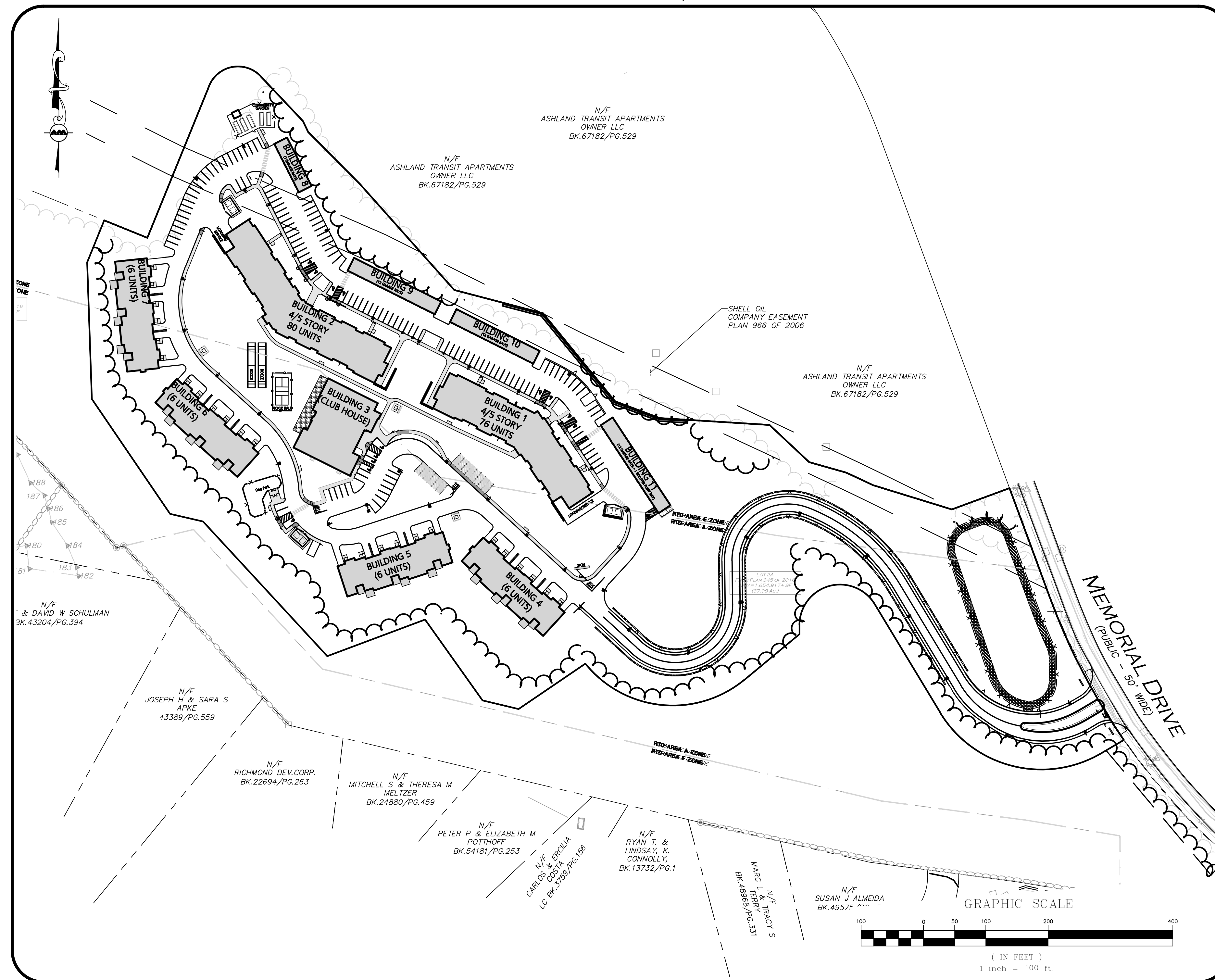


# ISSUED FOR COMPREHENSIVE PERMIT ARBELLA AT ASHLAND

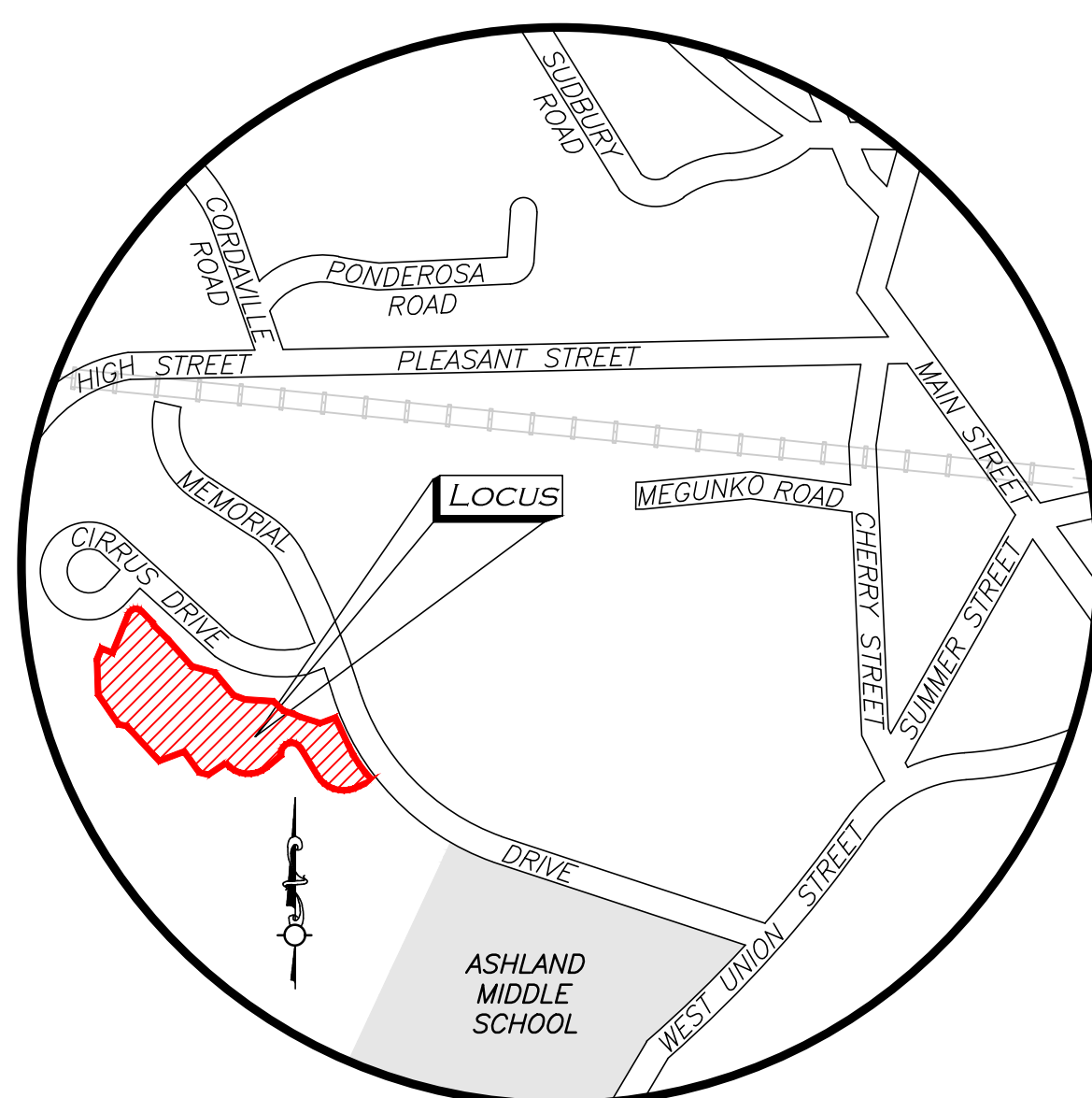
ASHLAND, MA



**APPLICANT:**  
UA SENIOR MANAGER, LLC  
RENSELAER TECHNOLOGY PARK  
300 JORDAN ROAD  
TROY, NY 12180

**SITE ENGINEERS:**  
ALLEN & MAJOR ASSOCIATES, INC.  
10 MAIN STREET  
LAKEVILLE, MA 02347

**PROJECT ARCHITECT:**  
CUBE 3, LLC  
370 MERRIMACK STREET, SUITE 337  
LAWRENCE, MA 01843



LOCUS MAP  
(SCALE: 1" = 1,000')

PREPARED BY:  
**ALLEN & MAJOR ASSOCIATES, INC.**  
civil engineering • land surveying  
environmental consulting • landscape architecture  
www.allenmajor.com  
10 MAIN STREET  
LAKEVILLE, MA 02347  
TEL: (508) 923-1010  
FAX: (508) 923-6309  
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## LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.	ISSUED	REVISED
EXISTING CONDITIONS	V-101 - V-102	09-04-2020	03-24-2021
NOTES & ABBREVIATIONS	C-001 - C-002	09-04-2020	03-24-2021
EROSION CONTROL PLAN	C-101	09-04-2020	03-24-2021
LAYOUT & MATERIALS PLAN	C-102 - C-104	09-04-2020	03-24-2021
GRADING & DRAINAGE PLAN	C-105 - C-107	09-04-2020	03-24-2021
PROFILE PLAN	C-108	09-04-2020	03-24-2021
UTILITIES PLAN	C-109 - C-111	09-04-2020	03-24-2021
PHOTOMETRICS PLAN	C-112 - C-114	09-04-2020	03-24-2021
DETAILS	C-501 - C-506	09-04-2020	03-24-2021
VEHICLE MOVEMENT PLAN	C-601 - C-602	09-04-2020	03-24-2021
LANDSCAPE PLAN	L-101 - L-103	09-04-2020	03-24-2021

## UNIT TABULATION TABLE

TYPE OF BUILDING	BUILDING 1	BUILDING 2	TOWNHOME BUILDING (6)	TOTAL
NUMBER OF UNITS	76	80	24	180
NUMBER OF BEDROOMS	99	115	48	262
NUMBER OF BATHROOMS	103	115	48	266
SQUARE FOOTAGE (FPA)	17,637 FT <sup>2</sup>	20,229 FT <sup>2</sup>	8,903 FT <sup>2</sup>	46,769 FT <sup>2</sup>
NUMBER OF PARKING STALLS	66	93	48	207

\* 25% OF TOTAL UNITS (45) SHALL BE DESIGNATED AS AFFORDABLE PER DHCD GUIDELINES

## LAND USAGE TABLE - RAIL TRANSIT DISTRICT (A-E-F)

ITEM	REQUIRED/ ALLOWED	PROPOSED
LOT AREA	30,000 SF	17.97 ACRES
LOT FRONTAGE	150'	445'
BUILDING AREA <sup>(1)</sup>	10 UNITS/ACRE	10.02 UNITS/ACRE
FRONT YARD SETBACK	25'	564.6'
SIDE YARD SETBACK	25'	15.3'
REAR YARD SETBACK	30'	32.8'
LOT COVERAGE (MAX)	70%	STRUCTURES: 12.59%
		BUILDINGS: 19.68%
		PAVEMENT: 2.28%
TOTAL:	TOTAL:	34.55%
		USABLE: 65.45%
		UNUSABLE: 0%
OPEN SPACE (MIN) <sup>(2)</sup>	30%	TOTAL: 65.45%
BUILDING HEIGHT (MAX)	3 STORIES	5 STORIES
PARKING SPACES: DWELLINGS (SINGLE FAMILY ATTACHED AND MULTI-FAMILY)	APARTMENT DWELLINGS: 156 UNITS TOWN HOME DWELLINGS: 24 UNITS REQUIRED: 1.8 SPACES/UNIT 324 TOTAL SPACES	APARTMENTS(1/UNIT): STANDARD STALLS: 108 ACCESSIBLE STALLS: 9 GARAGE STALLS: 43
		TOWN HOMES: STANDARD STALLS: 24 GARAGE STALLS: 24
		CLUBHOUSE: STANDARD STALLS: 35 ACCESSIBLE STALLS: 5 TOTAL SPACES: 247

(1) DETERMINED BASED UPON THE TOTAL CUMULATIVE LAND AREA OF THE APPLICABLE AREAS (A, C, D OR E) AS SPECIFIED IN THE FORMULA SET FORTH HEREIN, AT A DENSITY OF: (i) 10 UNITS PER ACRE FOR AGE RESTRICTED, ATTACHED, AGE RESTRICTED, DETACHED, AND AGE RESTRICTED, MULTIFAMILY; AND (ii) TWENTY (20) UNITS PER ACRE FOR DWELLING MULTIFAMILY, FOR RENT (PERMITTED IN AREA E ONLY)

(2) THE MAXIMUM DEVELOPMENT COVERAGE IN A RAIL TRANSIT DISTRICT (RTD) SHALL NOT RESULT IN AGGREGATE OPEN SPACE BEING LESS THAN 30%

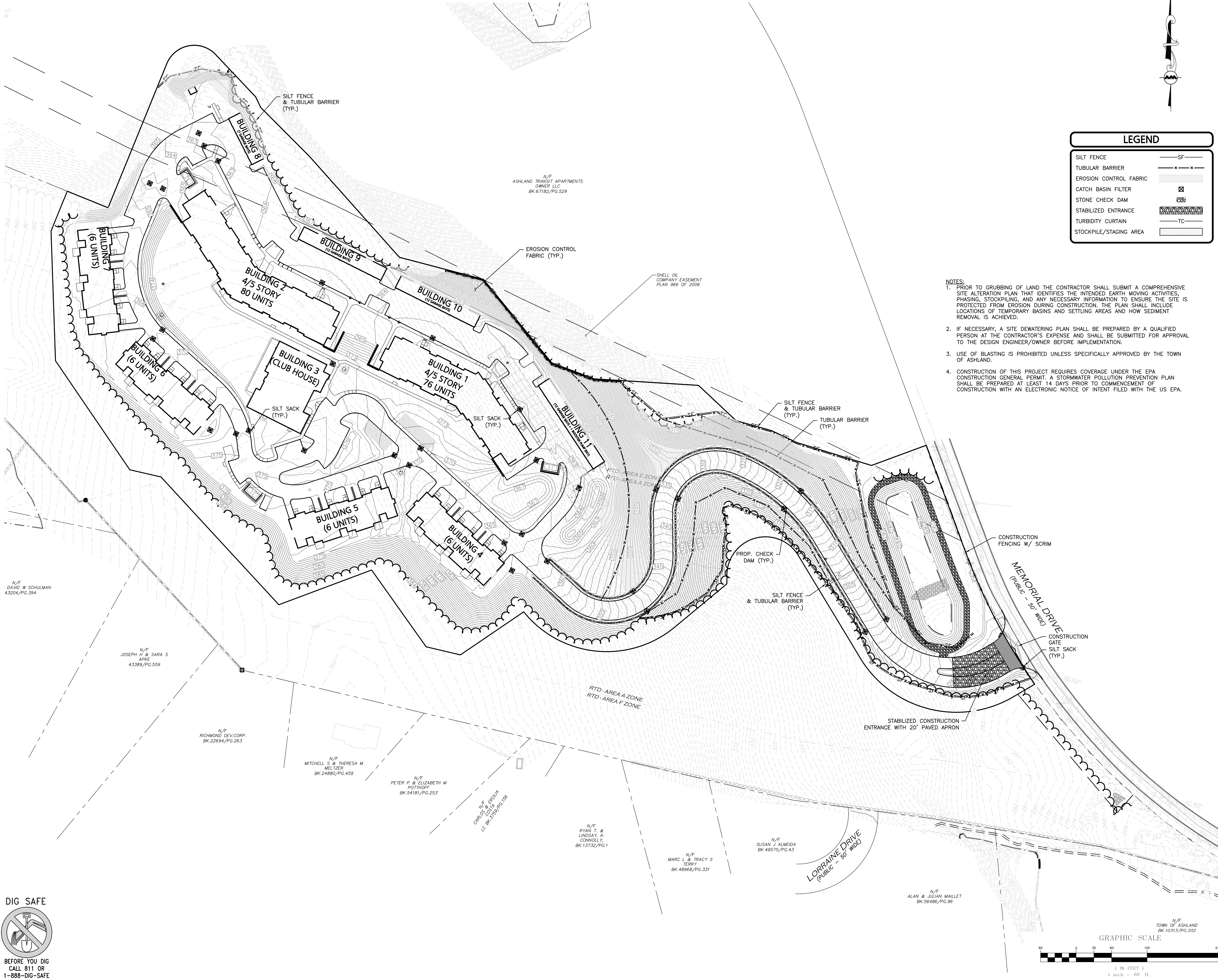
**ISSUED FOR  
COMPREHENSIVE PERMIT**  
09-04-2020 Revision 1: 03-24-2021



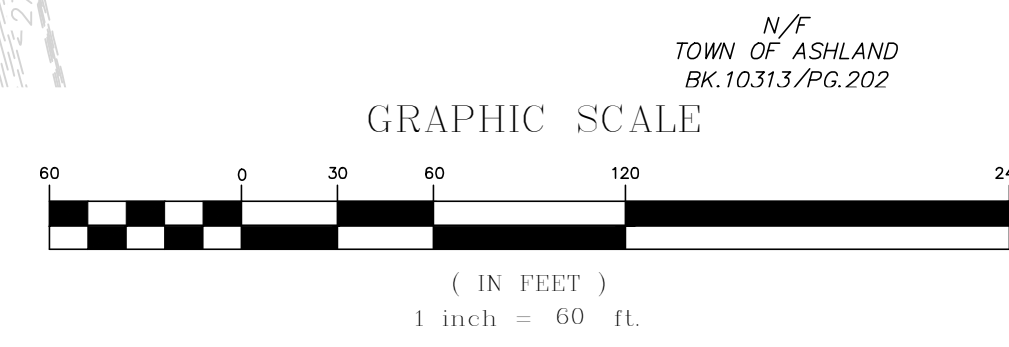








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**EROSION CONTROL PLAN**

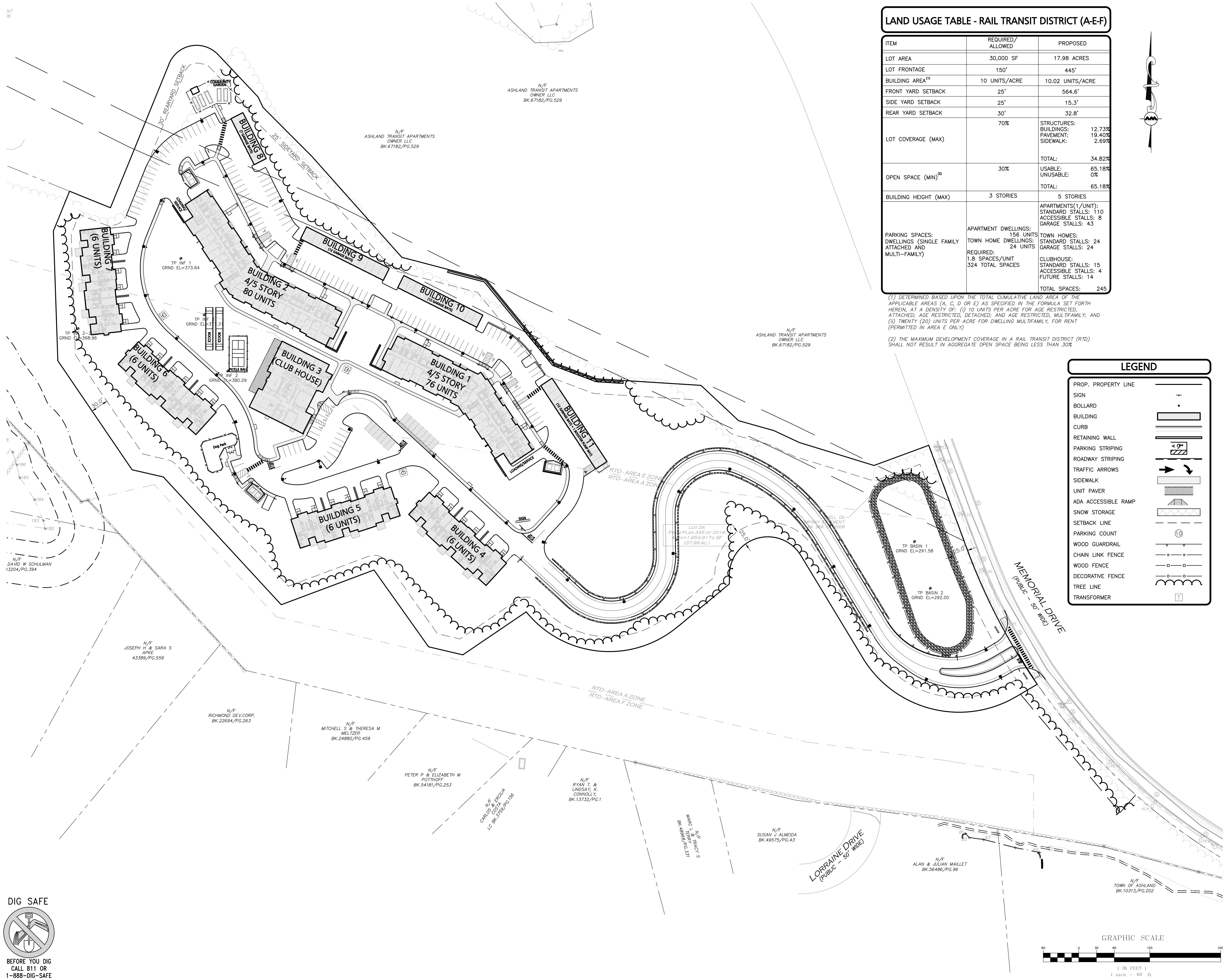
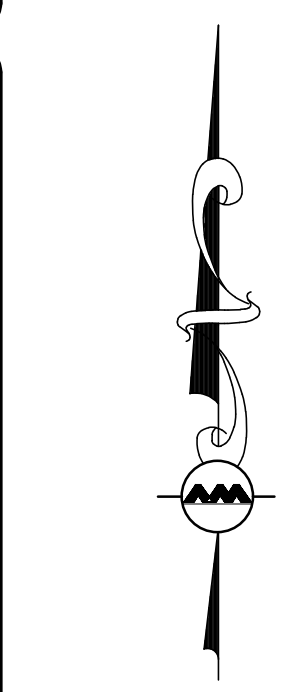
**C-101**

**LAND USAGE TABLE - RAIL TRANSIT DISTRICT (A-E-F)**

ITEM	REQUIRED/ ALLOWED	PROPOSED
LOT AREA	30,000 SF	17.98 ACRES
LOT FRONTAGE	150'	445'
BUILDING AREA <sup>(1)</sup>	10 UNITS/ACRE	10.02 UNITS/ACRE
FRONT YARD SETBACK	25'	564.6'
SIDE YARD SETBACK	25'	15.3'
REAR YARD SETBACK	30'	32.8'
LOT COVERAGE (MAX)	70%	STRUCTURES:
		BUILDINGS:
		PAVEMENT:
OPEN SPACE (MIN) <sup>(2)</sup>	30%	APARTMENTS (1/UNIT):
		TOWN HOME DWELLINGS:
		REQUIRED:
BUILDING HEIGHT (MAX)	3 STORIES	5 STORIES
		APARTMENTS (1/UNIT):
		STANDARD STALLS: 110
PARKING SPACES: DWELLINGS (SINGLE FAMILY ATTACHED AND MULTI-FAMILY)	APARTMENT DWELLINGS: 156 UNITS TOWN HOME DWELLINGS: 24 UNITS REQUIRED: 1.8 SPACES/UNIT 324 TOTAL SPACES	ACCESSIBLE STALLS: 8
		GARAGE STALLS: 43
		TOWN HOMES: STANDARD STALLS: 24 GARAGE STALLS: 24
TOTAL:	TOTAL:	34.82%
		USABLE:
		UNUSABLE: 0%
TOTAL:	TOTAL:	65.18%
		APARTMENTS (1/UNIT):
		STANDARD STALLS: 15
TOTAL SPACES:	TOTAL SPACES:	245
		ACCESSIBLE STALLS: 4
		FUTURE STALLS: 14

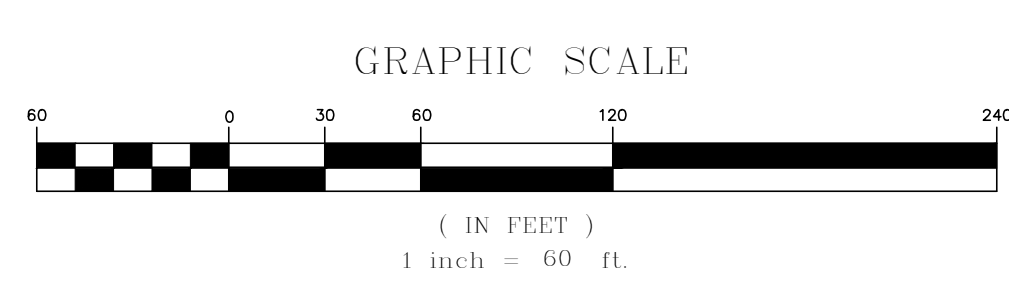
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(2) THE MAXIMUM DEVELOPMENT COVERAGE IN A RAIL TRANSIT DISTRICT (RTD) SHALL NOT RESULT IN AGGREGATE OPEN SPACE BEING LESS THAN 30%.



**LEGEND**

- PROP. PROPERTY LINE
- SIGN
- BOLLARD
- BUILDING
- CURB
- RETAINING WALL
- PARKING STRIPING
- ROADWAY STRIPING
- TRAFFIC ARROWS
- SIDEWALK
- UNIT PAVEMENT
- ADA ACCESSIBLE RAMP
- SNOW STORAGE
- SETBACK LINE
- PARKING COUNT
- WOOD GUARDRAIL
- CHAIN LINK FENCE
- WOOD FENCE
- DECORATIVE FENCE
- TREE LINE
- TRANSFORMER



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drawing by: SL  
 drawing checked by: AD  
 drawing scale: 1" = 60'  
 drawing date: 04 SEPTEMBER 2020  
 project number: 19021.00

No.	Description	Date
1	PERMIT REVIEW	03-24-2021

**PHILIP L. CORDEIRO**  
 CIVIL  
 NO. 47083  
 REGISTERED PROFESSIONAL ENGINEER

**OVERALL LAYOUT & MATERIALS PLAN**

**C-102**

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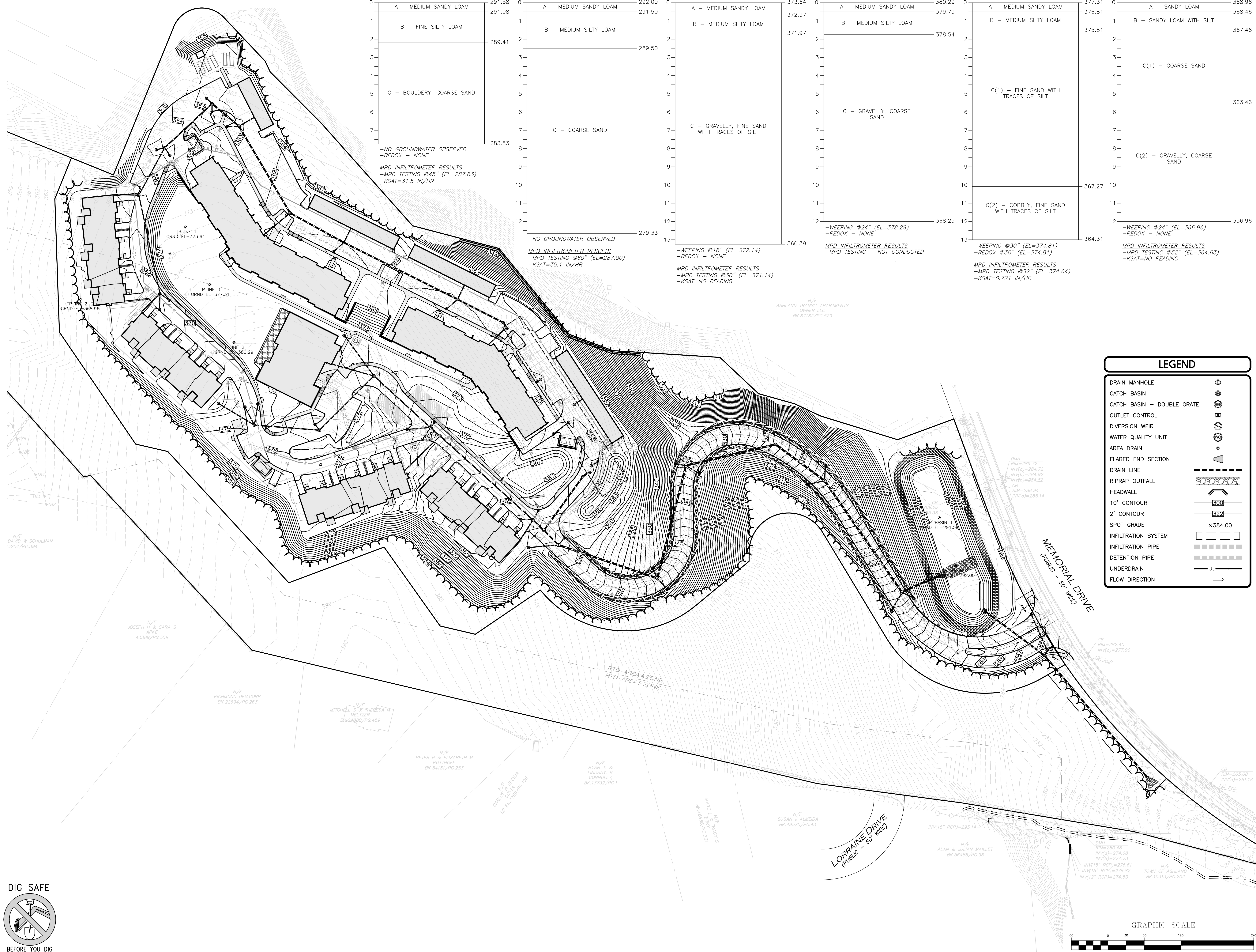
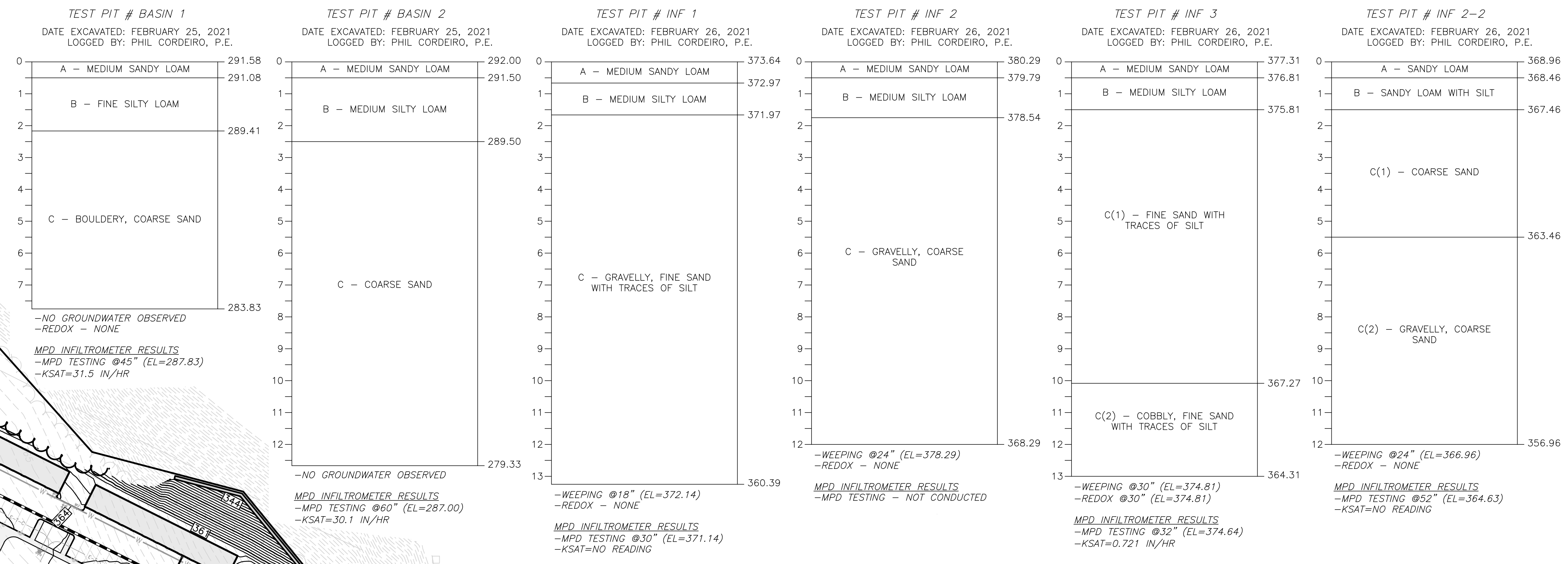
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 project number: 19021.00

drawing revisions:		
No.	Description	Date
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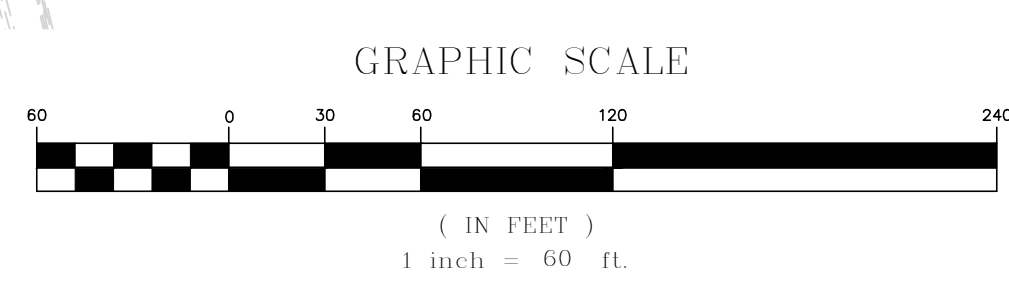
**GRADING & DRAINAGE PLAN**

**C-105**



**LEGEND**

- DRAIN MANHOLE
- CATCH BASIN
- CATCH BASIN - DOUBLE GRATE
- OUTLET CONTROL
- DIVERSION WEIR
- WATER QUALITY UNIT
- AREA DRAIN
- FLARED END SECTION
- DRAIN LINE
- RIPRAP OUTFALL
- HEADWALL
- 10' CONTOUR
- 2' CONTOUR
- SPOT GRADE
- INFILTRATION SYSTEM
- INFILTRATION PIPE
- DETENTION PIPE
- UNDERDRAIN
- FLOW DIRECTION



N/T

N/T DAVID W. SCHULMAN  
 3304/PG.394

N/T JOSEPH M. & SARA S.  
 43389/PG.559

N/T RICHMOND DEV. CORP.  
 BK. 22894/PG.263

N/T MITCHELL S. & THERESA W.  
 441289/PG.459

N/T PETER P. & ELIZABETH M.  
 54181/PG.253

N/T GREGORY J. & SARA J.  
 441289/PG.459

N/T RYAN T. & LINDSAY K.  
 441289/PG.459

N/T SUSAN J. ALMEIDA  
 BK. 49573/PG.43

N/T ALAN & SUE MALLETT  
 BK. 56485/PG.98

N/T TOWN OF ASHLAND  
 BK. 10313/PG.202

project information  
 client information  
 consultant information  
 drawing title  
 drawing number  
 drawing date  
 drawing scale  
 drawing by  
 drawing checked by  
 drawing date  
 project number  
 drawing revisions  
 drawing title  
 drawing number  
 drawing date  
 drawing scale  
 drawing by  
 drawing checked by  
 drawing date  
 project number  
 drawing revisions



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 MAINE & MASSACHUSETTS, INC.

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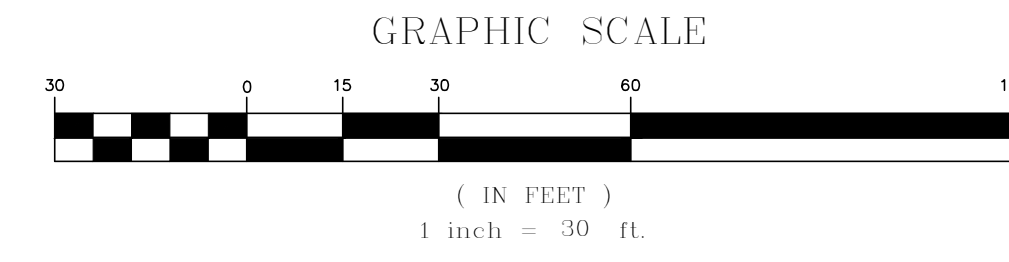
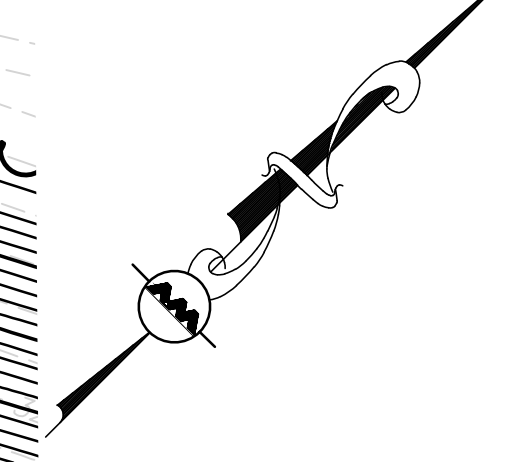
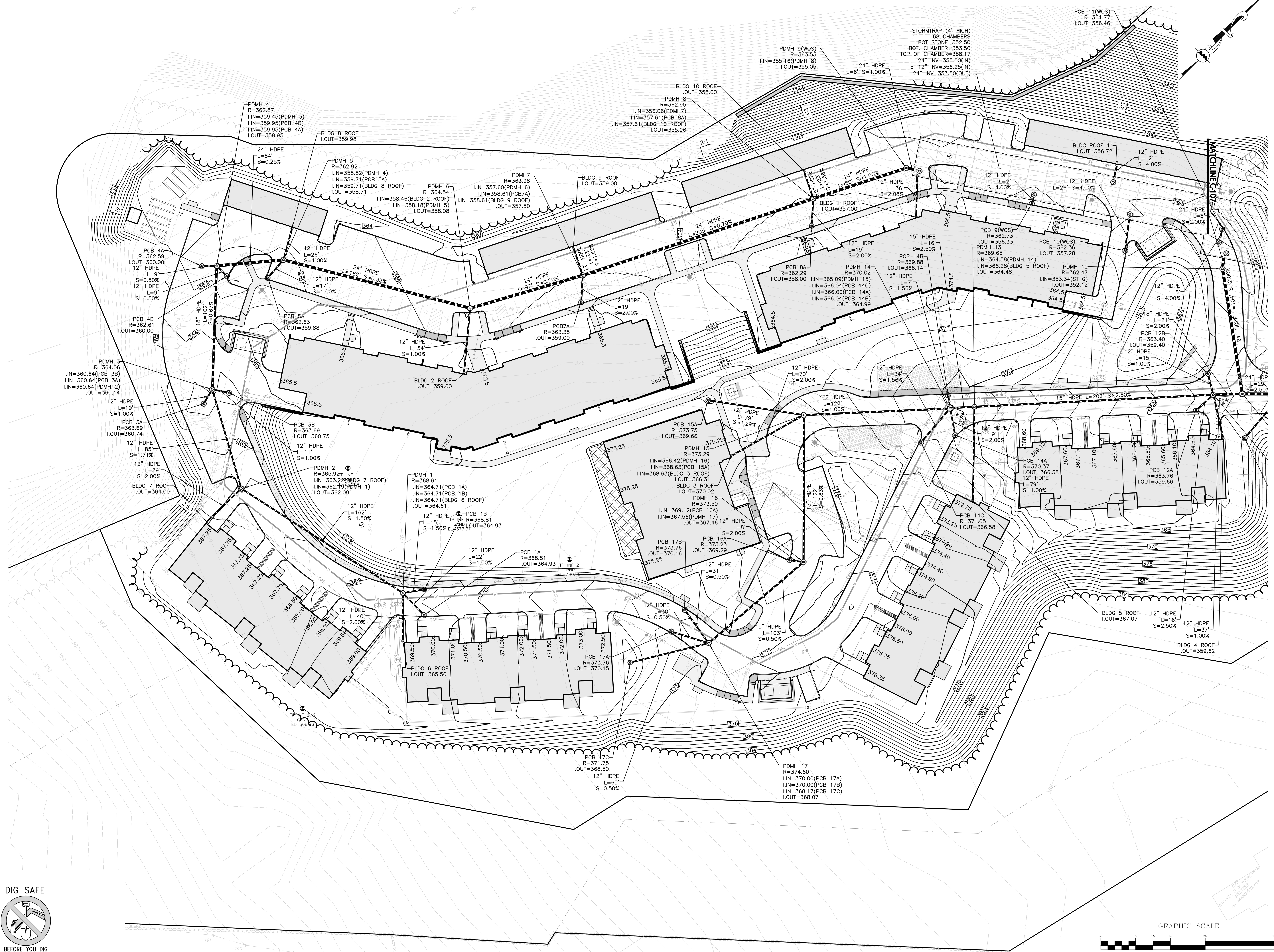
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 drawing date: 04 SEPTEMBER 2020  
 project number: 19021.00

drawing revisions:

No.	Description	Date
1	COMMENTS	03-24-2021



**GRADING &  
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 PLAN**



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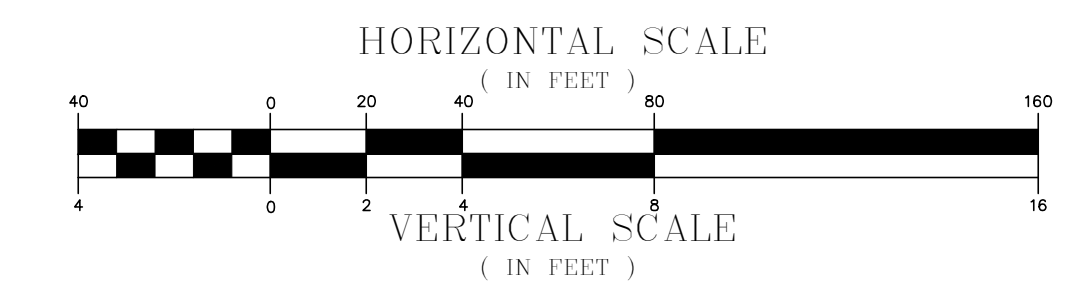
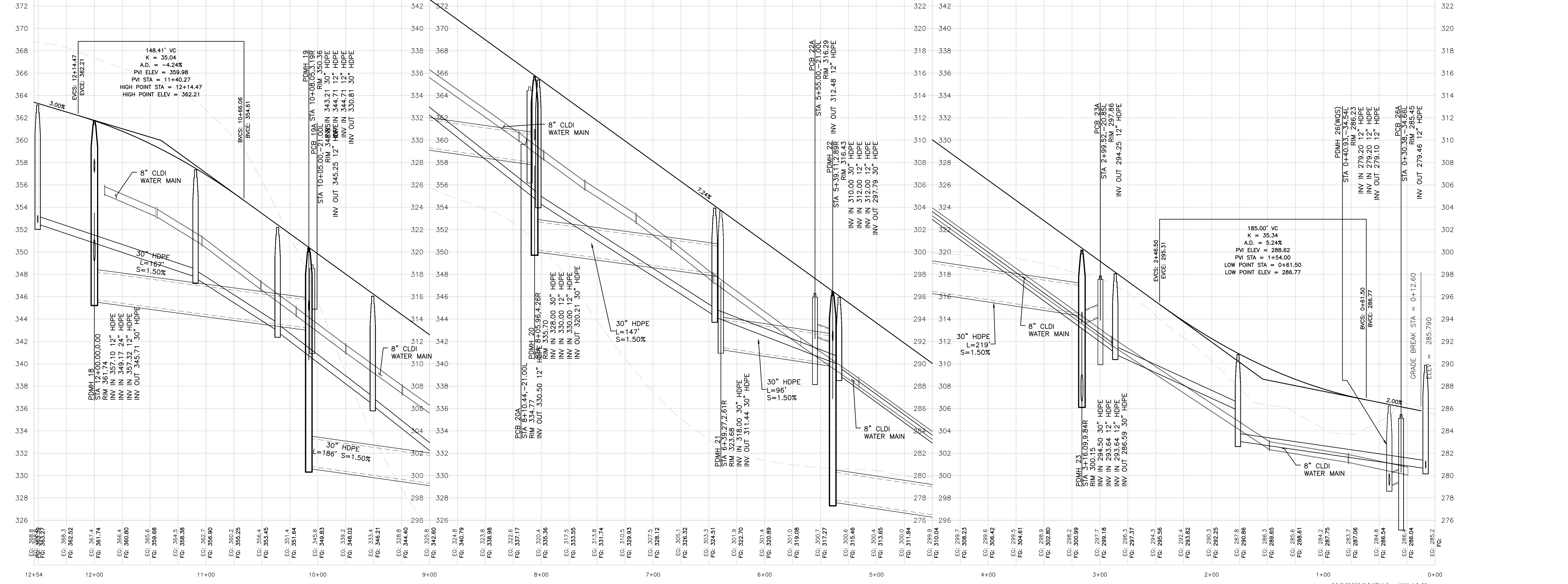
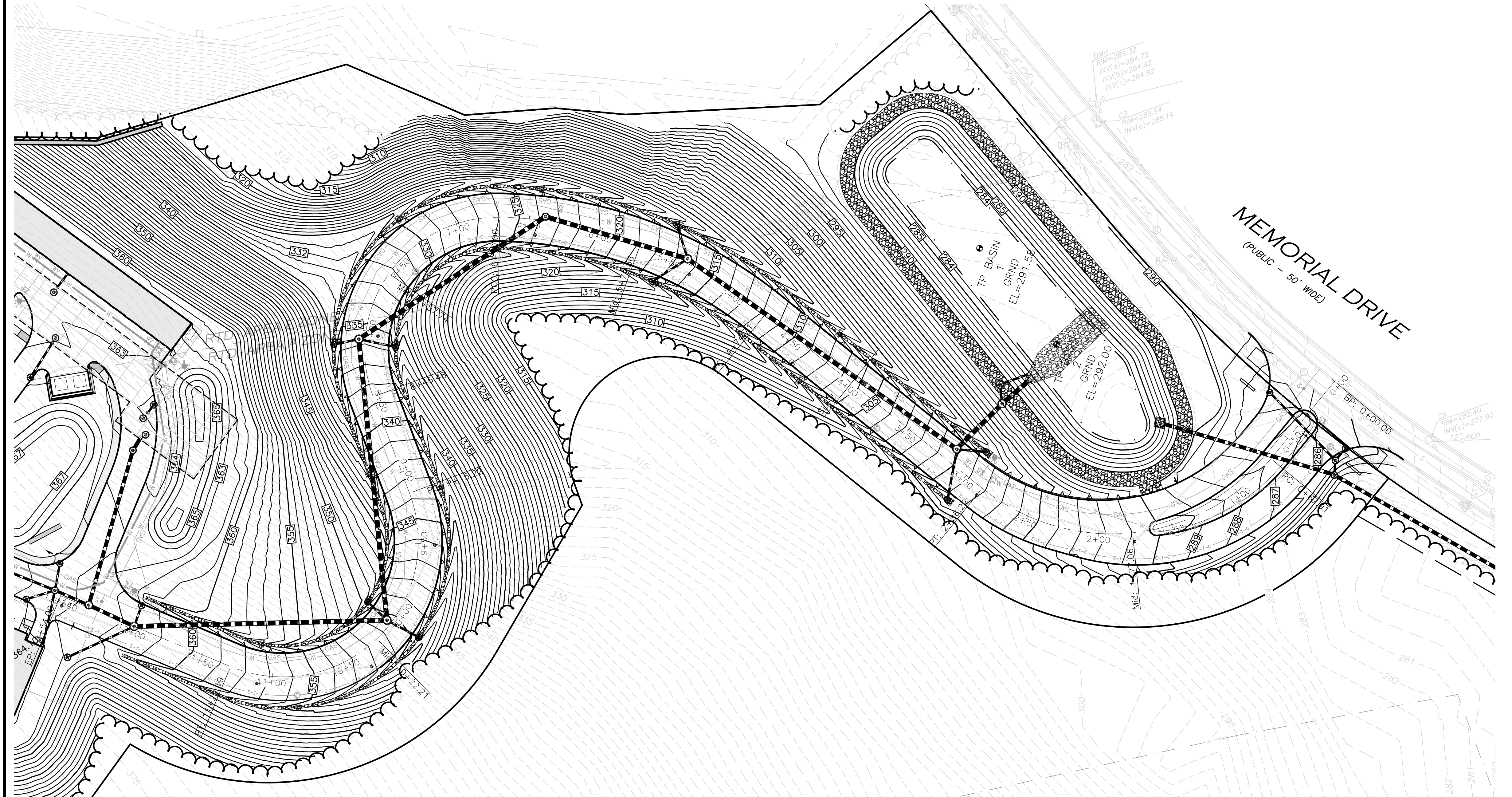
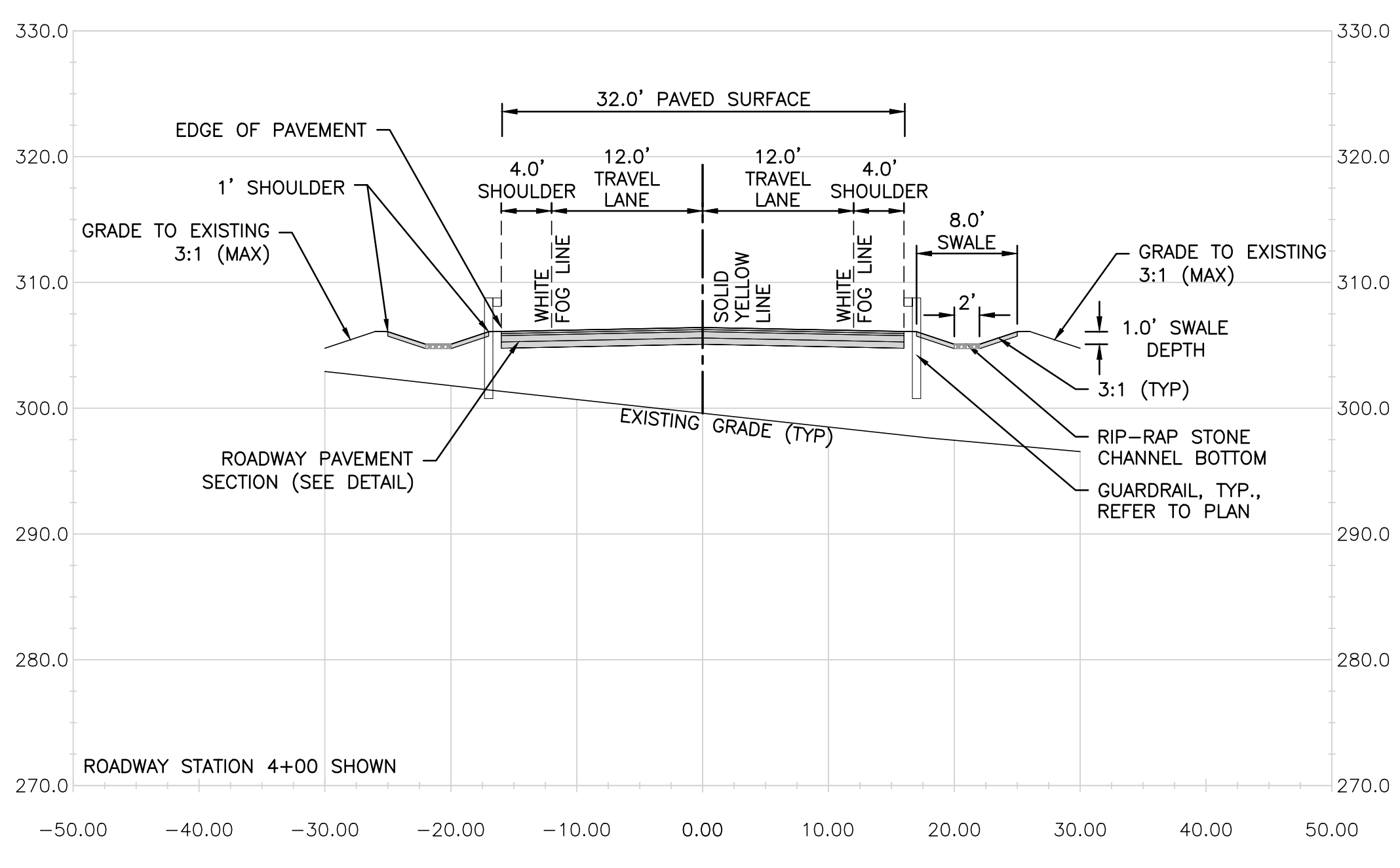
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 drawing checked by: AD

drawing date: 04 SEPTEMBER 2020  
 project number: 19021.00

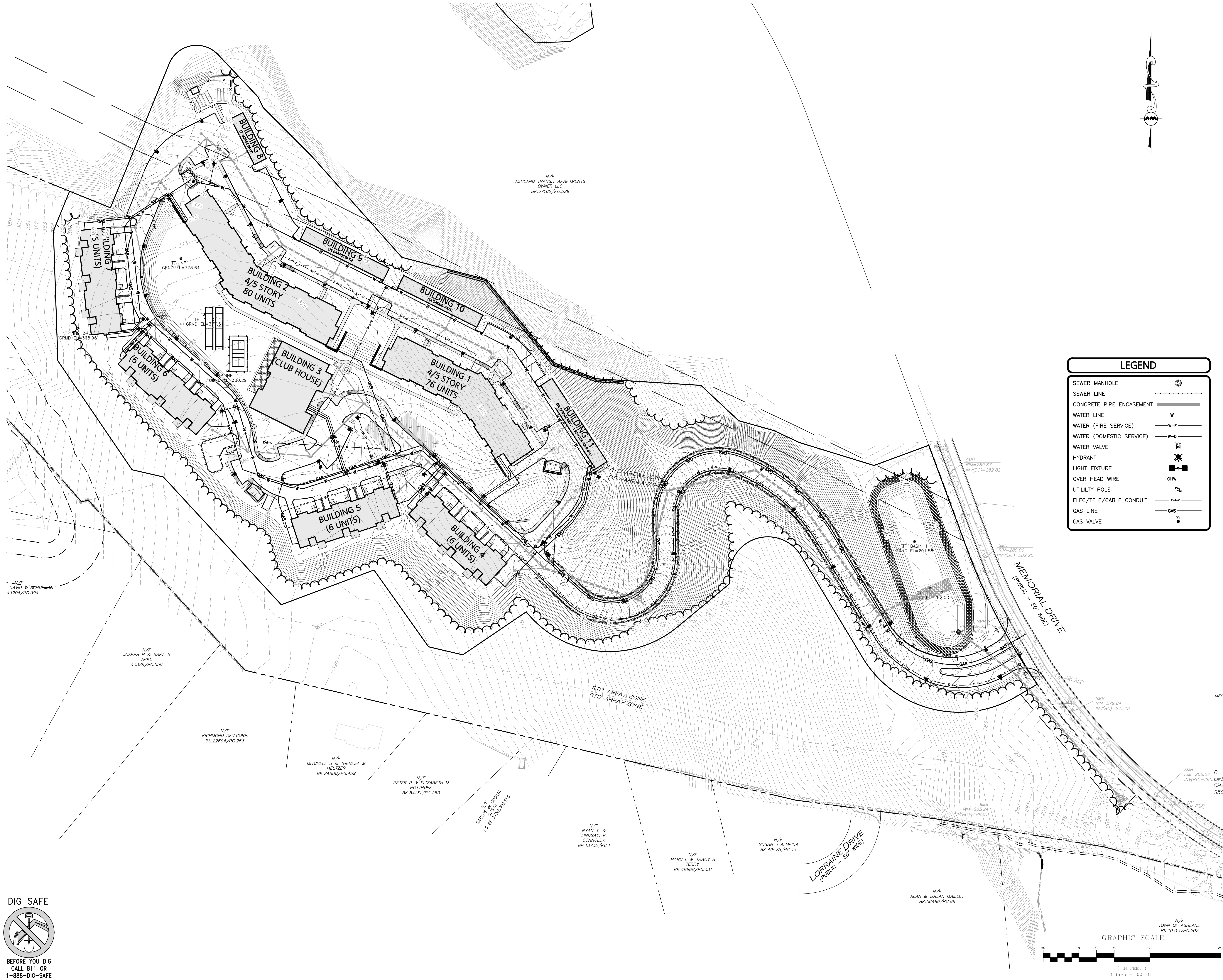
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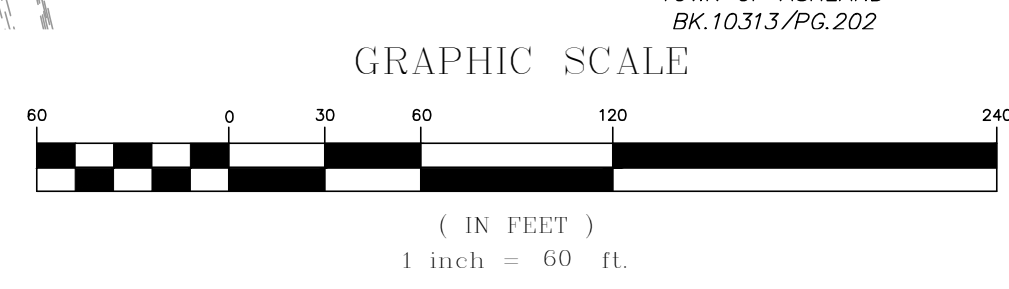
**PROFILE PLAN**

**C-108**



**LEGEND**

- SEWER MANHOLE
- SEWER LINE
- CONCRETE PIPE ENCASUREMENT
- WATER LINE
- WATER (FIRE SERVICE)
- WATER (DOMESTIC SERVICE)
- WATER VALVE
- HYDRANT
- LIGHT FIXTURE
- OVER HEAD WIRE
- UTILITY POLE
- ELEC./TELE/CABLE CONDUIT
- GAS LINE
- GAS VALVE



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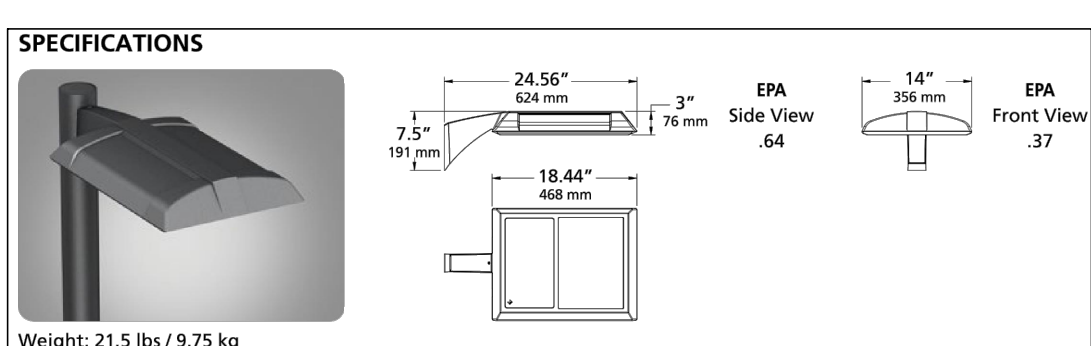




**LEGEND**

DOUBLE POLE LIGHT	
SINGLE POLE LIGHT	
WALL MOUNT LIGHT	
BOLLARD LIGHT	
1 FOOTCANDLE CONTOUR	
.5 FOOTCANDLE CONTOUR	
LIGHTING LEVELS GIVEN IN FOOT-CANDLES	1.0 0.1 0.2 0.4 0.6

- NOTES:**
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  - ALL PHOTOMETRIC DATA REFERS TO UNITS IN FOOT CANDLES (FC). THE LIMIT OF 1.0 FC ILLUMINATION IS SHOWN IN A RED SOLID LINE AND THE LIMIT OF THE 0.5 FOOT CANDLE (FC) ILLUMINATION IS SHOWN IN BLUE.
  - QUANTITIES SHOWN IN LUMINAIRE SCHEDULE TABLE DENOTES NUMBER OF FIXTURE HEADS. REFER TO PLAN FOR POLES WITH DOUBLE FIXTURES.
  - MOUNTING HEIGHTS:
    - A MOUNTING HEIGHT OF 12'-6" CONSIST OF A 12" POLE WITH A 6" REVEAL ON THE CONCRETE LIGHT POLE BASE;
    - A MOUNTING HEIGHT OF 14'-6" CONSIST OF A 12" POLE WITH A 2'-6" REVEAL ON THE CONCRETE LIGHT POLE BASE;
    - A MOUNTING HEIGHT OF 20'-6" CONSIST OF A 18" POLE WITH A 6" REVEAL ON THE CONCRETE LIGHT POLE BASE.



**PARKING/SITE LIGHT FIXTURE**  
 KIM LIGHTING, ALTITUDE 2.0 - ALT1

**GENERAL PHOTOMETRIC SCHEDULE**

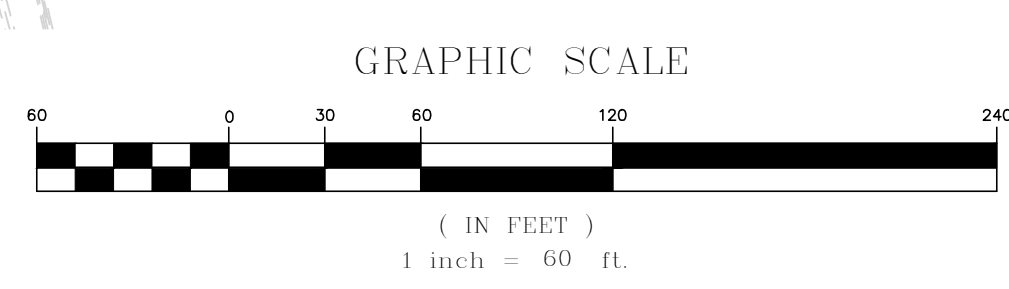
AVERAGE FOOT-CANDLES	1.33
MAXIMUM FOOT-CANDLES	16.8
MINIMUM FOOT-CANDLES	0.0

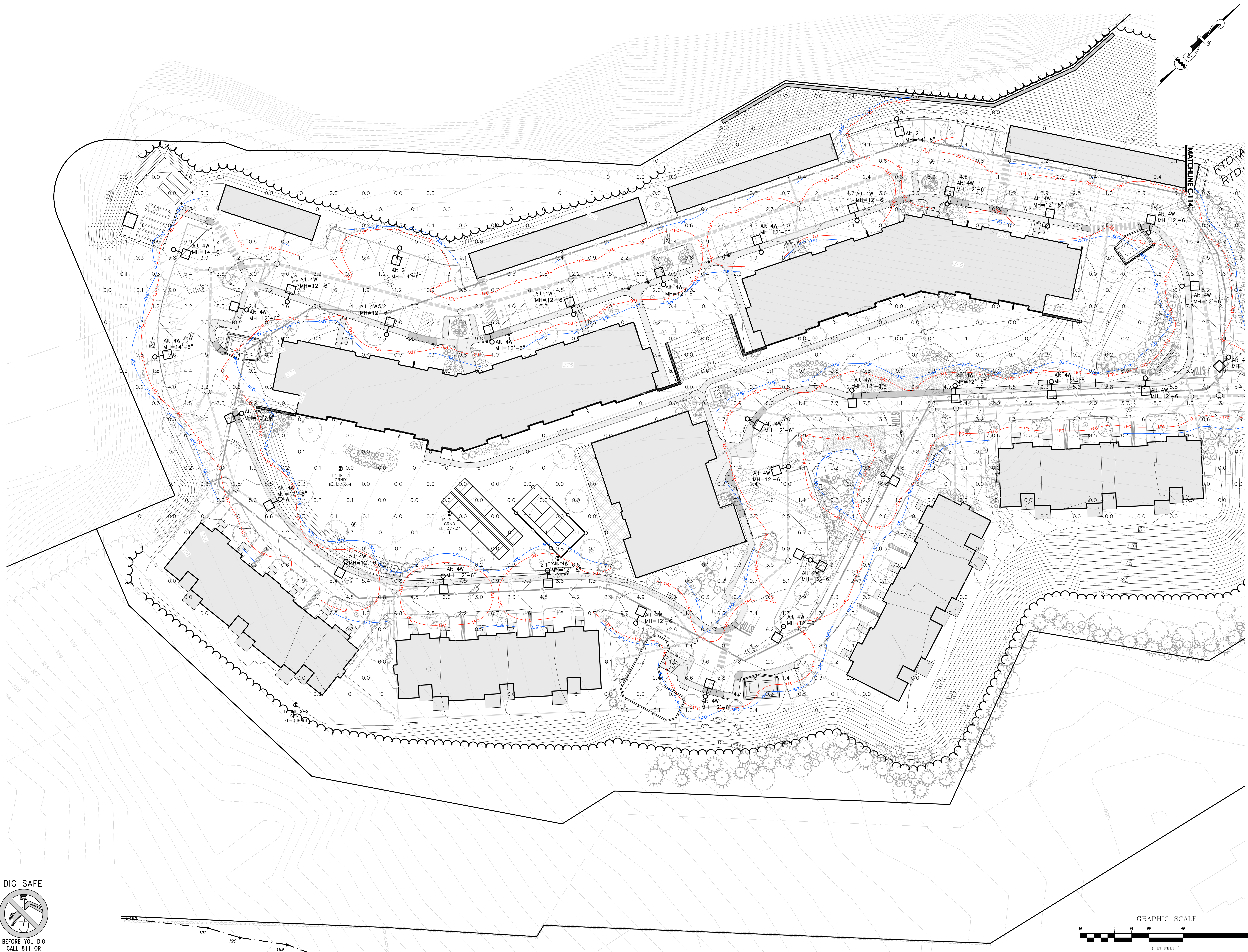
**LUMINAIRE SCHEDULE**

CALLOUT	SYMBOL	DESCRIPTION	MOUNTING	NOTE 1	TOTAL LUMENS	LAMP DEPRECIATION	QUANTITY
Alt 2		KIM LIGHTING, ALTITUDE 2.0 Type II ALT1-54L-155-4k7-2	POLE	Mounting Height Varies, See Plan	17310	0.9	12
Alt 4W		KIM LIGHTING, ALTITUDE 2.0 Type IV Wide ALT1-54L-155-4k7-4W	POLE	Mounting Height Varies, See Plan	17299	0.9	33

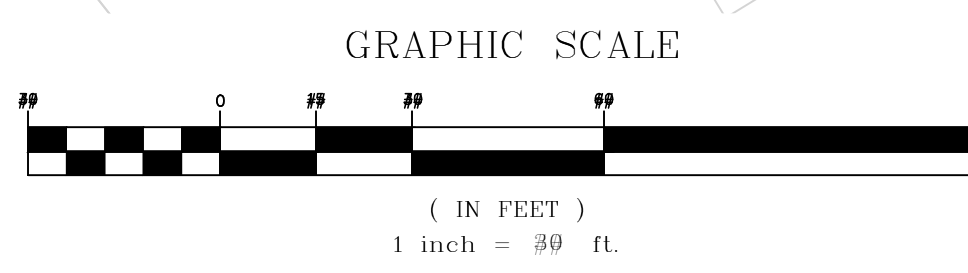
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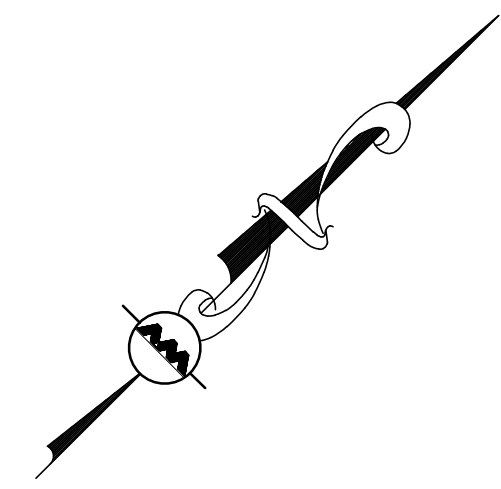
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 LAWYRETT, MA 01840  
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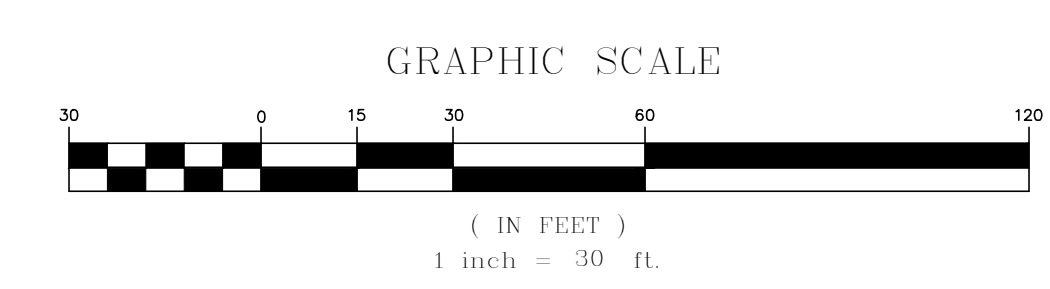
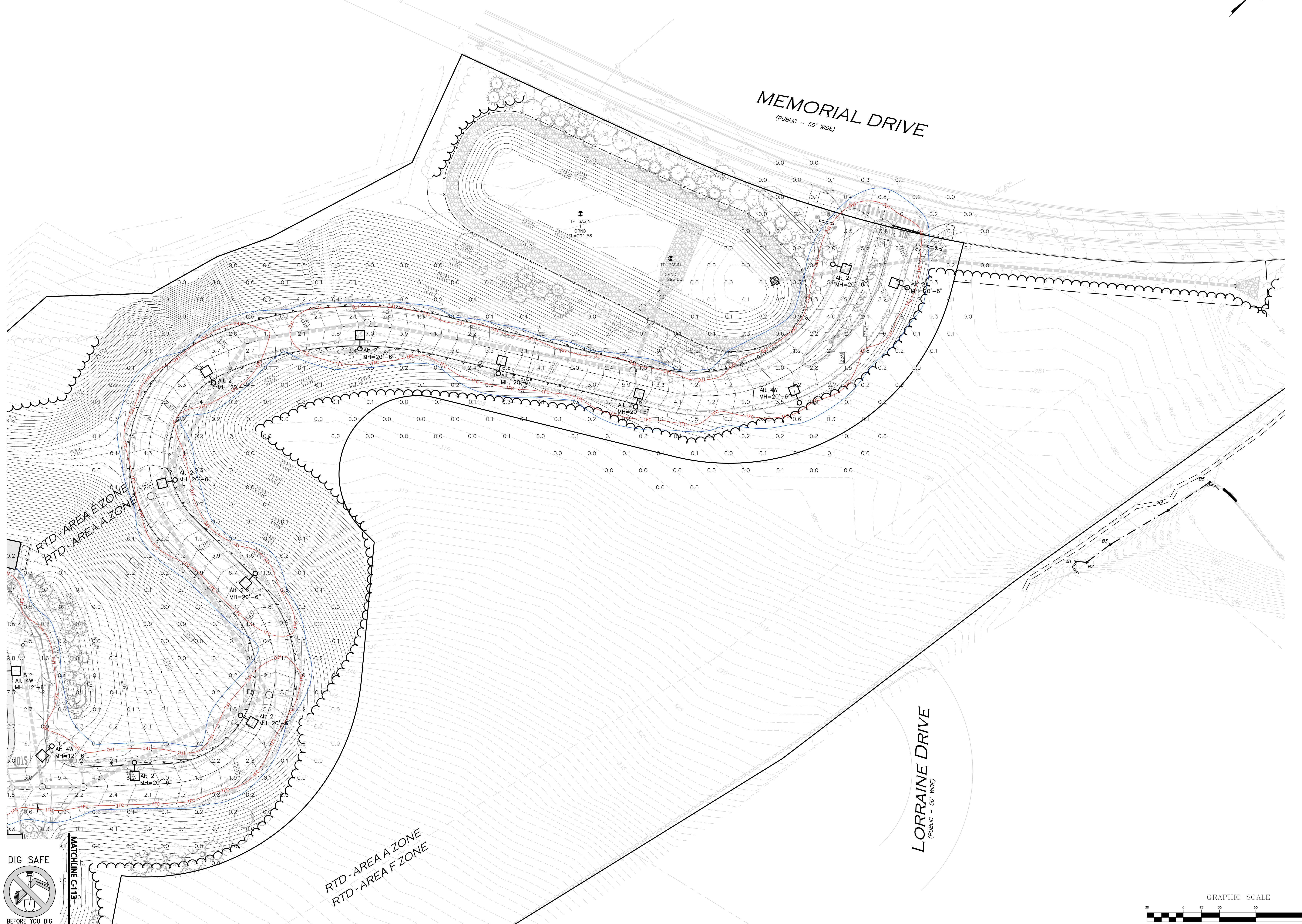
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 drawing date: 04 SEPTEMBER 2020  
 project number: 19021.00

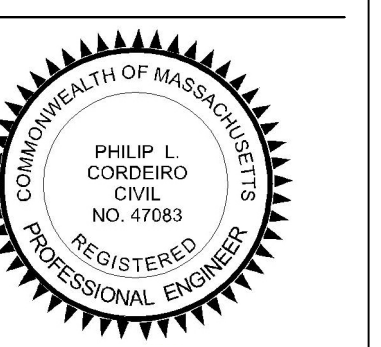
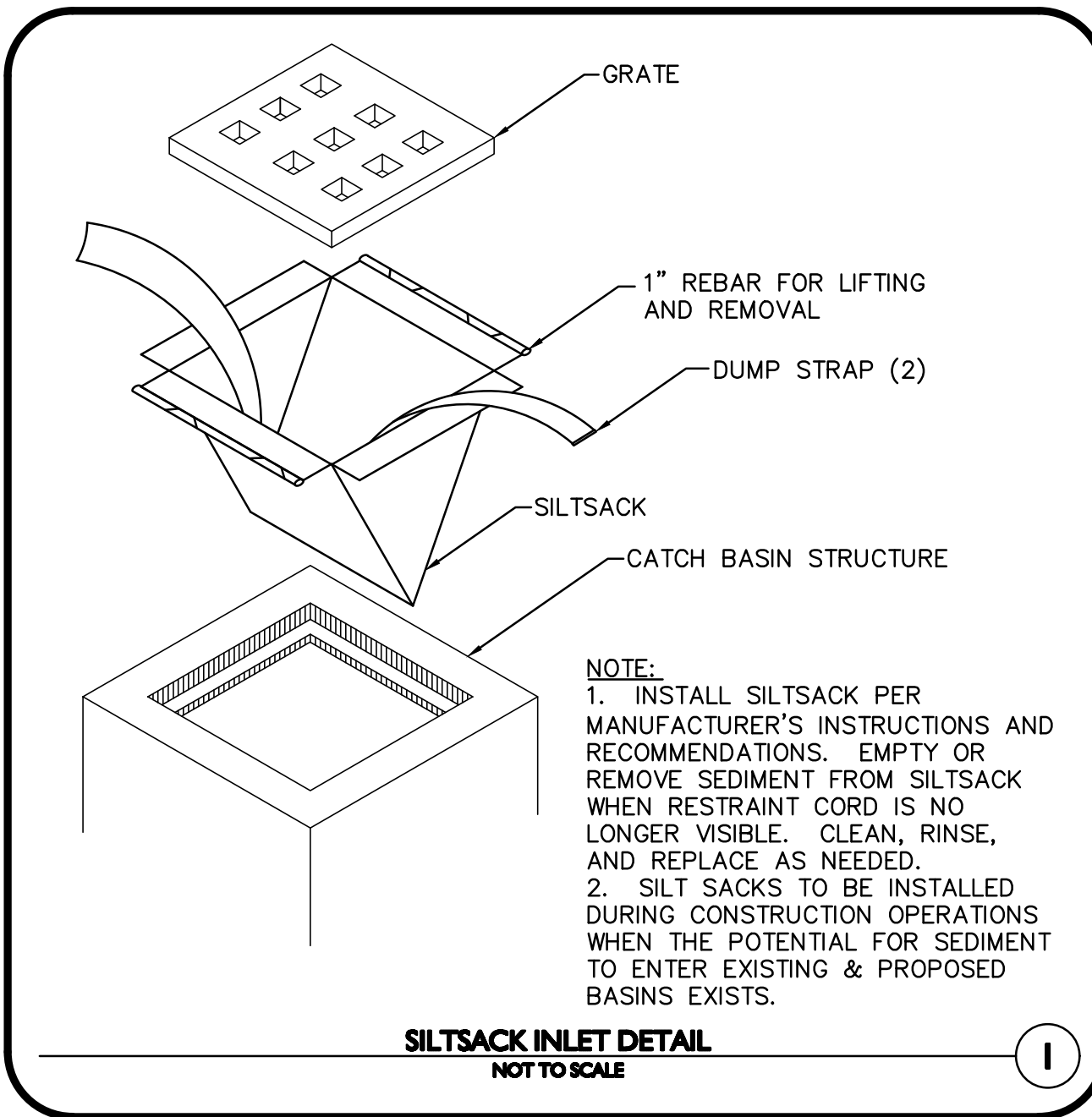
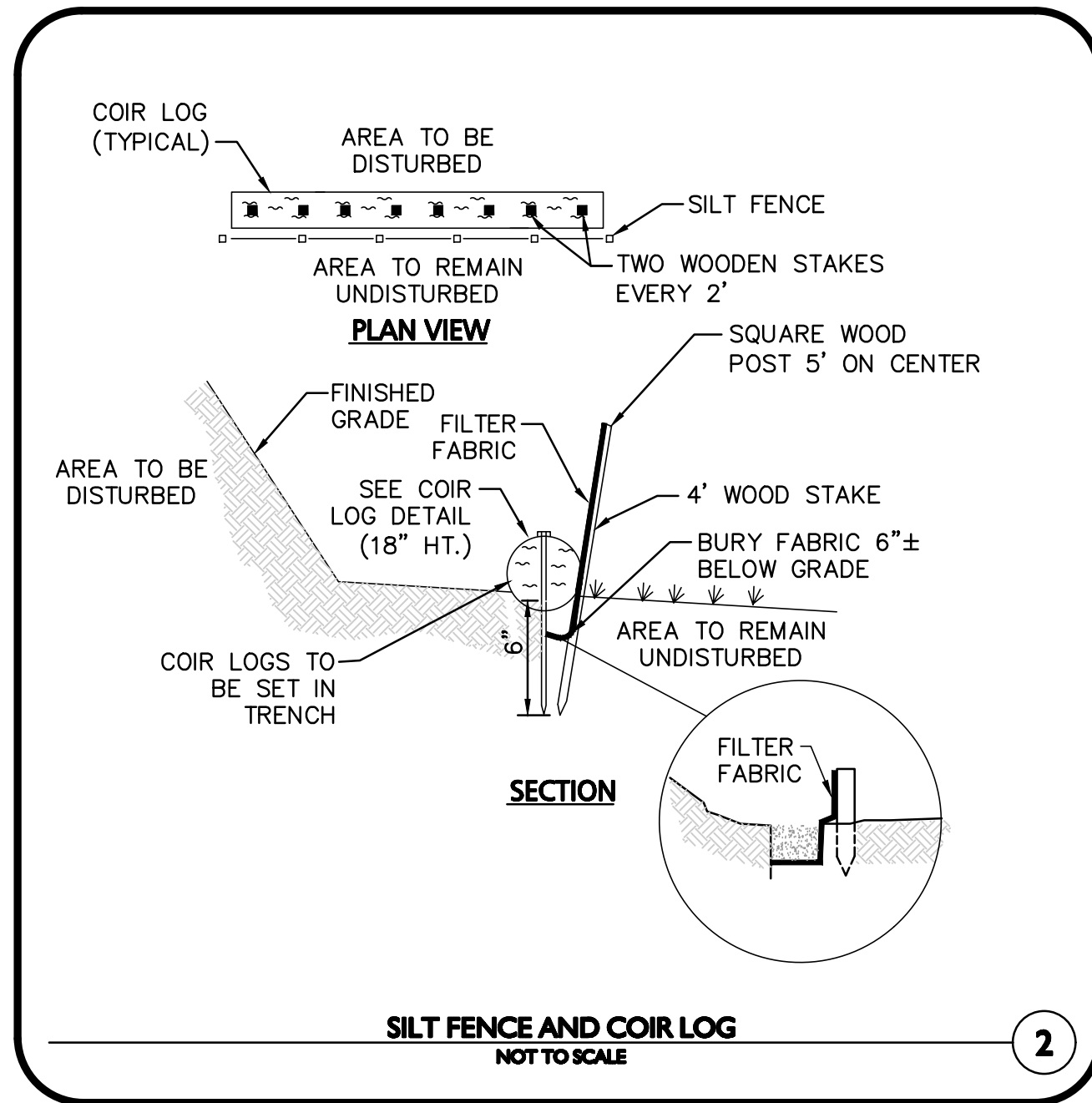
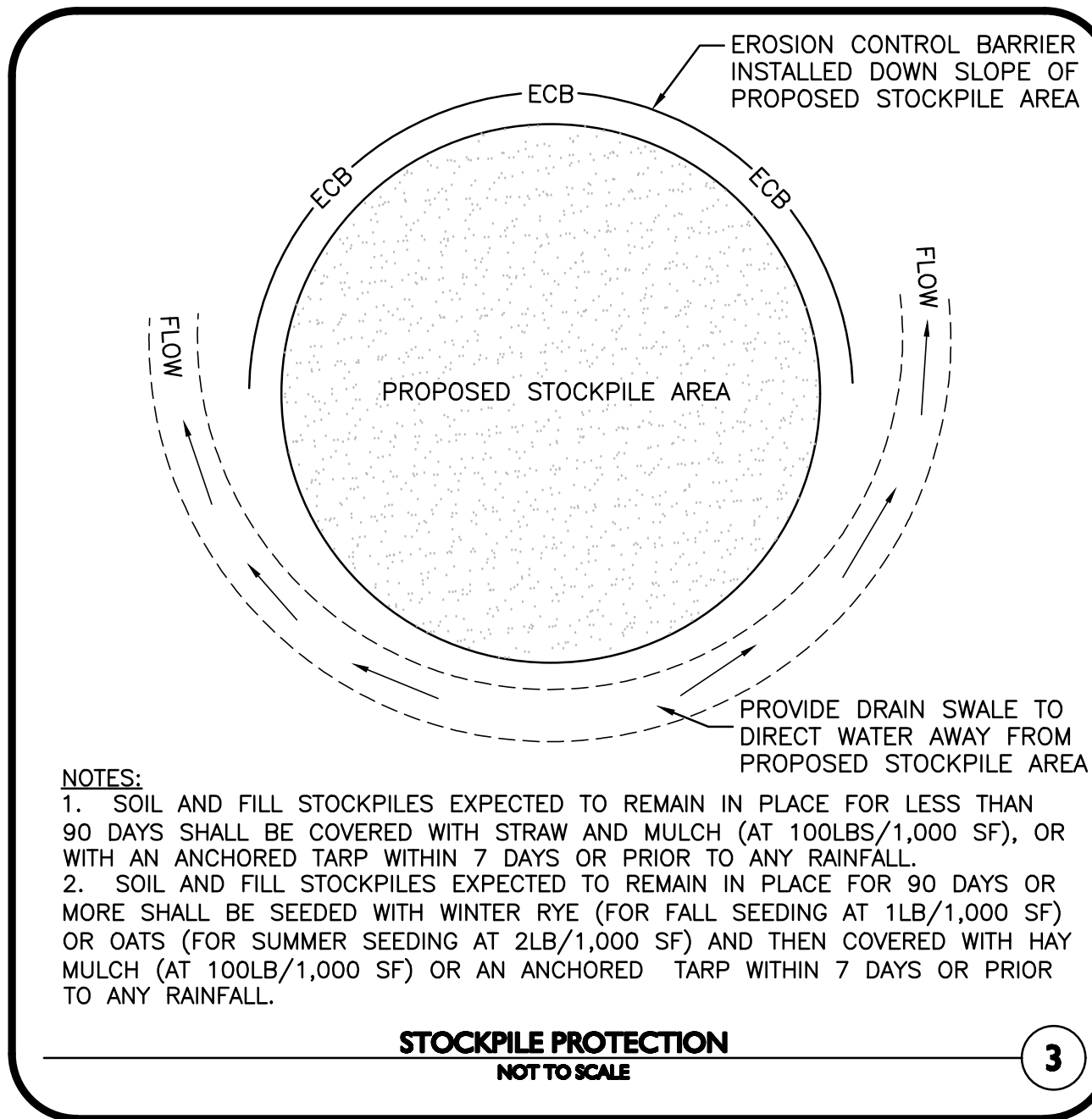
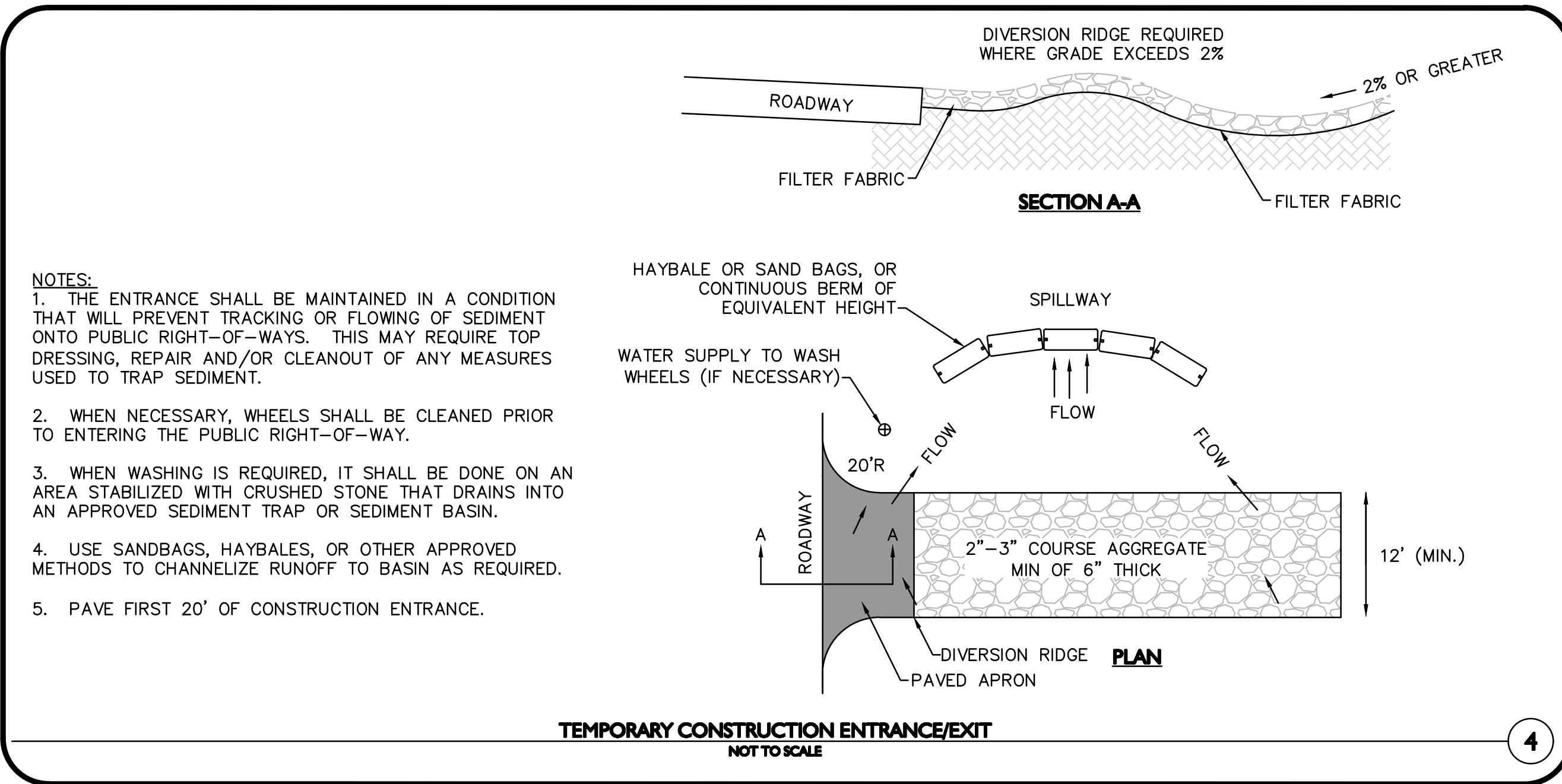
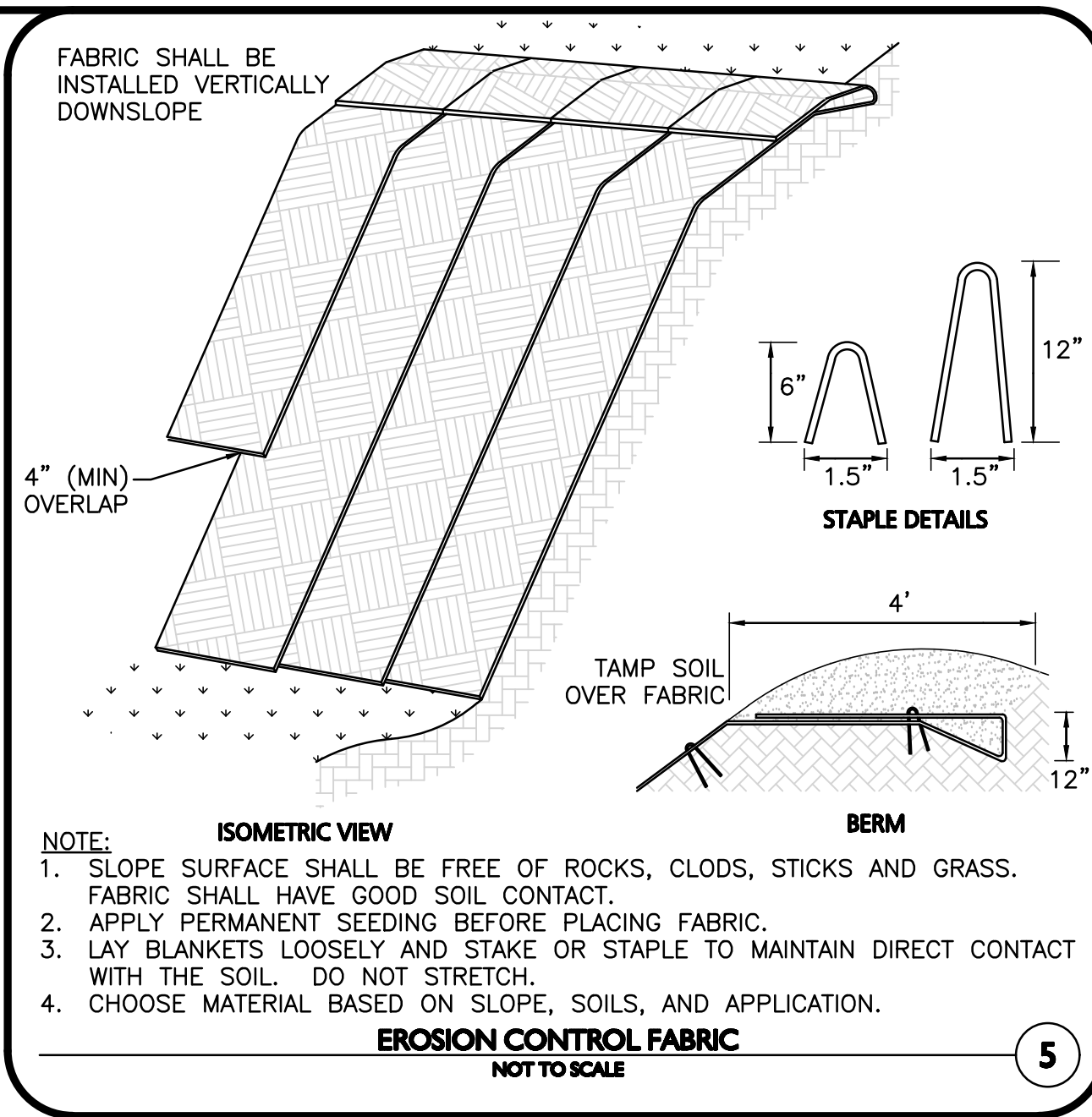
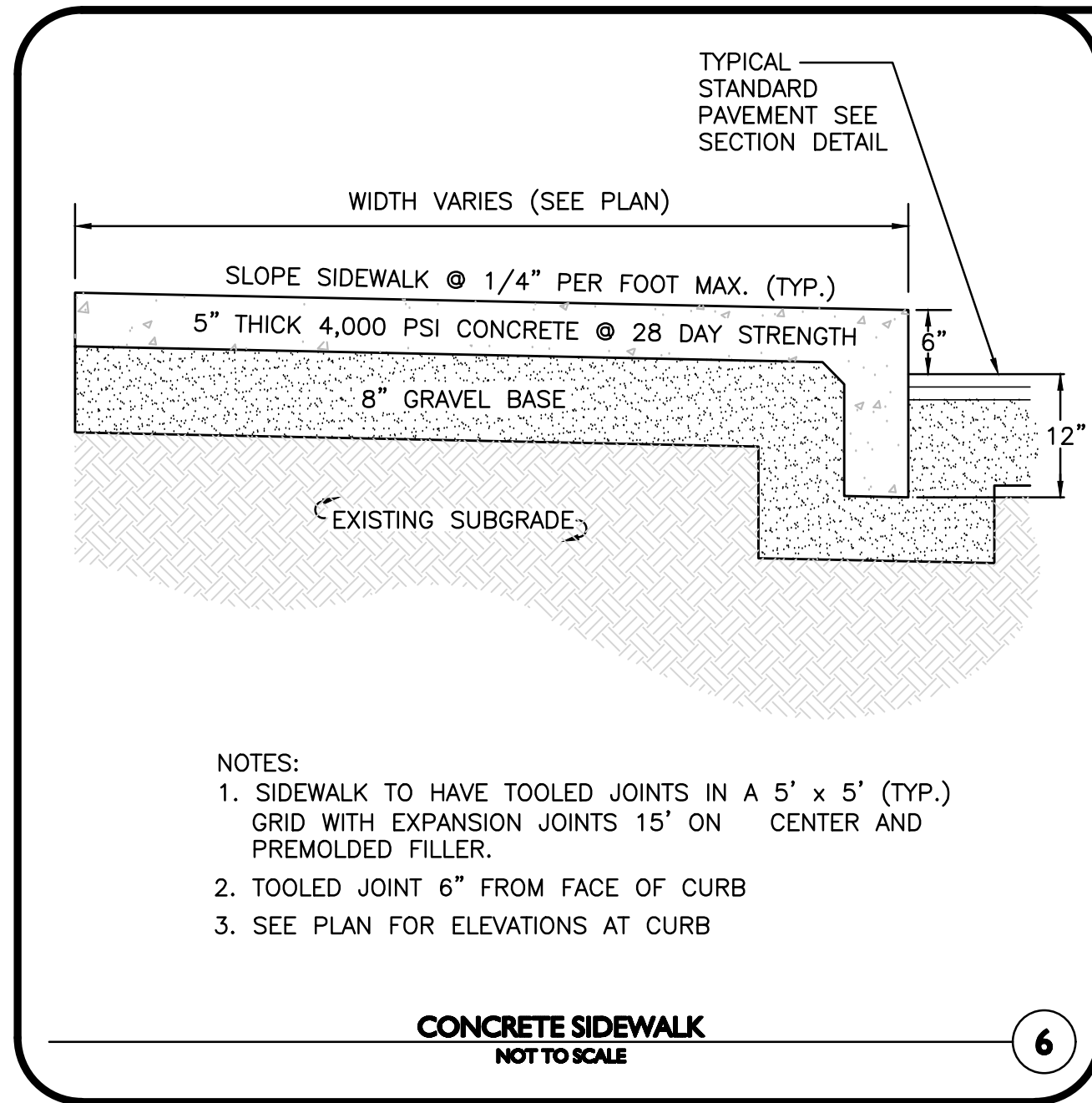
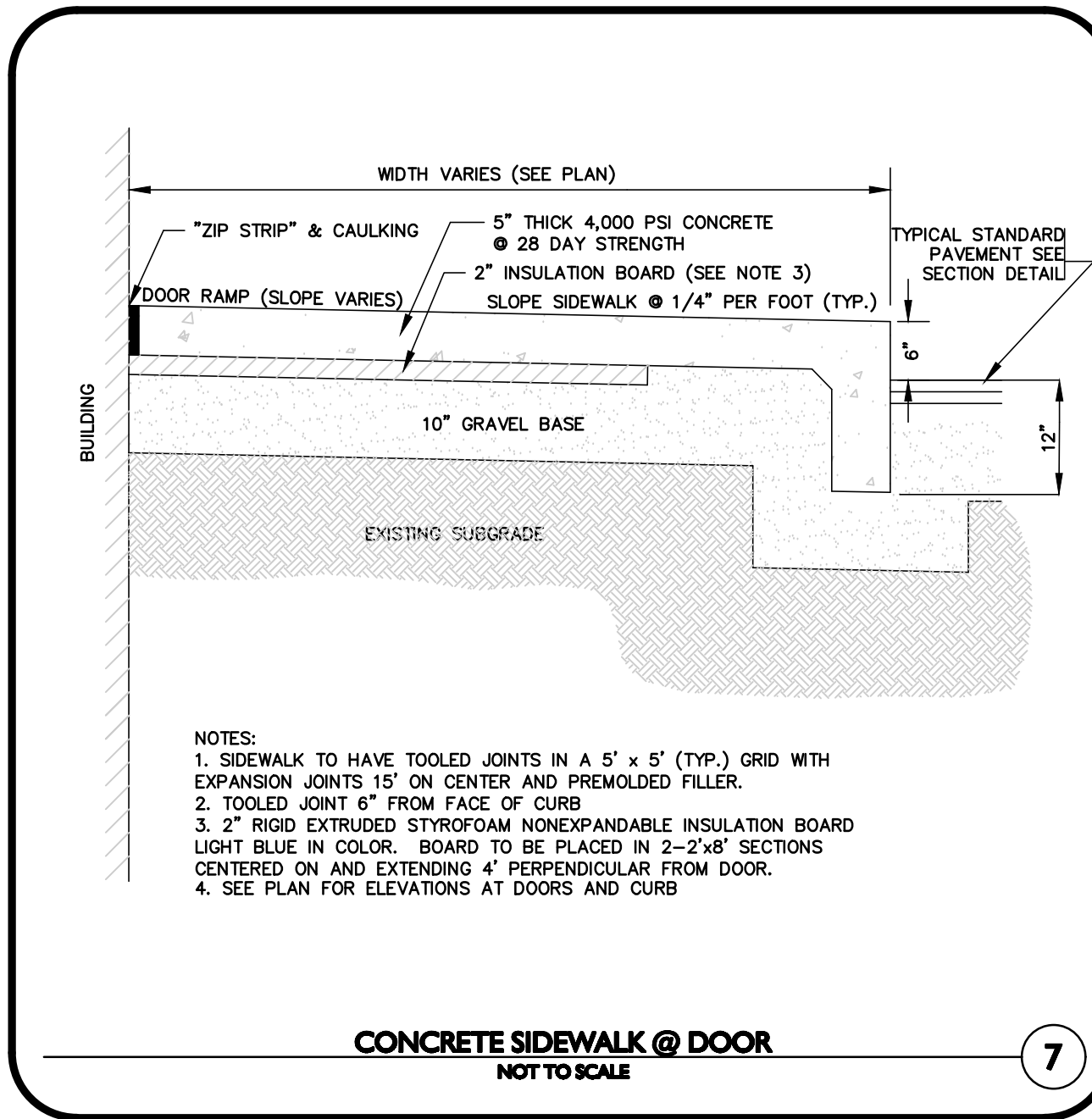
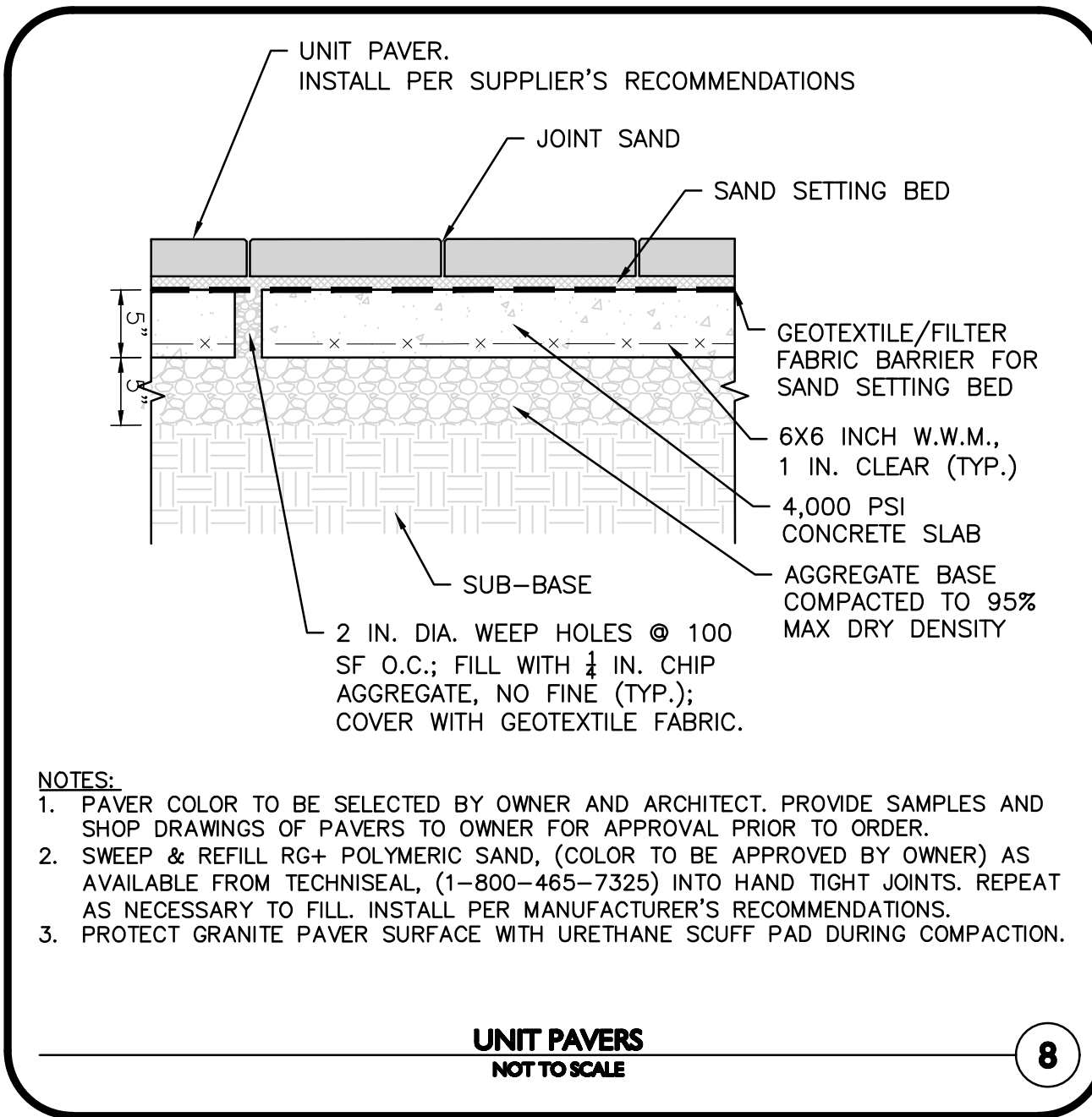
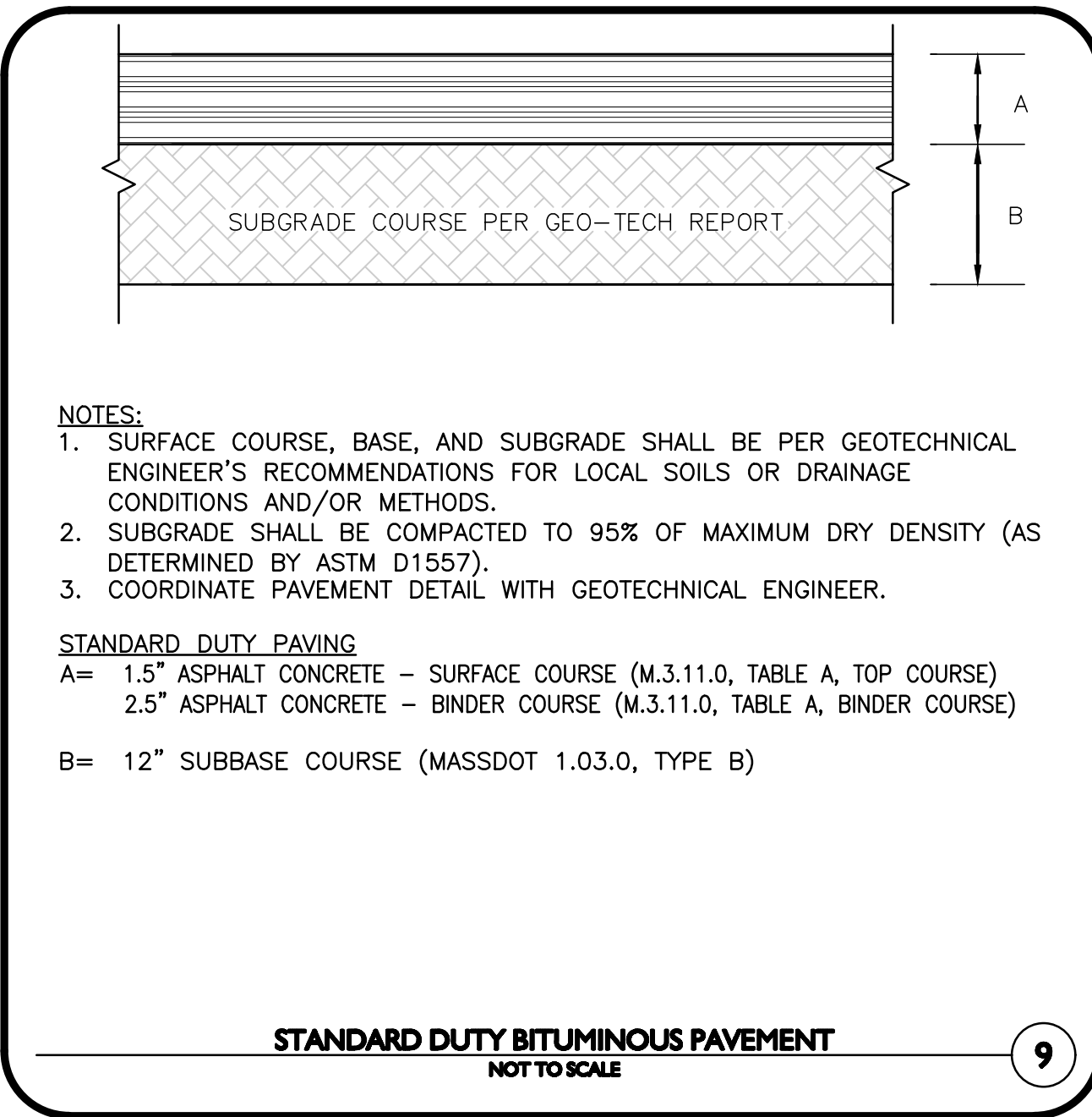
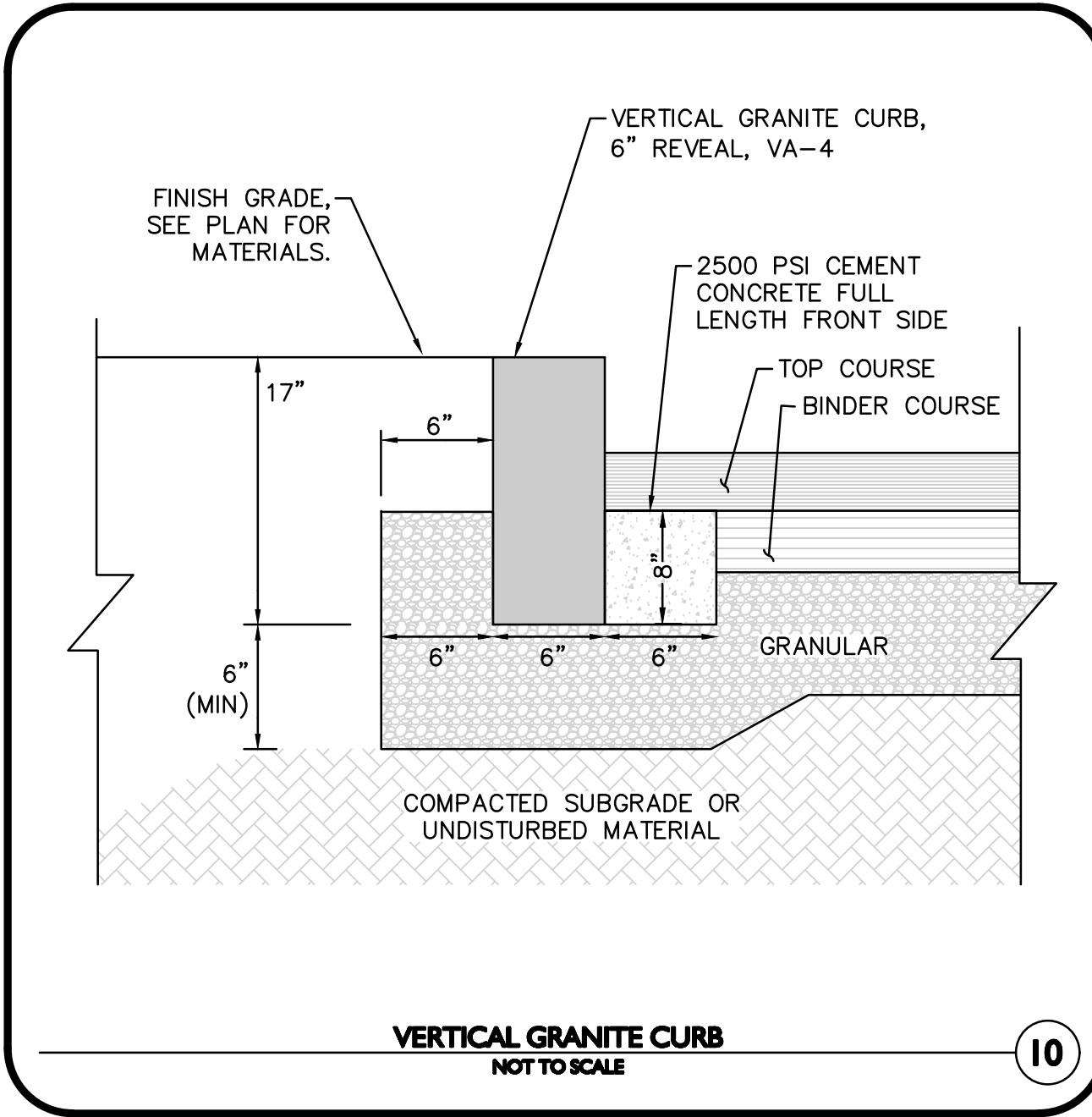
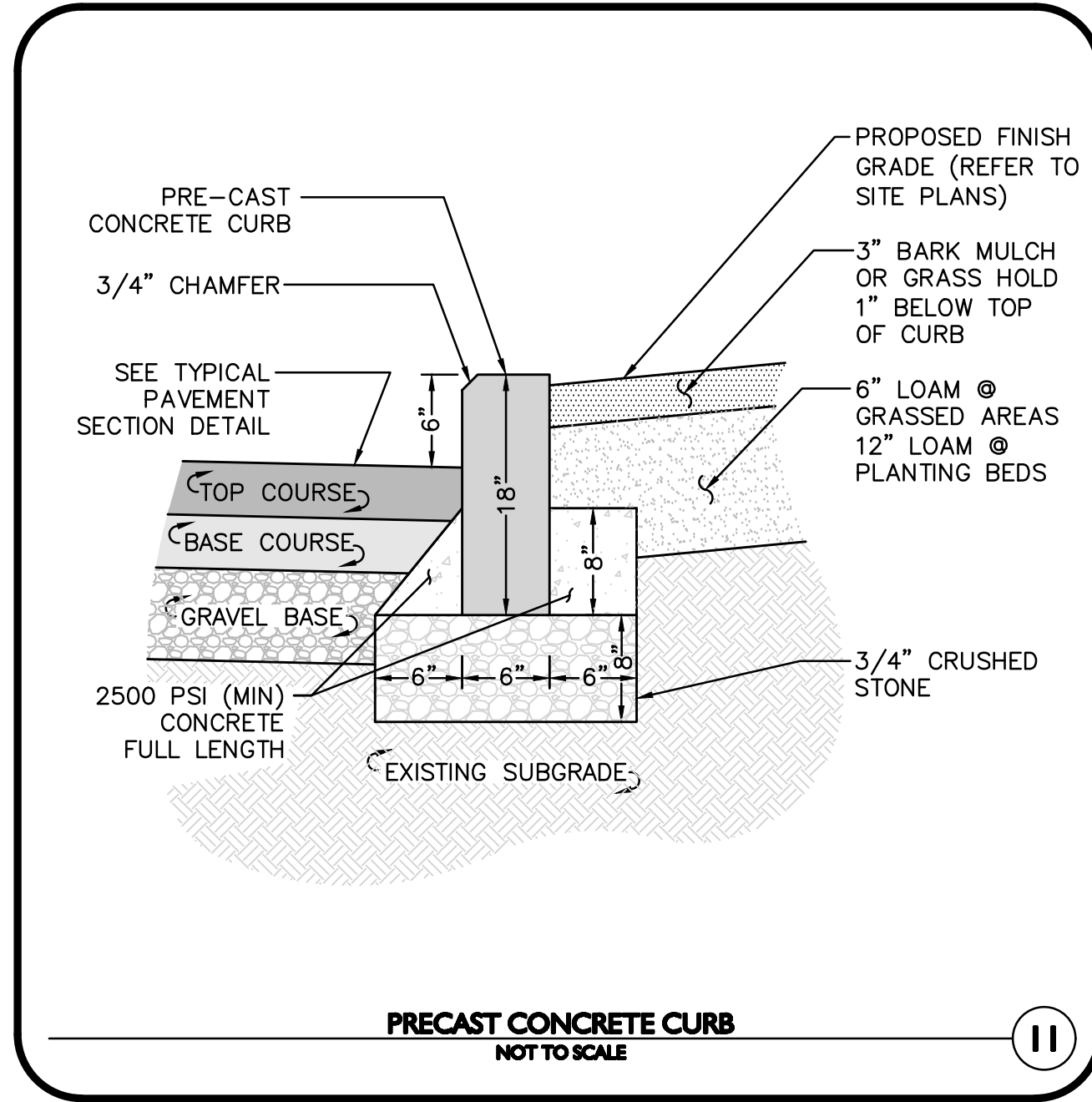
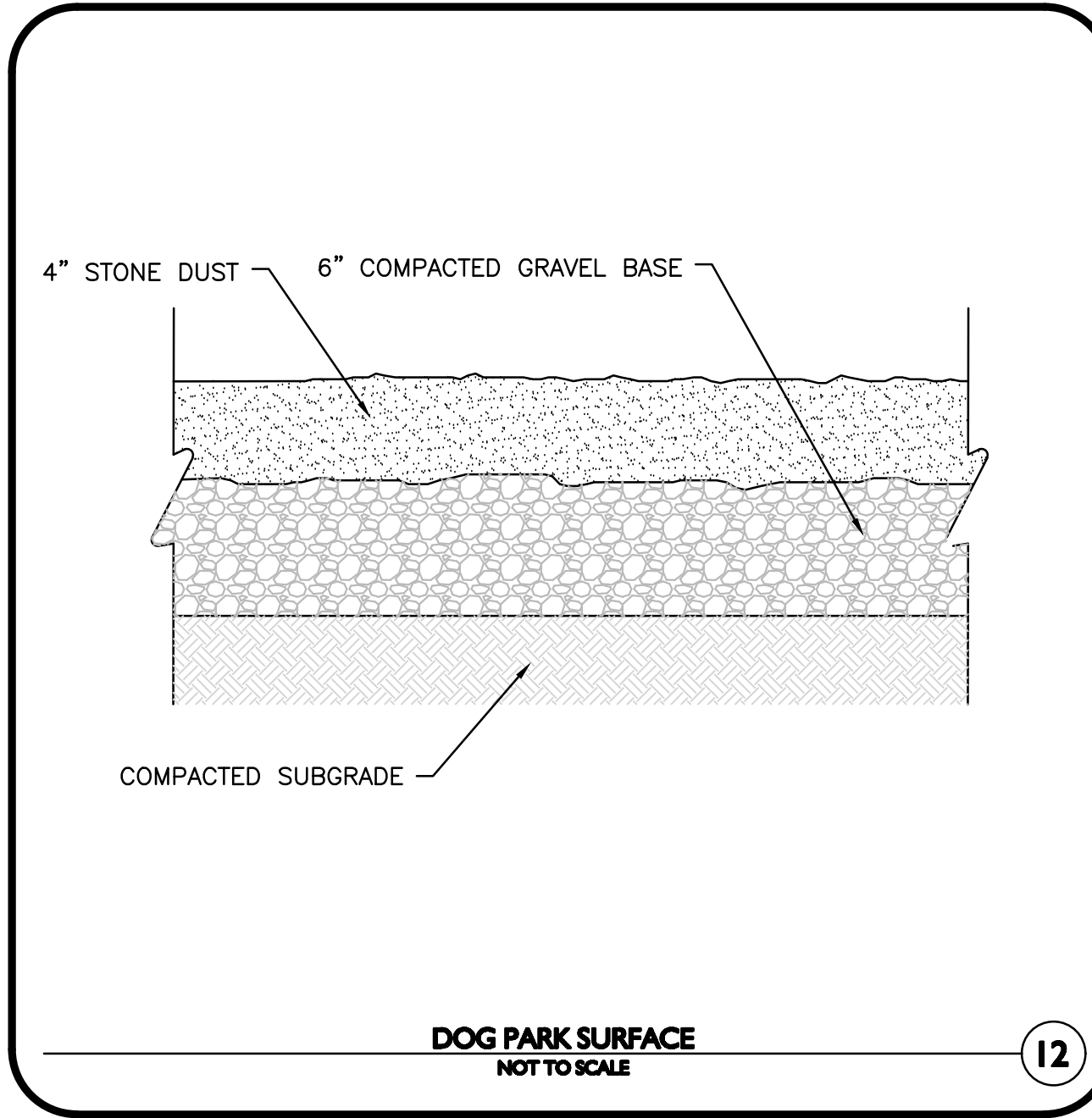
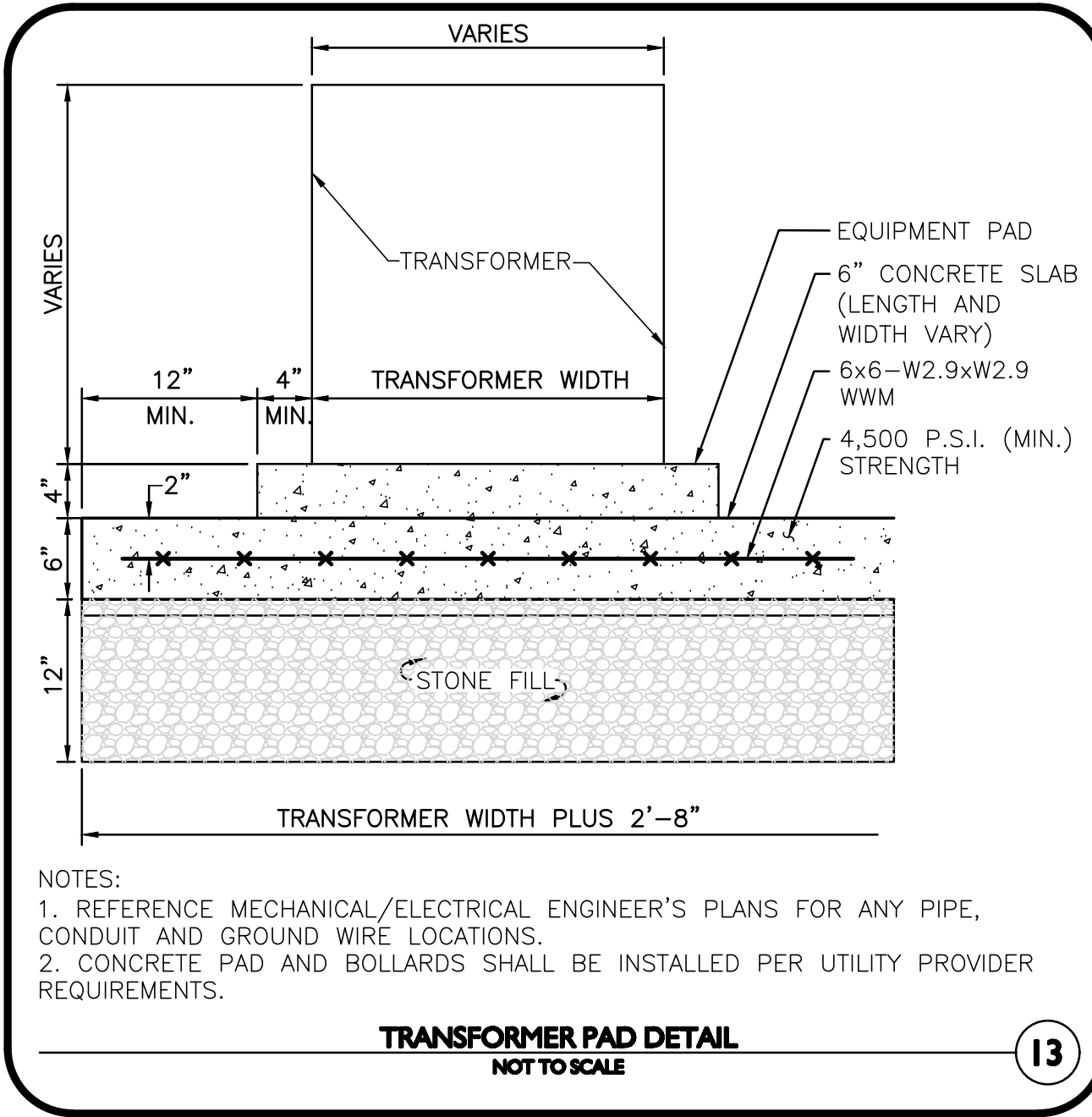
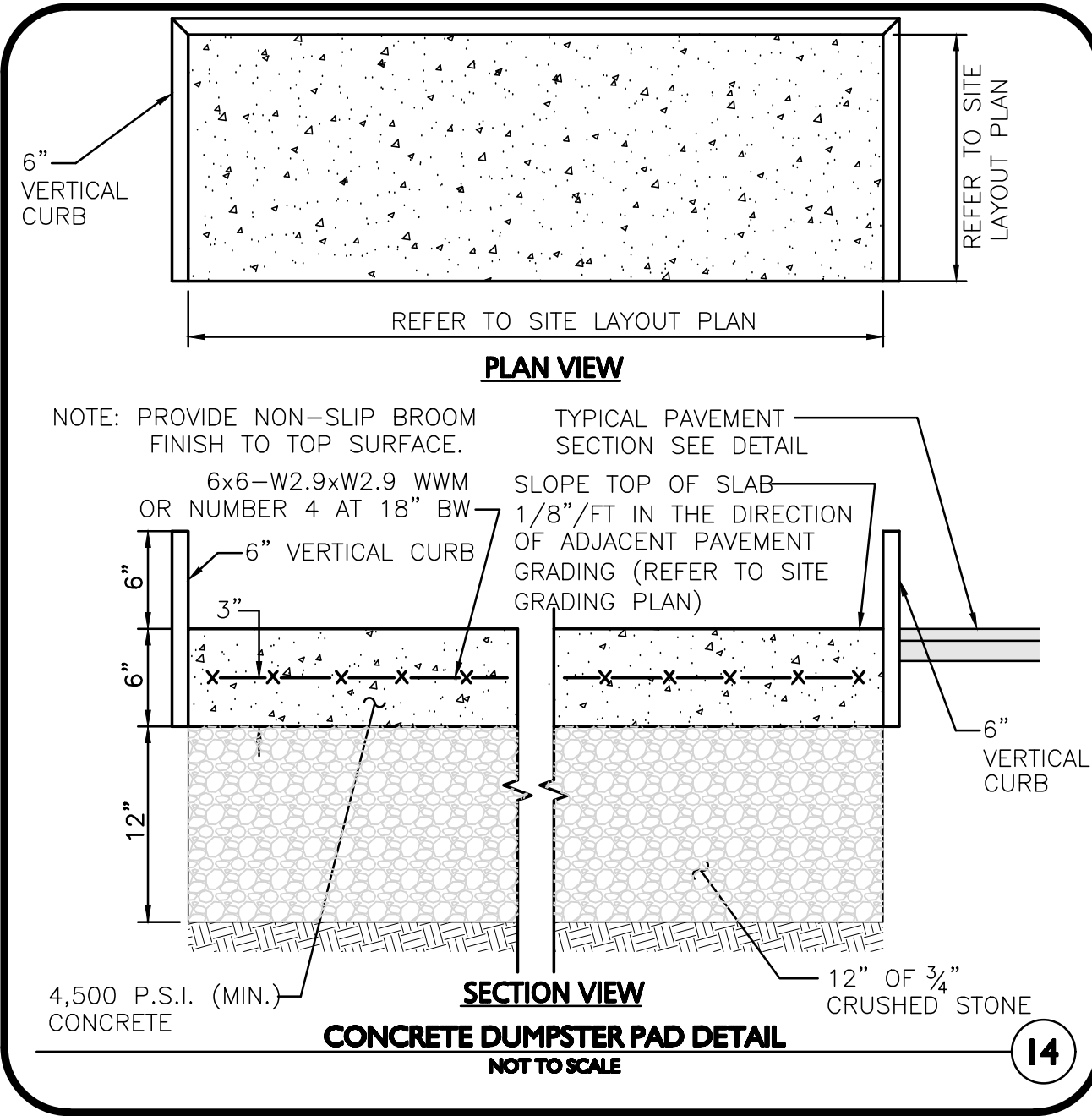
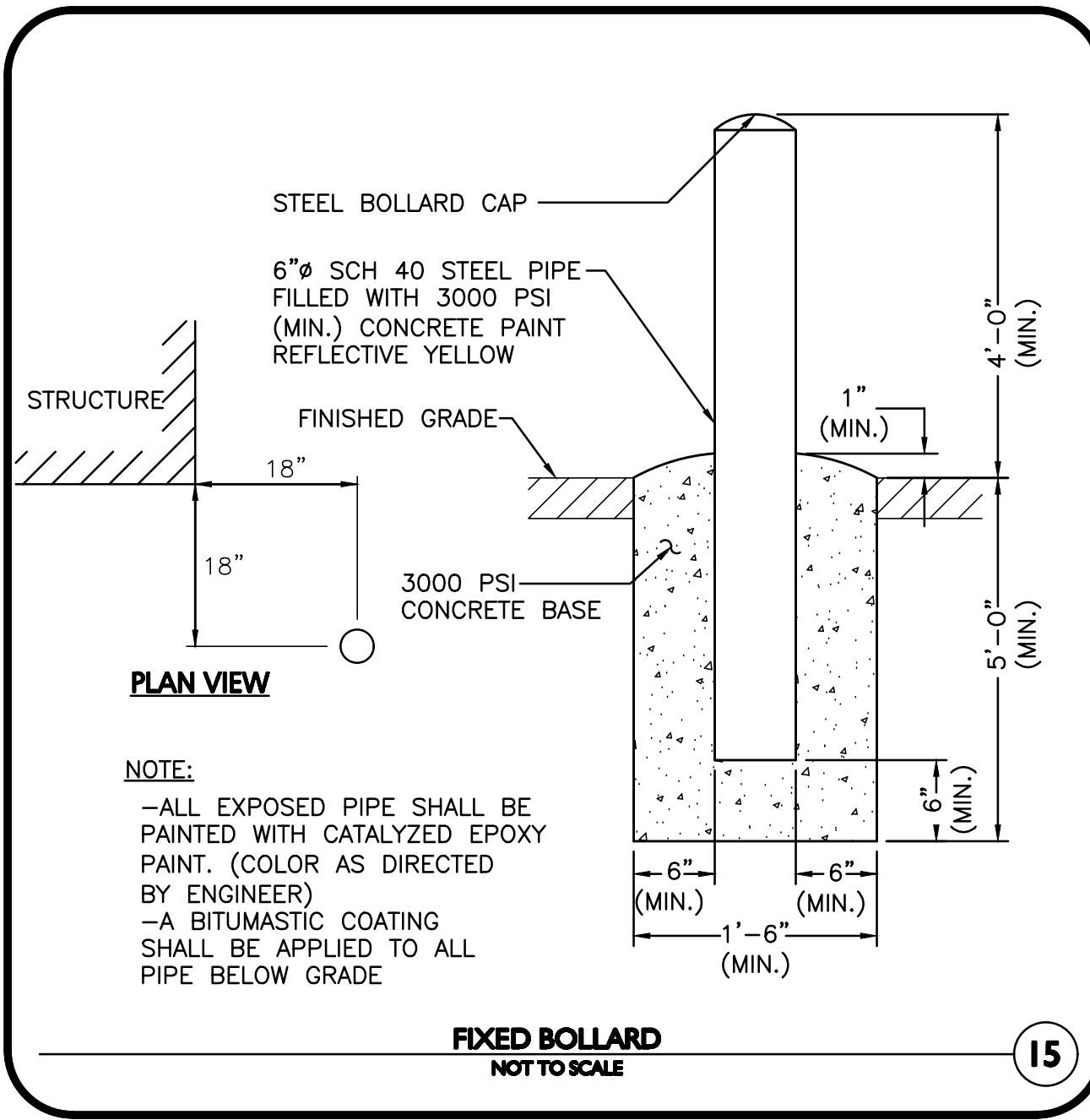
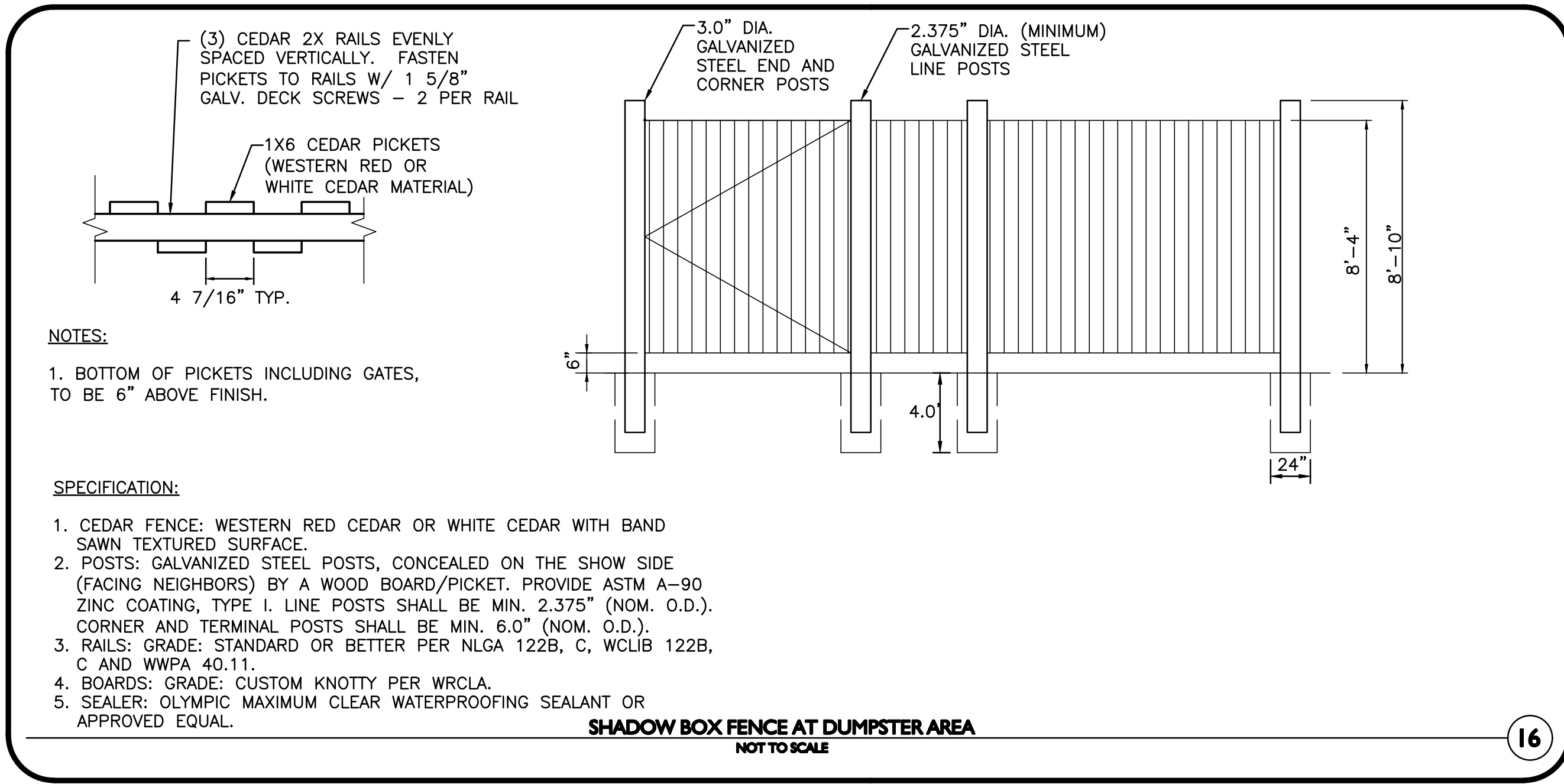
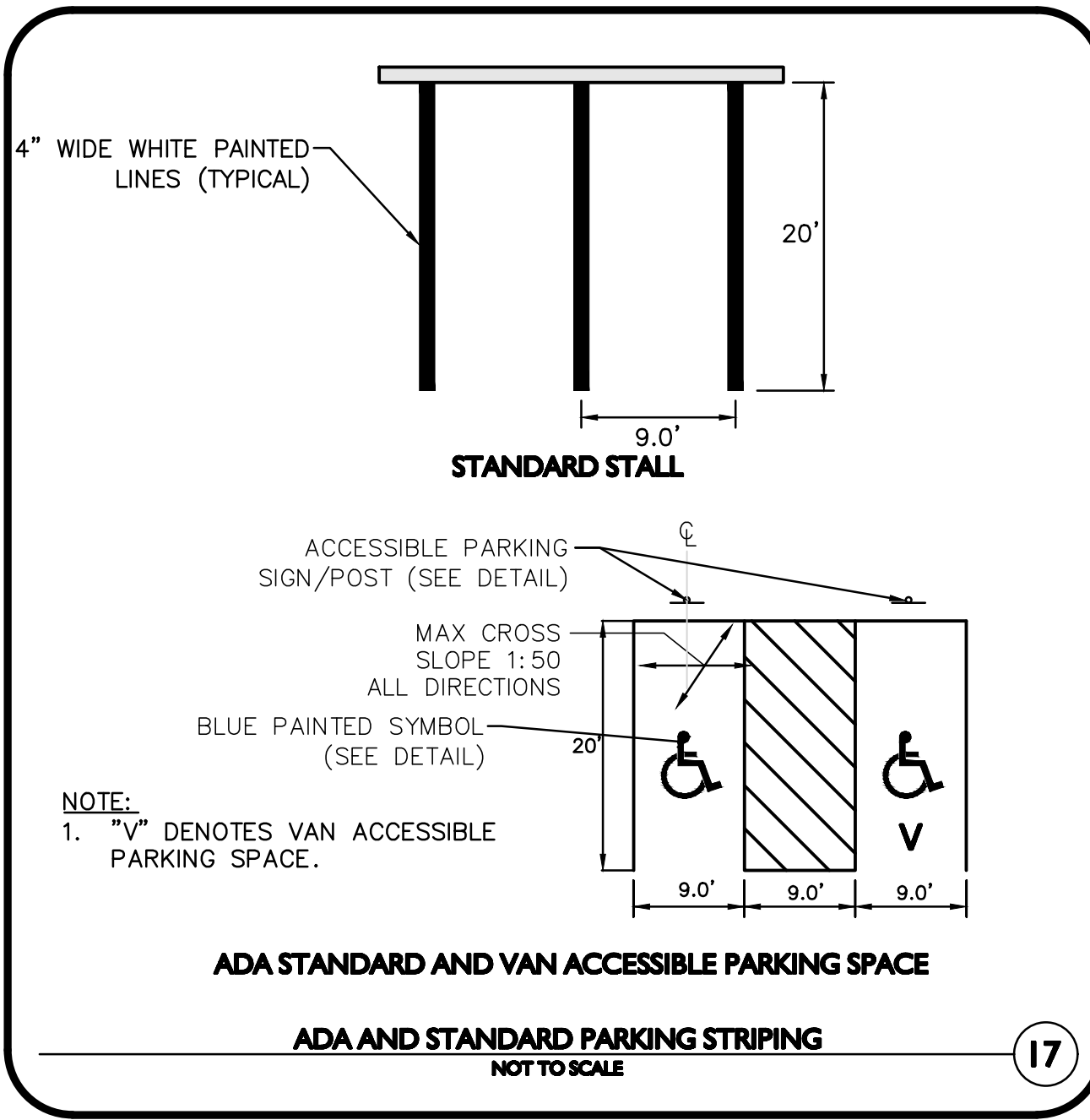
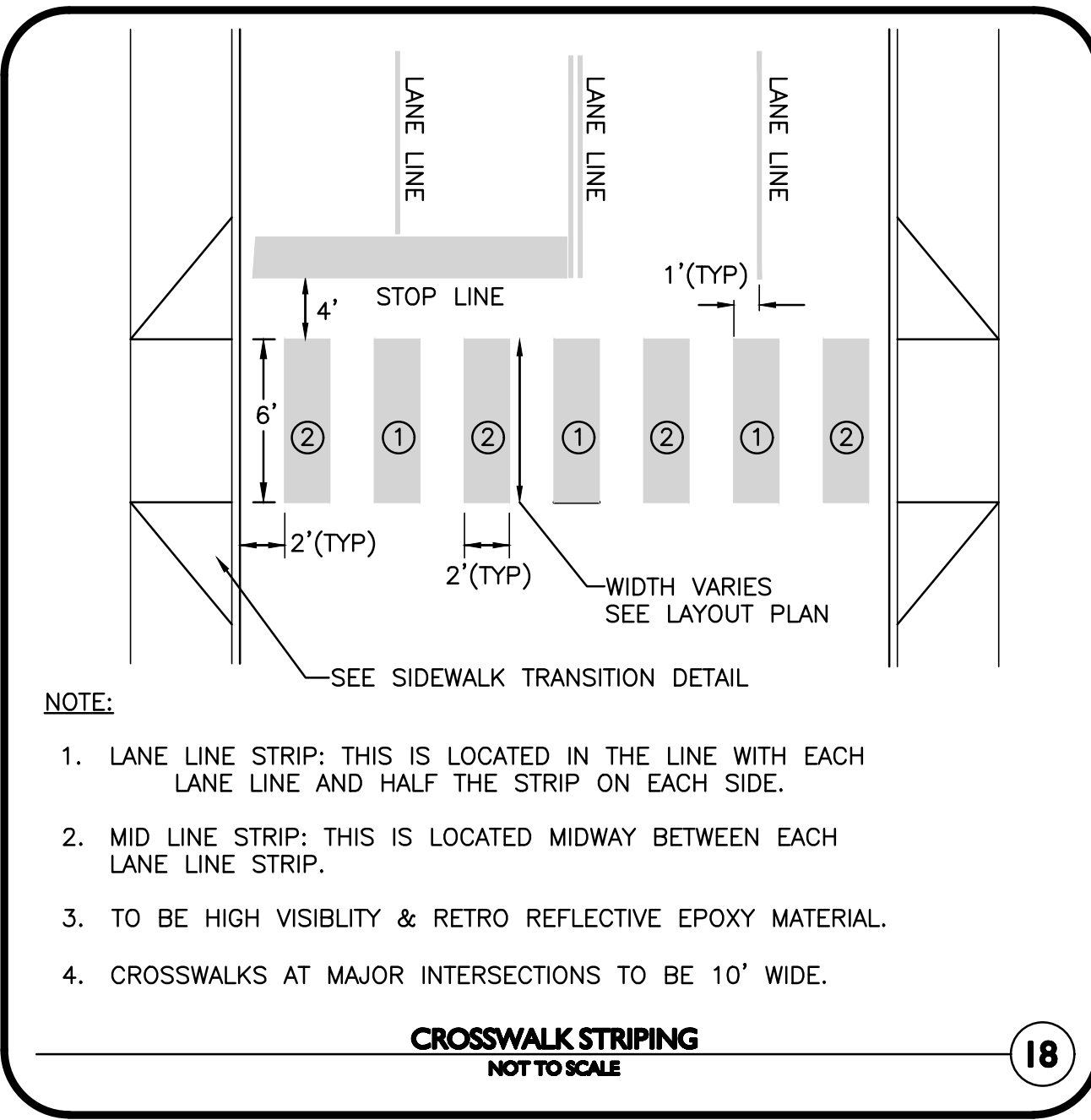
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No.	Description	Date
1	PERMIT REVIEW - CORRECT	03-24-2021



**PHOTO-METRICS PLAN**

**C-114**





Arbella at Ashland

MBTA Access Road  
 Ashland, MA 01721

U A Senior  
 Manager LLC

Rensselaer  
 Technology Park  
 300 Jordan Road  
 Troy, NY 12180

**ALLEN & MAJOR  
 ASSOCIATES, INC.**  
 1000 CENTRE STREET  
 LAWRENCE, MASSACHUSETTS 01840  
 TEL: 978.686.1234 FAX: 978.686.2200  
 WWW.ALLENMAJOR.COM

PROFESSIONAL ENGINEER FOR  
 ALLEN & MAJOR ASSOCIATES, INC.

**COMPREHENSIVE  
 PERMIT**  
 NOT FOR  
 CONSTRUCTION

drawing by: SL

drawing checked by: AD

drawing scale: AS SHOWN

drawing date: 04 SEPTEMBER 2020

project number: 19021.00

drawing revisions:

No.	Description	Date
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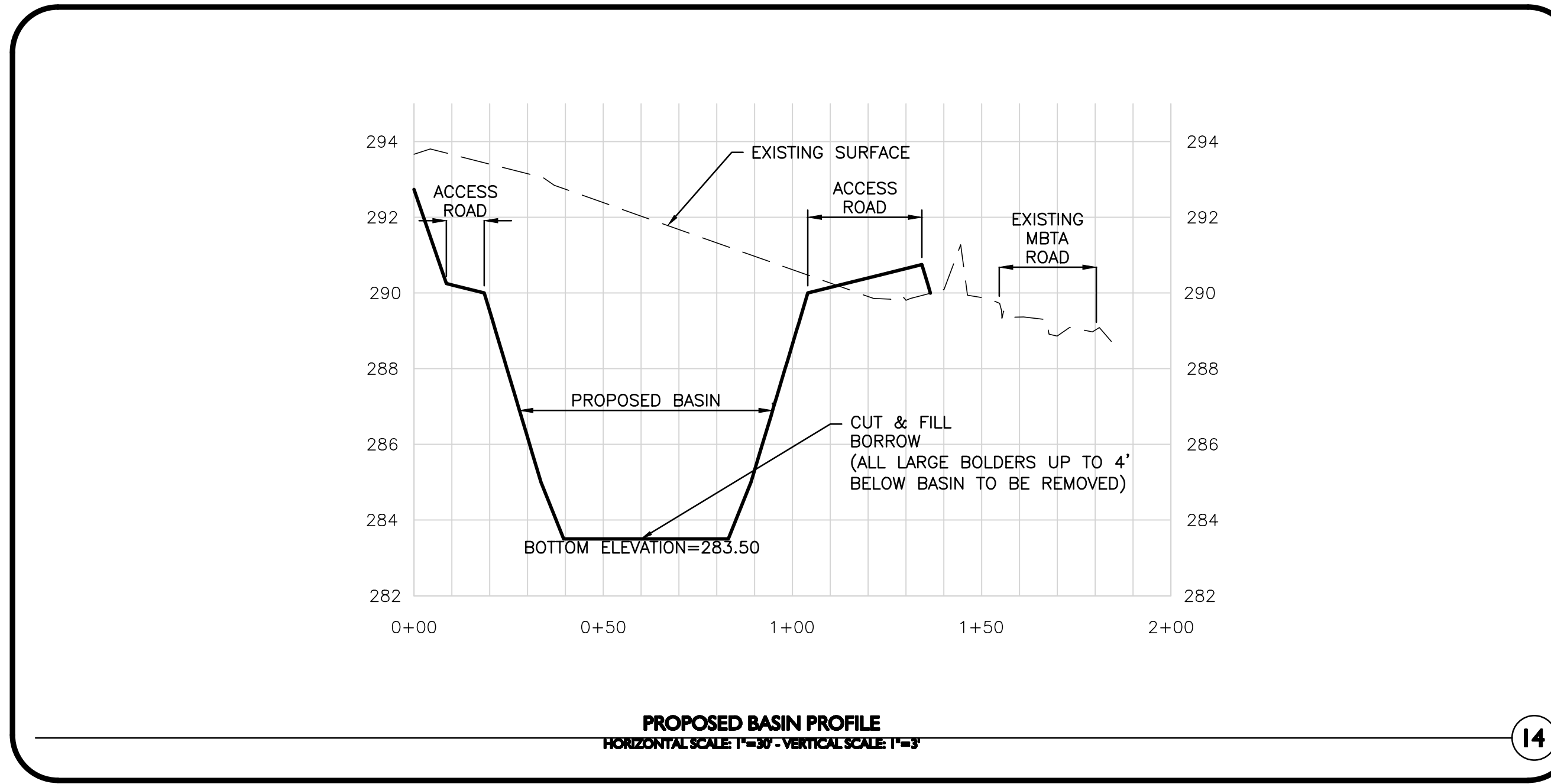
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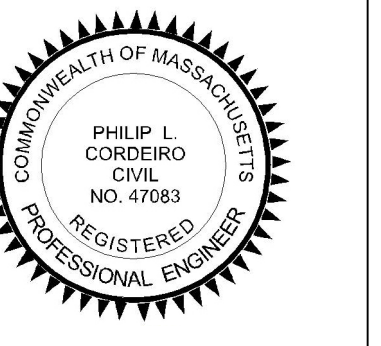
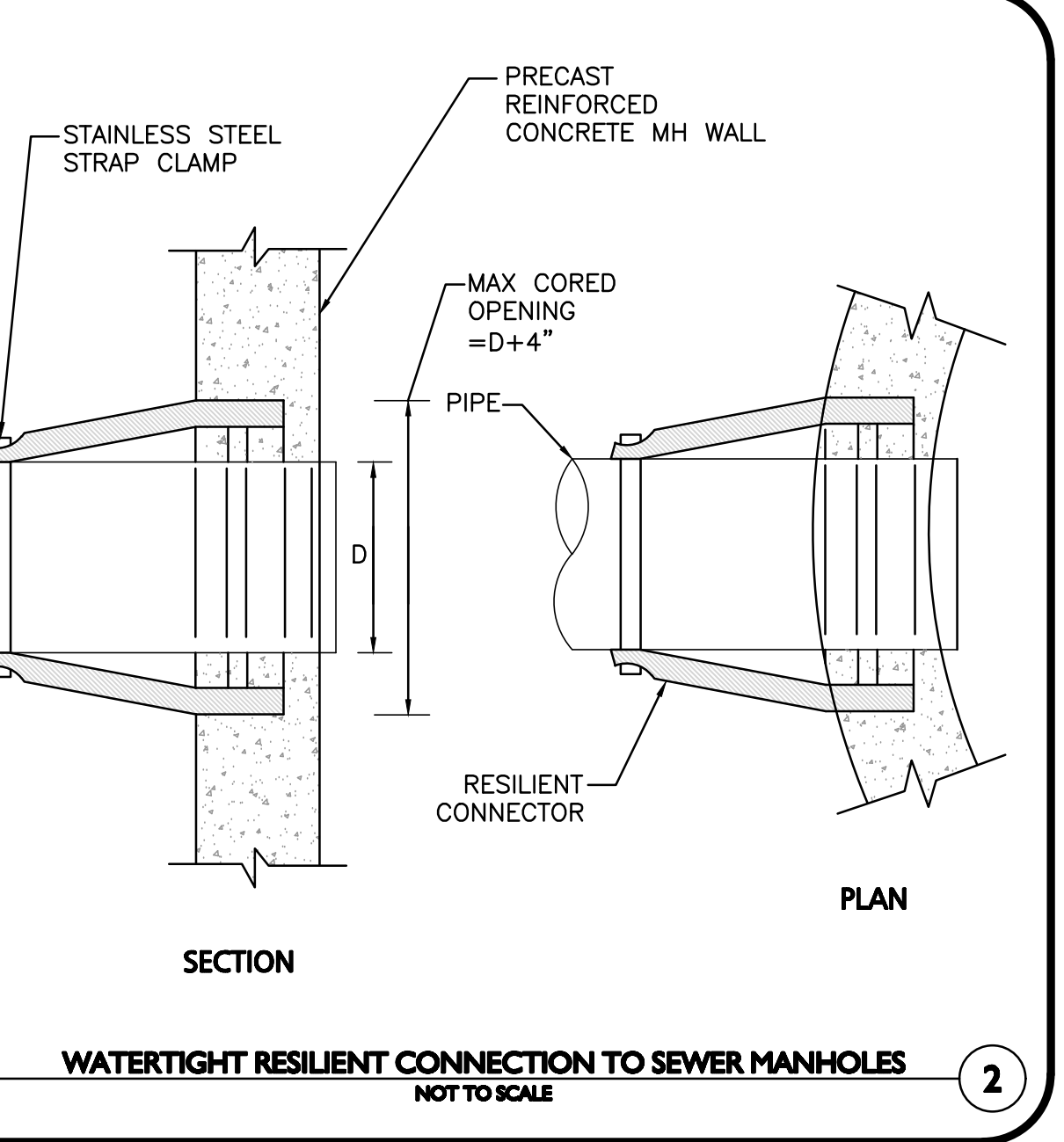
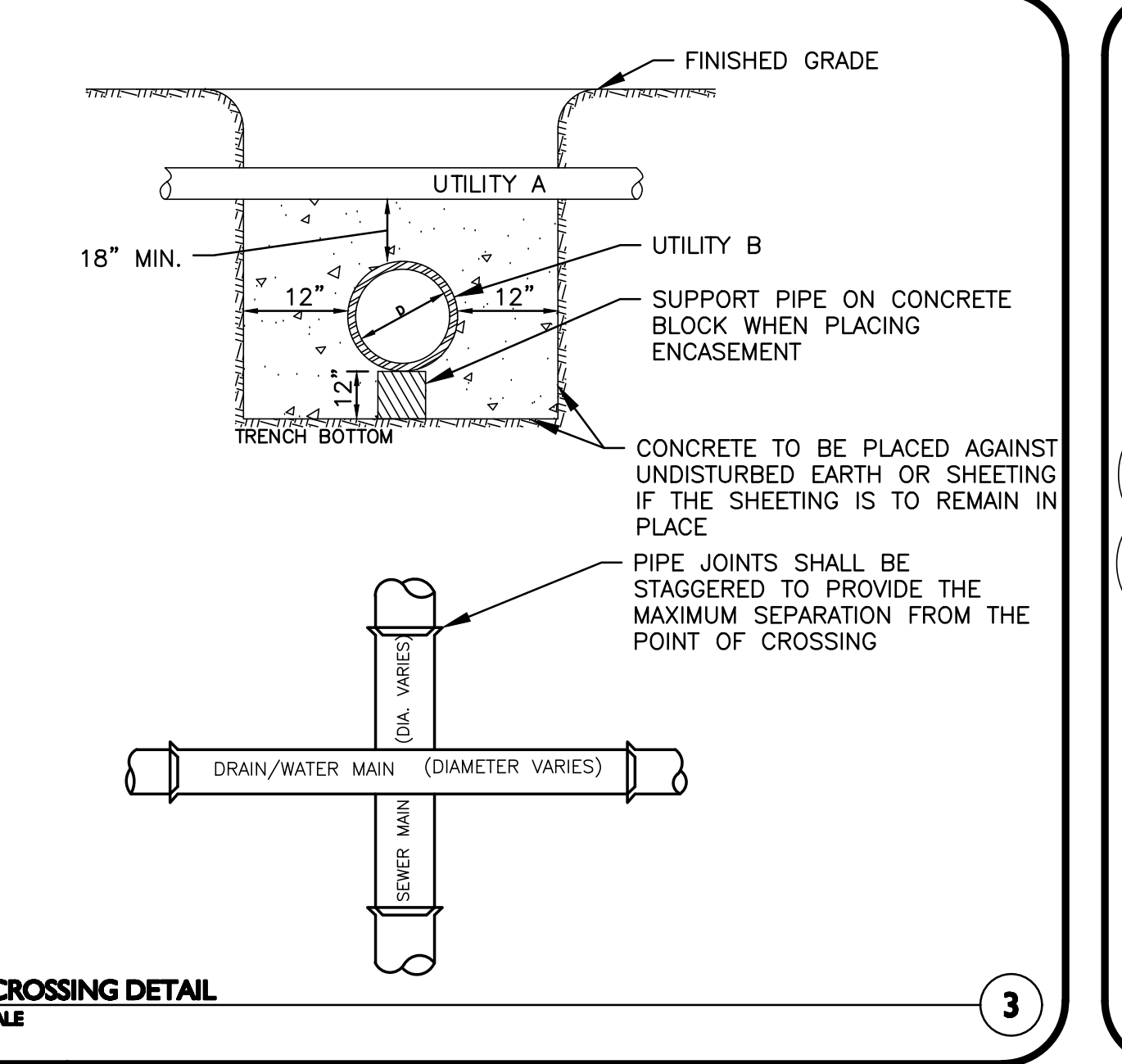
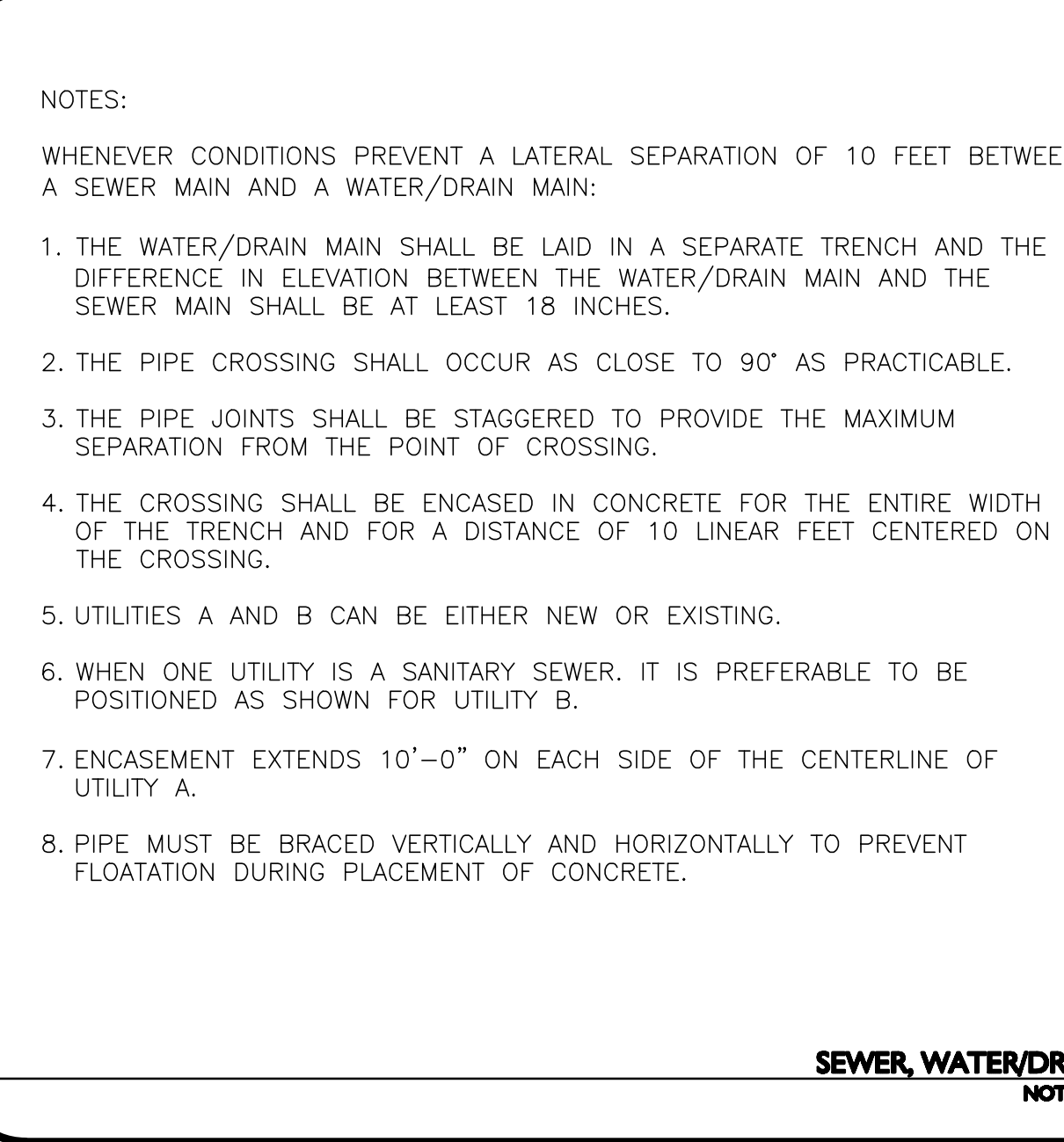
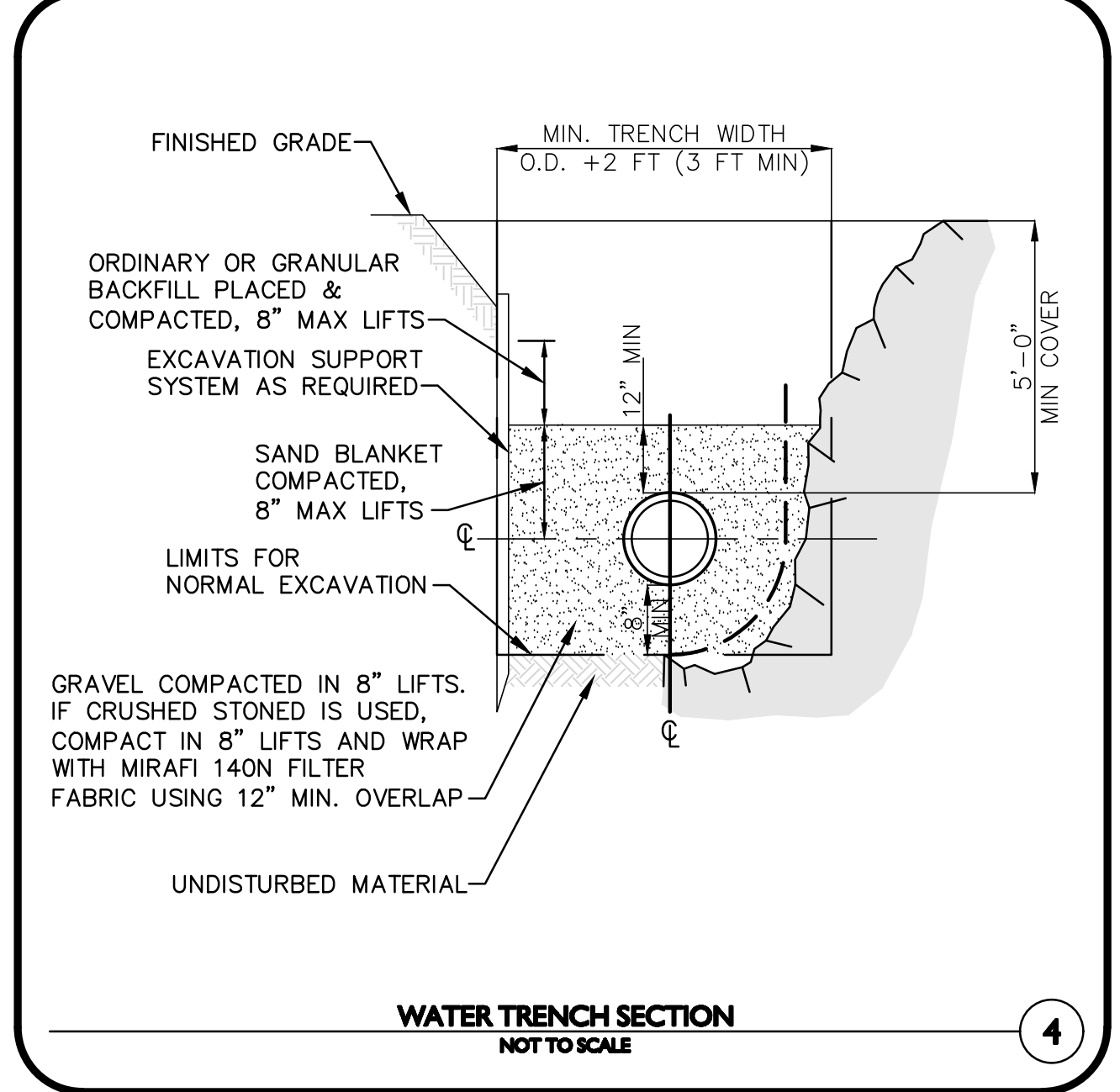
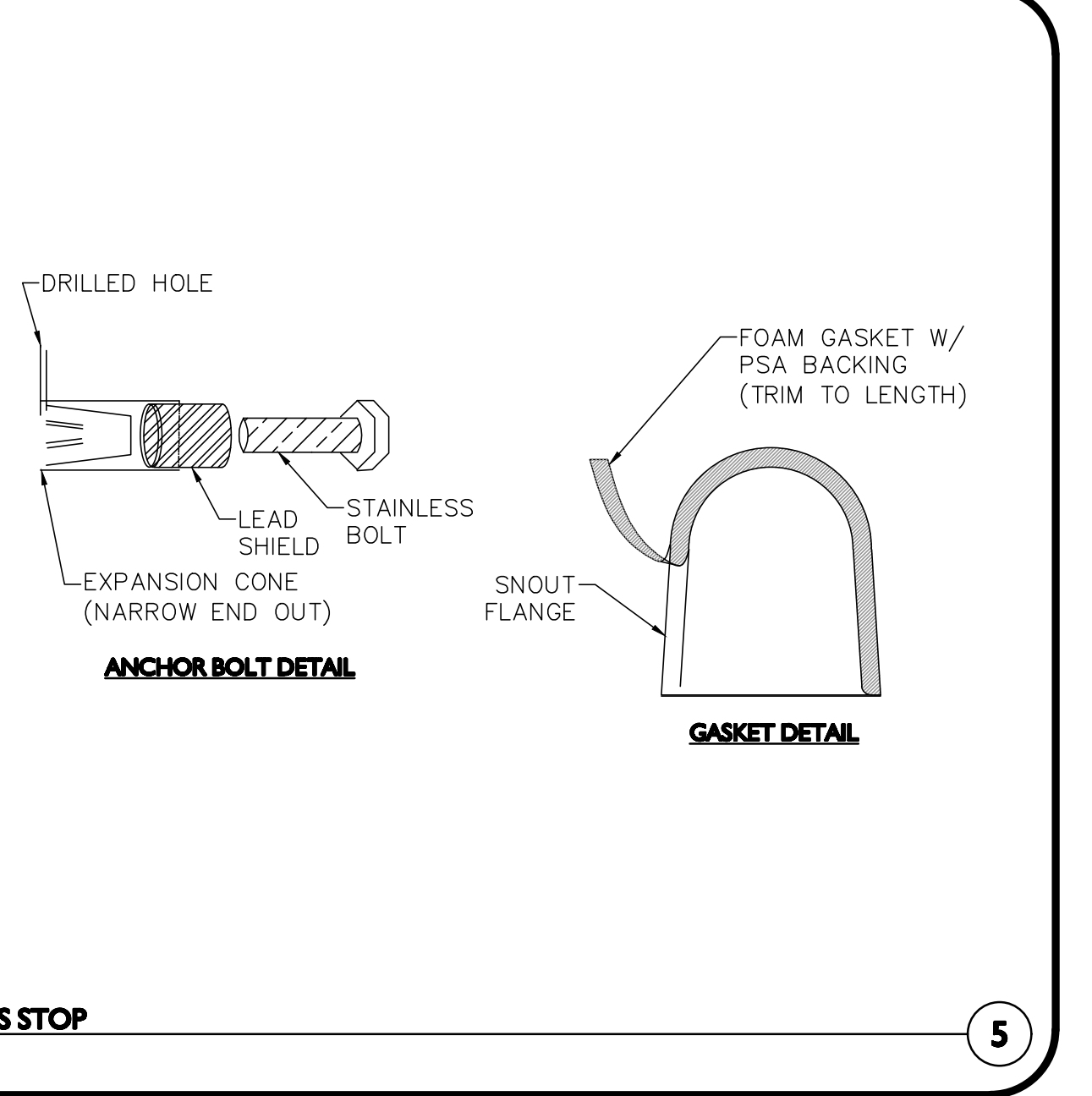
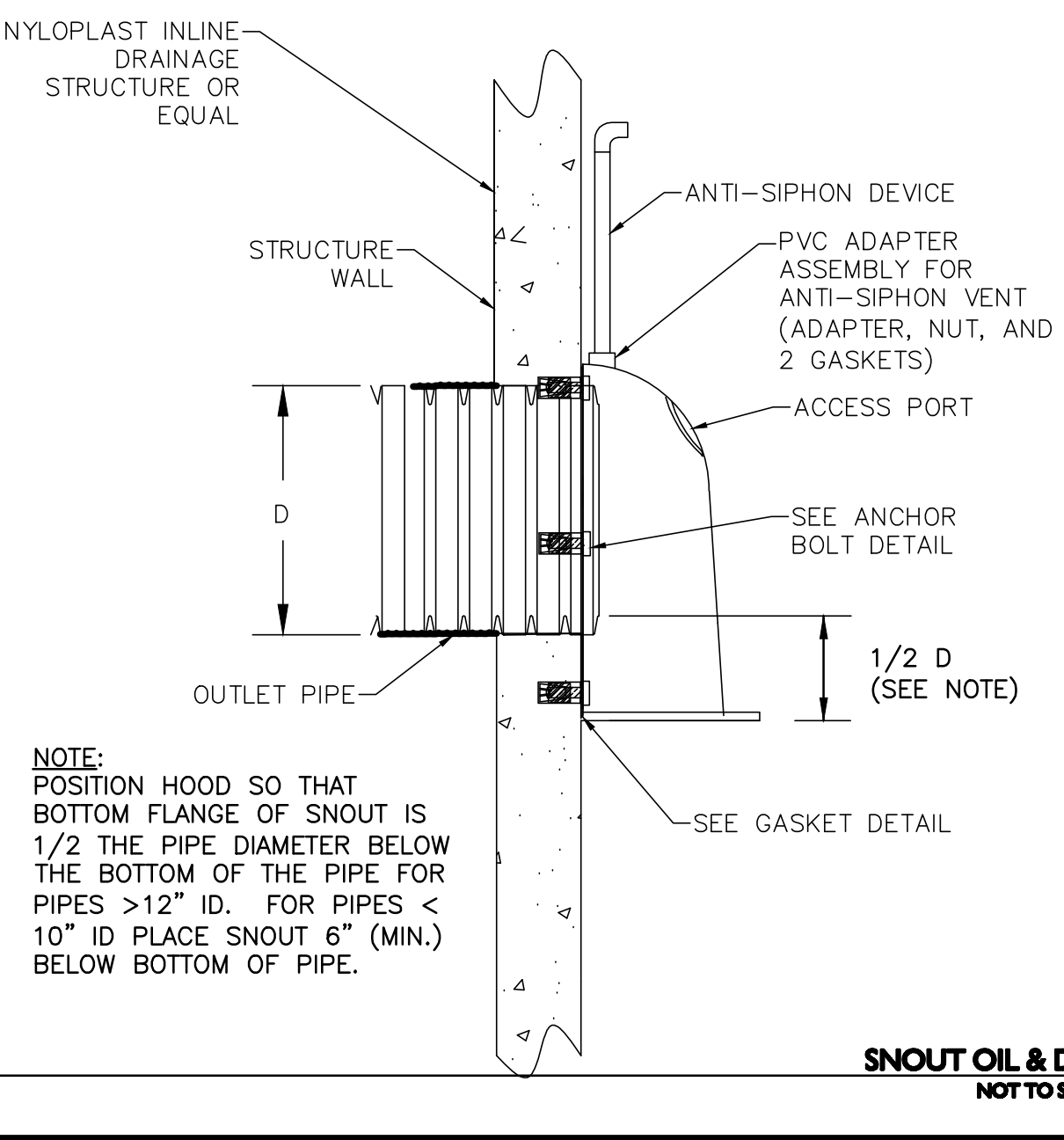
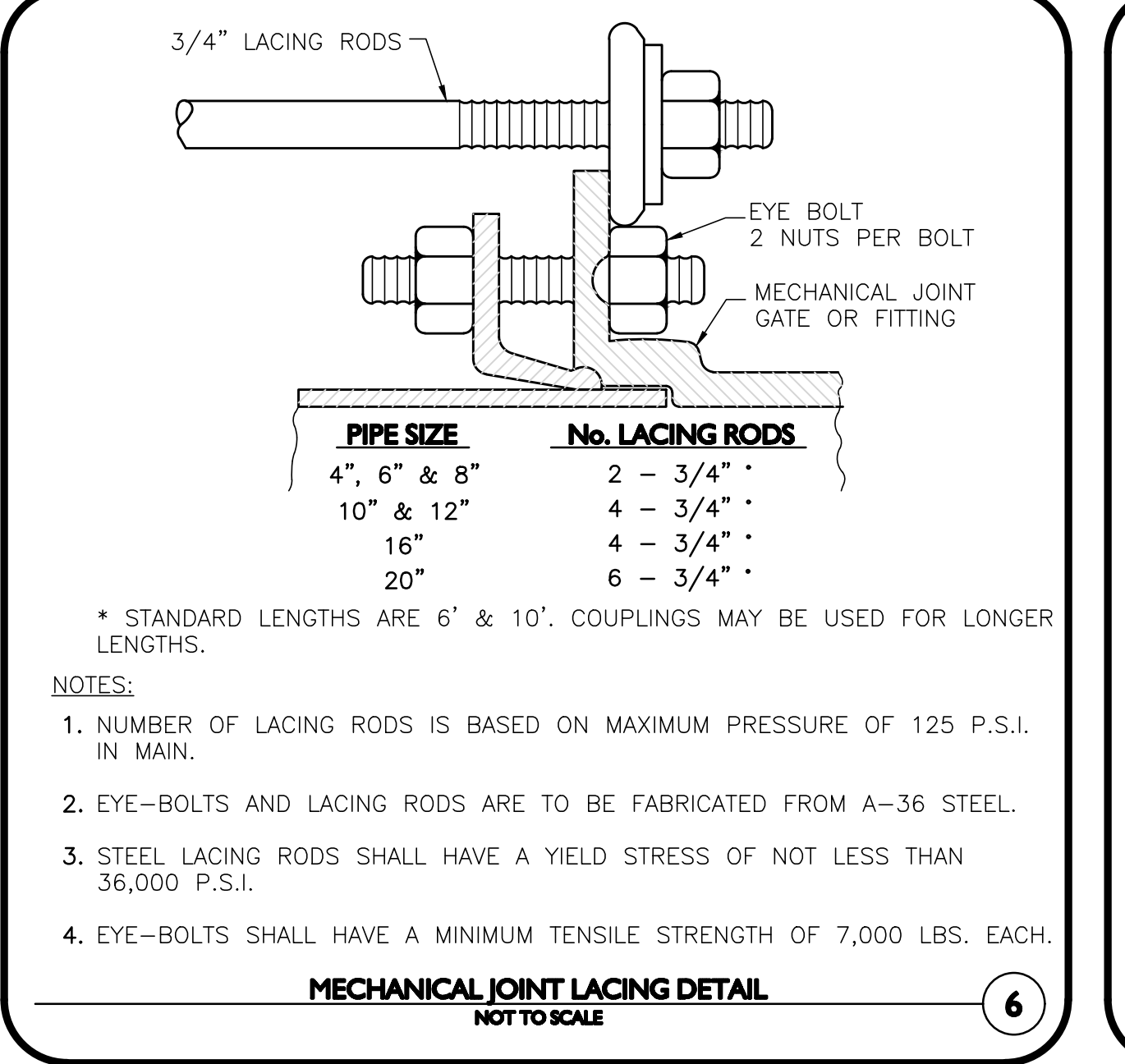
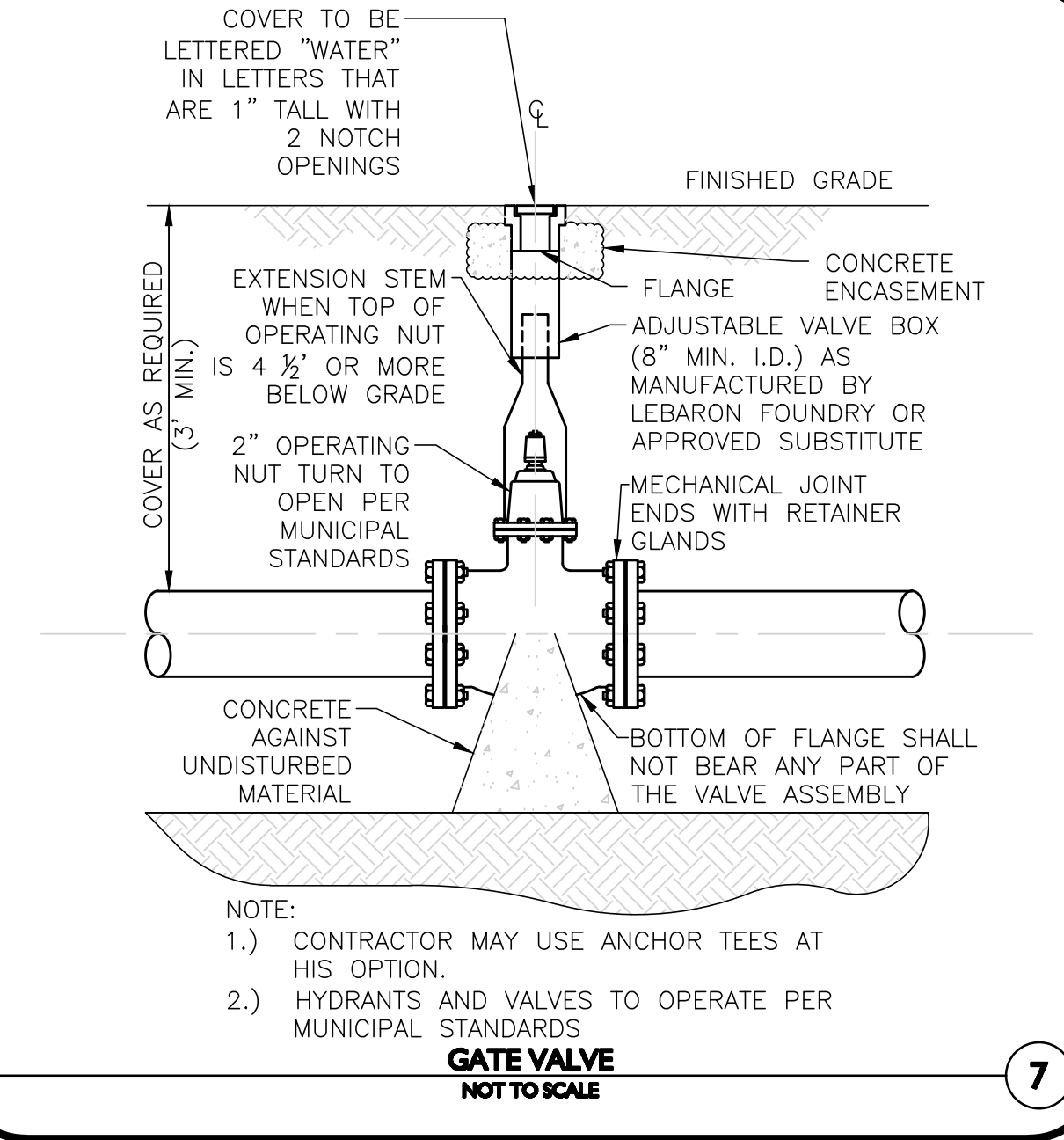
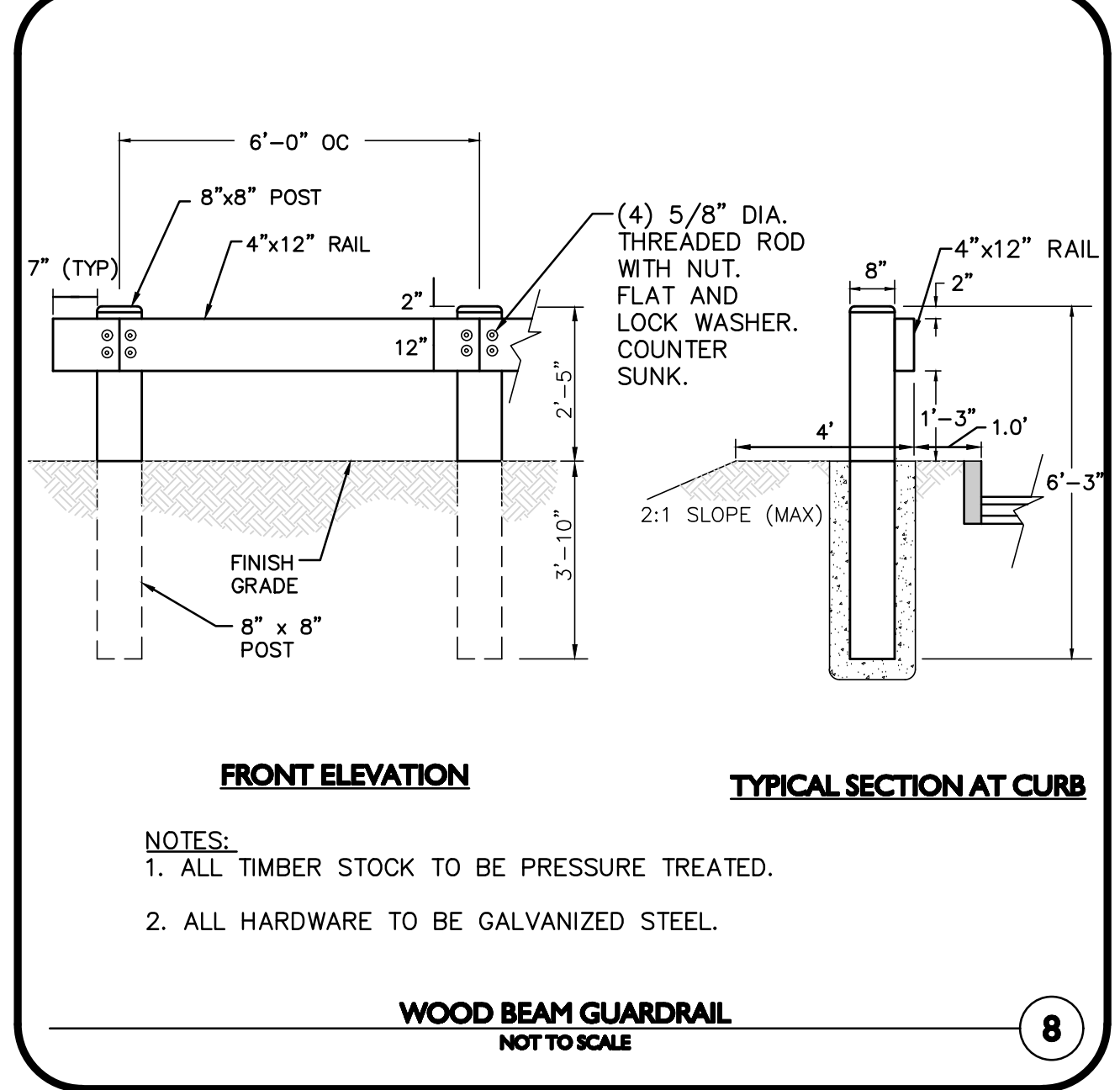
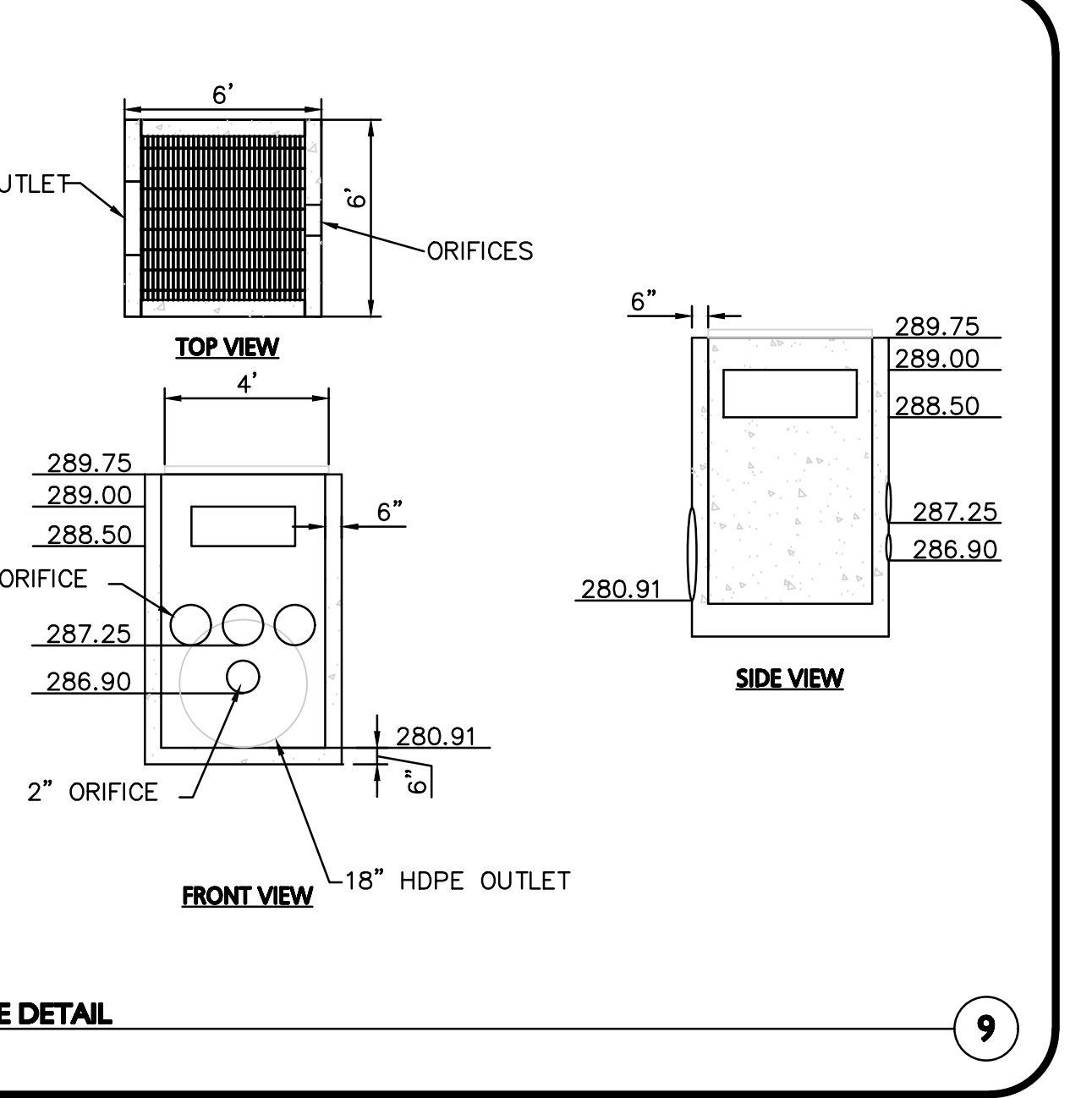
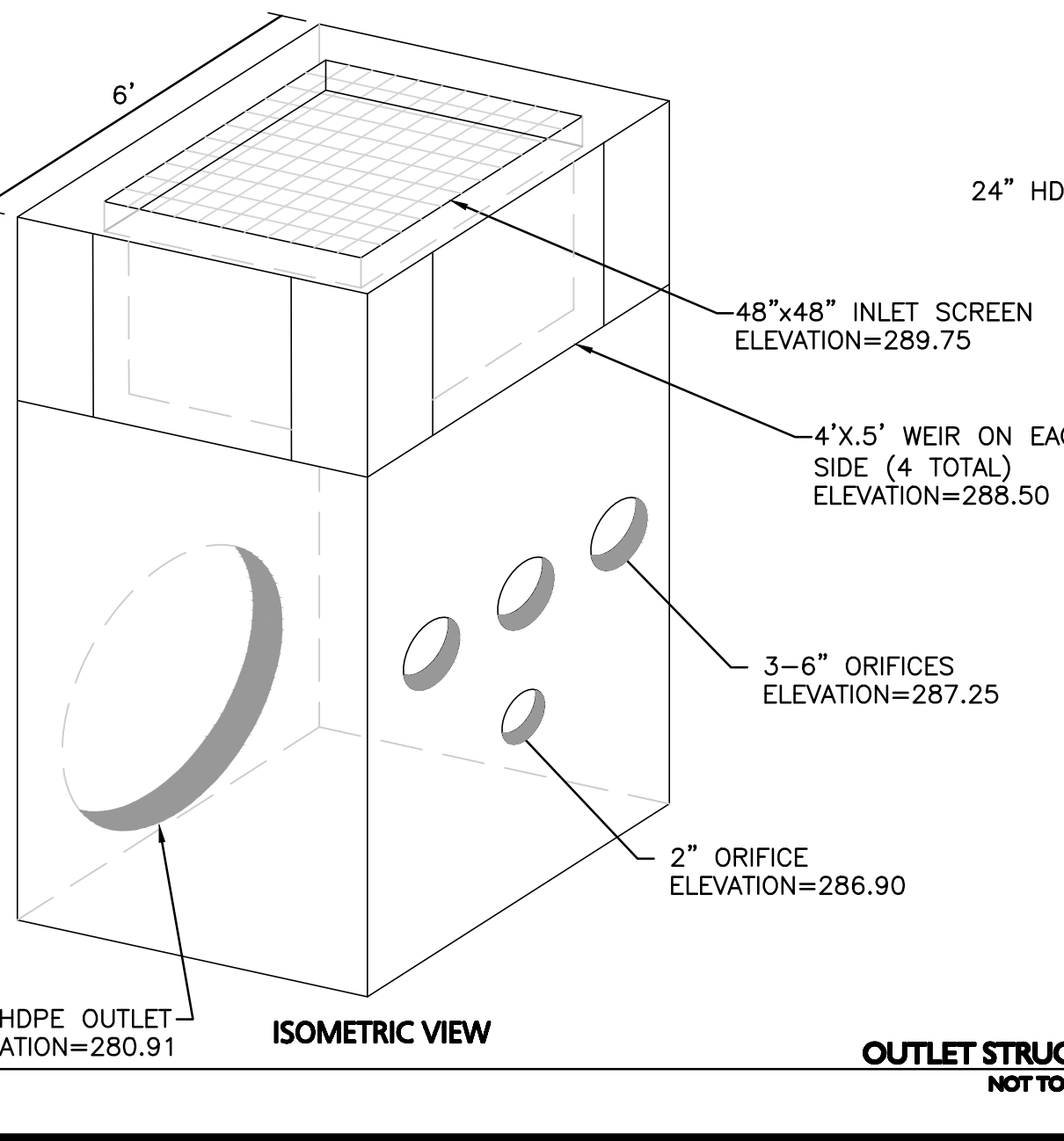
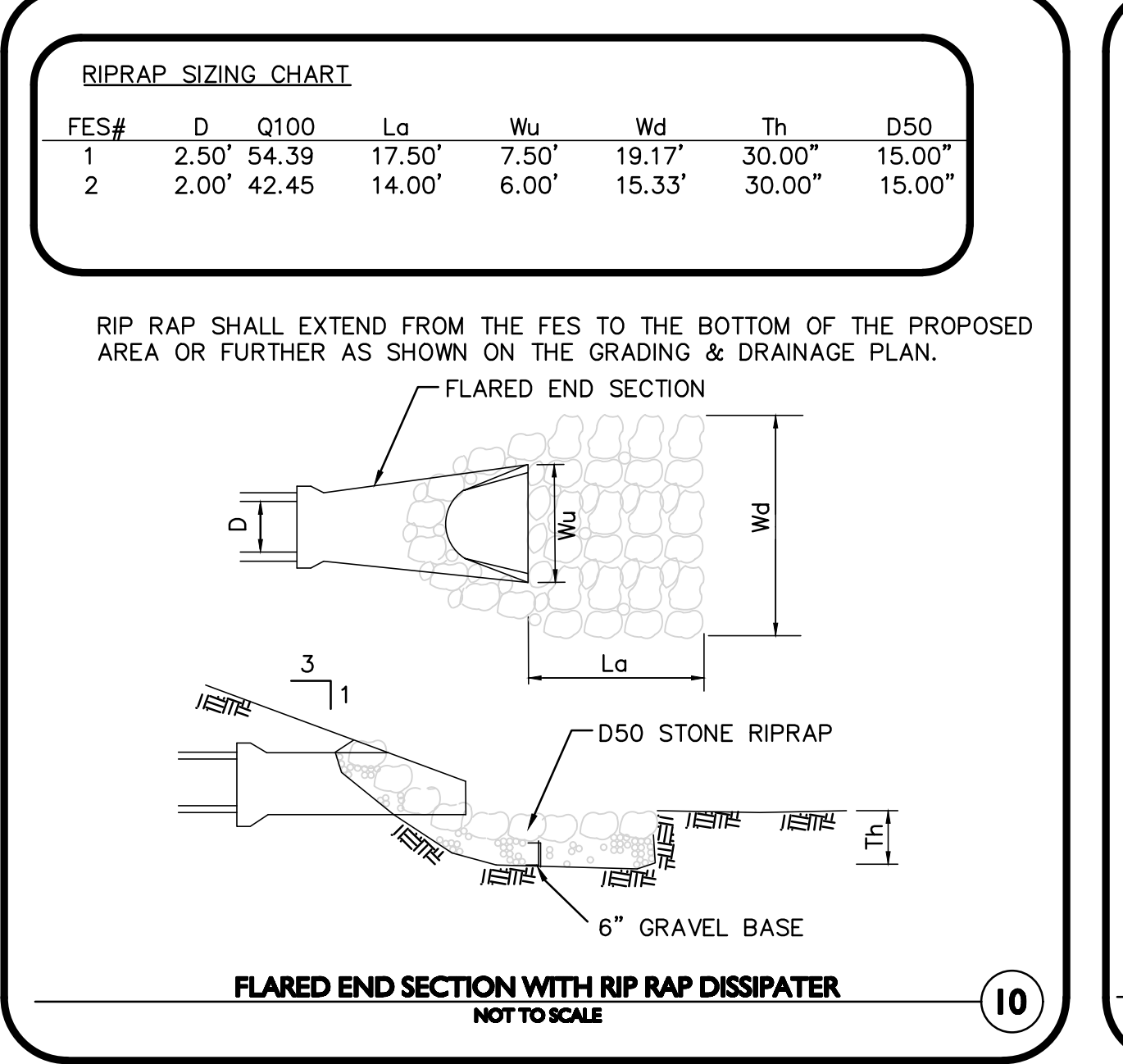
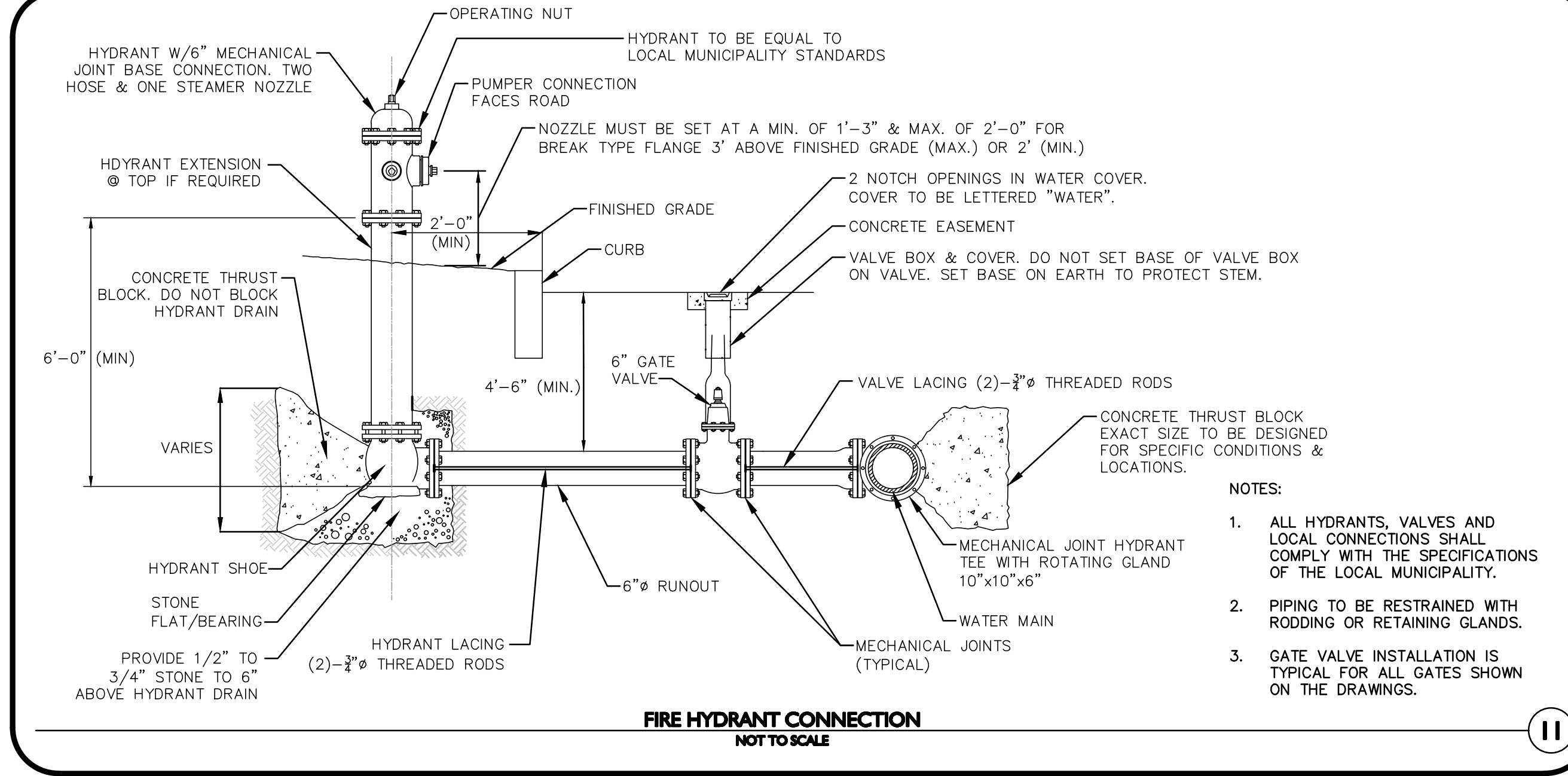
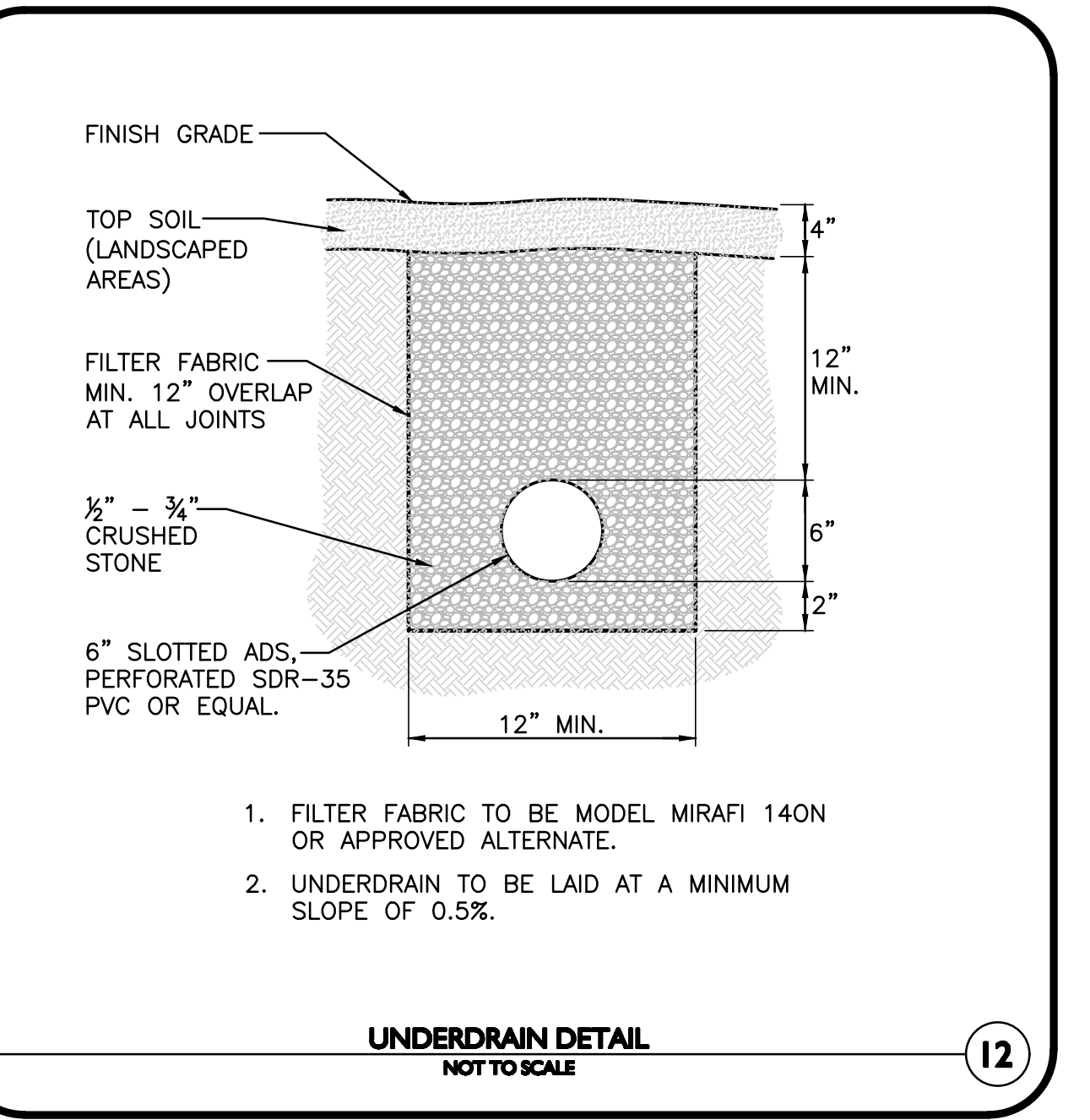
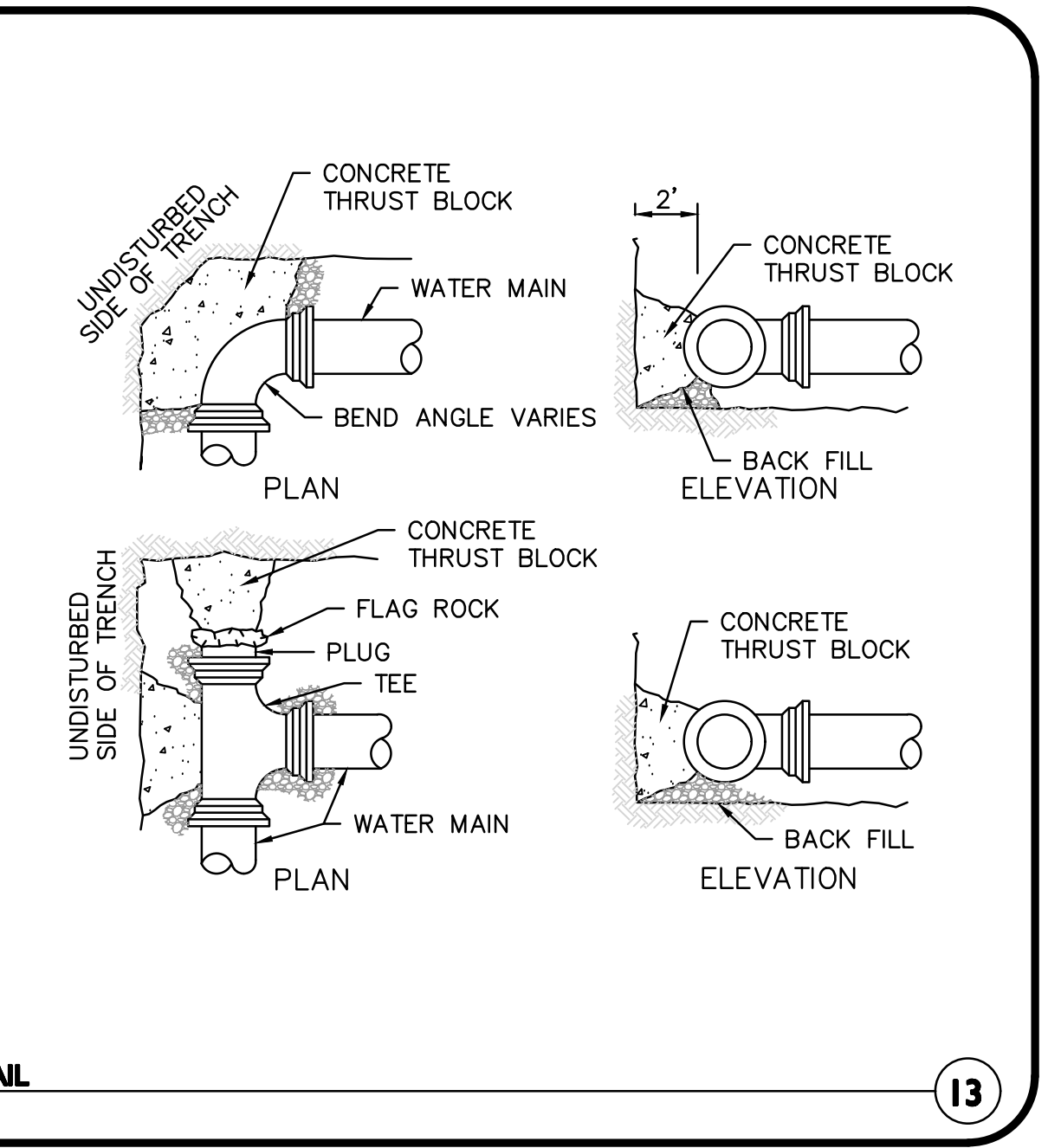
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PIPE DIAMETER	MINIMUM THRUST BLOCK BEARING AREAS			TEES, PLUGS, CAPS & HYDRANTS (SQ.FT.)
	90° BEND (SQ. FT.)	45° BEND (SQ. FT.)	22.5° BEND (SQ. FT.)	
6"	5	3	3	4
8"	9	6	3	9
10"	13	7	4	12
12"	20	10	5	16

NOTES:  
 1. ALL WATER MAIN FITTINGS, BENDS, TEES, PLUGS ETC. SHALL BE RESTRAINED W/ THRUST BLOCKS EXCEPT WHERE NOTED.  
 2. ALL THRUST BLOCKS & COLLARS SHALL BE INSTALLED SO THAT THEY BEAR AGAINST UNDISTURBED EARTH.  
 3. SIZE OF CONCRETE THRUST BLOCKS SHALL BE AS NOTED BELOW.  
 4. MINIMUM COMPRESSIVE STRENGTH OF THRUST BLOCK CONCRETE SHALL BE 3,000 P.S.I.  
 5. KEEP CONCRETE CLEAR OF MECHANICAL JOINTS.  
 6. THE BELOW PREDICATED ON A WATER PRESSURE OF 225 PSI AND A SOIL RESISTANCE OF 2000 PSF (TILL). FOR OTHER SOILS THE VALUES IN THE ABOVE TABLE SHALL BE MULTIPLIED BY:  
 SOFT CLAY 4  
 SAND 2  
 SAND & GRAVEL 1.33  
 SHALE 0.4





Arbella at Ashland

MBTA Access Road  
 Ashland, MA 01721

U A Senior  
 Manager LLC

Rensselaer  
 Technology Park  
 300 Jordan Road  
 Troy, NY 12180



PROFESSIONAL ENGINEER FOR  
 ALLEN & MAJOR ASSOCIATES, INC.

**COMPREHENSIVE PERMIT**  
 NOT FOR CONSTRUCTION

drawing by: **SL**  
 drawing checked by: **AD**  
 drawing scale: **AS SHOWN**  
 drawing date: **04 SEPTEMBER 2020**  
 project number: **19021.00**

No.	Description	Date
1	PER PERMIT REVIEW COMMENTS	03-24-2021



**DETAILS**

**C-505**

**RECOMMENDED ACCESS OPENING SPECIFICATION**

- A TYPICAL ACCESS OPENING FOR THE STORMTRAP SYSTEM AND 2'-0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 2'-0" IN DIAMETER MUST BE APPROVED BY STORMTRAP. ALL OPENINGS MUST BE LOCATED AT LEAST 1'-0" FROM THE EDGE OF THE STORMTRAP MODULE UNLESS OTHERWISE SPECIFIED. ALL ACCESS OPENINGS TO BE LOCATED ON INSIDE LEG UNLESS OTHERWISE SPECIFIED.
- PLASTIC COATED STEEL STEPS PROVIDED BY R.A.L. INDUSTRIES PART #RSL-4PC OR APPROVED EQUAL (SEE STEP DETAIL) ARE PROVIDED INSIDE ANY MODULE WHERE DEMAND NECESSARY. THE HIGHEST STEP IN THE MODULE IS TO BE PLACED A DISTANCE OF 1'-0" FROM THE INSIDE EDGE OF THE STORMTRAP MODULE. ALL INWARD STEPS SHALL BE PLACED WITH A MINIMUM DISTANCE OF 1'-0" BETWEEN THEM. STEPS ARE TO BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE MODULE.
- STORMTRAP LIFETIME INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.
- STORMTRAP ACCESS OPENINGS MAY BE RELOCATED TO AVOID INTERFERENCE WITH SLEET AND/OR OTHER PIPE OPENINGS OR PLACEMENT OF STEPS IS ATTAINABLE.
- ACCESS OPENINGS SHOULD BE LOCATED TO MEET THE APPROPRIATE MUNICIPAL REQUIREMENTS. STORMTRAP RECOMMENDS AT LEAST TWO ACCESS OPENINGS PER SYSTEM FOR ACCESS AND INSPECTION.
- USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. STORMTRAP RECOMMENDS FOR COVER OVER 2" TO USE PRECAST MANHOLE OR CONE INSPECTIONS (PROVIDED BY OTHERS).

**RECOMMENDED PIPE OPENING SPECIFICATION**

- MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 2'-0".
- MINIMUM OPENING SIZE TO BE DETERMINED BY THE MODULE HEIGHT. PREPARED OPENING SIZE IS 8" OR LESS. ANY OPENING NEEDED THAT DOES NOT FIT THIS CENTERLINE SHALL BE SUBJECT TO THE ATTENTION OF STORMTRAP FOR REVIEW.
- CONNECTING PIPES SHALL BE INSTALLED WITH A 1'-0" CONCRETE COLLAR AND AN AGGREGATE CHAMBER FOR AT LEAST ONE PIPE LENGTH (SEE PIPE CONNECTION DETAIL). A STRUCTURAL BASE CONCRETE COLLAR (HIGH STRENGTH NON-SHREAK GROUT) WITH A MINIMUM 2" JOINT GAP SHALL BE USED TO SECURE THE COLLAR TO THE WALL.
- THE ANNUAL SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON-SHREAK GROUT.

**RECOMMENDED PIPE INSTALLATION INSTRUCTIONS**

- CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED INTO STORMTRAP.
- IF PIPE IS CUT, CARE SHOULD BE TAKEN TO AVOID ROUGH EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.
- ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.

NOTE: ALL ANCILLARY PRODUCTS RECOMMENDED AND SHOWN ON THIS SHEET ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLATION CONTRACT.

**RISER / STAIR DETAIL**

**PIPE CONNECTION DETAIL**

**STEP DETAIL**

**StormTrap**  
1-877-867-6872

ENGINEER INFORMATION:  
 PROJECT INFORMATION:  
 SINGLETRAP  
 INFILTRATION  
 CURRENT ISSUE DATE:  
 ISSUED FOR:  
 SAMPLE PROJECT  
 REV. DATE: ISSUED FOR: (FORM 89)

SCALE:  
 NTS

SHEET TITLE:  
**RECOMMENDED PIPE / ACCESS OPENING SPECIFICATIONS**

SHEET NUMBER:  
**5.0**

**STORMTRAP PIPE/ACCESS OPENING SPECIFICATIONS**  
 NOT TO SCALE **5**

**StormTrap**  
1-877-867-6872

ENGINEER INFORMATION:  
 PROJECT INFORMATION:  
 SINGLETRAP  
 INFILTRATION  
 CURRENT ISSUE DATE:  
 ISSUED FOR:  
 SAMPLE PROJECT  
 REV. DATE: ISSUED FOR: (FORM 89)

SCALE:  
 NTS

SHEET TITLE:  
**STORMTRAP BACKFILL SPECIFICATIONS**

SHEET NUMBER:  
**4.0**

**ZONE CHART**

ZONE	ZONE DESCRIPTION	REMARKS
ZONE 1 A	FOUNDATION AGGREGATE	
ZONE 1 B	FOUNDATION AGGREGATE	
ZONE 2	BACKFILL	
ZONE 3	FINAL COVER OVERTOP	

**BACKFILL DETAIL**

**StormTrap**  
1-877-867-6872

ENGINEER INFORMATION:  
 PROJECT INFORMATION:  
 SINGLETRAP  
 INFILTRATION  
 CURRENT ISSUE DATE:  
 ISSUED FOR:  
 SAMPLE PROJECT  
 REV. DATE: ISSUED FOR: (FORM 89)

SCALE:  
 NTS

SHEET TITLE:  
**STORMTRAP BACKFILL SPECIFICATIONS**

SHEET NUMBER:  
**4.0**

**STORMTRAP BACKFILL SPECIFICATIONS**  
 NOT TO SCALE **4**

**STORMTRAP INSTALLATION SPECIFICATIONS**

- STORMTRAP SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D955 STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE STRUCTURES. THE FOLLOWING ADDITIONAL AND/OR EXCEPTIONS SHALL APPLY:
- IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT APPROPRIATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.
- THE AGGREGATE FOUNDATION HAS BEEN ASSIGNED BASED ON THE FOLLOWING ASSUMPTIONS. THESE ASSUMPTIONS WILL NEED TO BE VERIFIED BY A GEOTECHNICAL ENGINEER WHICH WILL NEED TO BE OBTAINED BY THE OWNER.
  - A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO PROVIDE ASSISTANCE IN EVALUATING THE EXISTING SOIL CONDITIONS AT THE ELEVATION THE STORM FOUNDATION IS TO BE PLACED. IF A FOUNDATION IS TO BE USED FOR THIS CONDITION, THE BEARING CAPACITY OF THE SOIL AT THIS LEVEL WILL NEED TO MEET OR EXCEED ALLOWABLE CAPACITY. IF THIS IS NOT POSSIBLE, THE STONE FOUNDATION MAY NOT BE AN OPTION FOR THIS LOCATION.
  - A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO EVALUATE A SOURCE OF STONE AGGREGATE THAT WILL BE USED IN THE STORM FOUNDATION. THE AGGREGATE BASE COURSE FOR WHICH THE STORMTRAP SYSTEM WILL BEAM DIRECTLY ON SHALL CONSIST OF A 2" THICK BED OF 1/2" DIAMETER ANGULAR STONE, WELL COMPACTED AND SEALED WITH 1/4" SAND, AND A 12" THICK BED OF 1/2" DIAMETER AGGREGATE (SEE SHEET 4.0 FOR FURTHER DESCRIPTION/EXPLANATIONS). PLEASE NOTE THAT THESE ARE ONLY MINIMUM RECOMMENDATIONS AND A QUALIFIED GEOTECHNICAL ENGINEER SHALL BE USED TO DETERMINE THE EXACT REQUIREMENTS FOR THE LOCATIONS THAT THE STORMTRAP SYSTEM IS TO BE LOCATED.
- THE CONTRACTOR SHALL REMOVE ANY AND ALL DOWNHOLE OR COLLAPSIBLE SOILS AT THE DISCRETION OF A QUALIFIED GEOTECHNICAL ENGINEER.
- THE AGGREGATE FOUNDATION SHALL BE INSTALLED SUCH THAT THE AGGREGATE EXTENDS A MINIMUM OF 2'-0" PAST THE OUTSIDE OF THE SYSTEM (SEE DETAIL 1).
- THE 2" AGGREGATE SHALL BE COMPACTED USING A VIBRATING ROLLER WITH (STEP FULL DYNAMIC FORCE APPLIED TO AVOID FLAT SPALLS).
- DISK, DRY AND COMPACT THE TOP 1" OF THE SUBGRADE SOILS TO 90% OF THE STANDARD DRY DENSITY AND 10% OPTIMUM MOISTURE CONTENT.
- AGGREGATE SHALL BE GRADED WITHIN +/- 1" OF THE GRADE SHOWN ON THE PLANS.
- MINIMUM SOIL BEARING CAPACITY (LISTED ON SHEET 3.0) SHALL BE VERIFIED BY OTHERS.
- THE STORMTRAP MODULES SHALL BE PLACED SUCH THAT THE MINIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED 2" (SEE DETAIL 2). IF THE SPACE EXCEEDS 2", THE MODULES SHALL BE ADJUST WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO MEET THE SPACE INTO SPECIFICATION.
- STORMTRAP MODULES ARE NOT WATER-TIGHT. IF A WATER-TIGHT SOLUTION IS REQUIRED, CONTACT STORMTRAP FOR RECOMMENDATIONS. THE WATER-TIGHT APPLICATION IS TO BE PROVIDED AND IMPLEMENTED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE SELECTED WATER-TIGHT SOLUTION PROVIDES AS SPECIFIED BY THE MANUFACTURER. CONTACT STORMTRAP IF A WATER-TIGHT APPLICATION IS REQUIRED.
- ALL EXTERIOR JOINTS BETWEEN ADJACENT STORMTRAP MODULES SHALL BE SEALED WITH 1" THICK, REINFORCED, COLA-APPLIED, SELF-ADHERING ELASTOMERIC RESIN, BONDING TO A NON-POROUS, HIGH-PH PUNCTURE RESISTANT POLYMER WRAP. CONFORMED TO ASTM D588 AND SHALL BE DETACHED WITH PROPER CARE. SEE SHEET 3.0 FOR STORMTRAP DETAIL 3. A 1/4" JOINT WRAP DOES NOT PROVIDE A WATER-TIGHT SEAL. THE SOLE PURPOSE OF THE JOINT WRAP IS TO PROVIDE A SET AND SOIL TIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:
  - USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE THE JOINT WRAP IS TO BE APPLIED.
  - A RELEASE MARKS PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) BEHIND THE STRUCTURE. REMOVE THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP (STEP) AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLIED.
  - IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.
  - IF THE STORMTRAP MODULES IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL, STORMTRAP MUST BE CONTACTED IMMEDIATELY TO ADDRESS THE DAMAGE AND TO DETERMINE WHEN AND HOW THE MODULES WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT. CONTACT STORMTRAP IMMEDIATELY. ANY DAMAGE NOT REMOVED BEFORE THE BACKLOG UNLOADS WILL BE THE CONTRACTOR'S RESPONSIBILITY.
- STORMTRAP MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM STORMTRAP.

**DETAIL 1**

**DETAIL 2**

**DETAIL 3**

**DETAIL 4**

**StormTrap**  
1-877-867-6872

ENGINEER INFORMATION:  
 PROJECT INFORMATION:  
 SINGLETRAP  
 INFILTRATION  
 CURRENT ISSUE DATE:  
 ISSUED FOR:  
 SAMPLE PROJECT  
 REV. DATE: ISSUED FOR: (FORM 89)

SCALE:  
 NTS

SHEET TITLE:  
**SINGLETRAP INSTALLATION SPECIFICATIONS**

SHEET NUMBER:  
**3.0**

**STORMTRAP INSTALLATION SPECIFICATIONS**  
 NOT TO SCALE **3**

**StormTrap**  
1-877-867-6872

ENGINEER INFORMATION:  
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 CURRENT ISSUE DATE:  
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 SAMPLE PROJECT  
 REV. DATE: ISSUED FOR: (FORM 89)

SCALE:  
 NTS

SHEET TITLE:  
**STORMTRAP DESIGN CRITERIA**

SHEET NUMBER:  
**1.0**

**STORMTRAP STRUCTURAL DESIGN CRITERIA**

- STORMTRAP MODULES SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND PROVIDED BY OTHERS. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
- COVER RANGE: MIN. 1.20' MAX. 4.00' CONCRETE STORMTRAP FOR ADDITIONAL COVER OPTIONS.
- ALL UNDERDRAIN AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO UNDERDRAIN AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.

**SINGLETRAP**

**StormTrap**  
1-877-867-6872

ENGINEER INFORMATION:  
 PROJECT INFORMATION:  
 SINGLETRAP  
 INFILTRATION  
 CURRENT ISSUE DATE:  
 ISSUED FOR:  
 SAMPLE PROJECT  
 REV. DATE: ISSUED FOR: (FORM 89)

SCALE:  
 NTS

SHEET TITLE:  
**SINGLETRAP DESIGN CRITERIA**

SHEET NUMBER:  
**1.0**

**STORMTRAP DESIGN CRITERIA**  
 NOT TO SCALE **1**

**PROPOSED LAYOUT**  
 (68) STORMTRAP CHAMBERS

INSTALLED WITH 6" COVER STONE,  
 12" BASE STONE, 40% STONE VOID  
 AREA OF SYSTEM: 12,004 FT<sup>2</sup>  
 PERIMETER OF SYSTEM: 744 FT

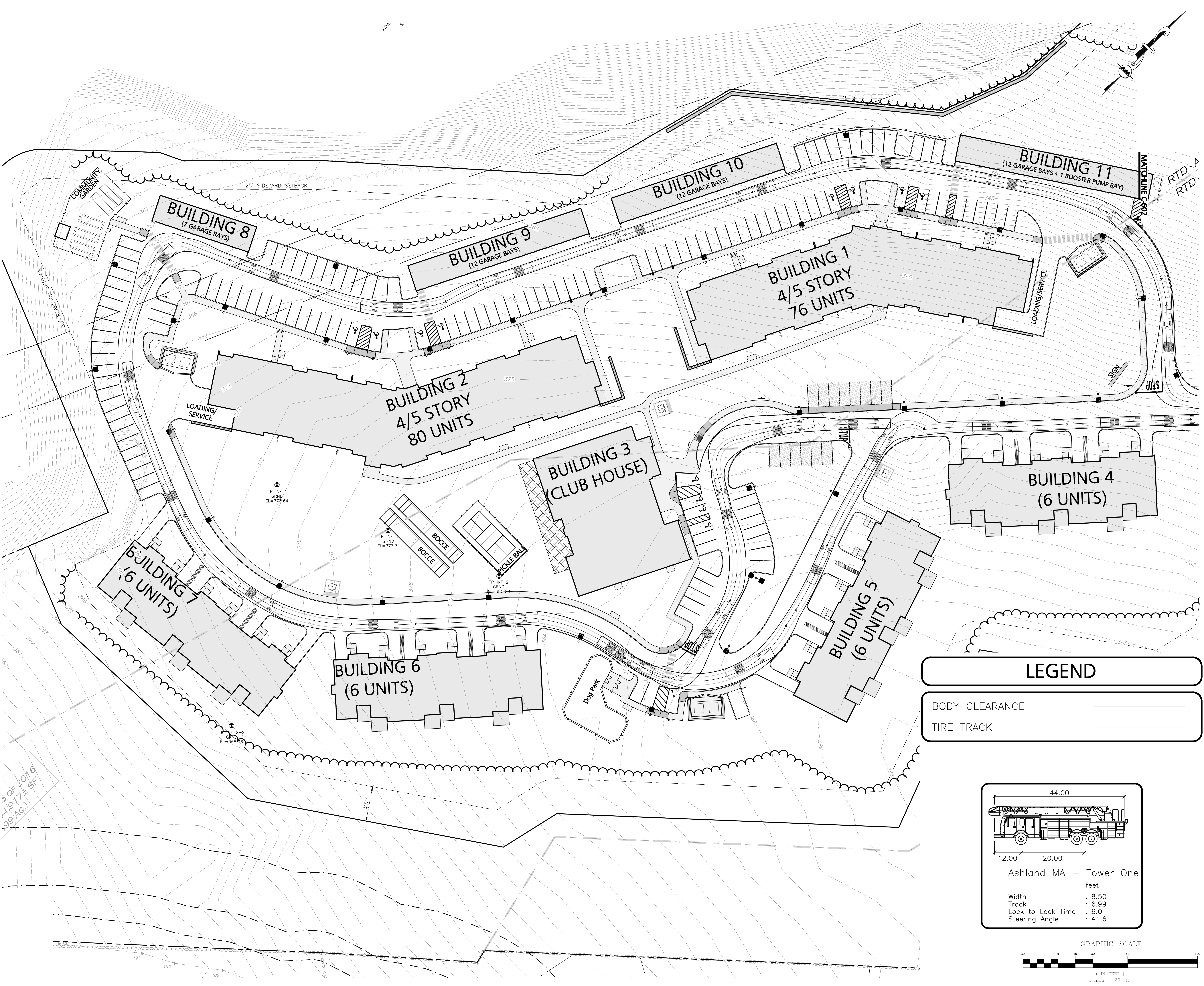
**SYSTEM LAYOUT**  
 NTS

**PROPOSED U/S ELEVATIONS**

TOP OF CHAMBERS: 358.17  
 BOTTOM OF CHAMBERS: 353.50  
 BOTTOM OF STONE: 352.50  
 24" INV: 355.00 (IN)  
 5-12" INV: 356.25 (IN)  
 24" INV: 353.50 (OUT)

**STORMTRAP CHAMBERS**  
 NOT TO SCALE **3**





**LEGEND**

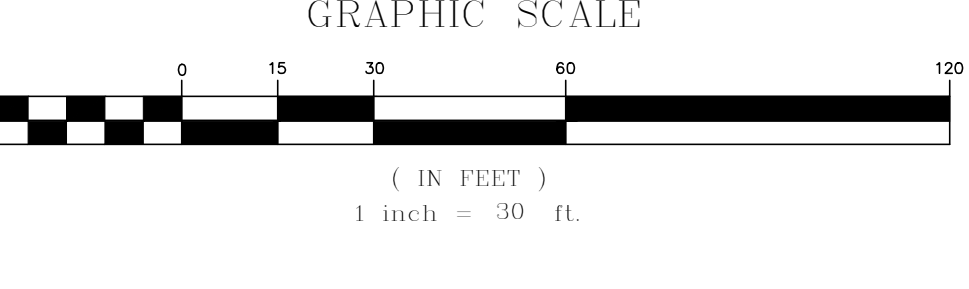
BODY CLEARANCE \_\_\_\_\_

TIRE TRACK \_\_\_\_\_

Ashland MA - Tower One

feet

Width : 8.50  
 Track : 6.99  
 Lock to Lock Time : 6.0  
 Steering Angle : 41.6



DIG SAFE



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







