

BYFIELD ESTATES

BYFIELD, MA

DATE: MARCH 22, 2017

REV: JANUARY 3, 2018

PREPARED FOR:

OWNER/DEVELOPER

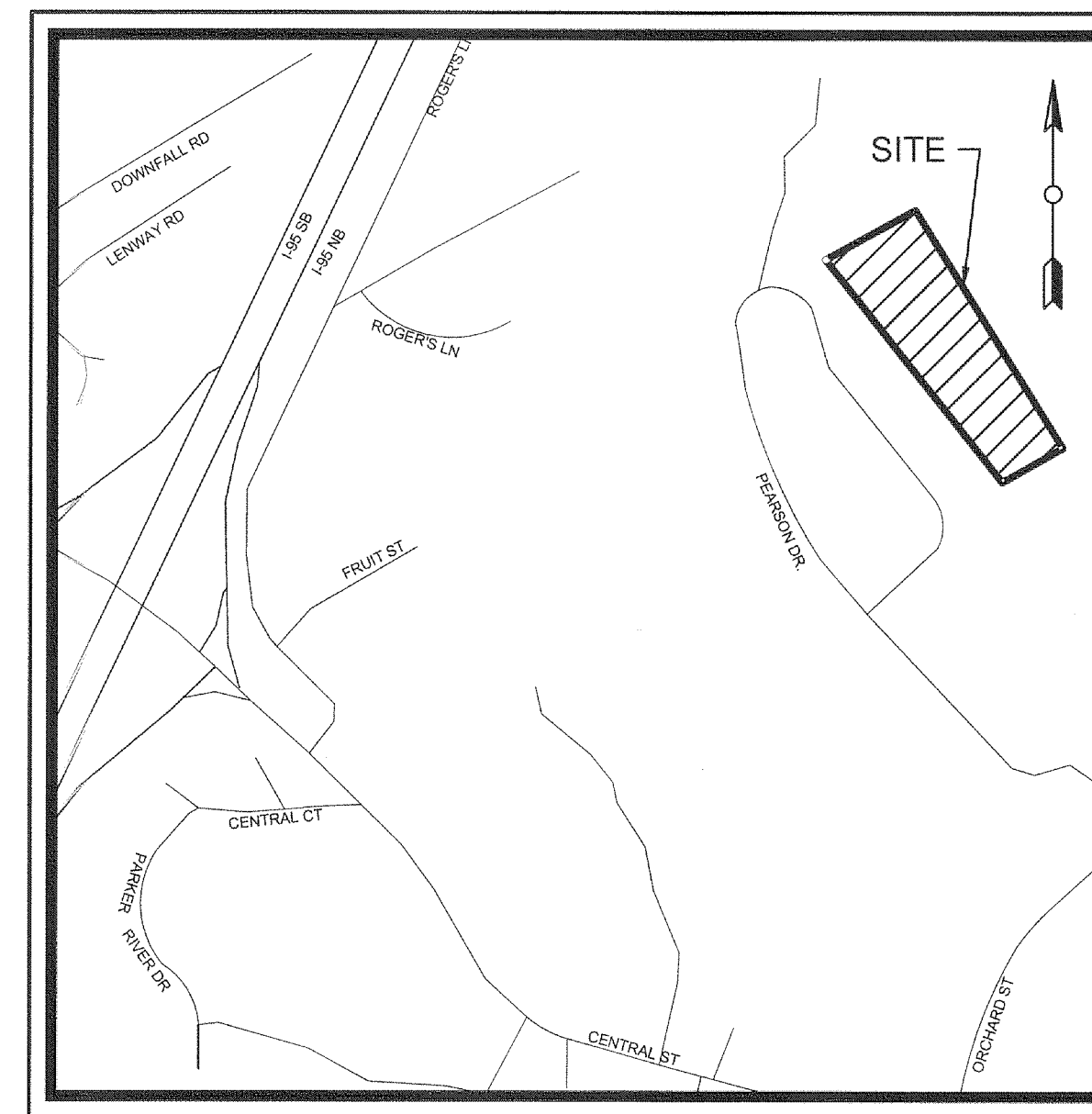
BYFIELD ESTATES, LLC

2 DEARBORN WAY

MIDDLETON, MA 01949

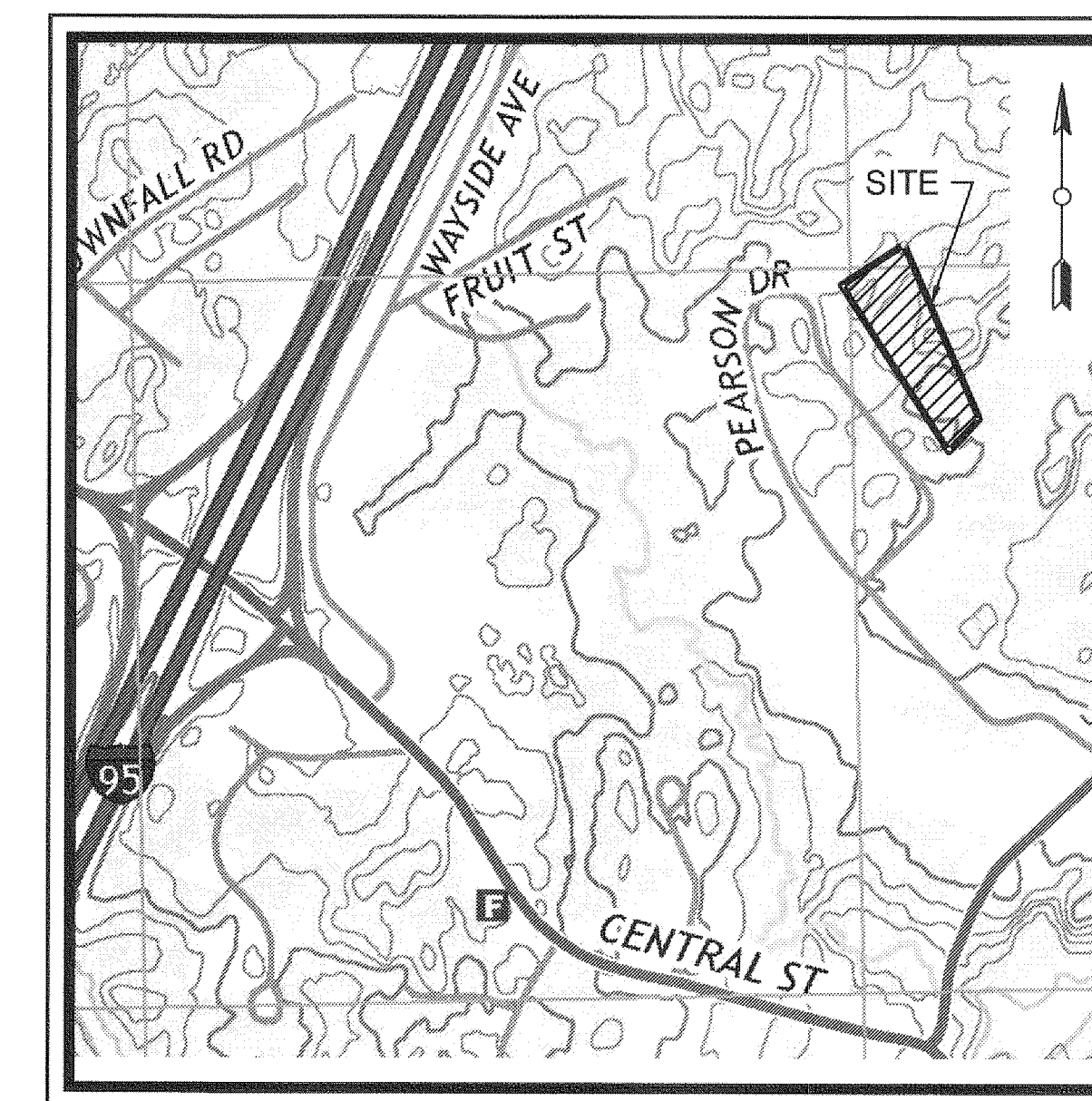
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LOCATION MAP

Scale: N.T.S

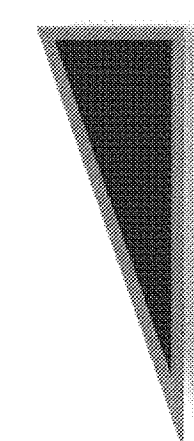


USGS MAP

Scale: N.T.S.

PREPARED BY:

RANGER ENGINEERING & DESIGN, LLC



**RANGER
ENGINEERING &
DESIGN, LLC**

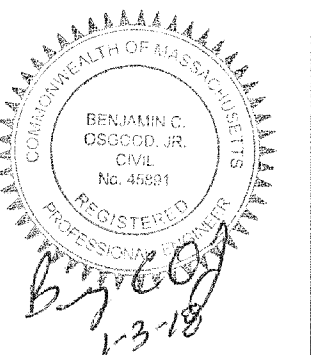
13 Branch Street, Suite 101
Methuen, MA 01844
T 978.435.1324



THE LAW REQUIRES NOTIFICATION
BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO
DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE AT
LEAST 72 HOURS BEFORE BEGINNING CONSTRUCTION.
1-888-DIG-SAFE (1-888-344-7233)
WWW.DIGSAFE.COM

NOT FOR CONSTRUCTION

**RANGER ENGINEERING &
DESIGN, LLC**
13 Branch Street, Suite 101
Methuen, MA 01844
T 978.435.1324



ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR
AND OWNER MUST BE NOTIFIED OF ANY
DISCREPANCIES BEFORE PROCEEDING WITH WORK

BYFIELD ESTATES

BYFIELD (NEWBURY), MA 01922
ASSESSOR'S MAP R-20 LOT 75

COVER SHEET

BYFIELD ESTATES, LLC

2 DEARBORN WAY
MIDDLETON, MA 01949

[illegible]

PROJECT	15-1516
DATE	2017-03-22
DRAWING SCALE	AS NOTED
DRAWN BY	CPH
APPROVED BY	BCO

CS0001

SHEET 1 OF 17

ADJ	ADJUST
APPROX	APPROXIMATE
BIT	BITUMINOUS
BOS	BOTTOM OF SLOPE
CB	CATCH BASIN
CCB	CAPE COD BERM
CLDI	CEMENT LINED DUCTILE IRON
C.L.F.	CHAIN LINK FENCE
CONC	CONCRETE
COND	CONDUIT
DCB	DOUBLE CATCH BASIN
DH	DRILL HOLE
DMH	DRAIN MANHOLE
DS	DOWN SPOUT
ELEV	ELEVATION
EOG	EDGE OF GRASS
EQ	EQUAL
ESHWG	ESTIMATED SEASONAL HIGH GROUND WATER
EXIST	EXISTING
FDN	FOUNDATION
FES	FLARED END SECTION
FND	FOUND
FP	FIRE PROTECTION SERVICE
F&G	FRAME AND GRATE
F&C	FRAME AND COVER
GF	GARAGE FLOOR
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HYD	HYDRANT
INV	INVERT ELEVATION
IP	IRON PIPE
IR	IRON ROD
L/A	LANDSCAPE AREA
MAX	MAXIMUM
MIN	MINIMUM
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OCS	OUTLET CONTROL STRUCTURE
OE	OVERHEAD ELECTRIC
OWS	OIL WATER SEPARATOR
PC	POINT OF CURVATURE
PCC	POINT OF CURVE-CURVE
PERF	PERFORATED
PRC	POINT OF REVERSE CURVE-CURVE
PROP	PROPOSED
PT	POINT OF TANGENT
PVC	POLYVINYL CHLORIDE PIPE
PWW	PAVED WATER WAY
RCP	REINFORCED CONCRETE PIPE
REM	REMOVE
REMOD	REMODEL
RET	RETAIN
R&D	REMOVE AND DISPOSE
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
SGC	SLOPE GRANITE CURB
SMH	SEWER MANHOLE
STR	STRUCTURE
SW	SIDEWALK
TOS	TOP OF SLOPE
TSVB&B	TAPPING SLEEVE, VALVE AND BOX
TYP	TYPICAL
UGD	UNDERGROUND DETENTION SYSTEM
UGU	UNDERGROUND UTILITY
VCP	VITRIFIED CLAY PIPE
WCR	WHEEL CHAIR RAMP
WTF	WATER TANK FEED
WQU	WATER QUALITY UNIT

EXISTING UTILITIES INFORMATION

A. BASE PLAN:

a. THE LOCUS IS SHOWN ON TOWN OF NEWBURY ASSESSOR'S MAP R-20 LOT 75, LOCATED IN ZONING DISTRICT AGRICULTURAL-RESIDENTIAL (R-AG) AND IS KNOWN AS 55 PEARSON DRIVE (BYFIELD) NEWBURY, MA 01922.

b. TOPOGRAPHY SHOWN ON THIS PLAN IS A RESULT OF A FIELD SURVEY PERFORMED BY TTI ENVIRONMENTAL, INC. DURING DECEMBER 2015.

c. DEED REFERENCE: BOOK 34428 PAGE 106, ESSEX COUNTY REGISTRY OF DEEDS.

d. WETLANDS DELINEATION BY RIMMER ENVIRONMENTAL INC. IN DECEMBER 2015 AND UPDATED IN OCTOBER AND NOVEMBER 2017.

e. TEST PITS PERFORMED BY TTI ENVIRONMENTAL IN NOVEMBER 2015 AND BY RANGER ENGINEERING AND DESIGN, LLC IN NOVEMBER 2017.

B. REFERENCES

a. PLAN BOOK 152, PLAN 63, "DEFINITIVE PLAN, HIGHFIELDS NEWBURY, MASSACHUSETTS, PREPARED BY PORT ENGINEERING ASSOCIATES, INC. DATED AUG. 1978, SCALE: 1"=100';

b. PLAN BOOK 396, PLAN 5, "APPROVAL NOT REQUIRED PLAN, PIKE DEVELOPMENT LLC, ORCHARD STREET NEWBURY, MASSACHUSETTS, PREPARED BY CAMMETT ENGINEERING, DATED 11-06-05, SCALE: 1"=40'.

C. UTILITIES:
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE.

THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR IS TO CONTACT "DIG SAFE" AT 1-888-344-7223, 72 HOURS PRIOR TO ANY EXCAVATION PERFORMED ON SITE.

2. MATERIALS

A. CURBING:
ON SITE:
ALL CURBING ON SITE SHALL BE SLOPED GRANITE CURB (SGC) WITH A 6 INCH VERTICAL REVEAL, OR CAPE COD BERM (CCB) WITH A 6 INCH VERTICAL REVEAL, UNLESS OTHERWISE NOTED.

B. BITUMINOUS CONCRETE PAVEMENT:

ROADWAYS:
SURFACE COURSE: 1-1/2 INCH BITUMINOUS WEARING COURSE
BINDER COURSE: 2-1/2 INCHES BITUMINOUS BINDER COURSE
GRAVEL BASE COURSE: 6 INCHES SELECT COMPACTED DENSE GRADES CRUSHED STONE FOR SUBBASE M2.01.7
GRAVEL BASE COURSE: 6 INCHES SELECT COMPACTED SUBBASE M1.030 TYPE C

PARKING AREAS & RESIDENTIAL DRIVEWAYS:
SURFACE COURSE: 1 INCH BITUMINOUS WEARING COURSE
BINDER COURSE: 2 INCHES BITUMINOUS BINDER COURSE
GRAVEL BASE COURSE: 8 INCHES SELECT COMPACTED GRANULAR FILL

C. BITUMINOUS CONCRETE SIDEWALK:
SURFACE COURSE: 1 INCH BITUMINOUS WEARING COURSE
BINDER COURSE: 1-1/2 INCHES BITUMINOUS BINDER COURSE
GRAVEL BASE COURSE: 8 INCHES SELECT COMPACTED GRANULAR FILL

D. LANDSCAPE AREAS:
ALL DISTURBED AREAS NOT COVERED BY STRUCTURES OR PAVEMENT AND NOT OTHERWISE SPECIFIED ON THE LANDSCAPE PLAN SHALL RECEIVE 6 INCHES OF TOPSOIL. THESE AREAS ARE TO BE SEEDED AND WATERED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED OR MULCHED AS DIRECTED BY THE ARCHITECT.

E. DISTURBED AREAS:
AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

F. LAYOUT DIMENSIONS:
LAYOUT DIMENSIONS ARE FROM FACE OF BUILDINGS, RETAINING WALLS, CURBS OR BERMS.

G. TRAFFIC CONTROLS:
ALL SITE SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

H. ADA CONFORMANCE:
ALL HANDICAPPED ACCESSIBLE RAMPS AND SIDEWALKS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE AMERICANS WITH DISABILITIES ACT AND THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (WHICHEVER IS MORE RESTRICTIVE).

3. UTILITIES

A. EXISTING UTILITIES:
THE LOCATION AND ELEVATIONS OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON THE SURVEY NOTED ABOVE AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION AND PRIOR TO ORDERING STRUCTURES.

B. PRIVATE UTILITIES:
THE LOCATION, SIZE, DEPTH, AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS PROVIDED BY, AND APPROVED BY, THE RESPECTIVE UTILITY COMPANY (GAS, TELEPHONE OR ELECTRIC). FINAL DESIGN AND LOCATIONS AT THE BUILDING WILL BE PROVIDED BY THE ARCHITECT. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE UTILITY CONNECTIONS WITH THE RESPECTIVE UTILITY COMPANIES PRIOR TO ANY UTILITY CONSTRUCTION OR DEMOLITION.

C. EXTERIOR LIGHTING:
ON-SITE LIGHTING SHALL BE POST LAMPS INSTALLED ALONG THE DRIVEWAY OF EACH DWELLING UNIT.

D. STORM DRAINAGE:
STORM DRAIN PIPING SHALL BE HIGH DENSITY POLYETHYLENE PIPE (HDPE) WITH CORRUGATED EXTERIOR, SMOOTH LINED WITH LOCK TIGHT JOINTS UNLESS OTHERWISE NOTED ON THE GRADING & DRAINAGE PLAN.

E. PROPOSED STRUCTURES:
RIM ELEVATIONS OF PROPOSED DRAINAGE MANHOLES AND ASSOCIATED STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS, ARE TO BE SET FLUSH AND CONSISTENT WITH THE GRADING PLAN. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISH GRADE WITHIN LIMITS OF WORK.

F. GENERAL CONSTRUCTION REQUIREMENTS:

a. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

b. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATION REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICES.

	PROPOSED
BUILDING	
PROPERTY LINE	
EXCLUSIVE USE AREA	
ADJACENT PROPERTY LINE	
SETBACK LINE	
RIGHT-OF-WAY LINE	
RIGHT-OF-WAY EASEMENT	
ROADWAY CENTERLINE	
WETLAND LINE	
STONE WALL	
CHAIN LINK FENCE	
WOOD STOCKADE FENCE	
EDGE OF PAVEMENT	
ROADED GRANITE CURB	
SIDEWALK	
OUTCROP/ROCKS	
RETAINING WALL	
GRAVEL	
WETLAND AREA	
CONC. PAVEMENT	
CONC. SIDEWALK	
CONC. DRIVEWAY	
SPOT ELEVATION	48.34 x
LIGHT	
SIGN	
TEST PIT LOCATION	
COLLOCATION LOCATION	
CONTOUR	
WATER LINE DOMESTIC	
SANITARY SEWER	
STORM SEWER	
GAS LINE	
AEROGROUND ELECTRIC	
UNDERHEAD ELECTRIC	
SANITARY MANHOLE	
STORM DRAIN MANHOLE	
STORM DRAIN INLET	
RAIN FLARED END SECTION	
CONIFEROUS TREE	
DECIDUOUS TREE	
TREE LINE	
FIRE HYDRANT	
WATER VALVE	
CONSTRUCTION ENTRANCE	
SILT SACK	
FENCE/SILT SOCK	
WETLAND FLAG	

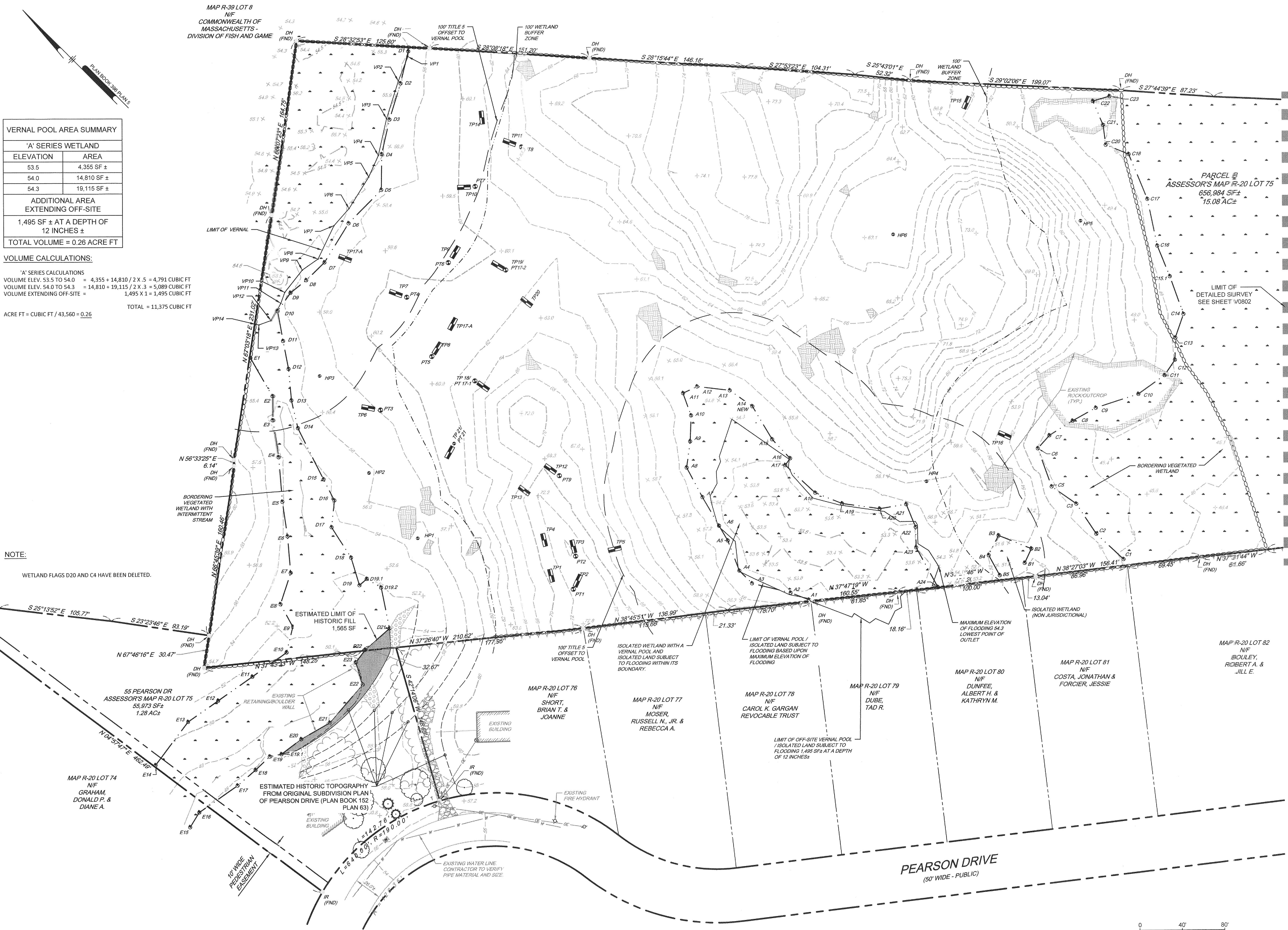
2 DEARBORN WAY
MIDDLETON, MA 01949

[illegible]

PROJECT	15-1516
DATE	2017-03-19
DRAWING SCALE	N.T.S.
DRAWN BY	CPH
APPROVED BY	BCO

CS00002

NOT FOR CONSTRUCTION



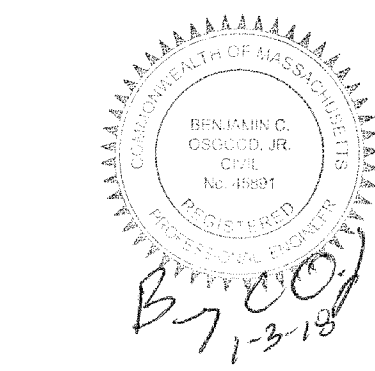
VERNAL POOL AREA SUMMARY	
'A' SERIES WETLAND	
ELEVATION	AREA
53.5	4,355 SF ±
54.0	14,810 SF ±
54.3	19,115 SF ±
ADDITIONAL AREA EXTENDING OFF-SITE	
1,495 SF ± AT A DEPTH OF 12 INCHES ±	
TOTAL VOLUME = 0.26 ACRE FT	

VOLUME CALCULATIONS:

'A' SERIES CALCULATIONS
VOLUME ELEV. 53.5 TO 54.0 = $4,355 + 14,810 / 2 \times 0.5 = 4,791$ CUBIC FT
VOLUME ELEV. 54.0 TO 54.3 = $14,810 + 19,115 / 2 \times 0.3 = 5,089$ CUBIC FT
VOLUME EXTENDING OFF-SITE = $1,495 \times 1 = 1,495$ CUBIC FT
TOTAL = 11,375 CUBIC FT
ACRE FT = CUBIC FT / 43,560 = 0.26

NOTE:
WETLAND FLAGS D20 AND C4 HAVE BEEN DELETED.

RANGER ENGINEERING &
DESIGN, LLC
13 Branch Street, Suite 101
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BYFIELD ESTATES
BYFIELD (NEWBURY), MA 01922
ASSESSOR'S MAP R-20 LOT 75
15.08 AC ±

EXISTING CONDITIONS PLAN

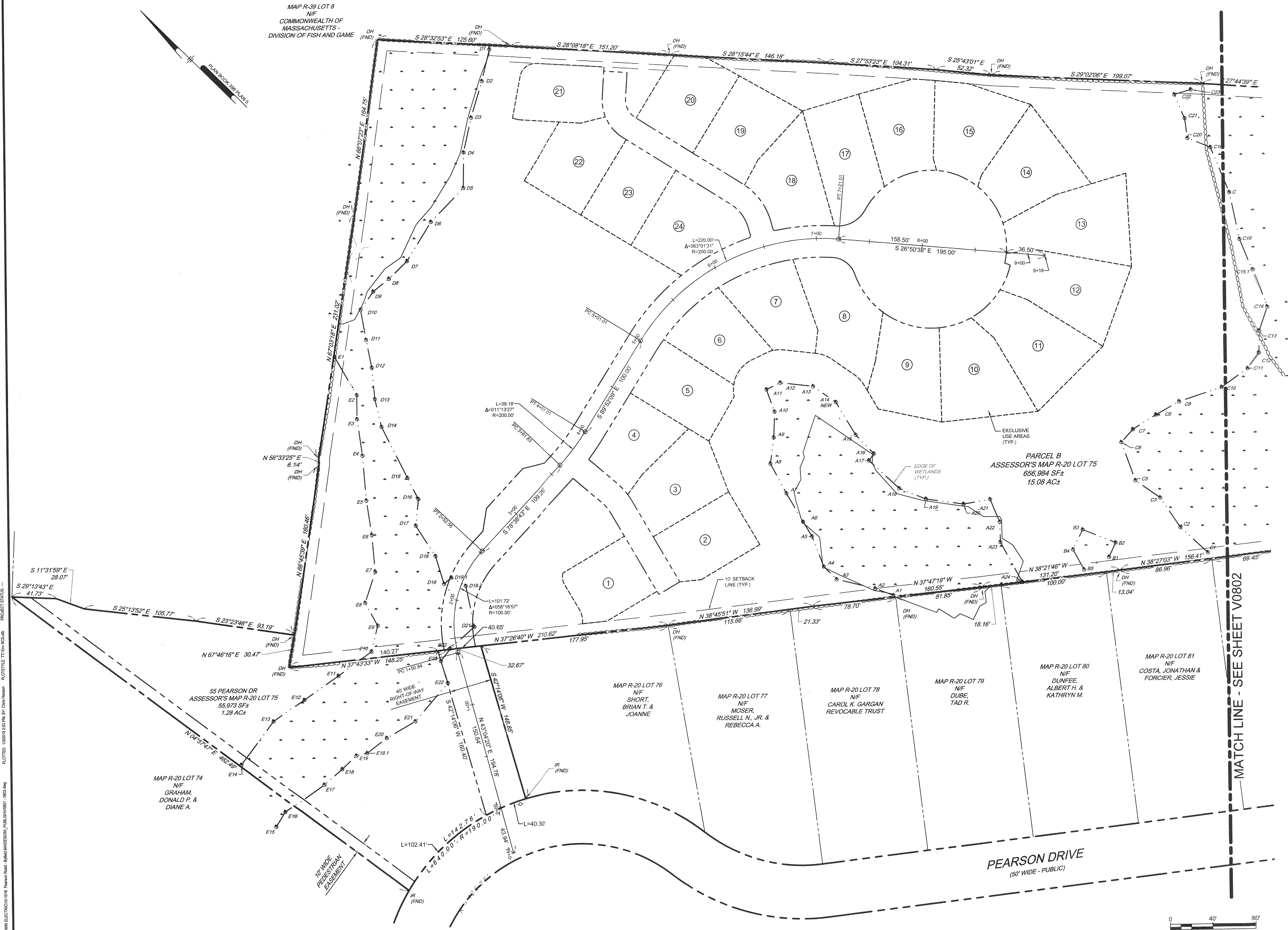
BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON, MA 01449

RESPONSE TO COMMENTS	BCO	BY
01-03-2018	7	
12-18-2017	6	
12-15-2017	5	
12-08-2017	4	
11-15-2017	3	
11-01-2017	2	
06-08-2017	1	
REVISIONS	NO.	DATE

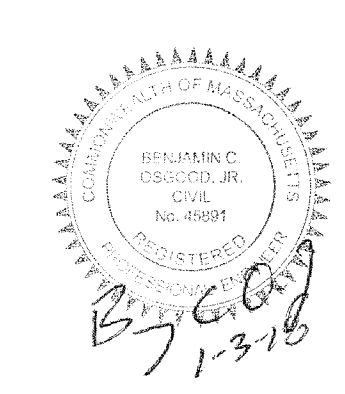
PROJECT 15-1516
DATE 2017-03-22
DRAWING SCALE 1"=40'
DRAWN BY CPH
APPROVED BY BCO

CS0201
SHEET 3 OF 17

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Methuen, MA 01844
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BYFIELD ESTATES
BYFIELD (NEWBURY), MA 01922
ASSESSOR'S MAP R-20 LOT 75

ROADWAY LAYOUT AND PROPERTY LINE PLAN

BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON, MA 01860

NO.	DATE	REVISIONS	BY
1	11-15-2017	INITIAL COMMENTS	BCO
2	01-03-2018	RESPONSE TO COMMENTS	BCO

PROJECT	15-1516
DATE	2017-03-22
DRAWING SCALE	1"=40'
DRAWN BY	CPH
APPROVED BY	BCO
V0801	
SHEET	4 OF 17



PROJECT	15-1516
DATE	2017-03-22
DRAWING SCALE	1"=40'
DRAWN BY	CPH
APPROVED BY	BCO
V0802	
SHEET	5 OF 17

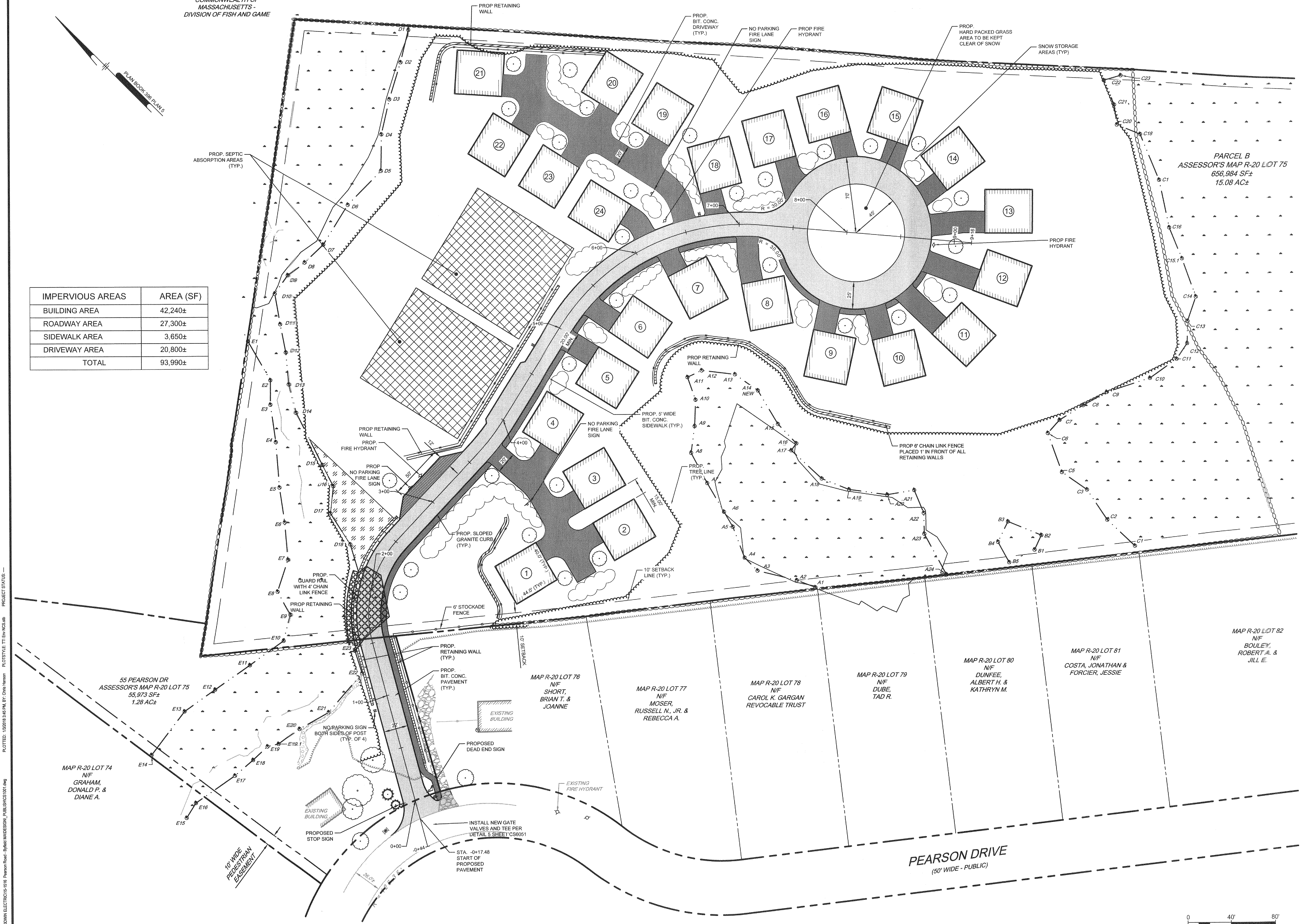
BYFIELD ESTATES
BYFIELD (NEWBURY), MA 01922
ASSESSOR'S MAP R-20 LOT 75

BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON, MA 01860

ROADWAY LAYOUT AND PROPERTY LINE PLAN

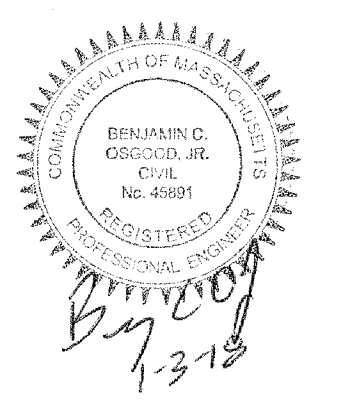
MAP R-39 LOT 8
N/F
COMMONWEALTH OF
MASSACHUSETTS -
DIVISION OF FISH AND GAME

IMPERVIOUS AREAS	AREA (SF)
BUILDING AREA	42,240±
ROADWAY AREA	27,300±
SIDEWALK AREA	3,650±
DRIVEWAY AREA	20,800±
TOTAL	93,990±



NOT FOR CONSTRUCTION

RANGER ENGINEERING &
DESIGN, LLC
13 Branch Street, Suite 101
Methuen, MA 01844
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BYFIELD ESTATES
BYFIELD NEWBURY, MA 01922
ASSESSOR'S MAP R-20 LOT 75

LAYOUT AND MATERIALS PLAN

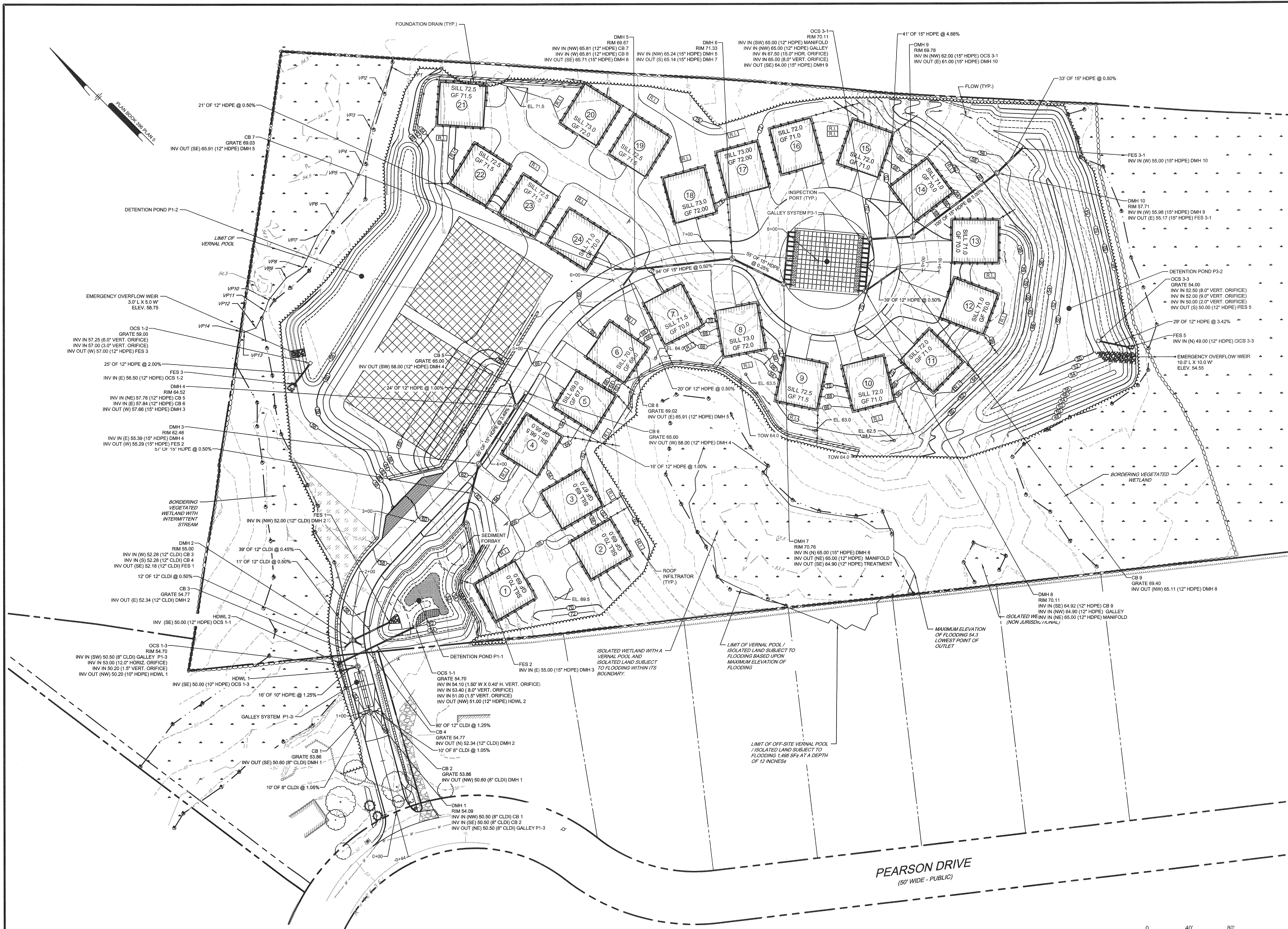
BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON MA 01949

NO.	DATE	REVISIONS
2	01-03-2018	RESPONSE TO COMMENTS
1	11-15-2017	INITIAL COMMENTS

PROJECT	15-1516
DATE	2017-03-22
DRAWING SCALE	1"=40'
DRAWN BY	JRA
APPROVED BY	BCO

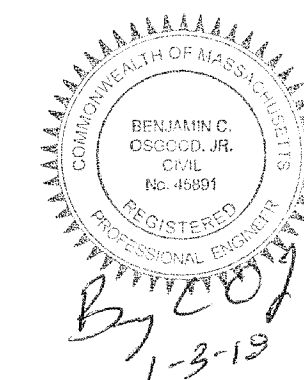
CS1001
SHEET 6 OF 17

COMPILED FROM: GOODWIN ELECTRICITY-1916 Pearson Drive - Byfield Estates, LLC
PLOTTER: 1/20/2018 2:38 PM BY: Chris Hansen PLOTSCALE: 1"=40' NCS:db PROJECT STATUS: —



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RANGER ENGINEERING &
DESIGN, LLC
13 Branch Street, Suite 101
Methuen, MA 01844
T 978.435.1324



BYFIELD ESTATES
BYFIELD (NEWBURY), MA
ASSESSOR'S MAP R-20 LOT 75

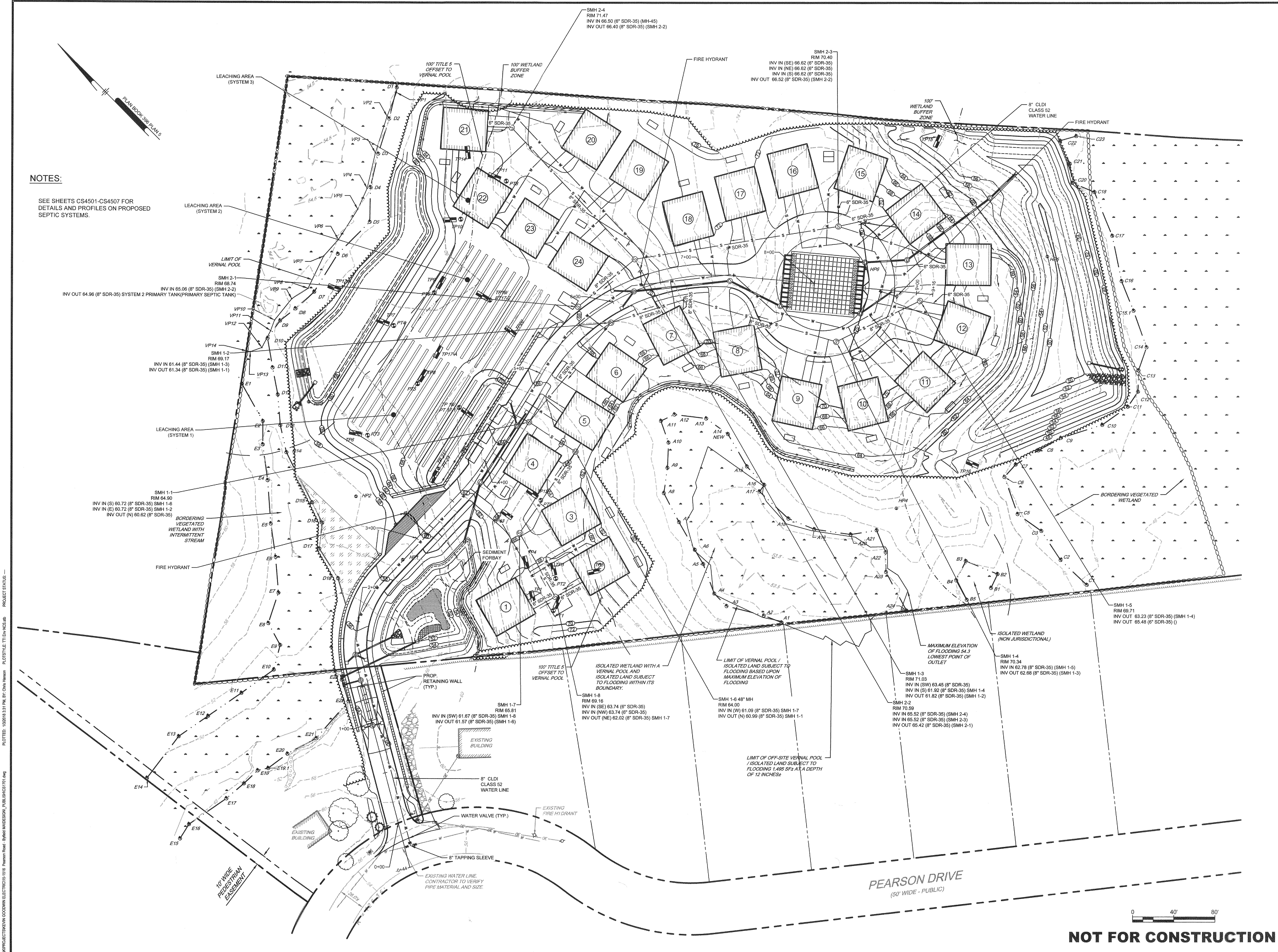
GRADING AND DRAINAGE PLAN

BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON MA 01949

DATE	NO.	REVISIONS	BY
01-03-2018	2	RESPONSE TO COMMENTS	BCO
11-15-2017	1	INITIAL COMMENTS	BCO

PROJECT 15-1516
DATE 2017-03-22
DRAWING SCALE 1"=40'
DRAWN BY JRA
APPROVED BY BCO

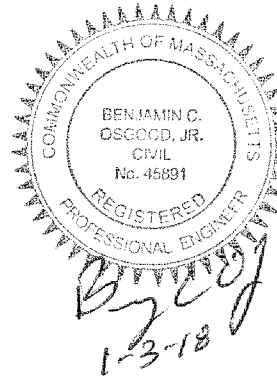
CS1501
SHEET 7 OF 17



NOTES:

SEE SHEETS CS4501-CS4507 FOR DETAILS AND PROFILES ON PROPOSED SEPTIC SYSTEMS.

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13 Branch Street, Suite 101
Methuen, MA 01844
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BYFIELD ESTATES
BYFIELD (NEWBURY), MA
ASSESSOR'S MAP R-20 LOT 75

UTILITY PLAN

BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON MA 01948

NO.	DATE	REVISIONS	BY
1	01-03-2018	RESPONSE TO COMMENTS	BCO
2	11-15-2017	INITIAL COMMENTS	BCO

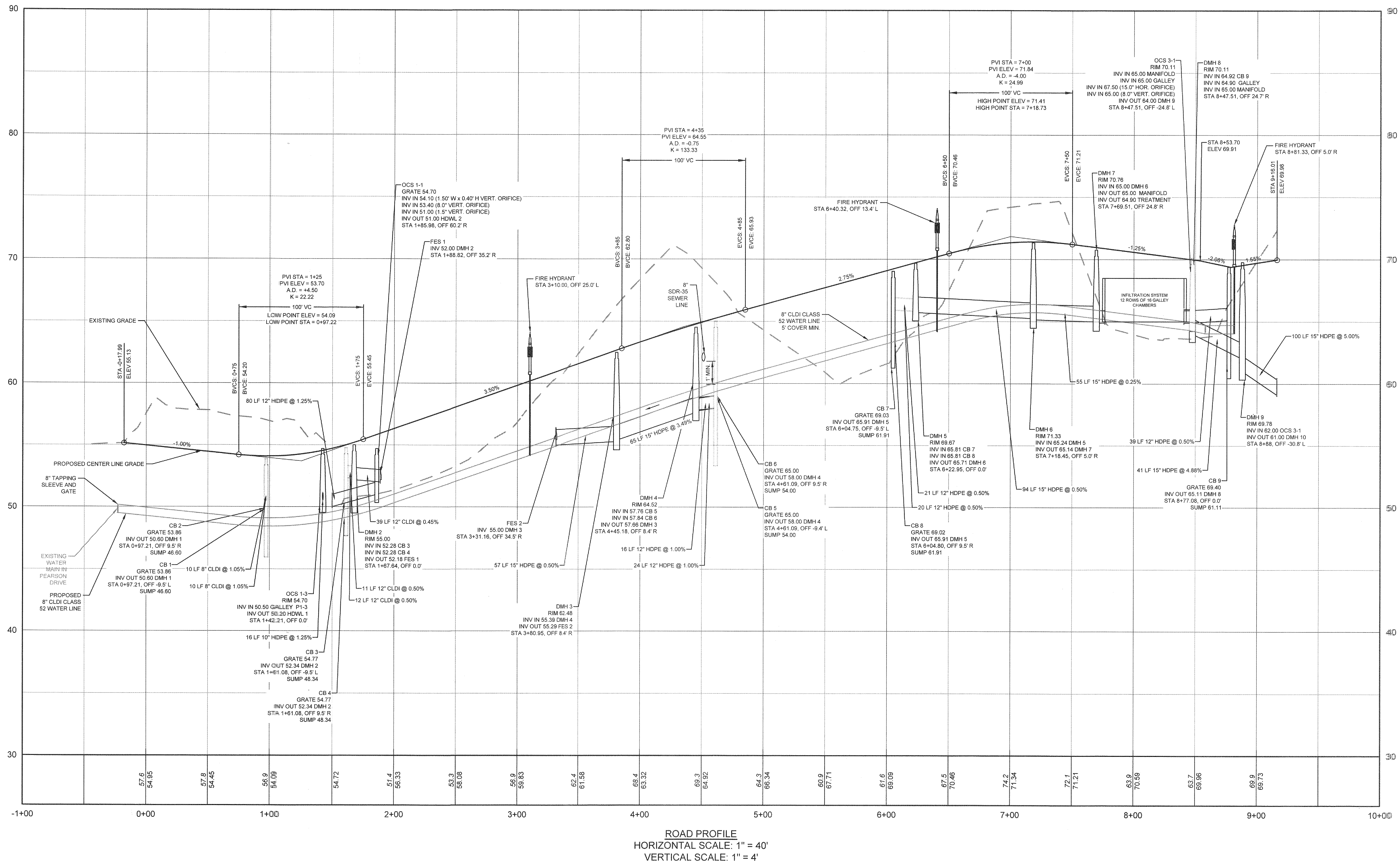
PROJECT	15-1516
DATE	2017-03-22
DRAWING SCALE	1"=40'
DRAWN BY	JRA
APPROVED BY	BCO

CS1701

SHEET 8 OF 17

NOT FOR CONSTRUCTION

C:\PROJECTS\NEW GOWAN ELECTRIC\15-1516 Project Road - Byfield Mass\CS3501.dwg PLOTTED: 10/20/15 11:51 AM BY: Chris Hanson PLOTSTYLE: T1 EnVCS.ctb PROJECT STATUS: —



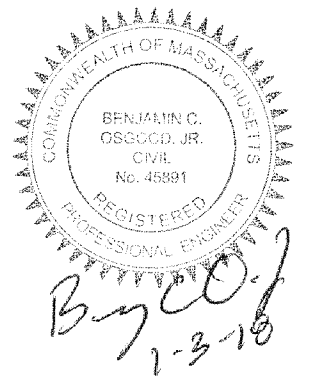
ROAD PROFILE
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'

NOTES:

SEE SEPTIC SYSTEM DESIGN PLANS SHEETS CS4501-CS4507.
PLANS TO BE SUBMITTED TO THE BOARD OF HEALTH FOR DETAILS
AND PROFILES FOR PROPOSED SEPTIC SYSTEMS.

0 40' 80'
NOT FOR CONSTRUCTION

RANGER ENGINEERING & DESIGN, LLC
13 Branch Street, Suite 101
Methuen, MA 01844
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BYFIELD ESTATES
BYFIELD (NEWBURY), MA
ASSESSOR'S MAP R-20 LOT 75

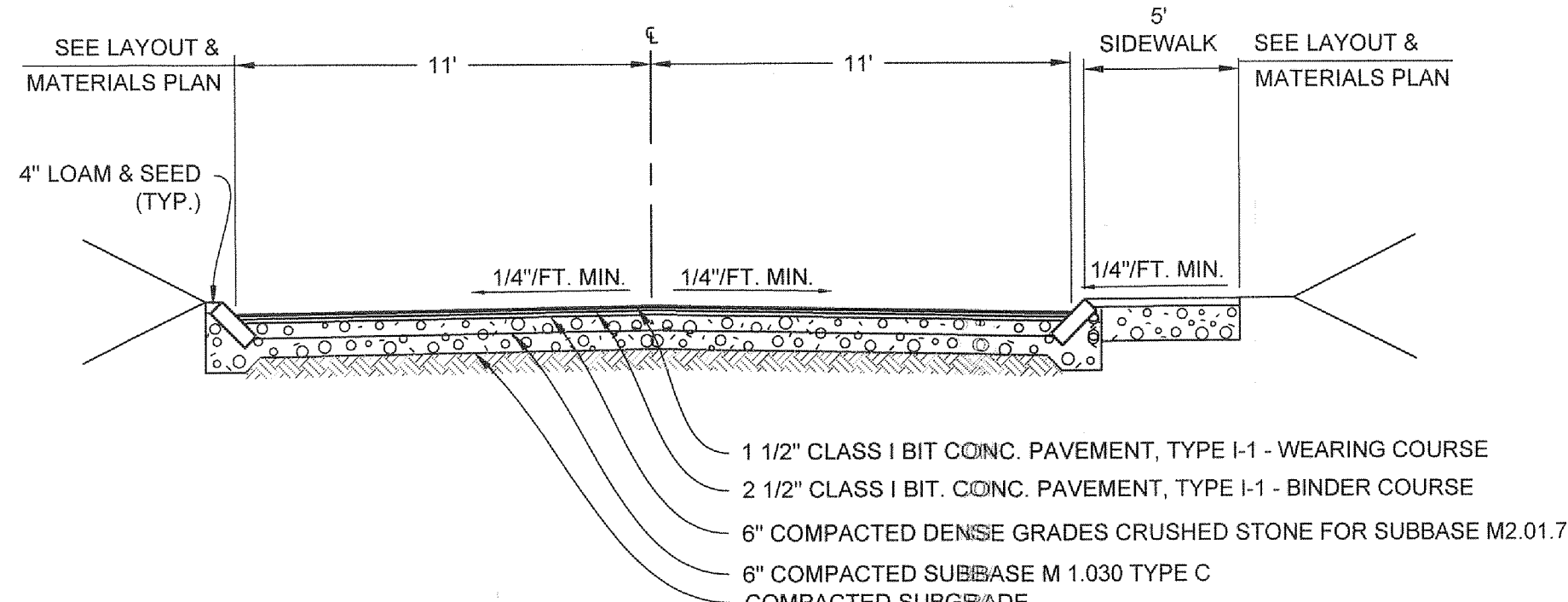
ROAD PROFILE

BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON, MA 01660

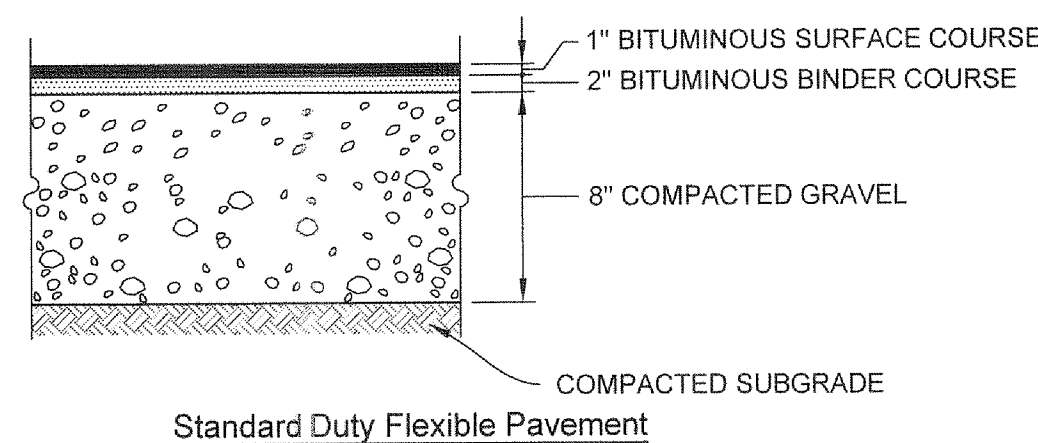
NO.	DATE	REVISIONS	BY
2	01-03-2018	RESPONSE TO COMMENTS	BCO
1	11-15-2017	INITIAL COMMENTS	BCO

PROJECT	15-1516
DATE	2017-03-22
DRAWING SCALE	1"=40'
DRAWN BY	JRA
APPROVED BY	BCO

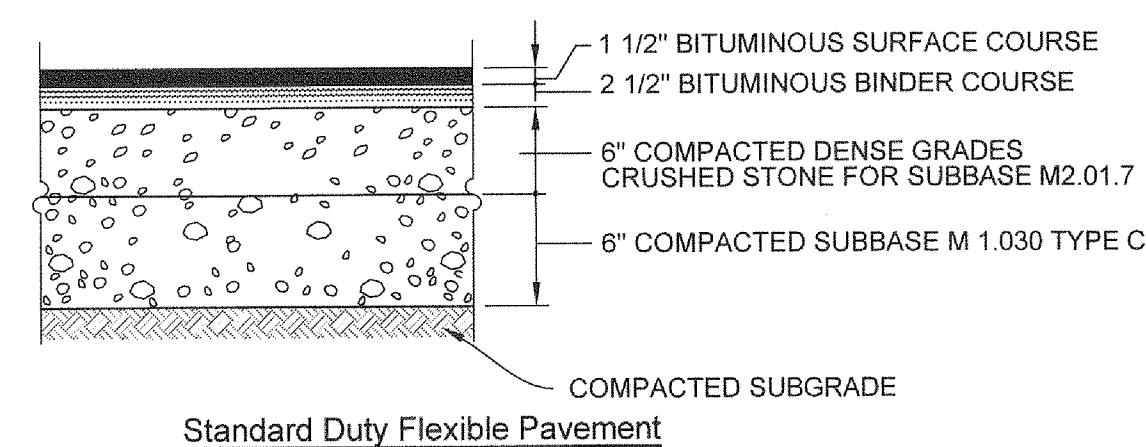
CS3501
SHEET 9 OF 17



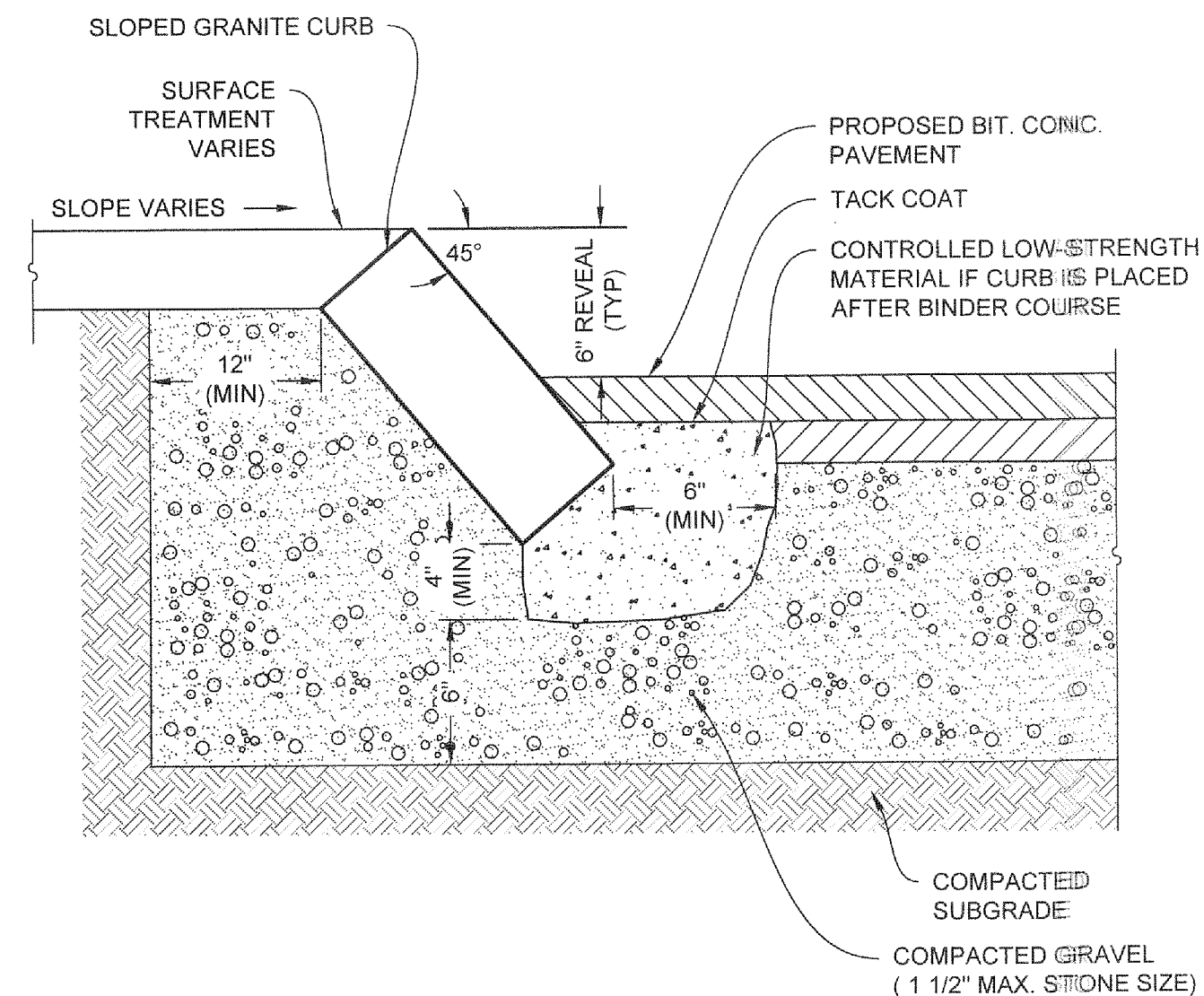
1 TYPICAL ROADWAY CROSS SECTION STA 0+24 - STA 7+46
NOT TO SCALE



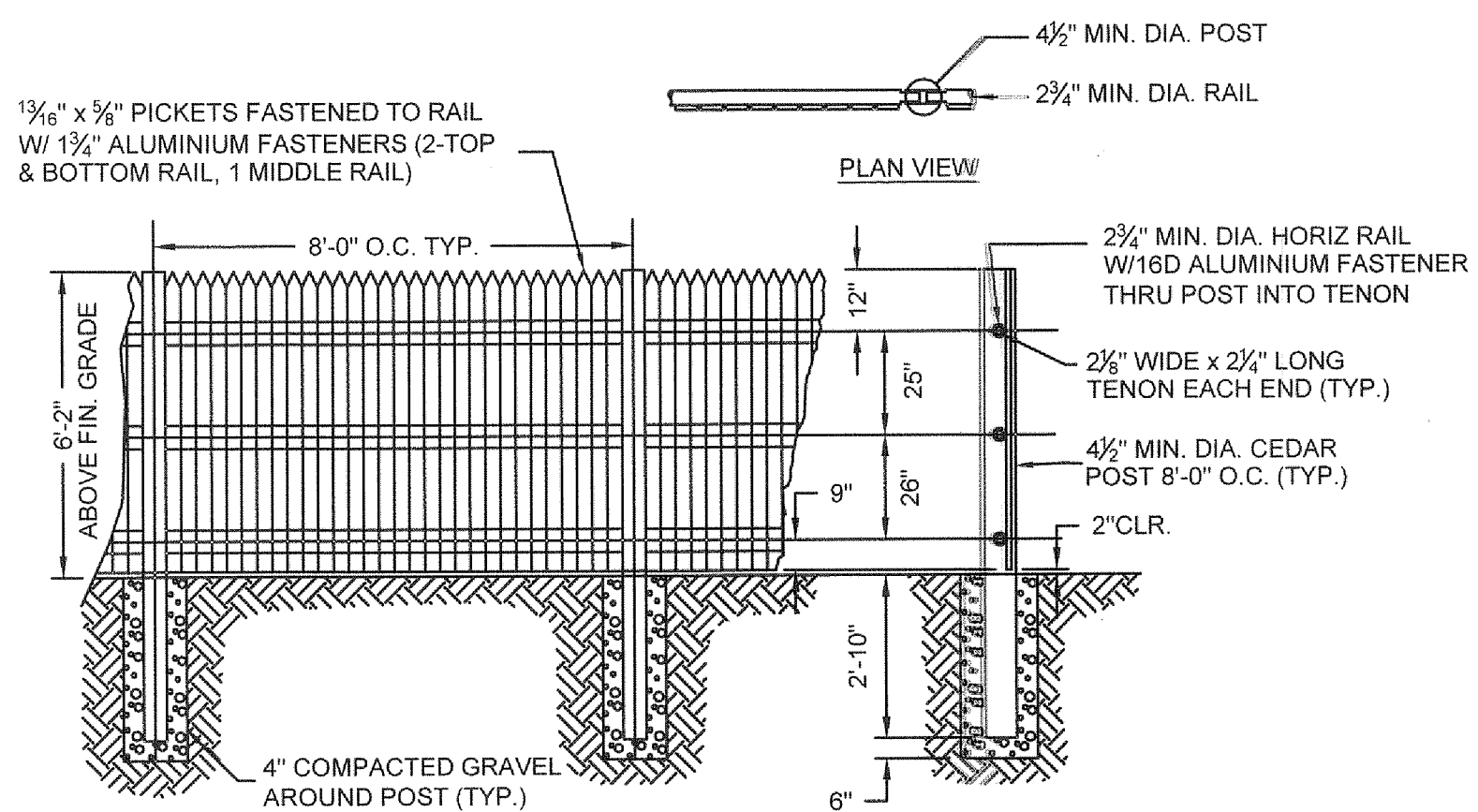
2 PARKING & RESIDENTIAL DRIVEWAYS
BIT. CONC. PAVEMENT SECTIONS
NOT TO SCALE



3 BIT. CONC. PAVE. SECTIONS - ROADWAY
NOT TO SCALE

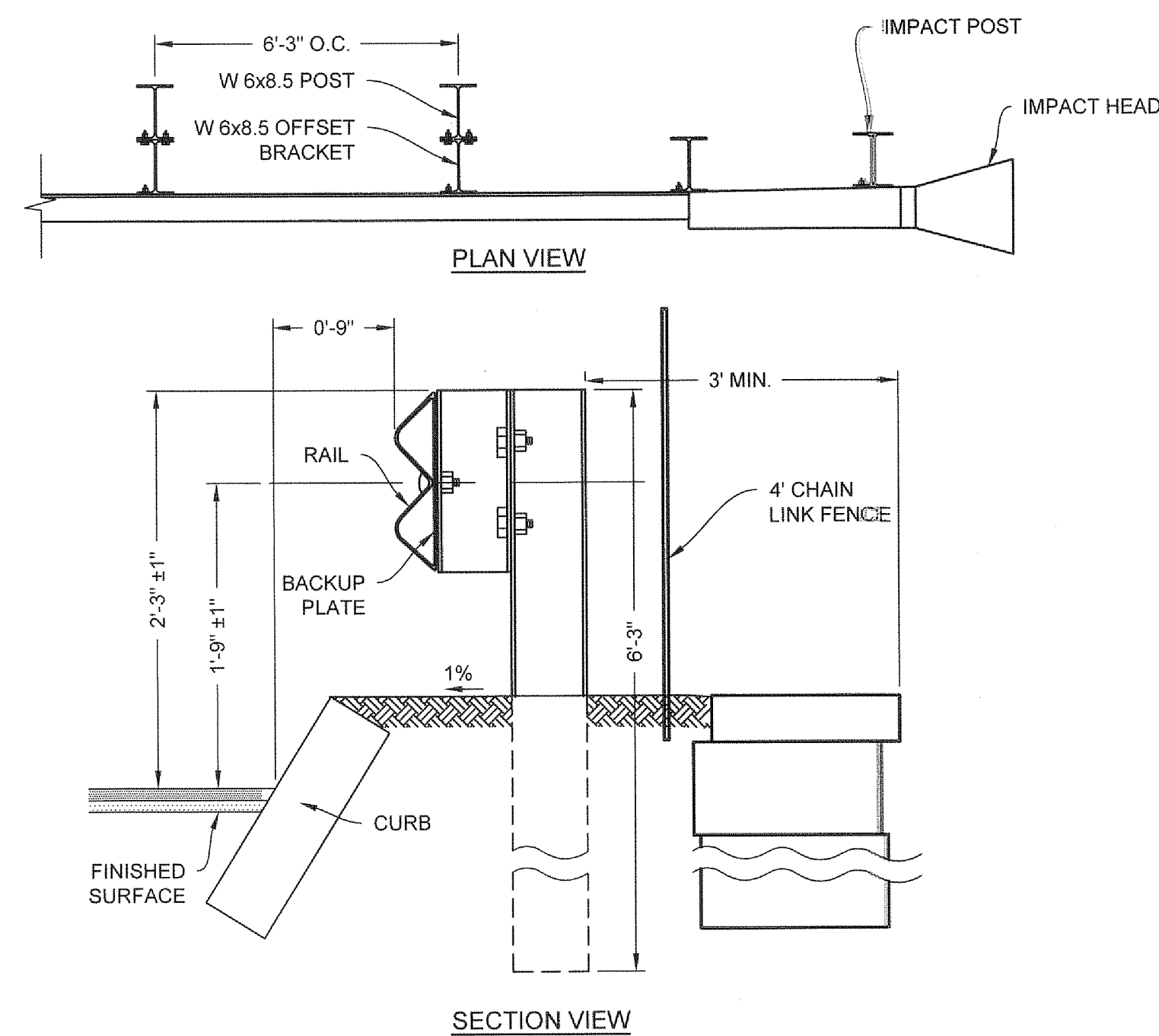


4 SLOPED GRANITE CURB (SGC)
NOT TO SCALE

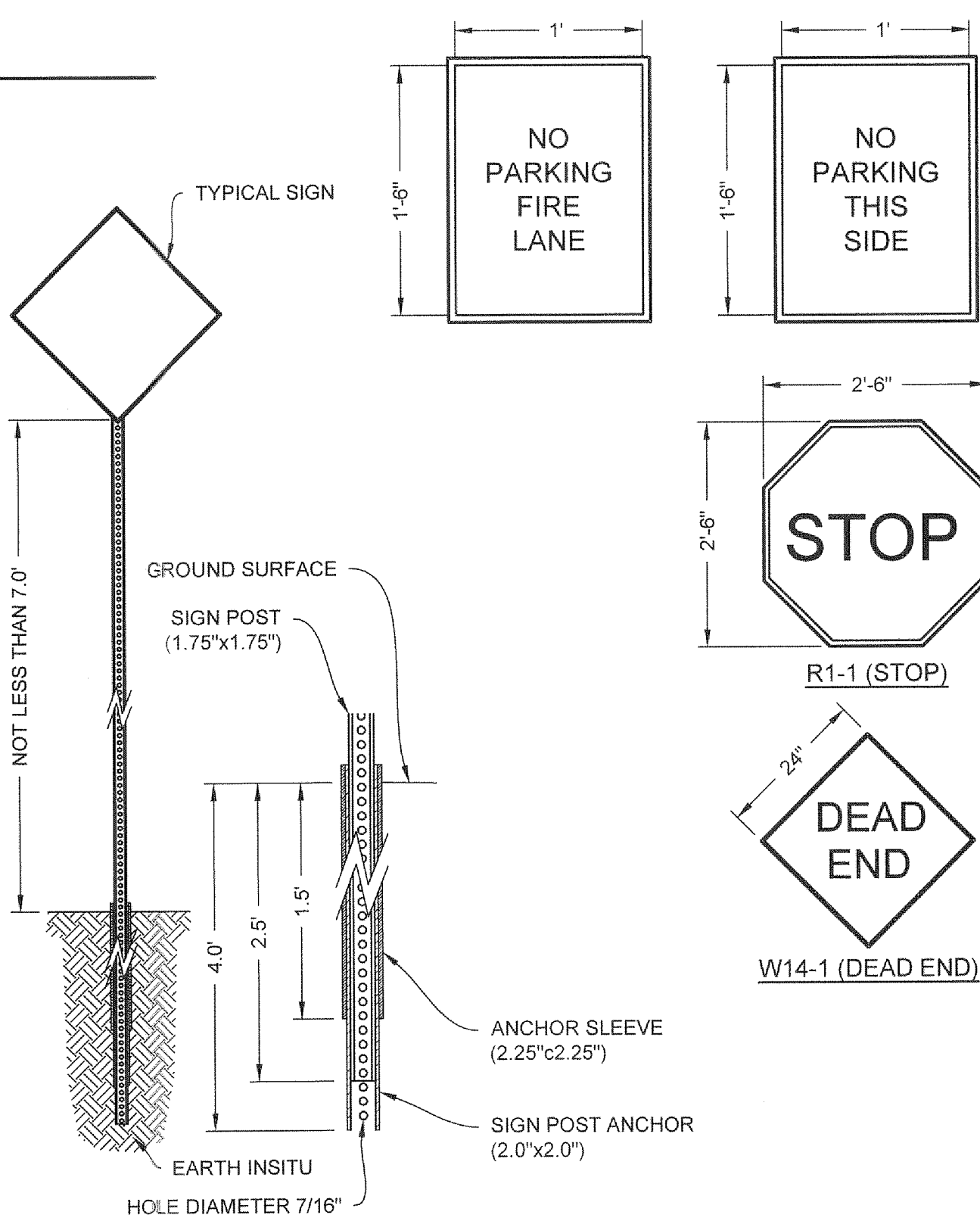


- NOTES:
- ALL FENCING MATERIAL SHALL BE NORTHERN WHITE CEDAR, SHOWN TO THE DIMENSIONS SHOWN ON THE DRAWING.
 - ALL FENCE POSTS SHALL BE TREATED WITH PRESERVATIVE PER MANUFACTURER'S RECOMMENDATION ON ALL SIDES FOR A DIMENSION OF 3'-0" FROM BUTT OF POST.
 - POSTS SHALL MAINTAIN A DEPTH OF 2'-10" IN GROUND AND SHALL NOT BE RACKED TO ACCOMMODATE CHANGES IN GRADE.
 - LINE OF FENCE TOP AND BOTTOM SHALL BE INSTALLED STRAIGHT AND TRUE. POSTS AND PICKETS SHALL BE INSTALLED PARALLEL AND PLUMB. RAILS SHALL BE INSTALLED PARALLEL TO GROUND SURFACE AND EACH OTHER.
 - GATE HARDWARE SHALL BE DOUBLE DIP HOT GALVANIZED. THE CONTRACTOR SHALL SUBMIT GATE AND FENCE SHOP DRAWINGS TO THE ENGINEER FOR REVIEW.

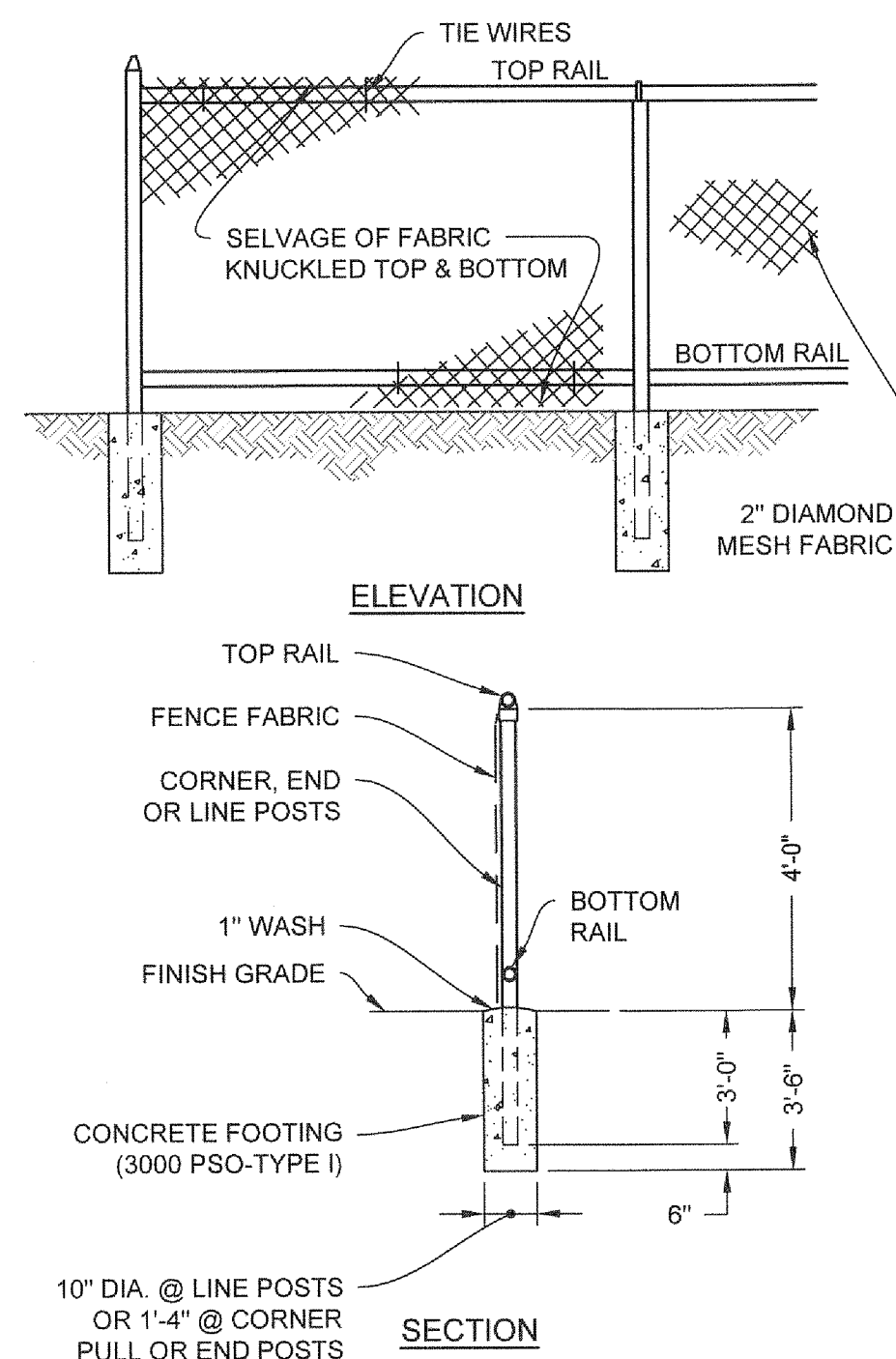
5 6\"/>



8 STEEL BEAM GUARDRAIL WITH STEEL POST
NOT TO SCALE

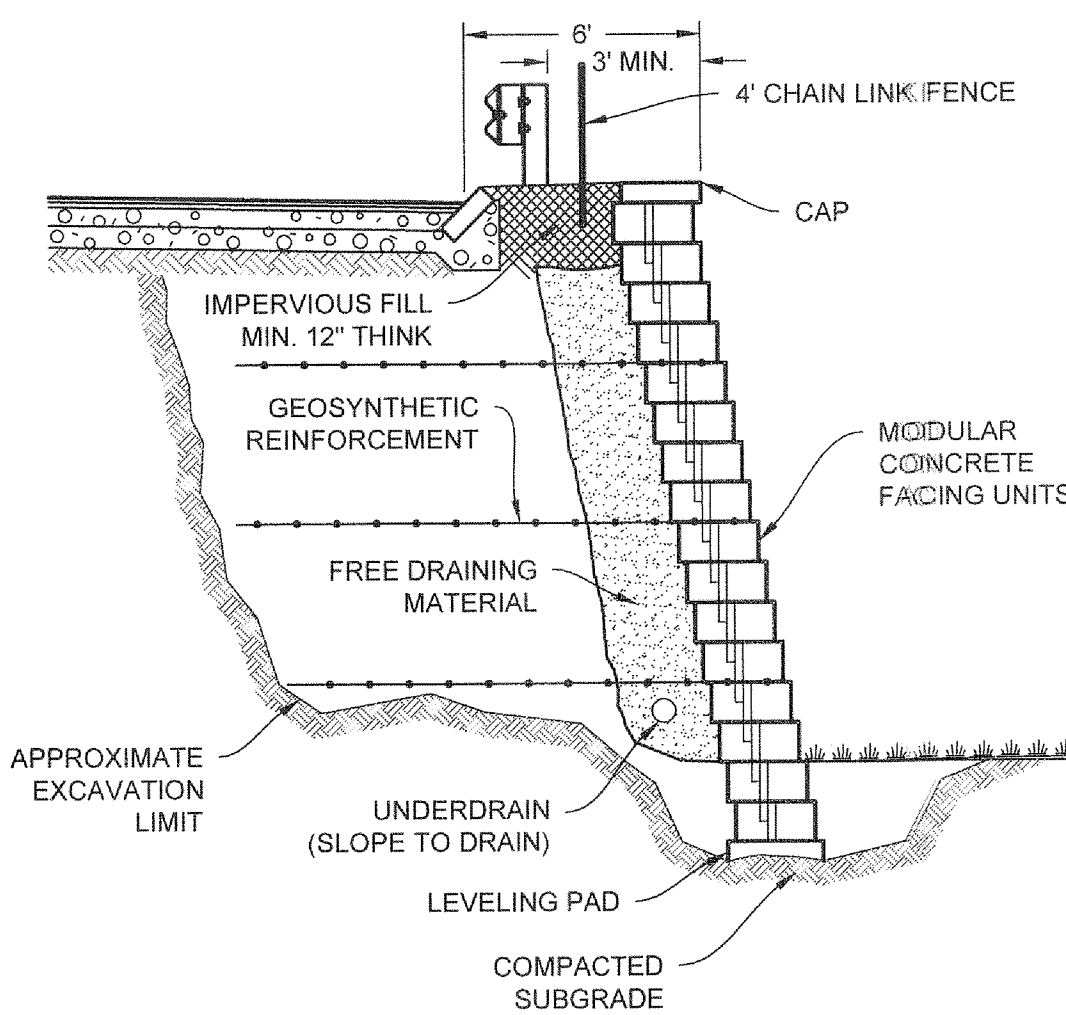


9 SIGN POST DETAIL
NOT TO SCALE



- NOTE:
- GATES AND HARDWARE TO BE AS PER MANUFACTURER'S SPECIFICATION. SUBMIT MANUFACTURER'S LITERATURE FOR APPROVAL.

10 CHAIN LINK FENCE UP TO 6'
NOT TO SCALE

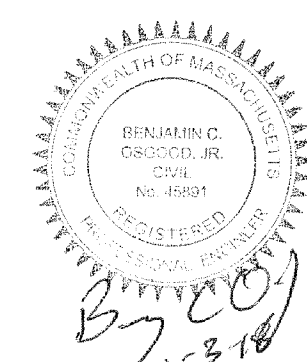


- NOTE:
- DETAIL PROVIDED FOR GENERAL INFORMATION ONLY. STAMPED FINAL DESIGN OF MODULAR WALL SYSTEM TO BE PROVIDED BY WALL MANUFACTURER BASED ON GEOTECHNICAL ENGINEERS RECOMMENDATIONS.

11 MODULAR RETAINING WALL
NOT TO SCALE

RANGER ENGINEERING & DESIGN, LLC
13 Branch Street, Suite 101
Methuen, MA 01844
T 978.435.1324

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK



BYFIELD ESTATES
BYFIELD (NEWBURY), MA
ASSESSOR'S MAP R-20 LOT 75

SITE DETAILS

BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON, MA 01649

NO.	DATE	REVISIONS	BY
1	01-03-2018	RESPONSE TO COMMENTS	BCO
2	11-15-2017	INITIAL COMMENTS	BCO

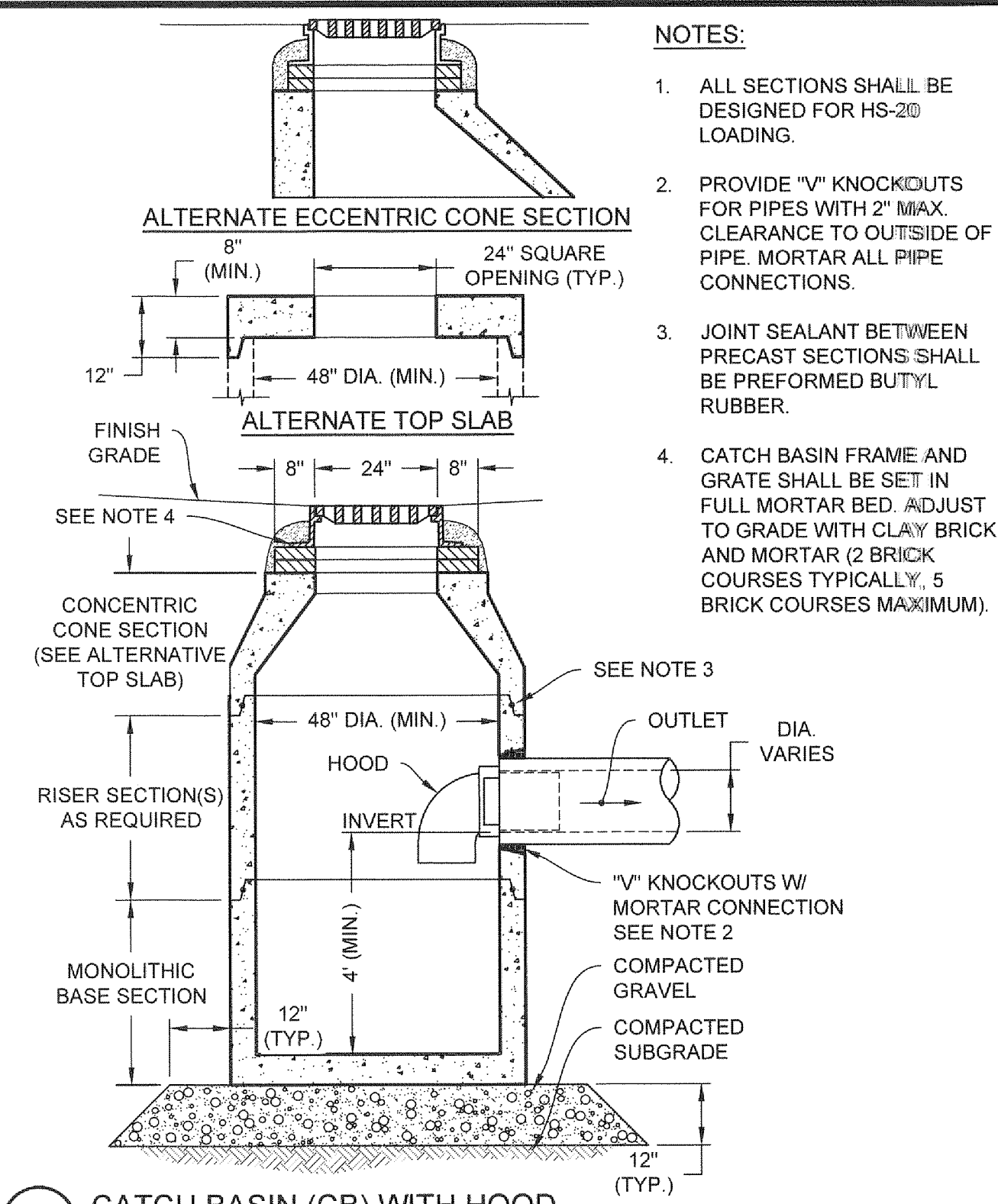
PROJECT	15-1516
DATE	2017-03-22
DRAWING SCALE	N.T.S.
DRAWN BY	CPH
APPROVED BY	BCO

CS6001

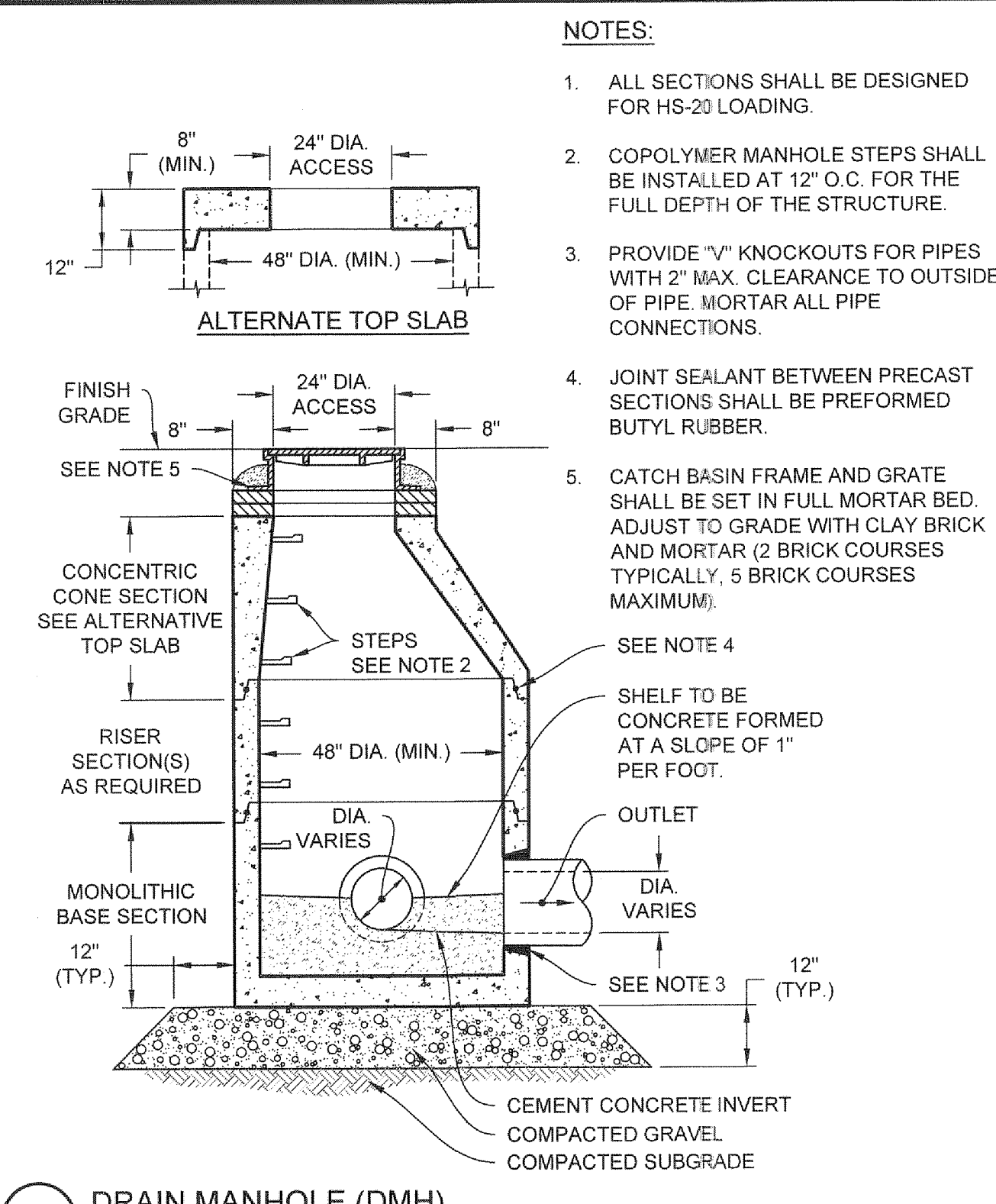
SHEET 10 OF 17

NOT FOR CONSTRUCTION

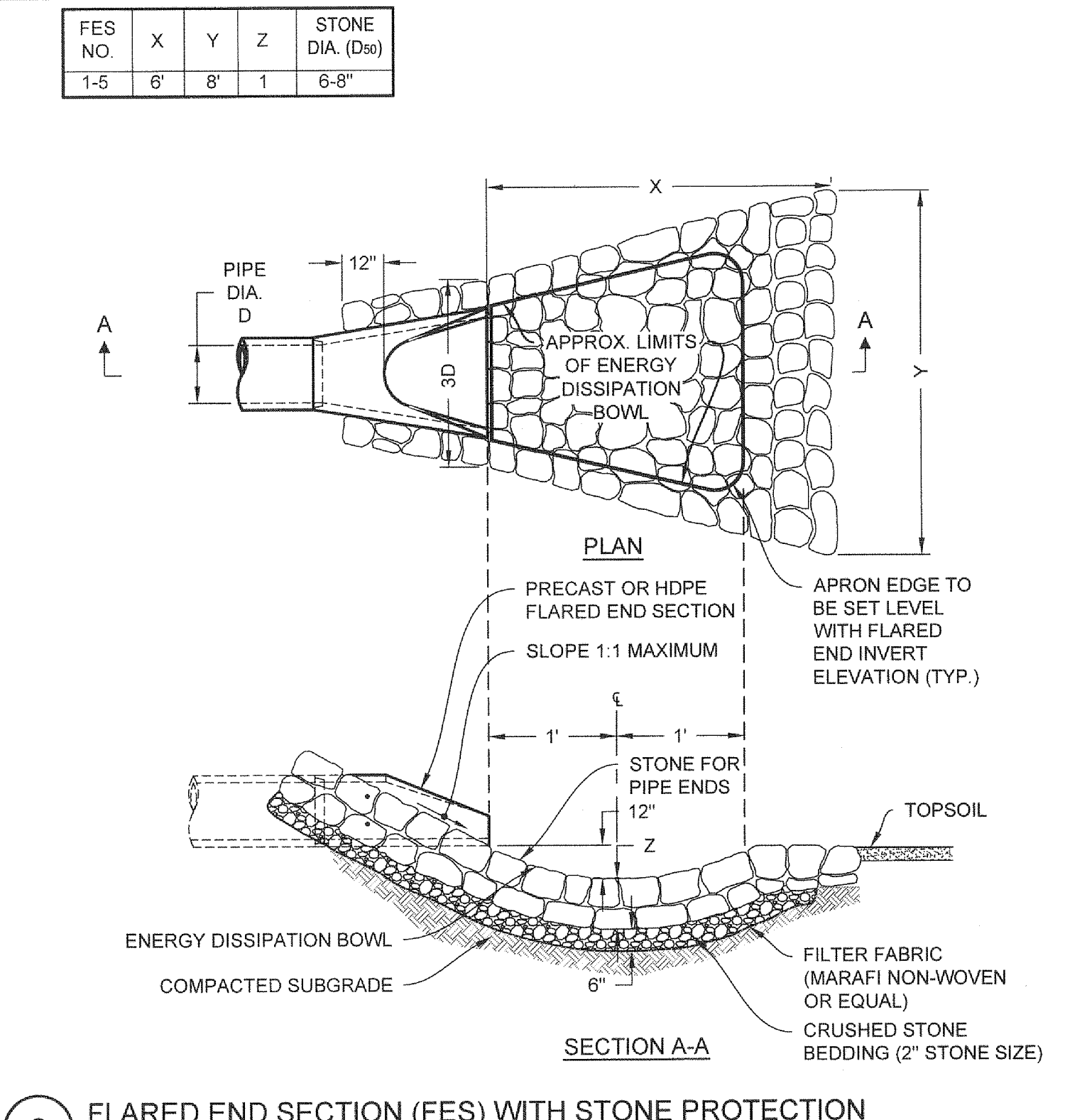
OUR PROJECTS SERVING: GORDON ELECTRIC 1516 Pleasant Road - 5th Floor, Malden, MA 02148
PLOTTER: 10/20/18 12:42 PM BY: Chris Hanson PLOT STYLE: TTI 10x10CS.dwg PROJECT STATUS: -



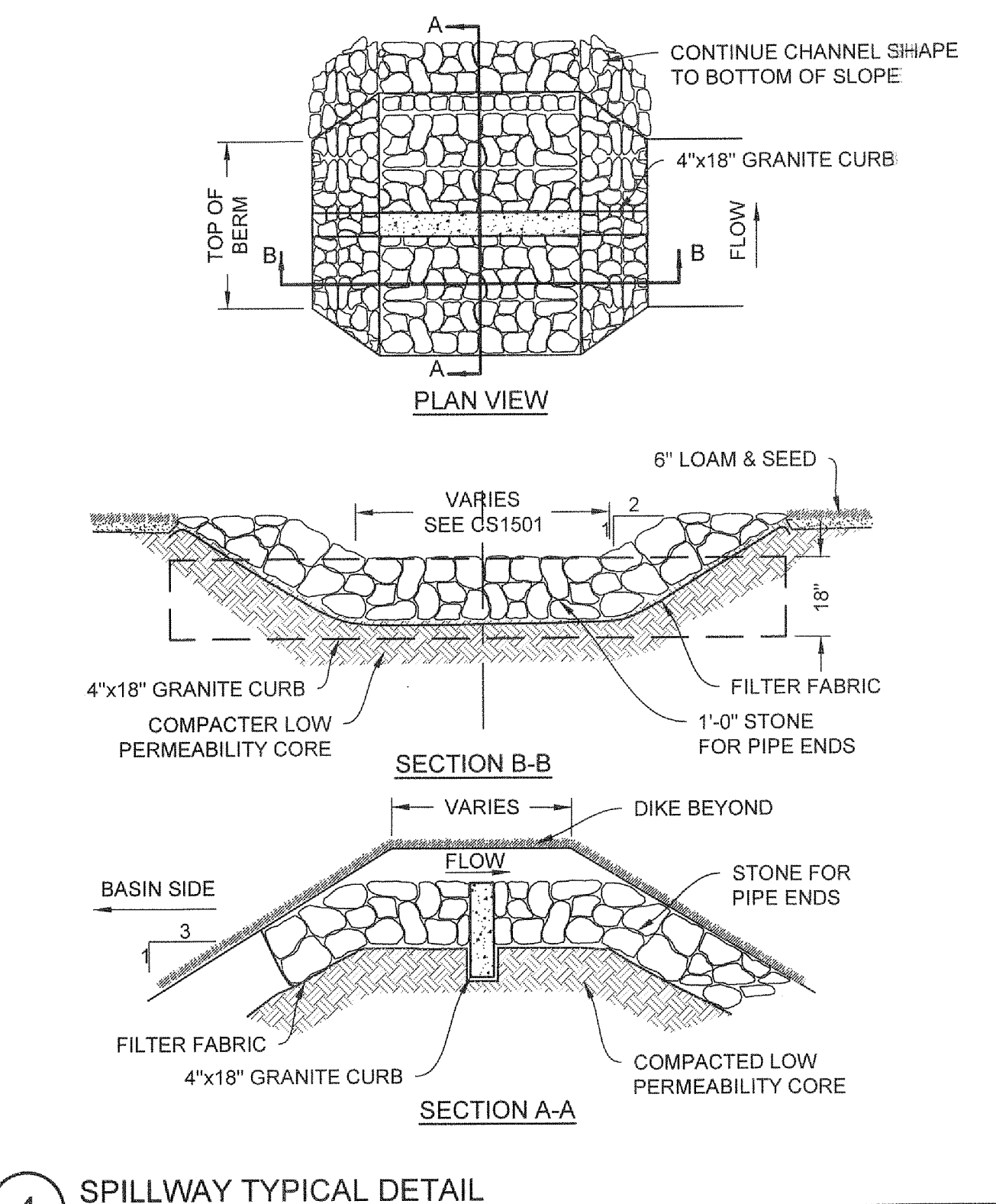
1 CATCH BASIN (CB) WITH HOOD
NOT TO SCALE



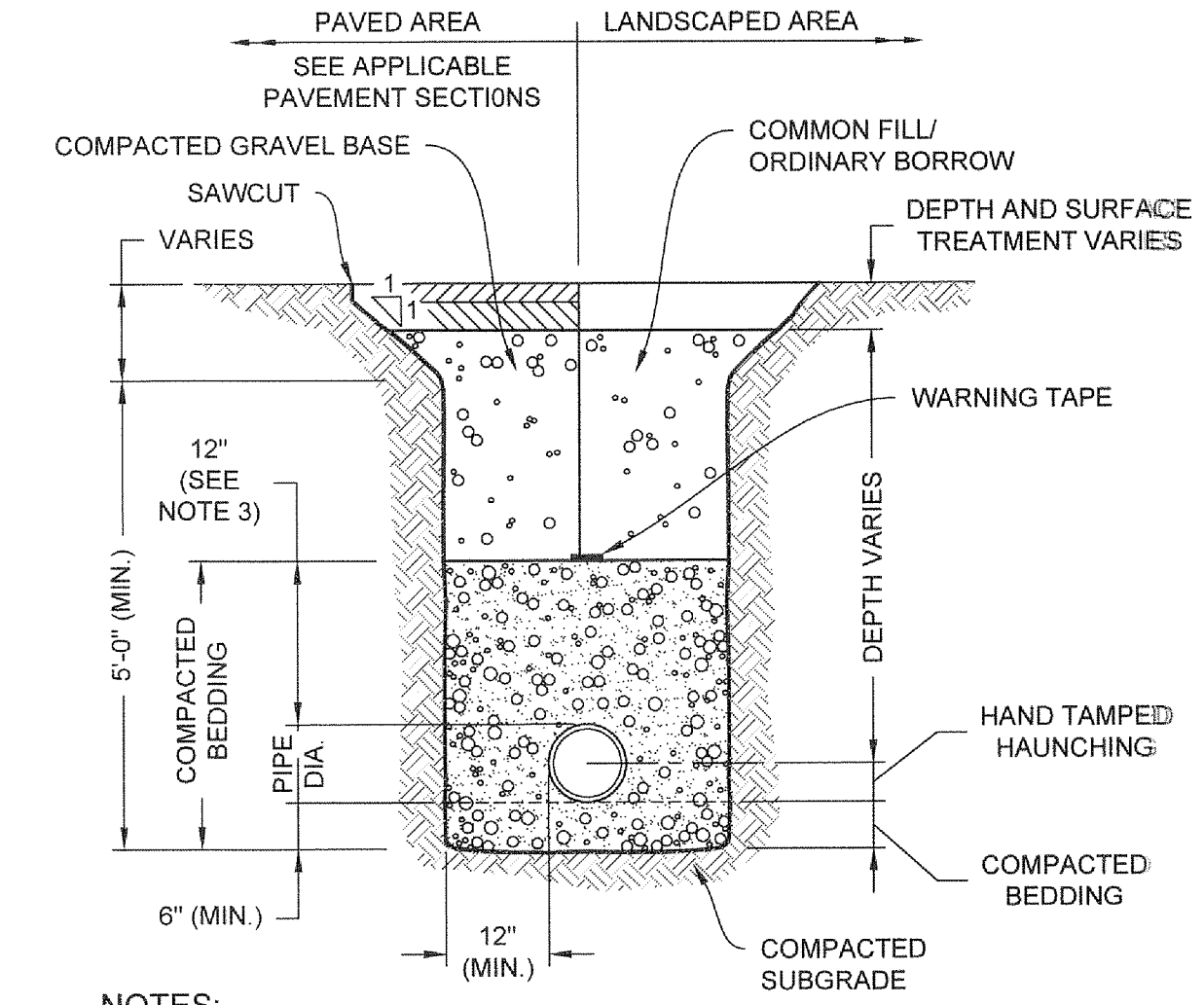
2 DRAIN MANHOLE (DMH)
NOT TO SCALE



3 FLARED END SECTION (FES) WITH STONE PROTECTION
NOT TO SCALE

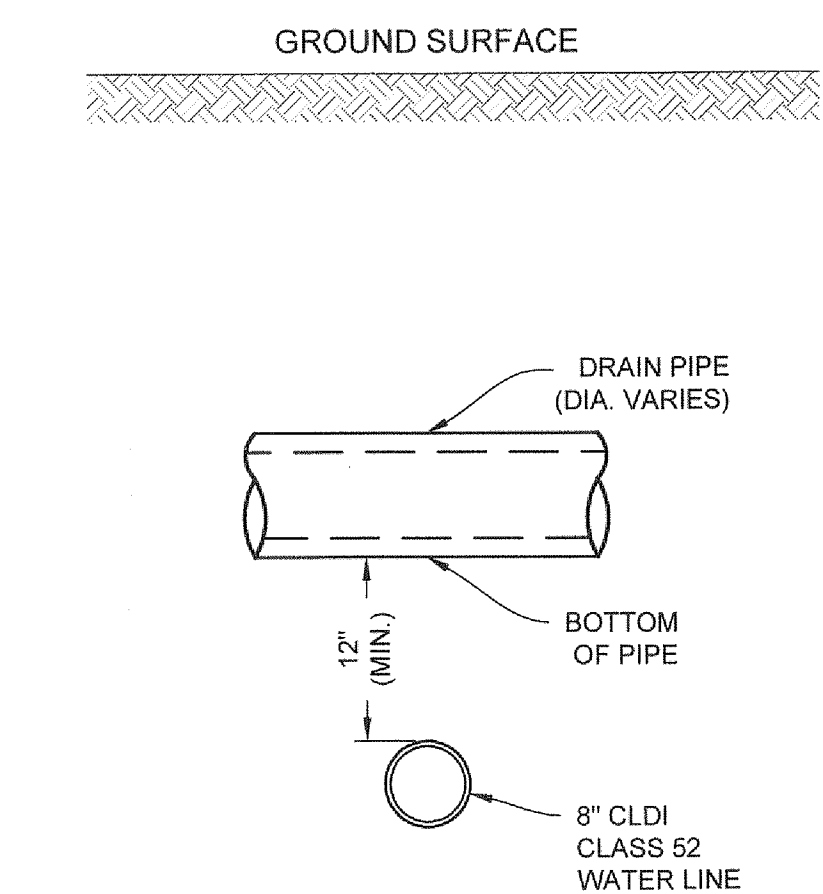


4 SPILLWAY TYPICAL DETAIL
NOT TO SCALE

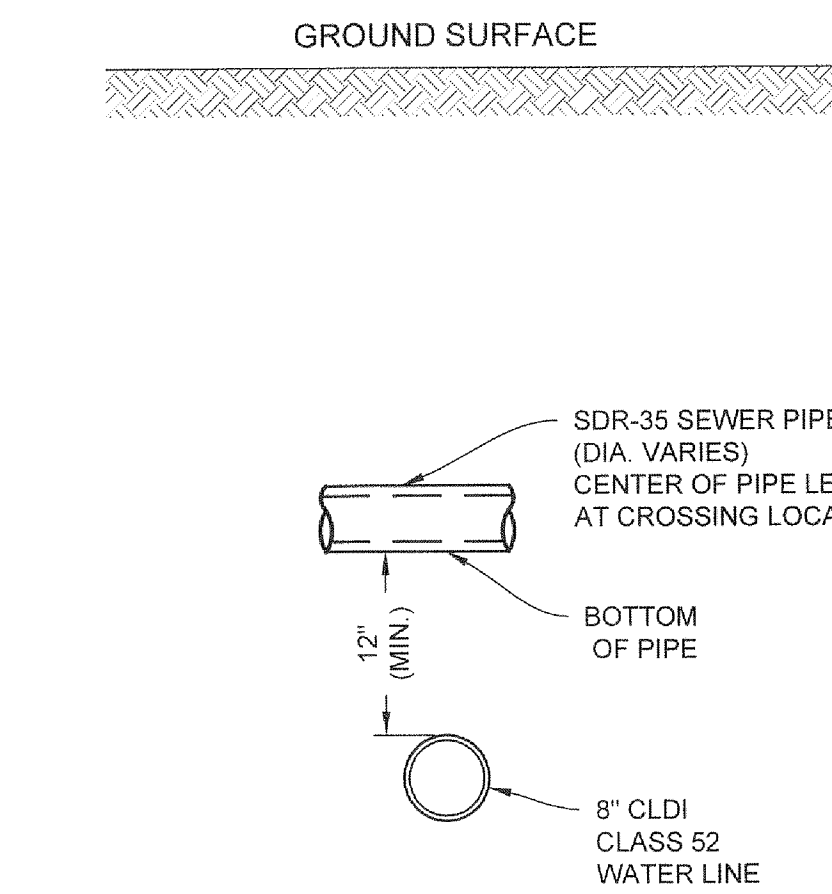


- NOTES:**
1. WHERE UTILITY TRENCHES ARE CONSTRUCTED THROUGH DETENTION BASIN BERMS OR OTHER SUCH SPECIAL SECTIONS, PLACE TRENCH BACKFILL WITH MATERIALS SIMILAR TO THE SPECIAL SECTION REQUIREMENTS.
 2. USE METALLIC TRACING/WARNING TAPE OVER ALL PIPES.

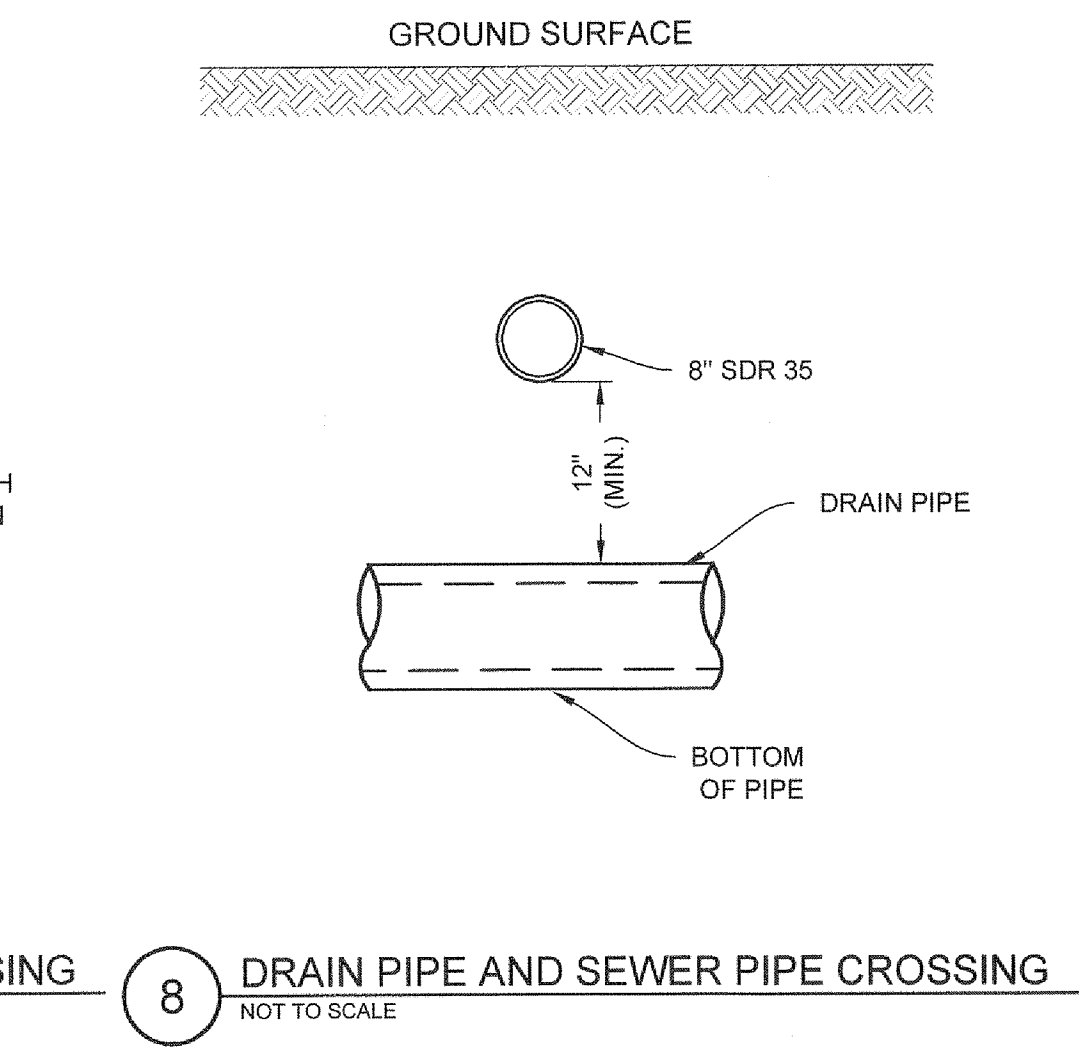
5 DRAINAGE TRENCH
NOT TO SCALE



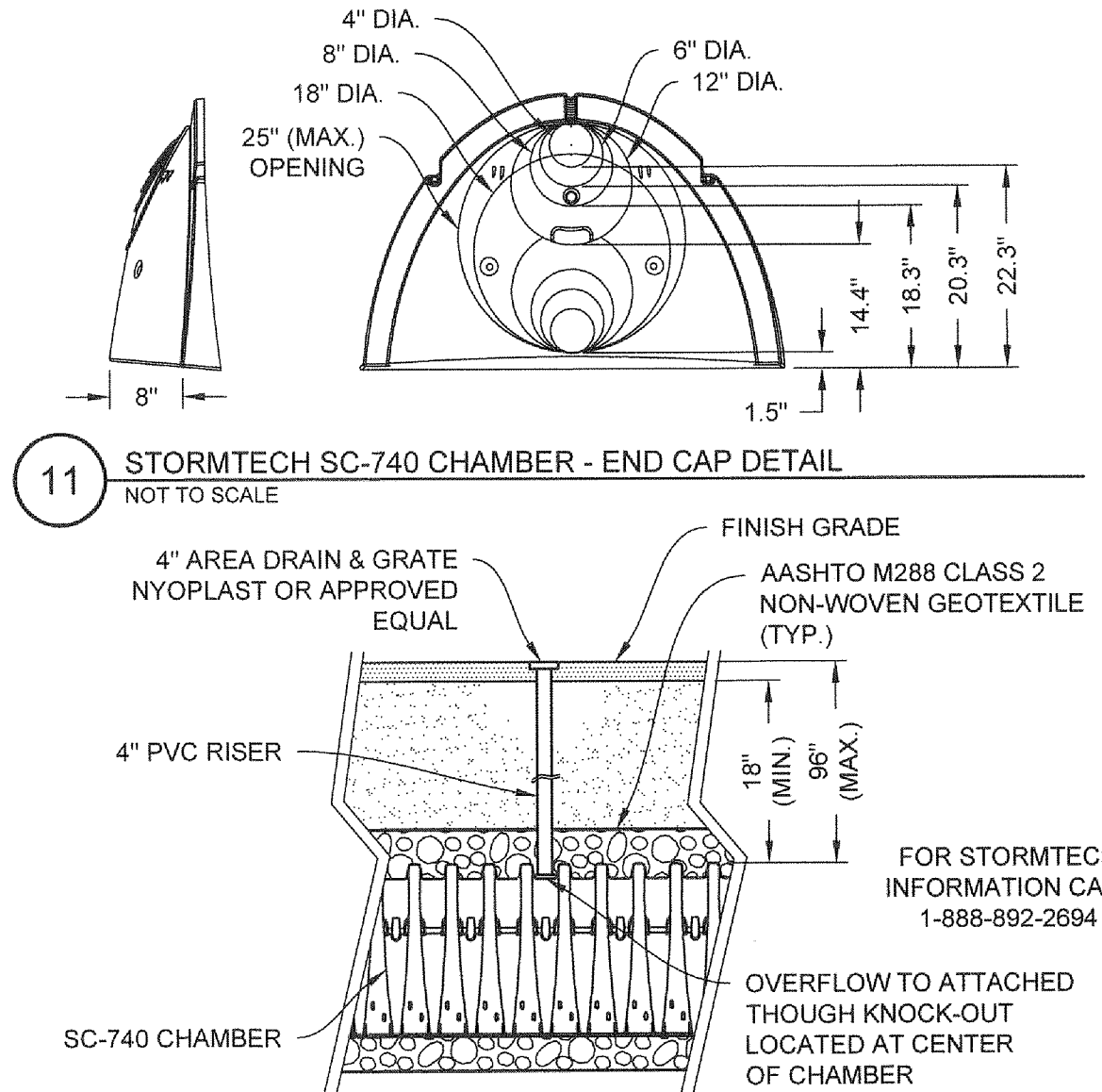
6 DRAIN PIPE AND WATER PIPE CROSSING
NOT TO SCALE



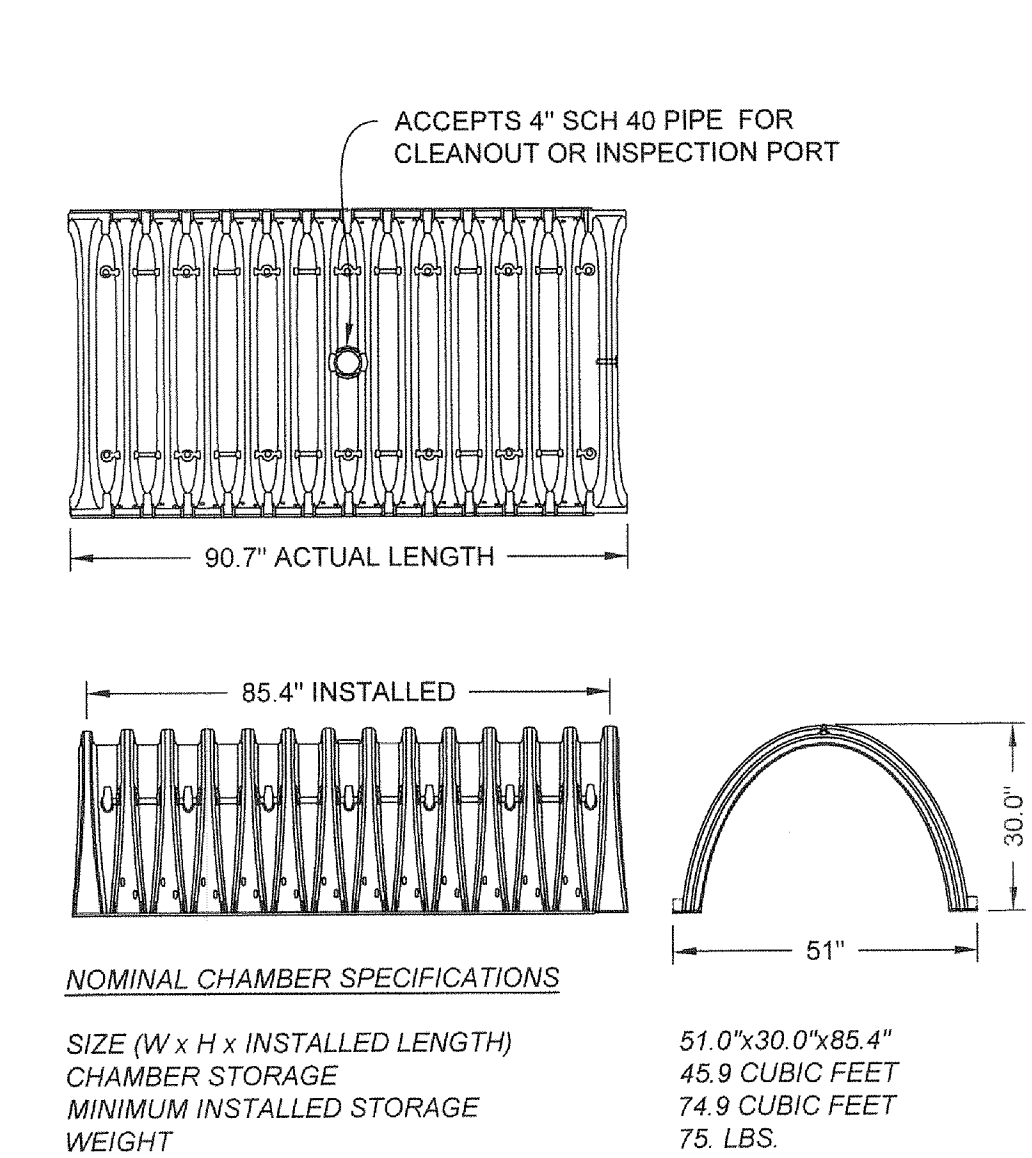
7 SEWER PIPE AND WATER PIPE CROSSING
NOT TO SCALE



8 DRAIN PIPE AND SEWER PIPE CROSSING
NOT TO SCALE

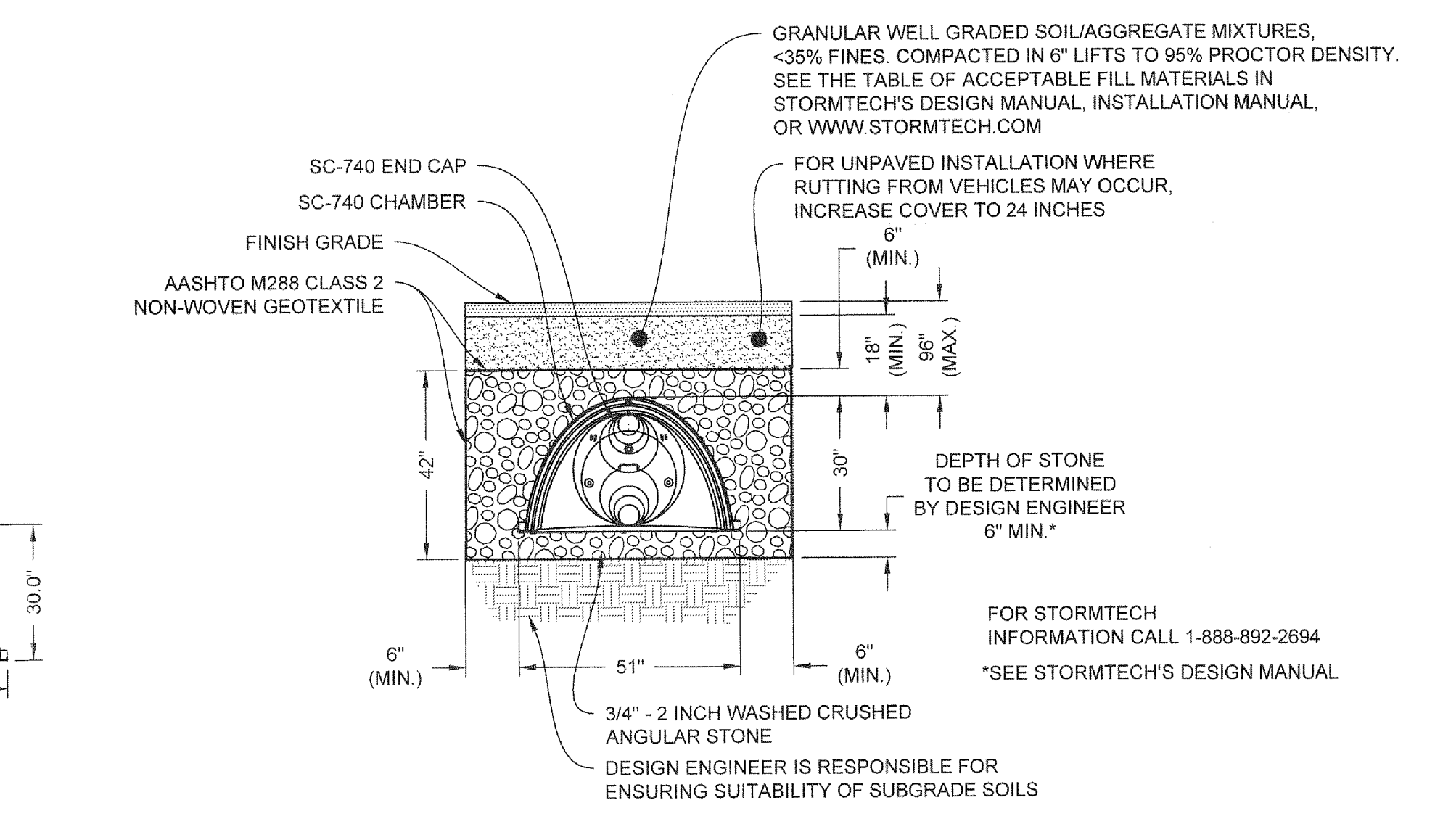


11 STORMTECH SC-740 CHAMBER - END CAP DETAIL
NOT TO SCALE

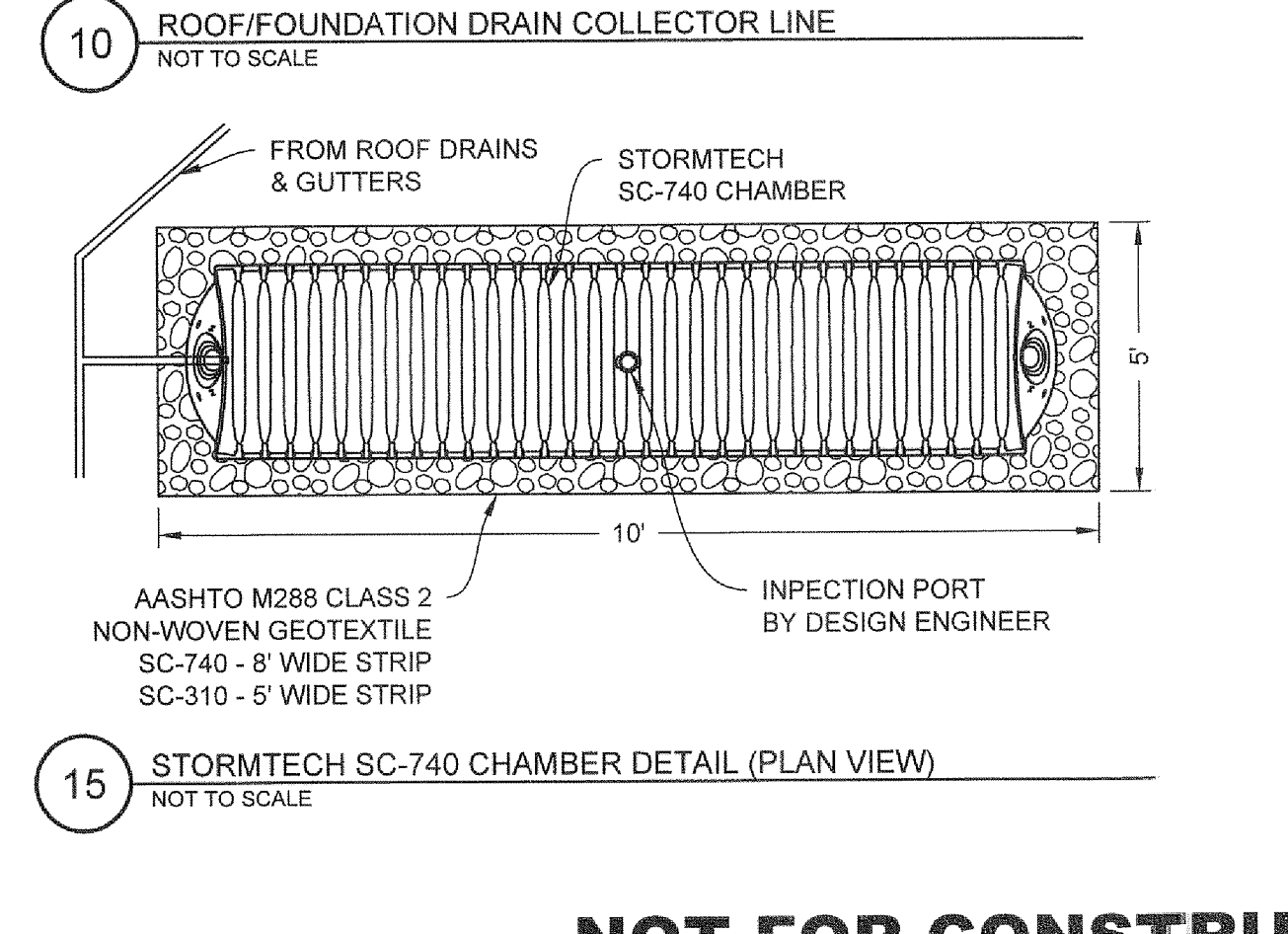
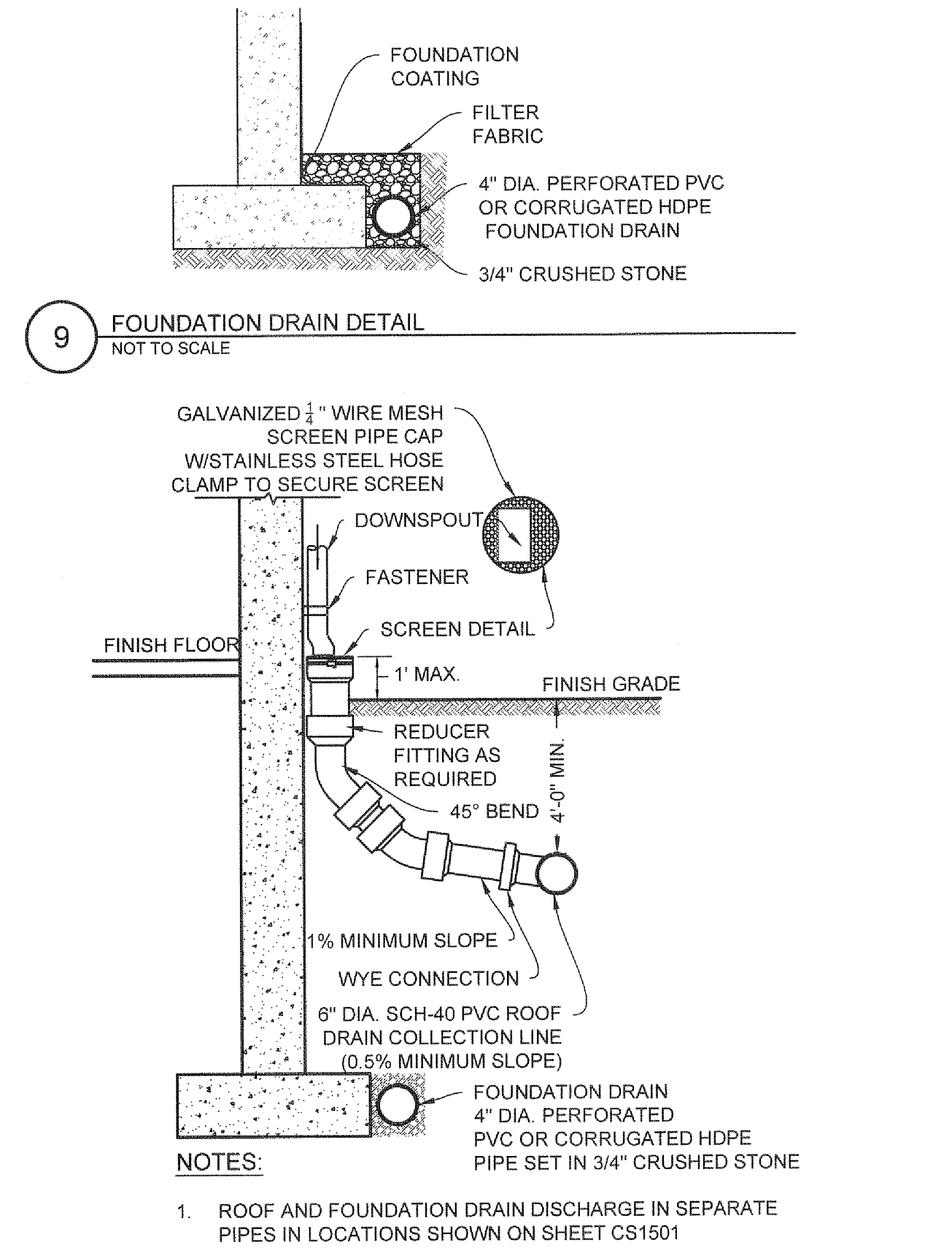


12 STORMTECH SC-740 CHAMBER - OVERFLOW DETAIL
NOT TO SCALE

13 STORMTECH SC-740 CHAMBER DETAIL
NOT TO SCALE



14 STORMTECH SC-740 CHAMBER SYSTEM - TYPICAL CROSS SECTION DETAIL
NOT TO SCALE



15 STORMTECH SC-740 CHAMBER DETAIL (PLAN VIEW)
NOT TO SCALE

NOT FOR CONSTRUCTION

RANGER ENGINEERING & DESIGN, LLC
13 Branch Street, Suite 101
Methuen, MA 01844
T 978.435.1324

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS
EXPIRATION DATE 12/31/2024
B. J. COOPER
7-3-18

BYFIELD ESTATES
BYFIELD (NEWBURY), MA
ASSESSOR'S MAP R-20 LOT 75

DRAINAGE DETAILS

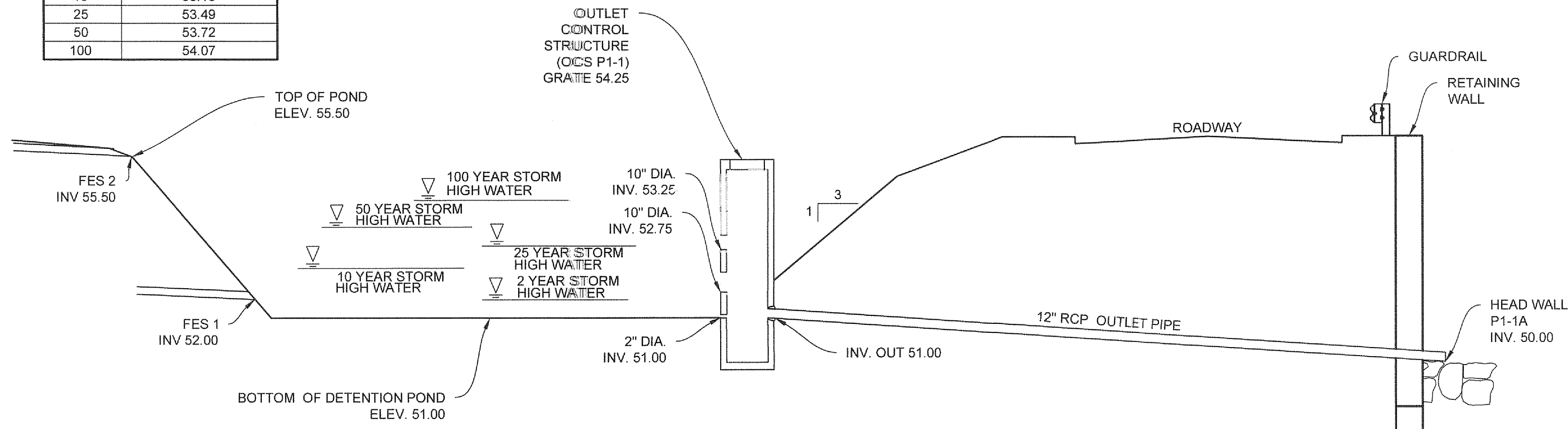
BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON, MA 01949

NO.	DATE	BY	REVISIONS
1	11-15-2017	BCO	INITIAL COMMENTS
2	01-30-2018	BCO	RESPONSE TO COMMENTS

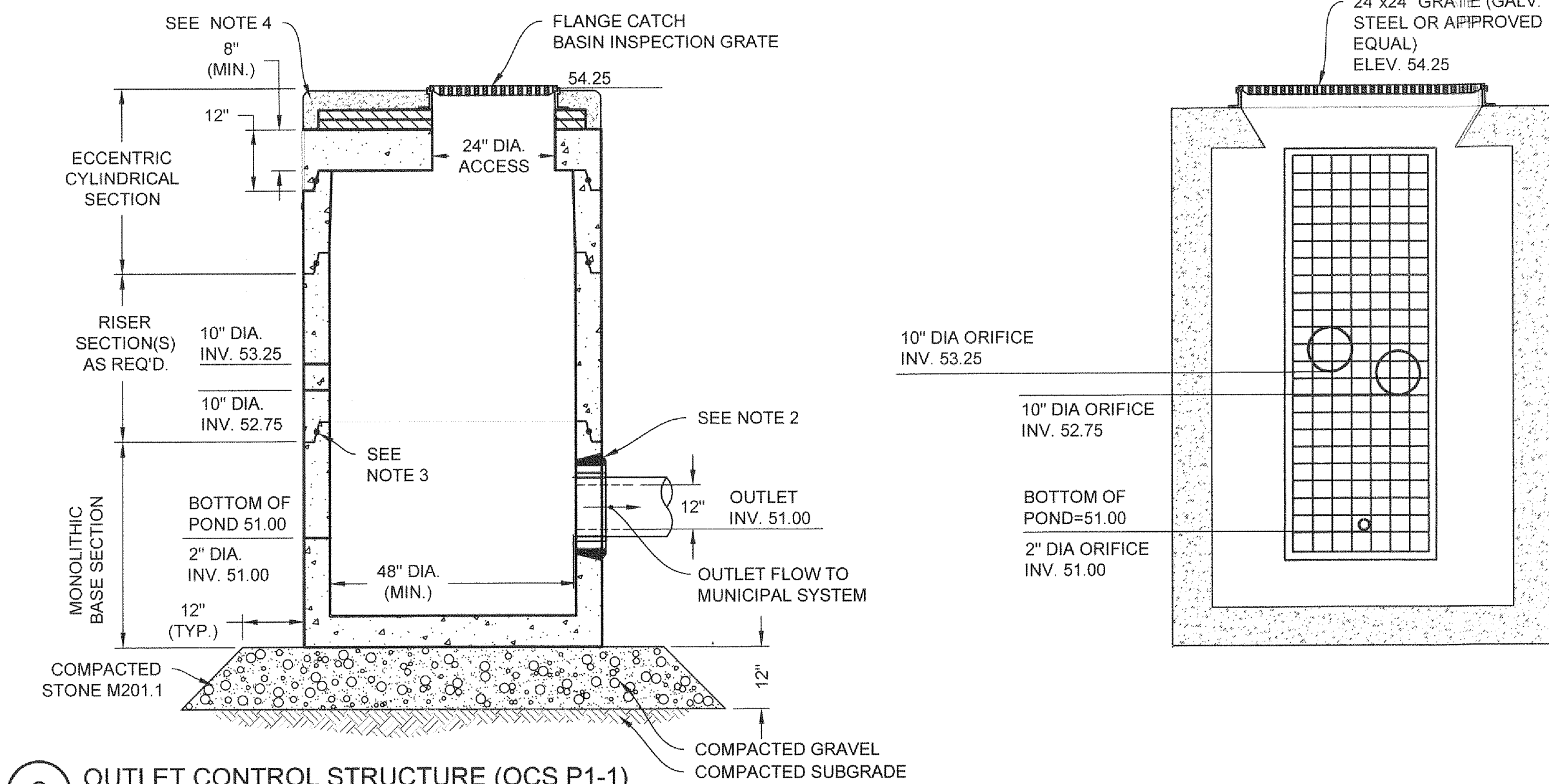
PROJECT	15-1516
DATE	2017-03-22
DRAWING SCALE	N.T.S.
DRAWN BY	OMR
APPROVED BY	BCO
SHEET	11 OF 17

CS6021

STORM	HIGH WATER ELEV.
2	52.52
10	53.16
25	53.49
50	53.72
100	54.07

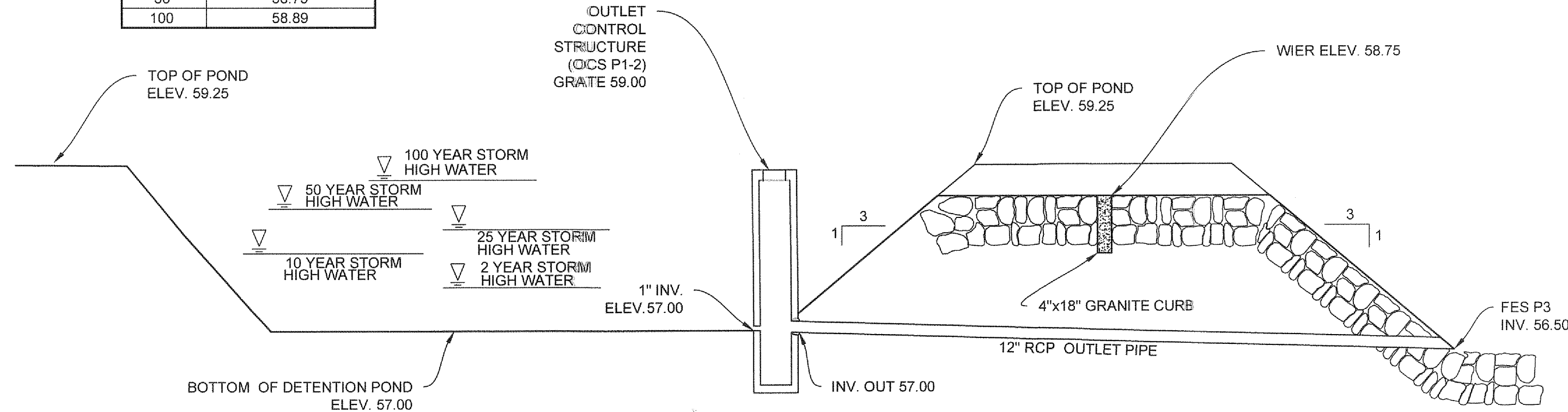


1 CROSS SECTION DETENTION POND (P1-1)
NOT TO SCALE

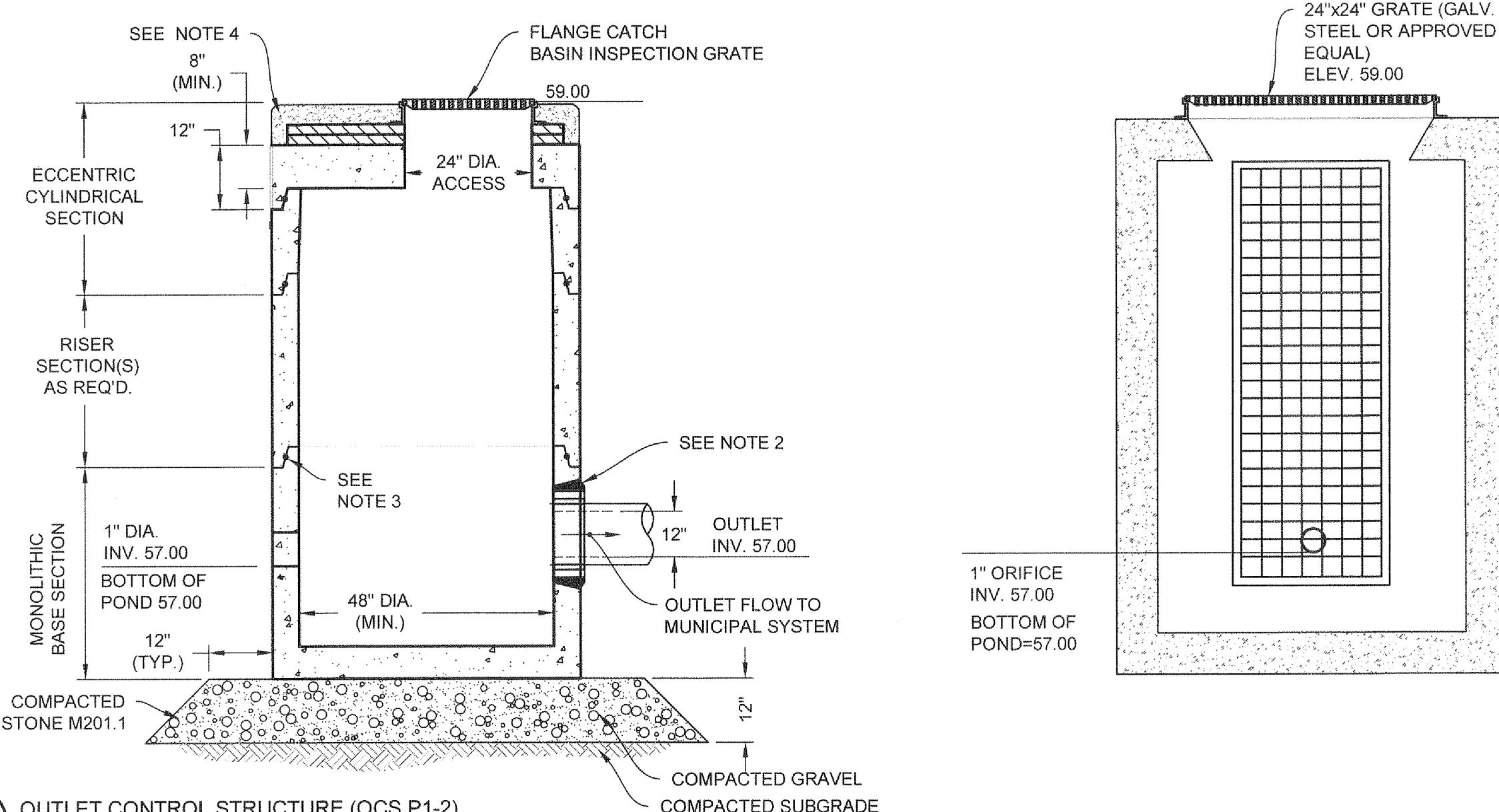


2 OUTLET CONTROL STRUCTURE (OCS P1-1)
NOT TO SCALE

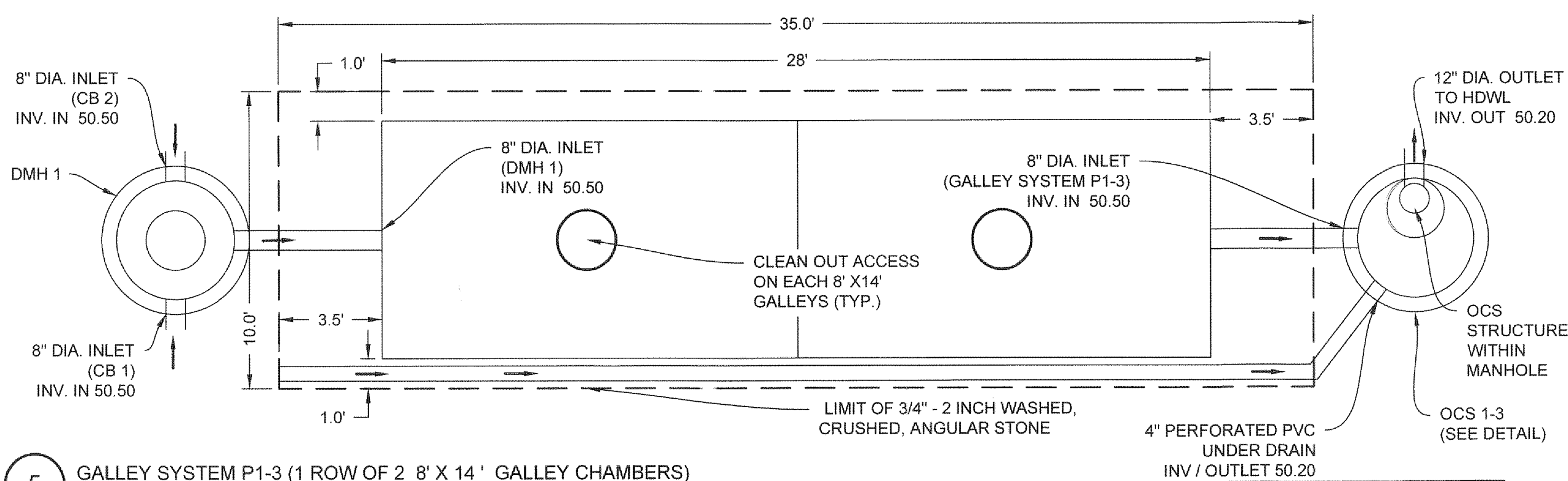
STORM	HIGH WATER ELEV.
2	57.47
10	58.07
25	58.53
50	58.79
100	58.89



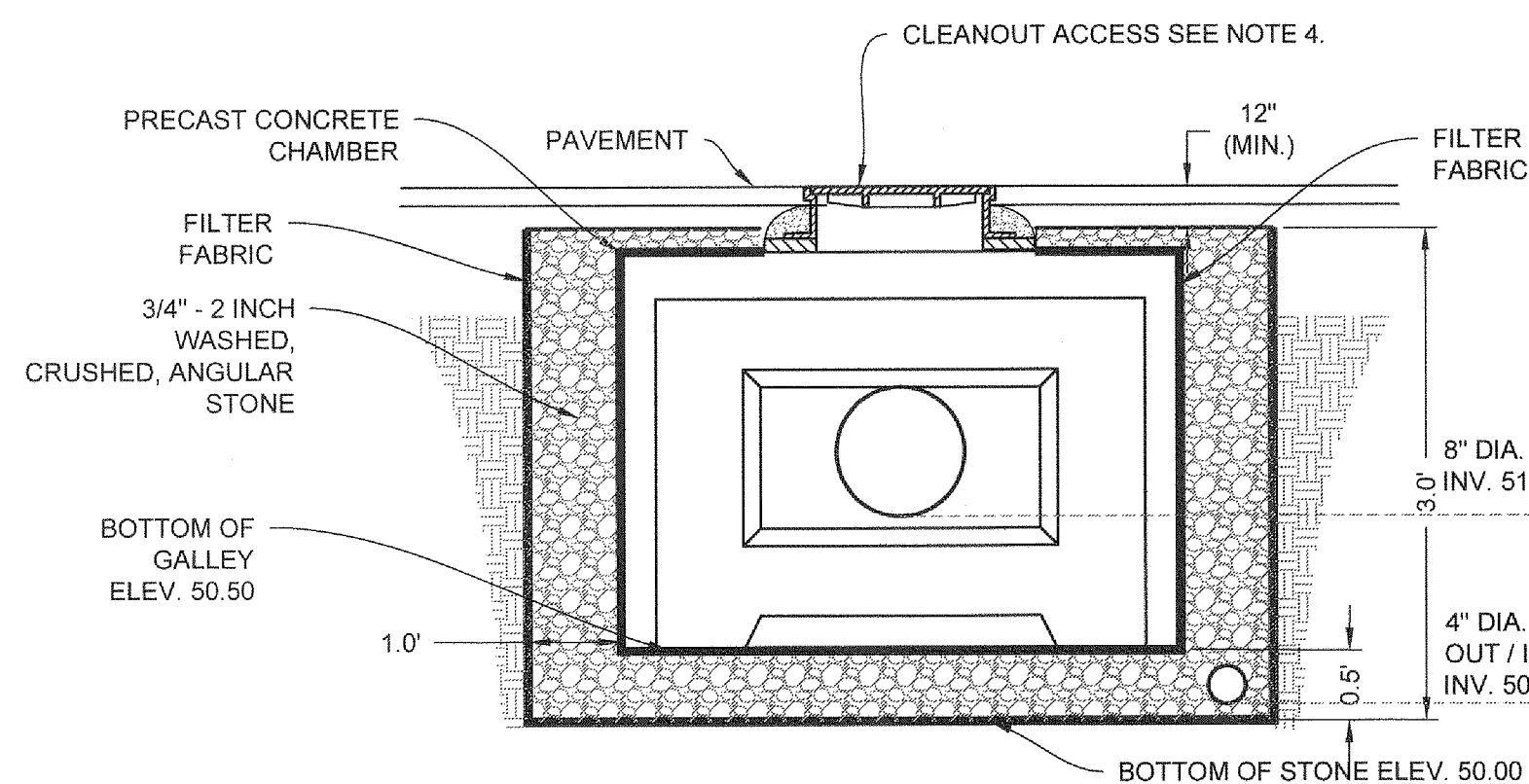
3 CROSS SECTION DETENTION POND (P1-2)
NOT TO SCALE



4 OUTLET CONTROL STRUCTURE (OCS P1-2)
NOT TO SCALE

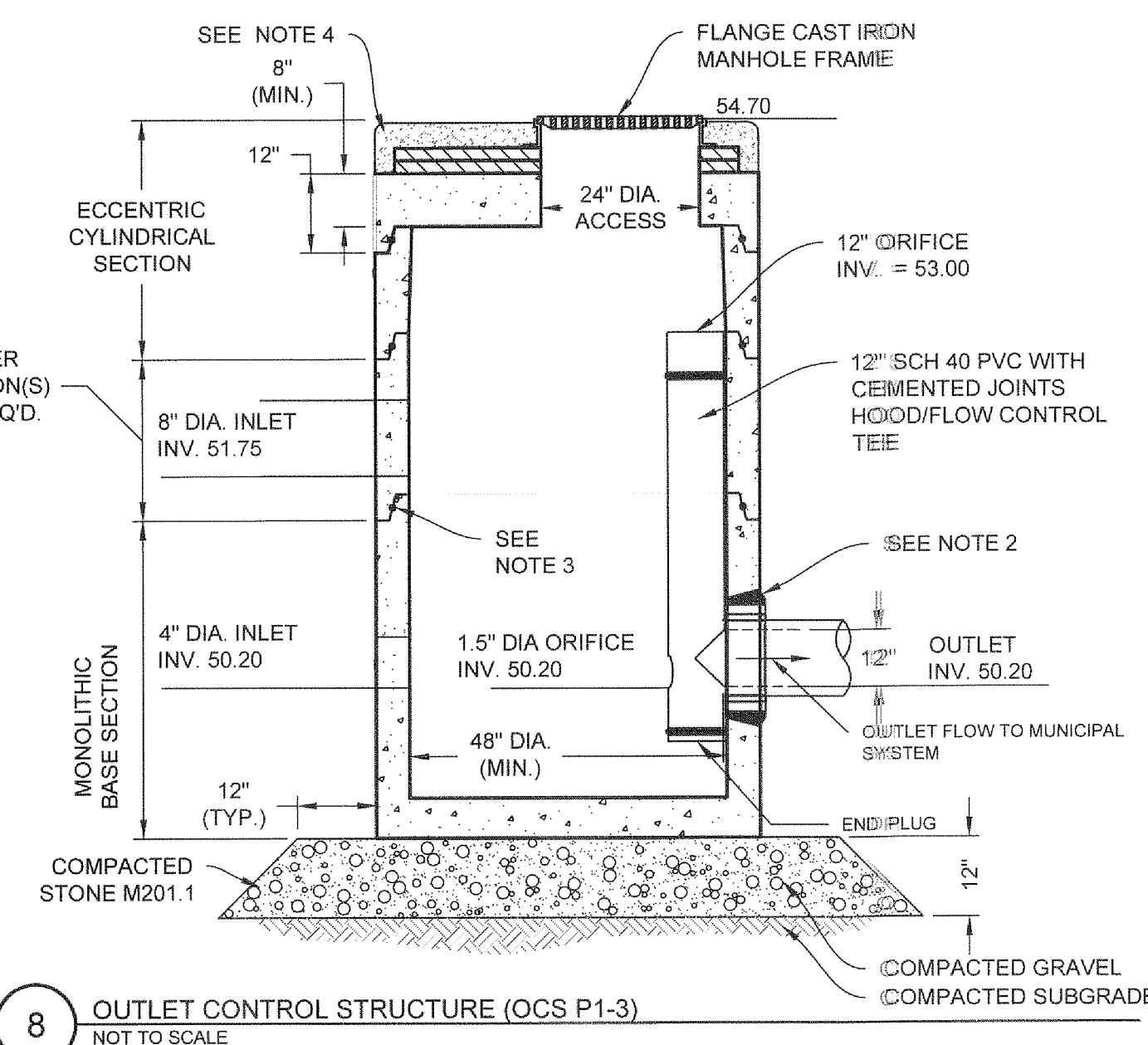


5 GALLEY SYSTEM P1-3 (1 ROW OF 2 8' X 14' GALLEY CHAMBERS)
NOT TO SCALE

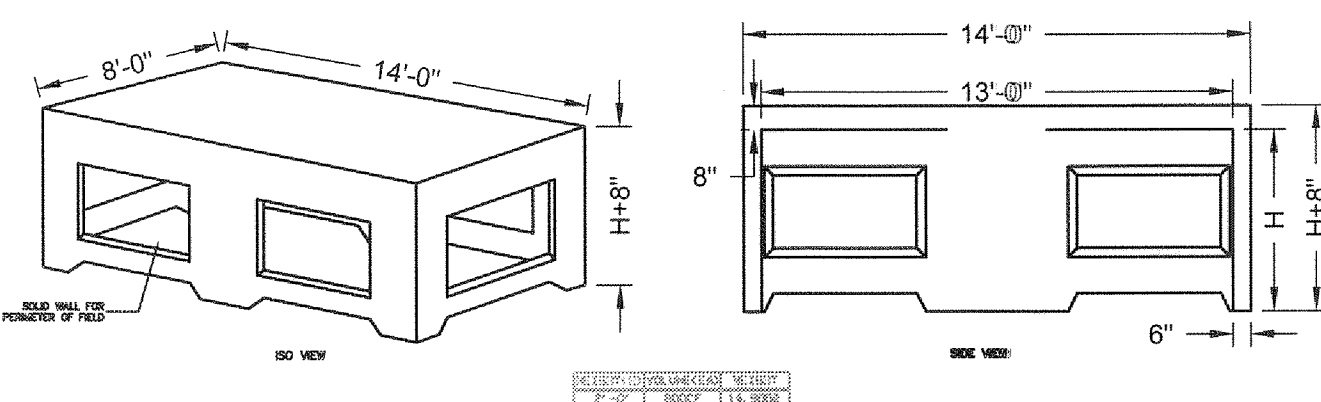


- NOTES:
- CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
 - DESIGNED FOR H-20 LOADING.
 - GALLEY AVAILABLE IN BOTH END AND CENTER SECTIONS. CENTER SECTIONS HAVE LARGE OPENING IN BOTH THE BACK AND FRONT SIDES.
 - CLEAN OUT ACCESS SHALL BE A 24" CAST IRON MANHOLE FRAMES SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR.

7 TYPICAL 8' X 14' GALLEY CROSS SECTION DETAIL
NOT TO SCALE



8 OUTLET CONTROL STRUCTURE (OCS P1-3)
NOT TO SCALE



- NOTES:
- CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
 - DESIGNED FOR H-20 LOADING.
 - GALLEY AVAILABLE IN BOTH END AND CENTER SECTIONS. CENTER SECTIONS HAVE LARGE OPENING IN BOTH THE BACK AND FRONT SIDES.

6 GALLEY 8 X 14 DETAIL
NOT TO SCALE

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13 Branch Street, Suite 101
Methuen, MA 01844
T 978.435.1324

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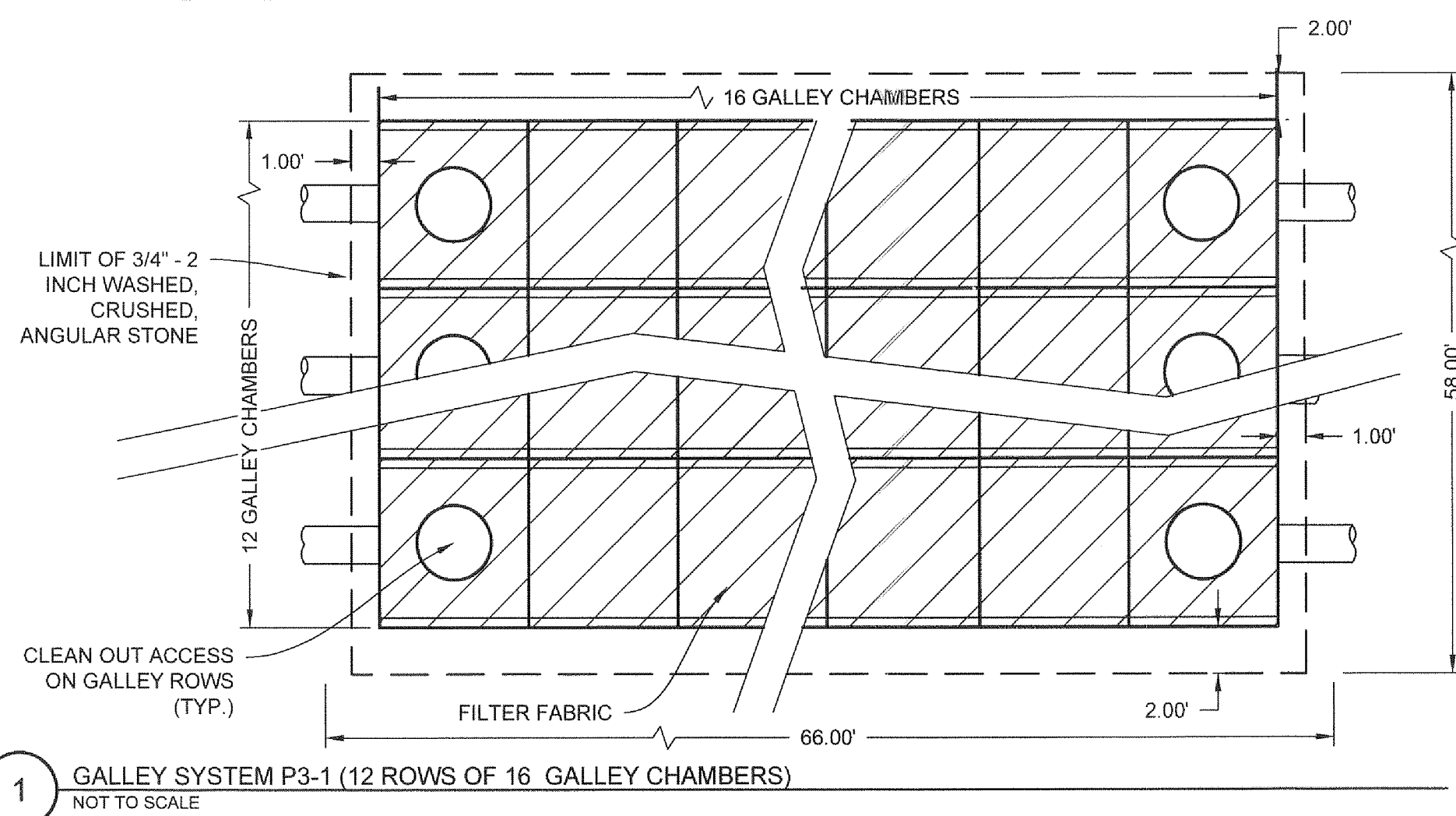
BYFIELD ESTATES
BYFIELD (NEWBURY), MA
ASSESSOR'S MAP R-20 LOT 75

BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON, MA 01849

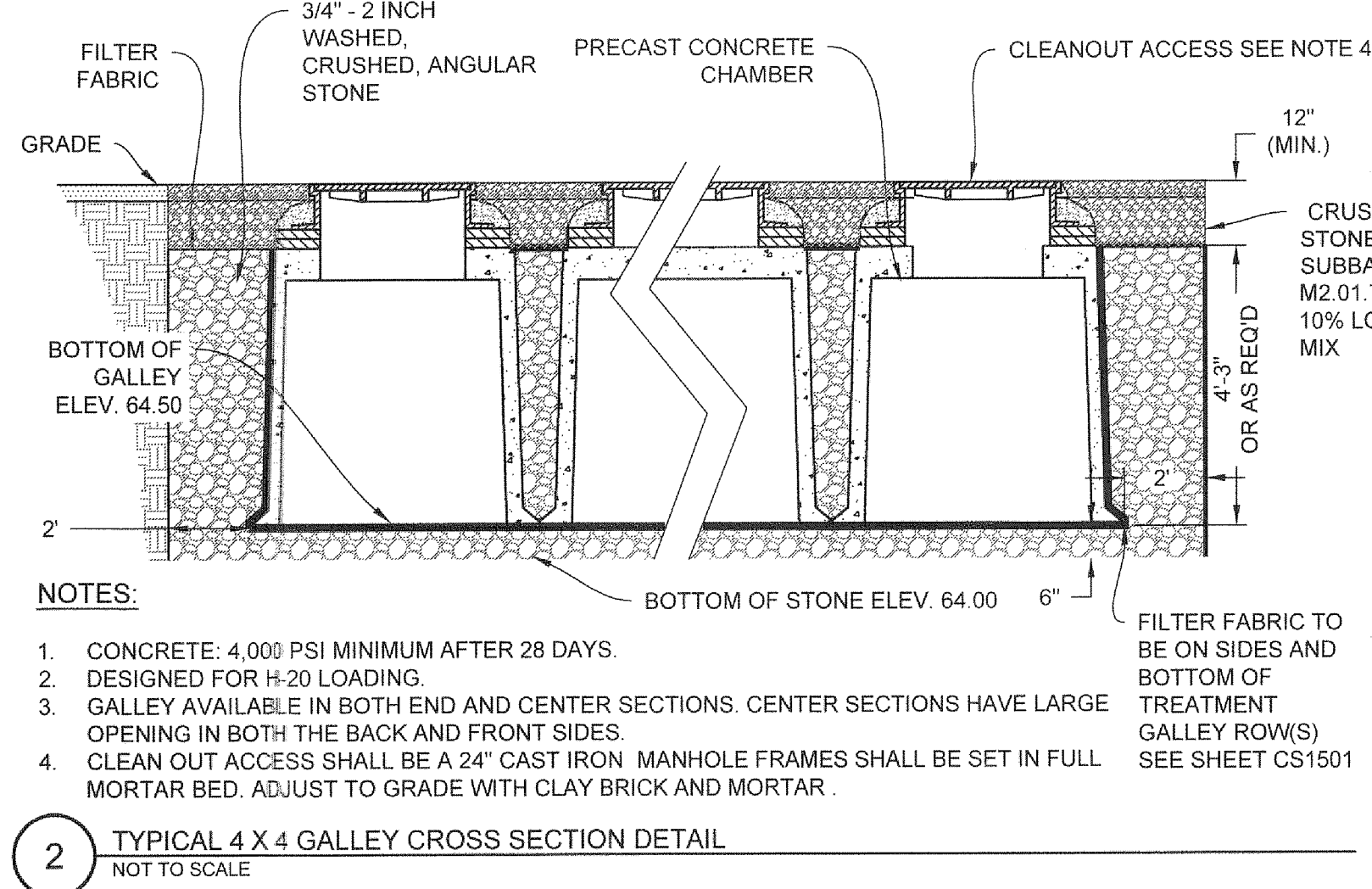
NO.	DATE	REVISIONS	BY
1	01-03-2018	RESPONSE TO COMMENTS	BCO
2	11-15-2017	INITIAL COMMENTS	BCO

PROJECT	15-1516
DATE	2017-03-22
DRAWING SCALE	N.T.S.
DRAWN BY	OMR
APPROVED BY	BCO
CS6022	
SHEET	12 OF 17

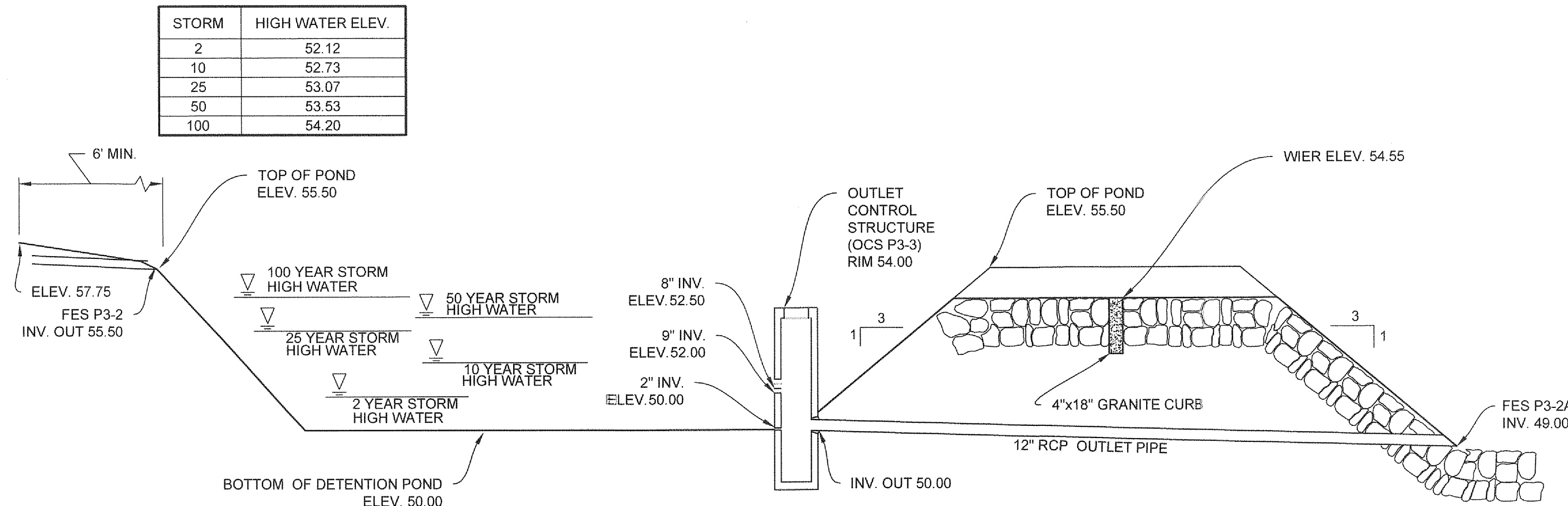
NOT FOR CONSTRUCTION



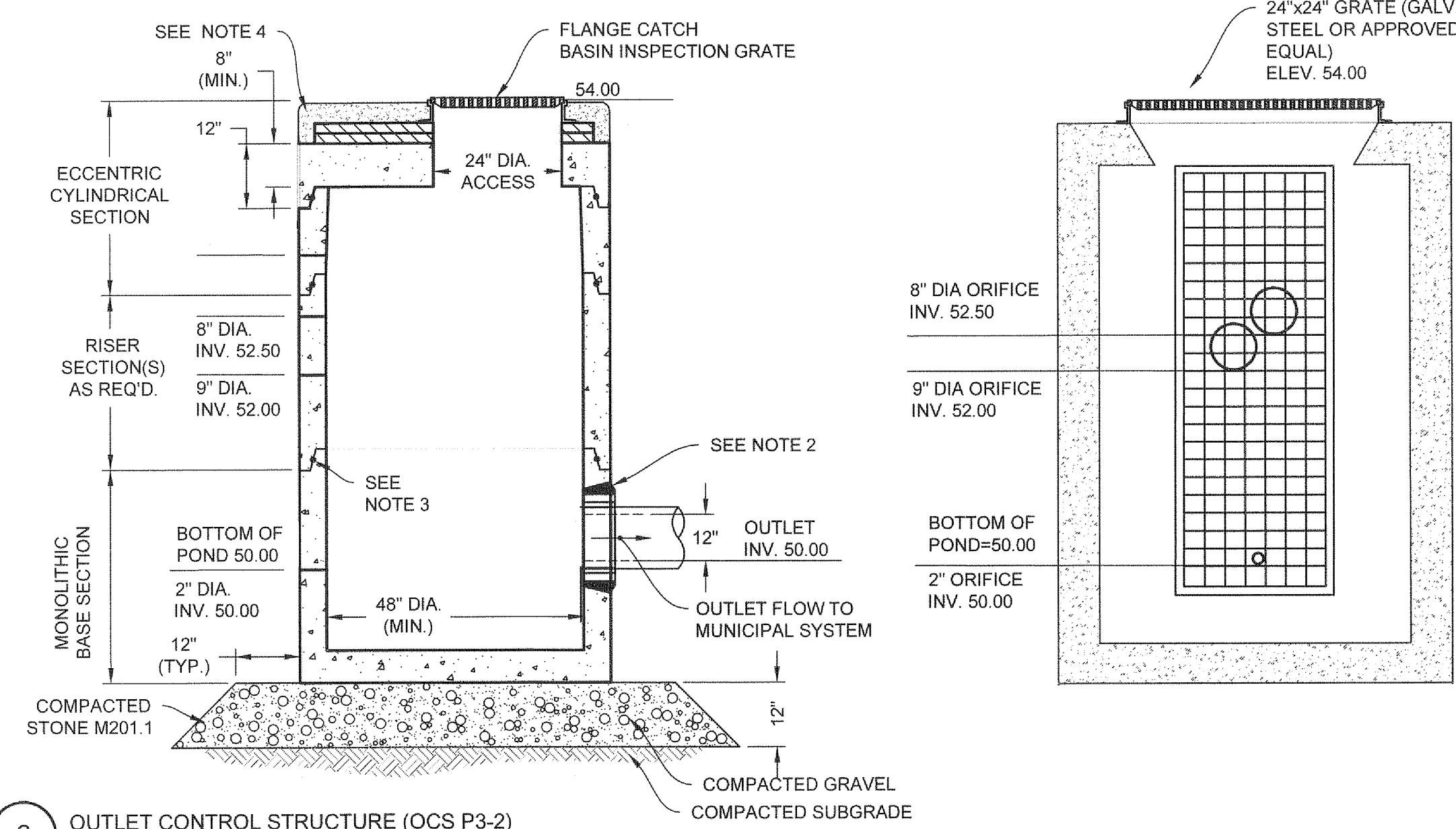
1 GALLEY SYSTEM P3-1 (12 ROWS OF 16 GALLEY CHAMBERS)
NOT TO SCALE



2 TYPICAL 4 X 4 GALLEY CROSS SECTION DETAIL
NOT TO SCALE



5 CROSS SECTION DETENTION POND (P3-2)
NOT TO SCALE



6 OUTLET CONTROL STRUCTURE (OCS P3-2)
NOT TO SCALE

OUTLET CONTROL NOTES:

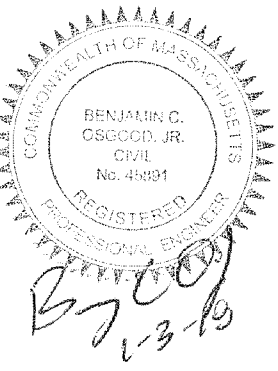
- ALL SECTIONS SHALL BE DESIGNED FOR H-20 LOADING.
- PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
- JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PERFORMED BUTYL RUBBER.
- DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).
- INSTALL ANTI-SEEPAGE COLLARS AT ALL DISCHARGE PIPE LOCATIONS (E.G. DRAINAGE SOLUTIONS, INC. OR APPROVED EQUAL) AT 2' FROM OUTSIDE OF STRUCTURE (MAX.)

DETENTION POND NOTES:

- DETENTION / INFILTRATION BERMS SHALL BE CONSTRUCTED USING ORDINARY BORROW (MASSACHUSETTS HIGHWAY DEPT. STANDARDS SPECIFICATION M1.01.01), CONTAINING BETWEEN 20% AND 30% OF MATERIAL WHICH PASSES A #200 SIEVE. MATERIAL SHALL BE PLACED IN 12" LIFTS AND COMPACTED TO A DRY DENSITY OF 95% OF MODIFIED PROCTOR TEST.

RANGER ENGINEERING & DESIGN, LLC
13 Branch Street, Suite 101
Methuen, MA 01844
T 978.435.1324

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BYFIELD ESTATES
BYFIELD (NEWBURY), MA
ASSESSOR'S MAP R-20 LOT 75

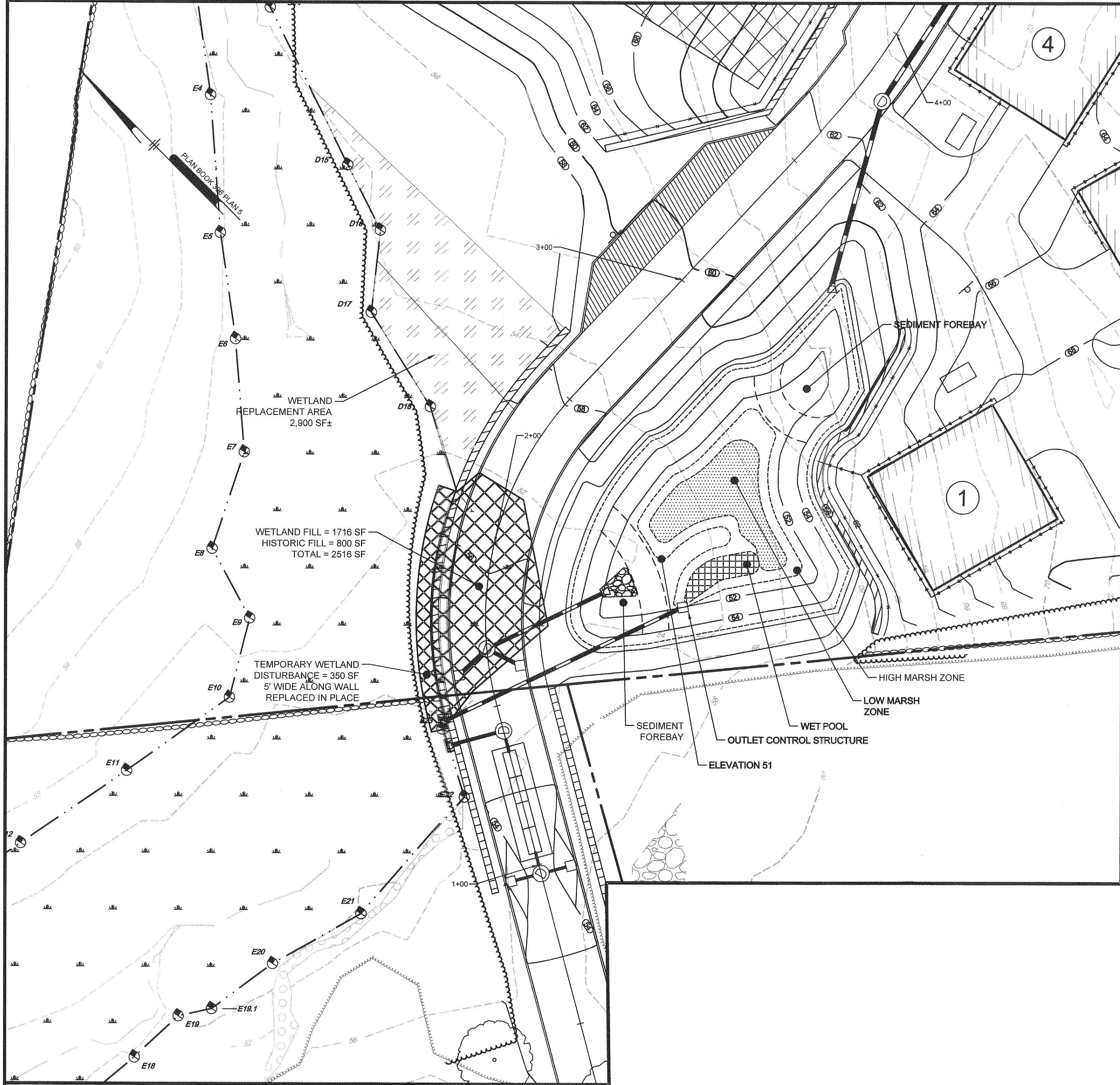
BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON, MA 01949

REVISIONS			
NO.	DATE	INITIAL COMMENTS	BY
1	11-15-2017	INITIAL COMMENTS	BCO
2	01-03-2018	RESPONSE TO COMMENTS	BCO

PROJECT	15-1516
DATE	2017-03-22
DRAWING SCALE	N.T.S.
DRAWN BY	OMR
APPROVED BY	BCO

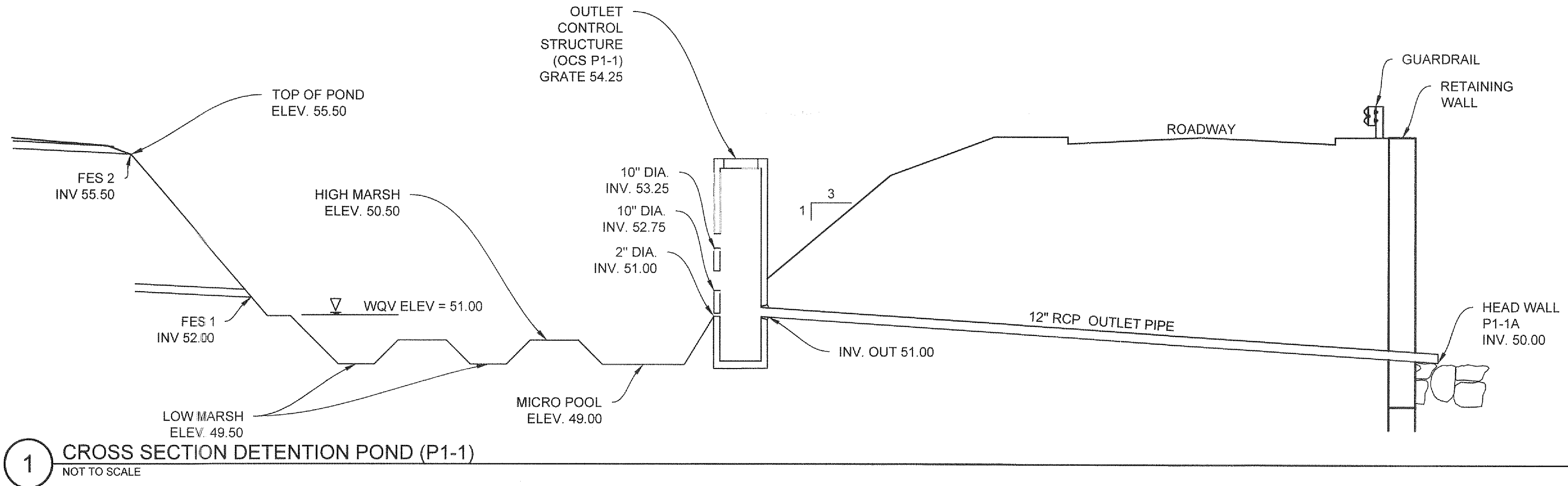
CS6023
SHEET 13 OF 17

NOT FOR CONSTRUCTION



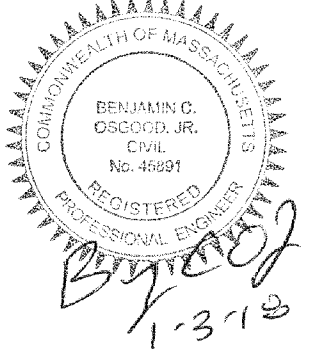
POCKET WETLAND DESIGN	
DRAINAGE AREA	54,889 SF
WETLAND AREA	1,570 SF
SURFACE TO WATERSHED RATIO	.03
LENGTH	90'
WIDTH	10'
L TO W RATIO	9:1
SURFACE AREA ALLOCATION	
WET POOL	165 SF
LOW MARSH	710 SF
HIGH MARSH	695 SF
WATER QUALITY VOLUME ALLOCATION	
WET POOL	330 CF
LOW MARSH	347.5 CF
HIGH MARSH	1065 CF

- NOTE:
- POCKET WETLAND CONSTRUCTION SHALL BE MONITORED DURING CONSTRUCTION BY A QUALIFIED WETLAND SCIENTIST.
 - PRIOR TO POCKET WETLAND CONSTRUCTION A PLANTING LIST SHALL BE DEVELOPED BASED UPON PLANTINGS AVAILABLE AT THE TIME OF CONSTRUCTION.



1 CROSS SECTION DETENTION POND (P1-1)
NOT TO SCALE

RANGER ENGINEERING &
DESIGN, LLC
13 Branch Street, Suite 101
Methuen, MA 01844
T 978.435.1324



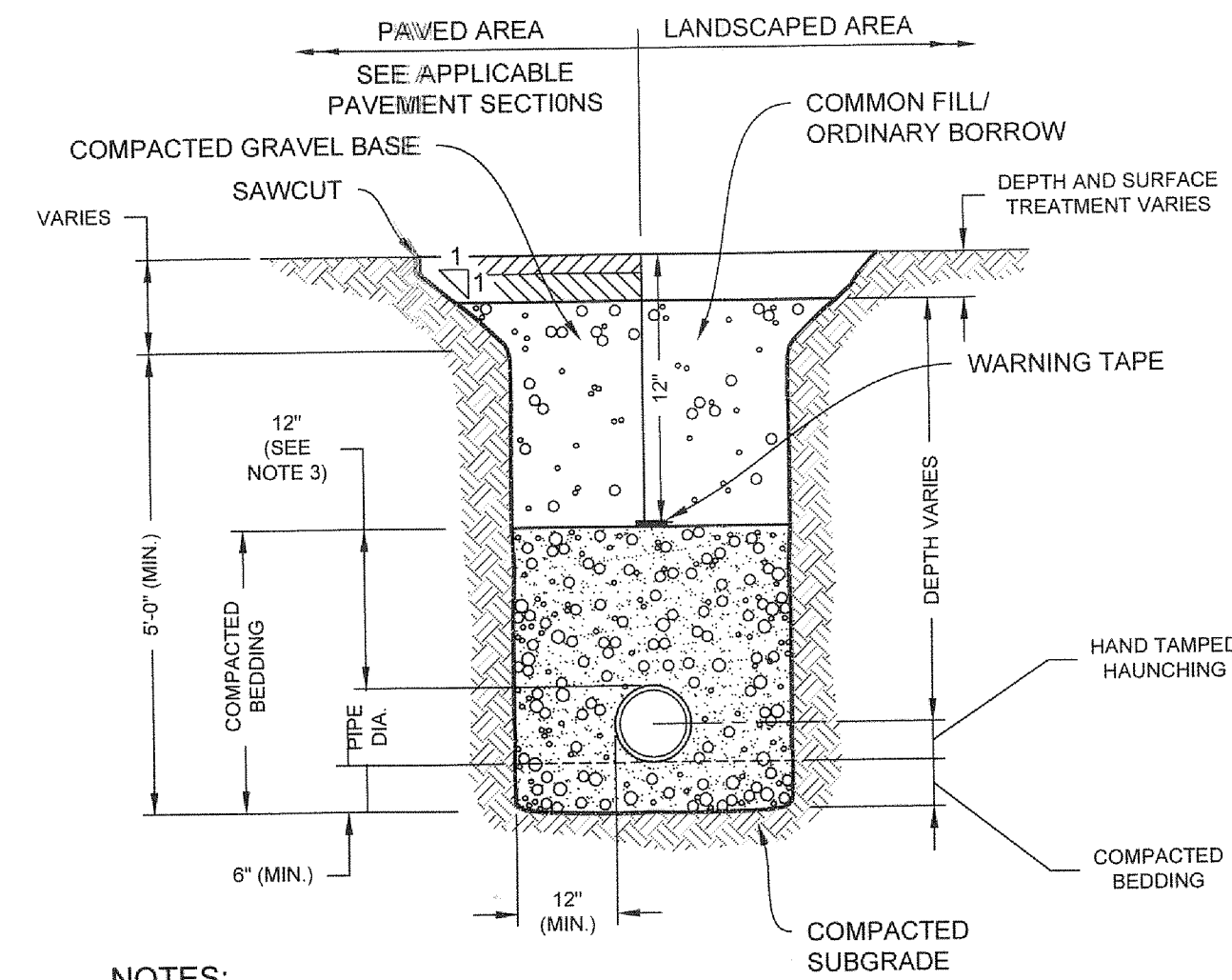
BYFIELD ESTATES
BYFIELD (NEWBURY), MA
ASSESSOR'S MAP R-20 LOT 75
WETLAND DETAILS
BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON, MA 01449

NO	DATE	REVISIONS	BY
1	11-15-2017	INITIAL COMMENTS	BCO

PROJECT	15-1516
DATE	2017-11-13
DRAWING SCALE	1"=40'
DRAWN BY	JRA
APPROVED BY	BCO

CS6031

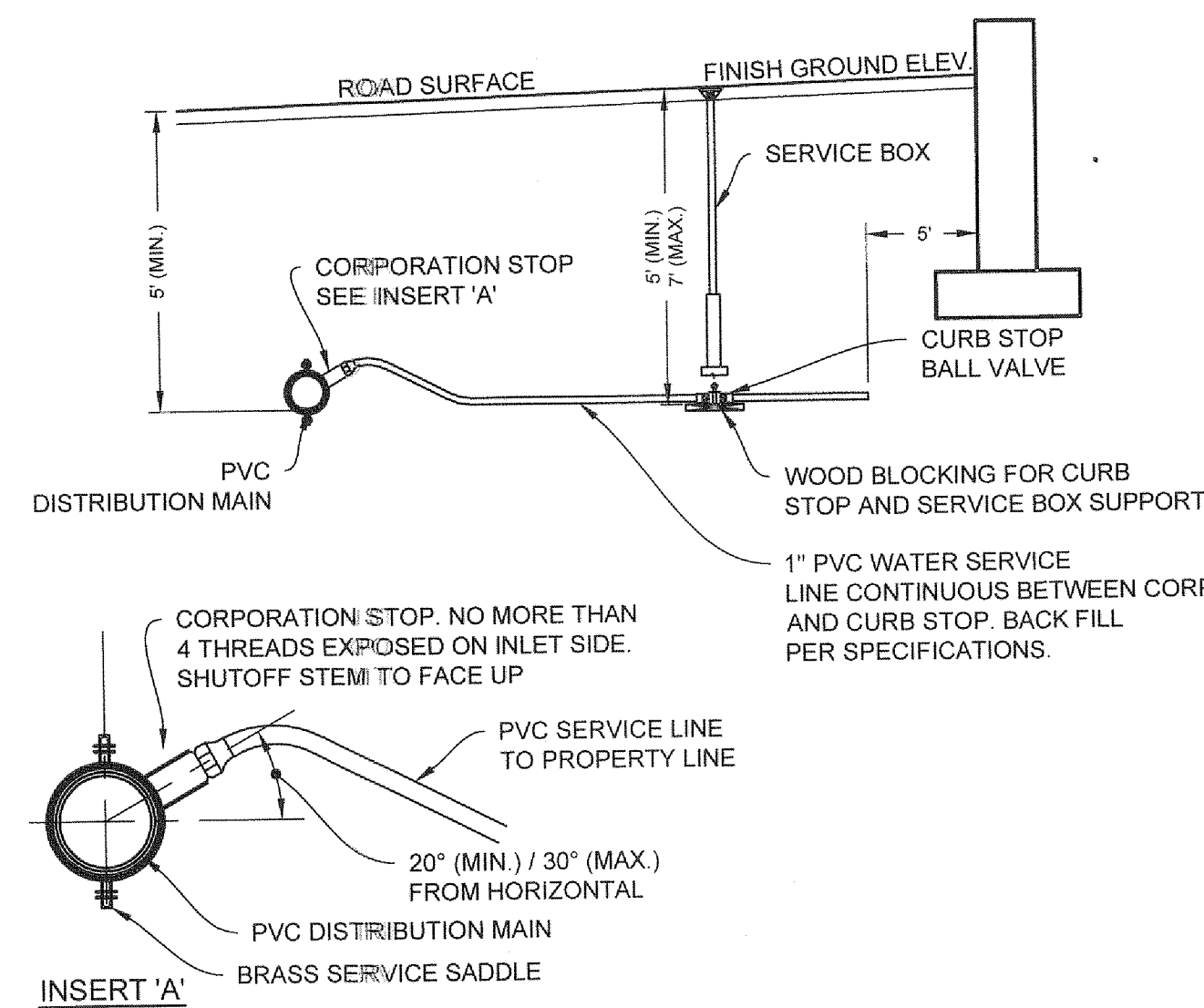
NOT FOR CONSTRUCTION



NOTES:

- WHERE UTILITY TRENCHES ARE CONSTRUCTED THROUGH DETENTION BASIN BERMS OR OTHER SUCH SPECIAL SECTIONS, PLACE TRENCH BACKFILL WITH MATERIALS SIMILAR TO THE SPECIAL SECTION REQUIREMENTS.
- USE METALLIC TRACING/WARNING TAPE OVER ALL PIPES.

1 WATER TRENCH
NOT TO SCALE



4 WATER SERVICE INSTALLATION
NOT TO SCALE

TABLE OF DIMENSIONS											
BENDS	B	C	D	E	F	BENDS	B	C	D	E	F
6"	11 1/4"	8"	15"	12"	24"	12"	6"	45"	8"	30"	12"
6"	22 1/2"	"	19"	"	13"	6"	90"	"	30"	"	27"
8"	11 1/4"	"	20"	"	12"	8"	45"	"	30"	"	24"
8"	22 1/2"	"	22"	"	17"	8"	90"	"	38"	"	36"
12"	11 1/4"	"	30"	"	15"	12"	45"	"	40"	"	40"
12"	22 1/2"	"	35"	"	25"	12"	90"	"	60"	"	52"

BENDS

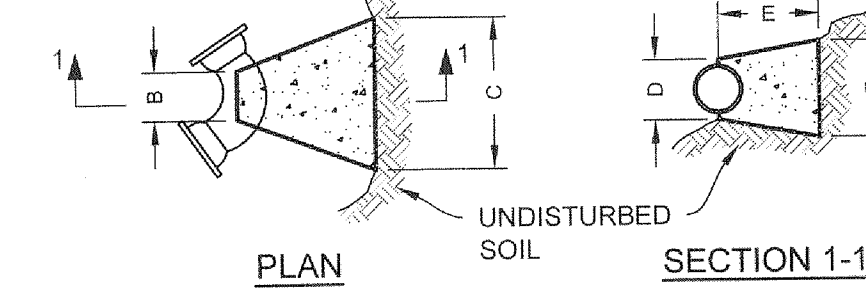
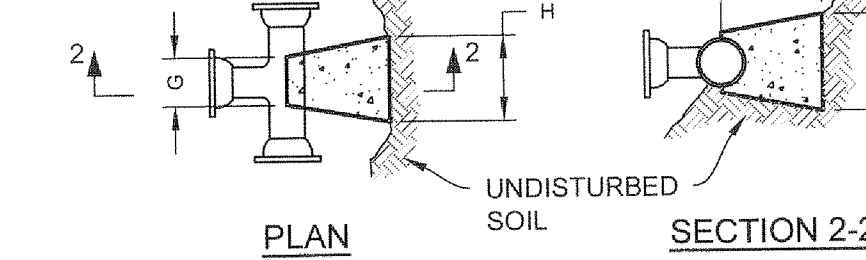


TABLE OF DIMENSIONS									
TEES	G	H	I	J	TEES	G	H	I	J
5" x 6" x 6"	12"	24"	24"	18"	12" x 12" x 6"	12"	24"	24"	18"
5" x 8" x 6"	"	"	"	"	12" x 12" x 8"	"	"	"	24"
5" x 8" x 8"	"	"	"	24"	12" x 12" x 12"	"	36"	"	36"

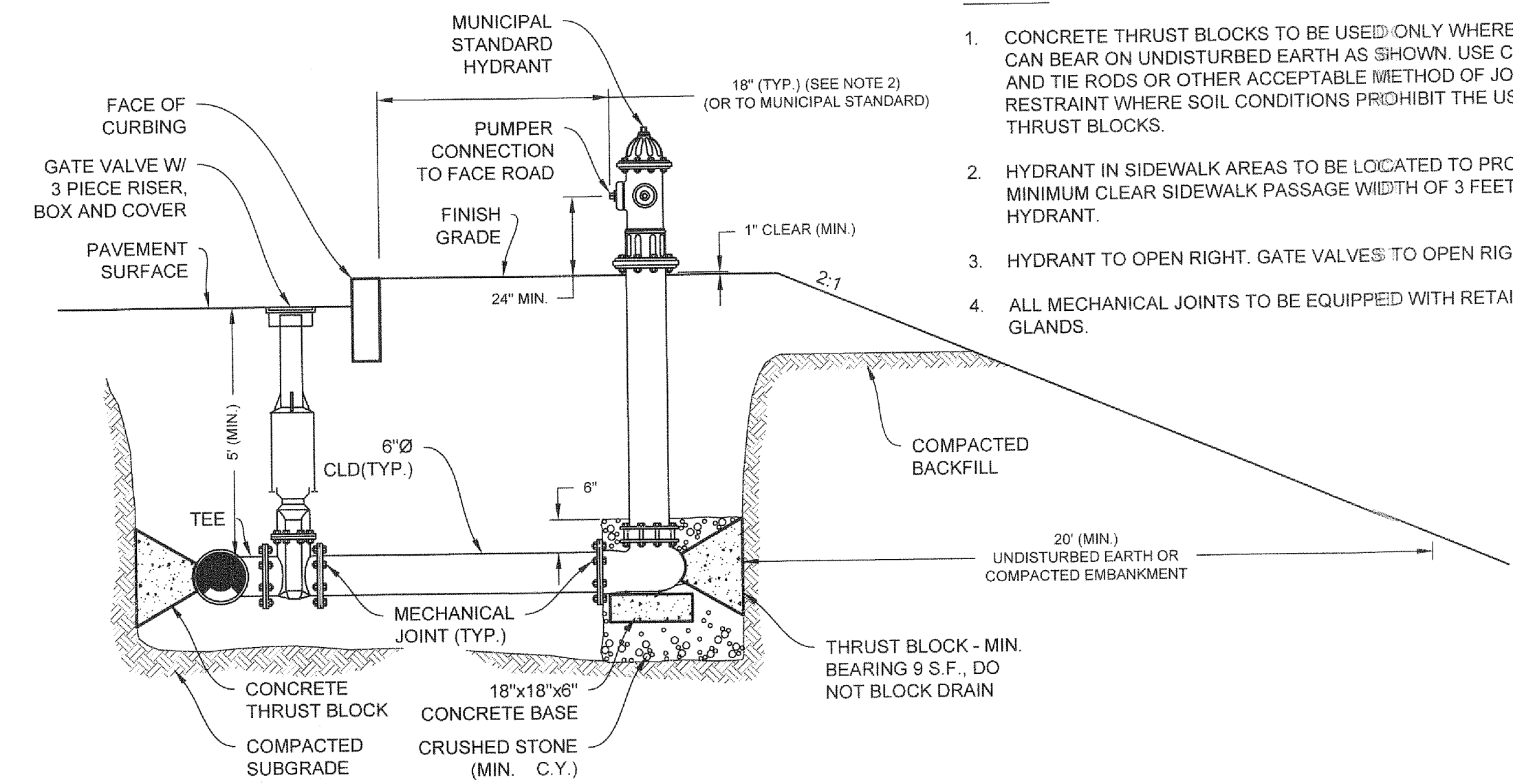
TEES



NOTES:

- PROVIDE BLOCKS FOR TAPPING SLEEVES, DEAD ENDS, GATE VALVES, AND VERTICAL BENDS (SAME SIZE AS REQUIRED FOR TEES). PROVIDE ANCHOR RODS AT VERTICAL BENDS AND GATE VALVES.
- CONCRETE SHALL NOT BE PLACED AGAINST PIPE BEYOND FITTING.
- CONCRETE SHALL BE 3000 PSI-TYPE I.

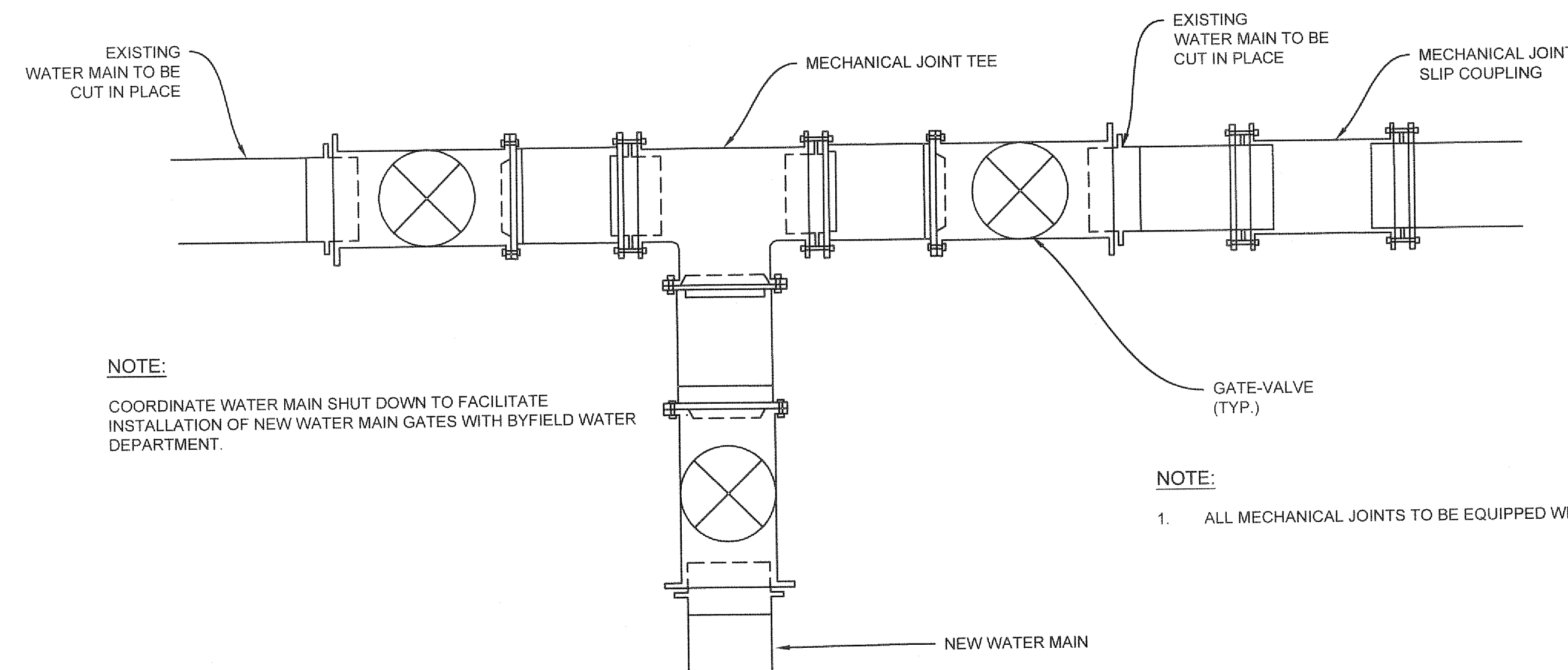
2 CONCRETE THRUST BLOCK
NOT TO SCALE



NOTES:

- CONCRETE THRUST BLOCKS TO BE USED ONLY WHERE THEY CAN BEAR ON UNDISTURBED EARTH AS SHOWN. USE CLAMPS AND TIE RODS OR OTHER ACCEPTABLE METHOD OF JOINT RESTRAINT WHERE SOIL CONDITIONS PROHIBIT THE USE OF THRUST BLOCKS.
- HYDRANT IN SIDEWALK AREAS TO BE LOCATED TO PROVIDE MINIMUM CLEAR SIDEWALK PASSAGE WIDTH OF 3 FEET AT HYDRANT.
- HYDRANT TO OPEN RIGHT. GATE VALVES TO OPEN RIGHT.
- ALL MECHANICAL JOINTS TO BE EQUIPPED WITH RETAINING GLANDS.

3 HYDRANT CONNECTION
NOT TO SCALE



NOTE:

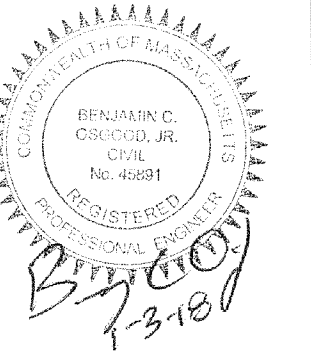
COORDINATE WATER MAIN SHUT DOWN TO FACILITATE INSTALLATION OF NEW WATER MAIN GATES WITH BYFIELD WATER DEPARTMENT.

NOTE:

- ALL MECHANICAL JOINTS TO BE EQUIPPED WITH RETAINING GLANDS.

5 WATER MAIN TAP
NOT TO SCALE

RANGER ENGINEERING & DESIGN, LLC
13 Branch Street, Suite 101
Methuen, MA 01844
T 978.435.1324



BYFIELD ESTATES
BYFIELD (NEWBURY), MA
ASSESSOR'S MAP R-20 LOT 75
UTILITY DETAILS
BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON, MA 01948

DATE	NO.	REVISIONS	BY
01-03-2018	2	RESPONSE TO COMMENTS	BCO
11-15-2017	1	INITIAL COMMENTS	BCO

PROJECT: 15-1516
DATE: 2017-03-22
DRAWING SCALE: N.T.S.
DRAWN BY: CPH
APPROVED BY: BCO

CS6051

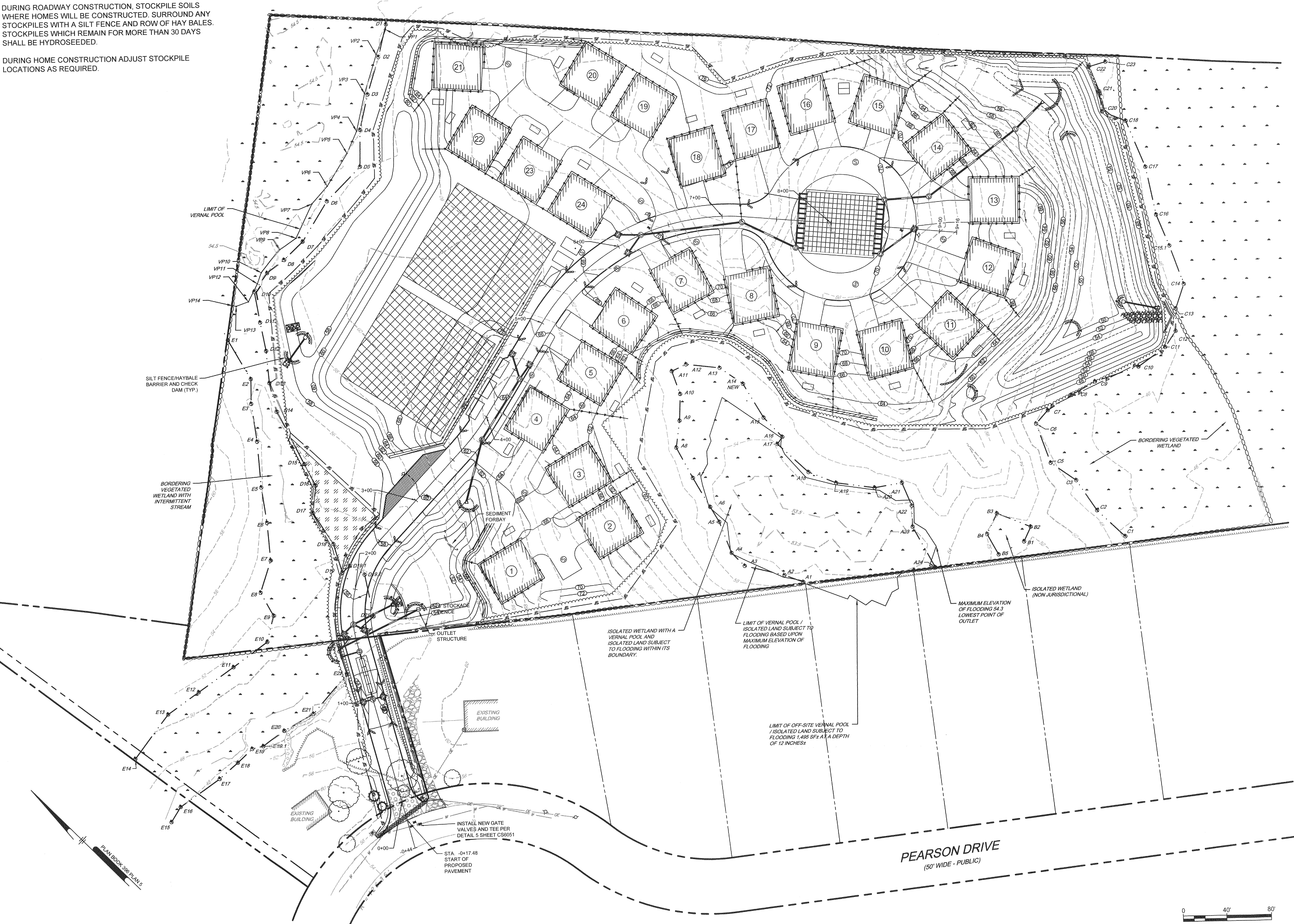
SHEET 15 OF 17

NOT FOR CONSTRUCTION

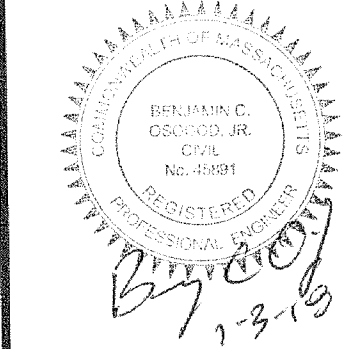
SOIL STOCKPILE NOTE:

DURING ROADWAY CONSTRUCTION, STOCKPILE SOILS WHERE HOMES WILL BE CONSTRUCTED. SURROUND ANY STOCKPILES WITH A SILT FENCE AND ROW OF HAY BALES. STOCKPILES WHICH REMAIN FOR MORE THAN 30 DAYS SHALL BE HYDROSEEDING.

DURING HOME CONSTRUCTION ADJUST STOCKPILE LOCATIONS AS REQUIRED.



RANGER ENGINEERING &
DESIGN, LLC
13 Branch Street, Suite 101
Methuen, MA 01844
T 978.435.1324



BYFIELD ESTATES
BYFIELD (NEWBURY), MA 01922
ASSESSOR'S MAP R-20 LOT 75
EROSION AND SEDIMENTATION
CONTROL PLAN
BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON, MA 01949

NO.	DATE	REVISIONS	BY
2	01-09-2018	RESPONSE TO COMMENTS	BCO
1	11-15-2017	INITIAL COMMENTS	BCO

PROJECT 15-1516
DATE 2017-03-22
DRAWING SCALE 1"=40'
DRAWN BY JRA
APPROVED BY BCO

CS8001
SHEET 16 OF 17

NOT FOR CONSTRUCTION

EROSION CONTROL NOTES (DURING CONSTRUCTION)

1. THE CONTRACTOR MUST INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND IN THE DETAILS PRIOR TO STARTING ANY OTHER WORK ON THE SITE. EROSION CONTROL MUST BE INSTALLED AT EVERY INLET STRUCTURE (EXISTING AND PROPOSED) AND MAINTAINED FOR THE DURATION OF THE PROJECT.
2. EROSION CONTROLS AS SHOWN ON PLANS SHALL BE INSPECTED, REPAIRED AND/OR MAINTAINED BY THE CONTRACTOR WEEKLY AND WITHIN 12 HOURS OF EACH STORM EVENT.
3. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN THEY REACH A DEPTH OF 6 INCHES.
4. SEDIMENT SHALL BE CONTAINED WITHIN THE CONSTRUCTION SITE, AWAY FROM DRAINAGE STRUCTURES.
5. STABILIZE SLOPES STEEPER THAN 3:1 (HORIZONTAL TO VERTICAL) WITH SEED, SECURED GEOTEXTILE FABRIC, OR ROCK RIP-RAP AS REQUIRED TO PREVENT EROSION DURING CONSTRUCTION.
6. CLEAN OUT ALL CATCH BASINS, DRAIN MANHOLES, AND STORM DRAIN PIPES AFTER COMPLETION OF CONSTRUCTION.
7. LOAM AND SEED ALL DISTURBED AREAS.
8. UPON ESTABLISHMENT OF PERMANENT VEGETATION OVER DISTURBED AREAS, REMOVE AND DISPOSE OF HAYBALES, STAKES, AND SILT FENCE.
9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN AND SUPPLEMENT THE SPECIFIED SEDIMENTATION CONTROLS AS NECESSARY TO PREVENT SEDIMENTATION OF OFF-SITE AREAS AND/OR ANY REGULATED RESOURCE AREAS. FAILURE BY THE CONTRACTOR TO CONTROL EROSION, POLLUTION, AND/OR SILTATION SHALL BE CAUSE FOR THE OWNER TO EMPLOY OUTSIDE ASSISTANCE OR TO USE HIS OWN MEANS TO PROVIDE THE NECESSARY CORRECTIVE MEASURE. THE COST OF SUCH ASSISTANCE PLUS PROJECT ENGINEERING COSTS WILL BE THE CONTRACTOR'S RESPONSIBILITY.
10. THE CONTRACTOR SHALL CHECK THE CONDITION OF EROSION CONTROLS DAILY TO KEEP THEM IN GOOD OPERATING CONDITION. EROSION CONTROLS SHALL ALSO BE INSPECTED, REPAIRED AND MAINTAINED BY THE CONTRACTOR WITHIN 12 HOURS OF ANY STORM EVENT PRODUCING 1/2 INCH OF RAINFALL OR MORE. EROSION CONTROLS SHALL BE REPLACED WHEN DETERIORATED, OR WHEN ORDERED BY THE ENGINEER. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN THEY REACH A DEPTH OF 6 INCHES.
11. IN ADDITION TO THOSE LOCATIONS SHOWN ON THIS PLAN AND ON THE GRADING AND DRAINAGE PLANS, EROSION CONTROLS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS: TOE OF SLOPE OF EMBANKMENT CONSTRUCTION, TOE OF TEMPORARY EARTHWORK STOCKPILES.
12. EROSION AND SEDIMENTATION CONTROL SHALL BE IN COMPLIANCE WITH MASSACHUSETTS STORMWATER POLICY.

CONSTRUCTION SEQUENCE NOTES:

1. INSTALL EROSION AND SEDIMENT CONTROLS AS SHOWN ON PLAN.
2. COMMENCE CLEARING, GRUBBING, AND EARTHWORK.
3. CUT AND DISPOSE OF ANY DEBRIS PRODUCED DURING EARTHWORK.
4. INSTALL SITE DRAINAGE AND UTILITIES.
5. STABILIZE SIDE SLOPES. SIDE SLOPES MUST BE FULLY STABILIZED BEFORE ANY STORMWATER DISCHARGE.
6. PERFORM EARTHWORK OPERATIONS. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS AFTER BEING CONSTRUCTED. TEMPORARY GRADED AREAS SHOULD BE STABILIZED WITH MULCH BY OCTOBER 1ST, SO AS NOT TO BE LEFT EXPOSED DURING WINTER CONDITIONS.
7. INSTALLATION OF UNDERGROUND UTILITIES AND CATCH BASINS SHALL BE PROTECTED FROM SEDIMENT IN ACCORDANCE WITH THE PLANS. THE CONTROLS SHALL REMAIN UNTIL THE SITE IS SUFFICIENTLY STABILIZED. ALL PERMANENT STORMWATER MANAGEMENT MEASURES SHALL HAVE A HEALTHY STAND OF VEGETATION ESTABLISHED PRIOR TO DIRECTING RUNOFF INTO THEM.
8. AS THE BUILDING(S) ARE COMPLETED, ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 72 HOURS.
9. FINAL PAVING OF DRIVEWAYS.
10. INSPECT ALL SEDIMENT AND EROSION CONTROL MEASURES.
11. INSTALL SITE LANDSCAPING AND PERMANENT SEEDING OF ALL DISTURBED AREAS.
12. AFTER ALL SEEDED AREAS HAVE ESTABLISHED STABLE GROWTH, ALL TEMPORARY EROSION CONTROL CAN BE REMOVED.
13. CONTRACTOR SHALL NOTIFY AND COORDINATE WITH ALL AUTHORITIES RESPONSIBLE FOR INSPECTIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL REQUIRED INSPECTION SIGN-OFFS.

OPERATION AND MAINTENANCE:
CONSTRUCTION PHASE

THE BMPS ASSOCIATED WITH THIS PROJECT WILL BE OWNED BY THE PROJECT ASSOCIATION, WHO WILL BE RESPONSIBLE FOR INSPECTION, OPERATION AND MAINTENANCE.

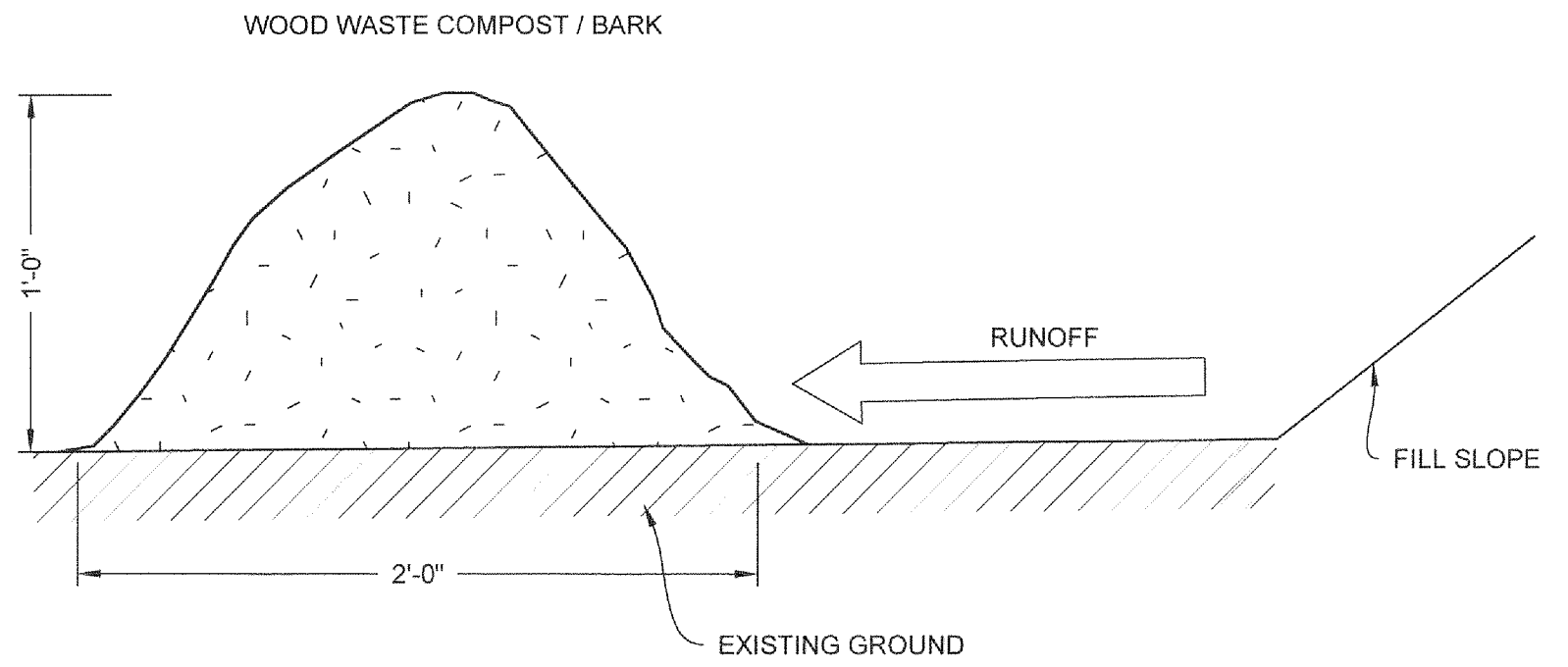
1. THE CONTRACTOR IS TO INSTALL AND MAINTAIN DRAINAGE FACILITIES AS SHOWN ON PLAN (BY RANGER ENGINEERING AND DESIGN LLC, DATED MARCH, 2017).
2. PRIOR TO CONSTRUCTION, ALL EROSION/SILTATION CONTROL DEVICES SHOWN ON ABOVE PLAN ARE TO BE INSTALLED. TO PREVENT SILT INTRUSION INTO THE DRAINAGE SYSTEM DURING CONSTRUCTION, THE CONTRACTOR IS TO INSTALL AND MAINTAIN INLET PROTECTION AT ALL CATCH BASINS, AND SET A SILT FENCE AND HAY BALES AT ALL SLOPES WHICH MAY ERODE IN THE DIRECTION OF ANY OPEN DRAINAGE FACILITIES. SUCH PREVENTIVE MEASURES ARE TO BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS.
3. ALL CONSTRUCTION OF DRAINAGE FACILITIES IS TO BE INSPECTED BY RANGER ENGINEERING AND DESIGN LLC TO VERIFY CONFORMANCE TO THE DESIGN PLAN.
4. THE SEQUENCE OF DRAINAGE CONSTRUCTION SHALL BE AS FOLLOWS:
 - A. CLEAR, GRUB, EXCAVATE AREAS FOR DRAINAGE SYSTEMS.
 - B. TRENCH AND INSTALL PIPES, CATCH BASINS MANHOLES
 - C. INSTALL INLET PROTECTION.
5. EROSION CONTROLS ARE TO BE INSPECTED AND MAINTAINED ON A DAILY BASIS. UPON DISCOVERY OF SILT BUILD-UP IN ANY CATCH BASIN SUMPS, OR ANY OTHER STRUCTURES, THEY ARE TO BE CLEANED.
6. ALL EXPOSED SOILS SHALL BE IMMEDIATELY STABILIZED WITH A LAYER OF MULCH HAY OR JUTE BLANKETS-AS NEEDED FOR SLOPES STEEPER THAN 3:1.
7. UPON INSTALLATION OF CATCH BASINS, INLET PROTECTION-AS DESCRIBED ON SITE PLANS- SHALL BE INSTALLED AND MAINTAINED UNTIL READY FOR PAVING.
8. PRIOR TO CONSTRUCTION OF IMPERVIOUS AREAS, ALL DRAINAGE STRUCTURES AND PIPES SHALL BE INSTALLED AND INSPECTED FOR PROPER FUNCTION. DURING CONSTRUCTION OF OTHER SITE FEATURES, ALL DRAINAGE FACILITIES SHALL BE INSPECTED ON A DAILY BASIS AND CLEANED/REPAIRED IMMEDIATELY UPON DISCOVERY OF SEDIMENT BUILD-UP OR DAMAGE.
9. AFTER PAVING IS INSTALLED, IT SHALL BE SWEEP CLEAN ON A REGULAR BASIS.
10. THE ENTIRE DRAINAGE SYSTEM MUST BE VACUUMED OUT BEFORE THE ISSUANCE OF THE LAST CERTIFICATE OF OCCUPANCY.

POST-DEVELOPMENT PHASE

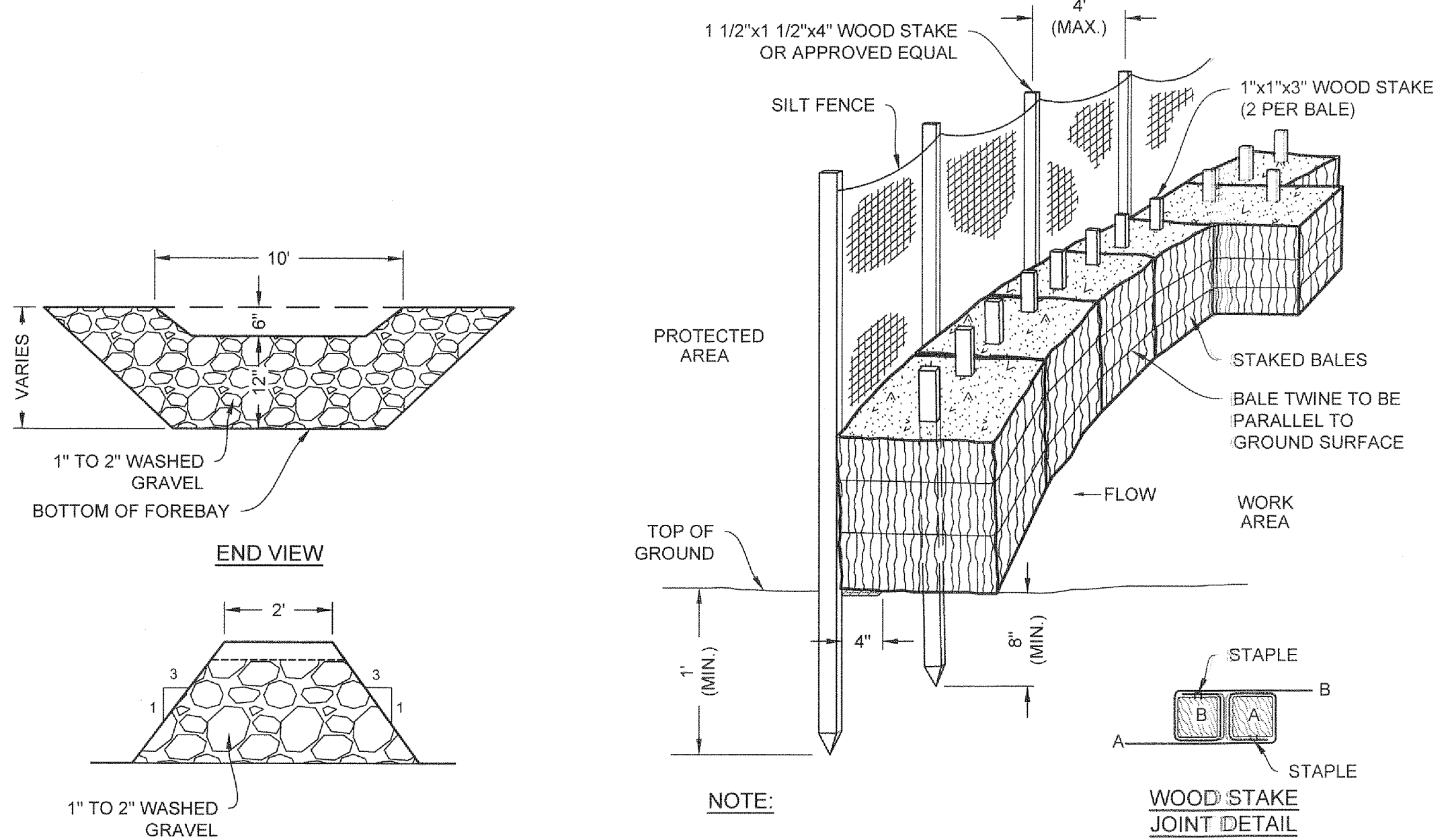
THE OWNER/OCCUPANT IS TO BE RESPONSIBLE FOR MAINTENANCE OF ALL DRAINAGE STRUCTURES IN THE PROJECT - INCLUDING ROOF DRAINS, AND DRAIN PIPES. THE FUTURE OWNER IS EXPECTED TO BE THE PROJECT ASSOCIATION, WHO WILL ULTIMATELY BE RESPONSIBLE FOR COMPLIANCE WITH THE PLAN. IN THE EVENT OF CHANGE OF OWNERSHIP, THE O & M PLAN SHALL BE TRANSFERRED TO THE NEW OWNER.

REGULAR MAINTENANCE IS TO INCLUDE THE FOLLOWING:

1. INSPECTION OF ALL DRAINAGE FACILITIES (CATCH BASINS, PIPES AND DETENTION BASINS. EVERY THREE MONTHS. DURING THESE INSPECTIONS, THE INSPECTOR (A REGISTERED PROFESSIONAL CIVIL ENGINEER QUALIFIED IN DRAINAGE SYSTEMS AS DESIGNATED BY THE PROJECT ASSOCIATION) SHALL LOOK FOR EVIDENCE OF THE FOLLOWING: STRUCTURAL DAMAGE, SILT ACCUMULATION (NEAR INLET INVERTS ON CATCH BASINS, INFILTRATORS), AND IMPROPER FUNCTION. A REPORT ON THE SYSTEM SHALL BE DELIVERED TO THE PROJECT ASSOCIATION, WITH A COPY DELIVERED TO THE TOWN ENGINEER.
2. AFTER INSPECTION, IF ANY OF THE ABOVE CONDITIONS EXIST, THE INSPECTOR SHALL NOTIFY THE PROJECT ASSOCIATION, WHO SHALL IMMEDIATELY ARRANGE FOR ALL NECESSARY REPAIRS AND/OR SEDIMENT REMOVAL.
3. THE ROAD WAY IS TO BE SWEEP CLEAN, AS REQUIRED (I.E., VISUALLY NOTICEABLE DEBRIS BUILD-UP), A MINIMUM OF ONCE PER YEAR.
4. ALL GRADED SLOPES SHALL BE INSPECTED EVERY SPRING FOR EROSION. UPON DISCOVERY OF ANY FAILURE (IE. EROSION), LOAM AND SEED SHALL BE PUT IN PLACE AND NURTURED.
5. DURING THE WINTER MONTHS, ALL SNOW IS TO BE STORED SUCH THAT SNOW MELT IS CONTROLLED WITHIN THE PAVED AREA AND ENTERS THE STORMWATER TREATMENT SYSTEM.

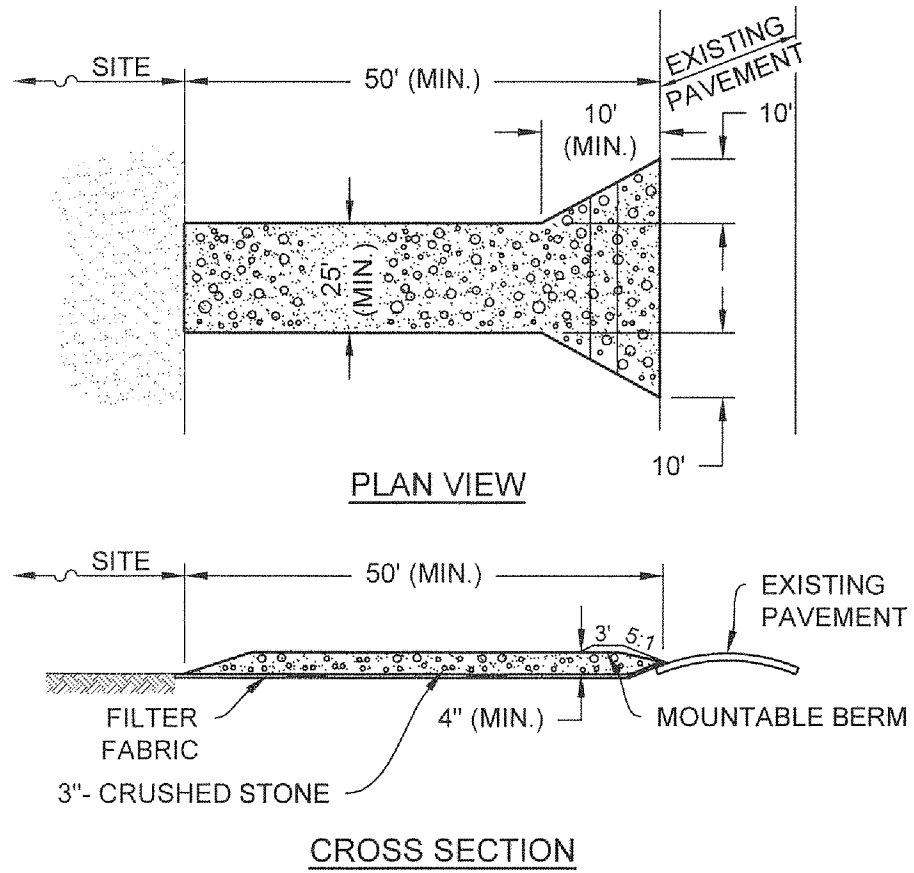


1 WOODCHIP BERM
NOT TO SCALE



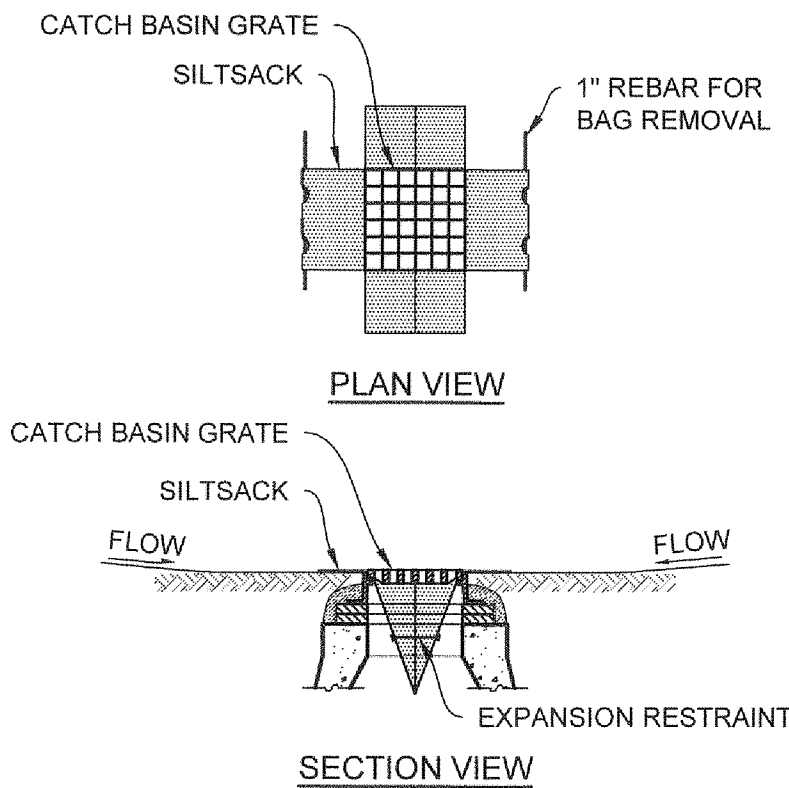
3 SILT FENCE / HAY BALE BARRIER
NOT TO SCALE

2 TEMPORARY CHECK DAM DETAIL
NOT TO SCALE



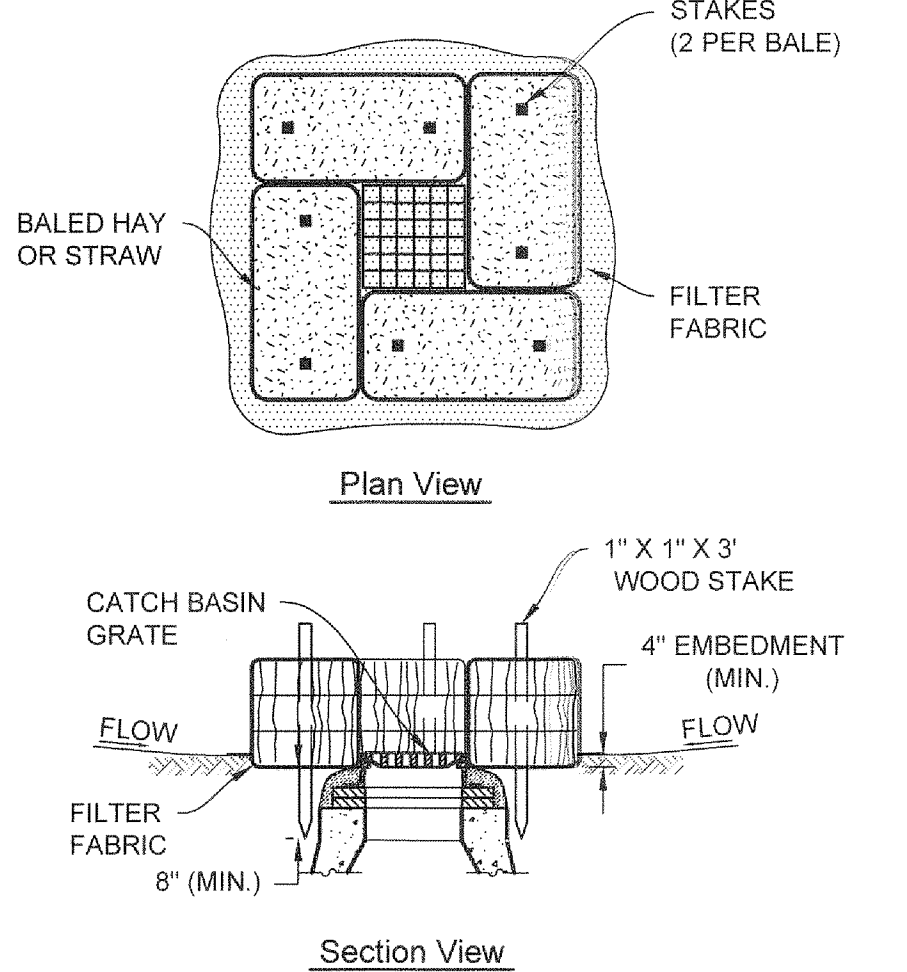
- NOTES:
1. ENTRANCE WIDTH SHALL BE A TWENTY-FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
 2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.

4 STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



- NOTES:
1. INSTALL SILTSACK IN ALL CATCH BASINS WHERE INDICATED ON THE PLANS BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND HAY BALES HAVE BEEN REMOVED.
 2. GRATE TO BE PLACED OVER SILTSACK.
 3. SILTSACK SHALL BE INSPECTED WEEKLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED.
 4. SILTSACKS SHALL NOT BE INSTALLED WITHIN PARK ST. DURING THE WINTER MONTHS.

5 SILTSACK SEDIMENT TRAP
NOT TO SCALE

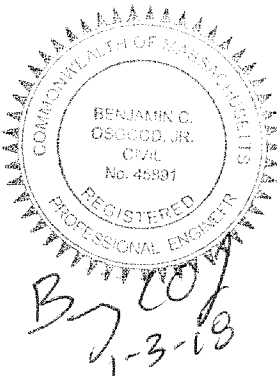


- NOTES:
1. ENCLOSE STRUCTURE WITH HAYBALES IMMEDIATELY AFTER CATCH BASIN CONSTRUCTION. MAINTAIN UNTIL PAVING BINDER COURSE IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
 2. IF GRATE IS AGAINST EXISTING CURB THEN HAY BALES ARE TO BE PLACED AROUND THREE SIDES OF GRATE ONLY.
 3. GRATE TO BE PLACED OVER FILTER FABRIC.
 4. BALES SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS. REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.

6 CATCH BASIN SEDIMENT TRAP
NOT TO SCALE

RANGER ENGINEERING & DESIGN, LLC
13 Branch Street, Suite 101
Methuen, MA 01844
T 978.435.1324

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK



BYFIELD ESTATES
BYFIELD (NEWBURY), MA 01922
ASSESSOR'S MAP R-20 LOT 75

EROSION AND SEDIMENTATION CONTROL NOTES

BYFIELD ESTATES, LLC
2 DEARBORN WAY
MIDDLETON, MA 01948

NO.	DATE	REVISIONS	BY
1	01-03-2018	RESPONSE TO COMMENTS	BCO
2	11-15-2017	INITIAL COMMENTS	BCO

PROJECT	15-1516
DATE	2017-03-22
DRAWING SCALE	N.T.S.
DRAWN BY	JRA
APPROVED BY	BCO

CS8501
SHEET 17 OF 17

NOT FOR CONSTRUCTION