

CERTIFICATE OF APPROPRIATENESS PLACARD

for Raleigh Historic Resources

Project Description:

549 N BLOUNT STREET (ROW)

Address

BLOUNT STREET

Historic District

Historic Property

007-17-MW

Certificate Number

01-12-2017

Date of Issue

07-12-2017

Expiration Date

- Install fiber optic cables and equipment on existing power poles
- Installation in multiple districts in the right-of-way

This card must be kept pasted in a location within public view until all phases of the described project are complete. The work must conform with the code of the City of Raleigh and laws of the state of North Carolina. When your project is complete, you are required to ask for a final zoning inspection in a historic district area. Telephone the RHDC office at 832-7238 and commission staff will coordinate the inspection with the Inspections Department. If you do not call for this final inspection, your Certificate of Appropriateness is null and void.

Signature, _____

Raleigh Historic Development Commission

Pending the resolution of appeals, commencement of work is at your own risk.

Raleigh Historic Development Commission – Certificate of Appropriateness (COA) Application



**DEVELOPMENT
SERVICES
DEPARTMENT**

Development Services
Customer Service Center
One Exchange Plaza
1 Exchange Plaza, Suite 400
Raleigh, North Carolina 27601
Phone 919-996-2495
eFax 919-996-1831



<input checked="" type="checkbox"/> Minor Work (staff review) – 1 copy <input type="checkbox"/> Major Work (COA Committee review) – 10 copies <input type="checkbox"/> Additions Greater than 25% of Building Square Footage <input type="checkbox"/> New Buildings <input type="checkbox"/> Demo of Contributing Historic Resource <input type="checkbox"/> All Other <input type="checkbox"/> Post Approval Re-review of Conditions of Approval	<p style="text-align: center;">For Office Use Only</p> Transaction # <u>49007</u> File # <u>007-17-CA</u> Fee <u>29.00</u> Amount Paid <u>29.00</u> Received Date <u>12/29/16</u> Received By <u>ajh</u>
--	--

Property Street Address Halifax St, E. Peace St, N. Blount St, Polk St, Lane St, W. Hargett St, E. Martin St,

Historic District 549 N Blant (ROW)

Historic Property/Landmark name (if applicable)

Owner's Name Raleigh, City of

Lot size	(width in feet)	(depth in feet)
-----------------	-----------------	-----------------

For applications that require review by the COA Committee (Major Work), provide addressed, stamped envelopes to owners of all properties within 100 feet (i.e. both sides, in front (across the street), and behind the property) not including the width of public streets or alleys ([Label Creator](#)).

Property Address	Property Address

Minor Work Approval (office use only)

Upon being signed and dated below by the Planning Director or designee, this application becomes the Minor Work Certificate of Appropriateness. It is valid until 7/12/17. Please post the enclosed placard form of the certificate as indicated at the bottom of the card. Issuance of a Minor Work Certificate shall not relieve the applicant, contractor, tenant, or property owner from obtaining any other permit required by City Code or any law. Minor Works are subject to an appeals period of 30 days from the date of approval.

Signature (City of Raleigh) Melissa Robb Date 1/12/17

	TO BE COMPLETED BY APPLICANT		TO BE COMPLETED BY CITY STAFF		
	YES	N/A	YES	NO	N/A
Attach 8-1/2" x 11" or 11" x 17" sheets with written descriptions and drawings, photographs, and other graphic information necessary to completely describe the project. Use the checklist below to be sure your application is complete. Minor Work (staff review) – 1 copy Major Work (COA Committee review) – 10 copies					
1. Written description. Describe clearly and in detail the nature of your project. Include exact dimensions for materials to be used (e.g. width of siding, window trim, etc.)	<input type="checkbox"/>				
2. Description of materials (Provide samples, if appropriate)	<input type="checkbox"/>				
3. Photographs of existing conditions are required. Minimum image size 4" x 6" as printed. Maximum 2 images per page.	<input type="checkbox"/>				
4. Paint Schedule (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>			
5. Plot plan (if applicable). A plot plan showing relationship of buildings, additions, sidewalks, drives, trees, property lines, etc., must be provided if your project includes any addition, demolition, fences/walls, or other landscape work. Show accurate measurements. You may also use a copy of the survey you received when you bought your property. Revise the copy as needed to show existing conditions and your proposed work.	<input type="checkbox"/>	<input type="checkbox"/>			
6. Drawings showing existing and proposed work <input type="checkbox"/> Plan drawings <input type="checkbox"/> Elevation drawings showing the façade(s) <input type="checkbox"/> Dimensions shown on drawings and/or graphic scale (required) <input type="checkbox"/> 11" x 17" or 8-1/2" x 11" reductions of full-size drawings. If reduced size is so small as to be illegible, make 11" x 17" or 8-1/2" x 11" snap shots of individual drawings from the big sheet.	<input type="checkbox"/>	<input type="checkbox"/>			
7. Stamped envelopes addressed to all property owners within 100 feet of property not counting the width of public streets and alleys (required for Major Work). Use the Label Creator to determine the addresses.	<input type="checkbox"/>	<input type="checkbox"/>			
8. Fee (See Development Fee Schedule)	<input type="checkbox"/>				



December 19, 2016

phone 585-697-5100

fax 585-442-8845

300 Meridian Centre

Rochester, NY 14618

Tania Georgiou Tully
City of Raleigh
Historic Preservation, Development Services
One Exchange Plaza, Suite 400
Raleigh, NC 27601

RE: COA Application:

Utility installation Aerial – Halifax St, E. Peace St, N Blount St, Polk St, E Lane St.

Underground – E Hargett St, E. Martin St.

Node Equipment – E. Peace St

Our File # 15-9980- DT-SEG 3

Dear Ms Tully,

Enclosed for your review and consideration are the following:

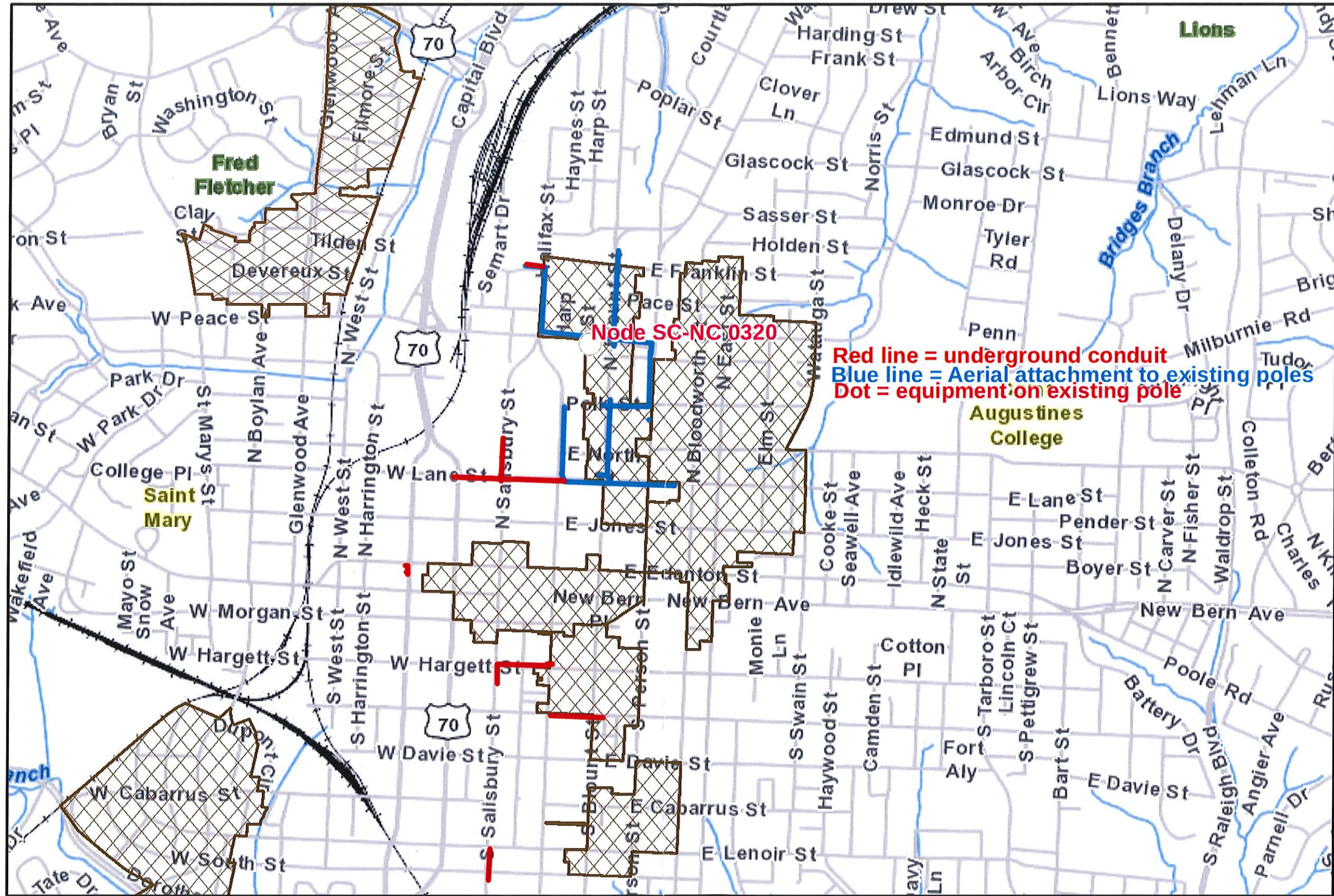
- COA Application
- Route map indicating proposed aerial, underground & node installation locations.
- Aerial detail plan
- Node # SC-NC 0320 detail plan
- Underground detail plan.
- \$29.00 application fee payment

Should there be any questions, please contact me.

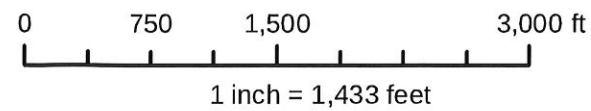
Sincerely,

John R. Smith, Permits Admin.
Fiber Technologies Networks, L.L.C.
300 Meridian Centre, Suite 200
Rochester, NY 14618
(585) 743-1796 / jsmith@fibertech.com

Enclosures



Fiber route



Disclaimer
 iMaps makes every effort to produce and publish the most current and accurate information possible. However, the maps are produced for information purposes, and are NOT surveys. No warranties, expressed or implied, are provided for the data therein, its use, or its interpretation.



SMALL CELL
PROPOSED NODE SC-NC 0320 LOCATION
RALEIGH, NC



LOCATION MAP
LAT: 35.78785° LONG: -78.63673°
1" = 500'



NODE PLACEMENT
1" = 50'

LOCATION:
RALEIGH, NORTH CAROLINA
35.78785°, -78.63673°

NOTES:

PREPARED BY:



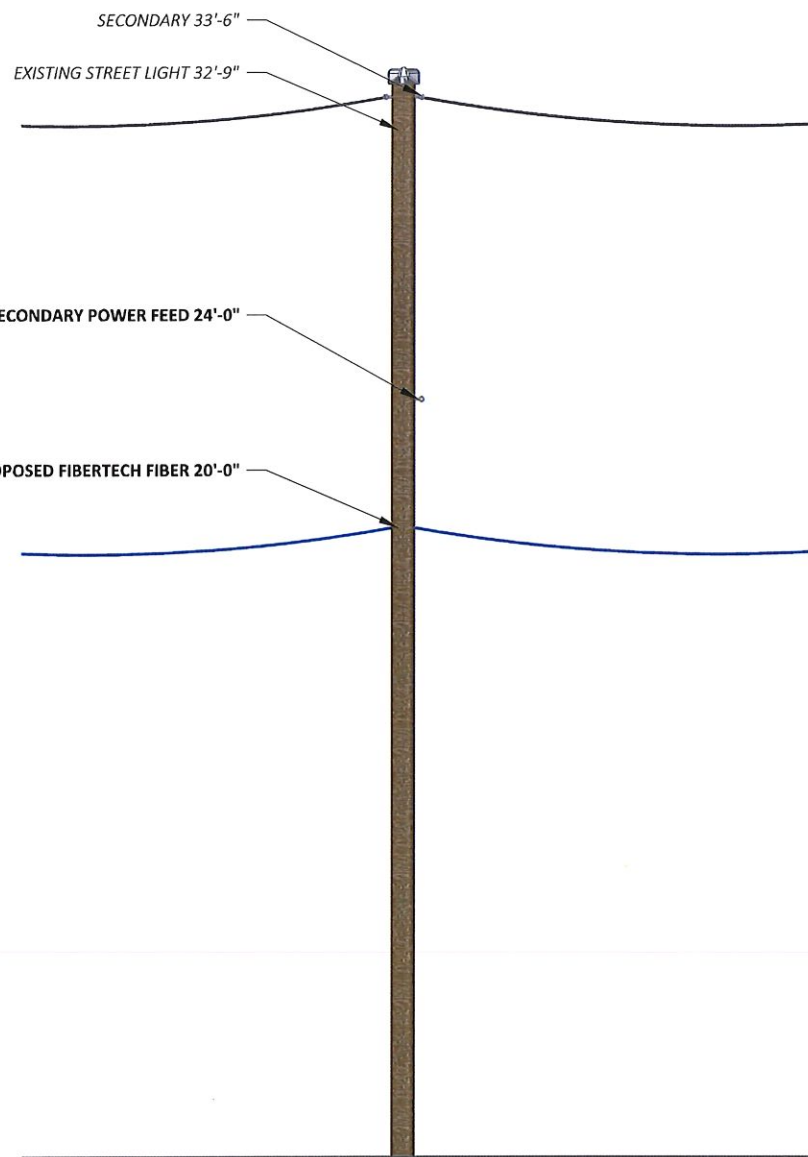
PREPARED BY:

UC / SYNERGETIC
Innovative Thinking. Engineering Solutions.
21 OXFORD RD
MANSFIELD, MA 02048
www.ucsceng.com 1-508-337-7600

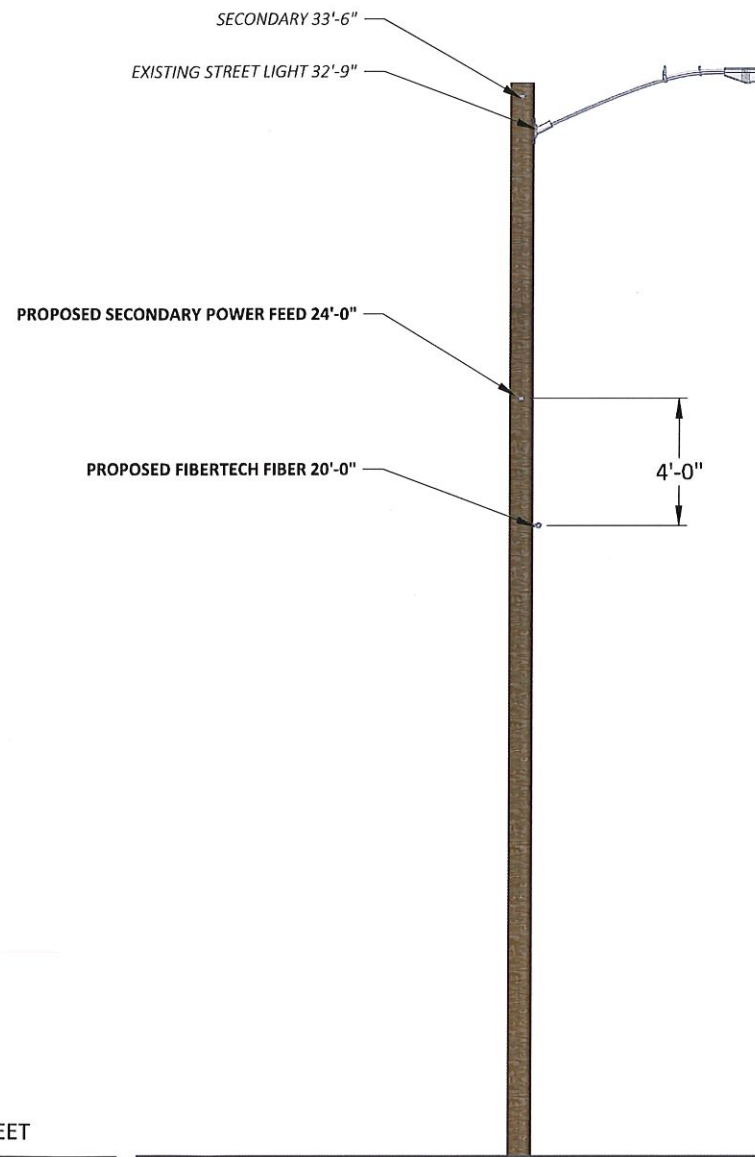
FIBERTECH SMALL CELL
LOCATION MAPS

REVISIONS		
REV	DESCRIPTION	DATE

DRAFTER: DTB
SCALE: AS NOTED
ISSUE DATE: 03/10/16
INDEX NAME: SC-NC-0320
SHEET #: 1 OF 13



① PROPOSED PROFILE - REAR VIEW
LOOKING NORTH TOWARD E PEACE ST



② PROPOSED PROFILE - SIDE VIEW
LOOKING WEST FROM N BLOUNT ST

LOCATION:
RALEIGH, NC
35.78785°, -78.63673°

NOTES:

PREPARED FOR:



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FIBERTECH SMALL CELL
EXISTING

REVISIONS		
REV	DESCRIPTION	DATE

DRAFTER: DTB

SCALE: 1" = 5'

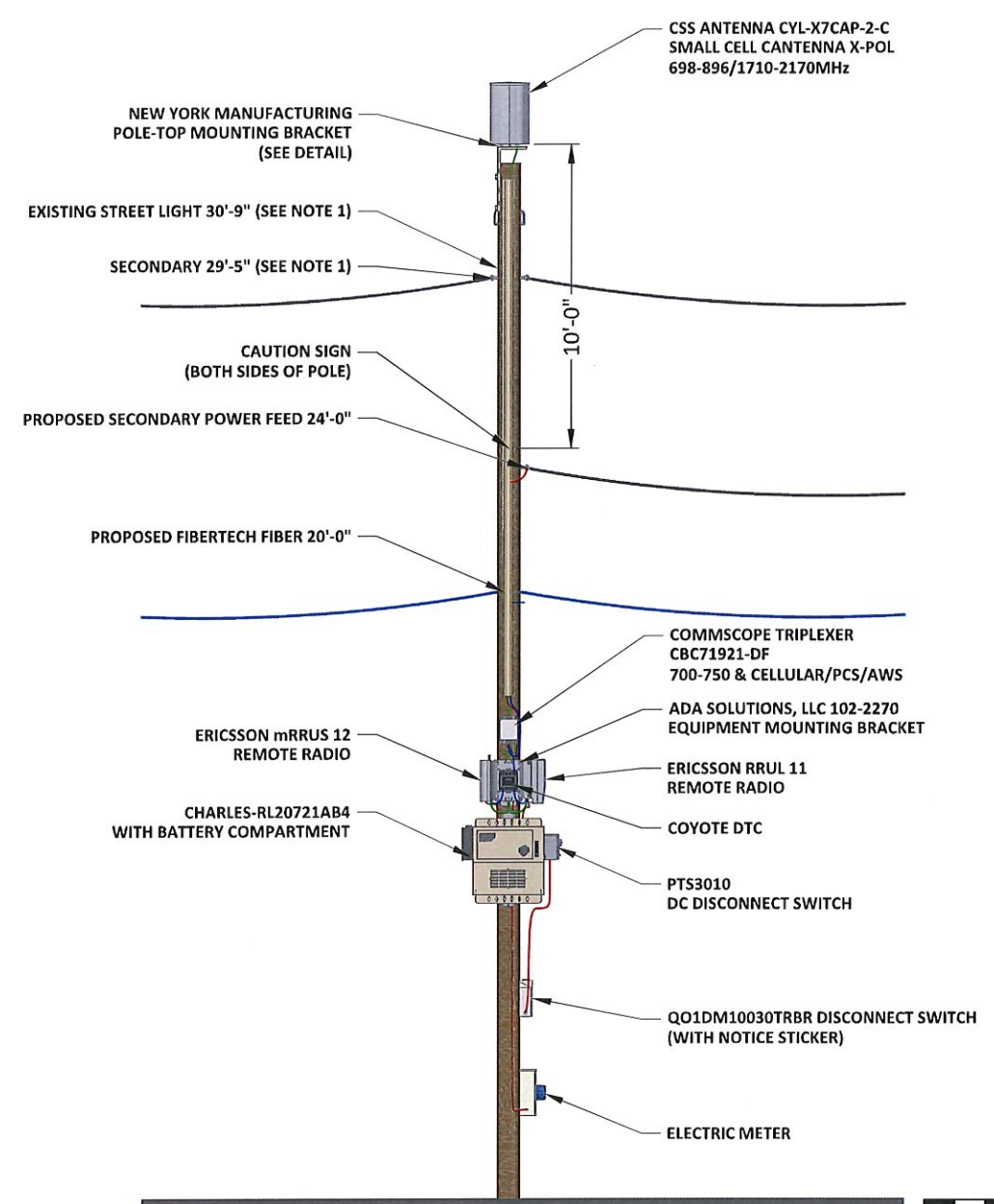
ISSUE DATE: 03/10/16

NODE NAME: SC-NC-0320

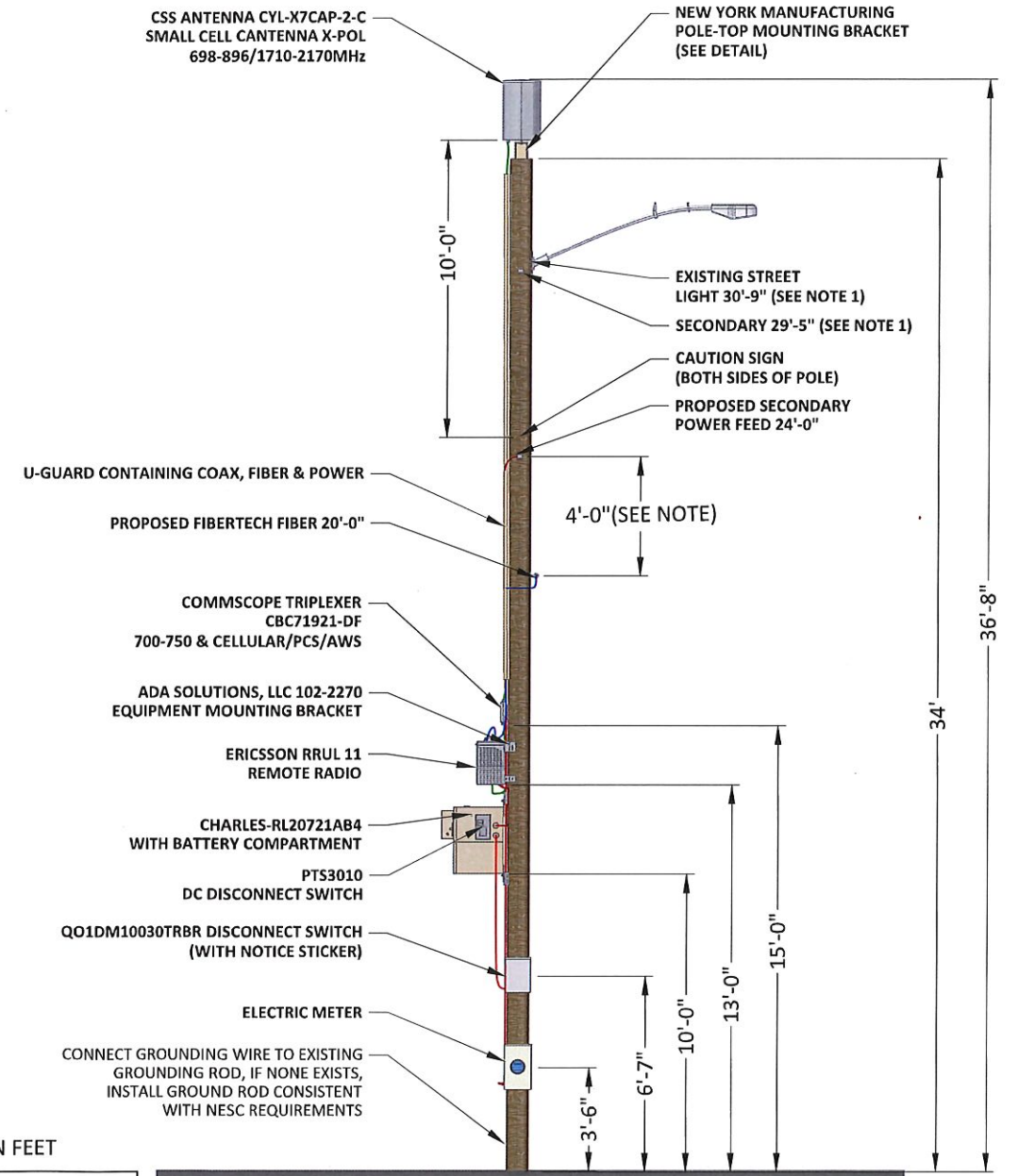
SHEET #: 2 OF 13

NOTE:
40" MIN. WORKER SAFETY ZONE
BETWEEN LOWEST ENERGIZED POWER
& HIGHEST COMMUNICATIONS CABLE
IN ACCORDANCE WITH NESC REGULATIONS

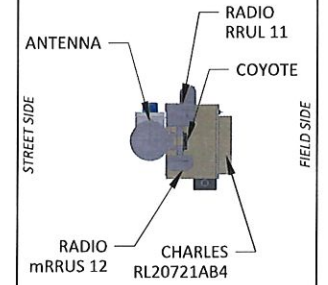
NOTE 2:
MOVE STREET LIGHT FROM 32'-9" TO 30'-9"
MOVE SECONDARY FROM 33'-6" TO 29'-5"
TO ACCOMMODATE NEW EQUIPMENT



① PROPOSED PROFILE - REAR VIEW
LOOKING NORTH TOWARD E PEACE ST



② PROPOSED PROFILE - SIDE VIEW
LOOKING WEST FROM N BLOUNT ST



PROPOSED TOP VIEW
NOTE:
CABLES & EXISTING POLE EQUIPMENT
NOT SHOWN FOR CLARITY

LOCATION:
RALEIGH, NC
35.78785°,-78.63673°

NOTES:

PREPARED FOR:
Fibertech networks.

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FIBERTECH SMALL CELL
PROPOSED

REVISIONS		
REV	DESCRIPTION	DATE

DRAFTER: DTB
SCALE: 1" = 5'
ISSUE DATE: 03/10/16
NODE NAME: SC-NC-0320
SHEET #: 3 OF 13



EXISTING PHOTOGRAPHIC VIEW



PROPOSED PHOTOGRAPHIC SIMULATION

LOCATION: RALEIGH, NC

NOTES:

PREPARED FOR:



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FIBERTECH SMALL CELL
 PHOTOSIM

REVISIONS

REV	DESCRIPTION	DATE

DRAFTER: DTB

SCALE: NTS

ISSUE DATE: 03/10/16

NODE NAME: SC-NC-0320

SHEET #: 4 OF 13



Radio frequency fields beyond this point may exceed FCC limits for the general public
Please use disconnect switch or contact the Fibertech NOC (800-497-5578) for disconnect instructions
In accordance with FCC rules 47 CFR 1.1307(b)

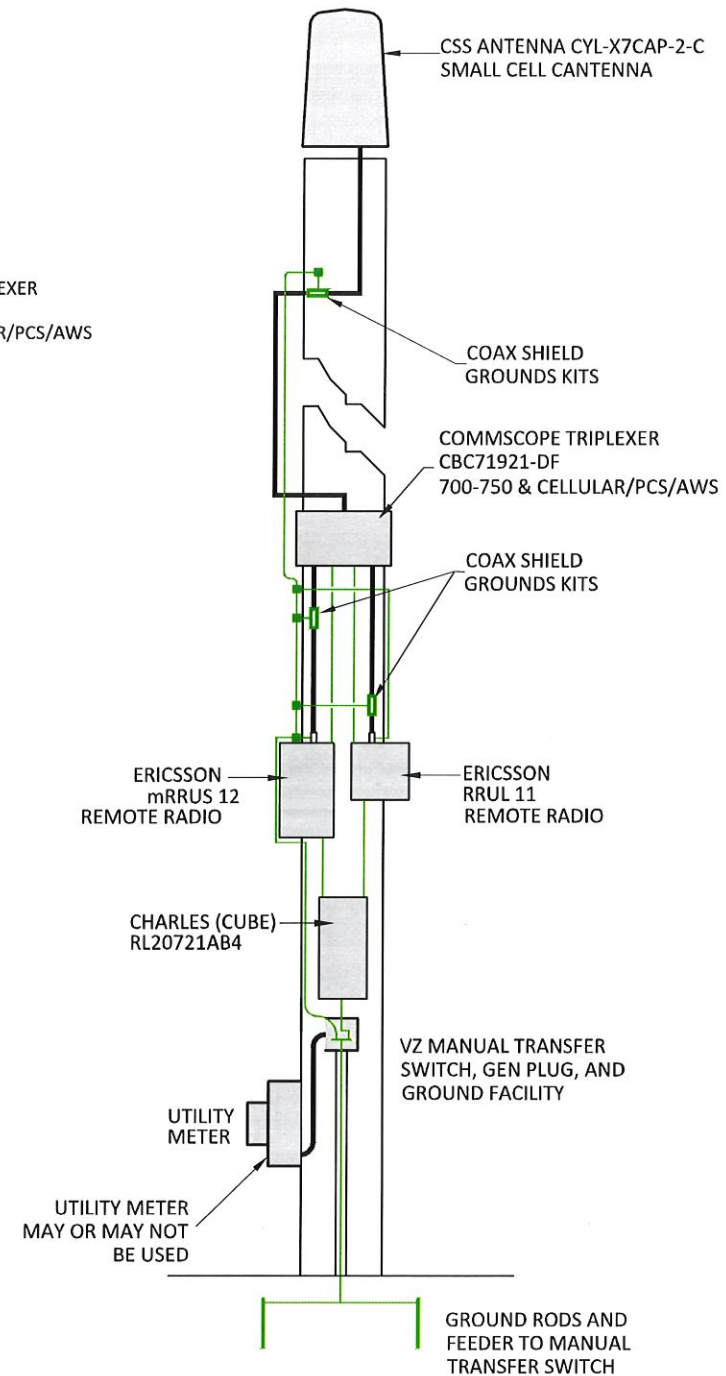
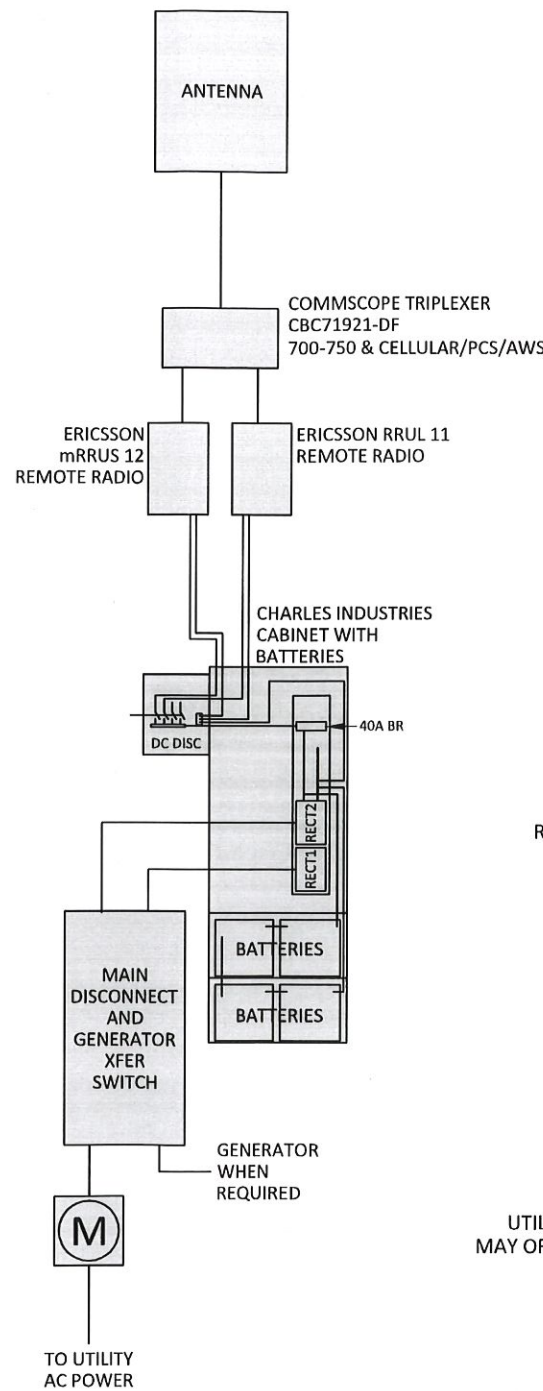
Radio frequency fields may exceed FCC limits for occupational exposure in proximity to antenna face.
Site No. _____
Please contact the Fibertech NOC (800-497-5578) for disconnect instructions prior to commencing work.

POLE SIGNAGE
NOT TO SCALE

Host (B1)				Remote (D1)		
Color	TX	RX	Technologies	Color	TX	RX
		SFP Label				SFP Label
Purple	1471	1491	1900 PCS LTE	Gray	1491	1471
Green	1511	1531	850 CDMA	Blue	1531	1511
Orange	1551	1571	700 LTE	Yellow	1571	1551
Brown	1591	1611	2100 AWS LTE	Red	1611	1591

SFP/CWDM
COLOR CODING REFERENCE

FROM CHARLES CABINET	TERMINAL	FROM ERICSSON RADIO	ALARM
VIOLET	1	YELLOW	BATTERY DISCHARGE
RED	2	GREEN	
GREEN	3	PINK	COMMERCIAL POWER FAIL
BLACK	4	GREY	
ORANGE	5	RED	DOOR ALARM
WHITE	6	BLUE	
YELLOW	7	VIOLET	MULTIPLIER RECTIFIER FAIL
WHITE	8	BLACK	
GREY	9	VIOLET W/BLUE	RECTIFIER FAIL
ORANGE	10	RED W/BLUE	
BLUE	11	BROWN	
BROWN	12	WHITE	



LOCATION: RALEIGH, NC

NOTES:

PREPARED FOR:



PREPARED BY:

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FIBERTECH SMALL CELL
POLE SIGNAGE
& WIRING DIAGRAM

REVISIONS		
REV	DESCRIPTION	DATE

DRAFTER: DTB
SCALE: NTS
ISSUE DATE: 03/10/16
NODE NAME: SC-NC0320
SHEET #: 5 OF 13

9.6.2. Connecting External Alarm Cable to External Equipment

Connect the external alarm cable to the external equipment, using the following cable data:

Alarm A

- Yellow conductor
- Green conductor

Alarm B

- Grey conductor
- Pink conductor

Alarm C

- Blue conductor
- Red conductor

Alarm D

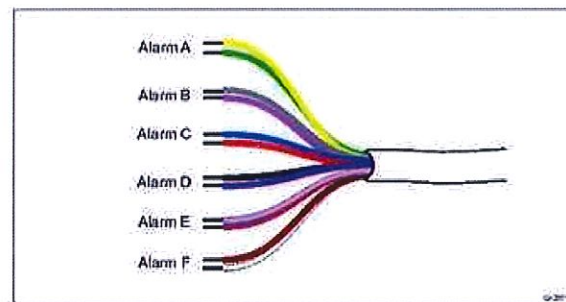
- Black conductor
- Violet conductor

Alarm E

- Grey-pink conductor
- Red-blue conductor

Alarm F

- Brown conductor
- White conductor



WIRING OPTION 1 - RRUS12 AWS
NOT TO SCALE

9.5.2. Connecting the External Alarm Cable to the External Equipment.

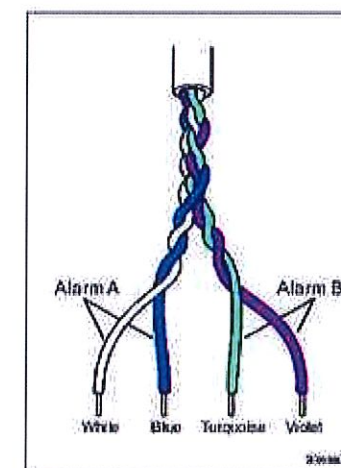
Connect the external alarm cable, to the external equipment, using the following cable data:

Alarm A

- White conductor
- Blue conductor

Alarm B

- Turquoise conductor
- Violet conductor



WIRING OPTION 3 - RRUS11 LTE 700
NOT TO SCALE

LOCATION: RALEIGH, NC

NOTES:

PREPARED FOR:



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FIBERTECH SMALL CELL
POLE SIGNAGE
& WIRING DIAGRAM

REVISIONS		
REV	DESCRIPTION	DATE

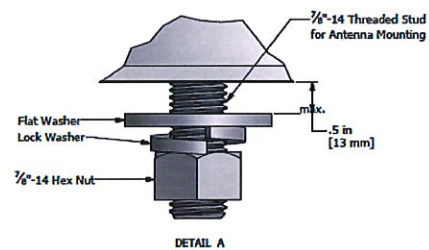
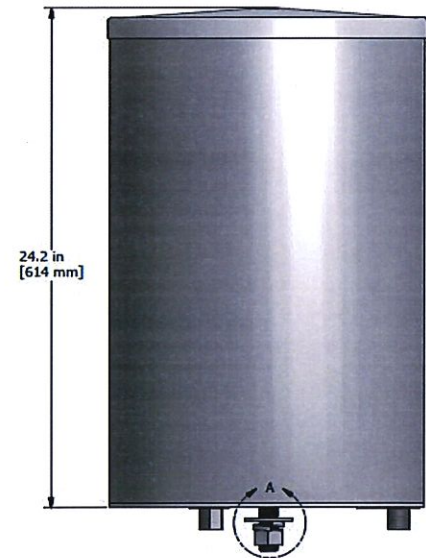
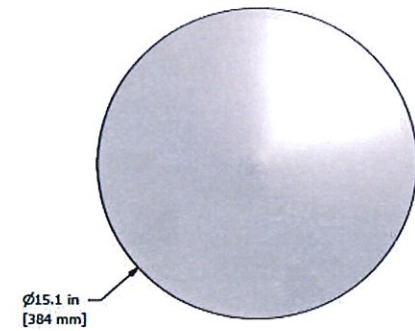
DRAFTER: DTB

SCALE: NTS

ISSUE DATE: 03/10/16

PROJECT NAME: SC-NC-0320

SHEET #: 5 OF 13

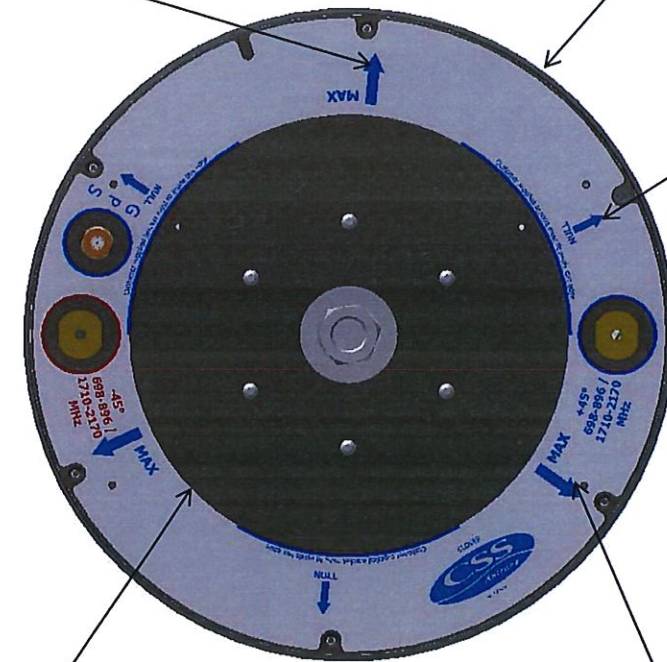


CSS ANTENNA CYL-X7CAP-2-C SMALL CELL CANTENNA X-POL
698-896/1710-2170MHz
SIDE VIEW

Max Labels point to the direction of maximum signal strength

15.1" [384 mm] dia

Null Labels point to the direction of minimum signal strength



Mounting brackets must stay inside 10" [254 mm] circle

Drain Holes (multiple places)
(Avoid any obstructions to drain holes)

CSS ANTENNA CYL-X7CAP-2-C SMALL CELL CANTENNA X-POL
698-896/1710-2170MHz
BOTTOM VIEW

LOCATION: RALEIGH, NC

NOTES:

PREPARED FOR:



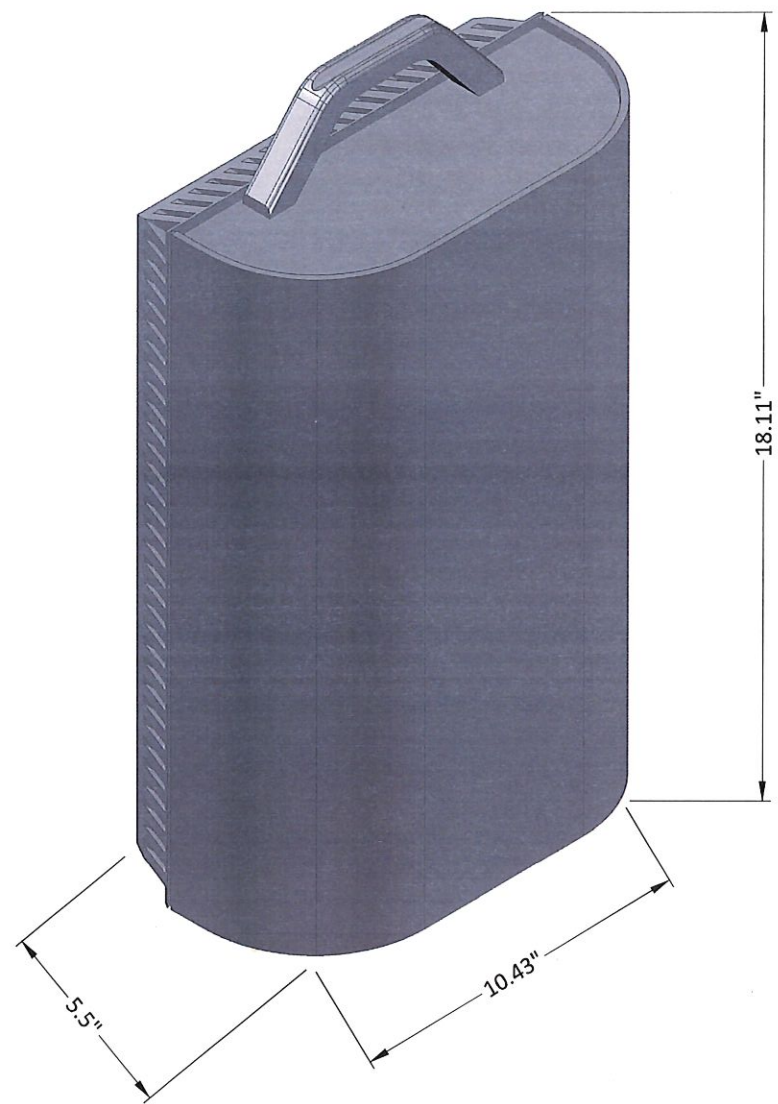
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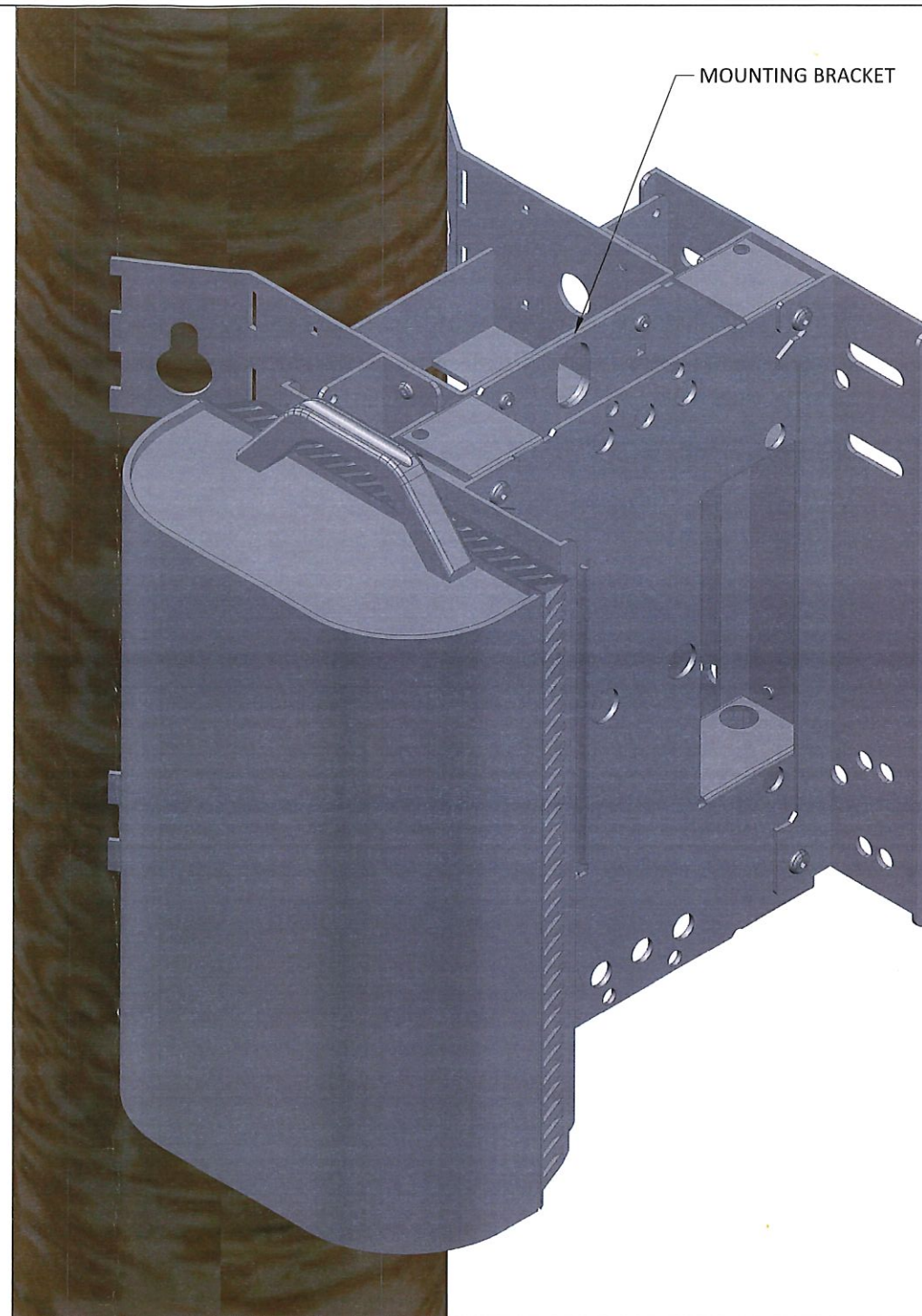
FIBERTECH SMALL CELL
CSS CYL-X7CAP-2-C
ANTENNA DETAIL

REVISIONS		
REV	DESCRIPTION	DATE

DRAFTER: DTB
SCALE: NTS
ISSUE DATE: 03/10/16
PROJ NAME: SC-NC 0320
SHEET #: 7 OF 13



ERICSSON mRRUS 12 REMOTE RADIO
ISOMETRIC VIEW



ERICSSON mRRUS 12 REMOTE RADIO
WITH ADA SOLUTIONS, LLC 102-2270 EQUIPMENT MOUNTING BRACKET
CONCEPTUAL VIEW

LOCATION:
RALEIGH, NC

NOTES:

PREPARED FOR:



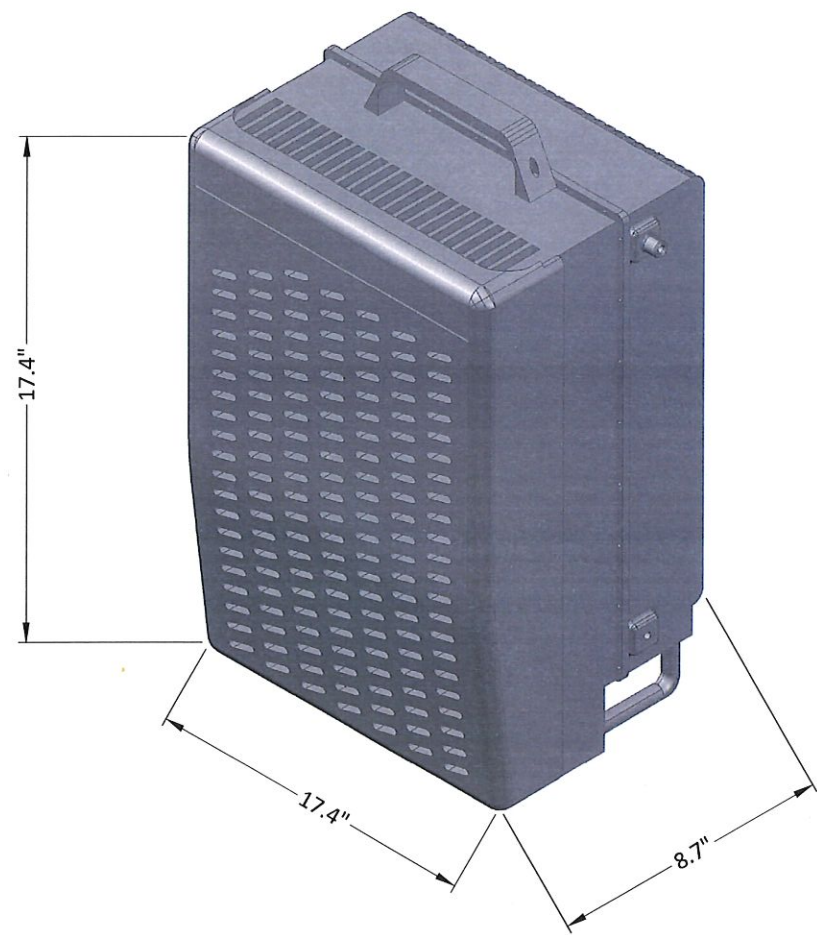
PREPARED BY:



FIBERTECH SMALL CELL
ERICSSON
mRRUS 12

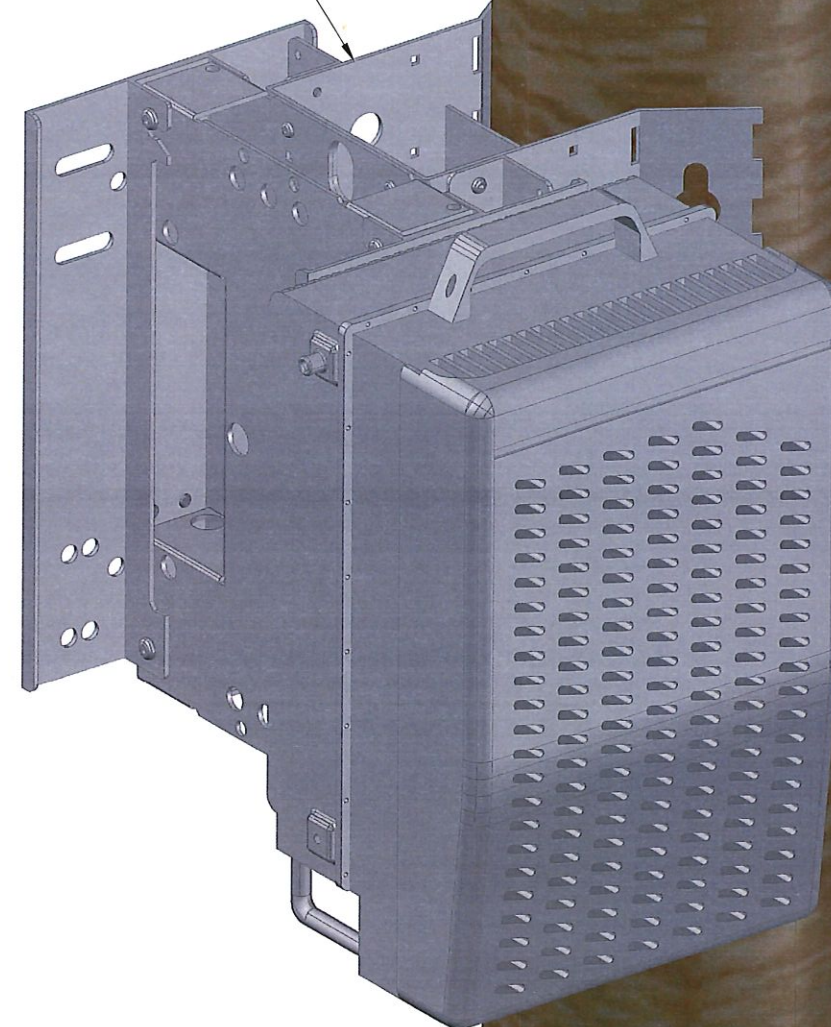
REVISIONS		
REV	DESCRIPTION	DATE

DRAFTER: DTB
SCALE: NTS
ISSUE DATE: 03/10/16
NODE NAME: SC-NC 0320
SHEET #: 8 OF 13



ERICSSON RRUL 11 REMOTE RADIO
ISOMETRIC VIEW

MOUNTING BRACKET



ERICSSON RRUL 11 REMOTE RADIO
WITH ADA SOLUTIONS, LLC 102-2270 EQUIPMENT MOUNTING BRACKET
CONCEPTUAL VIEW

LOCATION: RALEIGH, NC

NOTES:

PREPARED FOR:



PREPARED BY:

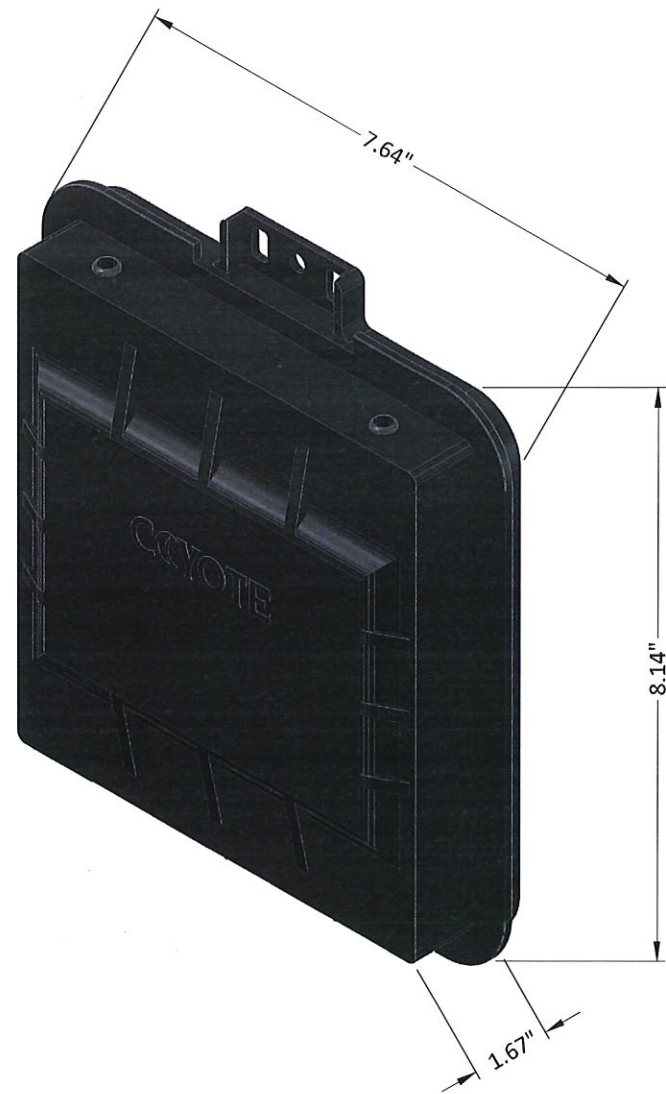
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FIBERTECH SMALL CELL
ERICSSON
RRUL 11

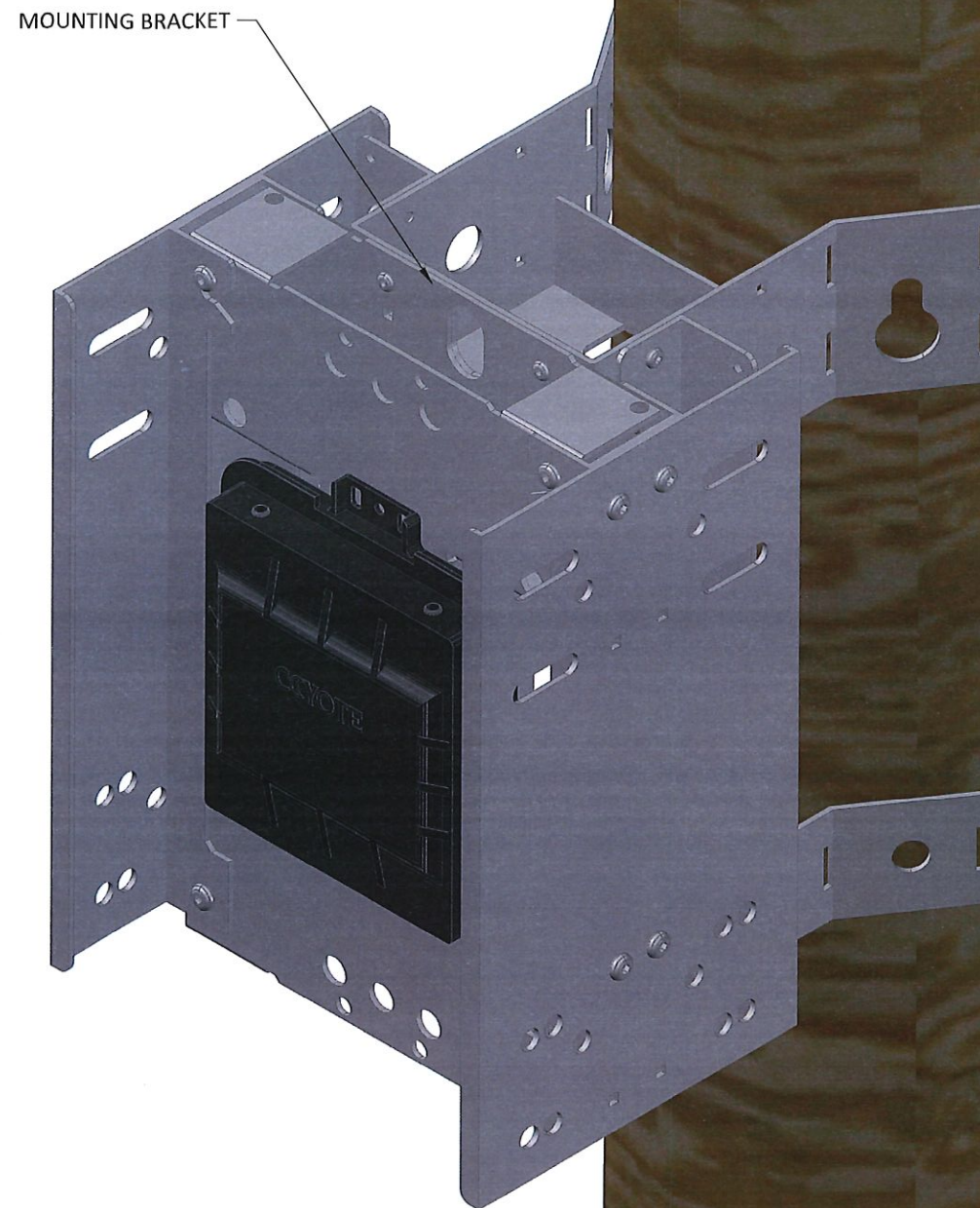
REVISIONS

REV	DESCRIPTION	DATE

DRAFTER: DTB
SCALE: NTS
ISSUE DATE: 03/10/16
NODE NAME: SC-NC-0320
SHEET #: 9 OF 13



COYOTE - DTC
ISOMETRIC VIEW



COYOTE - DTC
WITH ADA SOLUTIONS, LLC 102-2270 EQUIPMENT MOUNTING BRACKET
CONCEPTUAL VIEW

LOCATION: RALEIGH, NC

NOTES:

PREPARED FOR:



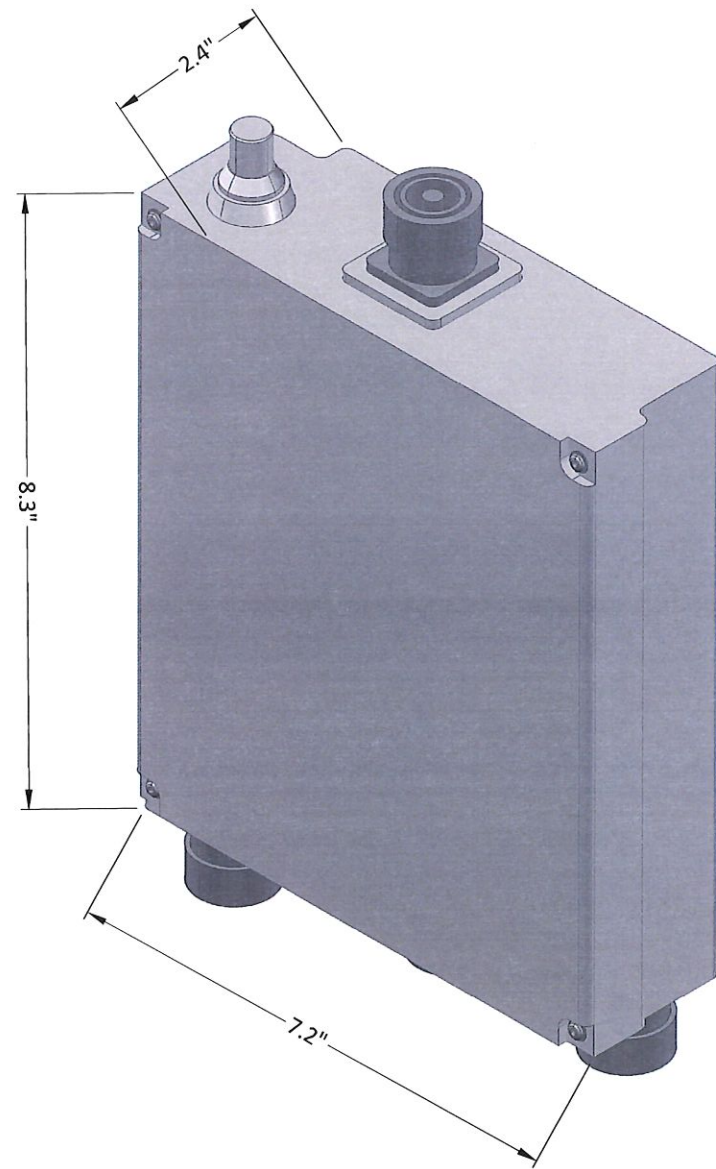
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FIBERTECH SMALL CELL
COYOTE DTC

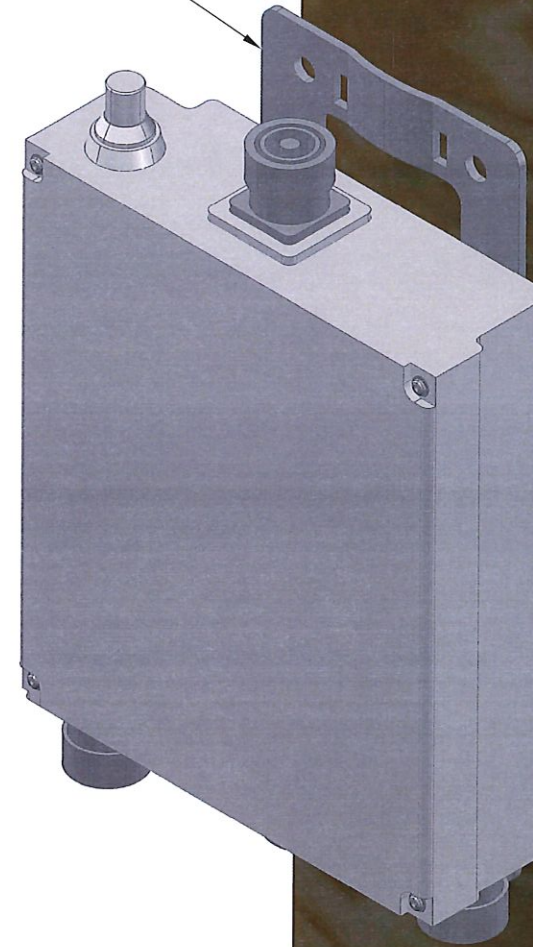
REVISIONS		
REV	DESCRIPTION	DATE

DRAFTER: DTB
SCALE: NTS
ISSUE DATE: 03/10/16
NODE NAME: SC-NC-0320
SHEET #: 10 OF 13



COMMSCOPE TRIPLEXER
CBC71921-DF 700-750 & CELLULAR PCS/AWS
 ISOMETRIC VIEW

MOUNTING BRACKET



COMMSCOPE TRIPLEXER
CBC71921-DF 700-750 & CELLULAR PCS/AWS
 ISOMETRIC VIEW

LOCATION: RALEIGH, NC

NOTES:

PREPARED FOR:



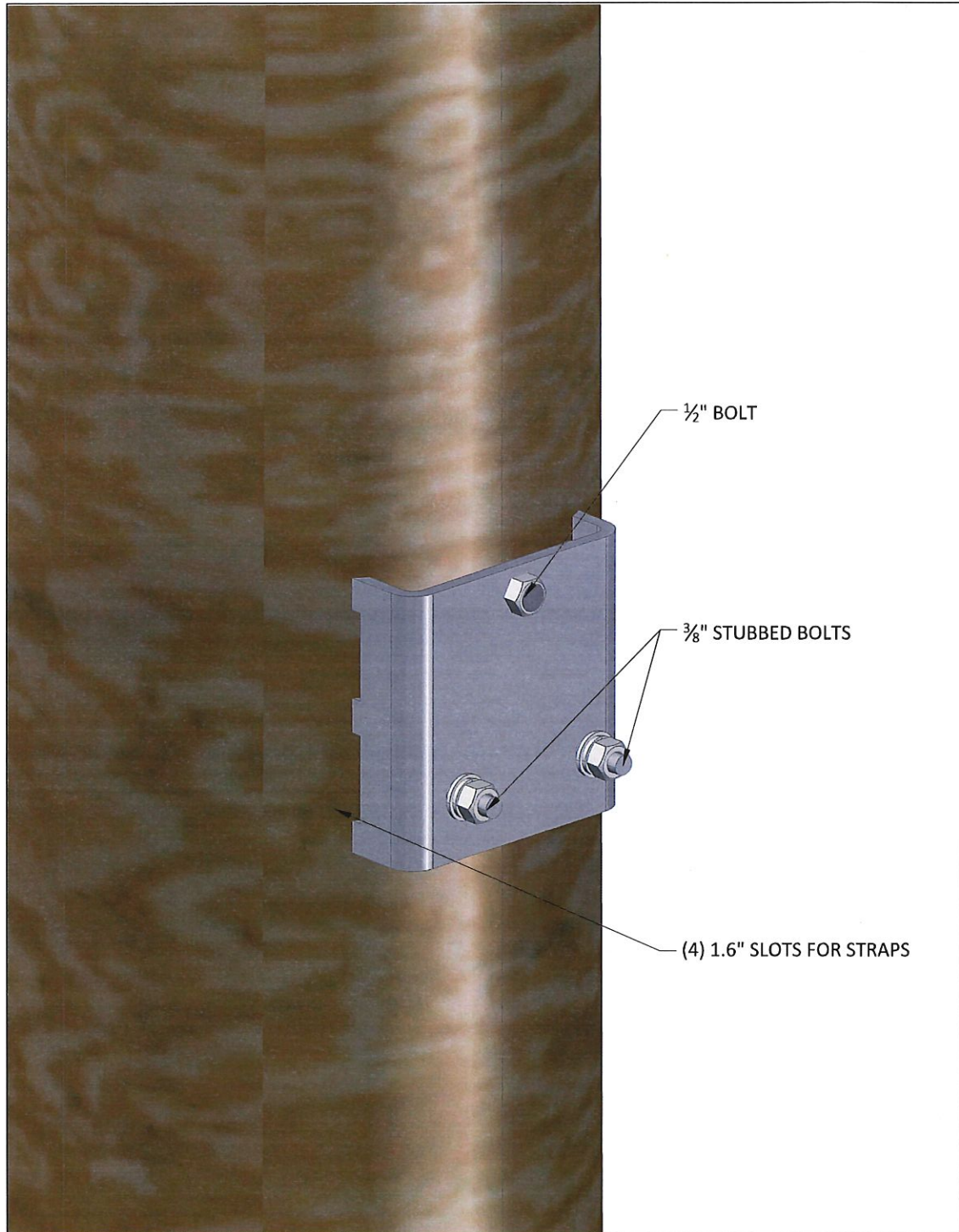
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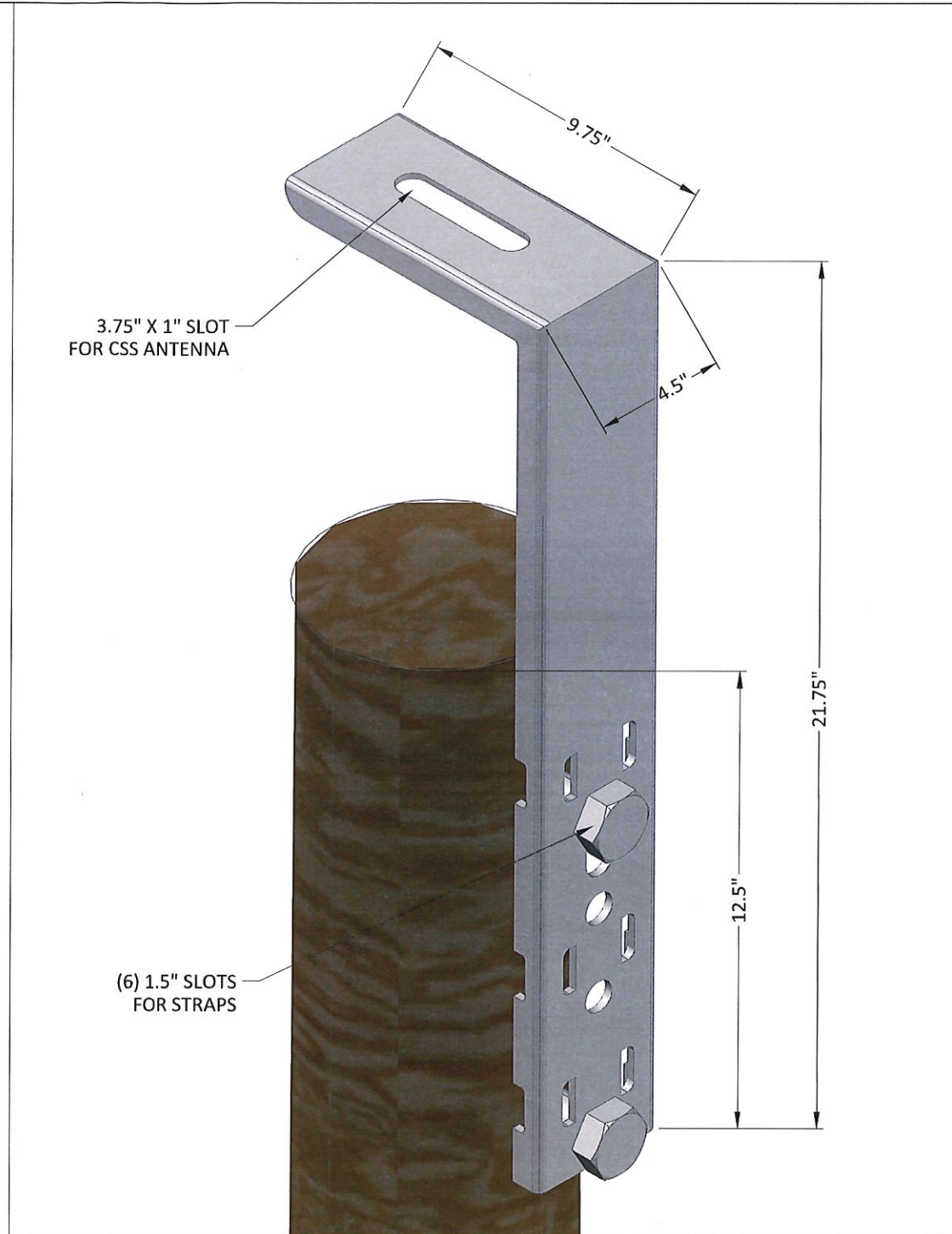
FIBERTECH SMALL CELL
 COMMSCOPE
 TRIPLEXER

REVISIONS		
REV	DESCRIPTION	DATE

DRAFTER: DTB
 SCALE: NTS
 ISSUE DATE: 03/10/16
 MODEL NAME: SC-PC 0320
 SHEET #: 11 OF 13



CHARLES MOUNTING BRACKET (97-CABPMTKIT 5" U-BRACKET)
CONCEPTUAL VIEW



NEW YORK MANUFACTURING TOP POLE BRACKET FOR CSS ANTENNA
CONCEPTUAL VIEW

LOCATION: RALEIGH, NC

NOTES:

PREPARED FOR:



PREPARED BY:

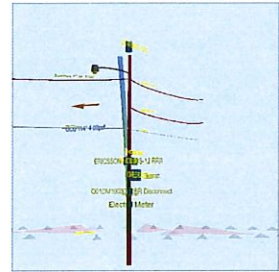
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MOUNTING BRACKET DETAILS

REVISIONS		
REV	DESCRIPTION	DATE

DRAFTER: DTB
SCALE: NTS
ISSUE DATE: 03/10/16
NODE NAME: SC-NC-0320
SHEET #: 12 OF 13

Pole Num:	NT	Pole Length / Class:	40 / 5	Code:	NESC	Structure Type:	Angle
Aux Data 1	SC-NC-0320	Species:	SOUTHERN PINE	NESC Rule:	Rule 250B	Status	Un guyed
Aux Data 2	Unset	Setting Depth (ft):	6.00	Construction Grade:	C	Pole Strength Factor:	0.85
Aux Data 3	Unset	G/L Circumference (in):	31.00	Loading District:	Medium	Transverse Wind LF:	1.75
Aux Data 4	Unset	G/L Fiber Stress (psi):	8,000	Ice Thickness (in):	0.25	Wire Tension LF:	1.30
Aux Data 5	Unset	Allowable Stress (psi):	6,800	Wind Speed (mph):	39.53	Vertical LF:	1.90
Aux Data 6	Unset	Fiber Stress Ht. Reduc:	No	Wind Pressure (psf):	4.00		
Latitude:	0.000000 Deg		Longitude:	0.000000 Deg		Elevation:	0 Feet



Pole Capacity Utilization (%)	Height (ft)	Wind Angle (deg)
Maximum	29.4	0.0
Groundline	29.4	0.0
Vertical	8.5	16.8

Pole Moments (ft-lb)	Load Angle (deg)	Wind Angle (deg)
Max Cap Ulll	15,450	114.8
Groundline	15,450	114.8
GL Allowable	53,452	

Groundline Load Summary - Reporting Angle Mode: Load - Reporting Angle: 114.8°										
	Shear Load* (lbs)	Applied Load (%)	Bending Moment (ft-lb)	Applied Moment (%)	Pole Capacity (%)	Bending Stress (+/- psi)	Vertical Load (lbs)	Vertical Stress (psi)	Total Stress (psi)	Pole Capacity (%)
Powers	111	14.3	3,086	20.6	5.8	393	56	1	393	5.8
Comms	339	43.8	6,795	45.3	12.7	864	74	1	865	12.7
GenericEquipments	141	18.2	1,401	9.3	2.6	178	887	12	190	2.8
Pole	158	20.4	2,468	16.4	4.6	314	1,364	18	332	4.9
Streetlights	25	3.2	1,261	8.4	2.4	160	114	1	162	2.4
Insulators	0	0.0	2	0.0	0.0	0	30	0	1	0.0
Pole Load	774	100.0	15,013	100.0	28.1	1,910	2,527	33	1,943	28.6
Pole Reserve Capacity			38,439		71.9	4,890			4,857	71.4

Load Summary by Owner - Reporting Angle Mode: Load - Reporting Angle: 114.8°										
	Shear Load* (lbs)	Applied Load (%)	Bending Moment (ft-lb)	Applied Moment (%)	Pole Capacity (%)	Bending Stress (+/- psi)	Vertical Load (lbs)	Vertical Stress (psi)	Total Stress (psi)	Pole Capacity (%)
Elco	142	18.4	4,387	29.2	8.2	558	210	3	561	8.2
Fibertech	474	61.2	8,158	54.3	15.3	1,038	952	12	1,050	15.4
Pole	158	20.4	2,468	16.4	4.6	314	1,364	18	332	4.9
Totals:	774	100.0	15,013	100.0	28.1	1,910	2,527	33	1,943	28.6

Detailed Load Components:															
Power	Owner	Height (ft)	Horiz. Offset (in)	Cable Diameter (in)	Sag at Max Temp (ft)	Cable Weight (lbs/ft)	Lead/Span Length (ft)	Span Angle (deg)	Wire Length (ft)	Tension (lbs)	Tension Moment* (ft-lb)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)	
Secondary	Secondary Cable	Elco	29.42	5.78	0.5800	1.25	0.113	64.0	45.0	64.1	58	763	-5	520	1,279
Secondary	Secondary Cable	Elco	29.42	5.78	0.5800	1.17	0.113	52.0	180.0	52.1	38	613	4	399	1,016
Secondary	Proposed Secondary cable	Elco	24.00	5.84	0.5370	0.90	0.071	52.0	160.0	52.1	36	475	3	313	791
Totals:											1,851	2	1,232	3,086	

Comm	Owner	Height (ft)	Horiz. Offset (in)	Cable Diameter (in)	Sag at Max Temp (ft)	Cable Weight (lbs/ft)	Lead/Span Length (ft)	Span Angle (deg)	Wire Length (ft)	Tension (lbs)	Tension Moment* (ft-lb)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)	
Overlashed Bundle	10M STRAND	Fibertech	20.00	6.31	0.3060	0.87	0.165	64.0	45.0	64.0	300	2,693	4	313	3,009
Fiber Overlashed	Fiber Cable	Fibertech	19.96	6.31	0.6100	0.147	64.0	45.0	64.0				4	149	152
Overlashed Bundle	10M STRAND	Fibertech	20.00	6.31	0.3060	0.64	0.165	52.0	180.0	52.0	300	3,272	3	240	3,515
Fiber Overlashed	Fiber Cable	Fibertech	19.96	6.31	0.6100	0.147	52.0	180.0	52.0				3	114	117
Totals:											5,965	13	816	6,785	

GenericEquipment	Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Height (in)	Unit Depth (in)	Unit Diameter (in)	Unit Length (in)	Unit Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)	
Cylinder	CSS ANTENNA CYL-X7CAP-2	Fibertech	35.67	1.53	90.0	0.0	45.00	24.20	--	15.08	--	-10	633	623
Box	Commscope Triplex	Fibertech	15.33	5.24	270.0	0.0	10.00	8.25	2.33	--	7.17	-8	62	55
Box	ERICSSON mRRUS-12 RR	Fibertech	13.75	8.45	0.0	0.0	10.00	17.33	8.58	--	17.33	-6	187	181
Box	ERICSSON RRUL-11 RR	Fibertech	13.75	11.45	180.0	0.0	10.00	17.33	8.58	--	17.33	8	187	194
Box	ADA LLC 102-2270 MOUNTING BRACKET	Fibertech	13.67	11.22	270.0	0.0	175.00	15.50	14.11	--	11.25	-282	193	-89
Box	Coyote-DTC	Fibertech	13.67	19.00	270.0	0.0	10.00	8.14	1.67	--	7.64	-27	57	30
Box	CHARLES RL2071A84 - AB4	Fibertech	11.08	13.81	270.0	0.0	175.00	26.75	19.00	--	28.08	-347	611	264
Box	PTS3010 DC-Disconnect	Fibertech	10.93	25.96	225.0	0.0	10.00	10.13	7.27	--	6.00	-14	61	47
Box	Q01DM10030TRBR Disconnect	Fibertech	8.00	6.98	180.0	0.0	12.00	14.00	5.00	--	10.00	6	51	57
Box	Electric Meter	Elco	5.50	7.62	180.0	0.0	10.00	12.00	6.00	--	10.00	5	34	39
Totals:											-676	2,077	1,401	

Streetlight	Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Height (in)	Unit Depth (in)	Unit Diameter (in)	Unit Length (in)	Unit Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)	
General	Streetlight - 6 ft. Arm	Elco	30.75	3.21	90.0	90.0	60.00	12.00	20.00	3.00	72.00	490	771	1,261
Totals:											490	771	1,261	

Insulator	Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Height (in)	Unit Diameter (in)	Unit Length (in)	Unit Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)	
Bolt	Single Bolt	Elco	29.42	0.00	0.0	0.0	5.00	3.00	0.00	-2	0	-2	
Bolt	Single Bolt	Elco	29.42	0.00	180.0	180.0	5.00	3.00	0.00	2	0	2	
Spool	Proposed Secondary Attachment	Elco	24.00	0.00	180.0	180.0	1.00	2.50	0.00	0	0	0	
Bolt	Fibertech	Fibertech	20.00	0.00	45.0	45.0	5.00	3.00	0.00	2	0	2	
Totals:											2	0	2

Pole Buckling													
Buckling Constant	Buckling Column Height* (ft)	Buckling Section Height (% Buckling Col. Hgt.)	Buckling Section Diameter (in)	Minimum Buckling Diameter at GL (in)	Diameter at Tip (in)	Diameter at GL (in)	Modulus of Elasticity (psi)	Pole Density (pcf)	Ice Density (pcf)	Pole Tip Height (ft)	Buckling Load Capacity at Height (lbs)	Buckling Load Applied at Height (lbs)	Buckling Load Factor of Safety
2.00	16.82	32.87	9.25	10.65	6.05	9.87	1.60e+6	60.00	57.00	34.00	29,567	2,527	11.70

LOCATION: RALEIGH, NC

NOTES:

PREPARED FOR:



PREPARED BY:



O-CALC

REVISIONS	
REV	DESCRIPTION

DRAFTER: DTB

SCALE: NTS

ISSUE DATE: 03/10/16

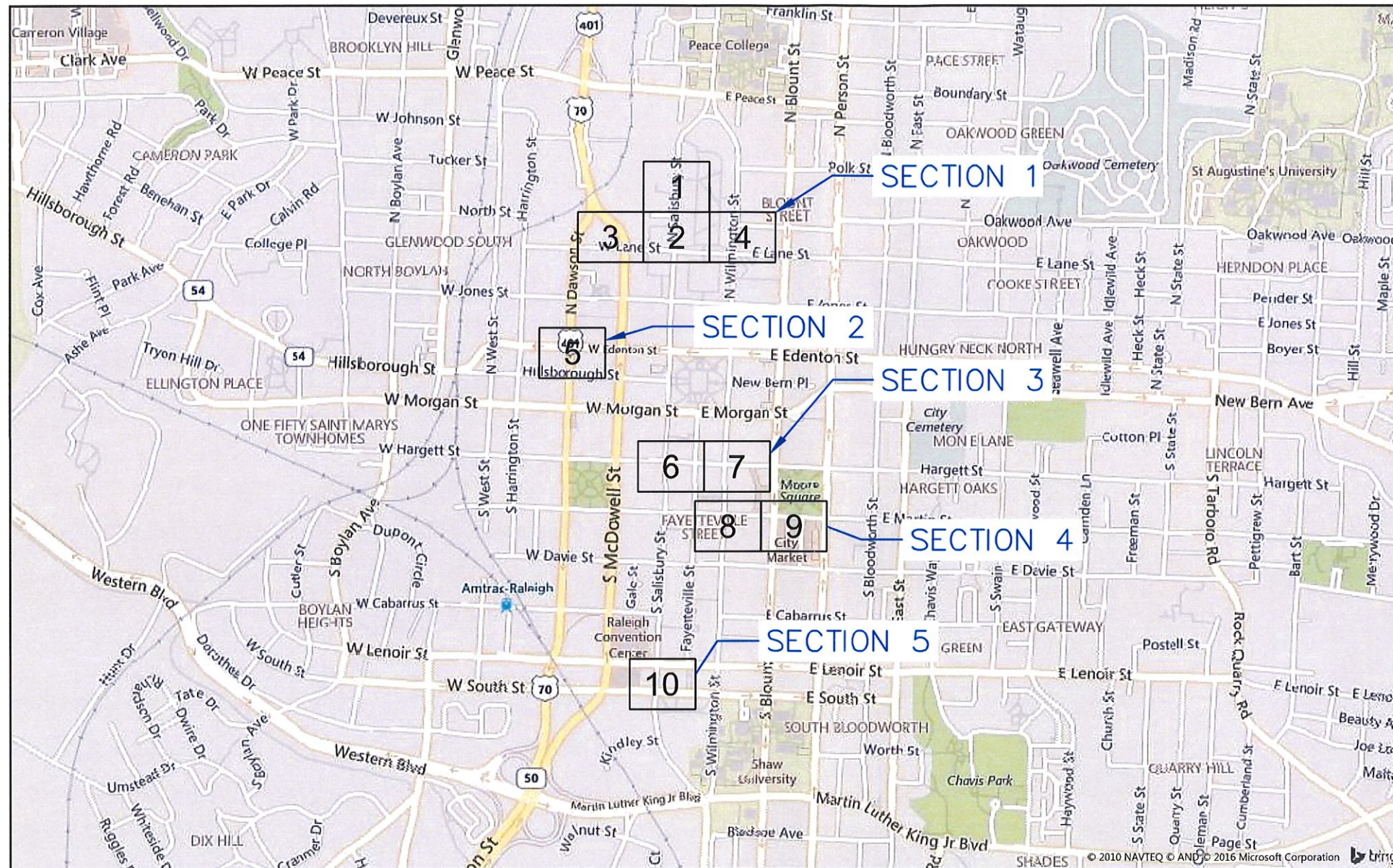
NODE NAME: SC-NC-0320

SHEET #: 13 OF 13

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COA application - Sections 3 & 4 below only (pages 6 - 9).

OWNER: Lightower
PROJECT NAME: U20062 - Raleigh UG Node Connect



SITE LOCATION

CONTACT LIST

UTILITY OWNER : LIGHTOWER
 JEFF DAVIS
 2600 SCHIEFFELIN ROAD
 APEX, NC 27502
 (919)249-9213

ENGINEERING : UTILIS ENGINEERING
 ALEX MORA
 2033 CROSS BEAM DR
 CHARLOTTE, NC 28217
 (704)751-1123

SITE INDEX

- A : COVER SHEET/SITE LOCATION
- B : LEGEND
- C : GENERAL NOTES
- D-F : TYPICALS
- 1-10 : PROJECT SHEETS

NOTES

- SECTION 1**
BORE FOOTAGE = 1893'
TRENCH FOOTAGE = 10'
- SECTION 2**
BORE FOOTAGE = 92'
TRENCH FOOTAGE = 20'
- SECTION 3**
BORE FOOTAGE = 819'
TRENCH FOOTAGE = 21'
- SECTION 4**
BORE FOOTAGE = 561'
TRENCH FOOTAGE = 20'
- SECTION 5**
BORE FOOTAGE = 348'
TRENCH FOOTAGE = 25'
- TOTAL PROJECT**
BORE FOOTAGE = 3713'
TOTAL FOOTAGE = 3809'



NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	8/11/2016	MO	MO	ORIGINAL



PROJECT MANAGER: A Mora
 PROJECT ENGINEER:
 PROJECT NUMBER: U20062 - Raleigh UG Node Connect
 DESCRIPTION: Lightower / Fibertech
 DESCRIPTION: Underground Design
 DRAWING NAME: U20062 - Raleigh UG Node Connect - 8-15-2016.dwg

LEGEND

LINETYPES

	UG FIBER - EXISTING
	UG FIBER - PROPOSED
	AERIAL FIBER - EXISTING
	AERIAL FIBER - PROPOSED
	STRAND - EXISTING
	STRAND - PROPOSED
	CONDUIT - EXISTING
	CONDUIT - PROPOSED
	INNERDUCT - EXISTING
	INNERDUCT - PROPOSED
	GAS
	WATER
	TELEPHONE
	ELECTRIC
	SANITARY SEWER (SEW)
	STORM DRAIN
	FENCE
	CABLE TV
	STEAM
	OIL
	UNKNOWN UTILITY
	RIGHT OF WAY
	EDGE OF PAVEMENT

SYMBOL DESCRIPTION

ASW	ASPHALT SIDEWALK
BIP	BLACK IRON PIPE
BSP	BLACK STEEL PIPE
CSW	CONCRETE SIDEWALK
EOP	EDGE OF PAVEMENT
EOTW	EDGE OF TRAVEL WAY
FOC	FACE OF CURB
HDPE	HIGH DENSITY POLYETHYLENE
HH	HANDHOLE
JB	JUNCTION BOX
MH	MANHOLE
MP	MILE POST
O/S	OFFSET
PVC	POLY VINYL CHLORIDE
RGS	RIGID GALVANIZED STEEL CONDUIT
ROW	RIGHT OF WAY
STA	STATION

	RISER
	TELEPHONE
	POWER VAULT
	CATCH BASIN/INLET
	FIRE HYDRANT
	GROUND/BOND
	STREET LIGHT
	TREE
	CULVERT
	WING WALL
	BRIDGE
	MISC. UTILITY
	UTILITY POLE - EXISTING
	POLE - PROPOSED

	HANDHOLE - EXISTING
	HANDHOLE - PROPOSED

	MANHOLE - EXISTING
	MANHOLE - PROPOSED

	PULLBOX - EXISTING
	PULBOX - PROPOSED

	VAULT - EXISTING
--	------------------

	VAULT - PROPOSED
--	------------------

	AERIAL STORAGE - EXISTING
--	---------------------------

	AERIAL STORAGE - PROPOSED
--	---------------------------

	VAULT/BUILDING STORAGE - EXISTING
--	-----------------------------------

	VAULT/BUILDING STORAGE - PROPOSED
--	-----------------------------------

	POLE ANCHOR/DOWN GUY - EXISTING
--	---------------------------------

	POLE ANCHOR/DOWN GUY - PROPOSED
--	---------------------------------

	PROPOSED DOWN GUY ON EXISTING ANCHOR
--	--------------------------------------

	TERMINATION - EXISTING
--	------------------------

	TERMINATION - PROPOSED
--	------------------------

	BUILDING CALLOUT - PROPOSED
--	-----------------------------

	SPLICE POINT - EXISTING
--	-------------------------

	SPLICE POINT - PROPOSED
--	-------------------------

	SEQUENTIAL CALLOUT
--	--------------------

	SEQUENTIAL IN TAIL CALLOUT
--	----------------------------

	SEQUENTIAL TAIL OUT CALLOUT
--	-----------------------------

POLE NO	N/A
UTILITY1	0'-0"

POLE ATTACHMENT CALLOUT - EXISTING
USE DYNAMIC PULL DOWN TO SELECT FROM 1 TO 6 ATTACHMENTS

POLE NO	N/A
UTILITY1	0'-0"

POLE ATTACHMENT CALLOUT - PROPOSED
USE DYNAMIC PULL DOWN TO SELECT FROM 1 TO 6 ATTACHMENTS

1	CABLE FIBERS: FIBERS CABLE OWNER: OWNER CABLE LENGTH: LENGTH NOTES:
---	--

CABLE SPAN CALLOUT - EXISTING
FOR USE ON PAPER SPACE (SHOWN AT 50X)

1	CABLE FIBERS: FIBERS CABLE OWNER: OWNER CABLE LENGTH: LENGTH NOTES:
---	--

CABLE SPAN CALLOUT - PROPOSED
FOR USE ON PAPER SPACE (SHOWN AT 50X)

1	CONDUIT OWNER: OWNER CONDUIT LENGTH: LENGTH CONDUIT QTY: CONDUITS CONDUIT SIZE: SIZE CONDUIT TYPE: TYPE INNER DUCT QTY: INNERDUCTS INNER DUCT SIZE: SIZE INNER DUCT TYPE: TYPE NOTES:
---	---

CONDUIT CALLOUT - EXISTING
FOR USE ON PAPER SPACE (SHOWN AT 50X)
WITH OR WITHOUT INNER DUCT INFO

1	CONDUIT OWNER: OWNER CONDUIT LENGTH: LENGTH CONDUIT QTY: CONDUITS CONDUIT SIZE: SIZE CONDUIT TYPE: TYPE INNER DUCT QTY: INNERDUCTS INNER DUCT SIZE: SIZE INNER DUCT TYPE: TYPE NOTES:
---	---

CONDUIT CALLOUT - PROPOSED
FOR USE ON PAPER SPACE (SHOWN AT 50X)
WITH OR WITHOUT INNER DUCT INFO

1	STRAND TYPE: TYPE STRAND LENGTH: LENGTH NOTES:
---	--

STRAND CALLOUT - EXISTING
FOR USE ON PAPER SPACE (SHOWN AT 50X)

1	STRAND TYPE: TYPE STRAND LENGTH: LENGTH NOTES:
---	--

STRAND CALLOUT - PROPOSED
FOR USE ON PAPER SPACE (SHOWN AT 50X)

3				AS-BUILT
2				REVISION # 1
1	8/11/2016	MO	MO	ORIGINAL
NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
PROJECT MANAGER: A Mora				
PROJECT ENGINEER:				
PROJECT NUMBER: U20062 - Raleigh UG Node Connect				
DESCRIPTION: Lighttower / Fibertech				
DESCRIPTION: Underground Design				
DRAWING NAME: U20062 - Raleigh UG Node Connect - 8-15-2016.dwg				
CONFIDENTIAL/PROPRIETARY SHEET: B OF 10				

GENERAL NOTES

GENERAL NOTES

CONTRACTOR MUST OBTAIN LOCATES PRIOR TO DISTURBING THE GROUND.

CONTRACTOR MUST HAVE A COPY OF THE APPROVED PERMIT FROM THE APPROPRIATE AGENCY ON THE JOBSITE AT ALL TIMES.

ALL CABLE WILL BE PLACED AT A MINIMUM DEPTH OF 36" DEEP UNLESS OTHERWISE DIRECTED BY A REPRESENTATIVE OF THE UTILITY OWNER.

ANY LANDSCAPING WILL BE REPLACED TO EQUAL OR BETTER THAN THAT WHICH EXISTED PRIOR TO WORK.

PROJECT SITE WILL BE PROPERLY SECURED PRIOR TO THE END OF EACH DAY.

ALL WORK IS TO BE IN ACCORDANCE WITH ALL AUTHORITIES HAVING JURISDICTION IN THE WORK ZONE.

CONTRACTORS ARE ADVISED TO CONTACT THE PROJECT MANAGER FOR ANY ADDITIONAL INFORMATION OR CLARIFICATION CONCERNING SCOPE OF WORK OR THE REQUIREMENTS NECESSARY FOR PROJECT COMPLETION.

CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL DIMENSIONS, QUANTITIES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION. IF A SIGNIFICANT CHANGE TO THE RUNNING LINE IS NEEDED, PLEASE CONTACT THE PROJECT MANAGER BEFORE PROCEEDING.

BEFORE CONSTRUCTION BEGINS, CONTRACTOR SHALL TAKE APPROPRIATE PRECAUTIONS TO AVOID ANY POTENTIAL OBSTRUCTIONS PRIOR TO PROCEEDING WITH WORK.

NO CONSTRUCTION ON PRIVATE PROPERTY WILL COMMENCE UNTIL APPROVAL IS GIVEN BY A REPRESENTATIVE OF THE UTILITY OWNER.

CONTRACTOR SHALL NOT PROCEED WITH WORK UNTIL THEY HAVE RECEIVED A PURCHASE ORDER AND HAVE BEEN DIRECTED TO DO SO BY AN AUTHORIZED REPRESENTATIVE OF THE UTILITY OWNER.

CONTRACTOR SHALL NOT EXCEED THE PURCHASE ORDER VALUE WITHOUT AUTHORIZATION IN WRITING FROM THE APPROPRIATE REPRESENTATIVE OF THE UTILITY OWNER.

AS-BUILTS WILL BE REQUIRED FOR EACH PROJECT INCLUDING CABLE FOOTAGE SEQUENTIALS AT EVERY ACCESS POINT, SLACK LOOP, SPLICE LOCATION, POLE AND TERMINATION POINT. CONTRACTOR SHOULD ALSO PROVIDE NOTES OF ALL CHANGES IN DEPTHS, RUNNING LINES, WH/HH LOCATIONS, AND ANY OTHER APPLICABLE NOTES TO DEPICT THE WORK THAT TOOK PLACE. NOTE: ALL MAJOR CHANGES NEED TO BE PRE-APPROVED BY AN AUTHORIZED REPRESENTATIVE OF THE UTILITY COMPANY PRIOR TO STARTING THE WORK.

SITE CONDITIONS

THE ACTUAL LOCATION OF EXISTING CONDUIT AND CABLES MAY VARY FROM THE LOCATION SHOWN. REPAIR OF ANY DAMAGED CONDUIT CONTAINING CABLE SHALL BE MADE BY USE OF PVC SPLIT DUCT. THE CONTRACTOR SHALL ENCLOSE THE EXISTING CABLES IN PVC.

THE LOCATIONS OF EXISTING UTILITIES SHOWN IN THIS PLAN ARE APPROXIMATE. WHEN WORK IS TO BE CONDUCTED IN THE VICINITY OF KNOWN UTILITIES, THEIR ACTUAL LOCATION MUST BE FIELD VERIFIED TO AVOID CONFLICTS OR DAMAGE TO THOSE UTILITIES. VARIATION IN LOCATION BETWEEN "RECORDED POSITIONS" AND ACTUAL POSITIONS SHOULD BE ANTICIPATED.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES. BURIED UTILITIES MAY EXIST IN THE AREA IN ADDITION TO THOSE SHOWN ON THE PLAN. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS WHEN WORKING WITHIN PRIVATE EASEMENTS FOR LOCATION OF UNDERGROUND TANKS, PIPELINES, DRAIN TILES, OR OTHER BURIED IMPROVEMENTS. THE CONTRACTOR SHALL ALSO NOTIFY THE UTILITY NOTIFICATION CENTER PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITIES.

THE CONTRACTOR MUST ASSUME ALL BURIED UTILITIES ENCOUNTERED ARE ALIVE AND ACTIVE UNLESS SPECIFICALLY INSTRUCTED OTHERWISE BY OWNERS OR OPERATORS OF SAID UTILITIES.

DAMAGE TO SUB-SURFACE STRUCTURES IS THE SOLE RESPONSIBILITY OF THE PLACING CONTRACTOR.

THE CONTRACTOR SHALL PROTECT THE EXISTING TRAFFIC CONTROL LOOPS. IF EXISTING TRAFFIC CONTROL LOOPS ARE DAMAGED DURING CONSTRUCTION, THE ENTIRE LOOP WIRE FROM TERMINAL TO TERMINAL SHALL BE REPLACED IN ACCORDANCE WITH GOVERNING AGENCY STANDARDS AND REGULATIONS AT CONTRACTOR'S EXPENSE.

REMOVAL OF EXISTING ASPHALT PAVEMENT, CONCRETE CURBS, AND CONCRETE SIDEWALKS WILL BE "NEAT LINE" WITH SAW OR PAVEMENT CUTTER, PER REQUIREMENTS AND SPECIFICATIONS OF THE AGENCY OR DEPARTMENT RESPONSIBLE FOR EACH LOCATION. IF CONCRETE PAVEMENT IS ENCOUNTERED WHILE EXCAVATING CONDUIT TRENCHES, THE CONCRETE REMOVAL WILL BE "NEAT LINE" WITH A PAVEMENT SAW.

IF CONCRETE CURB RETURNS AND/OR SIDEWALKS ARE REPLACED DUE TO CONDUIT OR MANHOLE INSTALLATION, THE CONTRACTOR SHALL PLACE APPROVED HANDICAPPED SIDEWALK AND CURB ACCESS RAMPS IN CONFORMANCE WITH THE APPROPRIATE STATE STATUTES.

ALL MATERIALS NECESSARY FOR THE REPAIR OF STREETS, CURBS, SIDEWALKS, SANITARY SEWERS, STORM SEWERS, AND PUBLIC SERVICE UTILITIES, AND THE INSTALLATION OF SUCH MATERIALS SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE AGENCY OR DEPARTMENT RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE REPAIRED FACILITY.

ALL WORK SHALL CONFORM TO THE SPECIFICATIONS OF THE JURISDICTIONAL PERMIT AGENCY.

ALL OPEN TRENCH WILL BE CLEARLY MARKED WITH BARRICADES OR CONES. STEEL PLATES OR OTHER TYPES OF BRIDGING SHALL BE PROVIDED TO COVER OPEN TRENCH IN THE TRAVEL PORTION OF THE STREETS. THESE PLATES OR BRIDGING SHALL BE ADEQUATE TO SUPPORT THE NORMAL VEHICLE LOADS ANTICIPATED IN THIS AREA AND SHALL BE IN PLACE DURING ALL NON-WORKING AREAS.

ALL SURFACES TO BE RESTORED TO ORIGINAL CONDITION, AND BACKFILL TO BE COMPACTED AS SPECIFIED. TRENCH EXCAVATION IN SURFACES WHICH INCLUDE CONCRETE TREATED BASE SHALL FOLLOW LOCAL AREA SPECIFICATIONS.

HAZARDOUS MATERIALS

THE CONTRACTOR SHALL NOTIFY THE JURISDICTIONAL PERMIT AGENCY IMMEDIATELY IF ANY MATERIALS ARE ENCOUNTERED THAT ARE CONSIDERED HAZARDOUS BY THE EPA, DEQ, OR OSHA. IF POTENTIALLY HAZARDOUS MATERIALS ARE ENCOUNTERED THE CONTRACTOR SHALL SECURE THE SITE AND PREVENT THE ACCIDENTAL EXPOSURE BY THE PUBLIC OR THE CONTRACTOR'S PERSONNEL.

THE CONTRACTOR MAY EXCAVATE UP TO, BUT SHALL NOT DISTURB KNOWN HAZARDOUS MATERIALS SUCH AS ASBESTOS, OILS, ACID, ETC. THE REMOVAL OF ALL HAZARDOUS MATERIALS MUST BE DONE BY AN APPROVED OR CERTIFIED HAZARDOUS MATERIALS CONTRACTOR LICENSED IN THE APPROPRIATE STATE.

A COPY OF ALL CORRESPONDENCE PERTINENT TO THE REMOVAL OF HAZARDOUS MATERIALS SHALL BE TRANSMITTED TO OWNER AND A COPY SHALL BE AVAILABLE AT THE PROJECT OFFICE AND THE JOB SITE.

AERIAL NOTES

•AERIAL CONSTRUCTION TO BE PERFORMED TO INDUSTRY ACCEPTABLE STANDARDS.

•ALL HEIGHTS OF CABLE PLACEMENT WILL BE RECORDED AT TIME OF CONSTRUCTION. DOCUMENT ALL POINTS OF ATTACHMENT.

•ALL EXTENSION ARMS TO BE PLACED WILL BE EPOXY ARMS UNLESS OTHERWISE NOTED OR APPROVED BY THE INSPECTOR.

•BOND STRAND TO POWER MGN WHERE APPLICABLE. ANCHORS TO BE USED WILL BE 3/4" SCREW IN TYPE.

•ALL STRAPS WILL BE PLACED 4" BEFORE AND AFTER EVERY SUPPORTING CLAMP AT A MINIMUM OF 21" APART.

•P.O.A. = POINT OF ATTACHMENT.

•ADD MISSING GROUNDS.

•REPAIR/REPLACE EXISTING LASHING WIRE IF DAMAGED.

CONSTRUCTION STAKING

IN AREAS WHERE THE CONDUIT ALIGNMENT IS NOT CLEARLY DEFINED BY CURB LINES, FENCE LINES, OR OTHER EVIDENCE OF THE RIGHT-OF-WAY, THE ENGINEER WILL PROVIDE CENTERLINE STAKES OR PAINT MARKS WHERE REQUIRED TO MAKE THE PROPOSED CONDUIT ALIGNMENT EVIDENT.

MANHOLE CENTERS WILL BE FIELD STAKED BY THE ENGINEER WHEN REQUESTED WITH OFFSET STAKES AT RIGHT ANGLES (90°) TO THE CONDUIT ALIGNMENT.

CLOSURES IDENTIFIED IN THE PLANS SHALL BE LOCATED BY THE CONTRACTOR. DEVIATION FROM PLAN LAYOUT SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONDUIT AND/OR CLOSURE INSTALLATION.

IF ADDITIONAL, FIELD STAKING OR LOCATION OF CONDUITS, MANHOLES, PROPERTY LINES, ETC., BECOMES NECESSARY, THE CONTRACTOR IS TO NOTIFY THE INSPECTOR OR THE ENGINEER TWO WORKING DAYS PRIOR TO BEGINNING THE WORK.

PERMITS - FRANCHISES - EASEMENTS

PHYSICAL WORK SHALL NOT BE STARTED UNTIL THE GOVERNING AGENCY INSPECTOR AND THE CONTRACTOR ARE IN POSSESSION OF AND HAVE CAREFULLY REVIEWED AND FULLY UNDERSTAND ALL CONDITIONS AND SPECIFICATIONS SET FORTH IN THE REQUIRED PERMITS, FRANCHISES, AND/OR EASEMENTS.

PLACING FOREMAN TO HAVE A COPY OF THE PERMITS/EASEMENTS ON SITE AT ALL TIMES.

ANY CONFLICT BETWEEN WORK PRINT SPECIFICATIONS AND SPECIFICATIONS SET FORTH UNDER RELATED PERMITS, FRANCHISES, AND/OR EASEMENTS MUST BE CLEARED BY PROPER COMPANY AUTHORITY BEFORE PROGRESSING WITH WORK INVOLVED

TRAFFIC CONTROL

THIS PROJECT WILL INVOLVE WORKING ALONG A MAJOR ARTERIAL ROAD AND HEAVY TRAFFIC VOLUME SHOULD BE ANTICIPATED.

UNIFORM TRAFFIC FLOW SHALL BE MAINTAINED AT ALL TIMES. ONLY EQUIPMENT AND MATERIALS NECESSARY FOR IMMEDIATELY SCHEDULED OR IN PROGRESS WORK WILL BE MAINTAINED IN THE WORK AREA. ALL OTHER EQUIPMENT AND MATERIALS WILL BE "STORED OR STOCKPILED" IN SUCH A MANNER AS TO ELIMINATE HAZARDOUS CONDITIONS FOR TRAFFIC OR PEDESTRIANS DURING NON-WORKING OR SHUT DOWN PERIODS.

TRAFFIC WARNING DEVICES AND SIGNS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (U.S. GOVERNMENT PRINTING OFFICE) AND TO THE OREGON STATE HIGHWAY DIVISION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. HIGH LEVEL WARNING TYPE DEVICES ARE TO BE USED AT ALL TIMES AND SPECIAL WARNING DEVICES MAY BE STIPULATED BY THE JURISDICTIONAL PERMIT AGENCY AT ANY TIME THE USE WILL ADD TO THE SAFETY AND PROTECTION OF TRAFFIC OR PEDESTRIANS IN THE CONSTRUCTION AREA.

ALL CONDUIT TRENCHING IN PAVED AREAS SHALL BE BACKFILLED WITH CRUSHED GRAVEL OR COMPLETELY COVERED AT THE COMPLETION OF EACH WORKING DAY. ANY BACKFILLED TRENCH SHALL BE CAPPED WITH A MINIMUM LAYER OF ASPHALTIC CONCRETE COLD PATCH AT THE END OF EACH WORKING DAY.

THE CONTRACTOR SHALL MARK THE CONDUIT TRENCH AND DEFINE HIS CONSTRUCTION AREA CLEARLY WITH BARRICADES, CONES, AND/OR OTHER VISIBLE METHODS THAT ALERT THE PUBLIC OF THE CONSTRUCTION ACTIVITY.

A TRAFFIC CONTROL PLAN SHALL BE PREPARED BY THE CONTRACTOR AS REQUIRED AND SUBMITTED TO EACH PERMITTING AGENCY REQUESTING SUCH PLAN FOR REVIEW AND APPROVAL OR REVISION PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITY FOR THIS PROJECT. THE APPROVED PLAN SHALL BE SUBMITTED TO THE AGENCY AND A COPY OF THE PLAN SHALL BE KEPT AT THE CONSTRUCTION SITE AND MUST BE READILY AVAILABLE REVIEW BY THE AGENCY REPRESENTATIVES.

SPECIAL UTILITY CLEARANCES

ALL WORK CONDUCTED ADJACENT TO WATER MAINS SHALL CONFORM TO THE FOLLOWING CONDITIONS:

A. WHEREVER POSSIBLE CONDUIT SHALL MAINTAIN A HORIZONTAL SEPARATION OF 3.0 FEET, MEASURED SURFACE TO SURFACE (OUTSIDE EDGE TO OUTSIDE EDGE), FROM PARALLEL WATER MAINS.

B. WHEREVER POSSIBLE, CONDUIT SHALL PASS UNDER EXISTING WATER MAINS AND MUST MAINTAIN 12" VERTICAL CLEAR SEPARATION. CONDUITS PASSING OVER WATER MAINS MUST ALSO MAINTAIN THE 12" VERTICAL SEPARATION.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THIS REQUIRED VERTICAL SEPARATION BY EITHER EXPOSING THE WATER MAIN EVERY 100 FEET IN THOSE AREAS WHERE HORIZONTAL SEPARATION IS LESS THAN 3.0 FEET OR BY UTILIZING THE DEPTHS OF ADJACENT WATER VALVES. IF THE CONTRACTOR UTILIZES THE ADJACENT WATER TO DETERMINE WATER MAIN DEPTH, HE SHALL CONTACT THE AGENCY AT EACH SUCH LOCATION AND THE AGENCY WILL DETERMINE THE NECESSARY DEPTH OF THE TOP OF THE CONDUIT AT THAT POINT.

D. THE VERTICAL AND HORIZONTAL SEPARATION SHALL BE MAINTAINED AT ALL TIMES UNLESS SPECIFICALLY REVISED BY AGREEMENT BETWEEN THE JURISDICTIONAL PERMIT AGENCY AND THE AGENCY ANY SPECIFIC DEVIATION IN VERTICAL AND HORIZONTAL SEPARATION FROM THOSE DESCRIBED SHALL BE REPORTED TO THE OWNER BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING VERTICAL AND HORIZONTAL SEPARATION AT ALL TIMES AND SHALL BE RESPONSIBLE FOR ANY AND ALL ENCROACHMENTS.

E. CLEARANCES TO STORM SEWERS AND SANITARY SEWERS SHALL BE EXACTLY THE SAME AS THOSE TO WATER MAINS.

STRUCTURE PROTECTION

MANHOLES AND CONDUIT TO BE PLACED ADJACENT TO EXISTING STRUCTURES SUCH AS BRIDGE BRIDGE FOOTINGS/PIERS, BUILDING FOUNDATIONS, WALLS, POWER AND TELEPHONE POLES, AND OTHER UTILITIES SHALL MAINTAIN A MINIMUM CLEARANCE AS SHOWN. THE CONTRACTOR SHALL NOT UNDERMINE ANY ADJACENT STRUCTURE WITHOUT SPECIFIC WRITTEN PERMISSION FROM THE OWNER/OPERATOR OF SUCH STRUCTURE.

SHORING USED AS FOUNDATION SUPPORT SHALL BE DESIGNED SPECIFICALLY FOR BOTH THE LIVE AND DEAD LOADS OF THE STRUCTURE, OR IF ONLY THE DEAD LOAD IS USED FOR DESIGN, THE CONTRACTOR SHALL PROVIDE A DETAILED LAYOUT AND PLAN OF THE METHOD OF ESTABLISHING AND MAINTAINING THE DESIGN LOAD CONDITIONS (I.E., ROAD DETOURS, TIEBACKS, ETC.).

SEE UTILITY CLEARANCE SECTION NOTES FOR CLEARANCE CRITERIA TO PARALLEL OR CROSS UTILITIES.

EXISTING UTILITIES EXPOSED DURING EXCAVATION SHALL BE 100% SUPPORTED BY EITHER TRENCH BRIDGING AND SUSPENSION OR BY THE USE OF LONGITUDINAL TRAYS OR PLATFORMS VERTICALLY SUPPORTED BY ADJUSTABLE BUILDING JACKS.

EXISTING SPLICE CASES AND CABLES SHALL BE SUPPORTED BY SUSPENSION FROM A CROSSING BEAM. SUPPORTS SHALL BE PLACED AT A MAXIMUM SPACING OF 4.0 FEET AND SHALL CONSIST OF A CANVAS SLING WITH NYLON BELTING OR ROPE. ALL CABLE SUPPORTS SHALL BE PLACED IN A MANNER THAN PREVENTS KINKS OR OTHER DAMAGE TO THE CABLE SHEATH.

AN ACCEPTABLE ALTERNATIVE TO CABLE SLINGS WOULD BE THE UTILIZATION OF A WIDE FLANGE "I" BEAM OR CHANNEL AS A "CABLE TRAY" WITH THE CABLES/CASES BANDED IN PLACE.

SHORING


THE CONTRACTOR SHALL PROVIDE SHORING FOR CONDUIT TRENCH EXCAVATION 42" OR MORE IN DEPTH AS MEASURED FROM THE HIGH SIDE OF THE TRENCH AND FOR ALL MANHOLE EXCAVATION.

MANHOLE SHORING SHALL BE TIGHT-SHEETED.

ALL SHORING SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF LOCAL COUNTY AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

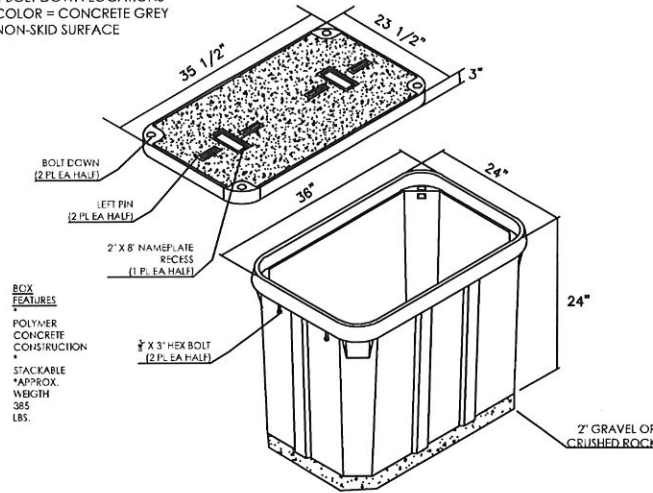
SHORING SHALL BE DESIGNED TO MEET H-20 HIGHWAY LOADING.

THE CONTRACTOR SHALL PROVIDE ALL SHORING AND DESIGN CALCULATIONS TO THE PERMIT ISSUING AGENCY PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITY.

3					AS-BUILT
2					REVISION # 1
1	8/11/2016	MO	MO		ORIGINAL
NO.	DATE	ENG DESIGN	DRAFTING		COMMENT
					
PROJECT MANAGER: A Mora					
PROJECT ENGINEER:					
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DESCRIPTION: Lighttower / Fibertech					
DESCRIPTION: Underground Design					
DRAWING NAME: U20062 - Raleigh UG Node Connect - 8-15-2016.dwg					
CONFIDENTIAL/PROPRIETARY SHEET: C OF 10					

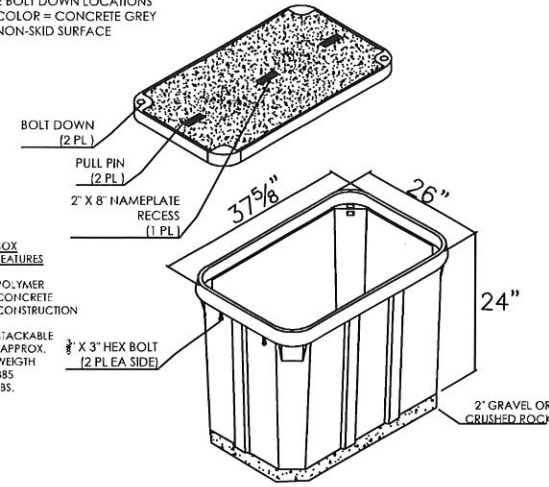
TYPICALS

- COVER FEATURES:**
- * STANDARD LOAD RATING: 20,800 POUND WHEEL LOAD ON 10 X 20 PLATE
 - * POLYMER CONCRETE CONSTRUCTION
 - * WEIGHT = 110 POUNDS (EACH HALF)
 - * 4 BOLT DOWN LOCATIONS
 - * COLOR = CONCRETE GREY
 - * NON-SKID SURFACE

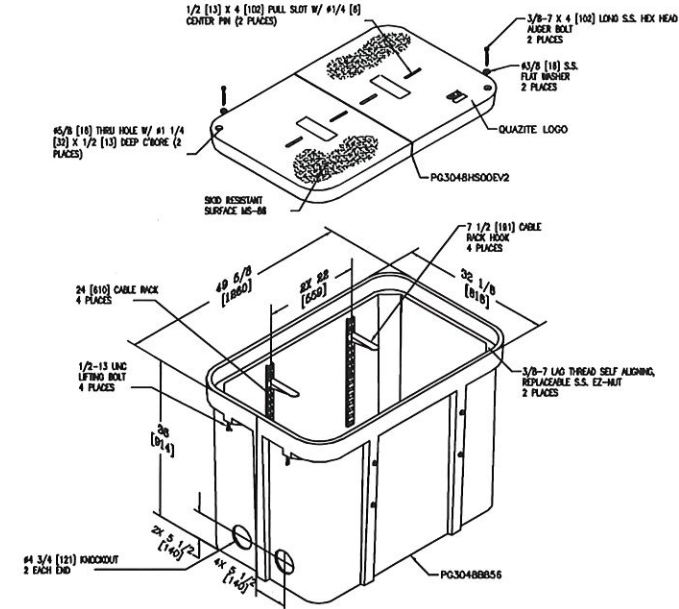


24" x 36" x 24" HANDHOLE, HUBBELL MODEL PG24362502 OR EQUAL

- COVER FEATURES:**
- * STANDARD LOAD RATING: 45,136 POUND WHEEL LOAD ON 10 X 20 PLATE
 - * POLYMER CONCRETE CONSTRUCTION
 - * WEIGHT = 220 POUNDS
 - * 2 BOLT DOWN LOCATIONS
 - * COLOR = CONCRETE GREY
 - * NON-SKID SURFACE

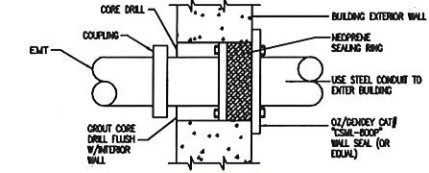


24" x 36" x 24" NCCOT APPROVED HANDHOLE WITH EXTRA REBAR IN LID, HUBBELL MODEL PG24362950 OR PG24362952 OR EQUAL



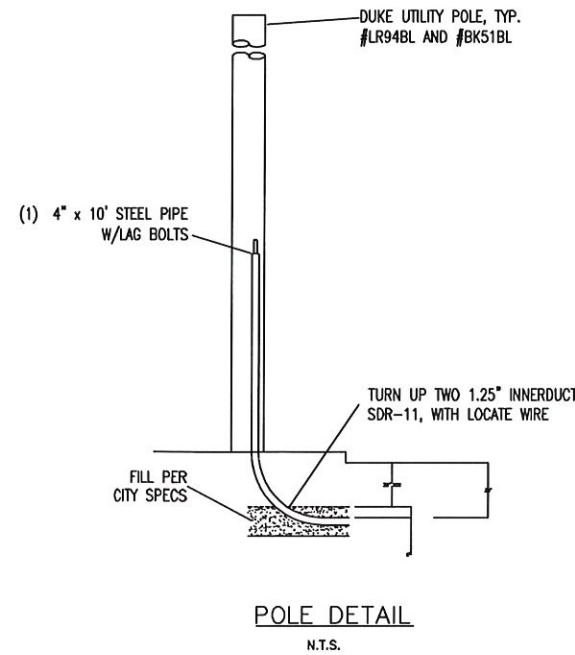
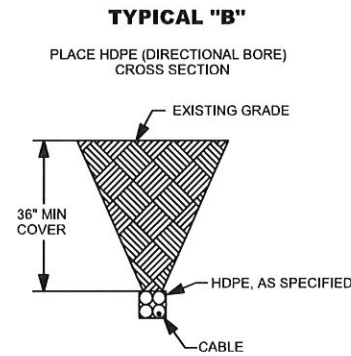
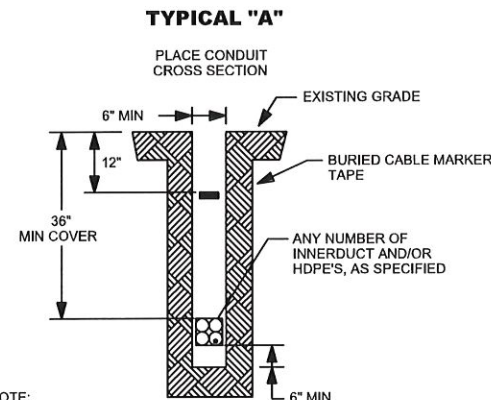
TYPICAL DETAIL - # 11

QUAZITE 30X48X36 ASSEMBLY
W/(4) 24" CABLE RACKS
& (4) 7 1/2" HOOKS
PG30483600EV2



TYPICAL DETAIL - # 14
CONDUIT SEAL

PLACEMENT - TYPICALS



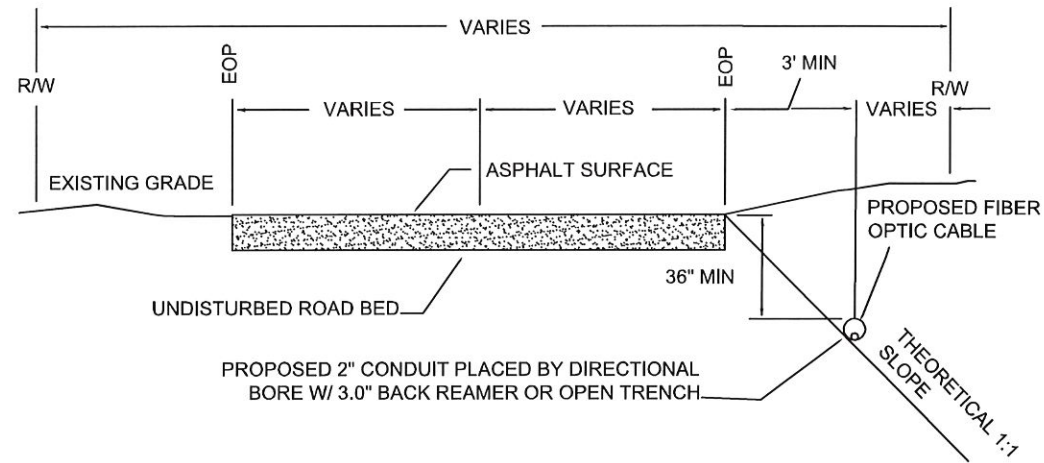
NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
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2				REVISION # 1
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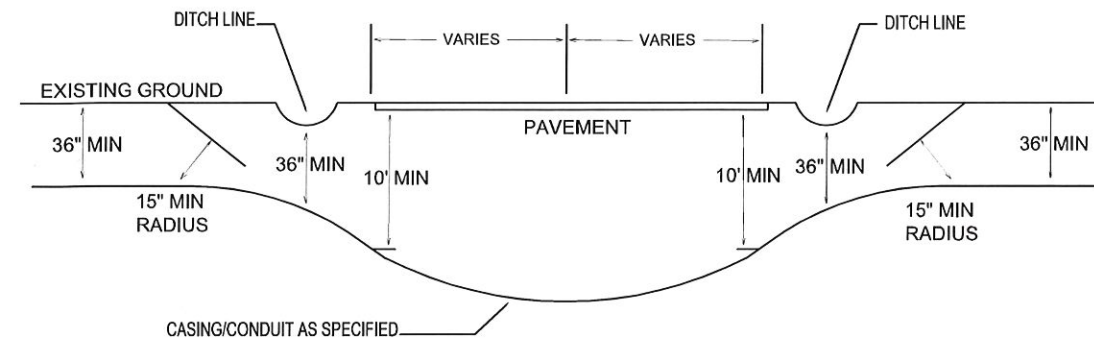
CONFIDENTIAL/PROPRIETARY SHEET: D OF 10

TYPICALS

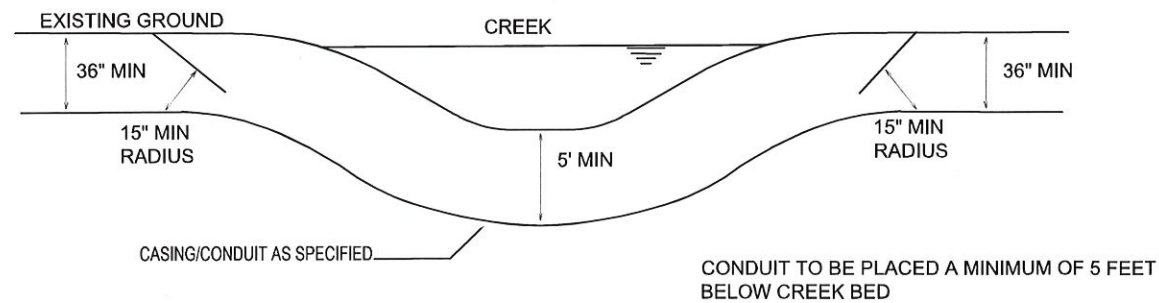
PARALLEL CONDUIT DETAIL FOR NCDOT RIGHT-OF-WAY
NOT TO SCALE



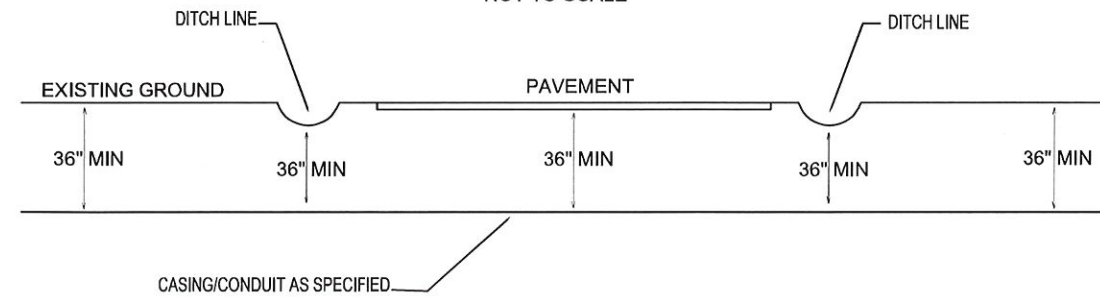
DIRECTIONAL BORE UNDER SECONDARY ROADWAY
NOT TO SCALE



DIRECTIONAL BORE UNDER CREEK BED
NOT TO SCALE



DRY BORE UNDER ROADWAY
NOT TO SCALE

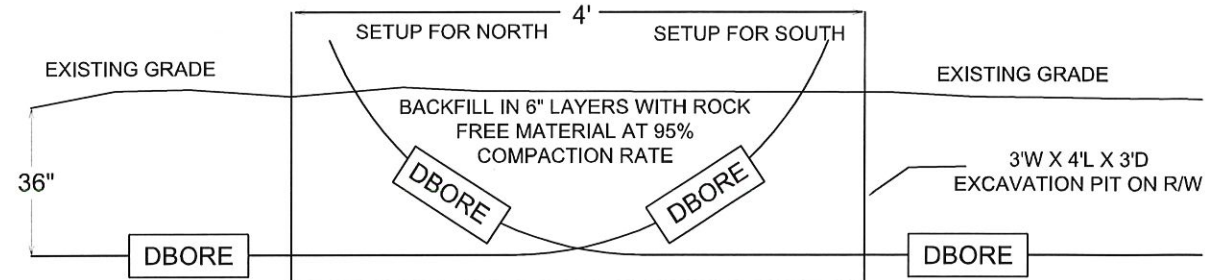


3				AS-BUILT
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TYPICALS

DIRECTIONAL BORE TIE-IN DETAIL

NOT TO SCALE

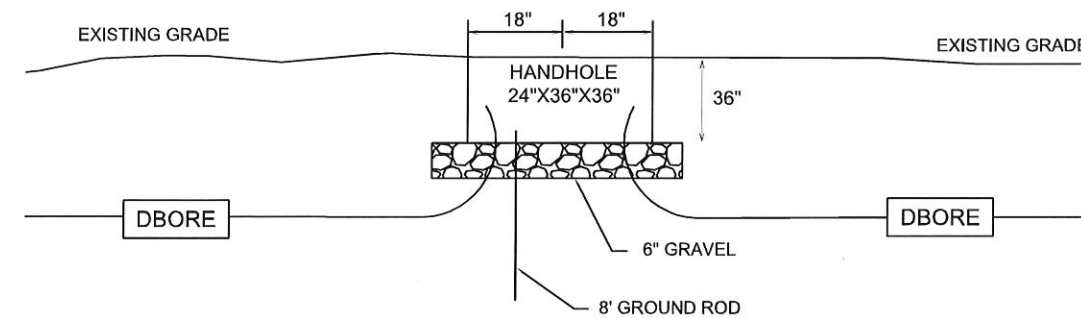


TIE-IN STATION

- BORE FROM EACH DIRECTION IS RUN AT DESIGN DEPTH TO 2 FEET PAST THE INTENDED TIE-IN. THEN TURNED UP TO DAYLIGHT.
- THE TIE-IN POINT IS EXCAVATED. THE CONDUITS CUT OFF WHERE THEY CROSS EACH OTHER AT DESIGN DEPTH, AND A COUPLER IS INSTALLED TO CONNECT THE TWO CONDUITS AT THE DESIGN DEPTH.
- ALL EXCAVATIONS OR TRENCHES 4 FEET OR GREATER IN DEPTH SHALL BE APPROPRIATELY BENCHED, SHORED, OR SLOPED IN OSHA'S EXCAVATION STANDARD, 29 CFR 1926.650, .651, AND .652

HANDHOLE CONSTRUCTION DETAILS, CONDUIT TO HANDHOLE PROFILE FOR R/W CONSTRUCTION

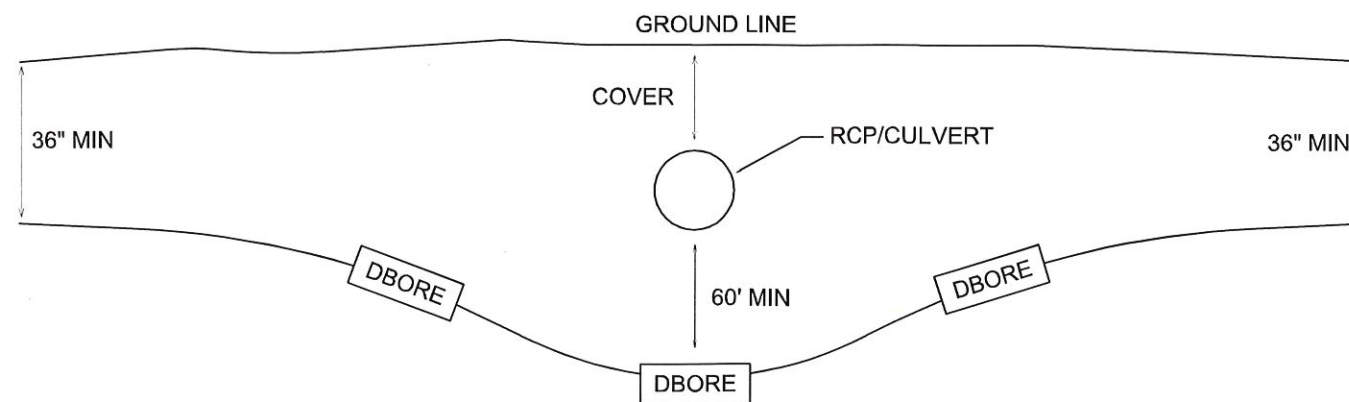
NOT TO SCALE



ALL EXCAVATIONS OR TRENCHES 4 FEET OR GREATER IN DEPTH SHALL BE APPROPRIATELY BENCHED, SHORED, OR SLOPED ACCORDING TO THE PROCEDURES AND REQUIREMENTS SET FORTH IN OSHA'S EXCAVATION STANDARD, 29 CFR 1926.650, .651, AND .652.

CULVERT CROSSING DETAIL

NOT TO SCALE

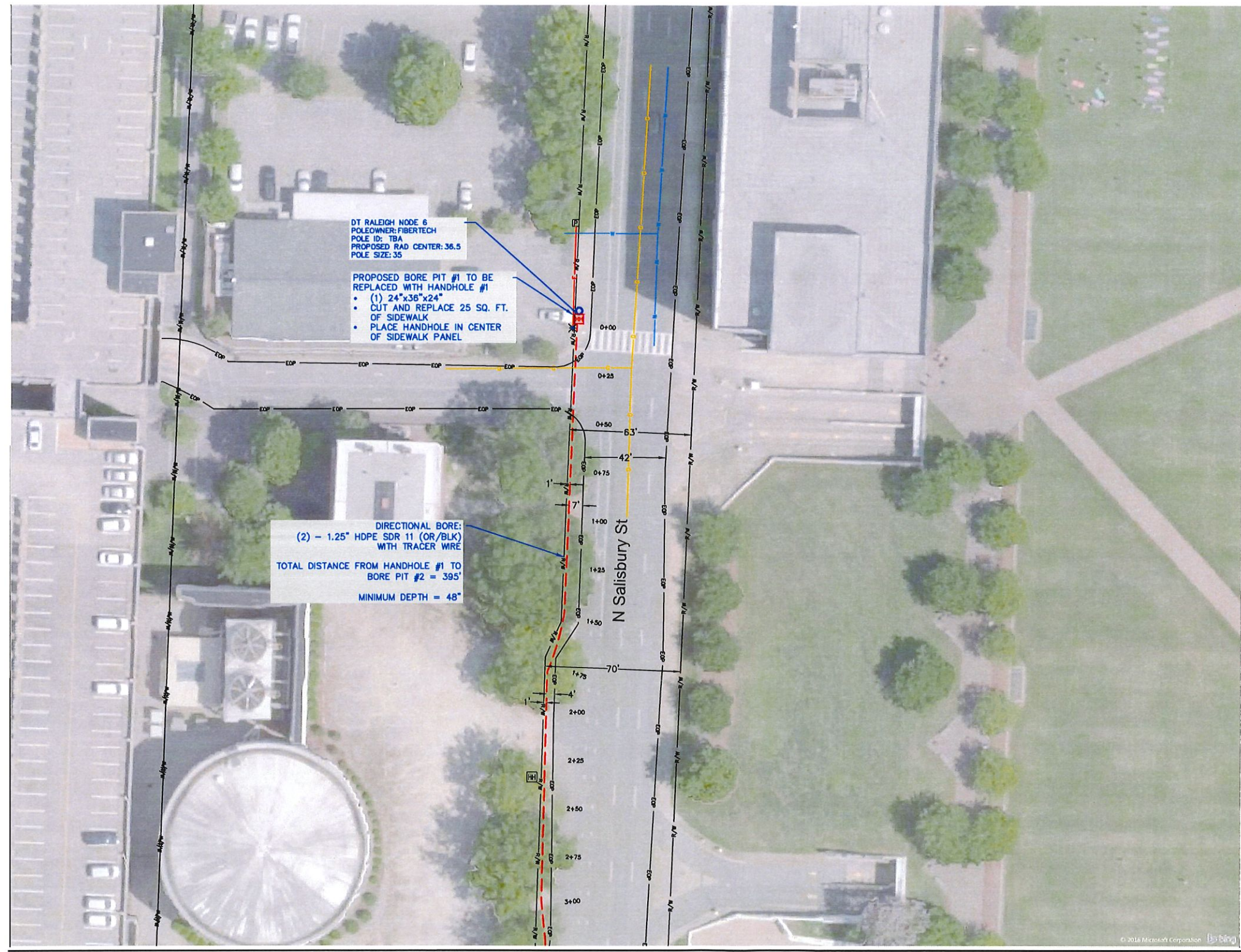


NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
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2				REVISION # 1
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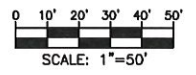
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MATCH TO SHEET 2

CONSTRUCTION NOTES

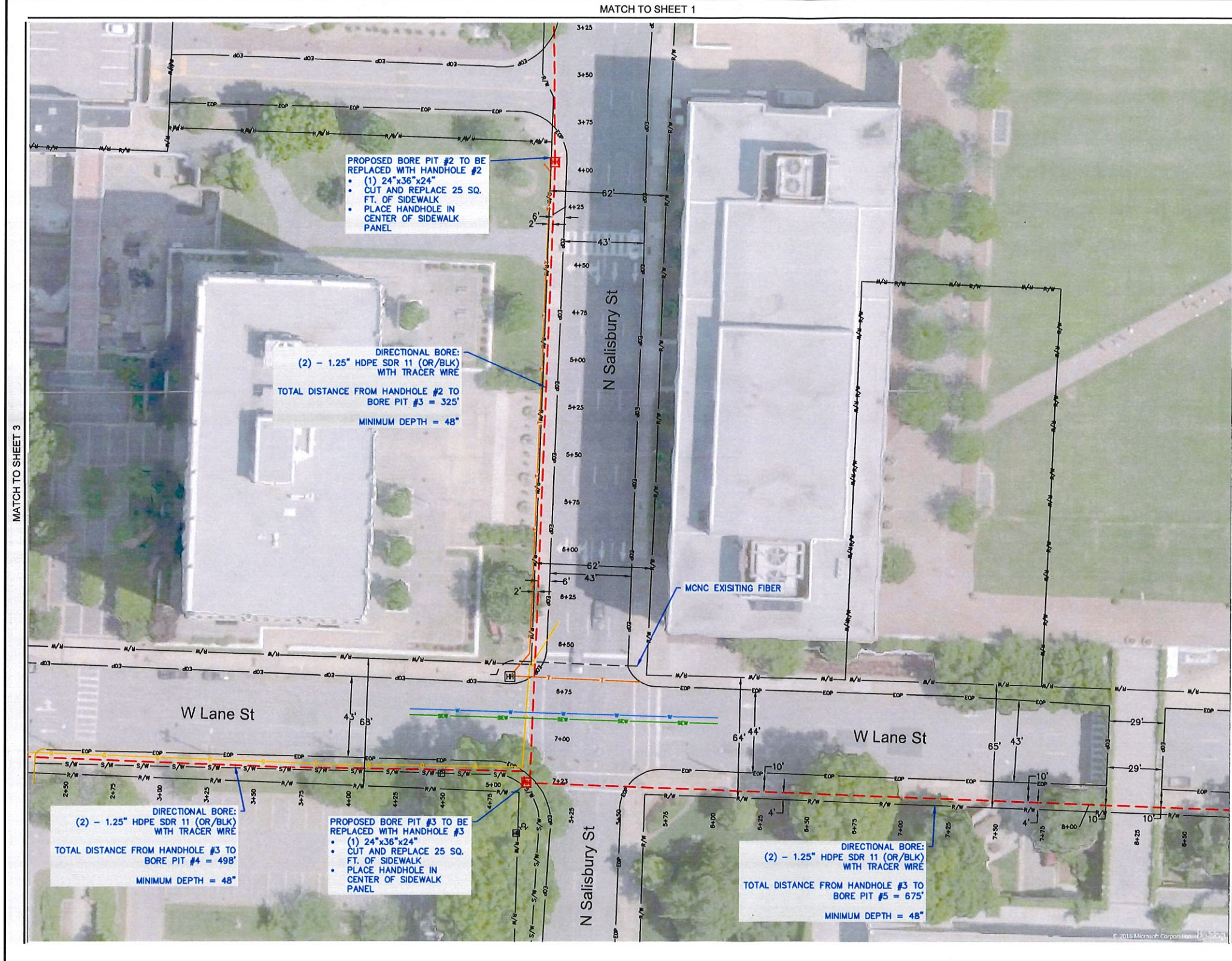


SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

3				AS-BUILT
2				REVISION # 1
1	8/11/2016	MO	MO	ORIGINAL
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CONSTRUCTION NOTES

0 10' 20' 30' 40' 50'

SCALE: 1"=50'

811

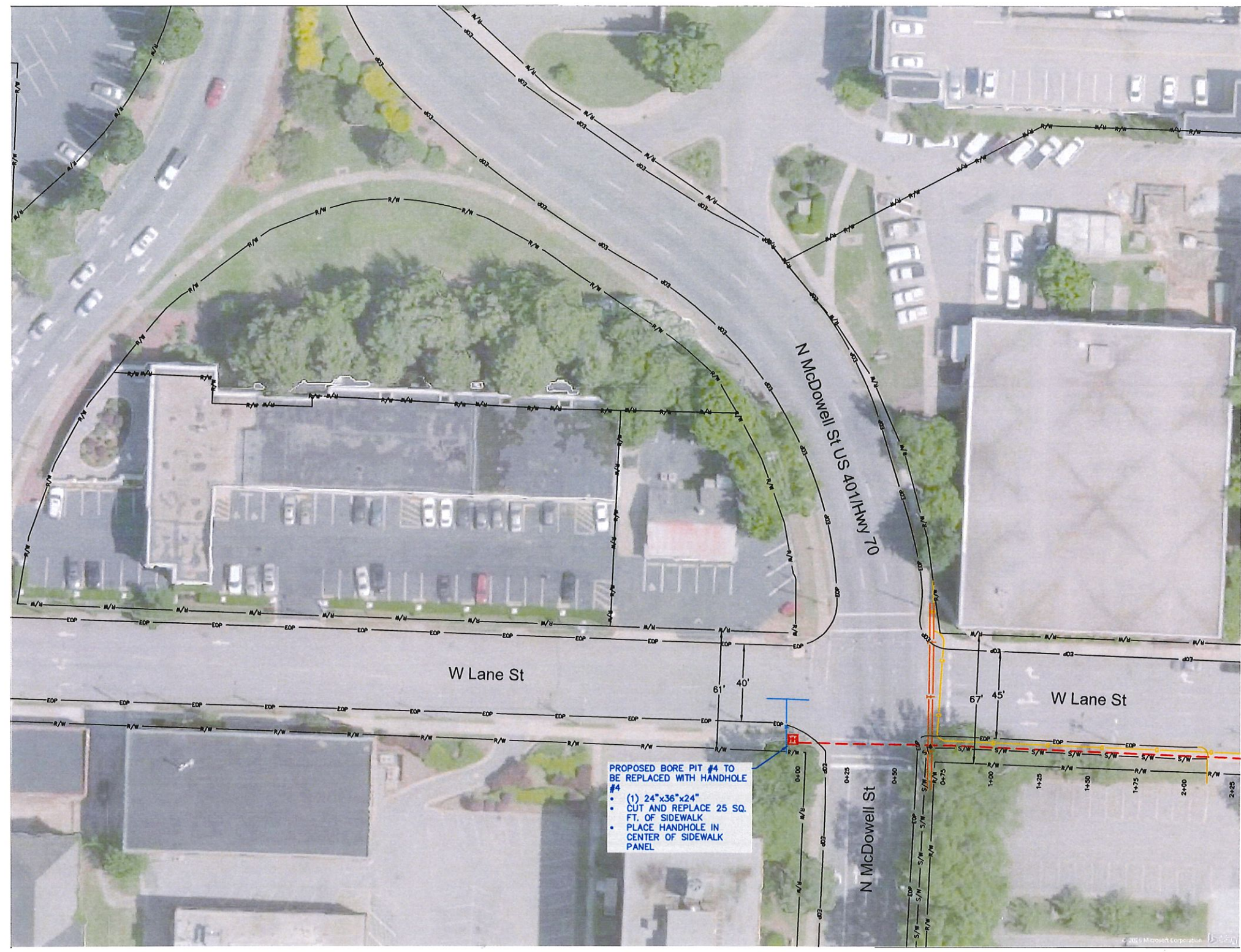
Know what's below
Call before you dig.

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3				AS-BUILT
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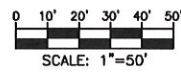


PROPOSED BORE PIT #4 TO BE REPLACED WITH HANDHOLE #4

- (1) 24"x36"x24"
- CUT AND REPLACE 25 SQ. FT. OF SIDEWALK
- PLACE HANDHOLE IN CENTER OF SIDEWALK PANEL

CONSTRUCTION NOTES

MATCH TO SHEET 2



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3				AS-BUILT
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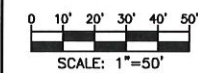


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MATCH TO SHEET 2



CONSTRUCTION NOTES

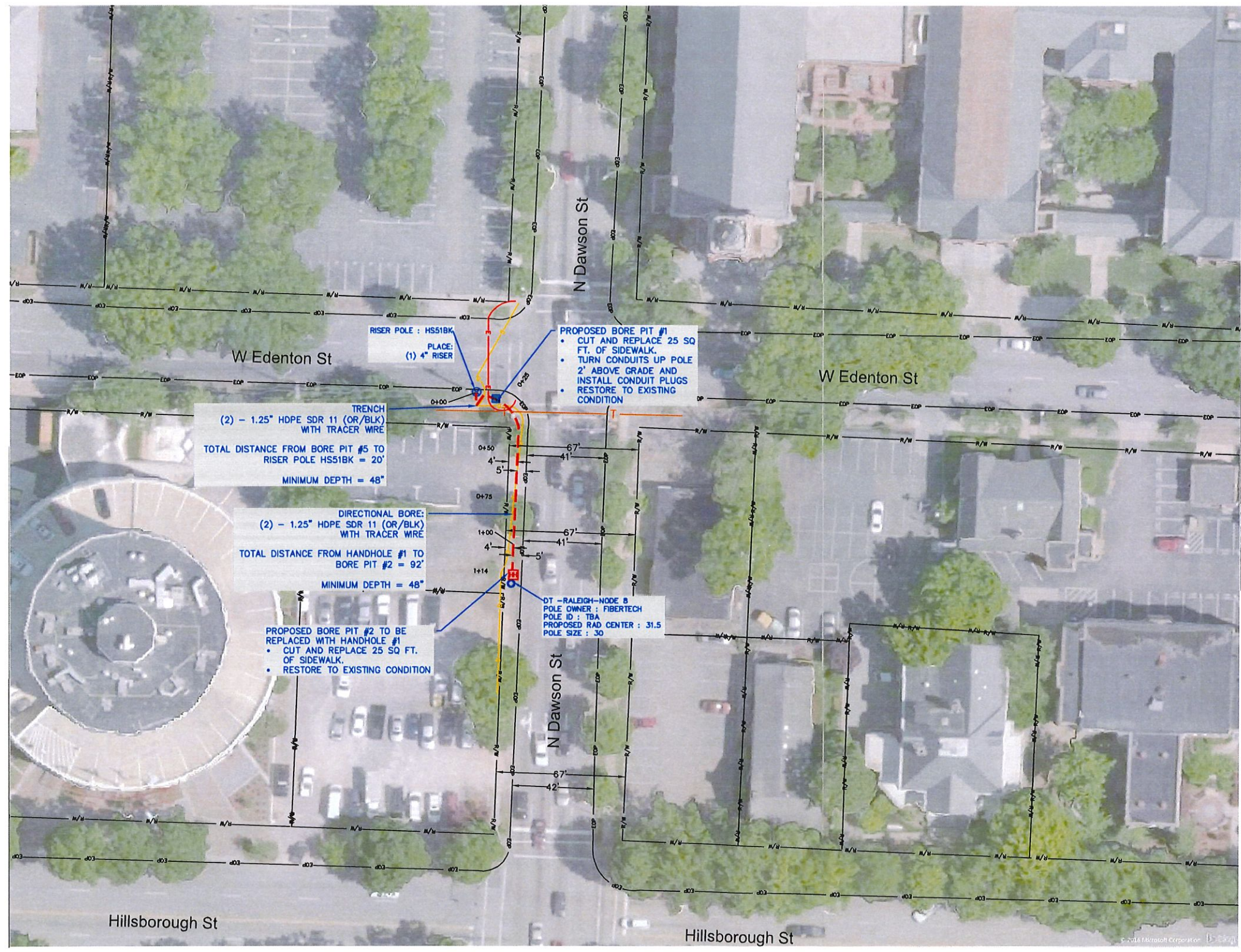


SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

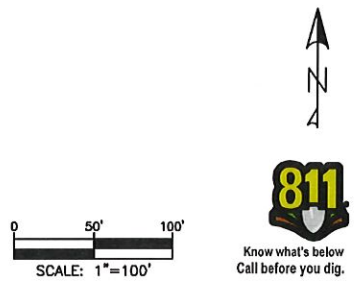
3				AS-BUILT
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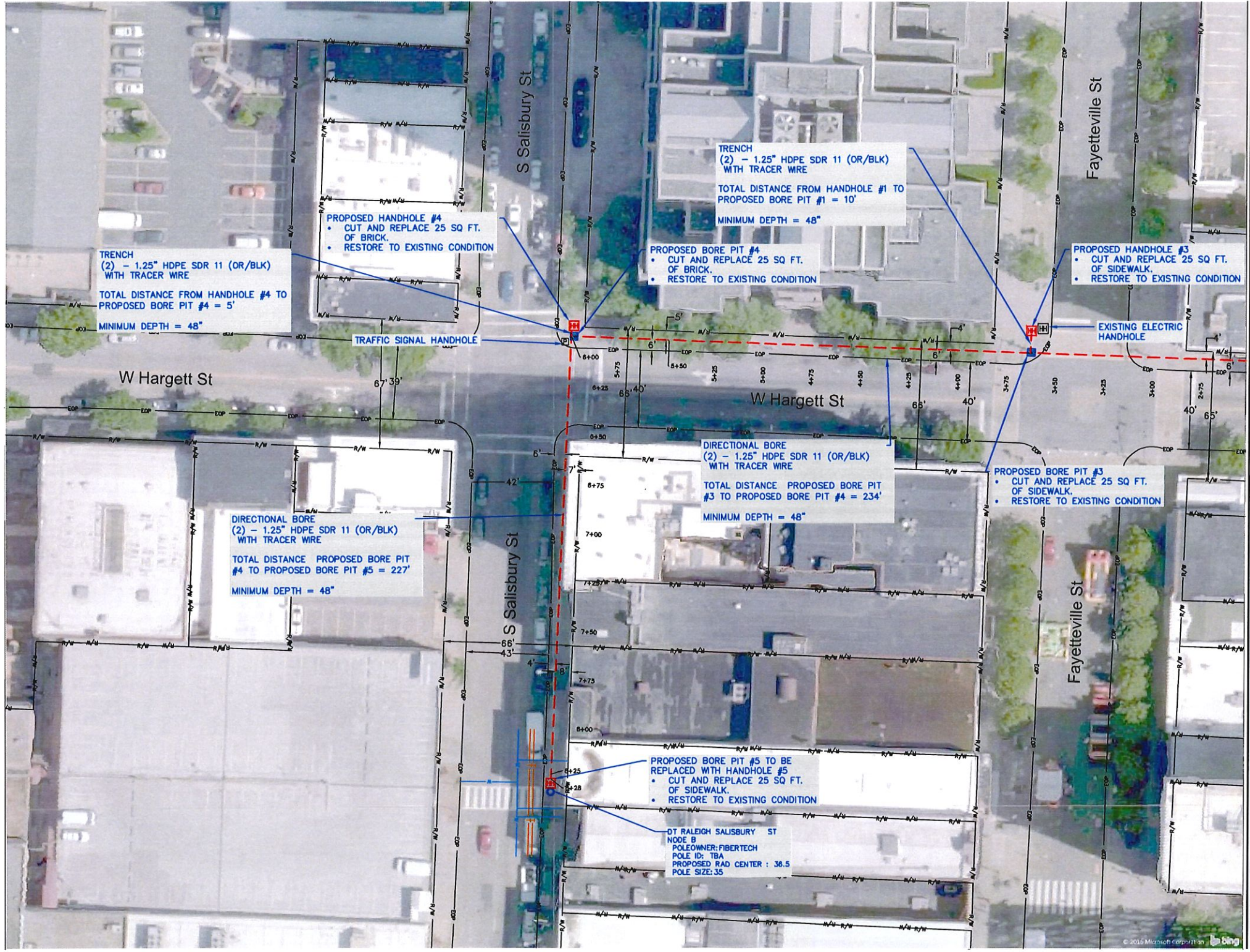
SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

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CONSTRUCTION NOTES



MATCH TO SHEET 7

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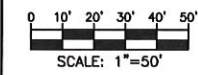
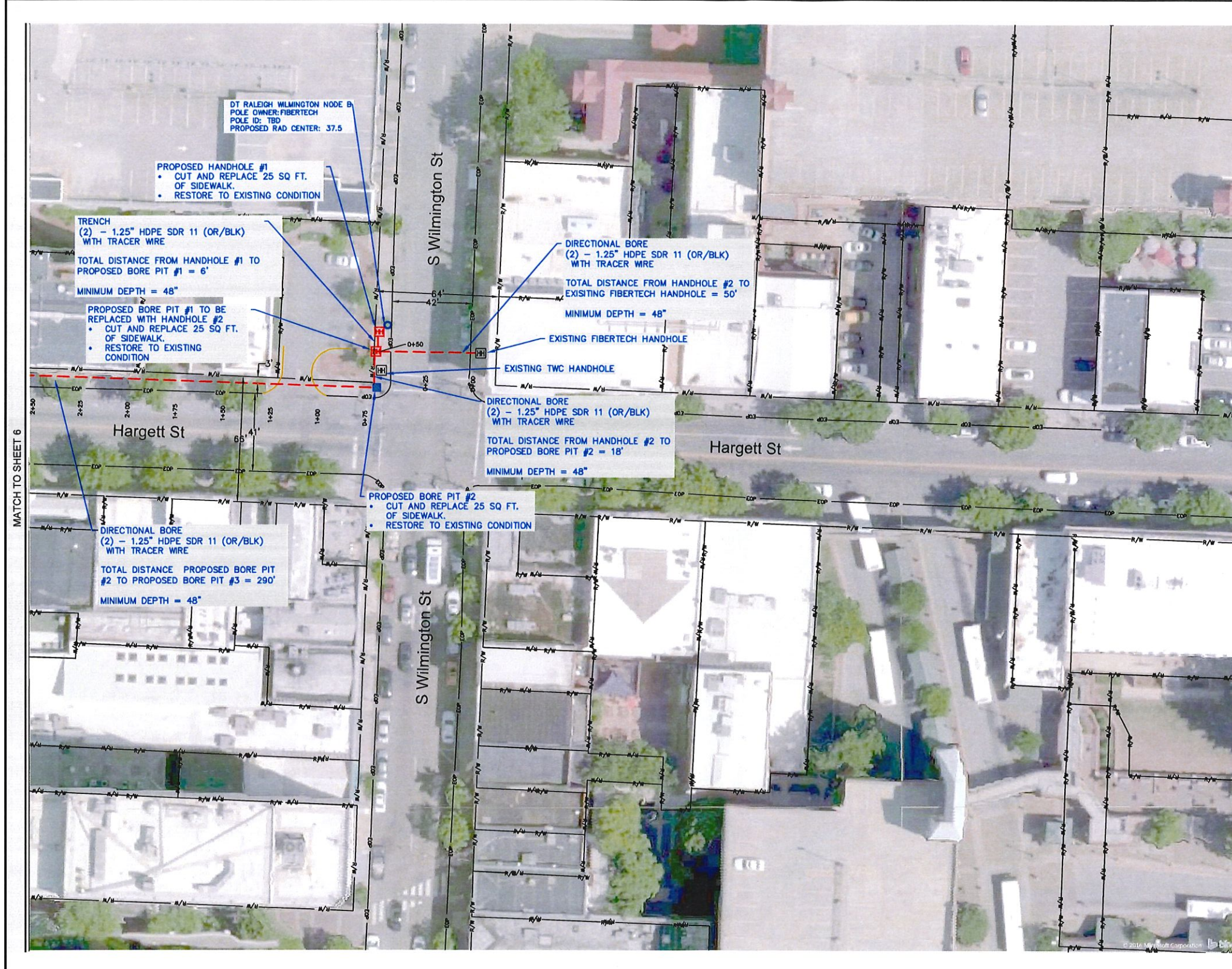
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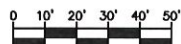
CONSTRUCTION NOTES

MATCH TO SHEET 9





Know what's below
Call before you dig.



SCALE: 1"=50'

SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

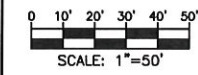
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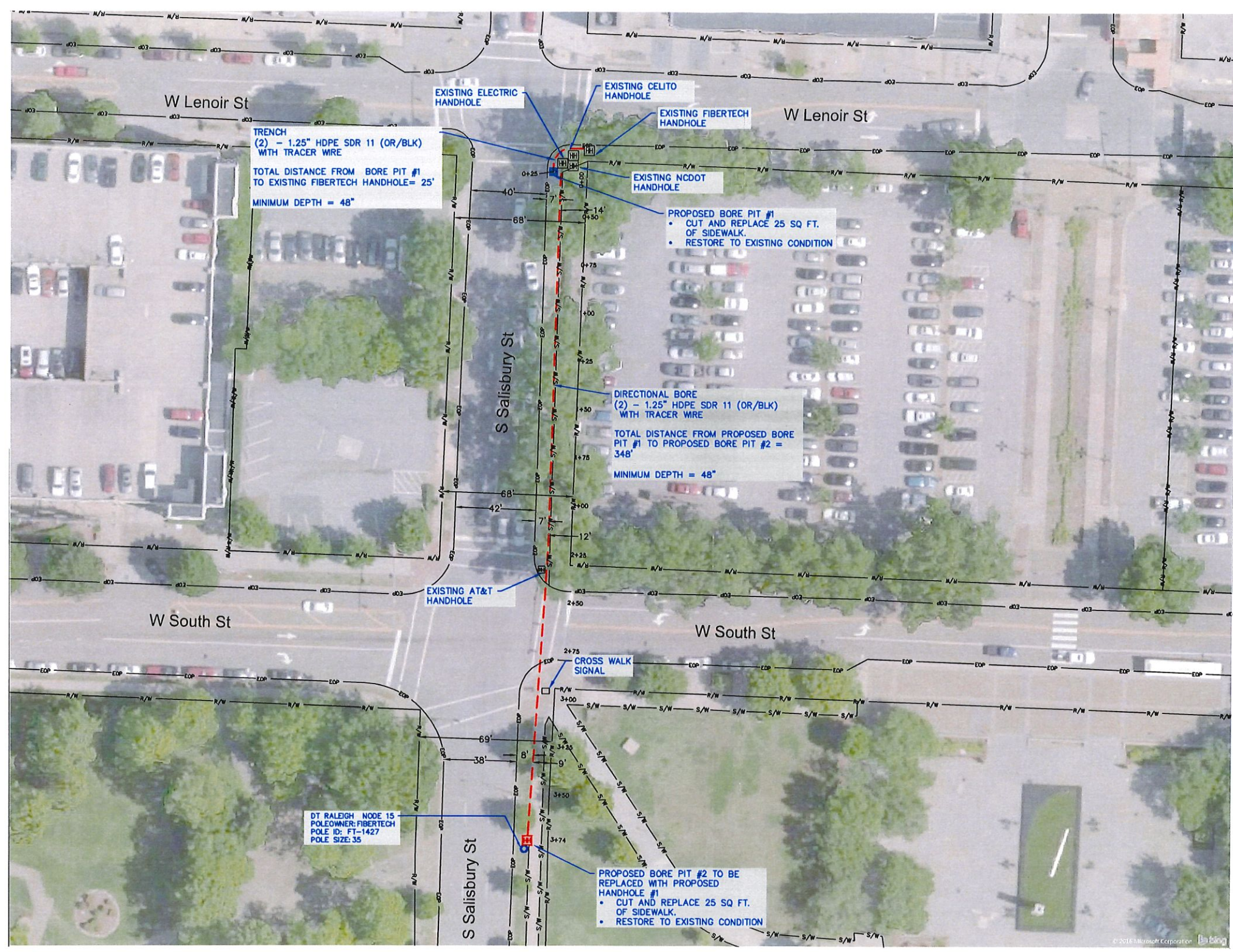


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