

39 Main Street
Medway, MA

Project Team:

Client:
Toll Brothers Apartment Living
197 First Avenue
Suite 110
Needham, MA 02494
(508) 668-8615

MEP & FP:
BLW Engineers
311 Great Road
Littleton, MA 01460
(978) 486-0067

Architect:
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370 Merrimack Street
Suite 337
Lawrence, MA 01843
(978) 989-9900

Structural:
LA Fuess Engineers
211 Congress Street
Suite 810
Boston, MA 02110
(617) 948-5700

Civil:
Allen & Major Associates, Inc.
400 Harvey Road
Manchester, NH 03103
(603) 627-5500

Code:
Code Red Consultants
154 Turnpike Road
Suite 200
Southborough, MA 01772
(617) 500-7633

Landscape:
Allen & Major Associates, Inc.
400 Harvey Road
Manchester, NH 03103
(603) 627-5500

Interiors:
Mary Cook Associates
4011 N Ravenswood Ave
Suite 112
Chicago, IL 60613

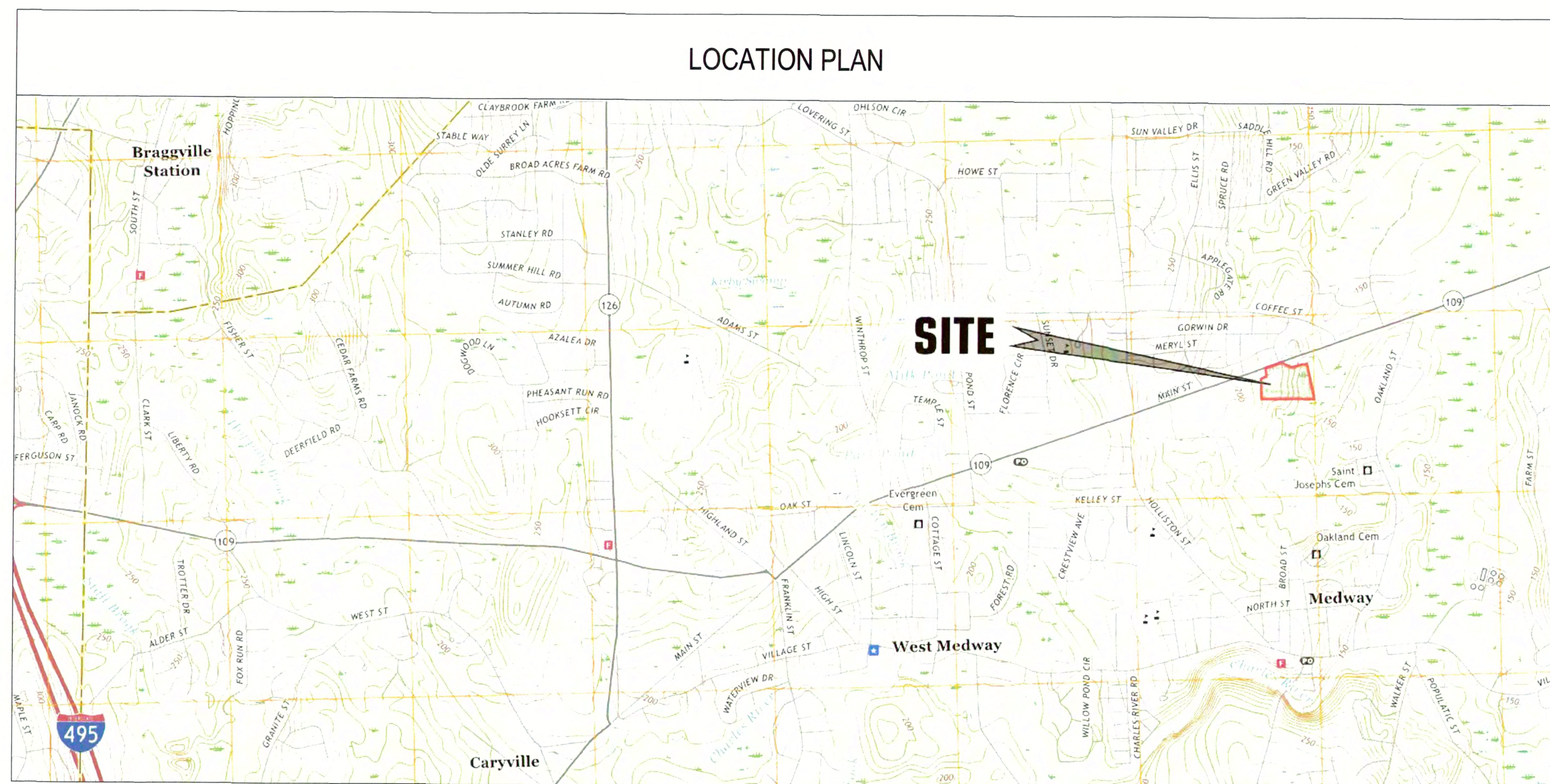
Geotech:
Northeast Geotechnical, Inc.
53 Bailey Lane
Georgetown, MA 01833
(508) 598-3510

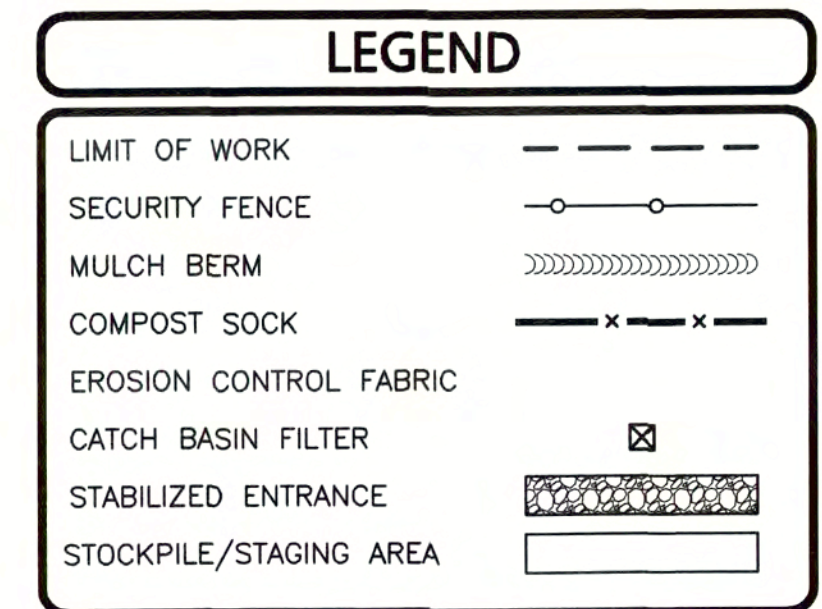
PROJECT DESCRIPTION:

RESIDENTIAL 190 UNIT NEW CONSTRUCTION COMPRISED OF TWO CONNECTED BUILDINGS SEPARATED BY FIREWALL WITH ONE SECTION OF TYPE IIIA CONSTRUCTION AT FIVE STORIES AND ONE SECTION OF TYPE VA AT FOUR STORIES BOTH CONSISTING OF WOOD CONSTRUCTION OVER SLAB ON GRADE. BUILDING CONTAINS AMENITY AREA AND LANDSCAPED COURTYARD WITH POOL

NOTE:

THE SPECIFICATIONS FOR THIS PROJECT FORM AN INTEGRAL PART OF THE CONSTRUCTION DOCUMENTATION AND ARE TO BE REFERRED TO IN CONJUNCTION WITH THESE DRAWINGS.





1. EROSION AND SEDIMENT CONTROLS SHALL BE IN STALLED PRIOR TO ANY SITE WORK AND SHALL BE MAINTAINED IN GOOD CONDITION THROUGHOUT CONSTRUCTION.
2. TEMPORARY SEDIMENT BASINS SHALL BE CONSTRUCTED WHEN NEEDED PER SWPPP GUIDANCE (1 ACRE DISTURBANCE = 3600 CUBIC FEET OF STORAGE) OR WHEN RECOMMENDED BY THE TOWN'S CONSULTING ENGINEER, APRIL'S ENGINEER, OR THE CONSERVATION COMMISSION THROUGH THE DIRECTION OF THE AGENT. POTENTIAL LOCATIONS ARE SHOWN AND MAY BE ADJUSTED AS NEEDED.
3. ALL SOIL STOCKPILES SHALL BE PROTECTED WITH COMPOST SOIL PERIMETER CONTROLS AND SEEDING/STABILIZATION PROTOCOL.
4. ALL EXISTING CATCH BASINS NEAR THE SITE AND ALONG STREET CATCH BASINS AND ON-SITE PROPOSED CATCH BASINS ARE TO BE PROTECTED WITH A SILTSCAM UNTIL ALL UPSTREAM AREAS ARE STABILIZED. INSPECT REGULARLY PER SWPPP AND CLEAN AS NEEDED THROUGHOUT CONSTRUCTION.
5. CONDUCT WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE SWPPP AND ORDER OF CONDITIONS.
6. CONSTRUCTION EQUIPMENT IS NOT TO DRIVE OVER INFILTRATION FIELDS UNTIL PROPER COVER HAS BEEN CONSTRUCTED.

GENERAL NOTES:

1. EXISTING CONDITIONS SHOWN HEREON ARE TAKEN FROM A PLAN ENTITLED "39 MAIN STREET EXISTING CONDITIONS PLAN" AND IN MEDWAY, MA DATED MAY 28, 2019, PREPARED BY LEGACY ENGINEERING AND PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. BY MEDWAY RESIDENTIAL LLC. EXISTING CONDITIONS HAVE NOT BEEN INDEPENDENTLY VERIFIED BY ALLEN & MAJOR ASSOCIATES, INC.
2. DATUM: NAVD83
3. ZONING DISTRICT: AGRICULTURAL RESIDENTIAL 1 AND GROUNDWATER PROTECTION (PORTION OF THE SITE).
4. WETLAND RESOURCE AREAS REFERENCE DEP FILE #216-0938.
5. THE CONTRACTOR SHALL CONTACT DIGSAFE AT 811 PRIOR TO ANY EXCAVATION ACTIVITIES
6. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE OR RELIANCE ON INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.

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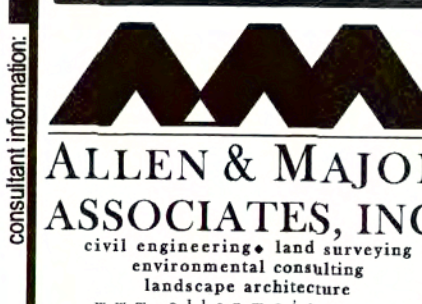


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Medway

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Apartment Living

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Needham, MA



Issued for ZBA
Approval

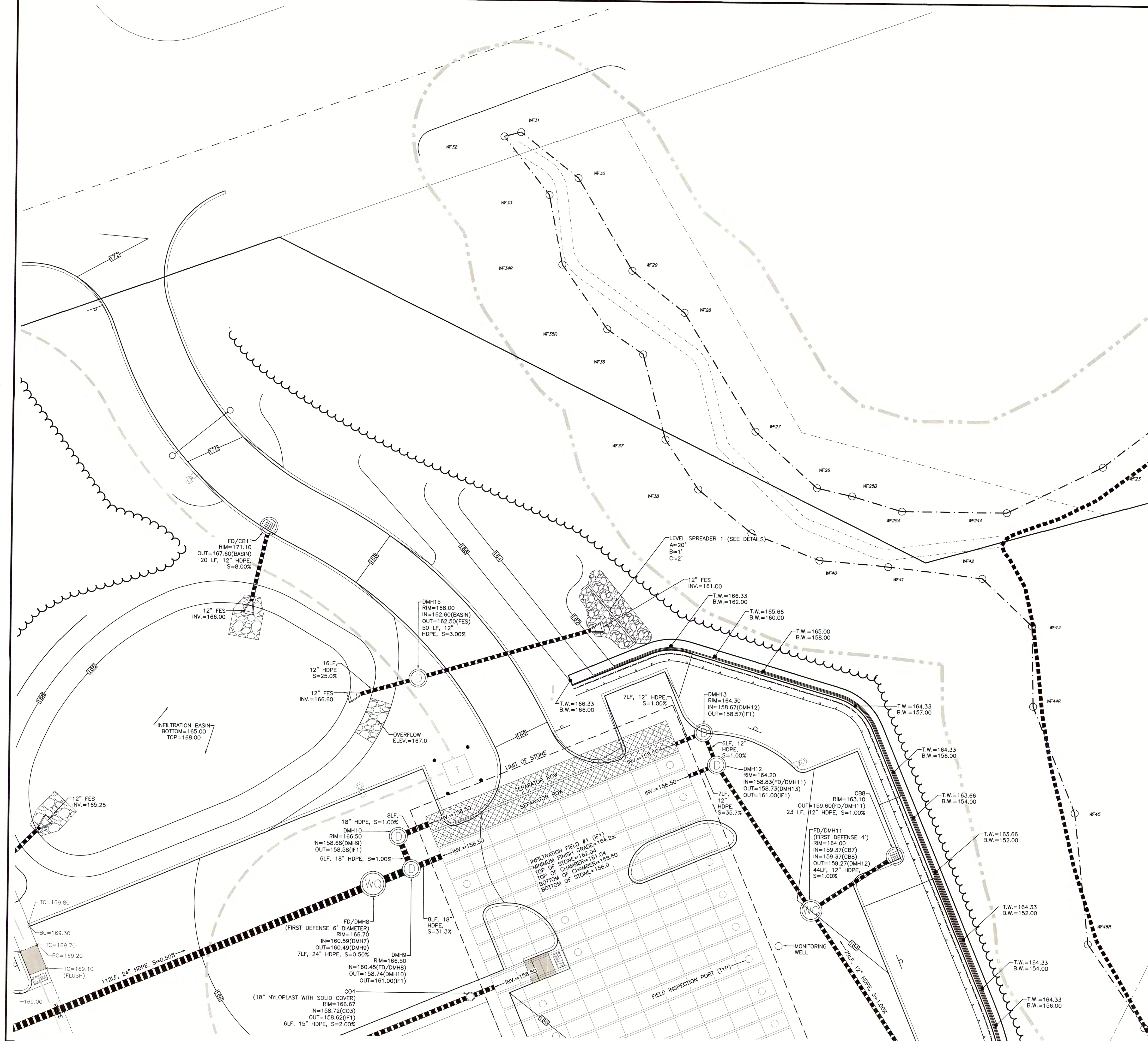
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drawing checked by:	RPC
drawing scale:	1" = 10'
drawing date:	05/19/20
project number:	1843-04

drawing revisions:

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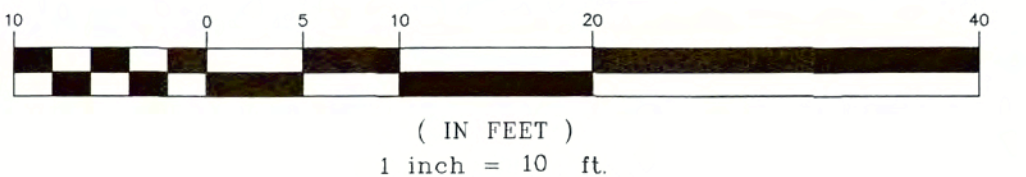
GRADING & DRAINAGE PLAN

C-103B



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ALLEN & MAJOR
ASSOCIATES, INC.
civil engineering | land surveying
environmental consulting
landscape architecture
www.allenmajor.com

LEGEND	
SINGLE POLE LIGHT	□
DOUBLE POLE LIGHT	□
BOLLARD LIGHT	□
LIGHTING LEVELS GIVEN IN FOOT-CANDLES	0.1 0.2 0.4 0.6

GENERAL NOTES:

- EXISTING CONDITIONS SHOWN HEREON ARE TAKEN FROM A PLAN ENTITLED "39 MAIN STREET EXISTING CONDITIONS" PREPARED BY LAND IN MEDWAY, MA DATED MAY 29, 2019, PREPARED BY LEGACY ENGINEERING AND PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. BY MEDWAY RESIDENTIAL, LLC. EXISTING CONDITIONS HAVE NOT BEEN INDEPENDENTLY VERIFIED BY ALLEN & MAJOR ASSOCIATES, INC.
- DATUM: NAVD83
- ZONING DISTRICT: AGRICULTURAL RESIDENTIAL 1 AND GROUNDWATER PROTECTION (PORTION OF THE SITE).
- WETLAND RESOURCE AREAS REFERENCE DEP FILE #216-0938.
- THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.

CONSTRUCTION NOTES:

- THE CONTRACTOR SHALL CONTACT DIGSAFE AT 811 PRIOR TO ANY EXCAVATION ACTIVITIES.
- SITE LIGHTING SHALL BE EQUIPPED WITH "wiScope" CONNECTIVITY THROUGHOUT.
- THE CONTROLS FOR THE EXTERIOR LIGHTING SHALL BE BY THE BUILDING CONTRACTOR.
- WIRING OF BUILDING MOUNTED FIXTURES SHALL BE BY THE BUILDING CONTRACTOR.
- SIZING AND LAYOUT OF THE WIRING OF THE SITE LIGHTING FIXTURES SHALL BE BY THE SITE ELECTRICAL CONTRACTOR.

LIGHTING LEVEL SUMMARY

AREA	UNITS	AVERAGE	MAX	MIN
FRONT ENTRANCE	Fc	0.67	15.4	0.0
OVERALL SITE	Fc	1.5	8.9	0.0

KIM LIGHTING, ENTABLATURE

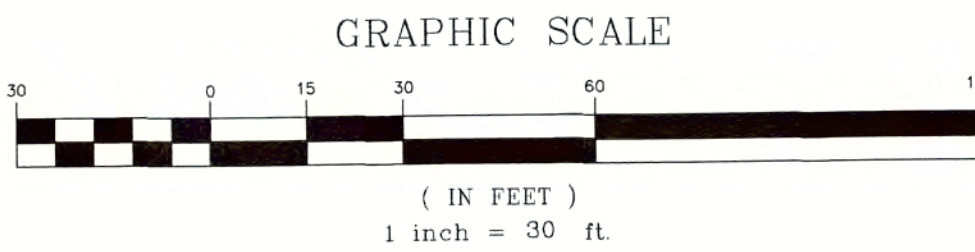
SYMBOL	QTY	LABEL	ARRANGEMENT	HOUSING-DIST.-DRIVE-SOURCE-COLOR-VOLTAGE-FINISH-OPTIONS-CONTROLS
□	28	ET-T4	SINGLE, POLE MOUNT	ET T4 E35 96 3K 120-277 GT A5 WIR-RMI-IO
□	2	ET-T2-DBL	DOUBLE, POLE MOUNT	ET T2 E35 96 3K 120-277 GT A5 WIR-RMI-IO
□	2	ET-T4-DBL	DOUBLE, POLE MOUNT	ET T4 E35 96 3K 120-277 GT A5 WIR-RMI-IO
□	6	SET-T4	SINGLE, POLE MOUNT	SET T4 P35 40 3K 120-277 GT A5 WIR-RMI-IO

ARCLUSE, GOTHIC110 BOLLARD

SYMBOL	QTY	LABEL	ARRANGEMENT	FAMILY-MODEL-SIZE-HEIGHT-OPTICS-CCT-COLOR-WIRING
■	7	GT-0	31.5" BOLLARD	S GT 4" 2.625' RADIAL 3K GREY 120-277
■	19	GT-3	31.5" BOLLARD	S GT 4" 2.625' THREE-WAY 3K GREY 120-277

ARCLUSE, INGROUND SHORT180

SYMBOL	QTY	LABEL	ARRANGEMENT	FAMILY-MODEL-SIZE-TRIM-OPTICS-CCT-COLOR-WIRING
○	25	GT-3F	INGROUND FLUSH	O IG 7" 1 3 3K US-30 S



DIG SAFE

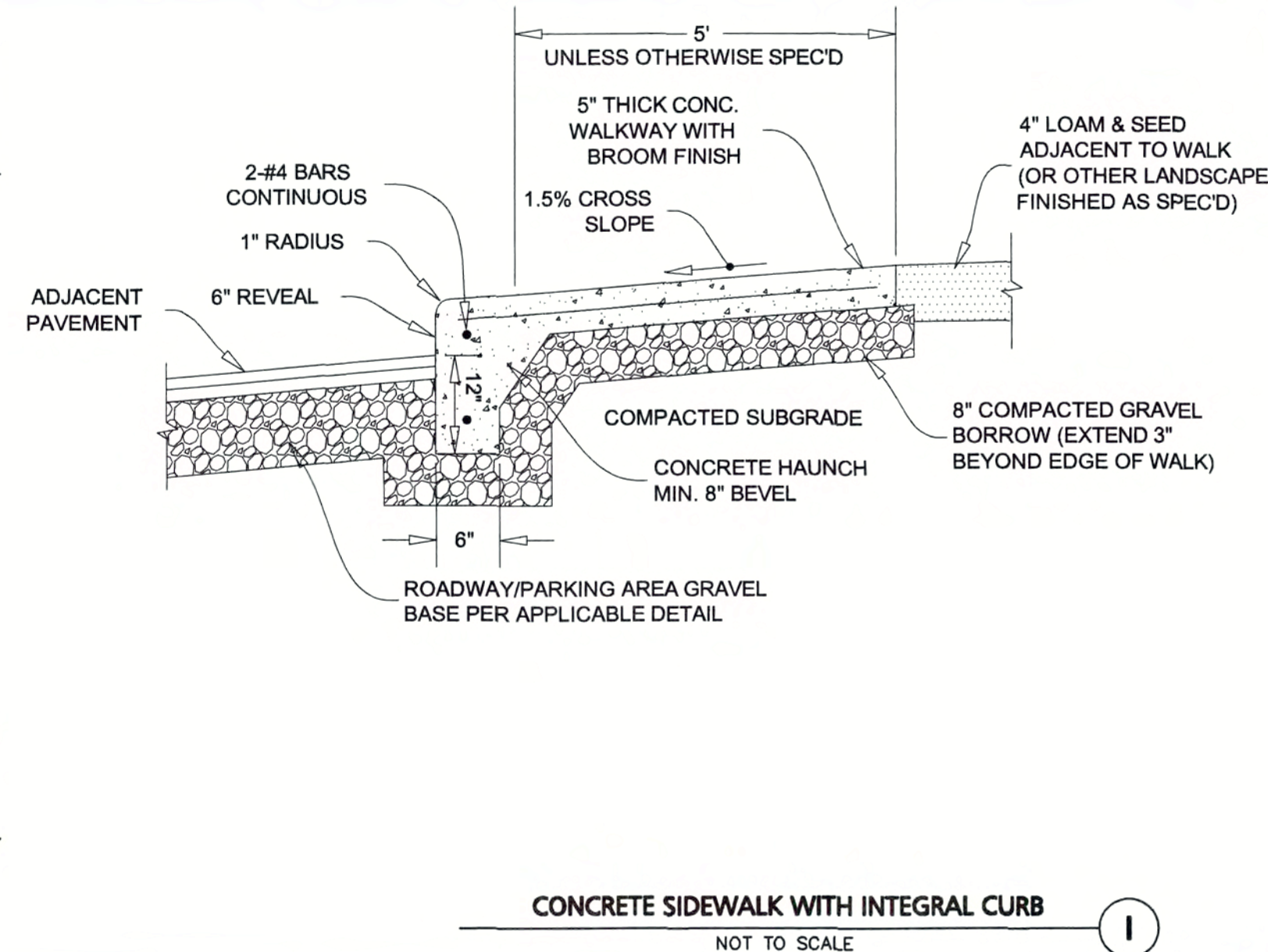


BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233

SITE
LIGHTING
PLAN

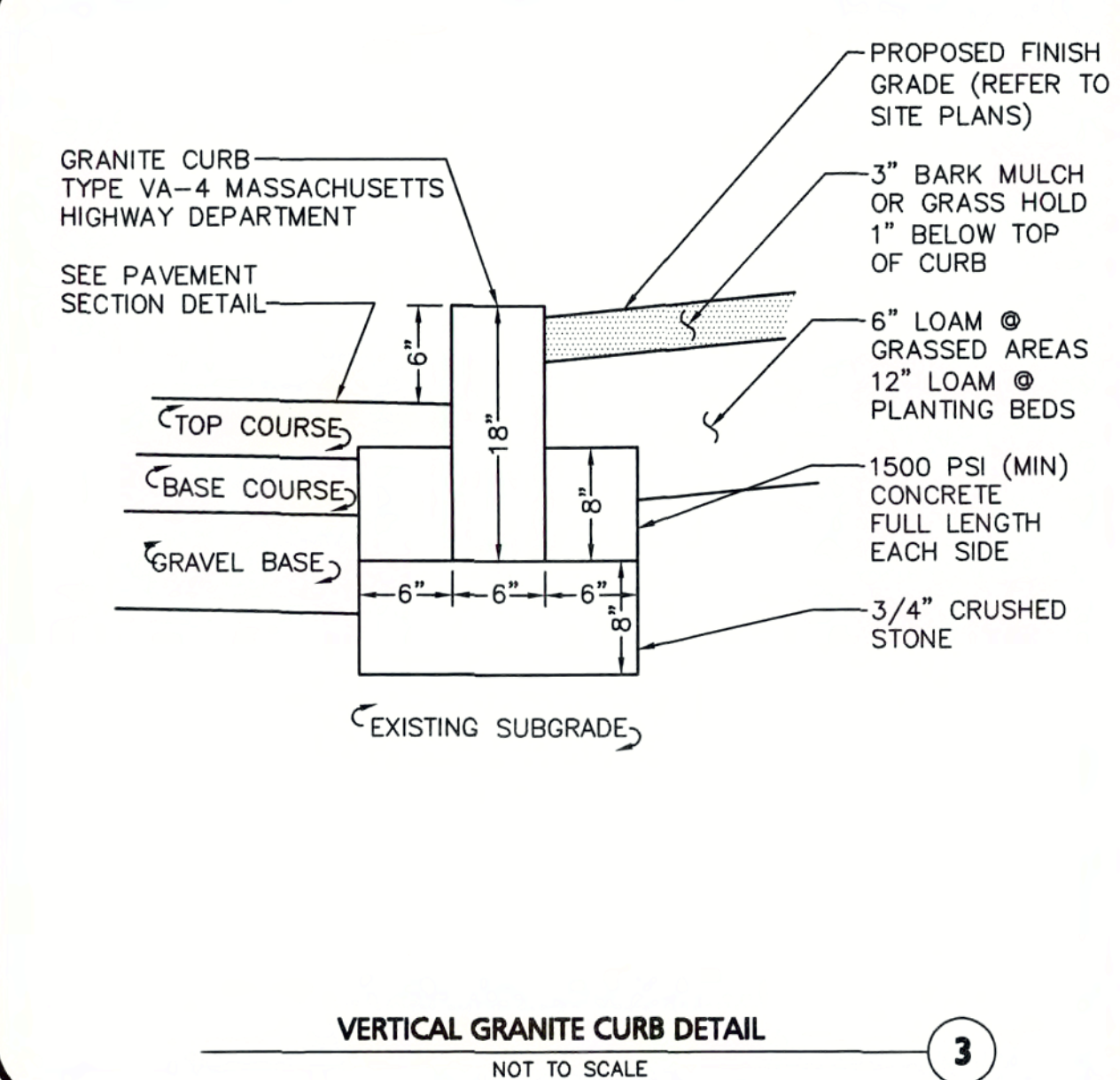
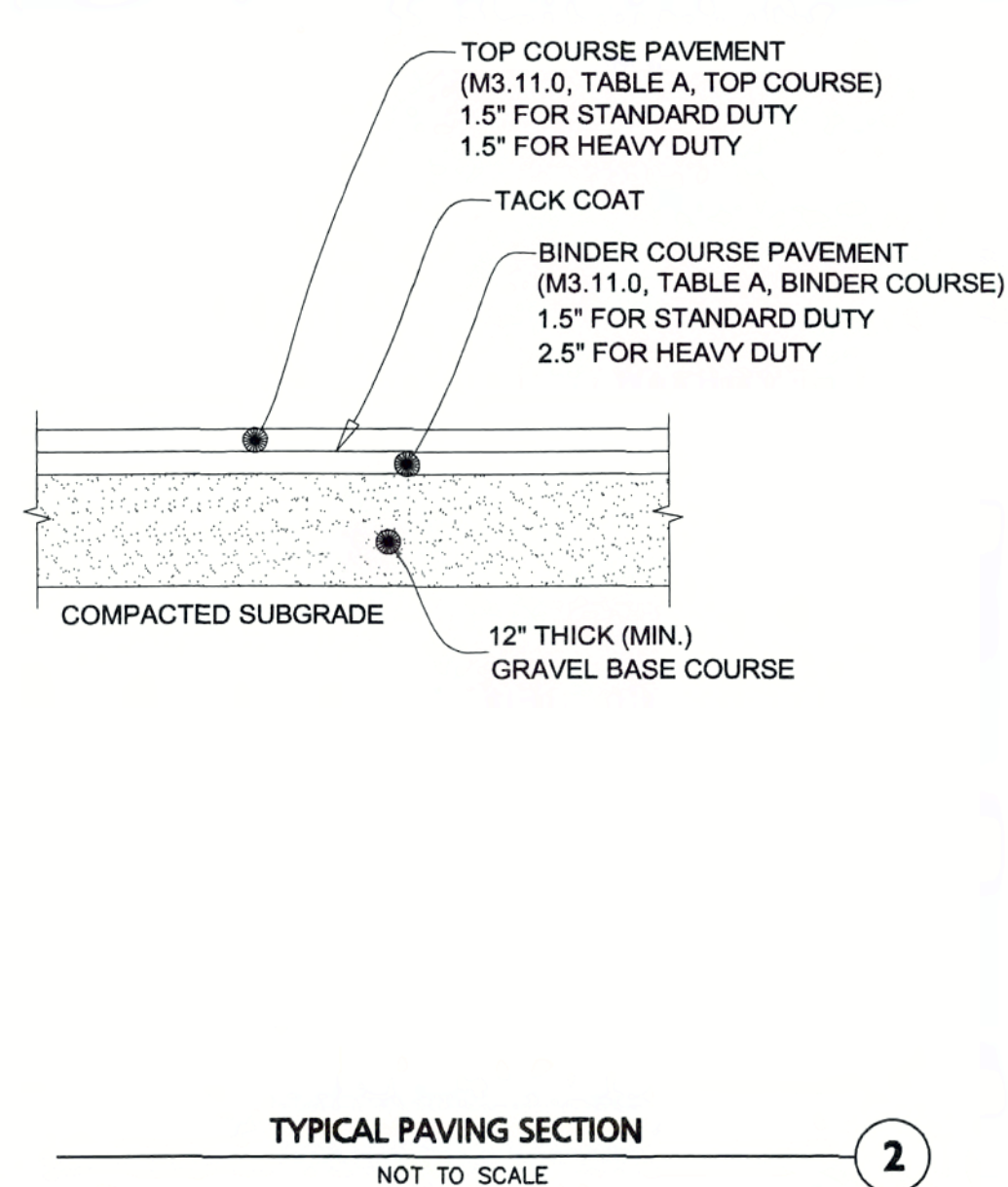
C-105

- NOTES:
1. FOLLOW THIS DETAIL WHEREVER A CONCRETE SIDEWALK IS IMMEDIATELY ADJACENT TO A CURB.
 2. ALL ASPECTS OF WALKWAY/SIDEWALK CONSTRUCTION SHALL BE IN FULL COMPLIANCE WITH 521 CMR.
 3. PROVIDE TOOLED CONTROL JOINTS EVERY 5' MIN.
 4. PROVIDE EXPANSION JOINT WITH PRE-MOLDED FILLER EVERY 20' MIN.
 5. PROVIDE 6x6 W1.4 x W1.4 -- WELDED WIRE REINFORCEMENT MESH AT MIDDLE OF SLAB THICKNESS.
 6. TOOLED JOINT 6" FROM FACE OF CURB.
 7. SEE GRADING PLAN FOR ELEVATIONS AT CURB.
 8. SIDEWALK CROSS SLOPE TO BE 1.5% MAX & SIDEWALK LONGITUDINAL RUNNING SLOPE TO BE 4.5% MAX, TYP.
 9. THE SURFACE SHALL BE FINISHED WITH A SOFT BRISTLED PUSH BROOM ACROSS THE ENTIRE SIDEWALK WIDTH, PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN.
 10. CONCRETE SHALL BE A MINIMUM OF 4,000 PSI AT 28-DAY STRENGTH.

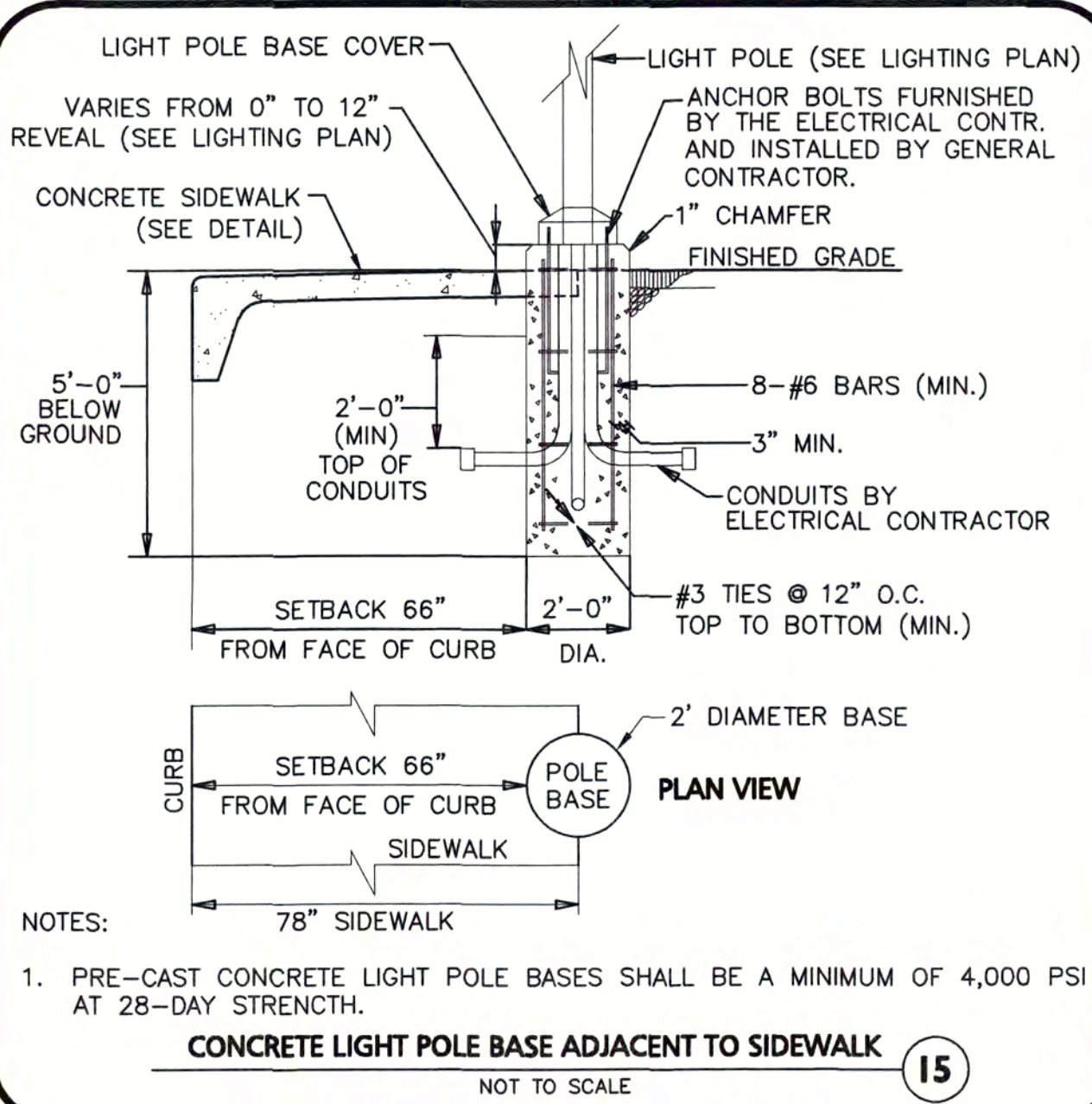
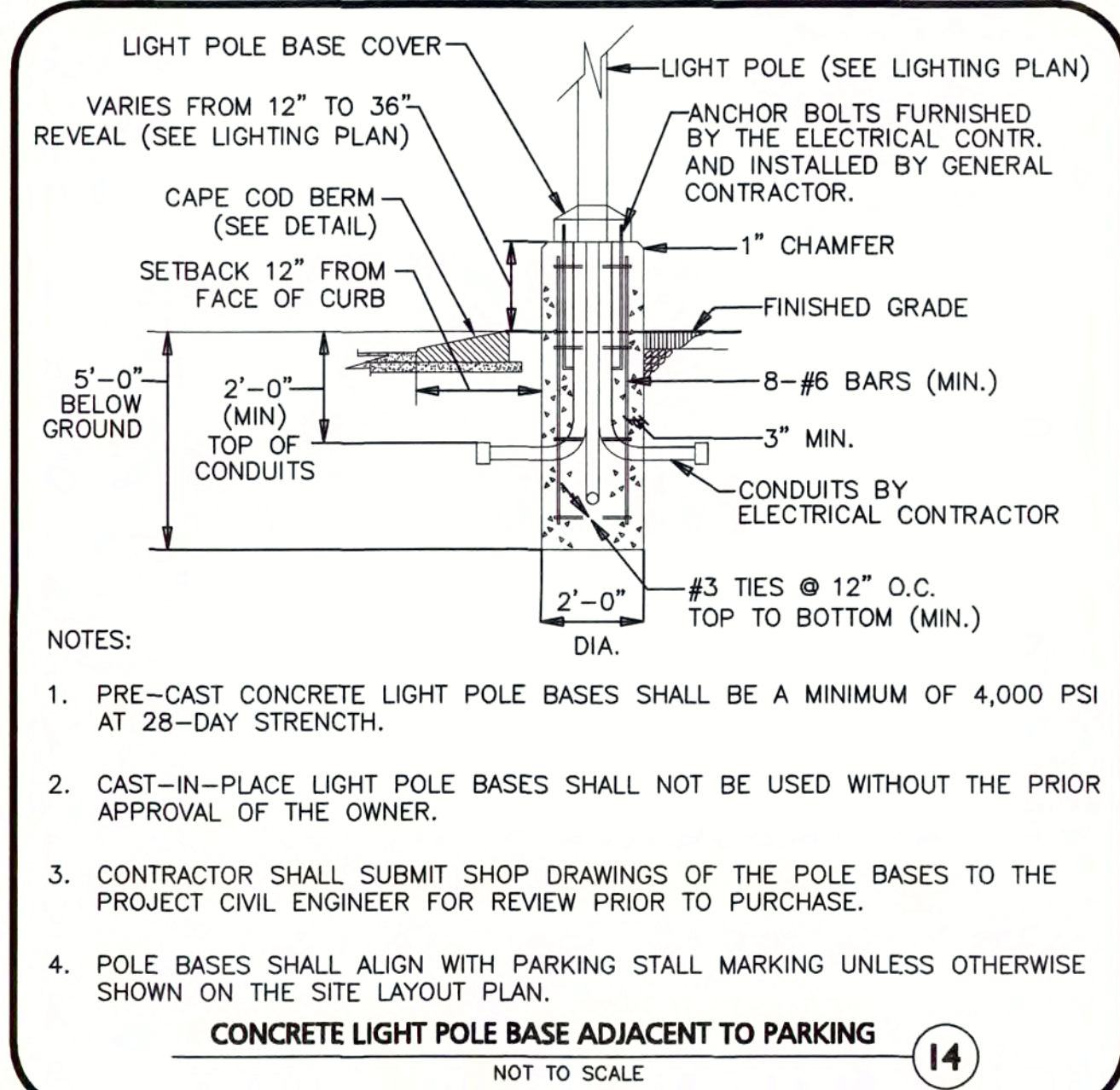
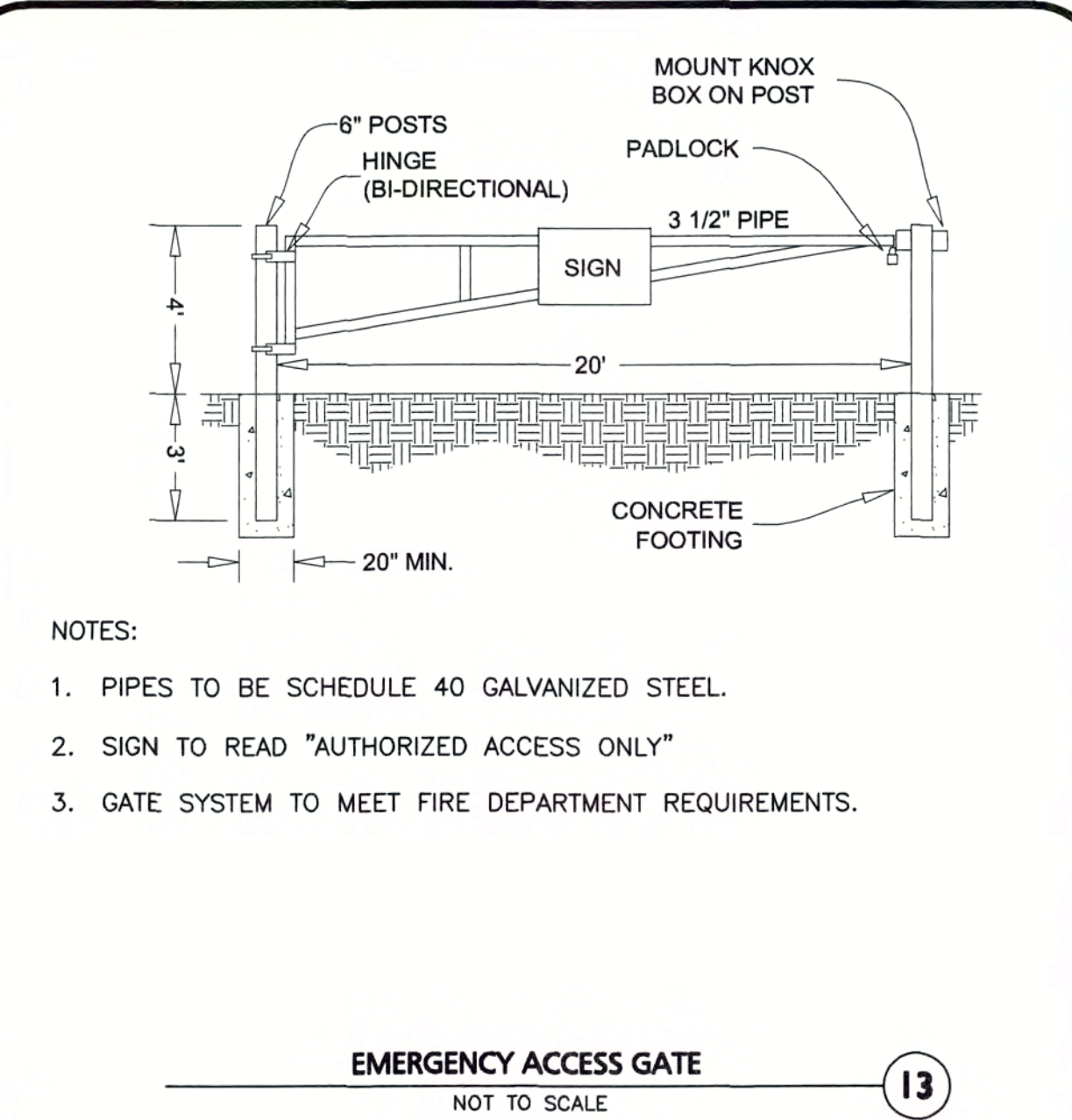
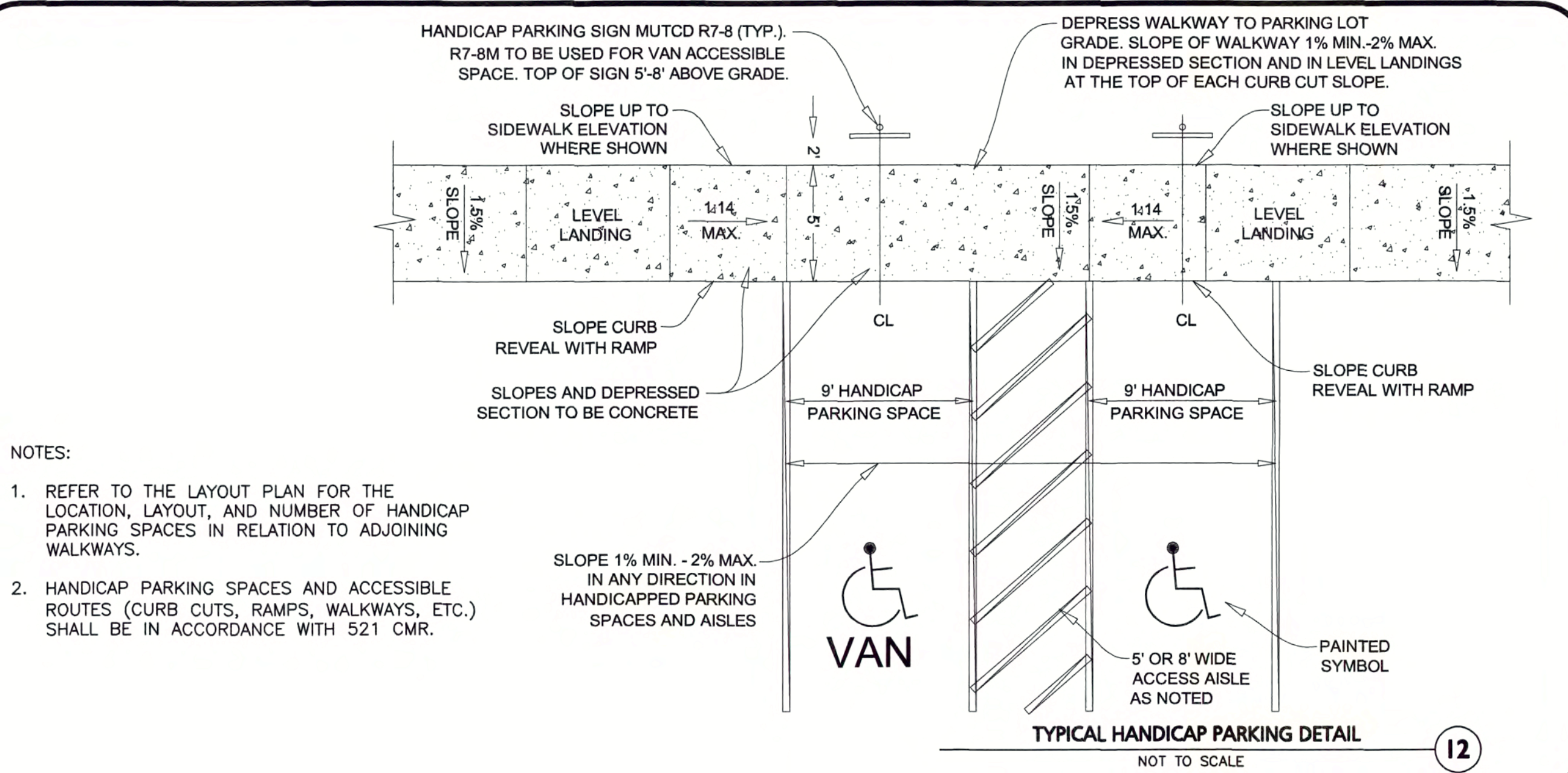
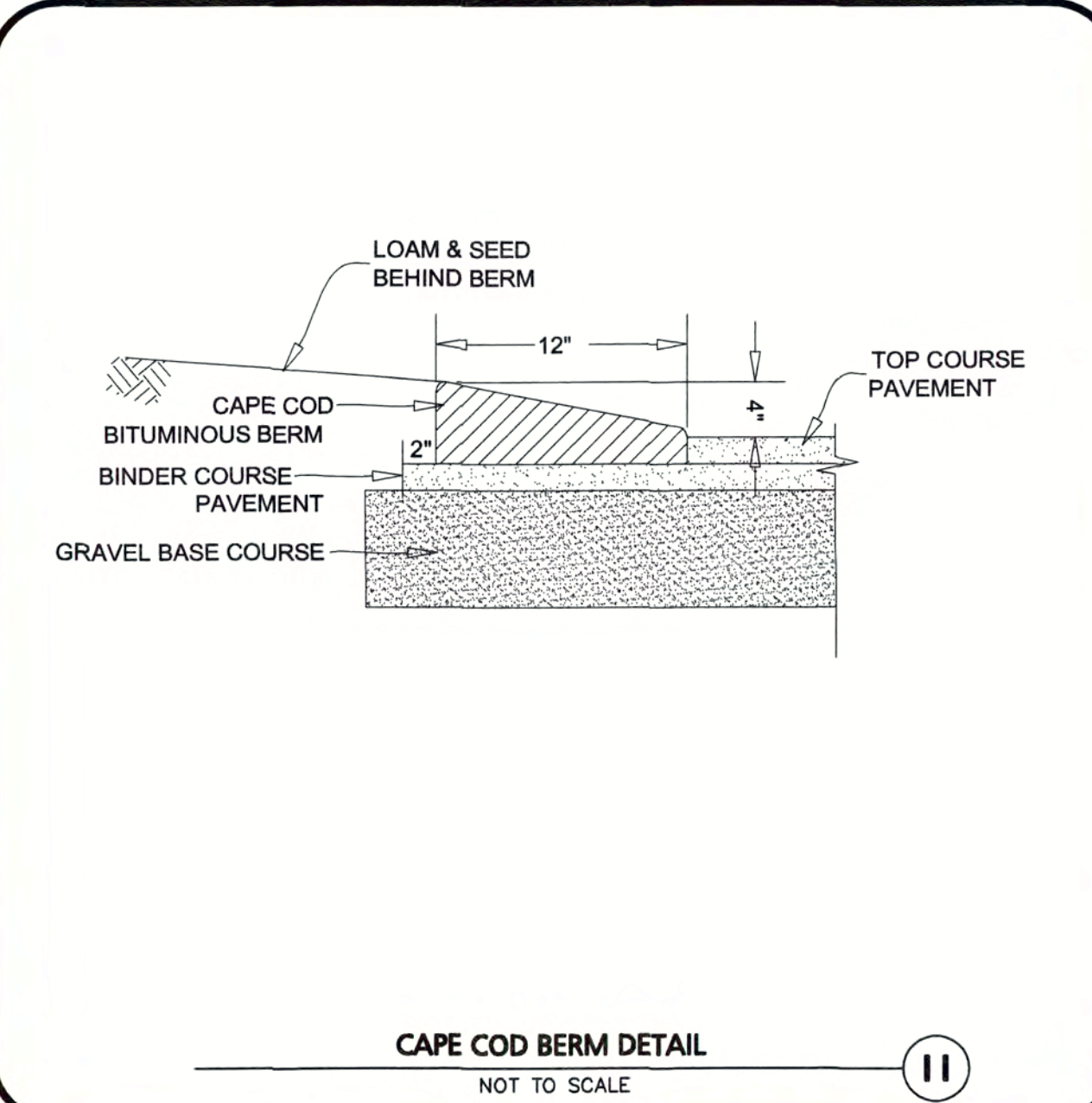
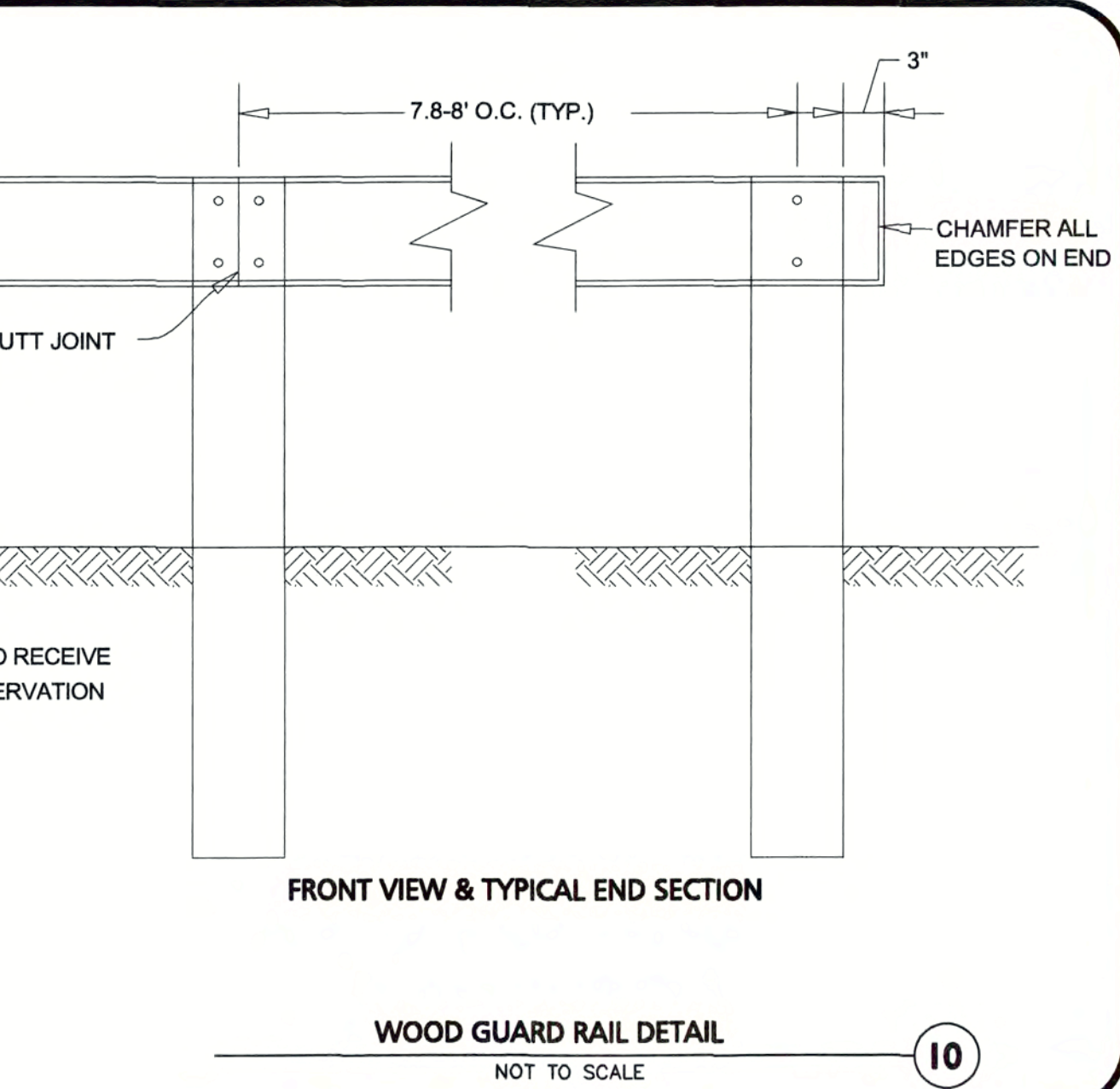
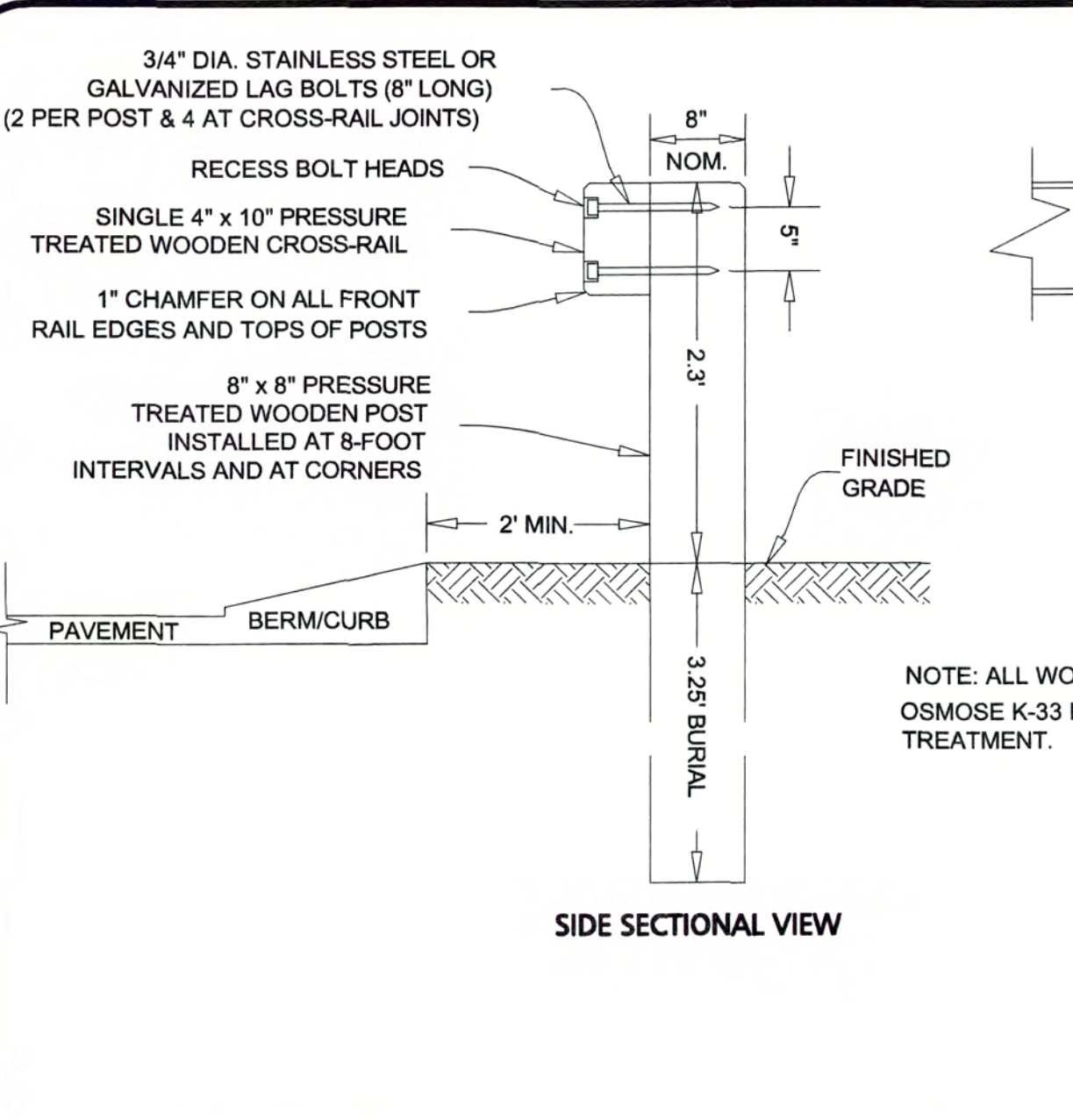
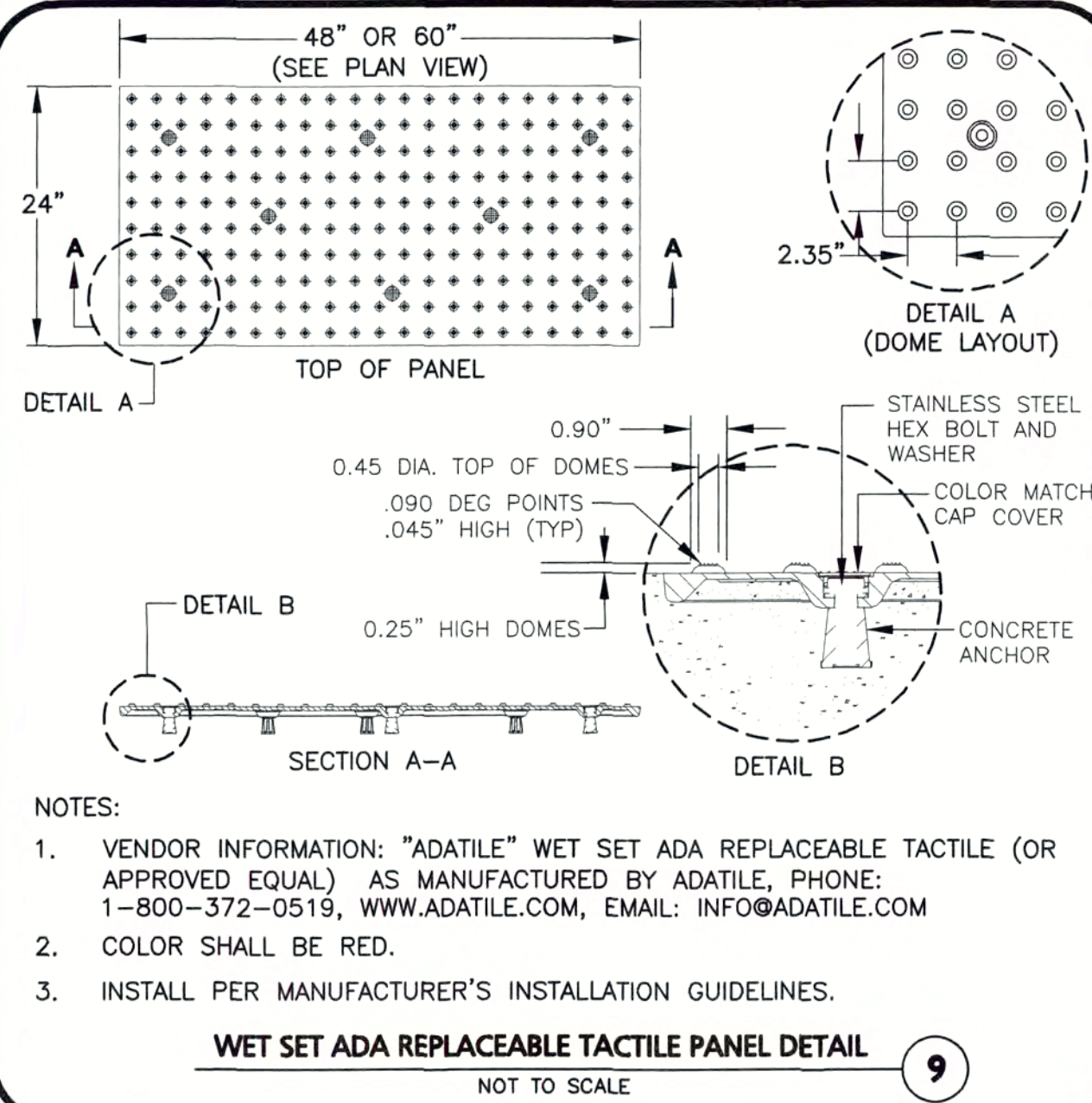
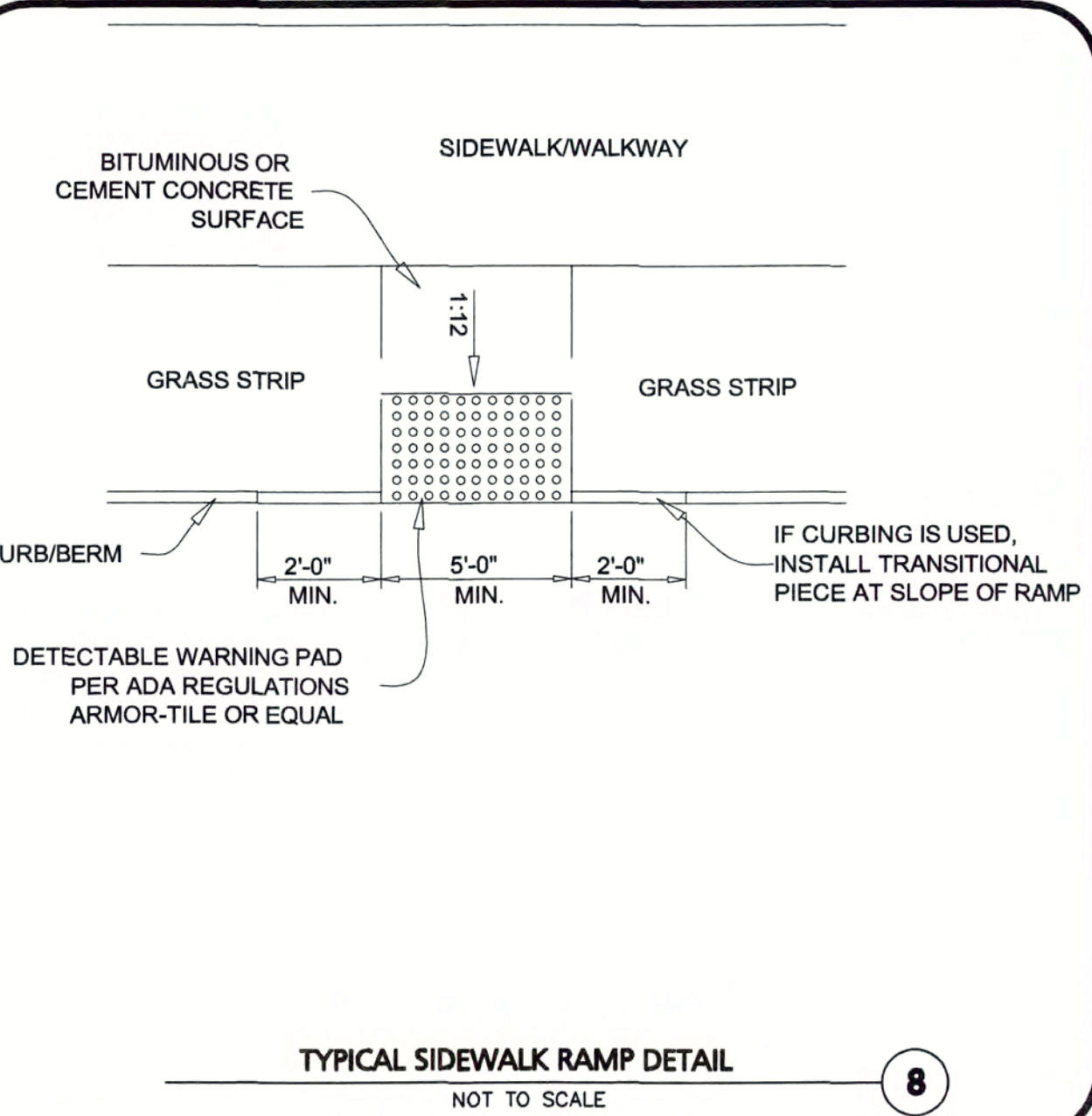
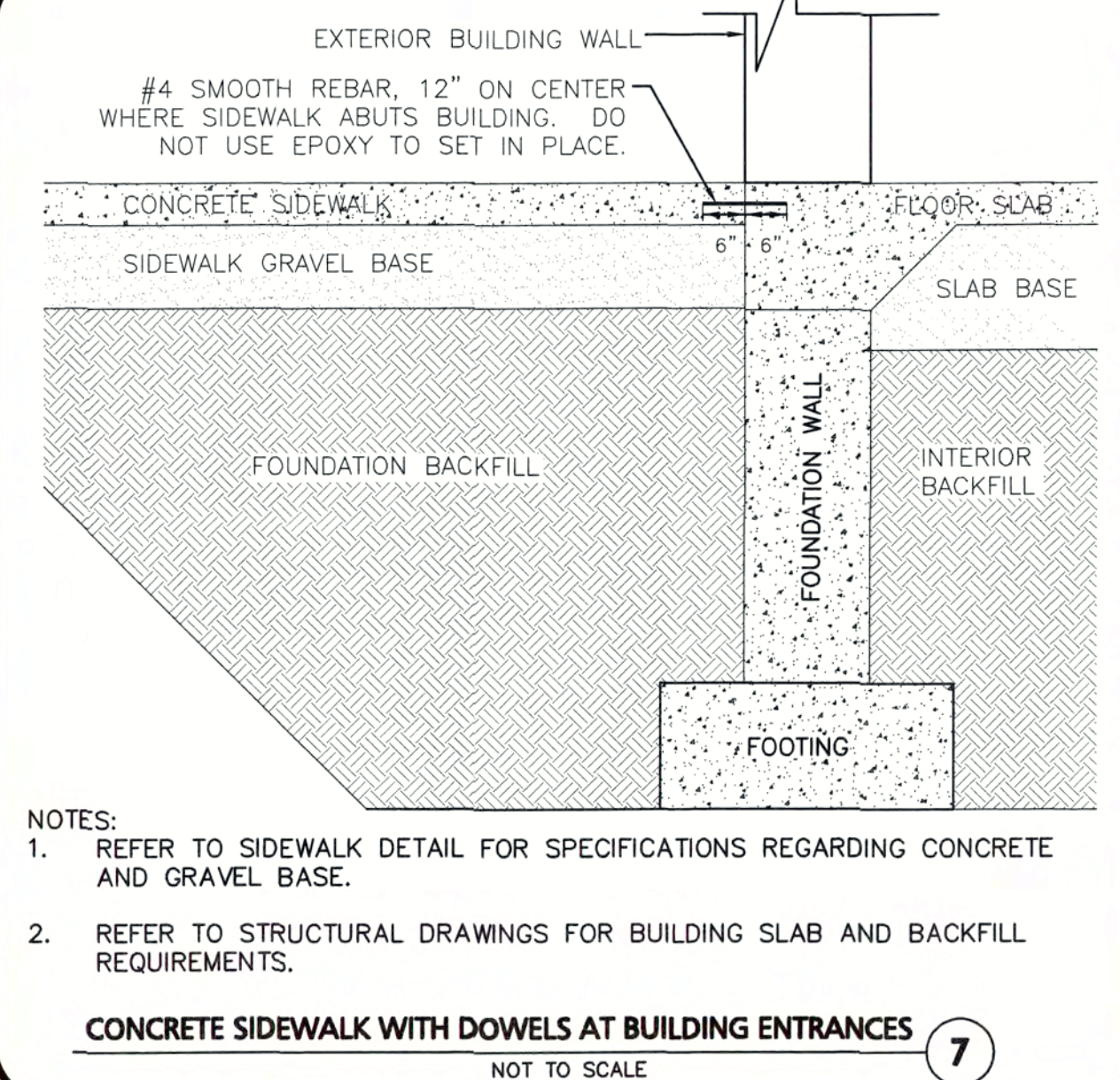
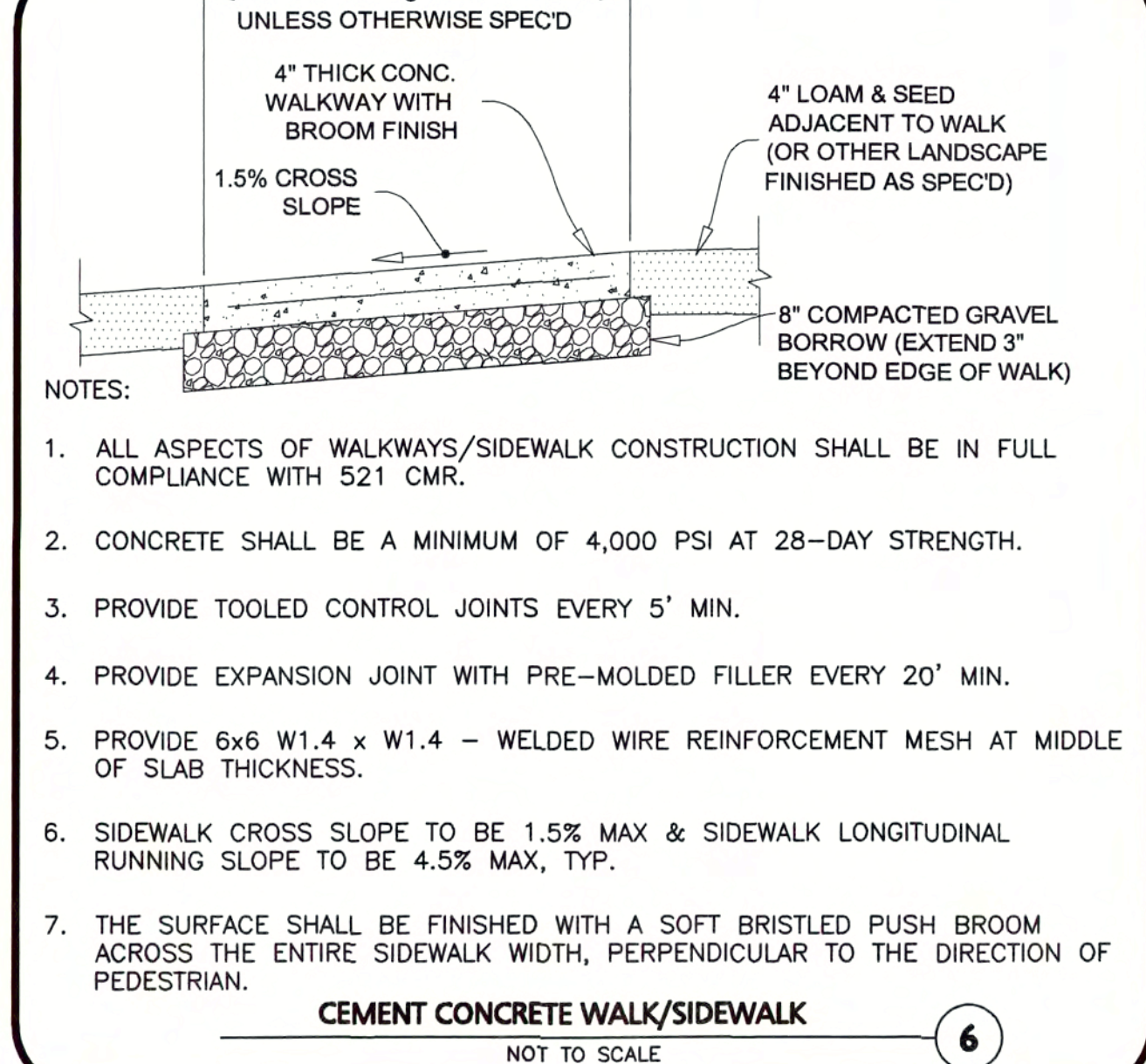
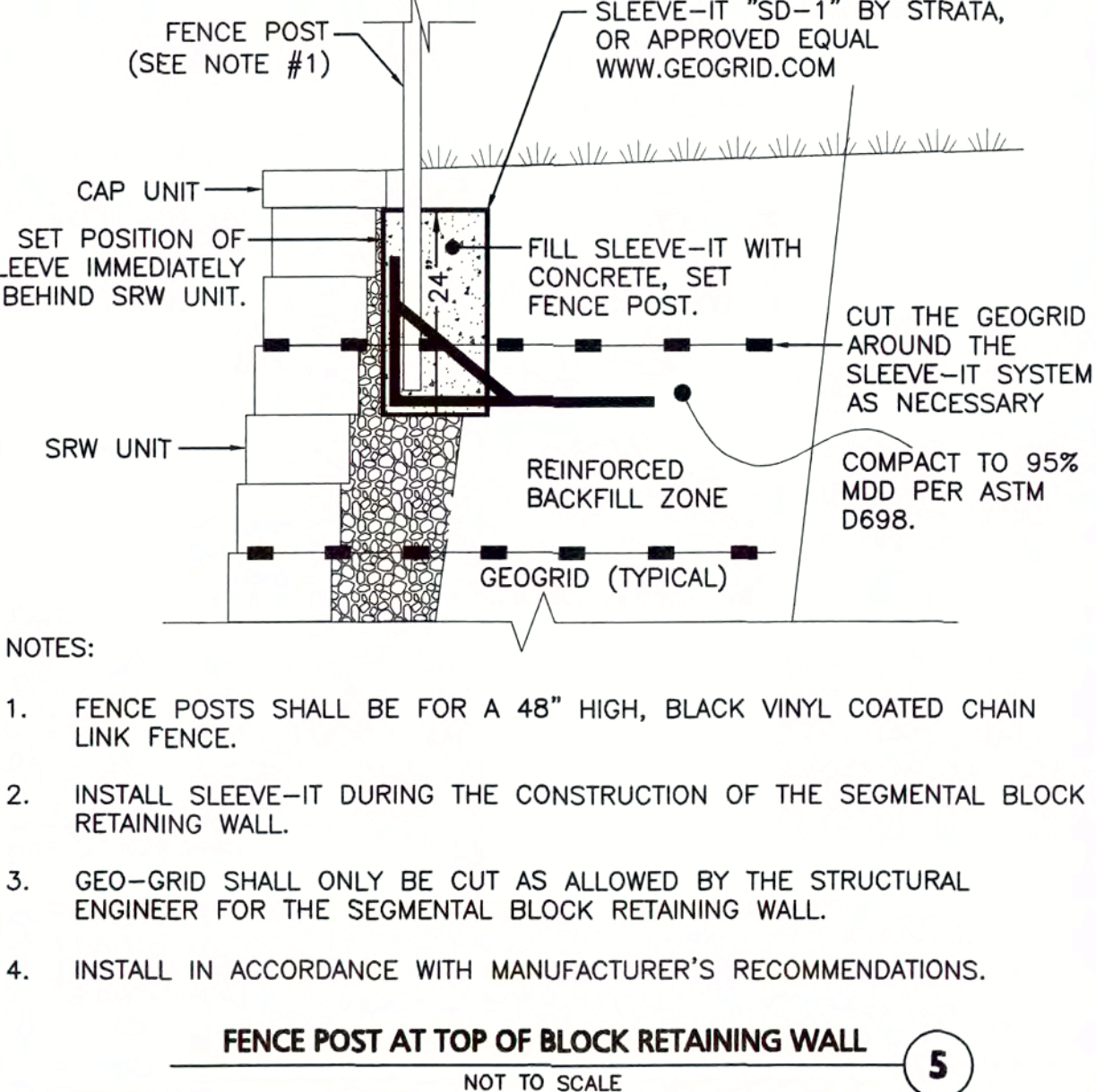
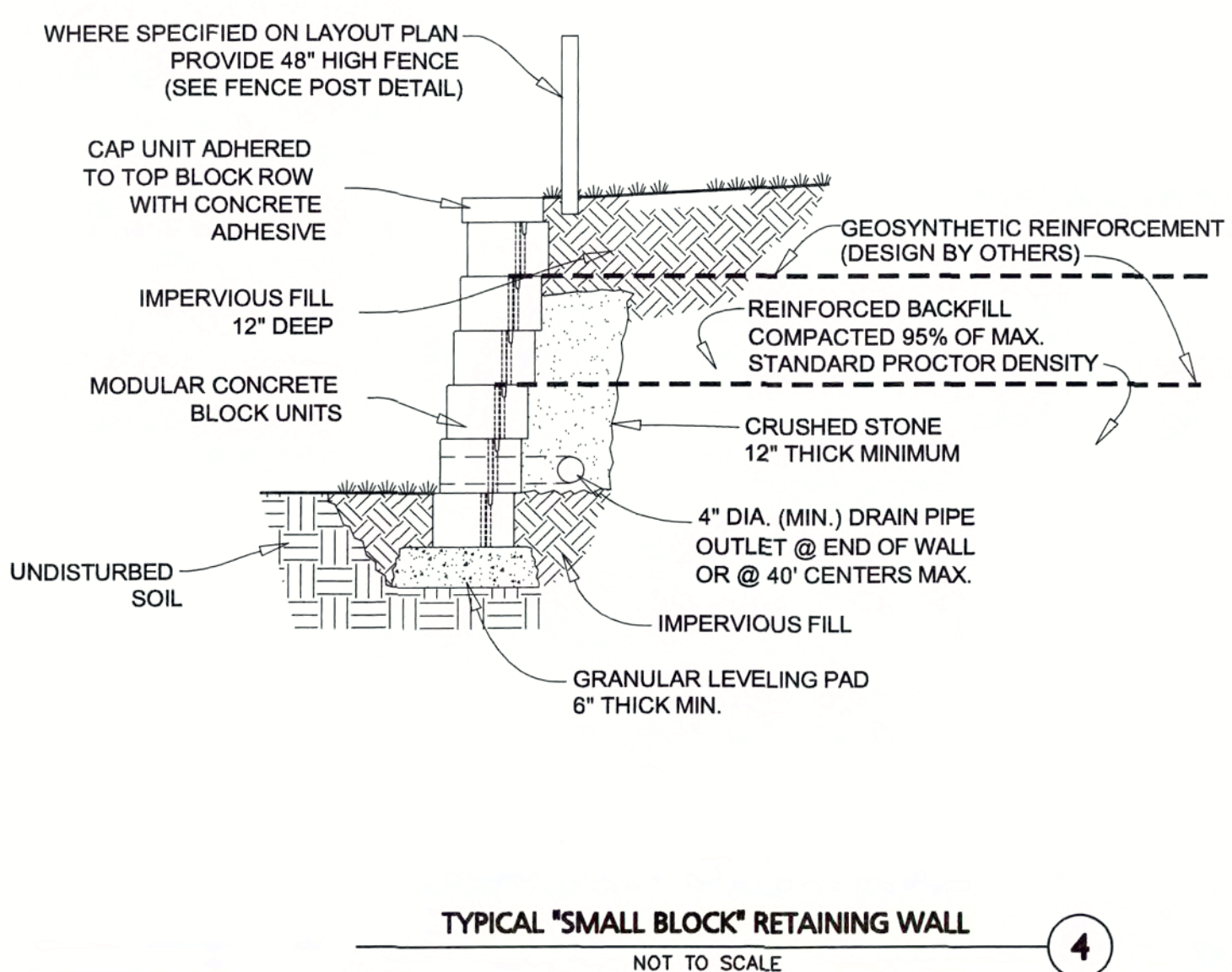


- NOTES:
1. PAVEMENT RECOMMENDATIONS TAKEN FROM "GEOTECHNICAL ENGINEERING REPORT PROPOSED RESIDENTIAL DEVELOPMENT 33-39 MAIN STREET, MEDWAY, MA" PREPARED BY NORTHEAST GEOTECHNICAL, INC. AND DATED DECEMBER 6, 2019.
 2. THE GEOTECHNICAL REPORT IS CONSIDERED PART OF THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL HAVE AND REVIEW A COPY OF THE GEOTECHNICAL REPORT AND COMPLY WITH THE RECOMMENDATIONS THEREIN.
 3. TOPSOIL SHALL BE REMOVED BENEATH ALL PAVEMENT AREAS TO EXPOSE THE NATURALLY-OCCURRING SOILS OR ACCEPTABLE ON-SITE FILL MATERIALS.
 4. THE SUBGRADE SHOULD BE PROOFROLLED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER USING AT LEAST 4 PASSES OF A 10-TON VIBRATORY ROLLER. AREAS OF THE SUBGRADE THAT "WEAVE" OR "ROLL" EXCESSIVELY SHOULD BE OVER EXCAVATED AND REPLACED WITH DRIER CLEAN GRANULAR FILL MATERIAL.
 5. THE PAVEMENT SUBGRADE CONSISTING OF THE SPECIFIED CLEAN GRANULAR FILL SHALL BE PLACED IN 12" MAXIMUM LIFTS AND COMPACTED TO A DRY DENSITY OF AT LEAST 92 PERCENT OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM DESIGNATION D-1557.

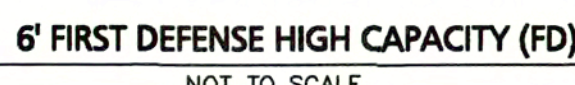
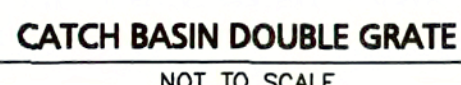
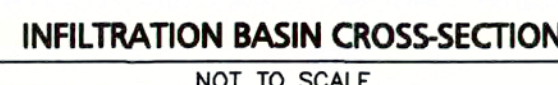
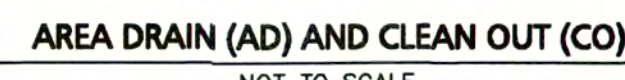
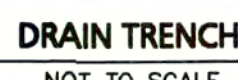
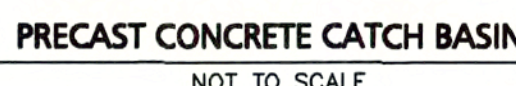
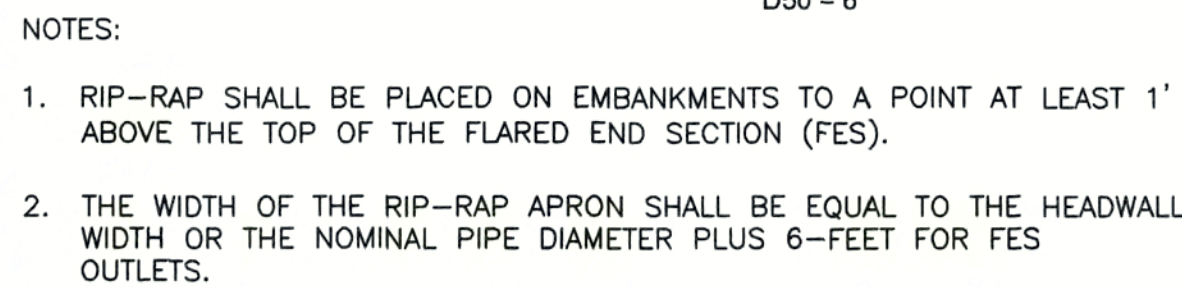
GRAVEL BASE COURSE GRADATION SPECIFICATION	
SIEVE SIZE	PERCENT PASSING BY WEIGHT
4"	100
2"	50-85
No. 4	40-75
No. 10	30-60
No. 40	10-35
No. 100	5-20
No. 200	2-8



- NOTES:
1. THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE STRUCTURAL DESIGN OF THE MODULAR BLOCK RETAINING WALLS. REFER TO NORTHEAST GEOTECHNICAL, INC. REPORT FOR SOIL DESIGN PARAMETERS.
 2. WALLS THREE FEET OR GREATER IN HEIGHT SHALL BE DESIGNED BY A MASSACHUSETTS REGISTERED PROFESSIONAL STRUCTURAL ENGINEER.
 3. STAMPED WALLS DESIGNS SHALL BE PROVIDED FOR REVIEW AND APPROVAL BY THE MEDWAY BUILDING COMMISSIONER IN ACCORDANCE WITH CONDITION #24 OF THE COMPREHENSIVE PERMIT.
 4. WALL DESIGNS AND CALCULATIONS SHALL BE PROVIDED TO THE PROJECT GEOTECHNICAL ENGINEER TO CONFIRM THAT GEOTECHNICAL RECOMMENDATIONS HAVE BEEN PROPERLY INCLUDED.
 5. WALL DESIGNS AND CALCULATIONS SHALL BE PROVIDED TO THE PROJECT CIVIL ENGINEER TO CONFIRM ELEVATIONS AND ALIGNMENT HAVE BEEN PROPERLY INCLUDED.
 6. SMALL BLOCK UNITS SHALL BE THE SQUARE FOOT PRODUCT BY VERSA-LOK OR APPROVED EQUAL.
 7. WALL HEIGHT WITHOUT REINFORCEMENT SHALL BE LIMITED TO 3' EXPOSED FACE.
 8. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.



1. MANHOLE DIAMETER SHALL BE INCREASED IF THE NUMBER, SIZE, AND CONFIGURATION OF THE INLET/OUTLET PIPING NECESSITATES A LARGER MANHOLE DIAMETER.
2. SUBSTITUTE FRAME AND COVERS SHALL BE MADE IN THE USA AND SHALL BE APPROVED BY THE ENGINEERING DEPARTMENT OR PLANNING BOARD PRIOR TO CONSTRUCTION.
3. THE MANHOLE, INCLUDING ALL COMPONENT PARTS, SHALL HAVE ADEQUATE SPACE AND STRENGTH QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE. THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND (H+20 LOADINGS) WITHOUT FAILURE.

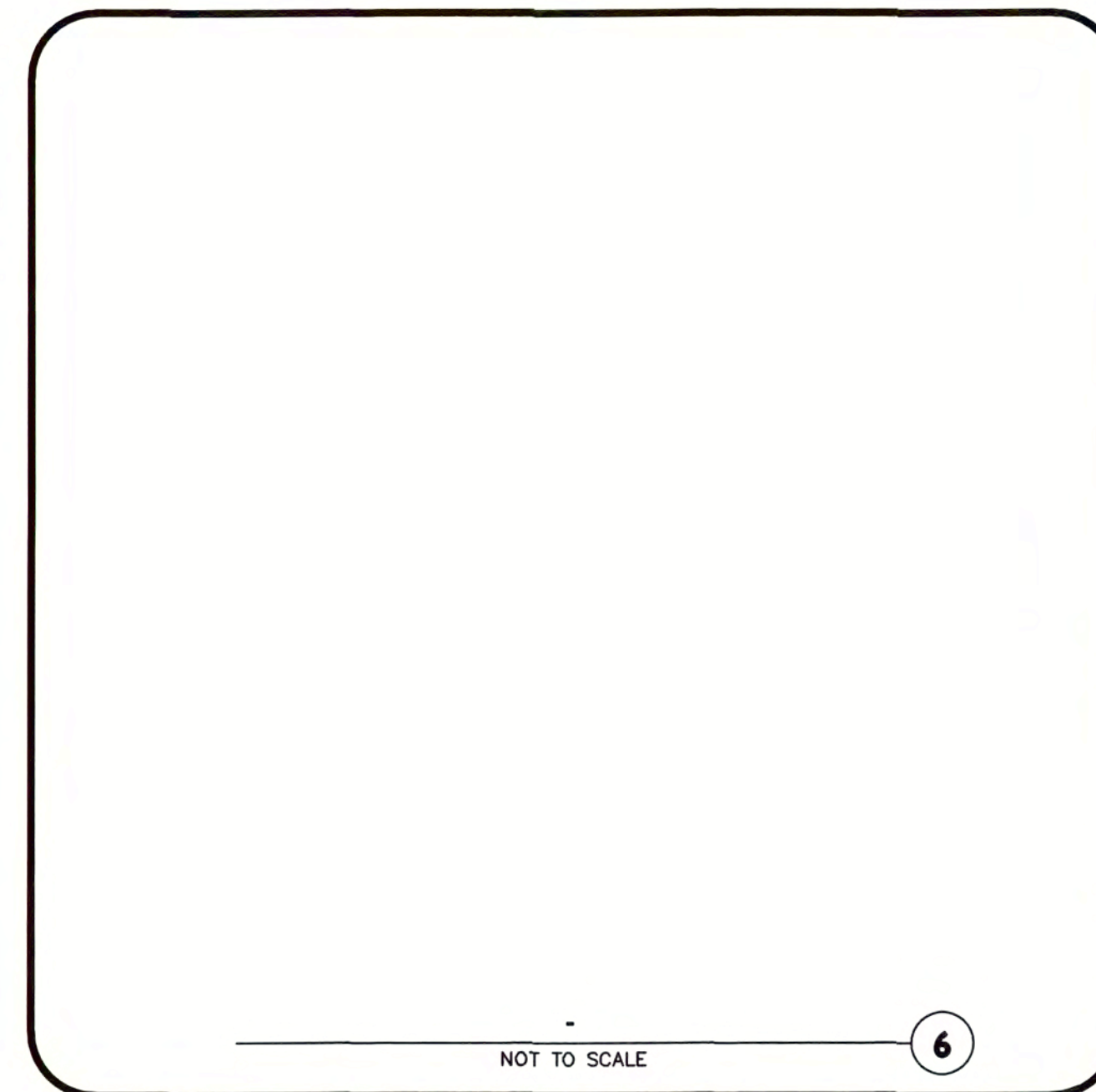
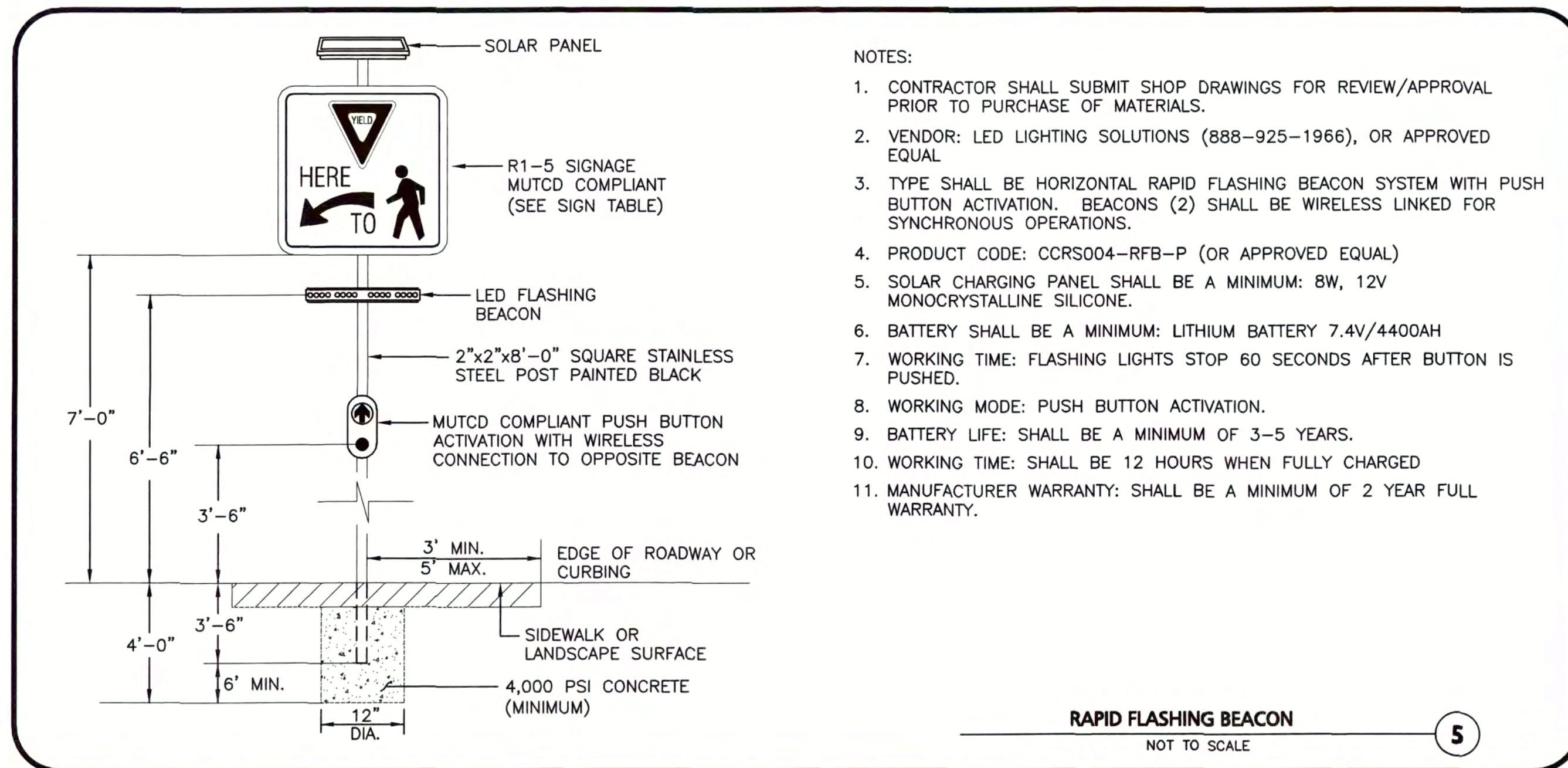
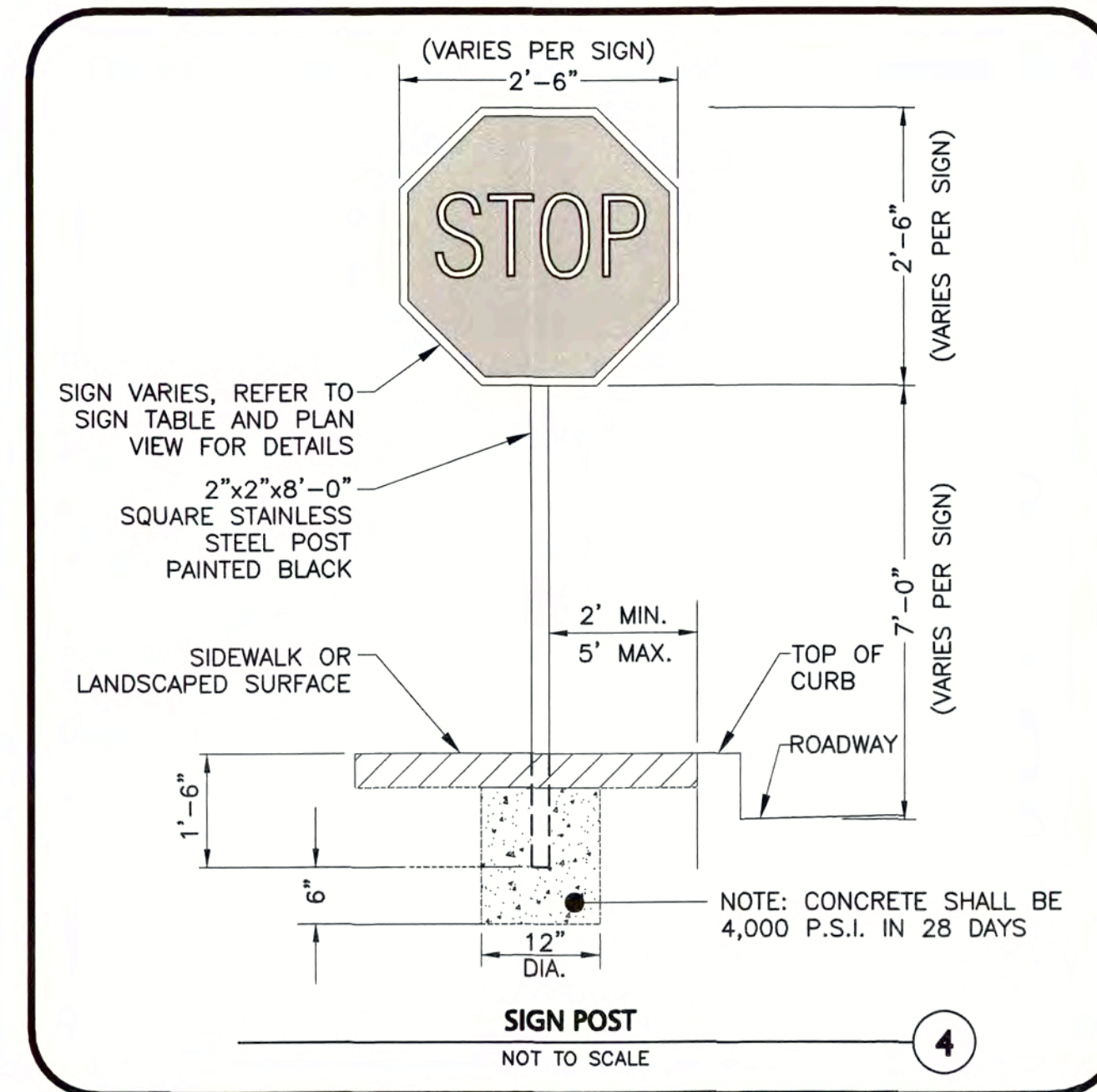
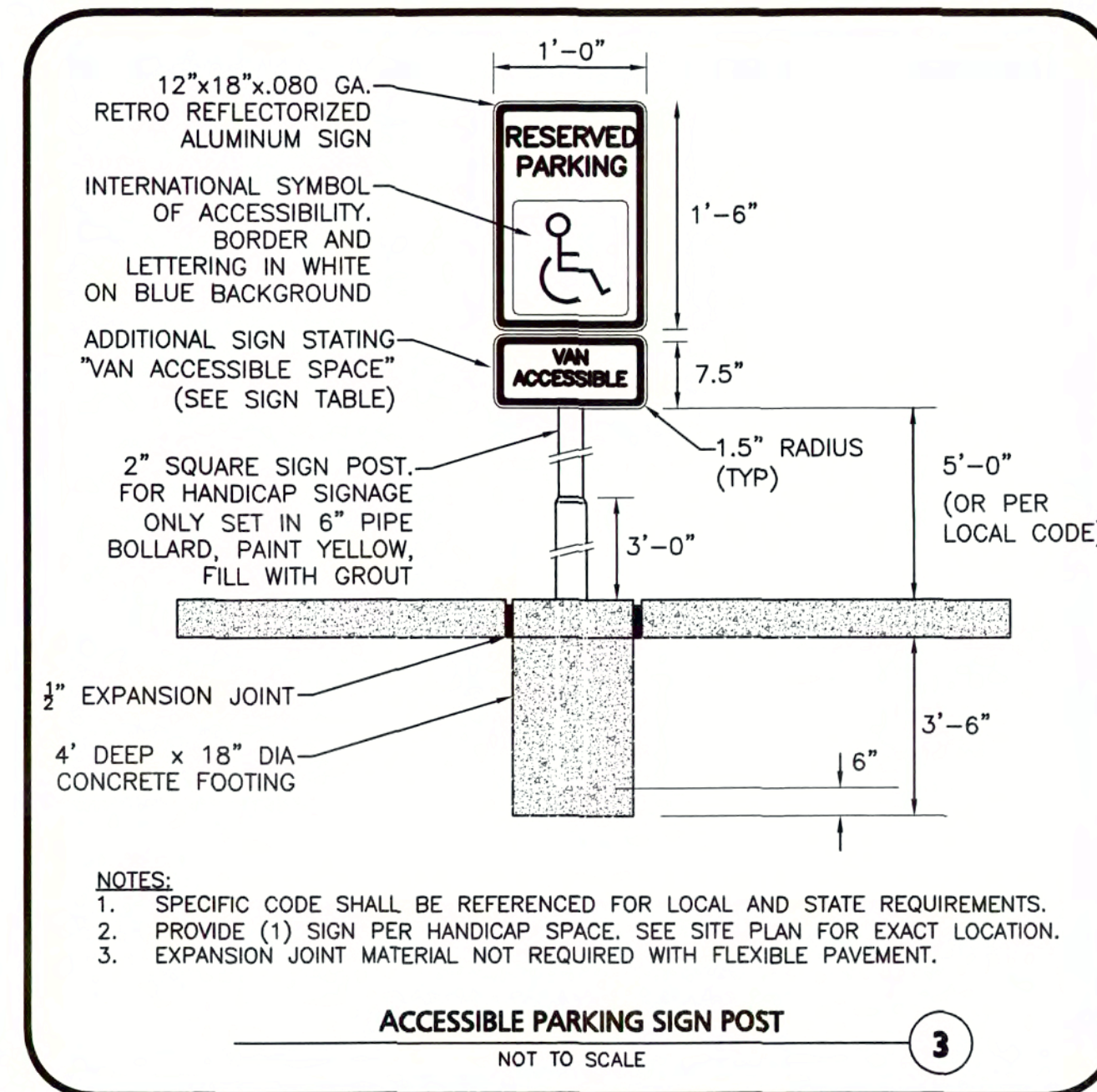
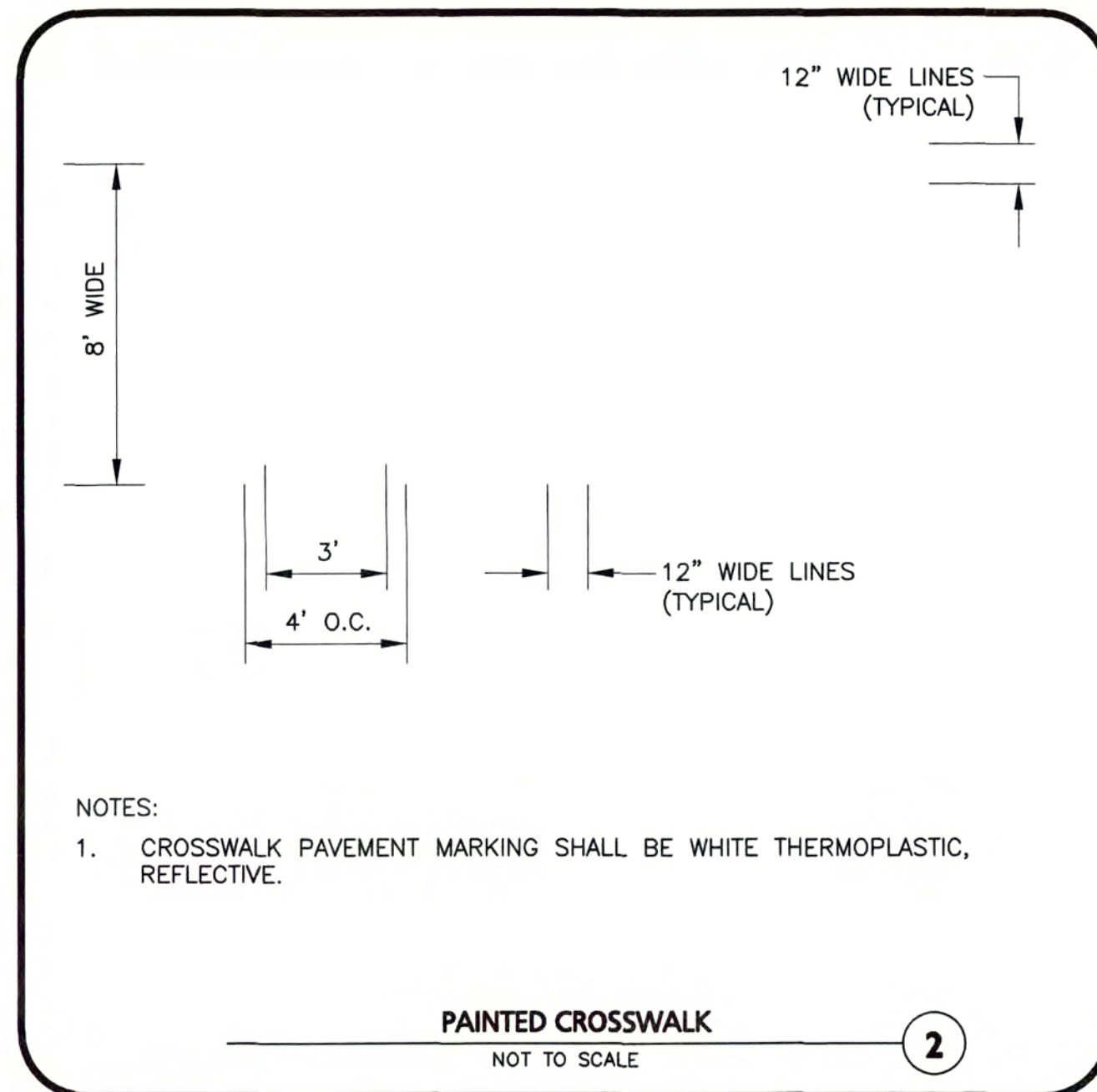


MUTCD NUMBER	SIGN	SIZE	MOUNT HEIGHT	DESCRIPTION
R1-1		30" x 30"	7'-0"	R1-1 IS AN OCTAGONAL SIGN WITH A WHITE BORDER AND THE WORDS "STOP" IN WHITE ON A RED BACKGROUND.
R1-5		18" x 18"	7'-0"	R1-5 IS A SQUARE WHITE SIGN WITH A BLACK BORDER. A YIELD SIGN IS SHOWN ABOVE THE WORD "HERE," WHICH IS ABOVE A HORIZONTAL BLACK ARROW CURVING DOWN AND TO THE LEFT ABOVE THE WORD "TO." A BLACK WALKING PERSON SYMBOL IS SHOWN TO THE RIGHT OF THE ARROW.
R7-8		12" x 18"	7'-0"	R7-8 IS A VERTICAL RECTANGULAR WHITE SIGN WITH A GREEN BORDER AND THE WORDS "RESERVED PARKING" IN GREEN ON TWO LINES ABOVE A BLUE HANDICAPPED SYMBOL. A TWO-DIRECTION HORIZONTAL GREEN ARROW IS SHOWN BELOW THE SYMBOL.
R7-8P		9" x 18"	MOUNT BELOW R7-8	R7-8P IS SHOWN AS A HORIZONTAL RECTANGULAR WHITE SUPPLEMENTAL PLAQUE WITH A GREEN BORDER AND THE WORDS "VAN ACCESSIBLE" IN GREEN ON TWO LINES.
PS-17		12" x 18"	7'-0"	PS-17 IS A VERTICAL RECTANGULAR WHITE SIGN WITH A RED BORDER AND THE WORDS "EMERGENCY VEHICLES ONLY" IN RED ON THREE LINES.
W11-2		18" x 18"	7'-0"	W11-2 IS A ROTATED SQUARE YELLOW SIGN WITH A BLACK BORDER AND BLACK PEDESTRIAN SYMBOL.
W16-9P		9" x 18"	MOUNT BELOW W11-2	W16-9P IS A HORIZONTAL RECTANGULAR YELLOW SIGN WITH BLACK BORDER AND THE WORD "AHEAD" IN BLACK.
"NO SNOW STORAGE"		12" x 18"	7'-0"	NO STORAGE SIGN IS A VERTICAL RECTANGULAR WHITE SIGN WITH A RED BORDER AND THE WORDS "NO SNOW STORAGE" IN RED ON THREE LINES.

NOTES:

- ALL SIGNS SHALL CONFORM WITH THE LATEST FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- ALL SIGNS SHALL BE CONSTRUCTED OF ALUMINUM WITH A MINIMUM THICKNESS OF 0.08".
- ALL SIGNS SHALL BE REFLECTIVE USING FULL CUBE PRISMATIC WITH A MINIMUM TEN YEAR OUTDOOR DURABILITY RATING.
- SEE SIGN POST DETAIL FOR INFORMATION REGARDING SUPPORT FOR SIGNAGE.

SIGN TABLE
NOT TO SCALE



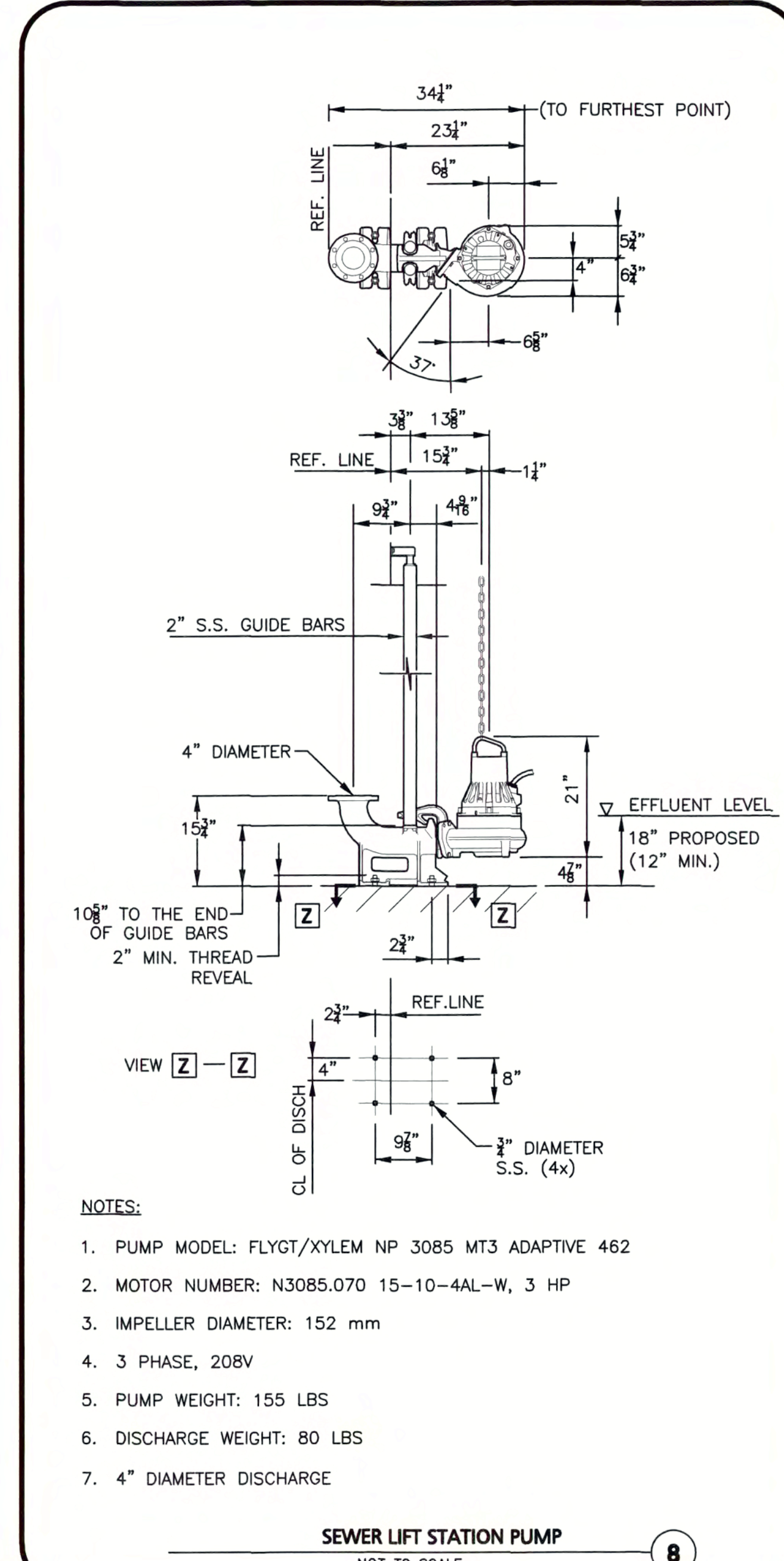
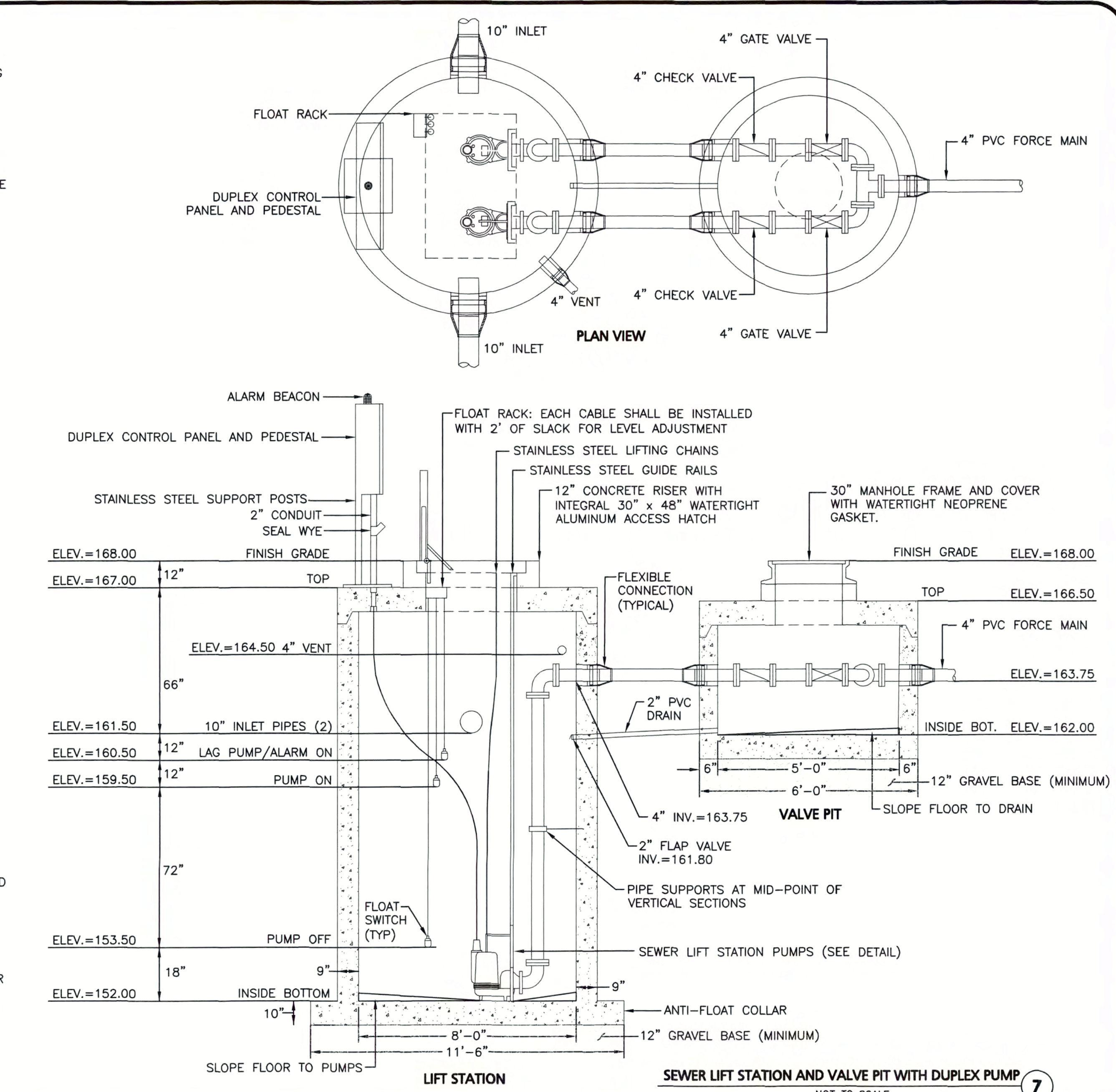
NOTES:

- SEWER FLOW CALCULATION BASED 310 C/MR 15,000, TITLE 5 FLOW RATES USING 323 BEDROOMS AT 110 GALLONS PER DAY PER BEDROOM = 35,530 GPD. FLOW RATE = (323 BEDROOM) x (110 GPD/BEDROOM) = 35,530 GPD.
- A PEAKING FACTOR OF 5.0 HAS BEEN APPLIED TO ACCOUNT FOR SURGES DURING TIMES OF PEAK USE. MINIMUM REQUIRED FLOW RATE IS 125 GALLONS PER MINUTE (GPM). THE DESIGN FLOW RATE SHALL BE 150 GPM.
- THE LIFT STATION SHALL BE AN EIGHT FOOT (8') DIAMETER PRE-CAST CONCRETE MANHOLE WITH A FLAT TOP SUITABLE TO ACCOMMODATE A 30" x 48" WATER TIGHT ALUMINUM ACCESS HATCH. THE PRECAST CONCRETE MANHOLE SHALL INCLUDE AN ANTI-FLOATATION COLLAR (EXTENDED BASE SECTION).
- CONCRETE SHALL BE 4,000 PSI MINIMUM AFTER 28 DAYS.
- REINFORCED STEEL SHALL CONFORM TO THE LATEST ASTM A185.
- ALL JOINTS SHALL BE SEALED WITH BUTYL RESIN CONFORMING TO THE LATEST ASTM C890.
- THE EXTERIOR OF THE LIFT STATION SHALL HAVE WATERPROOFING APPLIED TWO COATS OF BITUPLASTIC No. 28 BY KOPPERS CO. OR APPROVED EQUAL.
- ALL COMPONENTS SHALL BE DESIGNED FOR H-20 LOADING.
- THE LIFT STATION SHALL BE SUPPLIED WITH A PUMP CONTROL PANEL WITH VISIBLE ALARM BEACON AND AUTO DIALER FOR ALARM EVENTS. THE PANEL SHALL BE MOUNTED ABOVE THE LIFT STATION. PANEL TO BE CONFIGURED TO ALTERNATE PUMPS. AN AUDIBLE ALARM SHALL BE ACTIVATED UPON ANY INITIATION OF LAG PUMP OR HIGH LEVEL ALARM. THE CONTROL PANEL SHALL BE EQUIPPED WITH RUN TIME METERS FOR EACH OF THE PUMPS.
- LAG PUMP AND HIGH LEVEL ALARM FLOATS MAY BE COMBINED INTO ONE FLOAT.

PUMP DESIGN:

- ELEVATION HEAD = 16.5 FEET
FRICTION HEAD = 5.7 FEET
TOTAL HEAD = 22.2 FEET
- PUMP MODEL: (SEE PUMP DETAIL HEREON)
- PUMP DESIGN FLOW RATE: 150 GPM
- PUMPS SHALL ALTERNATE EACH CYCLE.
- CYCLE FREQUENCY = 16 CYCLES PER DAY (EVERY 90 MINUTES)
- CYCLE VOLUME = 2,250 GALLONS
- CYCLE DEPTH = 72" (6')
- CYCLE RUN TIME = 15 MINUTES AT 150 GPM

- ALL PIPING WITHIN THE LIFT STATION AND VALVE BOX SHALL BE SCHEDULE 80 PVC. THE FORCE MAIN PIPING FROM THE VALVE BOX TO THE DISCHARGE MANHOLE SHALL BE SCHEDULE 40 PVC.
- THE COMPLETED LIFT STATION SHALL BE FIELD TESTED IN THE PRESENCE OF THE ENGINEER AND ACTUAL PUMP RATES VERIFIED. ANY MODIFICATION REQUIRED SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.
- GATE VALVES SHALL BE 4-INCH, DUCTILE IRON BODY, NON-RISING STEM WITH HANDWHEEL, DOUBLE DISC, PARALLEL SEAT RATED AT 200 PSI WORKING PRESSURE, WITH ANSI B 16.5 (CLASS 150) FLANGED ENDS.
- CHECK VALVES SHALL BE 4-INCH, DUCTILE IRON BODY, SWING TYPE WITH LEVER AND WEIGHT, RUBBER FACED BRONZE DISC RING, RATED AT 200 PSI WORKING PRESSURE, WITH ANSI B 16.5 FLANGED ENDS.



1.1 SUBMERSIBLE SEWAGE PUMPS (FLYGT NP 3085 MT)

- THE LIFT STATION SHALL BE EQUIPPED WITH 2 SUBMERSIBLE, CLOSE-COUPLED WASTEWATER PUMPS.
- EACH PUMP SHALL BE EQUIPPED WITH A 3 HP SUBMERSIBLE ELECTRIC MOTOR, CAPABLE TO OPERATE ON A 208 VOLT, 3 PHASES, 60 HERTZ VOLTAGE SUPPLY.
- THE HYDRAULIC OF THE PUMP SHALL BE CAPABLE OF HANDLING RAW DOMESTIC WASTEWATER WITH FIBROUS MATERIALS LIKE WET WIPES.
- THE IMPELLER BLADES SHALL BE SELF-CLEANING UPON EACH ROTATION AS THEY PASS ACROSS SHARP RELIEF GROOVE IN THE INSERT RING AND SHALL KEEP THE IMPELLER BLADES CLEAR OF DEBRIS. THE PUMP INLET SHALL HAVE A GUIDE PIN WHICH MOVES FIBERS FROM THE CENTER OF THE IMPELLER TO THE LEADING EDGES OF THE IMPELLER. THE IMPELLER SHALL MOVE AXIALLY UPWARDS TO ALLOW LARGER DEBRIS TO PASS THROUGH AND IMMEDIATELY RETURN TO NORMAL OPERATING POSITION. THE CLEARANCE BETWEEN THE INSERT RING AND THE IMPELLER LEADING EDGES SHALL BE ADJUSTABLE.
- THE PUMP SHALL BE CAPABLE TO OPERATE WITHOUT ANY LIMITATION BETWEEN 50% AND 125% OF THE BEST EFFICIENCY POINT (B.E.P.) OF THE PERFORMANCE CURVE.

DUTY POINT	FLOW (GPD)	TQH (FT)	EFFICIENCY (%)	NPSHRE (FT)
150	22	42	14.6	

- THE MOTOR SPEED SHALL BE MAX.: 1800 RPM. A PERFORMANCE CHART SHALL BE PROVIDED UPON REQUEST SHOWING CURVES FOR TORQUE, CURRENT, POWER FACTOR, INPUT/OUTPUT HP AND EFFICIENCY. THIS CHART SHALL ALSO INCLUDE DATA ON STARTING AND NO-LOAD CHARACTERISTICS.
- THE IMPELLER SHALL BE MOUNTED ON THE MOTOR SHAFT. COUPLINGS SHALL NOT BE ACCEPTED.
- THE PUMP MOTOR SHALL BE INDUCTION TYPE WITH A SQUIRREL CAGE ROTOR, SHELL TYPE DESIGN, HOUSED IN AN AIR FILLED, WATERTIGHT CHAMBER. IT SHALL BE PERMANENTLY SUBMERSIBLE ACCORDING STANDARD IEC 60034 AND PROTECTION CLASS IP 68.
- THE MOTOR SHALL BE CAPABLE OF NO LESS THAN 15 EVENLY SPACED STARTS PER HOUR AND BE ABLE TO OPERATE THROUGHOUT THE ENTIRE PUMP PERFORMANCE CURVE FROM SHUT-OFF THROUGH RUN-OUT EVEN WHEN THE MOTOR IS NOT SUBMERGED. THE STATOR WINDINGS SHALL BE INSULATED WITH MOISTURE RESISTANT CLASS H INSULATION RATED FOR 356°F.
- SEALING OF THE PUMPING UNIT TO THE DISCHARGE CONNECTION SHALL BE ACCOMPLISHED BY A MACHINED METAL TO METAL WATERTIGHT CONTACT. SEALING OF THE DISCHARGE INTERFACE WITH A DIAPHRAGM, O-RING OR PROFILE GASKET WILL NOT BE ACCEPTABLE.
- THE PUMP SHALL BE EQUIPPED WITH A GUIDING CLAW TO LIFT AND LOWER THE PUMP ON PARALLEL GUIDE BARS AND CONNECT IT TO WET WELL MOUNTED DISCHARGE CONNECTION. THERE SHALL BE NO NEED FOR PERSONAL TO ENTER THE WET WELL WHEN REMOVING OR REINSTALLING THE PUMPS.
- THE JUNCTION CHAMBER CONTAINING THE TERMINAL BOARD SHALL BE HERMETICALLY SEALED FROM THE MOTOR BY AN ELASTOMERIC COMPRESSION SEAL. CONNECTION BETWEEN THE CABLE CONDUCTORS AND STATOR LEADS SHALL BE MADE WITH THREADED COMPRESSION TYPE BINDING POSTS PERMANENTLY AFFIXED TO A TERMINAL BOARD. THE MOTOR AND THE PUMP SHALL BE PRODUCED BY THE SAME MANUFACTURER.
- THE MOTOR SHALL BE PROTECTED BY 3 THERMAL SWITCHES EMBEDDED IN THE STATOR SET TO OPEN AT 200°F AND ONE LEAKAGE SENSOR FLOATING TYPE LOCATED IN THE STATOR CHAMBER. THE SENSOR AND THE SWITCHES SHALL BE CONNECTED TO THE CONTROL PANEL WHICH SHALL STOP THE MOTOR AND SEND AN ALARM WHEN THE SENSORS ARE ACTIVATED.
- THE PUMP SHALL BE EXPLOSION APPROVED ACCORDING FM CLASS 1. DIV 1 "C" & "D".
- THE CABLE ENTRY SHALL CONSIST OF DUAL CYLINDRICAL ELASTOMER SLEEVES, FLANKED BY WASHERS, ALL HAVING A CLOSE TOLERANCE FIT AGAINST THE CABLE AND THE CABLE ENTRY. EPDM, SILICONES, OR OTHER SECONDARY SEALING SYSTEMS SHALL NOT BE CONSIDERED ACCEPTABLE.
- THE PUMP SHAFT SHALL ROTATE ON TWO BEARINGS. MOTOR BEARINGS SHALL BE PERMANENTLY GREASE LUBRICATED AND HAVE A NOMINAL L10 LIFETIME OF 50,000 HOURS. THE UPPER BEARING SHALL BE A SINGLE DEEP GROOVE BALL BEARING. THE LOWER BEARING SHALL BE A TWO ROW ANGULAR CONTACT BEARING TO COMPENSATE FOR AXIAL THRUST AND RADIAL FORCES. SINGLE ROW LOWER BEARINGS ARE NOT ACCEPTABLE.
- THE MATERIALS OF CONSTRUCTION SHALL BE AS FOLLOWS:
 - PUMP HOUSING: ASTM A-48, CLASS 35B
 - IMPELLER AND INSERT RING: A 532 ALLOY III A (25% CHROME)
 - STATOR HOUSING: ASTM A-48, CLASS 35B
 - SHAFT: ASTM A479 S45100-1
 - SHAFT SEAL PUMP SIDE: CORROSION RESISTANT TUNGSTEN CARBIDE WCCR
 - SHAFT SEAL MOTOR SIDE: CARBON (CSB) ALUMINUM OXIDE (AL2O3)
- ALL CASTINGS MUST BE BLASTED BEFORE COATING. ALL WET SURFACES ARE TO BE COATED WITH TWO-PACK OXYRANE ESTER DIABLOLD 50. THE TOTAL LAYER THICKNESS SHOULD BE AT LEAST 120 MICRONS. ZINC DUST PRIMER SHALL NOT BE USED.
- THE MOTOR SHALL BE EQUIPPED WITH 30 FEET OF CABLE SUITABLE FOR SUBMERSIBLE PUMP APPLICATIONS. THE POWER CABLE SHALL BE SIZED ACCORDING TO NEC AND IEC STANDARDS. THE OUTER JACKET OF THE CABLE SHALL BE OIL RESISTANT CHLORINATED POLYETHYLENE RUBBER. THE CABLE SHALL BE CAPABLE OF CONTINUOUS SUBMERGENCE UNDERWATER WITHOUT LOSS OF WATERTIGHT INTEGRITY TO A DEPTH OF 65 FEET.
- EACH COMPLETED AND ASSEMBLED PUMP/MOTOR UNIT SHALL UNDERGO THE FOLLOWING FACTORY TESTS AT THE MANUFACTURER'S PLANT PRIOR TO SHIPMENT. THE MANUFACTURER SHALL PROVIDE ON DEMAND A COPY OF HIS QUALITY CONTROL PLAN FOR THESE TESTS AND AN ISO 9001 FACTORY CERTIFICATE:
 - HYDRAULIC PERFORMANCE TEST
 - NO-LEAK SEAL INTEGRITY TEST
 - ELECTRICAL INTEGRITY TEST

1.2. EQUIPMENT FOR WET WELL INSTALLATION

- FOR EACH PUMP THE CONTRACTOR SHALL SUPPLY AND INSTALL A DISCHARGE CONNECTION MADE OF CAST IRON ASTM A-48, CLASS 35B.
- THE OUTLET FLANGE OF THE DISCHARGE CONNECTION SHALL BE 3" DRILLED ACCORDING ANSI B16.1-89; TAB.5.
- THE PUMP(S) SHALL BE AUTOMATICALLY AND FIRMLY CONNECTED TO THE DISCHARGE CONNECTION, GUIDED BY NO LESS THAN TWO PARALLEL GUIDE BARS EXTENDING FROM THE TOP OF THE WET WELL TO THE WET WELL MOUNTED DISCHARGE CONNECTION. THE MATERIAL OF THE GUIDE BARS SHALL BE STAINLESS STEEL AISI 316.
- FOR EACH PUMP THE CONTRACTOR SHALL SUPPLY AND INSTALL A CABLE HOLDER MADE WITH 4 HOOKS OF STAINLESS STEEL AISI 316.
- UPON COMPLETION OF CONSTRUCTION, THERE SHALL BE NO NEED FOR PERSONNEL TO ENTER THE WET-WELL TO PERFORM MAINTENANCE OR REPLACEMENT OF EQUIPMENT.
- THE SEALING OF THE PUMPING UNIT TO THE DISCHARGE CONNECTION SHALL BE ACCOMPLISHED BY A MACHINED METAL TO METAL CONTACT. SEALING OF THE DISCHARGE INTERFACE WITH A DIAPHRAGM, O-RING OR PROFILE GASKET WILL NOT BE ACCEPTED. THE ENTIRE WEIGHT OF THE PUMP/MOTOR UNIT SHALL BE BORNE BY THE PUMP DISCHARGE ELBOW. NO PORTION OF THE PUMP/MOTOR UNIT SHALL BEAR ON THE SUMP FLOOR DIRECTLY OR ON A SUMP FLOOR MOUNTED STAND.

SEWER LIFT STATION PUMP SPECIFICATION
NOT TO SCALE

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Issued for ZBA
Approval

Drawn by: BDL
Drawing checked by: BDC
Drawing scale: 1" = 10'
Drawing date: 02/19/20
Project number: 1843-04
Drawing revision:
No. Description Date

DETAILS

C-504



SEED MIXES:

BOTANICAL NAME	COMMON NAME	WETLAND INDICATOR
ELYNIA VIRGINICA	WIRGINIA WILD RYE	FCW
SCHIZACHYRION SCOPARIUM	LITTLE BLUESTEM	FCU
ANDROPOGON GERARDII	BIG BLUESTEM	FCU
FESTUCA RUBRA	RED FESCUE	FCU
POGONCHASTRUM NUTANS	INDIAN GRASS	FCU
PANICUM VIRGATUM	SWITCH GRASS	FC
CHAMAECRISTA PASCUOLATA	PARTRIDGE PE	FCU
LEPIDIUM PANGICULATUM	WINKLED GRASS	FC
VERBENA HASTATA	BLUE VERVAIN	FCW
ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	N
DIOSCOREA HIRTA	BLACK ROOT SUSAN	FCW
HELIENIUM AUTUMNALE	COMMON SNEEZEWEED	FCW+
ASTER PILOSIUS (SYMPHYOTRICHUM PILOSUM)	HEATH ASTER	UPL
DIODIA JUNCEA	EARLY GRASS	FCU
AGROSTIS PERENNANS	UPLAND BENTGRASS	FCU

PRICE PER LB \$36.50 MIN. QUANTITY 2 LBS. TOTAL: \$73.00
APPLY: 25 LBS/ACRE :1750 SQ FT/LB

NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES

BOTANICAL NAME	COMMON NAME	INDICATOR
ELYMUS RIPARIUS	RIVERBANK WILD RYE	FAWC
FESTUCA RUBRA	RED FESCUE	FAWC
SCYTHAZACHNE SCOPARIUM	LITTLE SEED	FAWC
PANICUM VIRGATUM	SWITCH GRASS	FAC
ANDROPOGON GERARDII	BIG BLUESTEM	FAC
VERBENA HASTATA	BLUE VERVAIN	FAC
AGRIS PERENNANS	UPLAND BENTGRASS	FAC
BIODENS CRUBI	MOODY BUR MARGOLD	FAC
EUPATORIUM FISTULOSUM	HOLLOW-STEM JOE PYE WEED	FAWC
EUPATORIUM PERFOLIATUM	BONEST	FAC
ASTER NOVAE-ANGIAE	NEW ENGLAND ASTER	FAC
SCIRPUS CYPERIS	MOOR GRASS	FAC
JUNCUS EFFUSUS	SOFT RUSH	FACW+

THE NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOST SITES CONTAINS A SELECTION OF NATIVE GRASSES AND FLOWERS DESIGNED TO COLONIZE GENERALLY MOIST, RECENTLY DISTURBED SOILS WHERE QUICK GROWTH AND STABILITY ARE REQUIRED. THIS MIX IS SUITED TO THE SOIL SURFACE. IT IS AN APPROPRIATE SEED MIX FOR ECOLOGICALLY SENSITIVE AREAS WHERE THERE IS A REQUIREMENT FOR STABILIZATION AS WELL AS LONG-TERM ESTABLISHMENT OF NATIVE VEGETATION. THIS MIX IS PARTICULARLY APPROPRIATE FOR DETENTION BASINS THAT DO NOT HOLD STANDING WATER, MANY OF THE PLANTS IN THIS MIX ARE PERENNIALS. FREQUENT INUNDATION, BUT NOT CONSTANT FLOODING, THE MIX MAY BE APPLIED BY HAND OR SPREADER. SEEDS WILL BE PLANTED IN THE FALL OR AFTER SOWING, LIGHTLY RAKE, ROLL OR CULTRIPACK TO INSURE GOOD SEED-TO-SOIL CONTACT. RESULTS ARE OBTAINED WITH A SPRING OR LATE SUMMER SEEDING. SEEDS WILL BE PLANTED IN THE FALL OR AFTER SOWING. INCREASED IN THE APPLICATION RATE A LIGHT MULCHING OF CLUMP, WOOD-FREE FERTILIZER IS RECOMMENDED.

PRICE: 50 LB/134.00 M3 QUANTITY 3 LBS. TOTAL: \$102.00 APPLY: 35 LBS/ACRE
\$125.00 50 FT/LB

HYBRIDS MAY INCLUDE: BLACKSTONE KENTUCKY BLUEGRASS, AWARD KENTUCKY BLUEGRASS, CHALLENGER KENTUCKY BLUEGRASS, BLACKBURG II KENTUCKY BLUEGRASS OR COMPARABLE AND EQUAL BLUEGRASS HYBRIDS.

1. PROVIDE A&M A SHOP DRAWING FOR APPROVAL PRIOR TO ORDERING OF SOD.
2. SOD SHALL BE HIGH QUALITY, NURSERY GROWN ON CULTIVATED MINERAL AGRICULTURAL SOILS. SOD SHALL BE MOIST, AND MACHINE CUT AT A UNIFORM SOD THICKNESS OF AT LEAST 1/2" AT TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL INCLUDE TOP GROWTH AND THATCH. SOD SHALL BE FREE OF DISEASES, WEEDS, BARE SPOTS, OR INSECTS.
3. SODDING TO BE COMPLETED "IN SEASON" BETWEEN APRIL 1 TO JUNE 15 OR AUGUST 15 TO OCTOBER 1, EXCEPT FOR RE-SODDING OF BARE SPOTS. IF UNABLE TO SOD WITHIN THESE TIMEFRAMES, CONTRACTOR TO INSTALL EROSION CONTROL MATS ON ALL SLOPES 3:1 AND OVER, HYDROSEED ALL EXPOSED AREAS, ADD SOIL STABILIZER "FLUX TERRA HP-FGM SOIL STABILIZER" AS MANUFACTURED BY "PROFILE" TO HYDROSEED (AT RATE OF 3,000 LBS PER ACRE), AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR TO COMPLETE ALL ABOVE "OUT OF SEASON" REQUIREMENTS AND THEN ALSO BE RESPONSIBLE FOR RE-GRADING AND RE-SODDING ALL DISTURBED, ERODED, OR BARE SPOTS WITHIN NEXT CLOSEST PLANTING SEASON IN FALL OR SPRING AT NO ADDITIONAL COST TO OWNER. CONTRACTOR RESPONSIBLE FOR ALL MAINTENANCE UNTIL FINAL ACCEPTANCE OF LAWN AREAS INCLUDING: WATERING, ADDING FERTILIZERS AND LIME AND MOWING AT NO ADDITIONAL COST TO OWNER.
4. COMMERCIAL FERTILIZER SHALL BE APPLIED AT THE RATE OF 25 POUNDS PER 1000 SQ. FT. OR AS RECOMMENDED BY THE TESTING AGENCY. LIME TO BE SPREAD AT THE RATE OF 100 POUNDS PER 1000 SQ. FT. OR AS RECOMMENDED BY THE TESTING AGENCY. COMMERCIAL FERTILIZER SHALL BE A COMPLETE FERTILIZER CONTAINING AT LEAST 10% OF NITROGEN OF WHICH 5% MUST BE DERIVED FROM NATURAL ORGANIC SOURCES OF UREAFOAM. IT SHALL CONTAIN THE FOLLOWING PERCENTAGES BY WEIGHT: NITROGEN (N) 10%, PHOSPHORUS (P) 6%, POTASH (K) 4%. LIME SHALL BE AN APPROVED AGRICULTURAL LIMESTONE CONTAINING NOT LESS THAN 85% OF TOTAL CARBONATES. LIMESTONE SHALL BE GRIND TO SUCH FINENESS THAT 50% WILL PASS A 100 MESH SIEVE AND 90% WILL PASS THROUGH A 20 MESH SIEVE.
5. CONTRACTOR RESPONSIBLE FOR WATERING, MOWING, AND RE-SODDING OF LAWN BARE SPOTS UNTIL A UNIFORM, HEALTHY STAND OF GRASS IS ESTABLISHED AND ACCEPTED. IF PROPOSED IRRIGATION SYSTEM IS NO OPERATIONAL, LANDSCAPE CONTRACTOR RESPONSIBLE TO WATER WITH TEMPORARY IRRIGATION OR WATER TRUCKS UNTIL IRRIGATION SYSTEM IS OPERATIONAL, AT NO ADDITIONAL COST.

3. ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF MEDWAY, MA.
2. PLANTING PLAN IS DIAGRAMMATIC IN NATURE. FINAL PLACEMENT OF PLANTS TO BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES, ANY PERMITTING AGENCIES, AND "DIG-SAFE" (1-888-344-7233) AT LEAST 72 HOURS IN ADVANCE OF ANY WORK THAT WILL REQUIRE EXCAVATION. CONTRACTOR SHALL NOTIFY THE OWNERS REPRESENTATIVE OF ANY CONFLICTS IN WRITING.
4. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA. ANY TREES NOTED AS "SEAL OR SELECTED SPECIMEN" SHALL BE TAGGED AND SEALED BY THE LANDSCAPE ARCHITECT.
5. ALL TREES SHALL BE BALLED AND BURLAPPED (B&B) UNLESS OTHERWISE NOTED OR APPROVED BY THE OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.
6. CONTRACTOR SHALL VERIFY QUANTITIES SHOWN ON PLANT LIST. QUANTITIES SHOWN ON PLANS SHALL GOVERN OVER PLANT LIST.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.
8. ALL PLANT MATERIALS INSTALLED SHALL MEET THE GUIDELINES ESTABLISHED BY THE STANDARDS FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
9. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF ACCEPTANCE. ANY PLANT MATERIALS WHICH DIE WITHIN THE ONE YEAR PLANT GUARANTEE PERIOD WILL BE REPLACED BY THE LANDSCAPE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNERS. OWNERS TO COORDINATE DIRECTLY WITH THE LANDSCAPE CONTRACTOR FOR REPLACEMENT PLANTINGS.
10. ALL DISTURBED AREAS NOT OTHERWISE NOTED SHALL RECEIVE 6" OF SUITABLE LOAM & SEED LAWNS WITH 3:1 OR STEEPER (GREATER) SLOPES SHALL BE PROTECTED WITH JUTE EROSION CONTROL NETTING.
11. ANY FALL REPLANTING HAZARD PLANTS SHALL BE DUG IN THE SPRING AND STORED FOR FALL PLANTING.
12. TREES SHALL HAVE A MINIMUM CALIPER AS INDICATED ON THE PLANTING SCHEDULE TAKEN ONE FOOT ABOVE THE ROOT CROWN.
13. ALL PLANT BEDS AND TREE SAUCERS TO RECEIVE 3" OF PINE BARK MULCH. GROUND COVER AREAS SHALL RECEIVE 1" OF PINE BARK MULCH.
14. ALL DECIDUOUS TREES ADJACENT TO WALKWAYS AND ROADWAYS SHALL HAVE A BRANCHING PATTERN TO ALLOW FOR A MINIMUM OF 7' OF CLEARANCE BETWEEN THE GROUND AND THE LOWEST BRANCH.
15. ALL TREE STAKES SHALL BE STAINED DARK BROWN.
16. CONTRACTOR RESPONSIBLE FOR WATERING, MAINTENANCE, FERTILIZING, AND RESEEDING OF LAWN BARE SPOTS UNTIL A UNIFORM STAND OF VEGETATION IS ESTABLISHED AND ACCEPTED.

17. ALL PAVING ISLANDS PLANTED WITH SHRUBS OR PERENNIALS SHALL HAVE 24" OF TOPSOIL. FINISH GRADE SHALL BE EQUAL TO THE TOP OF CURB.
18. SOIL SAMPLES, TESTS, AND SHOP DRAWINGS SHALL BE PROVIDED TO THE LANDSCAPE ARCHITECT OR THE OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.
19. AN MINIMUM 18" WIDE BARRIER OF 1" GRAY OR TAN PEASTONE SHALL BE INSTALLED IN ALL PLANT BEDS WHICH ABOUT THE BUILDINGS. NO MULCH IS ALLOWED WITHIN 18" OF ALL BUILDINGS PER THE EXECUTIVE OFFICE OF PUBLIC SAFETY AND SECURITY DEPARTMENT OF FIRE SERVICES REGULATION (527 CMR 17.00). INSTALL 4" DEEP OF PEASTONE WITH MIRAFI WEED FABRIC BENEATH AND STEEL EDGING BETWEEN THE PEASTONE AND ADJACENT MULCH BED. PROVIDE SHOP DRAWINGS TO AS&M FOR APPROVAL PRIOR TO PURCHASE OF PEASTONE, MIRAFI WEED FABRIC & STEEL EDGING.
20. ALL PROPOSED LANDSCAPE AREAS INCLUDING MOWED LAWNS, TREES, SHRUB BEDS, PERENNIALS, AND ANNUALS SHALL BE PROVIDED WITH WATER EFFICIENT UNDERGROUND IRRIGATION. DESIGN AND INSTALLATION OF IRRIGATION SYSTEM TO BE PERFORMED BY AN APPROVED IRRIGATION DESIGN BUILD CONTRACTOR OR BY AN APPROVED EQUAL, TO BE DETERMINED BY THE OWNERS REPRESENTATIVE AND LANDSCAPE ARCHITECT. IRRIGATION SYSTEM IS TO BE DESIGNED FOR EFFICIENT WATER USAGE INCLUDING: SHUT-OFF VALVE, SEPARATE ZONES FOR EACH TYPE OF BEDDING AREA BASED ON WATERING NEEDS, AND A RAIN SENSOR TO SHUT OFF IRRIGATION DURING RAIN EVENTS.
21. PRIOR TO LAYING TOPSOIL, ALL SUBSOIL (BELOW PROPOSED TOPSOIL) TO BE TILLED TO A DEPTH OF AT LEAST 18" TO REMOVE CONSTRUCTION COMPACTION AND ALLOW FOR PROPER DRAINAGE OF TOPSOILS.
22. SEEDING OF DETENTION AREAS & OTHER SLOPE AREAS SHALL OCCUR IN THE DRY & AFTER SLOPES ARE COMPACTED. IT IS IMPORTANT, THAT THE DETENTION BASIN BE SEEDED AT THE BEGINNING OF THE PROJECT & PRIOR TO ANY DRAINAGE BEING DIRECTED TOWARDS THE BASIN. THE SEED AT DETENTION AREAS & OTHER SLOPED AREAS WILL NEED A MIN. OF 6 MONTHS TO INITIALLY ESTABLISH PRIOR TO THE DETENTION BASIN BEING UTILIZED SO THAT THERE IS NOT EROSION & SLOPE FAILURE. SEED MIXES AVAILABLE FROM NEW ENGLAND WEED AND PLANTS, 820 WEST ST., AMHERST, MA 01003-948-8000. LIGHTLY RAKE SOIL TO ENSURE GOOD SEED-TO-SOIL CONTACT. SEE SEED MIX DETAIL NOTES.

ALL SEEDING TO BE COMPLETED "IN SEASON" BETWEEN APRIL TO JUNE 15 OR AUGUST 15 TO OCTOBER 1, EXCEPT FOR RE-SEEDING OF BARE SPOTS. AT ALL SLOPED AREAS CONTRACTOR TO INSTALL COCONUT FIBER JUTE MESH NETTING ON ALL SLOPES 3:1 AND OVER, HYDROSEED ALL EXPOSED AREAS, ADD SOIL STABILIZER "FLUX TERRA HIGH GUM SOIL STABILIZER" AS MANUFACTURED BY "PROFILE" TO HYDROSEED (AT RATE OF 3,000 LBS PER ACRE), AND NO ADDITIONAL COST TO THE OWNER. CONTRACTOR TO ALSO BE RESPONSIBLE FOR RE-GRADING AND RE-SEEDING OF DISTURBED, ERODED, OR BARE SPOTS AT NO ADDITIONAL COST TO OWNER & UNTIL SLOPES ARE FULLY STABLE. CONTRACTOR RESPONSIBLE FOR ALL MAINTENANCE UNTIL FINAL ACCEPTANCE OF LAWN AREAS INCLUDING: WATERING, ADDING FERTILIZERS AND LIME AND MOWING AT NO ADDITIONAL COST TO OWNER.

AFTER SEEDING, ALL AREAS TO BE LIGHTLY MULCHED WITH WOOD FINE STRAW & CONTINUALLY WATERED EVERY DAY UNTIL SEED IS ESTABLISHED & APPROVED BY A&M LANDSCAPE ARCHITECT (USE NO HAY) SO THAT SEED IS KEPT MOIST, FOR SPREADING OF THE SEED WITH DRY DETENTION BASINS, WATER LEVELS MAY BE LOWERED IN THE DETENTION AREAS BY RELYING ON DRY SEASON AND OR DRY SPELLS; OR MAY BE ACCOMPLISHED THROUGH THE USE OF DEWATERING METHODS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ANY DEWATERING METHODS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. WATER FROM ANY DEWATERING OPERATION SHALL BE TREATED TO REDUCE TOTAL SUSPENDED SOLIDS AND BE IN COMPLIANCE WITH STATE AND FEDERAL STANDARDS.

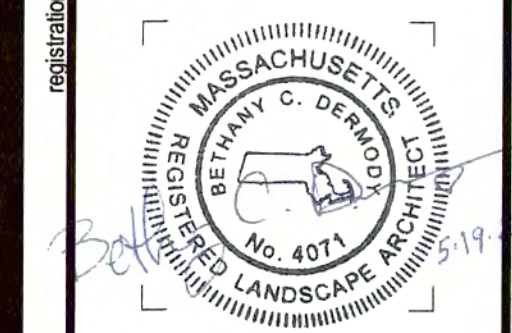
SPREAD THE NEW ENGLAND SEED MIXES AT AREAS SHOWN ON THE PLAN. SEE SEED MIX DETAIL NOTES. SEED MIXES AVAILABLE FROM NEW ENGLAND WETLAND PLANTS, 820 WEST ST., AMHERST, MA, 413-548-8000. LIGHTLY RAKE SOIL TO ENSURE GOOD SEED-TO-SOIL CONTACT.

CONTRACTOR SHALL SEED ALL DISTURBED AREAS NOT NOTED TO RECEIVE OTHER MATERIALS, AND AT AREAS SHOWN ON THE PLAN PER SPECIFICATIONS BELOW

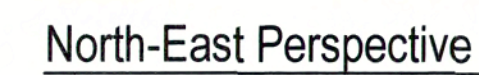
SCIENTIFIC NAME	COMMON NAME	PROPORTION BY WEIGHT	PERCENT PURITY	PERCENT GERMINATION
FESTUCA RUBRA "RUBRA"	CREeping RED FESCUE	37%	95%	90%
PAO PRÄENTENSIS "BARON"	BARON KENTUCKY BLUEGRASS	40%	85%	90%
LOLIUM PERENNE "PALMER"	PALMER PERENNIAL RYEGRASS	15%	95%	90%
FESTUCA RUBRA COMMUTATA, WILMA	WILMA CHEWINGS	8%	95%	80%

1. SEED TO BE SPREAD AT MINIMUM RATE OF 5 LBS. PER 1000 SQ. FT.
2. NEEDING TO BE COMPLETED "IN SEASON" BETWEEN APRIL 1 TO JUNE 15 OR AUGUST 15 TO OCTOBER 1, EXCEPT FOR RESEEDING OF BARE SPOTS. IF UNABLE TO SEED WITHIN THESE TIMEFRAMES, CONTRACTOR TO INSTALL EROSION CONTROL MATS ON ALL SLOPES 3:1 AND OVER, HYDROSEED ALL EXPOSED AREAS, ADD SOIL STABILIZER TO TOPSOIL, HP-SP-100, AT A RATE OF 10 LBS. PER 1000 SQ. FT., AND GRASS SEED TO HYDROSEED AREAS. ADDITIONAL COST TO OWNER. CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ANY NECESSARY PERMITS FROM THE CITY OF CHICAGO. CONTRACTOR TO COMPLETE ALL ABOVE "OUT OF SEASON" REQUIREMENTS AND THEN ALSO BE RESPONSIBLE FOR RE-GRADING AND RESEEDING AREAS WHERE EROSION OCCURRED OR BARE SPOTS WITHIN NEXT CLOSEST PLANTING SEASON IN FALL OR SPRING AT NO ADDITIONAL COST TO OWNER. CONTRACTOR RESPONSIBLE FOR ALL MAINTENANCE AND CARE OF AREAS OF ACCIDENTAL EROSION UNTIL THEY HAVE BEEN FULLY RESEEDED AND ACCEPTED BY THE TESTING AGENCY.
3. COMMERCIAL FERTILIZER SHALL BE APPLIED AT THE RATE OF 25 POUNDS PER 1000 SQ. FT. OR AS RECOMMENDED BY THE TESTING AGENCY. LIME TO BE SPREAD AT THE RATE OF 100 POUNDS PER 1000 SQ. FT. OR AS RECOMMENDED BY THE TESTING AGENCY. COMMERCIAL FERTILIZER SHALL BE A COMPLETE FERTILIZER CONTAINING AT LEAST 16% NITROGEN (N) 10%, PHOSPHORUS (P) 6%, POTASH (K) 4%. LIME SHALL BE AN APPROVED AGRICULTURAL LIMESTONE CONTAINING NOT LESS THAN 85% CALCIUM CARBONATE. LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT 50% WILL PASS A 10 MESH SIEVE AND 90% WILL PASS A 20 MESH SIEVE.
4. SEEDING TO BE COMPLETED WITHIN 10 DAYS OF THE END OF THE MONTH OF MAY. CONTRACTOR SHALL MAINTAIN THE FOLLOWING PERCENTAGES BY WEIGHT: NITROGEN (N) 10%, PHOSPHORUS (P) 6%, POTASH (K) 4%. LIME SHALL BE AN APPROVED AGRICULTURAL LIMESTONE CONTAINING NOT LESS THAN 85% CALCIUM CARBONATE. LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT 50% WILL PASS A 10 MESH SIEVE AND 90% WILL PASS A 20 MESH SIEVE.
5. CONTRACTOR RESPONSIBLE FOR WATERING, MOWING, AND RESEEDING OF LAWN BARE SPOTS UNTIL A UNIFORM, HEALTHY STAND OF GRASS IS ESTABLISHED AND ACCEPTED BY THE TESTING AGENCY.

drawing by:	BCD/BDJ
drawing checked by:	RPC
drawing scale:	AS SHOWN
drawing date:	05/19/20
project number:	1843-04

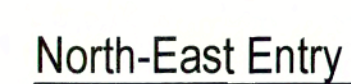
[illegible][illegible]LANDSCAPE
DETAILS

L-502



2

A-200

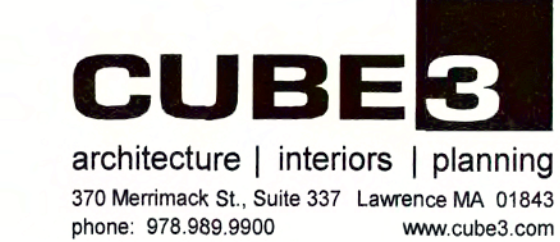


1

A-200

EXTERIOR MATERIALS LEGEND	
1	CULTURED STONE EXTERIOR - ELDORADO MARQUEE 24 DOVE TAIL
2	FIBER CEMENT LAP SIDING (8" EXPOSURE) - LIGHT GREY
3	FIBER CEMENT LAP SIDING (8" EXPOSURE) - OFF WHITE
4	FIBER CEMENT LAP SIDING (4" EXPOSURE) - WOOD FINISH
5	FIBER CEMENT PANEL - OFF WHITE FINISH/WALLMOUNT REGLET TRIM
6	FIBER CEMENT ARTISAN SHIPLAP (8" EXPOSURE) - DARK GREY FINISH
7	FIBER CEMENT PANEL - (VARYING EXPOSURE); MEDIUM GREY FINISH

1	CULTURED STONE EXTERIOR - ELDORADO MARQUEE 24 DOVE TAIL
2	FIBER CEMENT LAP SIDING (6" EXPOSURE) - LIGHT GREY
3	FIBER CEMENT LAP SIDING (6" EXPOSURE) - OFF WHITE
4	FIBER CEMENT LAP SIDING (4" EXPOSURE) - WOOD FINISH
5	FIBER CEMENT PANEL - OFF WHITE FINISH W/ALUMINUM REGLET TRIM
6	FIBER CEMENT ARTISAN SHIPLAP (9" EXPOSURE) - DARK GREY FINISH
7	FIBER CEMENT PANEL - (VARYING EXPOSURE) MEDIUM GREY FINISH



Toll Brothers
Medway

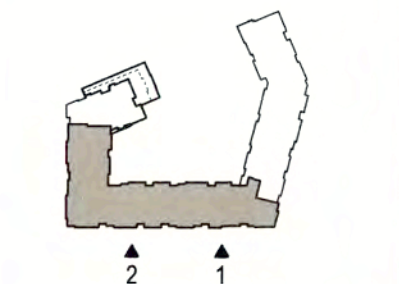
39 Main Street
Medway, MA

Toll Brothers
Apartment Living

197 First Avenue
Needham, MA

Design
Development

NOT FOR
CONSTRUCTION



drawing information:	drawing by:	SP, GD, MM, ND
	drawing checked by:	DG
	drawing scale:	As indicated
	drawing date:	3/20/2020
	project number:	19140.00

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Exterior Elevations

A-201



South Elevation - Left Side
1/8" = 1'-0"

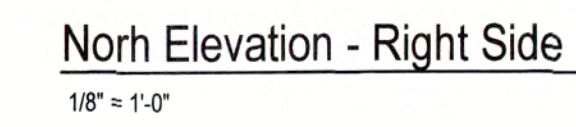
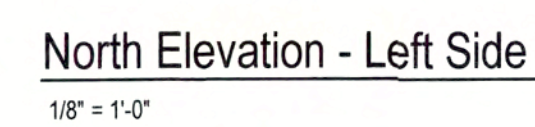
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A-201



South Elevation - Right Side
1/8" = 1'-0"

1
A-201

- 1 CULTURED STONE EXTERIOR - ELDORADO MARQUEE 24 DOVE TAIL
- 2 FIBER CEMENT LAP SIDING (6" EXPOSURE) - LIGHT GREY
- 3 FIBER CEMENT LAP SIDING (6" EXPOSURE) - OFF WHITE
- 4 FIBER CEMENT LAP SIDING (4" EXPOSURE) - WOOD FINISH
- 5 FIBER CEMENT PANEL - OFF WHITE FINISH w/ALUMINUM REGLET TRIM
- 6 FIBER CEMENT ARTISAN SHIPLAP (8" EXPOSURE) - DARK GREY FINISH
- 7 FIBER CEMENT PANEL - (VARYING EXPOSURE) MEDIUM GREY FINISH



39 Main Street
Medway, MA

97 First Avenue
Needham, MA

drawing revisions:		
No.	Description	Date

[illegible]

A-203

1	CULTURED STONE EXTERIOR - ELDERADO MARQUEE 24 DOVE TAIL
2	FIBER CEMENT LAP SIDING (6" EXPOSURE) - LIGHT GREY
3	FIBER CEMENT LAP SIDING (6" EXPOSURE) - OFF WHITE
4	FIBER CEMENT LAP SIDING (4" EXPOSURE) - WALDUM FINISH
5	FIBER CEMENT PANEL - OFF WHITE FINISH W/ALUMINUM REGLET TRIM
6	FIBER CEMENT ARTISAN SHIP LAP (6" EXPOSURE) - DARK GREY FINISH
7	FIBER CEMENT PANEL - (VARYING EXPOSURE) MEDIUM GREY FINISH



2

A-203



1

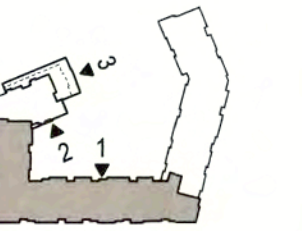
A-203

39 Main Street
Medway, MA

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Needham, MA

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drawing checked by:	DG
drawing scale:	As indicated
drawing date:	3/20/2020
project number:	19140.00

[illegible]

Anterior elevations

204

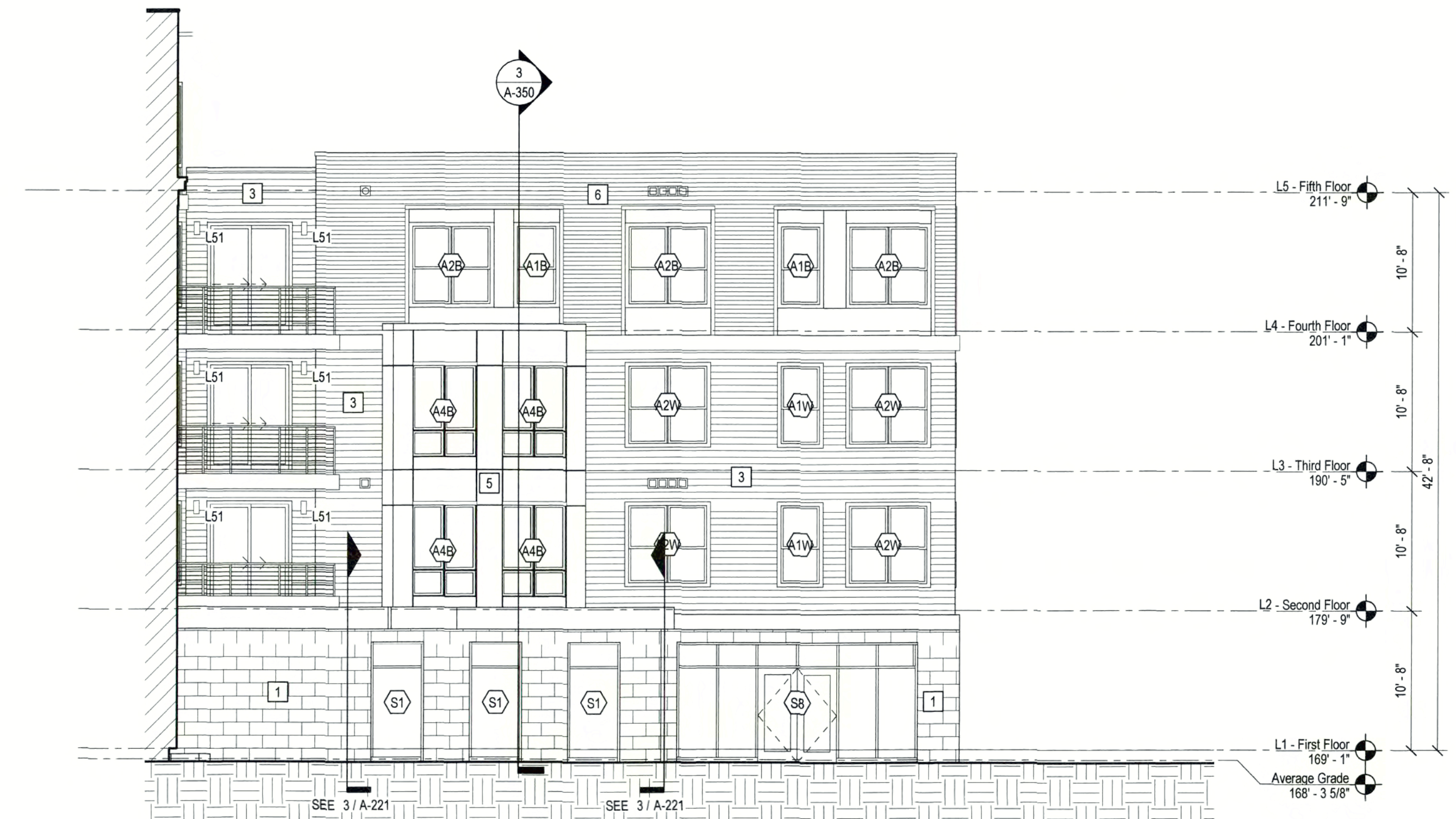
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EXTERIOR MATERIALS LEGEND

- | | |
|---|--|
| 1 | CULTURED STONE EXTERIOR - ELDORADO MARQUEE 24 DOVE TAIL |
| 2 | FIBER CEMENT LAP SIDING (6" EXPOSURE) - LIGHT GREY |
| 3 | FIBER CEMENT LAP SIDING (6" EXPOSURE) - OFF WHITE |
| 4 | FIBER CEMENT LAP SIDING (4" EXPOSURE) - WOOD FINISH |
| 5 | FIBER CEMENT PANEL - OFF WHITE FINISH ALUMINUM REGLET TRIM |
| 6 | FIBER CEMENT ARTISAN SHIP LAP (9" EXPOSURE) - DARK GREY FINISH |
| 7 | FIBER CEMENT PANEL - (VARYING EXPOSURE) MEDIUM GREY FINISH |



East Courtyard Elevation



South Courtyard Elevation
1/8" = 1'-0"



North Courtyard Elevation
1/8" = 1'-0"

EXTERIOR MATERIALS LEGEND	
1	CULTURED STONE EXTERIOR - ELDORADO MARQUEE 24 DOVE TAIL
2	FIBER CEMENT LAP SIDING (6" EXPOSURE) - LIGHT GREY
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7	FIBER CEMENT PANEL - (VARYING EXPOSURE) MEDIUM GREY FINISH

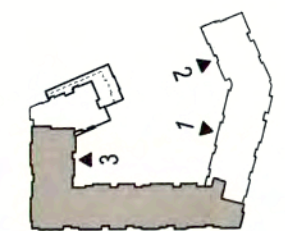
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Medway

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Medway, MA

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Apartment Living

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Needham, MA

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drawing by: SP, GD, MM, ND
drawing checked by: DG
drawing scale: As indicated
drawing date: 3/20/2020
project number: 19140.00

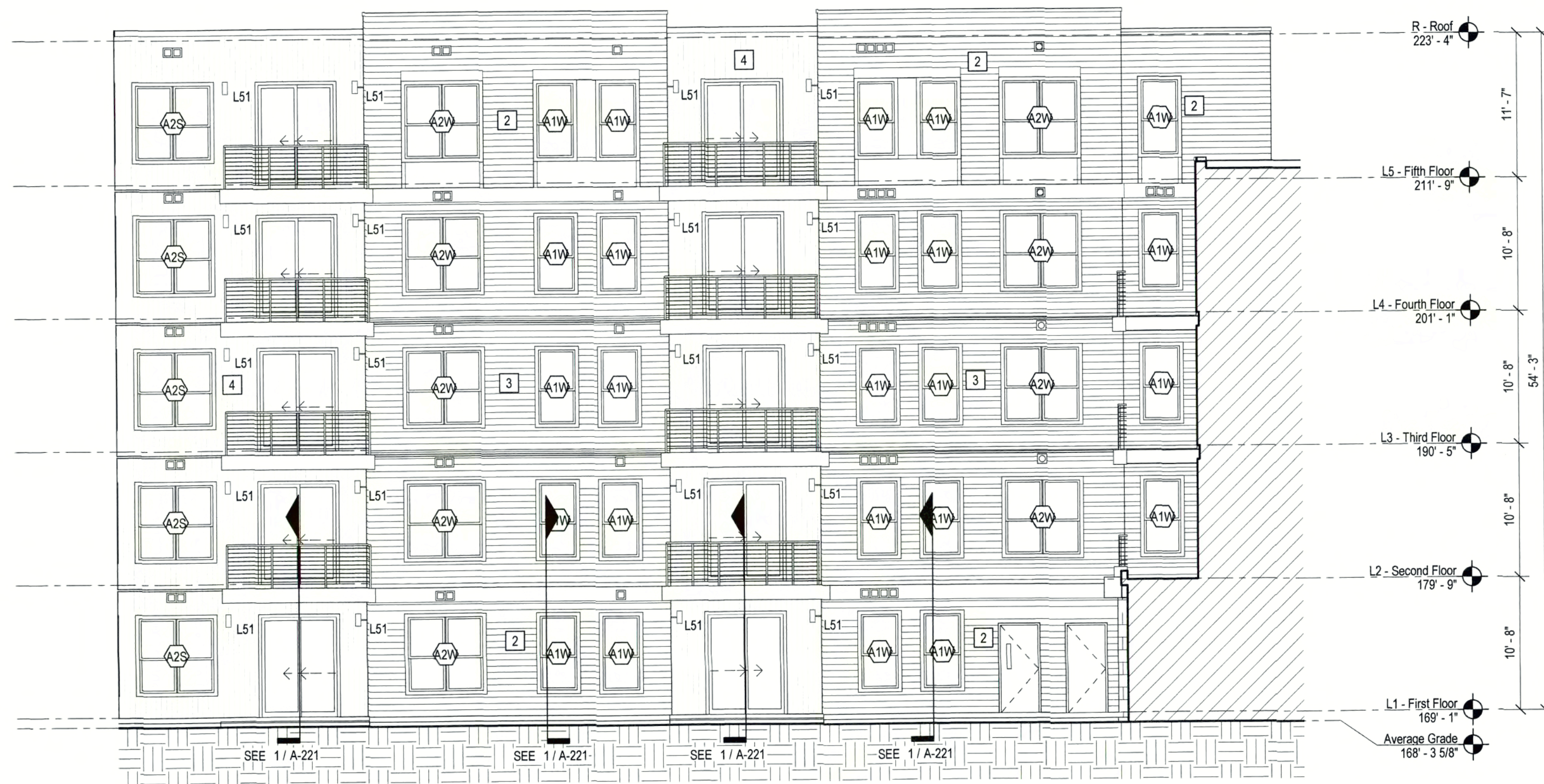
drawing revisions:

No.	Description	Date
1		



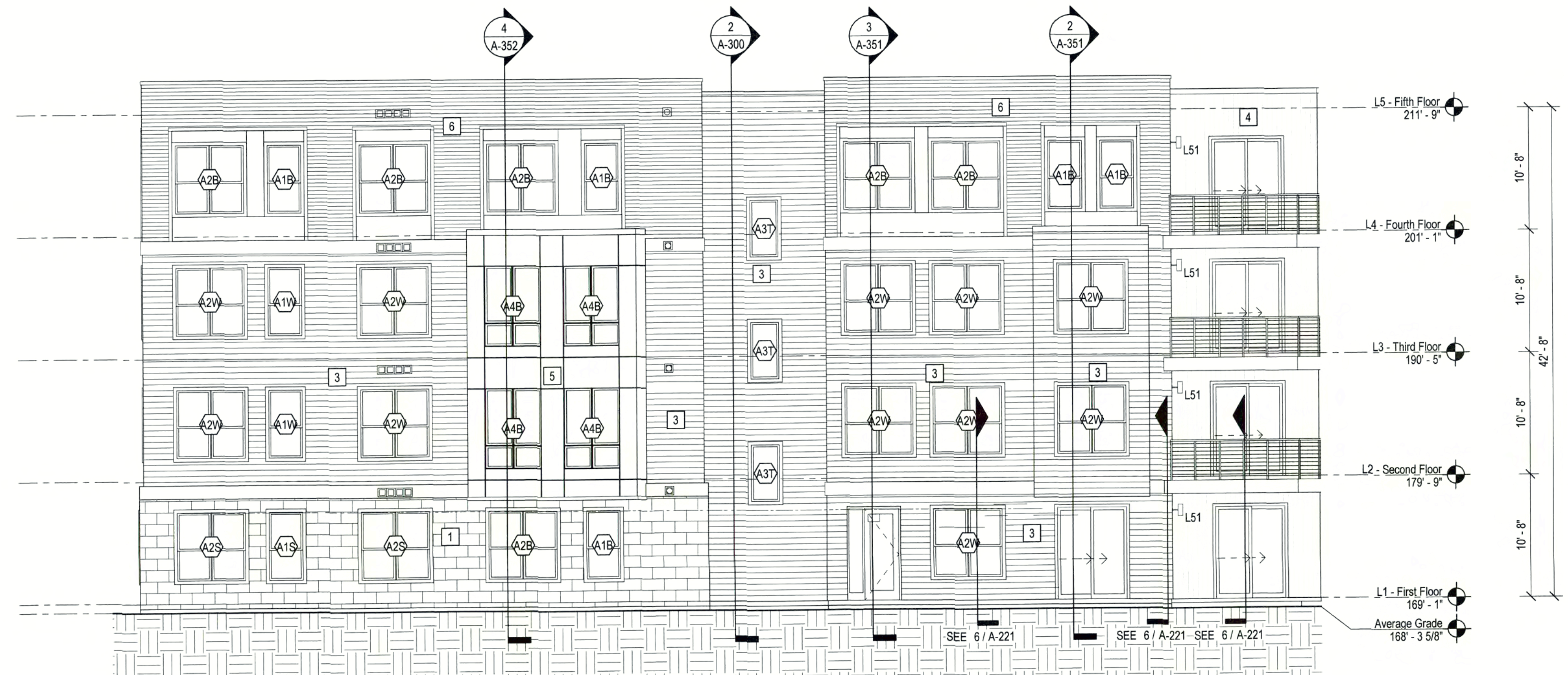
Exterior
Elevations

A-205



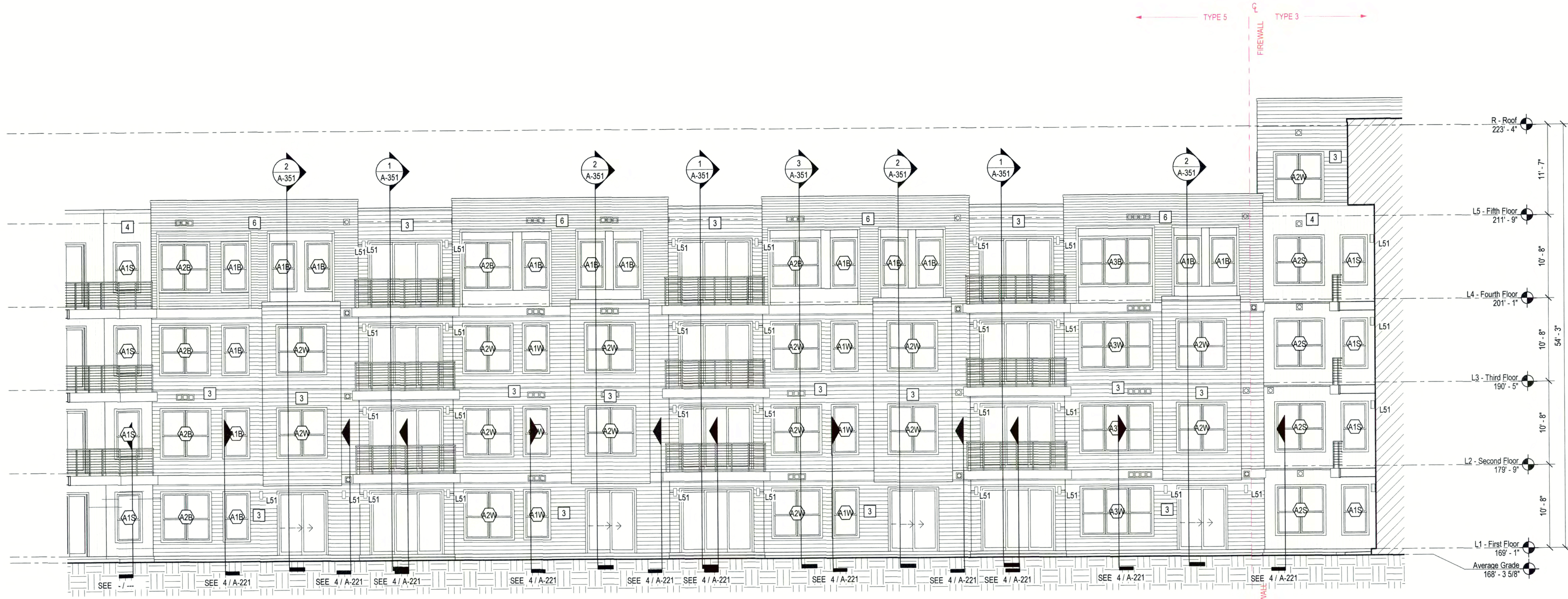
East Courtyard Elevation
1/8" = 1'-0"

3
A-205



West Courtyard Elevation
1/8" = 1'-0"

2
A-205



West Courtyard Elevation
1/8" = 1'-0"

1
A-205