114 WHITWELL SITE DEVELOPMENT PLANS

FRP Quincy Development, LLC

100 Nickerson Road
Marlborough, MA 01752
Phone: 508-786-2200 Fax: 508-786-2201
www.tetratech.com

TETRA TECH

AERIAL MAP

0 50' 100' 200'
SCALE: 1" = 100'

PLANNING BOARD SUBMISSION
SET 1 OF 2 : CIVIL

(SEE ARCHITECTURAL PLANS SET 2 OF 2)

DRAWING LIST

C-1	COVER SHEET
C-2	EXISTING CONDITIONS PLAN
C-3	EXISTING CONDITIONS PLAN
C-4	SITE CONTEXT PLAN
C-5	SITE LAYOUT PLAN
C-6	SITE LAYOUT PLAN
C-7	GRADING AND DRAINAGE PLAN
C-8	GRADING AND DRAINAGE PLAN
C-9	UTILITY PLAN
C-10	UTILITY PLAN
C-11	EROSION & SEDIMENT CONTROL PLAN
C-12	EROSION & SEDIMENT CONTROL PLAN
C-13	DETAIL SHEET
C-14	DETAIL SHEET
C-15	DETAIL SHEET
C-16	CONTECH WATER QUALITY UNIT DETAILS
C-17	STORMTECH RECHARGE AREA DETAILS
C-18	STORMTECH RECHARGE AREA DETAILS
C-19	STORMTECH RECHARGE AREA DETAILS
LT-1	SITE LIGHTING PLAN
LT-2	SITE LIGHTING PLAN
L-1	SITE LANDSCAPE - PLANTING PLAN
L-2	SITE LANDSCAPE - PLANTING PLAN
L-3	SITE LANDSCAPE - MATERIALS PLAN
L-4	SITE LANDSCAPE - MATERIALS PLAN
L-5	OPEN SPACE IMPROVEMENT PLAN
L-6	LANDSCAPE DETAILS
L-7	LANDSCAPE DETAILS
L-8	PROFILE SECTIONS
A-1	PHASING DIAGRAMS

NOTES:

1. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED ON THE DRAWINGS AND EACH DRAWING HAS BEEN REVISED TO INDICATE "ISSUED FOR CONSTRUCTION."
2. THE APPLICANT SEEKS PLANNING BOARD APPROVAL THAT THE PRIVATE WAYS SHOWN HEREIN ARE TO BE DESIGNATED STREET NAMES UNDER CITY OF QUINCY CODE OF ORDINANCES CHAPTER 12.08 STREET AND SIDEWALK USE REGULATIONS, SECTION 12.08.170 PRIVATE STREET NAMES APPROVAL REQUIRED. IT IS UNDERSTOOD BY THE APPLICANT THAT THE CITY OF QUINCY WILL DETERMINE AND APPROVE FINAL PRIVATE STREET NAMES FOR THE PROPOSED DEVELOPMENT.
3. DURING CONSTRUCTION THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING SNOW, AS REQUIRED, FROM SIDEWALKS IMMEDIATELY ADJACENT TO THE PROJECT. THIS WILL BE DONE TO ENSURE THAT ALL SIDEWALKS ARE CLEAR OF SNOW AND ICE. UNDER NO CONDITION WILL THE REMOVED SNOW BE DISPOSED OF ON PUBLIC PROPERTY.

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

PLS
32 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
TEL: 508-460-1789
SURVEYOR

LEGEND

●	MONUMENT	○ TMH	TELEPHONE MANHOLE
DH	DRILL HOLE	⊗GV	GAS GATE
CBP	CONCRETE BOUND		BOLLARD
FND	FOUND	VGC	VERTICAL GRANITE CURB
☼	LIGHT POLE	CC	CONCRETE CURB
◀	FLOOD LIGHT	BCC	BITUMINOUS CONCRETE CURB
⊸	UTILITY POLE	◎ MW	MONITORING WELL
	GUY WIRE/POLE		SIGN
	HYDRANT	SD	DRAIN LINE
⊗WG	WATER VALVE	SS	SEWER LINE
210	CONTOUR	FM	SEWER FORCE MAIN
210X23	SPOT GRADE	G	GAS LINE
○ MH	MANHOLE	UE	UNDERGROUND ELECTRIC
□ CBN	CATCH BASIN	UT	UNDERGROUND TELEPHONE
□□ DCB	DOUBLE CATCH BASIN	W	WATER LINE
○ DMH	DRAIN MANHOLE	OE	OVERHEAD WIRES
○ SMH	SEWER MANHOLE		
○ EMH	ELECTRIC MANHOLE		

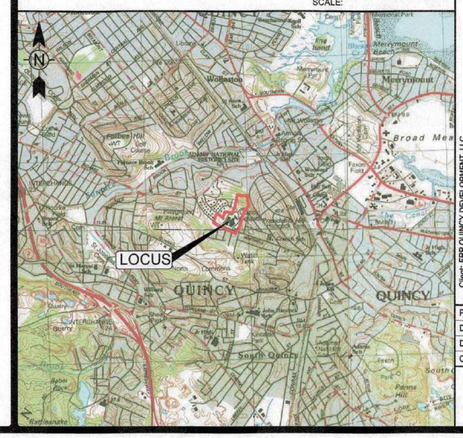
ISSUED:

OCTOBER 10, 2018 SUBMIT TO PLANNING BOARD

COMMONWEALTH OF MASSACHUSETTS
GLENN K. DOUGHERTY
CIVIL
NO. 37604
REGISTERED PROFESSIONAL ENGINEER

USGS MAP:

0 1000' 2000' 4000'
SCALE:



ZONING SUMMARY

QUINCY ZONING CLASSIFICATION: PLANNED UNIT DEVELOPMENT (PUD)
REDEVELOPMENT OF A HOSPITAL SITE: CITY COUNCIL ORDER NO. 2017-189, NOV. 20, 2017
PROPOSED USE: 598 RESIDENTIAL UNITS + 5,000 S.F. RETAIL

DIMENSIONAL REQUIREMENTS	REQUIRED	PROPOSED	COMPLIANCE W/ ZONING
MINIMUM OPEN SPACE	20%	63% (1)	√
MAXIMUM FLOOR AREA RATIO	2.50	1.03 (2)	√
MAXIMUM NUMBER OF STORIES	6	6	√
MINIMUM PARKING SPACES PER DWELLING UNIT	1.25	1.34 (3)	√

(1) OPEN SPACE AS DEFINED IN SECTION 10 OF QUINCY ZONING ORDINANCE INCLUDES SWIMMING POOLS, GARDENS, WALKS, TERRACES DESIGNED FOR USE BY OCCUPANTS OR FOR THE PLEASANT APPEARANCE OF BUILDINGS IN WHICH THEY RESIDE.

(2) FLOOR AREA RATIO (FAR) = RATIO OF TOTAL GROSS FLOOR AREA OF BUILDINGS ON ONE LOT TO THE TOTAL AREA OF THE LOT = 672,000 S.F. / 652,069 S.F. = 1.03

(3) PARKING SPACES PER DWELLING UNIT = 802 SPACES / 598 UNITS = 1.34

RESIDENTIAL UNIT MIX SUMMARY

	3 BEDROOM	2 BEDROOM	1 BEDROOM	STUDIO	UNITS
MULTI-STORY APARTMENT	0	175	352	18	545
ROWHOUSE	30	6	0	0	36
TOWNHOUSE	17	0	0	0	17
TOTAL UNIT COUNT	**47**	**181**	**352**	**18**	**598**
TOTAL BEDROOM COUNT	141	362	352	18	873

PARKING SUMMARY

EXISTING	446 SPACES
REQUIRED	748 SPACES (1.25 SPACES PER DWELLING UNIT)
PROPOSED	802 SPACES (1.34 SPACES PER DWELLING UNIT) • STRUCTURED PARKING = 690 SPACES • ROWHOUSE GARAGES = 36 SPACES • TOWNHOUSE GARAGES = 17 SPACES • TOWNHOUSE DRIVEWAYS = 17 SPACES • SURFACE PARKING = 42 SPACES

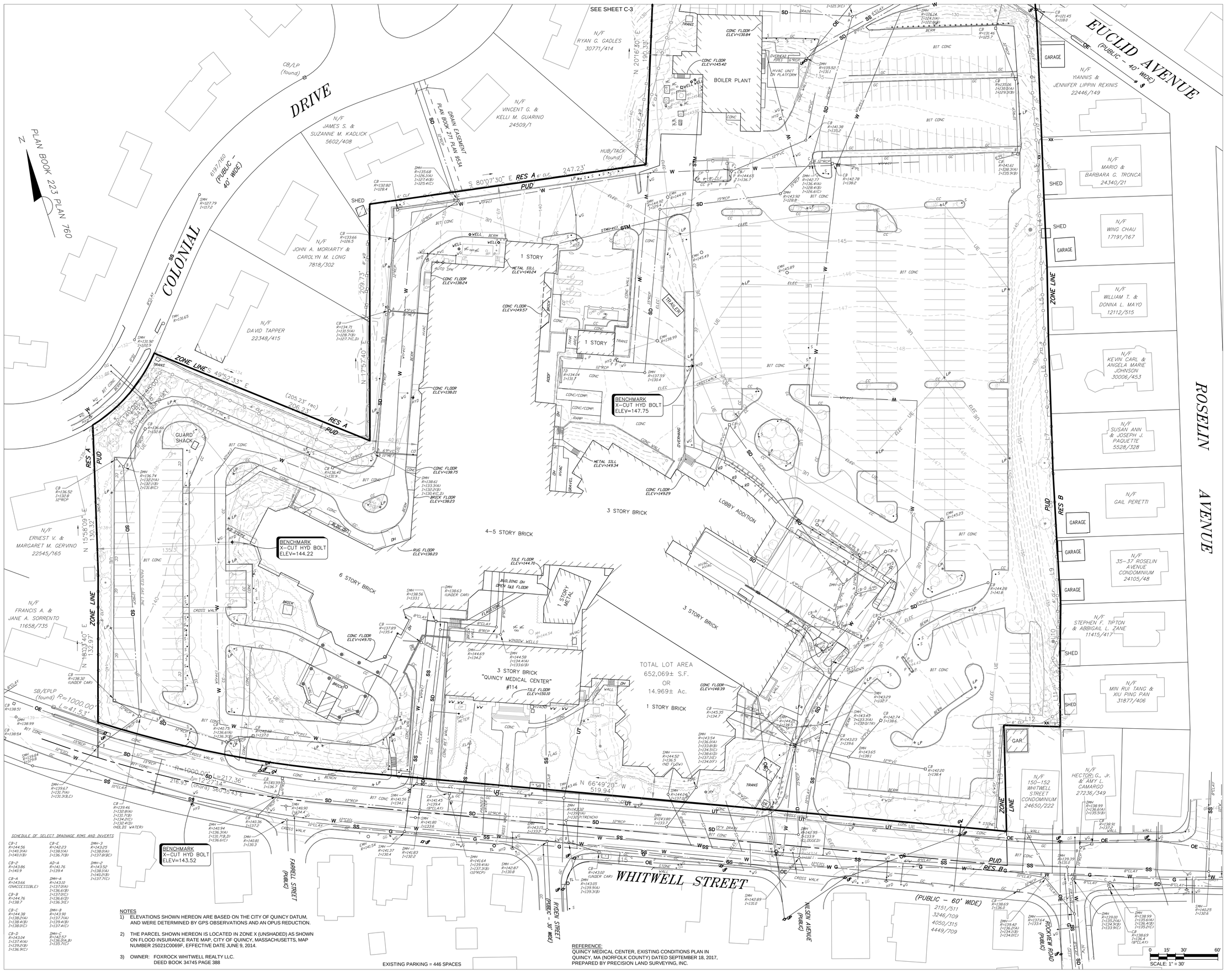
Client: FRP QUINCY DEVELOPMENT, LLC
Proj. Loc: 144 Whitwell Street, Quincy, MA
114 WHITWELL MASTER PLAN
Quincy, MA

Cover Sheet

Project No.:	143-186451-17001
Designed By:	G.K.D.
Drawn By:	J.L.P.
Checked By:	R.D.A.

C-1

10/10/2018 8:05:16 AM P:\186451\143-186451-17001\CAD\SHEETFILES\C-1 COVER SHEET.DWG - PAPPAS, JUD



SCHEDULE OF SELECT DRAINAGE RIMS AND INVERTS

CB-1 R=144.56 I=140.3(A) I=140.1(B)	CB-E R=142.23 I=138.1(A) I=136.7(B)	DMH-3 R=143.25 I=138.0(A) I=137.8(BC)
CB-2 R=143.86 I=140.9	AD-A R=141.76 I=139.4	DMH-2 R=143.52 I=138.1(A) I=140.2(B) I=137.7(C)
CB-A R=143.66 (INACCESSIBLE)	DMH-A R=143.10 I=137.0(A) I=136.6(B) I=137.0(C) I=136.6(D) I=136.3(E)	
CB-B R=144.76 I=138.7	DMH-B R=143.90 I=137.7(A) I=139.4(B) I=137.4(C)	
CB-C R=144.38 I=138.2(A) I=138.4(B) I=138.0(C)	DMH-C R=142.57 I=136.0(A,B) I=135.7(C)	
CB-D R=143.04 I=137.4(A) I=139.2(B) I=136.9(C)		

NOTES

1) ELEVATIONS SHOWN HEREON ARE BASED ON THE CITY OF QUINCY DATUM, AND WERE DETERMINED BY GPS OBSERVATIONS AND AN OPUS REDUCTION.

2) THE PARCEL SHOWN HEREON IS LOCATED IN ZONE X (UNSHADED) AS SHOWN ON FLOOD INSURANCE RATE MAP, CITY OF QUINCY, MASSACHUSETTS, MAP NUMBER 25021C0069F, EFFECTIVE DATE JUNE 9, 2014.

3) OWNER: FOXROCK WHITWELL REALTY LLC. DEED BOOK 34745 PAGE 388

EXISTING PARKING = 446 SPACES

REFERENCE:
QUINCY MEDICAL CENTER, EXISTING CONDITIONS PLAN IN QUINCY, MA (NORFOLK COUNTY) DATED SEPTEMBER 18, 2017, PREPARED BY PRECISION LAND SURVEYING, INC.

10/8/2018 - P:\166451\143-166451-17001\CAD\SheetFiles\C-2-3 Existing Conditions Plans.DWG - PAPPAS, JUD

114 WHITWELL

Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

KEY PLAN

SCALE 1" = 30'
PROJECT NUMBER 143-166451-17001

EXISTING CONDITIONS PLAN

C-2

LINE TABLE			
LINE	LENGTH	BEARING	RECORD
L1	68.80	S12°23'09"W	-
L2	104.02	S15°34'11"W	103.41
L3	55.00	S15°51'53"W	-
L4	60.00	S15°22'40"W	-
L5	60.00	S16°50'54"W	-
L6	60.00	S16°05'38"W	-
L7	60.00	S16°10'48"W	-
L8	60.01	S14°45'26"W	-
L9	59.02	S14°31'51"W	-
L10	55.05	S18°41'49"W	-
L11	53.37	S17°34'55"W	-
L12	50.00	N70°37'50"W	-
L13	93.93	S16°38'39"W	93.95
L14	74.83	N66°42'25"W	74.71
L15	55.88	S66°49'20"E	-
L16	83.47	S12°53'57"W	-
L17	81.56	N74°45'00"W	-
L18	71.30	N15°15'50"E	71.34

NOTES
1) ELEVATIONS SHOWN HEREON ARE BASED ON THE CITY OF QUINCY DATUM, AND WERE DETERMINED BY GPS OBSERVATIONS AND AN OPUS REDUCTION.

2) THE PARCEL SHOWN HEREON IS LOCATED IN ZONE X (UNSHADED) AS SHOWN ON FLOOD INSURANCE RATE MAP, CITY OF QUINCY, MASSACHUSETTS, MAP NUMBER 25021C0069F, EFFECTIVE DATE JUNE 9, 2014.

3) OWNER: FOXROCK WHITWELL REALTY LLC.
DEED BOOK 34745 PAGE 388

REFERENCE:
QUINCY MEDICAL CENTER, EXISTING CONDITIONS PLAN IN QUINCY, MA (NORFOLK COUNTY) DATED SEPTEMBER 18, 2017, PREPARED BY PRECISION LAND SURVEYING, INC.

LEGEND

BC	BOTTOM OF CURB
BERM	BITUMINOUS CONCRETE BERM
BIT CONC	BITUMINOUS CONCRETE
CB	CATCH BASIN
CC	CONCRETE CURB
CLF	CHAIN LINK FENCE
CONC	CONCRETE
CP	CONCRETE PAD
-D-	DRAIN LINE
DMH	DRAIN MANHOLE
-E-	ELECTRIC LINE
EMH	ELECTRIC MANHOLE
FA	FIRE ALARM
FE	FIRE ESCAPE
GC	GRANITE CURB
GG	GAS GATE
GR	GUARD RAIL
HYD	HYDRANT
LP	LIGHT POLE
LS	LANDSCAPED
MB	MAIL BOX
MC	METAL COVER
MET	METAL
MH	MANHOLE
OH	OVERHANG
P	POST
RCP	REINFORCED CONCRETE PIPE
RET	RETAINING
(rec)	RECORD
S	SIGN
-S-	SEWER LINE
SMH	SEWER MANHOLE
-T-	TELECOM LINE
TC	TOP OF CURB
TD	TRENCH DRAIN
TL	TRAFFIC LIGHT
TMH	TELEPHONE MANHOLE
TR	TRANSFORMER
V	VENT
-W-	WATER LINE
WF	WOOD FENCE
WG	WATER GATE
WMH	WATER MANHOLE
WSF	WOOD STOCKADE FENCE
WW	WINDOW WELL
10"T	10" TREE
	HANDICAP PARKING
-OE-	OVERHEAD WIRE

114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

KEY PLAN

SCALE	PROJECT NUMBER
1" = 30'	143-166451-17001

EXISTING CONDITIONS PLAN

C-3

10/8/2018 - P:\166451\143-166451-17001\CAD\SheetFiles\C-2-3 Existing Conditions Plans.DWG - PAPPAS, JUD

10/8/2018 - P:\165451\143-166451-17001\CAD\SheetFiles\C-4 Context plan.DWG - PAPPAS, JUD

114 WHITWELL

Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617.423.7200 F 617.423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

COMMONWEALTH OF MASSACHUSETTS
GLENN K. DOOLEY KERRY
NO. 37511
REGISTERED PROFESSIONAL ENGINEER
STAMP

KEY PLAN

SCALE 1" = 30'
PROJECT NUMBER 143-166451-17001

SITE CONTEXT PLAN

C-4

SEE SHEET C-6

N/F RYAN G. GADLES 30771/414

N/F VINCENT G. & KELLI M. GUARINO 24509/1

N/F JAMES S. & SUZANNE M. KADLICK 5602/408

N/F JOHN A. MORIARTY & CAROLYN M. LONG 7818/302

N/F DAVID TAPPER 22348/415

N/F ERNEST V. & MARGARET M. GERVINO 22545/165

N/F FRANCIS A. & JANE A. SORRENTO 11658/735

N/F YIANNIS & JENNIFER LIPPIN REXINIS 22446/149

N/F MARIO & BARBARA G. TRONCA 24340/21

N/F WING CHAU 17191/167

N/F WILLIAM T. & DONNA L. MAYO 12112/515

N/F KEVIN CARL & ANGELA MARIE JOHNSON 30006/453

N/F SUSAN ANN & JOSEPH J. PAQUETTE 5528/328

N/F GAIL PERETTI

N/F 35-37 ROSELIN AVENUE CONDOMINIUM 24105/43

N/F STEPHEN F. TIPTON & ABBIGAIL L. ZANE 11415/417

N/F MIN RUI TANG & XIU PING PAN 31877/406

N/F 150-152 WHITWELL STREET CONDOMINIUM 24650/222

N/F HECTOR G., Jr. & AMY L. CAMARGO 27236/349

COLONIAL DRIVE (PUBLIC - 40' WIDE)

EUCLID AVENUE (PUBLIC - 40' WIDE)

ROSELIN AVENUE

WHITWELL STREET

FARRELL STREET (PUBLIC)

RYDEN STREET (PUBLIC - 30' WIDE)

NILSEN AVENUE (PUBLIC)

ROCKVIEW ROAD (PUBLIC)

PLAN BOOK 223 PLAN 760

DRAINAGE EASEMENT PLAN BOOK 271 PLAN 934

BUILDING A
5 STORY
175 UNITS
FFE=150.50

BUILDING A
6 STORY
175 UNITS
FFE=150.50

BUILDING B
6 STORY
149 UNITS
FFE=150.00/138.00

ROWHOUSE 4
9 UNITS
FFE=141.50

ROWHOUSE 3
9 UNITS
FFE=143.50

ROWHOUSE 2
9 UNITS
FFE=147.50

ROWHOUSE 1
9 UNITS
FFE=150.00

BUILDING C
6 STORY
140 UNITS

ADMINISTRATION BUILDING
3 STORY
(EXISTING)

RETAIL
1 STORY
FFE=150.10

RETAIL

BOILER PLANT

LOBBY LEVEL 1 FFE=125.50

LOBBY LEVEL 2 FFE=135.50

LOBBY

NORTH SOUTH DRIVE (PRIVATE WAY)

DRIVE 1 (PRIVATE WAY)

DRIVE 2 (PRIVATE WAY)

EAST - WEST DRIVE (PRIVATE WAY)

TOWN HOUSE 17 FFE= 130.50
TOWN HOUSE 16 FFE= 132.20
TOWN HOUSE 15 FFE= 133.50
TOWN HOUSE 14 FFE= 135.20
TOWN HOUSE 13 FFE= 136.20
TOWN HOUSE 12 FFE= 137.20
TOWN HOUSE 11 FFE= 138.20
TOWN HOUSE 10 FFE= 139.20
TOWN HOUSE 9 FFE= 140.20
TOWN HOUSE 8 FFE= 140.70
TOWN HOUSE 7 FFE= 141.20
TOWN HOUSE 6 FFE= 143.50
TOWN HOUSE 5 FFE= 144.50
TOWN HOUSE 4 FFE= 145.50
TOWN HOUSE 3 FFE=146.50
TOWN HOUSE 2 FFE=146.90
TOWN HOUSE 1 FFE=147.30

TOTAL LOT AREA
552,069± SF
OR
14.969± AC

ZONE LINE

RES A PUD

RES B PUD

SCALE: 1" = 30'

0 15' 30' 60'

10/8/2018 - P:\186451\143-186451-17001\CAD\SheetFiles\C-5-6 Layout plans.DWG - PAPPAS, JUD

114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

KEY PLAN

SCALE: 1" = 30'

PROJECT NUMBER: 143-186451-17001

SITE LAYOUT PLAN

C-5

10/8/2018 - P:\165451\143-165451-17001\CAD\SheetFiles\C-6 Layout plans.DWG - PAPPAS, JUD

114 WHITWELL

Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

COMMONWEALTH OF MASSACHUSETTS
GLENN K. DOUGHERTY
CIVIL
NO. 37108
REGISTERED PROFESSIONAL ENGINEER

STAMP

KEY PLAN

SCALE	PROJECT NUMBER
1" = 30'	143-165451-17001

SITE LAYOUT PLAN

C-6

114 WHITWELL

Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169

PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414

OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com

ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201

CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560

LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000

M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009

STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

KEY PLAN

SCALE 1" = 30'

PROJECT NUMBER 143-166451-17001

GRADING AND DRAINAGE PLAN

C-7

10/8/2018 - P:\166451\143-166451-17001\CAD\SheetFiles\C-7-8 Grading and Drainage plans.DWG - PAPPAS, JUD

SEE SHEET C-7

MANHOLE INVERT SCHEDULE

DMH 5 — MANHOLE NUMBER
R=137.95 — RIM ELEVATION
I=134.20(OUT) — OUTLET INVERT
I=134.33 — INLET INVERT
I=134.23 — INLET INVERT

NOTE: INVERTS LISTED CLOCKWISE FROM OUTLET PIPE.

114 WHITWELL

Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169

PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414

OWNER

utile
ARCHITECTURE + URBAN DESIGN

115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com

ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201

CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560

LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000

M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009

STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

KEY PLAN

SCALE 1" = 30'

PROJECT NUMBER 143-166451-17001

GRADING AND DRAINAGE PLAN

C-8

10/8/2018 - P:\166451\143-166451-17001\CAD\SheetFiles\C-7-8 Grading and Drainage plans.DWG - PAPPAS, JUD

MANHOLE INVERT SCHEDULE

SMH 5 ——— MANHOLE NUMBER
R=137.95 ——— RIM ELEVATION
I=134.20(OUT) — OUTLET INVERT
I=134.33 ——— INLET INVERT
I=134.23 ——— INLET INVERT

NOTE: INVERTS LISTED CLOCKWISE FROM OUTLET PIPE.

SEE SHEET C-10

N/F RYAN G. GADLES 30771/414

N/F VINCENT G. & KELLI M. GUARINO 24509/1

N/F JAMES S. & SUZANNE M. KADLICK 5602/408

DRAIN EASEMENT PLAN BOOK 271 PLAN 9234

N/F JOHN A. MORIARTY & CAROLYN M. LONG 7818/302

N/F DAVID TAPPER 22348/415

N/F ERNEST V. & MARGARET M. GERVINO 22545/165

N/F FRANCIS A. & JANE A. SORRENTO 11658/735

PLAN BOOK 223 PLAN 760

COLONIAL DRIVE (PUBLIC – 40' WIDE)

EUCLID AVENUE (PUBLIC – 40' WIDE)

ROSELIN AVENUE

N/F YIANNIS & JENNIFER LIPPIN REXINIS 22446/149

N/F MARIO & BARBARA G. TRONCA 24340/21

N/F WING CHAU 17191/167

N/F WILLIAM T. & DONNA L. MAYO 12112/515

N/F KEVIN CARL & ANGELA MARIE JOHNSON 30006/453

N/F SUSAN ANN & JOSEPH J. PAQUETTE 5528/328

N/F GAIL PERETTI

N/F 35–37 ROSELIN AVENUE CONDOMINIUM 24105/48

N/F STEPHEN F. TIPTON & ABBIGAIL L. ZANE 11415/417

N/F MIN RUI TANG & XIU PING PAN 31877/406

N/F 150–152 WHITWELL STREET CONDOMINIUM 24650/222

N/F HECTOR G., Jr. & AMY L. CAMARGO 27236/349

BUILDING B
6 STORY
149 UNITS
FFE=150.00/138.00

BUILDING A
5 STORY
175 UNITS
FFE=150.50

BUILDING A
6 STORY
175 UNITS
FFE=150.50

ROWHOUSE 4
9 UNITS
FFE=141.50

ROWHOUSE 3
9 UNITS
FFE=143.50

ROWHOUSE 2
9 UNITS
FFE=147.50

ROWHOUSE 1
9 UNITS
FFE=150.00

RETAIL
1 STORY
FFE=150.10

ADMINISTRATION BUILDING
3 STORY
(EXISTING)

BUILDING C
6 STORY
140 UNITS

TOWN HOUSE 17 FFE= 130.50
TOWN HOUSE 16 FFE= 132.20
TOWN HOUSE 15 FFE= 133.60
TOWN HOUSE 14 FFE= 135.20
TOWN HOUSE 13 FFE= 136.20
TOWN HOUSE 12 FFE= 137.20
TOWN HOUSE 11 FFE= 138.20
TOWN HOUSE 10 FFE= 139.20
TOWN HOUSE 9 FFE= 140.20
TOWN HOUSE 8 FFE= 140.70
TOWN HOUSE 7 FFE= 141.20
TOWN HOUSE 6 FFE= 143.50
TOWN HOUSE 5 FFE= 144.50
TOWN HOUSE 4 FFE= 145.50
TOWN HOUSE 3 FFE=146.50
TOWN HOUSE 2 FFE=146.90
TOWN HOUSE 1 FFE=147.30

SMH 1 R=140.00(MATCH EX.) I=136.25(NEW-DROP)
SMH 2 R=139.70 I=131.91(MATCH EX. I=139.60(N-DROP)
SMH 3 R=144.10 I=136.28 (MATCH EX.)
SMH 4 R=144.90 I=137.10
SMH 5 R=138.10 I=132.60
SMH 6 R=142.10 I=131.06
SMH 7 R=142.90 I=129.77
SMH 8 R=138.10 I=132.60
SMH 9 R=147.10 I=141.05
SMH 10 R=144.50 I=137.25
SMH 11 R=141.10 I=132.50
SMH 12 R=137.40 I=127.55
SMH 13 R=134.50 I=124.00
SMH 14 R=130.20 I=121.00
SMH 15 R=146.60 I=141.85
SMH 16 R=146.60 I=141.85

6" PVC S=0.030 L=188'
6" PVC S=0.030 L=143'
6" PVC S=0.020 L=77'
6" PVC S=0.020 L=20'
6" PVC S=0.020 L=34'
6" PVC S=0.050 L=90'
6" PVC S=0.050 L=71'
6" PVC S=0.020 L=20'
8" PVC S=0.050 L=90'
6" PVC S=0.020 L=33'
8" PVC S=0.050 L=96'
6" PVC S=0.020 L=27'
8" PVC S=0.050 L=76'
6" PVC S=0.020 L=27'
6" PVC S=0.020 L=40'
6" PVC S=0.020 L=43'
8" PVC S=0.050 L=124'
6" PVC S=0.020 L=58'
6" PVC S=0.020 L=28'
6" PVC S=0.020 10' MIN. FROM WATER (TYP.)

12" CLDI
8" FIRE SERVICE
6" DOMESTIC SERVICE
GAS SERVICE
ELECTRIC SERVICE
TRANSFORMER PAD
TEL / DATA SERVICE
ELECTRIC / TEL. DATA SERVICE
SEWER I=140.00
SEWER I=135.00
SEWER I=138.00
SEWER I=133.16
SEWER I=137.79
SEWER I=141.99
SEWER I=142.71
SEWER I=140.00
GAS SERVICE UPPER LEVEL FFE=150.00
LOWER LEVEL FFE=138.00
UPPER LEVEL FFE=149.00
GENERATOR
GENERATOR PAD
FIRE HYDRANT (TYP.)
EXISTING FIRE HYDRANT
EXISTING WATER TO REMAIN
EXISTING SEWER TO REMAIN
12" TAPPING SLEEVE & VALVE
LIMIT OF GARAGE BELOW
LIMIT OF BUILDING ABOVE
LOBBY
POOL
BOILER PLANT
1 STORY
1 STORY BRICK
METAL SILL ELEV=140.24
CONC FLOOR ELEV=138.24
CONC FLOOR ELEV=143.37
CONC FLOOR ELEV=138.21
CONC FLOOR ELEV=149.29
CONC FLOOR ELEV=145.12
CONC FLOOR ELEV=139.04
RUG FLOOR ELEV=139.23
TILE FLOOR ELEV=144.70
CONC FLOOR ELEV=143.70
CONC FLOOR ELEV=149.70
TILE FLOOR ELEV=148.70
LOBBY ADDITION
BRICK
GARAGE
SHED
TRANS
HVAC UNIT ON PLATFORM
OVERHEAD PIPES
ELEV
ELEC
HYD
GAS
SD
SS
W
G
E/T/D
UT
UE
LP
OE
VG
VCC
BCLAY
IPCLAY
RCP
CLDI
PVC
CMP
CI
DI
MH
SMH
TYP
EXIST
PROP
MIN
MAX
EL
INV
FFE
RIM
CONC
BLDG
ADDITION
ENTRANCE
LOADING
DOCK
ENTRANCE
EXIT
ENTRANCE
EXIT
ENTRANCE
EXIT

MANHOLE INVERT SCHEDULE

SMH 5 ——— MANHOLE NUMBER
R=137.95 ——— RIM ELEVATION
I=134.20(OUT) — OUTLET INVERT
I=134.33 ——— INLET INVERT
I=134.23 ——— INLET INVERT

NOTE: INVERTS LISTED CLOCKWISE FROM OUTLET PIPE.

PROPOSED UTILITY LEGEND

E/T/D ——— ELECTRIC / TEL. DATA SERVICE
UT ——— TEL. DATA SERVICE
G ——— GAS SERVICE
W ——— WATER SERVICE
SS ——— SEWER SERVICE

N/F NEIGHBORHOOD CLUB 1368/464

N/F EUGENE I & STELLA U. ONUNKAKA 29274/510

N/F GEORGE CHIN & MUI SI LY 25132/352

N/F MAX & BRIGID KING 30862/194

N/F LALGUDY JAGADESA & GULRUKH BALASUNDARAM 5872/350

N/F RYAN G. GADLES 30771/414

N/F VINCENT G. & KELLI M. GUARINO 24509/1

N/F JAMES S. & SUZANNE M. KADLICK 5602/408

COLONIAL DRIVE (PUBLIC – 40' WIDE) 6197/169

DRIVE (PUBLIC – 40' WIDE)

DRAIN EASEMENT PLAN BOOK 271 PLAN 9234

GLENDALE ROAD (PUBLIC – 40' WIDE)

PLAN BOOK 223 PLAN 760

"GLENDALE PARK"

10' DRAIN & WATER EASEMENT 1705/269

N/F MARJORIE A. JORDAN & JAY W. ESTERQUEST 9211/100

N/F ANTHONY N. & DOLORES M. LORUSSO 18312/291

N/F YIANNIS & JENNIFER LIPPIN REXINIS 22446/149

N/F MARIO & BARBARA G. TRONCA 24340/21

EUCLID AVENUE (PUBLIC – 40' WIDE)

BUILDING D
6 STORY
79 UNITS

FIRE HYDRANT (TYP.)

TRANSFORMER PAD

ELECTRIC / TEL. DATA SERVICE

LOBBY LEVEL 1 FFE=125.50
GAS SERVICE
6" PVC S=0.020 L=34'
LOBBY LEVEL 2 FFE=135.50
SEWER I=121.68
8" FIRE SERVICE
6" DOMESTIC SERVICE
8" PVC S=0.050 L=60'

TOWN HOUSE 17 FFE= 130.50 — GAS SERVICE
TOWN HOUSE 16 FFE= 132.20 — SMH 14 R=130.20 I=121.00
TOWN HOUSE 15 FFE= 133.80
TOWN HOUSE 14 FFE= 135.20
TOWN HOUSE 13 FFE= 136.20

6" PVC S=0.050 L=124'
12" CLDI
6" PVC S=0.030 L=188'
6" PVC S=0.030 L=77'
6" PVC S=0.030 L=43'

SMH 5 R=138.10 I=132.60
SMH 7 R=142.90 I=129.77
SMH 6 R=142.16 I=131.06
SMH 13 R=134.50 I=124.00
SMH 15 R=122.10 I=110.80(OUT MATCH EX.) I=110.90(IN MATCH EX.) I=114.80(PROP.)

SEE SHEET C-9

0 15' 30' 60'
SCALE: 1" = 30'

10/9/2018 - P:\166451\143-166451-17001\CAD\SheetFiles\C-9-10 Utility Plans.DWG - PAPPAS, JUD

114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

KEY PLAN

SCALE 1" = 30'
PROJECT NUMBER 143-166451-17001

UTILITY PLAN

C-10

NOTE:
DETAILED EROSION AND SEDIMENT CONTROL PLANS WILL BE PROVIDED DURING INDIVIDUAL BUILDING PHASE CONSTRUCTION.

10/8/2018 - P:\165451\143-165451-17001\CAD\SheetFiles\C-11-12 Erosion Control.DWG - PAPPAS, JUD

114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

KEY PLAN

SCALE: 1" = 30'
PROJECT NUMBER: 143-165451-17001

EROSION AND SEDIMENT CONTROL PLAN

C-11

114 WHITWELL

Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169

PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414

OWNER

utile
ARCHITECTURE + URBAN DESIGN

115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com

ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201

CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560

LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000

M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009

STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

KEY PLAN

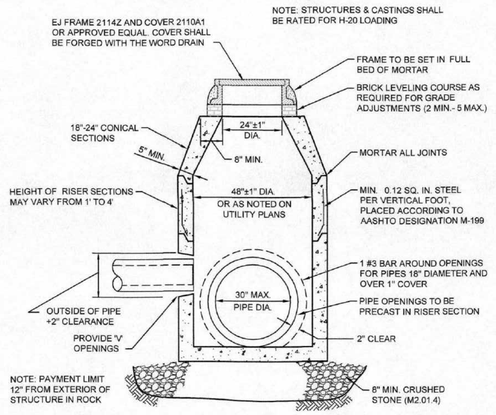
SCALE 1" = 30'

PROJECT NUMBER 143-166451-17001

EROSION AND SEDIMENT CONTROL PLAN

C-12

10/8/2018 - P:\166451\143-166451-17001\CAD\SheetFiles\C-11-12 Erosion Control.DWG - PAPPAS, JUD

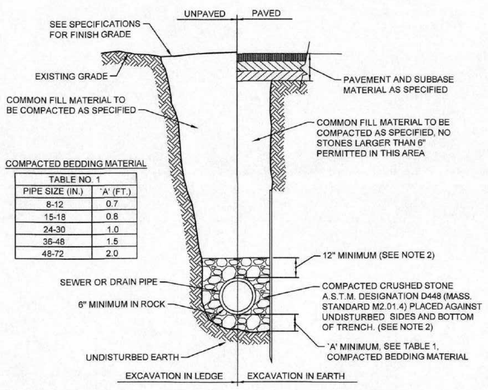


NOTES:
1. MANHOLE DIAMETER TO BE INCREASED AS REQUIRED TO ACCOMMODATE NUMBER OF PIPES ENTERING OR DISCHARGING FROM MANHOLE.
2. STRUCTURE OPENING VOIDS, AFTER PIPE INSTALLATION, SHALL BE FILLED WITH NON-SHRINK WATERPROOF GROUT. GROUT TO BE COMPLETELY AROUND THE PIPE. GROUT SHALL BE SMOOTH AND PARALLEL TO INTERIOR AND EXTERIOR WALLS.

NOTES:
1. CONCRETE = 4000 PSI MINIMUM, CEMENT PER ASTM C-478
2. MANHOLE TO CONFORM TO LATEST ASTM C-478 SPECIFICATIONS FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS"
3. STEEL REINFORCEMENT TO MEET OR EXCEED H20 LOADING.
4. MANHOLE STEPS - POLYPROPYLENE COATED GRADE 60 REINFORCING BAR, PER ASTM C-478 & OSHA (STD 1-1.9)

PRECAST CONCRETE DRAIN MANHOLE

9 FEET OR LESS IN DEPTH
NOT TO SCALE



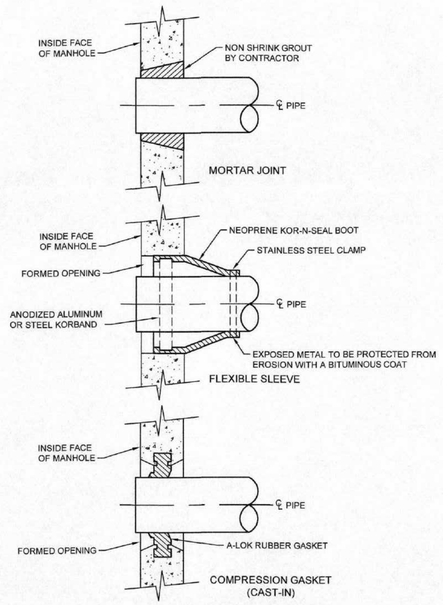
COMPACTED BEDDING MATERIAL

TABLE NO. 1	
PIPE SIZE (IN.)	'A' (FT.)
8-12	0.7
15-18	0.8
24-30	1.0
36-48	1.5
48-72	2.0

NOTES:
1. SHEETING, WHEN REQUIRED, TO BE CUT OFF AT LEAST 5 FEET BELOW STREET AND A MINIMUM OF 1 FOOT ABOVE TOP OF PIPE. WOOD SHEETING DRIVEN BELOW MID-DIAMETER OF THE PIPE SHALL BE LEFT IN PLACE. STEEL SHEETING DRIVEN BELOW MID-DIAMETER MAY BE WITHDRAWN IF APPROVED IN WRITING BY THE ENGINEER. FOR PVC PIPE ALL SHEETING DRIVEN BELOW MID-DIAMETER SHALL BE LEFT IN PLACE.
2. WHEN APPROVED BY THE ENGINEER FOR PIPES OTHER THAN PVC SELECTED GRAVEL FILL MATERIAL MAY BE USED FROM MID-DIAMETER OF PIPE TO 12" ABOVE TOP OF PIPE. NO STONES LARGER THAN 2 INCHES IN ANY DIMENSION WILL BE PERMITTED IN THIS AREA - MASSACHUSETTS STATE MATERIAL STANDARD M1.03.0 TYPE C.
3. TRENCHES LOCATED ON THE ROAD SHOULDER SHALL BE TREATED THE SAME EXCEPT FOR PAVING.
4. PROVIDE AT LEAST ONE IMPERVIOUS DAM IN GRAVEL BEDDING BETWEEN EACH MANHOLE WHERE DIRECTED, OR EVERY 300 FEET, WHICHEVER IS LESS.
5. BEDDING MATERIAL FOR PVC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D2321 CLASS I OR CLASS II EMBEDMENT MATERIALS.

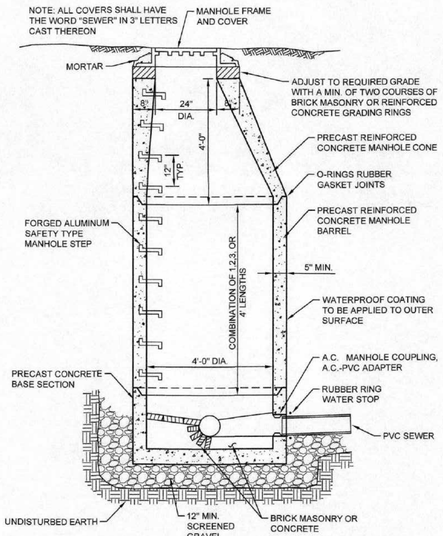
SEWER AND DRAIN TRENCH (PVC OR RCP)

NOT TO SCALE



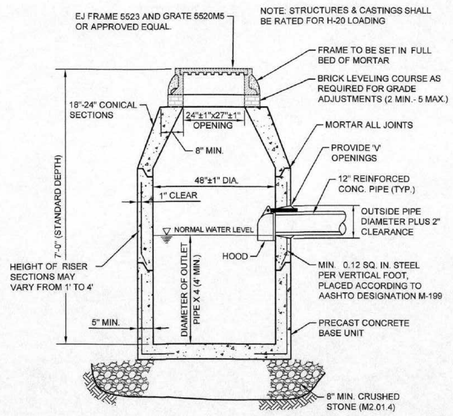
PIPE TO MANHOLE CONNECTIONS

NOT TO SCALE



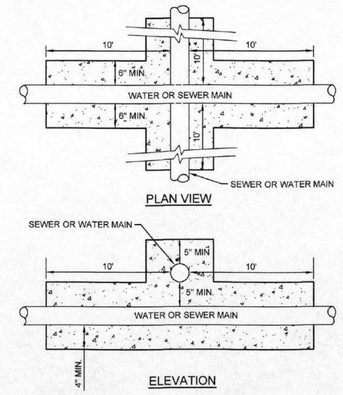
SEWER MANHOLE

NOT TO SCALE



PRECAST CONCRETE CATCH BASIN

NOT TO SCALE



NOTES:
1. WHENEVER POSSIBLE WATER MAINS CROSSING SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18" BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER.
2. SHOULD LOCAL CONDITIONS PREVENT AN 18" SEPARATION, BOTH THE WATER MAIN AND THE SEWER SHALL BE ENCASED IN CONCRETE ON EITHER SIDE OF THE CROSSING (SEE DETAIL).
3. WHEREVER THE WATER MAIN SHALL BE LAID ABOVE THE SEWER.

CONCRETE ENCASED SEWER AND WATER MAIN CROSSING

NOT TO SCALE

114
WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

1. 10/10/2018 SUBMIT TO PLANNING BOARD
NO. DATE DESCRIPTION

STAMP

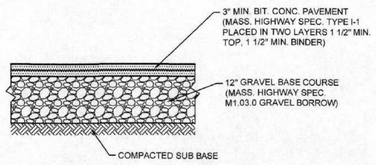
KEY PLAN

SCALE NOT TO SCALE
PROJECT NUMBER 143-186451-17001

DETAIL SHEET

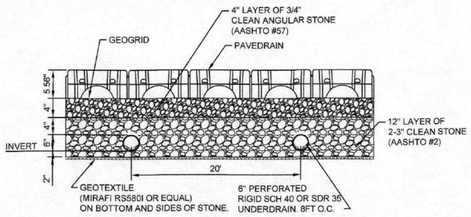
C-13

10/8/2018 - P:\186451\143-186451-17001\CAD\SheetFiles\Detail Sheets.DWG - PAPPAS, JUD



PAVEMENT SECTION

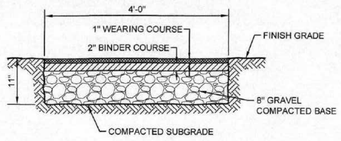
NOT TO SCALE



PAVEDRAIN PERMEABLE PAVERS

NOT TO SCALE

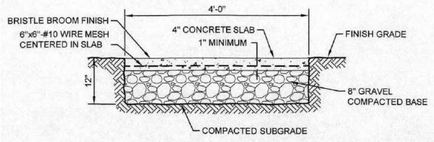
NOTE:
IN AREAS THAT SIDEWALK ABUTS ROAD OR PARKING LOT CURBING SIDEWALK CROSS SLOPE TO BE DIRECTED TO CURB LINE. 1.5% MAXIMUM UNLESS SHOWN OTHERWISE.



BITUMINOUS CONCRETE WALK

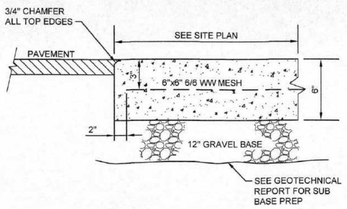
NOT TO SCALE

NOTE:
IN AREAS THAT SIDEWALK ABUTS ROAD OR PARKING LOT CURBING SIDEWALK CROSS SLOPE TO BE DIRECTED TO CURB LINE. 1.5% MAXIMUM UNLESS SHOWN OTHERWISE.



CEMENT CONCRETE WALK

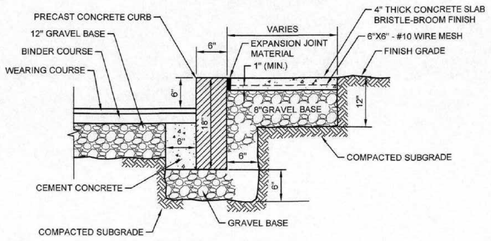
NOT TO SCALE



CONCRETE COMPACTOR PAD

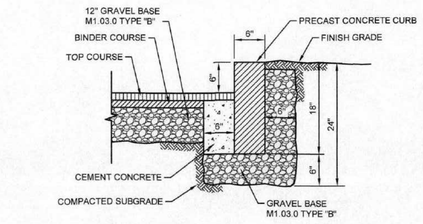
NOT TO SCALE

NOTE:
SIDEWALK CROSS SLOPE DIRECTED TO CURB LINE. 1.5% MAXIMUM UNLESS SHOWN OTHERWISE.



CONCRETE CURB & SIDEWALK

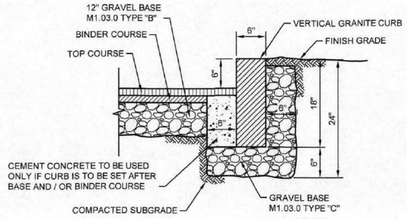
NOT TO SCALE



NOTE:
CEMENT CONCRETE BACKING TO BE PROVIDED AT ALL JOINTS AND AT CURB MID SECTION FOR SPANS GREATER THAN 3 FEET. CONCRETE BACKING TO BE PLACED FROM BASE TO WITHIN 9 INCHES OF GRADE AND SPAN 1 FOOT AT JOINTS AND 1.5 FEET AT MID SECTION.

PRECAST CONCRETE CURB

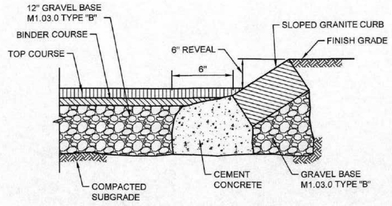
NOT TO SCALE



NOTE:
CEMENT CONCRETE BACKING TO BE PROVIDED AT ALL JOINTS AND AT CURB MID SECTION FOR SPANS GREATER THAN 3 FEET. CONCRETE BACKING TO BE PLACED FROM BASE TO WITHIN 9 INCHES OF GRADE AND SPAN 1 FOOT AT JOINTS AND 1.6 FEET AT MID SECTION.

VERTICAL GRANITE CURB

NOT TO SCALE

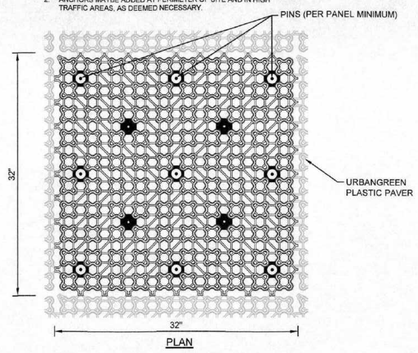


SLOPED GRANITE CURB

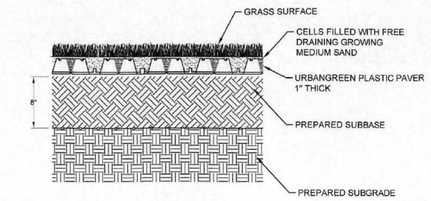
NOT TO SCALE

PINNING NOTES
SIZE AND TYPE OF ANCHOR MAY VARY BY SITE

1. PLACE ONE ANCHOR AT EACH PANEL CORNER AND ONE IN CENTER OF PANEL (MIN. 9 PINS PER PANEL).
2. ANCHORS MAYBE ADDED AT PERIMETER OF SITE AND IN HIGH TRAFFIC AREAS, AS DEEMED NECESSARY.



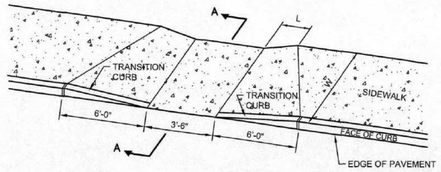
PLAN

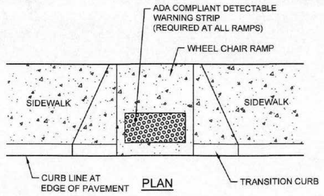


SECTION

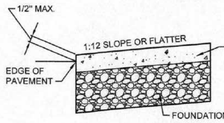
URBANGREEN GRASS PAVER

NOT TO SCALE





PLAN



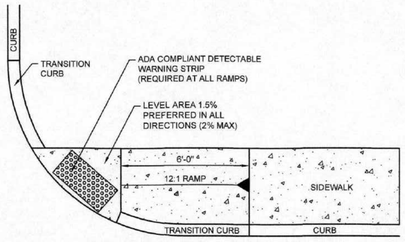
SECTION A-A

W	L	S.Y.
4'-0"	3'-6"±	5.2
5'-0"	2'-9"±	6.3
6'-0"	2'-0"±	7.2
7'-0"	1'-3"±	8.0
8'-0"	0'-0"	8.1

WHEEL CHAIR RAMP

FOR SIDEWALKS UP TO 8' WIDE

NOT TO SCALE



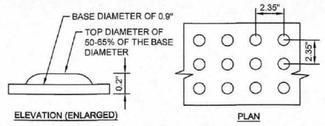
NOTES:
1.) THE DETECTABLE WARNING SHALL BE A CAST-IN-PLACE COMPOSITE PANEL PAVER SYSTEM AS MANUFACTURED BY ADA SOLUTIONS, INC. COLOR SHALL BE BRICK RED.

2.) TRANSITIONS FROM CURB CUTS TO WALKS, GUTTERS, OR STREETS SHALL BE FLUSH.

3.) IF TRANSITION EXCEEDS .075FT/FT, THE TRANSITION MUST BE 0"-6" OVER 15' (MAX.) FOR CURB RUN.

WHEEL CHAIR RAMP AT DRIVE

NOT TO SCALE

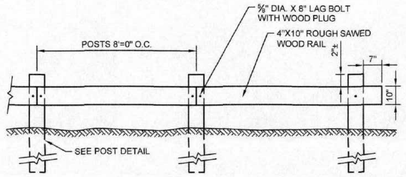


DETECTABLE WARNING - TRUNCATED DOMES

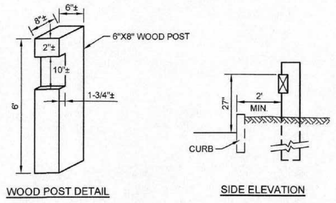
NOT TO SCALE

1. THE MAXIMUM ALLOWABLE ROUTE (SIDEWALK) AND CURB RAMP CROSS SLOPES SHALL BE 2.0% MAX.
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE CURB RAMPS SHALL NOT EXCEED 1:12
3. A MINIMUM OF 3 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC..
4. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
5. SEE TYPICAL SIDEWALK SECTION FOR RAMP CONSTRUCTION.
6. ALL SLOPING SURFACES AT WHEEL CHAIR RAMPS FOR SIDEWALKS SHALL HAVE DETECTABLE WARNING-TRUNCATED DOMES AND COLOR CONCRETE
7. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN (23 MM), A HEIGHT OF NOMINAL 0.2 IN (5 MM) AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 IN (60 MM) AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHOULD CONTRAST BY AT LEAST 70%. CONTRAST IN PERCENT IS DETERMINED BY: CONTRAST = [(B1 - B2)/B1] X 100WHERE B1 = LIGHT REFLECTANCE VALUE (LRV) OF THE LIGHTER AREA AND B2 = LIGHT REFLECTANCE VALUE (LRV) OF THE DARKER AREA. B1 SHALL NEVER EQUAL 100 AND B2 SHALL ALWAYS BE GREATER THAN 0.
8. ALL PROPOSED WHEELCHAIR RAMPS SHALL HAVE A PEDESTRIAN WARNING SURFACE MEETING THE REQUIREMENTS OF THE ADA GUIDELINES. (SEE SPECIFICATIONS). ALL WHEELCHAIR RAMPS SHALL BE CONSTRUCTED WITH COLOR TINTED CONCRETE MEETING THE ADA GUIDELINES FOR CONTRASTING COLOR. FINAL COLOR TO BE DETERMINED BY THE ARCHITECT. ALL CONCRETE SHALL BE 4000 PSI PER ASTM C-260 AND THE PROJECT SPECIFICATIONS.
9. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP TO BE LOCATED OUTSIDE OF THE CROSSWALK AND IT IS TO BE CENTERED WHENEVER POSSIBLE.
10. THE ENTRANCE OF THE WHEELCHAIR RAMP SHALL BE WITHIN 1/2" WITH THE ROADWAY.

ACCESSIBLE CURB RAMP / ROUTE NOTES



FRONT ELEVATION



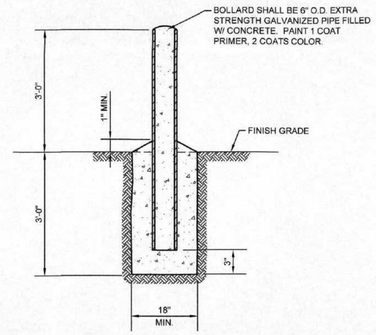
WOOD POST DETAIL

SIDE ELEVATION

NOTES:
1. ALL TIMBER TO BE PRESSURE TREATED.
2. POSTS TO BE SPACED CLOSER THAN 8'-0" ON CENTER AS REQUIRED TO MAINTAIN LOCATION OF GUARD RAIL ALONG EDGE OF DRIVE

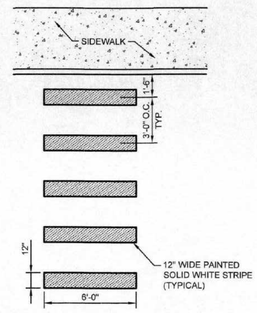
WOOD VEHICULAR GUARDRAIL

NOT TO SCALE



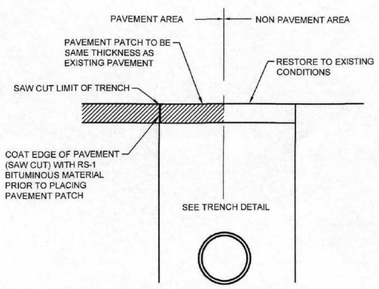
BOLLARD

NOT TO SCALE



PAINTED CROSSWALK

NOT TO SCALE



PAVEMENT PATCH

NOT TO SCALE

114
WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

COMMONWEALTH OF MASSACHUSETTS
GLENN K. DOUGHERTY
No. 46324
REGISTERED PROFESSIONAL ENGINEER

STAMP

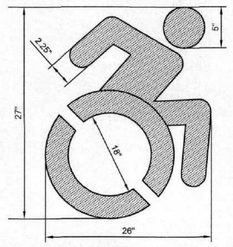
KEY PLAN

SCALE	PROJECT NUMBER
NOT TO SCALE	143-1664S1-17001

DETAIL SHEET

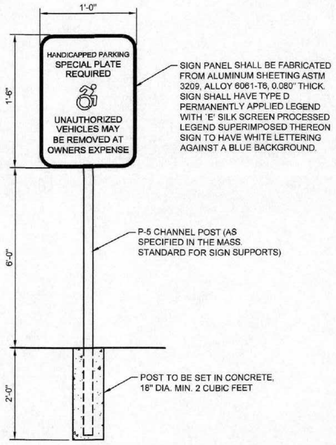
C-14

10/9/2018 - P:\1664S1\143-1664S1-17001\CAD\Sheet Files\Detail Sheets.DWG - PAPPAS, JUD



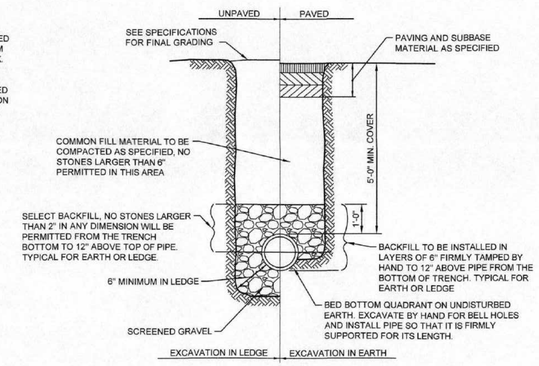
HANDICAP PARKING PAVEMENT MARKING

NOT TO SCALE



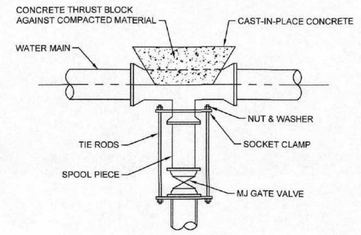
HANDICAP PARKING SIGN

NOT TO SCALE



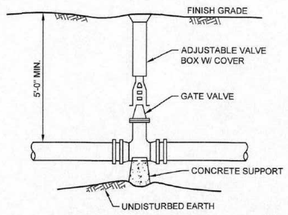
CEMENT LINED DUCTILE IRON (CLDI) PIPE TRENCH

NOT TO SCALE



TYPICAL VALVE CONNECTION RESTRAINED JOINT TEE

NOT TO SCALE



TYPICAL GATE VALVE

NOT TO SCALE

GENERAL CONSTRUCTION NOTES

1) THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED ON THE DRAWINGS AND EACH DRAWING HAS BEEN REVISED TO INDICATE "ISSUED FOR CONSTRUCTION."

2) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN RULES AND REGULATIONS UNLESS OTHERWISE NOTED.

3) VERTICAL CONTROL IS BASED ON THE CITY OF QUINCY DATUM.

4) ALL UTILITY PROVIDERS MUST BE NOTIFIED BY THE CONTRACTOR AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

5) WHILE WORKING IN THE VICINITY OF AN EXISTING UTILITY, REFER TO THE FOLLOWING: ALL UNDERGROUND UTILITIES SHOWN WERE COMPILED ACCORDING TO AVAILABLE RECORD PLANS FROM THE VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE ONLY. SEE CHAPTER 370, ACTS OF 1963, MASSACHUSETTS GENERAL LAWS. WE ASSUME NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS, THE APPROPRIATE PUBLIC ENGINEERING DEPARTMENT SHALL BE CONTACTED AND THE PROPOSED UTILITY WORK SHALL BE COORDINATED. DIG SAFE NUMBER: 1-888-344-7233.

6) THE CONTRACTOR SHALL GIVE TIMELY NOTICE TO PERTINENT TOWN DEPARTMENTS BEFORE COMMENCING ANY WORK.

7) ALL AREAS DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO EQUAL OR BETTER CONDITION.

8) ALL FINISHED SURFACES SHALL BE GRADED SMOOTHLY AND EVENLY.

9) AT THE COMPLETION OF THE CONTRACTOR'S OPERATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING ALL DRAINAGE STRUCTURES (NEW AND/OR EXISTING) OF DEBRIS.

10) DO NOT SCALE PLANS. DUE TO REPROGRAPHIC STRETCH, PRINTS MAY NOT SCALE ACCURATELY. NUMERIC DIMENSIONING IS CORRECT. CONTACT DESIGN ENGINEER TO CLARIFY.

11) FILL CONTAINING HAZARDOUS MATERIALS SHALL NOT BE USED.

12) LIMITS OF WORK SHALL BE MARKED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.

13) ALL CONSTRUCTION WHICH INCLUDES HAULING OF EARTH TO OR FROM THE SITE SHALL BE RESTRICTED BETWEEN THE HOURS OF 7:00 AM AND 6:00 PM ON WEEKDAYS.

14) THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE RECORDS OF LOCATION AND ELEVATION OF ALL WORK INSTALLED.

15) IT IS THE CONTRACTORS RESPONSIBILITY TO OBTAIN THE ELECTRONIC FILE FROM TETRA TECH FOR PROPER COORDINATION OF SURVEY LAYOUT.

16) PRESERVATION OF ON SITE VEGETATION SHALL BE REVIEWED AND APPROVED BY OWNERS REPRESENTATIVE PRIOR TO THE START OF CONSTRUCTION.

DRAINAGE

1) PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM DESIGNATION C478. CONCRETE REQUIREMENTS SHALL BE 4000 PSI.

2) STANDARD CATCHBASIN SHALL CONSIST OF PRECAST REINFORCED RISER SECTIONS, CONE SECTION, AND A BASE SECTION CONFORMING TO THE TYPICAL CATCHBASIN DETAIL. ALL CATCHBASINS SHALL HAVE A MINIMUM 4-FOOT SUMP.

3) INSTALL STEPS IN ACCORDANCE WITH ASTM C-478, 12" O.C. IN ALL CATCHBASINS AND DRAIN MANHOLES DEEPER THAN 4 FEET.

4) MANHOLE AND PIPE JOINT/CONNECTION SHALL BE NON-SHRINK GROUT OR APPROVED EQUAL.

5) PIPE MATERIAL SHALL BE SMOOTH WALL HIGH DENSITY POLYETHYLENE PIPE AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC, OR APPROVED EQUAL.

6) INSTALLATION AND MATERIALS FOR ALL PIPES WITHIN 10-FEET OF A BUILDING ARE SUBJECT TO CONFORMANCE WITH 248 CMR (MASSACHUSETTS STATE PLUMBING CODE.)

WATER

1) DUCTILE IRON PIPE SHALL BE CEMENT LINED, COAL TAR ENAMEL, DOUBLE COATED, PUSH-ON TYPE JOINT, AND SHALL CONFORM TO A21.51 (AWWA C151) CLASS 52 FOR SIZES 4 INCH THROUGH 12 INCH.

2) DUCTILE IRON FITTINGS SHALL CONFORM TO ANSI/AWWA C153/A21.53-94 (DUCTILE IRON COMPACT FITTINGS) PRESSURE RATING 350 PSI.

3) GATE VALVES AND TAPPING SLEEVE VALVES SHALL BE RESILIENT SEATED VALVES CONFORMING TO THE REQUIREMENTS OF AWWA STANDARD C509. THE VALVE SHALL OPEN LEFT AND BE PRESSURE RATED FOR 250 PSI WORKING PRESSURE.

4) VALVE BOXES SHALL BE THE 2 PIECE SLIP TYPE, 5 1/4 INCH I.D., FLANGE LOCATED AT THE TOP OF THE BOX, COVER MARKED "WATER" EQUAL TO TYPE CURRENTLY BEING USED BY THE TOWN.

5) WATER PRESSURE REQUIREMENTS AND THE ACTUAL WATER PRESSURE TO BE PROVIDED AT THE BUILDING SHALL BE DETERMINED BY OTHERS.

6) THE CONTRACTOR WILL FURNISH AND INSTALL 1 1/4" CTS DOMESTIC WATER LINES AND WATER METERS AS SPECIFIED BY THE WATER DISTRICT.

7) WATER LINES MUST BE A MINIMUM OF (18) INCHES ABOVE SEWER LINES. IN ADDITION, ONE FULL LENGTH OF WATER MAIN MUST BE CENTERED ON ONE FULL LENGTH OF SEWER LINE SO THAT ALL JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE.

8) WATER SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PHS (PUBLIC HEALTH SERVICE) MANUAL OF INDIVIDUAL WATER SYSTEMS, PHS PUBLICATION NO. 24, REVISED 1962, WASHINGTON, GPO (GOVERNMENT PRINTING OFFICE), 1963 AND ANY APPLICABLE CURRENT STATE AND FEDERAL REGULATIONS.

9) CHLORINATION SHALL BE IN ACCORDANCE WITH THE AWWA STANDARD C601 DISINFECTING WATER MAINS.

10) ALL PIPELINES SHALL BE GIVEN COMBINED PRESSURE AND LEAKAGE TESTS AT THE DIRECTION OF THE TOWN WATER DEPARTMENT. HYDROSTATIC AND LEAKAGE TEST SHALL BE MADE IN ACCORDANCE WITH AWWA STANDARD C600 SECTION 4. HYDROSTATIC TESTS SHALL BE MADE AT 1.5 TIMES THE WORKING PRESSURE, BUT NOT LESS THAN 150 PSI FOR A PERIOD OF NOT LESS THAN 2 HOURS IN ACCORDANCE WITH THE ABOVE AWWA STANDARD.

11) INSTALLATION OF WATER UTILITIES TO BE IN CONFORMANCE WITH THE WATER DISTRICT STANDARDS.

12) WHENEVER POSSIBLE WATER MAINS CROSSING SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18" BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER.

13) SHOULD LOCAL CONDITIONS PREVENT AN 18" SEPARATION, BOTH THE WATER MAIN AND THE SEWER SHALL BE ENCASED IN CONCRETE ON EITHER SIDE OF THE CROSSING (SEE DETAIL).

ELECTRIC

1) SPECIFICATIONS: ALL WORK SHALL BE IN ACCORDANCE WITH THE ELECTRIC COMPANY'S STANDARDS. THE NATIONAL ELECTRICAL SAFETY CODE, AND STATE AND LOCAL CODE REQUIREMENTS.

2) APPROVAL: CONTRACTOR SHALL OBTAIN APPROVAL OF PLAN BY THE WIRE INSPECTOR AND THE ELECTRIC COMPANY. PLANS SHALL SHOW THE LOCATION OF CONDUITS AND THEIR TYPE, SIZE, AND NUMBER.

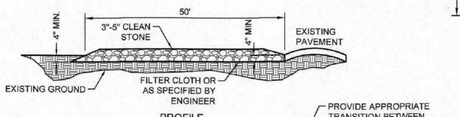
3) PROVIDE ALL EXCAVATION AND BACK FILLING WORK REQUIRED FOR THE INSTALLATION OF ALL ELECTRIC FACILITIES. THIS SHALL INCLUDE EXCAVATING FOR CONDUITS, MANHOLES, AND/OR JUNCTION ENCLOSURES, AND PADS.

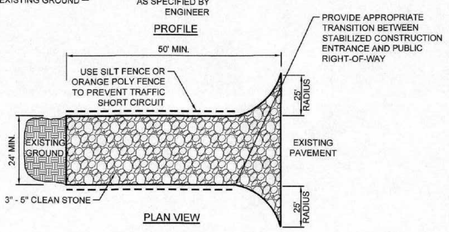
4) INSTALL ALL GROUNDING MATERIALS (IE. WIRE, GROUND, RODS, CONNECTORS, ETC.) AS SPECIFIED BY ELECTRIC COMPANY.

PRIVATE UTILITY NOTES

1) THIS PLAN HAS BEEN PREPARED AS A SCHEMATIC REPRESENTATION OF THE PROPOSED ELECTRIC, TELEPHONE, FIRE ALARM, AND NATURAL GAS SYSTEMS. IT IS NOT THE INTENTION OF THIS DRAWING THAT EVERY DETAIL, DEVICE, ITEM OR PIECE OF EQUIPMENT BE SHOWN. FINAL DESIGN AND APPROVAL MUST BE OBTAINED FROM THE RESPECTIVE UTILITY COMPANIES FOR LOCATION OF TRANSFORMERS, CONDUITS, AND CONNECTIONS TO BUILDINGS.

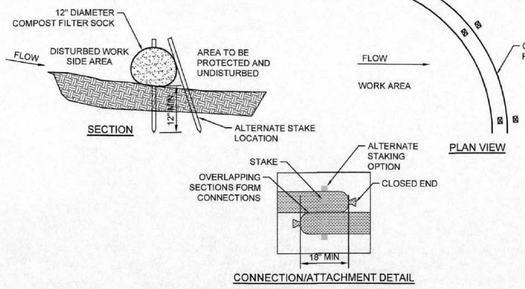
2) ELECTRIC, TELEPHONE, AND GAS UTILITY SIZES, AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE TOWN OF NANTUCKET AND REVIEWED AND APPROVED BY THE APPROPRIATE UTILITY COMPANIES.





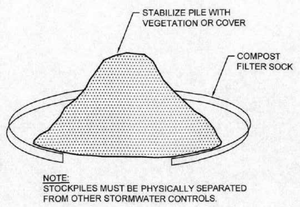
50' LONG STABILIZED CONSTRUCTION ENTRANCE / EXIT

N.T.S.



COMPOST FILTER SOCK

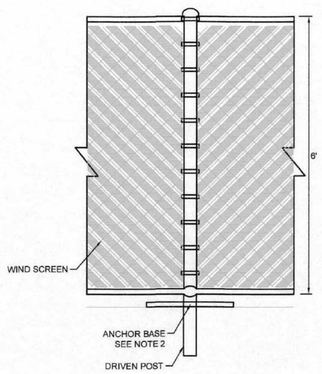
N.T.S.



NOTE:
STOCKPILES MUST BE PHYSICALLY SEPARATED FROM OTHER STORMWATER CONTROLS.

SOIL STOCKPILE CONTROL

NTS

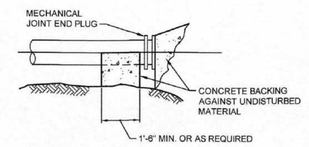


NOTES:
1. THE CONTRACTOR SHALL PROVIDE A 6' HIGH TEMPORARY CONSTRUCTION FENCE WITH DUST SCREEN THAT IS NON-TRANSPARENT AND TIGHTLY FASTENED TO THE FENCE. DUST SCREEN LOCATIONS SHALL BE COORDINATED WITH OWNER.
2. THE FENCE SHALL BE POST DRIVEN OR ANCHOR BASE AND CAPABLE OF WITHSTANDING HIGH WINDS WITHOUT MOVEMENT.
3. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR TO EXISTING CONDITIONS RESULTING PROPERTY DAMAGE FROM THE FENCE INSTALLATION.

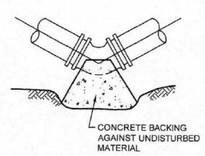
PRACTICE: CONSTRUCTION FENCE WITH WINDSCREEN
ATTACH WINDSCREEN SECURELY TO FENCE; REATTACH AS NECESSARY TO MAINTAIN FABRIC AGAINST FENCE; DO NO LEAVE GAPS IN SCREENING. REPLACE WINDSCREEN FABRIC IF IT APPEARS RIPPED OR TORN.

CONSTRUCTION FENCE WITH WIND SCREEN

N.T.S.



TYPICAL PLUG

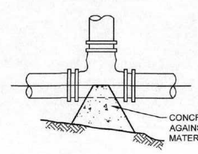


TYPICAL BEND

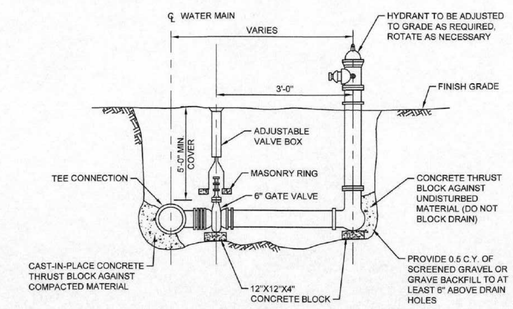
TABLE OF BEARING AREAS IN SQUARE FEET AGAINST UNDISTURBED MATERIAL FOR WATER MAIN FITTINGS			
SIZE OF MAIN (IN.)	45° BEND	TEES & PLUGS	22 1/2° BEND
8" & LESS	4	5	2
10"	6	8	3
12"	9	12	5
16"	12	16	7

CONCRETE THRUST BLOCKS

NOT TO SCALE

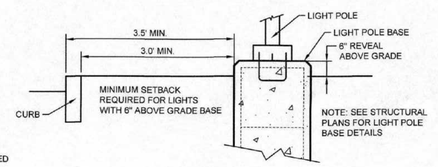


TYPICAL TEE



TYPICAL HYDRANT AND VALVE

NOT TO SCALE



TYPICAL LIGHT POLE BASE HEIGHT ABOVE FINISH GRADE IS 6" UNLESS OTHERWISE SHOWN ON PLAN

LIGHT POLE SETBACK

NOT TO SCALE

114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

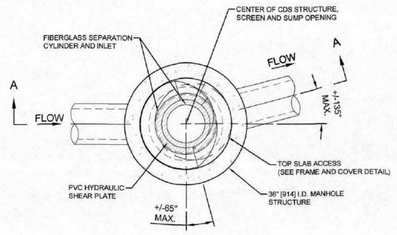
KEY PLAN

SCALE: NOT TO SCALE
PROJECT NUMBER: 143-169451-17001

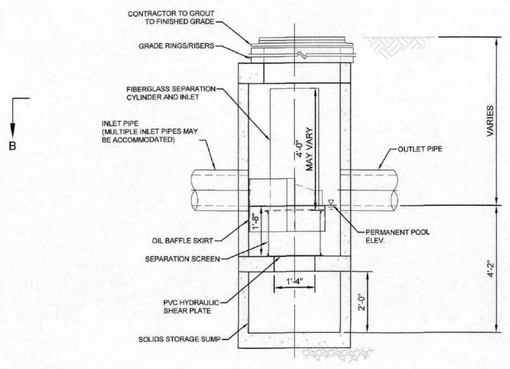
DETAIL SHEET

C-15

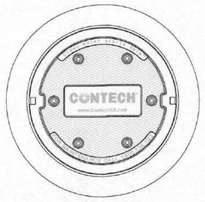
10/8/2018 - P:\169451\1\43-169451-17001\CAD\SheetFiles\Detail Sheets.DWG - PAPPAS, JUD



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.

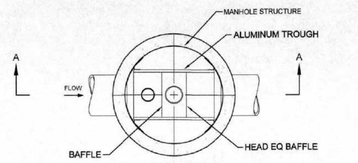


FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

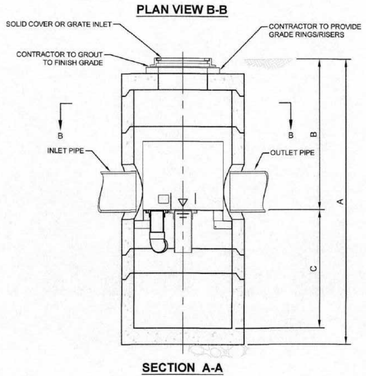
GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
6. CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH CDS1515-3-C WATER QUALITY UNIT (WQU)
NOT TO SCALE



PLAN VIEW B-B



SECTION A-A

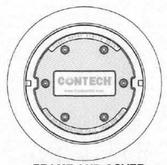
VORTSENTRY HS DESIGN NOTES

THE STANDARD SOLID COVER CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW.

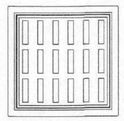
	CONFIGURATION OPTION DESCRIPTION
	GRATE INLET (NO INLET PIPE)
	GRATE INLET WITH INLET PIPE

VORTSENTRY HS GENERAL INFORMATION

Model	Manhole Diameter (ID)		Typical Total Distance Rim to Outside Bottom A		Typical Distance Rim to Invert B		Typical Depth Below Invert (Inside) C		Approximate Minimum Distance Rim to Invert		Maximum Pipe Diameter (ID)	
	FT	mm	FT	m	FT	m	FT	mm	FT	m	IN	mm
HS36	3	900	10.16	3.10	4.08	1.24	5.58	1702	3.00	0.91	18	450
HS48	4	1200	13.25	4.04	6.00	1.83	6.75	2057	4.00	1.22	24	600
HS60	5	1500	15.13	4.61	6.50	1.98	7.96	2426	4.82	1.47	30	750
HS72	6	1800	16.55	5.05	6.75	2.06	9.15	2788	5.59	1.70	36	900
HS84	7	2100	18.65	5.75	7.75	2.36	10.35	3156	5.60	1.52	42	1050
HS96	8	2400	20.87	6.36	8.50	2.59	11.54	3518	6.91	2.11	48	1200



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



FRAME AND GRATE
(24" SQUARE)
N.T.S.

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. VORTSENTRY HS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.

INSTALLATION NOTES
1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE VORTSENTRY HS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
5. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH VORTSENTRY HS WATER QUALITY UNIT (WQU)
NOT TO SCALE

10/8/2018 - P:\156451\143-156451-17001\CAD\Sheet Files\Detail Sheets DWG - PAPPAS .mjd

114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

KEY PLAN

SCALE	PROJECT NUMBER
NOT TO SCALE	143-156451-17001

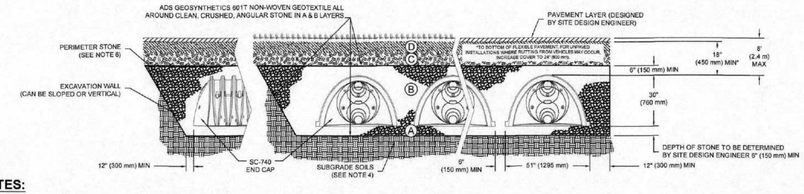
CONTECH WATER QUALITY UNIT DETAILS

C-16

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

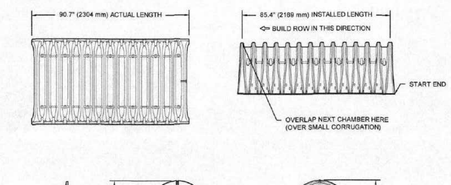


NOTES:

1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

SC-740 TECHNICAL SPECIFICATION

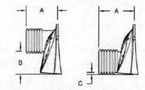
NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	45.9 CUBIC FEET	(1.30 m³)
MINIMUM INSTALLED STORAGE*	74.6 CUBIC FEET	(2.12 m³)
WEIGHT	75.0 lbs.	(33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE-CORED END CAPS END WITH "PC"

PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	---
SC740EPE06B / SC740EPE06BPC			---	0.5" (13 mm)
SC740EPE08T / SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	---
SC740EPE08B / SC740EPE08BPC			---	0.8" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	---
SC740EPE10B / SC740EPE10BPC			---	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	---
SC740EPE12B / SC740EPE12BPC			---	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	---
SC740EPE15B / SC740EPE15BPC			---	1.3" (33 mm)
SC740EPE18T / SC740EPE18TPC	18" (450 mm)	18.7" (600 mm)	5.0" (127 mm)	---
SC740EPE18B / SC740EPE18BPC			---	1.6" (41 mm)
SC740EPE24P*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740EPE24B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC740EPE24B THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-740 OR SC-310.
2. CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN POLYPROPYLENE OR POLYETHYLENE RESINS.
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
5. CHAMBERS SHALL MEET ASTM F2922 (POLYETHYLENE) OR ASTM F2418-16 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
   a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.
   b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 OR ASTM F2922 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
   c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310/SC-740 SYSTEM

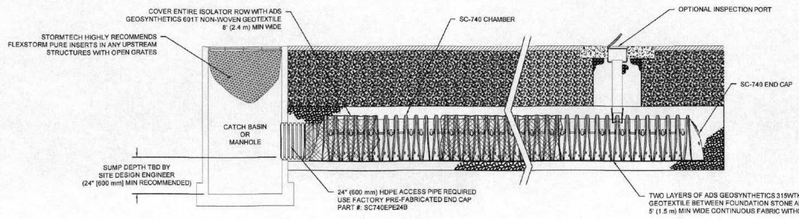
1. STORMTECH SC-310 & SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



SC-740 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

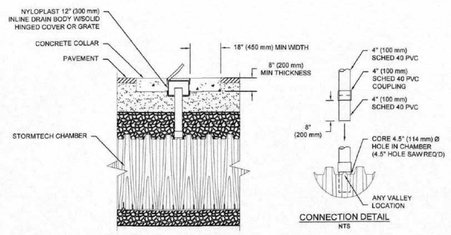
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



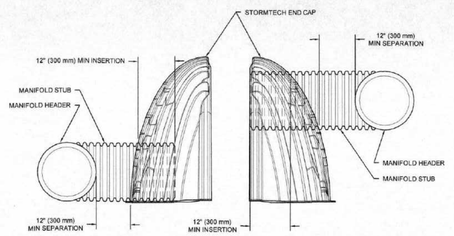
CONNECTION DETAIL
NTS

NOTES:
1. INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.
2. ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED.

4" PVC INSPECTION PORT DETAIL
NTS

MC-SERIES END CAP INSERTION DETAIL

NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2580
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

COMMONWEALTH OF MASSACHUSETTS — GLENN K. DOUGHERTY — NO. 37324 — REGISTERED PROFESSIONAL ENGINEER

STAMP

KEY PLAN

SCALE: NOT TO SCALE
PROJECT NUMBER: 143-168451-17001

STORMTECH RECHARGE AREA DETAILS

C-17

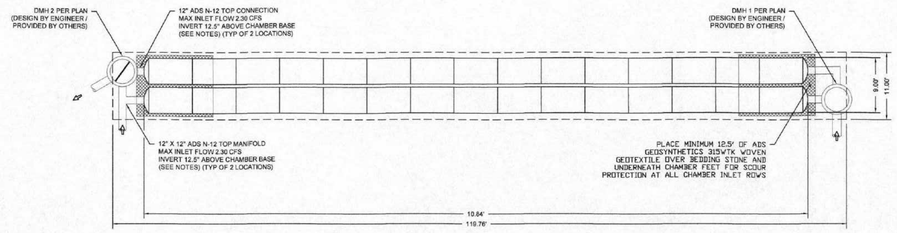
10/8/2018 - P:\168451\143-168451-17001\CAD\SheetFiles\Detail Sheets-Stormtech.DWG - PAPPAS, JUD

PROPOSED LAYOUT: SYSTEM 1	
30	STORMTECH SC-740 CHAMBERS
5	STORMTECH SC-740 END CAPS
5	STONE ABOVE (in)
5	STONE BELOW (in)
40	% STONE VOID
1317	SYSTEM AREA (ft²)
282	SYSTEM PERIMETER (ft)

PROPOSED ELEVATIONS: SYSTEM 1	
148.25	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
142.25	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
141.75	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
141.75	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
141.75	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
140.75	TOP OF STONE
140.25	TOP OF SC-740 CHAMBER
138.79	12" TOP MANIFOLD / CONNECTION INVERT
137.75	BOTTOM OF SC-740 CHAMBER
137.25	BOTTOM OF STONE

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH SHEET #7 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE RETAINING WALL AND CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON THE RETAINING WALL'S INTEGRITY.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE SLOPE AND CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON THE SLOPE'S INTEGRITY.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE BUILDING/STRUCTURE. NO FOUNDATION LOADS SHALL BE TRANSMITTED TO THE CHAMBERS. THE SITE DESIGN ENGINEER MUST CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON BEARING CAPACITY OF SOILS AND SEEPAGE INTO BASEMENTS.
- THE STORMTECH SYSTEM DEPICTED DOES NOT INCLUDE WATER QUALITY MEASURES AND/OR DOES NOT PROVIDE THE ABILITY TO BE INSPECTED, CLEANED, AND MAINTAINED. NOT MAINTAINING THE SYSTEM MAY LEAD TO A DECREASE IN STORAGE VOLUME OVER TIME. ADS RECOMMENDS THE USE OF THE ISOLATOR ROW ON ALL STORMTECH SYSTEMS.



SUBSURFACE RECHARGE AREA 1

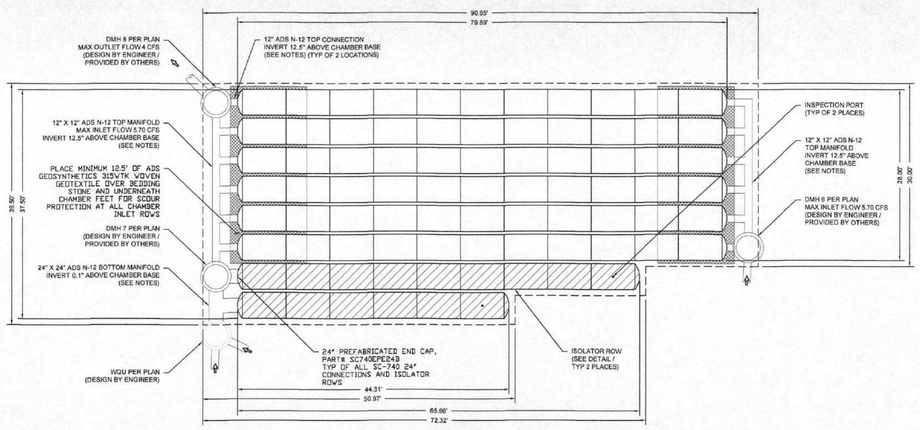
NOT TO SCALE

PROPOSED LAYOUT: SYSTEM 2	
81	STORMTECH SC-740 CHAMBERS
16	STORMTECH SC-740 END CAPS
5	STONE ABOVE (in)
5	STONE BELOW (in)
40	% STONE VOID
3305	SYSTEM AREA (ft²)
260	SYSTEM PERIMETER (ft)

PROPOSED ELEVATIONS: SYSTEM 2	
149.86	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
143.86	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
143.36	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
143.36	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
143.36	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
142.36	TOP OF STONE
141.86	TOP OF SC-740 CHAMBER
140.34	12" TOP MANIFOLD / CONNECTION INVERT
139.31	24" X 24" BOTTOM MANIFOLD INVERT
139.31	24" ISOLATOR ROW CONNECTION INVERT
139.36	BOTTOM OF SC-740 CHAMBER
138.86	BOTTOM OF STONE

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH SHEET #7 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE BUILDING/STRUCTURE. NO FOUNDATION LOADS SHALL BE TRANSMITTED TO THE CHAMBERS.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE SLOPE AND CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON THE SLOPE'S INTEGRITY.



SUBSURFACE RECHARGE AREA 2

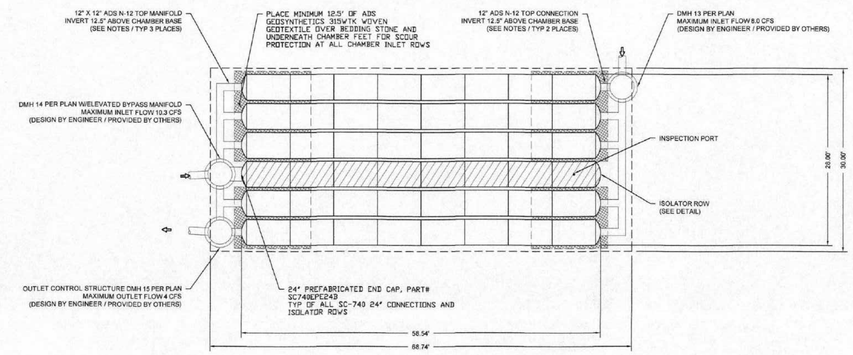
NOT TO SCALE

PROPOSED LAYOUT: SYSTEM 3	
48	STORMTECH SC-740 CHAMBERS
12	STORMTECH SC-740 END CAPS
6	STONE ABOVE (in)
6	STONE BELOW (in)
40	% STONE VOID
2062	SYSTEM AREA (ft²)
197	SYSTEM PERIMETER (ft)

PROPOSED ELEVATIONS: SYSTEM 3	
149.20	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
143.20	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
142.70	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
142.70	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
142.70	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
141.70	TOP OF STONE
141.20	TOP OF SC-740 CHAMBER
139.74	12" TOP MANIFOLD INVERT
138.71	24" ISOLATOR ROW CONNECTION INVERT
138.70	BOTTOM OF SC-740 CHAMBER
138.20	BOTTOM OF STONE

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH SHEET #7 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE BUILDING/STRUCTURE. NO FOUNDATION LOADS SHALL BE TRANSMITTED TO THE CHAMBERS. THE SITE DESIGN ENGINEER MUST CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON BEARING CAPACITY OF SOILS AND SEEPAGE INTO BASEMENTS.



SUBSURFACE RECHARGE AREA 3

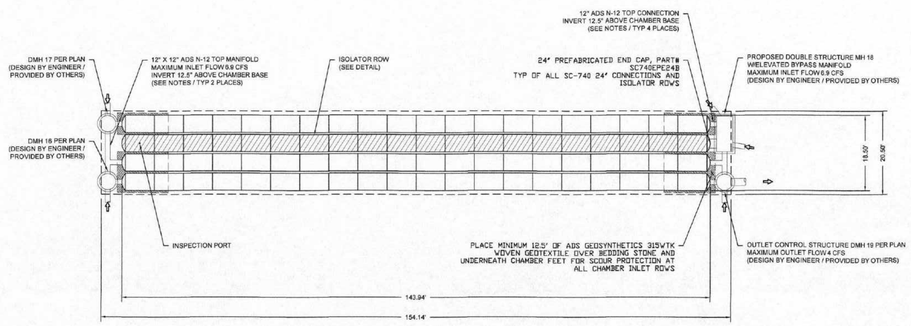
NOT TO SCALE

PROPOSED LAYOUT: SYSTEM 4	
80	STORMTECH SC-740 CHAMBERS
8	STORMTECH SC-740 END CAPS
6	STONE ABOVE (in)
9	STONE BELOW (in)
40	% STONE VOID
3180	SYSTEM AREA (ft²)
349	SYSTEM PERIMETER (ft)

PROPOSED ELEVATIONS: SYSTEM 4	
152.15	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
146.15	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
145.65	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
145.65	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
145.65	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
144.65	TOP OF STONE
144.15	TOP OF SC-740 CHAMBER
142.69	12" TOP MANIFOLD INVERT
141.66	24" ISOLATOR ROW CONNECTION INVERT
141.65	BOTTOM OF SC-740 CHAMBER
141.15	BOTTOM OF STONE

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH SHEET #7 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.



SUBSURFACE RECHARGE AREA 4

NOT TO SCALE

114 WHITWELL

Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN

115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

COMMONWEALTH OF MASSACHUSETTS
GLENN K. DOUGHERTY
CIVIL
NO. 37924
REGISTERED PROFESSIONAL ENGINEER

STAMP

KEY PLAN

SCALE: NOT TO SCALE
PROJECT NUMBER: 143-164451-17001

STORMTECH RECHARGE AREA DETAILS

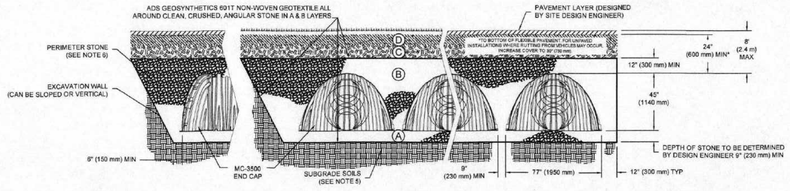
C-18

10/8/2018 - P:\164451\1\43-164451-17001\CAD\Sheets\Detail Sheets-Stormtech.DWG - PAPPAS, JUD

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145* A-1, A-2-4, A-3 OR AASHTO M43* 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43* 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43* 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.**

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

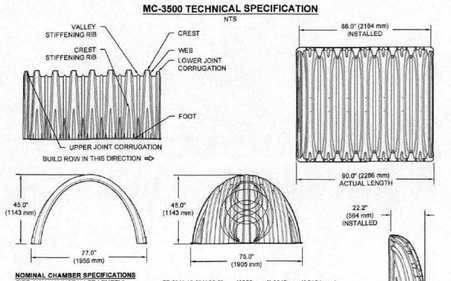


NOTES:

1. MC-3500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.

MC-3500 TECHNICAL SPECIFICATION

NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	178.9 CUBIC FEET	(5.06 m³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	46.9 CUBIC FEET	(1.30 m³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.86" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.90" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.76" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE MADE FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
5. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
   a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.
   b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET, THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
   c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

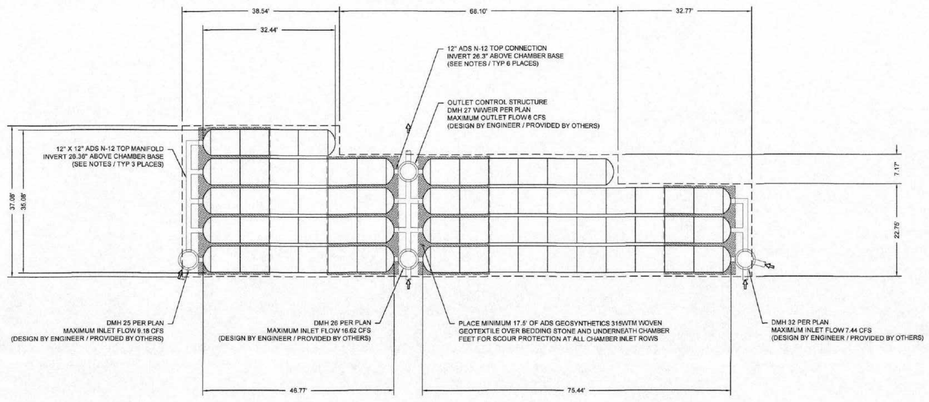
USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

PROPOSED LAYOUT: SYSTEM 5	
54	STORMTECH MC-3500 CHAMBERS
18	STORMTECH MC-3500 END CAPS
12	STONE ABOVE (in)
9	STONE BELOW (in)
40	% STONE VOID
4,212	SYSTEM AREA (ft²)
353	SYSTEM PERIMETER (ft)

PROPOSED ELEVATIONS: SYSTEM 5	
139.50	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
134.00	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
133.50	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
133.50	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
133.50	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
132.50	TOP OF STONE
131.50	TOP OF MC-3500 CHAMBER
129.90	12" TOP MANIFOLD INVERT
127.75	BOTTOM OF MC-3500 CHAMBER
127.00	BOTTOM OF STONE

NOTES
- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH SHEET #7 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE RETAINING WALL AND CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON THE RETAINING WALL'S INTEGRITY.

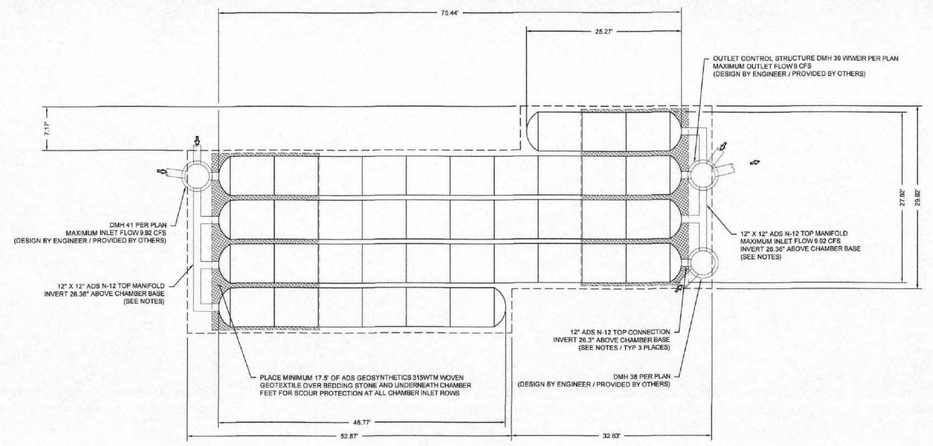


SUBSURFACE RECHARGE AREA 5
NOT TO SCALE

PROPOSED LAYOUT: SYSTEM 6	
39	STORMTECH MC-3500 CHAMBERS
10	STORMTECH MC-3500 END CAPS
12	STONE ABOVE (in)
9	STONE BELOW (in)
40	% STONE VOID
2,548	SYSTEM AREA (ft²)
248	SYSTEM PERIMETER (ft)

PROPOSED ELEVATIONS: SYSTEM 6	
130.15	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
124.65	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
124.15	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
124.15	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
124.15	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
123.15	TOP OF STONE
122.15	TOP OF MC-3500 CHAMBER
120.80	12" TOP MANIFOLD INVERT
119.40	BOTTOM OF MC-3500 CHAMBER
117.65	BOTTOM OF STONE

NOTES
- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH SHEET #7 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE BUILDING/STRUCTURE. NO FOUNDATION LOADS SHALL BE TRANSMITTED TO THE CHAMBERS. THE SITE DESIGN ENGINEER MUST CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON BEARING CAPACITY OF SOILS AND SEEPAGE INTO BASEMENTS.



SUBSURFACE RECHARGE AREA 6
NOT TO SCALE

114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST, SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

COMMONWEALTH OF MASSACHUSETTS — GLENN K. DOUGHERTY — CIVIL — NO. 37924 — REGISTERED PROFESSIONAL ENGINEER

STAMP

KEY PLAN

SCALE: NOT TO SCALE
PROJECT NUMBER: 143-196451-17001

STORMTECH RECHARGE AREA DETAILS

C-19

10/8/2018 - P:\196451\143-196451-17001\CAD\SheetFiles\Detail Sheets-Stormtech.DWG - PAPPAS, JUD

GENERAL NOTES:
1. SEE CHART ON SHEET LT-2 FOR LIGHTING AREA DESCRIPTIONS AND FIXTURE SCHEDULE.

114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN

115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

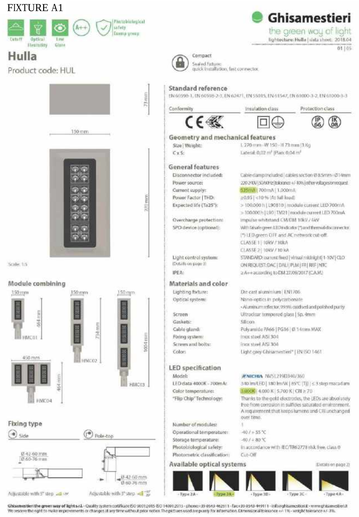
KEY PLAN

SCALE	PROJECT NUMBER
1" = 30'-0"	143-166451-17001

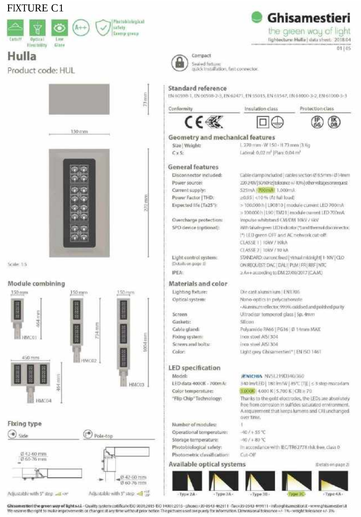
SITE LIGHTING PLAN 1

LT-1

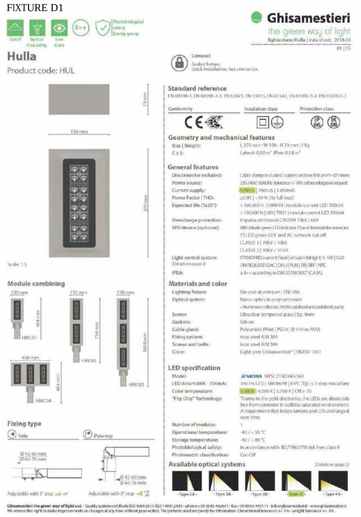
FIXTURE A1



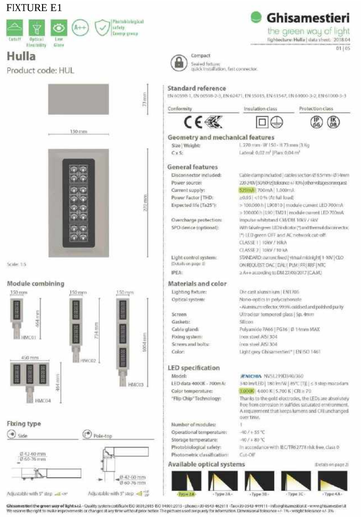
FIXTURE C1



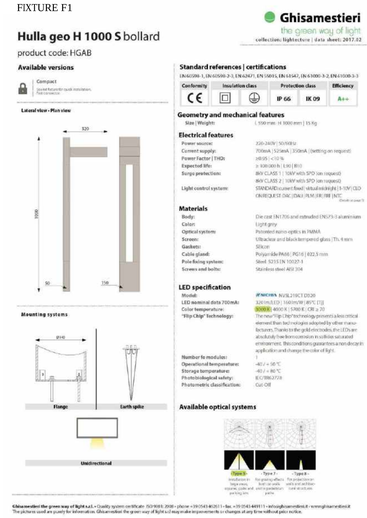
FIXTURE D1



FIXTURE E1



FIXTURE F1



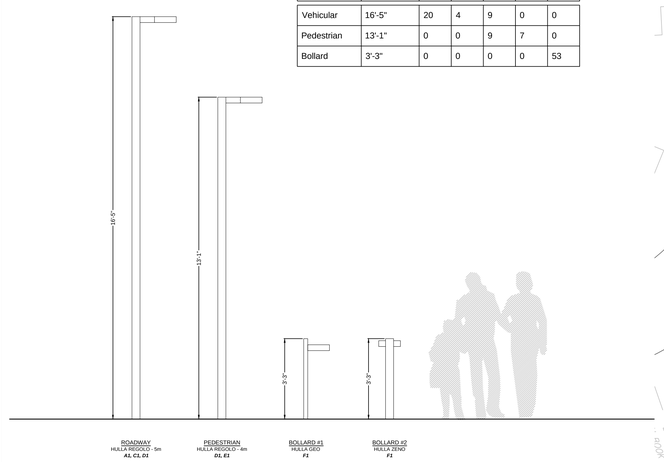
ISOLINE KEY

- 0.00 fc
- 0.50 fc
- 1.00 fc
- 2.00 fc
- 3.00 fc
- 4.00 fc
- 5.00 fc

Luminaire Schedule									
Symbol	Qty	Label	Description	Arrangement	Arm	MH	LLF	Lum. Lumens	Lum. Watts
	20	A1	HULLA - OPTIC 3A - 1 MODULE - 525mA	SINGLE	1	16.5	0.940	3613	26
	4	C1	HULLA - OPTIC 3C - 1 MODULE - 700mA	SINGLE	1	16.5	0.846	4688	35
	18	D1	HULLA - OPTIC 3C - 1 MODULE - 525mA	SINGLE	1	13.0	0.846	3627	26
	7	E1	HULLA - OPTIC 2A - 1 MODULE - 525mA	SINGLE	1	13.0	0.884	3640	26
	53	F1	HULLA GEO BOLLARD - OPTIC 5 - 700mA	SINGLE	0	3.0	0.960	1019	10

Calculation Summary								
	Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
	Roadway	Illuminance	Fc	1.3	3.6	0.2	6.6	18.0
1	Driveway A - Rowhouse 1-2	Illuminance	Fc	0.9	3.2	0.1	8.7	32.0
2	Driveway B - Rowhouse 3-4	Illuminance	Fc	0.9	3.4	0.0	N.A.	N.A.
3	Garage Entry - Bldg A	Illuminance	Fc	1.4	2.9	0.8	1.8	3.6
4	Garage Entry - Bldg B	Illuminance	Fc	N.A.	N.A.	N.A.	N.A.	N.A.
5	Garage Entry - Bldg C	Illuminance	Fc	1.3	4.0	0.5	2.5	8.0
6	Dog Park	Illuminance	Fc	0.9	4.2	0.0	N.A.	N.A.
7	Pedestrian - Admin	Illuminance	Fc	N.A.	N.A.	N.A.	N.A.	N.A.
8	Pedestrian - Primary Path	Illuminance	Fc	1.8	5.3	0.5	3.6	10.6
9	Pedestrian - Secondary Paths	Illuminance	Fc	N.A.	N.A.	N.A.	N.A.	N.A.

Pole Summary - Quantities		Luminaire Label				
Label	Pole Height	A1	C1	D1	E1	F1
Vehicular	16'-5"	20	4	9	0	0
Pedestrian	13'-1"	0	0	9	7	0
Bollard	3'-3"	0	0	0	0	53



114
WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY
DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

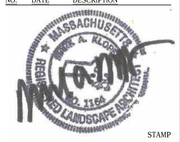
KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
ME/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

1. 10/10/2018 SUBMIT TO PLANNING BOARD

NO. DATE DESCRIPTION



STAMP

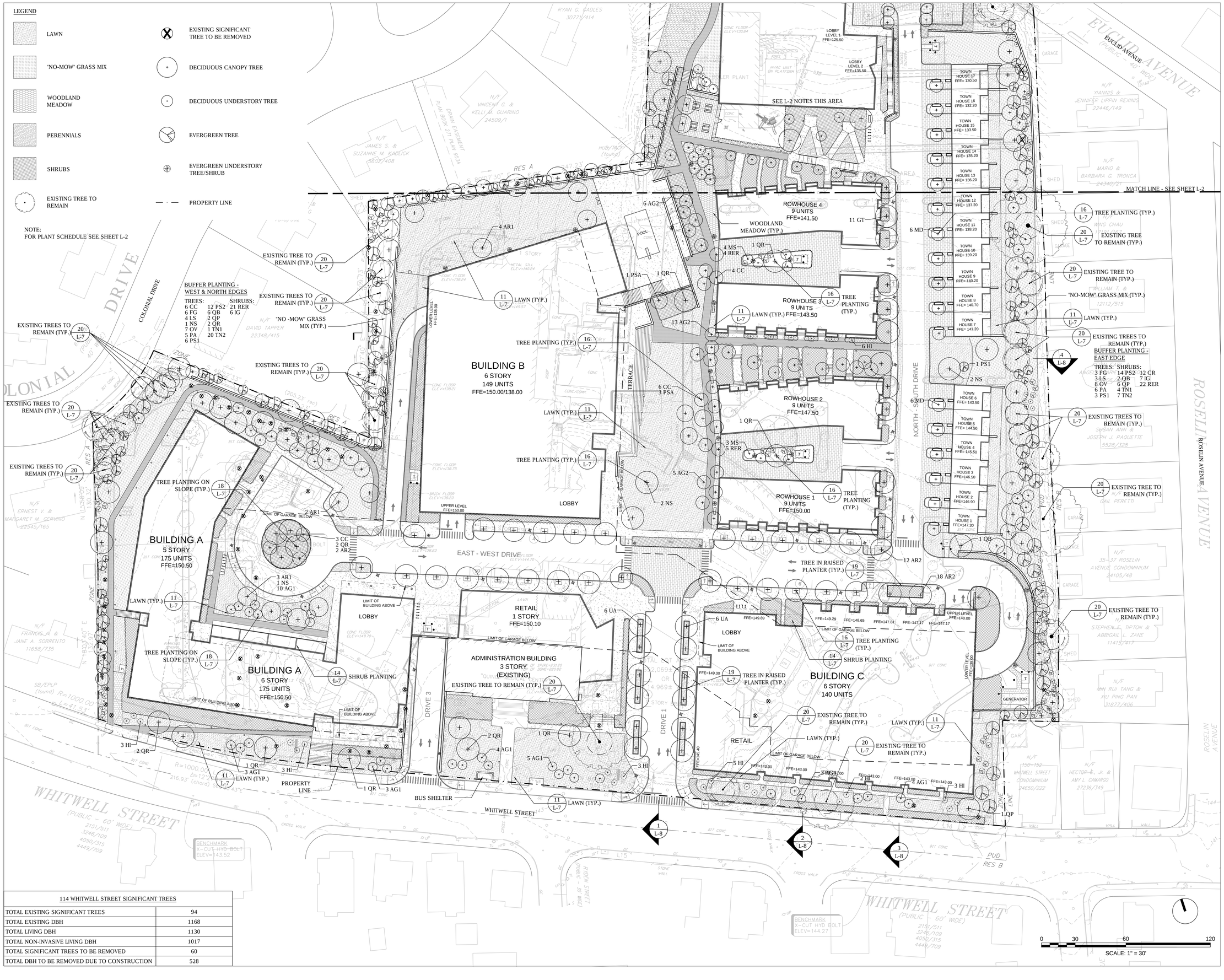
KEY PLAN

SCALE: 1" = 30'-0"

PROJECT NUMBER: 143-166451-17001

SITE LIGHTING PLAN 2

LT-2



114 WHITWELL STREET SIGNIFICANT TREES	
TOTAL EXISTING SIGNIFICANT TREES	94
TOTAL EXISTING DBH	1168
TOTAL LIVING DBH	1130
TOTAL NON-INVASIVE LIVING DBH	1017
TOTAL SIGNIFICANT TREES TO BE REMOVED	60
TOTAL DBH TO BE REMOVED DUE TO CONSTRUCTION	528

114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

KEY PLAN

SCALE 1" = 30'-0"
PROJECT NUMBER 143-166451-17001

SITE LANDSCAPE - PLANTING PLAN 1

L-1

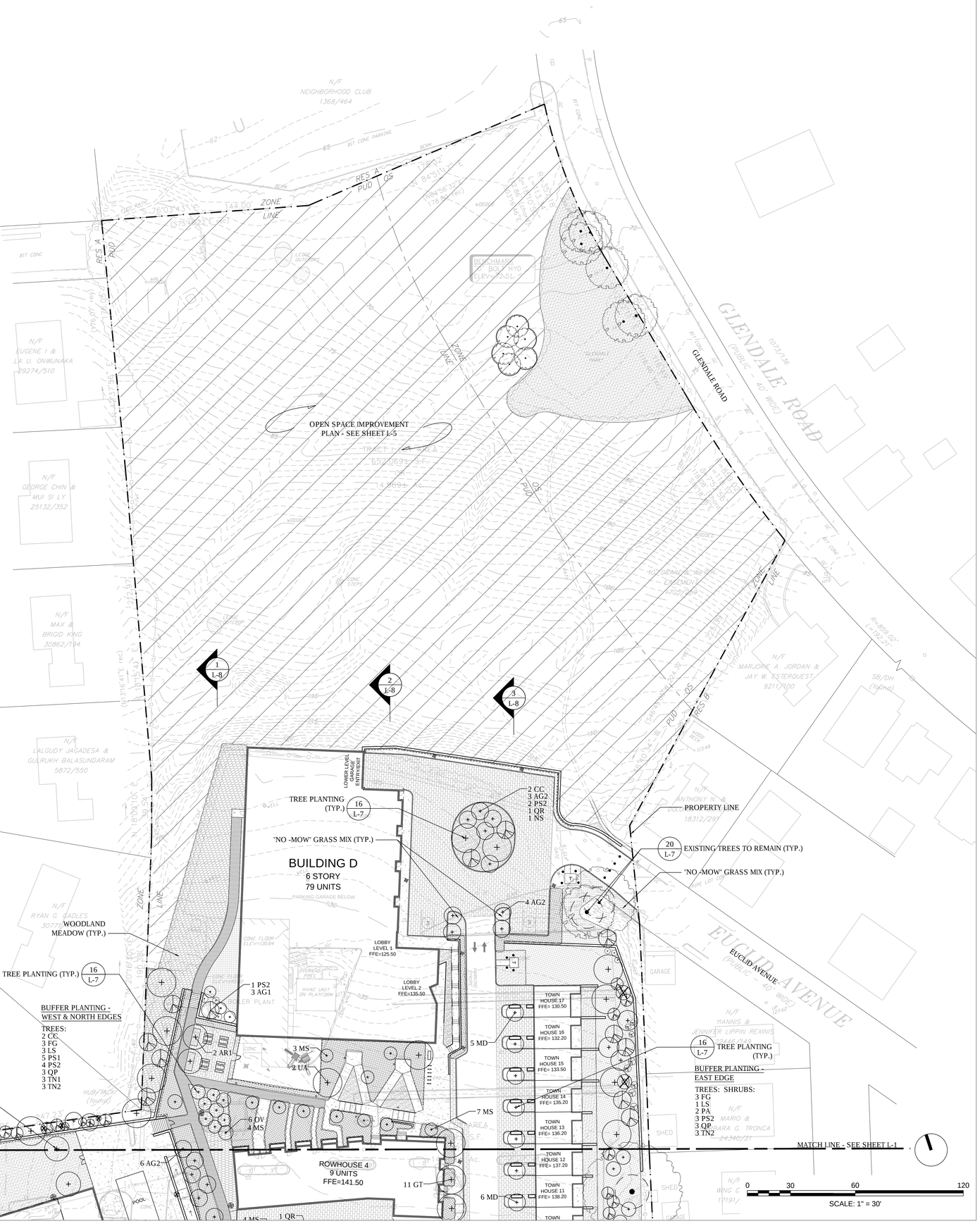
LEGEND

LAWN	EXISTING SIGNIFICANT TREE TO BE REMOVED
"NO-MOW" GRASS MIX	DECIDUOUS CANOPY TREE
WOODLAND MEADOW	DECIDUOUS UNDERSTORY TREE
PERENNIALS	EVERGREEN TREE
SHRUBS	EVERGREEN UNDERSTORY TREE/SHRUB
EXISTING TREE TO REMAIN	PROPERTY LINE

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
AG1	35	Amelanchier x grandiflora `Autumn Brilliance`	Autumn Brilliance Serviceberry	6-8` ht.	multistem
AG2	31	Amelanchier x grandiflora `Princess Diana`	Princess Diana Serviceberry	2-2.5" cal. B&B	single stem
AR1	11	Acer rubrum	Red Maple	2.5-3" cal. B&B	
AR2	32	Acer rubrum	Red Maple	3.5-4" cal. B&B	
CC	23	Carpinus caroliniana	American Hornbeam	1.5-2" cal. B&B	
FG	15	Fagus grandifolia	American Beech	2-2.5" cal. B&B	
GT	11	Gleditsia triacanthos inermis `Skycole`	Skyline Thornless Honey Locust	3.5-4" cal. B&B	
LS	11	Liquidambar styraciflua	American Sweet Gum	3.5-4" cal. B&B	
MD	17	Malus x `Donald Wyman`	Donald Wyman Crab Apple	2-2.5" cal. B&B	
MS	21	Magnolia stellata `Royal Star`	Royal Star Magnolia	5-6` ht. B&B	
NS	7	Nyssa sylvatica	Sour Gum	3.5-4" cal. B&B	
OV	21	Ostrya virginiana	American Hophornbeam	1-1.5" cal. cont.	
PA	13	Picea abies	Norway Spruce	3.5-4" cal. B&B	
PS1	15	Pinus strobus	White Pine	2.5-3" cal. B&B	
PS2	36	Pinus strobus	White Pine	3.5-4" cal. B&B	
PSA	4	Prunus subhirtella `Autumnalis`	Autumn Flowering Cherry	15 gal	
QB	9	Quercus bicolor	Swamp White Oak	3.5-4" cal. B&B	
QP	15	Quercus palustris	Pin Oak	3.5-4" cal. B&B	
QR	15	Quercus rubra	Red Oak	3.5-4" cal. B&B	
TN1	8	Thuja occidentalis `Nigra`	Arborvitae	2.5-3" cal. B&B	
TN2	33	Thuja occidentalis `Nigra`	Arborvitae	3.5-4" cal. B&B	
UA	14	Ulmus americana `Princeton`	American Elm	3.5-4" cal. B&B	also acceptable: `Jefferson` or `New Harmony`

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
CR	15	Cornus racemosa	Gray Dogwood	#3 pot	buffer planting
HI	28	Hamamelis x intermedia `Arnold Promise`	Arnold Promise Hybrid Witch Hazel	4-5` B&B	
IG	16	Ilex glabra	Inkberry Holly	#7 pot	
RER	57	Rhododendron x `English Roseum`	English Roseum Rhododendron	3-4` B&B	

114 WHITWELL STREET SIGNIFICANT TREES	
TOTAL EXISTING SIGNIFICANT TREES	94
TOTAL EXISTING DBH	1168
TOTAL LIVING DBH	1130
TOTAL NON-INVASIVE LIVING DBH	1017
TOTAL SIGNIFICANT TREES TO BE REMOVED	60
TOTAL DBH TO BE REMOVED DUE TO CONSTRUCTION	528



114 WHITWELL

Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

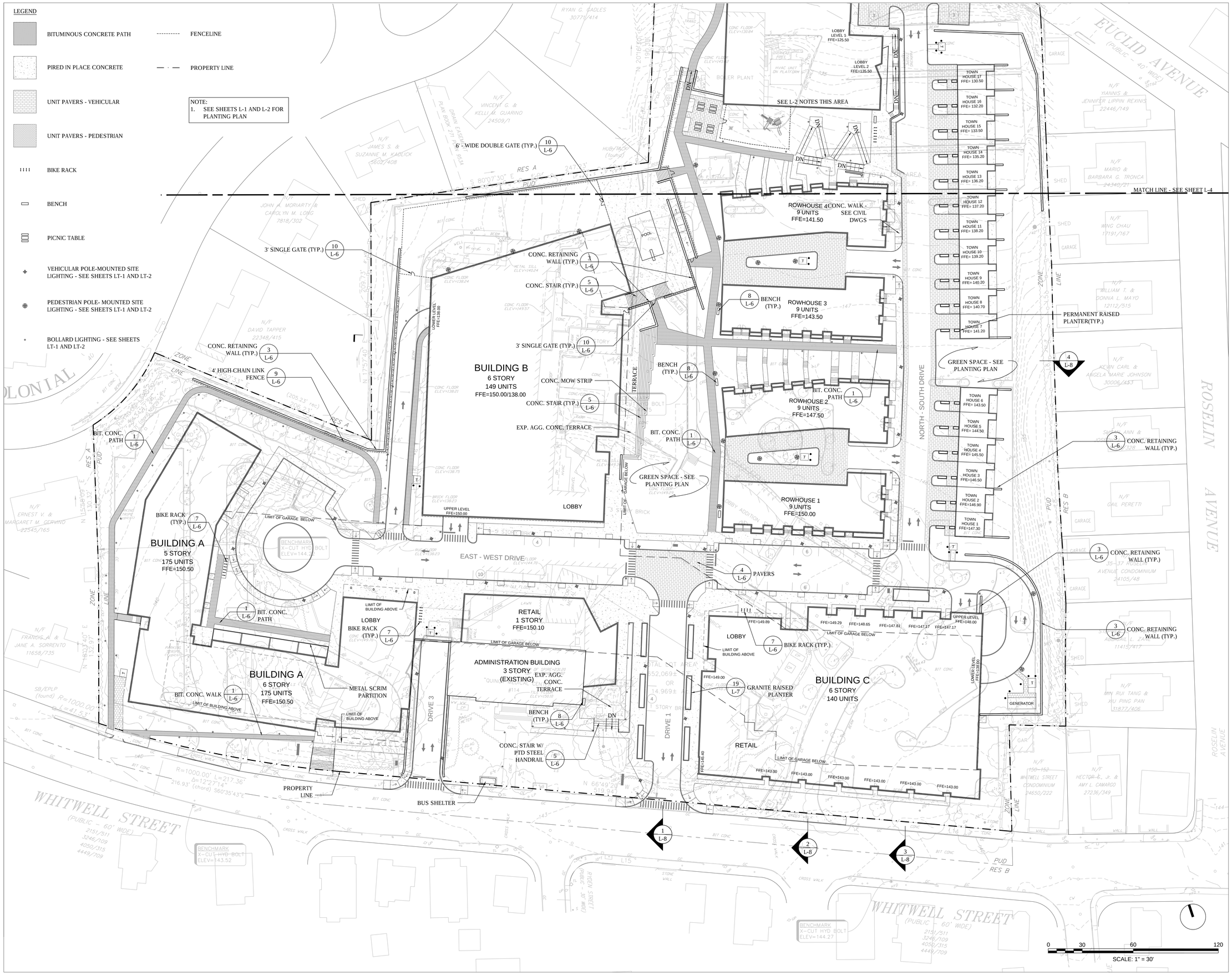
STAMP

KEY PLAN

SCALE: 1" = 30'-0"
PROJECT NUMBER: 143-166451-17001

SITE LANDSCAPE - PLANTING PLAN 2

L-2



114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

KEY PLAN

SCALE 1" = 30'-0"
PROJECT NUMBER 143-166451-17001

SITE LANDSCAPE - MATERIALS PLAN 1

L-3

LEGEND

- BITUMINOUS CONCRETE PATH
- PIRED IN PLACE CONCRETE
- UNIT PAVERS - VEHICULAR
- UNIT PAVERS - PEDESTRIAN
- BIKE RACK
- BENCH
- PICNIC TABLE
- VEHICULAR POLE-MOUNTED SITE LIGHTING - SEE SHEETS LT-1 AND LT-2
- PEDESTRIAN POLE- MOUNTED SITE LIGHTING - SEE SHEETS LT-1 AND LT-2
- BOLLARD LIGHTING - SEE SHEETS LT-1 AND LT-2
- FENCELINE
- PROPERTY LINE

NOTE:
1. SEE SHEETS L-1 AND L-2 FOR PLANTING PLAN

114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

KEY PLAN

SCALE 1" = 30'-0"
PROJECT NUMBER 143-166451-17001

SITE LANDSCAPE - MATERIALS PLAN 2

L-4

LEGEND

CLEAR UNDERSTORY OF INVASIVE PLANT MATERIAL, DEAD TREES AND DEADWOOD ON EXISTING TREES. REMOVE AND DISPOSE OF TRASH IN UNDERSTORY.

REFURBISHED LAWN - INCLUDES AERATION, SOIL AMENDMENT AND RE-SEEDING

EXISTING TREES TO REMAIN

PROPERTY LINE

NOTES:

1. EXISTING FOOTPRINTS SHALL REMAIN AND BE CLEARED OF DEBRIS AND INVASIVE PLANT MATERIAL AS DIRECTED BY CLIENT REPRESENTATIVE.

114 WHITWELL

Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN

115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

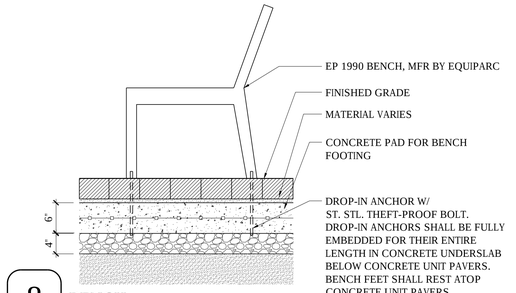
STAMP

KEY PLAN

SCALE: 1" = 30'-0"
PROJECT NUMBER: 143-166451-17001

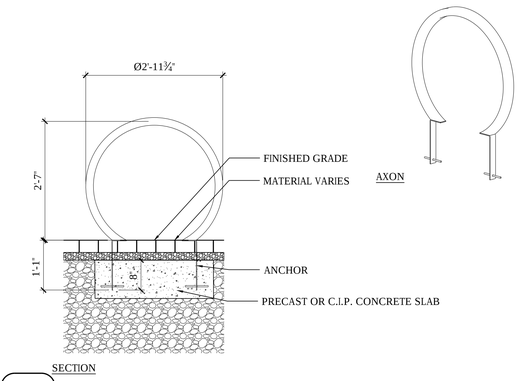
OPEN SPACE IMPROVEMENT PLAN

L-5



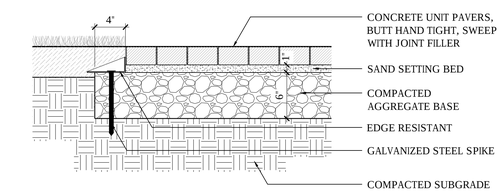
8 BENCH

SCALE: 1" = 1'-0"



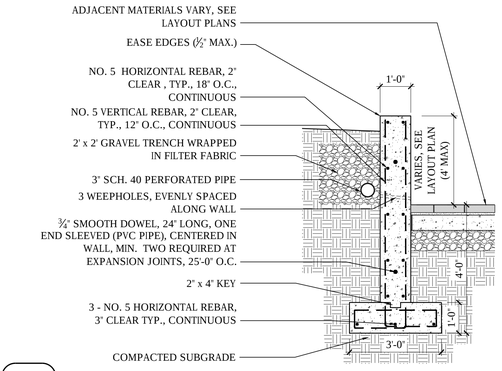
7 BIKE RACK

SCALE: 3/4" = 1'-0"



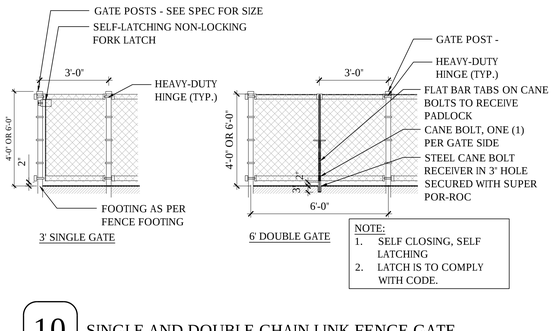
4 CONCRETE UNIT PAVERS

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



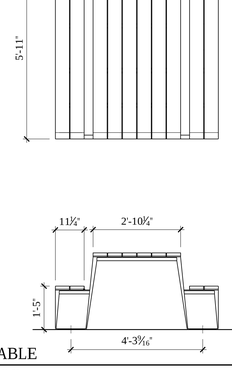
3 CONC. RETAINING WALL WITH BOARD FORMED FINISH

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



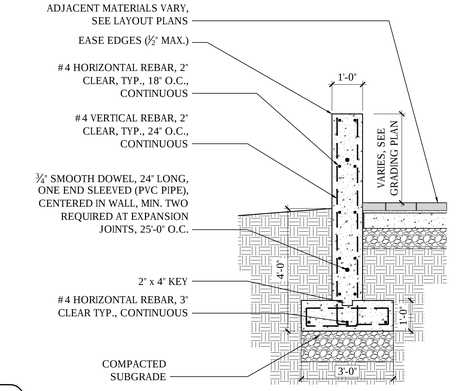
10 SINGLE AND DOUBLE CHAIN LINK FENCE GATE

SCALE: 3/8" = 1'-0"



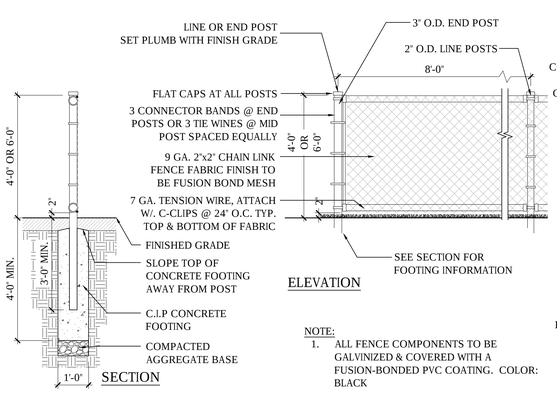
6 PICNIC TABLE

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



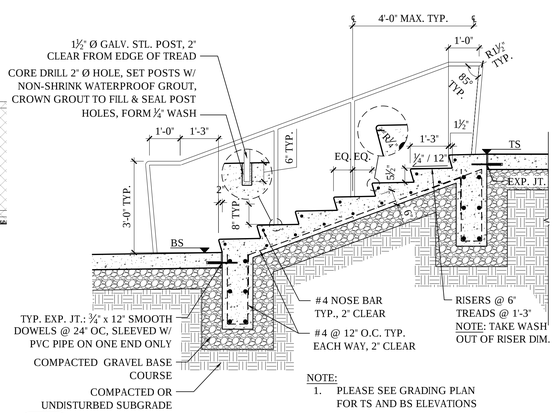
2 FREESTANDING CONC. WALL WITH BOARD FORMED FINISH

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



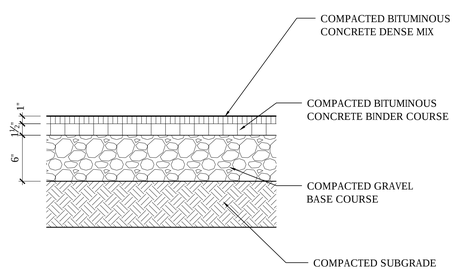
9 4' OR 6' CHAIN LINK FENCE

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



5 STAIR SECTION

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



1 BITUMINOUS CONCRETE PATH

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

114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

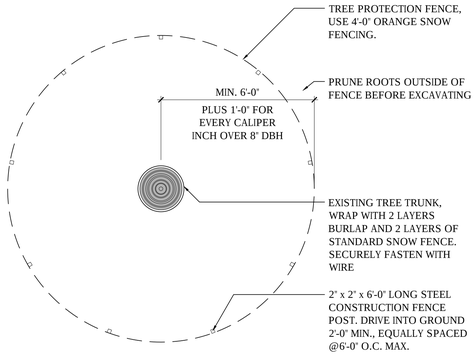
STAMP

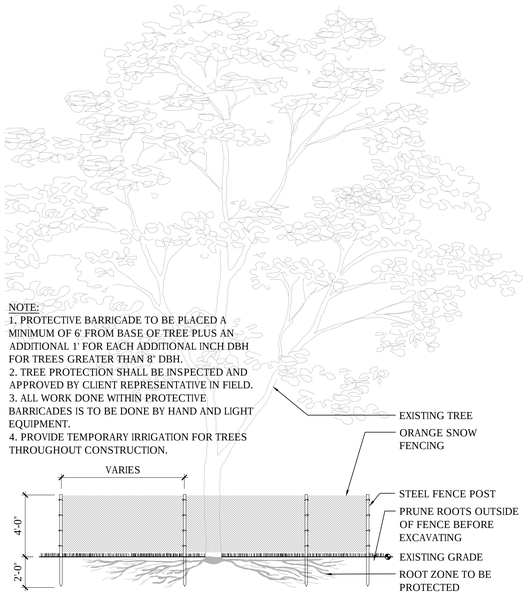
KEY PLAN

SCALE: AS NOTED
PROJECT NUMBER: 143-166451-17001

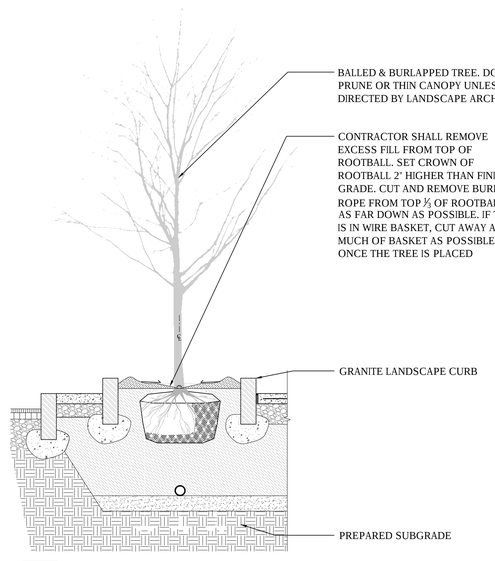
LANDSCAPE DETAILS 1

L-6

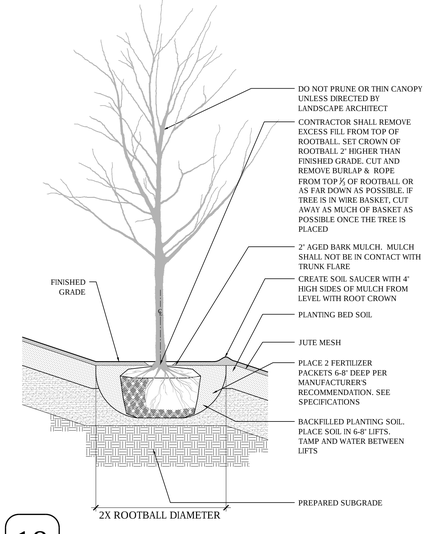




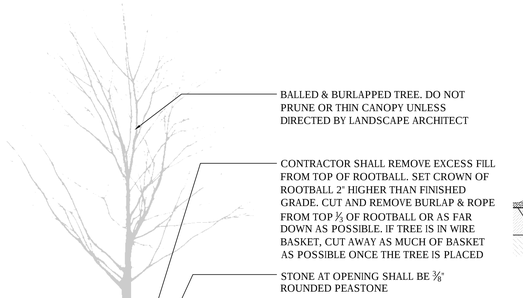
20 EXISTING TREE PROTECTION
SCALE: 1/4" = 1'-0"



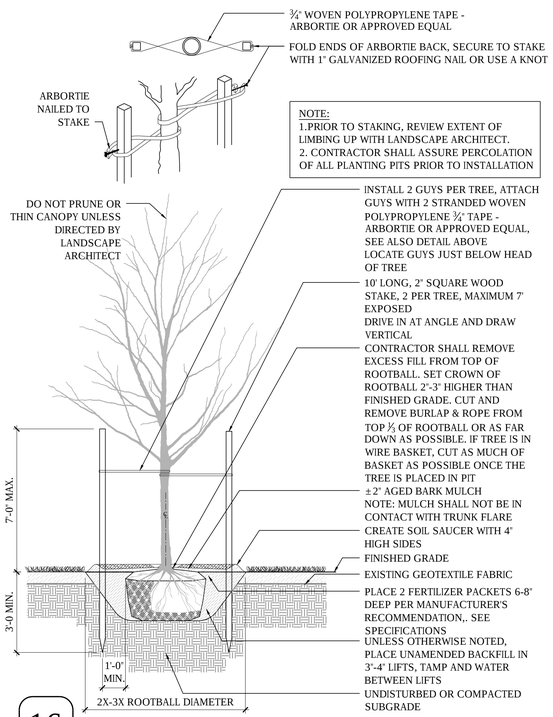
19 TREE PLANTING IN RAISED GRANITE PLANTER
SCALE: 1/2" = 1'-0"



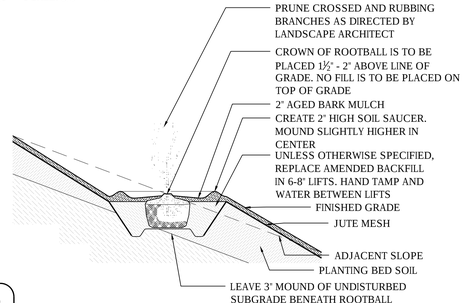
18 TREE PLANTING ON SLOPE
SCALE: 3/8" = 1'-0"



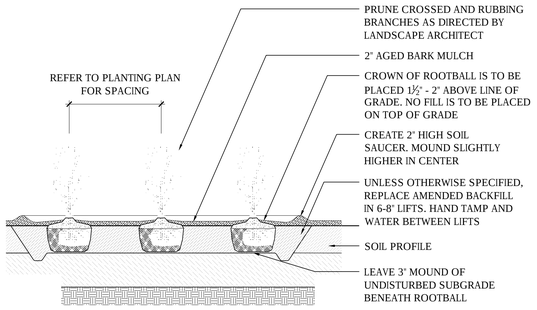
17 TREE PLANTING IN PAVERS
SCALE: 1/2" = 1'-0"



16 DECIDUOUS TREE PLANTING
SCALE: 3/8" = 1'-0"

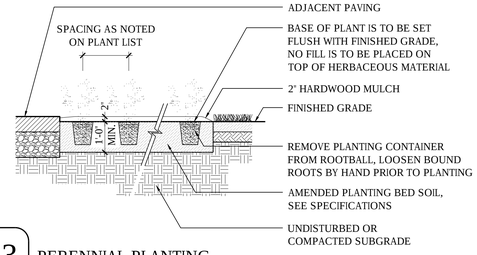


15 SHRUB PLANTING ON SLOPE
SCALE: 1/2" = 1'-0"

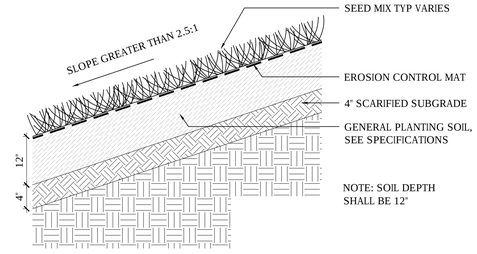


14 SHRUB PLANTING
SCALE: 1/2" = 1'-0"

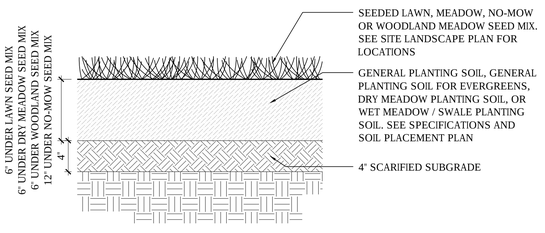
NOTE:
JUTE EROSION CONTROL MAT TO BE USED ON ALL SLOPES GREATER THAN 4:1



13 PERENNIAL PLANTING
SCALE: 1/2" = 1'-0"



12 LAWN AND SEEDING ON SLOPE
SCALE: 1 1/2" = 1'-0"



11 LAWN AND SEEEING
SCALE: 1 1/2" = 1'-0"

114 WHITWELL
Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

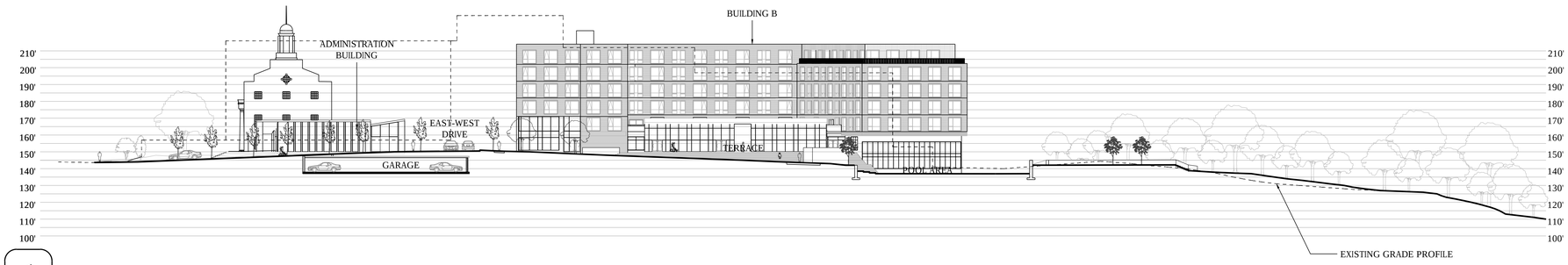
STAMP

KEY PLAN

SCALE: AS NOTED
PROJECT NUMBER: 143-166451-17001

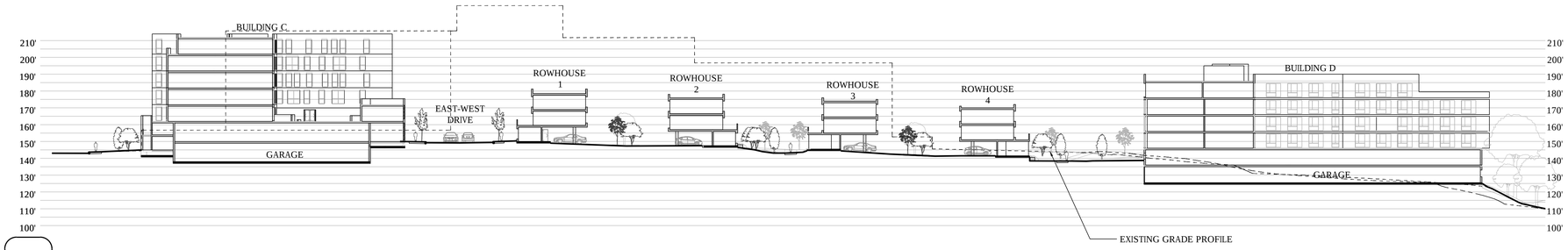
LANDSCAPE DETAILS 2

L-7



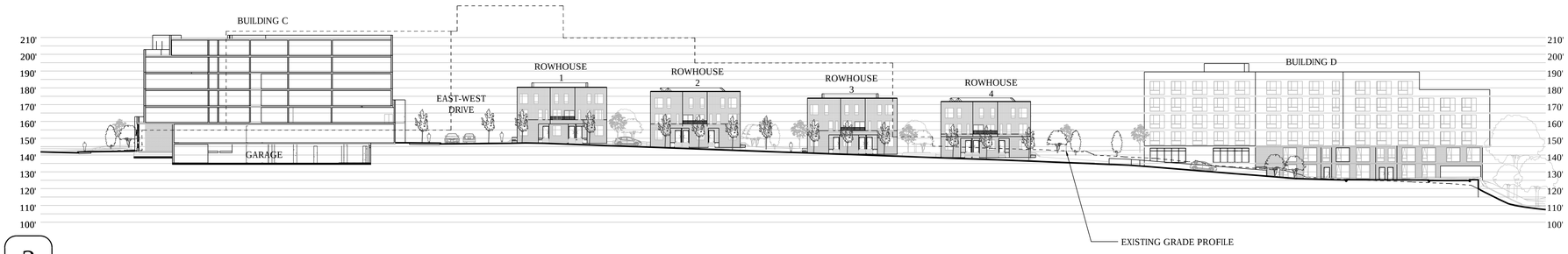
1 NORTH-SOUTH SECTION ALONG CENTRAL AXIS

SCALE: 1/32" = 1'-0"



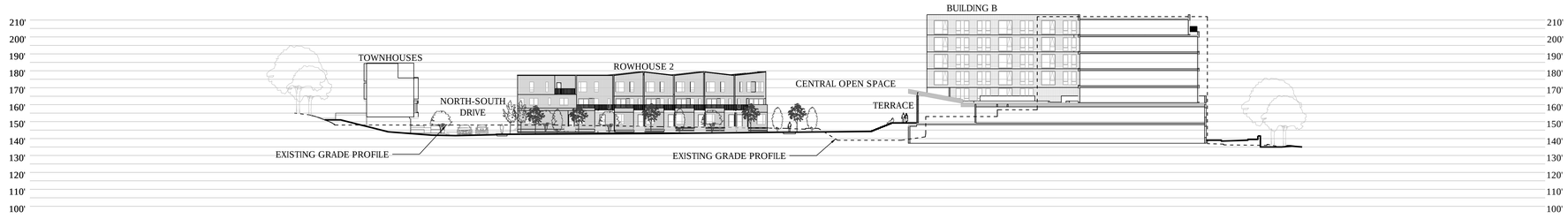
2 NORTH- SOUTH SECTION THROUGH BUILDING C AND ROWHOUSES

SCALE: 1/32" = 1'-0"



3 NORTH-SOUTH SECTION ALONG N-S DRIVE

SCALE: 1/32" = 1'-0"



4 EAST-WEST SECTION THROUGH N-S DRIVE AND CENTRAL OPEN SPACE

SCALE: 1/16" = 1'-0"

114 WHITWELL

Site Development Plans

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

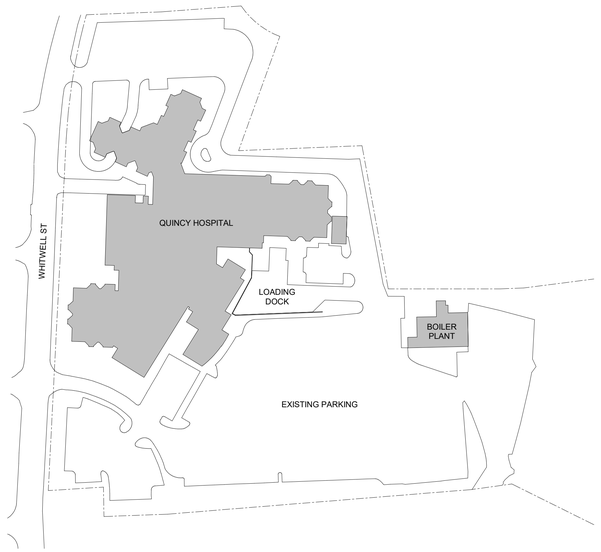
KEY PLAN

SCALE: AS NOTED

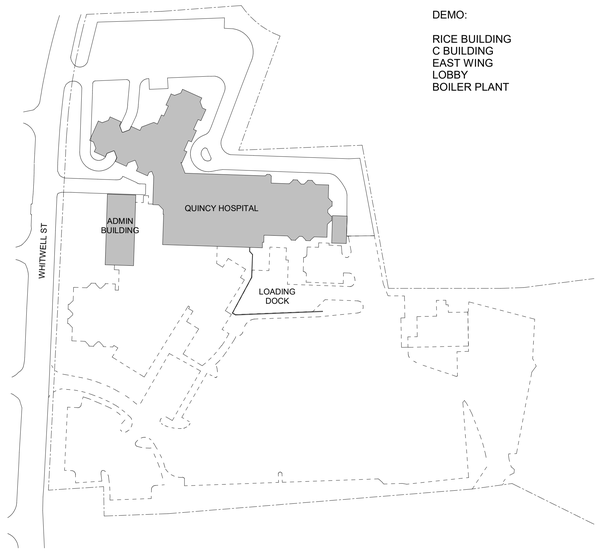
PROJECT NUMBER: 143-166451-17001

PROFILE SECTIONS

L-8



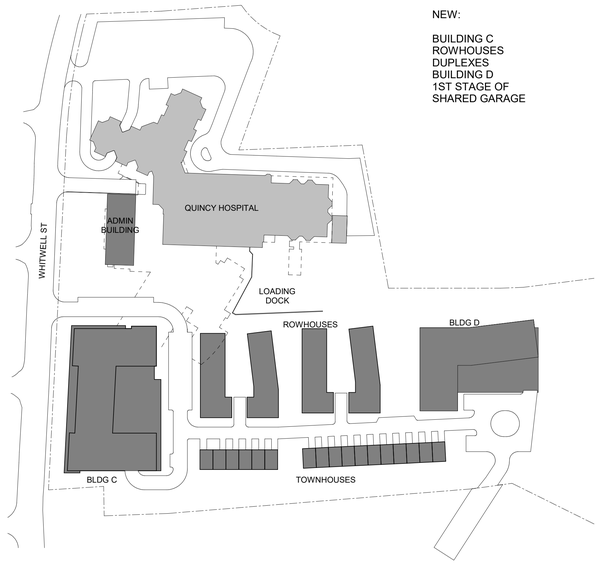
EXISTING CONDITIONS



DEMO:

RICE BUILDING
C BUILDING
EAST WING
LOBBY
BOILER PLANT

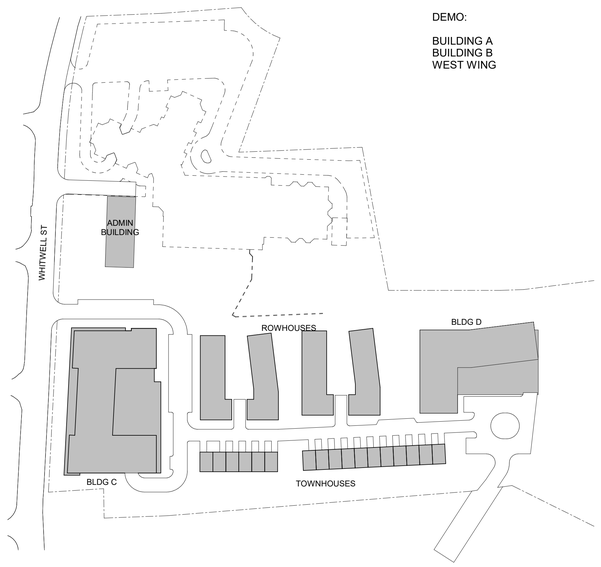
PHASE 1A (INITIAL DEMO)



NEW:

BUILDING C
ROWHOUSES
DUPLEXES
BUILDING D
1ST STAGE OF
SHARED GARAGE

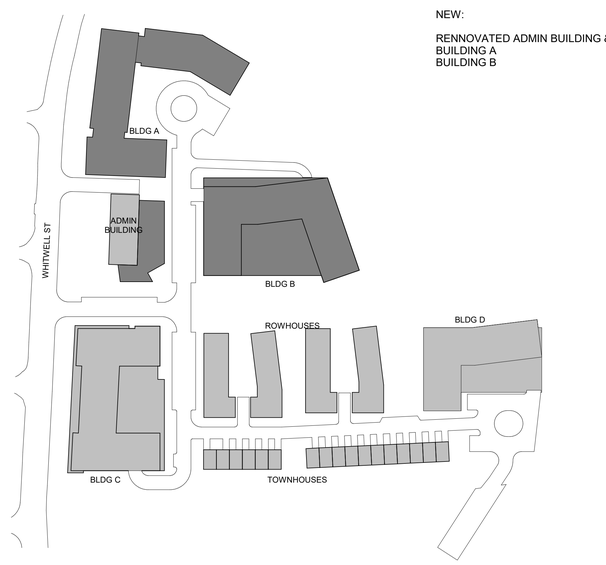
PHASE 1B



DEMO:

BUILDING A
BUILDING B
WEST WING

PHASE 2 DEMO



NEW:

RENNOVATED ADMIN BUILDING & ADDITION
BUILDING A
BUILDING B

PHASE 2

114 WHITWELL

114 WHITWELL ST
QUINCY, MA 02169
PROJECT

FRP QUINCY DEVELOPMENT, LLC
1495 HANCOCK ST,
SUITE 400
QUINCY, MA 02169
P 617. 249. 1414
OWNER

utile
ARCHITECTURE + URBAN DESIGN
115 KINGSTON ST
BOSTON, MA 02111
P 617 423.7200 F 617 423.1414
utiledesign.com
ARCHITECT

TETRA TECH
100 NICKERSON ROAD
MARLBOROUGH, MA 01752
P 508 786.2200 F 508 786.2201
CIVIL

KMDG
214 CAMBRIDGE ST.
BOSTON, MA 02114
P 617 227.2560
LANDSCAPE

WSP
88 BLACK FALCON AVE. SUITE 210
BOSTON, MA 02210
P 617 210.1600 F 000 000.0000
M/E/P/FP

SGH
41 SEYON STREET
BUILDING1, SUITE 500
WALTHAM, MA 02453
P 781 907.9000 F 781 907.9009
STRUCTURAL

NO.	DATE	DESCRIPTION
1.	10/10/2018	SUBMIT TO PLANNING BOARD

STAMP

KEY PLAN

SCALE
NTS

UTILE PROJECT NUMBER
1727

PHASING DIAGRAMS

A-1

10/3/2018 4:53:03 PM