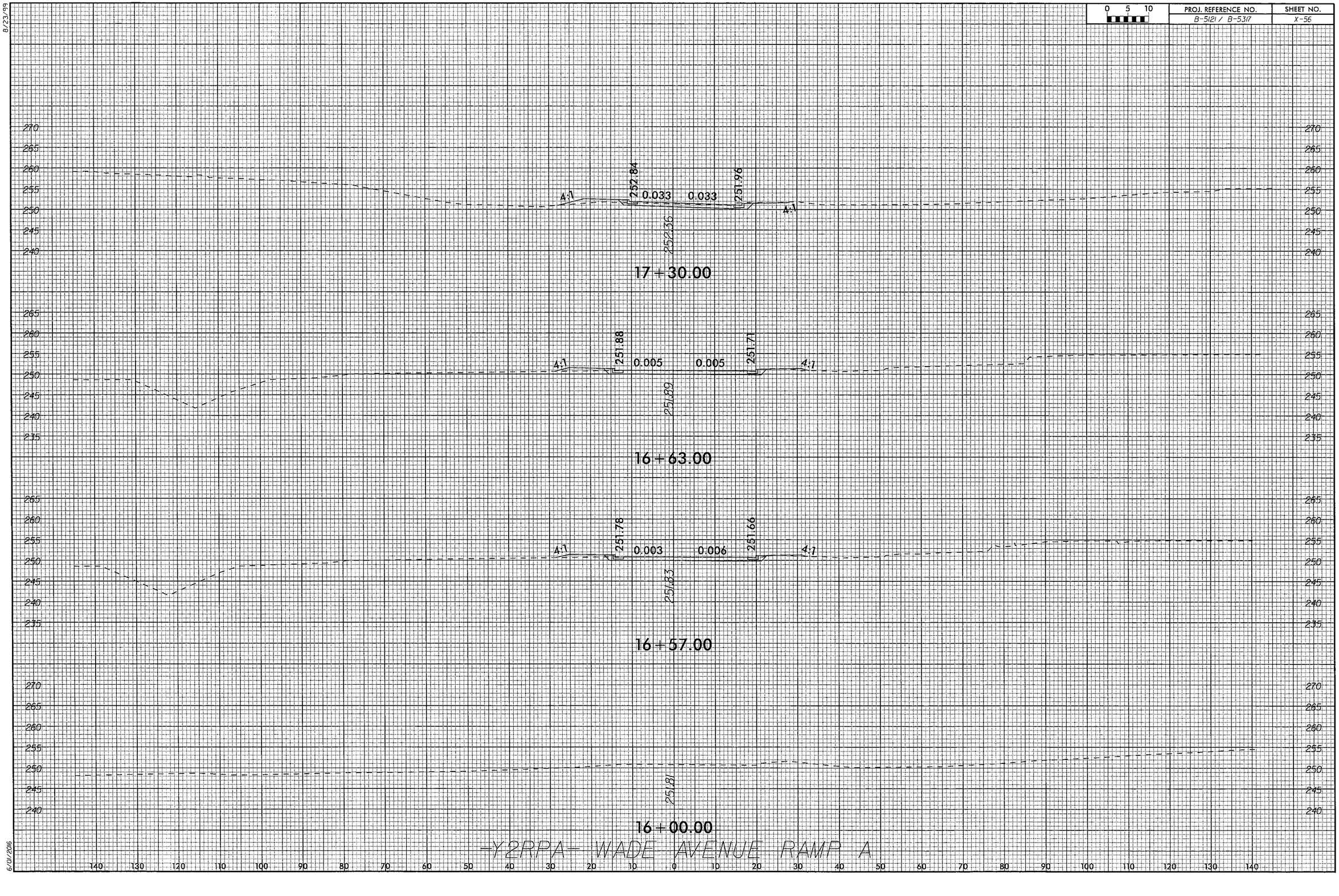


REVISIONS

5/14/99

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5121 / B-5317	X-56



6/01/2006

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5121 / B-5317	X-57

-FLYOVER- STA 25+22.11
SHEAR POINT
ELEV = 251.93'

0.020

251.49

4:1

253.82

18+38.40

-FLYOVER- STA 25+00.00
SHEAR POINT
ELEV = 253.57'

0.031 0.021

253.20

4:1

253.73

18+16.02

-FLYOVER- STA 24+50.00
SHEAR POINT
ELEV = 254.13'

253.41

0.040 0.040

252.55

4:1

253.04

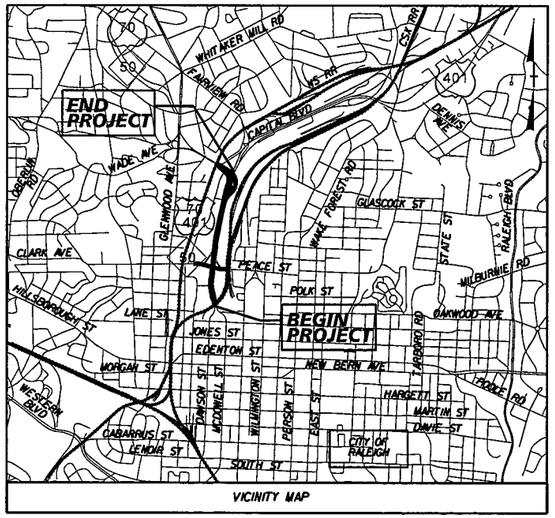
17+72.00

-Y2RPA- WADE AVENUE RAMP A

6/01/2016

TIP NO: B-5121/B-5317

CONTRACT: 203751



STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

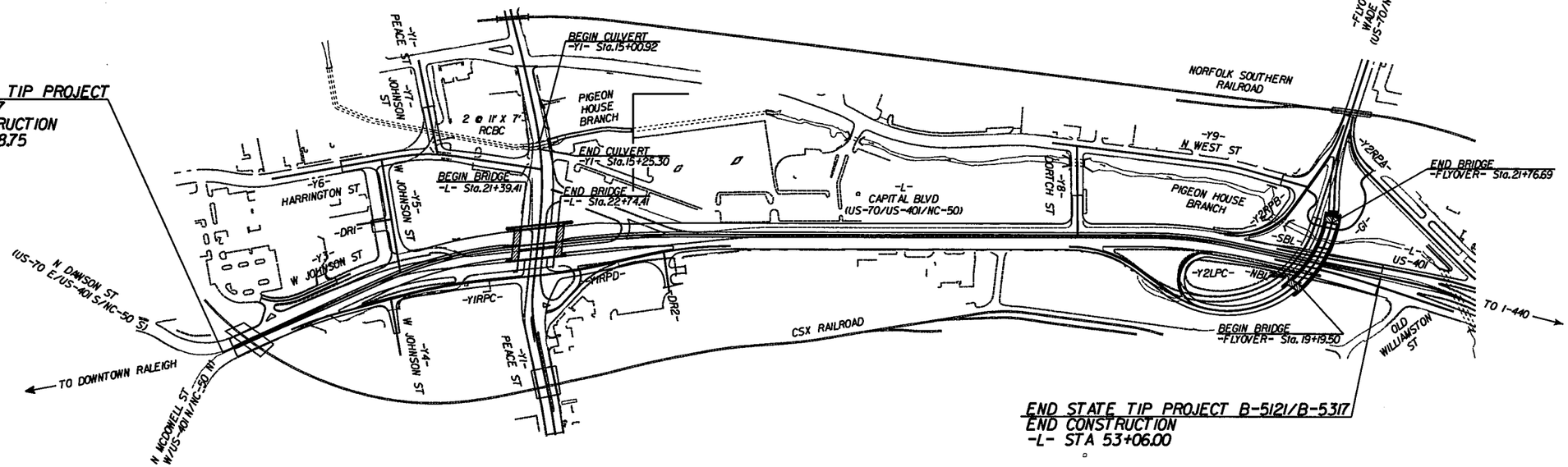
WAKE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5121 / B-5317		

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42263.1.1	BRNHS-0070(119)	P.E. (B-5121)
46031.1.1	BRSTP-0070(149)	P.E. (B-5317)
42263.2.1	BRNHS-0070(119)	R/W
42263.2.1	BRNHS-0070(119)	UTL.
42263.3.1	BRNHS-0070(119)	CONST.

LOCATION: BRIDGE NO. 227 ON US-70/US-401/NC-50 (CAPITAL BOULEVARD) OVER PEACE STREET AND BRIDGE NO. 213 ON US-70/NC-50 (WADE AVENUE) OVER US 401 (CAPITAL BOULEVARD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERT, SIGNALS, AND SIGNING



STRUCTURES

DESIGN DATA

AADT 2016 = 58,083
AADT 2036 = 70,416
K = 10%
D = 55%
T = 5%*
V = 40 MPH

CLASSIFICATION:
URBAN ARTERIAL

* 1% TTST 4% DUAL
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5121/B-5317 = 0.794 MILES

LENGTH STRUCTURE TIP PROJECT B-5121/B-5317 = 0.026 MILES

TOTAL LENGTH TIP PROJECT B-5121/B-5317 = 0.820 MILES

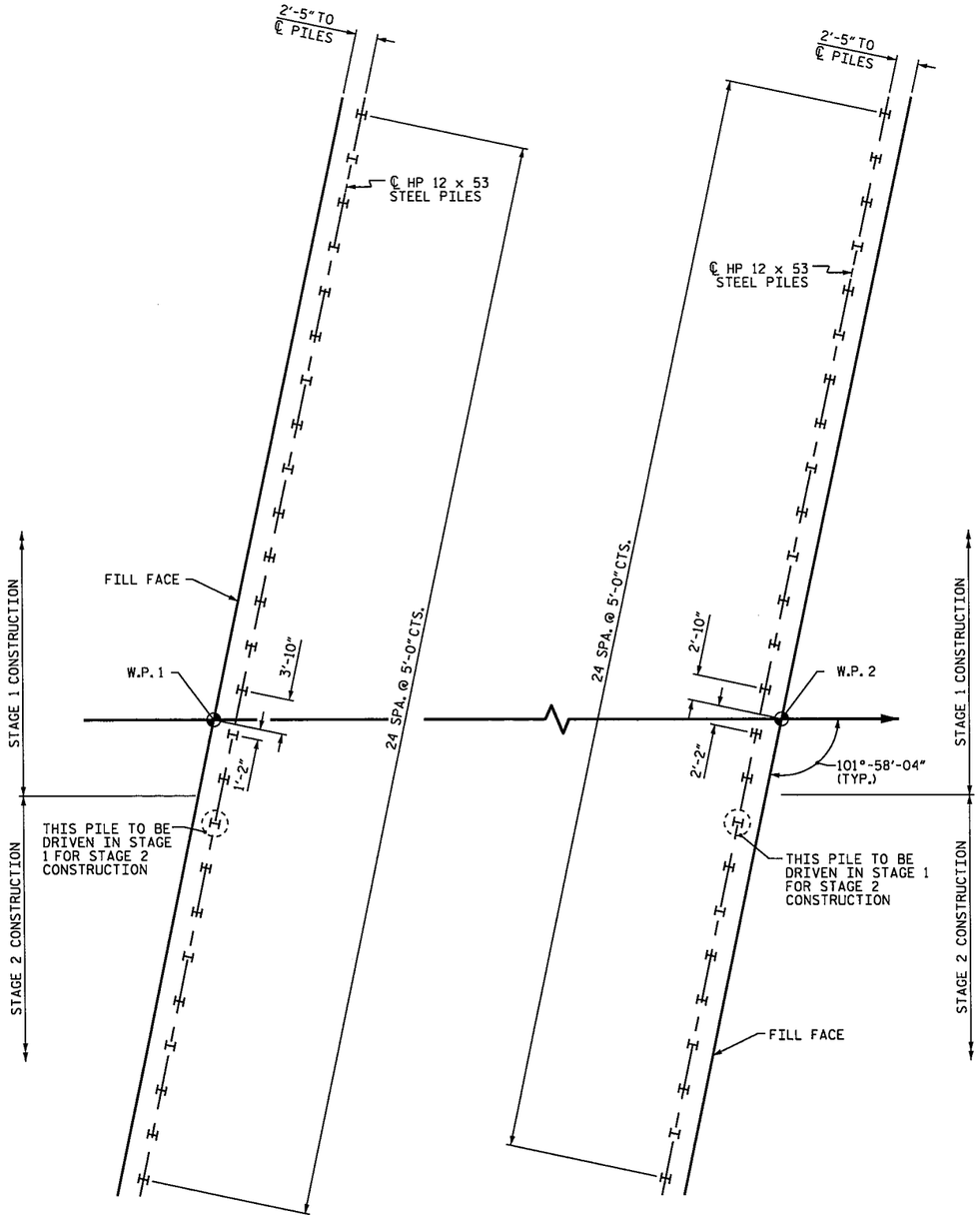
Prepared In the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2012 STANDARD SPECIFICATIONS

LETTING DATE :
JULY 19, 2016

J.M. BAILEY, P.E.
PROJECT ENGINEER

K.W. ALFORD, P.E.
PROJECT DESIGN ENGINEER



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE AT THE BOTTOM OF THE END BENT CAP.

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

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.

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 BAR 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. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 22+06.91 -L-."

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 3 SPANS: 1 @ 42'-6", 1 @ 52', & 1 @ 42'-6", WITH A CLEAR ROADWAY OF 68.3' AND REINFORCED CONCRETE DECK ON CONTINUOUS I-BEAMS ON REINFORCED CONCRETE CAP WITH H-PILE END BENTS AND REINFORCED CONCRETE POST AND BEAM COLUMNS ON SPREAD FOOTINGS AND LOCATED AT THE PROPOSED BRIDGE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE SAND LIGHTWEIGHT CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

FOR PRECAST PANELS, SEE SPECIAL PROVISIONS.

FOR ARCHITECTURAL METAL FASCIA, SEE SPECIAL PROVISIONS.

FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.

FOR SAND LIGHTWEIGHT CONCRETE, SEE SPECIAL PROVISIONS.

FOR APPLICATION OF BRIDGE COATING, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR DECORATIVE CONCRETE PARAPET, SEE SPECIAL PROVISIONS.

FOR PILES, SEE GEOTECHNICAL SPECIAL PROVISIONS AND SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENTS 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE.

DRIVE PILES AT END BENTS 1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 175 TONS PER PILE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENTS 1 AND 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

DRILLED-IN PILES ARE REQUIRED AT END BENT 1. EXCAVATE HOLES FOR PILES 1 TO 5 TO ELEVATION 264 FEET, 6 TO 10 TO ELEVATION 265 FEET, AND 11 TO 16 TO ELEVATION 266 FEET. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

DRILLED IN PILES ARE REQUIRED AT END BENT 2. EXCAVATE HOLES FOR PILES 20 TO 22 TO ELEVATION 264 FEET AND 23 TO 25 TO ELEVATION 267 FEET. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

CONCRETE OR GROUT IS REQUIRED TO FILL HOLES FOR PILE EXCAVATION AT END BENTS 1 AND 2.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING, OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENTS 1 AND 2 ARE TO BE INSTALLED BEFORE CONSTRUCTION OF THE MSE WALLS.

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 22+06.91 -L-

SHEET 2 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

Designed by: K.W. ALFORD

6/3/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON
US 70/US 401/NC 50
(CAPITAL BLVD.)
OVER PEACE STREET

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			110

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DRAWN BY : K.W. ALFORD DATE : 2/2016
CHECKED BY : J.P. ADAMS DATE : 2/2016

02-JUN-2016 08:46
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kalford

STR. #1

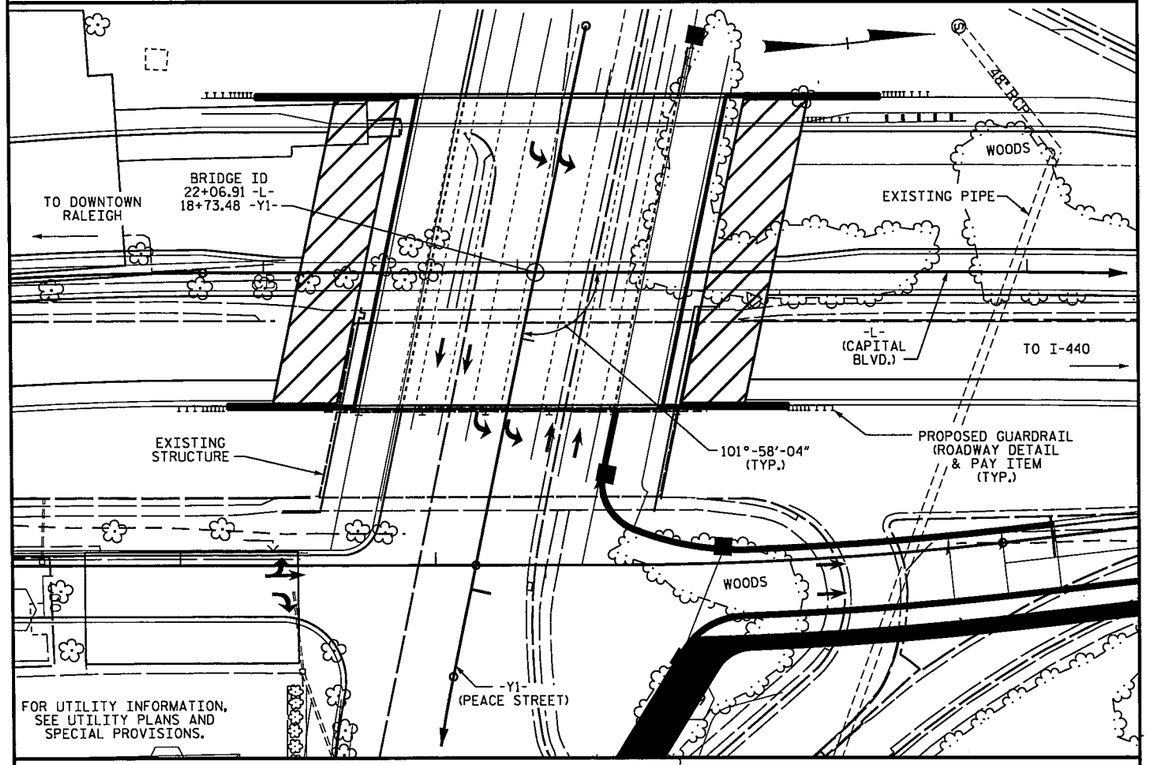
BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	PDA TESTING	REINFORCED CONCRETE DECK SLAB (SAND LIGHTWEIGHT CONCRETE)	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	MODIFIED 72"PRESTRESSED CONCRETE GIRDERS		HP 12 X 53 STEEL PILES	
	LUMP SUM	LIN. FT.	LIN. FT.	EACH	SQ. FT.	SQ. FT.	SQ. FT.	LUMP SUM	LBS.	NO.	LIN. FT.	NO.	LIN. FT.
SUPERSTRUCTURE					16,350	21,197		LUMP SUM		14	1840.71		
END BENT 1		112	18				99.5		12,232			25	750
END BENT 2		35	20				99.5		12,241			25	710
TOTAL	LUMP SUM	147	38	1	16,350	21,197	199	LUMP SUM	24,473	14	1840.71	50	1460

BILL OF MATERIAL

	STEEL PILE POINTS	1'-4"X 3'-6" CONCRETE PARAPET	DECORATIVE CONCRETE PARAPET	4"SLOPE PROTECTION	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS	APPLICATION OF BRIDGE COATING	ASBESTOS ASSESSMENT	ARCHITECTURAL METAL FASCIA	CONCRETE PARAPET WITH MOMENT SLAB	PRECAST CONCRETE PANELS
	EA.	LIN. FT.	LIN. FT.	SQ. YDS.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	SQ. FT.
SUPERSTRUCTURE		182.71	265.42		LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	240	198.83	163
END BENT 1	25			40							
END BENT 2	25			40							
TOTAL	50	182.71	265.42	80	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	240	198.83	163

BM #49: SQUARE CHISLED IN CONCRETE RETAINING WALL 4' LEFT STA. 21+34.00 -L-, EL. 288.28



LOCATION SKETCH

DRAWN BY : K.W. ALFORD DATE : 2/2016
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kalford

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

Docusigned by:
6/3/2016

PROJECT NO. B-5121/B-5317
WAKE COUNTY
STATION: 22+06.91 -L-

SHEET 3 OF 3

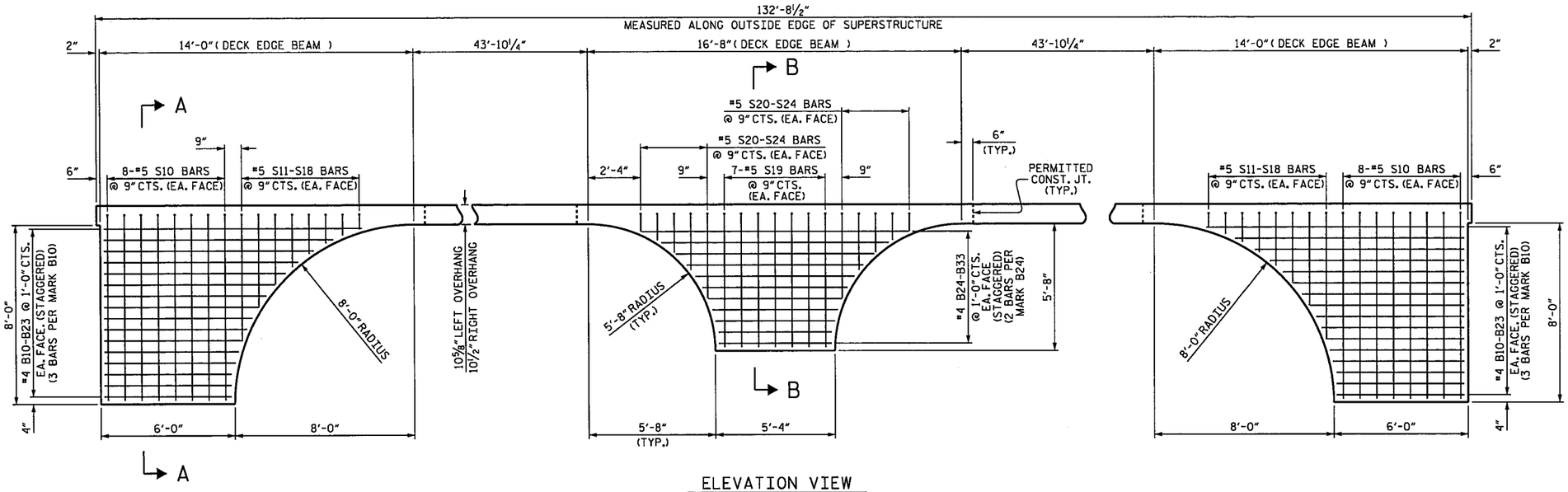
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON
US 70/US 401/NC 50
(CAPITAL BLVD.)
OVER PEACE STREET

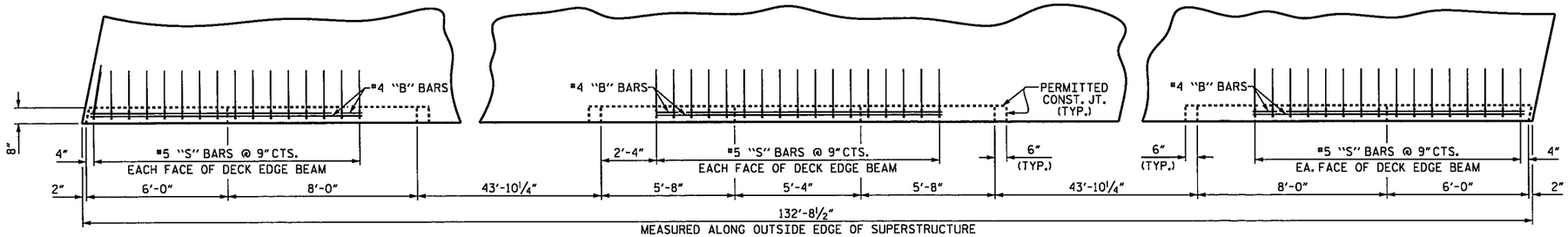
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			110

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STR #1

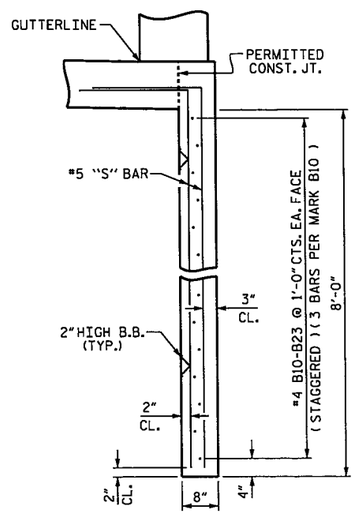


ELEVATION VIEW

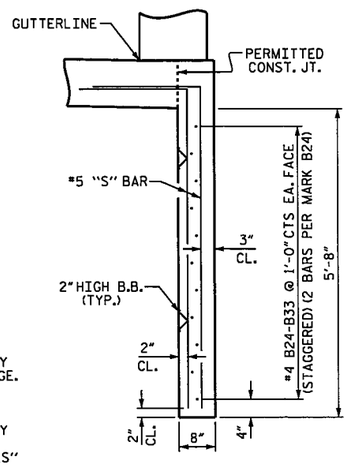


PLAN VIEW

DECK EDGE BEAM IN RIGHT OVERHANG SHOWN.
DECK EDGE BEAM IN LEFT OVERHANG SIMILAR BY ROTATION.



SECTION A-A



SECTION B-B

NOTES:

DECK EDGE BEAM SHALL BE CAST WITH THE DECK. NO CONSTRUCTION JOINT SHALL BE ALLOWED BETWEEN THE DECK EDGE BEAMS AND THE DECK, EXCEPT AS SHOWN.

AESTHETIC DETAILS NOT SHOWN FOR CLARITY. SEE SHEET 2 OF 2 FOR AESTHETIC DETAILS.

DECK REINFORCING STEEL NOT SHOWN FOR CLARITY. SEE "PLAN OF SPANS" SHEETS.

CONCRETE PARAPET DETAILS NOT SHOWN FOR CLARITY. SEE "CONCRETE PARAPET" SHEETS.

FORMED HOLES FOR PRECAST PANELS NOT SHOWN FOR CLARITY. REINFORCING STEEL MAY BE SHIFTED SLIGHTLY TO AVOID INTERFERENCE WITH PRECAST PANEL ANCHORAGE. SEE "PRECAST PANEL" SHEETS.

ANCHORAGE FOR LUMINAIRE BRACKETS NOT SHOWN FOR CLARITY. REINFORCING STEEL MAY BE SHIFTED SLIGHTLY TO AVOID INTERFERENCE WITH LUMINAIRE BRACKET ANCHORAGE. SEE "ARCHITECTURAL METAL FASCIA DETAILS" SHEETS.

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CHECKED BY : J.P. ADAMS DATE : 2/2016
DESIGN ENGINEER OF RECORD: K.W. ALFORD DATE : 2/2016

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NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD
6/3/2016

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PROJECT NO. B-5121/B-5317
WAKE COUNTY
STATION: 22+06.91 -L-

SHEET 1 OF 2

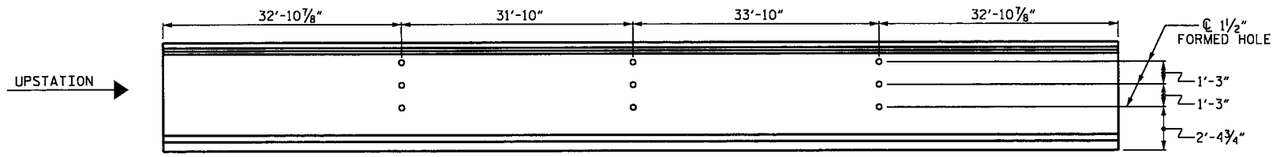
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

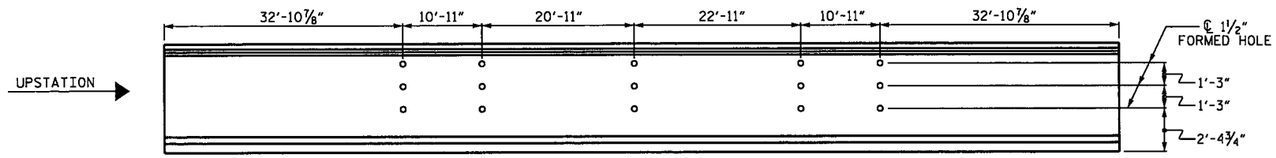
DECK EDGE BEAM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			110

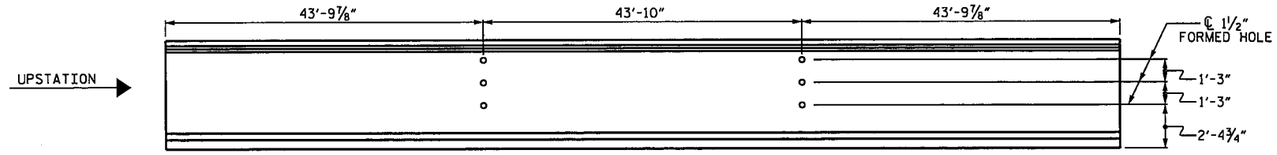
STR. #1



ELEVATION - GIRDERS 1 & 14

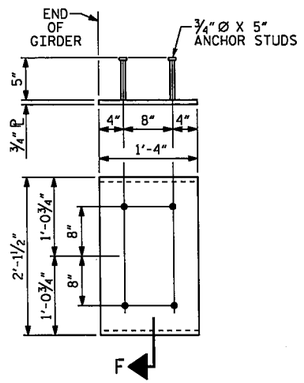


ELEVATION - GIRDERS 2 & 13



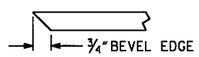
ELEVATION - GIRDERS 3 THRU 12

FORMED HOLES FOR DIAPHRAGM DETAIL



EMBEDDED PLATE "B-1" DETAILS
72" MODIFIED BULB TEES

(2 REQ'D PER GIRDER)



SECTION "F"

(SEE NOTES)

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 8000 PSI.

DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF ¼".

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN ½" OF THE THEORETICAL LOCATION SHOWN.

A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 72" MODIFIED BULB TEES ONLY.

THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.

THE UPLIFT FORCE DUE TO DRAPED STRANDS IS 23.2 KIPS.

FOR APPLICATION OF BRIDGE COATING, SEE SPECIAL PROVISIONS.

PVC INSERTS FOR ARCHITECTURAL METAL FASCIA ARE NOT SHOWN FOR CLARITY. FOR LOCATION OF 1 ¼" Ø PVC INSERTS IN EXTERIOR GIRDERS, SEE "ARCHITECTURAL METAL FASCIA LAYOUT" SHEET.

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 22+06.91 -L-

SHEET 2 OF 2

ASSEMBLED BY : T.L. AVERETTE		DATE : 12-15
CHECKED BY : J.P. ADAMS		DATE : 2-16
DESIGN ENGINEER OF RECORD: T.L. AVERETTE		DATE : 2-16
DRAWN BY : ELR 11/91	REV. 10/1/11	MAA/GM
CHECKED BY : GRP 11/91	REV. 1/15	MAA/TMG
	REV. 2/15	MAA/TMG

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kalford

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

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6/3/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

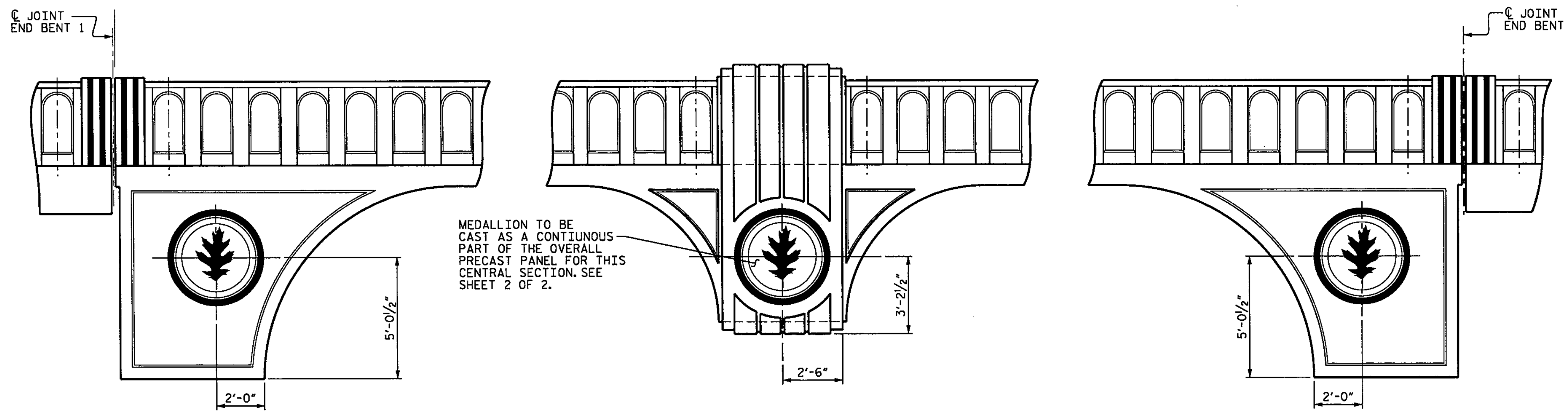
STANDARD

PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			110

STR. #1

STD. NO. PCG9 (Sht. 4)



ELEVATION VIEW

RIGHT SIDE OF STRUCTURE SHOWN.
LEFT SIDE SIMILAR BY ROTATION.

NOTES

USE CLASS "A" CONCRETE WITH PEA GRAVEL AGGREGATE IN THE PRECAST CONCRETE PANELS. IN ADDITION TO THE #3 REINFORCING BARS, CONCRETE SHALL BE REINFORCED WITH POLYPROPYLENE FIBERS PER THE MANUFACTURERS' RECOMMENDATIONS.

PREFORMED BEARING PAD SHALL CONFORM TO SECTION 1079-1 OF THE STANDARD SPECIFICATIONS. AT THE CONTRACTOR'S OPTION, AN UNREINFORCED PLAIN ELASTOMERIC PAD MAY BE USED.

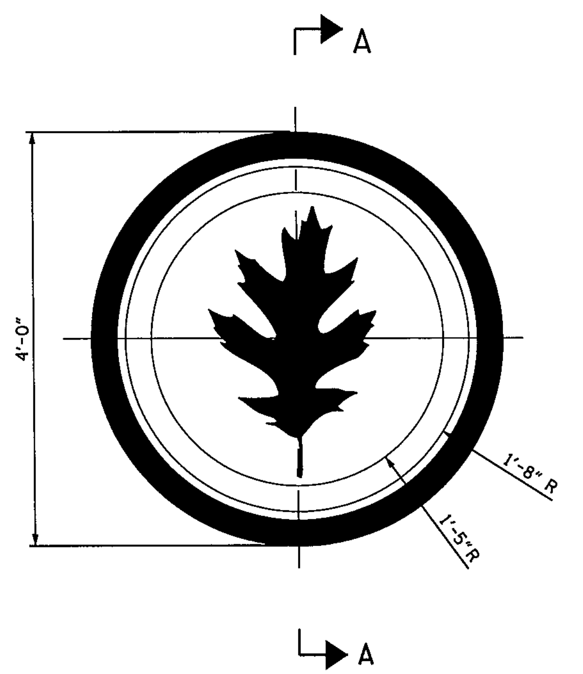
DECK EDGE BEAMS SHALL HAVE ⅝" Ø FORMED HOLES TO MATCH THE LOCATION OF THE REQUIRED ANCHORAGE FOR MEDALLIONS AS SHOWN.

PRECAST PANELS SHALL BE CAST AFTER BRIDGE SUPERSTRUCTURE IS COMPLETED. FORMED HOLES IN PANELS SHALL BE CAST TO MATCH THE LOCATION OF THE FORMED HOLES IN THE DECK EDGE BEAMS. REINFORCING STEEL MAY BE SHIFTED SLIGHTLY DUE TO CHANGES IN THE FORMED HOLE LOCATIONS.

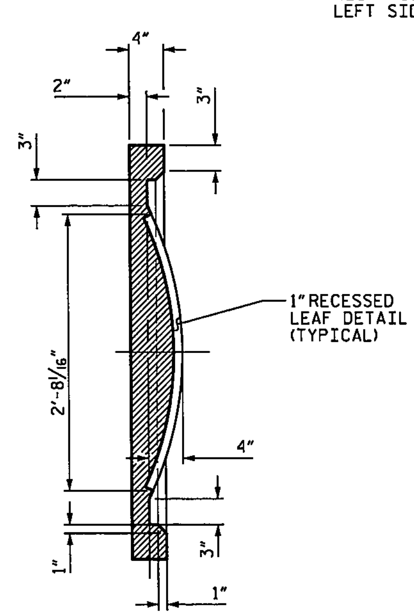
NO WORK MAY BE STARTED ON FABRICATION OF PRECAST PANELS UNTIL VECTOR DRAWINGS OF THE ARTWORK HAVE BEEN OBTAINED FROM THE DEPARTMENT. NO ADDITIONAL DESIGN SHALL BE REQUIRED.

MATERIAL FOR BOLTS AND THREADED RODS SHALL BE ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. BOLTS TO BE EMBEDDED AS SHOWN. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK, CLASS 2B THREAD, AND MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

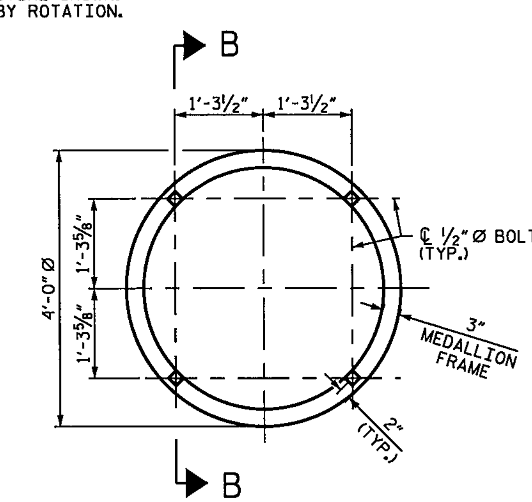
FOR PRECAST PANELS, SEE SPECIAL PROVISIONS.



MEDALLION DETAIL

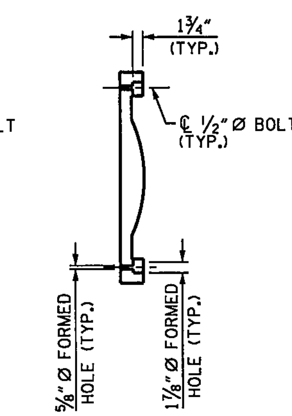


SECTION A-A

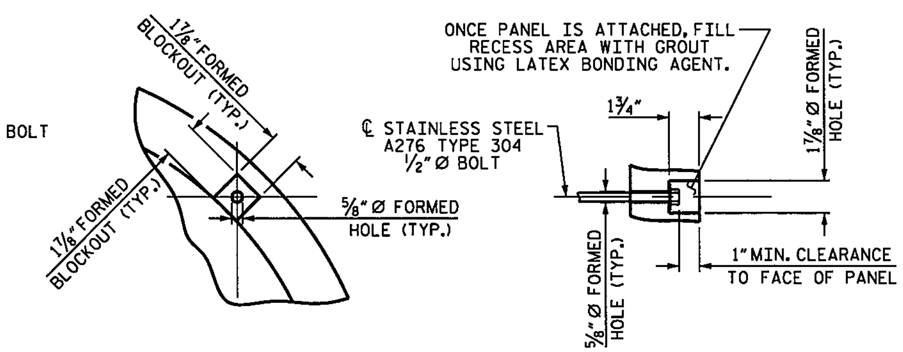


ANCHORAGE DIMENSIONS

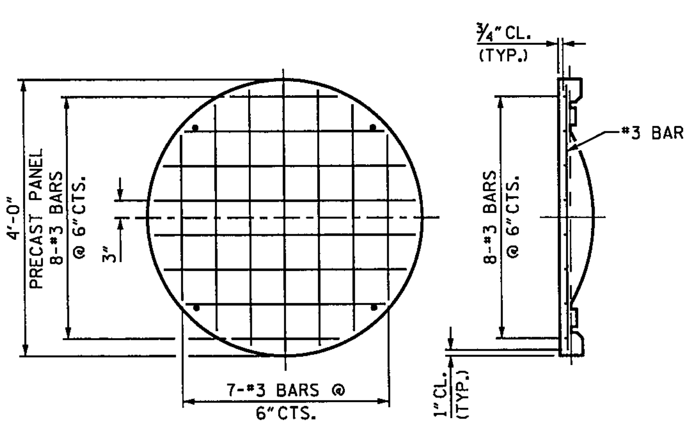
MEDALLION DETAILS NOT SHOWN FOR CLARITY



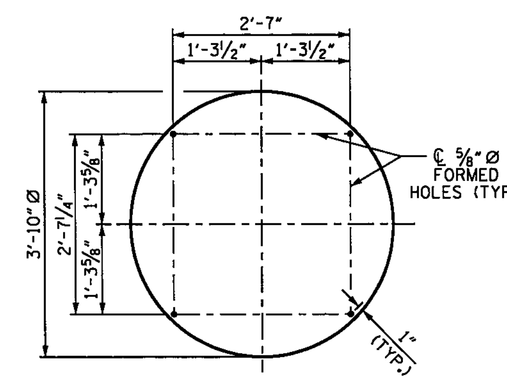
SECTION B-B



RECESS DETAILS



REINFORCING STEEL



¼" FORMED BEARING PAD

PRECAST MEDALLION

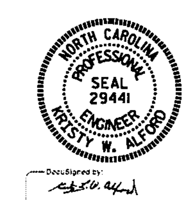
4 MEDALLIONS REQUIRED

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 22+06.91 -L-

SHEET 1 OF 2



6/3/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PRECAST PANELS

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REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-40
1			3					TOTAL SHEETS
2			4					110

STR. #1

DRAWN BY :	K.W. ALFORD	DATE :	2/2016
CHECKED BY :	J.P. ADAMS	DATE :	2/2016
DESIGN ENGINEER OF RECORD:	K.W. ALFORD	DATE :	2/2016

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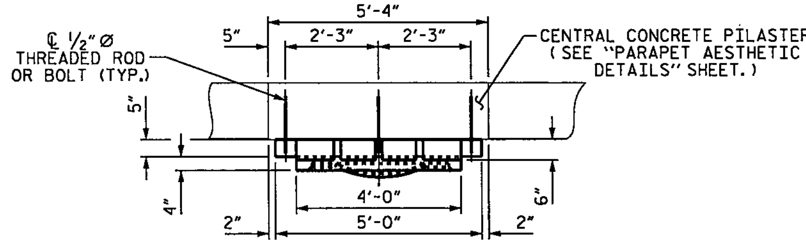
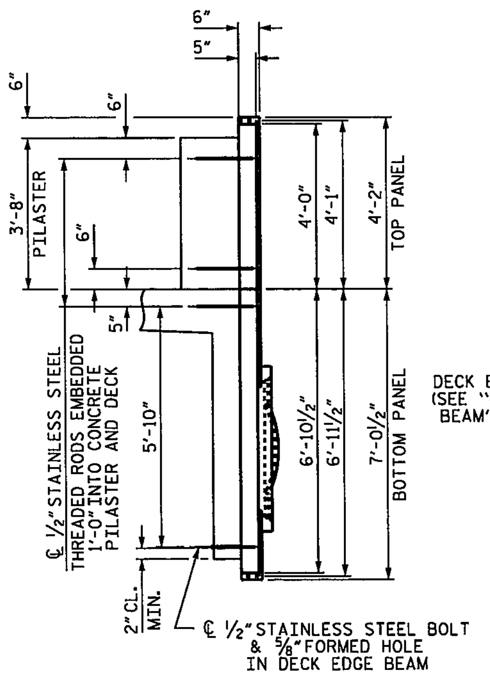
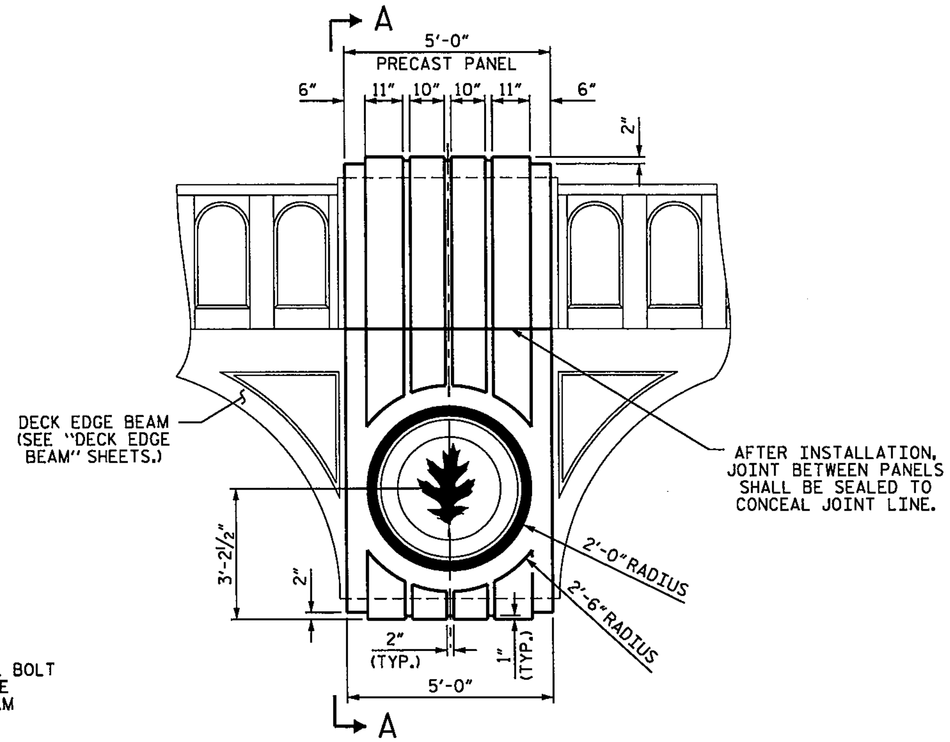
kalford



PLAN VIEW

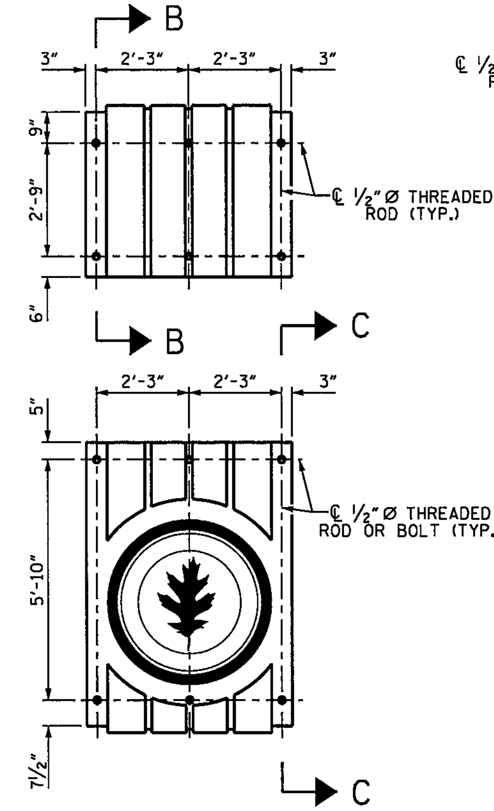


SECTION A-A

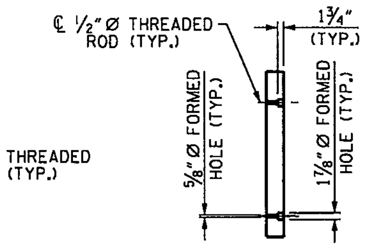


ELEVATION VIEW

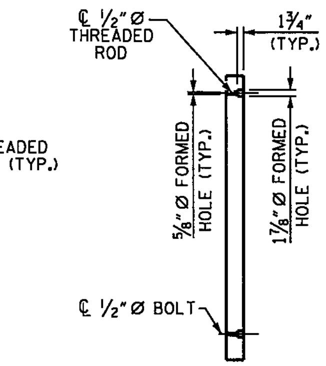
MEDALLION SHALL BE POURED AS A CONTINUOUS POUR WITH THE BOTTOM PANEL AS SHOWN. FOR MEDALLION DETAILS, SEE SHEET 1 OF 2.



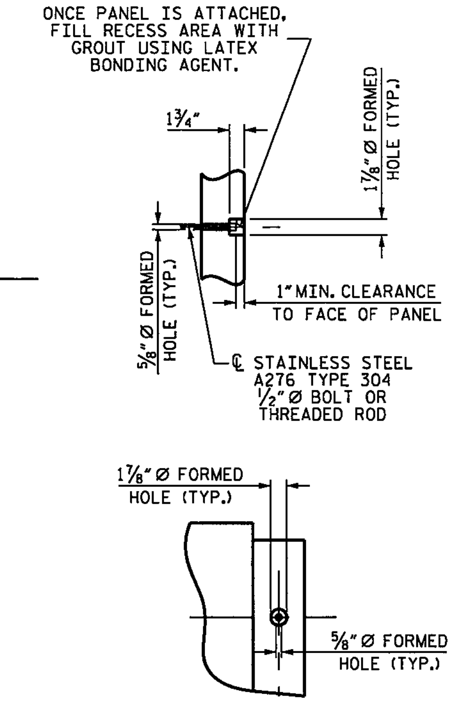
ANCHORAGE DIMENSIONS



SECTION B-B



SECTION C-C



RECESS DETAILS

NOTES

USE CLASS "A" CONCRETE WITH PEA GRAVEL AGGREGATE IN THE PRECAST CONCRETE PANELS. IN ADDITION TO THE #3 REINFORCING BARS, CONCRETE SHALL BE REINFORCED WITH POLYPROPYLENE FIBERS PER THE MANUFACTURERS' RECOMMENDATIONS.

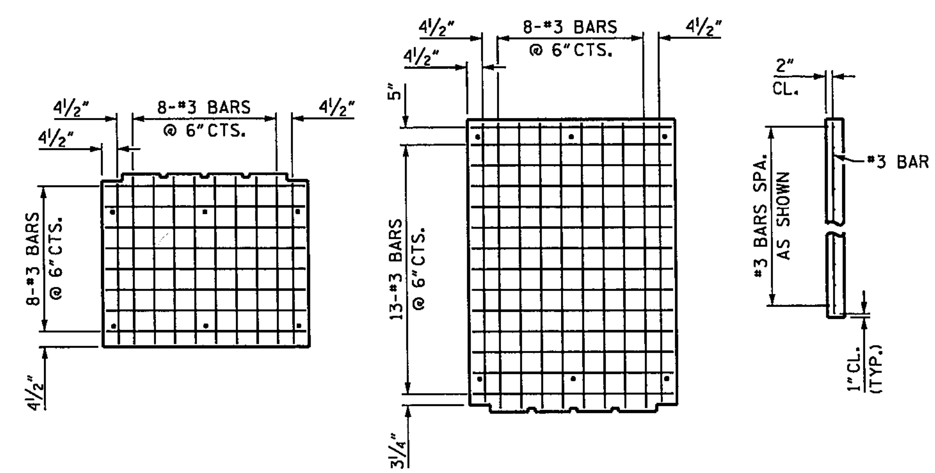
PREFORMED BEARING PAD SHALL CONFORM TO SECTION 1079-1 OF THE STANDARD SPECIFICATIONS. AT THE CONTRACTOR'S OPTION, AN UNREINFORCED PLAIN ELASTOMERIC PAD MAY BE USED.

PRECAST PANELS SHALL BE CAST AFTER BRIDGE SUPERSTRUCTURE IS COMPLETED. FORMED HOLES IN PANELS SHALL BE CAST TO MATCH THE LOCATION OF THE THREADED RODS IN THE PARAPET AND DECK AND THE FORMED HOLES IN THE DECK EDGE BEAMS. REINFORCING STEEL MAY BE SHIFTED SLIGHTLY DUE TO CHANGES IN THE FORMED HOLE LOCATIONS.

MATERIAL FOR BOLTS AND THREADED RODS SHALL BE ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. BOLTS TO BE EMBEDDED AS SHOWN. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK, CLASS 2B THREAD, AND MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

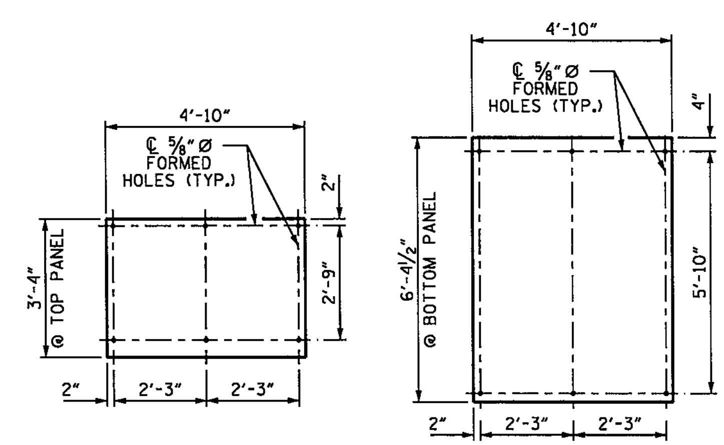
FOR PRECAST PANELS, SEE SPECIAL PROVISIONS.

NO WORK MAY BE STARTED ON FABRICATION OF PRECAST PANELS UNTIL VECTOR DRAWINGS OF THE ARTWORK HAVE BEEN OBTAINED FROM THE DEPARTMENT. NO ADDITIONAL DESIGN SHALL BE REQUIRED.



REINFORCING STEEL

RELIEF ON PANELS NOT SHOWN FOR CLARITY.



1/4" PREFORMED BEARING PADS

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 22+06.91 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
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RALEIGH

SUPERSTRUCTURE

PRECAST PANELS

PANELS AT CENTRAL CONCRETE PILASTER

2 TOP PANELS REQUIRED
2 BOTTOM PANELS REQUIRED

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 29441 KRISTY W. ALFORD
6/3/2016

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DRAWN BY :	K.W. ALFORD	DATE : 2/2016
CHECKED BY :	J.P. ADAMS	DATE : 2/2016
DESIGN ENGINEER OF RECORD:	K.W. ALFORD	DATE : 2/2016

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-41
1			3				TOTAL SHEETS
2			4				110

STR. #1

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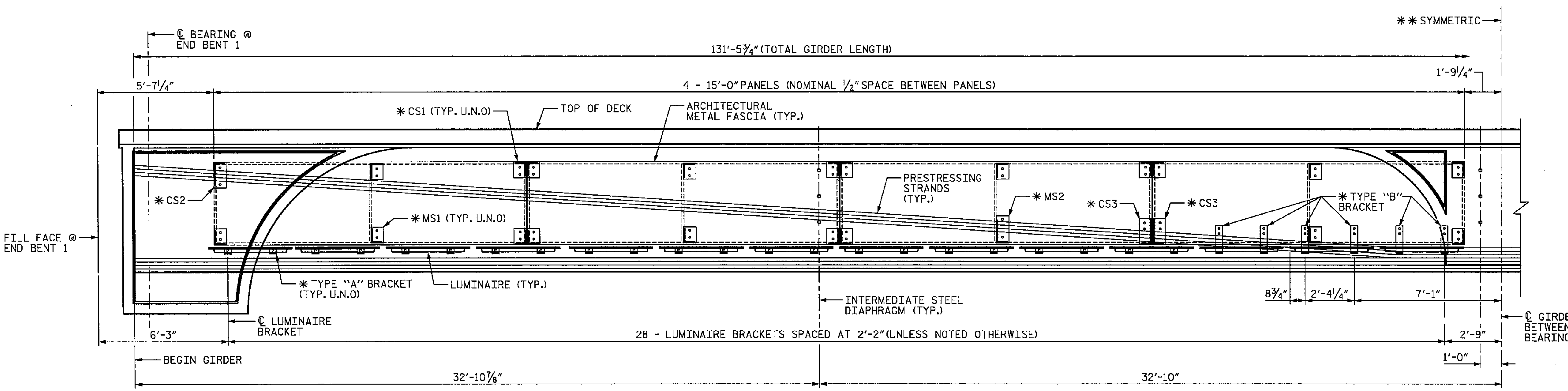
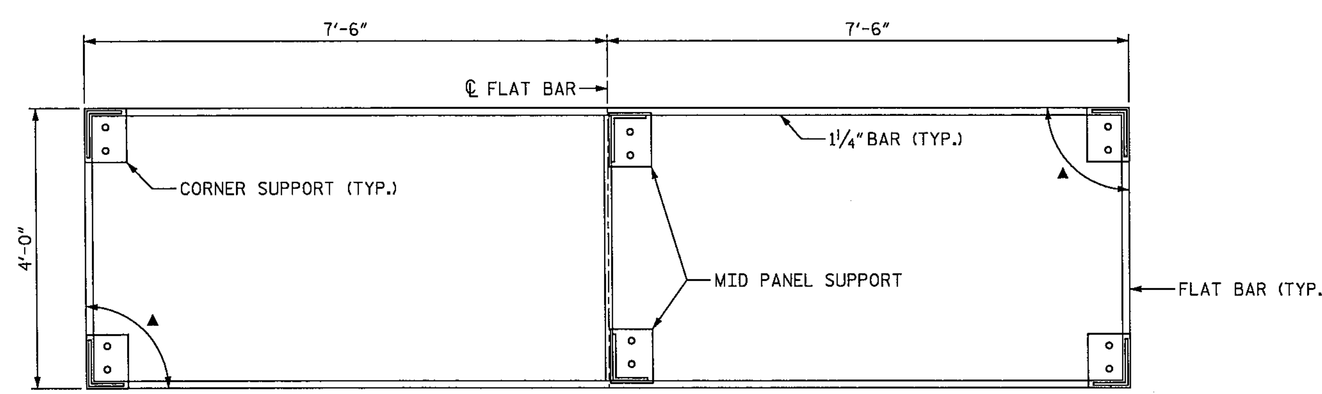
kalford



PARTIAL ELEVATION ALONG ℄ GIRDER

GIRDER 14 SHOWN; GIRDER 1 SIMILAR BUT OPPOSITE HAND

* SEE ARCHITECTURAL METAL FASCIA DETAILS.
** EXCEPT FOR CENTRAL DIAPHRAGM



ARCHITECTURAL METAL FASCIA FRAME ELEVATION

▲ ANGLE BETWEEN TOP/BOTTOM BAR AND VERTICAL BAR MAY VARY DEPENDING ON FINAL GIRDER GEOMETRY AFTER BRIDGE DECK AND RAILING IS CAST.

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WAKE COUNTY

STATION: 22+06.91 -L-

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6/2/2016

NORTH CAROLINA PROFESSIONAL SEAL 038447 ENGINEER ANDREW S. MILLER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL METAL FASCIA LAYOUT

REVISIONS								SHEET NO.
NO.	BY:	DATE:		NO.	BY:	DATE:		S-42
1				3				TOTAL SHEETS
2				4				110

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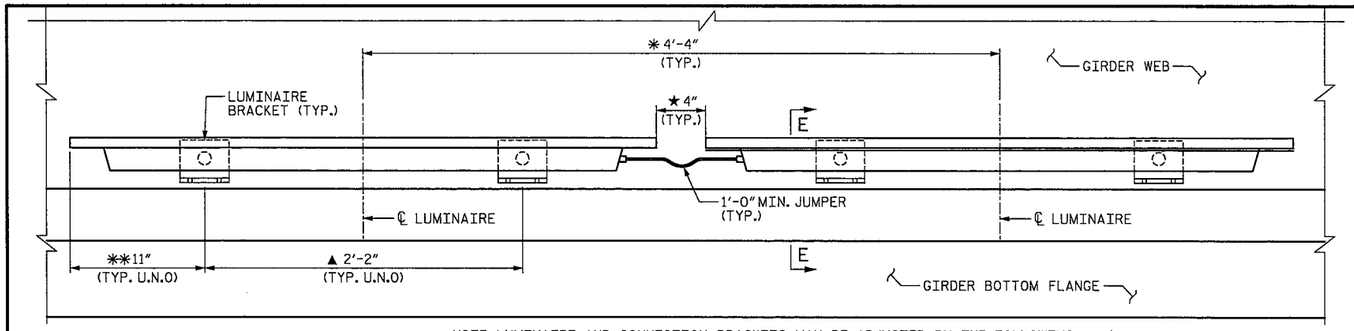
DESIGNED BY : G.L. HAMILTON DATE : 4/2016

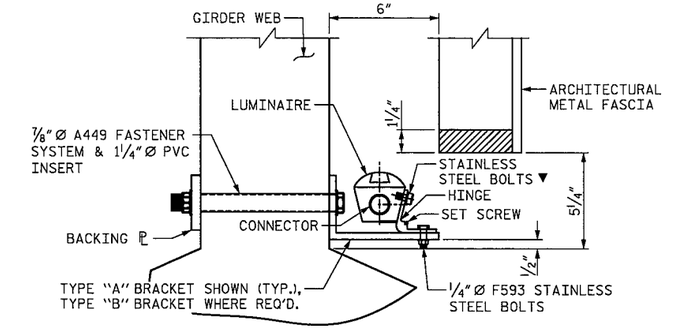
DATE: 6/2/2016
TIME: 2:30:02 PM



NOTE: LUMINAIRE AND CONNECTION BRACKETS MAY BE ADJUSTED BY THE FOLLOWING LIMITS TO CLEAR PANEL SUPPORT BRACKETS, DIAPHRAGMS AND OTHER CONFLICTS. JUMPER CABLE LENGTH IS DEPENDENT ON LUMINAIRE SPACING. LONGER JUMPER CABLES WILL BE REQUIRED FOR LUMINAIRE SPACING EXCEEDING 4'-4".

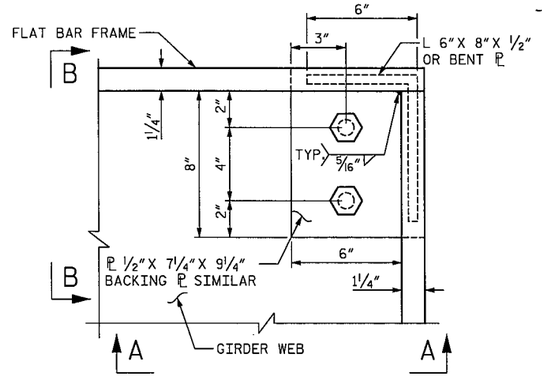
▲ 3'-0" MAX.; 1'-7" MIN.
★ 1'-6" MAX.; 1/4" MIN.
✱ 4'-6" MAX.; 4'-0 1/4" MIN.
✱✱ 1'-6" MAX.; 6" MIN.

ELEVATION



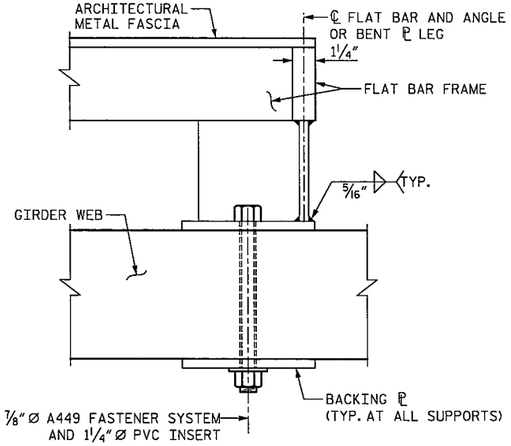
SECTION E-E

▼ SIZE PER LUMINAIRE MANUFACTURER'S SPECIFICATIONS

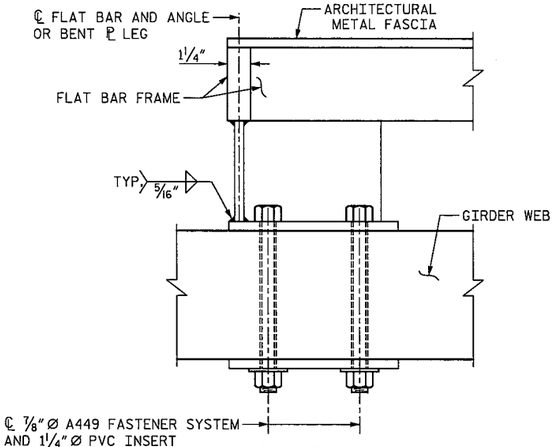


CORNER SUPPORT (CS1)

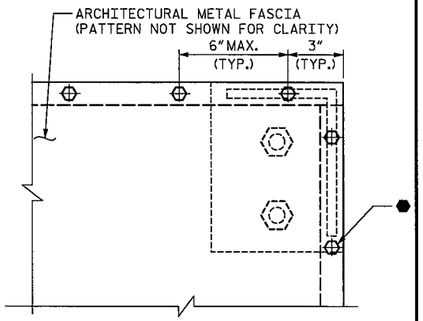
NOTE: UPPER CORNER SUPPORT BRACKET SHOWN, BRACKETS FOR OTHER THREE CORNERS SIMILAR. PANEL PLATE AND BOLT HOLES NOT SHOWN FOR CLARITY.



SECTION A-A

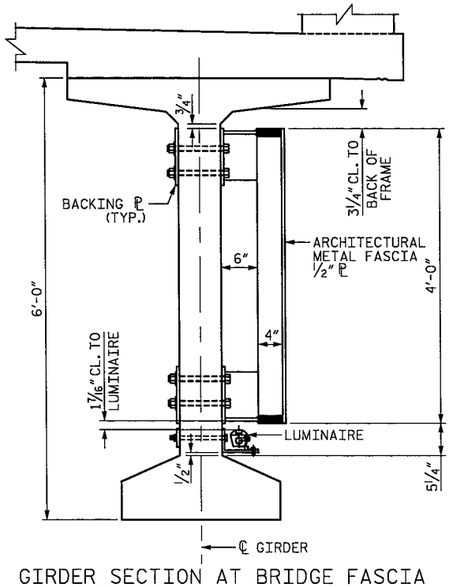


SECTION B-B

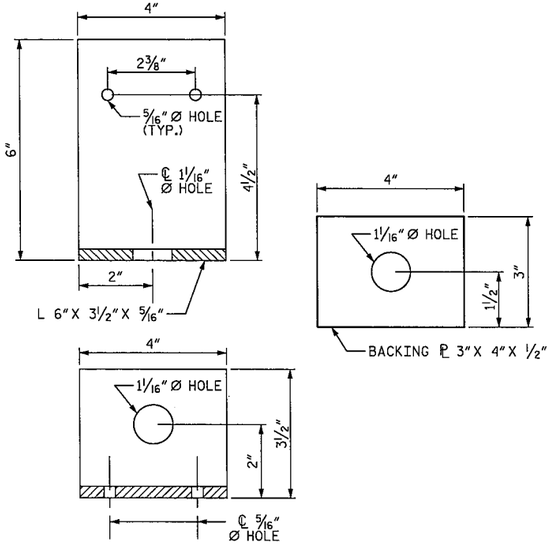


PANEL TO FRAME CONNECTION

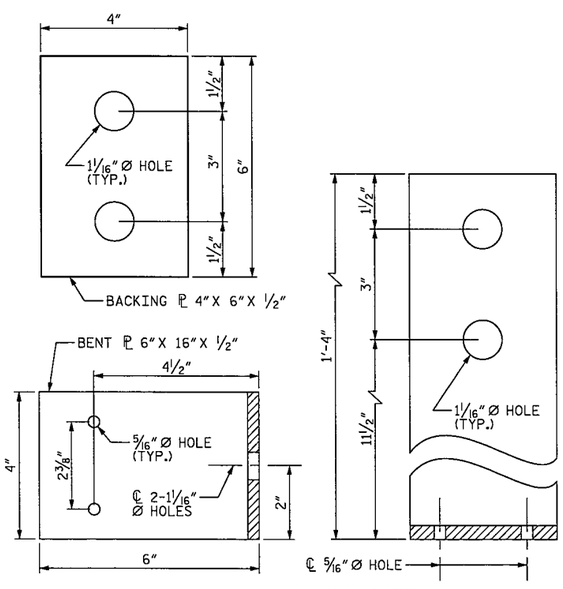
● 3/8" Ø X 1 1/2" F593 ALLOY 304 STAINLESS STEEL FASTENER WITH STAINLESS STEEL SPRINGLOCK WASHER; DRILL AND TAP 2" DEEP HOLE INTO PERIMETER FLAT BAR FRAME FOR 1 1/2" FASTENER. ALL LOCK WASHERS SHALL BE FULLY ENGAGED PRIOR TO ACCEPTANCE. CONTRACTOR SHALL USE THREADLOCK SUCH AS LOCTITE BLUE OR EQUAL DURING INSTALLATION OF FASTENER. THE THREADLOCK SHALL ALLOW FOR FUTURE DISASSEMBLY. FASCIA PANELS SHALL NOT BE BOLTED TO CENTER BAR OF FRAME SYSTEM. BOLT HEADS SHALL BE ON THE EXPOSED SIDE OF THE FASCIA PANELS (TYP.)



GIRDER SECTION AT BRIDGE FASCIA



TYPE "A" BRACKET
(2 REQUIRED PER LUMINAIRE)



TYPE "B" BRACKET
(2 REQUIRED PER LUMINAIRE)

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PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 22+06.91 -L-

SHEET 1 OF 2

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6/2/2016

NORTH CAROLINA PROFESSIONAL SEAL 038447 ENGINEER ANDREW S. MILLER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL METAL FASCIA DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS
2			4			110

STR. #1

DRAWN BY : K.H. COMPTON DATE : 4/2016
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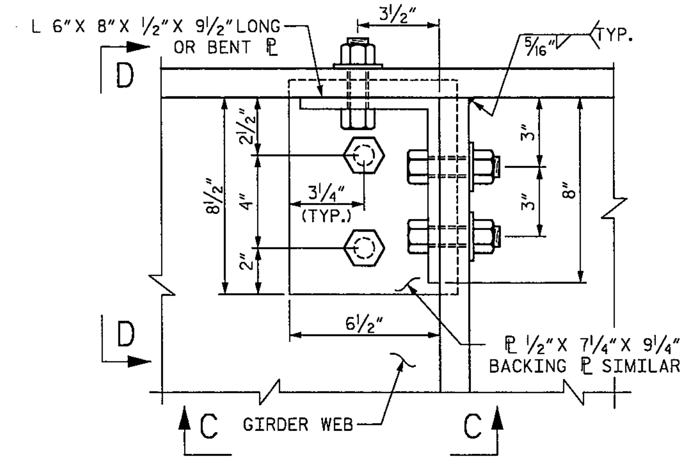
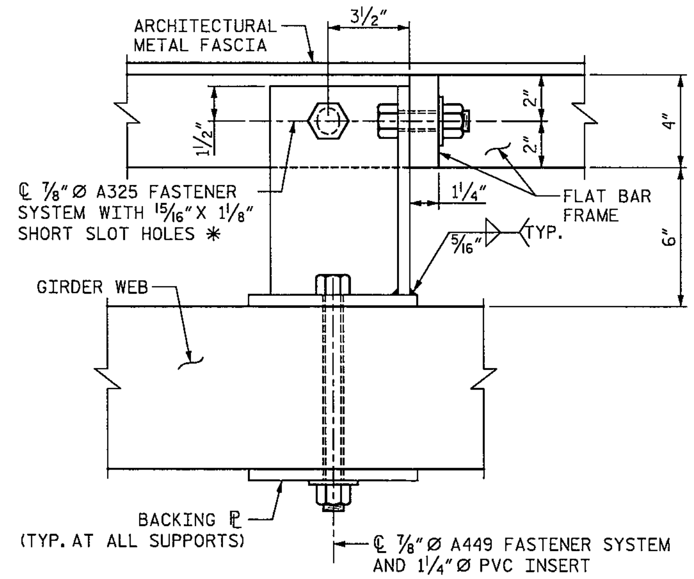
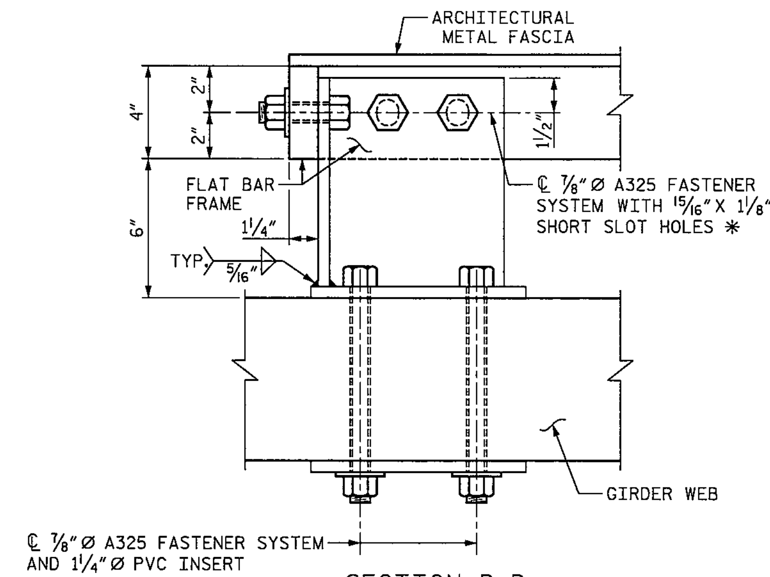


MID PANEL SUPPORT (MS1)

NOTE: UPPER MIDDLE SUPPORT BRACKET SHOWN, BRACKETS FOR LOWER MIDDLE SUPPORT SIMILAR. PANEL PLATE AND BOLT HOLES NOT SHOWN FOR CLARITY.



SECTION C-C



SECTION D-D

✻ SLOTTED HOLES ORIENTED PERPENDICULAR TO GIRDER WEB

NOTES:

FOR ARCHITECTURAL METAL FASCIA, SEE SPECIAL PROVISIONS

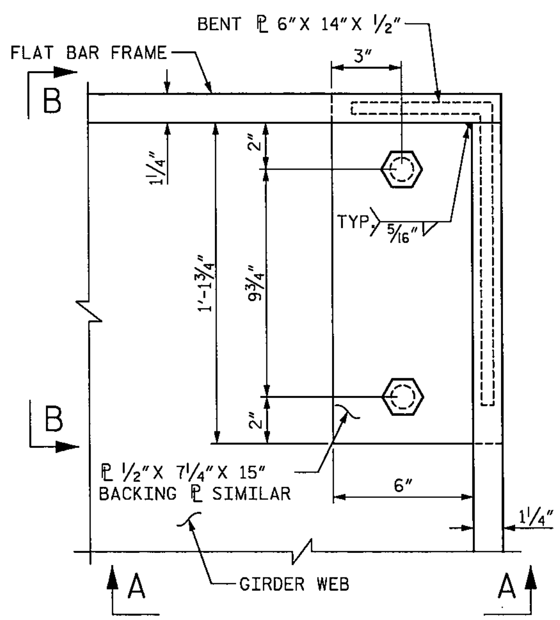
ANCHOR BOLTS SHALL BE ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. BOLTS TO BE EMBEDDED AS SHOWN. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK, CLASS 2B THREAD, AND MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

FOR ARCHITECTURAL METAL FASCIA LAYOUT SEE SHEETS S-42, S-43B AND S-43C.

ALL HOLES FOR 7/8"Ø HIGH STRENGTH BOLTS ARE 1 1/16"Ø UNLESS NOTED OTHERWISE.

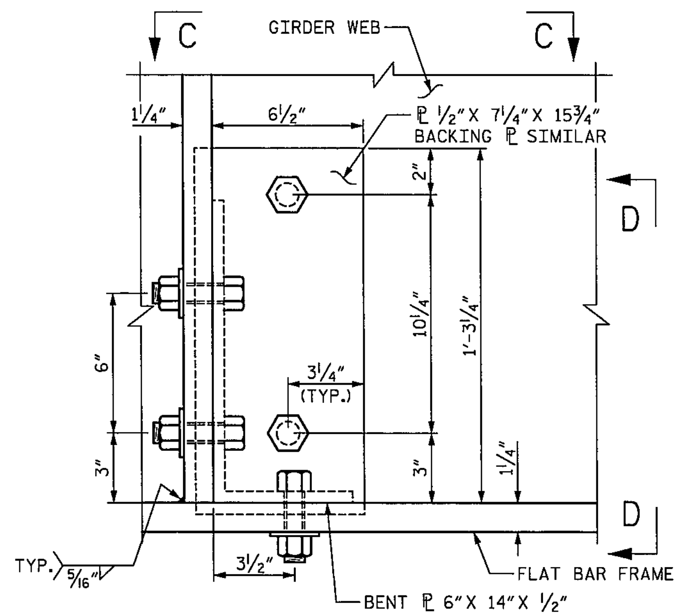
NO WORK MAY BE STARTED ON FABRICATION OF ARCHITECTURAL METAL FASCIAS UNTIL VECTOR DRAWINGS OF THE ARTWORK HAVE BEEN OBTAINED FROM THE DEPARTMENT.

ARCHITECTURAL METAL FASCIA = 240 LIN. FT.

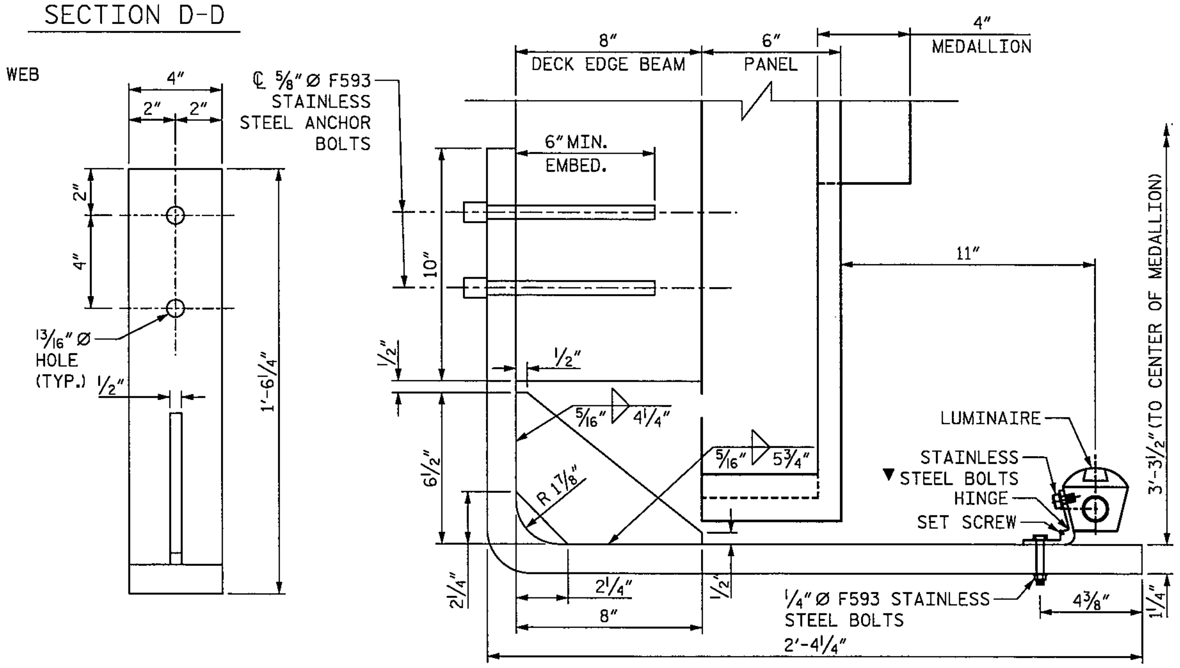


CORNER SUPPORT (CS2)

SEE SHEET 1 OF 2 FOR SECTION A-A AND B-B



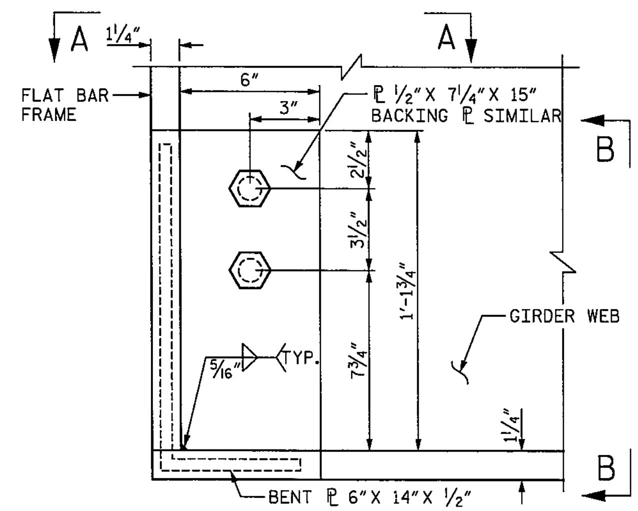
MID PANEL SUPPORT (MS2)



MEDALLION LUMINAIRE BRACKET AT CENTRAL CONCRETE PILASTER

(2 PER LUMINAIRE)

▼ SIZE PER LUMINAIRE MANUFACTURER'S SPECIFICATIONS



CORNER SUPPORT (CS3)

SEE SHEET 1 OF 2 FOR SECTION A-A AND B-B

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 22+06.91 -L-

SHEET 2 OF 2

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6/2/2016
NORTH CAROLINA PROFESSIONAL SEAL 038447 ENGINEER ANDREW S. MILLER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL METAL FASCIA DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43A
1			3			TOTAL SHEETS
2			4			110

STR. #1

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DRAWN BY : K.H. COMPTON DATE : 4/2016
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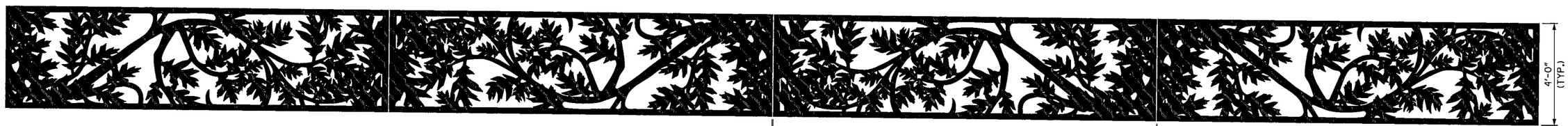
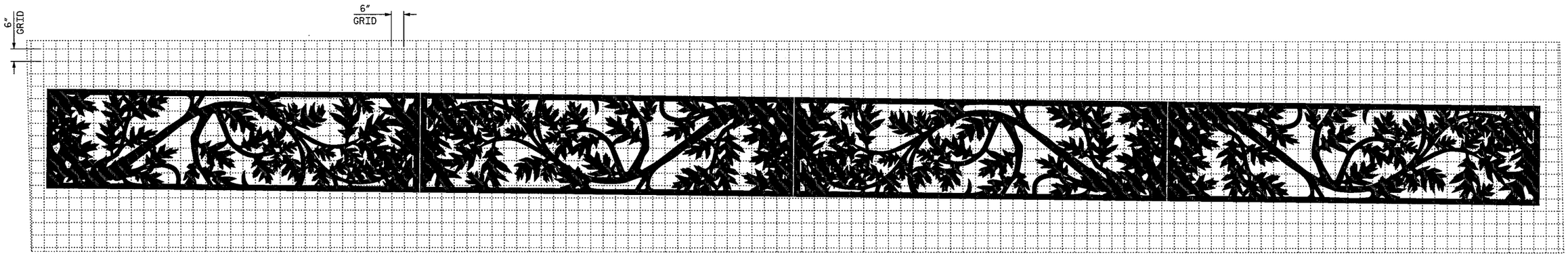
DESIGNED BY : G.L. HAMILTON DATE : 4/2016

DATE: 6/2/2016 TIME: 2:55:03 PM
USER: Kyle_Compton



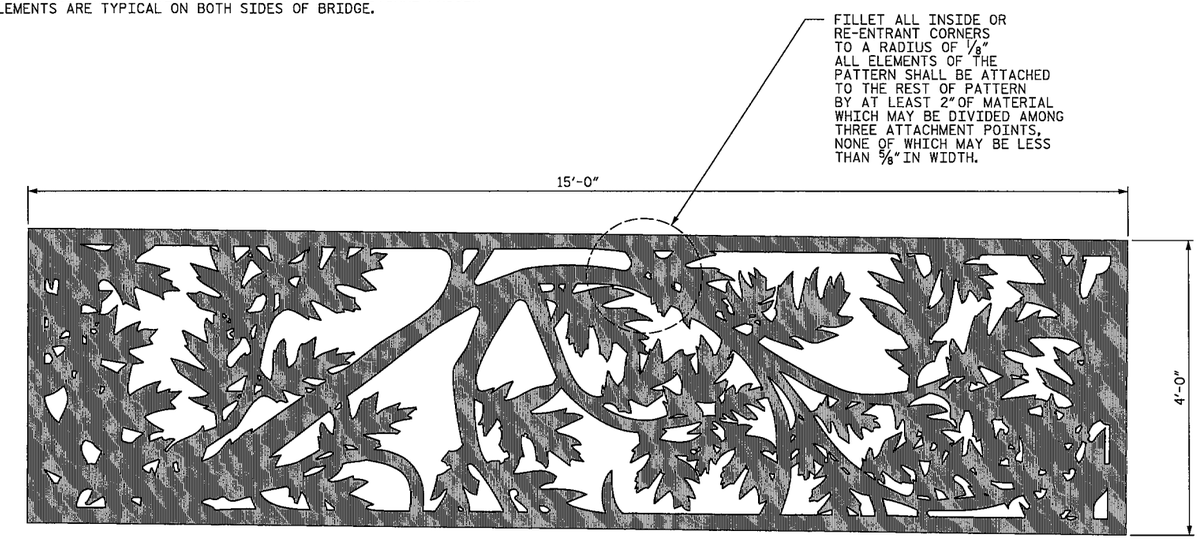
PATTERN KEY FOR ARCHITECTURAL FASCIA

NOTE: PLACEMENT LOCATIONS & TYPES OF ARCHITECTURAL FASCIA ELEMENTS ARE TYPICAL ON BOTH SIDES OF BRIDGE.



6"X 6" DESIGN GRID FOR ARCHITECTURAL FASCIA

NOTE: PLACEMENT LOCATIONS & TYPES OF ARCHITECTURAL FASCIA ELEMENTS ARE TYPICAL ON BOTH SIDES OF BRIDGE.



PATTERN FOR ARCHITECTURAL FASCIA

NOTE: PLACEMENT LOCATIONS & TYPES OF ARCHITECTURAL FASCIA ELEMENTS ARE TYPICAL ON BOTH SIDES OF BRIDGE.

NOTES:

-PATTERN SHOWN IS FOR BIDDING PURPOSES ONLY AND IS NOT FINAL.

-ARTWORK IS NOMINAL DIMENSION: EXACT DIMENSIONS TO BE DETERMINED THROUGH APPROVED SHOP DRAWINGS.

-MAINTAIN INTEGRITY OF ARTWORK & FAITHFULLY REPRODUCE FASCIAS ACCORDING TO SHOWN DRAWINGS.

-ARCHITECTURAL FASCIA ARTWORK SHOP DRAWINGS MUST BE APPROVED BY THE ENGINEER BEFORE PROCEEDING TO FABRICATION. SEE SPECIAL PROVISIONS.

-APPROVED MOCK-UPS, DEMONSTRATING THE CONDITIONS OF THE JOB ARE REQUIRED BEFORE BEGINNING THE FABRICATION RUN: MOCK-UP UNITS A, B, C, & D. SEE SPECIAL PROVISIONS

-ARTWORK SHALL BE CAM LASER CUT OR HD PLASMA CUT. NO WARPING OR DISTORTION IS ALLOWED, EDGES MUST BE SMOOTH TO TOUCH. REFER TO S-42 THROUGH S-43A AND SPECIAL PROVISIONS FOR ADDITIONAL NOTES.

-FASCIAS SHALL BE MOUNTED TO FRAME WHICH IS 1 1/4" X 4" BAR STOCK. (SEE STRUCTURE PLANS)

-ADJUST DIMENSIONS TO FIT CURVATURE OF SPAN; SEE PATTERN KEY, ROTATE PATTERN AS SHOWN TO FIT BRIDGE GIRDERS.

-CONSULT STRUCTURE DRAWINGS FOR CONNECTIONS TYPES AND INSTALLATION.

-ALLOW A 1/2" GAP BETWEEN ALL PANELS FOR ADJUSTMENTS & FITTING. SEE SPECIAL PROVISIONS.

-ARTWORK IS PROJECTED OFF WEB OF GIRDER AS SHOWN ON S-43.

-CONSULT STRUCTURE DRAWINGS FOR DIMENSIONS AND MEASUREMENTS NOT SHOWN.

-ARCHITECTURAL FASCIAS ARE STAINLESS STEEL WITH A NO. 4 FINISH. CONSULT PROJECT SPECIAL PROVISIONS FOR EXACT INFORMATION ON STEEL TYPE AND FINISHES.

-ALL OPENINGS THROUGH STAINLESS STEEL FASCIAS SHALL BE A MINIMUM OF 1/2" ACROSS.

-NO WORK MAY BE STARTED ON FABRICATION OF ARCHITECTURAL METAL FASCIAS UNTIL VECTOR DRAWINGS OF THE ARTWORK HAVE BEEN OBTAINED FROM THE DEPARTMENT.

6/2/2016

NORTH CAROLINA PROFESSIONAL SEAL 038447 ENGINEER ANDREW S. MILLER

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PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 22+06.91 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL METAL FASCIA
PATTERN & LAYOUT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43B
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2			4			110

DRAWN BY :	J. LACKEY	DATE :	4/2016
CHECKED BY :	A.S. MILLER	DATE :	4/2016
DESIGNED BY :	J. LACKEY	DATE :	4/2016

6/2/2016
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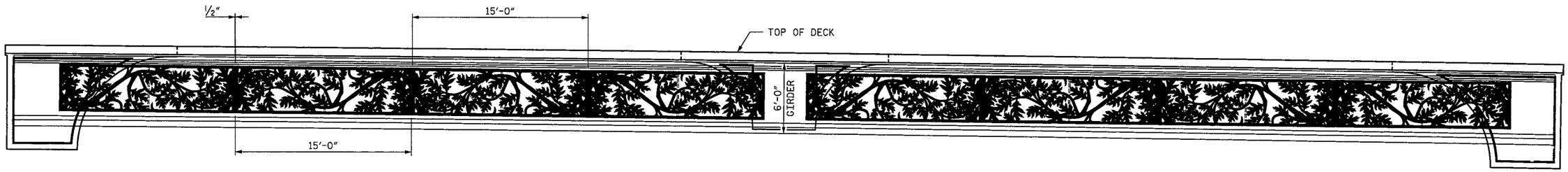
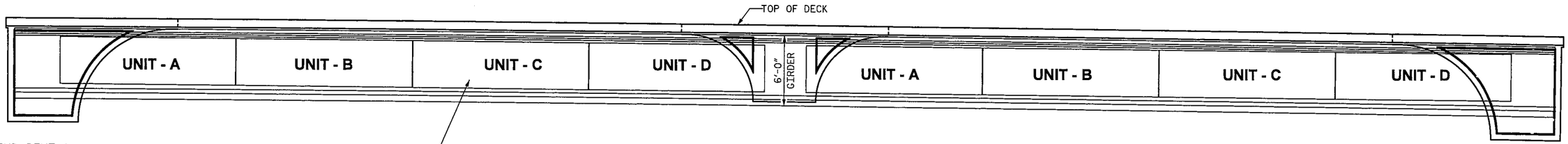
Kyle_Compton

STR. #1



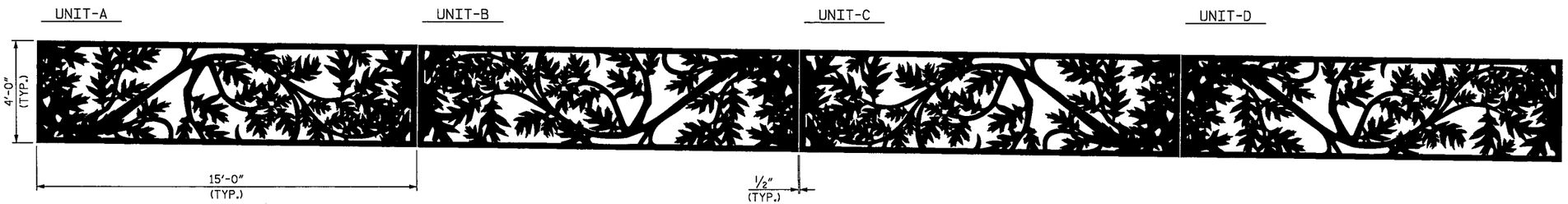
METAL FASCIA ELEVATION VIEW



FABRICATE GRILL TO FIT CURVATURE OF SPAN.
(CONSULT STRUCTURE PLANS FOR DETAILS
AND EXACT DIMENSIONS)

METAL FASCIA UNIT LAYOUT

NOTE: SEE STRUCTURE PLAN SHEETS S-42 FOR LAYOUT DIMENSIONS
GIRDER 14 SHOWN; GIRDER 1 SIMILAR, OPPOSITE HAND



PATTERN KEY FOR ARCHITECTURAL FASCIA

NOTE: SEE STRUCTURE PLAN SHEETS S-42 FOR LAYOUT DIMENSIONS

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CHECKED BY :	A.S. MILLER	DATE : 4/2016
DESIGNED BY :	J. LACKEY	DATE : 4/2016

6/2/2016
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Kyle_Compton

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6/2/2016
NORTH CAROLINA PROFESSIONAL SEAL 038447 ENGINEER ANDREW S. MILLER

PROJECT NO. B-5121/B-5317
WAKE COUNTY
STATION: 22+06.91 -L-

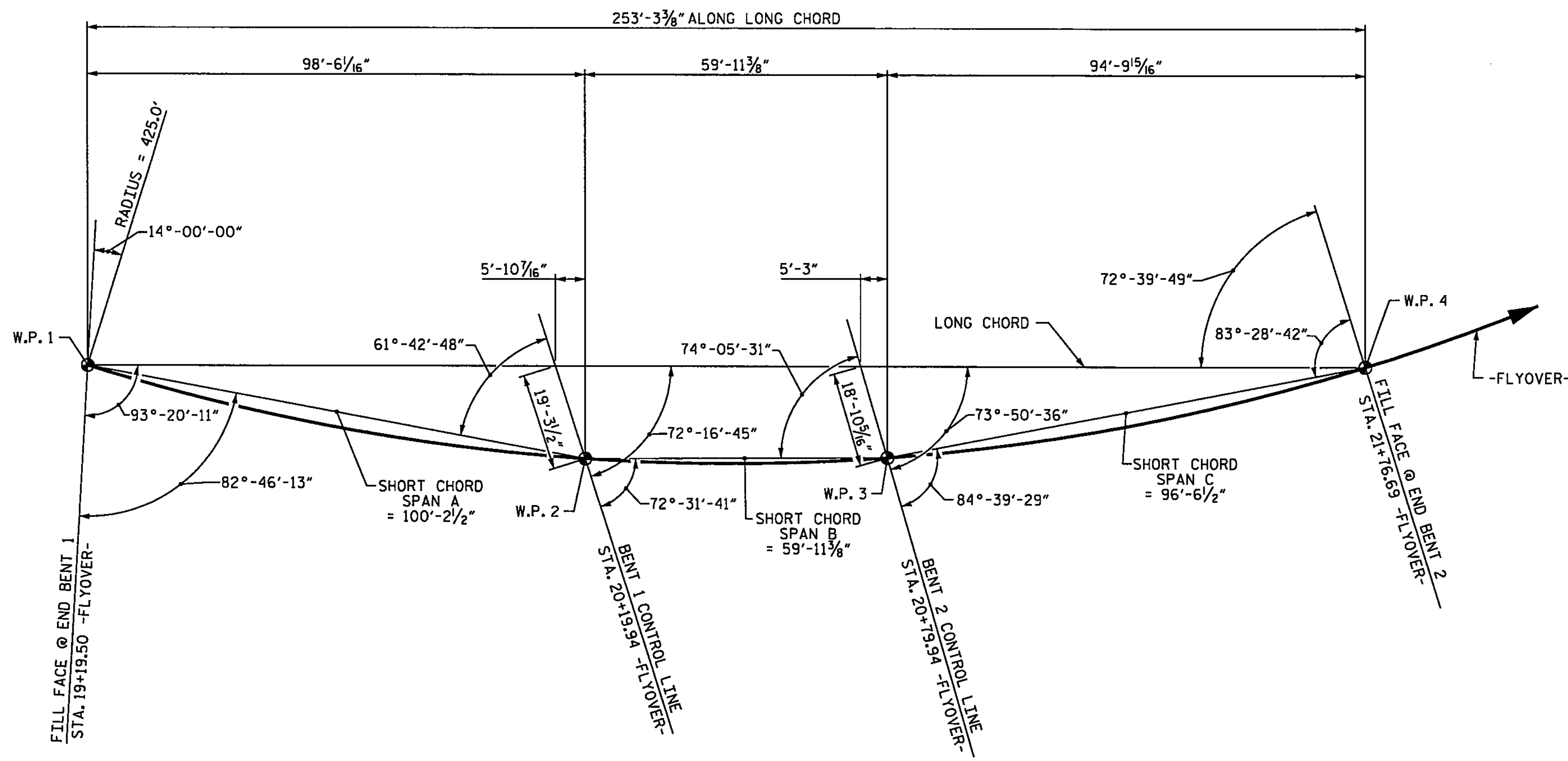
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL METAL FASCIA
PATTERN & LAYOUT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43C
1			3			TOTAL SHEETS
2			4			110

STR. #1



HORIZONTAL CURVE DATA -FLYOVER-

P.I. STA. 20+93.23 -FLYOVER-
Δ = 49°-47'-19.3"(LT)
D = 13°-28'-52.9"
L = 369.32'
T = 197.23'
R = 425.00'

LONG CHORD LAYOUT

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DATA AND GENERAL NOTES, SEE SHEET SN.

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.

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 BAR 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. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

THE ELEVATIONS AND CLEARANCES SHOWN ON THE PLANS AT THE POINTS OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE ELEVATIONS ON THE EXISTING PAVEMENT AND CHECK THE CLEARANCE. REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH THE PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

THE EXISTING STRUCTURE CONSISTING OF 6 SPANS: 1 @ 49', 1 @ 47'-6", 1 @ 45'-6", 1 @ 36', 1 @ 42', & 1 @ 40'-6", WITH A CLEAR ROADWAY OF 34.2' AND REINFORCED CONCRETE DECK GIRDERS ON REINFORCED CONCRETE CAPS ON H-PILE END BENTS AND REINFORCED CONCRETE CAPS ON CONCRETE ENCASED H-PILE BENTS AND REINFORCED CONCRETE POST AND BEAM BENTS AND LOCATED SOUTH OF THE EXISTING BRIDGE SHALL BE REMOVED. THE EXISTING BRIDGE IS POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION, THE LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE IN THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

REMOVAL OF THE EXISTING SUBSTRUCTURE SHALL BE AS FOLLOWS: BENT 1 SHALL BE REMOVED TO 2'-3' BELOW THE FINISHED GRADE, BENT 4 SHALL BE REMOVED TO FLUSH WITH THE EXISTING CONCRETE LINED CHANNEL, AND BENT 5 SHALL BE REMOVED TO FLUSH WITH THE NATURAL GROUND. PILES AT ALL REMAINING BENTS SHALL BE PULLED AND REMOVED IN THEIR ENTIRETY.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES".

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PUT THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.

FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR DECORATIVE CONCRETE PARAPET, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR PRECAST PANELS, SEE SPECIAL PROVISIONS.

FOR ARCHITECTURAL METAL FASCIA, SEE SPECIAL PROVISIONS.

PROJECT NO. B-5121/B-5317
WAKE COUNTY
STATION: 20+19.94 -FLYOVER-
SHEET 3 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD
6/3/2016

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON WADE AVE. (US 70 / NC 50) OVER CAPITAL BLVD. & PIGEON HOUSE BRANCH

REVISIONS								SHEET NO.
NO.	BY:	DATE:		NO.	BY:	DATE:		S-46
1				3				TOTAL SHEETS
2				4				110

STR. #2

DRAWN BY :	K.W. ALFORD	DATE :	2/2016
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kalford

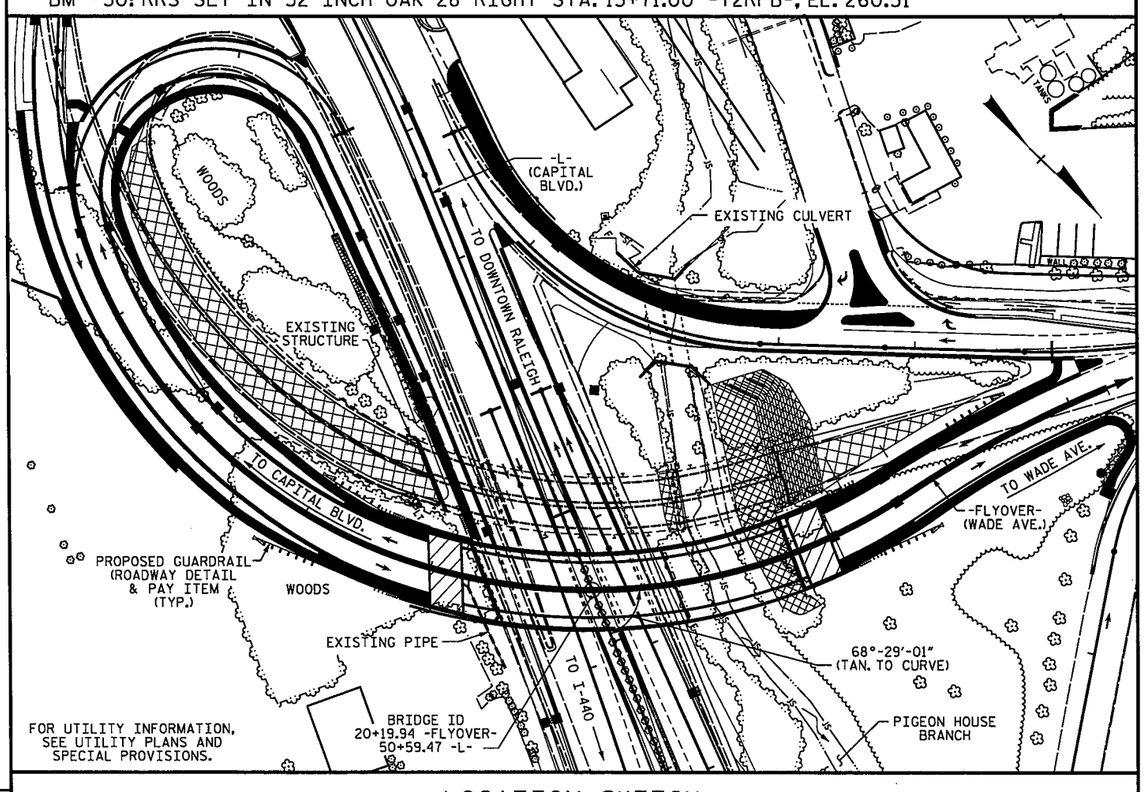
BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	3'-6" DRILLED PIERS IN SOIL	3'-6" DRILLED PIERS NOT IN SOIL	PDA TESTING	SID INSPECTIONS	CSL TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL
	LUMP SUM	LIN FT.	LIN FT.	LIN FT.	LIN FT.	EA.	EA.	EA.	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.
SUPERSTRUCTURE									14218	9993		LUMP SUM	
END BENT 1		44	38								45.5		5436
BENT 1				38	36						77.8		16117
BENT 2				74	34						75.2		17251
END BENT 2											44.0		5203
TOTAL	LUMP SUM	44	38	112	70	1	2	2	14218	9993	242.5	LUMP SUM	44007

BILL OF MATERIAL

	SPIRAL COLUMN REINFORCING STEEL	APPROX. 652000 LBS STRUCTURAL STEEL	HP 12 x 53 STEEL PILES		DECORATIVE CONCRETE PARAPET	4" SLOPE PROTECTION	DISC BEARINGS	EXPANSION JOINT SEALS	ASBESTOS ASSESSMENT	ARCHITECTURAL METAL FASCIA	CONCRETE PARAPET WITH MOMENT SLAB	PRECAST CONCRETE PANELS
	LBS.	APPROX. LBS.	NO.	LIN FT.	LIN FT.	SQ. YDS.	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	LIN FT.	SQ. FT.
SUPERSTRUCTURE		LUMP SUM			509.82		LUMP SUM	LUMP SUM		478.75	168.79	220
END BENT 1			9	270		105						
BENT 1	2827											
BENT 2	3557											
END BENT 2			9	405		25						
TOTAL	6384	LUMP SUM	18	675	509.82	130	LUMP SUM	LUMP SUM	LUMP SUM	478.75	168.79	220

BM #50: RRS SET IN 32 INCH OAK 28' RIGHT STA. 13+71.00 -Y2RPB-, EL. 260.51



LOCATION SKETCH

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE _____ = N/A
FREQUENCY OF OVERTOPPING FLOOD _____ = N/A
OVERTOPPING FLOOD ELEVATION _____ = N/A

HYDRAULIC DATA

DESIGN DISCHARGE _____ = 1500 C.F.S.
FREQUENCY OF DESIGN FLOOD _____ = 50 YRS.
DESIGN HIGH WATER ELEVATION _____ = 246.2 FT.
DRAINAGE AREA _____ = 2.0 SQ. MI
BASE DISCHARGE (0100) _____ = 1600 C.F.S
BASE HIGH WATER ELEVATION _____ = 246.47 FT.

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 20+19.94 -FLYOVER-

SHEET 4 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KENNETH W. ALFORD

6/3/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON WADE AVE.
(US 70 / NC 50)
OVER CAPITAL BLVD. &
PIGEON HOUSE BRANCH

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DRAWN BY : K.W. ALFORD DATE : 2/2016
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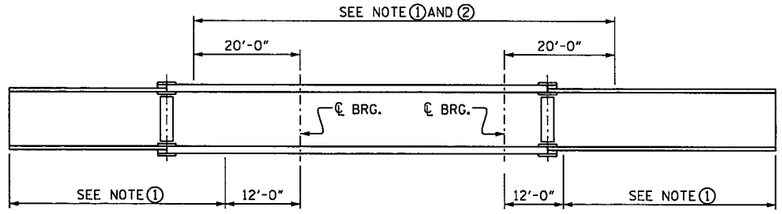
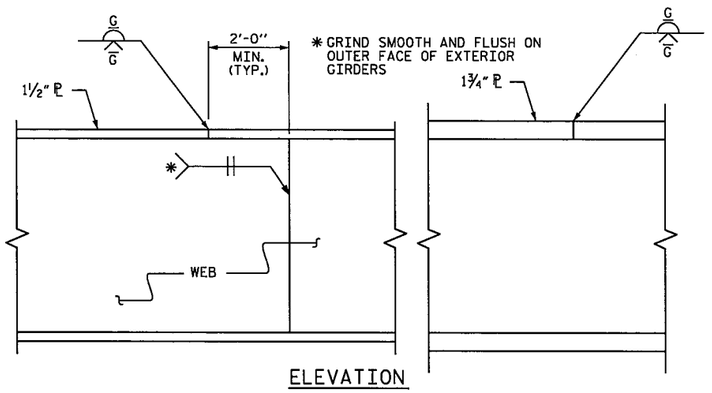


GIRDER MAKE UP

NOTE ① : CHARPY V-NOTCH TESTS ARE REQUIRED FOR ALL TOP OR BOTTOM FLANGE PLATES WHICH FALL WITHIN THESE LIMITS, ALL WEB PLATES, AND ALL SPLICE PLATES. IF A PERMITTED SHOP FLANGE SPLICE IS NOT USED, CHARPY V-NOTCH TESTS WILL BE REQUIRED FOR THE ENTIRE FLANGE PLATE. FOR CHARPY V-NOTCH TESTS, SEE ARTICLE 1072-7 OF THE STANDARD SPECIFICATIONS.

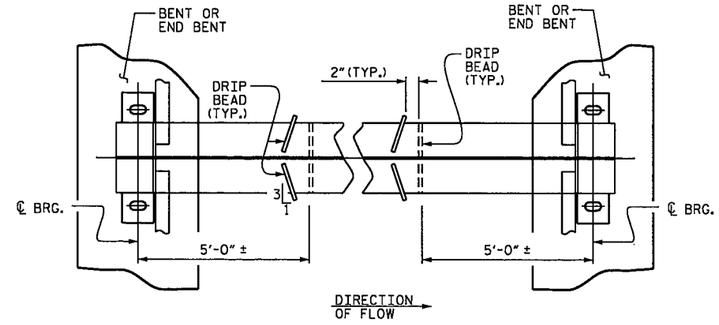
NOTE ② : NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS REGION

CHARPY V-NOTCH TESTS FOR CONTINUOUS PLATE GIRDERS

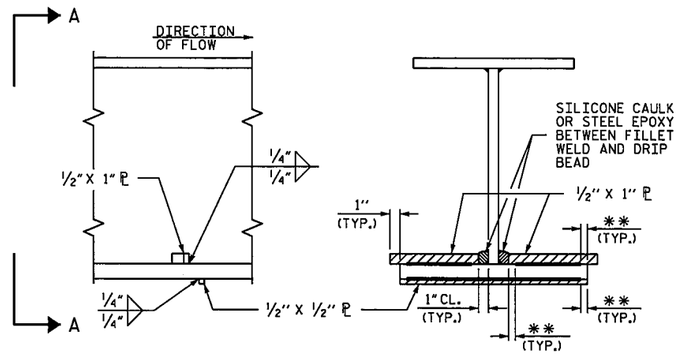


ELEVATION

TYPICAL FLANGE AND WEB BUTT JOINT



PART PLAN - BOTTOM FLANGE



SECTION

VIEW A-A

**SEE "WELD TERMINATION DETAILS"

DRIP BEAD DETAILS

NOTES

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

BEARING STIFFENERS ARE TO BE PLACED ALONG THE SKEW AT END BENTS AND NORMAL TO THE WEB OF THE GIRDER AT INTERIOR BENTS AND SHALL BE PLUMB.

PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION (NOR WITHIN 15 FEET OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS). KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.

TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

END OF GIRDERS SHALL BE PLUMB.

BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE.

FABRICATORS SHALL DETAIL DIAPHRAGM MEMBERS AND CONNECTIONS FOR NO-LOAD FIT UP.

STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.

ADDITIONAL HOLES IN THE EXTERIOR GIRDERS FOR ARCHITECTURAL METAL FASCIA ARE NOT SHOWN FOR CLARITY. FOR LOCATION OF 1 1/16" Ø HOLES, SEE "ARCHITECTURAL METAL FASCIA DETAILS" SHEETS AND "ARCHITECTURAL METAL FASCIA PATTERN AND LAYOUT" SHEETS.

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

Documents not considered final unless all signatures completed

6/3/2016

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 20+19.94 -FLYOVER-

SHEET 6 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

STRUCTURAL STEEL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-65
1			3			TOTAL SHEETS
2			4			110

DRAWN BY : J.P. ADAMS DATE : 12/2015
CHECKED BY : T.L. AVERETTE DATE : 2/2016
DESIGN ENGINEER OF RECORD: R.L. CHESSON DATE : 2/2016

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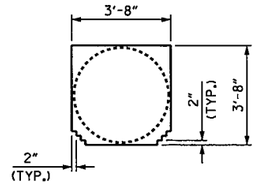
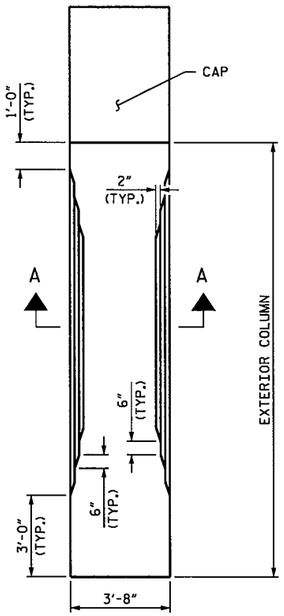
STR. #2



SECTION A-A



ELEVATION

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

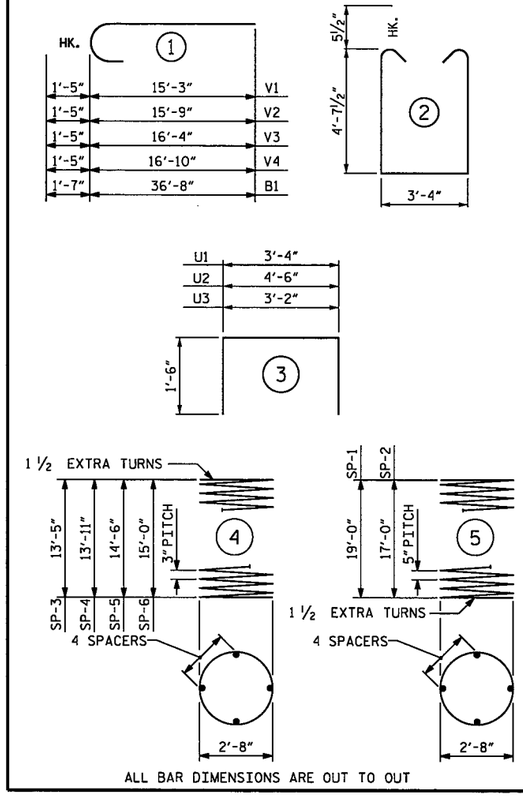
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

ANCHORAGE FOR LUMINAIRE BRACKETS NOT SHOWN FOR CLARITY. REINFORCING STEEL MAY BE SHIFTED SLIGHTLY TO AVOID INTERFERENCE WITH LUMINAIRE BRACKET ANCHORAGE. FOR LUMINAIRE BRACKET DETAILS, SEE "ARCHITECTURAL METAL FASCIA DETAILS" SHEETS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#11	1	38'-3"	2439
B2	6	#11	STR	59'-6"	1897
B3	18	#5	STR	59'-6"	1117
B4	30	#4	STR	3'-4"	67
B5	48	#4	STR	10'-10"	347
M1	24	#10	STR	28'-4"	2926
M2	24	#10	STR	26'-4"	2719
S1	53	#5	2	13'-6"	746
U1	45	#4	3	6'-4"	190
U2	6	#4	3	7'-6"	30
U3	8	#4	3	6'-2"	33
V1	12	#10	1	16'-8"	861
V2	12	#10	1	17'-2"	886
V3	12	#10	1	17'-9"	917
V4	12	#10	1	18'-3"	942
REINFORCING STEEL					16117 LBS.
SP-1	2	*	5	388'-8"	811
SP-2	2	*	5	349'-7"	729
SP-3	1	**	4	455'-11"	305
SP-4	1	**	4	472'-5"	316
SP-5	1	**	4	488'-11"	327
SP-6	1	**	4	507'-5"	339
SPIRAL COLUMN REINFORCING STEEL					2827 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #3 (CAP & ARCHES)	63.3 C.Y.
POUR #2 (COLUMNS)	14.5 C.Y.
TOTAL CLASS A CONCRETE	77.8 C.Y.

DRILLED PIER CONCRETE

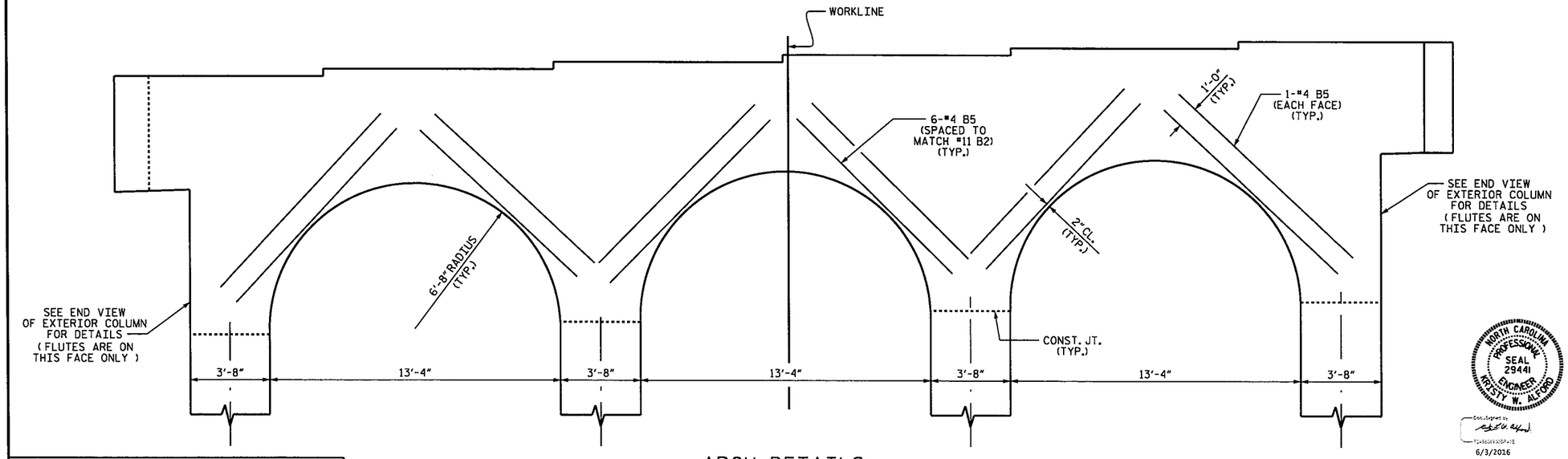
POUR #1 (DRILLED PIERS)	26.4 C.Y.

3'-6" Ø DRILLED PIER NOT IN SOIL	LIN. FT. 36.0
3'-6" Ø DRILLED PIER IN SOIL	LIN. FT. 38.0
CSL TUBES	LIN. FT. 320.0

** THE SP-3, SP-4, SP-5 AND SP-6 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

* THE SP-1 AND SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

END VIEW OF EXTERIOR COLUMN



ARCH DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

Electronically signed by Kristy W. Alford

6/3/2016

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 20+19.94 -FLYOVER-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 1

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-93
1			3				TOTAL SHEETS
2			4				110

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DRAWN BY :	J.P. ADAMS	DATE : 1/2016
CHECKED BY :	T.L. AVERETTE	DATE : 2/2016
DESIGN ENGINEER OF RECORD:	R.L. CHESSON	DATE : 2/2016

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STR. #2

NOTES

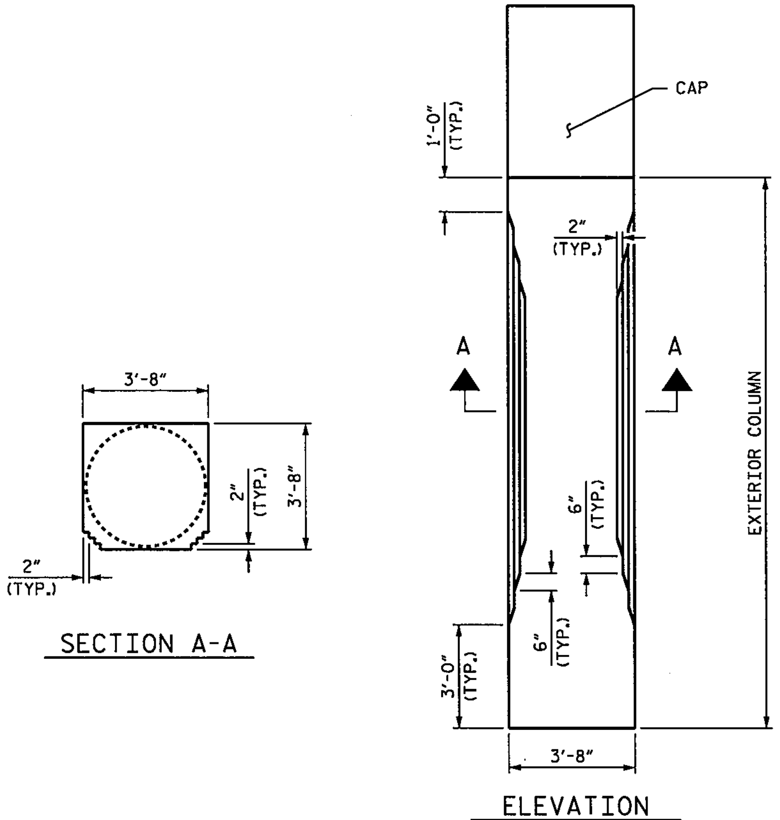
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

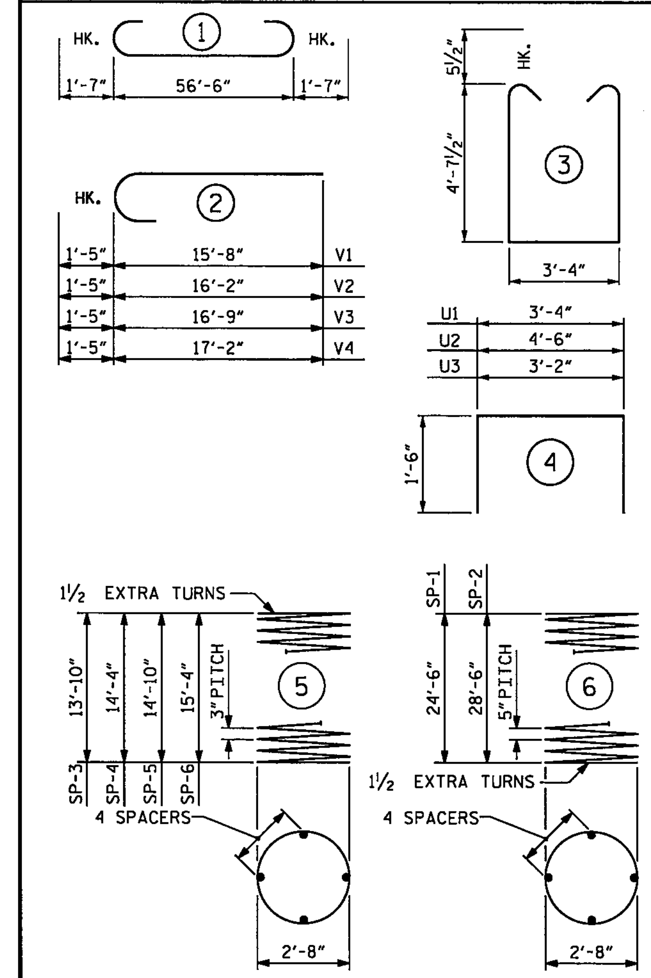
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL" OR "EPOXY COATED SPIRAL COLUMN REINFORCING STEEL".

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

ANCHORAGE FOR LUMINAIRE BRACKETS NOT SHOWN FOR CLARITY. REINFORCING STEEL MAY BE SHIFTED SLIGHTLY TO AVOID INTERFERENCE WITH LUMINAIRE BRACKET ANCHORAGE. FOR LUMINAIRE BRACKET DETAILS, SEE "ARCHITECTURAL METAL FASCIA DETAILS" SHEETS.



END VIEW OF EXTERIOR COLUMN



ALL BAR DIMENSIONS ARE OUT TO OUT

** THE SP-3, SP-4, SP-5 AND SP-6 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

* THE SP-1 AND SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

BILL OF MATERIAL
BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#11	1	59'-8"	1902
B2	6	#11	STR	56'-8"	1806
B3	18	#5	STR	56'-8"	1064
B4	30	#4	STR	1'-10"	37
B5	48	#4	STR	9'-10"	315
M1	24	#10	STR	33'-10"	3494
M2	24	#10	STR	37'-10"	3907
S1	50	#5	3	13'-6"	704
U1	64	#4	4	6'-4"	271
U2	6	#4	4	7'-6"	30
U3	8	#4	4	6'-2"	33
V1	12	#10	2	17'-1"	882
V2	12	#10	2	17'-7"	908
V3	12	#10	2	18'-2"	938
V4	12	#10	2	18'-7"	960
REINFORCING STEEL					17251 LBS.
SP-1	2	*	6	497'-7"	1038
SP-2	2	*	6	575'-9"	1201
SP-3	1	**	5	468'-3"	313
SP-4	1	**	5	484'-9"	324
SP-5	1	**	5	501'-3"	335
SP-6	1	**	5	517'-9"	346
SPIRAL COLUMN REINFORCING STEEL					3557 LBS.

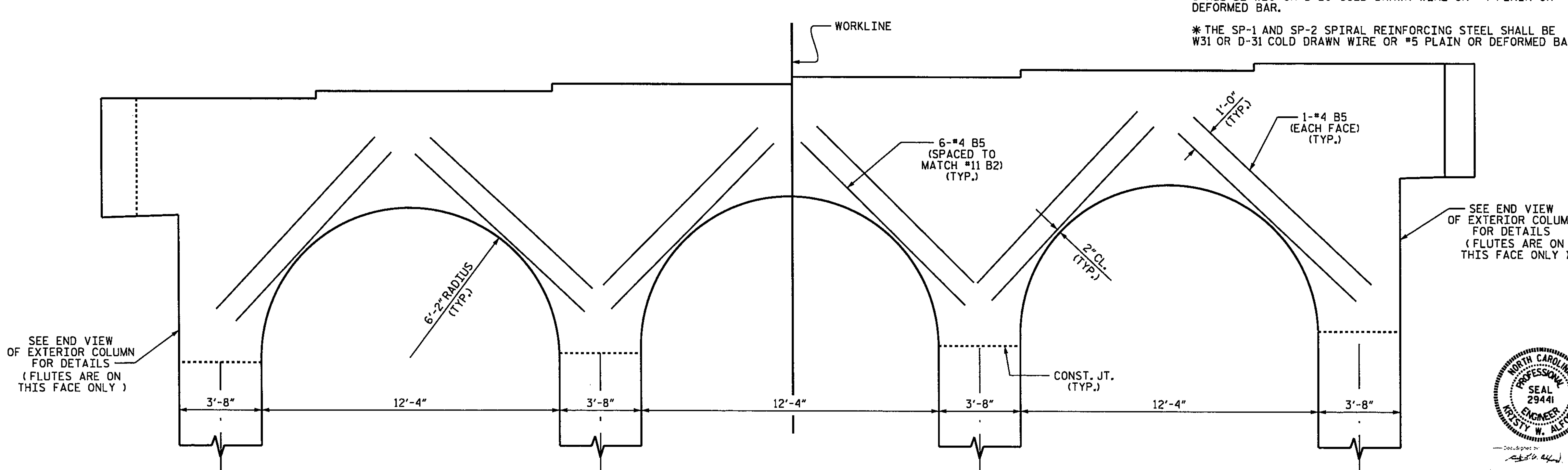
CLASS A CONCRETE BREAKDOWN

POUR #3 (CAP & ARCHES)	59.0 C.Y.
POUR #2 (COLUMNS)	16.2 C.Y.
TOTAL CLASS A CONCRETE	75.2 C.Y.

DRILLED PIER CONCRETE

POUR #1 (DRILLED PIERS)	38.5 C.Y.

3'-6"Ø DRILLED PIER NOT IN SOIL	LIN. FT. 34.0
3'-6"Ø DRILLED PIER IN SOIL	LIN. FT. 74.0
CSL TUBES	LIN. FT. 456.0



ARCH DETAILS

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 20+19.94 -FLYOVER-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 2

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

6/3/2016

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SHEET NO. S-96

TOTAL SHEETS 110

STR. #2

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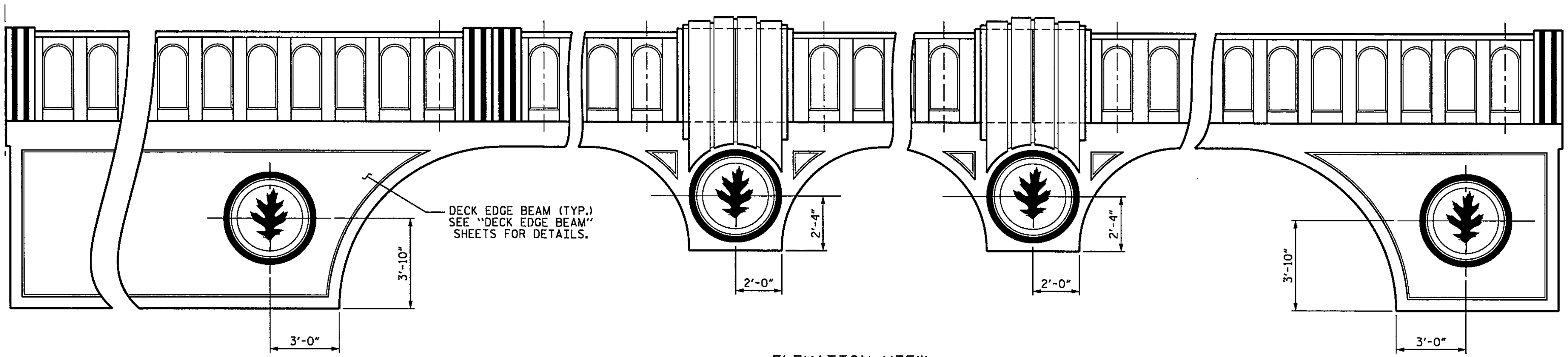


ELEVATION VIEW

RIGHT SIDE OF STRUCTURE SHOWN.
LEFT SIDE SIMILAR BY ROTATION.

NOTES

USE CLASS "A" CONCRETE WITH PEA GRAVEL AGGREGATE IN THE PRECAST CONCRETE PANELS. IN ADDITION TO THE #3 REINFORCING BARS, CONCRETE SHALL BE REINFORCED WITH POLYPROPYLENE FIBERS PER THE MANUFACTURERS' RECOMMENDATIONS.

PREFORMED BEARING PAD SHALL CONFORM TO SECTION 1079-1 OF THE STANDARD SPECIFICATIONS. AT THE CONTRACTOR'S OPTION, AN UNREINFORCED PLAIN ELASTOMERIC PAD MAY BE USED.

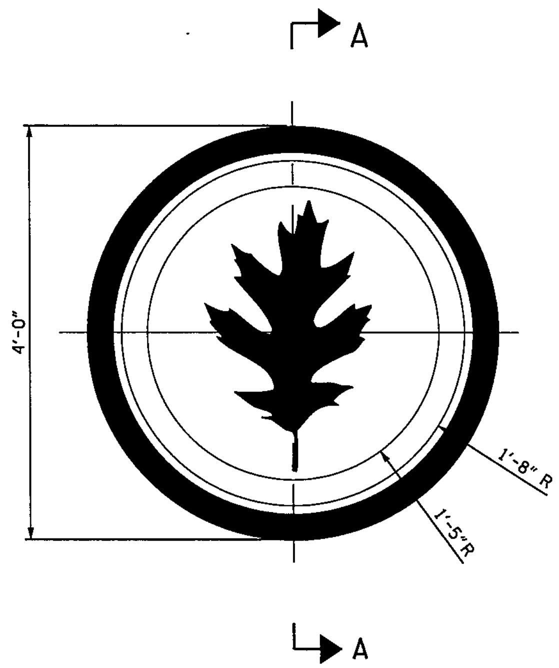
DECK EDGE BEAMS SHALL HAVE ⅝" Ø FORMED HOLES TO MATCH THE LOCATIONS OF THE REQUIRED ANCHORAGE OF THE MEDALLIONS AS SHOWN.

PRECAST PANELS SHALL BE CAST AFTER BRIDGE SUPERSTRUCTURE IS COMPLETED. FORMED HOLES IN PANELS SHALL BE CAST TO MATCH THE LOCATION OF THE FORMED HOLES IN THE DECK EDGE BEAMS. REINFORCING STEEL MAY BE SHIFTED SLIGHTLY DUE TO CHANGES IN THE FORMED HOLE LOCATIONS.

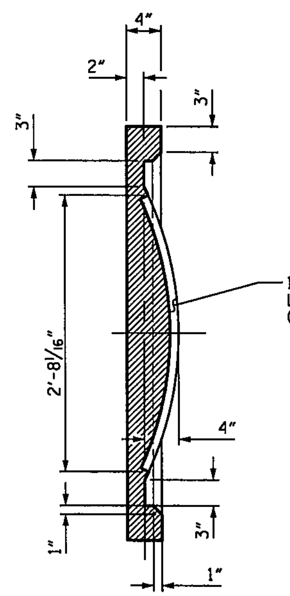
NO WORK MAY BE STARTED ON FARBICATION OF PRECAST PANELS UNTIL VECTOR DRAWINGS OF THE ARTWORK HAVE BEEN OBTAINED FROM THE DEPARTMENT. NO ADDITIONAL DESIGN SHALL BE REQUIRED.

MATERIAL FOR BOLTS AND THREADED RODS SHALL BE ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. BOLTS TO BE EMBEDDED AS SHOWN. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK, CLASS 2B THREAD, AND MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

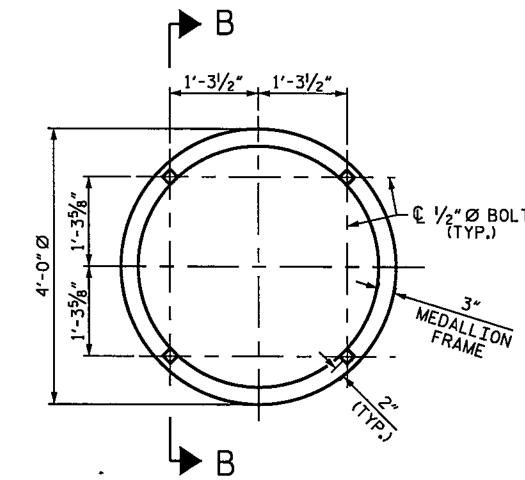
FOR PRECAST PANELS, SEE SPECIAL PROVISIONS.



MEDALLION DETAIL

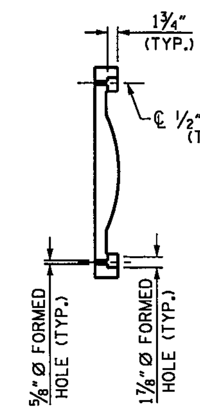


SECTION A-A

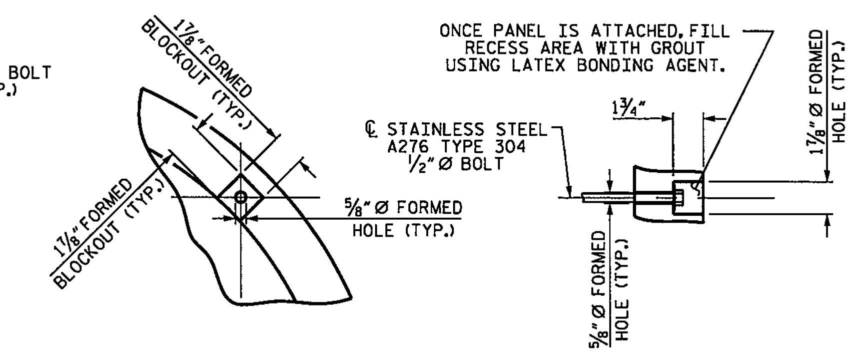


ANCHORAGE DIMENSIONS

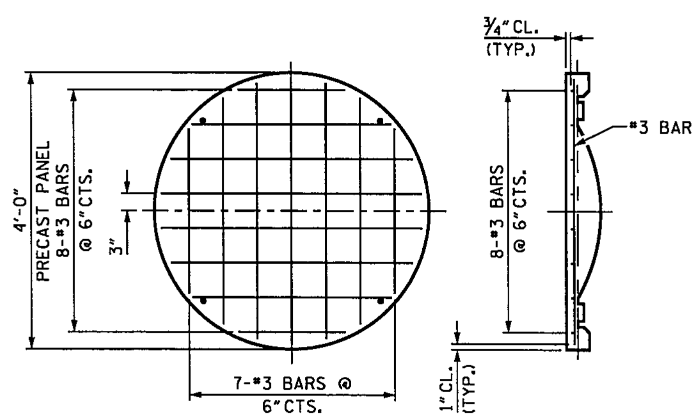
MEDALLION DETAILS NOT SHOWN FOR CLARITY



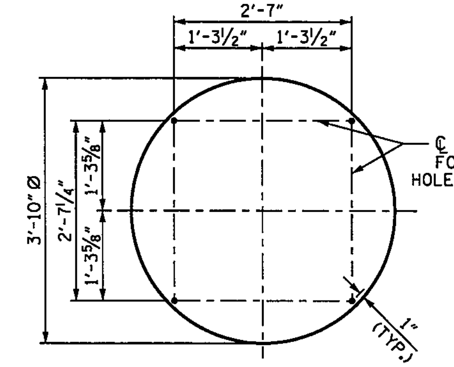
SECTION B-B



RECESS DETAILS



REINFORCING STEEL



¼" PREFORMED BEARING PAD

PRECAST MEDALLION

8 MEDALLIONS REQUIRED

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 20+19.94 -FLYOVER-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRECAST PANELS

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

6/3/2016

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-107
1			3			TOTAL SHEETS
2			4			110

STR. #2

DRAWN BY :	K.W. ALFORD	DATE :	2/2016
CHECKED BY :	T.L. AVERETTE	DATE :	2/2016
DESIGN ENGINEER OF RECORD:	K.W. ALFORD	DATE :	2/2016

02-JUN-2016 08:46
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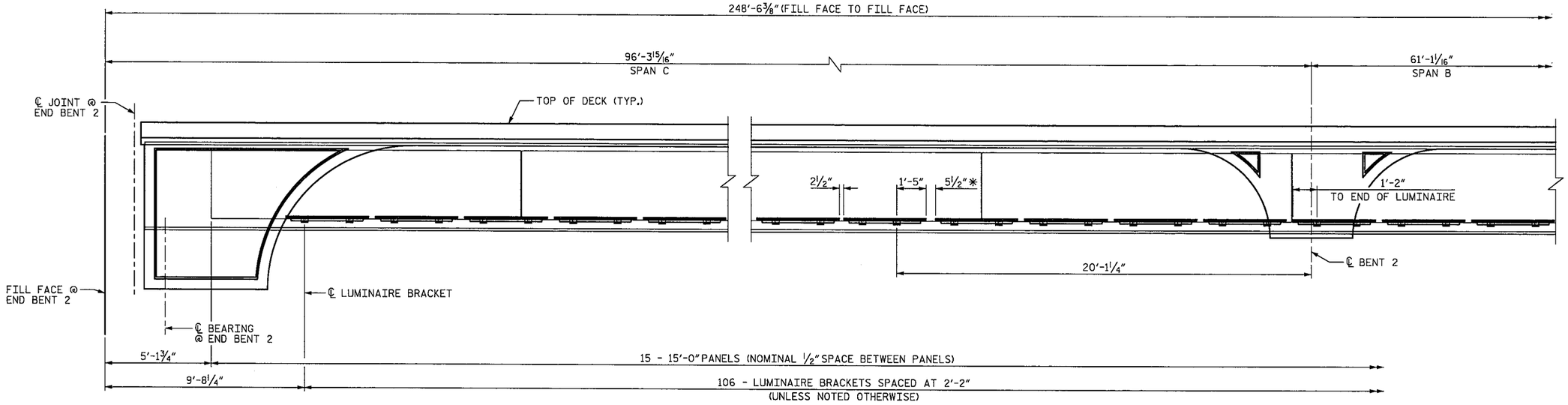
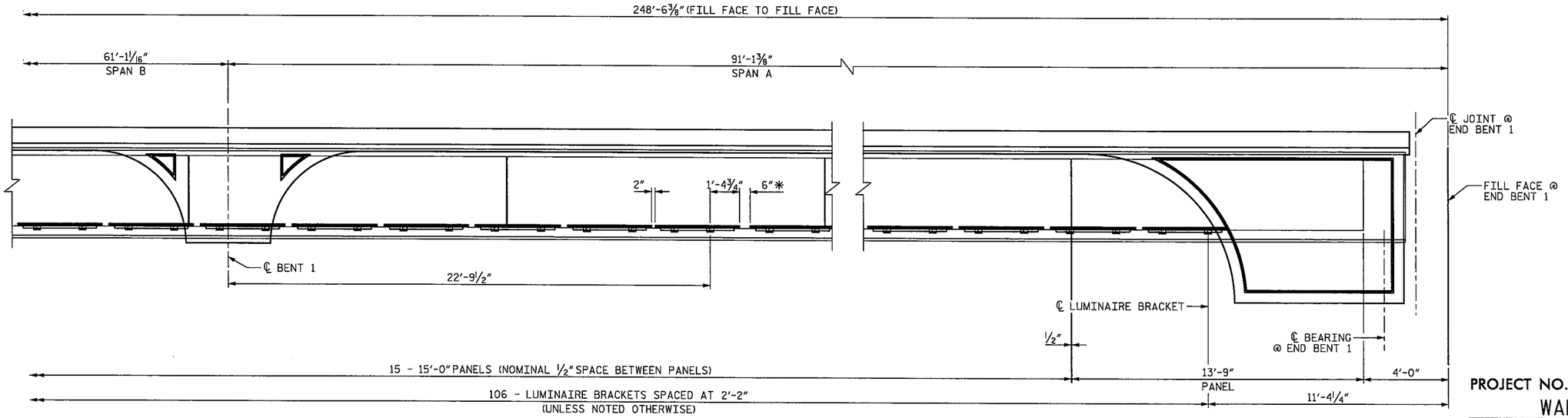


ELEVATION ALONG ℄ GIRDER 1



ELEVATION ALONG ℄ GIRDER 1

*5'-0" JUMPER REQUIRED AT THESE LOCATIONS.

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 20+19.94 -FLYOVER-

SHEET 1 OF 2

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

6/2/2016

NORTH CAROLINA PROFESSIONAL SEAL 038447 ENGINEER ANDREW S. MILLER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL METAL FASCIA LAYOUT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-109
1			3			TOTAL SHEETS
2			4			110

STR. #2

DRAWN BY : K.H. COMPTON DATE : 5/2016
CHECKED BY : N. BROWN DATE : 5/2016
DESIGNED BY : K.H. COMPTON DATE : 5/2016

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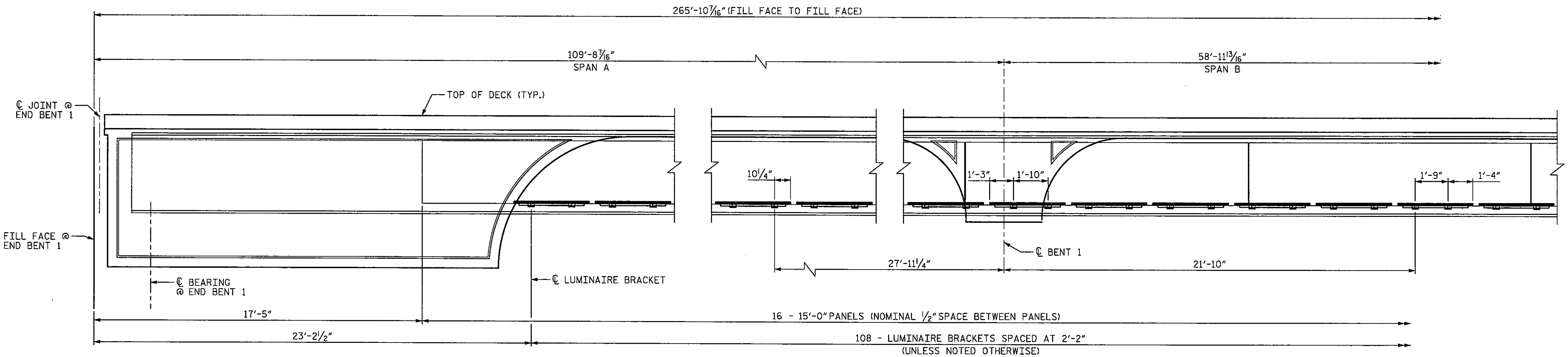
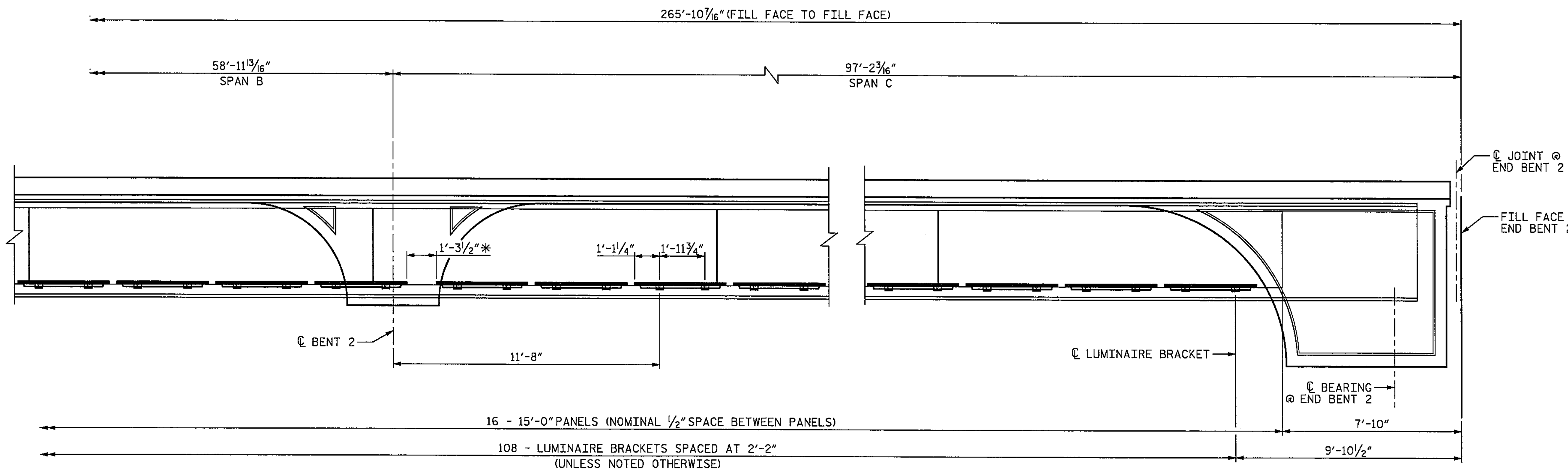
DATE: 6/2/2016
TIME: 10:59 PM

USER: Kyle.Compton
DGN: P:\Projects\B-5121\400_Technical\408_Structure\Drawings\Wade Ave\402_0068_B-5121_fascia.dgn



ELEVATION ALONG ℄ GIRDER 6



ELEVATION ALONG ℄ GIRDER 6

* 5'-0" JUMPER REQUIRED AT THESE LOCATIONS.

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 20+19.94 -FLYOVER-

SHEET 2 OF 2

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6/2/2016

NORTH CAROLINA PROFESSIONAL SEAL 038447 ENGINEER ANDREW S. MILLER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL
METAL FASCIA
LAYOUT

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-110
1			3				TOTAL SHEETS
2			4				110

STR. #2

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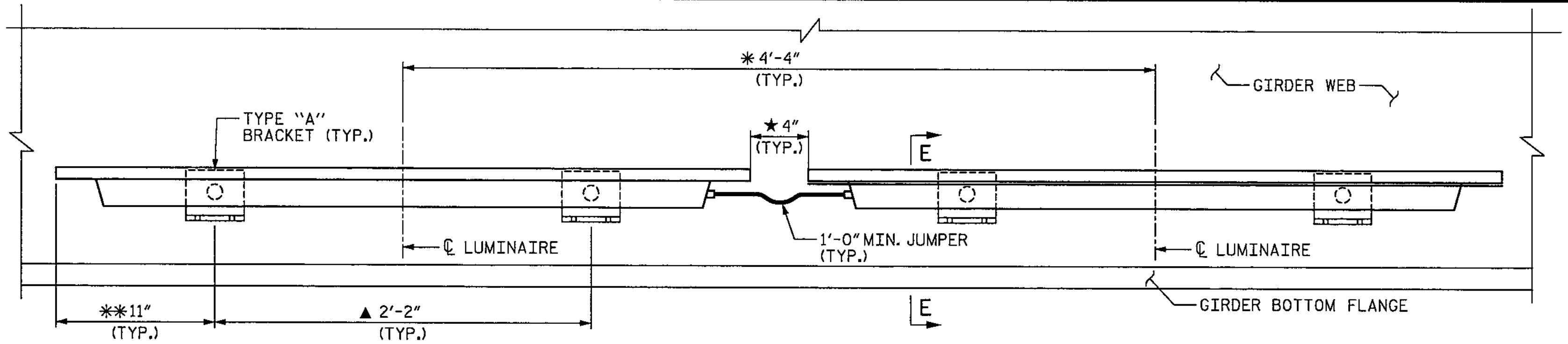
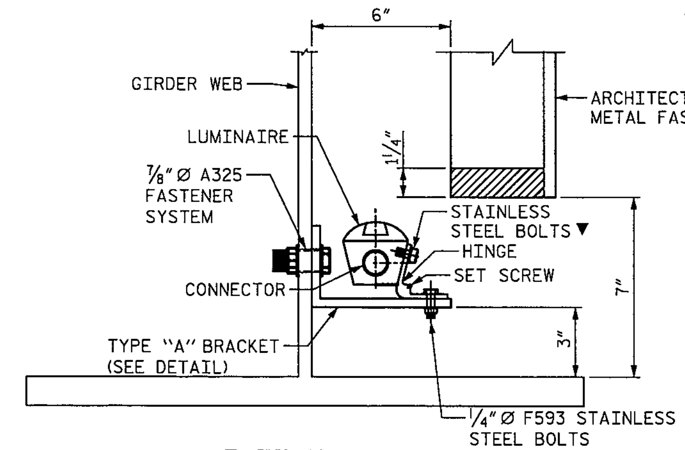
CHECKED BY :	N. BROWN	DATE :	5/2016
DESIGNED BY :	K.H. COMPTON	DATE :	5/2016



ELEVATION

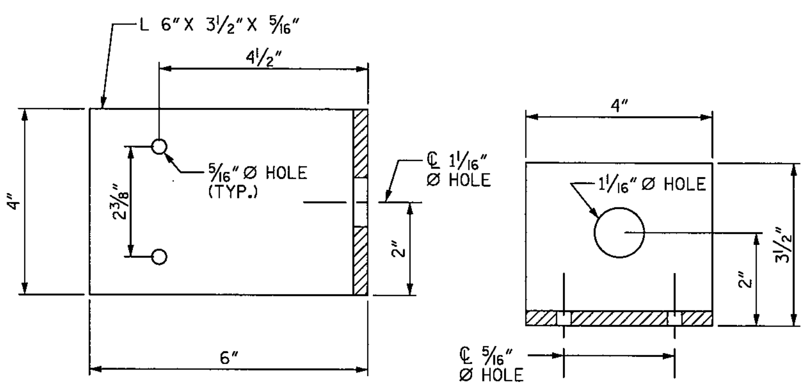
NOTE: LUMINAIRE AND CONNECTION BRACKETS MAY BE ADJUSTED BY THE FOLLOWING LIMITS TO CLEAR PANEL SUPPORT BRACKETS, DIAPHRAGMS AND OTHER CONFLICTS. JUMPER CABLE LENGTH IS DEPENDENT ON LUMINAIRE SPACING. LONGER JUMPER CABLES WILL BE REQUIRED FOR LUMINAIRE SPACING EXCEEDING 4'-4".

- ▲ 3'-0" MAX.; 1'-7" MIN.
- ★ 1'-6" MAX.; 1/4" MIN.
- ✱ 4'-6" MAX.; 4'-0 1/4" MIN.
- ✱✱ 1'-6" MAX.; 6" MIN.



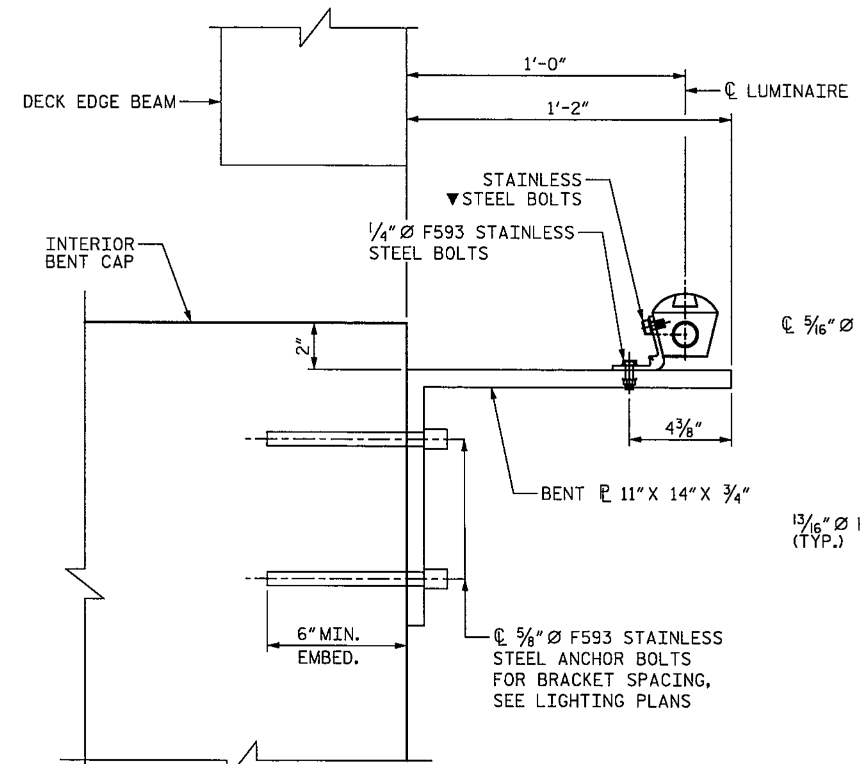
SECTION E-E

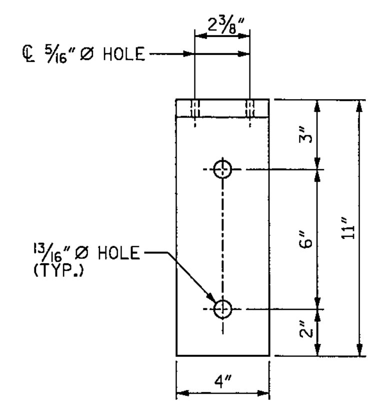
▼ SIZE PER LUMINAIRE MANUFACTURER'S SPECIFICATIONS



TYPE "A" BRACKET

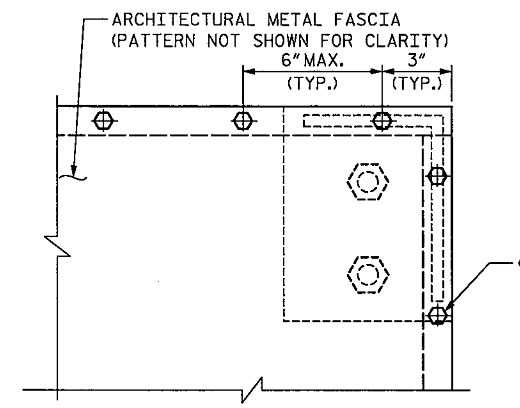
(2 REQUIRED PER LUMINAIRE)





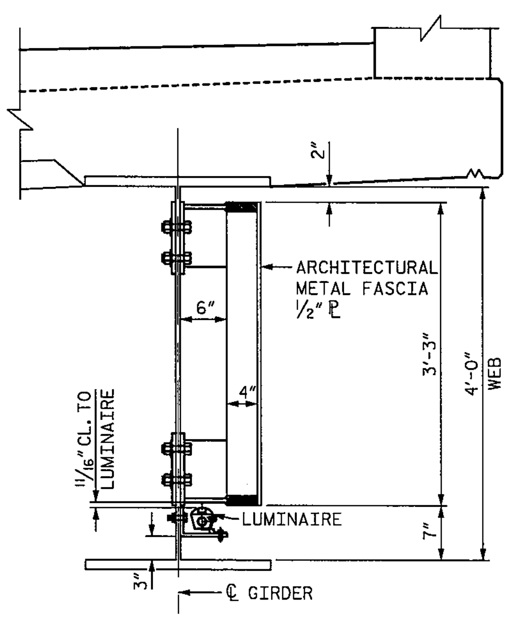
MEDALLION LUMINAIRE BRACKET AT BENT PILASTER

(2 REQUIRED PER LUMINAIRE)
▼ SIZE PER LUMINAIRE MANUFACTURER'S SPECIFICATIONS

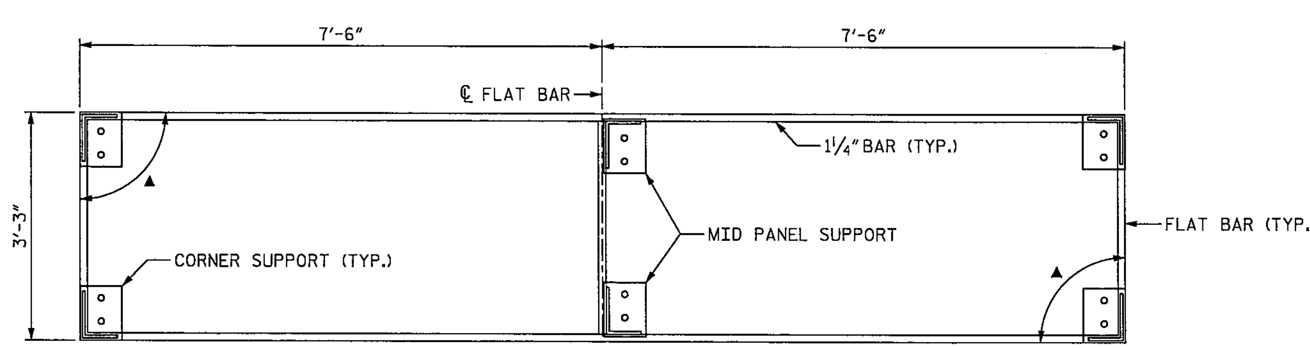


PANEL TO FRAME CONNECTION

⬢ 3/8" Ø X 1 1/2" F593 ALLOY 304 STAINLESS STEEL FASTENER WITH STAINLESS STEEL SPRINGLOCK WASHER; DRILL AND TAP 2" DEEP HOLE INTO PERIMETER FLAT BAR FRAME FOR 1 1/2" FASTENER. ALL LOCK WASHERS SHALL BE FULLY ENGAGED PRIOR TO ACCEPTANCE. CONTRACTOR SHALL USE THREADLOCK SUCH AS LOCTITE BLUE OR EQUAL DURING INSTALLATION OF FASTENER. THE THREADLOCK SHALL ALLOW FOR FUTURE DISASSEMBLY. FASCIA PANELS SHALL NOT BE BOLTED TO CENTER BAR OF FRAME SYSTEM. BOLT HEADS SHALL BE ON THE EXPOSED SIDE OF THE FASCIA PANELS (TYP.)



GIRDER SECTION AT BRIDGE FASCIA



ARCHITECTURAL METAL FASCIA FRAME ELEVATION

▲ ANGLE BETWEEN TOP/BOTTOM BAR AND VERTICAL BAR MAY VARY DEPENDING ON FINAL GIRDER GEOMETRY AFTER BRIDGE DECK AND RAILING IS CAST.

DRAWN BY : K.H. COMPTON	DATE : 4/2016
CHECKED BY : A.S. MILLER	DATE : 4/2016
DESIGNED BY : G.L. HAMILTON	DATE : 4/2016

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PROJECT NO. B-5121/B-5317
WAKE COUNTY
STATION: 20+19.94 -FLYOVER-

SHEET 1 OF 2

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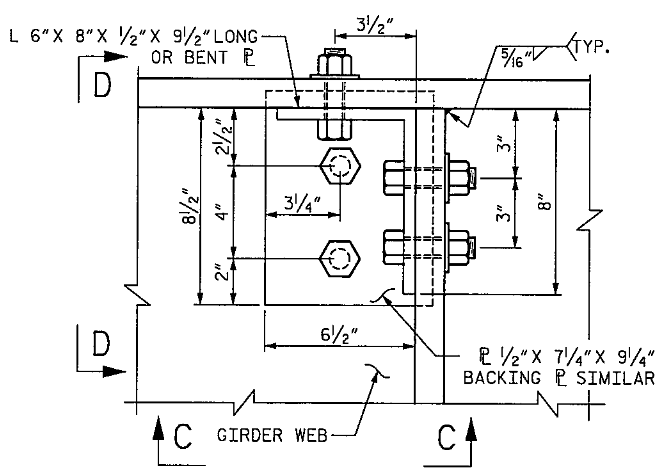
6/2/2016
NORTH CAROLINA PROFESSIONAL SEAL 038447 ENGINEER ANDREW S. MILLER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL METAL FASCIA DETAILS

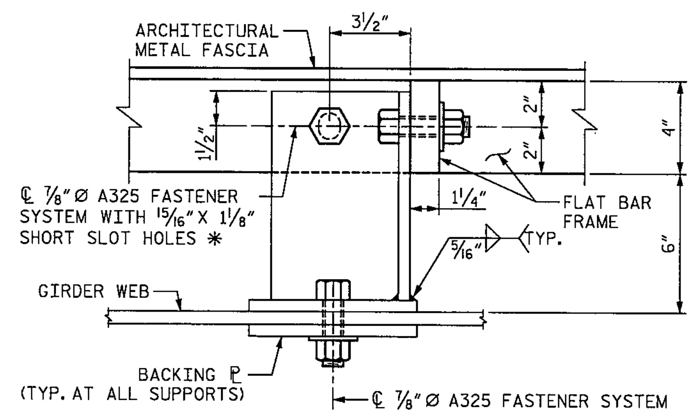
REVISIONS								SHEET NO.
NO.	BY:	DATE:		NO.	BY:	DATE:		S-110A
1				3				TOTAL SHEETS
2				4				110

STR. #2

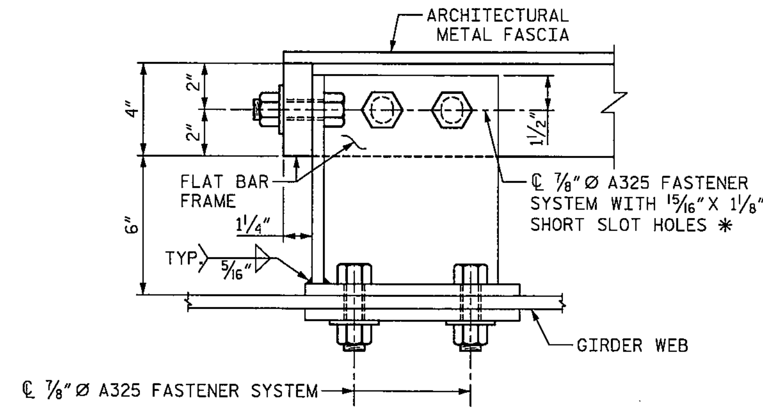


MID PANEL SUPPORT (MS1)

NOTE: UPPER MIDDLE SUPPORT BRACKET SHOWN, BRACKETS FOR LOWER MIDDLE SUPPORT SIMILAR. PANEL PLATE AND BOLT HOLES NOT SHOWN FOR CLARITY.



SECTION C-C



SECTION D-D

✱ SLOTTED HOLES ORIENTED PERPENDICULAR TO GIRDER WEB

NOTES:

FOR ARCHITECTURAL METAL FASCIA, SEE SPECIAL PROVISIONS

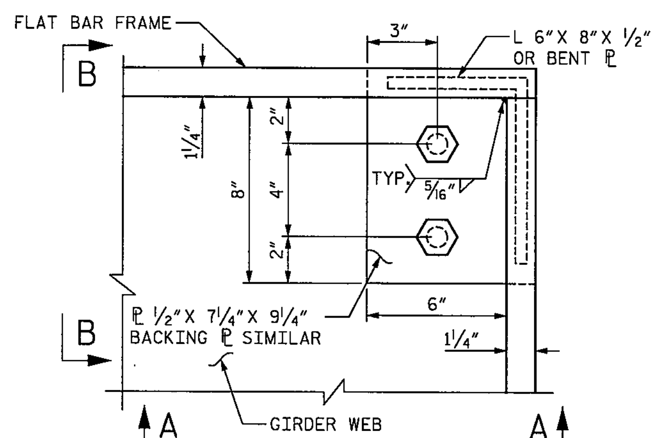
ANCHOR BOLTS SHALL BE ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. BOLTS TO BE EMBEDDED AS SHOWN. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK, CLASS 2B THREAD, AND MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

FOR ARCHITECTURAL METAL FASCIA LAYOUT SEE SHEETS S-110B AND S-110C.

ALL HOLES FOR 7/8"Ø HIGH STRENGTH BOLTS ARE 1 1/16"Ø UNLESS NOTED OTHERWISE.

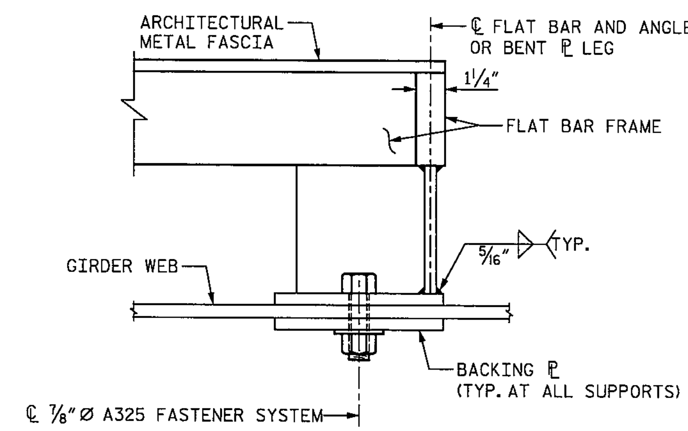
NO WORK MAY BE STARTED ON FABRICATION OF ARCHITECTURAL METAL FASCIAS UNTIL VECTOR DRAWINGS OF THE ARTWORK HAVE BEEN OBTAINED FROM THE DEPARTMENT.

ARCHITECTURAL METAL FASCIA = 478.75 LIN. FT.

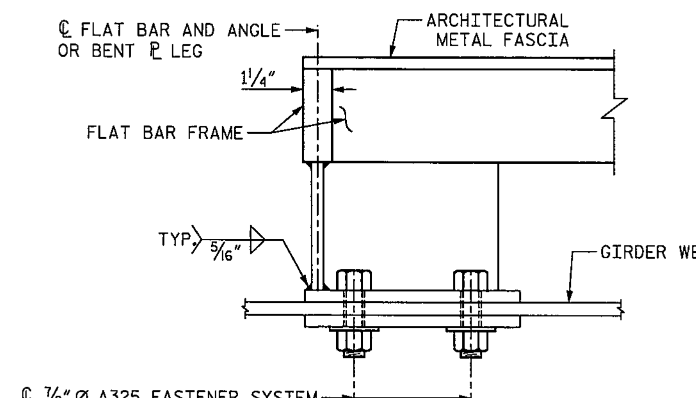


CORNER SUPPORT (CS1)

NOTE: UPPER CORNER SUPPORT BRACKET SHOWN, BRACKETS FOR OTHER THREE CORNERS SIMILAR. PANEL PLATE AND BOLT HOLES NOT SHOWN FOR CLARITY.



SECTION A-A



SECTION B-B

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 20+19.94 -FLYOVER-

SHEET 2 OF 2

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6/2/2016

NORTH CAROLINA PROFESSIONAL SEAL 038447 ENGINEER ANDREW S. MILLER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL METAL FASCIA DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-110B
1			3			TOTAL SHEETS
2			4			110

STR. #2

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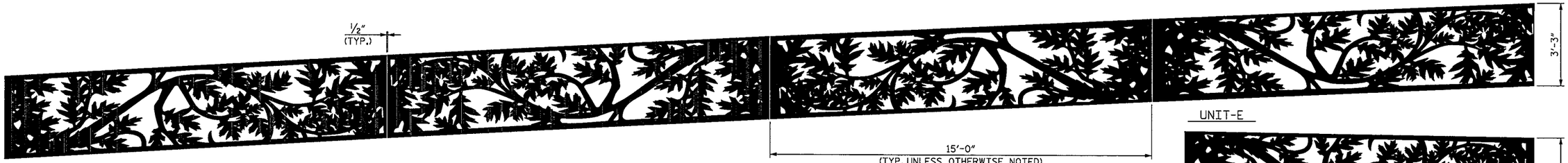
CHECKED BY :	A.S. MILLER	DATE :	4/2016
DESIGNED BY :	G.L. HAMILTON	DATE :	4/2016

UNIT-A

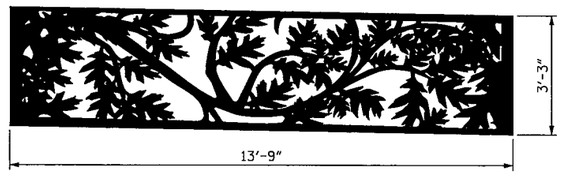
UNIT-B

UNIT-C

UNIT-D

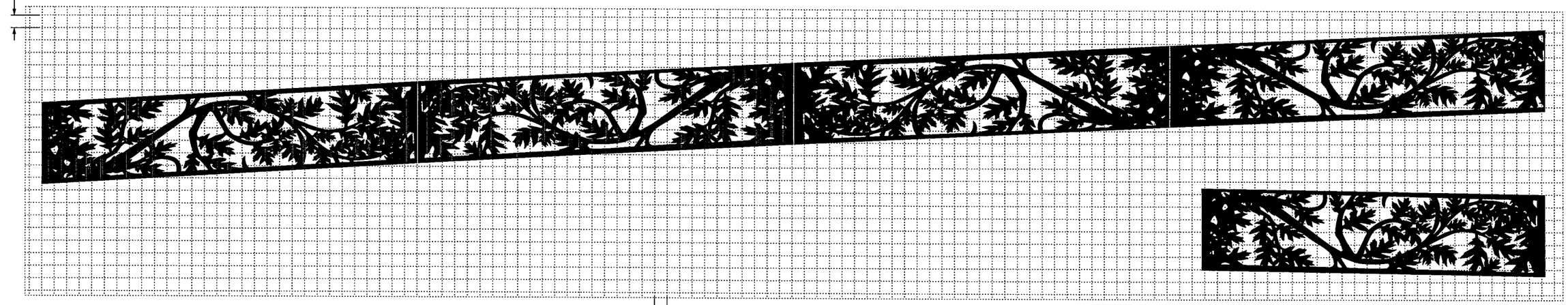


UNIT-E



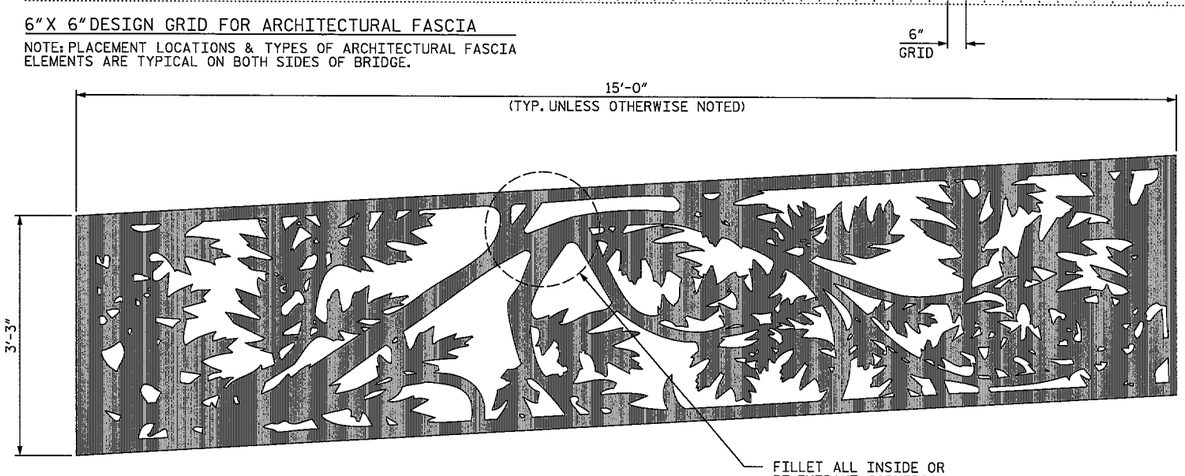
PATTERN KEY FOR ARCHITECTURAL FASCIA (WADE AVENUE -TYPICAL)

NOTE: PLACEMENT LOCATIONS & TYPES OF ARCHITECTURAL FASCIA ELEMENTS ARE LOCATED ON THE BRIDGE ELEVATION DRAWINGS.



6"X 6" DESIGN GRID FOR ARCHITECTURAL FASCIA

NOTE: PLACEMENT LOCATIONS & TYPES OF ARCHITECTURAL FASCIA ELEMENTS ARE TYPICAL ON BOTH SIDES OF BRIDGE.



PATTERN KEY FOR ARCHITECTURAL FASCIA

NOTE: PLACEMENT LOCATIONS & TYPES OF ARCHITECTURAL FASCIA ELEMENTS ARE LOCATED ON THE BRIDGE ELEVATION DRAWINGS.

NOTES:

-PATTERN SHOWN IS FOR BIDDING PURPOSES ONLY AND IS NOT FINAL.

-ARTWORK IS NOMINAL DIMENSION: EXACT DIMENSIONS TO BE DETERMINED THROUGH APPROVED SHOP DRAWINGS.

-MAINTAIN INTEGRITY OF ARTWORK & FAITHFULLY REPRODUCE FASCIAS ACCORDING TO SHOWN DRAWINGS.

-ARCHITECTURAL FASCIA ARTWORK SHOP DRAWINGS MUST BE APPROVED BY THE ENGINEER BEFORE PROCEEDING TO FABRICATION. SEE SPECIAL PROVISIONS.

-APPROVED MOCK-UPS, DEMONSTRATING THE CONDITIONS OF THE JOB ARE REQUIRED BEFORE BEGINNING THE FABRICATION RUN: MOCK-UP UNITS A, B, C, & D. SEE SPECIAL PROVISIONS.

-ARTWORK SHALL BE CAM LASER CUT OR HD PLASMA CUT. NO WARPING OR DISTORTION IS ALLOWED, EDGES MUST BE SMOOTH TO TOUCH. REFER TO S-109 AND S-110 AND SPECIAL PROVISIONS FOR ADDITIONAL NOTES.

-FASCIAS SHALL BE MOUNTED TO FRAME WHICH IS 1¼"X 4" BAR STOCK. (SEE STRUCTURE PLANS)

-ADJUST DIMENSIONS TO FIT CURVATURE OF SPAN; SEE PATTERN KEY, ROTATE PATTERN AS SHOWN TO FIT BRIDGE GIRDERS.

-CONSULT STRUCTURE DRAWINGS FOR CONNECTIONS TYPES AND INSTALLATION.

-ALLOW A ½" GAP BETWEEN ALL PANELS FOR ADJUSTMENTS & FITTING. SEE SPECIAL PROVISIONS.

-ARTWORK IS PROJECTED OFF WEB OF GIRDER AS SHOWN ON S-109.

-CONSULT STRUCTURE DRAWINGS FOR DIMENSIONS AND MEASUREMENTS NOT SHOWN.

-ARCHITECTURAL FASCIAS ARE STAINLESS STEEL WITH A NO. 4 FINISH. CONSULT PROJECT SPECIAL PROVISIONS FOR EXACT INFORMATION ON STEEL TYPE AND FINISHES.

-ALL OPENINGS THROUGH STAINLESS STEEL FASCIAS SHALL BE A MINIMUM OF ½" ACROSS.

-NO WORK MAY BE STARTED ON FABRICATION OF ARCHITECTURAL METAL FASCIAS UNTIL VECTOR DRAWINGS OF THE ARTWORK HAVE BEEN OBTAINED FROM THE DEPARTMENT.

6/2/2016

NORTH CAROLINA PROFESSIONAL SEAL 038447 ENGINEER ANDREW S. MILLER

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PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 20+19.94 -FLYOVER-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL METAL FASCIA

PATTERN & LAYOUT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-110C
1			3			TOTAL SHEETS
2			4			110

STR. #2

DRAWN BY :	J. LACKEY	DATE : 4/2016
CHECKED BY :	A.S. MILLER	DATE : 4/2016
DESIGNED BY :	J. LACKEY	DATE : 4/2016

6/2/2016
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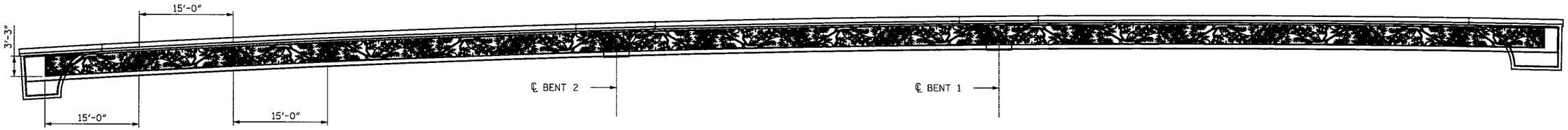
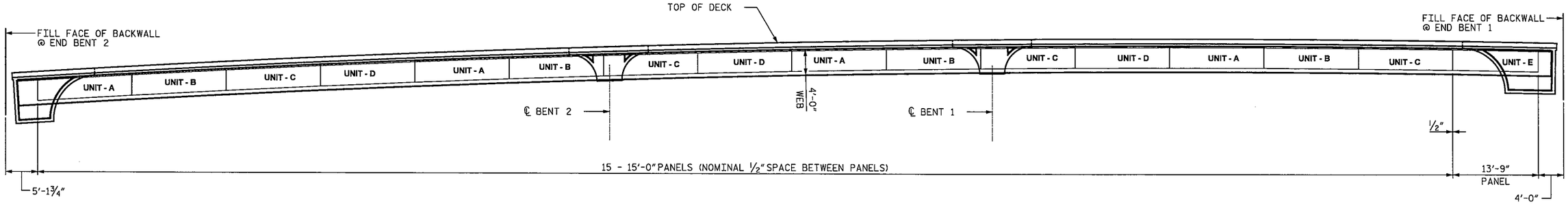
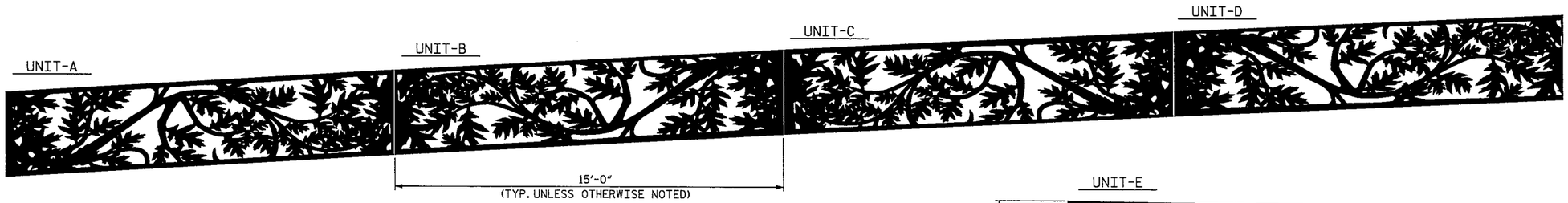
Kyle.Compton

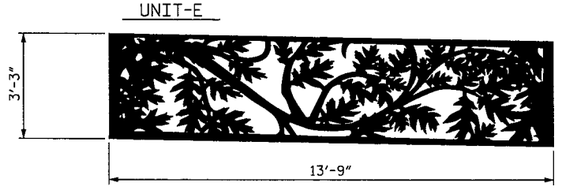


METAL FASCIA ELEVATION VIEW



METAL FASCIA UNIT LAYOUT ALONG GIRDER 1





PATTERN KEY FOR ARCHITECTURAL FASCIA

NOTE: PLACEMENT LOCATIONS & TYPES OF ARCHITECTURAL FASCIA ELEMENTS ARE LOCATED ON THE BRIDGE ELEVATION DRAWINGS.

DRAWN BY :	J. LACKEY	DATE :	4/2016
CHECKED BY :	A.S. MILLER	DATE :	4/2016
DESIGNED BY :	J. LACKEY	DATE :	4/2016

6/2/2016
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Kyle_Compton

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6/2/2016
NORTH CAROLINA PROFESSIONAL SEAL 038447 ENGINEER ANDREW S. MILLER

PROJECT NO. B-5121/B-5317
WAKE COUNTY
STATION: 20+19.94 -FLYOVER-

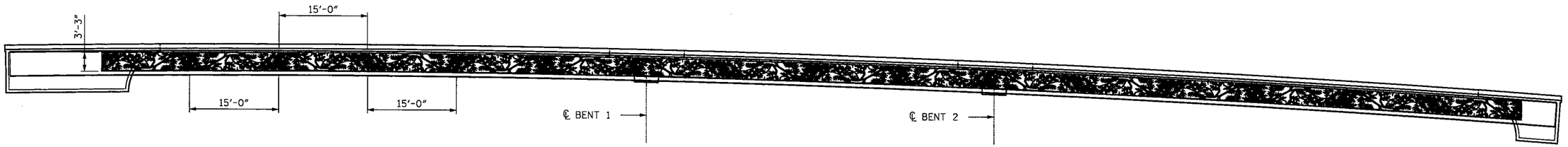
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

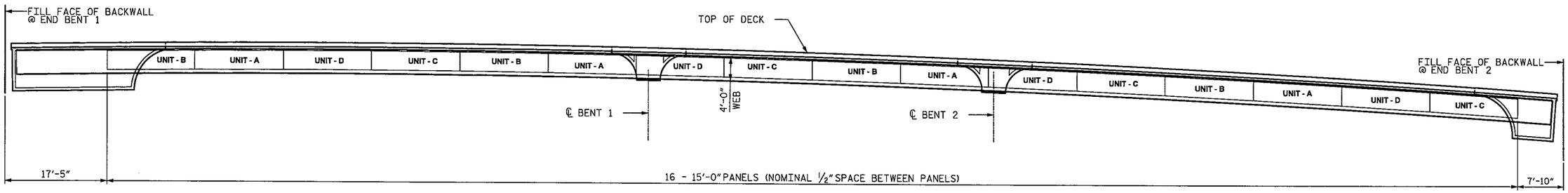
ARCHITECTURAL METAL FASCIA PATTERN & LAYOUT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-110D
1			3			TOTAL SHEETS
2			4			110

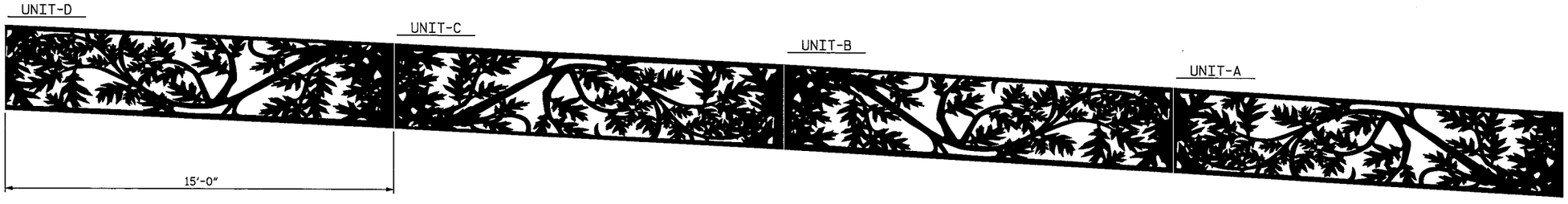
STR. #2



METAL FASCIA ELEVATION VIEW



METAL FASCIA UNIT LAYOUT ALONG GIRDER 6



PATTERN KEY FOR ARCHITECTURAL FASCIA

NOTE: PLACEMENT LOCATIONS & TYPES OF ARCHITECTURAL FASCIA ELEMENTS ARE LOCATED ON THE BRIDGE ELEVATION DRAWINGS.

PROJECT NO. B-5121/B-5317
WAKE COUNTY
STATION: 20+19.94 -FLYOVER-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL METAL FASCIA PATTERN & LAYOUT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-110E
1			3			TOTAL SHEETS
2			4			110

STR. #2

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CHECKED BY :	A.S. MILLER	DATE : 4/2016
DESIGNED BY :	J. LACKEY	DATE : 4/2016

6/2/2016
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Kyle_Compton

6/2/2016
NORTH CAROLINA PROFESSIONAL SEAL 038447 ENGINEER ANDREW S. MILLER

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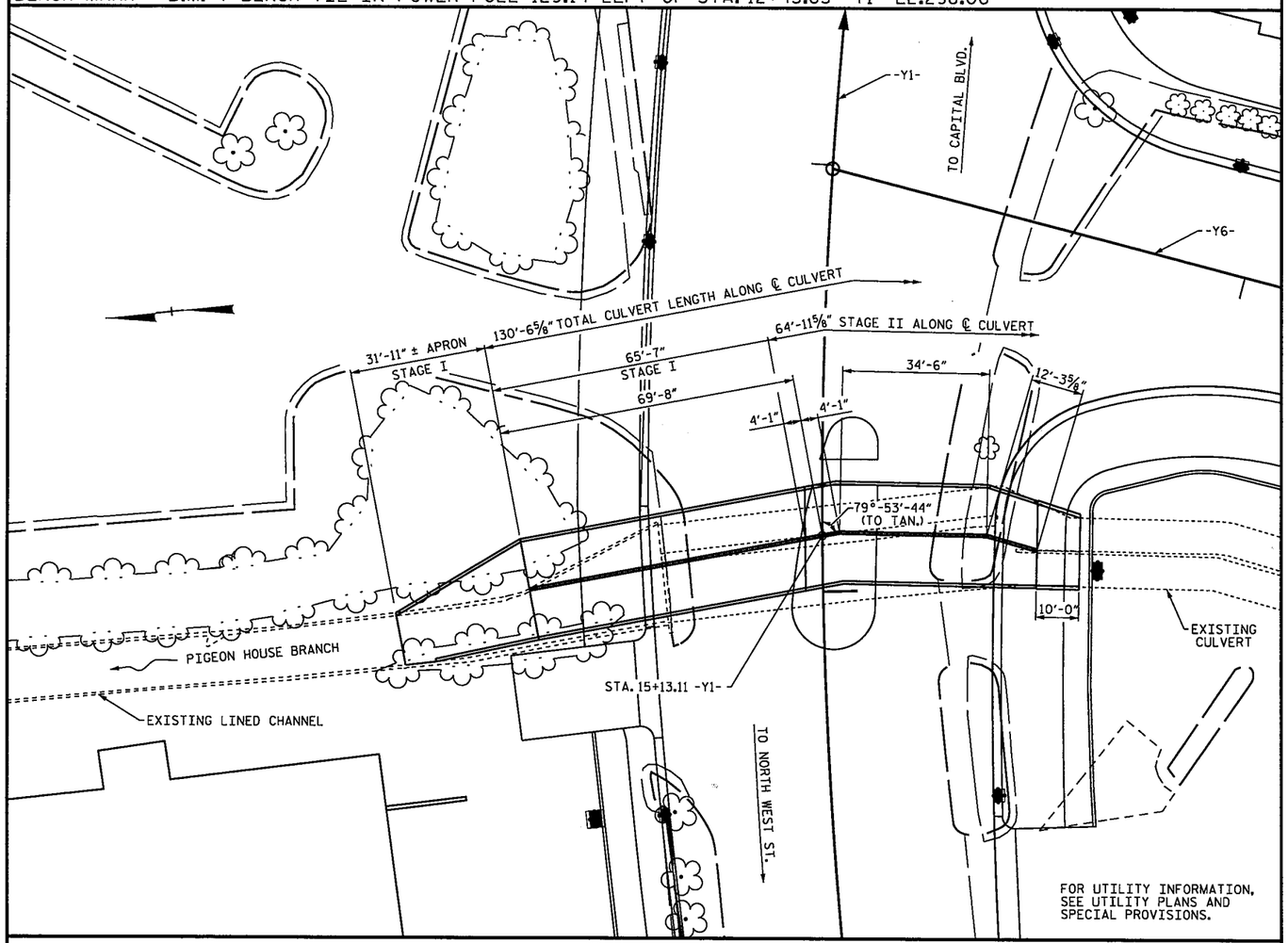
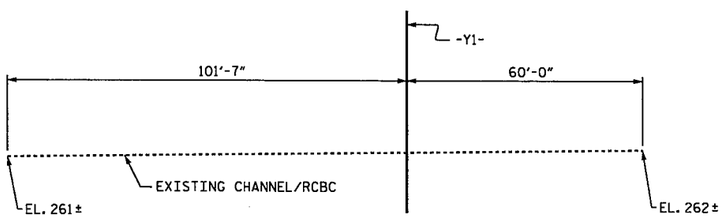
BENCH MARK = B.M.#7 BENCH TIE IN POWER POLE 129.14' LEFT OF STA. 12+45.83 -Y1- EL.298.06



LOCATION SKETCH

TEMPORARY SHORING NOT SHOWN FOR CLARITY. SEE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS.



PROFILE ALONG ℄ CULVERT

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

GRADE DATA

GRADE POINT ELEV. @ STA. 15+13.11 -Y1-	=	272.76
BED ELEV. @ STA. 15+13.11 -Y1-	=	261.56
ROADWAY SLOPE	=	2:1

HYDRAULIC DATA

DESIGN DISCHARGE	=	870 CFS
DESIGN FLOOD FREQUENCY	=	50 YEARS
DESIGN HIGH WATER ELEVATION	=	267.7
DRAINAGE AREA	=	0.90 SQ. MI.
BASE DISCHARGE (Q100)	=	900 CFS
BASE ELEVATION (Q100)	=	267.86

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE		
STAGE I	179.1	C.Y.
STAGE II	152.1	C.Y.
TOTAL	331.2	C.Y.
REINFORCING STEEL		
STAGE I	26998	LBS.
STAGE II	22781	LBS.
TOTAL	49779	LBS.
FOUNDATION CONDITIONING MATERIAL		
STAGE I	153	TONS
STAGE II	105	TONS
TOTAL	258	TONS
CULVERT EXCAVATION	LUMP	SUM
REMOVAL OF EXISTING STRUCTURE	LUMP	SUM

DRAWN BY : William T Parker DATE : 08/15
CHECKED BY : T.L. AVERETTE DATE : 11/2015
DESIGN ENGINEER OF RECORD: T.L. AVERETTE DATE : 12/2015

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kalford

F. A. PROJECT NO. BRNHS-0070(119)

NOTES

ASSUMED LIVE LOAD ----------HL-93 OR ALTERNATE LOADING.

DESIGN FILL---------- 4.49' (MAX. FILL)
2.91' (MIN. FILL)

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. STAGE I OUTLET END APRON AND FLOOR SLAB INCLUDING 4"OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE STAGE I WALLS AND OUTLET WALLS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
3. STAGE II FLOOR SLAB INCLUDING 4"OF ALL VERTICAL WALLS.
4. THE REMAINING PORTIONS OF THE STAGE II WALLS FULL HEIGHT FOLLOWED BY ROOF SLAB.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

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

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

DOWELS SHALL BE USED TO CONNECT THE PROPOSED CULVERT TO THE EXISTING CULVERT AND EXISTING LINED CHANNEL AS SHOWN. FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEET SN.

THE PIPES THROUGH THE WALLS OF THE CULVERT SHALL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL SHALL BE FIELD BENT AS NECESSARY TO CLEAR PIPE.

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 BAR 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. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.

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.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

TRAFFIC SHALL BE MAINTAINED ON SITE. FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING REINFORCED CONCRETE BOX CULVERT SHALL BE REMOVED AS SHOWN IN THE LOCATION SKETCH.

CONCRETE REPAIR MAY BE REQUIRED DUE TO REMOVAL OF EXISTING UTILITIES. METHOD OF CONCRETE REPAIR SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR CONCRETE REPAIR SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

NORTH CAROLINA PROFESSIONAL SEAL 022506 ENGINEER JESSE MCARTHUR BAILEY
DocuSigned by: 6/3/2016

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD
DocuSigned by: 6/3/2016

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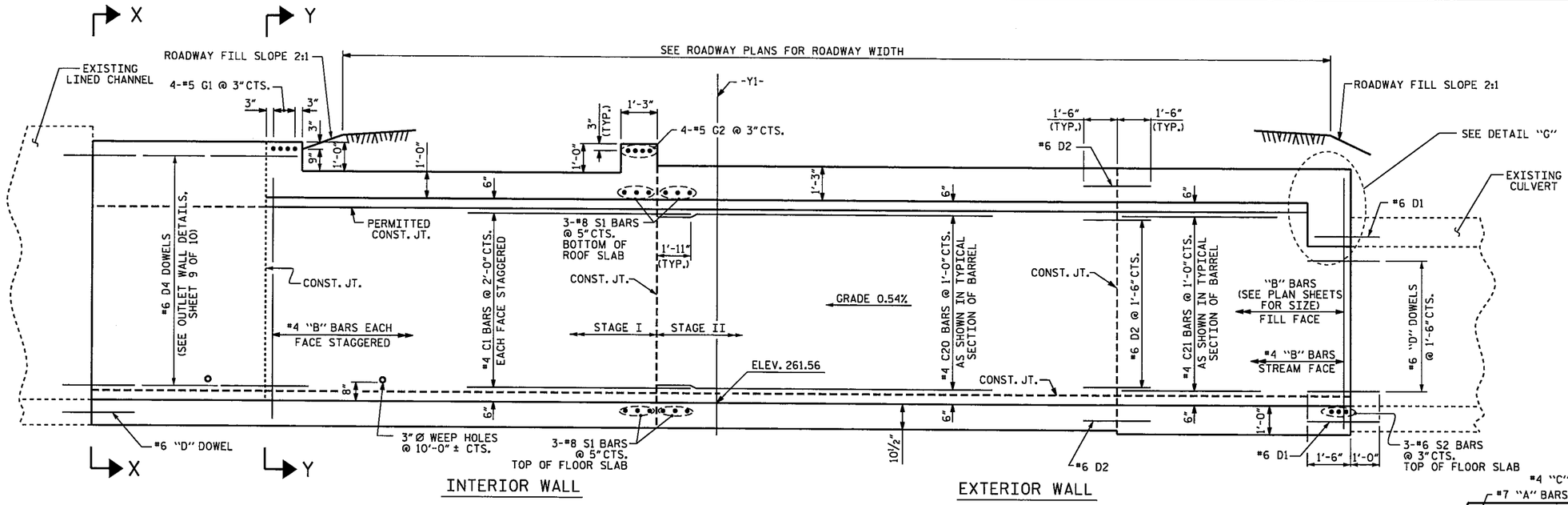
PROJECT NO. B-5121/B-5317
WAKE COUNTY
STATION: 15+13.11 -Y1-

SHEET 1 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

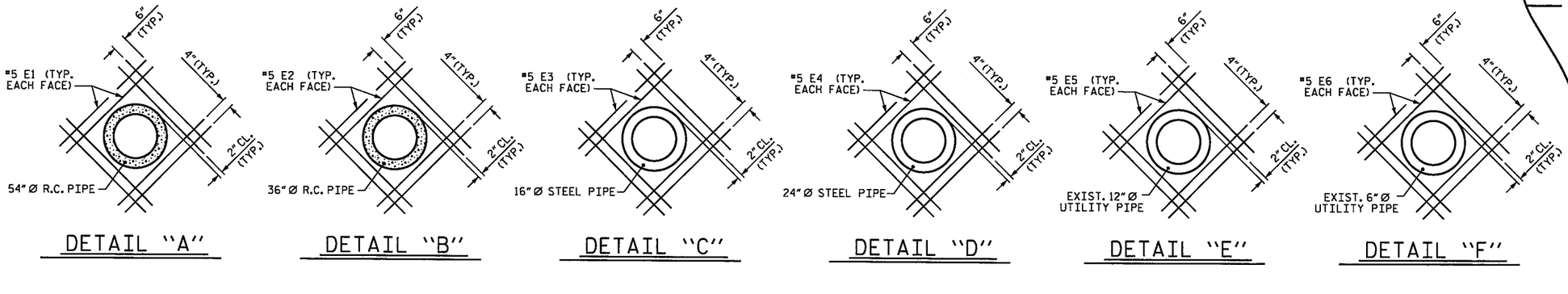
DOUBLE 11 FT. X 7 FT. CONCRETE BOX CULVERT

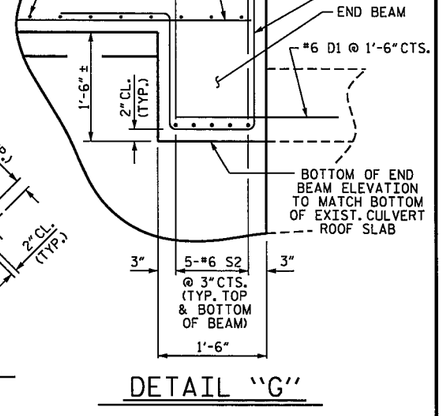
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			10

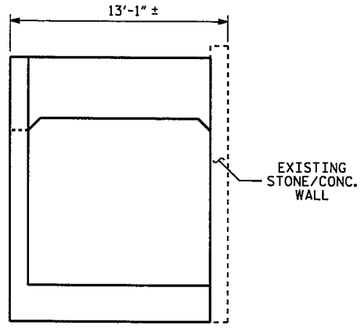


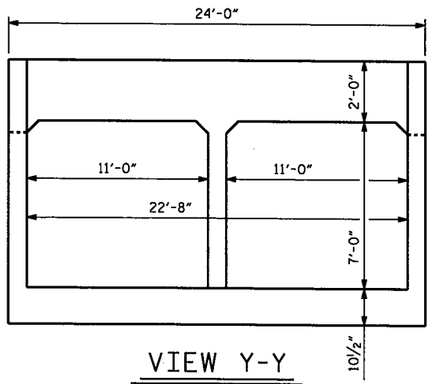
CULVERT SECTION NORMAL TO ROADWAY

PIPES THROUGH WALLS OF CULVERT NOT SHOWN FOR CLARITY. SEE SHEETS 5 THROUGH 8 OF 10.









I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KEITH W. ALFORD

Doc. Signed By:

FINAL SIGNATURE

6/3/2016

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PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 15+13.11 -Y1-

SHEET 3 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 11 FT. X 7 FT. CONCRETE BOX CULVERT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-3
1			3			TOTAL SHEETS
2			4			10

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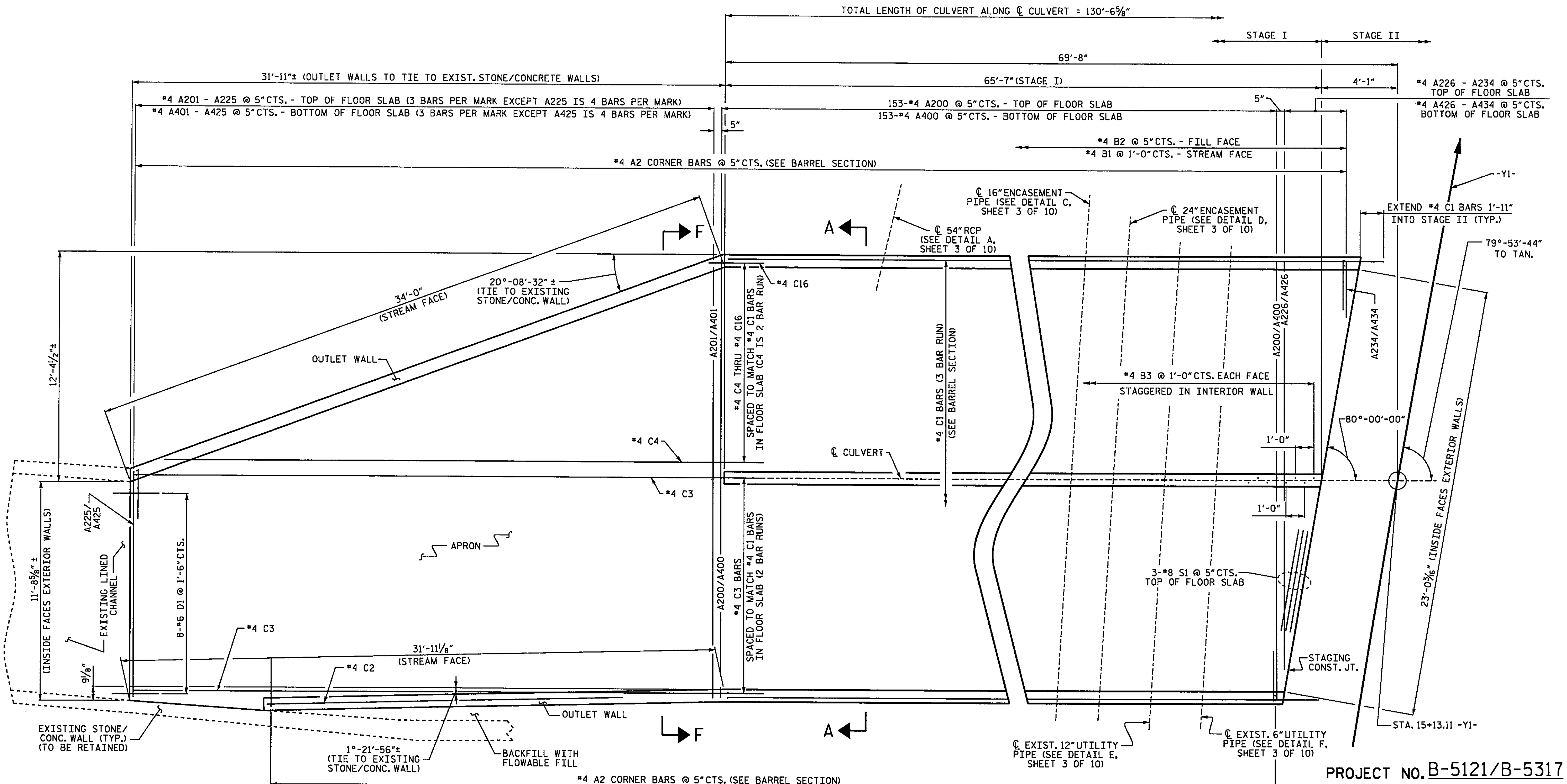

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 15+13.11 -Y1-

SHEET 5 OF 10

STAGE I - FLOOR PLAN

FOR SECTION F-F AND ADDITIONAL REINFORCING STEEL IN APRON AND OUTLET WALLS, SEE SHEET 9 OF 10
FOR SECTION A-A, SEE SHEET 4 OF 10

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

DocuSigned by: 6/3/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 11 FT. X 7 FT. CONCRETE BOX CULVERT STAGE I FLOOR PLAN

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		C-5
1			3				TOTAL SHEETS
2			4				10

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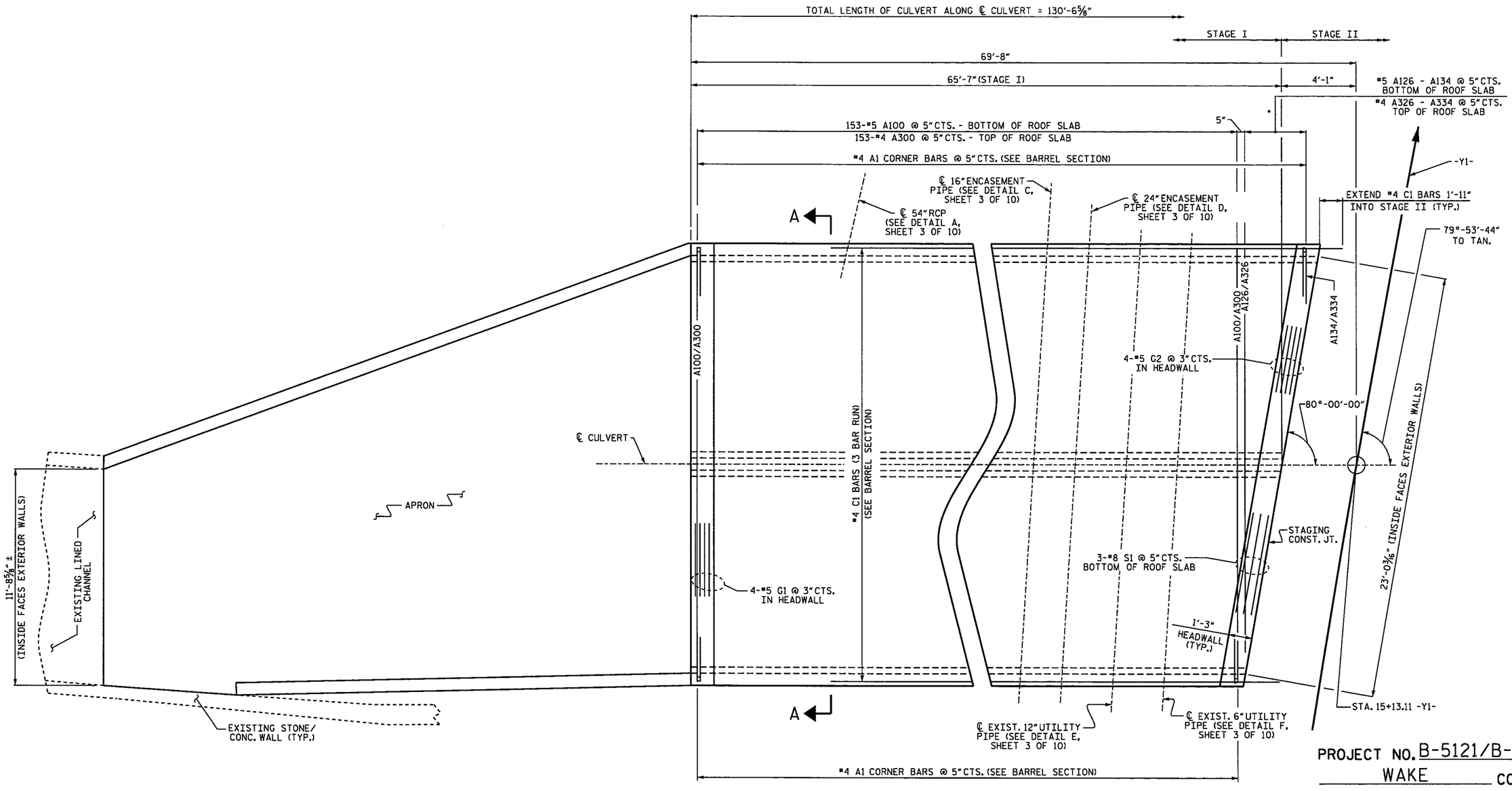

STAGE I - ROOF PLAN

FOR SECTION A-A, SEE SHEET 4 OF 10

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 15+13.11 -Y1-

SHEET 6 OF 10

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

Documents by:

6/3/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 11 FT. X 7 FT. CONCRETE BOX CULVERT STAGE I ROOF PLAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-6
1			3			TOTAL SHEETS
2			4			10

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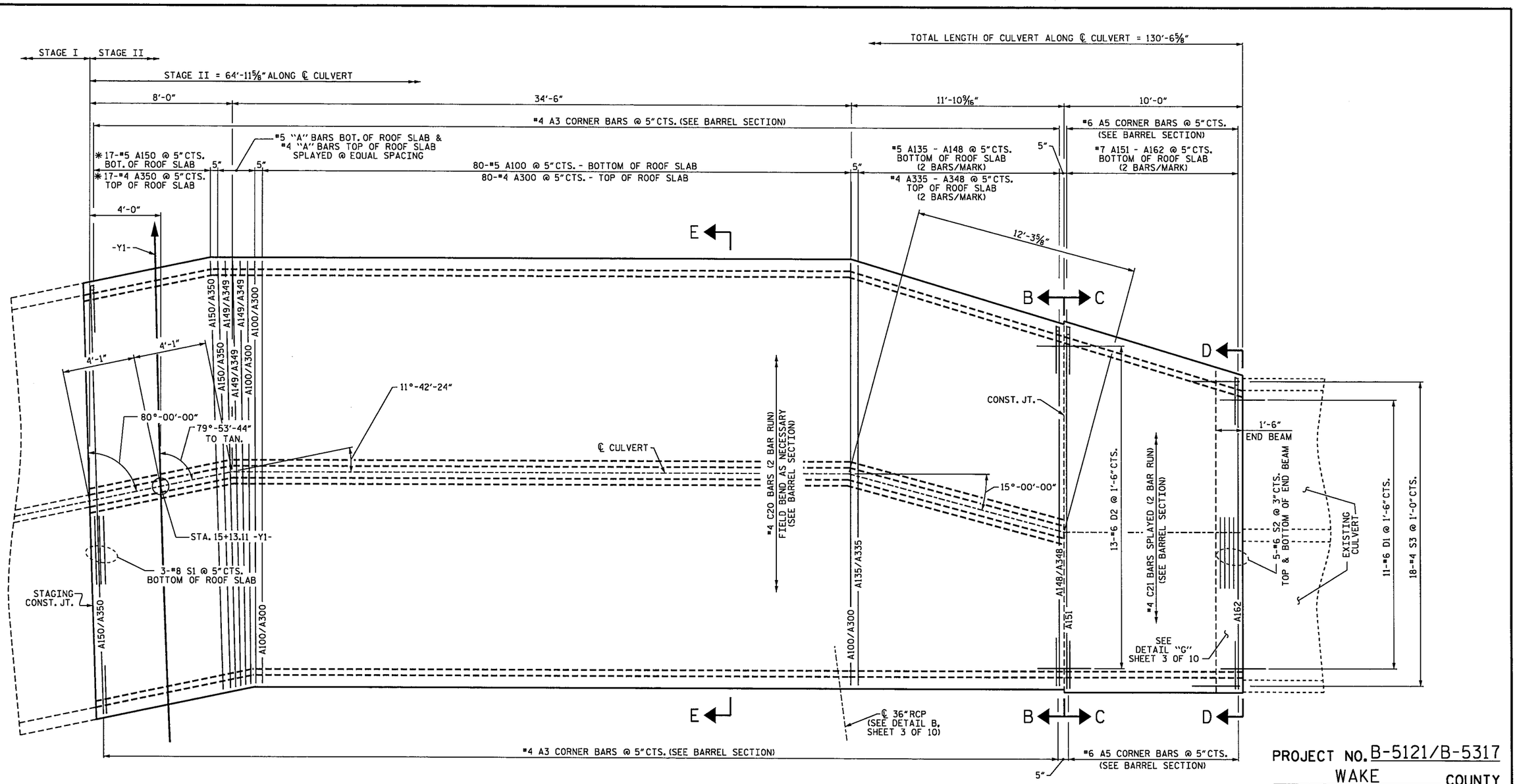

STAGE II - ROOF PLAN

*- "A" BARS PLACED PARALLEL TO CONSTRUCTION JOINT FOR SECTION VIEWS, SEE SHEET 4 OF 10

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 15+13.11 -Y1-

SHEET 8 OF 10

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

Designed by [signature]

6/3/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 11 FT. X 7 FT. CONCRETE BOX CULVERT STAGE II ROOF PLAN

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		C-8
1			3				TOTAL SHEETS
2			4				10

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DESIGN ENGINEER OF RECORD: T.L. AVERETTE DATE : 12/2015

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BILL OF MATERIAL
STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	316	#4	1	5'-3"	1108
A2	452	#4	1	4'-8"	1409
A100	153	#5	STR	23'-7"	3763
A126	1	#5	STR	21'-11"	23
A127	1	#5	STR	19'-7"	20
A128	1	#5	STR	17'-2"	18
A129	1	#5	STR	14'-10"	15
A130	1	#5	STR	12'-5"	13
A131	1	#5	STR	10'-1"	11
A132	1	#5	STR	7'-9"	8
A133	1	#5	STR	5'-4"	6
A134	1	#5	STR	3'-0"	3
A200	153	#4	STR	23'-7"	2410
A201	3	#4	STR	23'-2"	46
A202	3	#4	STR	22'-8"	45
A203	3	#4	STR	22'-3"	45
A204	3	#4	STR	21'-10"	44
A205	3	#4	STR	21'-5"	43
A206	3	#4	STR	21'-0"	42
A207	3	#4	STR	20'-7"	41
A208	3	#4	STR	20'-1"	40
A209	3	#4	STR	19'-8"	39
A210	3	#4	STR	19'-3"	39
A211	3	#4	STR	18'-10"	38
A212	3	#4	STR	18'-5"	37
A213	3	#4	STR	18'-0"	36
A214	3	#4	STR	17'-7"	35
A215	3	#4	STR	17'-1"	34
A216	3	#4	STR	16'-8"	33
A217	3	#4	STR	16'-3"	33
A218	3	#4	STR	15'-10"	32
A219	3	#4	STR	15'-5"	31
A220	3	#4	STR	14'-11"	30
A221	3	#4	STR	14'-5"	29
A222	3	#4	STR	13'-10"	28
A223	3	#4	STR	13'-4"	27
A224	3	#4	STR	12'-9"	26
A225	4	#4	STR	12'-1"	32
A226	1	#4	STR	21'-11"	15
A227	1	#4	STR	19'-7"	13
A228	1	#4	STR	17'-2"	11
A229	1	#4	STR	14'-10"	10
A230	1	#4	STR	12'-5"	8
A231	1	#4	STR	10'-1"	7
A232	1	#4	STR	7'-9"	5
A233	1	#4	STR	5'-4"	4
A234	1	#4	STR	3'-0"	2
A300	153	#4	STR	23'-7"	2410
A326	1	#4	STR	21'-11"	15
A327	1	#4	STR	19'-7"	13
A328	1	#4	STR	17'-2"	11
A329	1	#4	STR	14'-10"	10
A330	1	#4	STR	12'-5"	8
A331	1	#4	STR	10'-1"	7
A332	1	#4	STR	7'-9"	5
A333	1	#4	STR	5'-4"	4
A334	1	#4	STR	3'-0"	2
A400	153	#4	STR	23'-7"	2410
A401	3	#4	STR	23'-2"	46
A402	3	#4	STR	22'-8"	45
A403	3	#4	STR	22'-3"	45
A404	3	#4	STR	21'-10"	44
A405	3	#4	STR	21'-5"	43
A406	3	#4	STR	21'-0"	42
A407	3	#4	STR	20'-7"	41
A408	3	#4	STR	20'-1"	40
A409	3	#4	STR	19'-8"	39
A410	3	#4	STR	19'-3"	39
A411	3	#4	STR	18'-10"	38
A412	3	#4	STR	18'-5"	37
A413	3	#4	STR	18'-0"	36
A414	3	#4	STR	17'-7"	35
A415	3	#4	STR	17'-1"	34
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A418	3	#4	STR	15'-10"	32
A419	3	#4	STR	15'-5"	31
A420	3	#4	STR	14'-11"	30
A421	3	#4	STR	14'-5"	29
A422	3	#4	STR	13'-10"	28
A423	3	#4	STR	13'-4"	27
A424	3	#4	STR	12'-9"	26
A425	4	#4	STR	12'-1"	32
A426	1	#4	STR	21'-11"	15
A427	1	#4	STR	19'-7"	13
A428	1	#4	STR	17'-2"	11
A429	1	#4	STR	14'-10"	10
A430	1	#4	STR	12'-5"	8
A431	1	#4	STR	10'-1"	7
A432	1	#4	STR	7'-9"	5
A433	1	#4	STR	5'-4"	4
A434	1	#4	STR	3'-0"	2
B1	132	#4	STR	8'-4"	735
B2	316	#4	STR	6'-4"	1337
B3	132	#4	STR	8'-4"	735
C1	255	#4	STR	24'-5"	4159
C2	1	#4	STR	19'-0"	13
C3	32	#4	STR	17'-11"	383
C4	2	#4	STR	17'-1"	23
C5	1	#4	STR	29'-5"	20
C6	2	#4	STR	26'-9"	36
C7	1	#4	STR	24'-0"	16
C8	1	#4	STR	21'-3"	14
C9	1	#4	STR	19'-8"	13
C10	1	#4	STR	18'-6"	12
C11	1	#4	STR	15'-10"	11
C12	2	#4	STR	12'-3"	16
C13	1	#4	STR	10'-4"	7
C14	1	#4	STR	7'-8"	5
C15	1	#4	STR	5'-0"	3
C16	1	#4	STR	3'-0"	2
D1	8	#6	STR	2'-6"	30
D2	9	#6	STR	3'-0"	41
D3	9	#6	2	3'-0"	41
D4	7	#6	2	2'-6"	26
E1	16	#5	STR	7'-6"	125
E3	48	#5	STR	3'-5"	171
E4	48	#5	STR	4'-1"	204
E5	48	#5	STR	3'-1"	154
E6	48	#5	STR	2'-7"	129
G1	4	#5	STR	23'-8"	99
G2	4	#5	STR	24'-0"	100
H1	36	#4	STR	17'-10"	429
H2	36	#4	STR	13'-3"	319
S1	6	#8	STR	24'-0"	384
V1	272	#4	STR	8'-6"	1544

REINFORCING STEEL = 26998 LBS

STAGE I
CLASS A CONCRETE

BARREL & 2 HEADWALLS	146.1	C.Y.
2 OUTLET WALLS	13.9	C.Y.
OUTLET WALL APRON	19.1	C.Y.
TOTAL	179.1	C.Y.

FOUNDATION CONDITIONING MATERIAL 153 TONS

CULVERT EXCAVATION LUMP SUM

BILL OF MATERIAL
STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A2	262	#4	1	4'-8"	817
A3	262	#4	1	7'-0"	1225
A4	48	#6	1	11'-6"	829
A5	48	#6	1	13'-4"	961
A100	82	#5	STR	23'-7"	2017
A135	2	#5	STR	23'-4"	49
A136	2	#5	STR	23'-1"	48
A137	2	#5	STR	22'-9"	47
A138	2	#5	STR	22'-6"	47
A139	2	#5	STR	22'-3"	46
A140	2	#5	STR	22'-0"	46
A141	2	#5	STR	21'-9"	45
A142	2	#5	STR	21'-6"	45
A143	2	#5	STR	21'-3"	44
A144	2	#5	STR	21'-0"	44
A145	2	#5	STR	20'-9"	43
A146	2	#5	STR	20'-6"	43
A147	2	#5	STR	20'-3"	42
A148	2	#5	STR	20'-0"	42
A149	3	#5	STR	23'-9"	74
A150	18	#5	STR	23'-11"	449
A151	2	#7	STR	20'-1"	82
A152	2	#7	STR	19'-10"	81
A153	2	#7	STR	19'-7"	80
A154	2	#7	STR	19'-4"	79
A155	2	#7	STR	19'-1"	78
A156	2	#7	STR	18'-10"	77
A157	2	#7	STR	18'-7"	76
A158	2	#7	STR	18'-4"	75
A159	2	#7	STR	18'-1"	74
A160	2	#7	STR	17'-10"	73
A161	2	#7	STR	17'-7"	72
A162	2	#7	STR	17'-4"	71
A200	82	#4	STR	23'-7"	1292
A235	2	#4	STR	23'-4"	31
A236	2	#4	STR	23'-1"	31
A237	2	#4	STR	22'-9"	30
A238	2	#4	STR	22'-6"	30
A239	2	#4	STR	22'-3"	30
A240	2	#4	STR	22'-0"	29
A241	2	#4	STR	21'-9"	29
A242	2	#4	STR	21'-6"	29
A243	2	#4	STR	21'-3"	28
A244	2	#4	STR	21'-0"	28
A245	2	#4	STR	20'-9"	28
A246	2	#4	STR	20'-6"	27
A247	2	#4	STR	20'-3"	27
A248	2	#4	STR	20'-0"	27
A249	3	#4	STR	23'-9"	48
A250	18	#4	STR	23'-11"	288
A251	2	#7	STR	20'-1"	82
A252	2	#7	STR	19'-10"	81
A253	2	#7	STR	19'-7"	80
A254	2	#7	STR	19'-4"	79
A255	2	#7	STR	19'-1"	78
A256	2	#7	STR	18'-10"	77
A257	2	#7	STR	18'-7"	76
A258	2	#7	STR	18'-4"	75
A259	2	#7	STR	18'-1"	74
A260	2	#7	STR	17'-10"	73
A261	2	#7	STR	17'-7"	72
A262	2	#7	STR	17'-4"	71
A300	82	#4	STR	23'-7"	1292
A335	2	#4	STR	23'-4"	31
A336	2	#4	STR	23'-1"	31
A337	2	#4	STR	22'-9"	30
A338	2	#4	STR	22'-6"	30
A339	2	#4	STR	22'-3"	30
A340	2	#4	STR	22'-0"	29
A341	2	#4	STR	21'-9"	29
A342	2	#4	STR	21'-6"	29
A343	2	#4	STR	21'-3"	28
A344	2	#4	STR	21'-0"	28
A345	2	#4	STR	20'-9"	28
A346	2	#4	STR	20'-6"	27
A347	2	#4	STR	20'-3"	27
A348	2	#4	STR	20'-0"	27
A349	3	#4	STR	23'-9"	48
A350	18	#4	STR	23'-11	288
A400	82	#4	STR	23'-7"	1292
A435	2	#4	STR	23'-4"	31
A436	2	#4	STR	23'-1"	31
A437	2	#4	STR	22'-9"	30
A438	2	#4	STR	22'-6"	30
A439	2	#4	STR	22'-3"	30
A440	2	#4	STR	22'-0"	29
A441	2	#4	STR	21'-9"	29
A442	2	#4	STR	21'-6"	29
A443	2	#4	STR	21'-3"	28
A444	2	#4	STR	21'-0"	28
A445	2	#4	STR	20'-9"	28
A446	2	#4	STR	20'-6"	27
A447	2	#4	STR	20'-3"	27
A448	2	#4	STR	20'-0"	27
A449	3	#4	STR	23'-9"	48
A450	18	#4	STR	23'-11"	288
B2	262	#4	STR	6'-4"	1108
B4	110	#4	STR	8'-7"	631
B5	110	#4	STR	8'-7"	631
B6	20	#4	STR	8'-9"	117
B7	48	#6	STR	6'-4"	457
C20	170	#4	STR	28'-7"	3246
C21	116	#4	STR	6'-0"	465
D1	26	#6	STR	2'-6"	98
D2	36	#6	STR	3'-0"	162
D4	4	#6	2	2'-6"	15
E2	16	#5	STR	5'-9"	96
S1	6	#8	STR	24'-0"	384
S2	13	#6	STR	17'-4"	338
S3	18	#4	3	8'-2"	98

REINFORCING STEEL = 22781 LBS

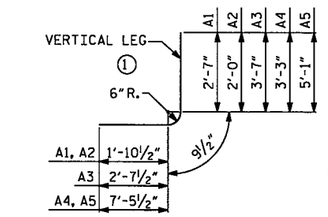
STAGE II
CLASS A CONCRETE

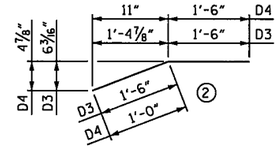
BARREL & 1 END BEAM	152.1	C.Y.

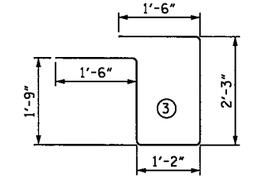
FOUNDATION CONDITIONING MATERIAL 105 TONS

CULVERT EXCAVATION LUMP SUM

BAR TYPES







BAR DIMENSIONS ARE OUT TO OUT

SPLICE LENGTHS CHART

BAR	SIZE	SPLICE LENGTH
A200, A400	4	1'-9"
B1, B4 & B6	4	1'-5"
B3 & B5	4	1'-5"
"C"	4	1'-11"

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 15+13.11 -Y1-

SHEET 10 OF 10

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

6/3/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 11 FT. X 7 FT. CONCRETE BOX CULVERT BILL OF MATERIAL

DRAWN BY : William T. Parker DATE : 08/15
CHECKED BY : T.L. AVERETTE DATE : 11/2015
DESIGN ENGINEER OF RECORD: T.L. AVERETTE DATE : 12/2015

02-JUN-2016 08:47
R:\Structures\Plans\Culvert\B-5121_SD_CU.dgn
kalford

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-10
1			3			TOTAL SHEETS
2			4			10