5G Multi-tenant
Pole Top Installation Proposal

NYC Information Technology & Telecommunications

Multi-tenant 5G Solution

- **2021: The Year of 5G** – The City of New York is committed to having the most up-to-date, equitably distributed, unobtrusive, highest quality telecommunications infrastructure of any major city in the world.
- **Commitment to Equity** – To ensure that 5G is built out equitably, franchisees are only allowed to reserve 25% of max allotment in Manhattan under 96th Street.
  - *Regular engagement at DoITT Executive level with franchisees to promote the efficient use of the new multi-tenant solution to maximize benefits.*
- **Collaborative Design** – DoITT directed the wireless industry to work together and design a solution that conforms to aesthetic and design elements of single-tenant shroud and is capable of accommodating every carrier's 4G *and* 5G deployment needs.

Multi-tenant 5G Solution Benefits

- The multi-tenant shroud is a complement single-tenant 5G infrastructure so that multiple carriers can build out their networks more densely across the City.
- Consolidating construction and deployment costs promotes 5G equity by encouraging providers to deploy in traditionally underserved neighborhoods.
- Multi-tenant 5G infrastructure more efficiently uses City assets by reducing the number of poles needed for 5G all while expanding service.
  - Single-tenant infrastructure will continue to be necessary as it provides solutions at locations where only a single carrier needs to provide service.
- **IMPORTANTLY:** Increasing carriers' coverage across the City is critical to efforts to promote digital equity and bridge the digital divide.

Multi-tenant 5G Solution Benefits, Cont'd

- Increasing the antenna shroud size for solid transmission of both low band and millimeter wave 5G will:
  - Enable higher data volumes
  - Expand the number of connected devices per antenna
  - Ensure ultra-reliable and low-latency communications – key for telemedicine, traffic and public safety, and automation, and other emerging technologies.

Multi-tenant 4G/5G Installations in Other U.S. Cities

Ocean City, MD

Boston, MA

Atlantic City, NJ

Existing 4G Design

Approved Single-tenant 5G Design

Proposed Multi-tenant 5G Design


E 37 St
DUNKIN' DONUTS
CLEANERS & TAILORS
24 Hrs.


SPEED
LIMIT
20


MADAME TUSSAUDS
MORMON
H&M
FX ON hulu

Standard FS Streetlight

City Light

Alliance for Downtown New York

M2 Traffic Signal Pole

Flatbush

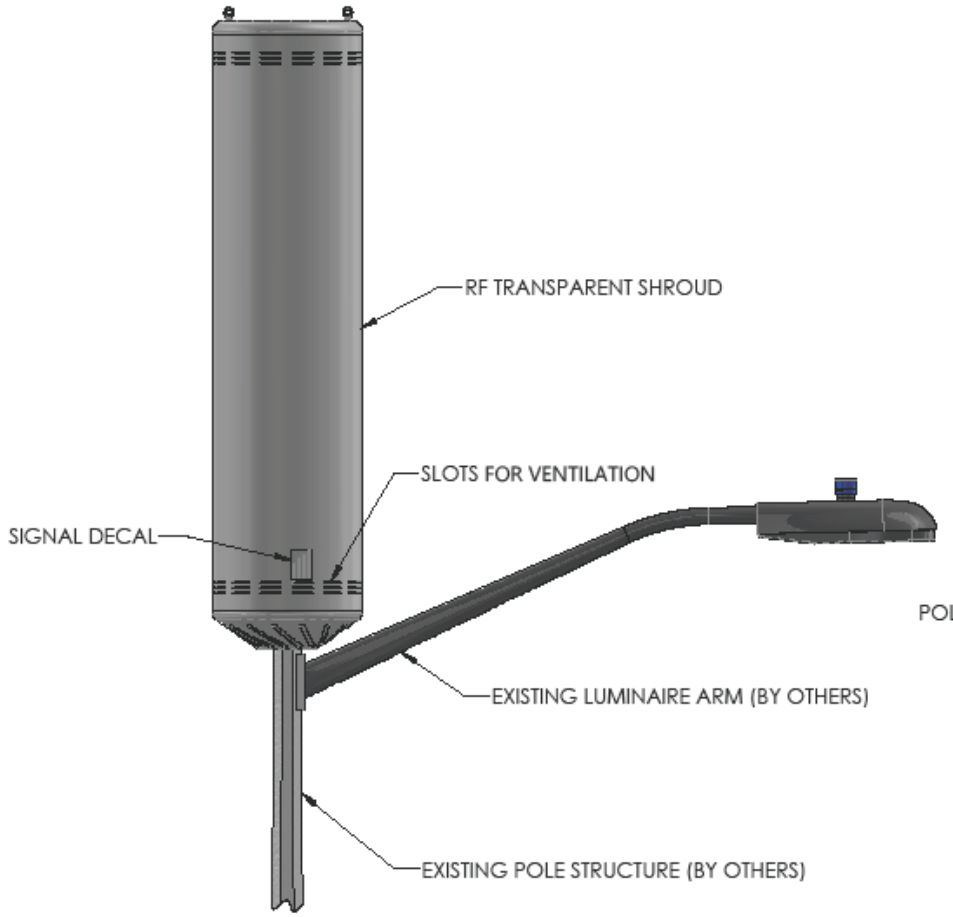

50 Av
ONE WAY
STOP
NO TURNS
ONLY
SCHOOL
SPEED LIMIT
20
FINES HIGHER

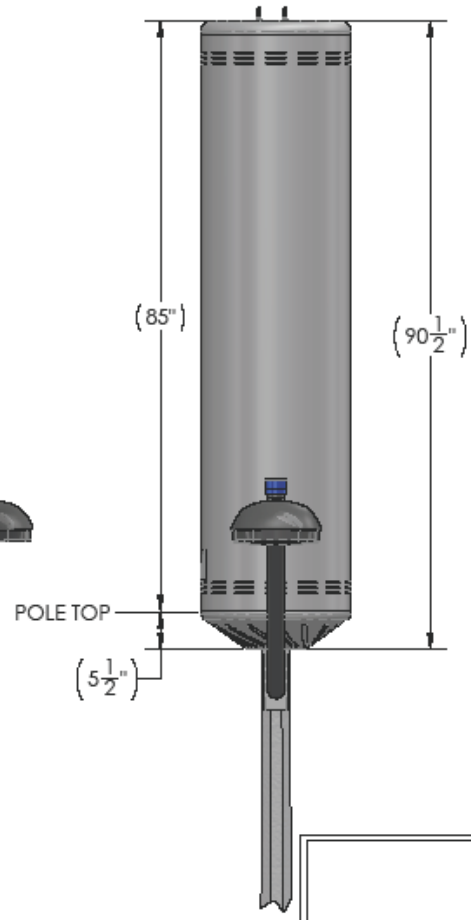
Davit

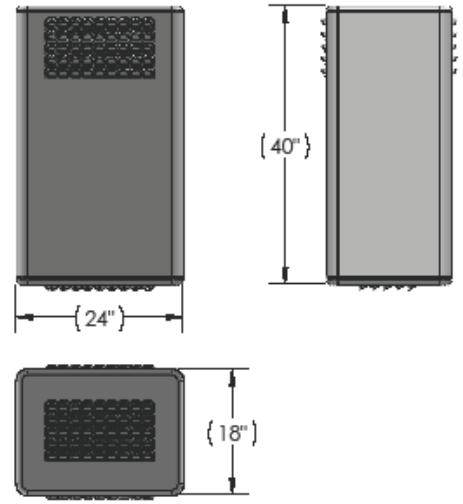
Side-by-Side Comparison of NYC Pole Top Configurations

Single-tenant 5G Antenna
63”

Multi-tenant 5G Antenna
90.5”







DoITT SHROUD DETAIL
(SOLD SEPARATELY)

POLE TOP SHROUD APPROX. VOLUME	18.40ft³
POLE TOP SHROUD APPROX. WEIGHT	120 LBS

DO NOT SCALE DWG

DIMENSIONS ARE IN INCHES

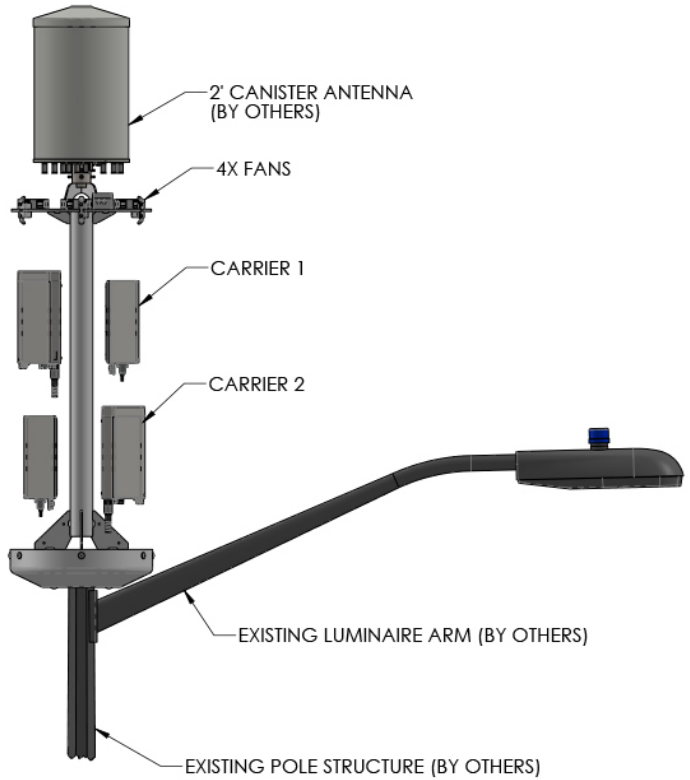
	NAME:	DATE:
MODELED BY:	OBC	07/15/21
DRAWN BY:	OBC	07/15/21
APPROVED BY:	MDH	07/19/21

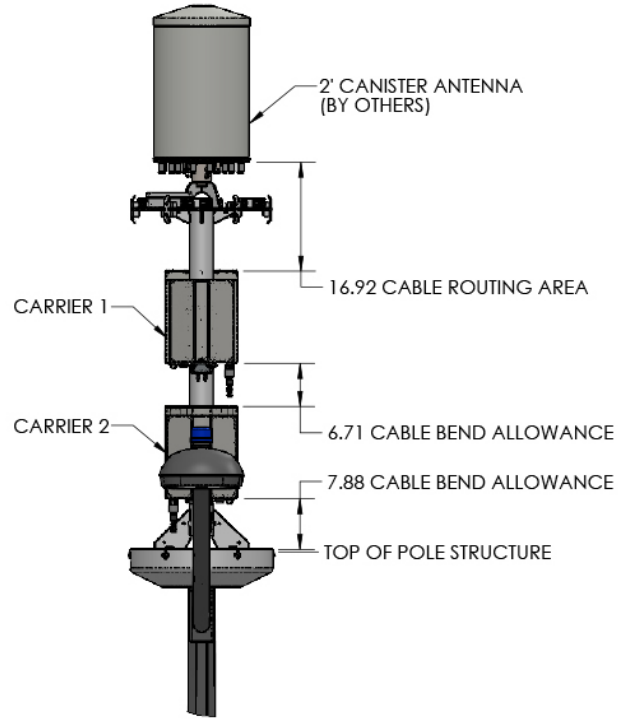
TITLE:
HYBRID POLE TOP CONCEALMENT, DUAL TENANT, NYC

SCALE:	SHEET SIZE:	SHEET:
1:18	B	1 OF 2

SALES NUMBER: 901105

REV:





10205 FEDERAL DRIVE
COLORADO SPRINGS, CO 80908
PH: 719-599-3400 FX: 719-599-0057
SALES@CONCEALFAB.COM

DO NOT SCALE DWG

DIMENSIONS ARE IN INCHES

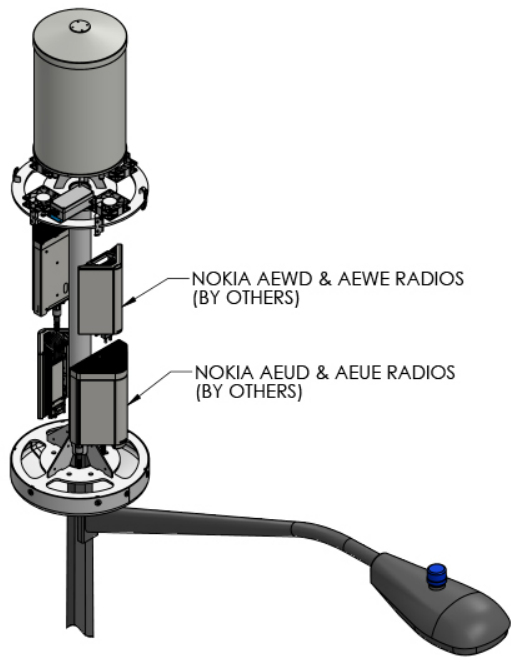
	NAME:	DATE:
MODELED BY:	JTM	05/20/20
DRAWN BY:	JTM	05/21/20
CHECKED BY:	JAM	05/22/20

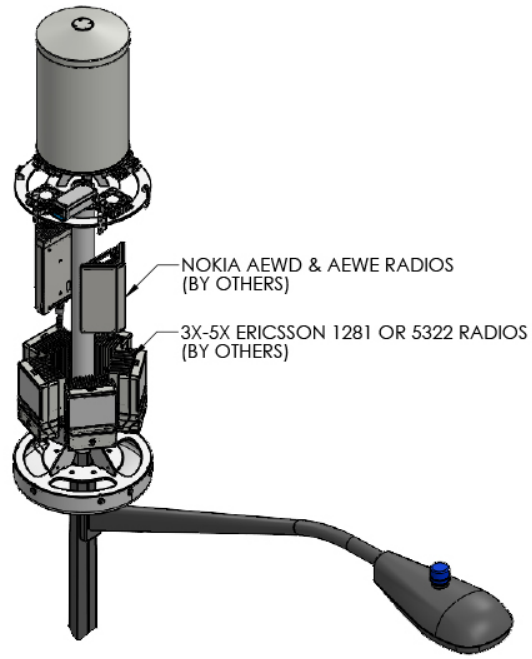
TITLE: 4G 5G POLE TOP CONCEALMENT

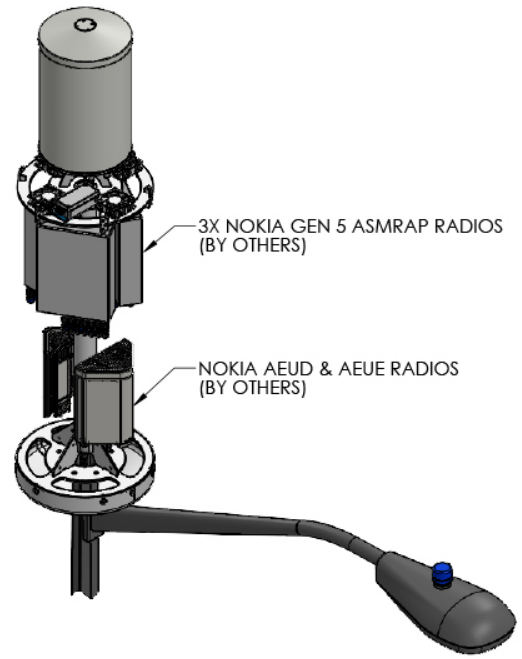
SCALE:	SHEET SIZE:	SHEET:
1:18	B	2 OF 3

SALES NUMBER:

ALTERNATE EQUIPMENT CONFIGURATIONS







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DO NOT SCALE DWG

DIMENSIONS ARE IN INCHES

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MODELED BY:	JTM	05/20/20
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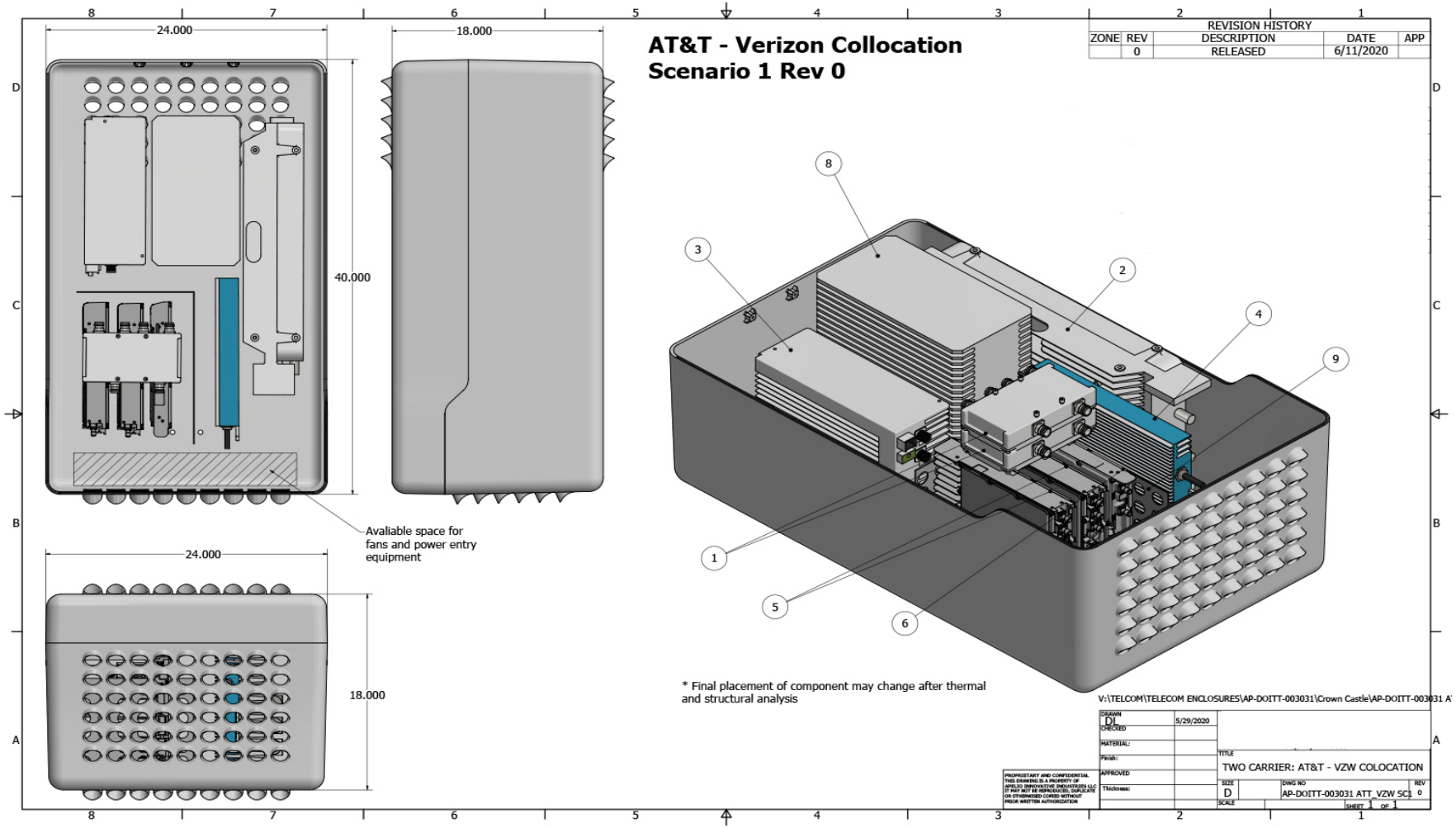
CHECKED BY:	JAM	05/22/20

TITLE: 4G 5G POLE TOP CONCEALMENT

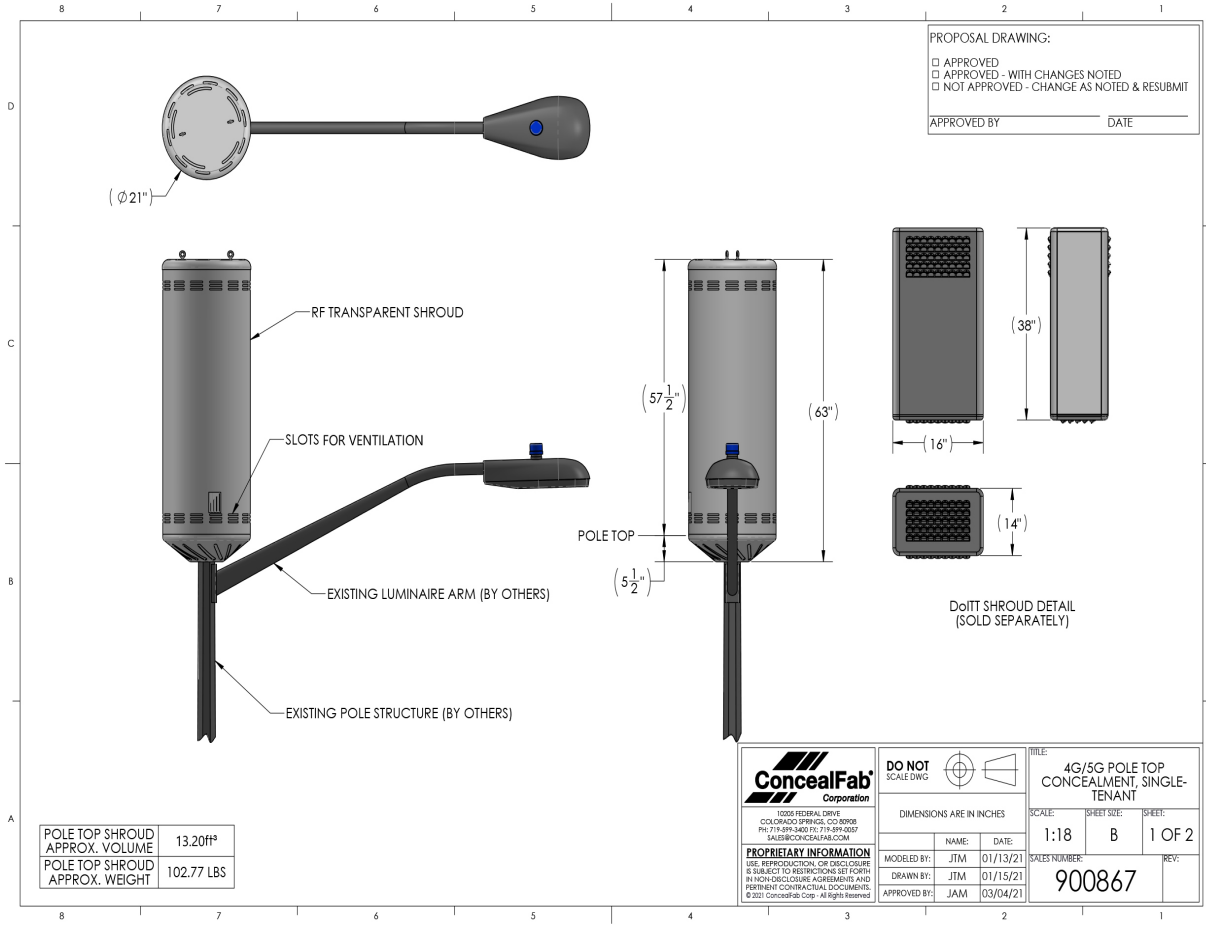
SCALE:	SHEET SIZE:	SHEET:
1:18	B	3 OF 3

SALES NUMBER:

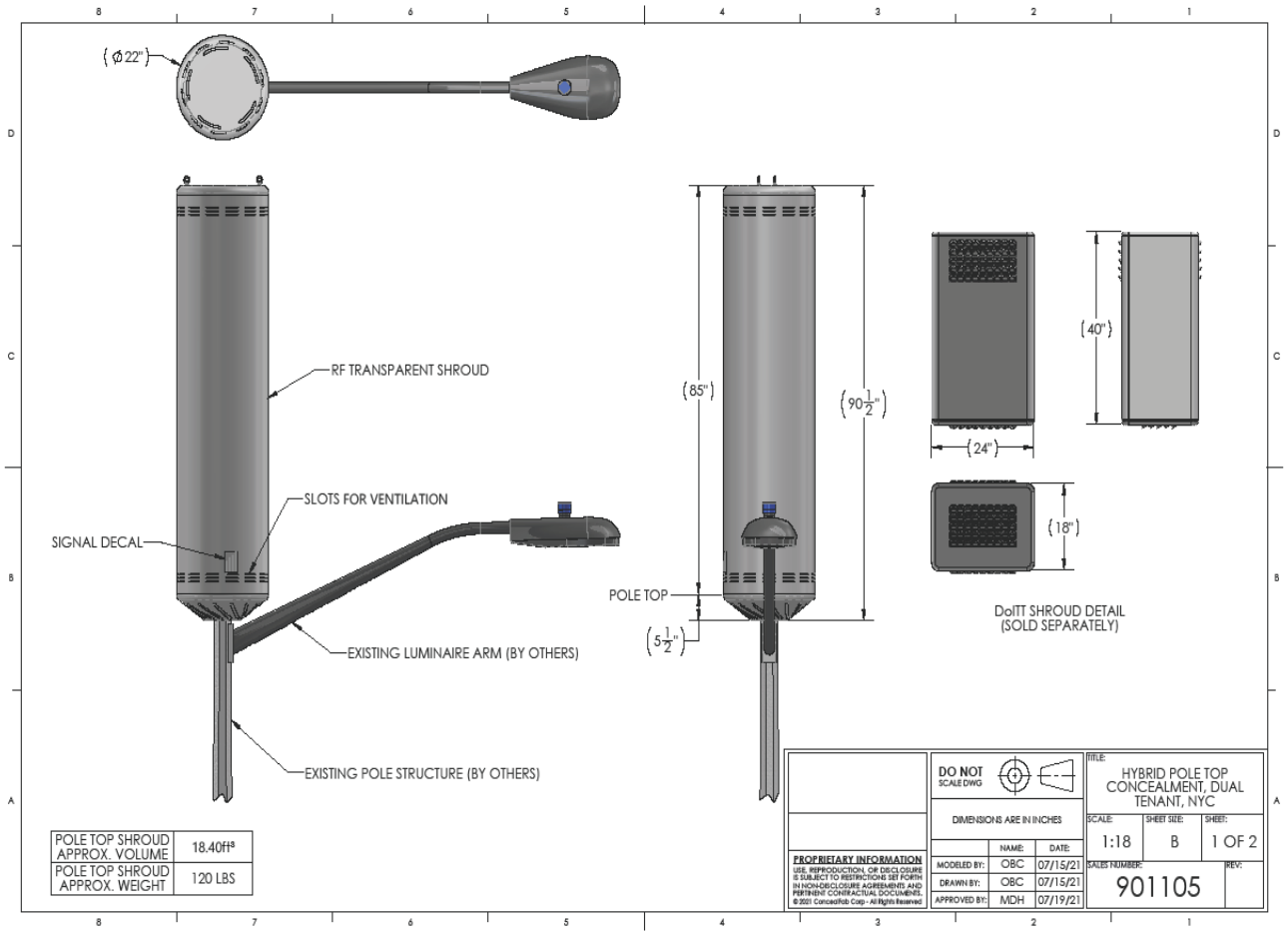
Multi-tenant Shroud Drawing



Side-by-Side Comparison of NYC Pole Top Configurations

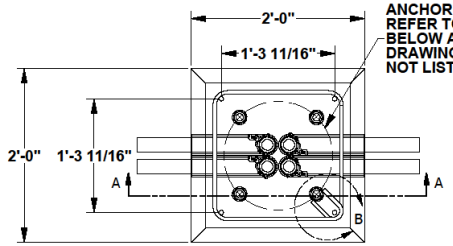


Approved Single-tenant Antenna
63”



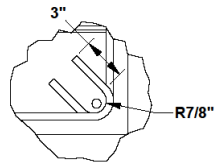
Proposed Multi-tenant Antenna
90.5”

Pole Foundation Specifications (Streetlight Poles)

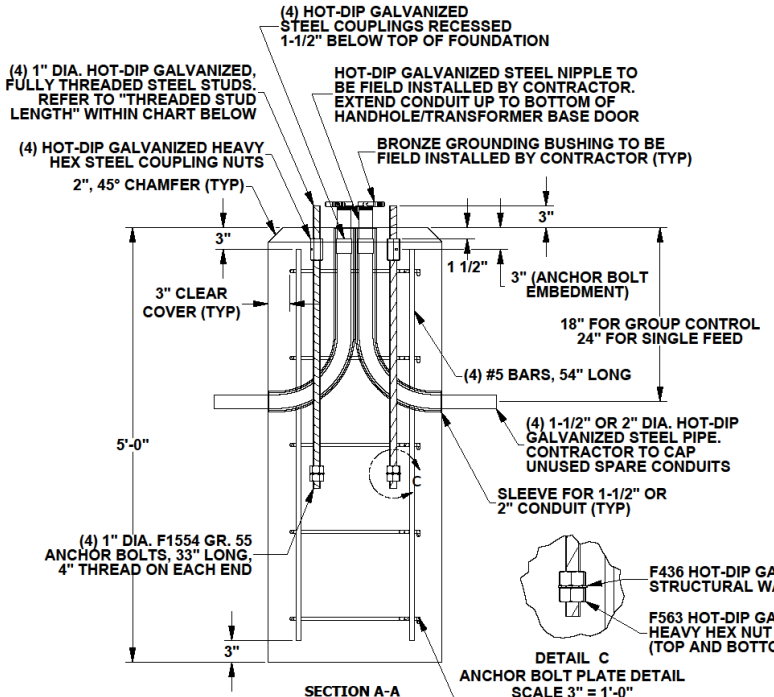


PLAN VIEW
SCALE: 1-1/2" = 1'-0"

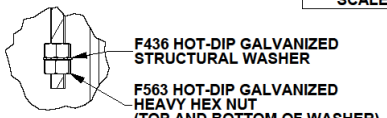
ANCHOR BOLT CIRCLE BASED UPON STREET LIGHT. REFER TO "BOLT CIRCLE DIAMETER" WITHIN CHART BELOW AND NYCDOT STREET LIGHTING STANDARD DRAWINGS FOR ANY ADDITIONAL STREET LIGHTS NOT LISTED.



DETAIL B
STIRRUP HOOK DETAIL
SCALE 3" = 1'-0"



SECTION A-A
SCALE: 1-1/2" = 1'-0"



DETAIL C
ANCHOR BOLT PLATE DETAIL
SCALE 3" = 1'-0"

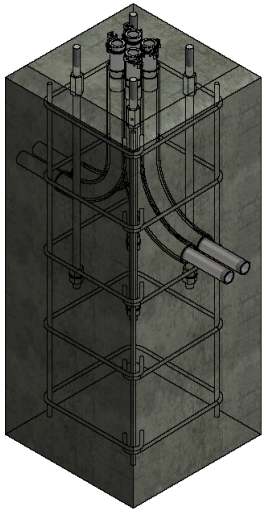
NOTES:

1. ANCHOR BOLTS SHALL BE F1554, GR 55, HOT-DIP GALVANIZED A MINIMUM OF THE TOP 12 INCHES AND THREADED A MINIMUM OF 4 INCHES ON EACH END.
2. REINFORCEMENT BARS SHALL BE A615, GR 60, EPOXY COATED STEEL.
3. NUTS SHALL BE A563 GR A HOT-DIP GALVANIZED HEAVY HEX.
4. WASHERS SHALL BE F436 HOT-DIP GALVANIZED STRUCTURAL WASHER.
5. CONCRETE USED FOR THE SHAFT SHALL BE CLASS A AND HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
6. CONCRETE WORK SHALL CONFORM TO ACI 318-19: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
7. THE PRECAST MANUFACTURER SHALL INSTALL LIFTING INSERTS AT THE TOP OF THE SHAFT FOR FIELD INSTALLATION.
8. ALL NEW FOUNDATIONS SHALL HAVE A MINIMUM OF (4) CONDUITS, (2) INSTALLED AT 180°. SPARE CONDUITS SHALL BE CAPPED AT BOTH ENDS. UTILIZE HOT-DIP GALVANIZED STEEL PIPE CAP FOR SPARE CONDUIT END BELOW GRADE.
9. CONTRACTOR SHALL NOTIFY THE ENGINEER IF THE FOLLOWING IS ENCOUNTERED:

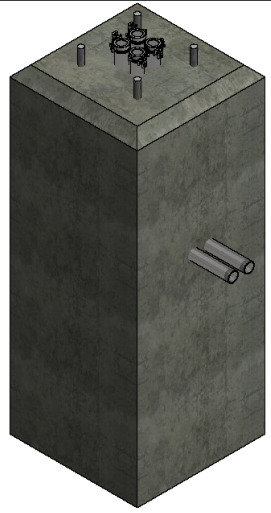
   - FOOTING IS PLACED IN SOFT CLAY OR ORGANIC DEPOSITS.
   - WHEN ROCK IS ENCOUNTERED
   - IF THE GROUNDWATER ELEVATION IS ABOVE THE BOTTOM OF THE FOOTING/SHAFT.
10. CONTRACTOR SHALL ENSURE ADEQUATE BEARING SURFACE. PRECAST FOUNDATION SHALL BE INSTALLED ON UNDISTURBED GROUND OR ON 6" DEEP LAYER OF SAND.
11. CONTRACTOR SHALL THOROUGHLY COMPACT BACKFILL TO 1" FROM THE TOP AND FILL 1" OF SPACE WITH CEMENT THAT IS SLOPED FOR DRAINAGE.
12. GROUND ROD TO BE FIELD INSTALLED BY CONTRACTOR TO 1" ABOVE GROUNDING BUSHINGS.
13. TOP OF PRECAST FOUNDATION TO BE INSTALLED 1" ABOVE SIDEWALK OR GRADE.
14. DRAWING SCALE BASED ON 22"X34" PAPER SIZE. USE HALF SCALE FOR 11"X17" PAPER SIZE.

BOLT CIRCLE AND STUD LENGTH TABLE		
STREET LIGHT	BOLT CIRCLE DIAMETER	THREADED STUD LENGTH
BISHOPS CROOK	15"	6"
TYPE M	15"	6"
FLATBUSH	15"	6"
25' STEEL (8S)	15"*	6"
ADNY (LUMINAIRE)	15"	6"
DAVIT STEEL	15"*	6"
CITY LIGHT	15"	6"
TBTA	13"	6"

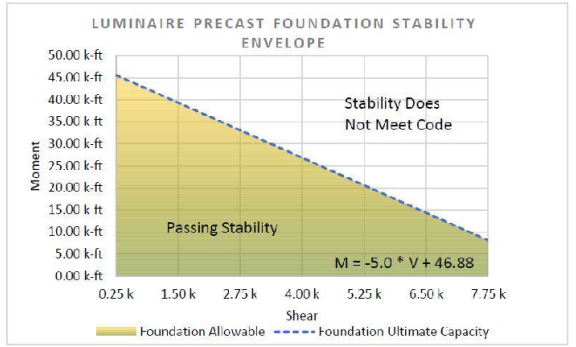
* 15" FOR USE WITH TRANSFORMER BASE.



ISO VIEW (INTERIOR)



ISO VIEW (EXTERIOR)



NOTES:

1. STABILITY ENVELOPE BASED UPON MEDIUM/DENSE SANDY SOIL WITH UNIT WEIGHT OF 125 PCF, WITH AN INTERNAL FRICTION ANGLE OF 30°.
2. FOR ADDITIONAL INFORMATION, REFER TO PRECAST FOUNDATION ANALYSIS COMPLETED BY AHEAD ENGINEERING, DATED 05/16/2020.

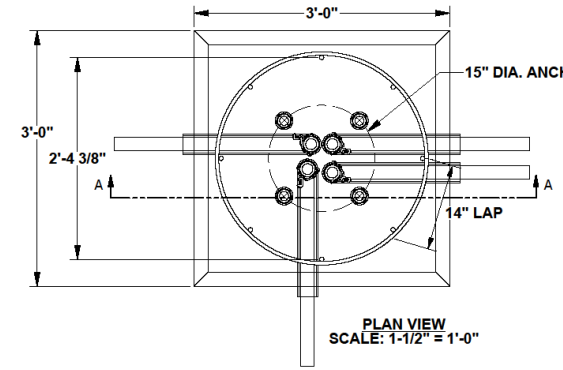
Date: 05/16/2020
Drawn By: Kyle McGinley, PE
Checked: Chad Schwartz, PE

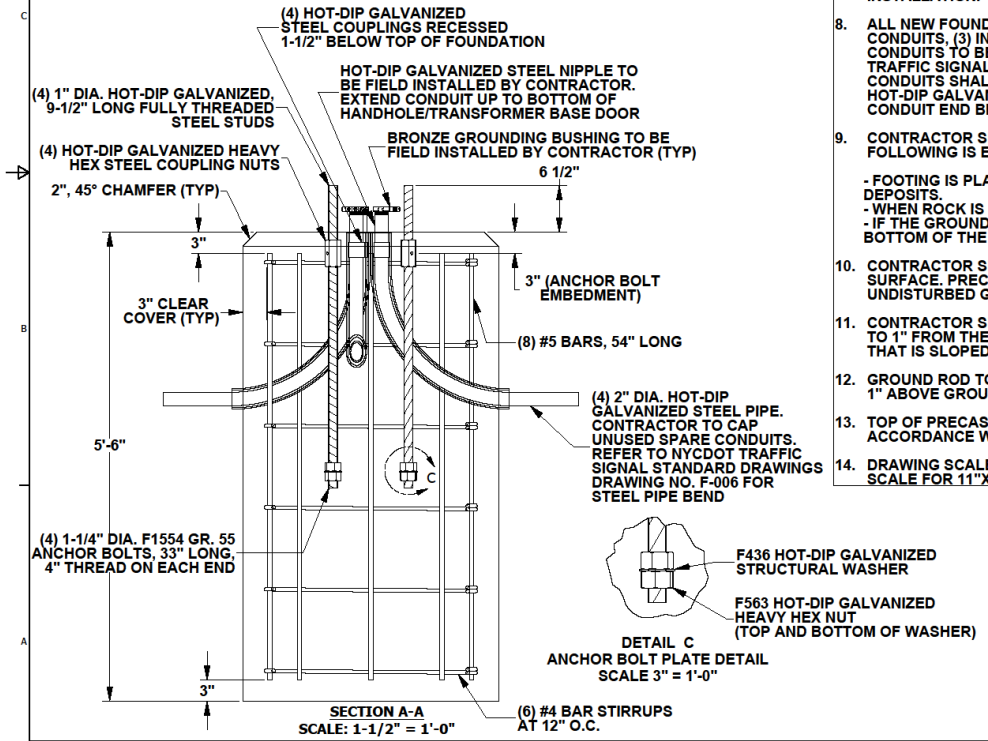
AHEAD ENGINEERING LLC
27 PINE HILL ROAD, ANNANDALE, NJ 08801
(P) 908.325.1775
WWW.AHEADENG.COM

DESCRIPTION:
PRECAST FOUNDATION FOR NYC STREETLIGHTS

REV: 0
DWG NAME: 2'X2'X5' NYC PRECAST FOUNDATION
1 of 1

Pole Foundation Specifications (M2 Traffic Pole)





DETAIL C
ANCHOR BOLT PLATE DETAIL
SCALE 3" = 1'-0"

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7. THE PRECAST MANUFACTURER SHALL INSTALL LIFTING INSERTS AT THE TOP OF THE SHAFT FOR FIELD INSTALLATION.
8. ALL NEW FOUNDATIONS SHALL HAVE A MINIMUM OF (4) CONDUITS, (3) INSTALLED AT 90°. ORIENTATION OF CONDUITS TO BE DETERMINED BASED UPON LOCATION OF TRAFFIC SIGNAL IN RELATION TO INTERSECTION. SPARE CONDUITS SHALL BE CAPPED AT BOTH ENDS. UTILIZE HOT-DIP GALVANIZED STEEL PIPE CAP FOR SPARE CONDUIT END BELOW GRADE.
9. CONTRACTOR SHALL NOTIFY THE ENGINEER IF THE FOLLOWING IS ENCOUNTERED:

   - FOOTING IS PLACED IN SOFT CLAY OR ORGANIC DEPOSITS.
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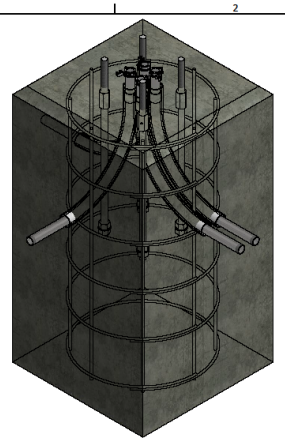
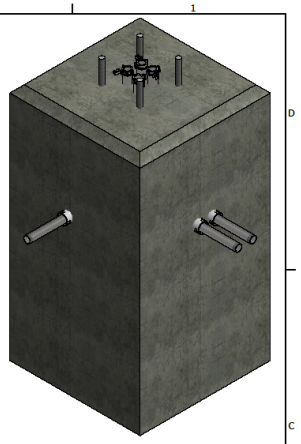
   - IF THE GROUNDWATER ELEVATION IS ABOVE THE BOTTOM OF THE FOOTING/SHAFT.
10. CONTRACTOR SHALL ENSURE ADEQUATE BEARING SURFACE. PRECAST FOUNDATION SHALL BE INSTALLED ON UNDISTURBED GROUND OR ON 6" DEEP LAYER OF SAND.
11. CONTRACTOR SHALL THOROUGHLY COMPACT BACKFILL TO 1" FROM THE TOP AND FILL 1" OF SPACE WITH CEMENT THAT IS SLOPED FOR DRAINAGE.
12. GROUND ROD TO BE FIELD INSTALLED BY CONTRACTOR TO 1" ABOVE GROUNDING BUSHINGS.
13. TOP OF PRECAST FOUNDATION SHALL BE INSTALLED IN ACCORDANCE WITH NYDOT TRAFFIC SIGNAL STANDARDS.
14. DRAWING SCALE BASED ON 22"X34" PAPER SIZE. USE HALF SCALE FOR 11"X17" PAPER SIZE.



ISO VIEW (INTERIOR)



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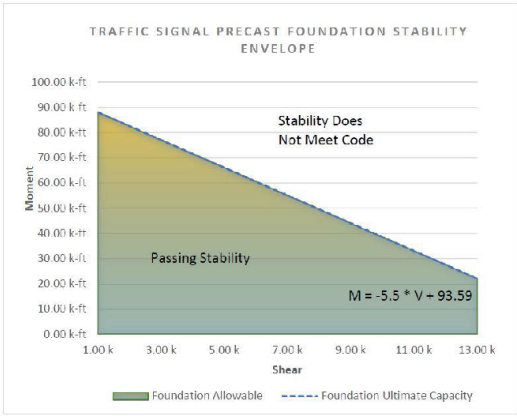


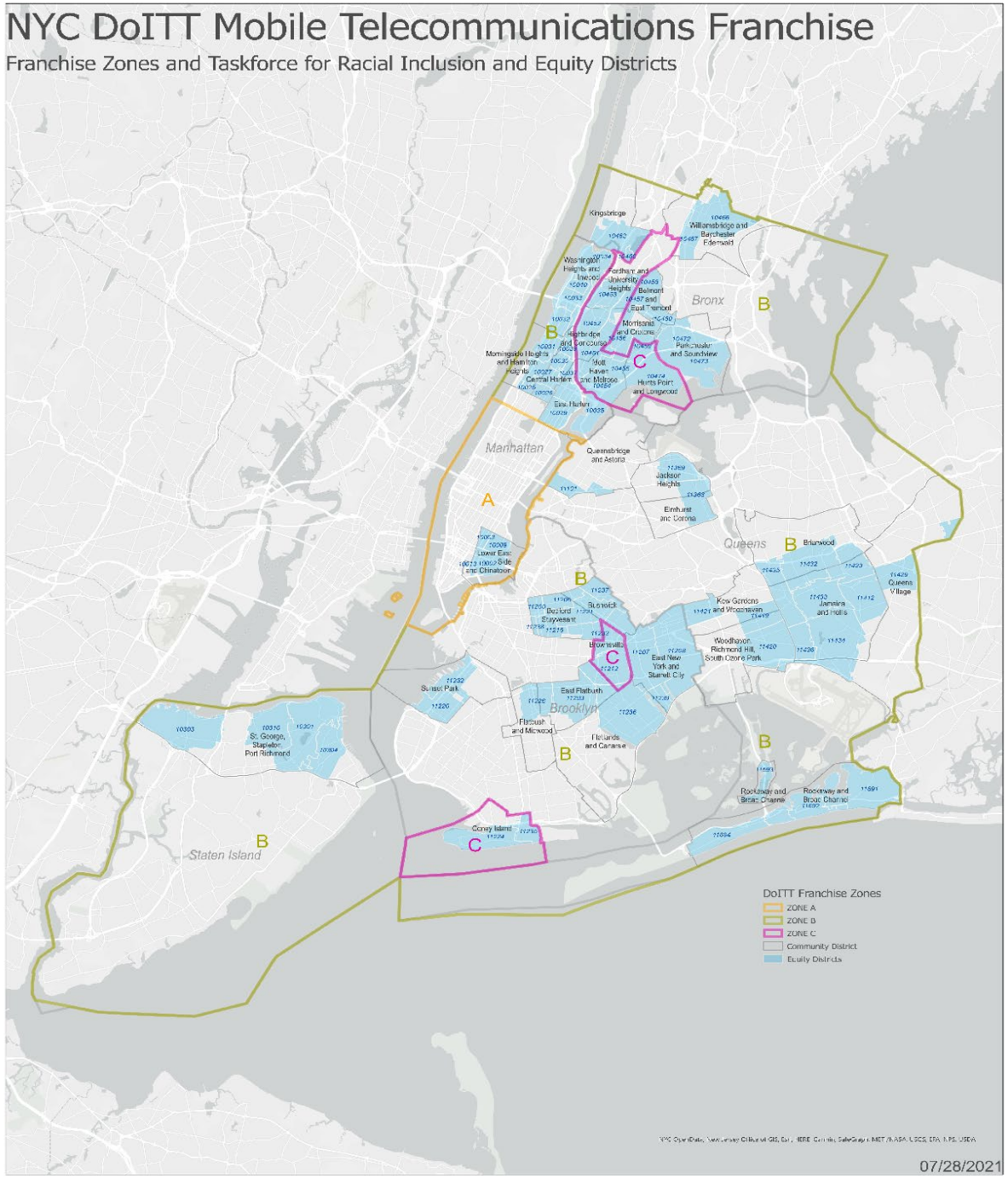
NOTES:

1. STABILITY ENVELOPE BASED UPON MEDIUM/DENSE SANDY SOIL WITH UNIT WEIGHT OF 125 PCF, WITH AN INTERNAL FRICTION ANGLE OF 30°.
2. FOR ADDITIONAL INFORMATION, REFER TO PRECAST FOUNDATION ANALYSIS COMPLETED BY AHEAD ENGINEERING, DATED 05/16/2020.

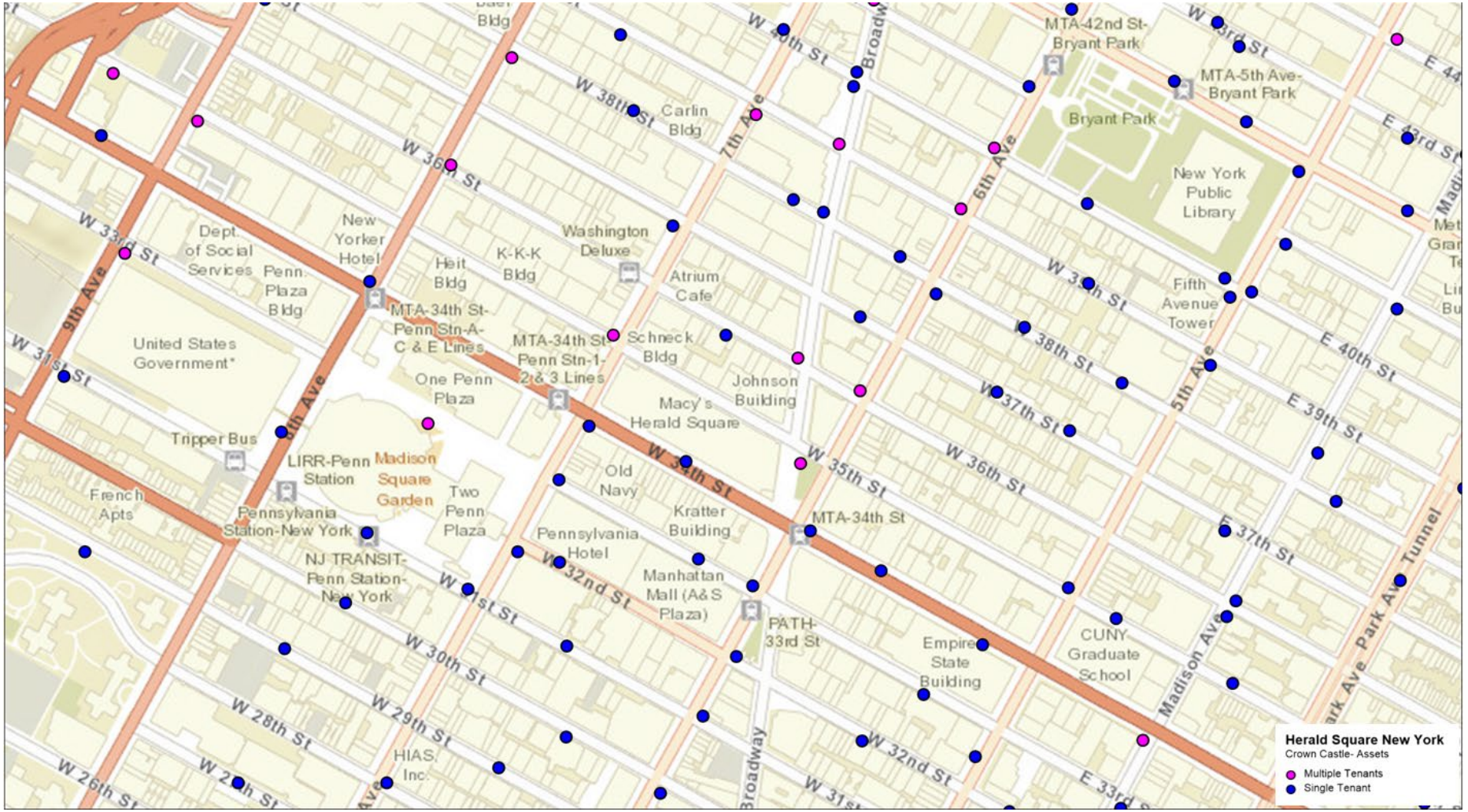
Date: 05/16/2020	AHEAD ENGINEERING LLC 27 PINE HILL ROAD, ANNANDALE, NJ 08801 (P) 908.325.1775 WWW.AHEADENG.COM
Drawn By: Kyle McGinley, PE	
Checked: Chad Schwartz, PE	DESCRIPTION: PRECAST FOUNDATION FOR NYC M-2A AND ALLIANCE TRAFFIC SIGNALS
PROPRIETARY AND CONFIDENTIAL THIS DRAWING IS PROPERTY OF AHEAD ENGINEERING LLC IT MAY NOT BE REPRODUCED, DUPLICATED OR OTHERWISE COPIED WITHOUT PRIOR WRITTEN AUTHORIZATION	REV: 0 DWG NAME: 3'X3'X5.5' NYC PRECAST FOUNDATION (M-2A/ALLIANCE) 1 of 1

NYC DoITT Mobile Telecommunications Franchise

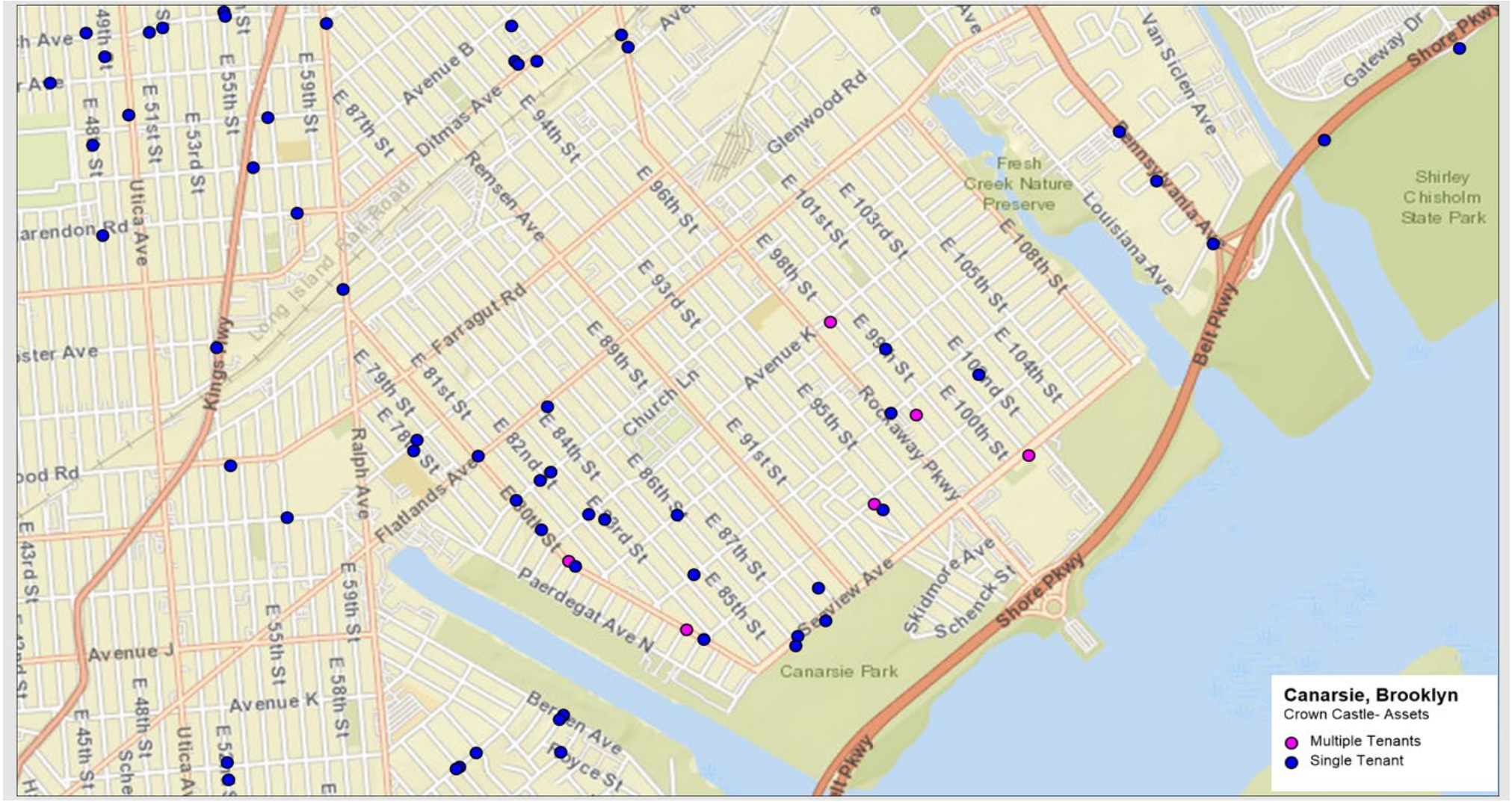
Franchise Zones and Taskforce for Racial Inclusion and Equity Districts



Projected Single-tenant/Multi-tenant Deployment – High Density Neighborhood (Herald Square, MN)



Projected Single-tenant/Multi-tenant Deployment – Low Density Neighborhood (Canarsie, BK)



Ideal carrier placement of equipment indicating network overlap at multi-tenant sites.

Multi-tenant solves carrier signal optimization and minimization of required poles.