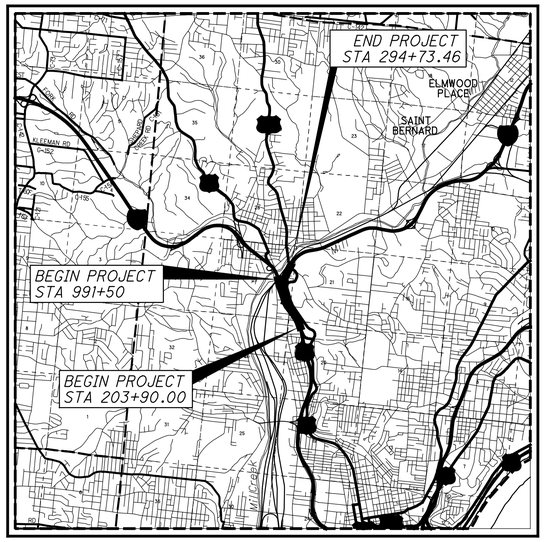

LOCATION MAP

LATITUDE: 39° 09′ 03″ LONGITUDE: -84° 32′ 24″

SCALE IN MILES
0 1 2 3 4

N

PORTION TO BE IMPROVED
INTERSTATE HIGHWAY
FEDERAL ROUTES
STATE ROUTES
COUNTY & TOWNSHIP ROADS
OTHER ROADS

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
HAM-75-3.84
HAM-52-2044 (BU-18)

HAMILTON COUNTY
CITY OF CINCINNATI

INDEX OF SHEETS:

DESIGN DESIGNATION

	IR 75 SOUTH OF MITCHELL	IR 75 SOUTH OF IR 74	IR 74 WEST OF BEEKMAN	IR 74 EAST OF BEEKMAN	DIRECTIONAL ROADWAY IR 75 NB TO IR 74 WB	DIRECTIONAL ROADWAY IR 74 EB TO IR 75 SB
CURRENT ADT (2010)	149,400	152,100	75,000	88,300	25,300	25,300
DESIGN YEAR ADT (2030)	174,300	179,200	89,300	102,000	29,800	29,800
DESIGN HOURLY VOLUME (2030)	14,640	15,050	8,040	9,180	4,100	4,380
DIRECTIONAL DISTRIBUTION	0.54	0.70	0.72	0.73	1.00	1.00
TRUCKS (24 HOUR B&C)	0.16	0.13	0.15	0.13	0.03	0.08
DESIGN SPEED	60 MPH	60 MPH	60 MPH	60 MPH	50 MPH	50 MPH
LEGAL SPEED	55 MPH	55 MPH	55 MPH	55 MPH	50 MPH	50 MPH
DESIGN FUNCTIONAL CLASSIFICATION:	03 URBAN INTERSTATE	03 URBAN INTERSTATE	03 URBAN INTERSTATE	03 URBAN INTERSTATE	03 URBAN INTERSTATE	03 URBAN INTERSTATE
NHS PROJECT	YES					

DESIGN EXCEPTIONS

DESIGN FEATURE	APPROVAL DATES	SHEET NUMBERS
STOP. SIGHT DIST. - SB IR 75 (CURVE 6)	4/6/18	SEE BU-14
SHOULDER WIDTH - IR 74-1892R BRIDGE	4/10/18	
SHOULDER WIDTH - RAMP P 1908S BRIDGE	4/11/18	
CURVE RADIUS - RAMP P 1908S BRIDGE	4/11/18	
STOP. SIGHT DIST. - RAMP P 1908S BRIDGE	4/11/18	
S.E. RATE - IR 74 EB CURVE 13, 1908R BRIDGE	4/26/18	

ENGINEERS SEAL:

FOR ENTIRE PLAN EXCEPT SHEETS 4 THRU 7

STATE OF OHIO
BRUCE FRASER
E-59019
REGISTERED PROFESSIONAL ENGINEER

SIGNED: Bruce Fraser
DATE: 3/11/19

STANDARD CONSTRUCTION DRAWINGS

												SUPPLEMENTAL SPECIFICATIONS	
BP-1.1	7/28/00	MH-1.2	1/15/16	RM-4.4	7/21/17	HL-20.13	1/19/18	MT-95.73	1/19/18	TC-16.21	1/19/18	800-2016	1/19/18
BP-2.1	7/17/15			RM-4.5	7/21/17	HL-20.21	1/19/18	MT-98.10	1/20/17	TC-21.10	7/21/17	804	1/15/16
BP-2.2	7/18/08	DM-1.1	7/21/17	RM-4.6	7/19/13	HL-20.24	1/19/18	MT-98.11	1/20/17	TC-21.20	1/19/18	806	3/2/15
BP-2.3	7/18/14	DM-1.2	1/18/13			HL-30.11	1/19/18	MT-98.20	7/18/14	TC-21.50	7/15/16	808	10/16/15
BP-2.4	7/19/13	DM-1.3	7/18/14	A-1-69	7/19/02	HL-30.21	1/17/14	MT-98.21	7/18/14	TC-22.10	10/18/13	809	1/19/18
BP-3.1	7/18/14	DM-2.1	1/18/13	AS-1-15	7/17/15	HL-30.22	1/17/14	MT-98.29	1/20/17	TC-22.20	1/17/14	814	7/15/16
BP-6.1	7/19/13	DM-4.1	1/15/16	AS-2-15	1/19/18	HL-30.31	1/17/14	MT-98.30	7/21/17	TC-41.30	10/18/13	821	4/20/12
BP-8.1	7/18/08	DM-4.2	7/20/12	EXJ-4-87	1/19/18	HL-30.32	1/17/14	MT-99.30	1/19/18	TC-42.10	10/18/13	832	1/17/14
		DM-4.3	1/15/16	GSD-1-96	7/19/02	HL-30.33	1/17/14	MT-99.60	7/15/16	TC-42.20	10/18/13	839	7/17/15
CB-1.1	1/15/16	DM-4.4	1/15/16	PCB-91	1/18/13	HL-30.41	1/19/18	MT-101.70	1/17/14	TC-52.10	10/18/13	840	7/20/18
CB-1.2	1/15/16			PSID-1-13	7/15/16	HL-40.10	1/20/17	MT-101.75	7/15/16	TC-52.20	1/19/18	842	7/20/18
CB-1.3	1/15/16	MGS-1.1	1/19/18	RB-1-55	7/19/13	HL-40.20	1/20/17	MT-101.80	1/16/18	TC-61.30	1/20/17	866	4/21/17
CB-2.1	1/15/16	MGS-2.1	1/19/18	SBR-1-13	1/14/14	HL-50.11	1/16/15	MT-101.90	7/21/17	TC-65.10	1/17/14	867	4/15/16
CB-2.2	1/15/16	MGS-3.1	1/19/18	SBR-2-13	1/14/14	HL-50.21	1/19/18	MT-102.10	1/20/17	TC-65.11	7/21/17	902	12/31/12
CB-2.3	1/15/16	MGS-3.2	1/18/13	SICD-1-96	7/18/14	HL-60.12	7/15/16	MT-102.20	7/18/14	TC-71.10	1/19/18	904	7/15/16
CB-3.1	1/15/16	MGS-4.2	7/19/13	SICD-2-14	7/18/14	HL-60.21	1/16/15	MT-103.10	1/19/18	TC-72.20	7/15/16	908	10/20/17
CB-3.3	1/15/16	MGS-4.3	1/18/13	VPF-1-90	1/19/18	HL-60.31	7/21/17	MT-104.10	10/16/15	TC-73.20	7/21/17	914	7/15/16
		MGS-5.2	7/15/16					MT-105.10	7/19/13			921	4/20/12
I-2.1	1/15/16	MGS-5.3	7/15/16	HL-10.11	1/19/18	MT-95.30	7/21/17			ITS-13.10	7/17/15	939	7/17/15
I-2.2	1/15/16	MGS-6.1	1/19/18	HL-10.12	1/20/17	MT-95.31	7/21/17	TC-7.65	1/15/16	ITS-14.10	7/17/15	SPECIAL PROVISIONS	
I-2.3	1/15/16			HL-10.13	1/20/17	MT-95.32	7/21/17	TC-9.10	1/19/18	ITS-14.11	7/17/15		
I-2.4	1/15/16	RM-1.1	7/18/14	HL-10.15	7/17/15	MT-95.40	1/20/17	TC-9.30	1/19/18	ITS-15.10	7/17/15		
		RM-4.1	7/21/17	HL-10.31	1/19/18	MT-95.50	7/21/17	TC-12.30	1/19/18	ITS-15.11	7/17/15		
MH-1.1	1/15/16	RM-4.3	7/18/14	HL-20.11	4/21/17	MT-95.45	7/21/17	TC-15.115	10/18/13	ITS-50.10	1/19/18		

PROJECT DESCRIPTION

THIS IS PHASE 5A OF THE HAMILTON 75 CORRIDOR PROJECTS (MCE). THE PROJECT ADDS A LANE TO IR 75 SB, PROVIDES 4-LANE CONTINUITY NB, AND RECONFIGURES IR 74 EB RAMPS TO IR 75. THE PROJECT ALSO INCLUDES SURFACE COURSE AND ADDITIONAL PAVEMENT WORK TO THE SOUTH AND IMPROVEMENTS TO RAMP A AT THE HOPPLE ST INTERCHANGE.

BUILDABLE UNIT 18 DESCRIPTION

THIS BUILDABLE UNIT INCLUDES FIBER WRAPPING AND EPOXY URETHANE SEALING ON THE HAM-52-2044 STRUCTURE OVER IR 75.

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2016 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

PLAN PREPARED BY:

AMERICAN STRUCTUREPOINT INC.
2550 CORPORATE EXCHANGE DR. STE 300
COLUMBUS, OH 43231
TEL 614.901.2235 FAX 614.901.2236
www.structurepoint.com

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES TWO WORKING DAYS **BEFORE YOU DIG.**

OHIO Utilities Protection SERVICE
Call Before You Dig
1-800-362-2764
(Non-members must be called directly)

OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE
1-800-925-0988

FEDERAL PROJECT NO. **E170 (713)**
PID NO. **104667**
CONSTRUCTION PROJECT NO. **183000**
RAILROAD INVOLVEMENT **CSXT (CSX OP# OH1179) NORFOLK SOUTHERN**
HAM-75-3.84
1 / 7

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3/13/2019 4:55:14 PM
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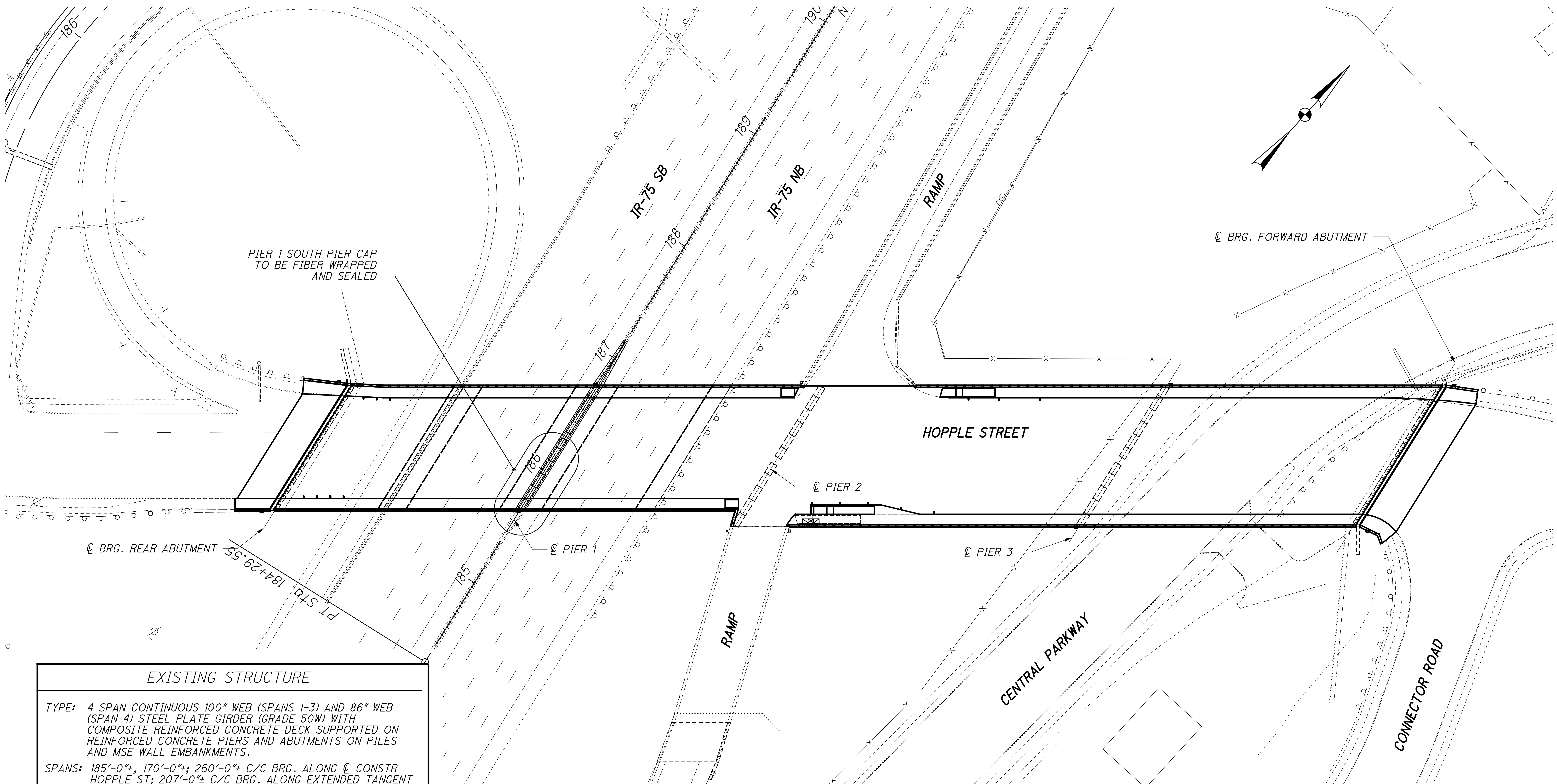


PLAN

EXISTING STRUCTURE

TYPE: 4 SPAN CONTINUOUS 100" WEB (SPANS 1-3) AND 86" WEB (SPAN 4) STEEL PLATE GIRDER (GRADE 50W) WITH COMPOSITE REINFORCED CONCRETE DECK SUPPORTED ON REINFORCED CONCRETE PIERS AND ABUTMENTS ON PILES AND MSE WALL EMBANKMENTS.

SPANS: 185'-0"±, 170'-0"±; 260'-0"± C/C BRG. ALONG ℄ CONSTR HOPPLE ST; 207'-0"± C/C BRG. ALONG EXTENDED TANGENT

ROADWAY: 76-0"± T/T CURB W/ 2-8'-0" SIDEWALKS (SPANS 1 AND 2)
88-0"± T/T CURB W/ 2-8'-0" SIDEWALKS (SPANS 3 AND 4)

LOADING: HL-93 AND 60 PSF FWS

SKEW: 31°59'54"± LF

APPROACH SLABS: 30'-0"± AS-1-81

ALIGNMENT: TANGENT

CROWN: NORMAL

STRUCTURAL FILE NUMBER: 3101576

DATE BUILT: 2016

WEARING SURFACE: 1" MONOLITHIC CONCRETE

DISPOSITION: REHABILITATION

COORDINATES: LATITUDE 39°08'18" N
LONGITUDE 84°32'03" W

PROPOSED WORK

PROPOSED WORK:

- FIBER WRAP PIER 1 PIER CAP (SOUTH PIER)
- SEAL PIER 1 PIER CAP (SOUTH PIER)
- INSTALL UNDERPASS LIGHTING ON PIER 1 (THIS WORK INCLUDED WITH BU-19)

DESIGN AGENCY
STRUCTUREPOINT

DESIGNED	DRAWN	REVIEWED	DATE
CLB	DSH	RMC	8/28/18
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJF		3101576	

GENERAL PLAN

BRIDGE NO. HAM-52-2044
HOPPLE STREET OVER IR-75 AND CENTRAL PARKWAY

HAM-75-3.84
PID No. 104667

PROPOSED WORK:

1. COMPOSITE FIBER WRAP THE PIER 1 PIER CAP (SOUTH PIER). THE COMPOSITE FIBER WRAP SYSTEM WAS DESIGNED AS PART OF ODOT PID 83723. THE NOTES, DESIGN, AND DETAILS FROM PID 83723 ARE INCLUDED ON SHEETS 4/6 THRU 6/6 FOR COMPLETION OF THE PID 104667 SCOPE OF WORK.

2. APPLY EPOXY URETHANE SEALER TO COMPOSITE FIBER WRAP AND TO PIER CAP AFTER FIBER WRAP IS COMPLETE, PER SHEET 6/6.

3. INSTALL UNDERPASS LIGHTING ON PIER 1 AFTER EPOXY URETHANE APPLICATION IS COMPLETE. LIGHTING DESIGN WAS COMPLETED AS PART OF ODOT PID 76257, BUT WAS NON-PERFORMED. DETAILS FOR THIS WORK FROM PID 76257 ARE INCLUDED ON SHEET 4/6 FOR INFORMATION ONLY. ALL LIGHTING WORK WILL BE COMPLETED AS PART OF BU-19. REFER TO BU-19 FOR ADDITIONAL NOTES AND DETAILS.

UNDERPASS LIGHTING MATERIALS PREVIOUSLY PURCHASED AND STORED AT DISTRICT 8. CONTACT PROJECT ENGINEER FOR PICK-UP.

MAINTENANCE OF TRAFFIC

PROPOSED BU-18 WORK TO BE PERFORMED UNDER NIGHTTIME LANE CLOSURE PER STANDARD DRAWING MT-95.40.

DESIGN AGENCY
STRUCTUREPOINT LLC
2500 CORPORATE EXCHANGE DR. STE 200
COLUMBUS, OH 43231
TEL: 614.901.7900 FAX: 614.901.7901
www.structurepoint.com

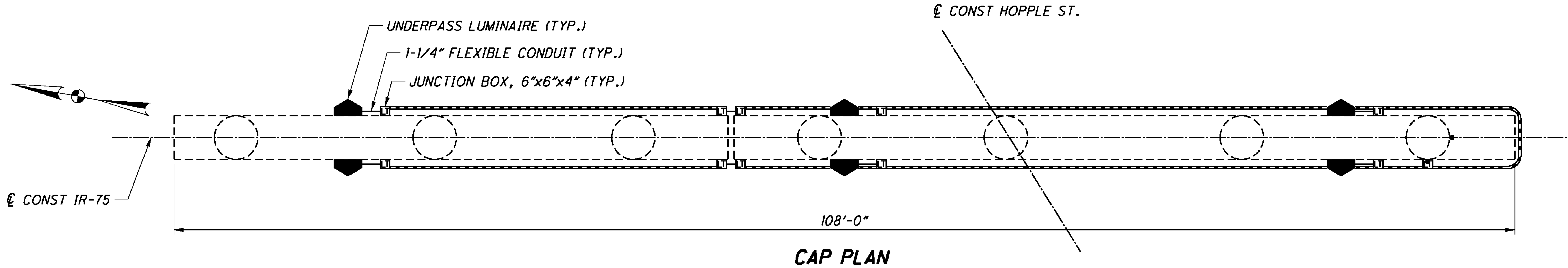
DESIGNED	DRAWN	REVIEWED	DATE
CLB	DSH	RMC	8/28/18
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJF		3101576	

GENERAL NOTES

BRIDGE NO. HAM-52-2044
HOPPLE STREET OVER IR-75 AND CENTRAL PARKWAY

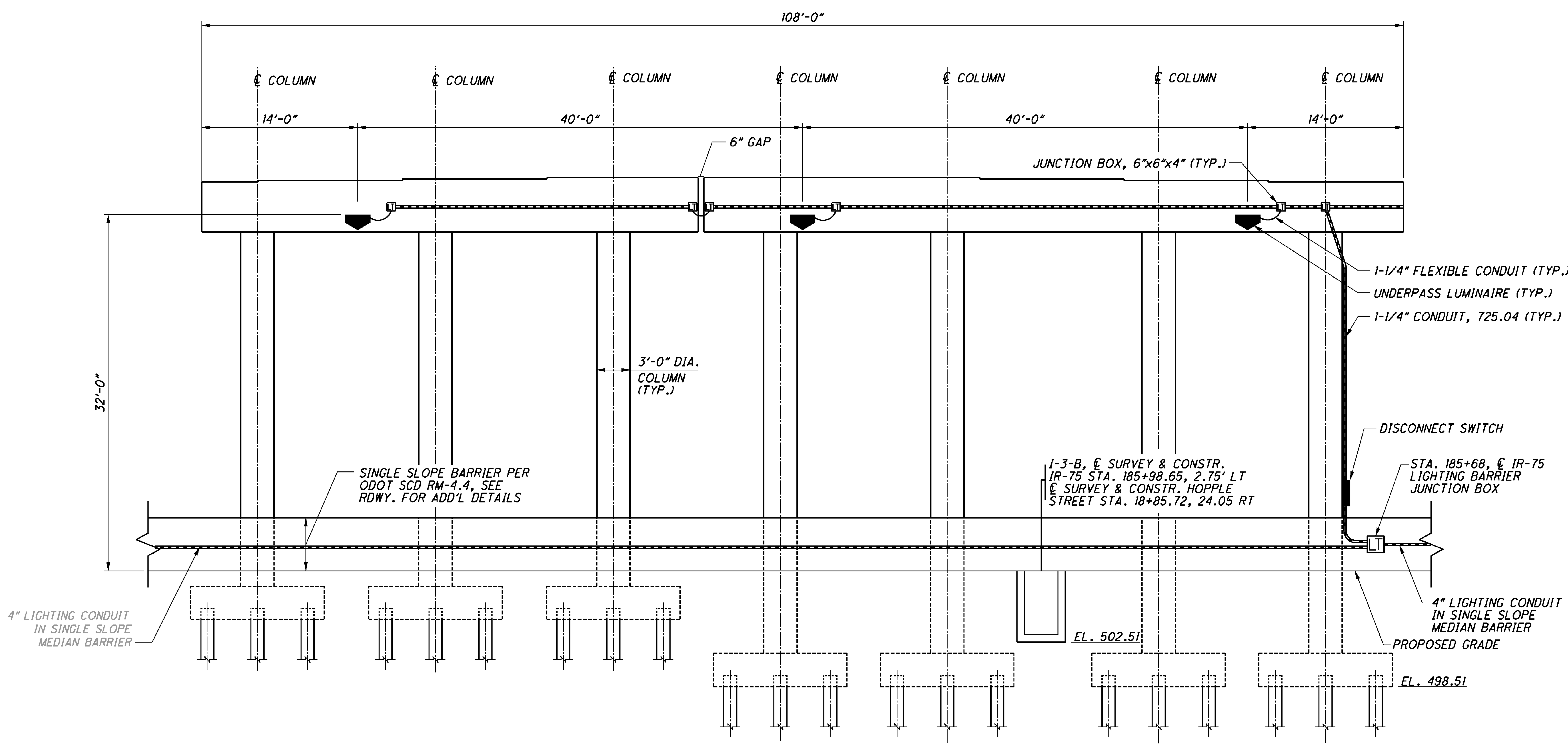
HAM-75-3.84
PID No. 104667

2/6
3/7



CAP PLAN

STRUCTURE NO. HAM-52-2044 (HOPPLE ST.), PIER 1



ELEVATION

STRUCTURE NO. HAM-52-2044 (HOPPLE ST.), PIER 1
LOOKING EAST

UNDERPASS LIGHTING DETAILS - HAM-52-2044 (PIER 1)

HAM-75-2.30

1142 / 1450

CALCULATED RJB | CHECKED HJF

DESIGN AGENCY: STRUCTUREPOINT

DESIGNED	DRAWN	REVIEWED	DATE
CLB	DSH	RMC	8/28/18
CHECKED SJF	REVISED	STRUCTURE FILE NUMBER 3101576	

PIER 1 LIGHTING DETAILS
BRIDGE NO. HAM-52-2044
HOPPLE STREET OVER IR-75 AND CENTRAL PARKWAY

HAM-75-3.84
PID No. 104667

3 / 6

ITEM SPECIAL - STRUCTURES COMPOSITE FIBER WRAP

SYSTEM DESCRIPTION:

THIS WORK SHALL CONSIST OF PROVIDING A GLASS OR CARBON FIBER REINFORCED COMPOSITE (FRC) STRENGTHENING AND PROTECTION SYSTEM. THE FRC SYSTEM IS TO BE APPLIED TO THE PIER CAP AS DESIGNATED BY THE PROJECT DRAWINGS.

THE CONCRETE IS TO BE CLEANED AND PREPARED TO THE INSTALLER'S SATISFACTION PRIOR TO THE INSTALLATION OF THE FRC SYSTEM.

DESIGN:
THE DESIGN STRENGTH USED FOR EACH LAYER WAS 0.47 KIPS/IN AT THE DESIGN STRAIN OF 0.004. ONE LAYER OF THE FRC SYSTEM SHALL PROVIDE A MINIMUM NOMINAL SHEAR RESISTANCE (TRANSVERSE REINFORCING) FOR THE PIER CAP DEPTH OF 109.5K PER LAYER. SUBMIT CALCULATIONS AND INTERNATIONAL CODE COUNCIL EVALUATION SERVICE REPORT FOR APPROVAL. CALCULATIONS SHALL FOLLOW EITHER ACI 440.2R-08 OR NCHRP REPORT 655.

MATERIALS:

3000-HOUR DURABILITY TESTS FOR 140° F FOR WATER, SALT WATER, ALKALINE SOIL, OZONE, EFFERVESCENCE AND OTHER FACTORS (REFER TO TABLE). THE PROPOSED FRC SHALL HAVE BEEN TESTED BY AN INDEPENDENT AGENCY. FRP MATERIALS SHALL HAVE A CURRENT INTERNATIONAL CODE COUNCIL EVALUATION SERVICE REPORT (ICC ESR #) COMPLIANT WITH THE 2012 IBC. MATERIALS MUST PROVIDE STRUCTURAL AND DURABILITY TESTING AS DEFINED IN ICC AC 125. TO BE AN APPROVED EQUAL THE INSTALLER MUST PROVIDE A HISTORY OF A MINIMUM OF 50 INSTALLATIONS COMPLETED IN THE LAST 5 YEARS, DURABILITY TESTING, INDEPENDENT LABORATORY TESTING FOR TRANSVERSE PIER CAP (SHEAR) REPAIRS, DESIGN EQUIVALENCE TO THE SPECIFIED SYSTEM, AND ALL PROPOSED MATERIAL DATA. POLYESTER OR OTHER RESINS WILL NOT BE ALLOWED AS A SUBSTITUTE TO EPOXY RESINS.

SURFACE PREPARATION:

THE CONCRETE SURFACES OF THE PIER CAP SHALL BE CLEAN AND FREE OF FINS, DEPRESSIONS, OR OTHER CONDITIONS THAT MAY AFFECT THE INTENDED PERFORMANCE OF THE FRC SYSTEM. CORNERS PERPENDICULAR TO THE STRONG FIBER DIRECTION SHALL BE ROUNDED TO A MINIMUM RADIUS OF ¾". THE CERTIFIED AND EXPERIENCED INSTALLER RESPONSIBLE SHALL VERIFY THAT ALL REQUIRED SURFACE PREPARATION HAS BEEN COMPLETED PROPERLY AND THAT THE FRC SYSTEM IS CLEARED FOR INSTALLATION.

COMPOSITE APPLICATION:

THE FRC COMPOSITE SYSTEM SHALL ONLY BE INSTALLED BY INDIVIDUALS CERTIFIED IN WRITING BY THE MATERIAL SUPPLIER. THE CERTIFIED INSTALLER SHALL HAVE COMPLETED A MINIMUM OF 75 PROJECTS IN THE PAST 2 YEARS. REFERENCES OF THESE INSTALLATIONS INCLUDING DESCRIPTIONS AND CONTACT INFORMATION WILL BE REVIEWED. INSTALLERS WITHOUT THE PROPER CERTIFICATIONS, EXPERIENCE, AND REFERENCES WILL NOT BE ALLOWED TO COMPLETE THIS WORK.

TEMPERATURES OF THE SUBSTRATE TO RECEIVE THE COMPOSITE, AMBIENT TEMPERATURES, AND THE TEMPERATURE OF THE FRC MATERIALS SHALL BE BETWEEN 50°F AND 95°F AT THE TIME OF MIXING OF EPOXY. THE FRC SYSTEM SHALL BE APPLIED WHEN THE RELA TIVE HUMIDITY IS LESS THAN 85% AND THE SUBSTRATE TEMPERATURE IS MORE THAN 5°F ABOVE THE DEW POINT. APPLICATIONS OF THE FRC SHALL BEGIN WITHIN ONE HOUR OF THE MIXING OF EPOXIES.

THE MANUFACTURER SHALL DESIGNATE THE PROPER MIXING PROCEDURE FOR THE EPOXY RESINS.

APPLY A PRIMER COATING OF EPOXY TO SURFACES OF THE SUBSTRATE TO RECEIVE THE FRC SYSTEM. SATURATE THE REINFORCING FIBER IN A DOCUMENTED SUCCESSFUL MANNER THAT ENSURES FULL SATURATION OF THE FIBERS PRIOR TO THE INSTALLATION OF THE FRC. SATURATION OF THE FIBER IN PLACE IS NOT ALLOWED. APPLY THE FRC TO THE PREPARED AND PRIMERED SUBSTRATE USING METHODS THAT PROVED A UNIFORM TENSILE FORCE OVER THE WIDTH OF THE SATURATED GLASS FABRIC. STRONG FIBERS SHALL NOT DEVIATE FROM THE INTENDED FIBER DIRECTION MORE THAN ½" PER 12" LENGTH OF COMPOSITE. INSPECTION OF THE INSTALLED COMPOSITE SHALL BE COMPLETED PRIOR TO THE CURING OF THE FRC TO ENSURE THAT ALL EDGES, SEAMS, AND OTHER AREAS ARE PROPERLY ADHERED. DURING THIS INSPECTION PROCESS, RELEASING OF ENTRAPPED AIR AND OTHER IDENTIFIED DEFICIENCIES SHALL BE ADDRESSED.

AFTER THE FRC SYSTEM HAS BEEN INSTALLED, USE THICKENED EPOXY TO DETAIL ALL EDGES AND SEAMS TO PROVIDE A SMOOTH FINISH. APPLY A FINAL LAYER OF THICKENED EPOXY TO THE INSTALLED FRC SYSTEM FOR PROTECTION.

COATING SYSTEM APPLICATION
AREAS AFTER THE EPOXY SETS YET PRIOR TO THE APPLICATION OF THE URETHANE TOP COAT, ALL DEFECTS (INCLUDING BUBBLES, DELAMINATIONS, AND FABRIC TEARS) MORE THAN 1 SQUARE INCH OF THE SURFACE AREA, OR AS SPECIFIED BY THE PROJECT ENGINEER, SHALL BE REPAIRED AS SUCH:
1) SMALL DEFECTS (ON THE ORDER OF 6" DIAMETER) SHALL BE INJECTED OR BACK FILLED WITH EPOXY.
2) BUBBLES LESS THAN 12" IN DIAMETER SHALL BE REPAIRED BY INJECTING THE EPOXY. TWO HOLES SHALL BE DRILLED INTO THE BUBBLE TO ALLOW INJECTION OF THE EPOXY AND ESCAPE OF THE ENTRAPPED AIR.
3) BUBBLES, DELAMINATIONS, AND FABRIC TEARS GREATER THAN 12" IN DIAMETER SHALL BE REPAIRED BY REMOVING AND REAPPLYING THE REQUIRED NUMBER OF LAYERS OF THE COMPOSITE AND THE REQUIRED FINISH COATINGS. ALL REPAIRS SHALL BE APPROVED BY THE PROJECT ENGINEER.
4) THE URETHANE TOP COAT SHALL THEN BE APPLIED TO THE FINAL EPOXY COAT, AS DETERMINED BY MANUFACTURER.

MATERIALS MANUFACTURER
ONE MANUFACTURER SHALL SUPPLY ALL MATERIALS REQUIRED FOR THE FRC SYSTEM. THE MANUFACTURER SHALL BE ONE OF THE FOLLOWING LISTED BELOW OR APPROVED EQUAL FOR THE FIBER REINFORCED COMPOSITE (FRC) STRENGTHENING AND PROTECTION SYSTEM.

TYFO FIBERWRAP COMPOSITE SYSTEM AS SUPPLIED BY R.J. WATSON, INC.
P.O. BOX 85
EAST AMHERST, NEW YORK 14051 (PHONE 716-691-3301)

MANUFACTURER: FYFE COMPANY, LLC
8380 MIRALANI DRIVE, SUITE A
SAN DIEGO, CA 92126
(858) 642-0694

MBRACE SYSTEM SUPPLIED BY BASF BUILDING SYSTEMS
889 VALLEY PARK DRIVE
SHAKOPEE, MN 55379 (PHONE 800-443-9517)

SIKAWRAP BY SIKA CORPORATION
201 POLITO AVENUE
LYNDHURST, NJ 07071 (PHONE 800-933-7452)

THE FRC MATERIAL SUPPLIER SHALL HAVE A HISTORY OF AT LEAST 5 YEARS FOR SUPPLYING THE SPECIFIED MATERIALS.

MEASUREMENT AND PAYMENT:

THIS ITEM WILL BE PAID FOR BY (SQUARE FOOTAGE COVERED X NUMBER OF LAYERS) AND SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. ALL PAYMENT IS INCIDENTAL TO ITEM SPECIAL - STRUCTURES COMPOSITE FIBER WRAP.

GLASS FIBER REINFORCED COMPOSITE PROPERTIES

PROPERTY	REQUIREMENT	ASTM TEST METHOD
ULTIMATE TENSILE STRENGTH, PSI, MIN. IN PRIMARY FIBER DIRECTION	66,000 PSI	D3039, AVERAGE OF 7 1" BY 10" NORMALIZED TO 0.80" THICK .01" PER MIN. TESTING SPEED
ULTIMATE TENSILE STRENGTH, PSI, MIN. IN ORTHOGONAL FIBER DIRECTION	3,000 PSI	D3039, AVERAGE OF 7 1" BY 10" NORMALIZED TO 0.80" THICK .01" PER MIN. TESTING SPEED
1000 HOURS EXPOSURE TO 100% HUMIDITY	66,000 PSI	C581
TENSILE STRENGTH (MIN AFTER TEST) 1000 HOURS EXPOSURE TO OZONE	66,000 PSI	D1149 EXCEPT NOT UNDER STRESS DURING OZONE EXPOSURE
TENSILE STRENGTH (MIN AFTER TEST) 1000 HOURS EXPOSURE TO ALKALI	66,000 PSI	D3083 USING SOIL BURIAL BURIAL - WATER CONTENT
TESNILE STRENGTH (MIN AFTER TEST) 1000 HOURS EXPOSURE TO SALT	66,000 PSI	C581 AND D1141 OMITTING ADDITION OF HEAVY METAL
TENSILE STRENGTH (MIN AFTER TEST) 1000 HOURS EXPOSURE AT 140 DEGREES F.	66,000 PSI	D3045
TENSILE STRENGTH (MIN AFTER TEST) ULTRA VIOLET (UV) EXPOSURE	66,000 PSI	G53 USING FS 40 UV-B BULBS FOR A MINIMUM 38 CYCLES. THE CYCLE SHALL BE 4 HOURS OF CONDENSATE EXPOSURE AT 40 DEGREES C.
ELONGATION: PERCENT, MIN PERCENT, MAX	1.7% 5.0%	
TENSILE MODULUS, PSI MIN. OF PRIMARY FIBERS, E	3,000,000	D3039, AVERAGE OF 7 1" BY 10" NORMALIZED TO 0.80" THICK .01" PER MIN. TESTING SPEED
VISUAL DEFECTS	ACCEPTANCE LEVEL III	D2563
COEFFICIENT OF THERMAL EXPANSION IN PRIMARY DIRECTION	4,300,000 PPM/DEG F (+ 15%)	E1142

DESIGN AGENCY
TranSystems
1105 SCHROCK ROAD, SUITE 400
COLUMBUS, OHIO 43229

DESIGNED FKL | DRAWN JDG | REVIEWED MSL | DATE 04/28/17
CHECKED PJP | REVISED | STRUCTURE FILE NUMBER 3101576

GENERAL NOTES
BRIDGE NO. HAM-52-2044
HOPPLE STREET OVER IR-75 AND CENTRAL PARKWAY

HAM-75-3.85
PID No. 83723

2 / 4

2243 / 2327

DESIGN AGENCY
STRUCTUREPOINT

DESIGNED CLB | DRAWN DSH | REVIEWED RMC | DATE 8/28/18
CHECKED SJF | REVISED | STRUCTURE FILE NUMBER 3101576

PIER 1 FIBER WRAP DETAILS
BRIDGE NO. HAM-52-2044
HOPPLE STREET OVER IR-75 AND CENTRAL PARKWAY

HAM-75-3.84
PID No. 104667

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ITEM SPECIAL - STRUCTURES COMPOSITE FIBER WRAP (CONT.)

CARBON FIBER REINFORCED COMPOSITE PROPERTIES

PROPERTY	REQUIREMENT	ASTM TEST METHOD
ULTIMATE TENSILE STRENGTH, PSI, MIN. IN PRIMARY FIBER DIRECTION	102,000 PSI	D3039, AVERAGE OF 7 1" BY 10" NORMALIZED TO 0.80" THICK .01" PER MIN. TESTING SPEED
ULTIMATE TENSILE STRENGTH, PSI, MIN. IN ORTHOGONAL FIBER DIRECTION	3,000 PSI	D3039, AVERAGE OF 7 1" BY 10" NORMALIZED TO 0.80" THICK .01" PER MIN. TESTING SPEED
1000 HOURS EXPOSURE TO 100% HUMIDITY	102,000 PSI	C581
TENSILE STRENGTH (MIN AFTER TEST) 1000 HOURS EXPOSURE TO OZONE	102,000 PSI	D1149 EXCEPT NOT UNDER STRESS DURING OZONE EXPOSURE
TENSILE STRENGTH (MIN AFTER TEST) 1000 HOURS EXPOSURE TO ALKALI	102,000 PSI	D3083 USING SOIL BURIAL BURIAL - WATER CONTENT
TESNILE STRENGTH (MIN AFTER TEST) 1000 HOURS EXPOSURE TO SALT	102,000 PSI	C581 AND D1141 OMITTING ADDITION OF HEAVY METAL
TENSILE STRENGTH (MIN AFTER TEST) 1000 HOURS EXPOSURE AT 140 DEGREES F.	102,000 PSI	D3045
TENSILE STRENGTH (MIN AFTER TEST) ULTRA VIOLET (UV) EXPOSURE	102,000 PSI	G53 USING FS 40 UV-B BULBS FOR A MINIMUM 38 CYCLES. THE CYCLE SHALL BE 4 HOURS OF CONDENSATE EXPOSURE AT 40 DEGREES C.
ELONGATION: PERCENT, MIN PERCENT, MAX	 0.85% 1.7%	
TENSILE MODULUS, PSI MIN. OF PRIMARY FIBERS, E	11,900,000	D3039, AVERAGE OF 7 1" BY 10" NORMALIZED TO 0.80" THICK .01" PER MIN. TESTING SPEED
VISUAL DEFECTS	ACCEPTANCE LEVEL III	D2563
COEFFICIENT OF THERMAL EXPANSION IN PRIMARY DIRECTION	3.6 PPM/DEG F (+ 15%)	D696

ESTIMATED QUANTITIES - HAM-52-2044 *

CALCULATED BY: PJP

CHECKED BY: BCS

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	SUPER.	GENERAL	SEE SHEET NO.
512	10100	110	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)		110			
SPECIAL	53000600	1151	SF	STRUCTURES COMPOSITE FIBER WRAP		1151			2/4

* **NOTE:** PARTICIPATION SPLIT = 100% MAJOR NEW (MN)

GENERAL NOTES AND ESTIMATED QUANTITIES
BRIDGE NO. HAM-52-2044
HOPPLE STREET OVER IR-75 AND CENTRAL PARKWAY

DESIGN AGENCY: TranSystems, 1105 SCHROCK ROAD, SUITE 400, COLUMBUS, OHIO 43229

DESIGNED FKL | DRAWN JDG | REVIEWED MSL | DATE 04/28/17 | CHECKED PJP | REVISED | STRUCTURE FILE NUMBER 3101576

HAM-75-3.85
PID No. 83723

3/4

2244/2327

PIER 1 FIBER WRAP DETAILS
BRIDGE NO. HAM-52-2044
HOPPLE STREET OVER IR-75 AND CENTRAL PARKWAY

DESIGN AGENCY: STRUCTUREPOINT

DESIGNED CLB | DRAWN DSH | REVIEWED RMC | DATE 8/28/18 | CHECKED SJF | REVISED | STRUCTURE FILE NUMBER 3101576

HAM-75-3.84
PID No. 104667

5/6

6/7

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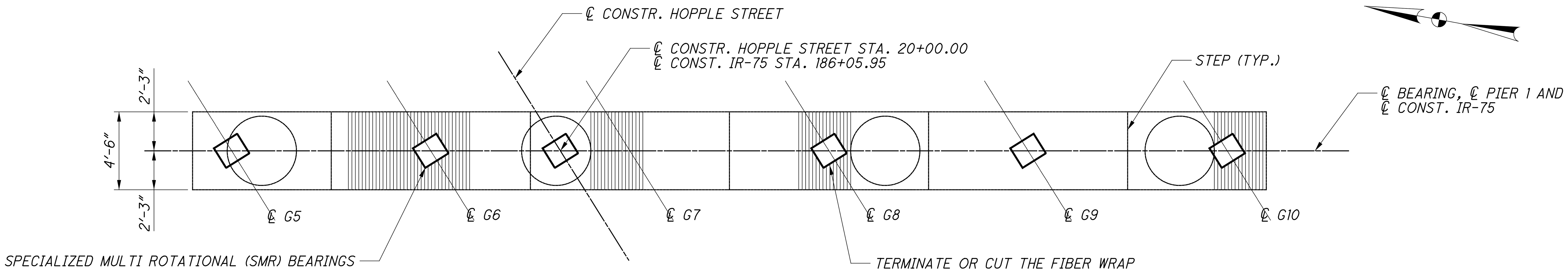
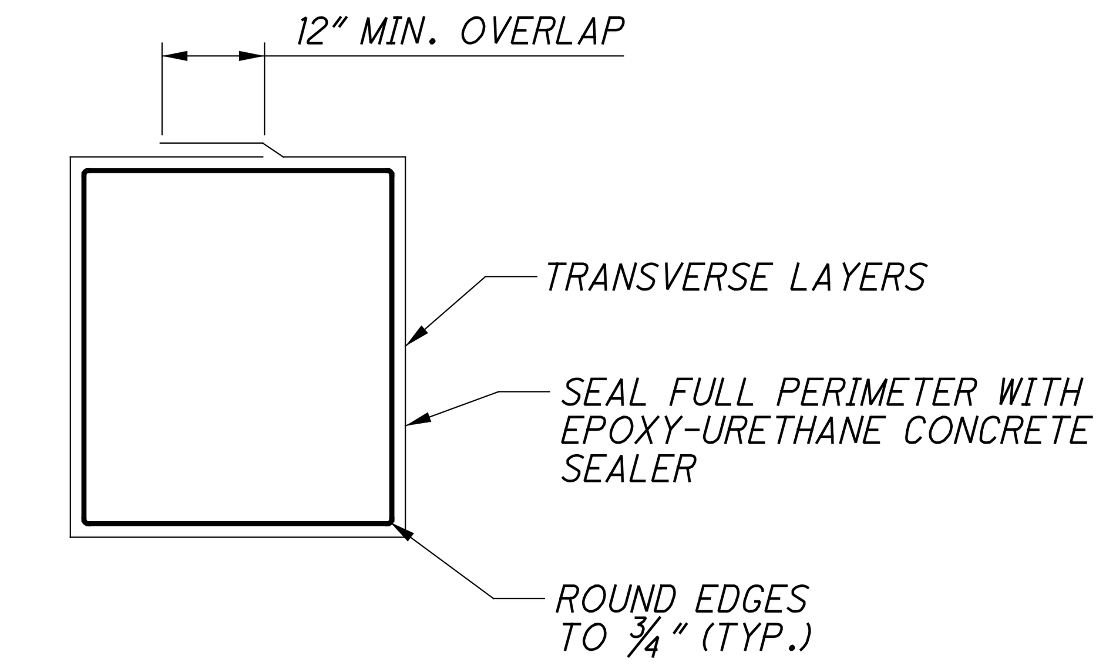
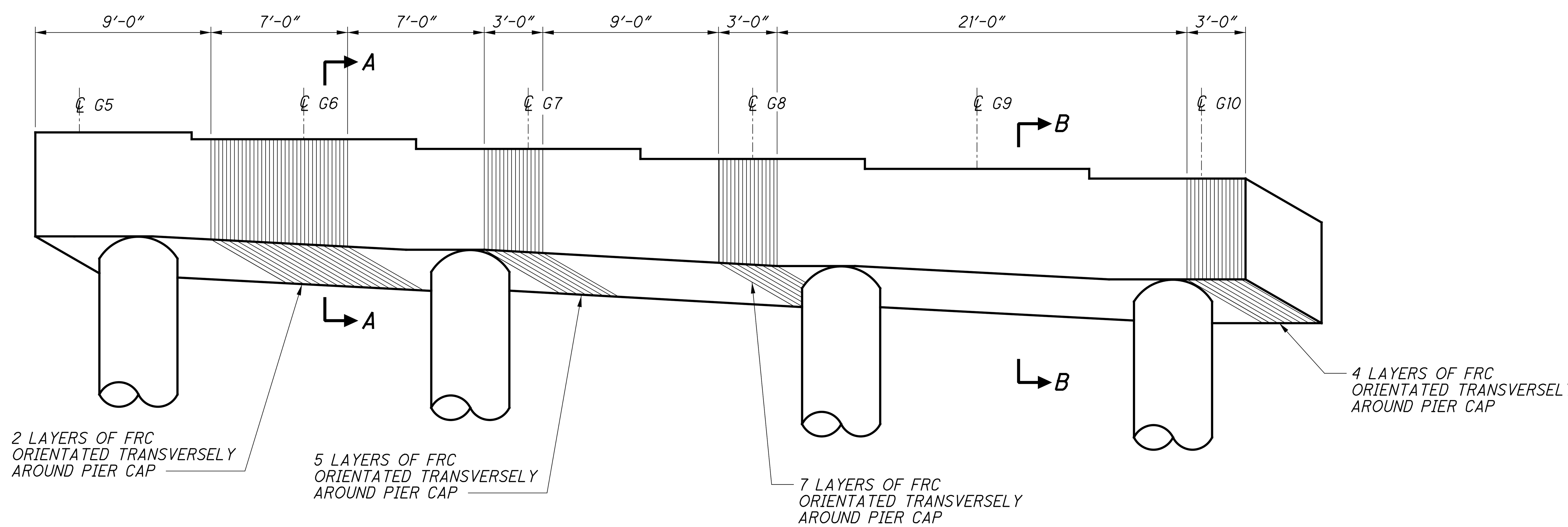


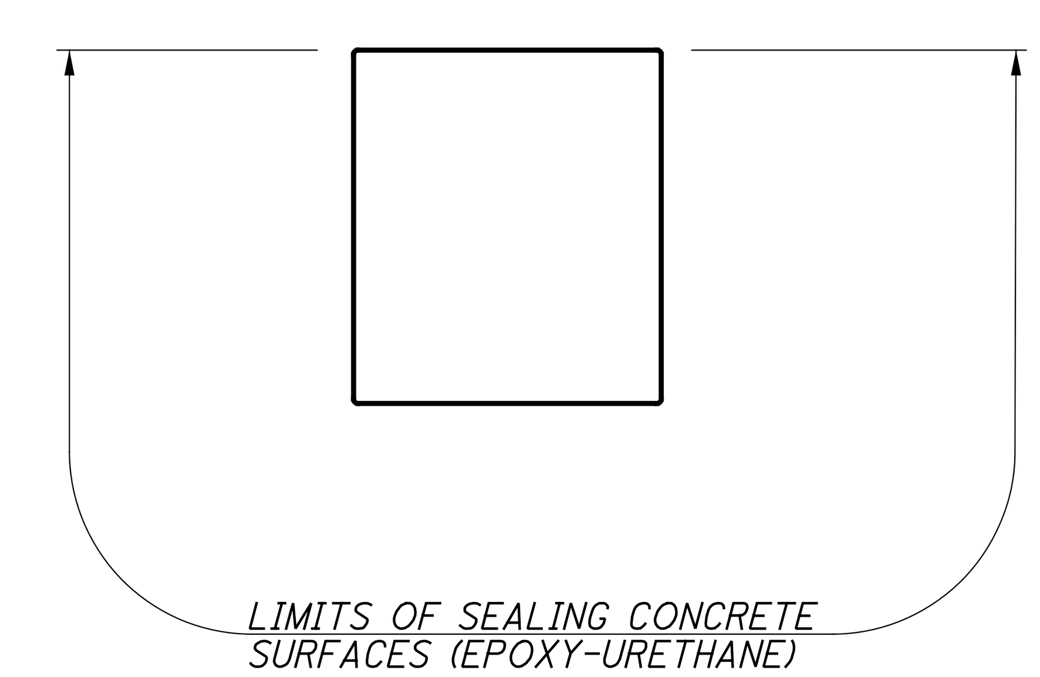
PLAN



SECTION A-A



ELEVATION



SECTION B-B

NOTES:

1. FOR DETAILS AND SPECIFICATIONS OF THE FRC FIBER WRAP, SEE SHEET 2 / 4 .
2. WAIT 24 TO 72 HOURS AFTER THE FIBER WRAP HAS BEEN PLACED, BEFOR SEALING THE ENTIRE PIER CAP WITH AN EPOXY-URETHANE SEALER.
3. SEE THE GENERAL NOTES FOR THE REQUIRED DESIGN STRENGTH PER LAYER AND THE NOMINAL SHEAR RESISTANCE PER LAYER.

DESIGN AGENCY
TranSystems
1105 SCHROCK ROAD, SUITE 400
COLUMBUS, OHIO 43229

DESIGNED	DRAWN	REVIEWED	DATE
FKL	JDG	MSL	04/28/17
CHECKED PJP	REVISED	STRUCTURE FILE NUMBER 3101576	

PIER 1 (SOUTH) FIBER WRAP DETAIL
BRIDGE NO. HAM-52-2044
HOPPLE STREET OVER IR-75 AND CENTRAL PARKWAY

HAM-75-3.85
PID No. 83723

4 / 4

2245 / 2327

DESIGN AGENCY
STRUCTUREPOINT

DESIGNED	DRAWN	REVIEWED	DATE
CLB	DSH	RMC	8/28/18
CHECKED SJF	REVISED	STRUCTURE FILE NUMBER 3101576	

PIER 1 FIBER WRAP DETAILS
BRIDGE NO. HAM-52-2044
HOPPLE STREET OVER IR-75 AND CENTRAL PARKWAY

HAM-75-3.84
PID No. 104667

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