

SITE DATA

LOT AREA: 15.17± AC. (660,575 SF)
WATER SUPPLY: MUNICIPAL
APPROXIMATE WATER USE: 3,720 GPD
SEWAGE DISPOSAL: ONSITE SEWAGE DISPOSAL SYSTEM
APPROXIMATE SEWAGE FLOW: 3,720 GPD [SEE SHEET C3.1]
ZONING DISTRICT: RESIDENTIAL
OVERLAY DISTRICT: AQUIFER & WATER RESOURCE

ASSESSORS REFERENCE

ASSESSORS PARCEL MAP U19, PARCEL 38
RECORD OWNER: CRAIG C. GRUSKOWSKI & HEIDI PLATT GRUSKOWSKI
338 KING ST. LITTLETON, MA 01460
ASSESSORS PARCEL MAP U19, PARCEL 38-1
RECORD OWNER: CRAIG C. GRUSKOWSKI & HEIDI PLATT GRUSKOWSKI,
TRUSTEES OF PAINLESS REALTY TRUST
338 KING ST. LITTLETON, MA 01460

SENIOR RESIDENTIAL DEVELOPMENT

PARAMETER	FORMULA	VARIABLE	REQUIRED	PROVIDED
Two-Family Dwelling Units	4 Units/Acre	6 Units	1.5 AC.	
Townhouse Dwelling Units	8 Units/Acre	3 Units	0.38 AC.	
Independent Living Units	20 Units/Acre	24 Units	0.75 AC.	
Total Site Area			2.63 AC.	15.17 AC.
Minimum Open Space	30% Parcel Area	660,575± SF	198,173± SF	608,537± SF
Contiguous Upland Area	80% Min. Open Space Area	198,173± SF	158,535± SF	164,657± SF

PARKING COMPUTATIONS

USE	FORMULA	VARIABLE	REQUIRED SPACES	PROVIDED SPACES
Town House & Cottage Dwellings	2 Spaces per Unit	9 Units	18	
Independent Living Units	1 Space per Unit	15 Units	15	
Guest Parking	1 Space per 3 Units	24 Units	8	

Total Parking Spaces 41 42
NOTES: 1. See Zoning Bylaw section 173-148(F).

COVERAGE COMPUTATIONS

PARAMETER	AREA (AC)	AREA (SF)	% OF TOTAL LOT AREA
EXISTING CONDITION			
Lot Area	15.17±	660,575±	100%
Buildings & Decks	0.18±	7,682±	1.2%
Pavement, Walks, and Misc. Impervious	0.41±	17,800±	2.7%
Pond	0.26±	11,183±	1.7%
TOTAL IMPERVIOUS AREA	0.85±	36,665±	5.6%
PROPOSED CONDITION			
Lot Area	15.17±	660,575±	100%
Buildings & Decks	0.62±	26,899±	4.1%
Pavement, Walks, and Misc. Impervious	0.47±	20,357±	3.1%
Pond	0.26±	11,183±	1.7%
TOTAL IMPERVIOUS AREA	1.35±	58,439±	8.9%

PLAN REFERENCES

- "ORDER OF RESOURCE AREA DELINEATION" PREPARED FOR MASSACHUSETTS COHOUSING LLC. BY THE LITTLETON CONSERVATION COMMISSION. DATED MARCH 23, 2020. RECORDED AT THE MIDDLESEX SOUTH REGISTRY OF DEEDS BK: 74331 PG: 23.
- "SEWAGE DISPOSAL SYSTEM-338 KING STREET LITTLETON, MA" DESIGNED FOR CRAIG & HEIDI GRUSKOWSKI BY DAVID E. ROSS ASSOCIATES, INC. DATED JULY 1997.
- "SUBSURFACE SEWAGE DISPOSAL SYSTEM-336 KING STREET LITTLETON, MA" DESIGNED FOR RONALD COOPER BY WHITMAN & BINGHAM ASSOCIATES, INC. DATED MAY 31, 1993.
- "LEACHING SYSTEM REPAIR-CONGREGATIONAL CHURCH OF LITTLETON-308 KING STREET LITTLETON, MA" DESIGNED FOR CONGREGATIONAL CHURCH OF LITTLETON BY WARREN W. TERRELL, P.E. DATED AUGUST 1990. REVISED THROUGH 4/20/91.
- "SUBSURFACE SEWAGE DISPOSAL SYSTEM-NEW CONSTRUCTION-HAGER HOMESTEAD-336-338 KING STREET LITTLETON, MA" PREPARED FOR MASSACHUSETTS COHOUSING, LLC. BY GOLDSMITH, PREST & RINGWALL, INC. DATED SEPTEMBER 2020. REVISED 10/26/20.

EXISTING CONDITION NOTES:

- EXISTING CONDITION INFORMATION SHOWN IS BASED ON AN INSTRUMENT SURVEY PERFORMED BY GOLDSMITH, PREST & RINGWALL, INC. DURING OCTOBER 2019.
- THE EDGE OF WETLAND AND RIVER HAS BEEN DELINEATED BY OXBOW ASSOCIATES, INC. OCTOBER 2019 THROUGH NOVEMBER 2019, AND APPROVED BY THE LITTLETON CONSERVATION COMMISSION MARCH 23, 2020 [SEE PLAN REFERENCE #1].
- DELINEATION OF EXISTING POND AND TRENCHES WITHIN THE WETLANDS ARE APPROXIMATE AND ARE BASED ON ARIEL IMAGES FROM GOOGLE EARTH.

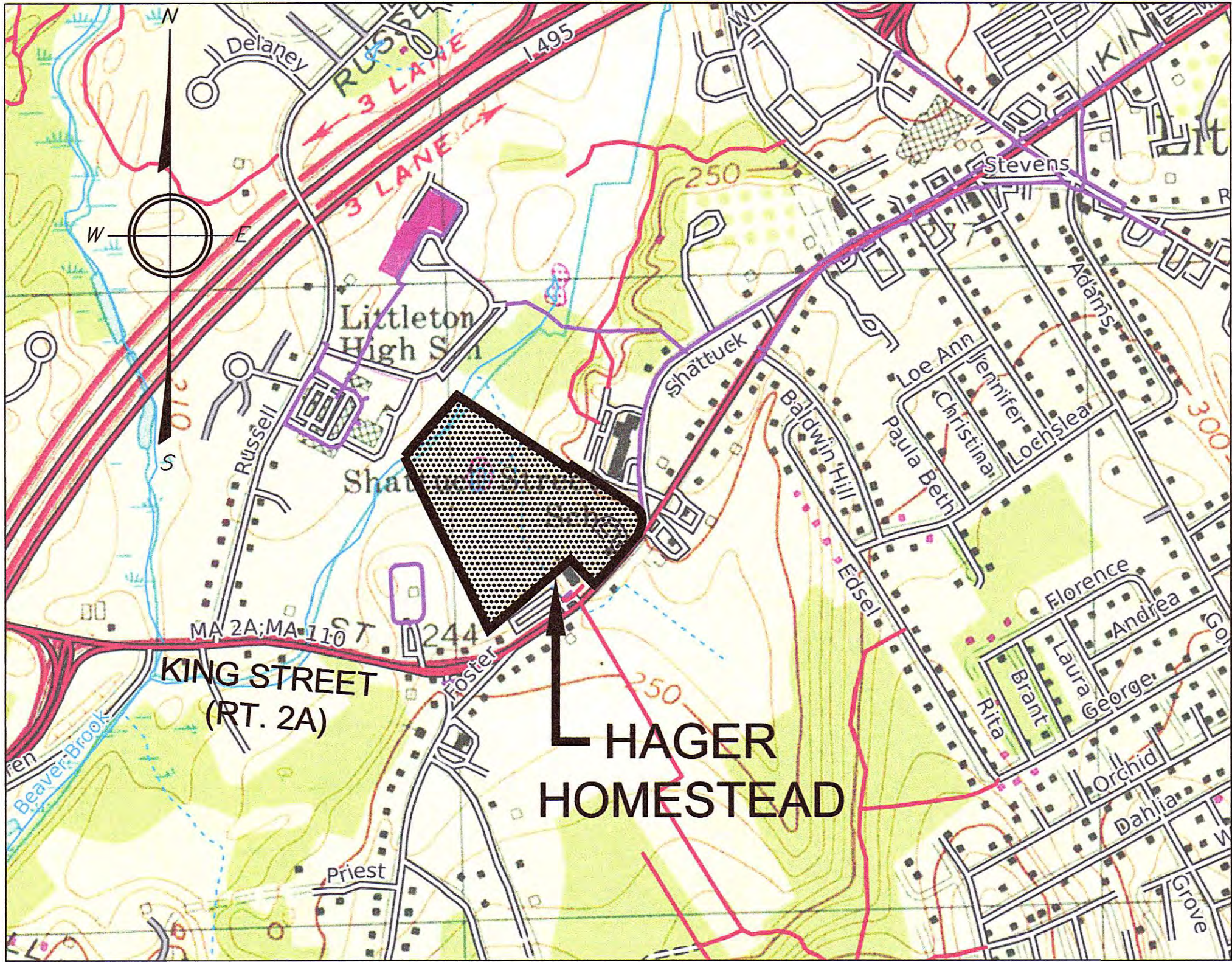
GENERAL NOTES

- LOCATIONS OF EXISTING UNDERGROUND UTILITIES/OBSTRUCTIONS/SYSTEMS SHOWN HEREON ARE APPROXIMATE ONLY. ALL UTILITIES/OBSTRUCTIONS/SYSTEMS MAY NOT BE SHOWN. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UNDERGROUND UTILITIES/OBSTRUCTIONS/SYSTEMS, WHETHER OR NOT SHOWN HEREON.
- UNLESS OTHERWISE SHOWN, ALL NEW UTILITIES SHALL BE UNDERGROUND.
- BURIED UTILITIES SHALL BE INSTALLED IN ACCORDANCE WITH THEIR RESPECTIVE COMPANY SPECIFICATIONS.
- CONSTRUCTION LAYOUT OF BUILDING AND SITE IMPROVEMENTS SHALL BE PERFORMED BY A LICENSED PROFESSIONAL LAND SURVEYOR. LOCATIONS OF LOCATING PROPOSED IMPROVEMENTS DERIVED BY SCALING DRAWINGS MAY NOT BE ACCURATE. PROPERTY LINES SHOWN HEREON ARE APPROXIMATE. SEE PLAN REFERENCE HEREON.
- SAFETY MEASURES, CONSTRUCTION METHODS, AND CONTROL OF WORK SHALL BE RESPONSIBILITY OF CONTRACTOR.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR AND/OR REPLACEMENT OF ANY EXISTING UTILITY OR STRUCTURE DAMAGED DURING CONSTRUCTION THAT ARE NOT DESIGNATED FOR DEMOLITION AND/OR REMOVAL HEREON. DAMAGED UTILITY OR STRUCTURE SHALL BE REPAIRED TO THE SATISFACTION OF THEIR RESPECTIVE OWNERS.
- ANY INTENDED REVISION OF THE HORIZONTAL AND/OR VERTICAL LOCATION OF IMPROVEMENTS TO BE CONSTRUCTED AS SHOWN HEREON SHALL BE REVIEWED AND APPROVED BY ENGINEER PRIOR TO IMPLEMENTATION.
- CONTRACTOR SHALL NOTIFY ENGINEER COMMENCEMENT OF CONSTRUCTION IN ORDER TO ENSURE THAT REQUIRED INSPECTIONS ARE PERFORMED IN A TIMELY AND EFFICIENT MANNER.
- CONTRACTOR SHALL PROMPTLY NOTIFY ENGINEER UPON DISCOVERY OF ANY UNFORESEEN SURFACE OR SUBSURFACE CONDITIONS THAT MAY IMPACT SITE CONSTRUCTION.
- FINISH RIM ELEVATIONS SHOULD MATCH PAVEMENT, GRADING OR LANDSCAPING, UNLESS SPECIFICALLY INDICATED OTHERWISE.
- WHERE EXISTING UTILITY LINES/STRUCTURES ARE TO BE CUT/BROKEN DOWN/ABANDONED, LINES/STRUCTURES SHALL BE PLUGGED/CAPPED/FILLED IN ACCORDANCE WITH UTILITY OWNER REQUIREMENTS.
- EROSION CONTROL MEASURES, SUCH AS SILT FENCE OR STRAW BALES AS MAY BE SHOWN HEREON, SHALL BE INSTALLED BEFORE EARTH DISTURBANCE OCCURS WITHIN BUFFER ZONE, AND SHALL SERVE AS THE LIMIT OF WORK.
- WHERE THE WORD "INSTALL" IS USED HEREIN, IT IS INTENDED TO DIRECT CONTRACTOR TO "FURNISH, INSTALL, AND PLACE IN OPERATION" THE COMPONENT REFERRED TO.
- LIMITS OF WORK SHALL BE STAKED IN THE FIELD PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- ALL STORM DRAIN PIPE TO BE SMOOTH INTERIOR HDPE PIPE, 2.0 PSI GASKETED JOINT, UNLESS OTHERWISE NOTED.
- WHERE SHOWN, CONSTRUCTION NOTES ARE INTENDED TO SUMMARIZE AND CLARIFY MAJOR ITEMS OF WORK. THESE NOTES SHOULD NOT BE CONSTRUED AS AN EXHAUSTIVE LISTING OF ALL WORK REQUIRED. CONTRACTOR SHOULD CONTACT ENGINEER WHEN FURTHER CLARIFICATION OF DEPICTED WORK IS DESIRED.
- CONSTRUCTION OF FIRE AND DOMESTIC WATER SUPPLY IMPROVEMENTS SHALL CONFORM TO TOWN OF LITTLETON REQUIREMENTS.
- WHERE DIMENSIONS INVOLVE CURB, DIMENSIONS ARE TO FACE OF CURB. WHERE SLOPED GRANITE CURB OR CAPE COD BERM SPECIFIED, FACE OF CURB IS EDGE OF FINISH PAVEMENT AT TOE OF CURB.
- NO DEBRIS, JUNK, RUBBISH OR OTHER NON-BIODEGRADABLE MATERIALS, FILL CONTAINING HAZARDOUS MATERIALS OR WASTES, OR STUMPS SHALL BE BURIED ON ANY LAND ON THIS SITE, OR LEFT ON ANY LOT OR ON THE STREET RIGHT OF WAY.

REGULATORY NOTES

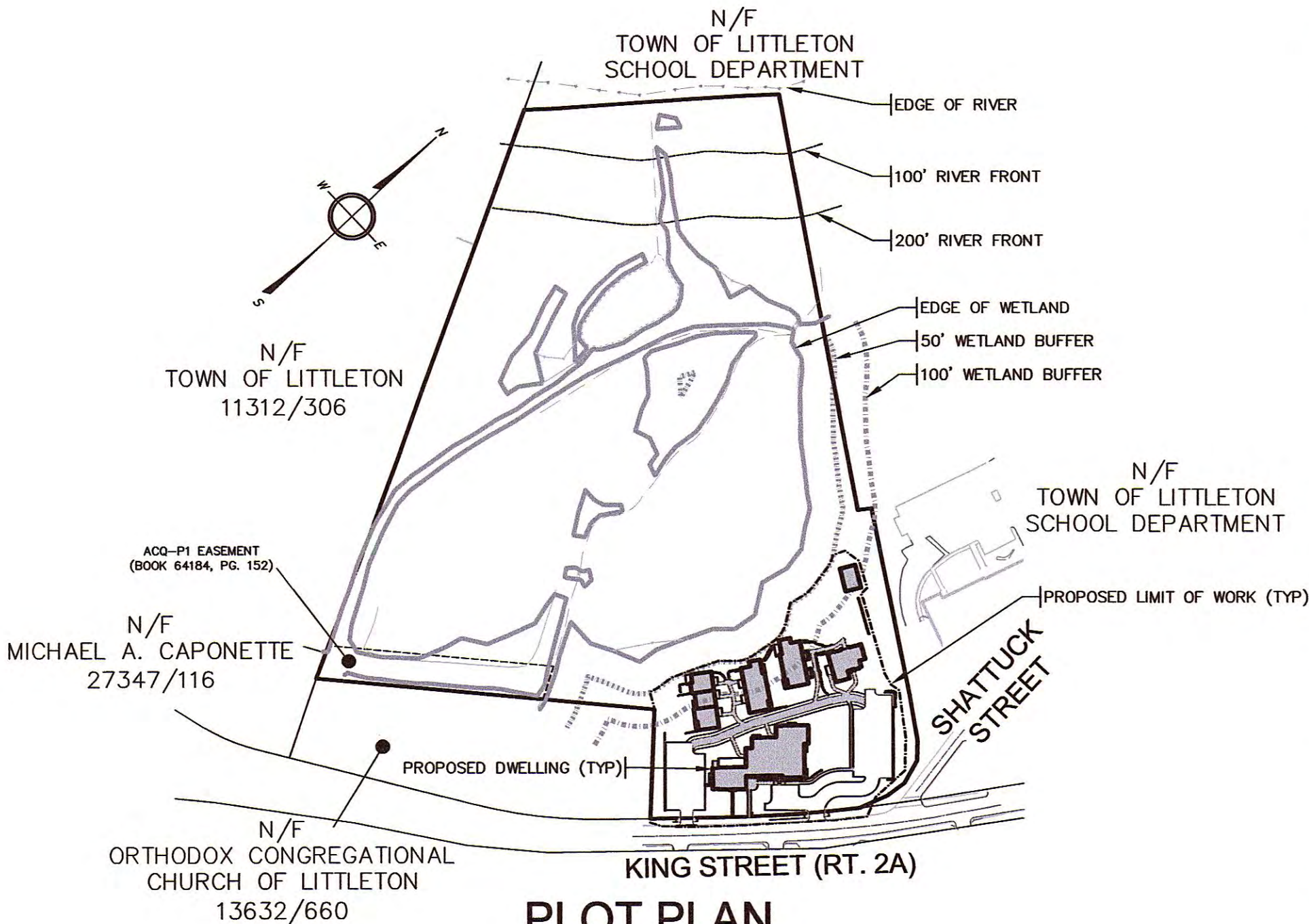
- CONTRACTOR SHALL CONTACT DIG-SAFE FOR UNDERGROUND UTILITY MARKING AT 888.344.7233 AT LEAST 72 HOURS PRIOR TO COMMENCEMENT OF ANY WORK. CONTRACTOR SHALL GIVE TWENTY-FOUR (24)-HOUR NOTICE TO PERTINENT TOWN DEPARTMENTS BEFORE COMMENCING ANY WORK IN THE FIELD.
- CONTRACTOR SHALL COORDINATE AND OBTAIN ALL CONSTRUCTION PERMITS REQUIRED BY REGULATORY AUTHORITIES.
- CONTRACTOR SHALL BE AWARE OF ALL CONSTRUCTION REQUIREMENTS, CONDITIONS, AND LIMITATIONS IMPOSED BY PERMITS AND APPROVALS ISSUED BY REGULATORY AUTHORITIES PRIOR TO COMMENCEMENT OF ANY WORK.
- ALL WORK OUTSIDE OF BUILDING THAT IS LESS THAN 10 FEET FROM THE INSIDE FACE OF BUILDING FOUNDATION SHALL CONFORM WITH THE UNIFORM STATE PLUMBING CODE OF MASSACHUSETTS, 248 CMR 2.00.
- GENERAL COMPLIANCE WITH 28 CFR PART 36 - 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN AND 521 CMR PART C, EXTERIOR OF THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD REGULATIONS IS INTENDED. CONTRACTOR SHALL VERIFY COMPLIANCE DURING CONSTRUCTION AND SHALL NOTIFY THE OWNER OF ANY NON-COMPLIANCE ISSUES AS SOON AS DISCOVERED.

SENIOR RESIDENTIAL DEVELOPMENT
HAGER HOMESTEAD
LITTLETON, MA



VICINITY MAP

SCALE: 1" = 600'



PLOT PLAN

SCALE: 1" = 200'

ZONING

Senior Residential Housing			
Parameter	Zoning Section [1]	Requirement	Remarks
Zoning District	Littleton Zoning Map Article XIV	Residential	
Overlay District	173-61	SP for 70% Disturbed Area	N/A
Aquifer Protection District	173-61	30% > SP >15% Impervious Area or 2,500 sf	N/A
	173-61	SP for Septic Over 6 GPD/1,000 SF Lot Area	5.79 GPD/1,000 SF Lot Area
	173-61	SP for Parking Area w/ 100 Spaces or More	N/A
Proposed Use	Article XXII	Allowed	See section 173-146-1,2,3,4.
Lot Area	173-146	>2 Acres	Two Acres or more
Frontage	173-146	100 FT	100 FT of frontage on a public way
Lot Coverage	173-148(B)	35% max. (Building coverage)	
Common Open Space	173-148 (E)	30% min.	Not more than 20% of the required min. common open space shall consists of wetlands
Yard	173-148 (C)		
Cottage/ Town House			
Street		30 FT	
Side & Rear		30 FT	
Independent Living Units			
Street		50 FT	
Side & Rear		50 FT	
Side & Rear-Accessory Building			
Townhouse or Two-Family	173-148 (A)	32 FT	
Independent Living Units	173-148 (A)	55 FT	
Parking			
Two-family and Town house	173-148 (F)	two spaces per unit	
Independent Living Units	173-148 (F)	one space per unit	
Guest parking	173-148 (F)	one space per three units	
Wetlands Bylaw	local bylaw	100 ft buffer, 50 ft no disturb	From edge of wetlands
FEMA Floodplain	25017C 0236F	Zone X	No Flood Zone within Development
Board of Health	BOH Regulations; Regulation 10	SP for Septic Over 6 GPD/1,000 SF Lot Area	5.79 GPD/1,000 SF Lot Area

NOTES:

- [1] Reference to section of Zoning Bylaw, where applicable.
[2] Per §173-62(A), Planning Board shall be Special Permit Granting Authority for the Aquifer Protection District

ABBREVIATIONS:

SP=square feet; FT=feet; SP=special permit; MDEP=Massachusetts Department of Environmental Protection; FEMA=Federal Emergency Management Agency; ACEC=Area of Critical Environmental Concern; IWPA=Interim Wetland Protection Area

SHEET INDEX

CIVIL DRAWINGS

- C1.1 TITLE SHEET
- C2.1 EXISTING CONDITIONS PLAN
- C2.2 DEMOLITION AND EROSION & SEDIMENT CONTROL PLAN
- C2.3 EROSION AND SEDIMENT CONTROL DETAILS
- C3.1 SITE LAYOUT AND UTILITIES PLAN
- C3.2 SITE LAYOUT AND ACCESS PLAN
- C4.1 GRADING, DRAINAGE AND PAVING PLAN
- C5.1 CONSTRUCTION DETAILS
- C5.2 CONSTRUCTION DETAILS
- C5.3 CONSTRUCTION DETAILS

LANDSCAPE DRAWINGS (REVISED 10/29/20)

BY: COPLEY WOLFF DESIGN GROUP

L300 PLANTING AND LIGHTING PLAN

ARCHITECTURAL DRAWINGS (REVISED 10/27/20)

BY: SHELDON PENNOYER ARCHITECTS

- A0.1 RENDERED SITE EXTERIOR ELEVATIONS
- A1.1 CH BASEMENT-MS GARDEN LEVEL FLOOR PLAN
- A1.2 CH MAIN-MS FIRST LEVEL FLOOR PLAN
- A1.3 CH SECOND-MS SECOND LEVEL FLOOR PLAN
- A1.4 CH THIRD-MS ROOF PLAN
- A1.5 C1, C2, C3 FLOOR PLANS
- A1.6 RU PLANS
- A1.7 SITE ROOF PLAN W/ MECHANICAL AREAS
- A1.8 EXTERIOR BUILDING LIGHTING
- A2.1 CH-MS EXTERIOR ELEVATIONS & COMMUNITY SIGN
- A2.2 CH-MS EXTERIOR ELEVATIONS*
- A2.3 C1 & C2 EXTERIOR ELEVATIONS
- A2.4 C3 EXTERIOR ELEVATIONS
- A2.5 RU EXTERIOR ELEVATIONS
- A3.1 CARPORT 1 PLANS & ELEVATIONS
- A3.2 CARPORT 2 PLANS & ELEVATIONS

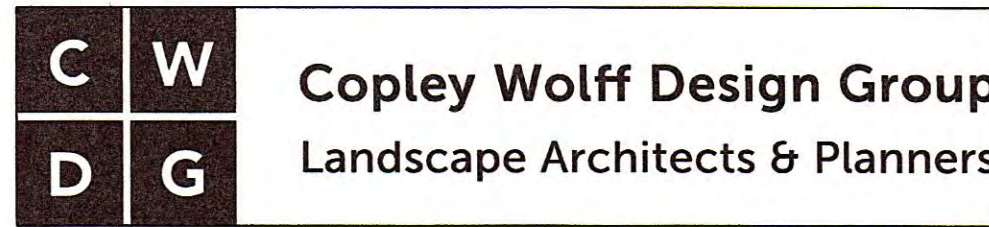
APPROVED BY THE
LITTLETON PLANNING BOARD

____ CHAIR
____ APPLICATION FILED ____
____ HEARING DATE ____
____ PLAN APPROVED ____

PROJECT TEAM:



64 NORTH MAIN STREET, SUITE 1, CONCORD, NH 03301



10 POST OFFICE SQUARE, SUITE 1315, BOSTON, MA 02109

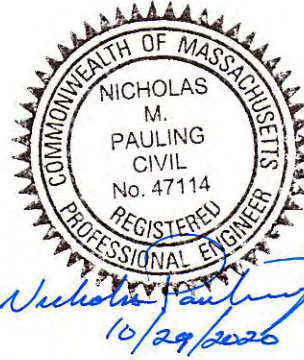


110 PULPIT HILL ROAD AMHERST, MA 01002

DRAWING ISSUED FOR:

- ☐ CONCEPT
- ☐ CONSTRUCTION
- ☒ PERMIT
- ☐ CONSTRUCTION RECORD

THIS DRAWING MAY NOT SHOW CONSTRUCTION DETAILS AND SPECIFICATIONS FOR ALL PROPOSED IMPROVEMENTS, AND MAY NOT IDENTIFY ALL CONSTRUCTION WORK ITEMS/AREAS OF CONTRACTOR JURISDICTION.



PER 250 CMR 5.03(13), THE FOLLOWING ARE EXCLUDED FROM THE PROFESSIONAL ENGINEER'S RESPONSIBILITY: ALL BOUNDARY INFORMATION; LOCATION OF EXISTING STRUCTURES, TREES, UTILITIES, TOPOGRAPHY OR SIMILAR FEATURES; DESIGN OF RETAINING WALLS, PROPRIETARY EQUIPMENT. SEE EXISTING CONDITION NOTES.

NO.	DATE	BY	APP.	REVISION DESCRIPTION
4	10/29/20	MCL	NMP	MISCELLANEOUS NOTE CLARIFICATION
3	10/19/20	MCL	NMP	PLANNING BOARD COMMENTS
2	07/08/20	MCL	NMP	PEER REVIEW COMMENTS
1	06/23/20	MCL	NMP	PEER REVIEW COMMENTS



GOLDSMITH, PREST & RINGWALL, INC.

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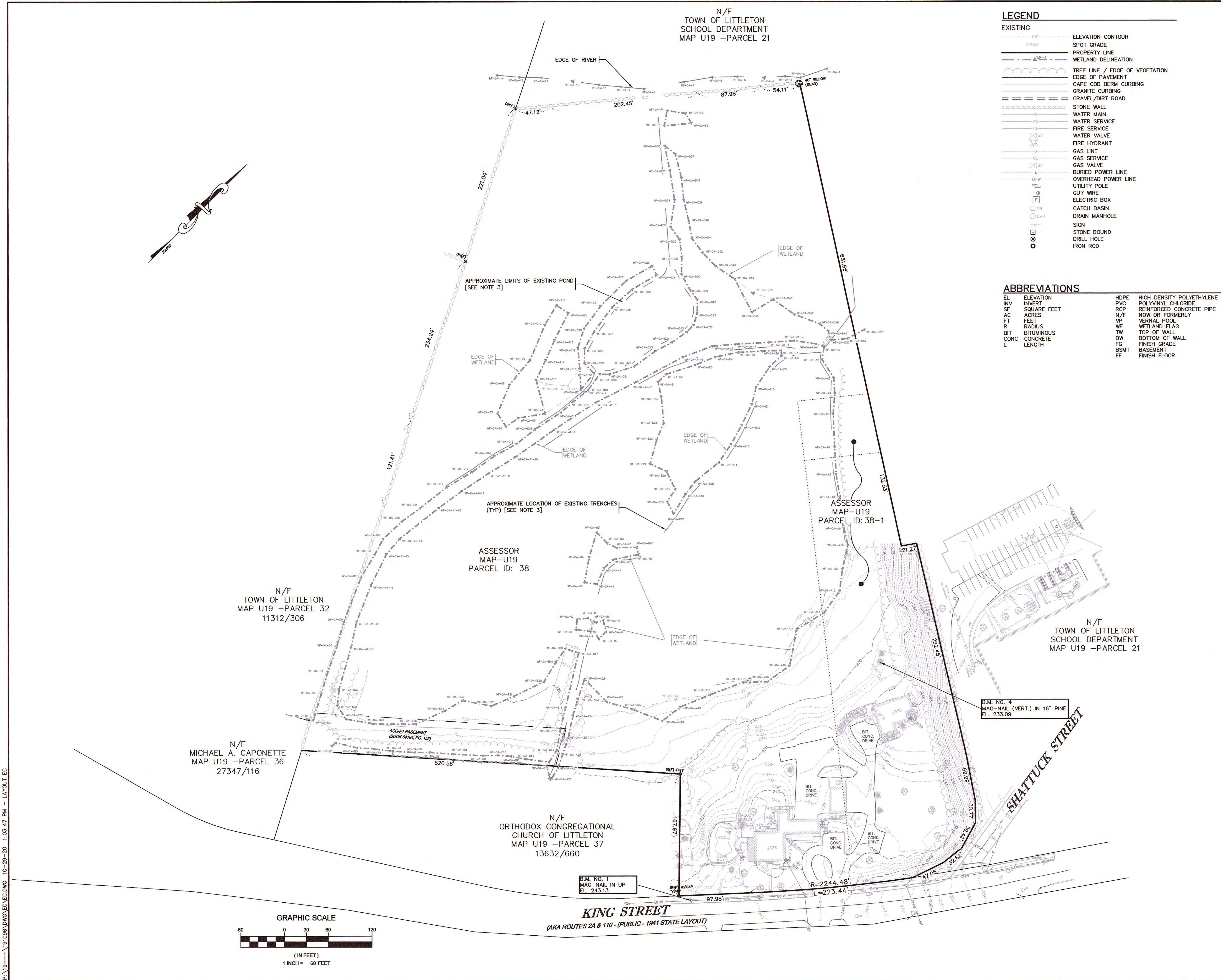
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SENIOR RESIDENTIAL DEVELOPMENT

TITLE SHEET

HAGER HOMESTEAD
336 KING STREET
LITTLETON, MA

PREPARED FOR:
MASSACHUSETTS COHOUSING, LLC.
200 SUMMIT DRIVE, SUITE 210
BURLINGTON, MA 01803

DES. BY: MCL/LT
CHK. BY: NMP
DATE: APRIL 2020
JOB 191096
C1.1



ELEVATION DATUM
DATUM: NAVD 1988

B.M. NO.1

ASSESSORS REFERENCE:

ASSESSORS PARCEL MAP U19, PARCEL 38
RECORD OWNER: CRAIG C. GRUSKOWSKI & HEIDI PLATT GRUSKOWSKI
338 KING ST. LITTLETON, MA 01460

ASSESSORS PARCEL MAP U19, PARCEL 38-1
RECORD OWNER: CRAIG C. GRUSKOWSKI & HEIDI PLATT GRUSKOWSKI,
TRUSTEES OF PAINLESS REALTY TRUST
338 KING ST. LITTLETON, MA 01460

DEED REFERENCE:

- "THE PAINLESS REALTY TRUST" CRAIG C. GRUSKOWSKI & HEIDI PLATT GRUSKOWSKI, TRUSTEES. BOOK 43979 PAGE 197.
- CRAIG C. GRUSKOWSKI & HEIDI PLATT GRUSKOWSKI BOOK 56305 PAGE 245.
- CRAIG C. GRUSKOWSKI & HEIDI PLATT GRUSKOWSKI BOOK 56305 PAGE 247.
- CRAIG C. GRUSKOWSKI & HEIDI PLATT GRUSKOWSKI BOOK 29945 PAGE 603.

REFERENCES

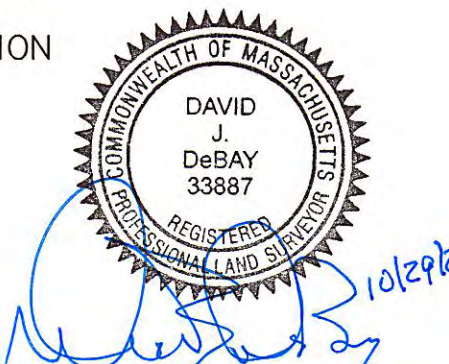
- PLAN RECORDED AS PLAN #1034 OF 1997, MIDDLESEX SOUTH REGISTRY OF DEEDS.
- PLAN RECORDED AS PLAN #34 OF 2011, MIDDLESEX SOUTH REGISTRY OF DEEDS.
- "ORDER OF RESOURCE AREA DELINEATION" PREPARED FOR MASSACHUSETTS COHOUSING, LLC. DATED MARCH 23, 2020. RECORDED AT THE MIDDLESEX SOUTH REGISTRY OF DEEDS BOOK 74331-PAGE 23.

NOTES:

- EXISTING CONDITION INFORMATION SHOWN IS BASED ON AN INSTRUMENT SURVEY PERFORMED BY GOLDSMITH, PREST & RINGWALL, INC. DURING OCTOBER 2019 & UPDATED 8/26/20.
- THE EDGE OF WETLAND AND RIVER FRONT HAS BEEN DELINEATED BY OXBOW ASSOCIATES, INC. DURING OCTOBER & NOVEMBER 2019. [SEE REFERENCE #3].
- DELINEATION OF EXISTING POND AND TRENCHES AREA SHOWN AS APPROXIMATE AND ARE BASED ON AERIAL IMAGES.

DRAWING ISSUED FOR:

- ☐ CONCEPT ☐ CONSTRUCTION
☒ PERMIT ☐ CONSTRUCTION RECORD



4	10/29/20	MCL	DSB	NO REVISIONS TO THIS SHEET
3	10/19/20	MCL	DSB	ADDITIONAL TOWN HALL SURVEY
2	07/09/20	MCL	DSB	NO REVISIONS TO THIS SHEET
1	06/23/20	MCL	DSB	NO REVISIONS TO THIS SHEET
NO.	DATE	BY	APP.	REVISION DESCRIPTION

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SENIOR RESIDENTIAL DEVELOPMENT
EXISTING CONDITIONS PLAN

HAGER HOMESTEAD
336-338 KING STREET
LITTLETON, MA

PREPARED FOR:
MASSACHUSETTS COHOUSING, LLC.
200 SUMMIT DRIVE, SUITE 210
BURLINGTON, MA 01803

DRAFT: MCL
CHK. BY: DSB
DATE: APRIL 2020
JOB 191096
C2.1

DEMOLITION NOTES

1. CONTRACTORS (IN ACCORDANCE WITH MASS. G.L. CHAPT. 82 SECT. 40 AS AMENDED) MUST CONTACT ALL UTILITY COMPANIES BEFORE EXCAVATING AND DRILLING. ALSO CALL "DIG-SAFE" AT 811 OR 1-888-344-7233.
2. EXISTING SEPTIC AND WATER SERVICES SHOWN HEREON ARE BASED ON AVAILABLE RECORD DATA FROM THE TOWN OF LITTLETON AND LAND OWNER RECORDS, RESPECTIVELY, AND ARE TO BE CONSIDERED APPROXIMATE. CONTRACTOR TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES PRIOR TO DEMOLITION.
3. PROPERLY DISPOSE OF NON-SALVAGEABLE MATERIAL/DEBRIS INCLUDING TREE STUMPS AND OTHER UNSUITABLE FILL MATERIAL OFF SITE.
4. CONTRACTOR SHALL TAKE MEASURES TO CONTROL DUST DURING EARTH REMOVAL AND CONTAIN DIRT ON SITE. STREET SWEEPING AND SWEEPING OF EXISTING PAVEMENT MAY BE REQUIRED DURING CONSTRUCTION.
5. COORDINATE WITH OWNER REGARDING DISPOSITION OF SALVAGEABLE MATERIALS.
6. WHERE EXISTING UTILITY LINES/STRUCTURES ARE TO BE CUT/BROKEN DOWN/ABANDONED, LINES/STRUCTURES SHALL BE PLUGGED/CAPPED/FILLED IN ACCORDANCE WITH UTILITY OWNER REQUIREMENTS.
7. ALL TREES AND LANDSCAPING SHOWN HEREON ARE INTENDED TO BE REMOVED, UNLESS OTHERWISE NOTED. SEE SHEET L300.
8. ALL EXISTING BITUMINOUS CONCRETE PAVEMENT AND CURBING ONSITE TO BE REMOVED.

LEGEND

EXISTING		PROPOSED
100.0	ELEVATION CONTOUR	100.0
X100.0	SPOT GRADE	100.0
	PROPERTY LINE	
	WETLAND DELINEATION	
	WETLAND BUFFER ZONE	
	SHORELINE	
	100-YEAR FLOODPLAIN LIMIT	
	TREE LINE / EDGE OF VEGETATION	
	EDGE OF PAVEMENT	
	CAPE COD BERM CURBING	
	GRAVEL/DIRT ROAD	
	STOCKADE FENCE	
	STONE WALL	
W	WATER MAIN	W
WS	WATER SERVICE	WS
FS	FIRE SERVICE	FS
WV	WATER VALVE	WV
FD	FIRE HYDRANT	FD
FM	FORCE MAIN	FM
GS	GRAVITY SEWER LINE	GS
SMH	SEWER MANHOLE	SMH
GS	GAS LINE	GS
GSV	GAS SERVICE	GSV
GSV	GAS VALVE	GSV
BPL	BURIED POWER LINE	BPL
OPWL	OVERHEAD POWER LINE	OPWL
UPL	UTILITY POLE	UPL
EW	ELECTRIC WIRE	EW
EB	ELECTRIC BOX	EB
SD	STORM DRAIN	SD
UD	UNDERDRAIN	UD
RD	ROOF DRAIN	RD
FD	FOUNDATION DRAIN	FD
CB	CATCH BASIN	CB
DMH	DRAIN MANHOLE	DMH
SFB	SILT FENCE BARRIER	SFB
SW	STRAW WATTLES	SW
DSOH	DEEP SOIL OBSERVATION HOLE	DSOH
SL	SITE LUMINAIRE	SL
S	SIGN	S
SRD	SURFACE RUNOFF DIRECTION	SRD
SB	STONE BOUND	SB
DH	DRILL HOLE	DH
IR	IRON ROD	IR

ABBREVIATIONS

EL	ELEVATION	HDPE	HIGH DENSITY POLYETHYLENE
INV	INVERT	PVC	POLYVINYL CHLORIDE
SF	SQUARE FEET	RCP	REINFORCED CONCRETE PIPE
AC	ACRES	N/F	NOW OR FORMERLY
FT	FEET	VP	VERTICAL POOL
R	RADIUS	WF	WETLAND FLAG
DIA	DIAMETER	TW	TOP OF WALL
BIT	BITUMINOUS	BW	BOTTOM OF WALL
CONC	CONCRETE	FS	FINISH GRADE
L	LENGTH	BSMT	BASEMENT
S	SLOPE	FF	FINISH FLOOR

DRAWING ISSUED FOR:

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☒ PERMIT ☐ CONSTRUCTION RECORD

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1	06/23/20	MCL	NMP	PEER REVIEW COMMENTS

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SEDIMENT CONTROL PLAN

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200 SUMMIT DRIVE, SUITE 210
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DES. BY: MCL/LT DATE: APRIL 2020 JOB 191096 C2.2
CHK. BY: NMP

EROSION AND SEDIMENT CONTROL REQUIREMENTS

PART 1 – GENERAL

1.01 SUMMARY

- A. FURNISH, INSTALL, AND MAINTAIN TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES, SUCH AS, BUT NOT NECESSARILY LIMITED TO, STRAW BALE AND SILT FENCE BARRIERS, RIPRAP, DIVERSION CHANNELS AND BERMS, VEHICLE TRACKING PAD, EROSION CONTROL BLANKETS, INLET PROTECTION DEVICES, CHECK DAMS, STRATEGICALLY LOCATED AND PROTECTED STOCKPILES, SEDIMENT BASINS, MULCH, AND SEED MIX (HEREINAFTER "CONTROL MEASURES") ADEQUATE TO PREVENT THE CONVEYANCE OF SEDIMENT LADEN RUNOFF FROM SITE, OR INTO ENVIRONMENTALLY SENSITIVE AREAS, OR INTO AREAS WHERE WORK WILL BE ADVERSELY IMPACTED. ENVIRONMENTALLY SENSITIVE AREAS INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, WETLANDS, TRIBUTARIES TO WETLANDS, WETLAND BUFFER ZONES, INTERMITTENT AND PERENNIAL STREAMS / RIVERS, AND THEIR ATTENDANT BUFFER ZONES.
1. REFER TO DRAWINGS FOR LOCATION AND DETAILS OF CONTROL MEASURES REQUIRED TO COMMENCE WORK. THESE CONTROL MEASURES WILL BE ADEQUATE ONLY FOR VEGETATION CLEARING. THE DRAWINGS ARE NOT INTENDED TO GRAPHICALLY DEPICT ALL CONTROL MEASURES THAT WILL BE REQUIRED TO MEET THE REQUIREMENTS OF SECTION 1.01.A ABOVE.
2. DEVISE AND EMPLOY CONTROL MEASURES THROUGHOUT THE DURATION OF PROJECT, OVER ALL AREAS DISTURBED OR UNDISTURBED BY CONSTRUCTION, AS NECESSARY TO MEET THE REQUIREMENTS OF SECTION 1.01.A ABOVE.
3. DEVISE AND EMPLOY TEMPORARY CONTROL MEASURES AS NECESSARY TO MEET THE REQUIREMENTS DESCRIBED IN SECTION 1.01.A ABOVE, WHILE ALLOWING WORK TO PROCEED IN AN EFFICIENT, COST EFFECTIVE MANNER.
4. DEVISE, EMPLOY AND MAINTAIN CONTROL MEASURES UNTIL SUCH TIME AS THE ENTIRE SITE IS PERMANENTLY STABILIZED BY ESTABLISHED VEGETATION, FINISH LANDSCAPE MATERIALS, PAVED SURFACES, AND/OR ROOF AREA.
5. ONCE THE SITE IS PERMANENTLY STABILIZED AND CERTIFIED AS SUCH BY ENGINEER, REMOVE TEMPORARY CONTROL MEASURES WHILE PROTECTING STABILIZED SURFACES.

1.02 SUBMITTALS

- A. SUBMIT PRODUCT DATA, WARRANTY, AND TEST REPORTS FOR PRODUCTS AS INDICATED ON THE DRAWINGS.

1.03 QUALITY ASSURANCE

- A. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS FROM ACCEPTABLE MANUFACTURERS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. CONFORM TO CONDITIONS OF APPROVAL ISSUED BY REGULATORY AGENCIES INCLUDING, BUT NOT NECESSARILY LIMITED TO, LOCAL PLANNING BOARD, CONSERVATION COMMISSION, BOARD OF SELECTMEN, BOARD OF HEALTH, PUBLIC WORKS / HIGHWAY DEPARTMENT, STATE ENVIRONMENTAL PROTECTION DEPARTMENT, AND U.S. GOVERNMENT, ENVIRONMENTAL PROTECTION AGENCY. WHERE CONDITIONS OF REGULATORY APPROVAL DIFFER FROM REQUIREMENTS CONTAINED HEREIN OR ON THE DRAWINGS, COMPLY WITH THE MORE STRINGENT REQUIREMENT.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. STRAW WATTLES: WEED AND SEED FREE DRY GRASS OR STRAW, MACHINE BOUND WITH JUTE OR WIRE, APPROXIMATE SIZE EACH BALE 42" X 16" X 16".
- B. PRE-FABRICATED SEDIMENT FENCE: WOVEN OR MONOFILAMENT GEOTEXTILE; UV-RESISTANT; POLYPROPYLENE OR POLYESTER; MINIMUM GRAB TENSILE OF 124 LBS; WATER PERMITIVITY BETWEEN 0.1 SEC~1 AND 0.15 SEC~1; SLURRY FLOW RATE OF 0.3 GAL/SF/MIN; MINIMUM 1"x1" HARDWOOD STAKES WITH INTEGRAL STAKE LOOPS AND STAPLED; APPROVED MANUFACTURERS: NILEX, PROPEX AND MIRAFI OR APPROVED EQUAL.
- C. MULCH: ORGANICS INCLUDING STRAW, PROCESSED PINE / HEMLOCK TWIGS, NEEDLES, AND STUMP GRINDING.
- D. SEED MIXES: PERENNIAL RYEGRASS, KENTUCKY BLUEGRASS, AND / OR FINE FESCUE, DISEASE RESISTANT. NON-MAINTAINED AREA OPTION – ANNUAL RYEGRASS COMBINED WITH MEDIUM RED CLOVER. CONFIRM USE WITH ENGINEER.
- E. EROSION CONTROL EXCELSIOR BLANKET: CURLED WOOD FIBER ON PHOTODEGRADABLE EXTRUDED PLASTIC MATRIX, 80% OF FIBERS 6-INCHES LONG OR LONGER, HEIGHT 0.975 POUNDS / SY, CONTAINING NO CHEMICAL ADDITIVES. APPROVED MANUFACTURERS: NORTH AMERICAN GREEN, AND PROPEX OR APPROVED EQUAL.
- F. ROCK RIPRAP: SOUND, ANGULAR, 6-INCH MINUS PROCESSED ROCK, BLAST ROCK, OR TAILINGS.
- G. CRUSHED STONE: SOUND, ANGULAR, 2-INCH MINUS PROCESSED CRUSHED STONE

PART 3 – EXECUTION

3.01 THROUGHOUT CONSTRUCTION

- A. DEVISE WORK SEQUENCE SO AS TO LIMIT DRAINAGE AREA THAT IS TRIBUTARY TO DISTURBED AREAS. DEVISE, EMPLOY, AND MAINTAIN CONTROL MEASURES SUCH AS DIVERSION CHANNELS AND BERMS, STRATEGICALLY LOCATED STOCKPILES, AND SEDIMENT BASINS TO SUBDIVIDE DRAINAGE AREAS INTO SMALL, MANAGEABLE SUBAREAS, THEREBY MINIMIZING RUNOFF AND THE POTENTIAL FOR EROSION.
- B. MAINTAIN BARRIER AT LIMIT OF WORK AND PROTECT EXISTING VEGETATION / FACILITIES OUTSIDE OF LIMIT OF WORK.
- C. MAINTAIN SPARE MATERIAL STOCKPILES FOR IMMEDIATE EMPLOYMENT / REPAIR / EXPANSION OF CONTROL MEASURES. AT A MINIMUM, SUCH MATERIALS SHALL INCLUDE STRAW BALES, SILT FENCE AND STAKES, AND CRUSHED STONE.
- D. INSPECT AND MAINTAIN EFFECTIVENESS OF CONTROL MEASURES BY REPAIRING AS NECESSARY TO ENSURE INTENDED FUNCTION; BY SUPPLEMENTING AS NECESSARY FOR ADEQUATE EXTENT; BY REMOVING TRAPPED PRODUCTS OF EROSION AS NECESSARY TO MAINTAIN EFFECTIVE TRAP VOLUME.
- E. LIMIT EXTENT OF WORK AREA SO THAT ALL DISTURBED AREAS CAN BE STABILIZED WITH CONTROL MEASURES WITHIN A 24-HOUR PERIOD.
- F. INSTALL CONTROL MEASURES AS SOON AS PRACTICABLE AFTER EACH MANAGEABLE PORTION OF EARTHWORK IS COMPLETE. EMPLOY TEMPORARY MEASURES AS NECESSARY TO STABILIZE DISTURBED AREAS, EVEN WHERE SUBSEQUENT CONSTRUCTION OPERATIONS MAY REQUIRE RE-DISTURBANCE.
- G. WHEN INTENSE RAINFALL IS EXPECTED, CONSIDER, DEVISE, AND EMPLOY REINFORCING CONTROL MEASURES PRIOR TO THE RAINFALL EVENT TO MEET THE REQUIREMENTS DESCRIBED IN SECTION 1.01.A ABOVE. IF NECESSARY, EMPLOY TEMPORARY CONTROL MEASURES ON MATERIAL STOCKPILES TO COUNTERACT POTENTIAL SEDIMENT TRANSPORT DURING INTENSE RAINFALL.
- H. WHEN VEHICLE REFUELING IS REQUIRED ON SITE, CONDUCT REFUELING OPERATIONS OUTSIDE OF ENVIRONMENTALLY SENSITIVE AREAS AND WITHIN AN AREA THAT IS CONTAINED BY A BEST MANAGEMENT PRACTICE. A PORTABLE SPILL KIT SHALL BE KEPT ON-SITE AT ALL TIMES.
- I. PROPERLY DISPOSE OF DEBRIS, SOLID WASTE, TRASH, AND CONSTRUCTION WASTE / BYPRODUCTS OFF SITE. KEEP TRASH BINS/DUMPSTERS COVERED AT ALL TIMES.
- J. SWEEP ON-SITE PAVED AREAS AND OFF-SITE STREETS AS NECESSARY TO PREVENT SILT AND DEBRIS ORIGINATING ON SITE FROM ENTERING CLOSED DRAINAGE SYSTEMS AND / OR ENVIRONMENTALLY SENSITIVE AREAS.

3.02 SITE PREPARATION AND ACCESS

- A. WALK SITE AND IDENTIFY LOCATIONS OF LIMIT OF WORK AND ENVIRONMENTALLY SENSITIVE AREAS. ESTABLISH CONSTRUCTION STAGING AREA, LOCATED BEYOND ENVIRONMENTALLY SENSITIVE AREAS.
- B. INSTALL CONTROL MEASURES AS SHOWN ON THE DRAWINGS, INCLUDING THOSE DEFINING THE LIMIT OF WORK.
- C. LIMIT VEHICULAR TRAFFIC TO AND FROM SITE TO MINIMIZE TRANSPORT OF SEDIMENTATION.

3.03 CLEARING, GRUBBING, AND STRIPPING

- A. SCHEDULE GRUBBING AND STRIPPING TO OCCUR IMMEDIATELY PRIOR TO EARTH DISTURBANCE, DEPENDING ON SITE AREA, CONSIDER MULTIPLE GRUBBING PHASES, SEQUENCED TO TAKE ADVANTAGE OF THE EROSION PREVENTION POTENTIAL OF EXISTING VEGETATIVE COVER.
- B. MINIMIZE THE AREA OF EXISTING VEGETATION REMOVED WHEREVER POSSIBLE.
- C. LOCATE AND SIZE STOCKPILES TO MINIMIZE EROSION POTENTIAL, TAKING ADVANTAGE OF TERRAIN SLOPE AND ASPECT, WHERE APPROPRIATE.

- D. PROTECT VEGETATION, INCLUDING ROOT SYSTEMS, BEYOND LIMIT OF CLEARING.
- E. PROCESS TIMBER, STUMPS, SLASH, AND BRUSH SO AS TO PROTECT ENVIRONMENTALLY SENSITIVE AREAS AND INSTALLED CONTROL MEASURES. PROPERLY DISPOSE OF EXCESS OFF SITE. BURIAL OF STUMPS ON SITE IS PROHIBITED.

3.04 EXCAVATION FOR BUILDING FOUNDATIONS AND UTILITIES

- A. DEVISE AND INSTALL CONTROL MEASURES ADEQUATE TO HANDLE DISCHARGES AND TRAP SEDIMENT FROM FOOTING SUMP AND WELL POINT PUMPS PRIOR TO EXCAVATION.
- B. ARMOR SUMP PUMP DISCHARGE LOCATIONS TO PREVENT EROSION AT POINT OF DISCHARGE AND AREAS DOWNSTREAM.
- C. IF FOUNDATION EXCAVATIONS GRADE TO DAYLIGHT ON THE LOW SIDE, DEVISE AND INSTALL CONTROL MEASURES TO HANDLE SURFACE AND GROUNDWATER FLOW FROM EXCAVATION LOW POINT.
- D. STOCKPILE EXCAVATED MATERIALS TO BAFFLE OVERLAND RUNOFF, AVOIDING THE CREATION OF LENGTHY PATHS OF CONCENTRATED RUNOFF.
- E. BACKFILL UTILITY TRENCHES AS SOON AS PRACTICABLE TO PREVENT FLOODING, SLOUGHING, POTENTIAL OVERFLOW, AND REPETITIVE EARTH DISTURBANCE.
- F. ROOTS SHALL BE CUT CLEANLY RATHER THAN PULLED OR RIPPED OUT DURING UTILITY TRENCHING.

3.05 SITE GRADING

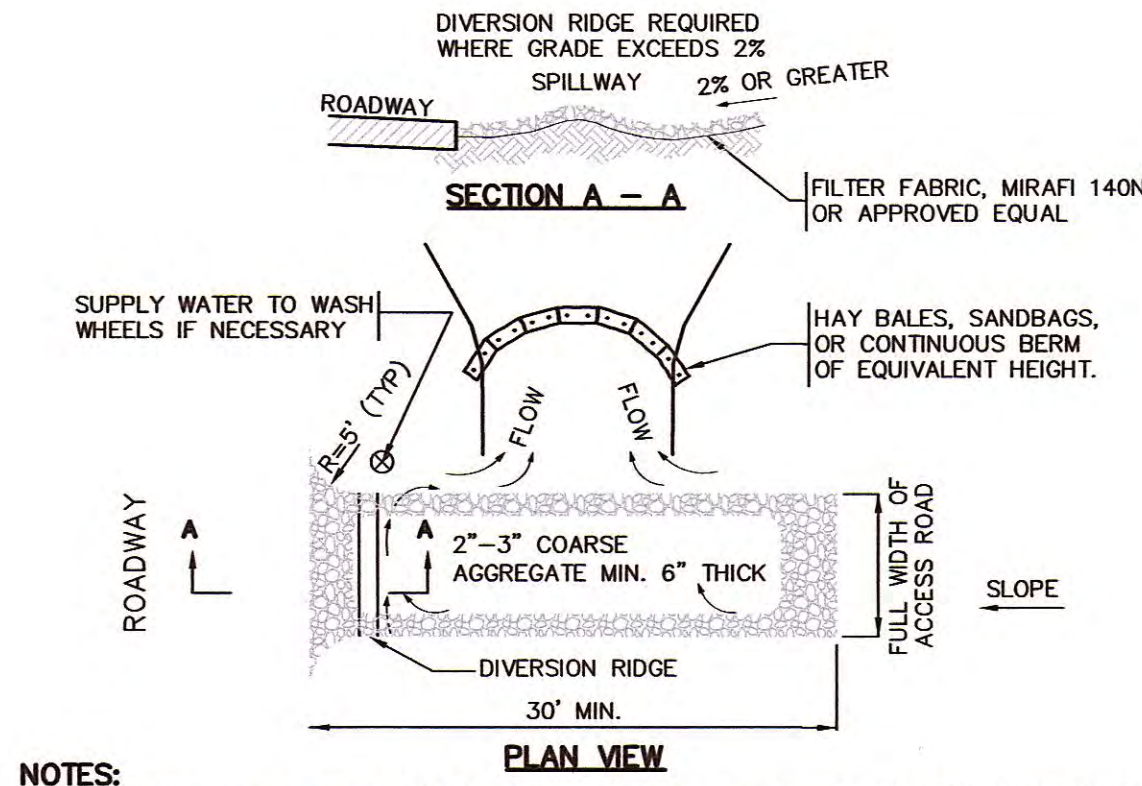
- A. WHERE APPLICABLE, FOLLOW EXCAVATION AND FILL PRACTICES SHOWN ON DRAWINGS TO LOCALIZE AND MINIMIZE SEDIMENT TRANSPORT.
- B. MONITOR SEDIMENTATION VOLUME IN TEMPORARY SEDIMENT BASINS AND AT DIVERSION BERMS AND CHECK DAMS. IN ALL AREAS EXCEPT THOSE THAT DO NOT PRESENT POTENTIAL PROBLEMS WITH REGARD TO FUTURE SOIL STABILITY, DRAINAGE, OR BEARING CAPACITY, REMOVE AND PROPERLY DISPOSE OF TRAPPED SEDIMENTATION BEFORE BRINGING SITE TO FINAL SUBGRADE.
- C. IF SEDIMENTATION IS DISPOSED ON-SITE, IT SHALL BE DEPOSITED IN AREAS WHERE RUNOFF CANNOT RE-TRANSPORT DOWNSTREAM.

3.06 STORMWATER MANAGEMENT SYSTEM

- A. THE STORMWATER MANAGEMENT SYSTEM INCLUDES, BUT IS NOT NECESSARILY LIMITED TO, ALL PERMANENT DETENTION / RETENTION BASINS, DISCHARGE STRUCTURES / WEIRS, CULVERTS, OPEN CHANNELS, CURBS, GUTTERS, PAVED SWALES, CATCH BASINS, DRAIN MANHOLES, DRAINAGE PIPES, ROOF DRAIN MANIFOLDS, WATER QUALITY SWALES, SEPARATORS, AND SIMILAR STORMWATER RUNOFF CONVEYANCE, TREATMENT, AND STORAGE FACILITIES.
- B. INSTALL STORMWATER MANAGEMENT SYSTEM COMPONENTS STARTING AT THE DOWNSTREAM END AND PROCEED UPSTREAM. WHERE POSSIBLE, COMPLETE INSTALLATION OF PERMANENT DETENTION / RETENTION BASINS PRIOR TO BEGINNING WORK ON UPSTREAM SYSTEM COMPONENTS.
- C. INSTALL CONTROL MEASURES AT FINISHED UPSTREAM AND DOWNSTREAM PIPE ENDS AS SOON AS POSSIBLE AFTER COMPLETION OF PIPE RUN. SUCH MEASURES INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, RIPRAP, CHECK DAMS, STRAW BALE / SILT FENCE BARRIERS, AND VELOCITY DISSIPATORS.
- D. AT THE END OF EACH DAY OR WHEN RAINFALL IS EXPECTED, PLUG UPSTREAM END OF PIPES / DAM OPEN CHANNELS OR OTHERWISE REDIRECT POTENTIAL RUNOFF AND PREVENT FLOW FROM ENTERING PARTIALLY COMPLETED SYSTEM / SYSTEM COMPONENTS.
- E. WHERE PORTIONS OF A NEW SYSTEM ARE TO BE ACTIVATED PRIOR TO COMPLETION OF THE ENTIRE SYSTEM, EMPLOY CONTROL MEASURES TO PREVENT SEDIMENT LADEN RUNOFF AND DEBRIS FROM ENTERING THE SYSTEM. EMPLOY SILT SACKS OR FABRIC ON CATCH BASIN INLETS, AND PIPE AND CULVERT OPENINGS. EMPLOY CHECK DAMS AND TEMPORARY SEDIMENT BASINS UPSTREAM OF AND ALONG OPEN CHANNELS, SWALES, AND DITCHES TO TRAP SEDIMENT UPGRADIENT OF ENVIRONMENTALLY SENSITIVE AREAS.
- F. REMOVE TRAPPED SEDIMENTATION AND DEBRIS FROM ALL SYSTEM COMPONENTS AFTER COMPLETION OF INSTALLATION, AND AGAIN AFTER THE ENTIRE SITE IS PERMANENTLY STABILIZED BY ESTABLISHED VEGETATION, FINISH LANDSCAPE MATERIALS, PAVED SURFACES, AND/OR ROOF AREA. REMOVE TRAPPED SEDIMENTATION AND DEBRIS FROM DETENTION / RETENTION BASIN BOTTOMS SO THAT FINISH BOTTOM MATERIALS / INFILTRATION FUNCTION CONFORM TO DESIGN.

3.07 LANDSCAPING

- A. COMPLETE LANDSCAPING AS SOON AS POSSIBLE AFTER COMPLETION OF FINAL SUBGRADE.
- B. IMMEDIATELY AFTER PLACEMENT OF TOPSOIL, STABILIZE WITH CONTROL MEASURES INCLUDING, BUT NOT NECESSARILY LIMITED TO, SEED MIX, MULCH, AND / OR BLANKET.

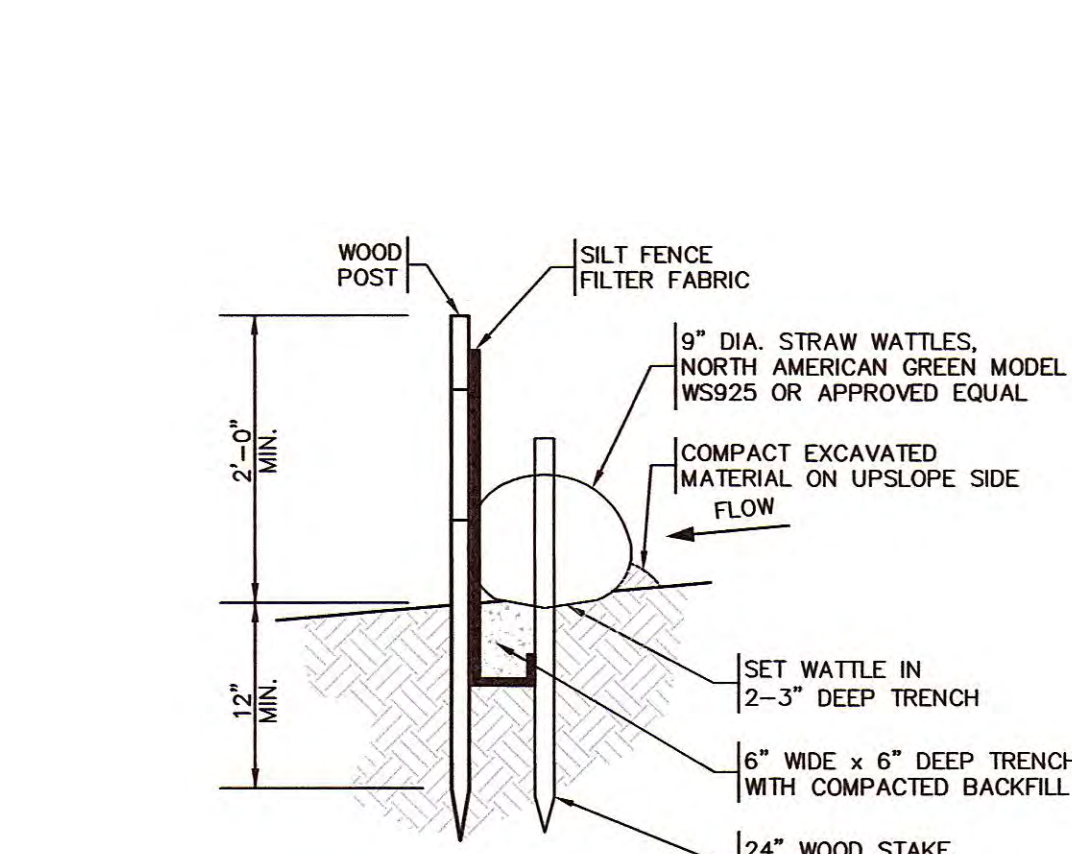


NOTES:

- [1] THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
- [2] WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
- [3] WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
- [4] USE SANDBAGS, HAY BALES OR OTHER APPROVED METHODS TO CHANNELIZE RUNOFF TO BASIN AS REQUIRED.

CONSTRUCTION ENTRANCE

NOT TO SCALE

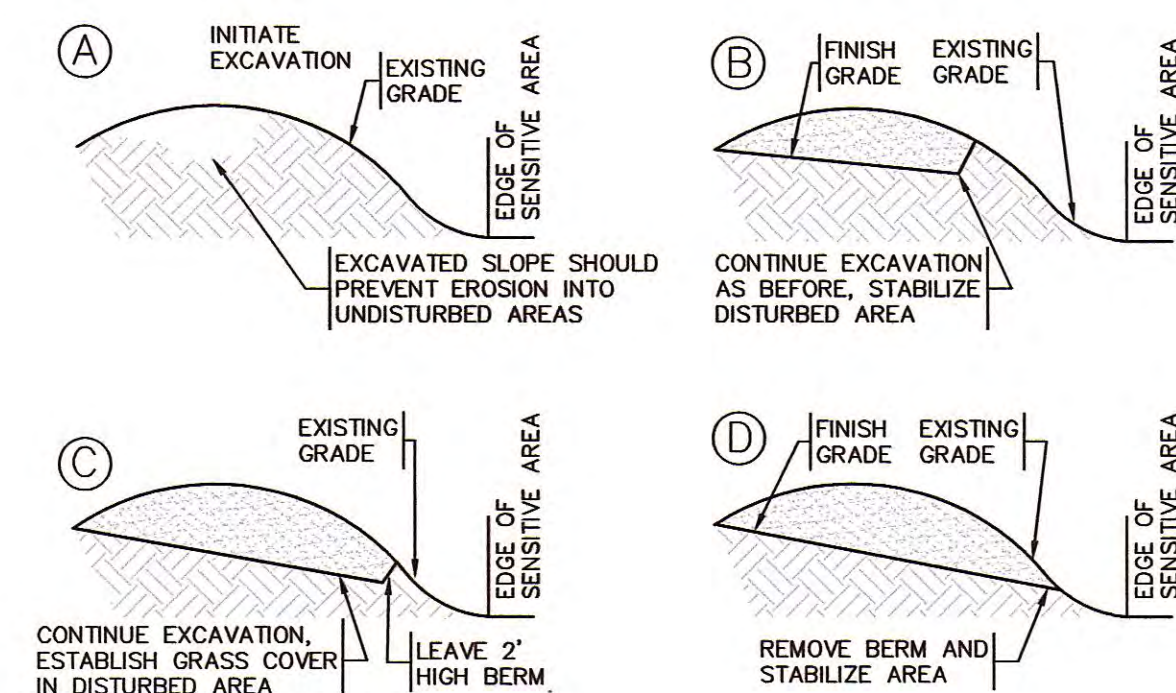


NOTES:

- [1] INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
- [2] TRAPPED SEDIMENT SHALL BE REMOVED TO A NON-SENSITIVE UPLAND AREA.

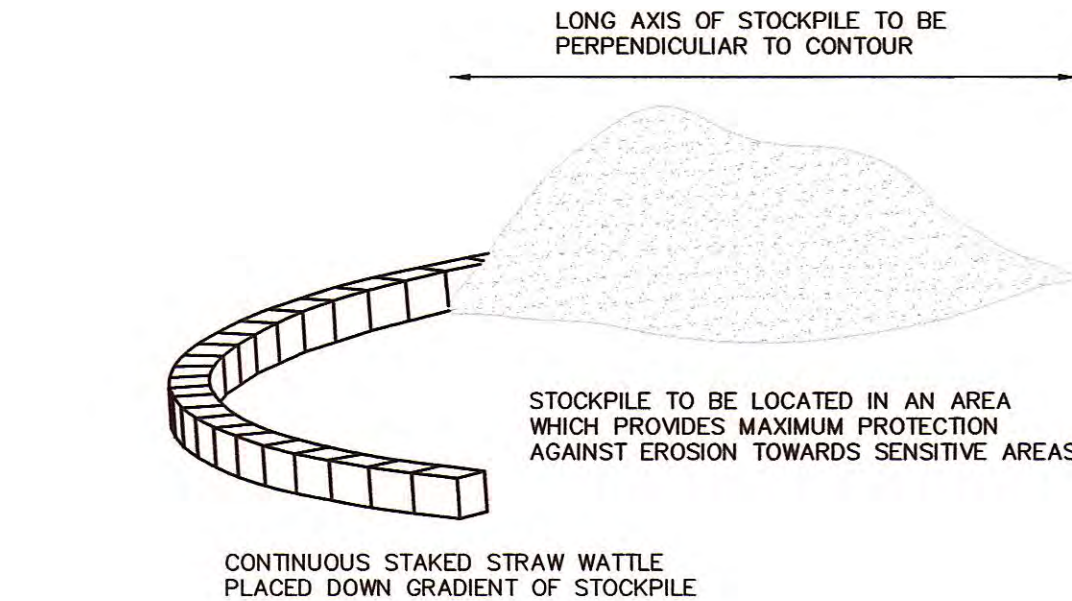
STRAW WATTLE / SILT FENCE BARRIER

TYPICAL CROSS SECTION NOT TO SCALE



EXCAVATION PROCEDURE

TYPICAL CROSS SECTION NOT TO SCALE

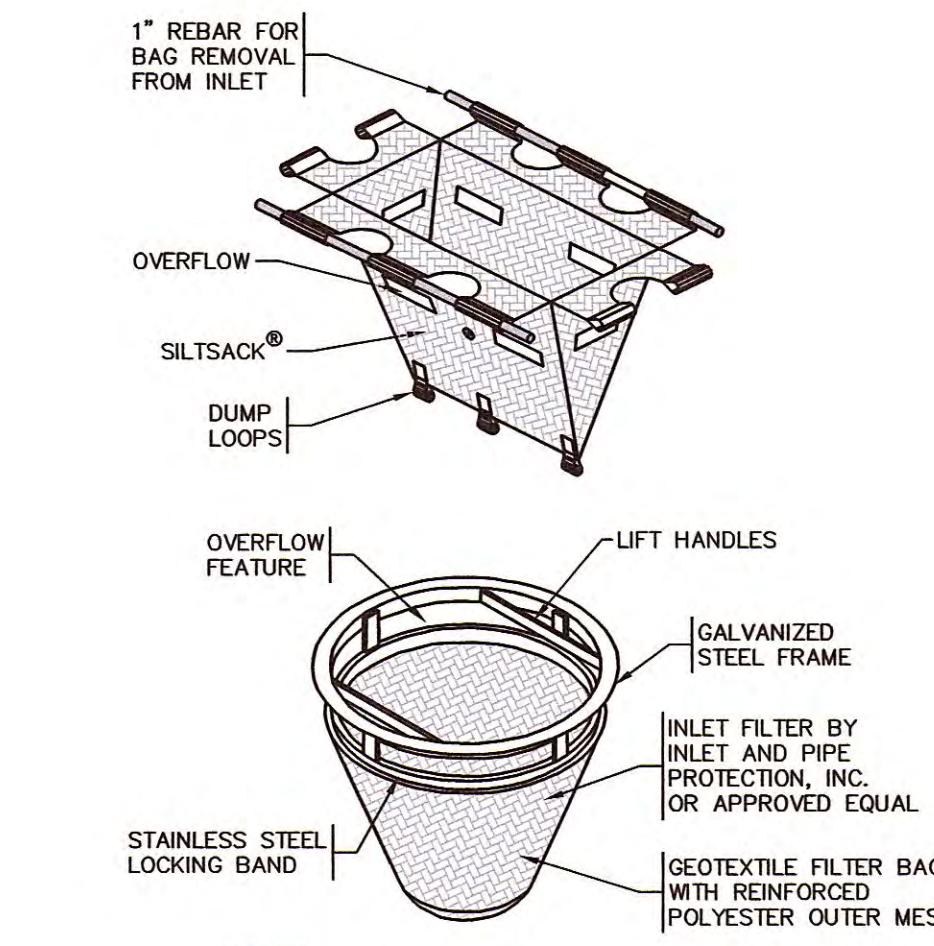


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CONSTRUCTION ENTRANCE

NOT TO SCALE

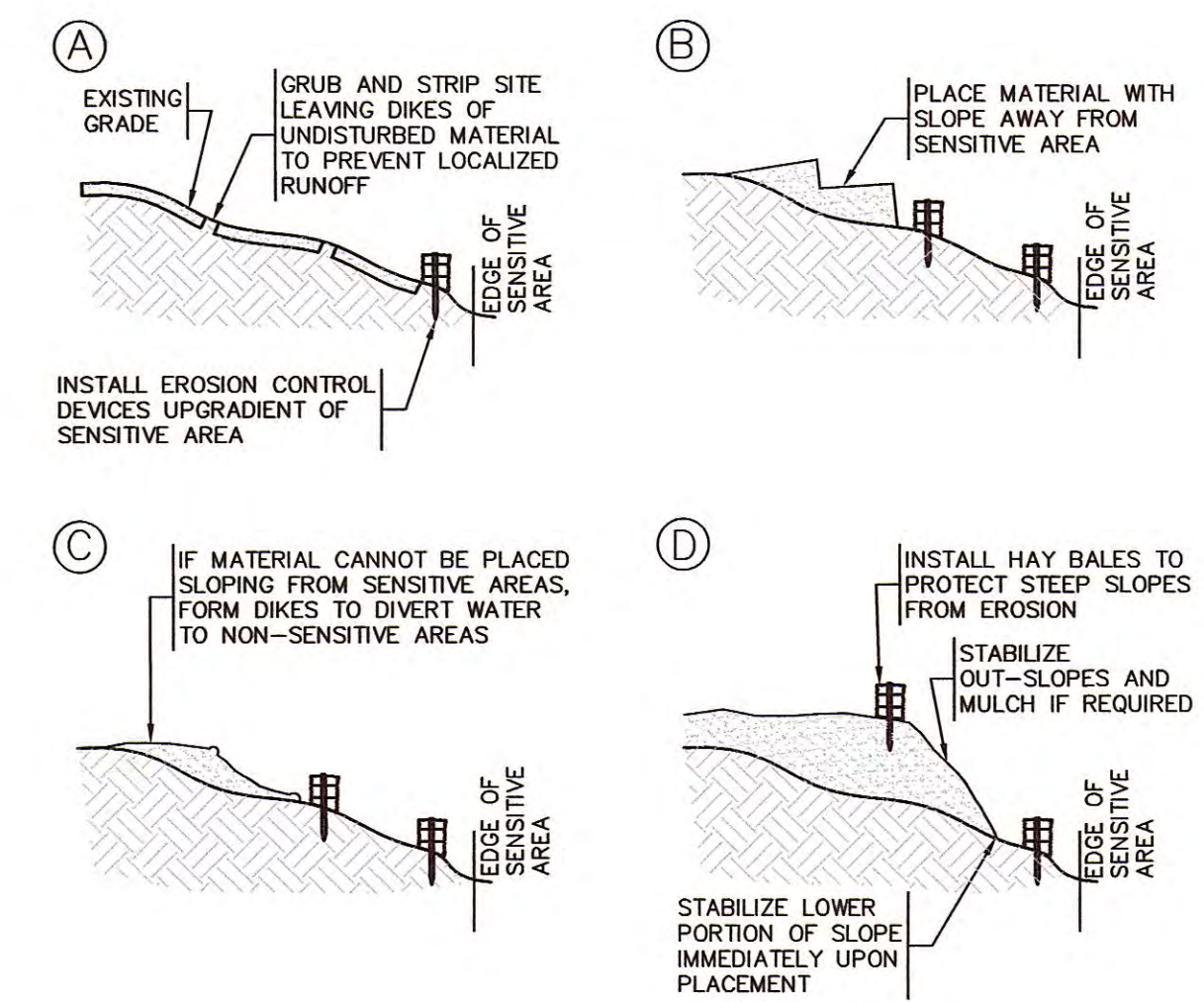


NOTES:

- [1] CLEAN INLET PROTECTION WHEN 30% FULL.
- [2] BURLAP IS NOT AN ACCEPTABLE GEOTEXTILE.

INLET PROTECTION

TYPICAL CROSS SECTION NOT TO SCALE



FILL PROCEDURE

SLOPE PROFILES NOT TO SCALE

DRAWING ISSUED FOR:

- ☐ CONCEPT ☐ CONSTRUCTION
- ☒ PERMIT ☐ CONSTRUCTION RECORD

THIS DRAWING MAY NOT SHOW CONSTRUCTION DETAILS AND SPECIFICATIONS FOR ALL PROPOSED IMPROVEMENTS, AND MAY NOT IDENTIFY ALL CONSTRUCTION WORK ITEMS/AREAS OF CONTRACTOR JURISDICTION.

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4	10/29/20	MCL	NMP	NO REVISIONS TO THIS SHEET
3	10/19/20	MCL	NMP	NO REVISIONS TO THIS SHEET
2	07/08/20	MCL	NMP	PEER REVIEW COMMENTS
1	06/23/20	MCL	NMP	PEER REVIEW COMMENTS
NO.	DATE	BY	APP.	REVISION DESCRIPTION

GPR Engineering Solutions for Land & Structures

GOLDSMITH, PREST & RINGWALL, INC.

39 MAIN STREET, SUITE 301, AYER, MA 01432

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SPECIAL PERMIT SENIOR RESIDENTIAL DEVELOPMENT

EROSION AND SEDIMENT CONTROL DETAILS

HAGER HOMESTEAD
336 KING STREET
LITTLETON, MA

PREPARED FOR:
MASSACHUSETTS COHOUSING, LLC.
200 SUMMIT DRIVE, SUITE 210
BURLINGTON, MA 01803

DES. BY: MCL/LT	DATE: APRIL 2020	JOB 191096	C2.3
CHK. BY: NMP			

[SEWER COLLECTION SYSTEM RIM AND INVERT SCHEDULE PROVIDED AS REFERENCE ONLY. REFER TO PLAN REF. #5, AS REVISED IF NECESSARY THROUGH MA DEP APPROVAL PROCESS, FOR LAYOUT AND ELEVATION TO BE CONSTRUCTED]

** ECCENTRIC DROP SEWER MANHOLE CONNECTION

PARAMETER	FORMULA	VARIABLE	SEPTIC FLOW
2-BDR Units	150 GPD/Unit	12 Units	1,800 GPD
1-BDR Units	110 GPD/Unit	12 Units	1,320 GPD
Common House	15 GPD/Seat	40 Seats	600 GPD
Total Septic Flow			3,720 GPD

EXISTING		PROPOSED
100' 1:100.0 	ELEVATION CONTOUR SPOT GRADE PROPERTY LINE WETLAND DELINEATION WETLAND BUFFER ZONE SHORELINE 100-YEAR FLOODPLAIN LIMIT TREE LINE / EDGE OF VEGETATION EDGE OF PAVEMENT CAPE COD BERM CURBING GRANITE CURBING GRAVEL/DIRT ROAD STOCKADE FENCE STONE WALL WATER MAIN WATER SERVICE FIRE SERVICE WATER VALVE FIRE HYDRANT FORCE MAIN GRAVITY SEWER LINE SEWER MANHOLE GAS LINE GAS SERVICE GAS VALVE BURIED POWER LINE OVERHEAD POWER LINE UTILITY POLE GUY WIRE ELECTRIC BOX STORM DRAIN UNDERDRAIN ROOF DRAIN FOUNDATION DRAIN CATCH BASIN DRAIN MANHOLE SILT FENCE BARRIER STRAW WATTLÉS DEEP SOIL OBSERVATION HOLE SITE LUMINAIRE SIGN SURFACE RUNOFF DIRECTION STONE BOUND DRILL HOLE IRON ROD	100' 1:100.0 W WS FS WV FH SS SMH GS E OHW C E SD UD RD FD CB DMH S W S S

EL	ELEVATION	HDPE	HIGH DENSITY POLYETHYLENE
INV	INVERT	PVC	POLYVINYL CHLORIDE
RS	SQUARE FEET	RCP	REINFORCED CONCRETE PIPE
AC	ACRES	N/F	NOT OR FORMERLY
FT	FEET	VERNAL POOL	VERNAL POOL
R	RADIUS	WF	WETLAND FLAG
DIA	DIAMETER	TW	TOP OF WALL
BT	BITUMINOUS	BW	BOTTOM OF WALL
CONC	CONCRETE	FG	FINISH GRADE
L	LENGTH	BSMT	BASEMENT
F	FOOT	FF	FINISH FLOOR
S	SLOPE	BS	BUILDING SEWER

☐ CONCEPT ☐ CONSTRUCTION
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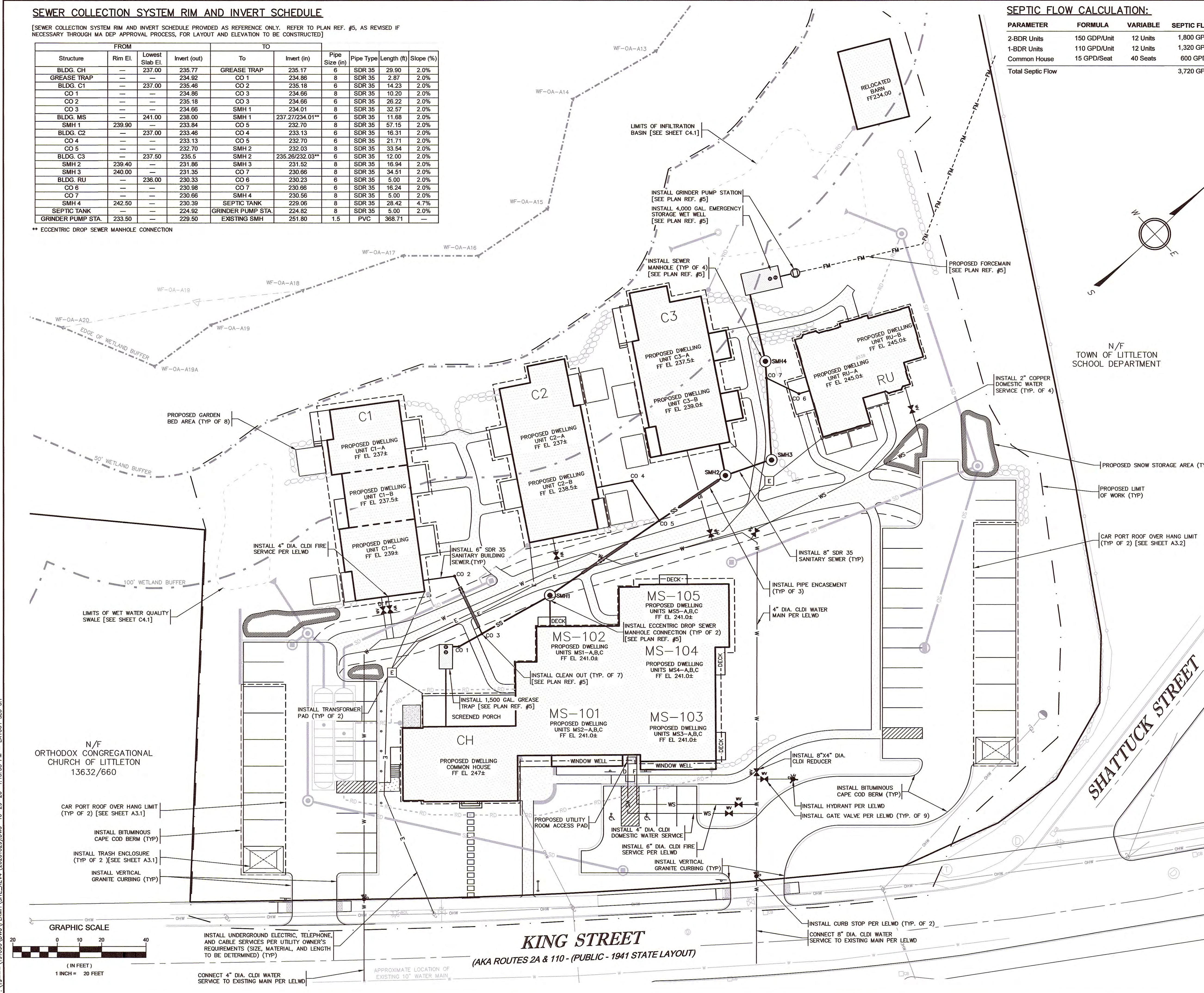
SPECIAL PERMIT
SENIOR RESIDENTIAL DEVELOPMENT

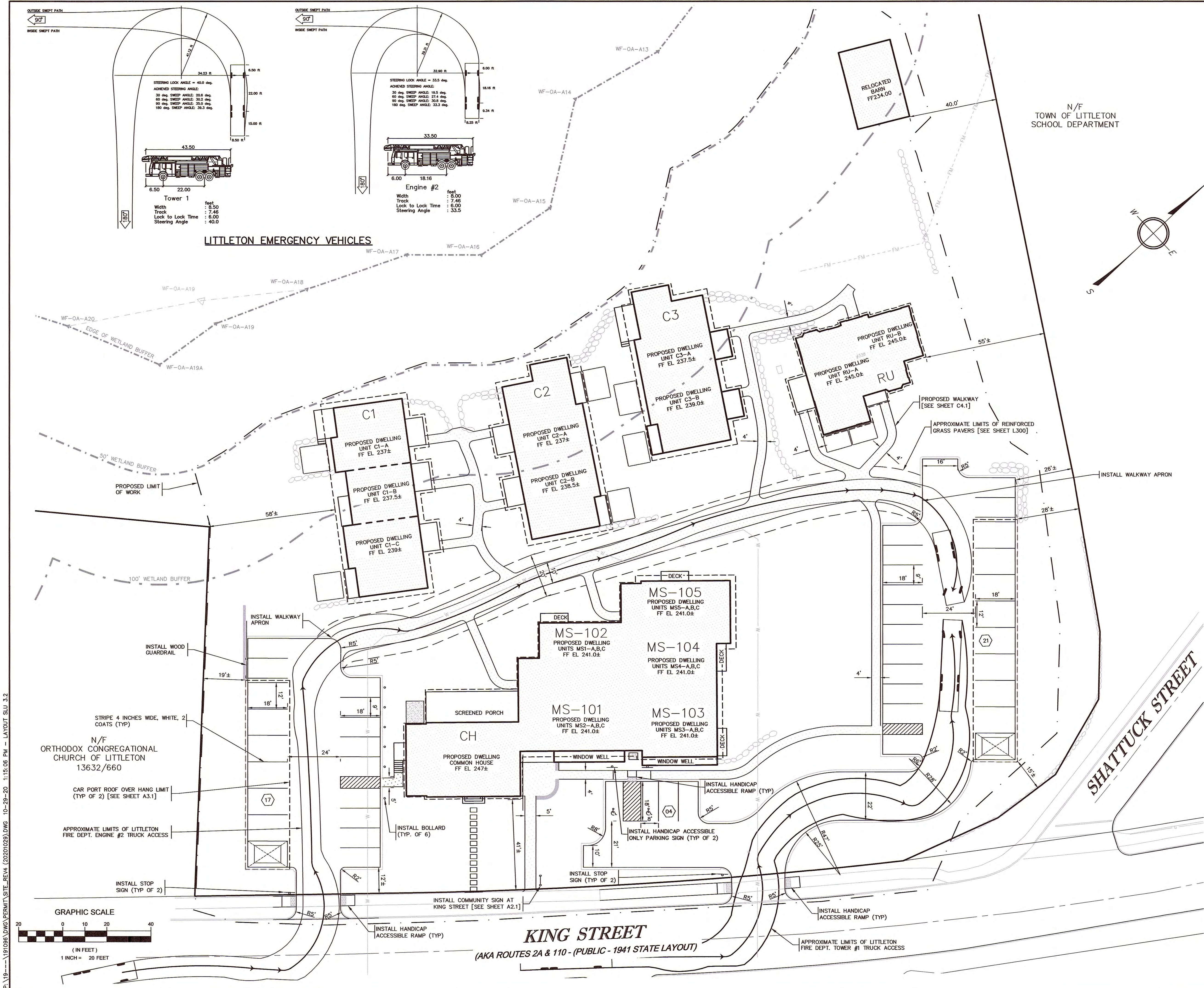
SITE LAYOUT AND UTILITIES PLAN

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DES. BY: MCL/LT	DATE: APRIL 2020	JOB 191096	C3.1
CHK BY: NMP			





LEGEND

EXISTING

- ELEVATION CONTOUR
- SPOT GRADE
- PROPERTY LINE
- WETLAND DELINEATION
- WETLAND BUFFER ZONE
- SHORELINE
- 100-YEAR FLOODPLAIN LIMIT
- TREE LINE / EDGE OF VEGETATION
- EDGE OF PAVEMENT
- CAPE COD BERM CURBING
- GRAVEL/DIRT ROAD
- STOCKRADE FENCE
- STONE WALL
- WATER MAIN
- WATER SERVICE
- FIRE SERVICE
- WATER VALVE
- FIRE HYDRANT
- FORCE MAIN
- GRAVITY SEWER LINE
- SEWER MANHOLE
- GAS LINE
- GAS SERVICE
- GAS VALVE
- BURIED POWER LINE
- OVERHEAD POWER LINE
- UTILITY POLE
- GUY WIRE
- ELECTRIC BOX
- STORM DRAIN
- UNDERDRAIN
- ROOF DRAIN
- FOUNDATION DRAIN
- CATCH BASIN
- DRAIN MANHOLE
- SILT FENCE BARRIER
- STRAW WATTLES
- DEEP SOIL OBSERVATION HOLE
- SITE LUMINAIRE
- SIGN
- SURFACE RUNOFF DIRECTION
- STONE BOUND
- DRILL HOLE
- IRON ROD

PROPOSED

- ELEVATION CONTOUR
- SPOT GRADE
- PROPERTY LINE
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ABBREVIATIONS

EL	ELEVATION	HPDE	HIGH DENSITY POLYETHYLENE
INV	INVERT	PVC	POLYVINYL CHLORIDE
SF	SQUARE FEET	RCP	REINFORCED CONCRETE PIPE
AC	ACRES	N/F	NOW OR FORMERLY
FT	FEET	VP	VERNAL POOL
R	RADIUS	WF	WETLAND FLAG
DIA	DIAMETER	TW	TOP OF WALL
BIT	BITUMINOUS	BW	BOTTOM OF WALL
CONC	CONCRETE	FG	FINISH GRADE
L	LENGTH	BSMT	BASEMENT
S	SLOPE	FF	FINISH FLOOR
		BS	BUILDING SEWER

DRAWING ISSUED FOR:

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SITE LAYOUT AND ACCESS PLAN

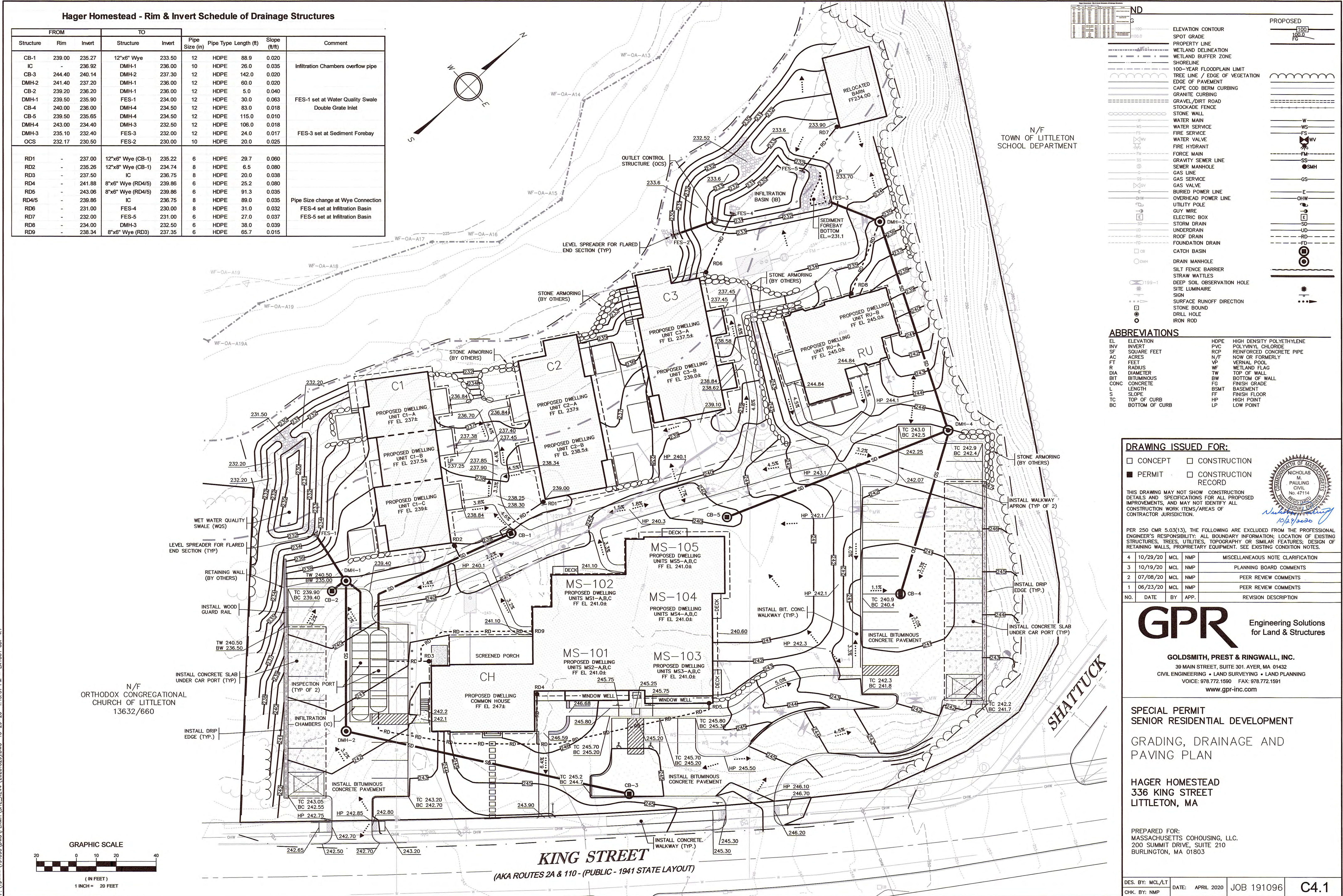
HAGER HOMESTEAD
336 KING STREET
LITTLETON, MA

PREPARED FOR:
MASSACHUSETTS COHOUSING, LLC.
200 SUMMIT DRIVE, SUITE 210
BURLINGTON, MA 01803

DES. BY: MCL/LT	DATE: APRIL 2020	JOB 191096	C3.2
CHK. BY: NMP			

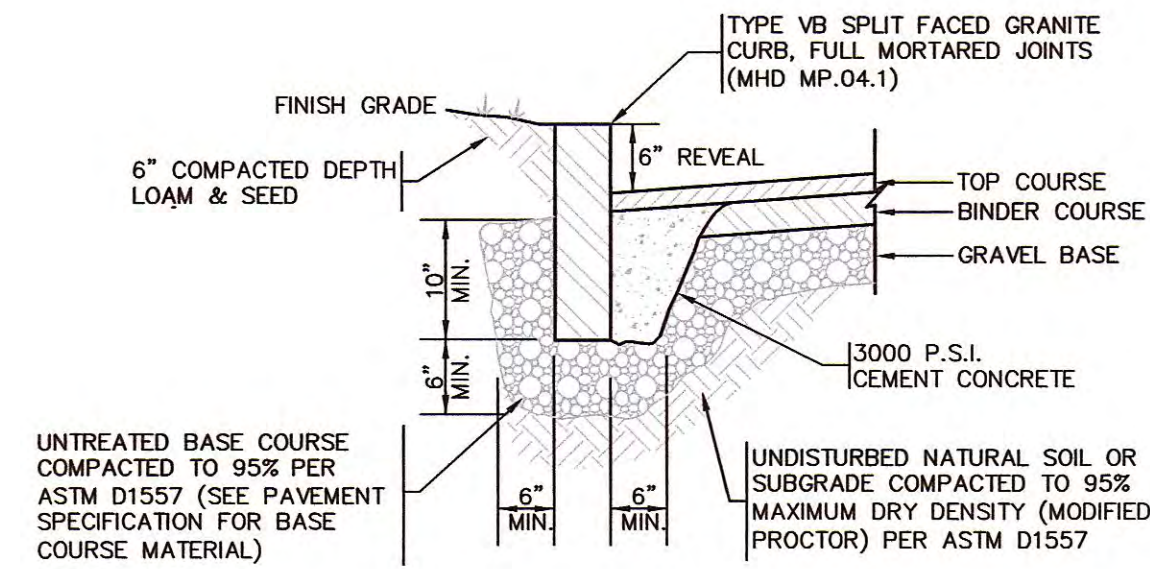
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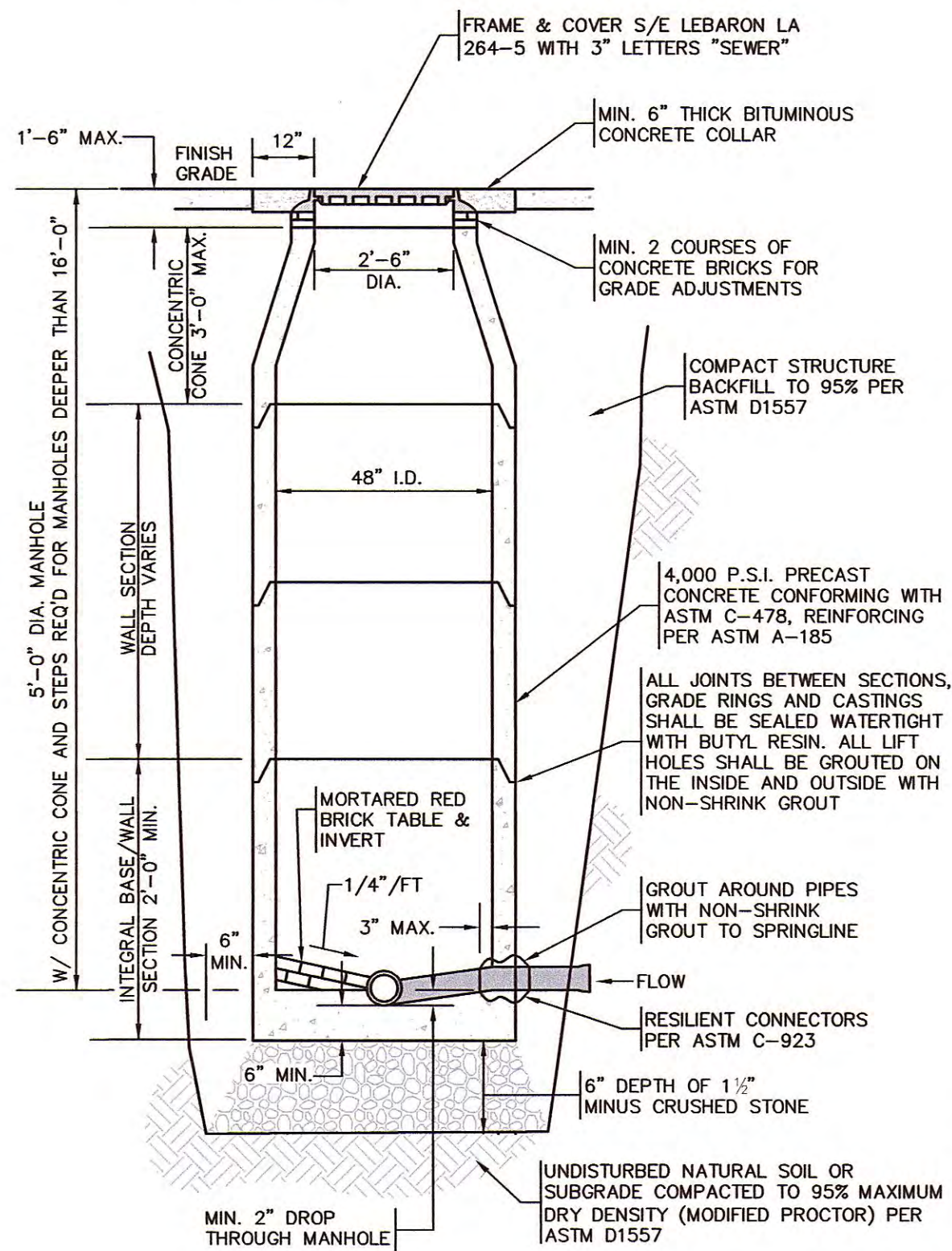


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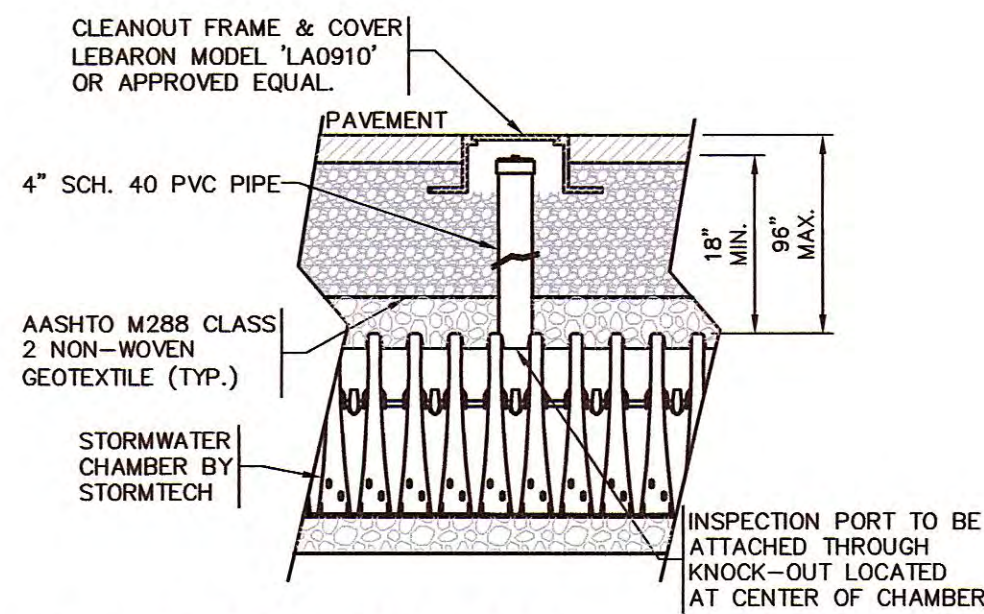
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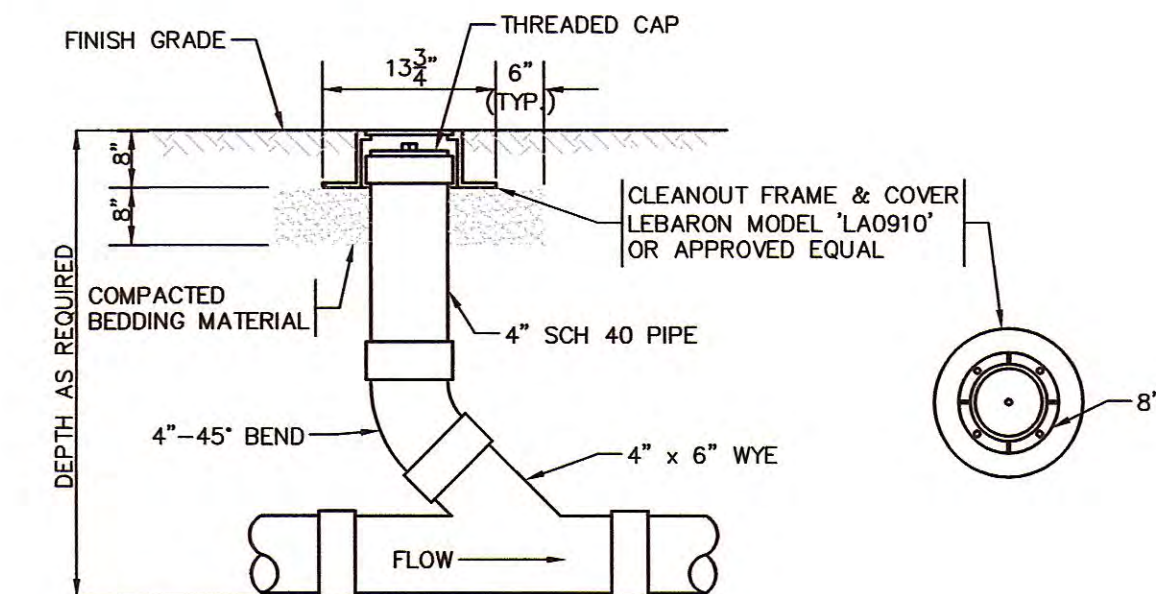
VERTICAL GRANITE CURB
TYPICAL CROSS SECTION
NOT TO SCALE



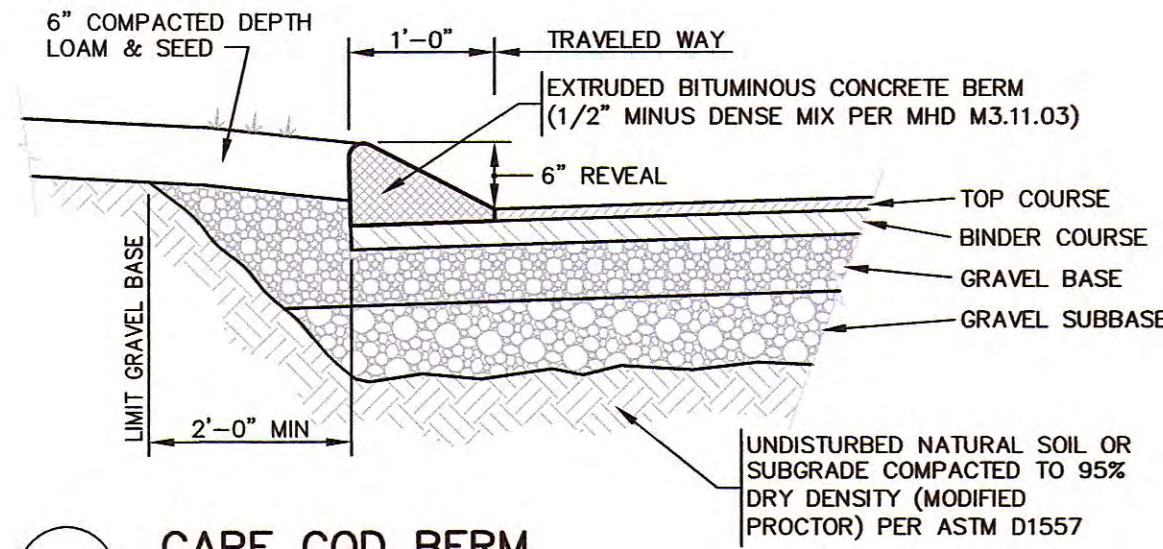
SEWER MANHOLE
TYPICAL CROSS SECTION
NOT TO SCALE



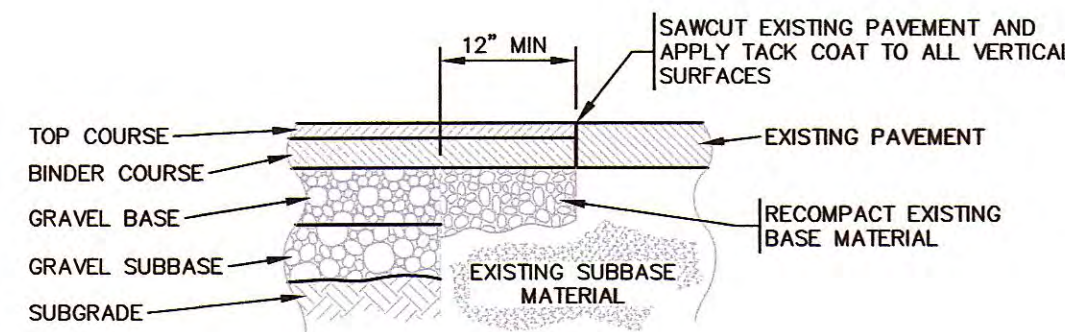
INSPECTION PORT
TYPICAL CROSS SECTION
NOT TO SCALE



CLEANOUT
TYPICAL CROSS SECTION
NOT TO SCALE

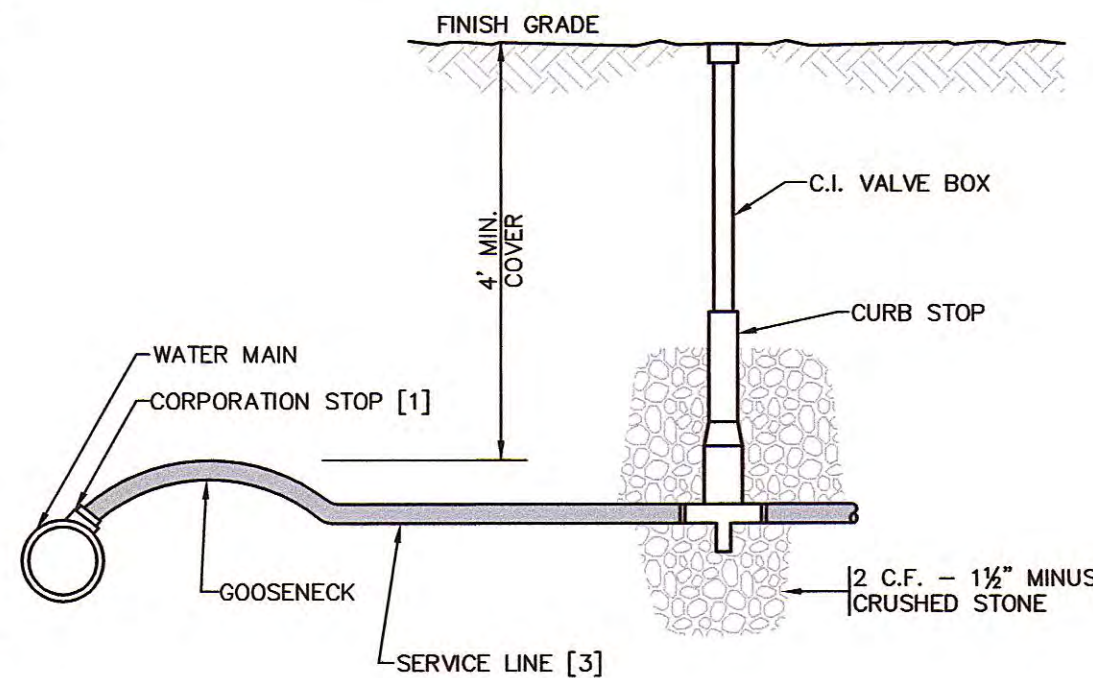


CAPE COD BERM
TYPICAL CROSS SECTION
NOT TO SCALE



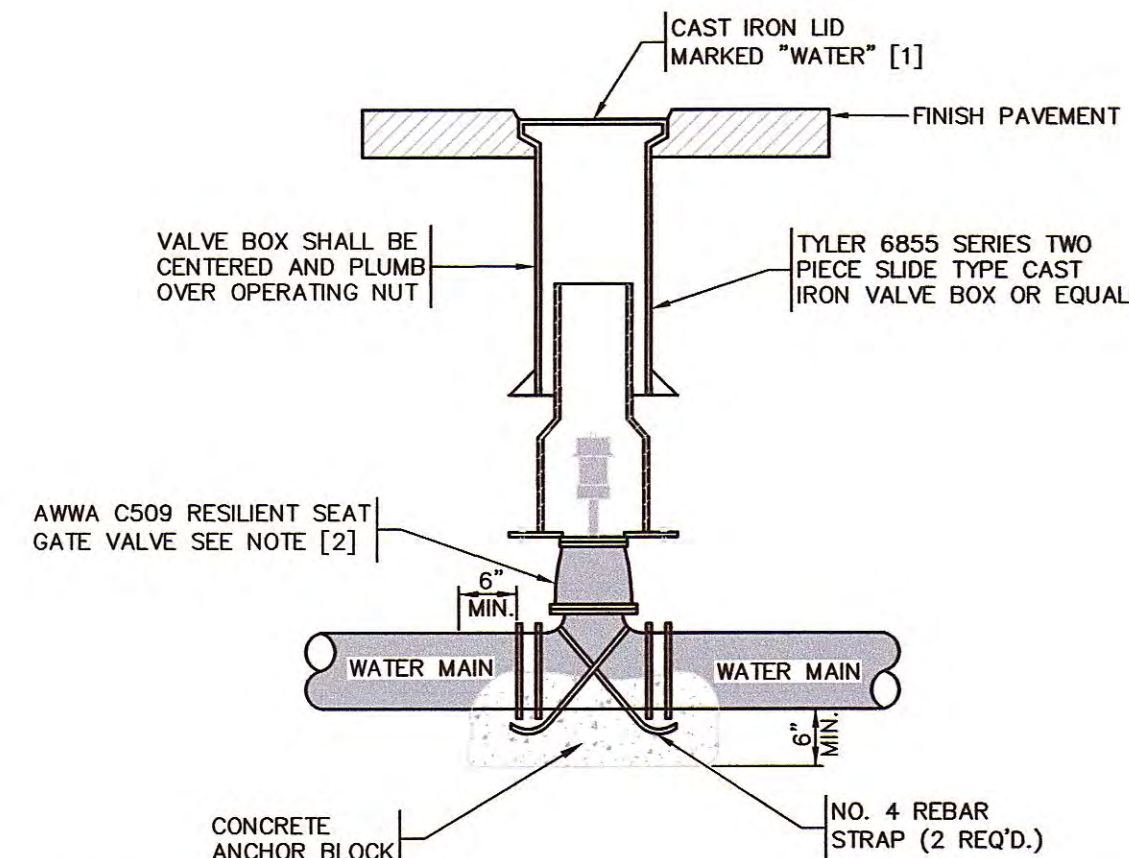
- NOTES:**
[1] FLEXIBLE PAVEMENT REMOVAL SHALL BE INITIATED BY MAKING A FULL-DEPTH VERTICAL SAWCUT AT THE LOCATIONS INDICATED ON THE PLANS. SAWCUTS SHALL BE ACCOMPLISHED USING A STANDARD DIAMOND-TYPE BLADE SAW.
[2] IF SAWCUT IS WITHIN THREE (3) FEET OF AN EXISTING BUILDING, CURB LINE OR EXISTING FENCE, COMPLETELY REMOVE EXISTING PAVEMENT AND REPLACE ACCORDING TO THE REQUIREMENTS OF THE BITUMINOUS CONCRETE PAVEMENT SECTION.

FLEXIBLE PAVEMENT SAWCUT DETAIL
TYPICAL CROSS SECTION
NOT TO SCALE



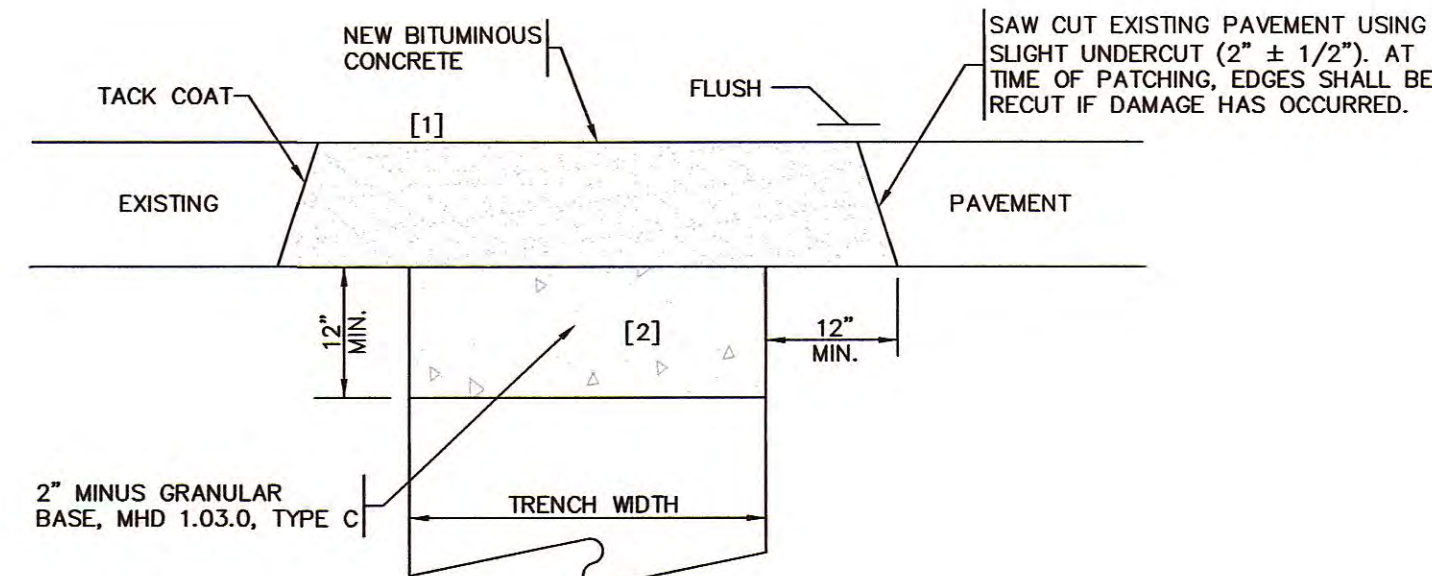
- NOTES:**
[1] WATER SERVICES LARGER THAN 1" ARE TO BE RESTRAINED TO MAIN WITH APPROVED SADDLE.
[2] COORDINATE BUILDING CONNECTION WITH PLUMBING DRAWINGS.
[3] ALL MATERIALS PER MUNICIPAL STANDARDS.

WATER SERVICE
TYPICAL CROSS SECTION
NOT TO SCALE



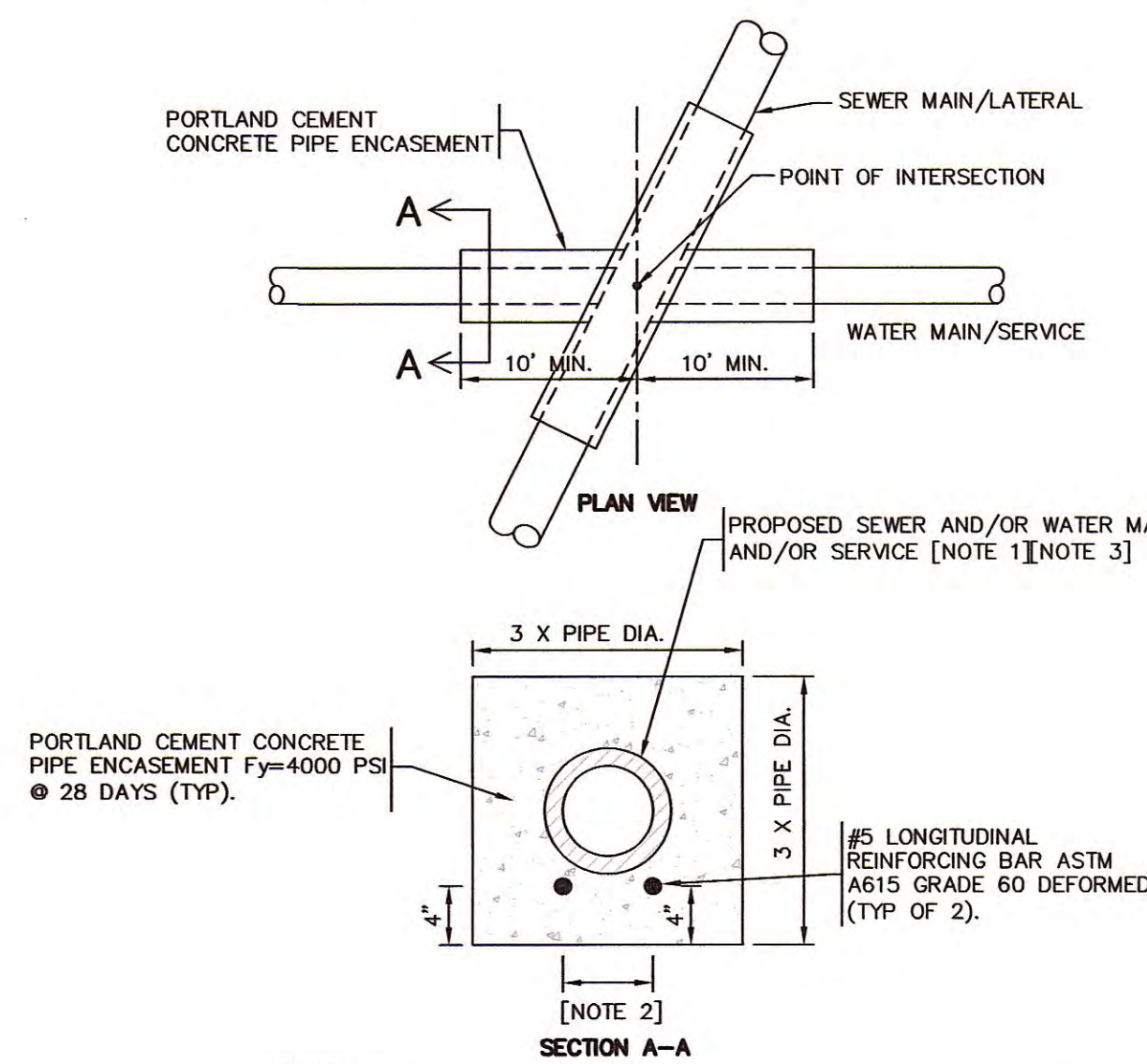
- NOTES:**
[1] SET LID AND CONCRETE COLLAR 1/4" TO 1/2" BELOW GRADE IN PAVEMENT OR OTHER AREAS TO BE PLOWED. SET LID 3" ABOVE FINISHED GRADE ELSEWHERE.
[2] VALVE SHALL OPEN IN DIRECTION AS SPECIFIED BY THE LOCAL WATER DEPARTMENT.

GATE VALVE
TYPICAL CROSS SECTION
NOT TO SCALE



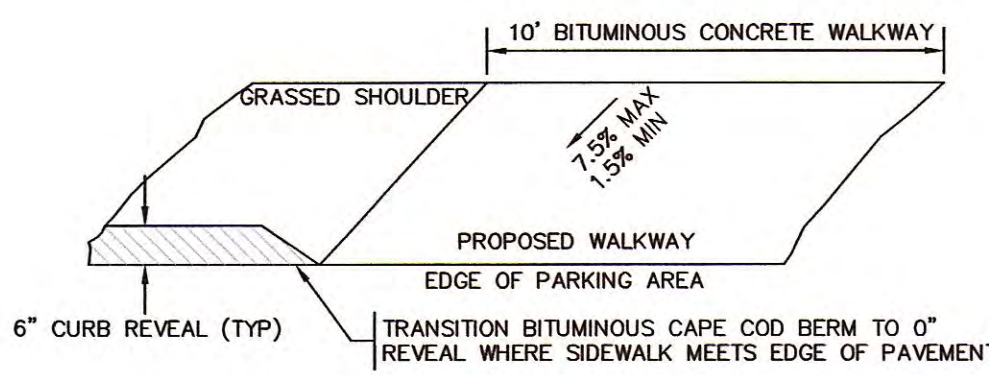
- NOTES:**
[1] GRANULAR BASE COMPACTION: 95% PER ASTM D-1557 MODIFIED PROCTOR METHOD.
[2] BIT. CONCRETE COMPACTION: 95%

TRENCH PATCH
TYPICAL CROSS SECTION
NOT TO SCALE

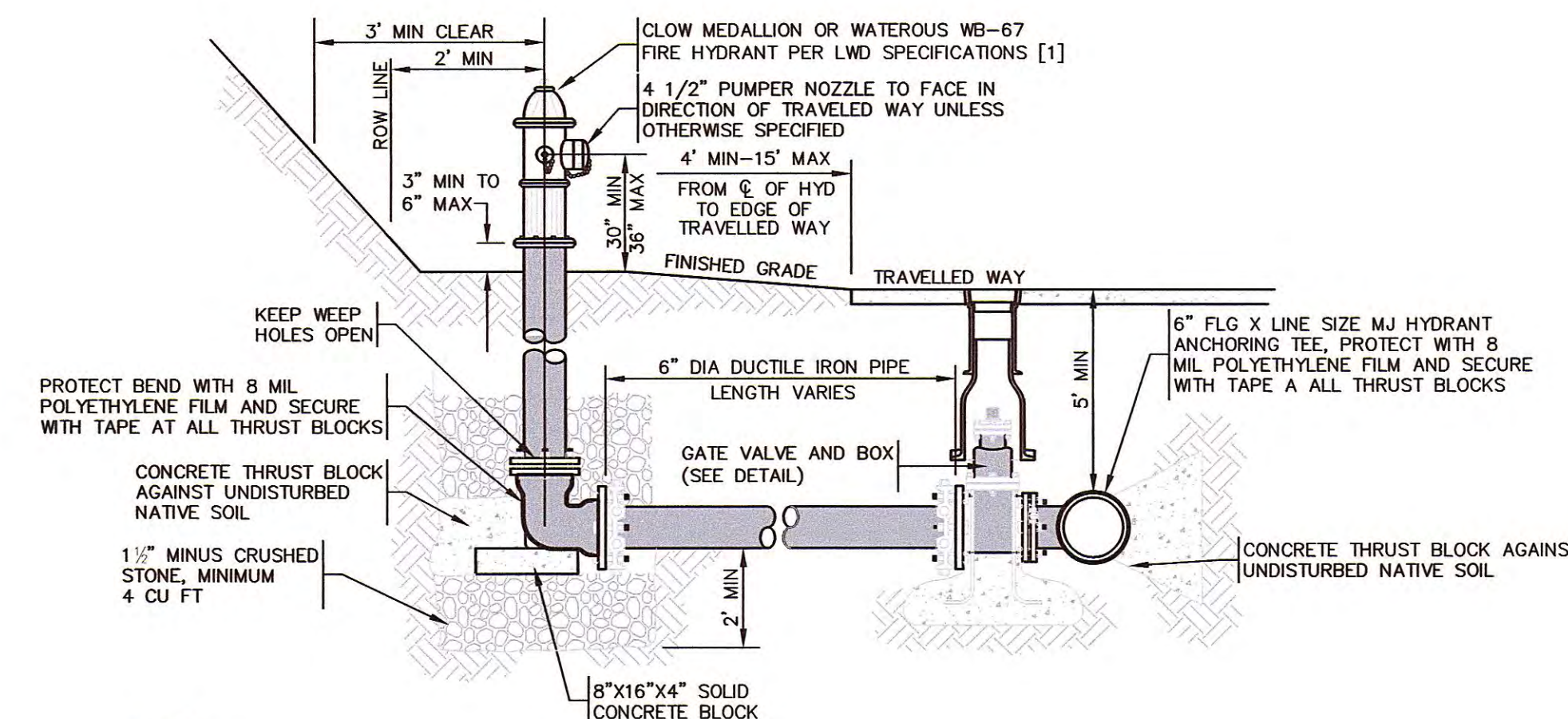


- NOTES:**
[1] CONCRETE PIPE ENCASEMENT TO EXTEND 10 FT ALONG SEWER LINE AND WATER LINE FROM POINT OF INTERSECTION.
[2] DISTANCE EQUAL TO PIPE DIAMETER.
[3] CONCRETE PIPE ENCASEMENT REQUIRED WHENEVER PROPOSED SEWER MAIN/LATERAL IS WITHIN 10' OF PROPOSED WATER MAIN/SERVICE.

PIPE ENCASEMENT
NOT TO SCALE

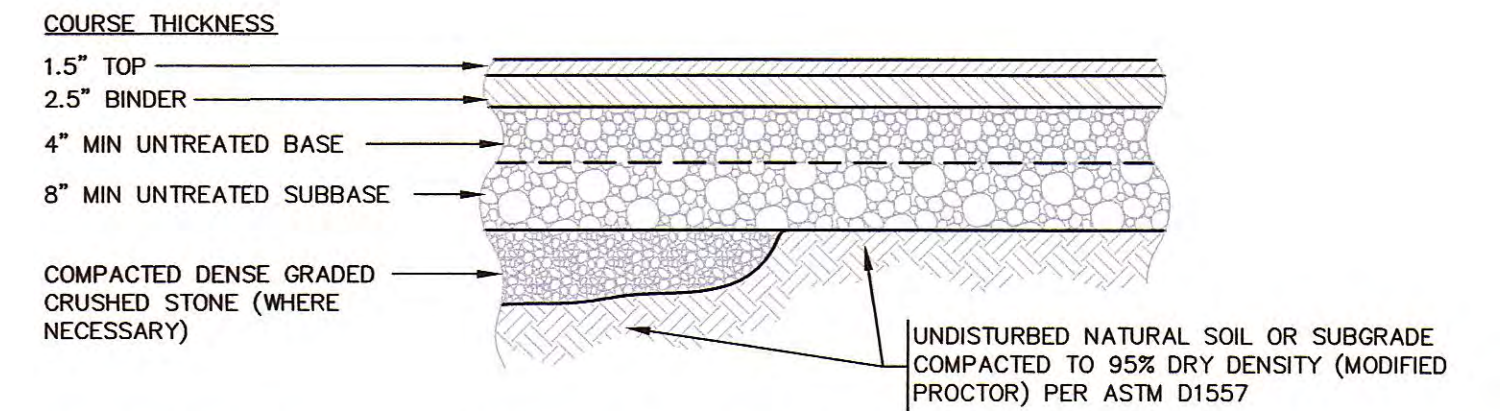


WALKWAY APRON
TYPICAL PLAN VIEW
NOT TO SCALE



- NOTES:**
[1] HYDRANT SHALL MEET ALL TOWN AND AWWA STANDARDS AND BE UL/FM APPROVED AND EQUIPPED WITH (1) 4 1/2" PUMPER NOZZLE AND (2) 2 1/2" HOSE NOZZLES.
[2] HYDRANT SHALL OPEN IN DIRECTION AS SPECIFIED BY THE LOCAL FIRE DEPARTMENT.
[3] WHERE HYDRANT IS SHOWN BEHIND SIDEWALK, SET CENTER OF HYDRANT 2- FEET BEHIND SIDEWALK.

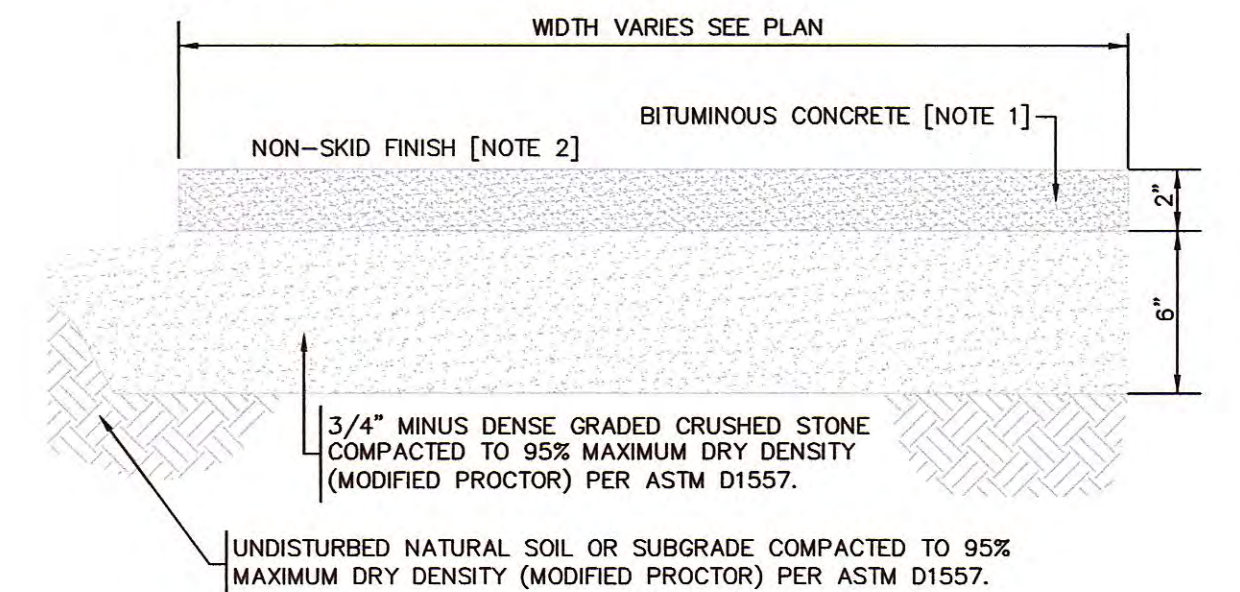
FIRE HYDRANT ASSEMBLY
TYPICAL CROSS SECTION
NOT TO SCALE



COURSE	MATERIAL	SPECIFICATION PER MASS HIGHWAY DEPARTMENT (MHD)	MAX AGG. SIZE (INCH)	COMPACTION REQUIREMENTS	TEST DESIGNATION
TOP	HOT MIX ASPHALT	SURFACE COURSE TYPE B	1/2	[NOTE 1]	AASHTO-T166
BINDER	HOT MIX ASPHALT	BINDER COURSE TYPE A	3/4	[NOTE 1]	AASHTO-T166
BASE	CRUSHED STONE	DENSE GRADED TYPE B	2	95% [NOTE 3]	ASTM D1557/AASHTO-T99
SUBBASE	GRAVEL BORROW	M1.03.0 TYPE B	3	95% [NOTE 3]	ASTM D1557/AASHTO-T99
SUBGRADE	ORDINARY BORROW	M1.01.0 [SEE NOTE 2]	8	95% [NOTE 3]	ASTM D1557/AASHTO-T99

- NOTES:**
[1] COMPACT TO TEST AVERAGE OF 95%; TEST SHALL NOT BE LOWER THAN 93%.
[2] UNSUITABLE MATERIAL IN THE SUBGRADE SHALL BE REMOVED AND REPLACED WITH AN ACCEPTABLE SUBSTITUTE MATERIAL: 3/4" MINUS DENSE GRADED CRUSHED STONE.
[3] MATERIAL SHALL BE SPREAD AND COMPACTED IN LAYERS NOT EXCEEDING 8-INCHES IN DEPTH, COMPACTED MEASUREMENT; LAST LAYER OF MATERIAL SHALL NOT EXCEED 4-INCHES IN DEPTH, COMPACTED MEASUREMENT.

BITUMINOUS CONCRETE PAVEMENT
TYPICAL CROSS SECTION
NOT TO SCALE



- NOTES:**
[1] MHD M3.11.03 CLASS 1, TYPE 1-1 BITUMINOUS CONCRETE: 1/2" MAXIMUM AGGREGATE OR PARTICLE SIZE. COMPACT TO TEST AVERAGE OF 95%. NO TEST LOWER THAN 93%.
[2] SLOPE 5% MAXIMUM.

BITUMINOUS CONCRETE WALK
TYPICAL CROSS SECTION
NOT TO SCALE

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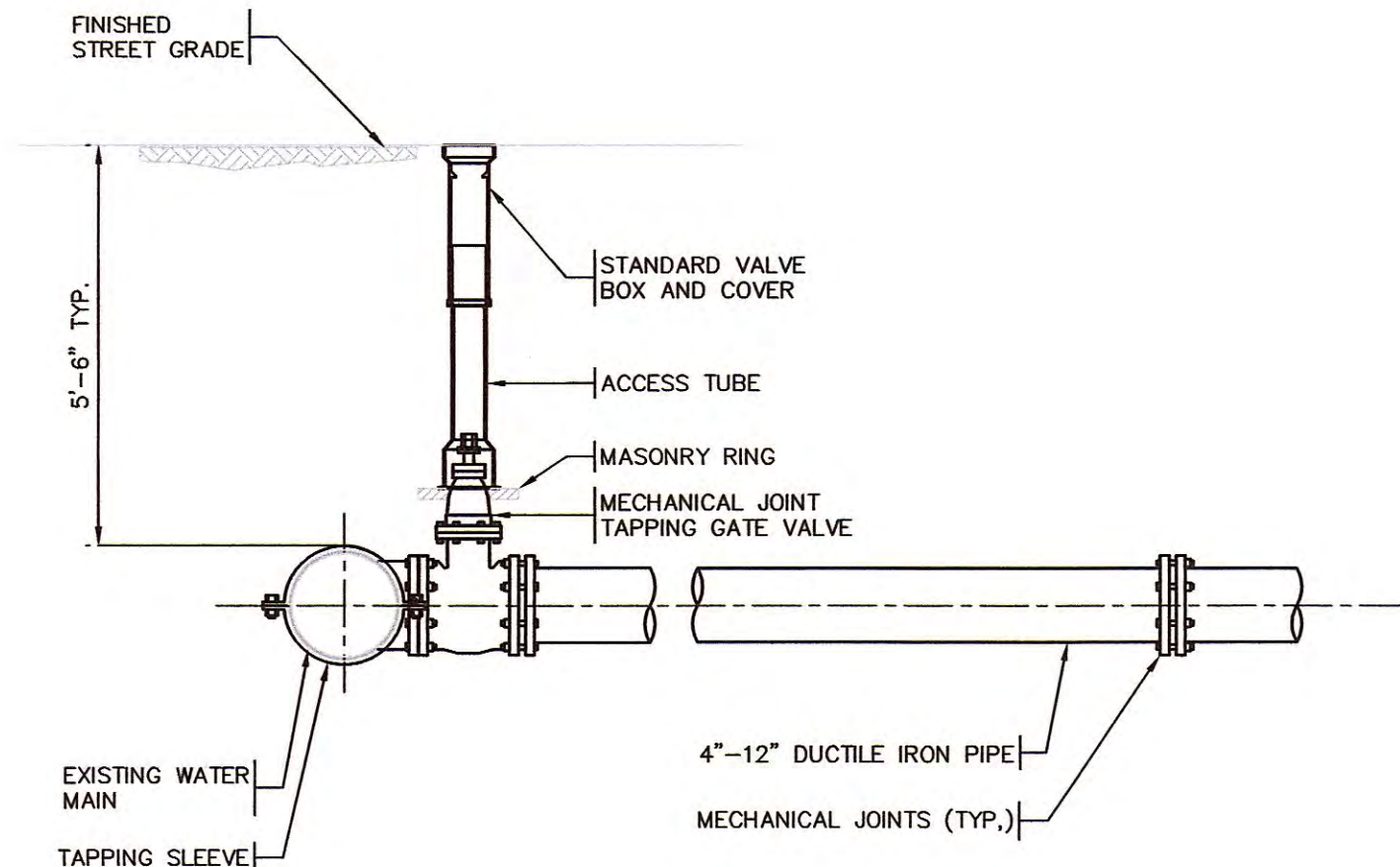
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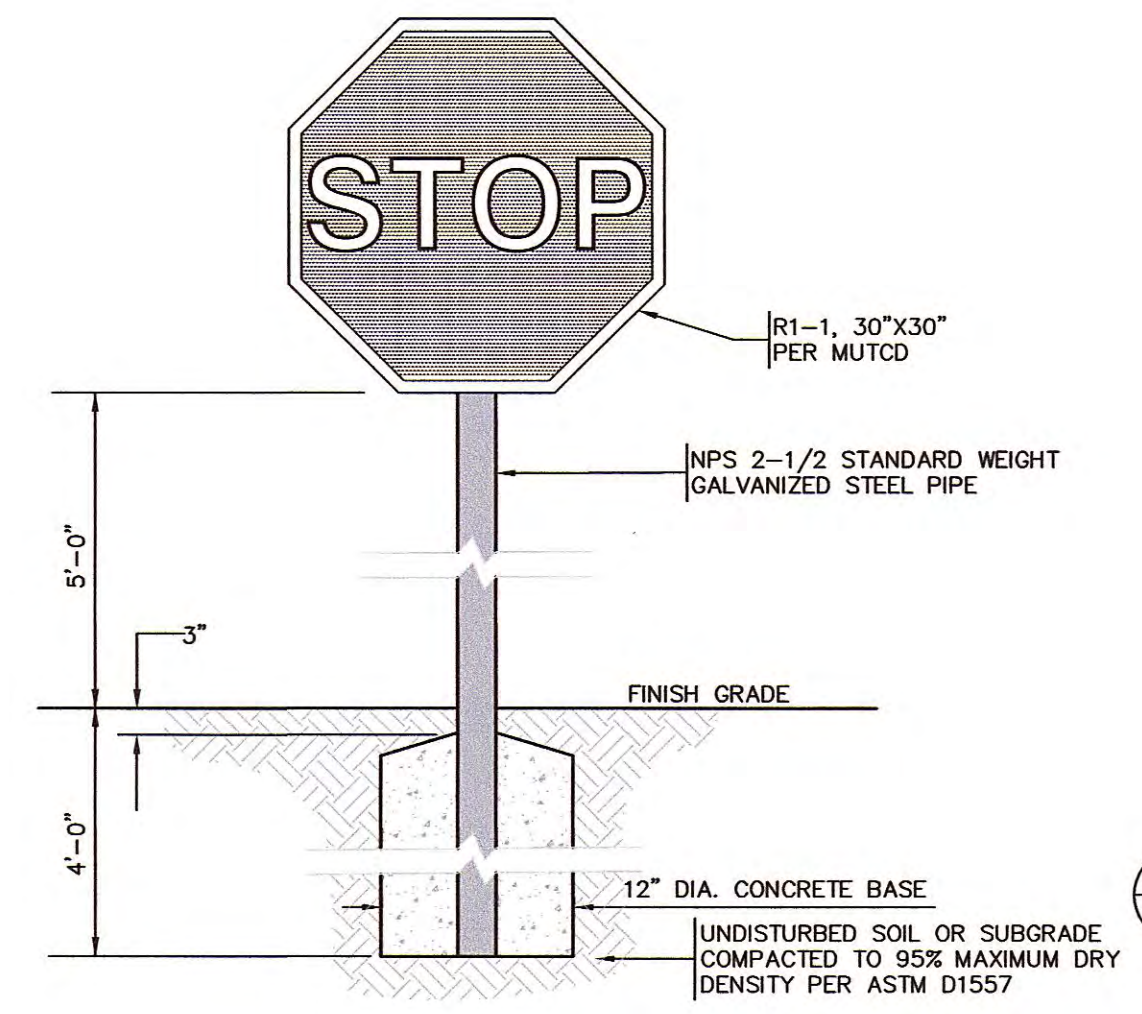
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LITTLETON, MA**

PREPARED FOR:
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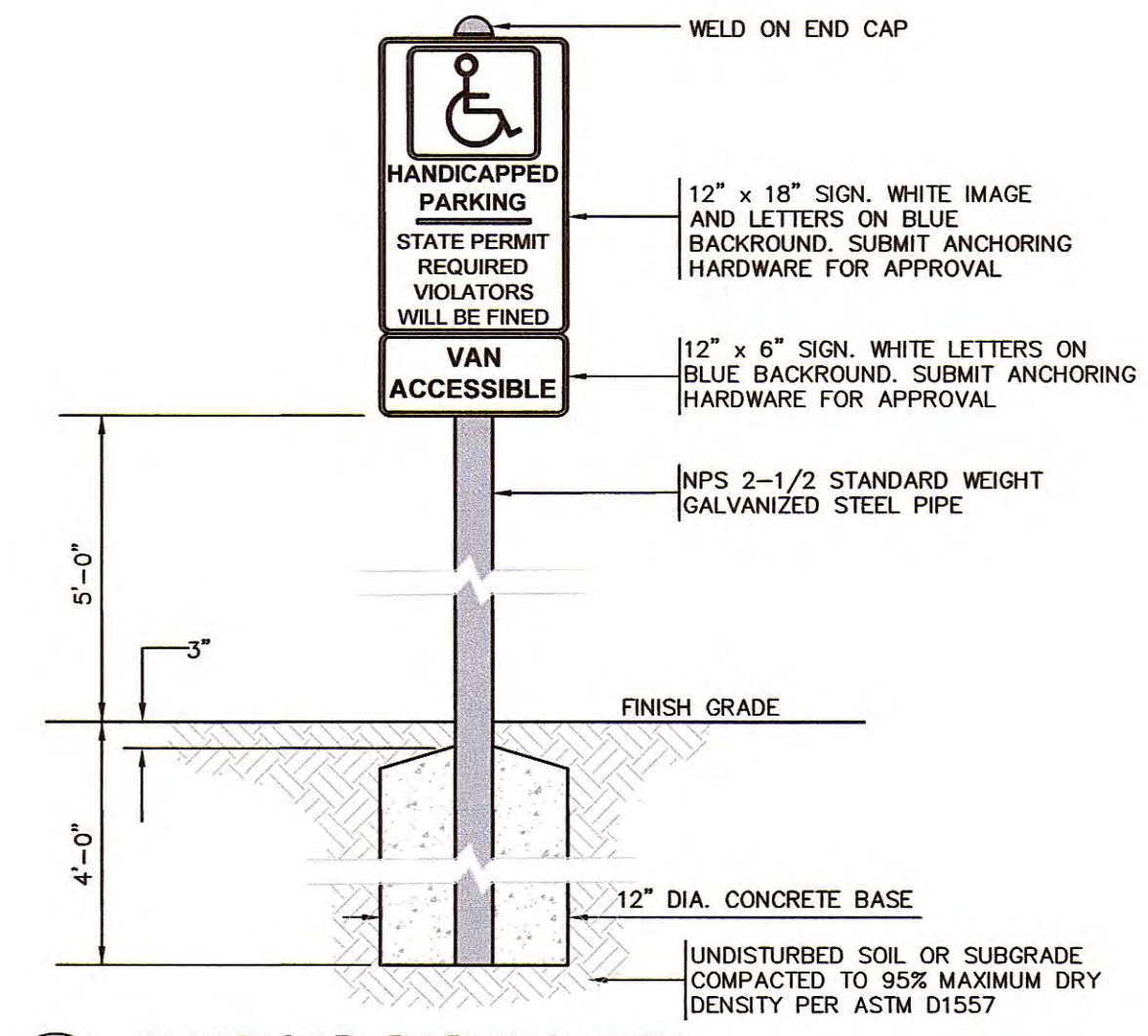


NOTES:
1. CONCRETE THRUST BLOCK TO BE USED ONLY WHERE IT WILL BEAR ON UNDISTURBED EARTH.
2. USE RESTRAINED JOINT FITTINGS OR THE RODS WHERE CONCRETE THRUST BLOCK IS UNACCEPTABLE.
3. SIZE OF BLOCK OR MEGALUG TO BE DESIGNED FOR SPECIFIC CONDITIONS.

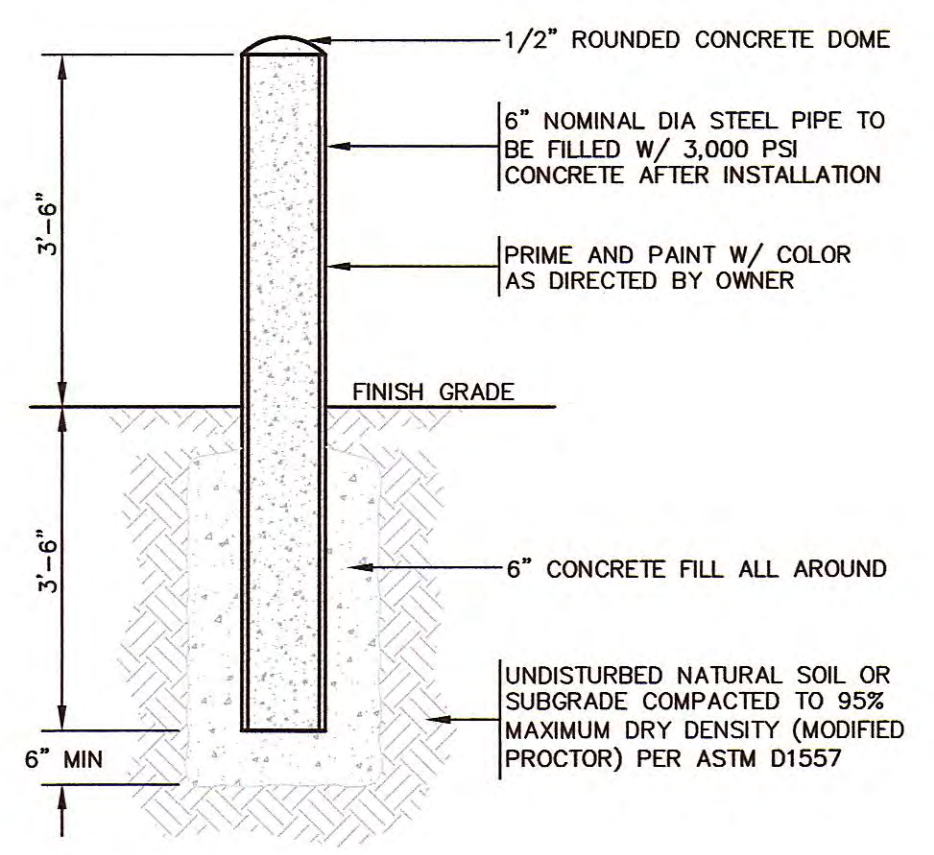
WATER PIPE CONNECTION
NOT TO SCALE



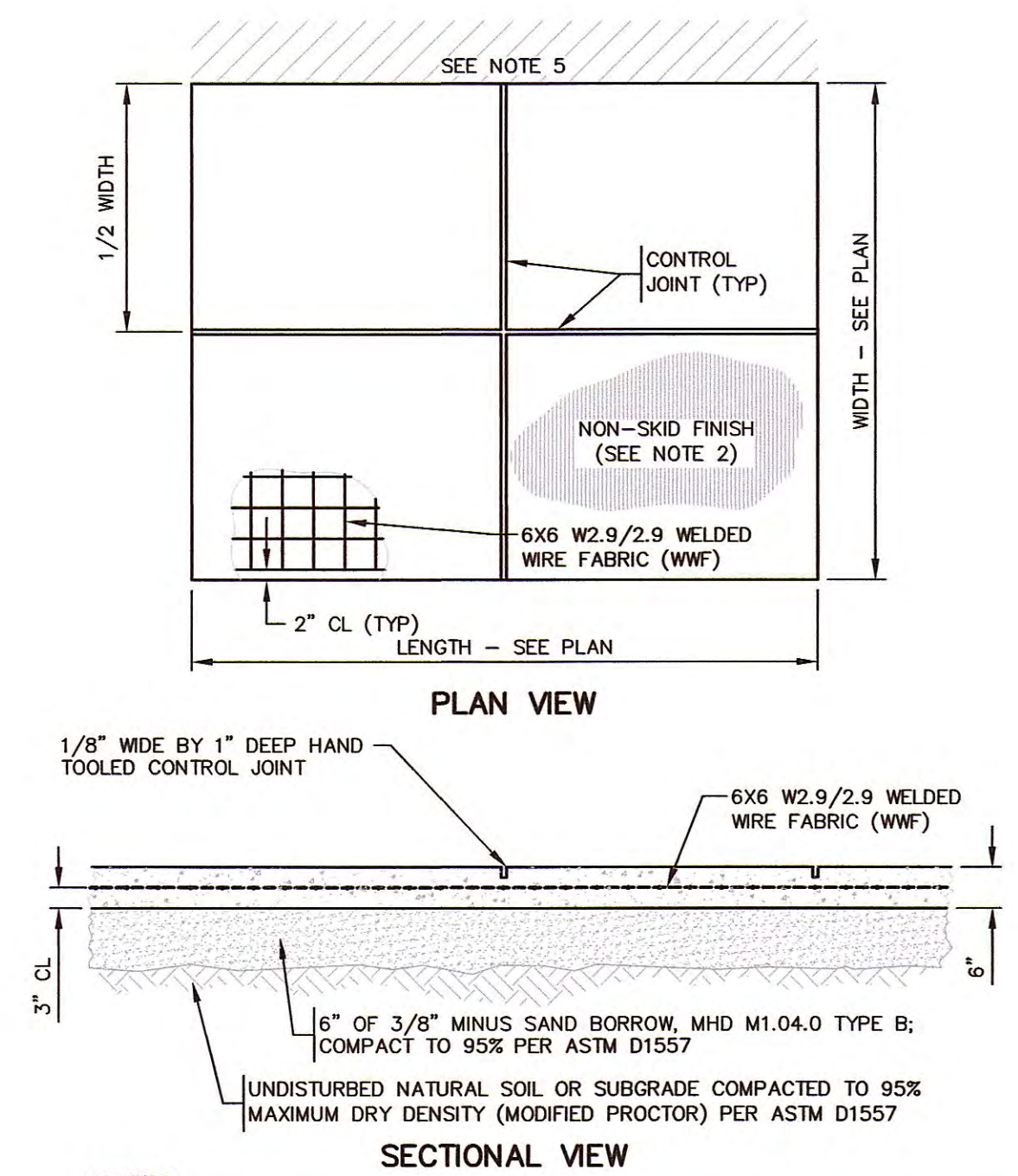
STOP SIGN
NOT TO SCALE



HANDICAP PARKING SIGN
NOT TO SCALE

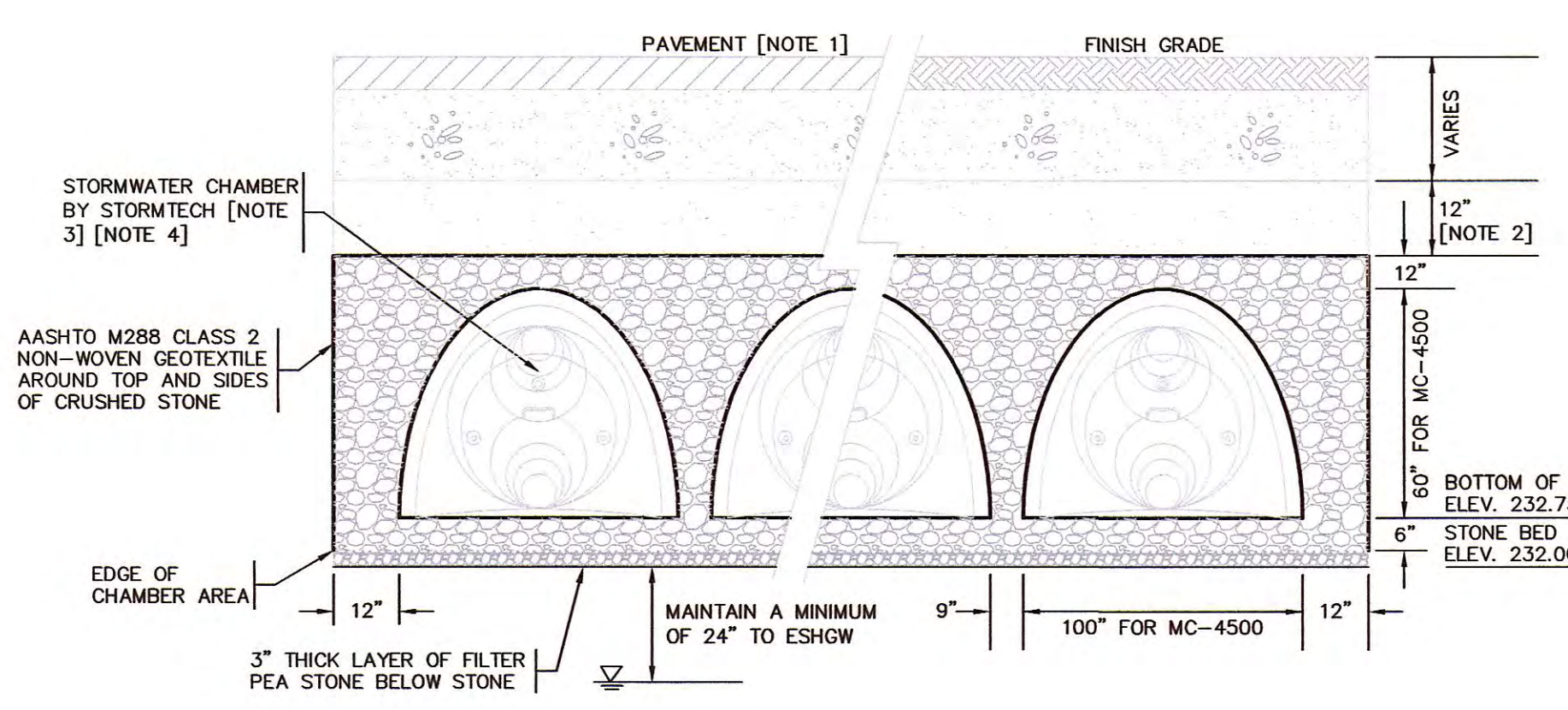


BOLLARD
TYPICAL CROSS SECTION
NOT TO SCALE



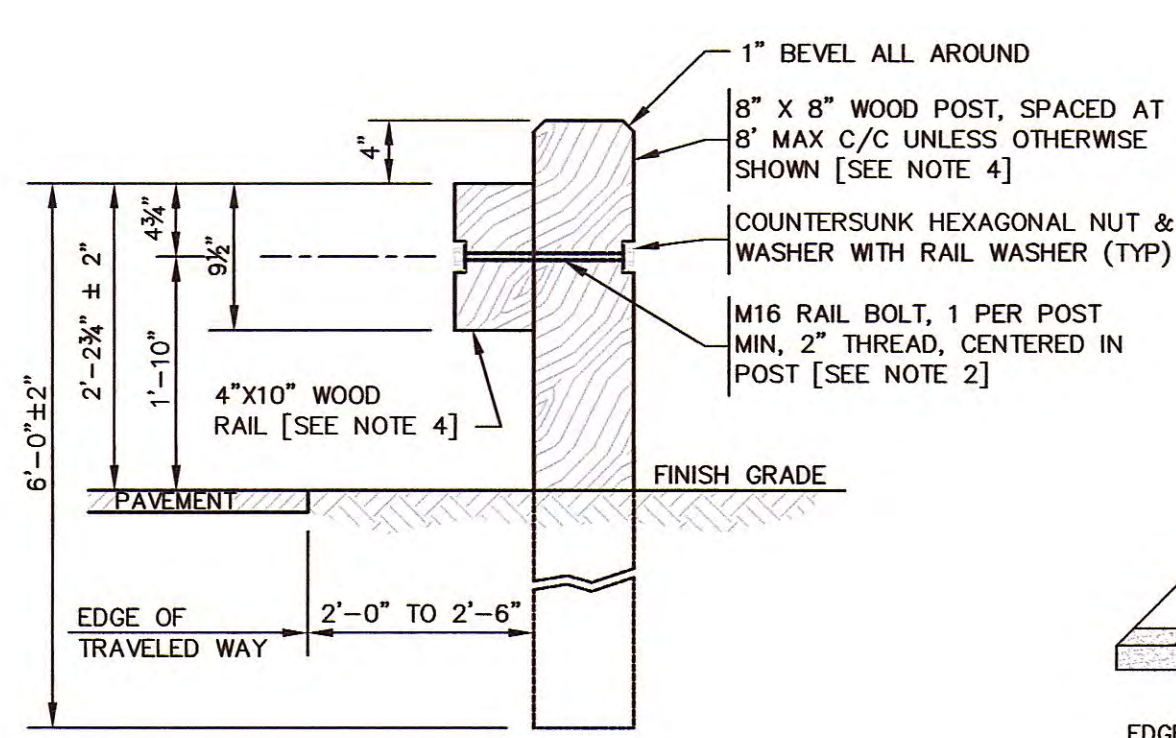
NOTES:
[1] CEMENT CONCRETE: 4000 PSI AT 28 DAYS W/ 3/8\"/>

CEMENT CONCRETE SLAB
NOT TO SCALE



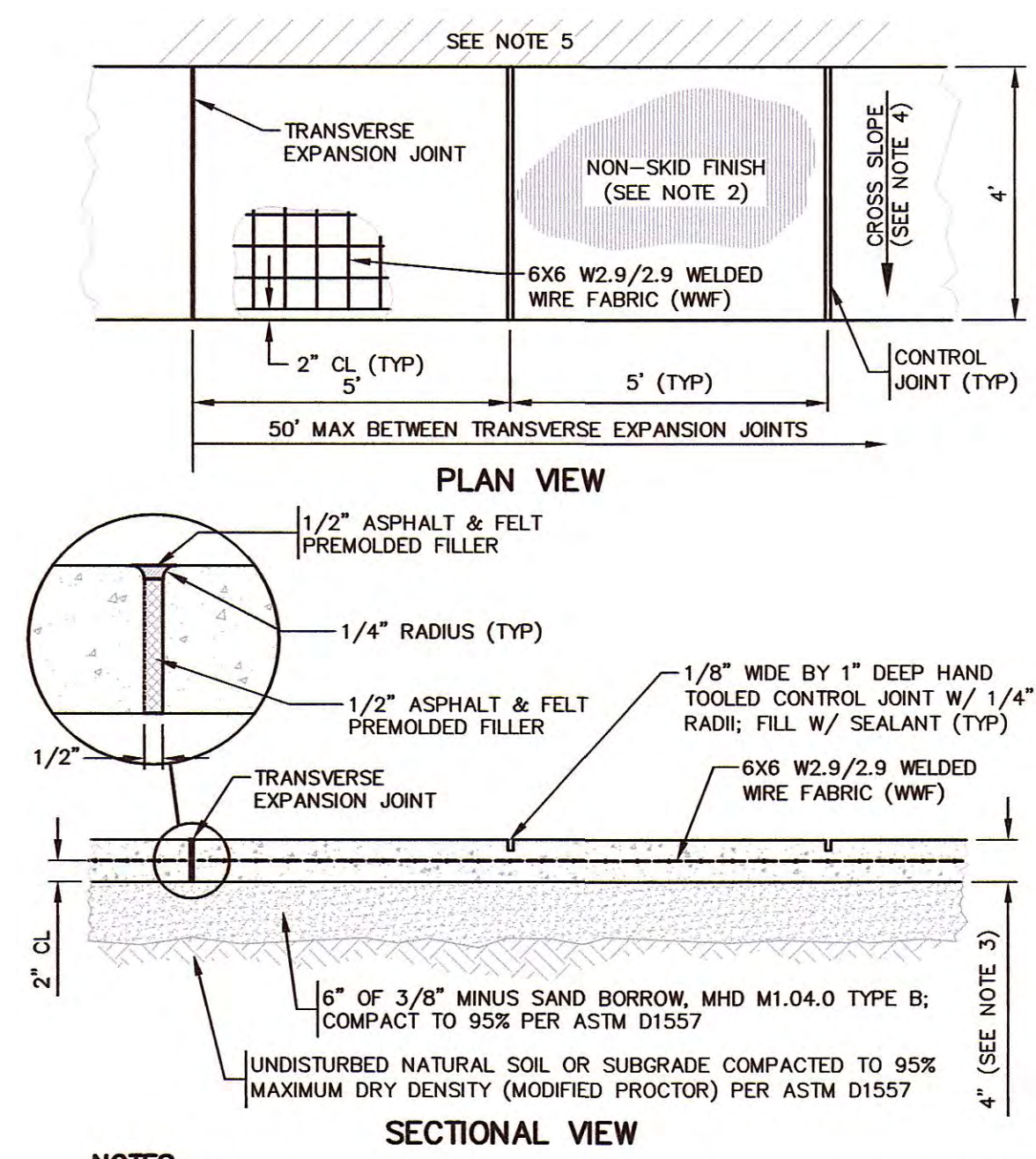
NOTES:
[1] SEE BITUMINOUS CONCRETE PAVEMENT DETAIL FOR MATERIALS AND SPECIFICATIONS
[2] GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES. COMPACT IN 6\"/>

PROFILE VIEW



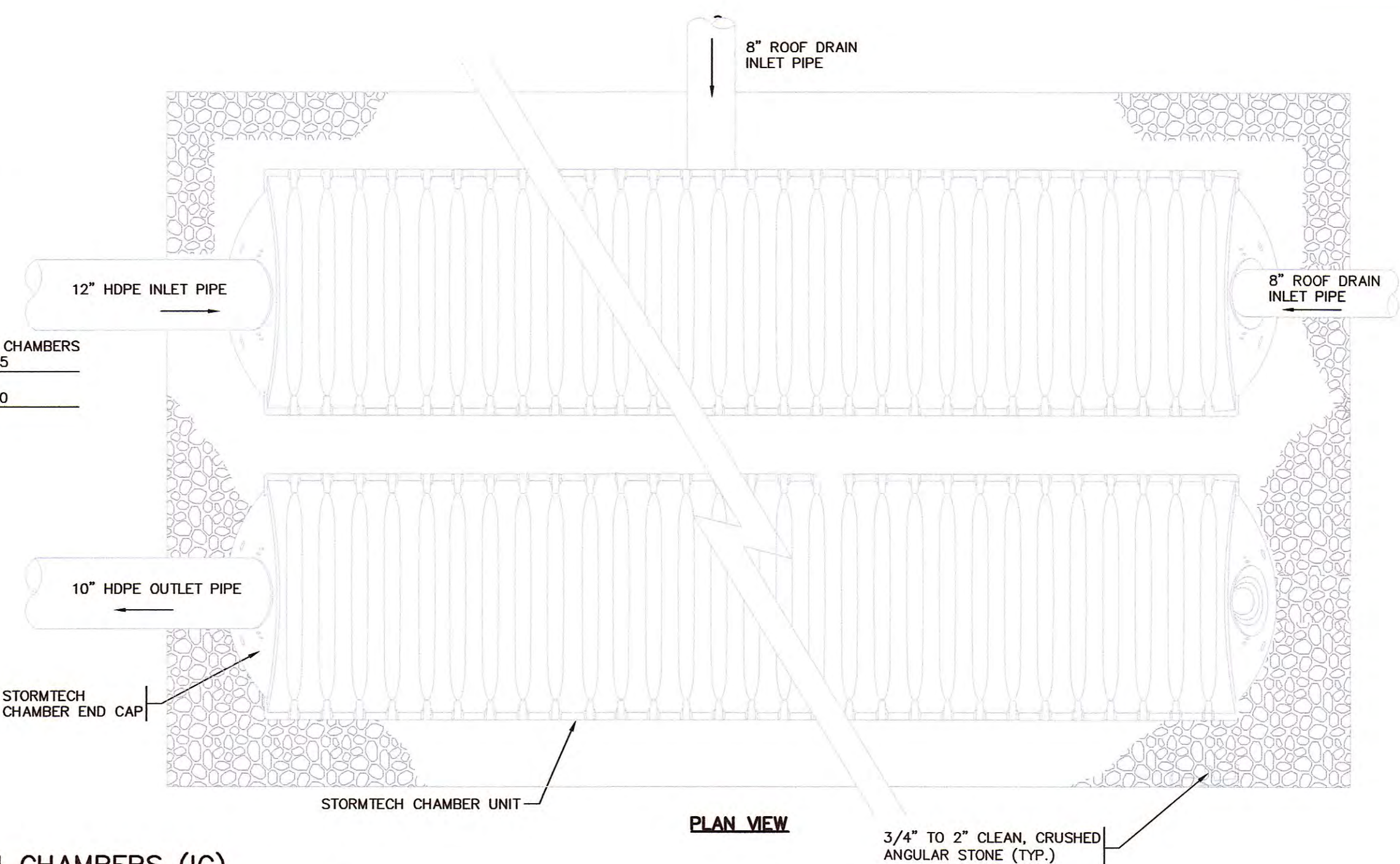
NOTES:
[1] ALL NUTS, BOLTS & WASHERS ARE TO BE HIGH STRENGTH GALVANIZED STEEL.
[2] ALL SPLICES ARE TO BE MADE AT POST. FOUR (4) BOLTS EACH SPLICE.
[3] BACK-UP PLATE IS TO BE PLACED BEHIND RAIL ELEMENTS AT NON SPLICE LOCATIONS (INTERMEDIATE POSTS).
[4] WOOD AND WOOD TREATMENT SHALL COMPLY WITH MASSACHUSETTS HIGHWAY DEPARTMENT SPECIFICATIONS AND STANDARDS.
[5] TERMINAL SECTIONS SHALL BE IN ACCORDANCE WITH MASSACHUSETTS HIGHWAY DEPARTMENT SPECIFICATIONS AND STANDARDS.

WOOD GUARDRAIL
TYPICAL CROSS SECTION
NOT TO SCALE

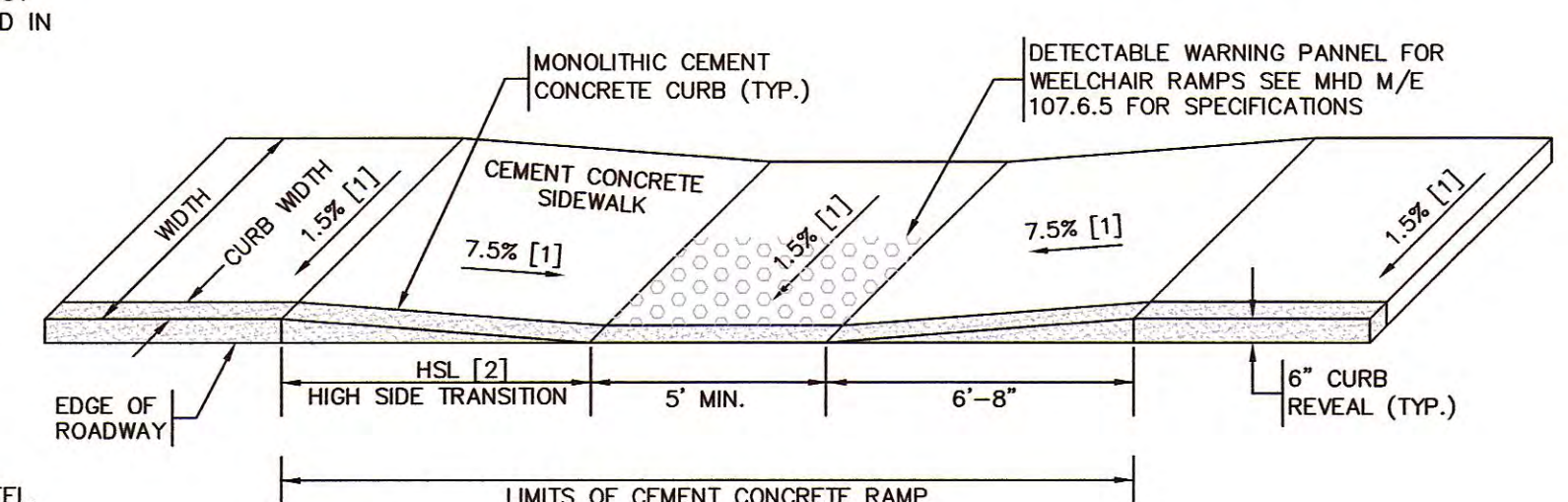


NOTES:
[1] CEMENT CONCRETE: 4000 PSI AT 28 DAYS W/ 3/8\"/>

CEMENT CONCRETE WALK
NOT TO SCALE

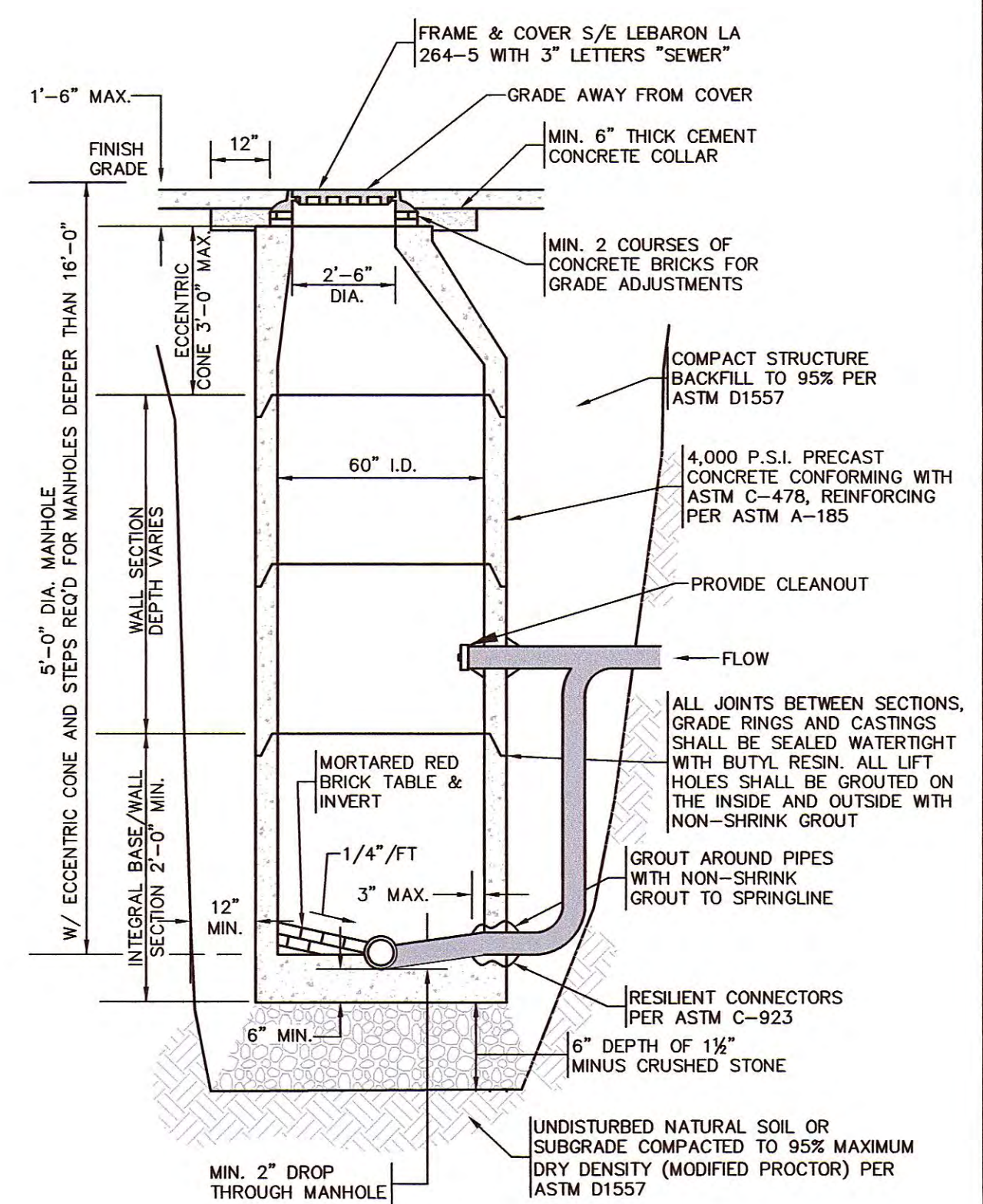


INFILTRATION CHAMBERS (IC)
TYPICAL CROSS SECTION
NOT TO SCALE



NOTES:
[1] TOLERANCE FOR CONSTRUCTION 0.5%
[2] HSL - HIGH SIDE TRANSITION LENGTH (SEE M/E 107.9.0)
[3] USAB - SIDEWALK WIDTH PER AAB = WIDTH - CURB WIDTH

HANDICAP ACCESSIBLE RAMP
TYPICAL PLAN VIEW
NOT TO SCALE



ECCENTRIC DROP SEWER MANHOLE
TYPICAL CROSS SECTION
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