

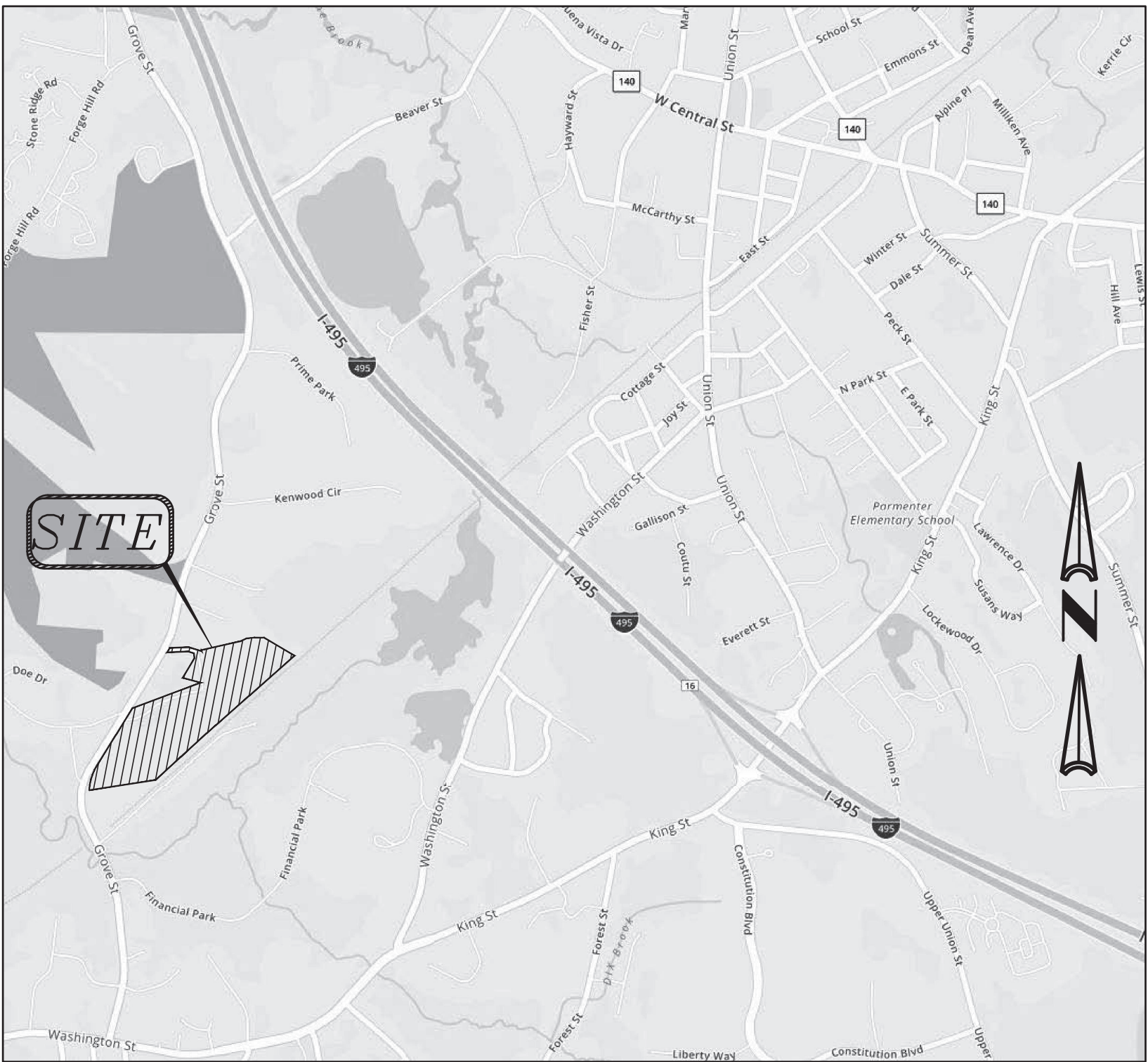
# SITE DEVELOPMENT PLANS

FOR

## 176– 210 GROVE STREET FRANKLIN, MA

FEBRUARY 14, 2020

SHEET INDEX						
SHEET No.	DESCRIPTION	LATEST REVISED DATE	CONSTRUCTION	REVISIONS		
1	COVER SHEET	08/06/21				
2	OVERALL LAYOUT PLAN	08/06/21				
3	EXISTING CONDITIONS PLAN	08/06/21				
4	LAYOUT PLAN	08/06/21				
5	GRADING PLAN	08/06/21				
6	SEWER, DRAIN PLAN	08/06/21				
7	UTILITY PLAN	08/06/21				
8	DETAIL SHEET	08/06/21				
9	DETAIL SHEET	08/06/21				
10	DETAIL SHEET	08/06/21				
11	DETAIL SHEET	08/06/21				
12	DETAIL SHEET	08/06/21				
13	DETAIL SHEET	08/06/21				



LOCATION MAP

### OWNER/APPLICANT:

MCP III 176 GROVE LLC & MCP III 210 GROVE LLC  
260 FRANKLIN STREET, STE 620  
BOSTON, MA 02110

### CIVIL ENGINEERS:

KELLY ENGINEERING GROUP, INC.  
0 CAMPANELLI DRIVE  
BRAINTREE, MA 02184

### LANDSCAPE ARCHITECT:

HAWK DESIGN INC.  
P.O. BOX 1309  
SANDWICH, MA 02563

APPROVED BY THE FRANKLIN PLANNING BOARD

APPROVED DATE \_\_\_\_\_

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Kelly P.E.  
DN: cn=David Noel Kelly P.E.,  
o=Kelly Engineering Group, Inc.,  
ou,  
email=dnoel@kellyengineeringgroup.com, c=US  
Date: 2021.08.06 09:17:58 -0400



SCALE NA	JOB # F:\P\2019-127
DATE 02/14/20	DRAWN BY C.L.
SHEET 1 OF 13	CHKD BY GSH
FILE # 2019-127-TS07	APPD BY DNK



176– 210 GROVE STREET  
FRANKLIN, MA

KELLY ENGINEERING GROUP  
civil engineering consultants  
0 Campanelli Drive, Braintree, MA 02184  
Phone: 781-843-4333 www.kellyengineeringgroup.com

SHEET NO.  
**1**



ZONE: INDUSTRIAL, WATER RESOURCE DISTRICT

(NOTE 5)

	REQUIRED	PROVIDED (176) LOT 1	PROVIDED (206) LOT 2	PROVIDED (210) LOT 3	COMPLIANCE
MIN LOT AREA	40,000 S.F.	653,400 S.F.	444,931 S.F.	456,067 S.F.	YES
MIN. FRONTAGE	175'	175'	>175'	>175'	YES
MIN. DEPTH	200'	>200'	>200'	>200'	YES
MIN. WIDTH	157.3' DIA. CIRCLE	>157.5'	>157.5'	>157.5'	YES
MIN YARD					
FRONT	40'	448.4' +/-	249.7' +/-	125.5' +/-	YES
SIDE	30'	31.8' +/- (NOTE 2)	61.0' +/- (NOTE 2)	30.1' +/- (NOTE 2)	YES
REAR	30'	92.2' +/-	125.4'	44.7' +/-	YES
MAX STORIES	3	1	1	1	YES
MAX HEIGHT	NA	<45'	<45'	<45'	N/A
LOT COVERAGE	80%	58.0 %	70.3%	72.9%	YES
BUILDING COVERAGE	70%	25.7%	33.7%	36.0%	YES
PARKING					
TOTAL	487	(NOTE 3)	(NOTE 3)	(NOTE 3)	(NOTE 3)
SIZE	9'X19'	9'X19'	9' X19'	9' X 19'	YES
HAISCLE	24'	24'	24'	24'	YES
HANDICAP					
PARKING LEGEND					
FRONT	10'	>10'	>10'	70' +/-	YES
SIDE	N/A	N/A	N/A	N/A	N/A
REAR	N/A	N/A	N/A	N/A	N/A
BUILDING	N/A	N/A	N/A	N/A	N/A

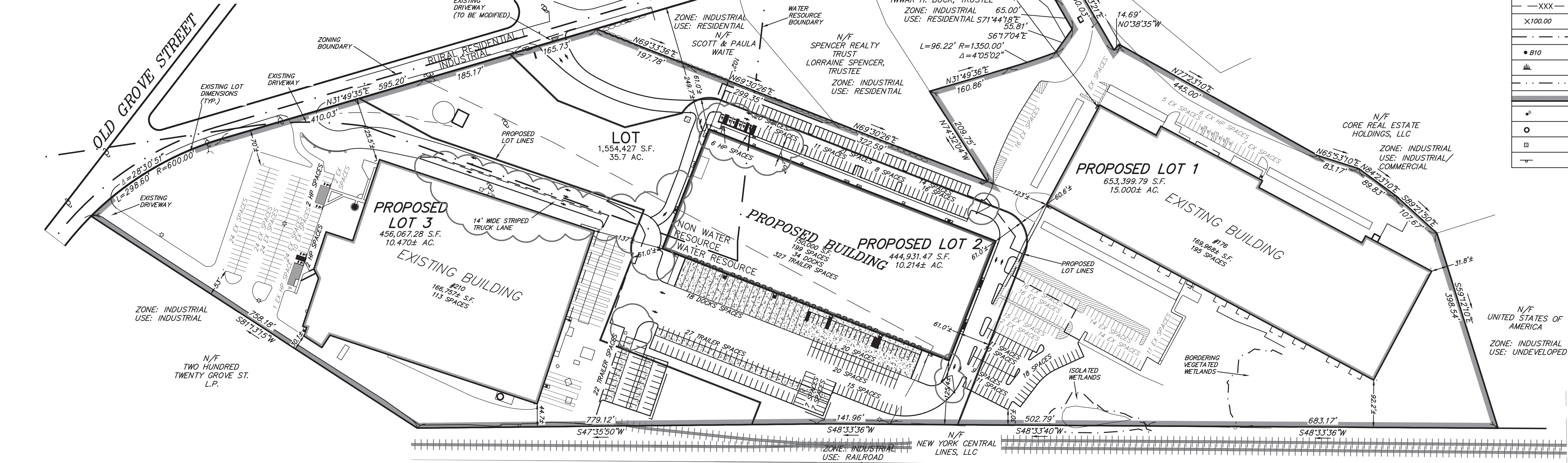
NOTES:

1. PARKING: REQUIRED PARKING FOR WAREHOUSE = 1 SPACE PER 1000 SF
2. BUILDINGS 176 AND 210 ARE LESS THAN 30' HIGH. SIDE YARD SETBACKS ARE GREATER THAN 30'. PROPOSED BUILDING 206 WILL BE APPROX. 45' HIGH. SIDE YARD SETBACK IS 102' AND THEREFORE SIDE YARD COMPLIES WITH BY LAW SECTION ATTACHEMENT 9 FOOT NOTE 8 FOR SETBACKS TO A RESIDENTIAL USE .
3. PER PLANNING BOARD DETERMINATION.
4. 18 SPACES ON OR PARTIALLY ON LOT 2 ARE FOR USE BY LOT 1
5. 55 SPACES LOCATED ON LOT 1 ARE FOR USE BY LOT 2
6. SEE APPROVAL NOT REQUIRED PLAN DATED 11/16/20 FOR ACTUAL METES AND BOUNDS, CIRCLE DIAMETER ETC.

PARKING LEGEND

BUILDING	BUILDING AREA (SF)	PARKING REQUIRED (NOTE 1)	PARKING PROVIDED	HANDICAP PARKING REQUIRED	HANDICAP PARKING PROVIDED	LOADING PROVIDED
176 GROVE	169,968	170	195 (NOTE 4)	6	6	65 +/-
206 GROVE	150,000	150	199 (NOTE 4)	6	6	34 +/-
210 GROVE	166,757	167	113	5	5	15 +/-
TOTAL	486,725	487	507	17	17	114 +/-

\*ALLOWED BY 9/15/2015 PLANNING BOARD DECISION



NOTES: (FOR SHEET 3)

- 1.) UNDERGROUND FEATURES HAVE BEEN COMPILED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. THIS INFORMATION IS TO BE CONSIDERED APPROXIMATE AND KELLY ENGINEERING GROUP, INC. DOES NOT TAKE RESPONSIBILITY FOR SUBSEQUENT ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THIS PLAN AS A RESULT. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE EXISTENCE OF WHICH ARE UNKNOWN TO KELLY ENGINEERING GROUP, INC. THE SIZE, LOCATION, AND EXISTENCE OF ALL SUCH FEATURES MUST BE VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION.
- 2.) THE LOCATION OF ALL UTILITIES SHOWN HEREON HAVE BEEN ESTABLISHED USING ASCE 38-02 (STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA) QUALITY LEVEL C.
- 3.) THE SITE DETAIL AND SURFACE IMPROVEMENTS DEPICTED HEREON WERE OBTAINED FROM AN ON THE GROUND SURVEY PERFORMED BY KELLY ENGINEERING GROUP IN NOVEMBER AND DECEMBER OF 2019.
- 4.) ELEVATIONS SHOWN HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) ESTABLISHED BY RTK GPS CONNECTED TO MOCCORS. CONTOURS SHOWN WERE OBTAINED FROM ON THE GROUND SURVEY AND LIDAR DATA OBTAINED FROM NOAA AND CONFIRMED BY KELLY ENGINEERING GROUP, INC.
- 5.) WETLAND FLAGS SHOWN WERE FLAGGED BY ECOTEC, INC AND WERE LOCATED BY KELLY ENGINEERING GROUP, INC.

CURRENT OWNER

210 GROVE ST  
CURRENT OWNER: MCP III 210 GROVE LLC  
C/O MARCUS PARTNERS INC.  
PARCEL ID: 311-002  
  
176 GROVE ST  
CURRENT OWNER: MCP III 176 GROVE LLC  
C/O MARCUS PARTNERS INC.  
PARCEL ID: 311-001

7.	08/06/21	TENANT REVISIONS	
6.	07/01/21	EXPANDED TENANT PARKING	
5.	11/16/20	PLANNING BOARD COMMENTS & LOT LINES	

4.	10/01/20	PER TENANT COORDINATION	
3.	07/28/20	PLANNING BOARD COMMENTS	
2.	06/02/20	PER PEER REVIEW	
1.	04/10/20	PER PEER REVIEW	
REV	DATE	REVISION	BY
<div> <div>MARCUS PARTNERS</div> <div>176- 210 GROVE STREET</div> <div>FRANKLIN, MA</div> </div> <div>OVERALL LAYOUT PLAN</div> <div> <div>KE</div> <div> <div>KELLY ENGINEERING GROUP</div> <div>civil engineering consultants</div> <div>0 Campanelli Drive, Braintree, MA 02184</div> <div>Phone: 781-843-4333 www.kellyengineeringgroup.com</div> </div> </div>			
SCALE	1"= 100'		
DATE	02/14/20		
SHEET	2 of 13		
FILE #	2019-127-LA07		
JOB #	F:\P\2019-127		
DRAWN BY	CUL		
CHKD BY	GSH		
APPD BY	DNK		

SHEET 2 LEGEND

CCB	CAPE COD BERM
VGC	VERTICAL GRANITE CURB
CONC.	CONCRETE
BCC	BITUMINOUS CONCRETE CURB
⦿	HANDICAP SPACE
L.S	LANDSCAPED AREA
■	CATCH BASIN
■	DOUBLE CATCH BASIN
⦿	AREA DRAIN
⦿	TRENCH DRAIN
⦿	DRAIN MANHOLE
⦿	STORM CEPTOR
SD	DRAIN LINE
FD	ROOF DRAIN LINE
AD	AREA DRAIN LINE
⦿	SEWER MANHOLE
SS	SEWER LINE
FU	SEWER FORCE MAIN
GV	GAS VALVE
G	GAS LINE
⦿	HYDRANT
⦿	WATER VALVE
W	WATER LINE
⦿	UTILITY POLE
⦿	LIGHT POLE
⦿	FLOOD LIGHT
⦿	OVERHEAD ELECTRIC LINE
⦿	CHAIN LINK FENCE
XXX	CONTOUR LINE (MNR)
XXX	CONTOUR LINE (MJR)
X100.00	SPOT GRADE
---	EDGE OF WETLANDS
● B10	WETLANDS FLAG
■	WETLANDS
---	FLOOD PLAIN
---	PROPERTY LINE
⦿	BOLLARD
⦿	IRON PIPE
⦿	BOUND
⦿	SIGN

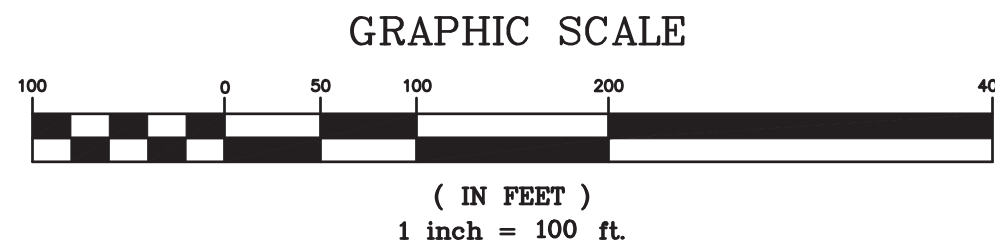


Steven Horsfall  
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Digitally signed by David Noel Kelly P.E.  
DN: cn=David Noel Kelly, P.E., o=Kelly Engineering Group, Inc., email=dkelly@kellyengineeringgroup.com, c=US  
Date: 2021.08.06 09:18:25 -04'00'

SHEET NO.  
**2**



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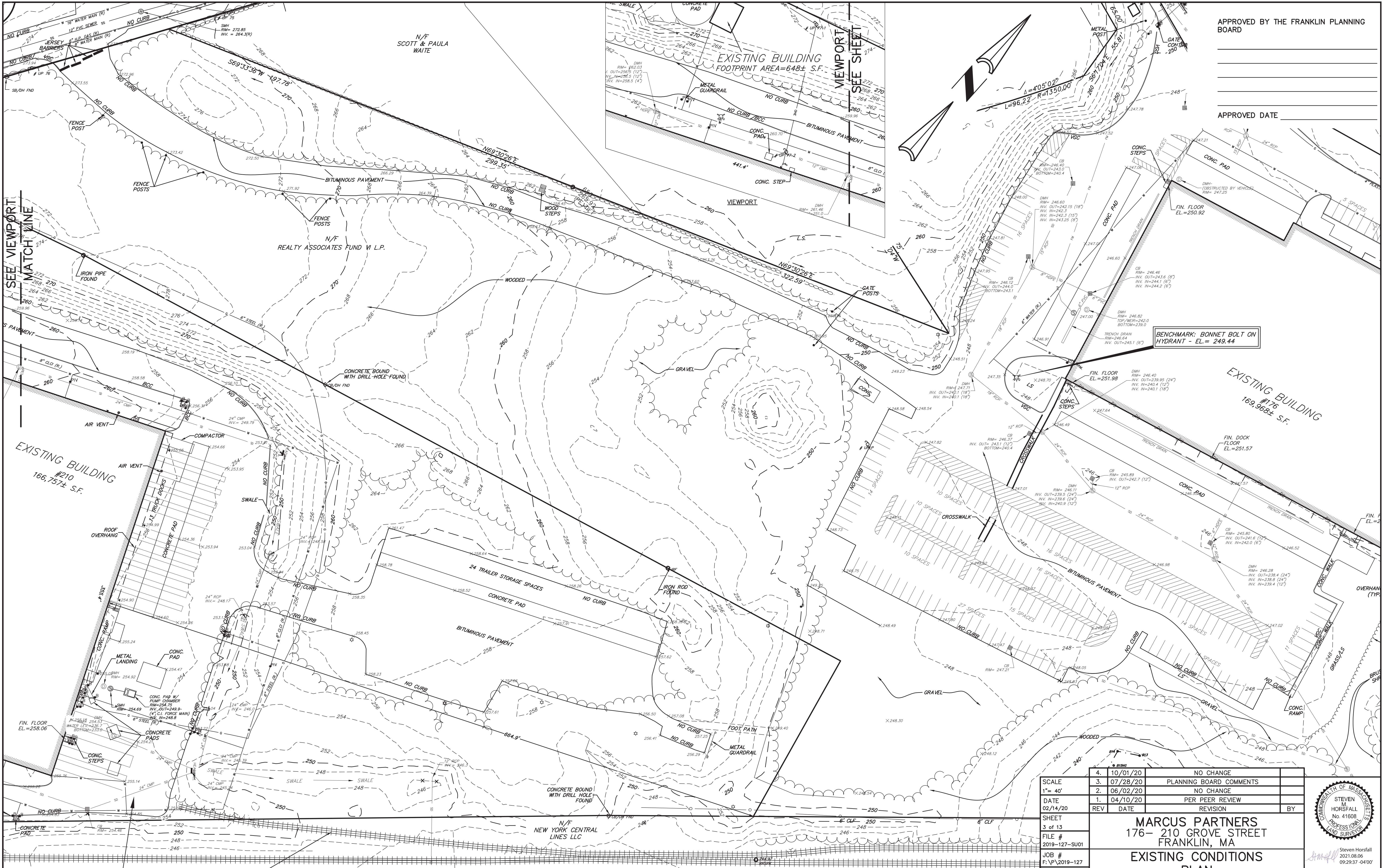
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APPROVED BY THE FRANKLIN PLANNING BOARD

APPROVED DATE





APPROVED BY THE FRANKLIN PLANNING BOARD

APPROVED DATE

BENCHMARK: BONNET BOLT ON HYDRANT - EL= 249.44

4.	10/01/20	NO CHANGE	
3.	07/28/20	PLANNING BOARD COMMENTS	
2.	06/02/20	NO CHANGE	
1.	04/10/20	PER PEER REVIEW	
REV	DATE	REVISION	BY
MARCUS PARTNERS 176- 210 GROVE STREET FRANKLIN, MA			
EXISTING CONDITIONS PLAN			
KELLY ENGINEERING GROUP civil engineering consultants 0 Campanelli Drive, Braintree, MA 02184 Phone: 781-843-4333 www.kellyengineeringgroup.com			

STEVEN  
HORSFALL  
No. 41608  
PROFESSIONAL  
LAND SURVEYOR

Steven Horsfall  
2021.08.06  
09:29:37 -04'00'

SHEET NO.  
**3**

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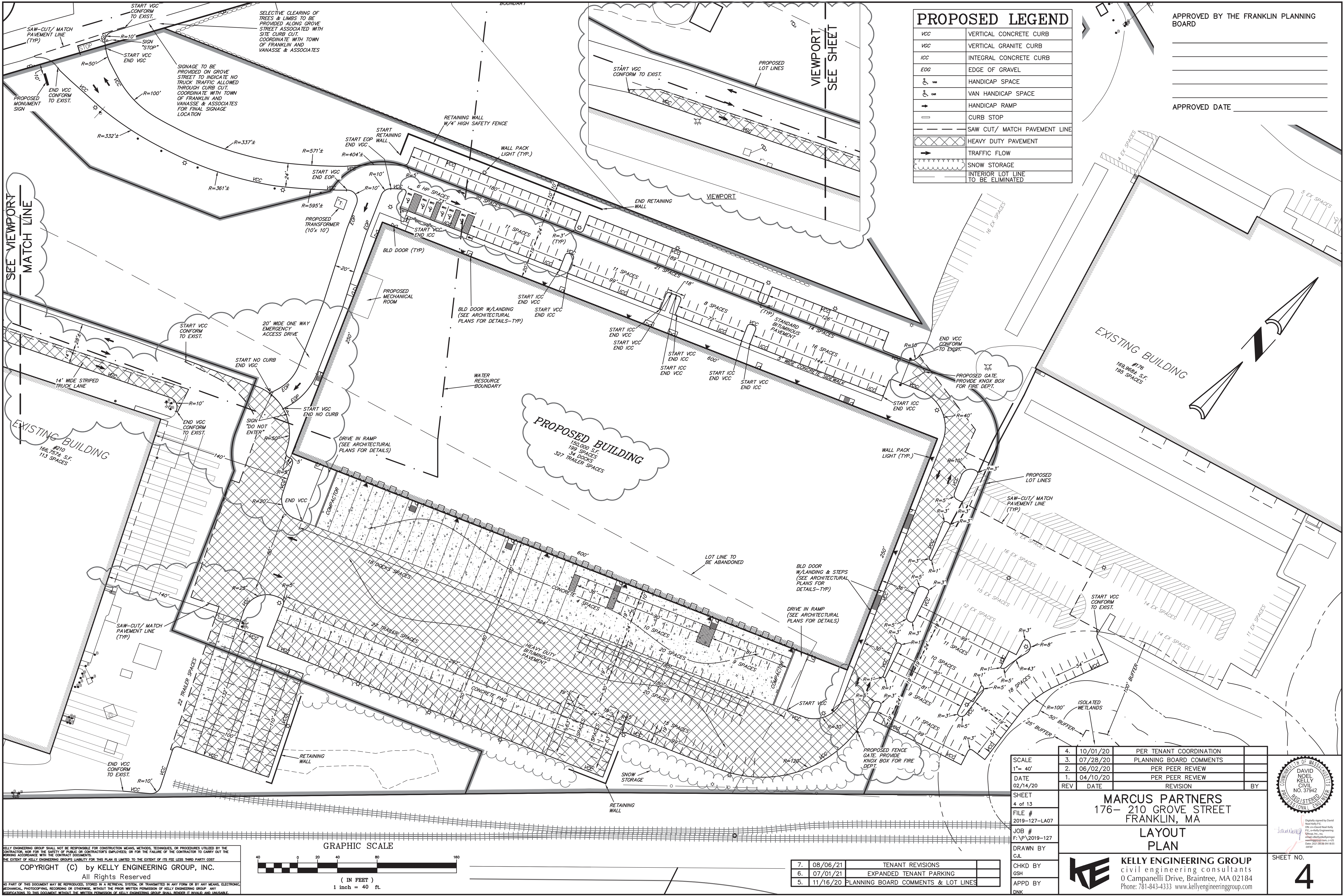
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GRAPHIC SCALE  
1" = 40'

SEE SHEET 2 FOR NOTES  
& SYMBOL LEGEND

7.	08/06/21	ADD VIEWPORT	
6.	07/01/21	NO CHANGE	
5.	11/16/20	NO CHANGE	





PROPOSED LEGEND	
VCC	VERTICAL CONCRETE CURB
VGC	VERTICAL GRANITE CURB
ICC	INTEGRAL CONCRETE CURB
EOG	EDGE OF GRAVEL
	HANDICAP SPACE
	VAN HANDICAP SPACE
	HANDICAP RAMP
	CURB STOP
	SAW CUT/ MATCH PAVEMENT LINE
	HEAVY DUTY PAVEMENT
	TRAFFIC FLOW
	SNOW STORAGE
	INTERIOR LOT LINE TO BE ELIMINATED

APPROVED BY THE FRANKLIN PLANNING BOARD

APPROVED DATE \_\_\_\_\_

SCALE	1" = 40'
DATE	02/14/20
SHEET	4 of 13
FILE #	2019-127-LA07
JOB #	F:\P\2019-127
DRAWN BY	C.L.
CHKD BY	GSH
APPD BY	DNK

7.	08/06/21	TENANT REVISIONS
6.	07/01/21	EXPANDED TENANT PARKING
5.	11/16/20	PLANNING BOARD COMMENTS & LOT LINES

4.	10/01/20	PER TENANT COORDINATION	
3.	07/28/20	PLANNING BOARD COMMENTS	
2.	06/02/20	PER PEER REVIEW	
1.	04/10/20	PER PEER REVIEW	
REV	DATE	REVISION	BY

**MARCUS PARTNERS**  
176- 210 GROVE STREET  
FRANKLIN, MA

**LAYOUT PLAN**

**KELLY ENGINEERING GROUP**  
civil engineering consultants  
0 Campanelli Drive, Braintree, MA 02184  
Phone: 781-843-4333 www.kellyengineeringgroup.com

Digitally signed by David Noel Kelly  
DN: cn=David Noel Kelly, o=Kelly Engineering Group, ou=Massachusetts, email=dnkelly@kellyeng.com, c=US

SHEET NO.

**4**

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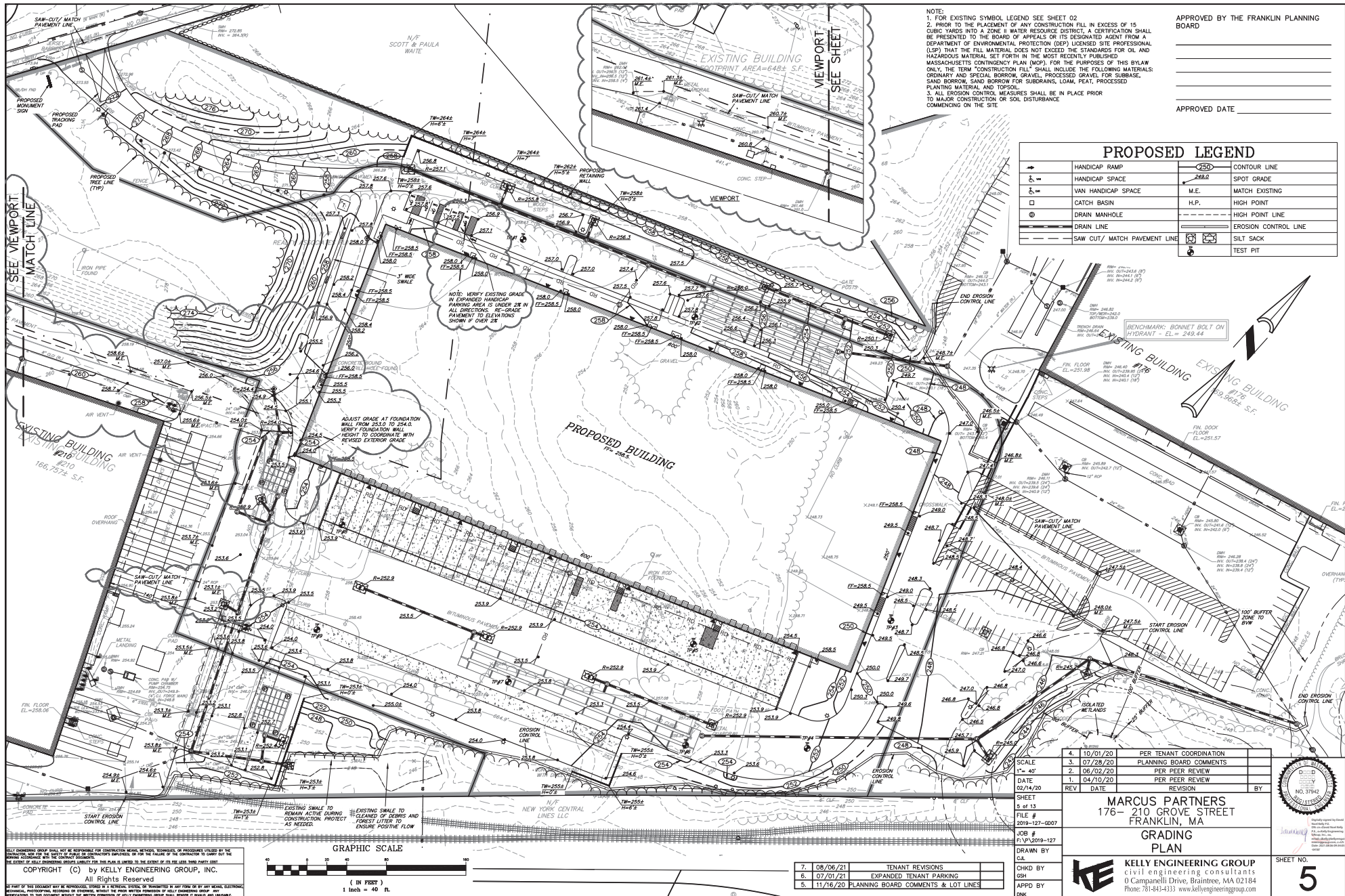
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GRAPHIC SCALE

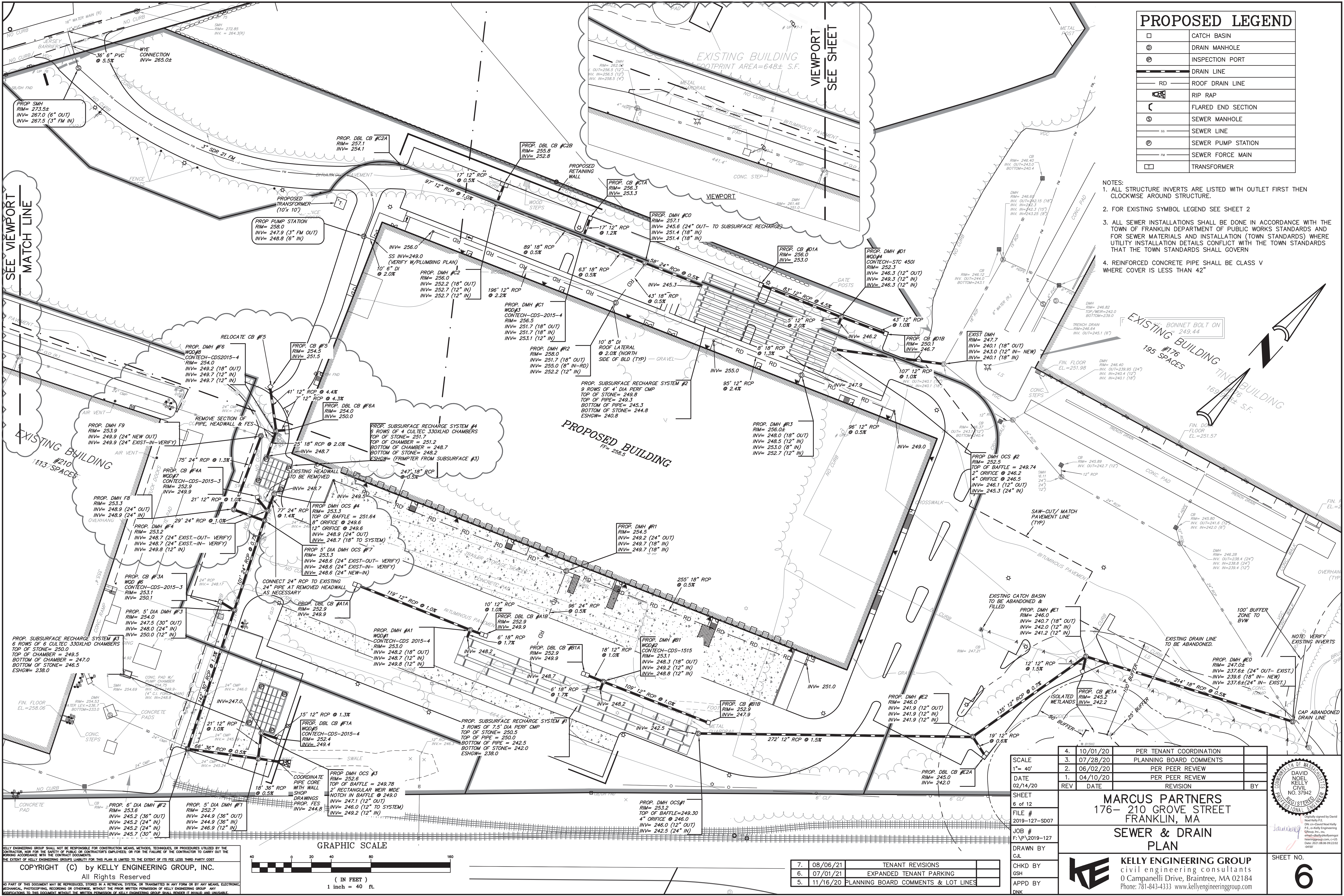
( IN FEET )

1 inch = 40 ft.



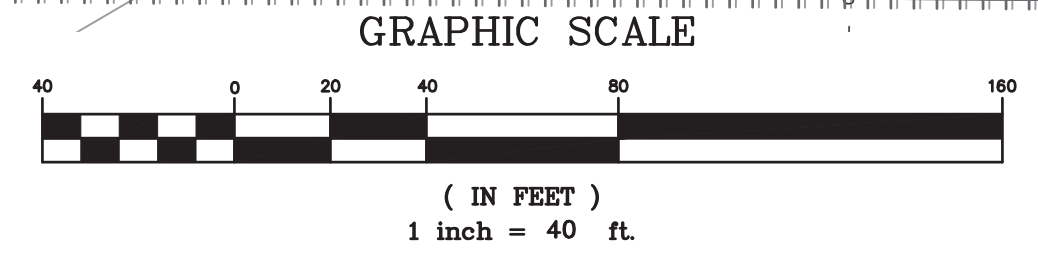






PROPOSED LEGEND	
	CATCH BASIN
	DRAIN MANHOLE
	INSPECTION PORT
	DRAIN LINE
	ROOF DRAIN LINE
	RIP RAP
	FLARED END SECTION
	SEWER MANHOLE
	SEWER LINE
	SEWER PUMP STATION
	SEWER FORCE MAIN
	TRANSFORMER

- NOTES:
1. ALL STRUCTURE INVERTS ARE LISTED WITH OUTLET FIRST THEN CLOCKWISE AROUND STRUCTURE.
  2. FOR EXISTING SYMBOL LEGEND SEE SHEET 2
  3. ALL SEWER INSTALLATIONS SHALL BE DONE IN ACCORDANCE WITH THE TOWN OF FRANKLIN DEPARTMENT OF PUBLIC WORKS STANDARDS AND FOR SEWER MATERIALS AND INSTALLATION (TOWN STANDARDS) WHERE UTILITY INSTALLATION DETAILS CONFLICT WITH THE TOWN STANDARDS THAT THE TOWN STANDARDS SHALL GOVERN
  4. REINFORCED CONCRETE PIPE SHALL BE CLASS V WHERE COVER IS LESS THAN 42"



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7.	08/06/21	TENANT REVISIONS
6.	07/01/21	EXPANDED TENANT PARKING
5.	11/16/20	PLANNING BOARD COMMENTS & LOT LINES

SCALE	1" = 40'
FILE #	2019-127-S007
JOB #	F:\P\2019-127
DRAWN BY	CUL
CHKD BY	GSH
APPD BY	DNK

4. 10/01/20 PER TENANT COORDINATION

3. 07/28/20 PLANNING BOARD COMMENTS

2. 06/02/20 PER PEER REVIEW

1. 04/10/20 PER PEER REVIEW

02/14/20 REV DATE REVISION BY

MARCUS PARTNERS

176- 210 GROVE STREET

FRANKLIN, MA

SEWER & DRAIN

PLAN

KE

KELLY ENGINEERING GROUP

civil engineering consultants

0 Campanelli Drive, Braintree, MA 02184

Phone: 781-843-4333 www.kellyengineeringgroup.com

DAVID NOEL

KELLY

CIVIL

NO. 37942

REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Noel Kelly

DN: cn=David Noel Kelly

o=Kelly Engineering Group, Inc.

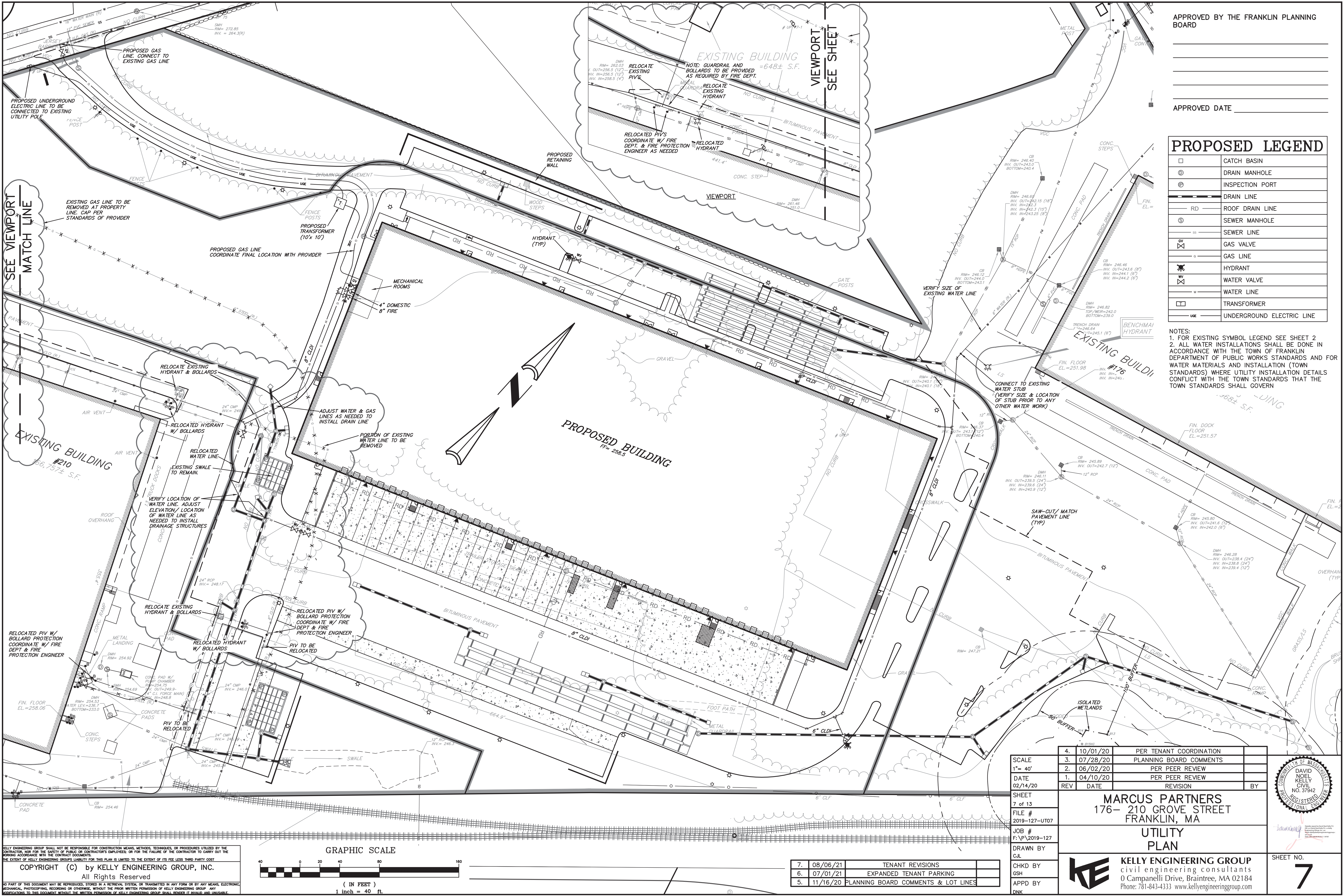
email=kelly@kellyeng.com, c=US

Date: 2021.08.09 09:22:02 -0400

SHEET NO.

6





APPROVED BY THE FRANKLIN PLANNING BOARD

APPROVED DATE

PROPOSED LEGEND

	CATCH BASIN
	DRAIN MANHOLE
	INSPECTION PORT
	DRAIN LINE
	ROOF DRAIN LINE
	SEWER MANHOLE
	SEWER LINE
	GAS VALVE
	GAS LINE
	HYDRANT
	WATER VALVE
	WATER LINE
	TRANSFORMER
	UNDERGROUND ELECTRIC LINE

NOTES:  
1. FOR EXISTING SYMBOL LEGEND SEE SHEET 2  
2. ALL WATER INSTALLATIONS SHALL BE DONE IN ACCORDANCE WITH THE TOWN OF FRANKLIN DEPARTMENT OF PUBLIC WORKS STANDARDS AND FOR WATER MATERIALS AND INSTALLATION (TOWN STANDARDS) WHERE UTILITY INSTALLATION DETAILS CONFLICT WITH THE TOWN STANDARDS THAT THE TOWN STANDARDS SHALL GOVERN

SCALE  
1" = 40'

DATE  
02/14/20

SHEET  
7 of 13

FILE #  
2019-127-UT07

JOB #  
F:\P\2019-127

DRAWN BY  
C/L

CHKD BY  
GSH

APPD BY  
DNK

4. 10/01/20 PER TENANT COORDINATION

3. 07/28/20 PLANNING BOARD COMMENTS

2. 06/02/20 PER PEER REVIEW

1. 04/10/20 PER PEER REVIEW

REV

DATE

REVISION

BY

MARCUS PARTNERS  
176- 210 GROVE STREET  
FRANKLIN, MA

UTILITY  
PLAN

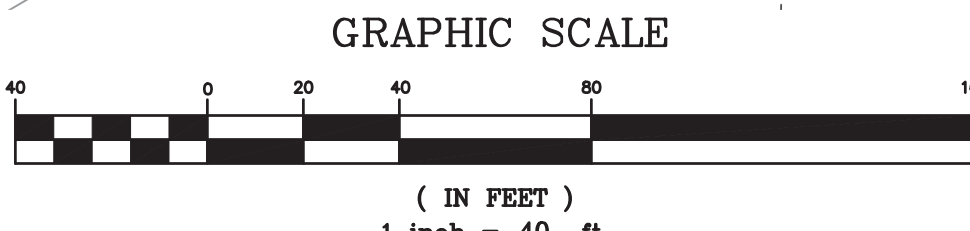
KELL Y ENGINEERING GROUP  
civil engineering consultants  
0 Campanelli Drive, Braintree, MA 02184  
Phone: 781-843-4333 www.kellyengineeringgroup.com

DAVID  
KELLY  
CIVIL  
NO. 37942  
REGISTERED  
PROFESSIONAL ENGINEER

STATE OF MASSACHUSETTS

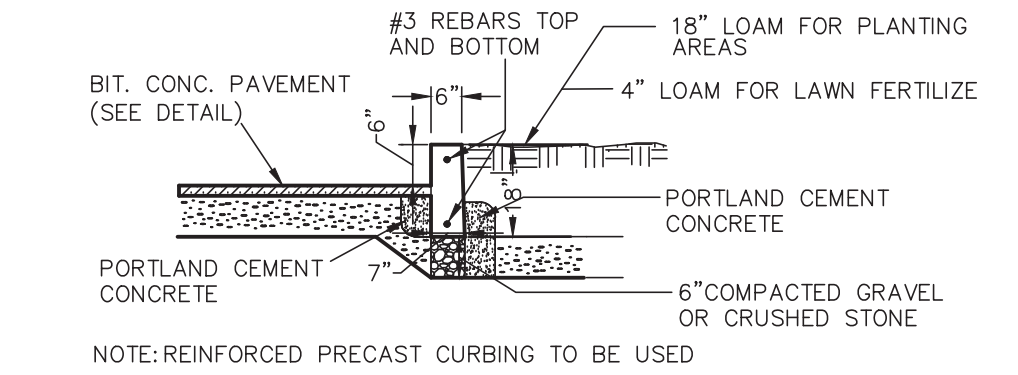
7

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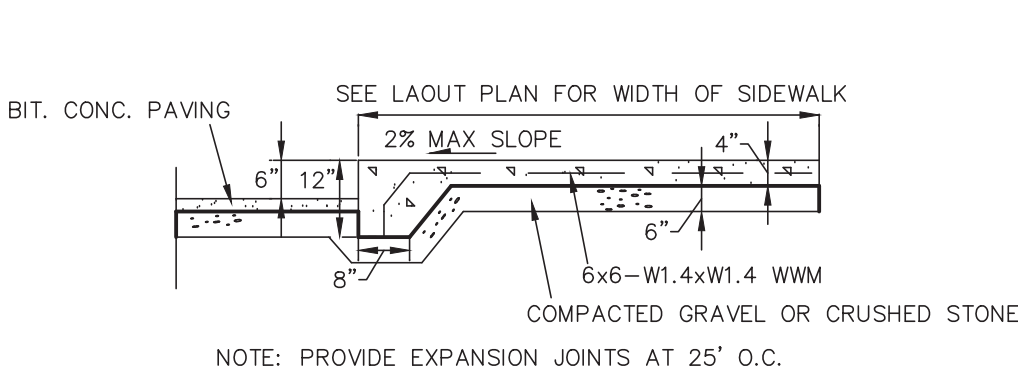


7.	08/06/21	TENANT REVISIONS
6.	07/01/21	EXPANDED TENANT PARKING
5.	11/16/20	PLANNING BOARD COMMENTS & LOT LINES

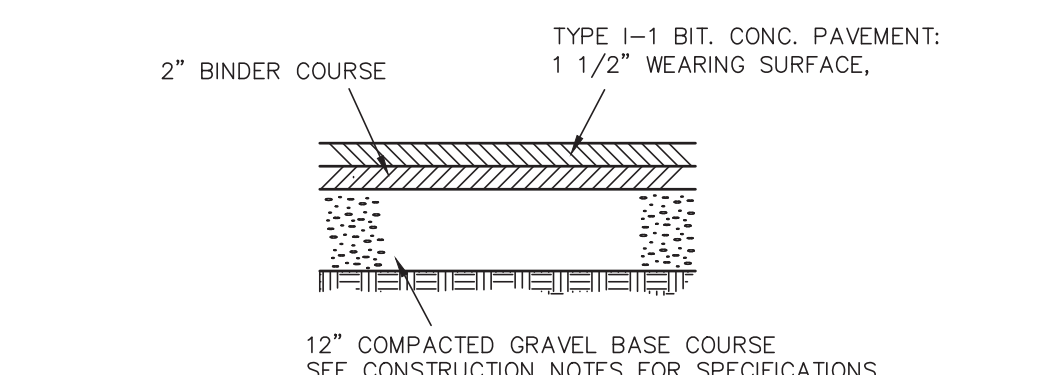




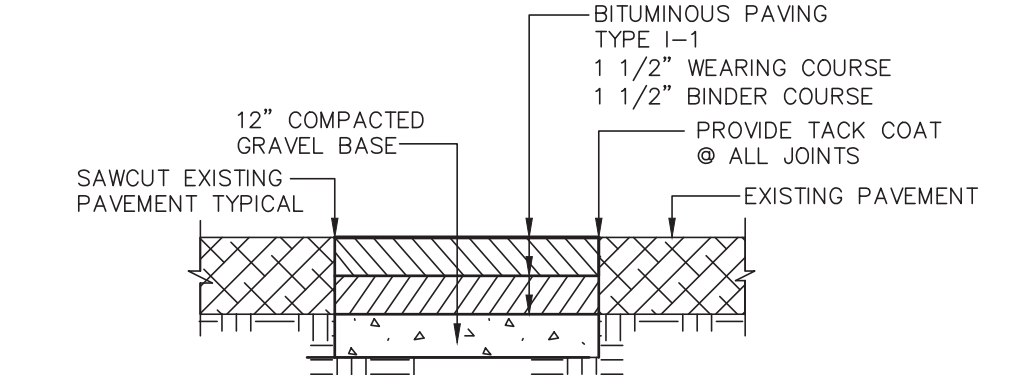
VERTICAL CONCRETE CURB DETAIL  
NOT TO SCALE  
KELLY ENGINEERING GROUP, INC.



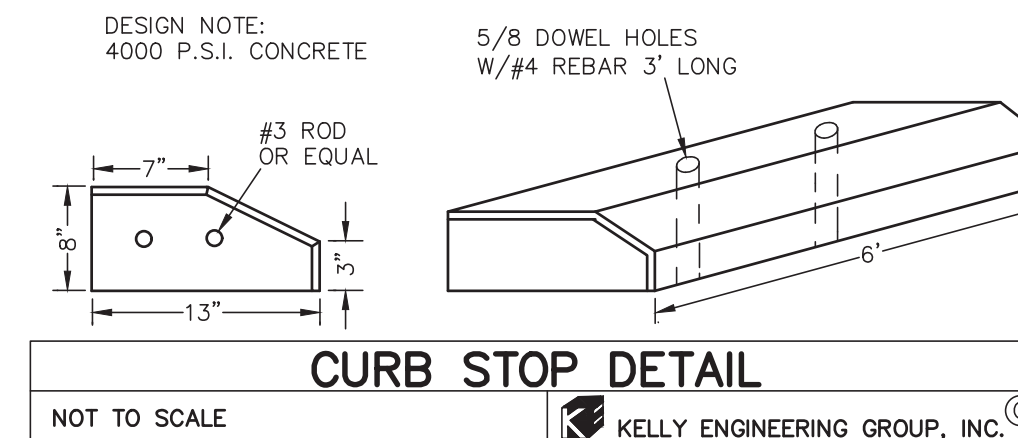
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KELLY ENGINEERING GROUP, INC.



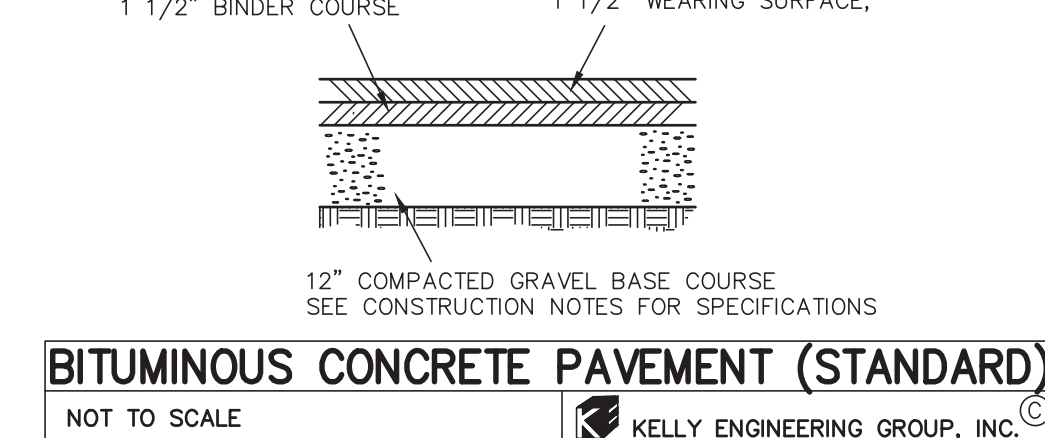
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KELLY ENGINEERING GROUP, INC.



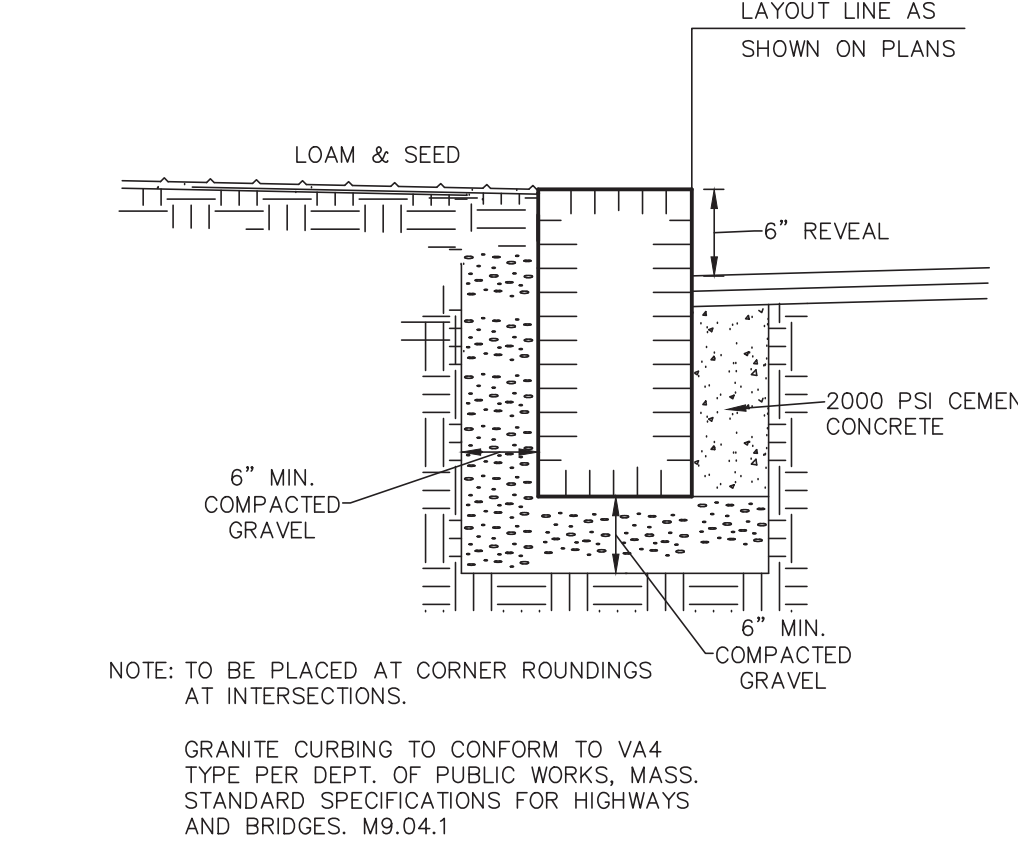
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KELLY ENGINEERING GROUP, INC.



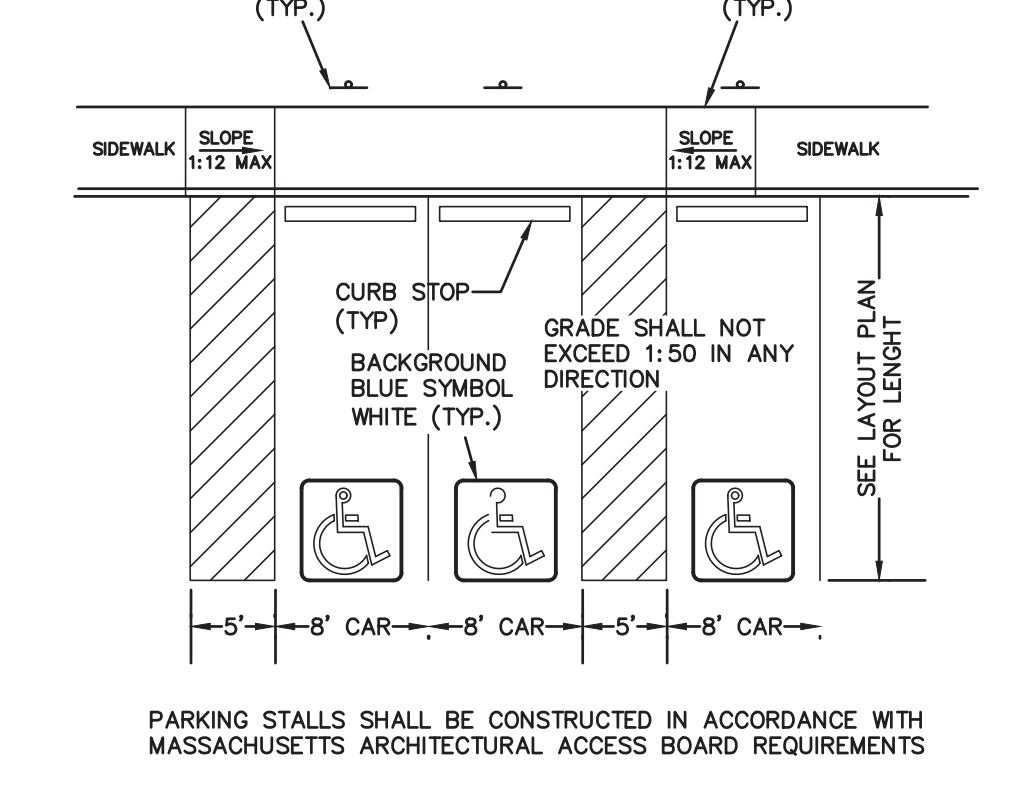
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KELLY ENGINEERING GROUP, INC.



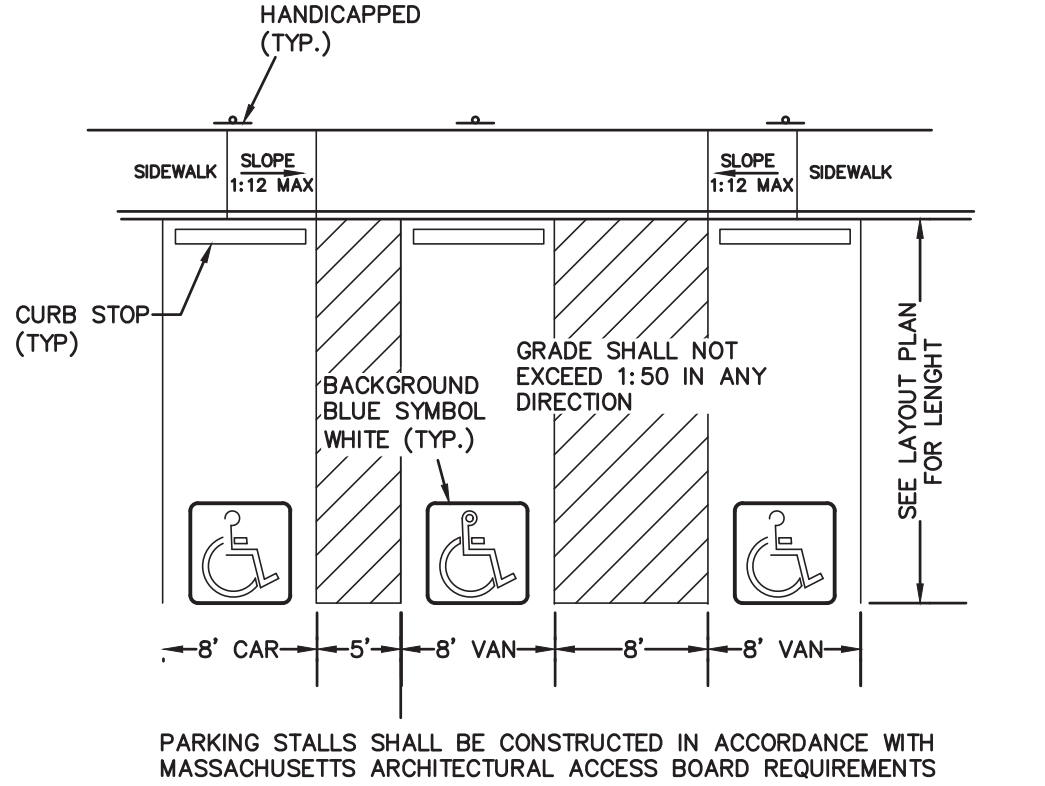
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KELLY ENGINEERING GROUP, INC.



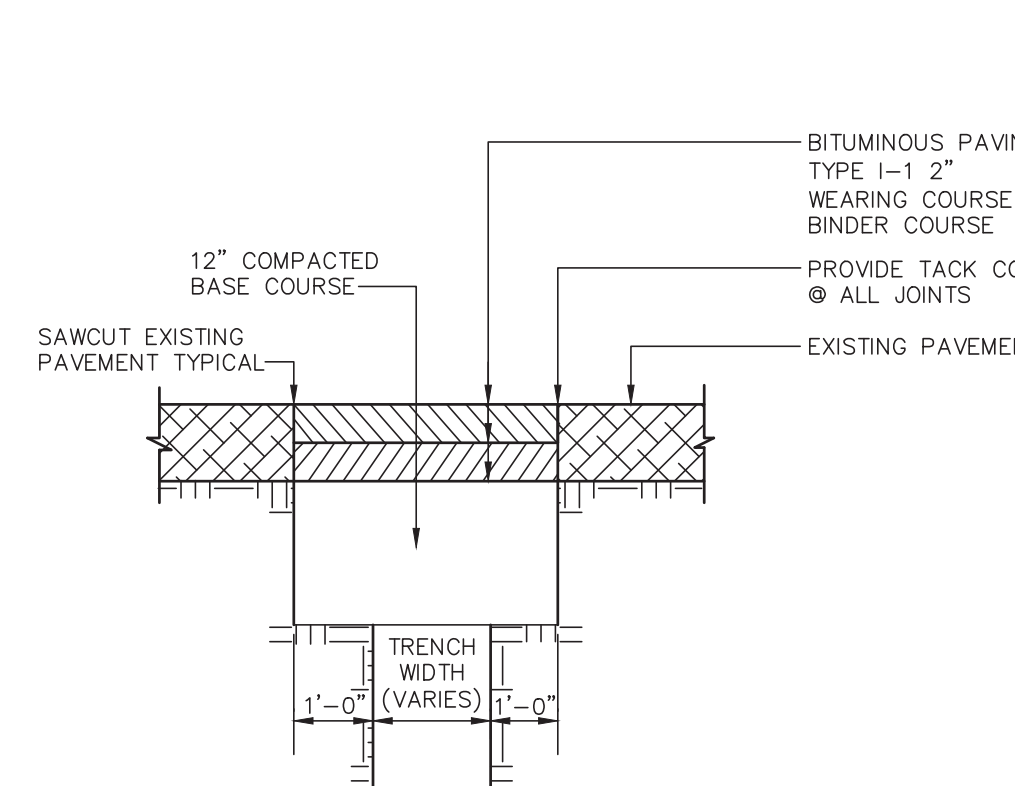
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KELLY ENGINEERING GROUP, INC.



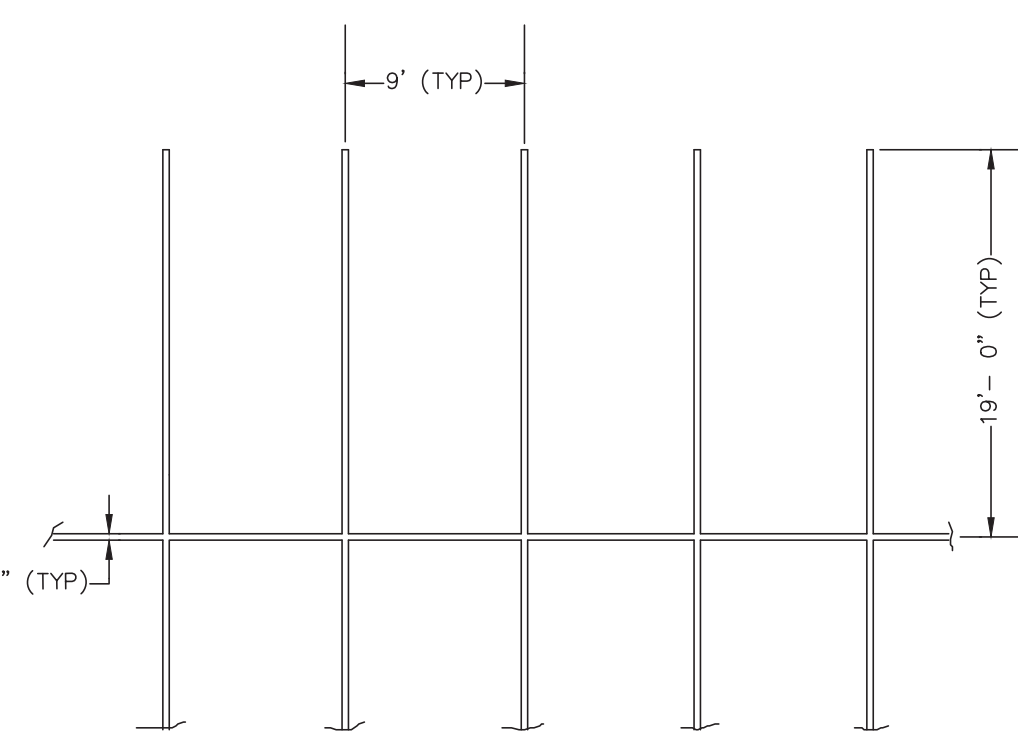
HANDICAP PARKING DETAIL  
NOT TO SCALE  
KELLY ENGINEERING GROUP, INC.



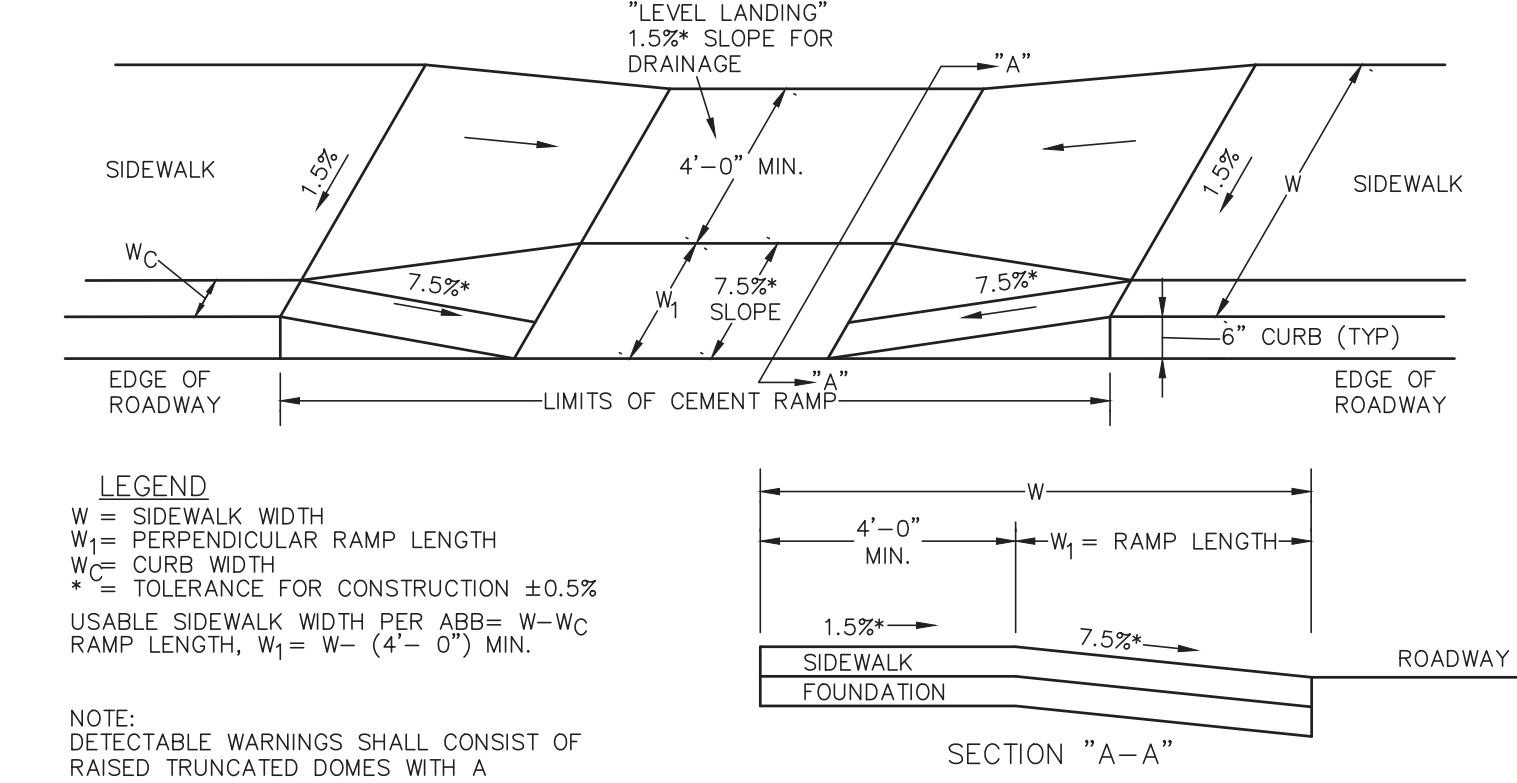
HANDICAP PARKING DETAIL  
NOT TO SCALE  
KELLY ENGINEERING GROUP, INC.



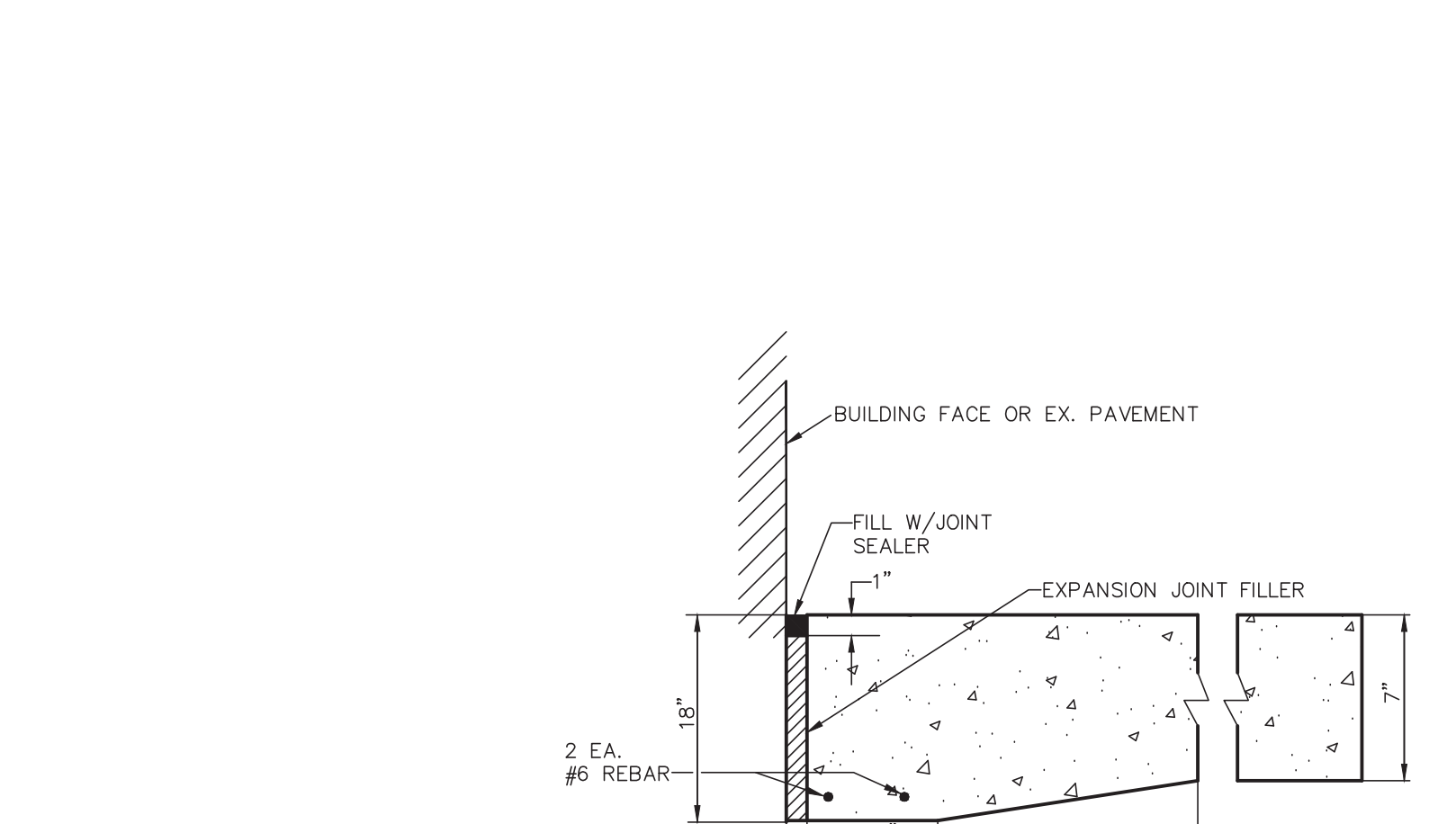
TRENCH PATCHING DETAIL  
(TRENCH-PATCH)  
NOT TO SCALE  
KELLY ENGINEERING GROUP, INC.



TYPICAL STRIPING DETAIL  
NOT TO SCALE  
KELLY ENGINEERING GROUP, INC.



WHEELCHAIR RAMPS  
NOT TO SCALE  
KELLY ENGINEERING GROUP, INC.



DETECTABLE WARNING PANEL FOR WHEELCHAIR RAMPS  
NOT TO SCALE  
KELLY ENGINEERING GROUP, INC.

## CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL REPORT TO THE OWNER AND ENGINEER OF ANY SIGNIFICANT VARIATIONS IN EXISTING SITE CONDITIONS FROM THOSE SHOWN ON THESE PLANS. ANY PROPOSED REVISIONS TO THE WORK, IF REQUIRED BY THESE SITE CONDITIONS, SHALL NOT BE UNDERTAKEN UNTIL REVIEWED AND APPROVED BY THE OWNER AND THE ENGINEER.
2. THE CONTRACTOR SHALL NOTIFY THE TOWN OF FRANKLIN DEPARTMENT OF PUBLIC WORKS AT LEAST 48 HOURS IN ADVANCE OF ANY REQUIRED INSPECTIONS.
3. IN ORDER TO PROTECT THE PUBLIC SAFETY DURING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING AT ALL TIMES ALL NECESSARY SAFETY DEVICES AND PERSONNEL, WARNING LIGHTS, BARRICADES, AND POLICE OFFICERS.
4. ALL WORK SHALL CONFORM TO A SITE PLAN PERMIT TO BE ISSUED BY THE TOWN OF FRANKLIN.
5. FOR ANY PROJECT THAT INVOLVES 1 ACRE OR MORE OF DISTURBANCE, THE CONTRACTOR SHALL SECURE A NPDES PERMIT PRIOR TO BEGINNING ANY GRADING ACTIVITIES.
6. ALL WORK SHALL CONFORM TO AN ORDER OF CONDITIONS TO BE ISSUED BY THE TOWN OF FRANKLIN.
7. ALL WORK SHALL CONFORM TO THE GEOTECHNICAL REPORT BY MCARDLE & GANNON.
8. THE LOCATION OF UNDERGROUND UTILITIES AS REPRESENTED ON THESE PLANS IS BASED UPON PLANS AND INFORMATION PROVIDED BY THE RESPECTIVE UTILITY COMPANIES OR MUNICIPAL DEPARTMENTS SUPPLEMENTED BY FIELD IDENTIFICATION WHEREVER POSSIBLE. NO WARRANTY IS MADE AS TO THE ACCURACY OF THESE LOCATIONS OR THAT ALL UNDERGROUND UTILITIES ARE SHOWN. THE CONTRACTOR SHALL CONDUCT DIG SURVEY AT LEAST 72 HOURS PRIOR TO THE START OF CONSTRUCTION. DIG SAFE TELEPHONE NUMBER IS 1-888-344-7233.
9. THE CONTRACTOR SHALL VERIFY THE LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO TAPPING INTO, CROSSING OR EXTENDING THEM. IF THE NEW WORK POSES A CONFLICT WITH EXISTING UTILITIES, THE ENGINEER SHALL BE NOTIFIED PRIOR TO THE CONTRACTOR CONTINUING.
10. REFER TO ARCHITECTURAL PLANS FOR EXACT BUILDING DIMENSION AND DOOR LOCATIONS.
11. BENCHMARK ELEVATION IS 249.44 LOCATED AT BONNET BOLT ON HYDRANT. DATUM IS NGVD.
12. ALL PROPOSED SITE GAS, ELECTRIC, TELEPHONE, CATV FEATURES SHOWN ON SITE DEVELOPMENT PLANS ARE INTENDED AS A GUIDE ONLY. FINAL CONFIGURATION TO BE CONFIRMED WITH PROJECT MEP ENGINEER AND UTILITY PROVIDER.
13. REFER TO PLUMBING PLANS FOR EXACT SIZE AND LOCATION OF SANITARY AND WATER CONNECTIONS.
14. REFER TO ELECTRICAL PLANS FOR THE LIGHTING CIRCUITS, FIXTURE DETAIL AND BUILDING CONNECTION LOCATION.
15. ALL H.D.P.E. HIGH DENSITY POLYETHYLENE PIPE SHALL BE ADS N-12 OR APPROVED EQUAL. SEWER SHALL BE SDR 35 WITH RUBBER RING JOINTS. WATER LINES SHALL BE CL 52 D.I.P. (DUCTILE IRON PIPE). REINFORCED CONCRETE PIPE RCP SHALL BE CLASS III OR CLASS V WHEN COVER IS LESS THAN 42".
16. NO LEDGE, BOULDERS, OR OTHER UNYIELDING MATERIALS ARE TO BE LEFT WITHIN 6" OF THE SEWER IN THE TRENCH; NOR ARE THEY TO BE USED FOR BACKFILL FOR THE FIRST 12" ABOVE THE PIPES.
17. WALKS SHALL BE 4" THICK AND SHALL BE CONSTRUCTED ON 6" OF COMPACTED BANK GRAVEL. CONCRETE FOR WALKS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH OF 4,000 PSI. WALKS SHALL BE REINFORCED WITH WMM 6x6 W1.4/W1.4 CONFORMING TO ASTM A184.
18. BASE MATERIAL SHALL BE CLEAN BANK RUN GRAVEL, CONFORMING TO M.D.P.W. M1.03.1, WITH NO STONES LARGER THAN THREE (3) INCHES IN DIAMETER AND SHALL BE PLACED AND ROLLED WITH AT LEAST A TEN TON ROLLER. THE SURFACES SHALL BE WET DURING ROLLING TO BIND THE MATERIAL. ALL STONES OF 4" DIAMETER OR LARGER SHALL BE REMOVED FROM THE SUB-BASE PRIOR TO PLACING BASE MATERIAL. PULVERIZED MATERIAL MAY BE USED AS BASE MATERIAL PROVIDING IT MEETS THIS SPECIFICATIONS. AREAS TO BE REPAVED SHALL BE PULVERIZED AND REGRADED TO PROVIDE POSITIVE FLOW TO DRAINAGE AND AWAY FROM BUILDING. PAVE WITH 1 1/2" WEARING COURSE ON 1 1/2" BINDER COURSE. ALL VALVES BOXES, MANHOLES AND OTHER UTILITIES APURTANCES SHALL BE ADJUSTED TO CONFORM TO FINAL GRADE.
19. TRANSFORMER PAD SHALL BE INSTALLED PER PROVIDERS SPECIFICATIONS. GENERATOR PADS SHALL BE INSTALLED PER MANUFACTURING SPECIFICATIONS.
20. PAVEMENT AREA SHALL BE PAVED TO A THICKNESS AS SHOWN ON THE PLANS MEASURED AFTER COMPACTION, WITH A BINDER COURSE AND TOP COURSE OF CLASS I BITUMINOUS CONCRETE PAVEMENT, TYPE I-1.
21. THE AGGREGATE SHALL BE COMPOSED, MIXED AND LAID HOT IN TWO COURSES AS SPECIFIED IN THE "COMMONWEALTH OF MASSACHUSETTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGE", 1988 EDITION, SECTION 460 FOR CLASS I BITUMINOUS CONCRETE PAVEMENT, AS SPECIFICALLY SET FORTH IN SECTION 460.20 AND 460.82.
22. ALL EXISTING PAVING TO BE DISTURBED SHALL BE CUT ALONG A STRAIGHT LINE THROUGH ITS ENTIRE THICKNESS, BUTT NEW PAVING INTO THE EXISTING PAVEMENT TO REMAIN AND TACK COAT THE JOINT.
23. ANY PAVEMENT REMOVED FOR UTILITY TRENCH EXCAVATION OR OTHERWISE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED WITH A PAVEMENT SECTION CONSISTING OF 1 1/2" WEARING COURSE OVERLAYING A 1 1/2" BINDER COURSE OVERLAYING A 12" COMPACTED GRAVEL BASE COURSE.
24. ALL AREAS TO BE PLANTED WITH GRASS SHALL BE TREATED WITH 100 POUNDS OF GROUND LIMESTONE PER 1,000 S.F. OF AREA PLANTED. ALL AREAS TO BE PLANTED WITH GRASS SHALL BE FERTILIZED WITH 10-10-10 AT THE RATE OF 1,000 POUNDS PER ACRE OR AS REQUIRED BY SOIL TEST. 40% OF THE NITROGEN SHALL BE ORGANIC FORM.
25. ALL LANDSCAPED AREAS TO BE LOAMED AND SEEDED SHALL HAVE THE FOLLOWING MIX:

PERENNIAL RYE	25%
KENTUCKY BLUE	25%
CREeping RED FESCUE OR	
PENNLAWN FESCUE	50%

SEED AT THE RATE OF 5#/1,000 S.F.
26. ALL DISTURBED AREAS TO BE LOAMED AND SEEDED SHALL HAVE A MINIMUM OF 4 INCHES OF TOPSOIL SPREAD EVENLY THROUGHOUT. PROVIDE EROSION CONTROL MEASURES AS NECESSARY TO PROVIDE SLOPE STABILITY UNTIL VEGETATION IS ESTABLISHED. (NOTE: IF THERE IS A CONFLICT BETWEEN THESE PLANS AND LANDSCAPE PLANS THE LANDSCAPE PLANS SHALL DICTATE.)
27. THE CONTRACTOR SHALL REGULARLY INSPECT THE PERIMETER OF THE PROPERTY TO CLEANUP AND REMOVE LOOSE CONSTRUCTION DEBRIS BEFORE IT LEAVES THE SITE. ALL DEMOLITION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE SITE TO A LEGAL DUMP SITE. ALL TRUCKS LEAVING THE SITE SHALL BE COVERED.
28. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTITUTE EROSION CONTROL MEASURES ON AN AS NECESSARY BASIS, SUCH THAT EXCESSIVE SOIL EROSION DOES NOT OCCUR. MEASURES SHALL INCLUDE SILT SACKS IN DRAINAGE INLETS, MULCHING AND PLANTING OF DISTURBED AREAS.
29. PRIOR TO THE COMMENCEMENT OF ANY OTHER WORK A SILT SACK SHALL BE INSTALLED IN EACH EXISTING DRAINAGE INLET.
30. AFTER INSTALLATION OF EACH DRAINAGE INLET A SILT SACK SHALL BE INSTALLED IN EACH INLET TO PREVENT SEDIMENT FROM ENTERING THE STORM DRAIN SYSTEM.
31. AT THE END OF CONSTRUCTION ALL DRAINAGE STRUCTURES ARE TO BE CLEANED OF SILT, STONES AND OTHER DEBRIS.
32. DURING CONSTRUCTION THE EROSION CONTROL MEASURES SHALL BE INSPECTED ONCE PER WEEK AND WITHIN 24 HOURS OF ANY STORM EVENT GENERATING MORE THAN 1/2" OF RAINFALL. THE EROSION CONTROL MEASURES SHALL BE CLEANED REGULARLY AND ADJUSTED IF NECESSARY TO ENSURE THAT NO SILT OR DEBRIS LEAVES THE SITE.
33. STABILIZATION MEASURES (SEEDING OR PLANTING, APPLYING MULCH OR OTHER NON-VEGETATIVE PRODUCT) OF EXPOSED SOILS SHALL BEGIN AS SOON AS PRACTICABLE AND IMMEDIATELY AFTER EARTH-DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED. STABILIZATION TO BE COMPLETED WITHIN 14 DAYS.
34. SILT SOCKS SHALL BE INSTALLED ON THE DOWNSTREAM SIDE OF ALL STOCK PILES.
35. SPARE EROSION/SEDIMENT CONTROL MATERIALS SHALL BE AVAILABLE ON SITE FOR USE IN CONTINGENCY CONDITIONS OR AT THE DIRECTION OF FRANKLIN CODE ENFORCEMENT PERSONNEL.

APPROVED BY THE FRANKLIN PLANNING BOARD

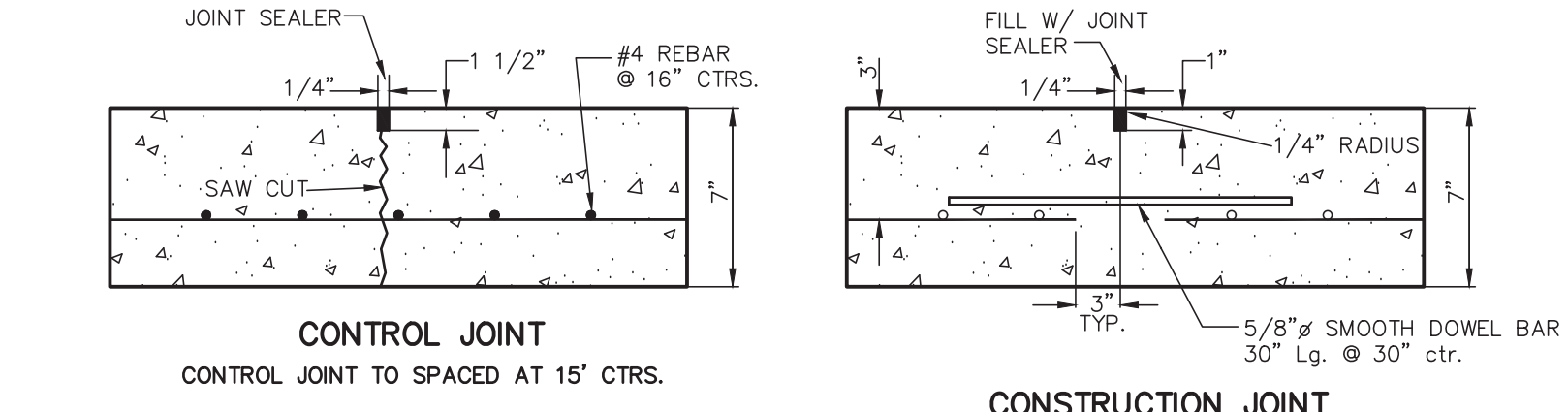
APPROVED DATE

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NOTE: 1. SIGN LAYOUT, COLORS, SYMBOL AND LETTERING SHALL BE STANDARD.  
2. TO BE LOCATED ON SITE AS DIRECTED.  
3. TO BE LOCATED AT APPROPRIATE SPACES.

HANDICAP SIGN DETAIL  
NOT TO SCALE  
KELLY ENGINEERING GROUP, INC.



CONCRETE PAD DETAIL  
NOT TO SCALE  
KELLY ENGINEERING GROUP, INC.

THE CONCRETE PADS SHALL BE 7" THICK REINFORCED CONCRETE SLABS WITH CONTROL JOINTS EVERY 15'. PROVIDE #4 REBAR @ 16" O.C. AND CONSTRUCTION JOINTS EVERY 100'. CONCRETE FOR PADS SHALL HAVE A MINIMUM 28 DAYS COMPRESSIVE STRENGTH OF 4000 PSI. THE PADS SHALL BE CONSTRUCTED OVER 12" OF GRAVEL BASE COMPACTED TO 95%.

CONCRETE PAD DETAIL  
NOT TO SCALE  
KELLY ENGINEERING GROUP, INC.

7.	08/06/21	TENANT CRENSIONS	
6.	07/01/21	NO CHANGE	
5.	11/16/20	NO CHANGE	

SCALE	4.	10/01/20	PER TENANT COORDINATION	
NA	3.	07/28/20	PLANNING BOARD COMMENTS	
DATE	2.	06/02/20	NO CHANGE	
02/14/20	1.	04/10/20	PER PEER REVIEW	
SHEET	REV	DATE	REVISION	BY
8 of 12				
FILE #				
2019-027-DT07				
JOB #				
F:\P\2019-127				
DRAWN BY				
CUL				
CHKD BY				
GSH				
APPD BY				
DNK				

**MARCUS PARTNERS**  
176- 210 GROVE STREET  
FRANKLIN, MA

**DETAIL SHEET**

**KELLY ENGINEERING GROUP**  
civil engineering consultants  
0 Campanelli Drive, Braintree, MA 02184  
Phone: 781-843-4333 www.kellyengineeringgroup.com

DAVID NOEL KELLY CIVIL NO. 37842 REGISTERED ENGINEER

Digitally signed by David Noel Kelly  
DN: cn=Dave Kelly, o=Kelly Engineering Group, Inc., email=dave@kellyengr.com, c=US  
Date: 2021.08.06 09:26:37 -0400

SHEET NO. 8











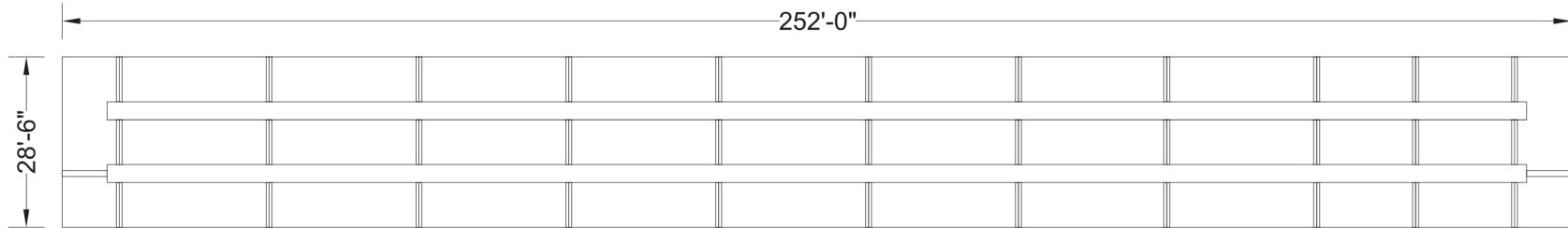
PROJECT SUMMARY

CALCULATION DETAILS  
• LOADING = HS20 & HS25  
• APPROX. LINEAR FOOTAGE = 768 lf.

STORAGE SUMMARY  
• STORAGE VOLUME REQUIRED = 46,600 cf.  
• PIPE STORAGE VOLUME = 33,929 cf.  
• BACKFILL STORAGE VOLUME = 12,768 cf.  
• TOTAL STORAGE PROVIDED = 46,697 cf.

PIPE DETAILS  
• DIAMETER = 90 IN.  
• CORRUGATION = 5x1  
• GAGE = 16  
• COATING = ALT2  
• WALL TYPE = Perforated  
• BARRELL SPACING = 36 IN.

BACKFILL DETAILS  
• WIDTH AT ENDS = 12 IN.  
• ABOVE PIPE = 6 IN.  
• WIDTH AT SIDES = 12 IN.  
• BELOW PIPE = 6 IN.



NOTE:  
THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

NOTES  
• ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.  
• ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.  
• ALL RISERS AND STUBS ARE 25" x 1/2" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.  
• RISERS TO BE FIELD TRIMMED TO GRADE.  
• QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILLED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.  
• BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.  
• THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN. QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.

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**CONTECH**  
ENGINEERED SOLUTIONS LLC  
www.ContechES.com  
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45398  
800-338-1122 513-645-7000 513-645-7993 FAX

**CONTECH**  
CMP DETENTION SYSTEMS  
CONTECH  
DYODS  
DRAWINGS

ASSEMBLY  
SCALE: 1" = 30'

DY01548 206 Grove Street  
90" CMP Detention - 43604 cf.

DETENTION SYSTEM

PROJECT No.: 1166 SEQ. No.: 1548 DATE: 7/3/2020  
DESIGNED: DYD DRAWN: DYD  
CHECKED: DYD APPROVED: DYD  
SHEET No.: D1

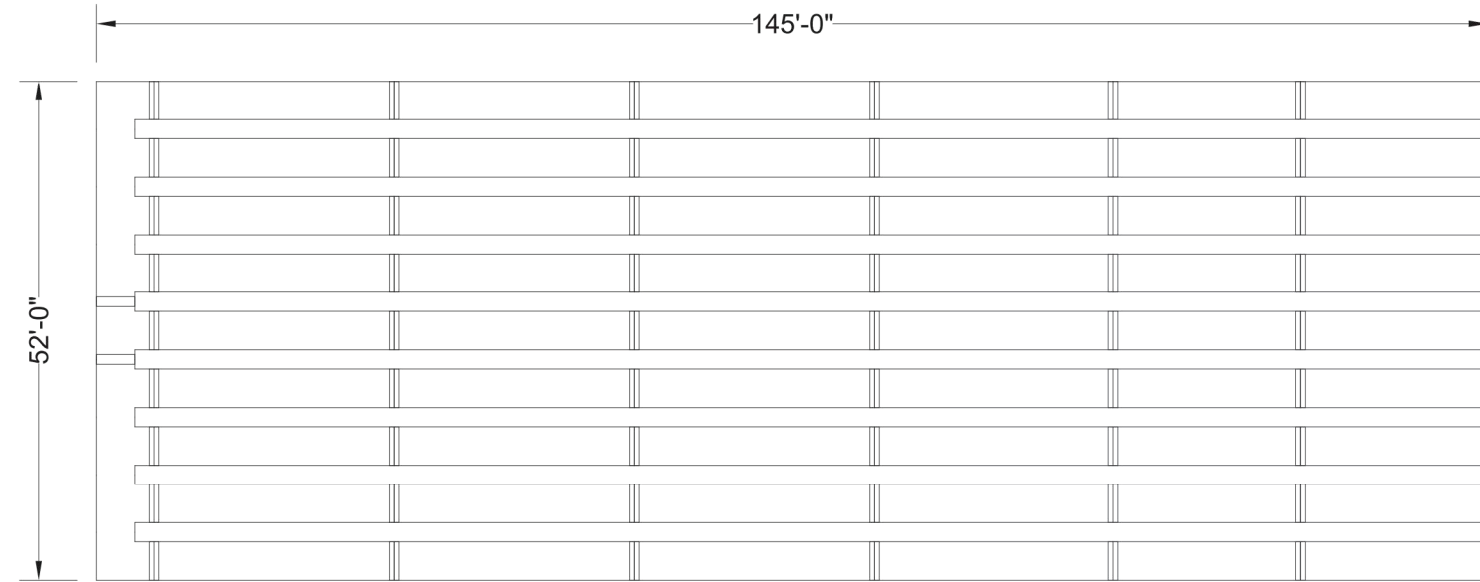
PROJECT SUMMARY

CALCULATION DETAILS  
• LOADING = HS20 & HS25  
• APPROX. LINEAR FOOTAGE = 1,321 lf.

STORAGE SUMMARY  
• STORAGE VOLUME REQUIRED = 25,800 cf.  
• PIPE STORAGE VOLUME = 16,600 cf.  
• BACKFILL STORAGE VOLUME = 9,236 cf.  
• TOTAL STORAGE PROVIDED = 25,836 cf.

PIPE DETAILS  
• DIAMETER = 48 IN.  
• CORRUGATION = 2 2/3x1/2  
• GAGE = 16  
• COATING = ALT2  
• WALL TYPE = Perforated  
• BARRELL SPACING = 24 IN.

BACKFILL DETAILS  
• WIDTH AT ENDS = 12 IN.  
• ABOVE PIPE = 6 IN.  
• WIDTH AT SIDES = 12 IN.  
• BELOW PIPE = 6 IN.



NOTE:  
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NOTES  
• ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.  
• ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.  
• ALL RISERS AND STUBS ARE 25" x 1/2" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.  
• RISERS TO BE FIELD TRIMMED TO GRADE.  
• QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILLED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.  
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9025 Centre Pointe Dr., Suite 400, West Chester, OH 45398  
800-338-1122 513-645-7000 513-645-7993 FAX

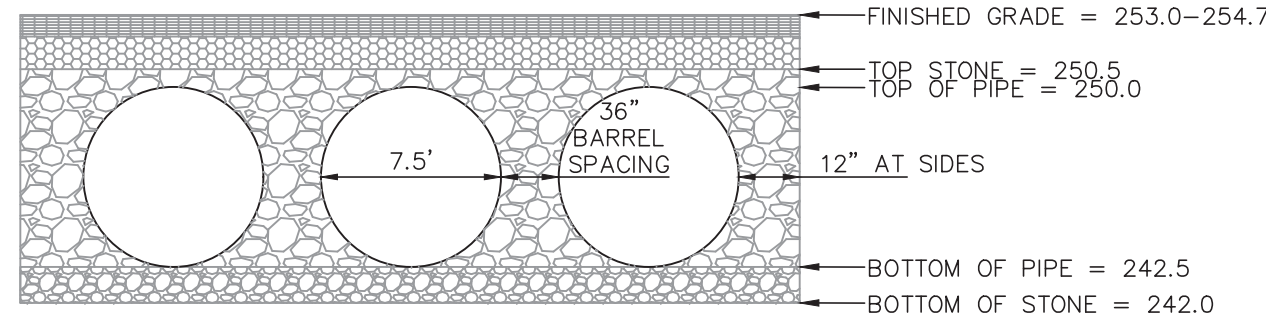
**CONTECH**  
CMP DETENTION SYSTEMS  
CONTECH  
DYODS  
DRAWINGS

ASSEMBLY  
SCALE: 1" = 20'

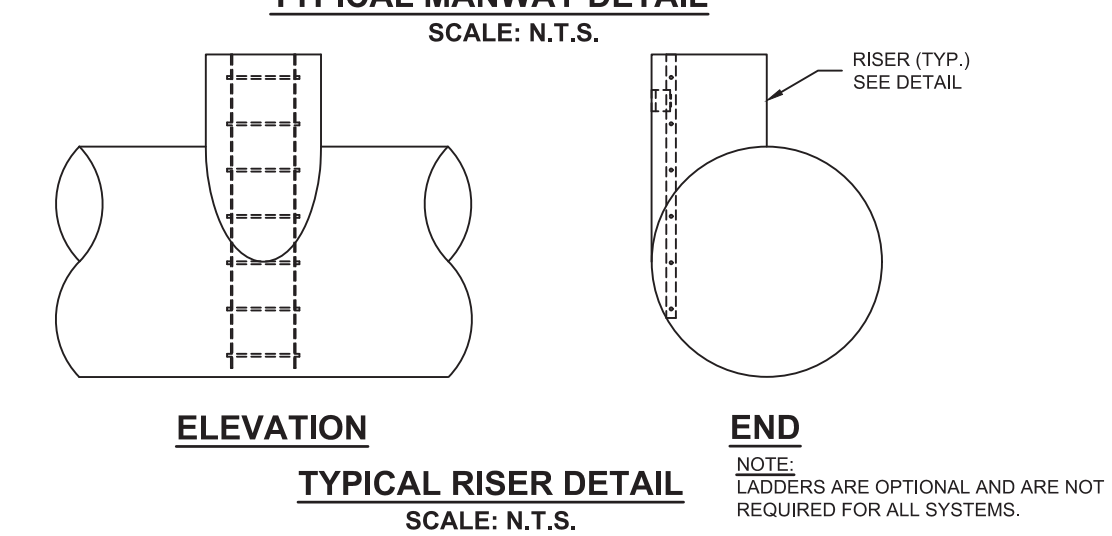
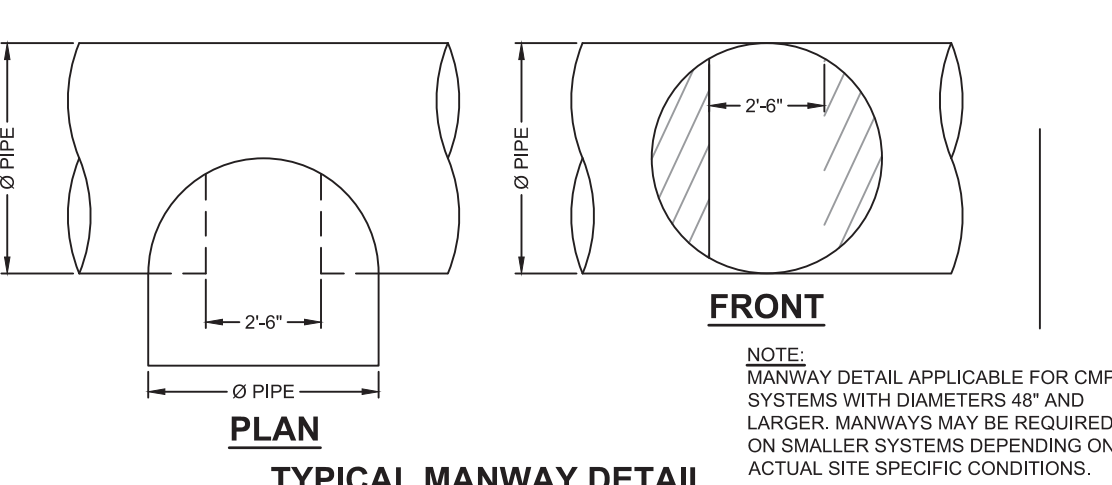
DY01584 206 Grove Street  
48" CMP Detention - 16600 cf.

DETENTION SYSTEM

PROJECT No.: 1166 SEQ. No.: 1548 DATE: 7/3/2020  
DESIGNED: DYD DRAWN: DYD  
CHECKED: DYD APPROVED: DYD  
SHEET No.: D1



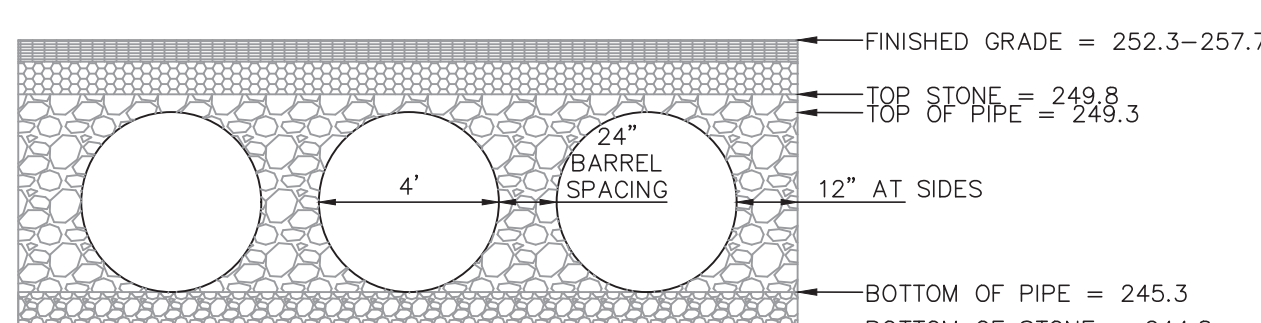
NOTE: PRIOR TO CONSTRUCTION FULL SHOP DRAWINGS TO BE PROVIDED BY MANUFACTURER.



NOTE: PRIOR TO CONSTRUCTION FULL SHOP DRAWINGS TO BE PROVIDED BY MANUFACTURER.

APPROVED BY THE FRANKLIN PLANNING BOARD

APPROVED DATE



NOTE: PRIOR TO CONSTRUCTION FULL SHOP DRAWINGS TO BE PROVIDED BY MANUFACTURER.

HEADWALL #	D	H <sub>1</sub>	H <sub>2</sub>	L <sub>1</sub>	L <sub>2</sub>	W <sub>1</sub>
1	12"	35"	0.5'	4'	7.5'	2.5'
2	15"	3.7'	0.5'	4'	8.0'	3.0'
3	15"	3.7'	0.5'	4'	8.0'	3.0'
4	12"	3.5'	0.5'	4'	7.5'	3.0'
5	42"	5.7'	0.5'	6.8'	13'	4.0'
6	42"	5.7'	0.5'	6.8'	13'	4.0'

NOTE:  
Concrete shall be Class "B" ( 5 sack mix ) unless otherwise noted.

HEADWALL DETAIL

NOT TO SCALE

KELLY ENGINEERING GROUP, INC.

KELLY ENGINEERING GROUP SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, OR PROCEDURES UTILIZED BY THE CONTRACTOR, NOR FOR THE SAFETY OF PUBLIC OR CONTRACTOR'S EMPLOYEES; OR FOR THE FAILURE OF THE CONTRACTOR TO CARRY OUT THE WORKING ACCORDANCE WITH THE CONTRACT DOCUMENTS.  
THE EXTENT OF KELLY ENGINEERING GROUP'S LIABILITY FOR THIS PLAN IS LIMITED TO THE EXTENT OF ITS FEE LESS THIRD PARTY COST

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7.	08/06/21	TENANT DIMENSIONS	
6.	07/01/21	NO CHANGE	
5.	11/16/20	NO CHANGE	

SCALE	4.	10/01/20	PER TENANT COORDINATION	
NA	3.	07/28/20	PLANNING BOARD COMMENTS	
DATE	2.	06/02/20	NO CHANGE	
02/14/20	1.	04/10/20	PER PEER REVIEW	
SHEET	REV	DATE	REVISION	BY
11 of 12				
FILE #				
2019-127-DT07				
JOB #				
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DRAWN BY				
CUL				
CHKD BY				
GSH				
APPD BY				
DNK				

**MARCUS PARTNERS**  
176- 210 GROVE STREET  
FRANKLIN, MA

**DETAIL SHEET**

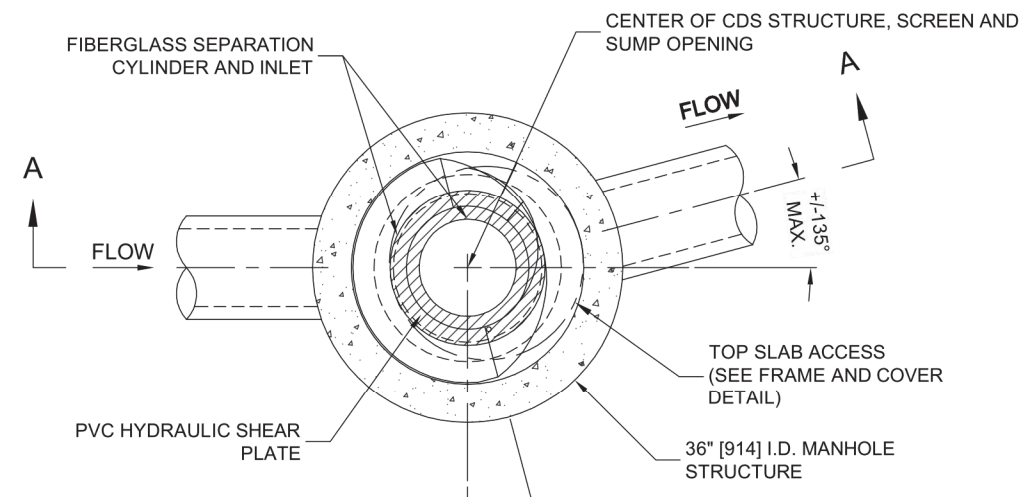
**KELLY ENGINEERING GROUP**  
civil engineering consultants  
0 Campanelli Drive, Braintree, MA 02184  
Phone: 781-843-4333 www.kellyengineeringgroup.com

Seal of the Commonwealth of Massachusetts  
DAVID NOEL KELLY CIVIL NO. 37942 REGISTERED PROFESSIONAL ENGINEER  
Digitally signed by David Noel Kelly  
DN: cn=David Noel Kelly  
o=Kelly Engineering Group, Inc., ou=Main Office  
email=dnoel@kellyeng.com, c=US  
Date: 2021.08.06 09:25:54 -0400

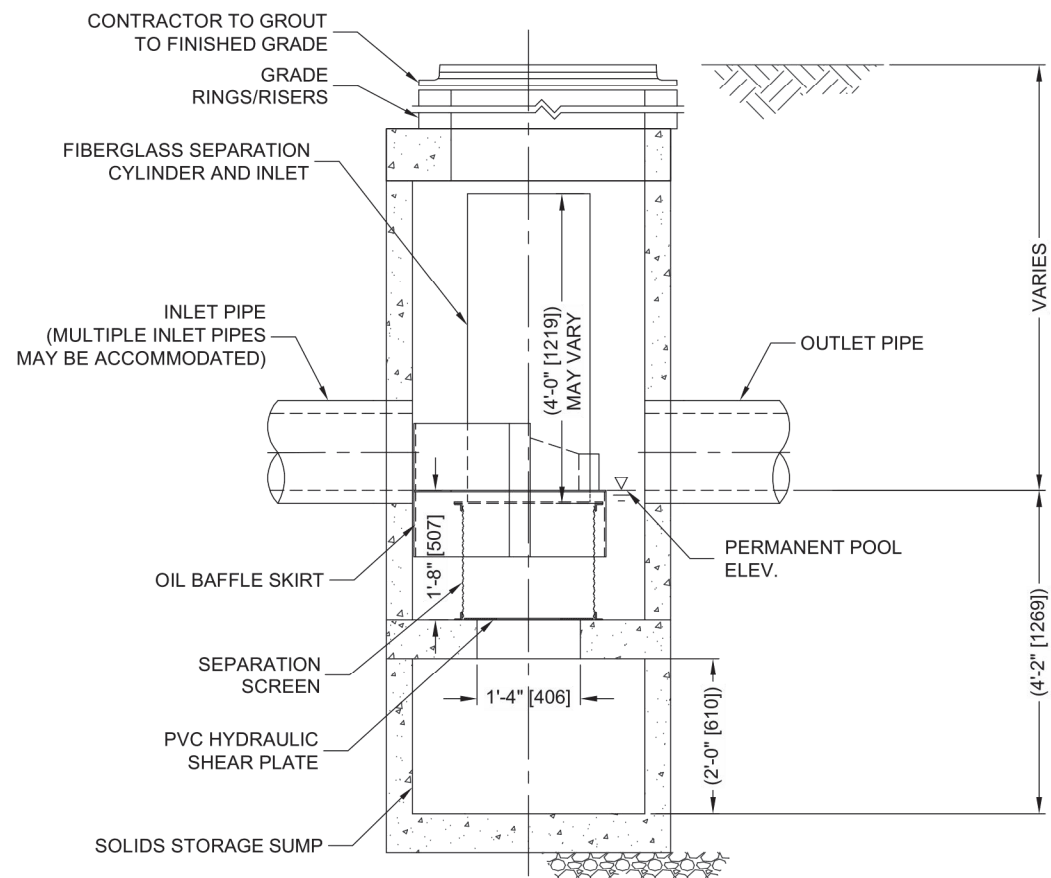
SHEET NO. 11



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PLAN VIEW B-B  
N.T.S.

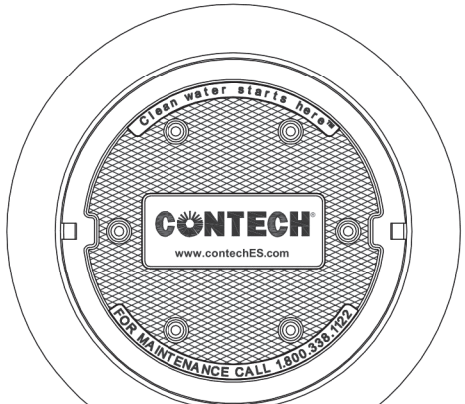


ELEVATION A-A  
N.T.S.



### CDS1515-3-C DESIGN NOTES

THE STANDARD CDS1515-3-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.



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](http://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 M308 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

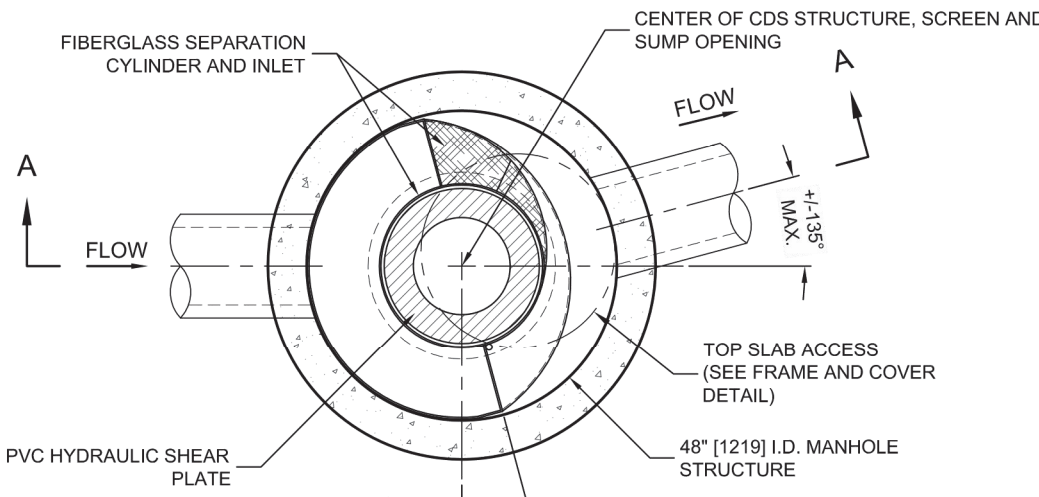
- A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
- C. CONTRACTOR TO INSTALL 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.



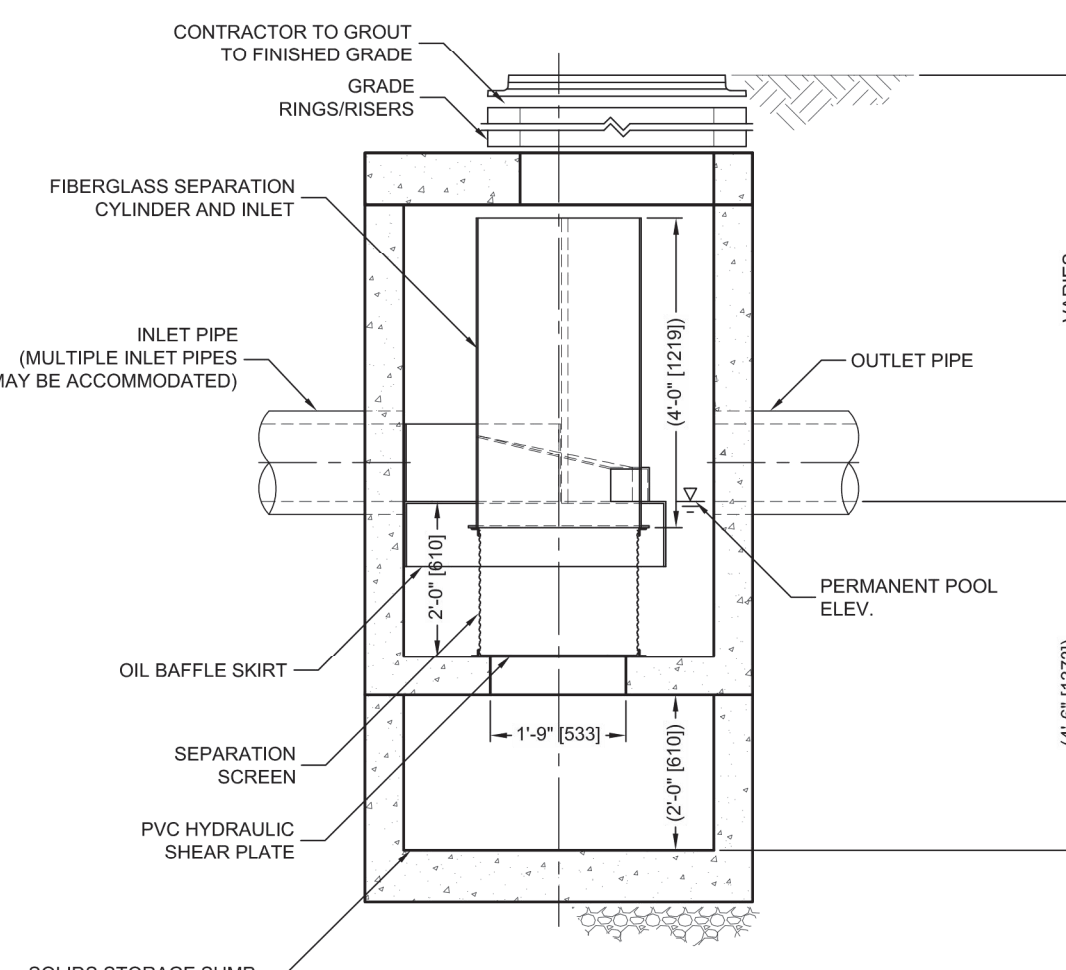
CDS1515-3-C  
ONLINE CDS  
STANDARD DETAIL

### SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
NOTES/SPECIAL REQUIREMENTS:			*
* PER ENGINEER OF RECORD			



PLAN VIEW B-B  
N.T.S.



ELEVATION A-A  
N.T.S.

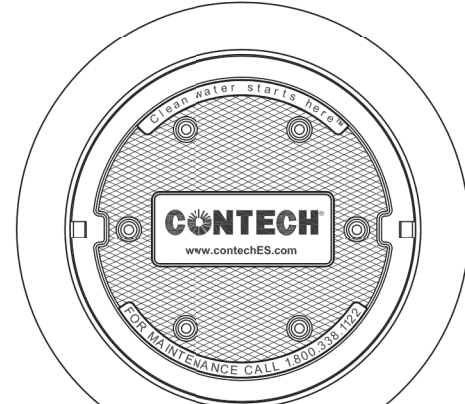


### CDS2015-4-C DESIGN NOTES

THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

#### CONFIGURATION DESCRIPTION

- GRATED INLET ONLY (NO INLET PIPE)
- GRATED INLET WITH INLET PIPE OR PIPES
- CURB INLET ONLY (NO INLET PIPE)
- CURB INLET WITH INLET PIPE OR PIPES
- SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
- SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



FRAME AND COVER  
(DIAMETER VARIES)  
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 WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. [www.contechES.com](http://www.contechES.com)
4. CDS 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 HS20 (AASHTO M 308) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

#### 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 (LIFTING CLUTCHES PROVIDED).
- C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
- D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- 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.



CDS2015-4-C  
INLINE CDS  
STANDARD DETAIL

### SITE SPECIFIC DATA REQUIREMENTS

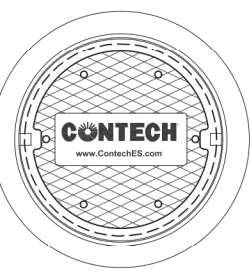
STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
NOTES/SPECIAL REQUIREMENTS:			*
* PER ENGINEER OF RECORD			

### STORMCEPTOR DESIGN NOTES

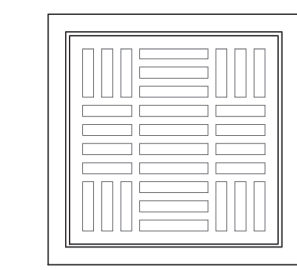
THE STANDARD STC450i CONFIGURATION WITH ROUND, SOLID FRAME AND COVER, AND INLET PIPE IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

#### CONFIGURATION DESCRIPTION

- GRATED INLET ONLY (NO INLET PIPE)
- GRATED INLET WITH INLET PIPE OR PIPES
- CURB INLET ONLY (NO INLET PIPE)
- CURB INLET WITH INLET PIPE OR PIPES



FRAME AND COVER  
(MAY VARY)  
NOT TO SCALE



FRAME AND GRADE  
(MAY VARY)  
NOT TO SCALE

### SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			
PEAK FLOW RATE (cfs [L/s])			
RETURN PERIOD OF PEAK FLOW (yrs)			
RIM ELEVATION			
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
NOTES / SPECIAL REQUIREMENTS:			

#### 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](http://www.contechES.com)
3. STORMCEPTOR 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. STORMCEPTOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M308 AND BE CAST WITH THE CONTECH LOGO.
5. STORMCEPTOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS (mm).

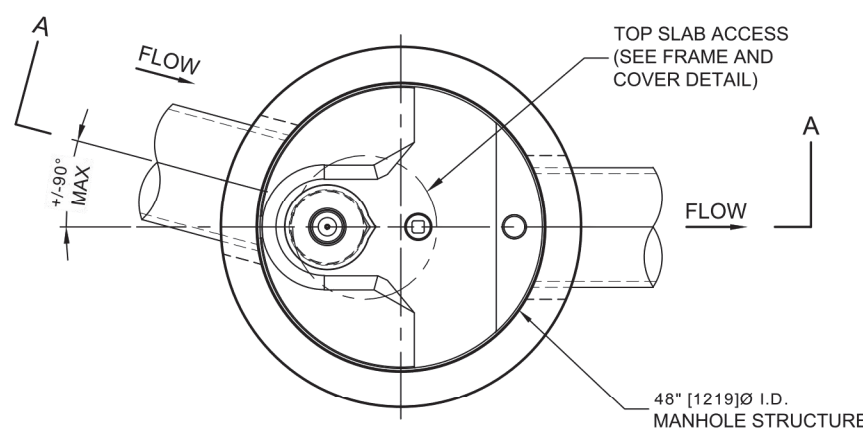
#### INSTALLATION NOTES

- 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 STORMCEPTOR 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.

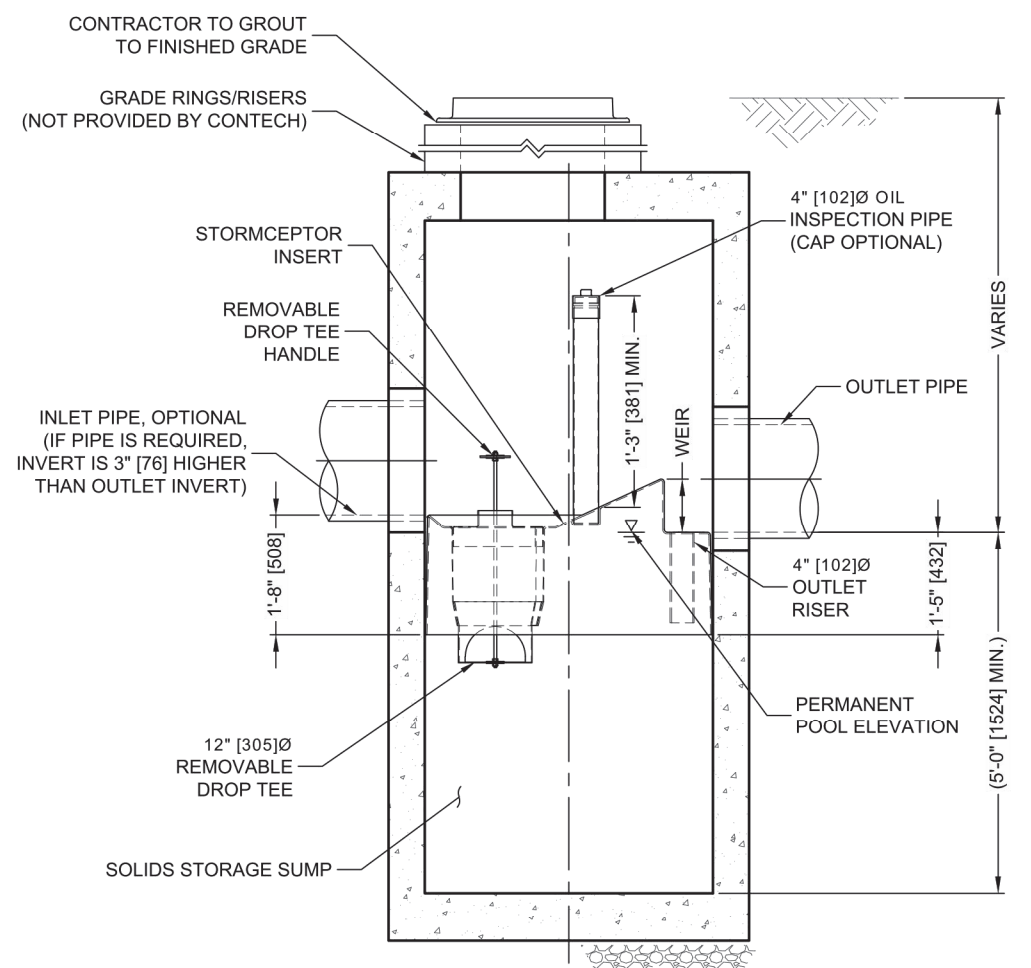


STC450i  
STORMCEPTOR  
STANDARD DETAIL

7.	08/06/21	TENANT COORDINATION	
6.	07/01/21	NO CHANGE	
5.	11/16/20	NO CHANGE	



PLAN VIEW  
TOP SLAB NOT SHOWN



SECTION A-A



FOR PATENT INFORMATION GO TO [www.contechES.com](http://www.contechES.com)

KELLY ENGINEERING GROUP SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, OR PROCEDURES UTILIZED BY THE CONTRACTOR, NOR FOR THE SAFETY OF PUBLIC OR CONTRACTOR'S EMPLOYEES; OR FOR THE FAILURE OF THE CONTRACTOR TO CARRY OUT THE WORKING ACCORDANCE WITH THE CONTRACT DOCUMENTS.  
THE EXTENT OF KELLY ENGINEERING GROUPS LIABILITY FOR THIS PLAN IS LIMITED TO THE EXTENT OF ITS FEE LESS THIRD PARTY COST

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APPROVED BY THE FRANKLIN PLANNING BOARD

APPROVED DATE

SCALE	4.	10/01/20	PER TENANT COORDINATION	
NA	3.	07/28/20	PLANNING BOARD COMMENTS	
DATE	2.	06/02/20	NO CHANGE	
02/14/20	1.	04/10/20	PER PEER REVIEW	
SHEET	REV	DATE	REVISION	BY
12 of 12				
FILE #				
2019-127-D707				
JOB #				
F:\P\2019-127				
DRAWN BY				
CUL				
CHKD BY				
GSN				
APPD BY				
DNK				

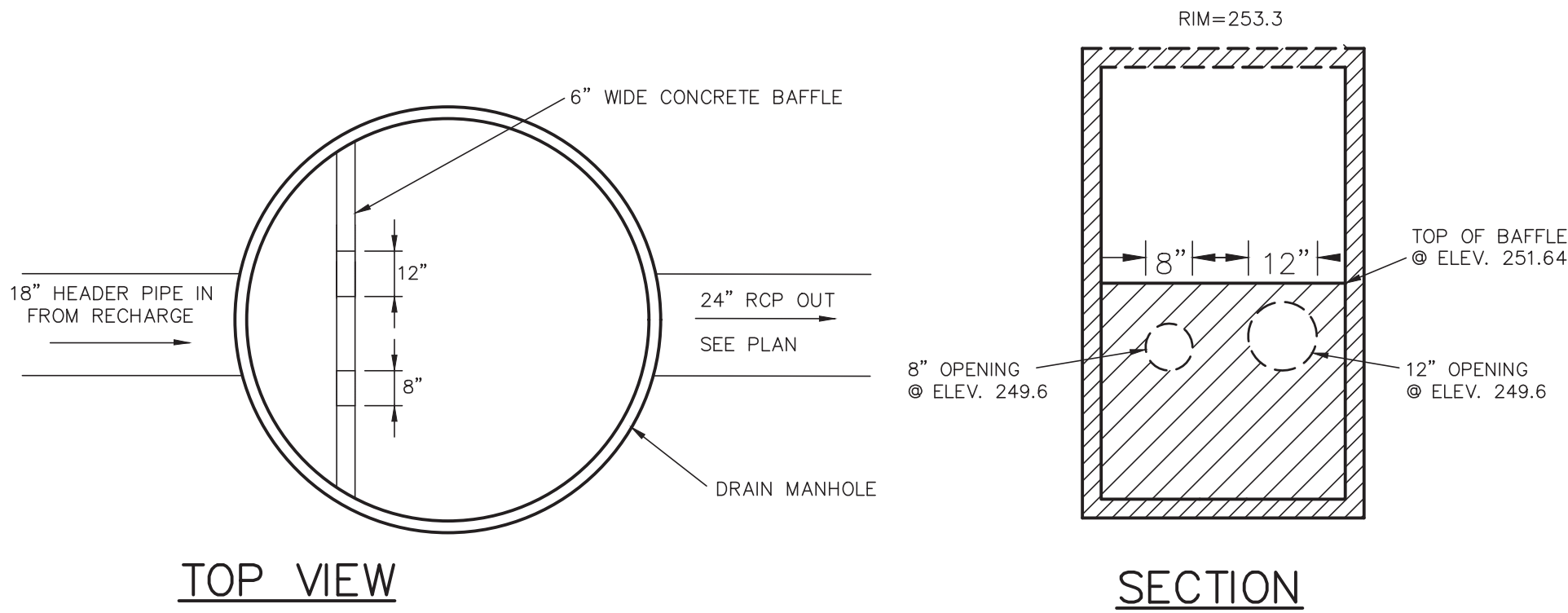
MARCUS PARTNERS  
176- 210 GROVE STREET  
FRANKLIN, MA

DETAIL SHEET

KELLY ENGINEERING GROUP  
civil engineering consultants  
0 Campanelli Drive, Braintree, MA 02184  
Phone: 781-843-4333 [www.kellyengineeringgroup.com](http://www.kellyengineeringgroup.com)

DAVID NOEL KELLY CIVIL NO. 37942 REGISTERED PROFESSIONAL ENGINEER	
Digitally signed by David Noel Kelly F.S. E.C. on 06/02/2020 at 10:07:00 AM email=dnk@kellyeng.com, c=US, ou=KELLY ENGINEERING GROUP, o=KELLY ENGINEERING GROUP, ou=KELLY ENGINEERING GROUP	
SHEET NO.	12

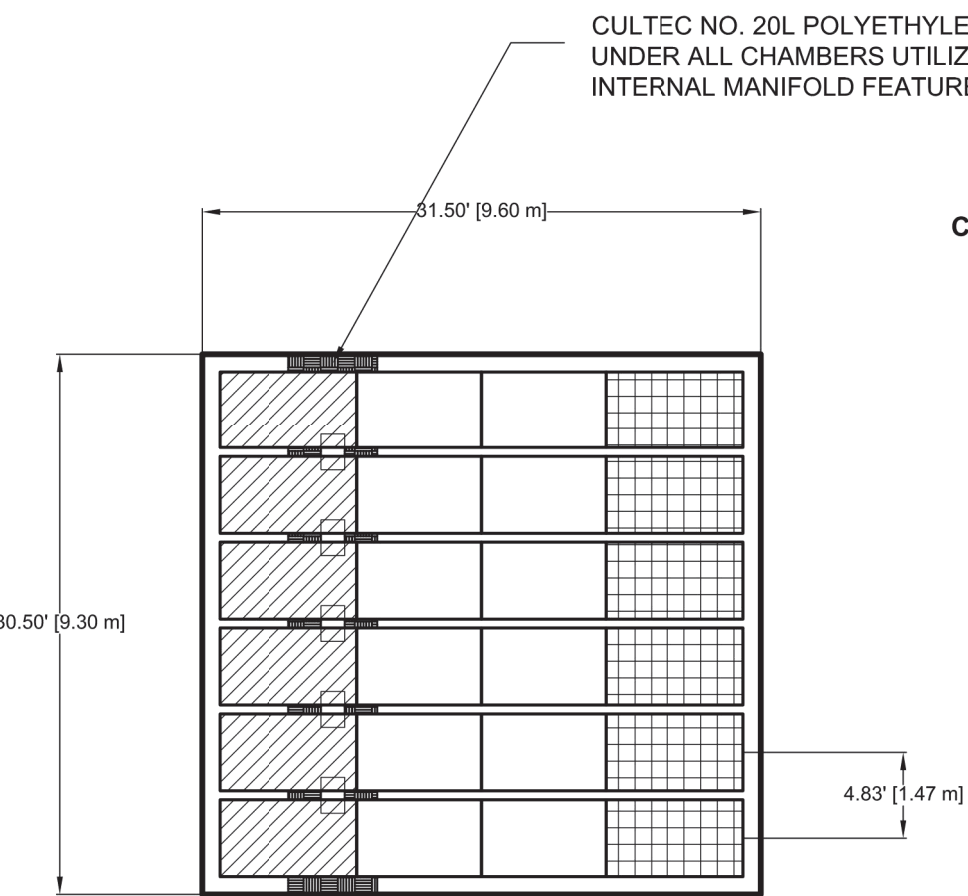




NOTE: FOR OTHER NOTES AND DETAILS SEE TYPICAL DRAIN MANHOLE DETAIL

**CONTROL STRUCTURE MANHOLE #4**  
NOT TO SCALE

KELLY ENGINEERING GROUP, INC.



**CULTEC RECHARGER 330XLHD  
STORMWATER BED  
SUBSURFACE SYSTEM #4**

Recharger 330XLHD Stormwater System by CULTEC, Inc.		
STARTER CHAMBERS	6	PIECES
INTERMEDIATE CHAMBERS	12	PIECES
END CHAMBERS	6	PIECES
HVLY FC-24 FEED CONNECTOR	5	PIECES
CULTEC NO. 410™ FILTER FABRIC	288.53	SQ. YARDS
CULTEC NO. 20L POLYETHYLENE LINER	30.50	FEET
STONE	77.04	CU. YARDS
VOLUME OF EXCAVATION	164.57	CU. YARDS

**CULTEC RECHARGER 330XLHD  
LEGEND**

	STARTER CHAMBERS
	INTERMEDIATE CHAMBERS
	END CHAMBERS
	HVLY FC-24 FEED CONNECTOR
	CULTEC NO. 20L POLYETHYLENE LINER

**CULTEC STORMWATER MANAGEMENT SYSTEM**  
TOTAL STORAGE PROVIDED: 2154.6 cu. feet  
(STORAGE PROVIDED IN CHAMBERS: 1320.2 cu. feet)  
(STORAGE PROVIDED IN STONE: 832.1 cu. feet)  
(STORAGE PROVIDED IN CONNECTORS 2.3 cu. feet)  
\*SYSTEM INSTALLED REQUIRING STONE AMOUNTS OF  
6.0 inches BELOW CHAMBERS, 6.0 inches ABOVE AND A  
12.0 INCHES BORDER SURROUNDING

CULTEC, Inc.		CULTEC STORMWATER SYSTEM	
2000 P.O. Box 280 670 Federal Road Bridgewater, CT 06604 www.cultec.com tech@cultec.com		THIS DRAWING WAS PREPARED TO SUPPORT THE DESIGN ENGINEER FOR THE PROPOSED SYSTEM. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM DESIGNER'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE CODES AND REGULATIONS. TO THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE CULTEC PRODUCTS ARE DESIGNED IN ACCORDANCE WITH CULTEC'S MANUFACTURING REQUIREMENTS. CULTEC INC. DOES NOT APPROVE PLANS, SPECIFICATIONS, OR SYSTEM DESIGNS. THE DESIGN ENGINEER IS RESPONSIBLE FOR ALL DESIGN DECISIONS.	
PROJECT NAME: PROJECT ADDRESS: PROJECT CITY, STATE:		PROJECT NO.: DATE: DESIGNED BY: DRAWN BY: STORMENGINE SCALE: N.T.S. SHEET NO. 1 OF 1	

**SUBSURFACE SYSTEM #4**

NOT TO SCALE

KELLY ENGINEERING GROUP, INC.

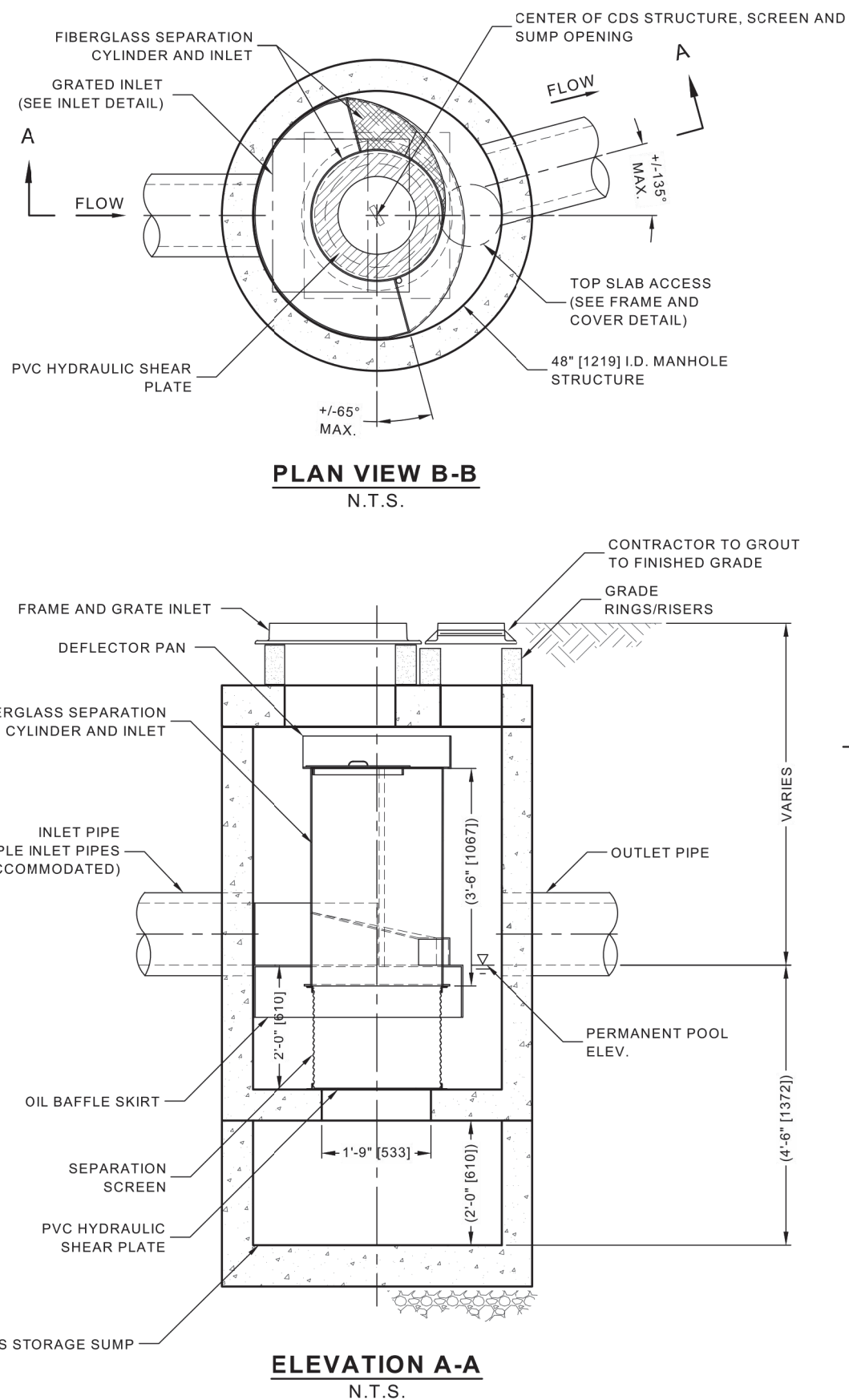
KELLY ENGINEERING GROUP SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, OR PROCEDURES UTILIZED BY THE CONTRACTOR, NOR FOR THE SAFETY OF PUBLIC OR CONTRACTOR'S EMPLOYEES, OR FOR THE FAILURE OF THE CONTRACTOR TO CARRY OUT THE WORKING ACCORDANCE WITH THE CONTRACT DOCUMENTS.  
THE EXTENT OF KELLY ENGINEERING GROUP'S LIABILITY FOR THIS PLAN IS LIMITED TO THE EXTENT OF ITS FEE LESS THIRD PARTY COST

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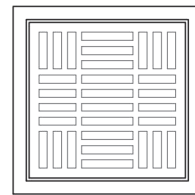
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APPROVED BY THE FRANKLIN PLANNING BOARD

APPROVED DATE \_\_\_\_\_



CDS2015-4-C DESIGN NOTES	
CDS2015-4-C RATED TREATMENT CAPACITY IS 1.4 CFS (19.8 L/s) OR PER LOCAL REGULATIONS.	
THE GRATE INLET CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.	
CONFIGURATION DESCRIPTION	
GRATED INLET ONLY (NO INLET PIPE)	
GRATED INLET WITH INLET PIPE OR PIPES	
CURB INLET ONLY (NO INLET PIPE)	
CURB INLET WITH INLET PIPE OR PIPES	
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)	
SEDIMENT WEIR FOR NUDEP / INCAT CONFORMING UNITS	



**24" X 24" FRAME AND GRATE**  
(MAY VARY)  
NOT TO SCALE



**FRAME AND COVER**  
(MAY VARY)  
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS			
STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			
PEAK FLOW RATE (CFS OR L/s)			
RETURN PERIOD OF PEAK FLOW (YRS)			
SCREEN APERTURE (2400 OR 4700)			
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

- GENERAL NOTES**
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
  - DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
  - FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE: [www.ConTechES.com](http://www.ConTechES.com)
  - CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
  - STRUCTURE SHALL MEET AASHTO H20 AND CASTINGS SHALL MEET H20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
  - PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
- INSTALLATION NOTES**
- ANY SUB-BASE BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
  - CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
  - CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
  - CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
  - 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**  
ENGINEERED SOLUTIONS LLC  
www.ConTechES.com  
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069  
800-338-1122 513-645-7000 513-645-7993 FAX

**CDS2015-4-C WITH GRATED INLET  
INLINE CDS  
STANDARD DETAIL**

SCALE	4. 10/01/20	PER TENANT COORDINATION	
NA	3. 07/28/20	PLANNING BOARD COMMENTS	
DATE	2. 06/02/20	NO CHANGE	
02/14/20	1. 04/10/20	PER PEER REVIEW	
SHEET	REV	DATE	REVISION
13 of 13			
FILE #			
2019-127-DT07			
JOB #			
F:\P\2019-127			
DRAWN BY			
C.L.			
CHKD BY			
GSH			
APPD BY			
DNK			

**MARCUS PARTNERS**  
176- 210 GROVE STREET  
FRANKLIN, MA  
**DETAIL  
SHEET**



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0 Campanelli Drive, Braintree, MA 02184  
Phone: 781-843-4333 [www.kellyengineeringgroup.com](http://www.kellyengineeringgroup.com)



SHEET NO.

**13**