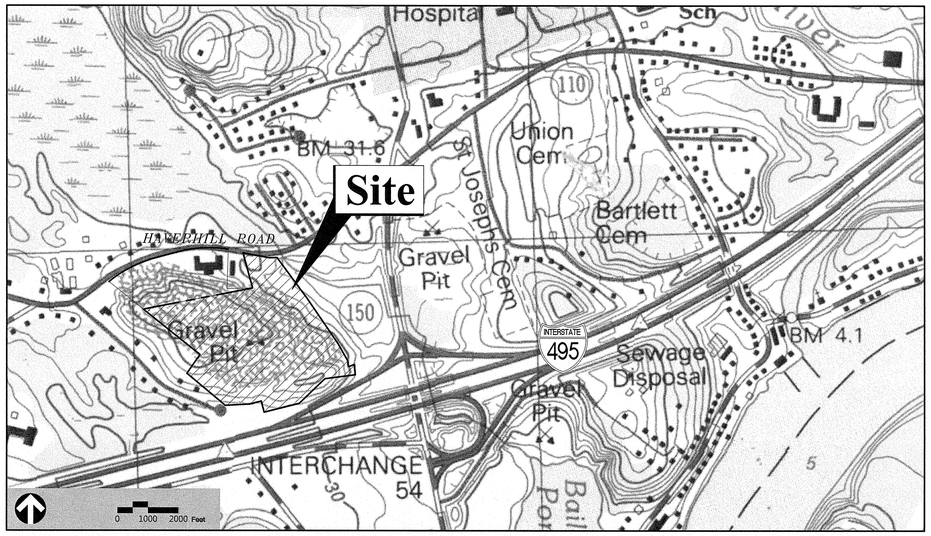
Site Plans

Issued for	40R - Final Approval
Date Issued	June 5, 2015
Latest Issue	June 5, 2015

Amesbury Heights

36 Haverhill Road
Amesbury, Massachusetts



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Assessor's Map: 86
Lot: 25 and 47

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Reference Drawings

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S-1	A Subdivision of Land	10/29/2007
	Plan of Land by Millenium Engineering, Inc.	6/25/2006
	Photometrics Plan	5/27/2015
	Haverhill Road Offsite Improvements (17 Sheets)	10/28/2014
	Architectural Plans	06/09/2015

APPROVED BY THE
AMESBURY PLANNING BOARD

_____ CHAIRMAN

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DATE: _____

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COMMONWEALTH OF MASSACHUSETTS
CONOR P. MAHONEY
REGISTERED PROFESSIONAL ENGINEER
6/5/15

VHB Project : 09407.03
Issued for : 40R - Final Approval June 5, 2015

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Legend

Exist.	Prop.	
		PROPERTY LINE
		PROJECT LIMIT LINE
		RIGHT-OF-WAY/PROPERTY LINE
		EASEMENT
		BUILDING SETBACK
10+00	10+00	BASELINE
		CONSTRUCTION LAYOUT
		ZONING LINE
		TOWN LINE
		LIMIT OF DISTURBANCE
		WETLAND LINE WITH FLAG
		FLOODPLAIN
BLSF		BORDERING LAND SUBJECT TO FLOODING
BZ		WETLAND BUFFER ZONE
NDZ		NO DISTURB ZONE
200'RA		200' RIVERFRONT AREA
		GRAVEL ROAD
EOP	EOP	EDGE OF PAVEMENT
BB	BB	BITUMINOUS BERM
BC	BC	BITUMINOUS CURB
CCB	CCB	CAPE COD BERM
CC	CC	CONCRETE CURB
	CG	CURB AND GUTTER
CC	ECC	EXTRUDED CONCRETE CURB
CC	MCC	MONOLITHIC CONCRETE CURB
CC	PCC	PRECAST CONC. CURB
SGE	SGE	SLOPED GRAN. EDGING
VGC	VGC	VERT. GRAN. CURB
		LIMIT OF CURB TYPE
		SAWCUT
		BUILDING
	EN	BUILDING ENTRANCE
	LD	LOADING DOCK
		BOLLARD
D	D	DUMPSTER PAD
		SIGN
		DOUBLE SIGN
		STEEL GUARDRAIL
		WOOD GUARDRAIL
		PATH
		TREE LINE
		WIRE FENCE
		FENCE
		STOCKADE FENCE
		STONE WALL
		RETAINING WALL
		STREAM / POND / WATER COURSE
		DETENTION BASIN
		HAY BALES
		SILT FENCE
4	4	MINOR CONTOUR
20	20	MAJOR CONTOUR
10	10	PARKING COUNT
	C10	COMPACT PARKING STALLS
DYL	DYL	DOUBLE YELLOW LINE
SL	SL	STOP LINE
		CROSSWALK
		ACCESSIBLE CURB RAMP
		ACCESSIBLE PARKING
VAN	VAN	VAN-ACCESSIBLE PARKING

Exist.	Prop.	
		CONCRETE
		HEAVY DUTY PAVEMENT
		RIPRAP
		CONSTRUCTION ENTRANCE
27.35 TC×	27.35 TC×	TOP OF CURB ELEVATION
26.85 BC×	26.85 BC×	BOTTOM OF CURB ELEVATION
132.75 ×	132.75 ×	SPOT ELEVATION
45.0 TW× 38.5 BW	45.0 TW× 38.5 BW	TOP & BOTTOM OF WALL ELEVATION
		BORING LOCATION
		TEST PIT LOCATION
MW	MW	MONITORING WELL
UD	UD	UNDERDRAIN
12"D	12"D	DRAIN
6"RD	6"RD	ROOF DRAIN
12"S	12"S	SEWER
FM	FM	FORCE MAIN
OHW	OHW	OVERHEAD WIRE
6"W	6"W	WATER
4"FP	4"FP	FIRE PROTECTION
	2"DW	DOMESTIC WATER
3"G	G	GAS
E	E	ELECTRIC
STM	STM	STEAM
T	T	TELEPHONE
FA	FA	FIRE ALARM
CATV	CATV	CABLE TV
		CATCH BASIN
		DOUBLE CATCH BASIN
		GUTTER INLET
D		DRAIN MANHOLE
TD		TRENCH DRAIN
		PLUG OR CAP
CO	CO	CLEANOUT
		FLARED END SECTION
		HEADWALL
S		SEWER MANHOLE
CS	CS	CURB STOP & BOX
WV	WV	WATER VALVE & BOX
TSV	TSV	TAPPING SLEEVE, VALVE & BOX
		SIAMESE CONNECTION
HYD	HYD	FIRE HYDRANT
WM	WM	WATER METER
PIV	PIV	POST INDICATOR VALVE
W	W	WATER WELL
GG	GG	GAS GATE
GM	GM	GAS METER
E	EMH	ELECTRIC MANHOLE
EM	EM	ELECTRIC METER
		LIGHT POLE
T	TMH	TELEPHONE MANHOLE
T	T	TRANSFORMER PAD
		UTILITY POLE
		GUY POLE
		GUY WIRE & ANCHOR
HH	HH	HAND HOLE
PB	PB	PULL BOX
Matchline		MATCHLINE

Abbreviations

General

ABAN	ABANDON
ACR	ACCESSIBLE CURB RAMP
ADJ	ADJUST
APPROX	APPROXIMATE
BIT	BITUMINOUS
BS	BOTTOM OF SLOPE
BWLL	BROKEN WHITE LANE LINE
CONC	CONCRETE
DYCL	DOUBLE YELLOW CENTER LINE
EL	ELEVATION
ELEV	ELEVATION
EXIST	EXISTING
FDN	FOUNDATION
FFE	FIRST FLOOR ELEVATION
GRAN	GRANITE
GTD	GRADE TO DRAIN
LA	LANDSCAPE AREA
LOD	LIMIT OF DISTURBANCE
MAX	MAXIMUM
MIN	MINIMUM
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
PERF	PERFORATED
PROP	PROPOSED
REM	REMOVE
RET	RETAIN
R&D	REMOVE AND DISPOSE
R&R	REMOVE AND RESET
SWEL	SOLID WHITE EDGE LINE
SWLL	SOLID WHITE LANE LINE
TS	TOP OF SLOPE
TYP	TYPICAL

Utility

CB	CATCH BASIN
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
DCB	DOUBLE CATCH BASIN
DMH	DRAIN MANHOLE
CIP	CAST IRON PIPE
COND	CONDUIT
DIP	DUCTILE IRON PIPE
FES	FLARED END SECTION
FM	FORCE MAIN
F&G	FRAME AND GRATE
F&C	FRAME AND COVER
GI	GUTTER INLET
GT	GREASE TRAP
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HH	HANDHOLE
HW	HEADWALL
HYD	HYDRANT
INV	INVERT ELEVATION
I=	INVERT ELEVATION
LP	LIGHT POLE
MES	METAL END SECTION
PWW	PAVED WATER WAY
PVC	POLYVINYLCHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
R=	RIM ELEVATION
SMH	SEWER MANHOLE
TSV	TAPPING SLEEVE, VALVE AND BOX
UG	UNDERGROUND
UP	UTILITY POLE

Notes:

General

1. CONTRACTOR SHALL NOTIFY "DIG-SAFE" (1-888-344-7233) AT LEAST 72 HOURS BEFORE EXCAVATING.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.
3. ACCESSIBLE ROUTES, PARKING SPACES, RAMPS, SIDEWALKS AND WALKWAYS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE FEDERAL AMERICANS WITH DISABILITIES ACT AND WITH STATE AND LOCAL LAWS AND REGULATIONS (WHICHEVER ARE MORE STRINGENT).
4. AREAS DISTURBED DURING CONSTRUCTION AND NOT RESTORED WITH IMPERVIOUS SURFACES (BUILDINGS, PAVEMENTS, WALKS, ETC.) SHALL RECEIVE SIX INCHES OF LOAM AND SEED.
5. WITHIN THE LIMITS OF THE BUILDING FOOTPRINT, THE SITE CONTRACTOR SHALL PERFORM EARTHWORK OPERATIONS REQUIRED UP TO SUBGRADE ELEVATIONS.
6. WORK WITHIN THE LOCAL RIGHTS-OF-WAY SHALL CONFORM TO LOCAL MUNICIPAL STANDARDS. WORK WITHIN STATE RIGHTS-OF-WAY SHALL CONFORM TO THE LATEST EDITION OF THE STATE HIGHWAY DEPARTMENTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
7. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND IN THE CONTRACT DOCUMENTS. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALKS, AND FIRE HYDRANTS, WITHOUT APPROPRIATE PERMITS.
8. TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
9. 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.
10. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
11. CONTRACTOR SHALL PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS.
12. DAMAGE RESULTING FROM CONSTRUCTION LOADS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
13. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO OFF SITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO OWNER.
14. THIS PROJECT DISTURBS MORE THAN ONE ACRE OF LAND AND FALLS WITHIN THE NPDES CONSTRUCTION GENERAL PERMIT (CGP) PROGRAM AND EPA JURISDICTION. PRIOR TO THE START OF CONSTRUCTION CONTRACTOR IS TO FILE A CGP NOTICE OF INTENT WITH THE EPA AND PREPARE A STORMWATER POLLUTION PREVENTION PLAN IN ACCORDANCE WITH THE NPDES REGULATIONS. CONTRACTOR SHALL CONFIRM THE OWNER HAS ALSO FILED A NOTICE OF INTENT WITH THE EPA.

Utilities

1. THE LOCATIONS, SIZES, AND TYPES OF EXISTING UTILITIES ARE SHOWN AS AN APPROXIMATE REPRESENTATION ONLY. THE OWNER OR IT'S REPRESENTATIVE(S) HAVE NOT INDEPENDENTLY VERIFIED THIS INFORMATION AS SHOWN ON THE PLANS. THE UTILITY INFORMATION SHOWN DOES NOT GUARANTEE THE ACTUAL EXISTENCE, SERVICEABILITY, OR OTHER DATA CONCERNING THE UTILITIES, NOR DOES IT GUARANTEE AGAINST THE POSSIBILITY THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE PLANS. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND DETERMINE THE EXACT LOCATIONS, SIZES, AND ELEVATIONS OF THE POINTS OF CONNECTIONS TO EXISTING UTILITIES AND, SHALL CONFIRM THAT THERE ARE NO INTERFERENCES WITH EXISTING UTILITIES AND THE PROPOSED UTILITY ROUTES, INCLUDING ROUTES WITHIN THE PUBLIC RIGHTS OF WAY.
2. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, OR EXISTING CONDITIONS DIFFER FROM THOSE SHOWN SUCH THAT THE WORK CANNOT BE COMPLETED AS INTENDED, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE OWNER'S REPRESENTATIVE FOR THE RESOLUTION OF THE CONFLICT AND CONTRACTOR'S FAILURE TO NOTIFY PRIOR TO PERFORMING ADDITIONAL WORK RELEASES OWNER FROM OBLIGATIONS FOR ADDITIONAL PAYMENTS WHICH OTHERWISE MAY BE WARRANTED TO RESOLVE THE CONFLICT.
3. SET CATCH BASIN RIMS, AND INVERTS OF SEWERS, DRAINS, AND DITCHES IN ACCORDANCE WITH ELEVATIONS ON THE GRADING AND UTILITY PLANS.
4. RIM ELEVATIONS FOR DRAIN AND SEWER MANHOLES, WATER VALVE COVERS, GAS GATES, ELECTRIC AND TELEPHONE PULL BOXES, AND MANHOLES, AND OTHER SUCH ITEMS, ARE APPROXIMATE AND SHALL BE SET/RESET AS FOLLOWS:

   A. PAVEMENTS AND CONCRETE SURFACES: FLUSH

   B. ALL SURFACES ALONG ACCESSIBLE ROUTES: FLUSH

   C. LANDSCAPE, LOAM AND SEED, AND OTHER EARTH SURFACE AREAS: ONE INCH ABOVE SURROUNDING AREA AND TAPER EARTH TO THE RIM ELEVATION UNLESS OTHERWISE NOTED.
5. THE LOCATION, SIZE, DEPTH, AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY, THE RESPECTIVE UTILITY COMPANY (GAS, TELEPHONE, ELECTRIC, FIRE ALARM, ETC.). FINAL DESIGN LOADS AND LOCATIONS TO BE COORDINATED WITH OWNER AND ARCHITECT.
6. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR AND SHALL BE RESPONSIBLE FOR PAYING FEES FOR POLE RELOCATION AND FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, FIRE ALARM, AND ANY OTHER PRIVATE UTILITIES, WHETHER WORK IS PERFORMED BY CONTRACTOR OR BY THE UTILITIES COMPANY.
7. UTILITY PIPE MATERIALS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED ON THE PLAN:

   A. WATER PIPES SHALL BE CEMENT LINED DUCTILE IRON (DIP), CLASS 52

   B. SANITARY SEWER PIPES SHALL BE POLYVINYL CHLORIDE (PVC SDR 35) SEWER PIPE
   NOTE: PIPING WITHIN 10 FT OF BUILDING SHALL COMPLY WITH STATE BUILDING CODE

   C. STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) PIPE

   D. PIPE INSTALLATION AND MATERIALS SHALL COMPLY WITH THE STATE PLUMBING CODE WHERE APPLICABLE. CONTRACTOR SHALL COORDINATE WITH LOCAL PLUMBING INSPECTOR PRIOR TO BEGINNING WORK.
8. CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR AND SHALL FURNISH EXCAVATION, INSTALLATION, AND BACKFILL OF ELECTRICAL FURNISHED SITEWORK RELATED ITEMS SUCH AS PULL BOXES, CONDUITS, DUCT BANKS, LIGHT POLE BASES, AND CONCRETE PADS. SITE CONTRACTOR SHALL FURNISH CONCRETE ENCASEMENT OF DUCT BANKS IF REQUIRED BY THE UTILITY COMPANY AND AS INDICATED ON THE DRAWINGS.
9. CONTRACTOR SHALL EXCAVATE AND BACKFILL TRENCHES FOR GAS IN ACCORDANCE WITH GAS COMPANY'S REQUIREMENTS.
10. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN.) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS AND LOCAL MUNICIPAL STANDARDS. FOR MANHOLES THAT ARE 20 FEET IN DEPTH AND GREATER, THE MINIMUM DIAMETER SHALL BE 5 FEET.

Layout and Materials

1. DIMENSIONS ARE FROM THE FACE OF CURB, FACE OF BUILDING, FACE OF WALL, AND CENTER LINE OF PAVEMENT MARKINGS, UNLESS OTHERWISE NOTED.
2. CURB RADII ARE THREE (3) FEET UNLESS OTHERWISE NOTED.
3. CURBING SHALL BE INDICATED ON THE PLANS.
4. SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND DETAILS CONTIGUOUS TO THE BUILDING, INCLUDING SIDEWALKS, RAMPS, BUILDING ENTRANCES, STAIRWAYS, UTILITY PENETRATIONS, CONCRETE DOOR PADS, COMPACTOR PAD, LOADING DOCKS, BOLLARDS, ETC.
5. PROPOSED BOUNDS AND ANY EXISTING PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE SET OR RESET BY A PROFESSIONAL LICENSED SURVEYOR.
6. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL VERIFY EXISTING PAVEMENT ELEVATIONS AT INTERFACE WITH PROPOSED PAVEMENTS, AND EXISTING GROUND ELEVATIONS ADJACENT TO DRAINAGE OUTLETS TO ASSURE PROPER TRANSITIONS BETWEEN EXISTING AND PROPOSED FACILITIES.
7. SYMBOLS AND LEGENDS OF PROJECT FEATURES ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SCALED TO THEIR ACTUAL DIMENSIONS OR LOCATIONS ON THE DRAWINGS. THE CONTRACTOR SHALL REFER TO THE DETAIL SHEET DIMENSIONS, MANUFACTURERS' LITERATURE, SHOP DRAWINGS AND FIELD MEASUREMENTS OF SUPPLIED PRODUCTS FOR LAYOUT OF THE PROJECT FEATURES.
8. CONTRACTOR SHALL NOT RELY SOLELY ON ELECTRONIC VERSIONS OF PLANS, SPECIFICATIONS, AND DATA FILES THAT ARE OBTAINED FROM THE DESIGNERS, BUT SHALL VERIFY LOCATION OF PROJECT FEATURES IN ACCORDANCE WITH THE PAPER COPIES OF THE PLANS AND SPECIFICATIONS THAT ARE SUPPLIED AS PART OF THE CONTRACT DOCUMENTS.

Demolition

1. CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMIT OF WORK INCLUDING BUILDINGS, STRUCTURES, PAVEMENTS, SLABS, CURBING, FENCES, UTILITY POLES, SIGNS, ETC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS AND UNSUITABLE MATERIAL BENEATH AND FOR A DISTANCE OF 10 FEET BEYOND THE PROPOSED BUILDING FOOTPRINT INCLUDING EXTERIOR COLUMNS.
2. EXISTING UTILITIES SHALL BE TERMINATED, UNLESS OTHERWISE NOTED, IN CONFORMANCE WITH LOCAL, STATE AND INDIVIDUAL UTILITY COMPANY STANDARD SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES.
3. CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.
4. THE DEMOLITION LIMITS DEPICTED IN THE PLANS IS INTENDED TO AID THE CONTRACTOR DURING THE BIDDING AND CONSTRUCTION PROCESS AND IS NOT INTENDED TO DEPICT EACH AND EVERY ELEMENT OF DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE DETAILED SCOPE OF DEMOLITION BEFORE SUBMITTING ITS BID/PROPOSAL TO PERFORM THE WORK AND SHALL MAKE NO CLAIMS AND SEEK NO ADDITIONAL COMPENSATION FOR CHANGED CONDITIONS OR UNFORESEEN OR LATENT SITE CONDITIONS RELATED TO ANY CONDITIONS DISCOVERED DURING EXECUTION OF THE WORK.
5. UNLESS OTHERWISE SPECIFICALLY PROVIDED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER HAS NOT PREPARED DESIGNS FOR AND SHALL HAVE NO RESPONSIBILITY FOR THE PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF HAZARDOUS MATERIALS, TOXIC WASTES OR POLLUTANTS AT THE PROJECT SITE. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY CLAIMS OF LOSS, DAMAGE, EXPENSE, DELAY, INJURY OR DEATH ARISING FROM THE PRESENCE OF HAZARDOUS MATERIAL AND CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER FROM ANY CLAIMS MADE IN CONNECTION THEREWITH. MOREOVER, THE ENGINEER SHALL HAVE NO ADMINISTRATIVE OBLIGATIONS OF ANY TYPE WITH REGARD TO ANY CONTRACTOR AMENDMENT INVOLVING THE ISSUES OF PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF ASBESTOS OR OTHER HAZARDOUS MATERIALS.

Erosion Control

1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES ON A WEEKLY BASIS (MINIMUM) OR AS REQUIRED PER THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). THE CONTRACTOR SHALL ADDRESS DEFICIENCIES AND MAINTENANCE ITEMS WITHIN TWENTY-FOUR HOURS OF INSPECTION. CONTRACTOR SHALL PROPERLY DISPOSE OF SEDIMENT SUCH THAT IT DOES NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
3. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
4. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.

Existing Conditions Information

1. EXISTING CONDITIONS SHOWN HEREON TAKEN FROM PLAN ENTITLED "PLAN OF LAND" BY MILLENNIUM ENGINEERING INC.

   A. DELINEATION OF THE WETLANDS AND PLACEMENT OF THE FLAGS WAS PERFORMED BY: WETLAND PRESERVATION, INC.
2. TOPOGRAPHY: ELEVATIONS ARE BASED ON NGVD 1929 DATUM.
3. GEOTECHNICAL DATA INCLUDING TEST PIT AND BORING LOCATIONS AND ELEVATIONS WERE OBTAINED FROM MCARDLE-GANNON ASSOCIATES, INC. IN JANUARY 2006.

Document Use

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Permit Note

1. THIS PROJECT IS THE SUBJECT OF A PLANNING BOARD SITE PLAN APPROVAL.
2. THIS PROJECT IS THE SUBJECT OF ORDER OF CONDITIONS DEP FILE NUMBER 002-0936.

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vhb

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APPROVED BY THE
AMESBURY PLANNING BOARD

CHAIRMAN

DATE:

Amesbury Heights

36 Haverhill Road
Amesbury, Massachusetts

No.	Revision	Date	Appvd.

Designed by CPN — Checked by KSS

Issued for: 40R - Final Approval — Date: June 5, 2015

Not Approved for Construction

Drawing Title: **Legend and General Notes**

Drawing Number: **C-1**

Sheet 1 of 26

Project Number: 09407.03

COMMONWEALTH OF MASSACHUSETTS — CONOR P. NAGLE — CIVIL — No. 463.. — REGISTERED PROFESSIONAL ENGINEER

6/5/15

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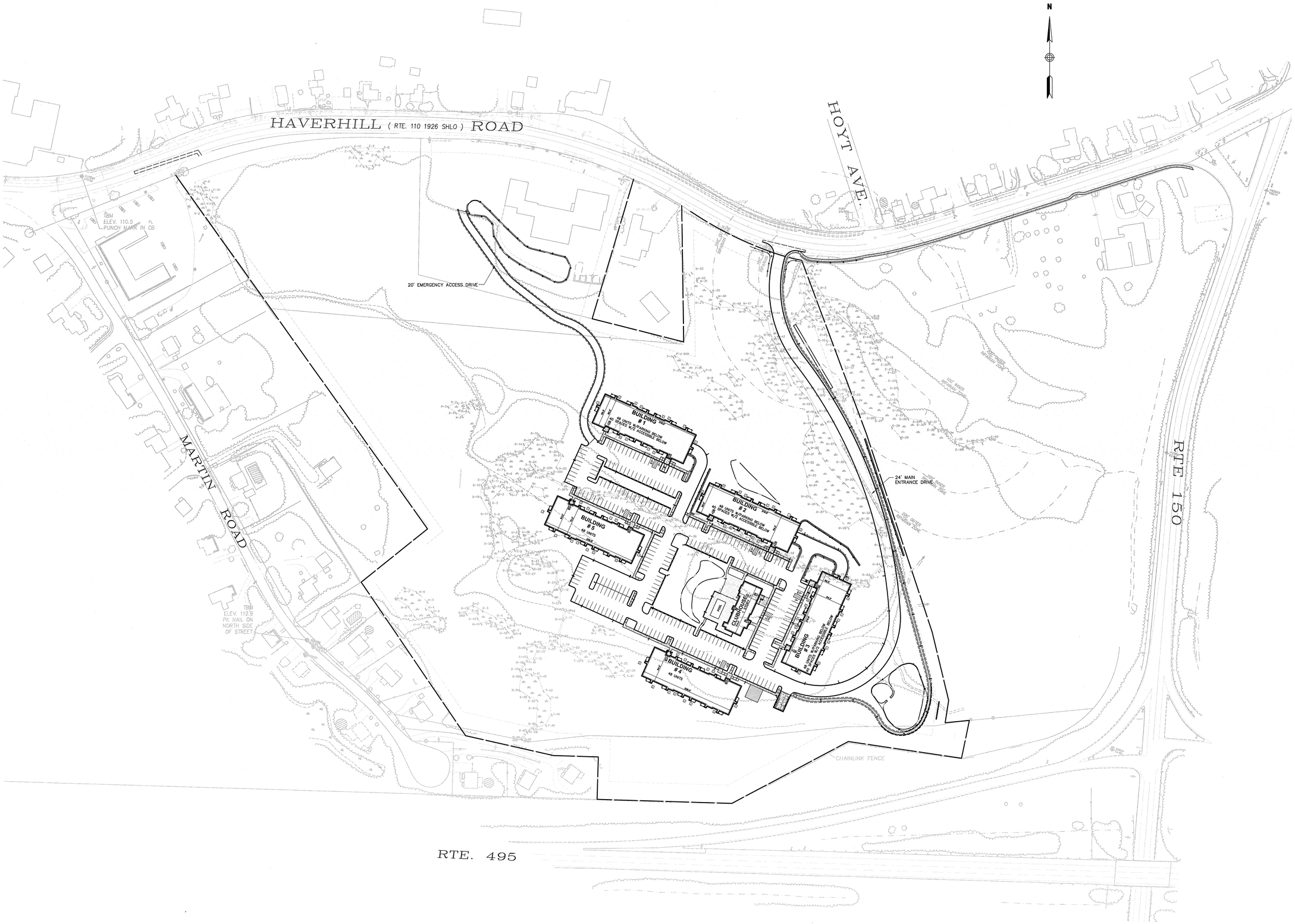

APPROVED BY THE
AMESBURY PLANNING BOARD

CHAIRMAN

DATE:

Amesbury Heights

36 Haverhill Road
Amesbury, Massachusetts

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Drawing Title: Overall Site Plan

Drawing Number: C-2

Sheet 2 of 26

Project Number: 09407.03

COMMONWEALTH OF MASSACHUSETTS
CONNOR PAUL NAGLE
No. 46320
REGISTERED PROFESSIONAL ENGINEER

Saved Monday, June 08, 2015 2:57:20 PM PMITCHKO Plotted Monday, June 08, 2015 3:10:42 PM Solomon, Talia

Site S&E Narrative:

THE PROPOSED PROJECT CONSISTS OF CONSTRUCTING 240 APARTMENTS IN FIVE BUILDINGS, WITH A CLUBHOUSE AND ASSOCIATED PARKING AND AMENTITIES. THE APPROXIMATELY 34 ACRE SITE WILL BE DEVELOPED AS A SINGLE PHASE PROJECT. THE PROJECT DISTURBANCE EXCEEDS 1 ACRE THEREFORE IS SUBJECT TO THE REQUIREMENTS OF THE EPA CONSTRUCTION GENERAL PERMIT.
TO CONTROL EROSION/SEDIMENT DURING EARTH FILLING OPERATIONS, THE CONTRACTOR SHALL EMPLOY TECHNIQUES OUTLINED IN THE CONSTRUCTION SEQUENCE AND EROSION CONTROL NOTES TO ENSURE THAT EROSION DOES NOT OCCUR AND THAT SEDIMENT IS NOT TRANSPORTED OFF.
THE EROSION AND SEDIMENTATION CONTROLS SHALL BE EMPLOYED BY THE CONTRACTOR DURING THE EARTHWORK AND CONSTRUCTION PHASES OF THE PROJECT IN ACCORDANCE WITH THE ORDER OF CONDITIONS ISSUED FOR THIS PROJECT (DEP #002-0939) AND THE CITY OF AMESBURY REQUIREMENTS.
REFER TO THE STORMWATER MANAGEMENT REPORT FOR MORE INFORMATION.

Temporary Erosion and Sedimentation Control Maintenance (throughout construction)

THE SITE CONTRACTOR WILL BE RESPONSIBLE FOR IMPLEMENTING EACH CONTROL SHOWN ON THE SOIL EROSION & SEDIMENT CONTROL PLAN.

THE SITE CONTRACTOR WILL INSPECT ALL SEDIMENT AND EROSION CONTROL STRUCTURES PERIODICALLY AND AFTER EACH RAINFALL EVENT. RECORDS OF THE INSPECTIONS WILL BE PREPARED AND MAINTAINED ON-SITE BY THE CONTRACTOR.

SILT SHALL BE REMOVED FROM BEHIND BARRIERS IF GREATER THAN 6-INCHES DEEP OR AS NEEDED.

DAMAGED OR DETERIORATED ITEMS WILL BE REPAIRED IMMEDIATELY AFTER IDENTIFICATION.

SEDIMENT THAT IS COLLECTED IN STRUCTURES SHALL BE DISPOSED OF PROPERLY AND COVERED IF STORED ON-SITE.

EROSION CONTROL STRUCTURES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED EARTH HAS BEEN SECURELY STABILIZED. AFTER REMOVAL OF STRUCTURES, DISTURBED AREAS SHALL BE REGRADED AND STABILIZED AS SOON AS PRACTICAL.

MAINTAIN THE CONSTRUCTION ENTRANCE IN A CONDITION WHICH WILL PREVENT TRACKING AND WASHING OF SEDIMENTS ONTO PAVED SURFACES.

ALL E&S CONTROL MEASURES WILL BE INSPECTED WEEKLY AND AFTER RAINFALL OF 0.5 INCHES IN 24 HOURS.

Construction Sequence

1. THE SITE CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT ROADS/HIGHWAYS AND THEIR DRAINAGE SYSTEM, NEIGHBORING PROPERTIES, AND REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT. PRIOR TO CONSTRUCTION, THE APPLICANT SHALL PROVIDE THE TOWN OF AMESBURY WITH THE NAME OF CONTACT AND 24 HOUR CONTACT INFORMATION.
2. CONTRACTOR SHALL ADHERE TO MASSACHUSETTS GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
4. ATLEAST 5 DAYS PRIOR TO INITAL SITE WORK, A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD WITH THE APPLICANT, APPLICANTS CONTRACTOR, A REPRESENTATIVE OF THE BOARD, ITS CONSULTING ENGINEER, AND THE REPRESENTATIVES OF THE CITY DEPARTMENTS HAVING AN INTEREST IN THE PLAN. (REMEMBER TO CALL BEFORE YOU DIG 1-800-922-4455).
5. INSTALL STABILIZED VEHICLE CONSTRUCTION ENTRANCE/EXIT.
6. PRIOR TO INSTALLING SURFACE WATER CONTROLS SUCH AS TEMPORARY DIVERSION SWALES, INSPECT EXISTING CONDITIONS TO ENSURE DISCHARGE LOCATIONS ARE STABLE. IF NOT STABLE, REVIEW DISCHARGE CONDITIONS WITH THE DESIGN ENGINEER AND IMPLEMENT ADDITIONAL STABILIZATION MEASURES PRIOR TO INSTALLING SURFACE WATER CONTROLS.
7. INSTALL EROSION AND SEDIMENT CONTROLS IN ACCORDANCE WITH THE E&S PLAN FOR THE SITE INCLUDING SILT FENCE/HAY BALE BARRIERS, SILT SACKS, SLOPE STABILIZATION MATTING, RIPRAP CHECK DAMS AND STABILIZED CONSTRUCTION EXITS.
8. SITE PREPARATION.
9. ESTABLISH ROUGH GRADE ON THE SITE.
10. APPLY SLOPE STABILIZATION MATTING IN AREAS EXCEEDING 3:1 SLOPES.
11. CONSTRUCT BUILDING AND UNDERGROUND UTILITIES. INSTALL SILT SACK SEDIMENT TRAPS IN ALL NEW CATCH BASINS.
12. INSTALL PAVEMENT BASE & FIRST COURSE OF BITUMINOUS CONCRETE.
13. INSTALL LANDSCAPING & LOAM AND SEED ALL DISTURBED AREAS.
14. AFTER SITE IS STABILIZED REMOVE TEMPORARY EROSION AND SEDIMENT CONTROLS.
15. LOAM AND SEED ALL DISTURBED AREAS.
16. WHEN ALL OTHER WORK HAS BEEN COMPLETED, REPAIR AND SWEEP ALL PAVED AREAS FOR THE FINAL COURSE OF PAVING. INSPECT THE DRAINAGE SYSTEM AND CLEAN AS NEEDED.
17. INSTALL FINAL COURSE OF PAVEMENT.

Erosion and Sedimentation Control Techniques

THE FOLLOWING EROSION AND SEDIMENTATION CONTROLS SHALL BE EMPLOYED BY THE CONTRACTOR DURING THE EARTHWORK AND CONSTRUCTION PHASES OF THE PROJECT:

CATCH BASIN PROTECTION
NEWLY CONSTRUCTED AND EXISTING CATCH BASINS WILL BE PROTECTED WITH SILT SACKS THROUGHOUT CONSTRUCTION.

GRAVEL AND CONSTRUCTION ENTRANCE/EXIT
A TEMPORARY CRUSHED-STONE CONSTRUCTION ENTRANCE/EXIT WILL BE CONSTRUCTED. A CROSS SLOPE WILL BE PLACED IN THE ENTRANCE TO DIRECT RUNOFF TO THE SEDIMENT TRAP.

VEGETATIVE SLOPE STABILIZATION
STABILIZATION OF OPEN SOIL SURFACES WILL BE IMPLEMENTED WITHIN 14 DAYS AFTER GRADING OR CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, UNLESS THERE IS SUFFICIENT SNOW COVER TO PROHIBIT IMPLEMENTATION. VEGETATIVE SLOPE STABILIZATION WILL BE USED TO MINIMIZE EROSION ON SLOPES OF 3:1 OR FLATTER. ANNUAL GRASSES, SUCH AS ANNUAL RYE, WILL BE USED TO ENSURE RAPID GERMINATION AND PRODUCTION OF ROOTMASS. PERMANENT STABILIZATION WILL BE COMPLETED WITH THE PLANTING OF PERENNIAL GRASSES OR LEGUMES. ESTABLISHMENT OF TEMPORARY AND PERMANENT VEGETATIVE COVER MAY BE ESTABLISHED BY HYDRO-SEEDING OR SODDING. A SUITABLE TOPSOIL, GOOD SEEDBED PREPARATION, AND ADEQUATE LIME, FERTILIZER AND WATER WILL BE PROVIDED FOR EFFECTIVE ESTABLISHMENT OF THESE VEGETATIVE STABILIZATION METHODS. MULCH WILL ALSO BE USED AFTER PERMANENT SEEDING TO PROTECT SOIL FROM THE IMPACT OF FALLING RAIN AND TO INCREASE THE CAPACITY OF THE SOIL TO ABSORB WATER.

TEMPORARY SEDIMENT BASINS
TEMPORARY SEDIMENT BASINS WILL BE DESIGNED EITHER AS EXCAVATIONS OR BERMED STORMWATER DETENTION STRUCTURES (DEPENDING ON GRADING) THAT WILL RETAIN RUNOFF FOR A SUFFICIENT PERIOD OF TIME TO ALLOW SUSPENDED SOIL PARTICLES TO SETTLE OUT PRIOR TO DISCHARGE. THESE TEMPORARY BASINS WILL BE LOCATED BASED ON CONSTRUCTION NEEDS AS DETERMINED BY THE CONTRACTOR AND OUTLET DEVICES WILL BE DESIGNED TO CONTROL VELOCITY AND SEDIMENT. POINTS OF DISCHARGE FROM SEDIMENT BASINS WILL BE STABILIZED TO MINIMIZE EROSION.

STOCKPILE MANAGEMENT
SIDESLOPES OF STOCKPILED MATERIAL SHALL BE NO STEEPER THAN 2:1. STOCKPILES NOT USED WITHIN 30 DAYS NEED TO BE SEEDED AND MULCHED IMMEDIATELY AFTER FORMATION OF THE STOCKPILE. HAYBALES AND SILT FENCE ARE TO BE PLACED AROUND THE STOCKPILE AREA APPROXIMATELY 10 FEET FROM THE TOW OF SLOPE.

DUST CONTROL
PERIODICALLY MOISTEN EXPOSED SURFACES ON UNPAVED TRAVELWAYS TO KEEP THE TRAVELWAY DAMP AND REDUCE DUST.

Post Construction Stormwater Management

THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ENSURING THAT STORMWATER MANAGEMENT SYSTEMS BE INSPECTED AND MAINTAINED. THE FOLLOWING PLAN COMPONENTS SHALL BE ADHERED TO:

SOURCE CONTROL
A COMPREHENSIVE SOURCE CONTROL PROGRAM WILL BE IMPLEMENTED AT THE SITE, WHICH INCLUDES REGULAR PAVEMENT SWEEPING AT A MINIMUM 2 TIMES PER YEAR, CATCH BASIN CLEANING, AND MAINTENANCE AND CLEARING OF LITTER FROM PARKING AREAS AND PERIMETER LANDSCAPED AREAS. CLEAN ALL CATCH BASINS AND STRUCTURES TWICE ANNUALLY TO REMOVE ACCUMULATED SAND, SEDIMENT, AND FLOATABLE PRODUCTS OR AS NEEDED BASED ON USE.

DEEP SUMP CATCH BASINS
CATCH BASINS AT THE SITE ARE TO BE CONSTRUCTED WITH SUMPS (MINIMUM 4-FEET) TO TRAP DEBRIS AND SEDIMENTS. CATCH BASINS WILL BE CLEANED ONCE PER YEAR.

HYDRODYNAMIC SEPARATOR WATER QUALITY UNIT
A HYDRODYNAMIC SEPARATOR WATER QUALITY UNIT WILL BE USED TO TREAT STORMWATER BEFORE IT REACHES THE DISCHARGE POINT. THIS ALLOWS SUSPENDED SEDIMENTS TO BE REMOVED AND REDUCES SEDIMENTATION ACCUMULATION. INSPECT THE WATER QUALITY UNIT FOR ACCUMULATED SEDIMENT AND DEBRIS. NECESSARY SEDIMENT AND/OR DEBRIS REMOVAL WILL BE PERFORMED IMMEDIATELY UPON IDENTIFICATION.

ROOF DRAIN LEADER
ROOF RUNOFF FROM THE BUILDINGS AT AMESBURY HEIGHTS IS COLLECTED IN PERFORATED PIPES BURIED IN GRAVEL TRENCHES ALONG THE DRIPLINE OF EACH BUILDING. IN SOME CASES, THESE PIPES ARE CONNECTED TO THE CLOSED DRAINAGE NETWORK (BUILDINGS 4, 5, AND THE CLUBHOUSE); IN THE REMAINDER (BUILDINGS 1, 2, AND 3), THE PIPES ARE DIRECTED TO THE BIORETENTION BASINS OR SURFACE SWALES.

BIORETENTION BASINS
DURING THE INITIAL PERIOD OF VEGETATION ESTABLISHMENT PRUNING AND WEEDING ARE REQUIRED TWICE IN FIRST YEAR BY CONTRACTOR. ANY DEAD VEGETATION FOUND AFTER THE FIRST YEAR MUST BE REPLACED. PROPER MULCHING IS MAND ATORY AND REGULAR WATERING MAY BE REQUIRED INITIALLY TO ENSURE PROPER ESTABLISHMENT OF NEW VEGETATION.

VEGETATD SWALES:
SWALES SHALL BE INSPECTED TWICE DURING FOR THE FIRST YEAR AND ANNUALLY THEREAFTER FOR SEDIMENT BUILDUP, EROSION, VEGETATIVE CONDITIONS, ETC. IF SEDIMENT BUILD -UP IS FOUND, CORE AERATION OR CULTIVATING OF UN -VEGETATED AREAS MAY BE REQUIRED TO ENSURE ADEQUATE FILTRATION. THE INFLOW LOCATION SHOULD BE INSPECTED ANNUALLY FOR CLOGGING. SEDIMENT BUILD UP IS A COMMON PROBLEM WHERE RUNOFF LEAVES AN IMPERVIOUS SURFACE AND ENTERS A VEGETATIVE OR EARTHEN SURFACE. ANY BUILT-UP SEDIMENT SHOULD BE REMOVED TO PREVENT RUNOFF FROM BYPASSING THE FACILITY. THE OVERFLOW STRUCTURE SHOULD BE INSPECTED ANNUALLY TO ENSURE THAT IT IS PROPERLY FUNCTIONING. INSPECT SWALES AFTER A LARGE STORM EVENT TO ENSURE THAT PROPER DRAINAGE IS OCCURRING. WATER THAT REMAINS PONDED ON THE SURFACE OF THE SWALE AFTER 72 HOURS OF DRY WEATHER COULD INDICATE A PROBLEM WITH THE INFILTRATIVE CAPACITY OF THE SWALE, AND MAINTENANCE SHOULD BE SCHEDULED.

DETENTION BASINS:
DETENTION BASINS SHOULD BE INSPECTED AT LEAST TWICE A YEAR TO ENSURE PROPER STABILIZATION AND FUNCTION. LIGHT EQUIPMENT, WHICH WILL NOT COMPACT THE UNDERLYING SOIL, SHOULD BE USED TO REMOVE THE TOP LAYER.

Seeding

LIME
LIME SHALL BE AN APPROVED AGRICULTURAL LIMESTONE CONTAINING NO LESS THAN 50% TOTAL CARBONATES, AND 25% TOTAL MAGNESIUM WITH A NEUTRALIZING VALUE OF AT LEAST 100%. THE MATERIAL SHALL BE GROUND TO SUCH A FINENESS THAT 40% WILL PASS THROUGH A NO. 100 U.S. STANDARD SIEVE, AND 98% WILL PASS THROUGH A NO. 20 U.S. STANDARD SIEVE. THE LIME SHALL BE UNIFORM IN COMPOSITION, DRY AND FREE FLOWING, AND SHALL BE DELIVERED TO THE SITE IN THE ORIGINAL, UNOPENED CONTAINERS, EACH BEARING THE MANUFACTURER'S GUARANTEED ANALYSIS. ANY LIME THAT BECOMES CAKED OR OTHERWISE DAMAGED (MAKING IT UNSUITABLE FOR USE) WILL BE REJECTED.

FERTILIZER
FERTILIZER SHALL BE A COMPLETE, STANDARD PRODUCT COMPLYING WITH STATE AND FEDERAL FERTILIZER LAWS. THE FERTILIZER SHALL BE UNIFORM IN COMPOSITION, DRY AND FREE FLOWING, AND SHALL BE DELIVERED TO THE SITE IN THE ORIGINAL, UNOPENED CONTAINERS, EACH BEARING THE MANUFACTURER'S GUARANTEED ANALYSIS, AND SUBMITTED TO THE ENGINEER FOR APPROVAL.
1. FERTILIZER SHALL CONTAIN THE FOLLOWING MINIMUM PERCENTAGE OF AVAILABLE PLANT FOOD BY WEIGHT: 10% NITROGEN, 10% PHOSPHORUS, 10% POTASH, IN WHICH 75% OF THE NITROGENOUS ELEMENTS SHALL BE DERIVED FROM ORGANIC SOURCES OR UREAFORM.
2. EXACT PERCENTAGES OF FERTILIZER MAY VARY IN ACCORDANCE WITH THE SOIL TEST REPORT.
3. ANY FERTILIZER THAT BECOMES CAKED OR OTHERWISE DAMAGED (MAKING IT UNSUITABLE FOR USE) WILL BE REJECTED.

SUPERPHOSPHATE: SUPERPHOSPHATE SHALL BE COMPOSED OF FINELY GROUND PHOSPHATE ROCK, AS COMMONLY USED FOR AGRICULTURAL PURPOSES, AND CONTAINING NOT LESS THAN 20% AVAILABLE PHOSPHORIC ACID. SUPERPHOSPHATE SHALL BE DELIVERED TO THE SITE IN THE ORIGINAL, UNOPENED CONTAINERS, EACH BEARING THE MANUFACTURER'S GUARANTEED ANALYSIS AND SUBMITTED TO THE ENGINEER FOR APPROVAL. ANY SUPERPHOSPHATE THAT BECOMES CAKED OR OTHERWISE DAMAGED (MAKING IT UNSUITABLE FOR USE) WILL BE REJECTED.

LAWN SEED: SEED SHALL BE: FRESH, CLEAN, AND SELECTED FROM THE PREVIOUS YEAR'S CROP; SHALL HAVE A MAXIMUM WEED SEED CONTENT OF 1%; SHALL COMPLY WITH APPLICABLE FEDERAL AND STATE SEED LAWS; AND SHALL FURNISHED AND DELIVERED PREMIXED IN UNOPENED CONTAINERS IN THE FOLLOWING PROPORTIONS:

	PERCENT PROPORTION	PERCENT GERMINATION MINIMUM	PERCENT PURITY MINIMUM
1. FOR LAWNS:			
CREEPING RED FESCUE	50	85	95
KENTUCKY BLUEGRASS (IMPROVED VARIETIES)	40	85	90
MANHATTAN PERENNIAL RYE	10	90	95
2. FOR FIELD GRASS:			
CREEPING RED FESCUE	60	85	95
PERENNIAL RYE	25	90	95
BIRDSFOOT TREFOIL	15	90	95
3. FOR TEMPORARY LAWNS:			
ANNUAL RYE	60	90	95
PERENNIAL RYE	40	90	95

WOOD CELLULOSE FIBER MULCH
1. MULCH TO COVER HYDROSEEDED AREAS SHALL BE FIBER-PROCESSED FROM WHOLE WOOD CHIPS MANUFACTURED SPECIFICALLY FOR STANDARD HYDRAULIC MULCHING EQUIPMENT. FIBER SHALL NOT BE PRODUCED FROM RECYCLED MATERIAL SUCH AS SAWDUST, PAPER, OR CARDBOARD.
2. MOISTURE CONTENT SHALL NOT EXCEED 10%, PLUS OR MINUS 3%, AS DEFINED BY THE PULP AND PAPER INDUSTRY STANDARDS. FIBER SHALL HAVE A WATER HOLDING CAPACITY OF NOT LESS THAN 900 GRAMS OF WATER PER 100 GRAMS FIBER.
3. MULCH SHALL DISPERSE INTO A UNIFORM SLURRY WHEN MIXED WITH WATER. MULCH SHALL BE NONTOXIC TO PLANT LIFE OR ANIMAL LIFE.
4. MULCH SHALL CONTAIN A NON-PETROLEUM BASED TACKIFIER AND A GREEN DYE FOR VISUAL MONITORING DURING APPLICATION, BUT NON-INJURIOUS TO PLANT GROWTH.

MANUAL SEEDING
SOW LAWN SEED UNIFORMLY WITH AN APPROVED MECHANICAL SEEDER AT THE RATE OF 5 LBS. PER 1,000 SQUARE FEET. CULTI-PACKER OR APPROVED SIMILAR EQUIPMENT MAY BE USED TO COVER THE SEED AND TO FORM THE SEED BED IN ONE OPERATION. IN AREAS INACCESSIBLE TO THE CULTI-PACKER, THE SEEDED GROUND SHALL BE LIGHTLY RAKED WITH FLEXIBLE RAKES AND ROLLED WITH A WATER BALLAST ROLLER. SEEDING SHALL BE DONE IN TWO DIRECTIONS AT RIGHT ANGLES TO EACH OTHER.

IN AREAS HAVING SLOPES 3:1 OR STEEPER, AND IN DRAINAGE SWALES, THE CONTRACTOR SHALL CARRY OUT A SEPARATE OVERSEEDING OPERATION IMMEDIATELY AFTER SOWING THE SPECIFIED SEED MIX. THE OVERSEEDING SHALL BE SOWN AT THE RATE OF 3 LBS. PER 1,000 SQUARE FEET. SEEDED AREAS REQUIRING ADDITIONAL EROSION CONTROL, SHALL BE COVERED WITH AN APPROVED, BIODEGRADABLE EROSION CONTROL FABRIC AND THE FABRIC FIRMLY ANCHORED IN PLACE.

HYDROSEEDING
1. DESIGNATED AREAS SHALL BE HYDROSEEDED ONLY AFTER WRITTEN APPROVAL OF THE FINISHED GRADING BY THE ENGINEER.
2. FERTILIZER SHALL BE ADDED TO THE HYDROSEEDING SLURRY AT THE RATE OF 5 LBS. PER 1,000 SQUARE FEET.
3. SEED SHALL BE ADDED TO THE HYDROSEEDING SLURRY AT THE RATE OF 220 LBS. PER ACRE.
4. WOOD CELLULOSE FIBER MULCH SHALL BE ADDED TO THE HYDROSEEDING SLURRY AT THE RATE OF 2 TONS PER ACRE.
5. A MOBILE TANK WITH A CAPACITY OF AT LEAST 500 GALLONS SHALL BE FILLED WITH WATER, AND THE REQUIRED AMOUNTS OF SEED, WOOD CELLULOSE MULCH, AND FERTILIZER. THE SLURRY SHALL BE THOROUGHLY MIXED BY MEANS OF POSITIVE AGITATION IN THE TANK. THE SLURRY SHALL BE APPLIED BY MEANS OF A CENTRIFUGAL PUMP USING THE TURRET OR HOSE APPLICATION TECHNIQUE FROM THE MOBILE TANK. THE HOSE OR TURRET SHALL BE EQUIPPED WITH A SEEDING NOZZLE OF A PROPER DESIGN TO ENSURE EVEN DISTRIBUTION OF THE SOLUTION OVER THE AREA TO BE SEEDED AND SHALL BE OPERATED BY A PERSON THOROUGHLY FAMILIAR WITH THIS TYPE OF SEEDING OPERATION.

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APPROVED BY THE
AMESBURY PLANNING BOARD

CHAIRMAN

DATE:

Amesbury Heights

36 Haverhill Road
Amesbury, Massachusetts

No.	Revision	Date	Appvd.

Designed by CPN | Checked by KSS

Issued for 40R - Final Approval | Date June 5, 2015

Not Approved for Construction

Drawing Title
Wetlands Impact and Erosion Control Plan

Drawing Number C-3

COMMONWEALTH OF MASSACHUSETTS CONOR P. NAGLE CIVIL No. 46302 REGISTERED PROFESSIONAL ENGINEER
6/8/15

Sheet 3 of 26

Project Number 09407.03

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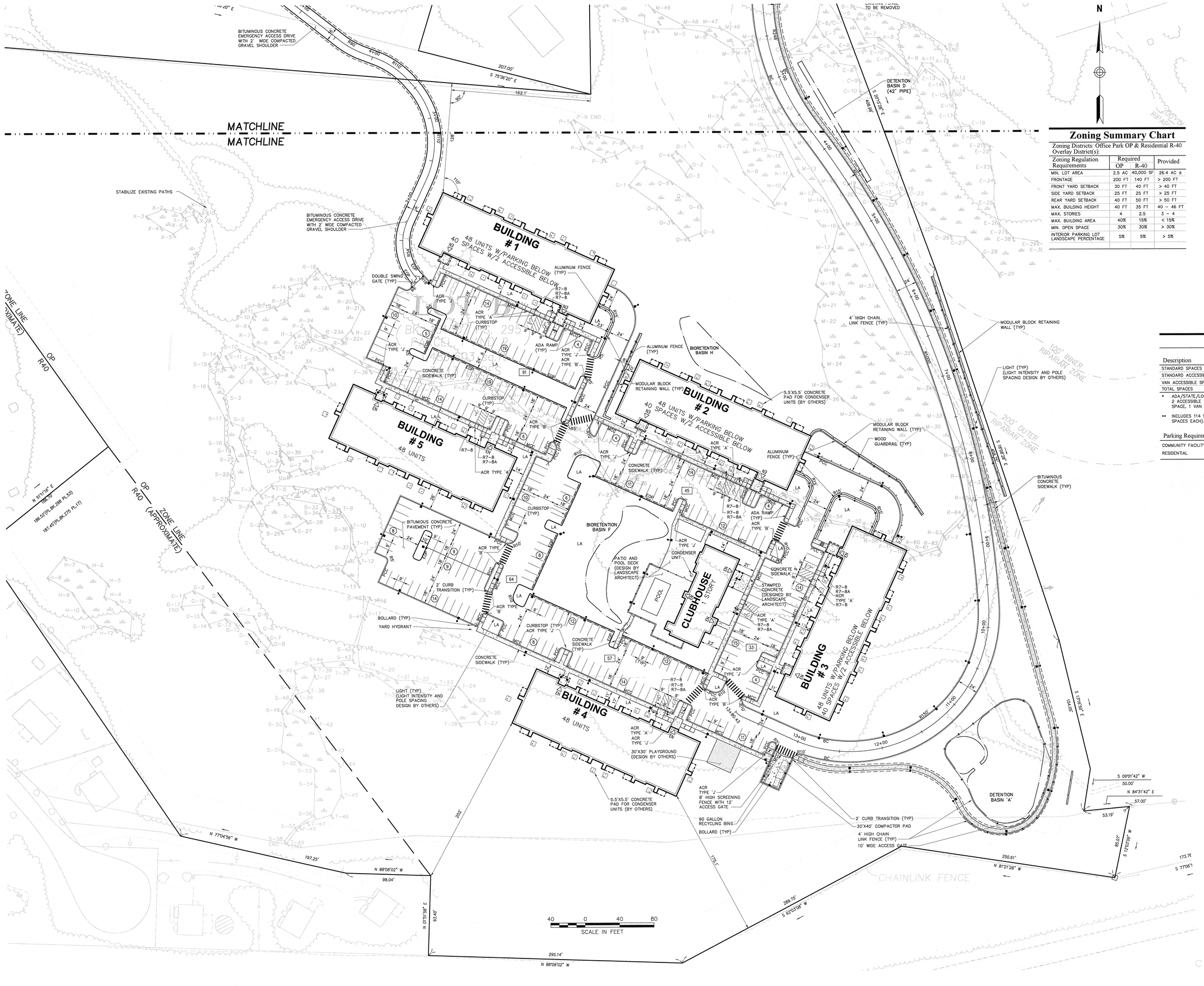

DRAFT
BY CPN 295

Zoning Summary Chart

Zoning Districts: Office Park OP & Residential R-40 Overlay District(s).

Zoning Regulation Requirements	Required OP	Required R-40	Provided
MIN. LOT AREA	2.5 AC	40,000 SF	26.4 AC ±
FRONTAGE	200 FT	140 FT	> 200 FT
FRONT YARD SETBACK	30 FT	40 FT	> 40 FT
SIDE YARD SETBACK	25 FT	25 FT	> 25 FT
REAR YARD SETBACK	40 FT	50 FT	> 50 FT
MAX. BUILDING HEIGHT	40 FT	35 FT	40 – 46 FT
MAX. STORIES	4	2.5	3 – 4
MAX. BUILDING AREA	40%	15%	< 15%
MIN. OPEN SPACE	30%	30%	> 30%
INTERIOR PARKING LOT LANDSCAPE PERCENTAGE	5%	5%	> 5%

Sign Summary

M.U.T.C.D. Number	Specification Width	Specification Height	Desc.
R1-1	30"	30"	STOP
R7-8	12"	18"	RESERVED PARKING
R7-8A	12"	6"	VAN ACCESSIBLE

Parking Summary Chart

Description	Size Required	Size Provided	Spaces Required	Spaces Provided
STANDARD SPACES	9'x18'	9'x18'	372	393**
STANDARD ACCESSIBLE SPACES *	8'X18' w/5'	9'X18' w/5'	9	11
VAN ACCESSIBLE SPACES	8'X18' w/8'	9'X18' w/8'	2	6
TOTAL SPACES			383	410

* ADA/STATE/LOCAL REQUIREMENTS
2 ACCESSIBLE SPACES PROVIDED BELOW BUILDINGS 1, 2 & 3. (1 STANDARD SPACE, 1 VAN ACCESSIBLE SPACE IN EACH BUILDING)

** INCLUDES 114 STANDARD GARAGE SPACES BELOW BUILDINGS 1, 2 & 3 (38 SPACES EACH).

Parking Requirements:

COMMUNITY FACILITY	4,743 SF x 1 SPACE/400 SF = 12 SPACES
RESIDENTIAL	240 UNITS x 1.5 SPACES/UNIT = 360 SPACES
TOTAL PARKING REQUIRED = 372 SPACES	

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CHAIRMAN

DATE:

Amesbury Heights

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Amesbury, Massachusetts

No.	Revision	Date	Appvd.

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Drawing Title: Layout and Materials Plan

Drawing Number: C-4.1

Sheet 4 of 26

Project Number: 09407.03

Commonwealth of Massachusetts
Conor Nagle
No. 46510
Registered Professional Engineer
6/5/15

Saved: Monday, June 08, 2015 2:17:10 PM PRINTED: Plotted Monday, June 08, 2015 3:16:18 PM Solomon, Talia

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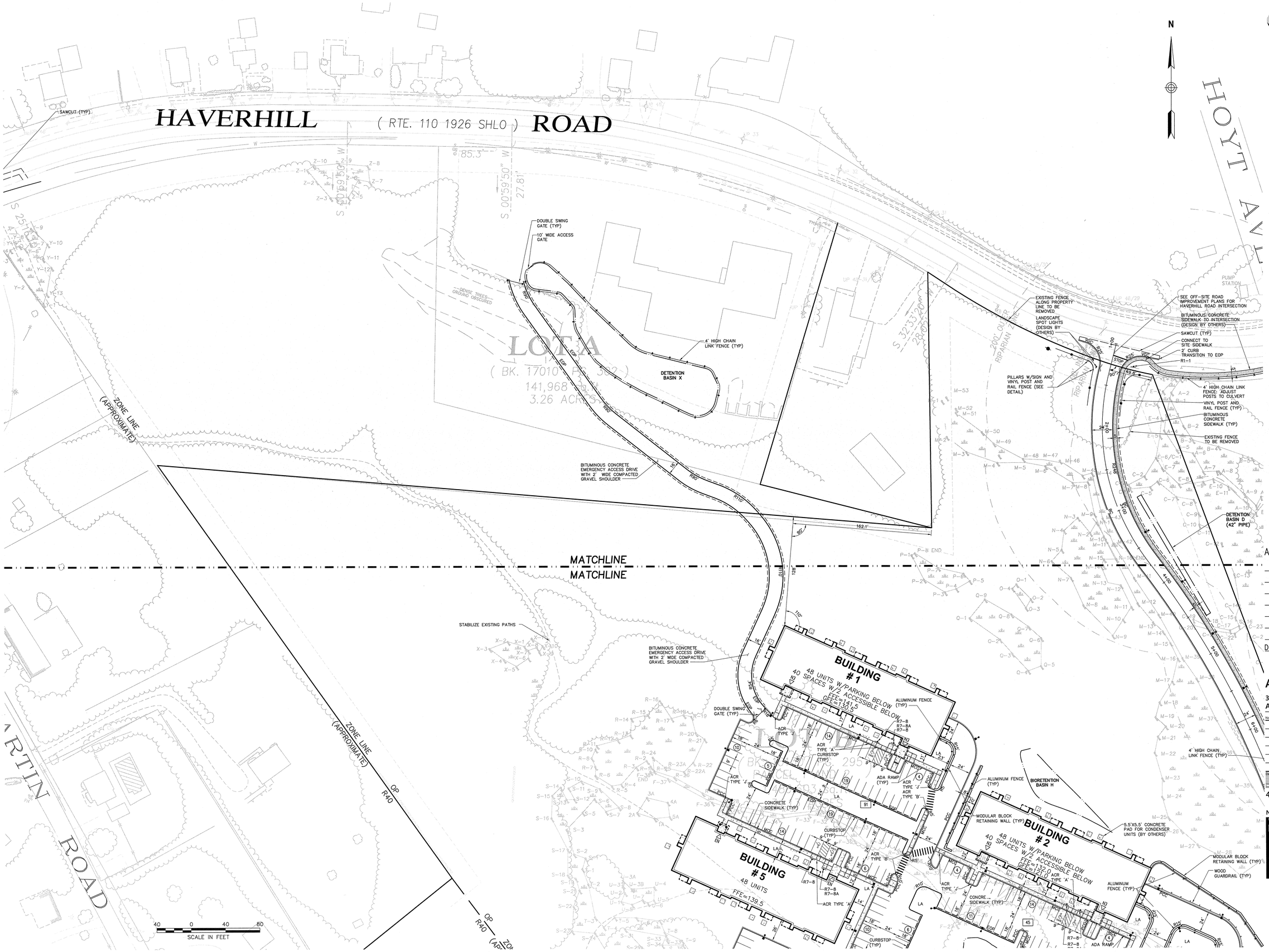

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CHAIRMAN

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Amesbury Heights

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Drawing Title

Layout and Materials Plan

Drawing Number

C-4.2

Sheet 5 of 26

Project Number 09407.03

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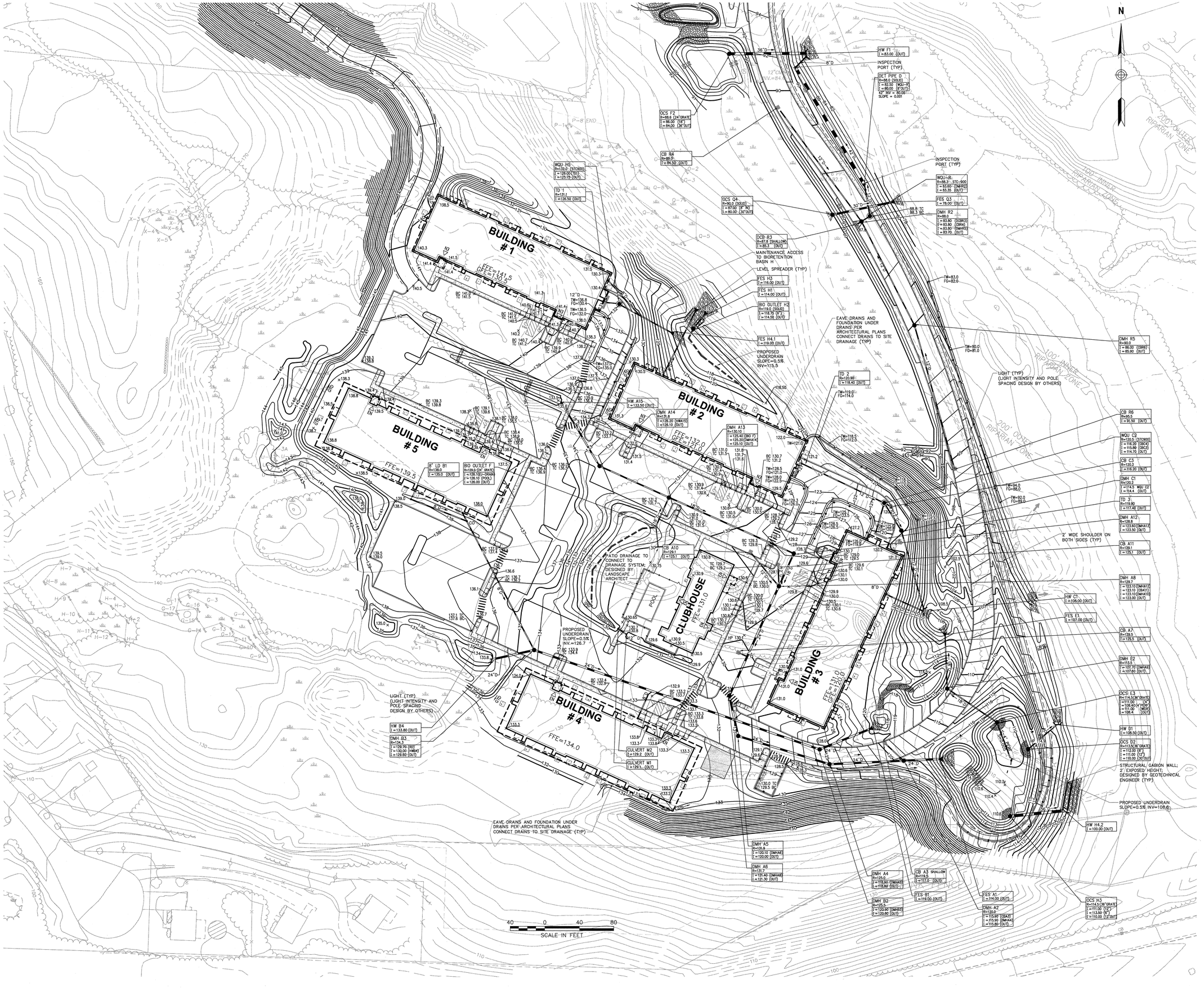

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NOTE:

1. MAXIMUM SLOPE FOR ACCESSIBLE PARKING AREA SHALL BE 2% IN ANY DIRECTION.
2. GRADING AND DRAINAGE DESIGN OF CLUBHOUSE AREA BY LANDSCAPE ARCHITECT.

APPROVED BY THE AMESBURY PLANNING BOARD

CHAIRMAN

DATE:

Amesbury Heights

36 Haverhill Road
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Drawing Title:

Grading and Drainage Plan

Drawing Number: **C-5.1**

Sheet 6 of 26

Project Number: **09407.03**

COMMONWEALTH OF MASSACHUSETTS — CONOR P. NAUGHTON — No. 46581 — REGISTERED PROFESSIONAL ENGINEER — 6/5/15

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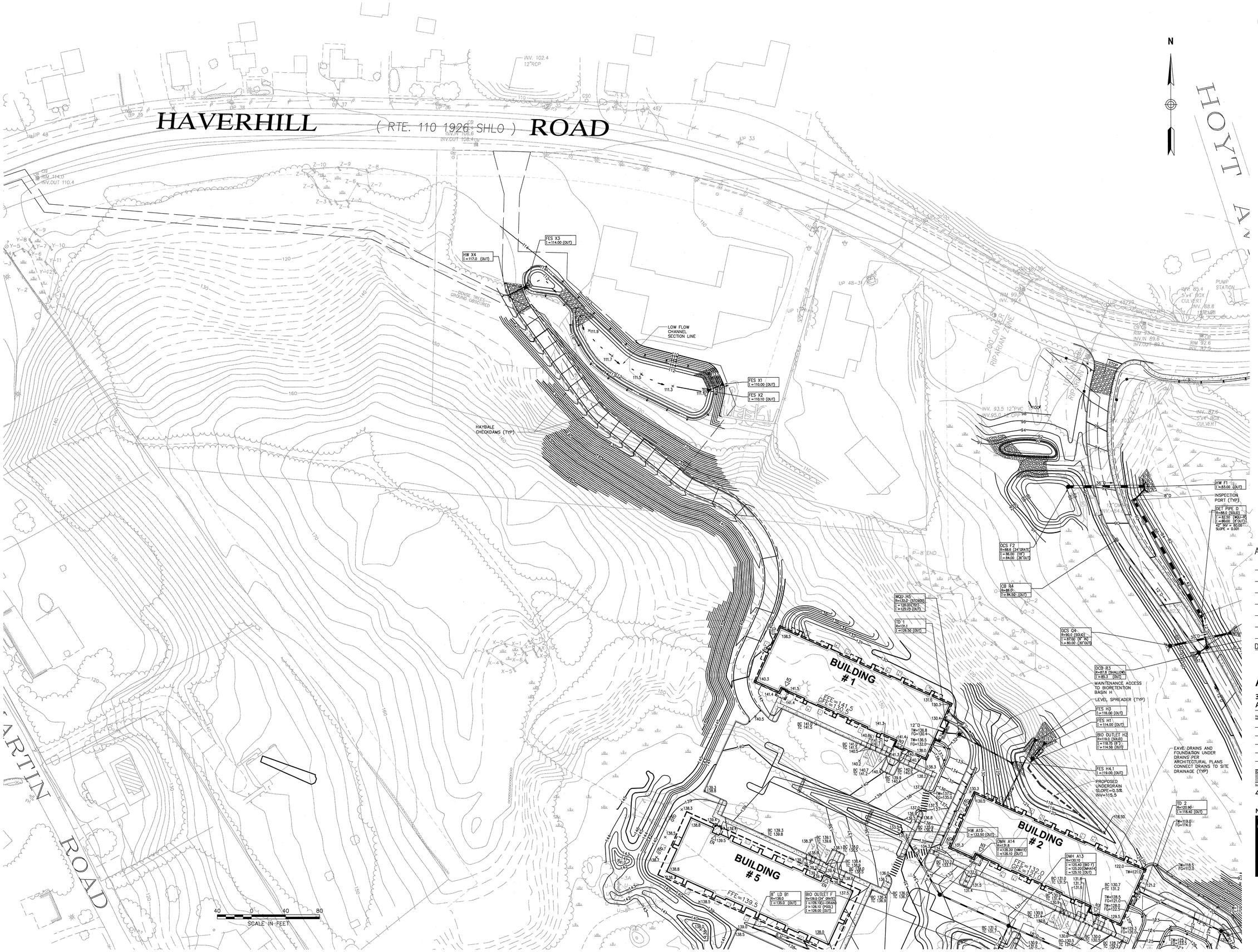

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CHAIRMAN

DATE:

Amesbury Heights

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Drawing Number: C-5.2

Sheet 7 of 26

Project Number: 09407.03

6/5/15

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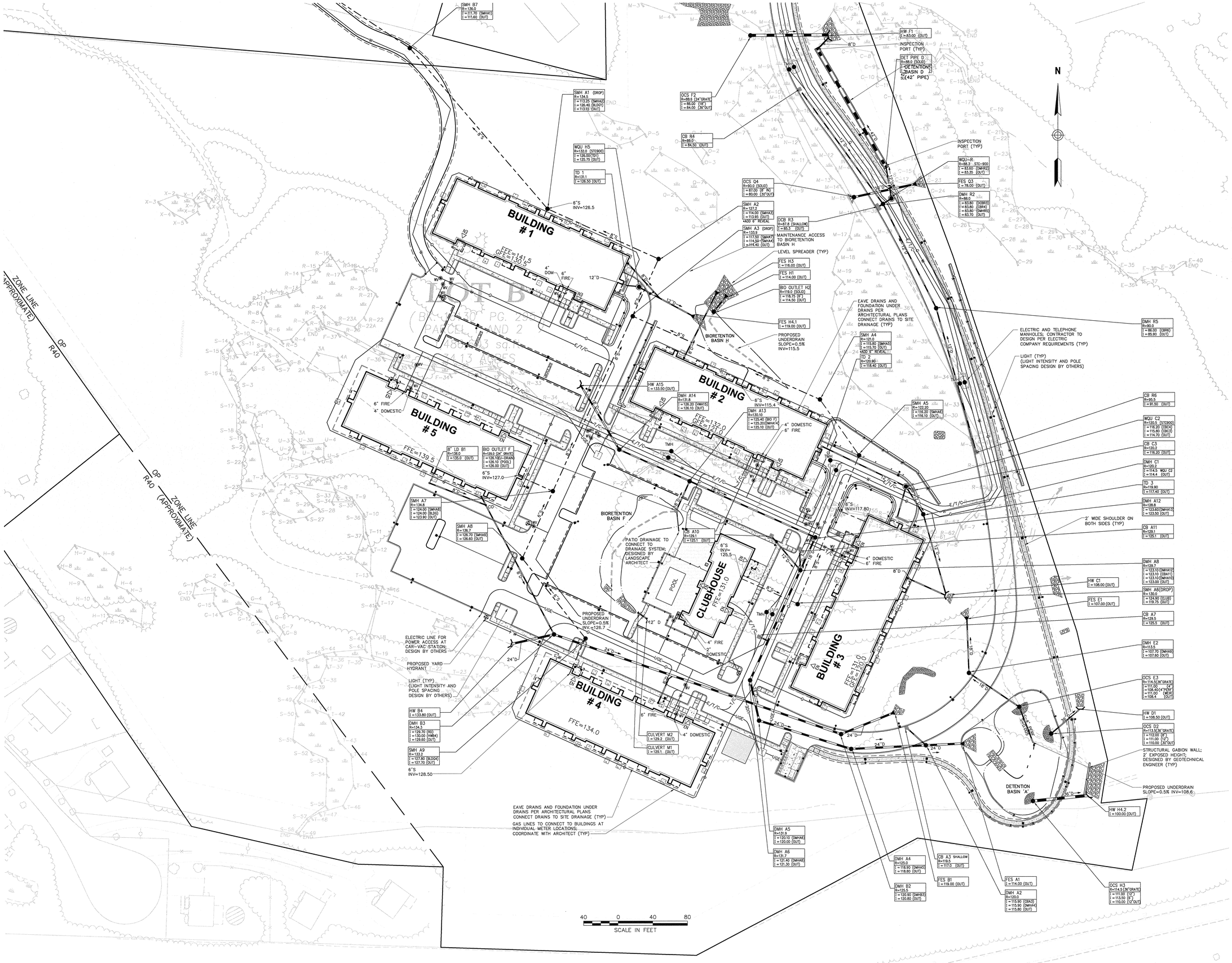

NOTE:

1. UTILITY SERVICE CONNECTIONS SHALL BE PROVIDED FOR EACH BUILDING.
2. ELECTRIC AND TELEPHONE MANHOLES TO BE PROVIDED IN ACCORDANCE WITH SERVICE PROVIDER REQUIREMENTS.
3. OIL AND GAS SEPARATORS LOCATED IN BUILDINGS, DESIGNED BY MEP

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CHAIRMAN

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Drawing Title: Utility Plan

Drawing Number: C-6.1

Sheet 8 of 26

Project Number: 09407.03

COMMONWEALTH OF MASSACHUSETTS CONOR P. NAUGHTON REGISTERED PROFESSIONAL ENGINEER
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N

NOTE:
1. UTILITY SERVICE CONNECTIONS SHALL BE PROVIDED FOR EACH BUILDING.

EX. SMH R=112.2 I = 105.50 (SMH81) I =EXIST (OUT)
SMH B1 R=114.5 I = 106.10 (SMH82) I = 106.00 (OUT)
SMH B2 R=113.0 I = 106.45 (SMH83) I = 106.35 (OUT) •ADD 6" REVEAL
SMH B3 R=115.0 I = 107.55 (SMH84) I = 107.45 (OUT) •ADD 6" REVEAL
SMH B4 R=122.0 I = 108.65 (SMH85) I = 108.55 (OUT) •ADD 6" REVEAL
SMH B5 R=119.0 I = 109.90 (SMH86) I = 109.80 (OUT)
SMH B6 R=126.5 I = 110.65 (SMH87) I = 110.55 (OUT)
SMH B7 R=136.0 I = 111.70 (SMH43) I = 111.60 (OUT)
HW X4 I = 117.0 (OUT)
FES X3 I = 114.00 (OUT)
FES X1 I = 110.00 (OUT)
FES X2 I = 110.10 (OUT)
DETENTION BASIN X
CONTACTOR TO VERIFY SIZE AND LOCATION OF EXISTING WATER LINE
PROPOSED TAPPING SLEEVE AND VALVE (CONNECT TO EXISTING 12" WATER LINE)
CONTACTOR TO VERIFY SIZE AND LOCATION OF EXISTING WATER LINE
PROPOSED TAPPING SLEEVE AND VALVE (CONNECT TO EXISTING WATER LINE)
CONNECT TO EXISTING GAS SERVICE
RELOCATE EXISTING UTILITY POLE, TO BE COORDINATED WITH UTILITY COMPANY
SMH A1 (DROP) R=134.5 I = 113.25 (SMH42) I = 126.40 (BLOUT) I = 113.15 (OUT)
WQU H5 R=132.0 (STC900) I = 126.00(TOT) I = 125.75 (OUT)
TD 1 R=131.1 I = 126.50 (OUT)
SMH A2 R=127.2 I = 114.00 (SMH43) I = 113.95 (OUT) •ADD 9" REVEAL
SMH A3 (DROP) R=133.9 I = 117.50 (SMH44) I = 114.50 (SMH44) I = H4.40 (OUT)
DCS F2 R=88.6 (24"GRATE I = 86.00 (18") I = 84.00 (36"OUT)
CB R4 R=88.0 I = 84.50 (OUT)
DCS O4 R=90.0 (SQUD) I = 87.00 (8"W) I = 80.00 (30"OUT)
DCB R3 R=87.6 (SHALLOW) I = 85.3 (OUT)
MAINTENANCE ACCESS TO BIORETENTION BASIN H
LEVEL SPREADER (TYP)
FES H3 I = 116.00 (OUT)
FES H1 I = 114.00 (OUT)
BIO OUTLET H2 R=119.0 (SQUD) I = 118.75 (6") I = 114.50 (OUT)
FES H4.1 I = 119.00 (OUT)
PROPOSED UNDERDRAIN SLOPE=0.5% INV=115.5
BIORETENTION BASIN H
HW A15 I = 133.50 (OUT)
SMH A14 R=131.8 I = 126.20 (HW415) I = 126.10 (OUT)
SMH A13 R=130.10 I = 125.60 (BIO 7) I = 125.20(SMH414) I = 125.10 (OUT)
HW F1 I = 83.00 (OUT)
INSPECTION PORT (TYP.)
DETENTION BASIN D (42" PIPE)
DET PIPE D R=88.0 (SQLD) I = 82.50 (W@2-30) I = 80.00 (6"OUT) 42" INV = 80.00
SMH A7 R=134.8 I = 124.00 (SMH40)
8" LD B1 R=138.0 I = 135.0 (OUT)
BIO OUTLET F R=129.0 (24" GRATE) I = 126.10(D-DRAIN) I = 126.10 (POOL) I = 126.00 (OUT)
BUILDING #1
BUILDING #2
BUILDING #5
FFE=141.5 GFE=139.5
FFE=132.0 GFE=130.0
FFE=139.5
6" FIRE
4" DOMESTIC
4" DOM
6" FIRE
12"D
6"S INV=126.5
6"S INV=115.4
6"S INV=127.0
ZONE LINE (APPROXIMATE)
OP R40
SCALE IN FEET
40 0 40 80

APPROVED BY THE AMESBURY PLANNING BOARD

CHAIRMAN

DATE:

Amesbury Heights

36 Haverhill Road
Amesbury, Massachusetts

No.	Revision	Date	Appvd.

Designed by CPN | Checked by KSS
Issued for 40R - Final Approval | Date June 5, 2015

Not Approved for Construction

Drawing Title: Utility Plan

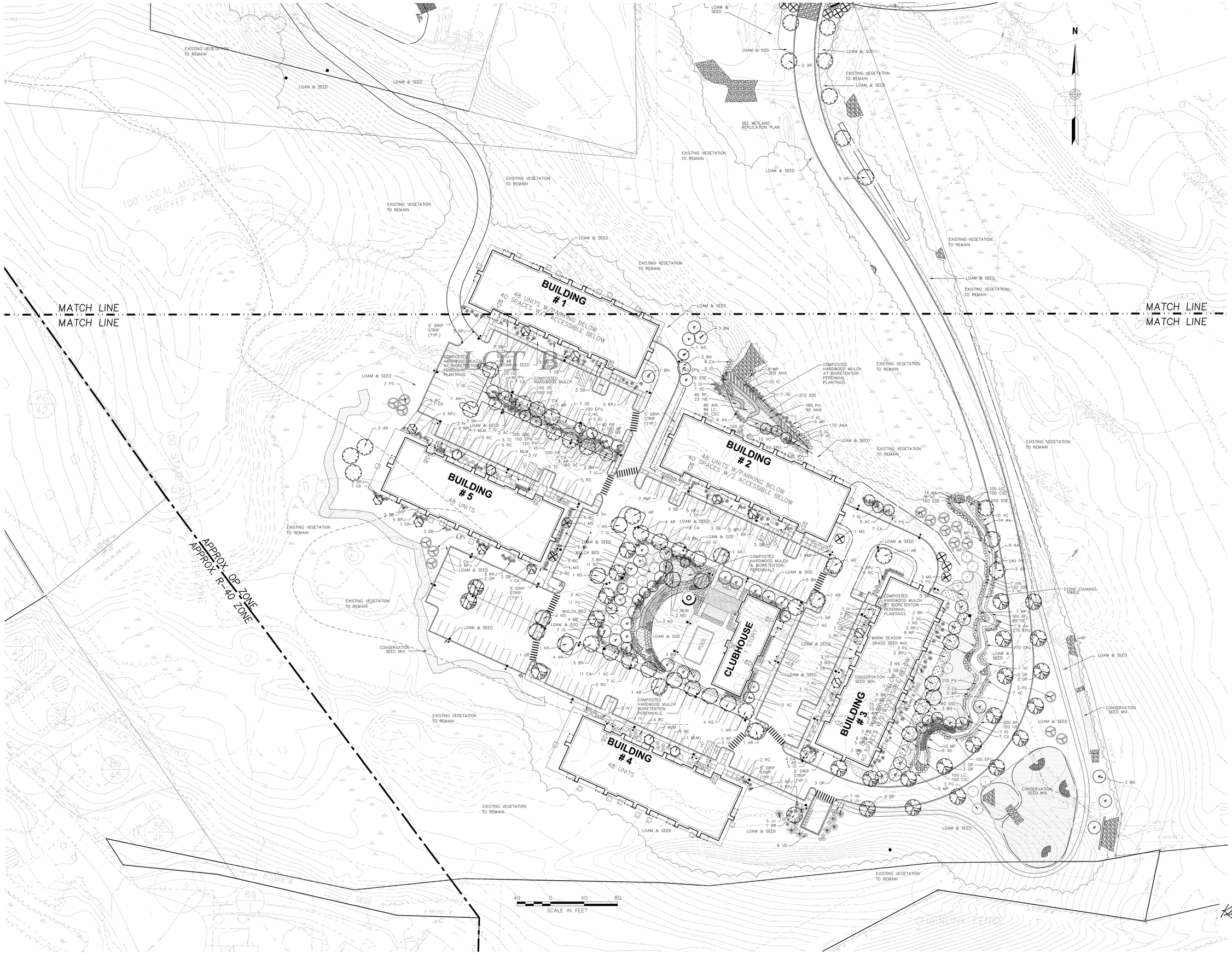
Drawing Number: C-6.2

Sheet 9 of 26

Project Number 09407.03

COMMONWEALTH OF MASSACHUSETTS CONOR P. NAUGHTON No. 49822 REGISTERED PROFESSIONAL ENGINEER 6/4/15

LOT A (BK. 17010 PG. 302) 141,968 SQ.FT. 3.26 ACRES
LOT B (BK. 17010 PG. 298) PARCEL 1 AND 2



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NOT FOR CONSTRUCTION

THESE PLANS WERE PREPARED FOR THE PURPOSE OF OBTAINING CLIENT APPROVAL, PRICING AND/ OR SUBMITTAL TO STATE AND LOCAL AGENCIES FOR PERMITTING PURPOSES. THESE PLANS ARE NOT INTENDED TO BE USED AS CONSTRUCTION DOCUMENTS.

APPROVED BY THE AMESBURY PLANNING BOARD

CHAIRMAN

DATE:

Amesbury Heights

36 Haverhill Road
Amesbury, Massachusetts

No.	Revision	Date	Appvd.

Designed by: CPN
Checked by: KSS

Issued for: **40R - Final Approval**
Date: **June 5, 2015**

Not Approved for Construction

Landscape Plan

Drawing Number: **C-7.1**

Sheet 10 of 26

Project Number: **09407.03**

Saved Thursday, June 04, 2015 7:51:47 PM KELLIE Plotted Thursday, June 04, 2015 7:52:05 PM Kellie

P: \15005_Amesbury Heights\CAD_PERMITTING\PL_PERMIT_ti15005.dwg

LANDSCAPE NOTES

1. ALL PROPOSED PLANTING LOCATIONS SHALL BE STAKED CAREFULLY AS SHOWN ON THE PLANS FOR FIELD REVIEW BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL UTILITIES AND NOTIFY OWNERS REPRESENTATIVE OF CONFLICTS.
3. NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
4. A 3-INCH DEEP SHREDDED PINE BARK SHALL BE INSTALLED UNDER ALL TREES AND SHRUBS, AND IN ALL PLANTING BEDS, AS SHOWN ON THE PLANS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
5. ALL TREES SHALL BE BALLED AND BURLAPPED, UNLESS OTHERWISE NOTED, OR APPROVED BY THE OWNER'S REPRESENTATIVE.
6. FINAL QUANTITY FOR EACH PLANT TYPE SHALL BE AS SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLAN AND PLANT LABELS PRIOR TO BIDDING.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE.
8. ALL PLANT MATERIALS INSTALLED SHALL MEET OR EXCEED THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
9. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.
10. AREAS DESIGNATED "LOAM & SEED" SHALL RECEIVE 6" OF LOAM AND SPECIFIED SEED MIX. LAWNS OVER 2:1 SLOPE SHALL BE PROTECTED WITH EROSION CONTROL FABRIC.
11. LOAM AND SEED ALL AREAS NOT OTHERWISE TREATED.
12. THIS PLAN IS INTENDED FOR LANDSCAPING PURPOSES ONLY. REFER TO SITE / CIVIL DRAWINGS FOR ALL OTHER SITE CONSTRUCTION INFORMATION.

TREE PROTECTION

1. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY EROSION CONTROL FENCE AND HAY BALE BARRIER. ERECT BARRIER AT EDGE OF THE EARTHWORK CUT LINE PRIOR TO TREE CLEARING. LAY OUT THIS LINE BY FIELD SURVEY.
2. CONTRACTOR SHALL NOT OPERATE VEHICLES WITHIN THE TREE PROTECTION AREA. CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS, OR DISPOSE OF ANY WASTE MATERIALS, WITHIN THE TREE PROTECTION AREA.
3. DAMAGE TO EXISTING TREES CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY A CERTIFIED ARBORIST AT THE CONTRACTOR'S EXPENSE.

PLANT MAINTENANCE NOTES

1. CONTRACTOR SHALL PROVIDE COMPLETE MAINTENANCE OF THE LAWNS AND PLANTINGS. NO IRRIGATION IS PROPOSED FOR THIS SITE. THE CONTRACTOR SHALL SUPPLY SUPPLEMENTAL WATERING FOR NEW LAWNS AND PLANTINGS DURING THE ONE YEAR PLANT GUARANTEE PERIOD.
2. CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT FOR THE COMPLETE LANDSCAPE MAINTENANCE WORK. WATER SHALL BE PROVIDED BY THE OWNER.
3. WATERING SHALL BE REQUIRED DURING THE GROWING SEASON, WHEN NATURAL RAINFALL IS BELOW ONE PER WEEK.
4. WATER SHALL BE APPLIED IN SUFFICIENT QUANTITY TO THOROUGHLY SATURATE THE SOIL IN THE ROOT ZONE OF EACH PLANT.
5. CONTRACTOR SHALL REPLACE DEAD OR DYING PLANTS AT THE END OF THE ONE YEAR GUARANTEE PERIOD. CONTRACTOR SHALL TURN OVER MAINTENANCE TO THE FACILITY MAINTENANCE STAFF AT THAT TIME.

Bioretention Construction Notes

1. BIORETENTION AREAS SHALL NOT BE CONSTRUCTED UNTIL THE ENTIRE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED. THE BIORETENTION AREA SHALL BE PROTECTED FROM SEDIMENT LADEN RUNOFF.
2. THE BIORETENTION AREAS SHALL CONTAIN A PLANTING SOIL MIXTURE OF 50%-60% SAND, 30%-35% SANDY TOPSOIL, 0-5% CLAY, AND 20% COMPOST.
3. PROVIDE A 3" DEEP LAYER OF COMPOSTED, SHREDDED HARDWOOD MULCH OVER SOIL SURFACE.
4. SAND SHALL CONFORM TO SECTION 2300 EARTHWORK, OF THE PROJECT SPECIFICATIONS, AND BE FREE OF DELETERIOUS MATERIAL.
5. SANDY TOPSOIL SHALL CONSIST OF TOPSOIL FROM ON SITE STOCKPILE, OR LOAM BORROW, WITH SAND ADDED TO PROVIDE A LOAMY SAND OF UNIFORM COMPOSITION.
6. PLANTING SOIL SHALL BE PLACED IN LIFTS OF LESS THAN 18 INCHES AND LIGHTLY COMPACTED (MINIMUM COMPACTIVE EFFORT) BY TAMPING OR ROLLING WITH A HAND-OPERATED LANDSCAPE ROLLER. HEAVY EQUIPMENT SHALL BE RESTRICTED FROM TRAVELING OVER THE BIORETENTION AREA.
7. SEE GRADING AND DRAINAGE PLAN FOR DIMENSIONS, ELEVATIONS, PIPE SIZES, LOCATIONS AND INVERTS OF BIORETENTION FACILITY.
8. FILTER FABRIC SHALL MEET CLASS 'C' GEOTEXTILE, APPARENT OPENING SIZE SHALL MEET ASTM-D-4751, GRAB TENSIL STRENGHT SHALL MEET ASTM-D-4632, PUNCTURE RESISTANCE SHALL MEET ASTM-D-4833.
9. UNDERDRAIN PIPE SHALL BE 6" RIGID SCHEDULE 40 PVC OR SDR 35 WITH 3/8" PERFORATIONS AT 6" ON-CENTER. PERFORATED PIPE SHALL TERMINATE ONE FOOT INSIDE THE BIORETENTION AREA. CAP THE ENDS OF THE PIPES. PROVIDE CLEAN-OUTS AT APPROPRIATE LOCATIONS. CRUSHED STONE FOR UNDERDRAINS SHALL MEET SECTION 2300 EARTHWORK OF THE PROJECT SPECIFICATION.

Conservation Seeding Schedule

Seeding Schedule

Location	Seed Mix	Seeding Rate
Treatment Swales	New England Erosion Control/Restoration Mix (moist sites)	35 lbs/ acre
Detention Basin Bottoms	New England Erosion Control/Restoration Mix (moist sites)	35 lbs/ acre
Detention Basin Side-Slopes	New England Conservation/Wildlife Mix	25 lbs/acre
Building 3 Side-Slopes	New England Conservation/Wildlife Mix	25 lbs/acre
Building 3 Upper-Slopes	New England Native Warm Season Grass Mix	23 lbs/acre

Note: Seed Mix as supplied by New England Wetlands Plants, Inc. Amherst, MA (413) 256-1752, or approved equivalent.

BIORETENTION BASIN AND SWALE PERENNIALS

QTY.	KEY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
86	AIN	ASCLEPIAS ICARNATA	SWAMP BUTTERFLY MILK-WEED	2" PLUG	1' O.C.
560	ANA	ASTER NOVAE-ANGLEA	NEW ENGLAND ASTER	2" PLUG	1' O.C.
361	CSC	CAREX SCOPARIA	BROOM SEDGE	2" PLUG	1' O.C.
1042	EPU	EUPATORIUM PURPUREUM	JOE-PYE WEED	2" PLUG	1' O.C.
493	IVE	IRIS VERSICOLOR	BLUE FLAG IRIS	2" PLUG	1' O.C.
361	LC	LOBELIA CARDINALIS	CARDINAL FLOWER	2" PLUG	1' O.C.
160	OC	OSMUNDA CINNAMOMEA	CINNAMON FERN	#1 POT	1' O.C.
150	OS	ONOCLEA SENSIBILIS	SENSITIVE FERN	#1 POT	1' O.C.
1005	PV	PANICUM VIRGATUM	SWITCH GRASS	2" PLUG	1' O.C.
706	RF	RUDBECKIA FULGIDA	BLACK-EYED SUSAN	#1 POT	1' O.C.
300	SSC	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUE-STEM	2" PLUG	1' O.C.
968	SSE	SOLIDAGO SEMPERVIRENS	SEASIDE GOLDENROD	2" PLUG	1' O.C.

PLANT LIST

QTY.	KEY	BOTANICAL NAME	COMMON NAME	SIZE
		SHADE TREES		
24	AC	AMELANCHIER CANADENSIS 'CLUMP'	CLUMP SHADBLOW SERVICEBERRY	9-10' HT.
40	AR	ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2-2.5" CAL.
42	BN	BETULA NIGRA 'HERITAGE'	HERITAGE RIVER BIRCH	12-14' HT.
11	CK	CORNUS KOUSA	KOUSA DOGWOOD	8-10' HT.
5	MLM	MAGNOLIA LOEBNERI 'LEONARD MESSEL'	LEONARD MESSEL MAGNOLIA	8-10' HT.
14	MS	MALUS 'SPRING SNOW'	SPRING SNOW CRABAPPLE	8-10' HT.
16	NS	NYSSA SYLVATICA	TUPELO	2-2.5" CAL.
25	QR	QUERCUS RUBRA	RED OAK	2-2.5" CAL.
		EVERGREEN TREES		
9	JV	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	6-7' HT.
25	PG	PICEA GLAUCA	WHITE SPRUCE	6-7' HT.
16	PS	PINUS STROBUS	WHITE PINE	6-7' HT.
		SHRUBS		
70	AA	ARONIA ARBUTIFOLIA	RED CHOKEBERRY	18-24" HT.
151	CA	CLETHRA ALNIFOLIA 'HUMMINGBIRD'	SUMMERSWEET	18-24" HT.
184	IG	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	18-24" HT.
51	IV	ITEA VIRGINICA 'HENRY'S GARNET'	HENRY'S GARNET VIRGINIA SWEETSPIRE	18-24" HT.
46	IVN	ILEX VERTICILATA 'NANA'/'JIM DANDY' (I MALE/ 10 FEMALE)	DWARF WINTERBERRY (1 MALE/10 FEMALE)	2-2.5" HT.
67	MP	MYRICA PENNSYLVANICA	NORTHERN BAYBERRY	2-2.5" HT.
95	RC	RHODODENDRON CUNNINGHAM'S BLUSH'	CUNNINGHAM'S BLUSH RHODODENDRON	2-2.5" HT.
17	RCH	RHODODENDRON 'CHIONOIDES'	CHIONOIDES RHODODENDRON	2-2.5" HT.
97	RPJ	RHODODENDRON 'PJM'	PJM RHODODNENDON	2-2.5" HT.
27	RMF	ROSA 'MEIPELTA'	FUCHSIA MEIDILAND ROSE	18-24" SPD.
63	RMW	ROSA 'MEICOUBLAN'	WHITE MEIDILAND ROSE	18-24" SPD.
46	SB	SPIRAEA 'BUMALDA 'ANTHONY WATERER'	ANTHONY WATERER SPIRAEA	18-24" HT.
8	TC	TAXUS CUSPIDATA 'GREENWAVE'	GREENWAVE YEW	18-24" SPD.
13	TH	TAXUS MEDIA 'HICKSII'	HICK'S YEW	2-2.5" HT.
128	VC	VACCINIUM CORYMBOSUM	HIGH BUSH BLUEBERRY	2-2.5" HT.
62	VD	VIBURNUM DENTATUM 'CHRISTOM'	BLUE MUFFIN ARROWWOOD VIBURNUM	2-2.5" HT.
		PERENNIALS & ORNAMENTAL GRASSES		
10	CAK	CALAMAGROSTIS ACUTIFOLIA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	#2 POT
36	HH	HEMEROCALLIS 'HAPPY RETURNS'	HAPPY RETURNS DAYLILY	#1 POT
37	NF	NEPETA X FASSENII 'WALKER'S LOW'	WALKERS LOW CATMINT	#1 POT

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APPROVED BY THE AMESBURY PLANNING BOARD

CHAIRMAN

DATE:

Amesbury Heights

36 Haverhill Road
Amesbury, Massachusetts

No.	Revision	Date	Appvd.

Designed by CPN — Checked by KSS

Issued for: **40R - Final Approval** — Date: **June 5, 2015**

Not Approved for Construction

Drawing Title: Landscape Plan

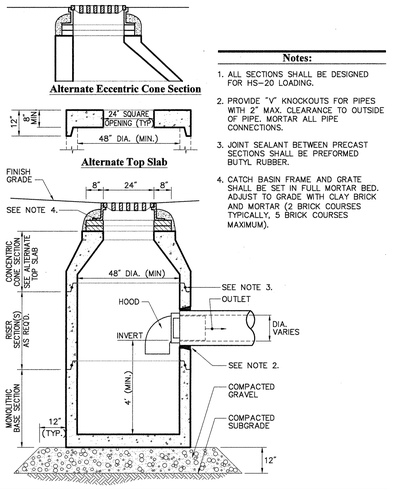
Drawing Number: C-7.2

Sheet 11 of 26

Project Number 09407.03

MASSACHUSETTS KELLIE A. CONNELLY NO. 1214 REGISTERED LANDSCAPE ARCHITECT

Saved Thursday, June 04, 2015 7:51:47 PM KELLIE Plotted Thursday, June 04, 2015 7:52:41 PM Kellie



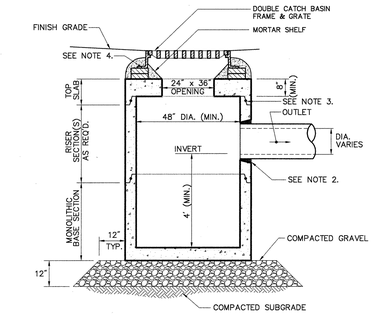
Notes:

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).

Catch Basin (CB) With Hood

6/03

N.T.S. Source: VHB LD_101



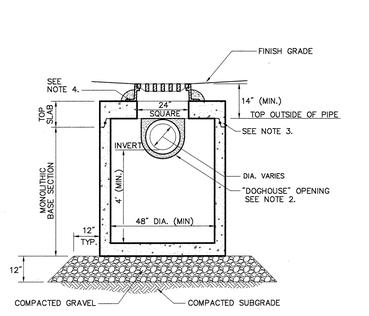
Notes:

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
4. DOUBLE CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED, ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICKS TYPICALLY, 5 BRICK COURSES MAXIMUM)

Double Grate Catch Basin (DCB)

6/08

N.T.S. Source: VHB LD_102



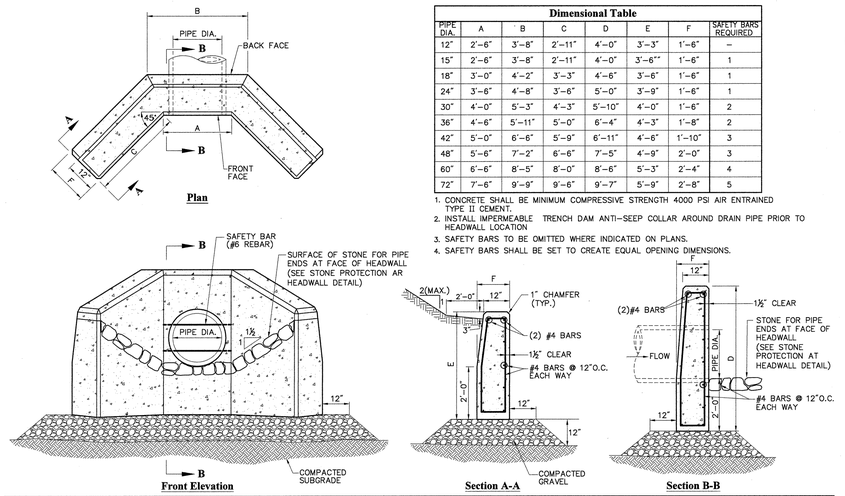
Notes:

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. PROVIDE DOGHOUSE OPENING FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. TOP SLAB SHALL NOT REST DIRECTLY ON PIPE. GROUT ALL PIPE CONNECTIONS (NON-SHRINK GROUT).
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN FRAME AND GRATE (4"DEPTH) SHALL BE SET IN FULL MORTAR BED.
5. ADJUST TO FINISH GRADE WITH CLAY BRICK AND MORTAR AS REQUIRED.

Catch Basin (CB) Shallow Cover

6/08

N.T.S. Source: VHB LD_104



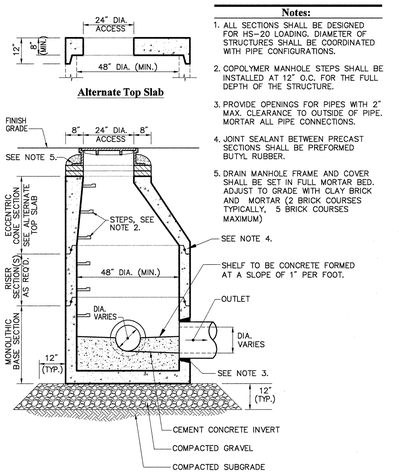
Dimensional Table							
PIPE DIA.	A	B	C	D	E	F	SAFETY BARS REQUIRED
12"	2'-6"	3'-8"	2'-11"	4'-0"	3'-3"	1'-6"	–
15"	2'-6"	3'-8"	2'-11"	4'-0"	3'-6"*	1'-6"	1
18"	3'-0"	4'-2"	3'-3"	4'-6"	3'-6"	1'-6"	1
24"	3'-6"	4'-8"	3'-6"	5'-0"	3'-9"	1'-6"	1
30"	4'-0"	5'-3"	4'-3"	5'-10"	4'-0"	1'-6"	2
36"	4'-6"	5'-11"	5'-0"	6'-4"	4'-3"	1'-8"	2
42"	5'-0"	6'-6"	5'-9"	6'-11"	4'-6"	1'-10"	3
48"	5'-6"	7'-2"	6'-6"	7'-5"	4'-9"	2'-0"	3
60"	6'-6"	8'-5"	8'-0"	8'-6"	5'-3"	2'-4"	4
72"	7'-6"	9'-9"	9'-6"	9'-7"	5'-9"	2'-8"	5

1. CONCRETE SHALL BE MINIMUM COMPRESSIVE STRENGTH 4000 PSI AIR ENTRAINED TYPE II CEMENT.
2. INSTALL IMPERMEABLE TRENCH DAM ANTI-SEEP COLLAR AROUND DRAIN PIPE PRIOR TO HEADWALL LOCATION
3. SAFETY BARS TO BE OMITTED WHERE INDICATED ON PLANS.
4. SAFETY BARS SHALL BE SET TO CREATE EQUAL OPENING DIMENSIONS.

Concrete Headwall (HW) with Wing Walls

4/11

N.T.S. Source: VHB LD_132



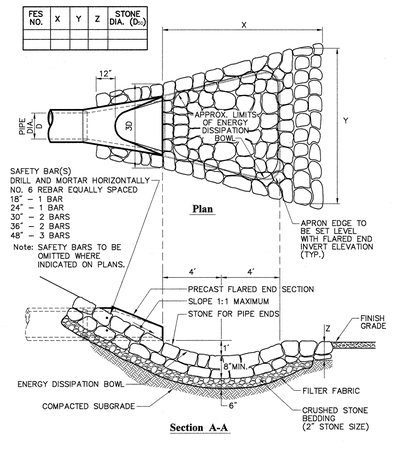
Notes:

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING. DIAMETER OF STRUCTURES SHALL BE COORDINATED WITH PIPE CONFIGURATIONS.
2. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
5. 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)

Drain Manhole (DMH)

4/11

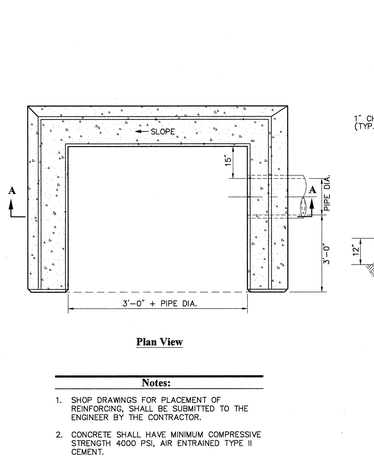
N.T.S. Source: VHB LD_115



Flared End Section (FES) with Stone Protection

5/12

N.T.S. Source: VHB LD_134



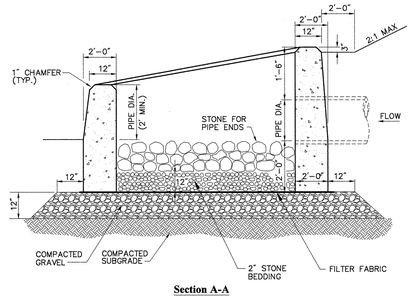
Notes:

1. SHOP DRAWINGS FOR PLACEMENT OF REINFORCING, SHALL BE SUBMITTED TO THE ENGINEER BY THE CONTRACTOR.
2. CONCRETE SHALL HAVE MINIMUM COMPRESSIVE STRENGTH 4000 PSI, AIR ENTRAINED TYPE II CEMENT.

Directional Headwall

4/11

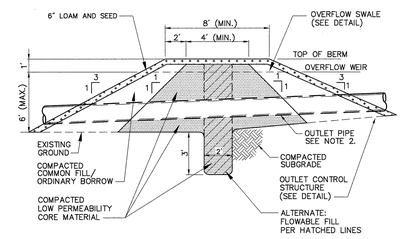
N.T.S. Source: VHB LD_135



Riprap Channel

6/08

N.T.S. Source: VHB LD_170



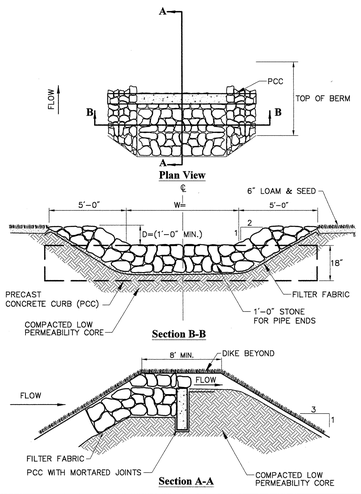
Notes:

1. LOW PERMEABILITY CORE MATERIAL IS CONTINUOUS FOR THE FULL LENGTH OF THE EMBANKMENT.
2. WHERE PIPES PENETRATE THE LOW PERMEABILITY CORE, PIPE SHALL BE BEDDED IN THE LOW PERMEABILITY CORE MATERIAL.
3. THE BERM SECTION IS SUBJECT TO CHANGE AND WILL BE BASED ON THE RESULTS OF FURTHER GEOTECHNICAL INVESTIGATIONS.

Detention Basin Berm Section

10/08

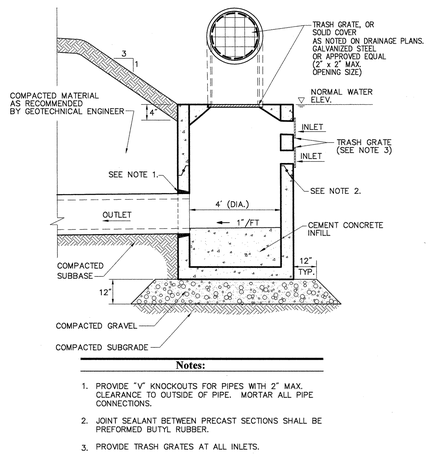
N.T.S. Source: VHB LD_160



Level Spreader

6/03

N.T.S. Source: LD_161



OCS INFORMATION		
OCS #	Outlet Type	Elevation
H3	6"	113.50
	12"	111.00
	Grate (36")	114.5
D2	8"	112.00
	12"	111.00
	Grate (36")	113.5
E3	4"	111.00
	Weir	111.00
	Grate (36")	114.5
F2	18"	86.00
	Grate (24")	88.6
Q4	8"	87.00
	Grate (Solid)	90.0
Bio-Outlet H2	6"	118.75
Bio-Outlet F	Grate (24")	129.0
DET Pipe D	8"	80.00

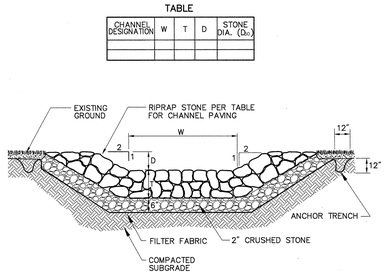
Notes:

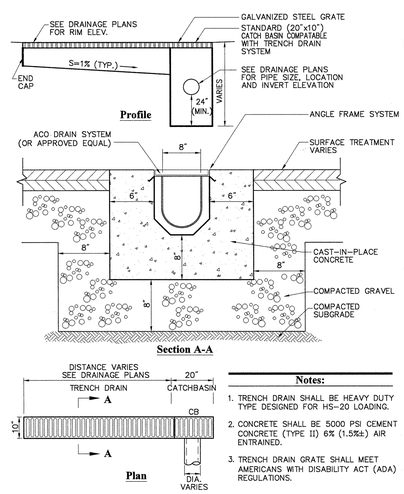
1. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
2. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
3. PROVIDE TRASH GRATES AT ALL INLETS.

Pond Outlet Control Detail

6/03

N.T.S. Source: LD_163





Notes:

1. TRENCH DRAIN SHALL BE HEAVY DUTY TYPE DESIGNED FOR HS-20 LOADING.
2. CONCRETE SHALL BE 5000 PSI CEMENT CONCRETE (TYPE II) 6% (1.5%±) AIR ENTRAINED.
3. TRENCH DRAIN GRATE SHALL MEET AMERICANS WITH DISABILITY ACT (ADA) REGULATIONS.

Trench Drain (Type A)

4/11

N.T.S. Source: VHB LD_190-A

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APPROVED BY THE AMESBURY PLANNING BOARD

CHAIRMAN

DATE:

Amesbury Heights

36 Haverhill Road
Amesbury, Massachusetts

No.	Revision	Date	Appvd.

Designed by CPN Checked by KSS

Issued for **40R - Final Approval** Date **June 5, 2015**

Not Approved for Construction

Drawing Title: **Details**

Drawing Number: **C-8.1**

Sheet 12 of 26

Project Number: **09407.03**

Saved Friday, June 05, 2015 9:29:58 AM PrintDate Printed Friday, June 05, 2015 9:50:06 AM Hitchko, Peter

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Landscape Drain (LD)

6/08
N.T.S. Source: VHB LD_193

Notes:

1. STRUCTURES SHALL BE PRECAST CONCRETE, DESIGNED FOR HS-20 LOADING.
2. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. EXTERIOR SURFACES SHALL BE GIVEN TWO COATS OF BITUMINOUS WATER-PROOFING MATERIAL.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
5. STANDARD SEWER MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH SEWER BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM)

Sanitary Sewer Manhole (SMH)

6/08
N.T.S. Source: VHB LD_200

Bracket Detail

Notes:

1. STRUCURE SHALL BE DESIGNED FOR HS-20 LOADING.
2. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE
3. EXTERIOR SURFACES SHALL BE GIVEN TWO COATS OF BITUMINOUS WATERPROOFING MATERIAL.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
5. SEWER MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH SEWER BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM)

Exterior Drop Sewer Manhole (SMH) Drop Type "A"

6/08
N.T.S. Source: VHB LD_203

Notes:

1. 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.
2. HYDRANT IN SIDEWALK AREAS TO BE LOCATED TO PROVIDE MINIMUM CLEAR SIDEWALK PASSAGE WIDTH OF 3 FEET AT HYDRANT.

Hydrant Construction

6/08
N.T.S. Source: VHB LD_250

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"	24"	14"
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

Plan **Section 1-1**

Table Of Dimensions

TEES	G	H	I	J	TEES	G	H	I	J
6"x 6"x 6"	12"	24"	24"	18"	12"x 12"x 6"	12"	24"	24"	18"
8"x 8"x 6"	"	"	"	"	12"x 12"x 8"	"	"	"	24"
8"x 8"x 8"	"	"	"	24"	12"x 12"x 12"	"	36"	"	36"

Tees

Plan **Section 2-2**

Notes:

1. 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.
2. CONCRETE SHALL NOT BE PLACED AGAINST PIPE BEYOND FITTING.
3. CONCRETE SHALL BE 3000 PSI-TYPE I.

Concrete Thrust Block

10/10
N.T.S. Source: VHB LD_260

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.

Utility Trench

8/11
N.T.S. Source: VHB LD_300

Cleanout - Paved Area

5/13
N.T.S. Source: VHB LD_303

Notes:

1. ONE INSPECTION PORT TO BE INSTALLED AT EACH END OF THE DETENTION SYSTEM OR AS DIRECTED BY THE ENGINEER.

Detention System Inspection Port

8/05
N.T.S. Source: StormTech LD_303

Notes:

1. INSTALL UNDERDRAINS AT 10 FEET ON CENTER. CONNECT TO DRAINS PER PLAN.
2. SIDE SLOPES SHALL BE 3:1 MAX. 2% MIN.

Bioretention Basin

6/08
N.T.S. Source: VHB LD_353

APPROVED BY THE AMESBURY PLANNING BOARD

CHAIRMAN

DATE:

Stone Channel Swale

6/08
N.T.S. Source: VHB LD_358

Vertical Granite Curb (VGC)

6/12
N.T.S. Source: VHB LD_402

Precast Concrete Curb (PCC)

12/11
N.T.S. Source: VHB LD_404

Note:

ALL CURBING TO BE MACHINE EXTRUDED

Bituminous Curb (BC)

6/08
N.T.S. Source: VHB LD_406

Curbstop

6/08
N.T.S. Source: VHB REV LD_417

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36 Haverhill Road
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No.	Revision	Date	Appvd.

Designed by CPN Checked by KSS

Issued for **40R - Final Approval** Date **June 5, 2015**

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Details

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C-8.2

COMMONWEALTH OF MASSACHUSETTS CONOR P. NAGLE CIVIL No 46352 REGISTERED PROFESSIONAL ENGINEER

6/5/15

Sheet 13 of 26

Project Number 09407.03

Saved Friday, June 05, 2015 9:29:58 AM PHITCHKO Plotted Friday, June 05, 2015 9:50:22 AM Hitchko, Peter

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Notes:

1. PROVIDE EXPANSION JOINTS AT MIN. 30 FT. O.C. WITH PRE- FORMED JOINT FILLER.
2. PROVIDE TOOLED CONTROL JOINTS AT 6' O.C.
3. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.

Concrete Sidewalk

4/11
N.T.S. Source: VHB LD_420

Notes:

1. CONCRETE FOR SIDEWALKS TO BE 4000 PSI AND FOR DRIVEWAYS 5000 PSI. BOTH MIXES TO BE TYPE II, 6% (1.5±) AIR ENTRAINED.
2. PROVIDE EXPANSION JOINTS AT MIN. 30 FT. O.C. WITH PRE- FORMED EXPANSION JOINT FILLER & SEALER.
3. PROVIDE TOOLED CONTROL JOINTS AT 6' O.C.
4. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.

Monolithic Concrete Curb (MCC) & Sidewalk

12/11
N.T.S. Source: VHB LD_421

NOTE:
BOTH SURFACE AND BINDER MATERIAL SHALL BE DENSE MIX.

Bituminous Concrete Sidewalk

8/11
N.T.S. Source: VHB LD_422

Standard Duty Flexible Pavement

Note:

PAVEMENT SECTIONS ARE SUBJECT TO CHANGE AND WILL BE BASED ON THE RESULTS OF FURTHER GEOTECHNICAL INVESTIGATIONS.

Bituminous Concrete Pavement Sections

12/11
N.T.S. Source: VHB REV LD_430

Emergency Drive Section Detail

12/11
N.T.S. Source: VHB REV LD_430

Wood Guardrail

6/08
N.T.S. Source: VHB LD_450

Note:

1. MATERIALS TO BE SUPPLIED AND INSTALLED IN CONFORMANCE WITH "CHAIN LINK MANUFACTURER'S INSTITUTE" PRODUCT MANUAL.
2. ALL CHAIN LINK FENCE TO BE COATED IN BLACK VINYL.

Chain Link Fence up to 6'

6/08
N.T.S. Source: VHB LD_481

Notes:

1. SHOP PRIME PAINT EXPOSED SURFACES FIELD PAINT EPOXY ENAMEL-YELLOW.
2. PROVIDE "MASTER" PADLOCK WITH 6 WORKING KEYS.
3. 3,000 PSI CONCRETE FOOTING

Emergency Gate (Double)

2/09
N.T.S. Source: VHB LD_486

Notes:

1. THE MAXIMUM ALLOWABLE SIDEWALK AND CURB RAMP CROSS SLOPES SHALL BE 1.5 (1% MIN.).
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE AT CURB RAMPS SHALL BE 7.5%.
4. A MINIMUM OF 3 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. RAMP, CURB, AND ADJACENT PAVEMENTS SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SIDEWALK SECTION FOR RAMP CONSTRUCTION.
8. WHERE ACCESSIBLE ROUTES ARE LESS THAN 5' IN WIDTH (EXCLUDING CURBING) A 5' x 5' PASSING AREA SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 200 FEET.
9. ELIMINATE CURBING AT RAMP (OTHER THAN VERTICAL CURBING, WHICH SHALL BE SET FLUSH) WHERE IT ABUTS ROADWAY.

Accessible Curb Ramp (ACR) Type 'A'

11/10
N.T.S. Source: VHB LD_500

Notes:

1. THE MAXIMUM ALLOWABLE SIDEWALK AND CURB RAMP CROSS SLOPES SHALL BE 1.5 (1% MIN.).
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE AT CURB RAMPS SHALL BE 7.5%.
4. A MINIMUM OF 3 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. RAMP, CURB AND ADJACENT PAVEMENTS SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SIDEWALK SECTION FOR RAMP CONSTRUCTION.
8. WHERE ACCESSIBLE ROUTES ARE LESS THAN 5' IN WIDTH (EXCLUDING CURBING) A 5' x 5' PASSING AREA SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 200 FEET.
9. ELIMINATE CURBING AT RAMP WHERE IT ABUTS ROADWAY, EXCEPT WHERE VERTICAL CURBING IS INDICATED ON THE DRAWINGS TO BE INSTALLED AND SET FLUSH.

Accessible Curb Ramp (ACR) - Type 'B'

9/13
N.T.S. Source: VHB LD_501

Notes:

1. THE MAXIMUM ALLOWABLE SIDEWALK AND CURB RAMP CROSS SLOPES SHALL BE 1.5 (1% MIN.).
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE AT CURB RAMPS SHALL BE 7.5%.
4. A MINIMUM OF 3 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. RAMP, CURB, AND ADJACENT PAVEMENTS SHALL BE GRADED TO PREVENT PONDING.
7. TYPICAL SIDEWALK SECTION FOR RAMP SECTION CONSTRUCTION.
8. WHERE ACCESSIBLE ROUTES ARE LESS THAN 5' IN WIDTH (EXCLUDING CURBING) A 5' x 5' PASSING AREA SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 200 FEET.
9. ELIMINATE CURBING AT RAMP WHERE IT ABUTS ROADWAY, EXCEPT WHERE VERTICAL CURBING IS INDICATED ON THE DRAWINGS TO BE INSTALLED AND SET FLUSH.

Accessible Curb Ramp (ACR) Type 'J'

11/10
N.T.S. Source: VHB LD_509

Notes:

1. ALL DIMENSIONS TO EDGES OF 4" PAVEMENT STRIPING.
2. MINIMUM STALL WIDTH REFERS TO MINIMUM REQUIRED CLEARANCE BETWEEN INSIDE EDGES OF PAVEMENT MARKINGS
3. ALL SLOPES THROUGHOUT THE ACCESSIBLE PARKING AND AISLE AREAS SHALL NOT EXCEED 1.5%.

Accessible Parking Space (MAAAB STANDARD)

11/10
N.T.S. Source: VHB LD_552B

Notes:

1. TWELVE INCH (12") LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6 INCH LINES) WILL BE ACCEPTED.
2. LONGITUDINAL CROSSWALK LINES TO BE PARALLEL TO CURBLINE.
3. ALL LONGITUDINAL CROSSWALK LINES TO BE THE SAME LENGTH AND PROPERLY ALIGNED.
4. CROSS WALK SIDESLOPE SHALL NOT EXCEED 1.5%.

Crosswalk

6/08
N.T.S. Source: VHB LD_553

Notes:

1. PAVEMENT MARKINGS TO BE INSTALLED FOR ON SITE WORK IN LOCATIONS SHOWN.

Painted Pavement Markings - On Site

6/08
N.T.S. Source: VHB LD_554

Note:

PLACE ONE BALE PERPENDICULAR ALONG BALE BARRIER (100' O.C.).

Silt Fence / Straw Bale Barrier

2/11
N.T.S. Source: VHB LD_657

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APPROVED BY THE
AMESBURY PLANNING BOARD

CHAIRMAN

DATE:

Amesbury Heights

36 Haverhill Road
Amesbury, Massachusetts

No.	Revision	Date	Appvd.

Designed by CPN Checked by KSS
Issued for 40R - Final Approval Date June 5, 2015

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6/5/15

Drawing Number
C-8.3

Sheet 14 of 26

Project Number
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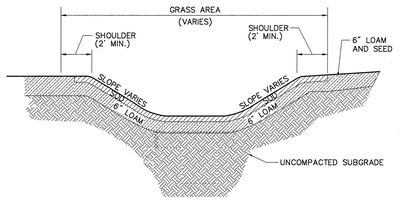
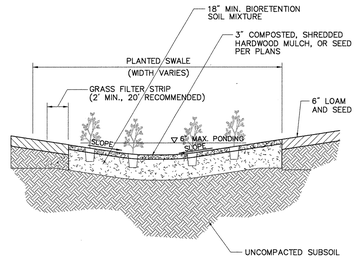


Notes:

1. SIDE SLOPES SHALL BE 3:1 MAX. 2% MIN.
2. SEE GRADING AND DRAINAGE PLAN FOR LOCATIONS AND INVERTS OF OVERFLOW OUTLETS AND SUBDRAIN CONNECTIONS.
3. SIDE SLOPES IN EXCESS OF 3:1 TO BE REINFORCED WITH GEO-FABRIC.

Grass Swale 1/07

N.T.S. Source: VHB

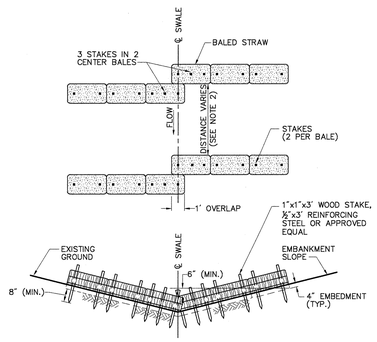


Notes:

1. SIDE SLOPES SHALL BE 3:1 MAX. 2% MIN.
2. SEE GRADING AND DRAINAGE PLAN FOR LOCATIONS AND INVERTS OF OVERFLOW OUTLETS AND SUBDRAIN CONNECTIONS.

Vegetated Swale 1/07

N.T.S. Source: VHB REV

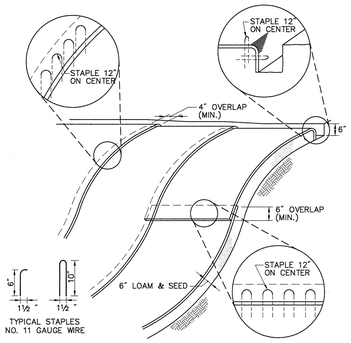


Notes:

1. THIS CHECKDAM SHALL BE INSTALLED IN A DRAINAGE SWALE WITH BED WIDTHS OF 2 FT. OR LESS.
2. THE DISTANCE BETWEEN BALE CHECKDAMS SHALL BE DETERMINED BY THE SLOPE OF THE SWALE. CHECKDAMS SHALL BE SET AT EVERY 2 FT. DROP IN SWALE ELEVATION.
3. BALES SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
4. INSTALL 3 STAKES PER HAY BALE WITHIN SWALE BED AREAS.

Straw Bale Checkdam (Narrow Swale) 2/11

N.T.S. Source: VHB LD_672

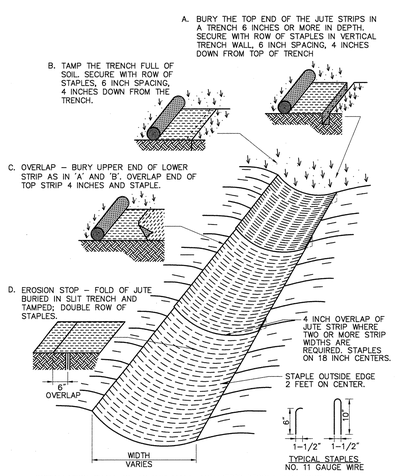


Notes:

1. BEGIN AT THE TOP OF BLANKET INSTALLATION AREA BY ANCHORING BLANKET IN A 6" DEEP TRENCH BACKFILL AND COMPACT TRENCH AFTER STAPLING.
2. ROLL THE BLANKET DOWN THE SWALE IN THE DIRECTION OF THE WATER FLOW.
3. THE EDGES OF BLANKETS MUST BE STAPLED WITH APPROX. 4 INCH OVERLAP WHERE 2 OR MORE STRIP WIDTHS ARE REQUIRED.
4. WHEN BLANKETS MUST BE SPLICED DOWN THE SWALE, PLACE UPPER BLANKET END OVER LOWER END WITH 6 INCH (MIN.) OVERLAP AND STAPLE BOTH TOGETHER.
5. METHOD OF INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS.
6. EROSION CONTROL BLANKETS SHALL BE USED IN ALL AREAS WHERE SLOPES EXCEED 3:1.

Erosion Control Blanket Slope Installation 1/10

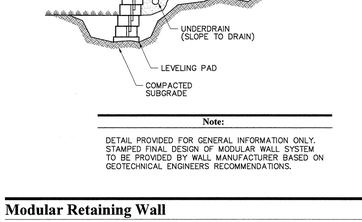
N.T.S. Source: VHB LD_680



* INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS

Erosion Control Blanket Swale Installation 6/08

N.T.S. Source: VHB LD_681

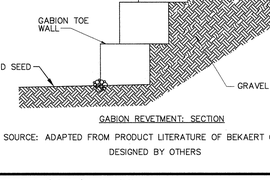


Notes:

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.
3. STABILIZED CONSTRUCTION EXIT SHALL BE REMOVED PRIOR TO FINAL FINISH MATERIALS BEING INSTALLED.

Stabilized Construction Exit 6/08

N.T.S. Source: VHB LD_682



Notes:

1. INSTALL SILTSACK IN ALL CATCH BASINS WHERE INDICATED ON THE PLAN 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 PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED

Siltsack Sediment Trap 6/08

N.T.S. Source: VHB LD_674

Drip Edge 4/07

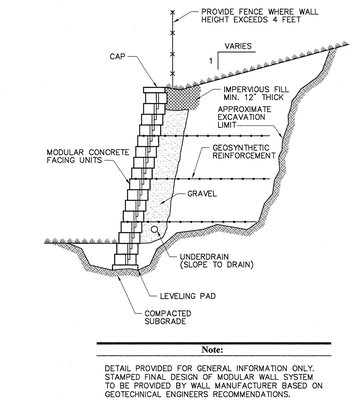
N.T.S. Source: VHB REV LD_

Bollard 6/08

N.T.S. Source: VHB LD_700

Bench Foundation 5/05

N.T.S. Source: VHB

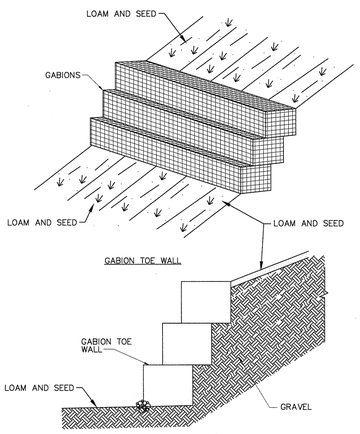


Note:

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

Modular Retaining Wall 6/08

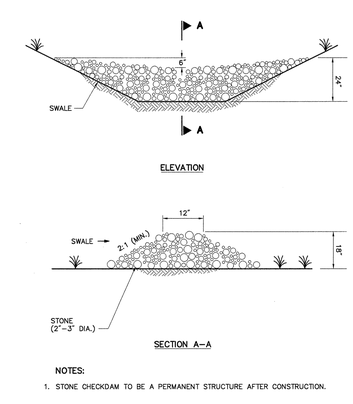
N.T.S. Source: VHB LD_750



SOURCE: ADAPTED FROM PRODUCT LITERATURE OF BEKAERT GABIONS
DESIGNED BY OTHERS

STRUCTURAL GABION WALL

S-1323RI N.T.S.

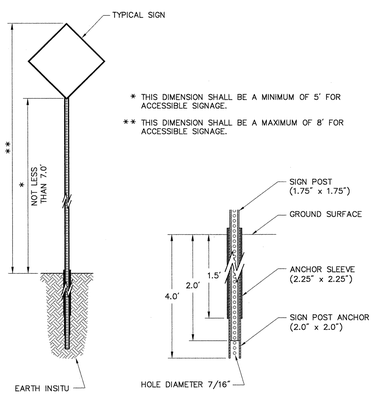


NOTES:

1. STONE CHECKDAM TO BE A PERMANENT STRUCTURE AFTER CONSTRUCTION.

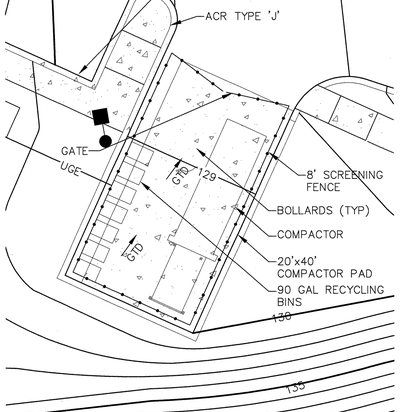
Stone Checkdam

N.T.S. Source: VHB



Sign Post - Type 'B' 12/12

N.T.S. Source: VHB LD_702



Compactor Pad Enclosure 6/03

1"=10' Source: VHB LD_712

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Drawing Title
Details

Drawing Number
C-8.4

Sheet 15 of 26

Project Number
09407.03

COMMONWEALTH OF MASSACHUSETTS
CONOR P. NAUGHTON
No. 49151
REGISTERED PROFESSIONAL ENGINEER
6/5/15

Saved Friday, June 05, 2015 9:29:58 AM PrintDate Friday, June 05, 2015 9:51:20 AM Hitchko, Peter

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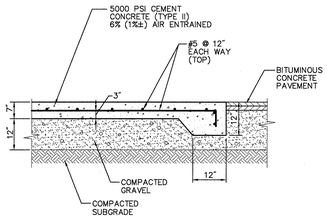


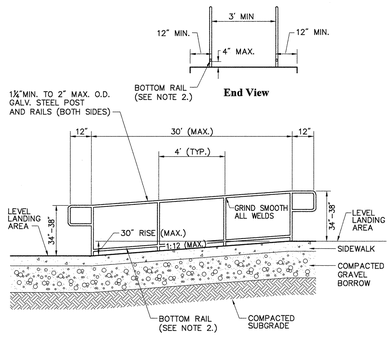
Notes:

1. SIZE OF COMPACTOR PAD TO BE AS INDICATED ON PLANS.
2. CONSTRUCTION JOINTS SHALL BE SPACED NO MORE THAN 30 FEET ON CENTER AND SHALL BE EQUALLY SPACED OVER THE LENGTH AND WIDTH OF THE PAD.

Compactor Pad

9/14

N.T.S. Source: VHB LD_712



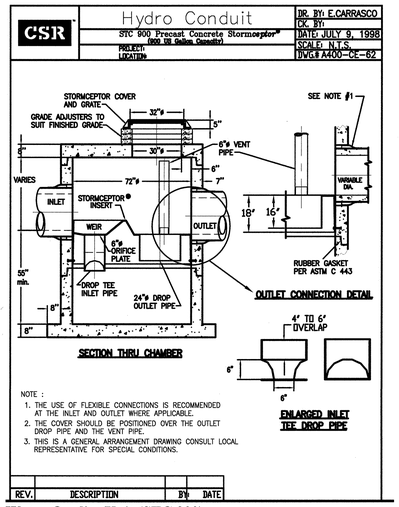
Notes:

1. FOR ADDITIONAL INFORMATION ON RAMPS SEE SECTION 405 RAMPS OF THE DEPARTMENT OF JUSTICE 2010 STANDARDS.
2. EDGE PROTECTION TO BE PROVIDED BY EXTENDING THE RAMP SURFACE 12 INCHES BEYOND THE INSIDE FACE OF THE HANDRAIL OR PROVIDING A BOTTOM RAIL WITH THE BOTTOM OF THE RAIL TO BE NO HIGHER THAN 4 INCHES ABOVE THE RAMP SURFACE.
3. REFER TO SIDEWALK DETAIL FOR SIDEWALK CONSTRUCTION.

ADA Ramp

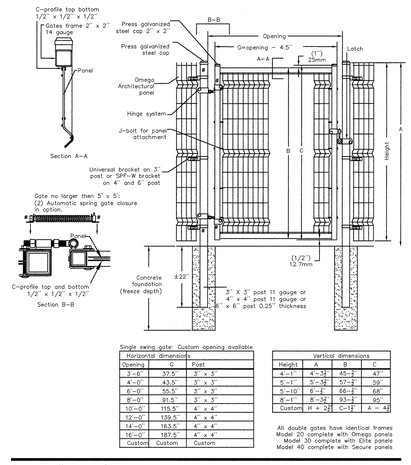
7/12

N.T.S. Source: VHB LD_764A



Water Quality Unit (STC 900)

N.T.S.



Single swing gate: Custom opening available.

Horizontal dimensions		
Opening	G	Post
3'-6"	37.5"	3" x 3"
4'-0"	43.5"	3" x 3"
6'-0"	55.5"	3" x 3"
8'-0"	91.5"	3" x 3"
10'-0"	115.5"	4" x 4"
12'-0"	139.5"	4" x 4"
14'-0"	163.5"	4" x 4"
16'-0"	187.5"	4" x 4"
Custom	Custom	Custom

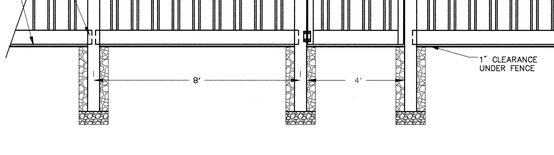
Vertical dimensions			
Height	A	B	C
4'-1"	4'-3⅝"	45-½"	47"
5'-1"	5'-3⅝"	57-½"	59"
5'-10"	6'-1⅝"	66-½"	68"
8'-1"	8'-3⅝"	93-½"	95"
Custom	H + 2⅞"	C-1⅝"	A - 4⅛"

All double gates have identical frames
Model 20 complete with Omega panels
Model 30 complete with Elite panels
Model 40 complete with Secure panels

Single Swing Gate

11/07

N.T.S. Source: VHB



Notes:

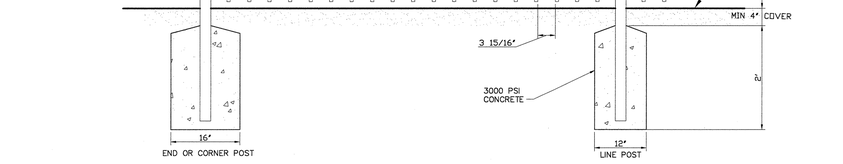
1. FENCE SHALL BE MADE OF MONOLITHICALLY EXTRUDED, VRGIN VINYL, WHITE COLOR. INSTALL FENCE PER MANUFACTURERS SPECIFICATIONS.
2. LINE OF FENCE TOP AND BOTTOM SHALL BE INSTALLED STRAIGHT AND TRUE. POSTS AND BOARDS SHALL BE INSTALLED PARALLEL AND PLUMB. RAILS SHALL BE INSTALLED PARALLEL TO GROUND SURFACE AND EACH OTHER.
3. THE CONTRACTOR SHALL SUBMIT GATE AND FENCE SHOP DRAWINGS TO THE ENGINEER FOR REVIEW.

Vinyl Screen Fence

10/07

N.T.S. Source: VHB

NOTES:
1. FENCE PANELS TO BE 4' HIGH ECHELON PLUS MAJESTIC 3-RAIL ALUMINUM FENCE BY MASTER HALCO OR APPROVED EQUIVALENT.
2. CONTRACTOR TO PROVIDE SHOP DRAWING TO DETAIL SPECIFIC PANEL AND INTERMEDIATE POST LAYOUT.
3. FINISH TO BE WHITE POWDER-COAT.



Ornamental Aluminum Fence

11/07

N.T.S. Source: VHB

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Issued for **40R - Final Approval** Date **June 5, 2015**

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Drawing Title: **Details**

Drawing Number: **C-8.5**

Sheet 16 of 26

Project Number: **09407.03**

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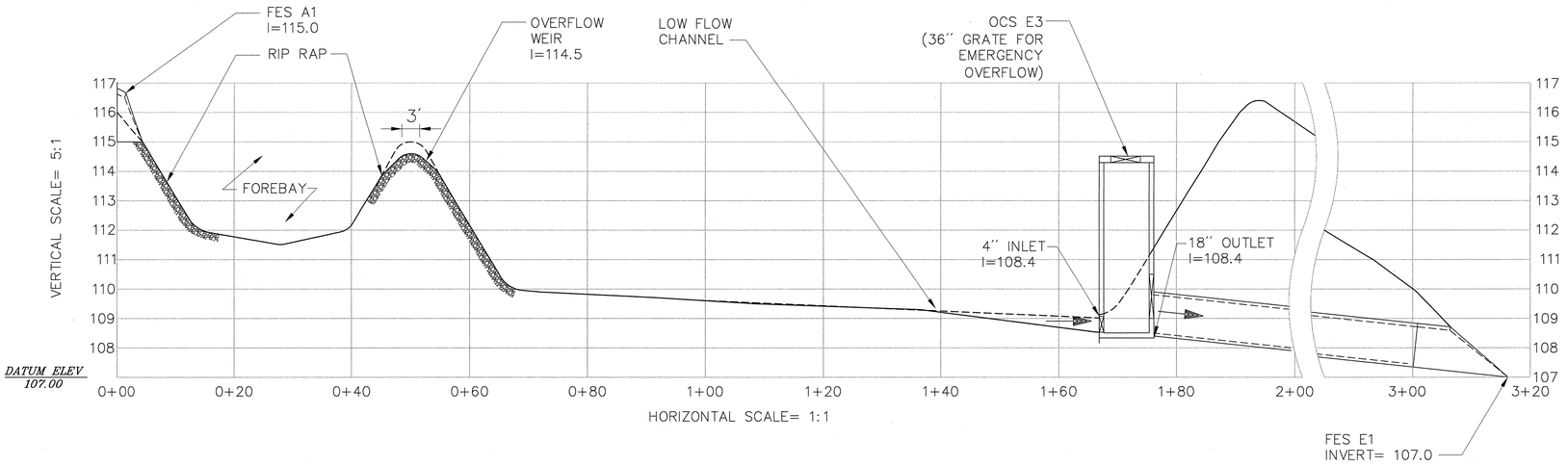
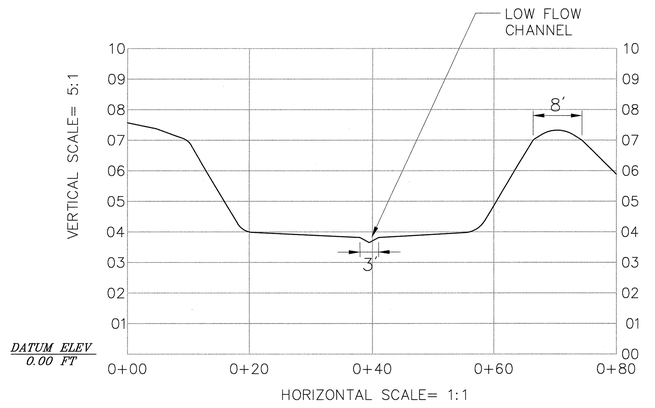


Detention Basin A- Profile

6/07

H 1:1, V 5:1

Source: VHB

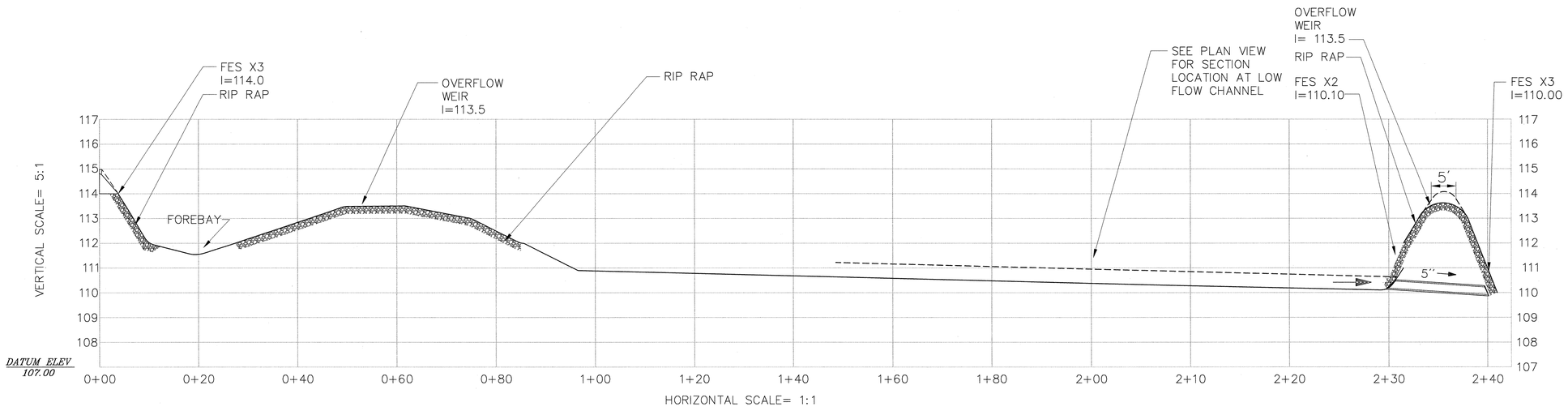


Detention Basins - Typical Section

6/07

H 1:1, V 5:1

Source: VHB



Detention Basin X- Profile

H 1:1, V 5:1

Source: VHB

HORIZONTAL
10 0 10 20
4 0 4 8
VERTICAL
SCALE IN FEET

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Drawing Title: Detention Basin Sections

Drawing Number: C-9

Sheet 17 of 26

Project Number: 09407.03

COMMONWEALTH OF MASSACHUSETTS
CONOR P. NAGLE
CIVIL
REGISTERED PROFESSIONAL ENGINEER
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Station	Sideline Grade Elevations – West	Sideline Grade Elevations – East	Centerline Grade Elevations – Existing	Centerline Grade Elevations – Proposed
1+00	97.2	96.5	96.8	96.80
	97.7	96.8	97.2	97.20
1+50	97.5	96.6	97.1	97.41
	97.0	96.4	96.7	
2+00	96.0	95.0	95.7	95.35
	94.5	92.9	93.7	94.22
2+50	89.7	90.0	91.0	93.16
	88.4	86.6	88.5	92.20
3+00	88.3	88.3	88.8	91.33
	88.0	87.8	88.1	90.56
3+50	88.0	87.1	88.0	89.90
	88.0	86.6	87.6	89.33
4+00	87.7	86.2	87.0	88.86
	87.4	85.9	86.7	88.49
4+50	86.9	85.1	86.4	88.22
	86.7	84.2	86.2	88.05
5+00	86.6	83.8	86.1	87.97
	87.1	83.9	86.1	88.00
5+50	86.6	84.4	86.2	88.12
	86.4	84.8	86.1	88.35
6+00	86.4	84.9	86.1	88.67
	86.4	84.6	86.1	89.09
6+50	86.5	84.1	86.1	89.61
	86.7	84.1	86.5	90.23
7+00	87.5	85.5	87.0	90.95
	86.9	86.1	86.5	91.77
7+50	87.1	86.5	86.8	92.69
	88.1	88.0	88.1	93.70
8+00	90.0	89.0	89.4	94.82
	92.9	90.9	91.4	
8+50	95.4	93.6	94.3	97.37
	98.4	96.4	97.1	
9+00	101.9	99.6	100.4	100.81
	104.6	102.9	103.1	
9+50	107.3	105.2	106.7	104.26
	108.6	107.3	108.0	
10+00	110.0	109.0	109.7	107.72
	110.5	110.0	110.4	
10+50	111.8	111.0	111.5	111.18
	112.2	111.5	112.0	
11+00	113.0	112.3	112.6	114.63
	113.8	112.4	113.1	
11+50	115.1	113.5	114.0	118.09
	118.9	118.6	117.8	
12+00	120.0	124.5	121.6	121.54
	120.0	126.9	122.6	
12+50	120.6	125.8	121.8	125.00
	121.8	125.3	122.6	
13+00	122.2	124.7	123.0	128.45
	122.9	123.9	123.3	130.16
13+50	124.0	124.7	124.3	131.12
	124.6	125.2	124.9	125.0

HORIZONTAL 40 0 40 80
4 0 4 8 VERTICAL
SCALE IN FEET

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Drawing Title
Entrance Drive Profile

Drawing Number
C-10

COMMONWEALTH OF MASSACHUSETTS CONOR P. NAG... CIVIL No 46302 REGISTERED PROFESSIONAL ENGINEER
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Sheet 18 of 26

Project Number 09407.03

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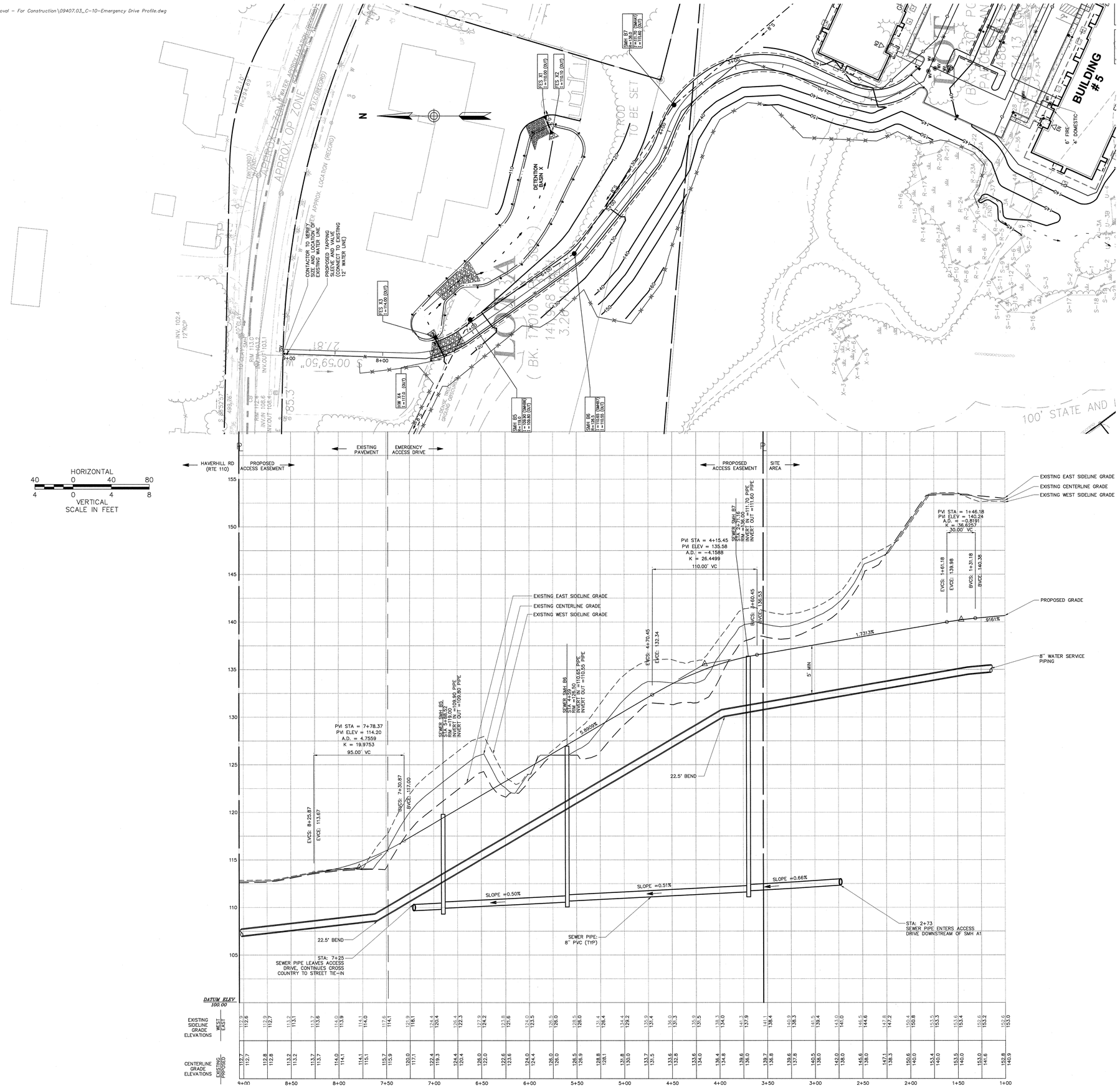

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Drawing Title: Emergency Access Drive Profile

Drawing Number: C-11

Sheet 19 of 26

Project Number: 09407.03

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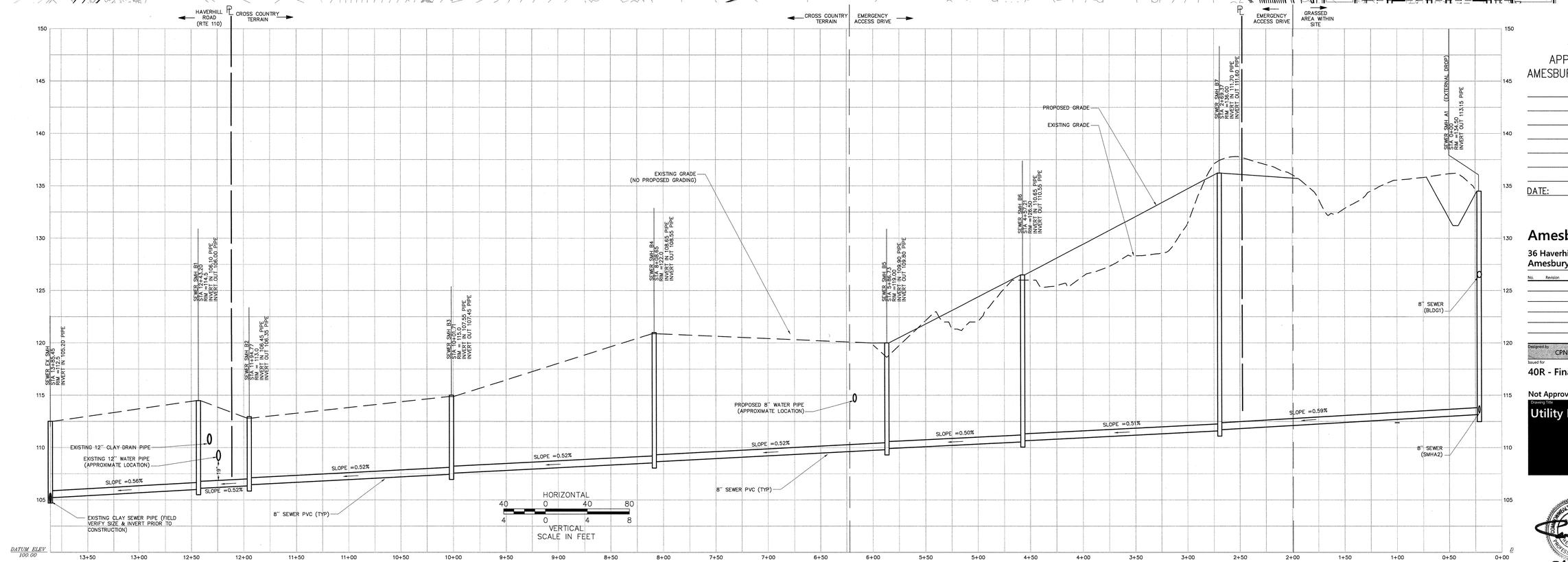

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Drawing Title
Utility Profiles

Drawing Number
C-12

Sheet 20 of 26

Project Number
09407.03

6/5/15

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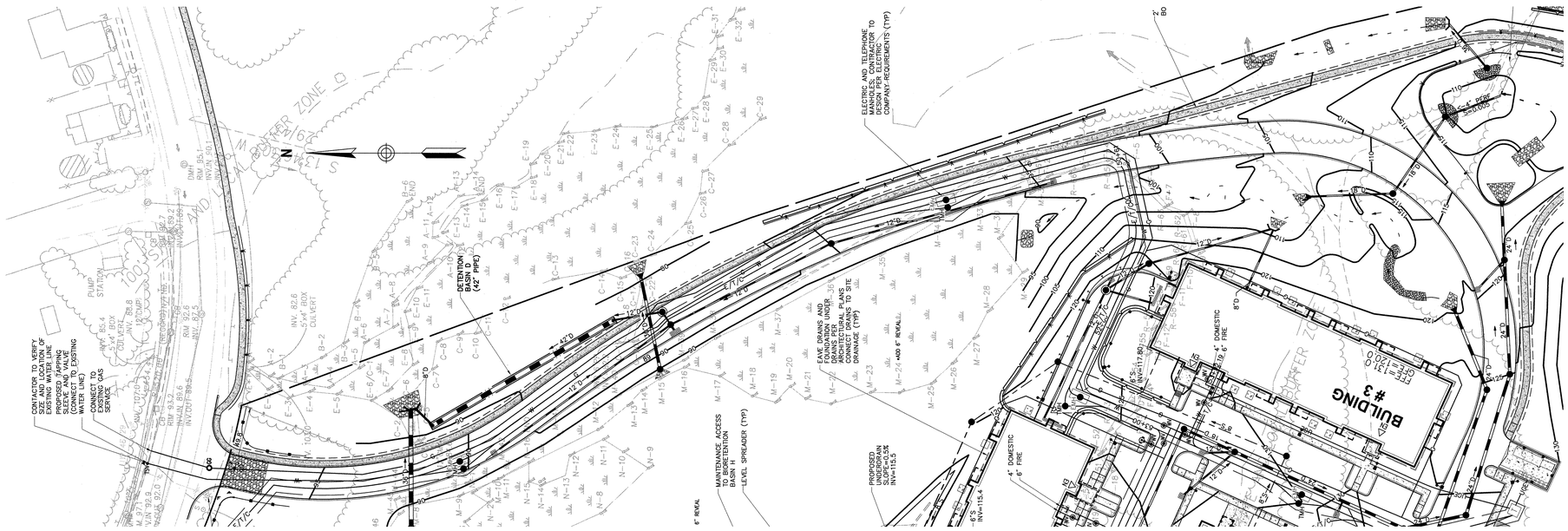

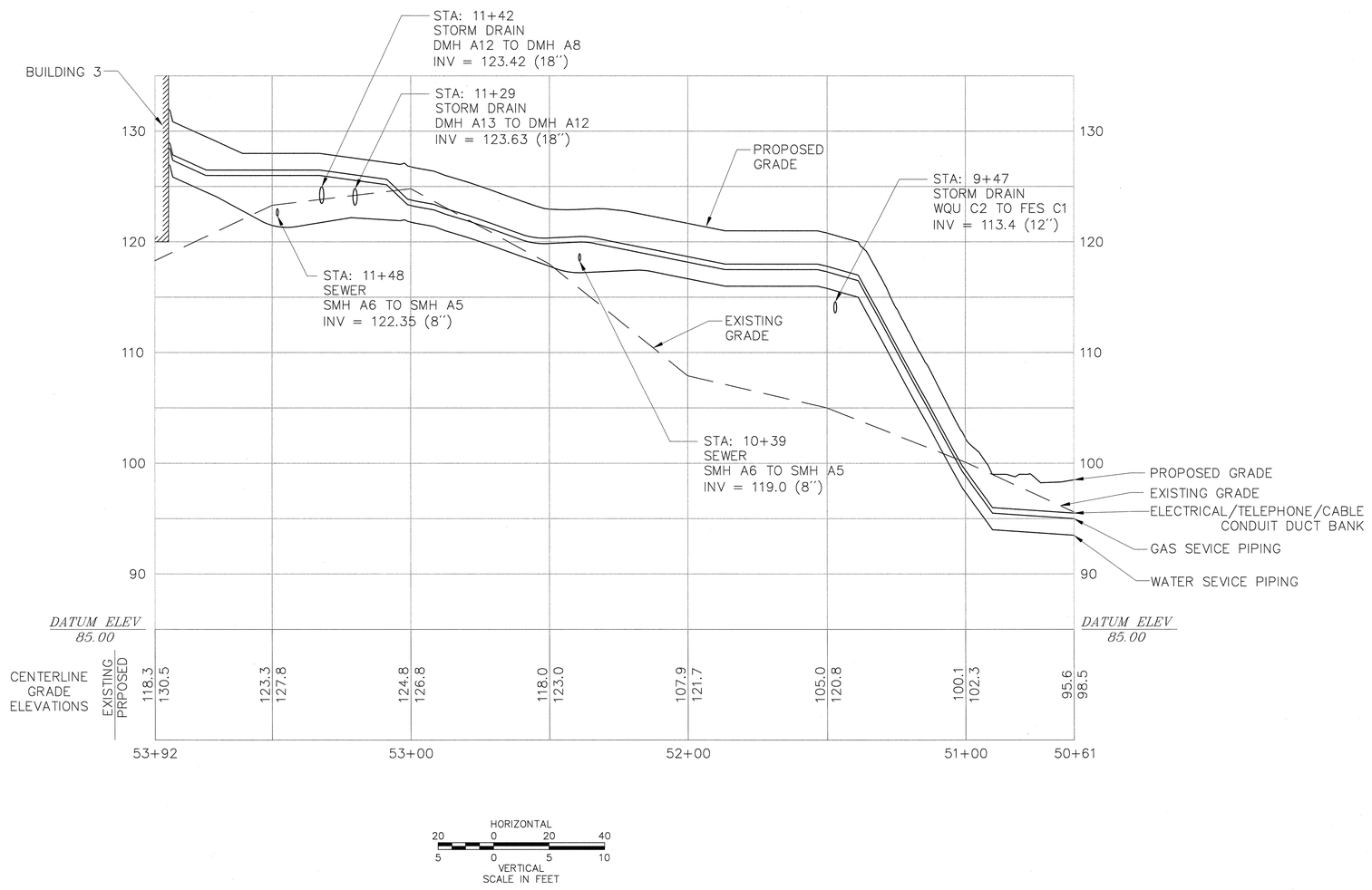

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Drawing Title
Utility Profiles

Drawing Number
C-13

Sheet 21 of 26

Project Number
09407.03

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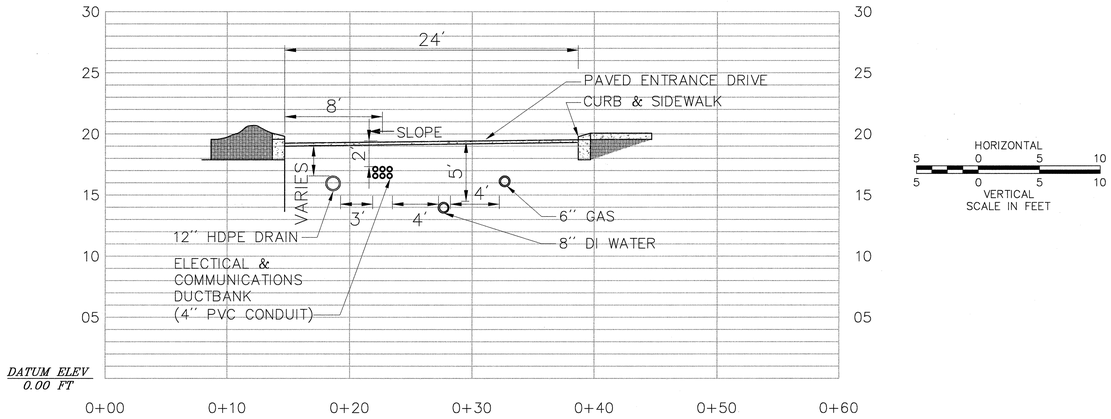
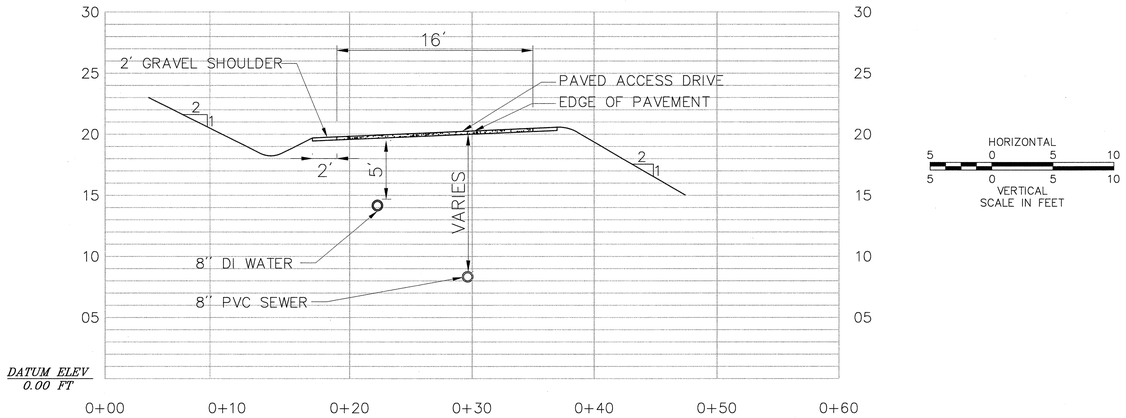


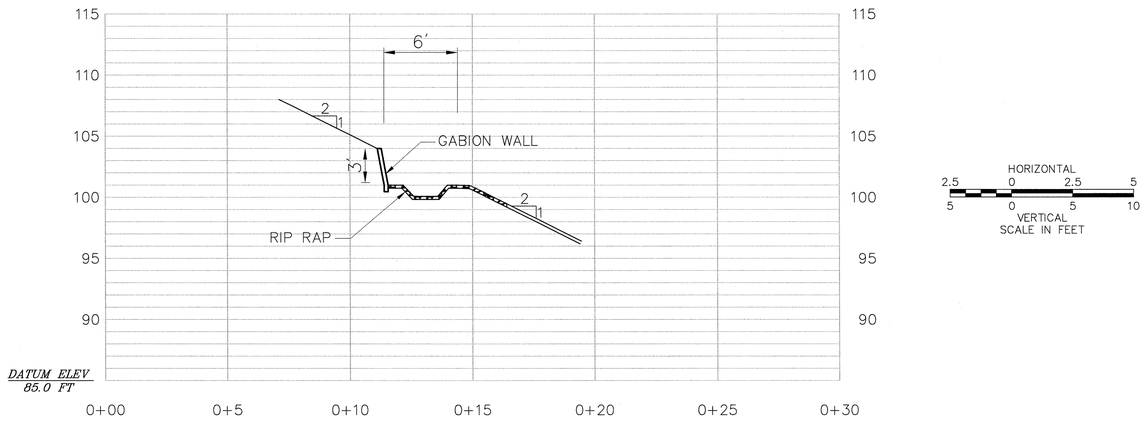
Entrance Drive - Typical Utility Section 9/07

Source: VHB



Emergency Access Drive - Typical Utility Section 04/15

Source: VHB



Section FF 9/07

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Drawing Title: Typical Utility Sections

Drawing Number: C-14

Sheet 22 of 26

Project Number: 09407.03

6/5/15

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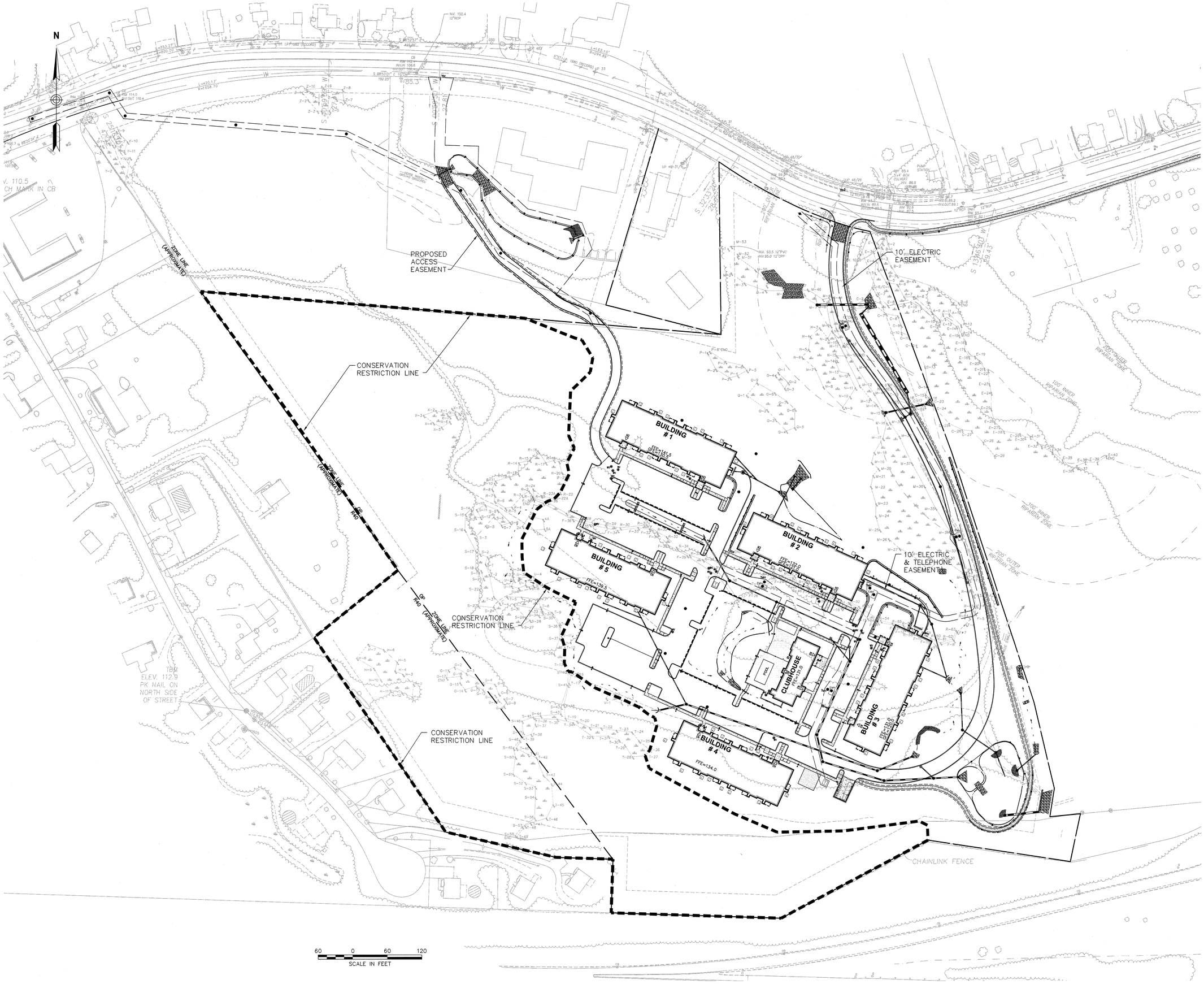

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Drawing Title
Easements Plan

Drawing Number
C-15

Sheet 23 of 26

Project Number
09407.03

6/5/15

Saved Friday, June 05, 2015 9:38:30 AM PHITCHKO Plotted Friday, June 05, 2015 9:54:29 AM Hitchko, Peter

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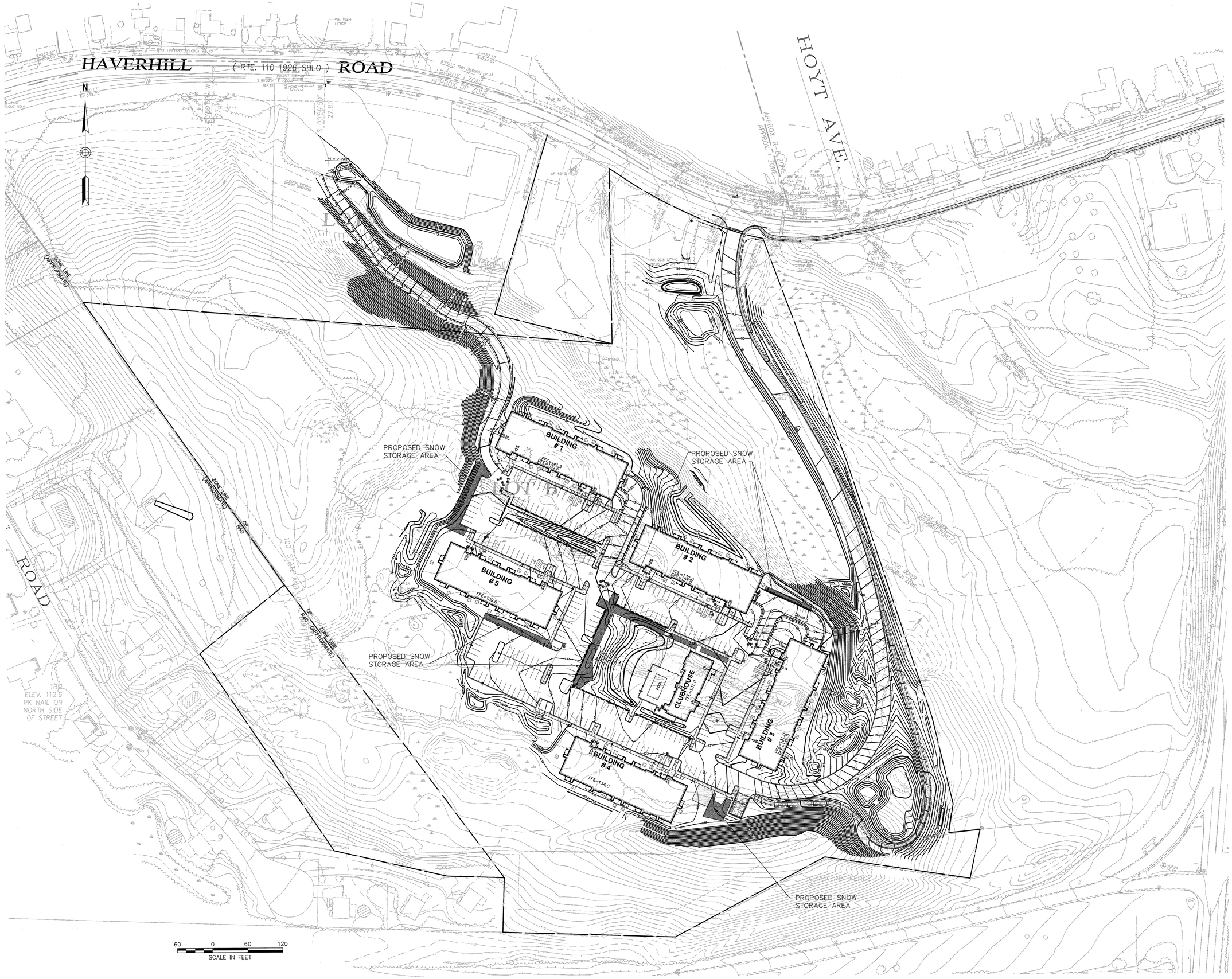

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Drawing Title

Snow Storage Plan

Drawing Number

C-16

Sheet 24 of 26

Project Number 09407.03

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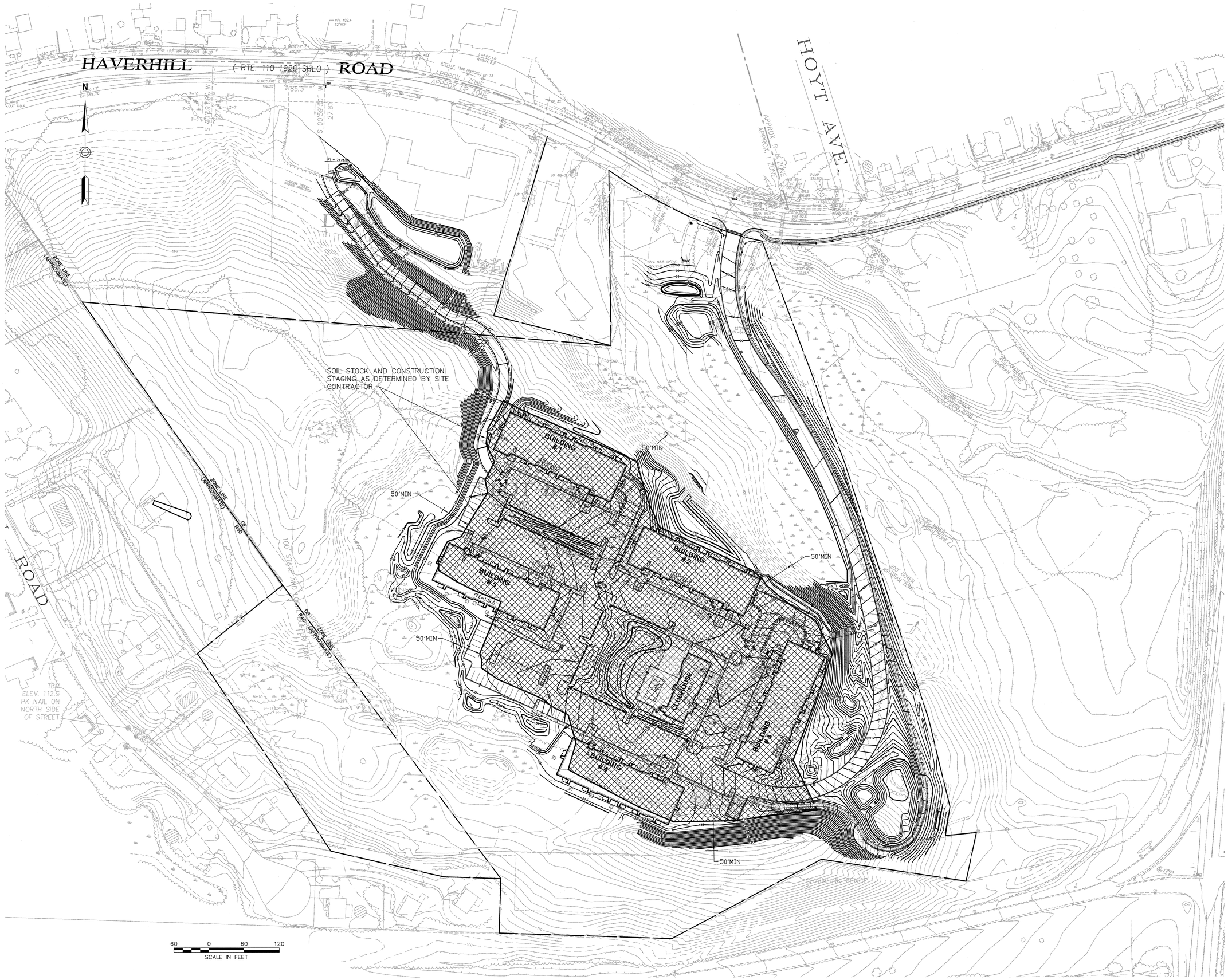

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Amesbury, Massachusetts

No.	Revision	Date	Appvd.

Designed by: CPN
Checked by: KSS

Issued for: 40R - Final Approval
Date: June 5, 2015

Not Approved for Construction

Drawing Title: Construction Staging Plan

Drawing Number: C-17

Sheet 25 of 26

Project Number: 09407.03

6/5/15

Saved Friday, June 05, 2015 9:40:13 AM PHITCHKO Plotted Friday, June 05, 2015 9:55:24 AM Hitchko, Peter

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Table III

Bordering Vegetated Wetland Replication Area 1
2,860 Square Feet

Planting Table

Tree	green ash (*Fraxinus pennsylvanica*) red maple (*Acer rubrum*) swamp white oak (*Quercus bicolor*)	4'-6' specimens	28 trees planted 10' on center throughout the replication area.
Shrub	silky dogwood (*Cornus amomum*) winterberry (*Ilex verticillata*) highbush blueberry (*Vaccinium corymbosum*) northern arrowwood (*Viburnum dentatum*) wild raisin (*Viburnum cassinoides*)	18"-24" stock	44 shrubs planted 8' on center throughout the replication area.
Herbaceous	Wetland Seed Mix: red top (*Agrostis alba*), switchgrass (*Panicum virgatum*), fox sedge (*Carex vulpinoidea*), soft rush (*Juncus effusus*), nodding bur-marigold (*Bidens cernua*), swamp milkweed (*Asclepias incarnata*), nodding smartweed (*Polygonum lapathifolium*)	Wetland Seed Mix	0.5 lbs./2,500 s.f.

Table IV

Isolated Vegetated Wetland Replication Area 4
6,800 Square Feet

Planting Table

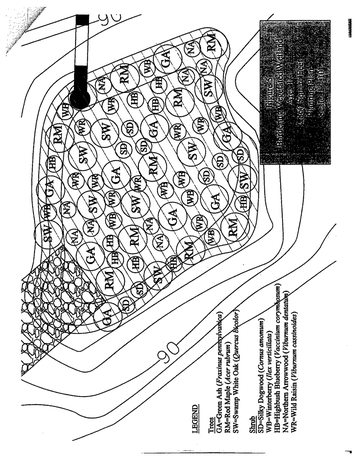
Tree	red maple (*Acer rubrum*) green ash (*Fraxinus pennsylvanica*) swamp white oak (*Quercus bicolor*)	4'-6' specimens	68 trees planted 10' on center throughout the replication area.
Shrub	silky dogwood (*Cornus amomum*) highbush blueberry (*Vaccinium corymbosum*) northern arrowwood (*Viburnum dentatum*) winterberry (*Ilex verticillata*)	18"-24" stock	106 shrubs planted 8' on center throughout the replication area.
Herbaceous	Wetland Seed Mix: red top (*Agrostis alba*), switchgrass (*Panicum virgatum*), fox sedge (*Carex vulpinoidea*), soft rush (*Juncus effusus*), nodding bur-marigold (*Bidens cernua*), swamp milkweed (*Asclepias incarnata*), nodding smartweed (*Polygonum lapathifolium*)	Wetland Seed Mix	0.5 lbs./2,500 s.f.

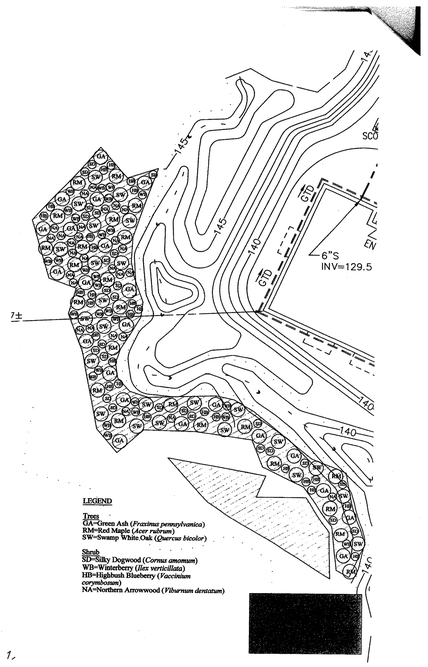
Table V

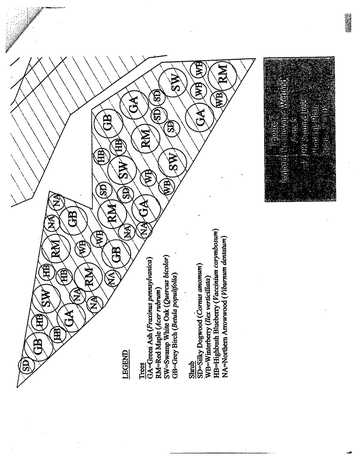
Isolated Vegetated Wetland Replication Area 5
1,700 Square Feet

Planting Table

Tree	red maple (*Acer rubrum*) green ash (*Fraxinus pennsylvanica*) swamp white oak (*Quercus bicolor*) gray birch (*Betula populifolia*)	4'-6' specimens	17 trees planted 10' on center throughout the replication area.
Shrub	silky dogwood (*Cornus amomum*) highbush blueberry (*Vaccinium corymbosum*) northern arrowwood (*Viburnum dentatum*) winterberry (*Ilex verticillata*)	18"-24" stock	26 shrubs planted 8' on center throughout the replication area.
Herbaceous	Wetland Seed Mix: red top (*Agrostis alba*), switchgrass (*Panicum virgatum*), fox sedge (*Carex vulpinoidea*), soft rush (*Juncus effusus*), nodding bur-marigold (*Bidens cernua*), swamp milkweed (*Asclepias incarnata*), nodding smartweed (*Polygonum lapathifolium*)	Wetland Seed Mix	0.5 lbs./2,500 s.f.







vhb.com
vhb
101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

APPROVED BY THE
AMESBURY PLANNING BOARD

CHAIRMAN

DATE:

Amesbury Heights

36 Haverhill Road
Amesbury, Massachusetts

No.	Revision	Date	Apprvd.

Designed by: CPN | Checked by: KSS

Issued for: **40R - Final Approval** | Date: **June 5, 2015**

Not Approved for Construction

Drawing Title
Wetland Replication Planting Plan

Drawing Number
C-18

Sheet 26 of 26

Project Number
09407.03

Saved Friday, June 05, 2015 9:40:40 AM PHITCHKO Plotted Friday, June 05, 2015 9:55:56 AM Hitchko, Peter

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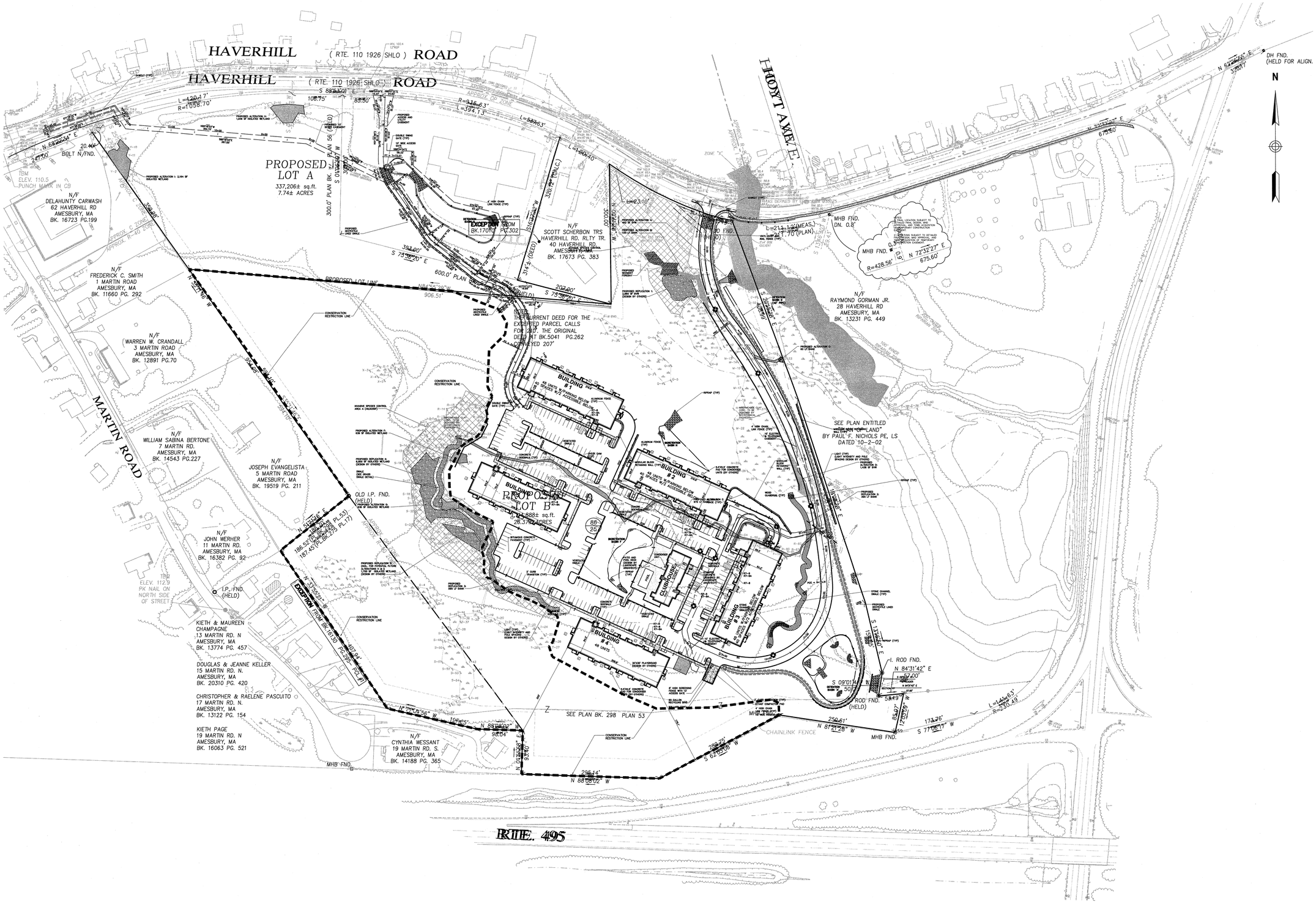


APPROVED BY THE AMESBURY PLANNING BOARD

CHAIRMAN

DATE:

Amesbury Heights

36 Haverhill Road
Amesbury, Massachusetts

No.	Revision	Date	Appvd.

Designed by: CPN | Checked by: KSS

Issued for: **40R - Final Approval** | Date: **June 5, 2015**

Not Approved for Construction

Drawing Title: **Conceptual Subdivision Plan**

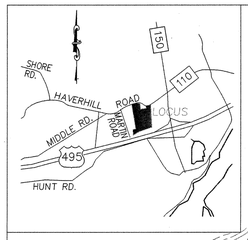
Drawing Number: **S-1**

Sheet 1 of 1

Project Number: **09407.03**

Saved Monday, April 06, 2015 8:44:47 AM PHITCHKO Plotted Friday, June 05, 2015 10:09:25 AM Hitchko, Peter

TOPOGRAPHY AND ON GROUND STRUCTURES LOCATED BY EASTERN TOPOGRAPHICS
WETLANDS DELINEATED BY WETLANDS PRESERVATION, INC. AND LOCATED BY THIS OFFICE
WETLANDS BUFFER ZONE BASED ON INFORMATION FROM WETLANDS PRESERVATION, INC.



LOCUS MAP

NOTES:

1.) THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT, VISIBLE USES OF THE LAND; HOWEVER, THIS DOES NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.

2.) A.)DRAINAGE, WATER, ELECTRIC, GAS AND SEWER ON HAVERHILL ROAD WERE LOCATED BY INSTRUMENT SURVEY, SOME ADDITIONAL SEWER STRUCTURES COULD NOT BE LOCATED DUE TO BEING PAVED AND/OR BURIED.
B.)TOWN RECORD SEWER INFORMATION IS INSERTED BASED ON SCANNED AND SCALED IMAGES.
C.)FORCED 6" D.I. MAIN SHOWN IS BASED ON SEA CONSULTANTS PLAN, TOWN RECORDS SHOW THE FORCED MAIN HAND DRAWN.

HAVERHILL ROAD (RTE. 110 1926 SHLO)

HOYT AVE.

N/F DELAHUNTY CARWASH 62 HAVERHILL RD. AMESBURY, MA BK. 16723 PG.199

N/F SCOTT SCHERBON TRS HAVERHILL RD. RLTY TR. 40 HAVERHILL RD. AMESBURY, MA BK. 17673 PG. 383

N/F RAYMOND GORMAN JR. 28 HAVERHILL RD AMESBURY, MA BK. 13231 PG. 449

N/F WARREN W. CRANDALL 3 MARTIN ROAD AMESBURY, MA BK. 12891 PG.70

N/F WILLIAM SABINA BERTONE 7 MARTIN RD. AMESBURY, MA BK. 14543 PG.227

N/F JOSEPH EVANGELISTA 5 MARTIN ROAD AMESBURY, MA BK. 19519 PG. 211

N/F JOHN WERHER 11 MARTIN RD. AMESBURY, MA BK. 16382 PG. 92

KIETH & MAUREEN CHAMPAGNE 13 MARTIN RD. N AMESBURY, MA BK. 13774 PG. 457

DOUGLAS & JEANNE KELLER 15 MARTIN RD. N. AMESBURY, MA BK. 20310 PG. 420

CHRISTOPHER & RAELENE PASCUITO 17 MARTIN RD. N. AMESBURY, MA BK. 13122 PG. 154

KIETH PAGE 19 MARTIN RD. N AMESBURY, MA BK. 16063 PG. 521

N/F CYNTHIA WESSANT 19 MARTIN RD. S. AMESBURY, MA BK. 14188 PG. 365

RTE. 495

SEE PLAN ENTITLED "PLAN OF LAND" BY PAUL F. NICHOLS PE, LS DATED 10-2-02

UNDERGROUND UTILITY NOTE

THE ACTUAL HORIZONTAL AND VERTICAL LOCATION OF UNDERGROUND UTILITY LINES BETWEEN STRUCTURES CANNOT BE CERTIFIED TO.
THE LOCATION OF UNDERGROUND UTILITIES SHOWN ARE BASED ON SURFACE FEATURES AND OBSERVATION OF EXISTING LINES INSIDE OF MANHOLES.
AVAILABLE RECORD INFORMATION FOR UTILITIES HAS BEEN USED TO VERIFY THE FIELD LOCATIONS AND CONNECTIONS SHOWN.
THE ACTUAL LOCATION AND CONNECTIONS MAY VARY FROM THAT SHOWN HEREON.

THE CERTIFICATIONS SHOWN HEREON ARE NOT INTENDED AS CERTIFICATION TO TITLE OR OWNERSHIP OF PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT TOWN/CITY ASSESSORS RECORDS.

I CERTIFY:
THAT THIS ACTUAL SURVEY WAS MADE ON THE GROUND BETWEEN JULY 2004 AND JAN. 2006 AND THAT THE WETLAND FLAGS AND LOCUS PROPERTY FEATURES ARE LOCATED AS SHOWN TO THE BEST OF MY ABILITY AND BELIEF.

PROGRESS PRINT

REGISTERED PROFESSIONAL LAND SURVEYOR DATE

LEGEND

C.B.	CONCRETE BOUND
S.B.	STONE BOUND
D.H.	DRILL HOLE
PK	MASONRY NAIL
I.P.	IRON PIPE
I ROD	IRON ROD
FND.	FOUND
N/FND.	NOT FOUND
0/00	ASSESSORS MAP AND PARCEL

GRAPHIC SCALE
80 0 40 80 160 320
(IN FEET)
1 inch = 80'

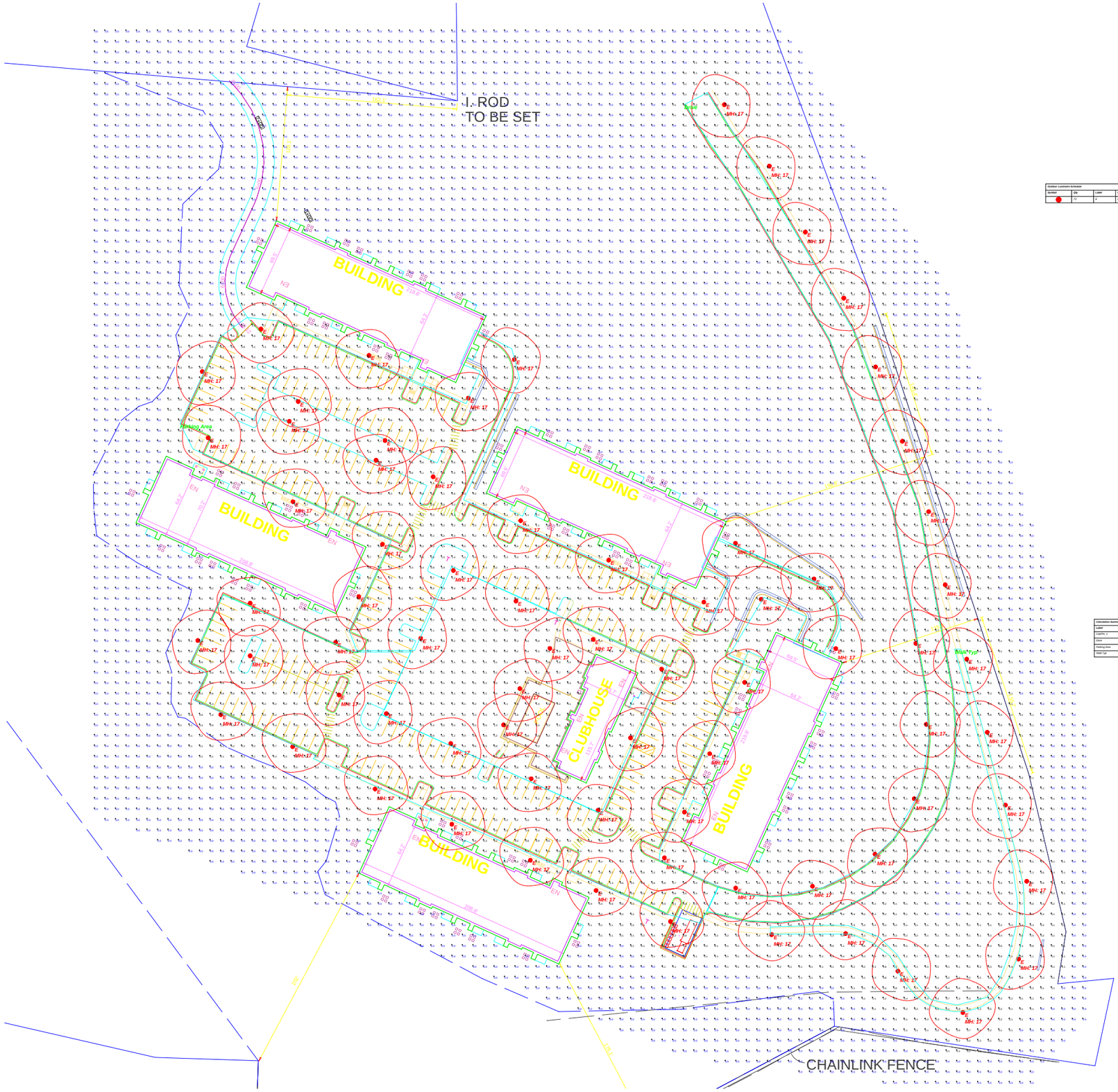
PLAN OF LAND
IN
AMESBURY, MA

SHOWING
EXISTING CONDITIONS AND PROPOSED LOT LINES FOR PERMIT PURPOSES
(ASSESSORS MAP 86, LOT 25)

PREPARED FOR
BOSTON NORTH PROPERTIES

MILLENNIUM ENGINEERING, INC.
ENGINEERS AND LAND SURVEYORS
62 ELM ST. SALISBURY, MA 01952

SCALE: 1"=80'	CALC. BY: P.J.M.	PROJECT: M051794
DATE: MAR. 24, 2006	CHK BY: S.J.R.	



Outdoor Luminaire Schedule

Symbol	Qty	Label	Description	Arrangement	Arm	Lum. Lumens	LLF	Filename
	19	A	4 RSS-ED-WL-ATT3-10-UVF	SINGLE	0	4000	0.900	4-RSS-ED-WL-ATT3-MD-2

Luminaire Location Summary

Lumille	Label	X	Y	Z	Orient	Tilt
1	A	49259.0	24809.78	47	90.000	0
2	A	50261.28	24809	47	180.000	0
3	A	49274.0	24877.5	47	270.754	0
4	A	49312.28	24809.75	47	90.000	0
5	A	49331	24852.75	47	90.258	0
6	A	49857.8	24853.625	47	89.997	0
7	A	50278.28	24852.75	47	91.458	0
8	A	49965.8	24849	47	358.95	0
9	A	50210.8	24849.75	47	269.735	0
10	A	49994.78	24864.8	47	337.938	0
11	A	49481.78	24873.5	47	87.048	0
12	A	49414.28	24873.75	47	358.17	0
13	A	49313	24877.25	47	313.603	0
14	A	49274.8	24909.75	47	271.458	0
15	A	49284.28	24967.125	47	243.598	0
16	A	49279.8	24993	47	251.389	0
17	A	49382	24993	47	337.938	0
18	A	49179.78	24993	47	206.125	0
19	A	49068.8	24993.75	47	87.048	0
20	A	49182	24993	47	206.529	0
21	A	49370.28	24973.75	47	337.82	0
22	A	49780.78	24979.5	47	87.048	0
23	A	49419.8	24980.5	47	358.658	0
24	A	49402.8	24968	47	359.44	0
25	A	49296.28	24969.63	47	337.938	0
26	A	49564.28	24703.28	47	206.529	0
27	A	49297.28	24703.75	47	91.063	0
28	A	49296.28	24703	47	92.056	0
29	A	49577.78	24703	47	153.369	0
30	A	47212.78	24703.75	47	213.27	0
31	A	49301.78	24704.75	47	153.02	0
32	A	49567	24749.75	47	258.638	0
33	A	49404	24753.25	47	262.276	0
34	A	49429.78	24784.75	47	337.938	0
35	A	49607.28	24785	47	331.498	0
36	A	49300.28	24772.75	47	206.498	0
37	A	49421.28	24773	47	157.429	0
38	A	49274.28	24777.75	47	0.052	0
39	A	49296	24778.5	47	243.814	0
40	A	49547	24780.5	47	153.723	0
41	A	49461	24781.5	47	64.619	0
42	A	49426	24783.5	47	153.613	0
43	A	49607.28	24803	47	258.814	0
44	A	49279.78	24804	47	337.938	0
45	A	49543.8	24804	47	89.499	0
46	A	49301.28	24803.75	47	153.06	0
47	A	49704	24804.25	47	258.686	0
48	A	49436.28	24803.5	47	337.938	0
49	A	49271	24808	47	206.498	0
50	A	49512	24807	47	153.508	0
51	A	49496.28	24967	47	337.938	0
52	A	49661.8	24973	47	64.327	0
53	A	49281.78	24973	47	153.153	0
54	A	49542	24969.5	47	337.938	0
55	A	49782	24972	47	337.938	0
56	A	47766.8	24953.5	47	64.327	0
57	A	49420.28	24953.25	47	206.529	0
58	A	49402.28	24953.25	47	337.938	0

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts_2	Illuminance	Fc	0.34	2.2	0.0	N.A.	N.A.
Demo	Illuminance	Fc	2.09	2.2	2.1	0.00	10.00
Picking Area	Illuminance	Fc	0.68	2.2	0.4	0.00	10.00
Wall Typ	Illuminance	Fc	1.58	2.2	0.3	0.00	7.33

Feet
0 20 40 80

OMNI-LITE, INC.
243 MAIN STREET BURLINGTON, WA. 01803
TEL: 781-272-2300 FAX: 781-272-2302 www.omnilight.com

PROJECT	Amesbury Heights
CLIENT	xxx
SCALE	FEET
FILE	omni amesbury ht 11.adm
DATE	05/27/2015
DRAWN BY	Paul Abdella

THESE DRAWINGS ARE FOR CONCEPTUAL USE ONLY AND ARE NOT INTENDED FOR CONSTRUCTION. VALUES REPRESENTED ARE CALCULATED FROM MANUFACTURER DATA SUPPLIED BY LAMP MFG. AND TESTING LABS.

THE COMMONWEALTH OF MASSACHUSETTS

SAFETY IMPROVEMENT PROJECT

HAVERHILL ROAD (ROUTE 110)

IN THE TOWN OF

AMESBURY

ESSEX COUNTY

ACCESS PERMIT PROJECT

HIGHWAY DEPT. AUTHORIZATION
HIGHWAY TECH. REVIEW
CONSTRUCTION REVIEW

PROJECT ENGINEER
STRUCTURAL REVIEW
TRAFFIC SIGNAL REVIEW

\\vhb\proj\Wat-TS\09407.04\cad\te\planset\09407cov.dwg

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2	LEGEND & GENERAL NOTES
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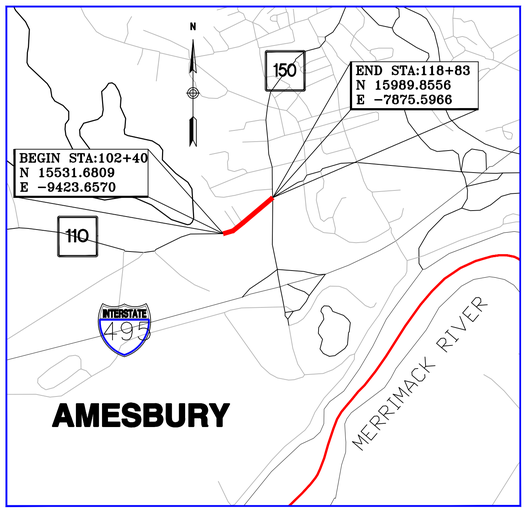
28–31	CROSS SECTIONS



0.2 0 1 MILE

800 0 1600 3200 4800

SCALE

100% SUBMITTAL

LENGTH OF PROJECT: 1640 FEET

REFERENCE MANUALS

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED JUNE 15, 2012, THE INTERIM SUPPLEMENTAL SPECIFICATIONS DATED MAY 2, 2014, THE 2014 CONSTRUCTION STANDARD DETAILS, THE 1996 CONSTRUCTION AND TRAFFIC STANDARD DETAILS (AS RELATES TO TRAFFIC STANDARD DETAILS ONLY), THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

DESIGN DESIGNATION

DESIGN SPEED	=	40 mph
ADT (2006)	=	10,970 vpd
ADT (2016)	=	15,547 vpd
K	=	8.4%
D	=	56.3% (WB)
T (PEAK HOUR)	=	2.0%
DHV	=	1306 vph
DDHV	=	735 vph (WB)

SUBJECT TO APPROVAL BY MassDOT

ENGINEER DATE

VHB Vanasse Hangen Brustlin, Inc.
Transportation • Land Development • Environmental Services
101 Walnut St., P.O. Box 9151
Watertown, MA 02472
617 924 1770 FAX 617 924 2286

DESIGNED BY J. MONTY	APPROVED BY DGS	SHEET 1	OF 31
DRAWN BY J. MONTY	DFTG CHECKED BY DGS	VHB CAD FILE NAME 09407cov.dwg	
CHECKED BY WPA	DATE 28 OCT 14	JOB NO. 09407.01	

GENERAL SYMBOLS

EXISTING	PROPOSED	
CB (OR GI, LB)	■ CB	CATCH BASIN (OR GUTTER INLET, OR LEACHING BASIN)
CBCI (OR GICI)	■ CBCI (OR GICI)	CATCH BASIN (OR GUTTER INLET) WITH CURB INLET (GUTTERMOUTH)
		EDGESTONE–TYPE NOTED
		EDGE OF ROAD
Ⓔ	●EHH	ELECTRIC HANDHOLE (NUMBER AS NOTED)
Ⓔ	●EMH	ELECTRIC MANHOLE "
Ⓣ	●TMH	TELEPHONE MANHOLE "
Ⓦ	●WMH	WATER MANHOLE "
Ⓢ	●SMH	SEWER MANHOLE "
Ⓓ	●DMH	DRAINAGE MANHOLE "
○ GG	● GG	GAS GATE
⋈ WG	●WG	WATER GATE
○ CS	●CS	CURB STOP
Hyd	●HYD	HYDRANT
○ FA	● FA	FIRE ALARM BOX
	●	
LP	●LP	STREET LIGHT POLE
UP	●UP	UTILITY POLE
Guy	● GUY	GUY POLE
12" RCP SD	21'–12"RCP	DRAIN PIPE (UNDER 24")
	21'–24"RCP	DRAIN PIPE (DOUBLE LINE 24" AND OVER)
8" VCP SS	82'–8"VCP	SEWER MAIN " "
E		ELECTRIC DUCT " "
4" HP GAS	8"GAS	GAS MAIN " "
8" C.I. W	12"DI	WATER MAIN " "
COMM		TELEPHONE DUCT " "
□MB	■MB	MAIL BOX
		HIGHWAY GUARD (TYPE NOTED)
		FENCE (SIZE AND TYPE NOTED)
□MHB	■MHB	HIGHWAY/PROPERTY BOUND (TYPE NOTED)
LABEL/DATE	LABEL/DATE	CITY, TOWN, OR COUNTY LAYOUT
		STATE HIGHWAY LAYOUT (S.H.L.O.)
		EASEMENT LINE
℄	℄	PROPERTY LINE
NAME		CITY, TOWN, OR COUNTY BOUNDARY
NAME		STATE BOUNDARY
N00°00'00"E		BASE OR SURVEY LINE
+57.59 10 P.C. N00°00'00"E		CONSTRUCTION BASELINE
		TREE (SIZE AND TYPE NOTED)
		APPROXIMATE FULL DEPTH AREA
	(#)	DRAINAGE STRUCTURE
	(#)	WHEEL CHAIR RAMP

TRAFFIC SIGNAL SYMBOLS

EXISTING	PROPOSED	
		CONTROL CABINET GROUND MOUNTED (WITHOUT & WITH CONCRETE PAD)
		CONTROL CABINET POLE MOUNTED
		FLASHING BEACON CONTROL & METER PEDESTAL
TS		SIGNAL POST & BASE
		MAST ARM, SHAFT, & BASE (ARM LENGTH AS NOTED)
	A	VEHICULAR SIGNAL HEAD (ALPHA–NUMERIC DESIGNATION NOTED)
	A	VEHICULAR SIGNAL HEAD OPTICALLY PROGRAMMED "
		LIMIT OF VISIBILITY OF OPTICALLY PROGRAMMED SIGNAL HEAD
	A	FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD
□PB	■PB	PULL BOX 12" x 12"
		PEDESTRIAN PUSH BUTTON
		PRE–EMPTION DETECTOR
		PRE–EMPTION STROBE
		VIDEO DETECTION CAMERA
	Ø	CONTROLLER PHASE
		INDUCTIVE LOOP DETECTOR
m		MAGNETIC DETECTOR (LANE, MULTI–LANE, DIRECTIONAL
T T		AS NOTED MAGNETOMETER)
		CONDUIT (COND.)
		CONDUIT CROSSING ROADWAY WITH CONTROLLED DENSITY FILL
—x—x—	—x—x—	"x" DUCT (CONCRETE ENCASED)
		OVERHEAD CABLE
		DIRECT BURIED CABLE

PAVEMENT MARKINGS AND SIGNING SYMBOLS

EXISTING	PROPOSED	
		PAVEMENT ARROW AND LEGEND
CW SL	CW SL	CROSSWALK, 2–12" WHITE LINES (WIDTH NOTED)
		STOP LINE, 12" WHITE LINE 4.0' BEHIND CW (TYP)
		YIELD LINE, 24" x 36" WHITE TRIANGLE, 36" O.C.
SWCHL	SWCHL	SOLID WHITE CHANNELIZING LINE–SIZE AS NOTED
SYCHL	SYCHL	SOLID YELLOW CHANNELIZING LINE–SIZE AS NOTED
BWLL	BWLL	BROKEN WHITE LANE LINE – 6"
SWLL	SWLL	SOLID WHITE LANE LINE – 6"
DYCL	DYCL	DOUBLE YELLOW CENTERLINE – 6"
SYEL	SYEL	SOLID YELLOW EDGE LINE – 6"
SWEL	SWEL	SOLID WHITE EDGE LINE – 6"
BYLL	BYLL	BROKEN YELLOW LANE LINE – 6"
		BICYCLE LANE
		BICYCLE DETECTION LEGEND
Sign		SIGN AND POST
		DELINEATOR

AMESBURY
HAVERHILL ROAD (ROUTE 110)
LEGEND & GENERAL NOTES
SHEET 2 OF 31

GENERAL NOTES

1. TOPOGRAPHICAL INFORMATION FROM A SURVEY BY MILLENIUM ENGINEERING, SALISBURY, MASSACHUSETTS. SEPTEMBER 2007.
2. 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 SHALL 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.
3. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
4. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.

CONTRACTOR PLEASE NOTE →

5. TREES AND SHRUBS WITHIN THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON APPROVAL OF THE ENGINEER.
6. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE OWNER.
7. THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE–USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
8. JOINTS BETWEEN NEW BITUMINOUS CONCRETE ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN AND BACKSANDED.
9. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND STACKED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
10. ALL EXISTING GRANITE CURB & EDGING SHALL BE RE–USED IN THE PROPOSED WORK, EXCEPT CURVED STONES OF A DIFFERENT RADIUS THAN PROPOSED CURB.
11. ALL EXISTING STATE, COUNTY, CITY, AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.
12. PROJECT IS ON AN ASSUMED COORDINATE SYSTEM
13. WORK HOURS SUBJECT TO MASS HIGHWAY ACCESS PERMIT. RESTRICTIONS WILL BE IN ACCORDANCE TO THE ACCESS PERMIT.

SUBJECT TO APPROVAL BY MassDOT

ABBREVIATIONS

GENERAL

ABAN	ABANDON
ADJ	ADJUST
APPROX	APPROXIMATE
BIT	BITUMINOUS
℄	BASELINE
BOS	BOTTOM OF SLOPE
(BO)	BY OTHERS
CEM	CEMENT
CLF	CHAINLINK FENCE
CONC	CONCRETE
ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
EXIST	EXISTING
FND	FOUNDATION
GRAN	GRANITE
HMA	HOT MIX ASPHALT
LOAM	LOAM BORROW
LT	LEFT
MAX	MAXIMUM
MIN	MINIMUM
NTS	NOT TO SCALE
PGL	PROFILE GRADE LINE
PROP	PROPOSED
PVM'T	PAVEMENT
REM	REMOVE
REMOD	REMODEL
RET	RETAIN
ROW	RIGHT OF WAY
R&D	REMOVE AND DISCARD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SHLDR	SHOULDER
SHLO	STATE HIGHWAY LAYOUT
STA	STATION
TEMP	TEMPORARY
THLO	TOWN HIGHWAY LAYOUT
TOS	TOP OF SLOPE
TYP	TYPICAL

UTILITIES

ACCMP	ASHPALT COATED CORRIGATED METAL PIPE
CAP	CORRUGATED ALUMINUM PIPE
CIP	CAST IRON PIPE
CIT	CHANGE IN TYPE
COND	CONDUIT
DIP	DUCTILE IRON PIPE
FES	FLARED END SECTION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HW	HEADWALL
HYD	HYDRANT
INV	INVERT
PVC	POLYVINYLCHLORIDE PIPE
PWW	PAVED WATER WAY
RCP	REINFORCED CONCRETE PIPE
TSV&B	TAPPING SLEEVE VALVE AND BOX
UP	UTILITY POLE

ALIGNMENT/GRADING

CC	CENTER OF CURVE
HP	HIGH POINT
LP	LOW POINT
PC	POINT OF CURVE
PI	POINT OF INTERSECTION
PNT	POINT
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
PT	POINT OF TANGENT
25.45	SPOT ELEVATION

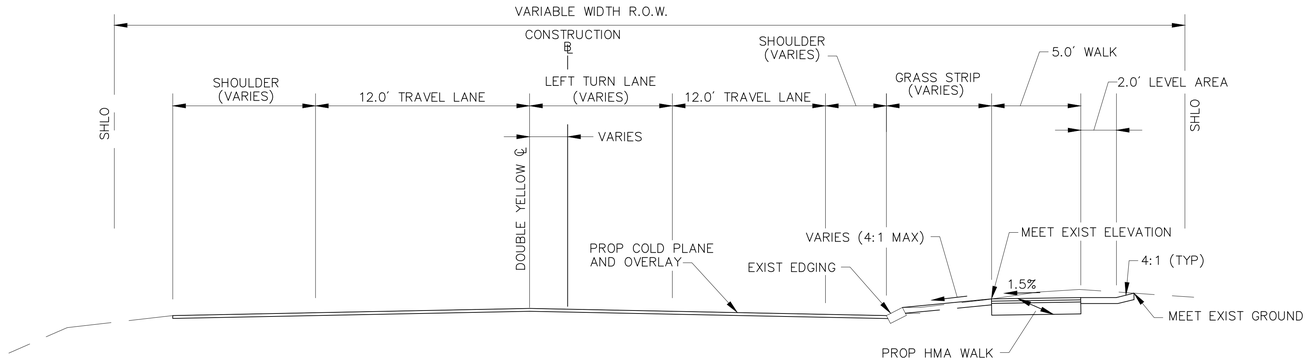
PROFILES

AD	ALGEBRAIC DIFFERENCE IN RATES OF GRADE
ELEV	ELEVATION
HSD	HORIZONTAL SIGHT DISTANCE
K	RATE OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVC	POINT OF VERTICAL CURVE
PVT	POINT OF VERTICAL TANGENT
PVRC	POINT OF VERTICAL REVERSE CURVE
PVCC	POINT OF VERTICAL COMPOUND CURVE
SSD	STOPPING SIGHT DISTANCE
VC	VERTICAL CURVE

TRAFFIC SIGNAL SYSTEMS

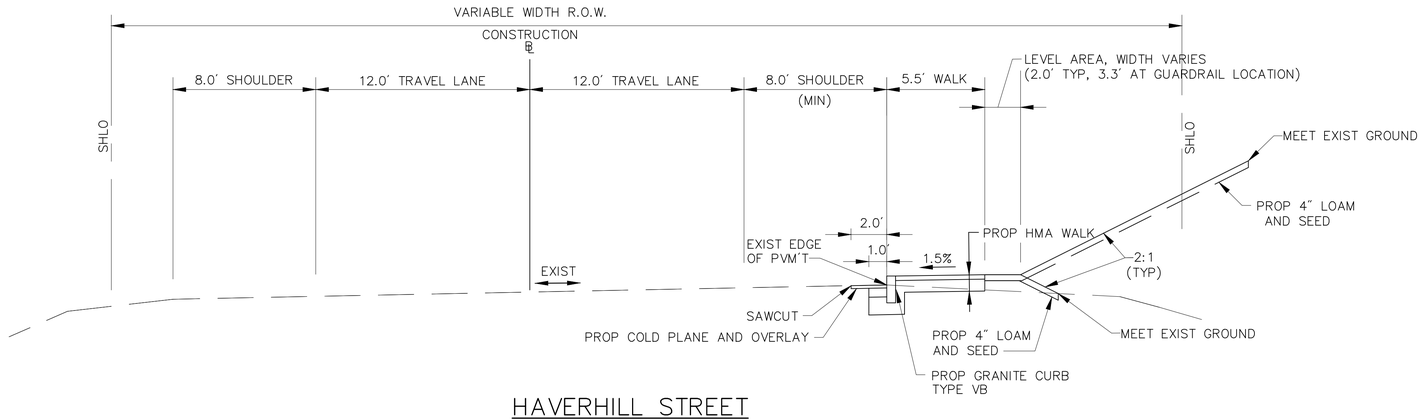
R	STEADY CIRCULAR RED
Y	STEADY CIRCULAR YELLOW
G	STEADY CIRCULAR GREEN
FR	FLASHING CIRCULAR RED
—FR→	FLASHING RED ARROW
FY	FLASHING CIRCULAR YELLOW
—FY→	FLASHING YELLOW ARROW
G	STEADY VERTICAL GREEN ARROW
← X—	STEADY LEFT ARROW (RED, YELLOW OR GREEN PREFIX)
—X→	STEADY RIGHT ARROW (RED, YELLOW OR GREEN PREFIX)
W	STEADY WALK–WHITE
DW	STEADY DON'T WALK–PORTLAND ORANGE
FDW	FLASHING DON'T WALK–PORTLAND ORANGE

AMESBURY
HAVERHILL ROAD (ROUTE 110)
TYPICAL SECTIONS &
PAVEMENT NOTES
SHEET 3 OF 31



HAVERHILL STREET

STA 110+43 TO 113+80
NTS



HAVERHILL STREET

STA 103+10 TO 110+43
NTS

PAVEMENT NOTES

PROPOSED HOT MIX ASPHALT WALK

SURFACE: 3" HOT MIX ASPHALT
PLACE IN TWO LAYERS, 1.5" TOP COURSE
OVER 1.5" BINDER COURSE

SUBBASE: 8" GRAVEL BORROW, TYPE c

PROPOSED HOT MIX ASPHALT DRIVEWAY

SURFACE: 3.5" HOT MIX ASPHALT
(1.5" TOP COURSE OVER 2" BINDER COURSE)

SUBBASE: 8" GRAVEL BORROW, TYPE c

PROPOSED CEMENT CONCRETE WALK/ WHEELCHAIR RAMP

SURFACE: 4" CEMENT CONCRETE
AIR ENTRAINED 4000 PSI, 3/4", 610

SUBBASE: 8" GRAVEL BORROW, TYPE c

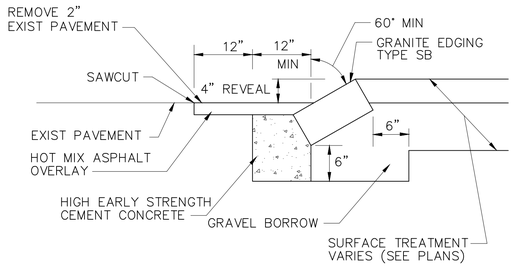
PROPOSED PAVEMENT COLD PLANE & OVERLAY

SURFACE: 2" HOT MIX ASPHALT
MODIFIED TOP COURSE MATERIAL.

BITUMEN FOR PRIME COAT (RS-1) AT
0.05 GAL/SY OVER EXISTING PAVEMENT.

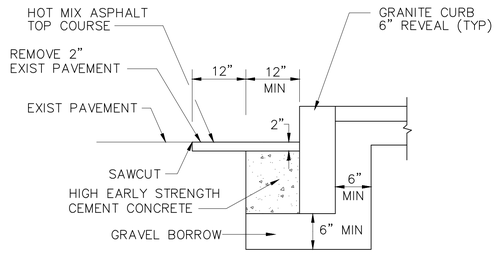
COLD PLANE 2"

SUBJECT TO APPROVAL BY MassDOT



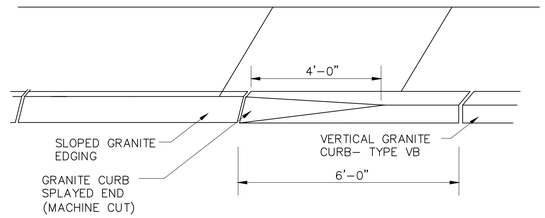
GRANITE EDGING IN EXISTING PAVEMENT

SCALE: NOT TO SCALE



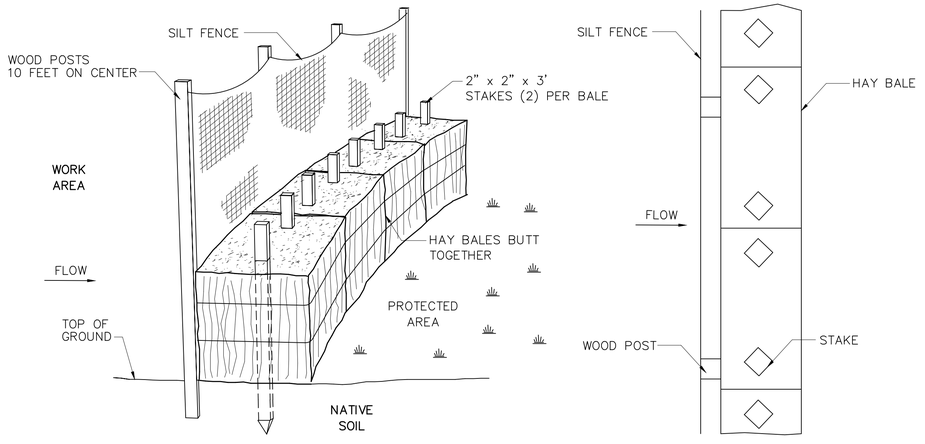
GRANITE CURB IN EXISTING PAVEMENT

SCALE: NOT TO SCALE



GRANITE TRANSITION CURB - SPLAYED END

SCALE: NOT TO SCALE



CROSS SECTION

PLAN VIEW

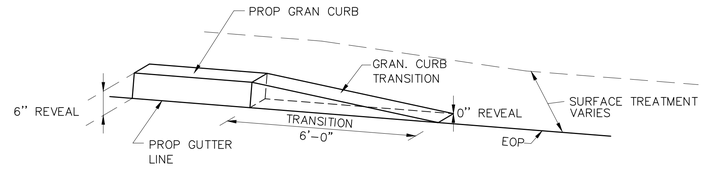
CONSTRUCTION NOTES:

1. FILTER CLOTH SHALL BE FASTENED SECURELY TO POSTS WITH WIRE TIES OR STAPLES AND POSTS SHALL BE SPACED EVERY 10 FEET.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6 INCHES AND FOLDED.
3. ENTRENCH SILT FENCE BUT NOT HAY BALES.
4. INSPECTIONS SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED, OR WHEN SEDIMENT ACCUMULATES TO HALF THE HEIGHT OF FENCING.

EROSION CONTROL BARRIER

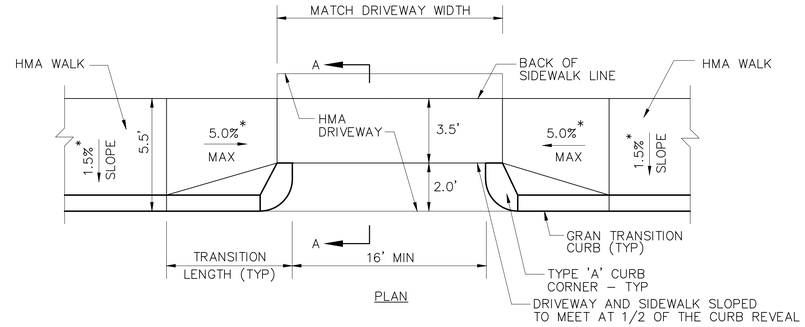
SCALE: NOT TO SCALE

SUBJECT TO APPROVAL BY MassDOT

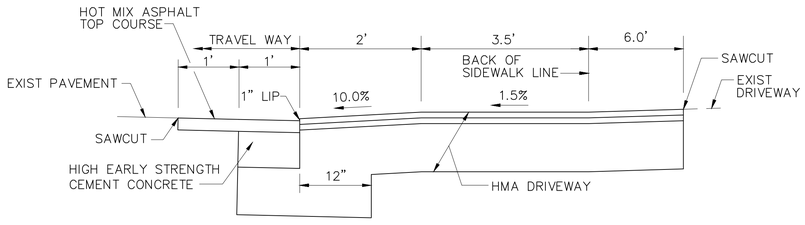


GRANITE CURB TRANSITION PIECE

SCALE: NOT TO SCALE



PLAN

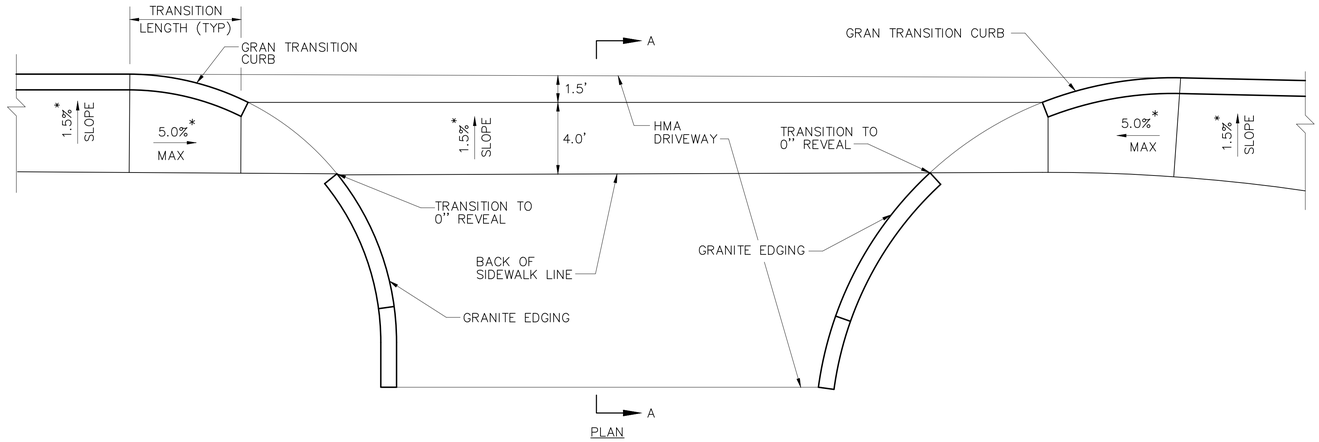


SECTION A–A

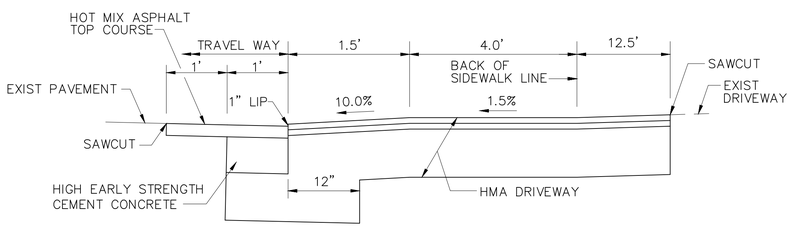
STATION	SIDEWALK WIDTH	LEFT SIDE		RIGHT SIDE	
		REVEAL	TRANSITION	TRANSITION	REVEAL
107+80 RT	5.50'	6"	5'–0"	5'–0"	6"

* TOLERANCE FOR CONSTRUCTION ±0.5%

RESIDENTIAL DRIVEWAY
STATION 107+80, RIGHT
SCALE: NOT TO SCALE
DATE:
DWG:



PLAN



SECTION A–A

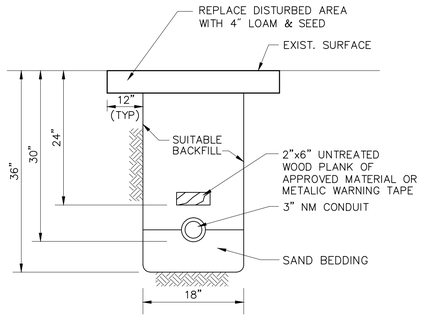
STATION	SIDEWALK WIDTH	LEFT SIDE		RIGHT SIDE	
		REVEAL	TRANSITION	TRANSITION	REVEAL
110+00 RT	5.50'	6"	6'–0"	6'–0"	6"

* TOLERANCE FOR CONSTRUCTION ±0.5%

VETERINARY DRIVEWAY
STATION 110+00, RIGHT
SCALE: NOT TO SCALE
DATE:
DWG:

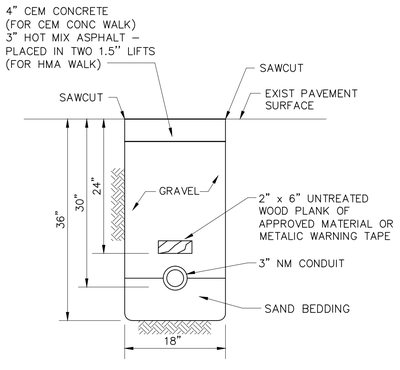
SUBJECT TO APPROVAL BY MassDOT

SUBJECT TO APPROVAL BY MassDOT



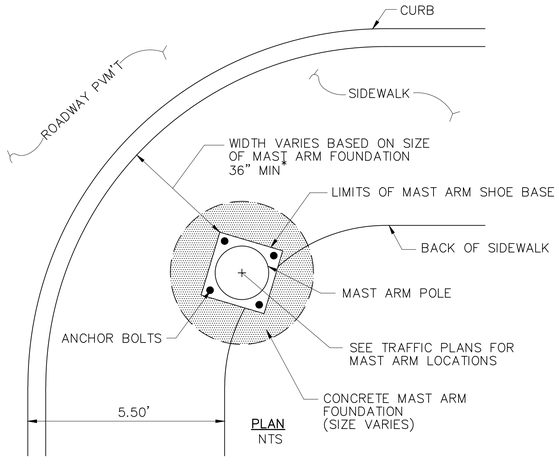
CONDUIT IN GRASS

SCALE: NOT TO SCALE
DATE: APRIL 2003
DWG: TRENCH-02

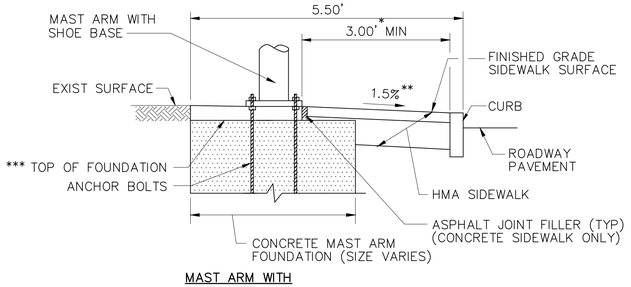


CONDUIT IN SIDEWALK

SCALE: NOT TO SCALE
DATE: APRIL 2003
DWG: TRENCH-03



PLAN
NTS



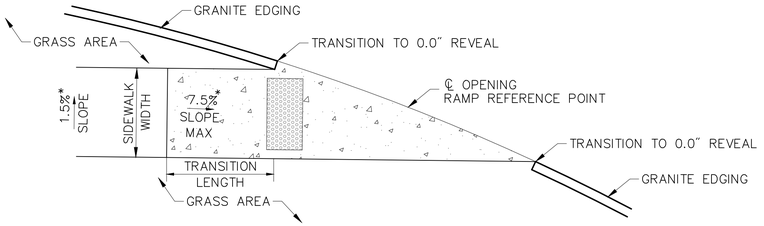
MAST ARM WITH SHOE BASE
NTS

ELEVATION
NTS

NOTES:
* MAST ARM BASE TO COMPLY WITH MASSACHUSETTS ACCESSIBILITY REQUIREMENTS FOR 36" MINIMUM CLEAR PATH.
** TOLERANCE FOR CONSTRUCTION 0.5%.
*** SHOE BASES.
**** INSTALL NON-SHRINK GROUT AFTER FOUNDATION, CURB, WALK AND MAST ARM HAVE BEEN INSTALLED.

MAST ARM FOUNDATION LOCATION

SCALE: NOT TO SCALE
DATE: APRIL 2003
DWG: PM-04

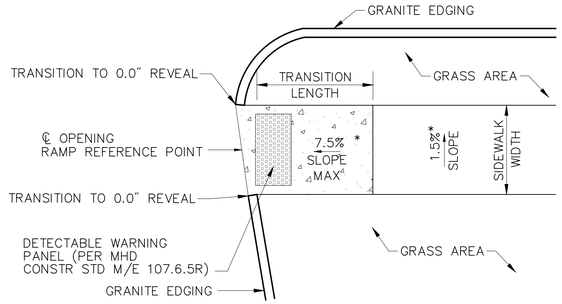


WHEELCHAIR RAMP
SINGLE DIRECTION
NTS

* TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP DATA					
NO.	LOCATION	SIDEWALK WIDTH	ROADWAY GUTTER	TRANSITION LENGTH	℄ OPENING ELEVATION
1	111+72.0 33.8' RT	5.0'±	–	6'–6"	MATCH EXIST

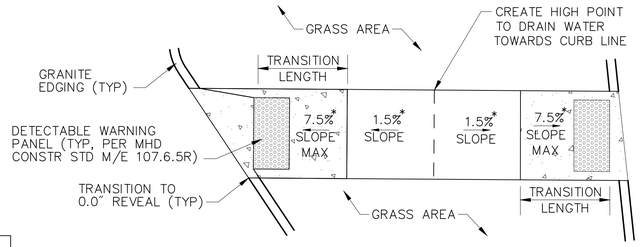
SUBJECT TO APPROVAL BY MassDOT



WHEELCHAIR RAMP
SINGLE DIRECTION
NTS

* TOLERANCE FOR CONSTRUCTION ±0.5%

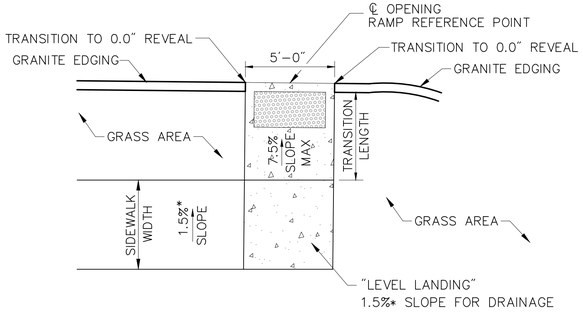
WHEELCHAIR RAMP DATA					
NO.	LOCATION	SIDEWALK WIDTH	ROADWAY GUTTER	TRANSITION LENGTH	℄ OPENING ELEVATION
2	112+11.3 31.3' RT	5.0'±	–	6'–6"	MATCH EXIST



WHEELCHAIR RAMP
ISLAND CUT THROUGH
NTS

* TOLERANCE FOR CONSTRUCTION ±0.5%

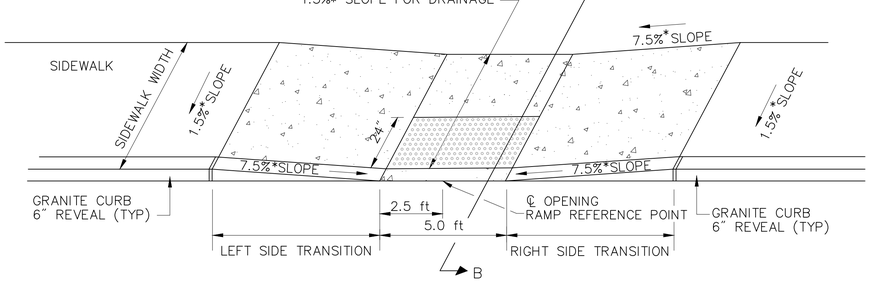
WHEELCHAIR RAMP DATA					
NO.	LOCATION	SIDEWALK WIDTH	ROADWAY GUTTER	TRANSITION LENGTH	℄ OPENING ELEVATION
5	112+10 – 112+35, RT	5.0'±	–	5'–0"	MATCH EXIST



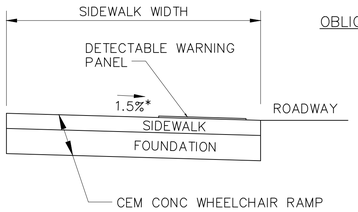
WHEELCHAIR RAMP
SINGLE DIRECTION
NTS

* TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP DATA					
NO.	LOCATION	SIDEWALK WIDTH	ROADWAY GUTTER	TRANSITION LENGTH	℄ OPENING ELEVATION
3	113+69.4 21.0' RT	5.0'±	–	5'–0"	MATCH EXIST



OBLIQUE VIEW



SECTION B–B

*TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP
PARALLEL
NTS

TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP DATA						
NO.	LOCATION	SIDEWALK WIDTH	ROADWAY GUTTER	TRANSITION LEFT	TRANSITION RIGHT	℄ OPENING ELEVATION
4	113+69.2 18.6' LT	5.5'±	1.53%	6'–6"	9'–0"	MATCH EXIST

DETECTABLE WARNING PANELS
NTS

NOTES:

1. DETECTABLE WARNING PANELS ARE REQUIRED TO BE CONSTRUCTED ON ALL PROPOSED WHEELCHAIR RAMPS AND ARE TO BE INSTALLED IN ACCORDANCE WITH MHD CONSTRUCTION STANDARD M/E 107.6.5R.
2. PANELS MAY BE CONCRETE PRECAST OR CAST IN PLACE OR OTHER SUITABLE MATERIAL PERMANENTLY APPLIED TO THE RAMP. THERE MUST BE A MINIMUM 70% CONTRAST IN LIGHT REFLECTANCE BETWEEN THE DETECTABLE WARNING AND AN ADJOINING SURFACE.
3. NO SEPARATE PAYMENT SHALL BE MADE FOR DETECTABLE WARNING PANELS (INCLUDING THOSE PROPOSED AT THE MEDIAN ISLANDS), BUT ALL COSTS IN CONNECTION THERE WITH SHALL BE INCLUDED IN THE VARIOUS ITEMS BID.

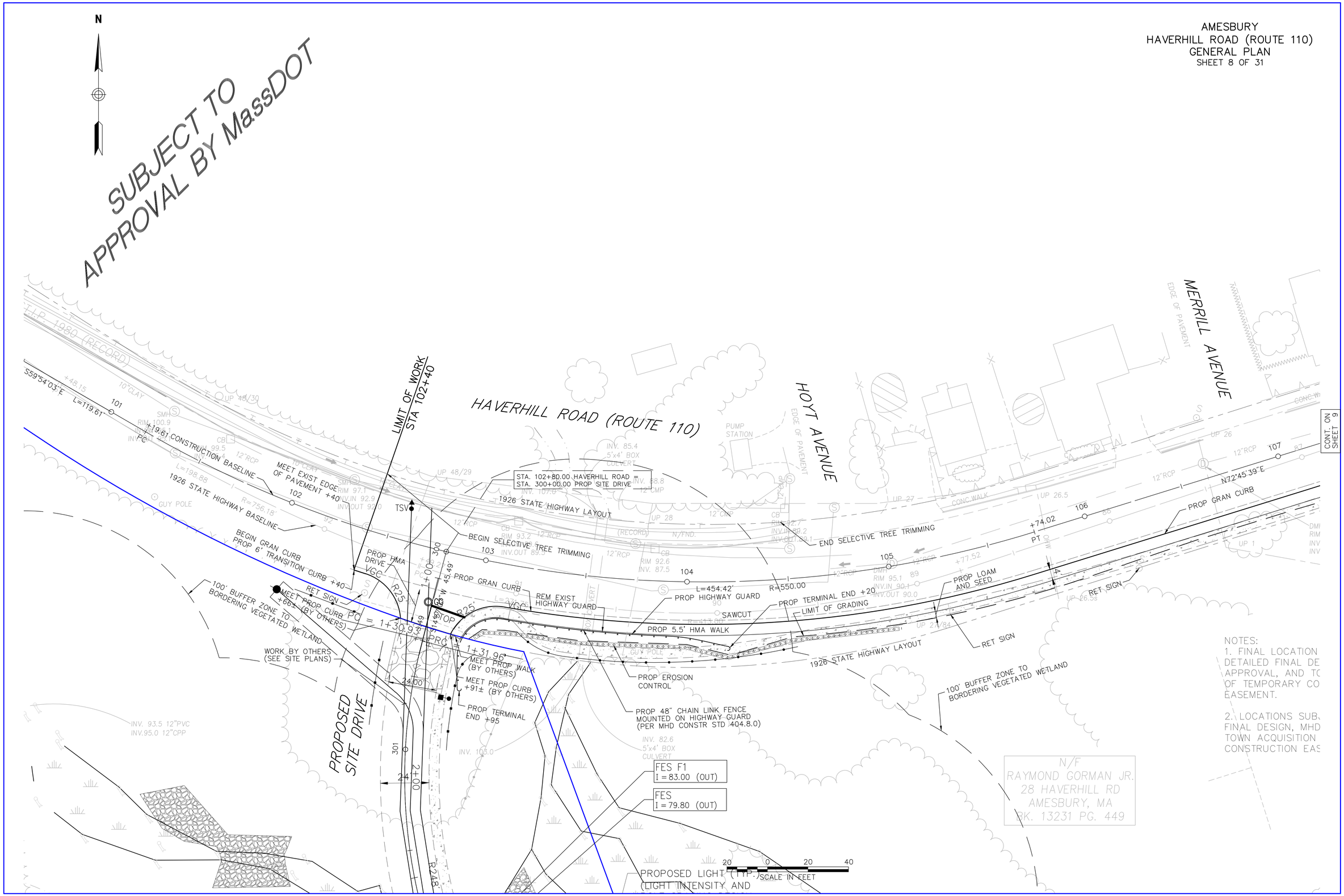
LEGEND

LIMITS OF CEMENT CONCRETE WHEELCHAIR RAMP

LIMITS OF DETECTABLE WARNING PANEL (SEE SPECIFICATIONS FOR COLOR)

SEE GENERAL PLANS FOR LOCATIONS OF WHEELCHAIR RAMPS

AMESBURY
HAVERHILL ROAD (ROUTE 110)
GENERAL PLAN
SHEET 8 OF 31



NOTES:
1. FINAL LOCATION
DETAILED FINAL DE
APPROVAL, AND TC
OF TEMPORARY CO
EASEMENT.

2. LOCATIONS SUB
FINAL DESIGN, MHD
TOWN ACQUISITION
CONSTRUCTION EAS

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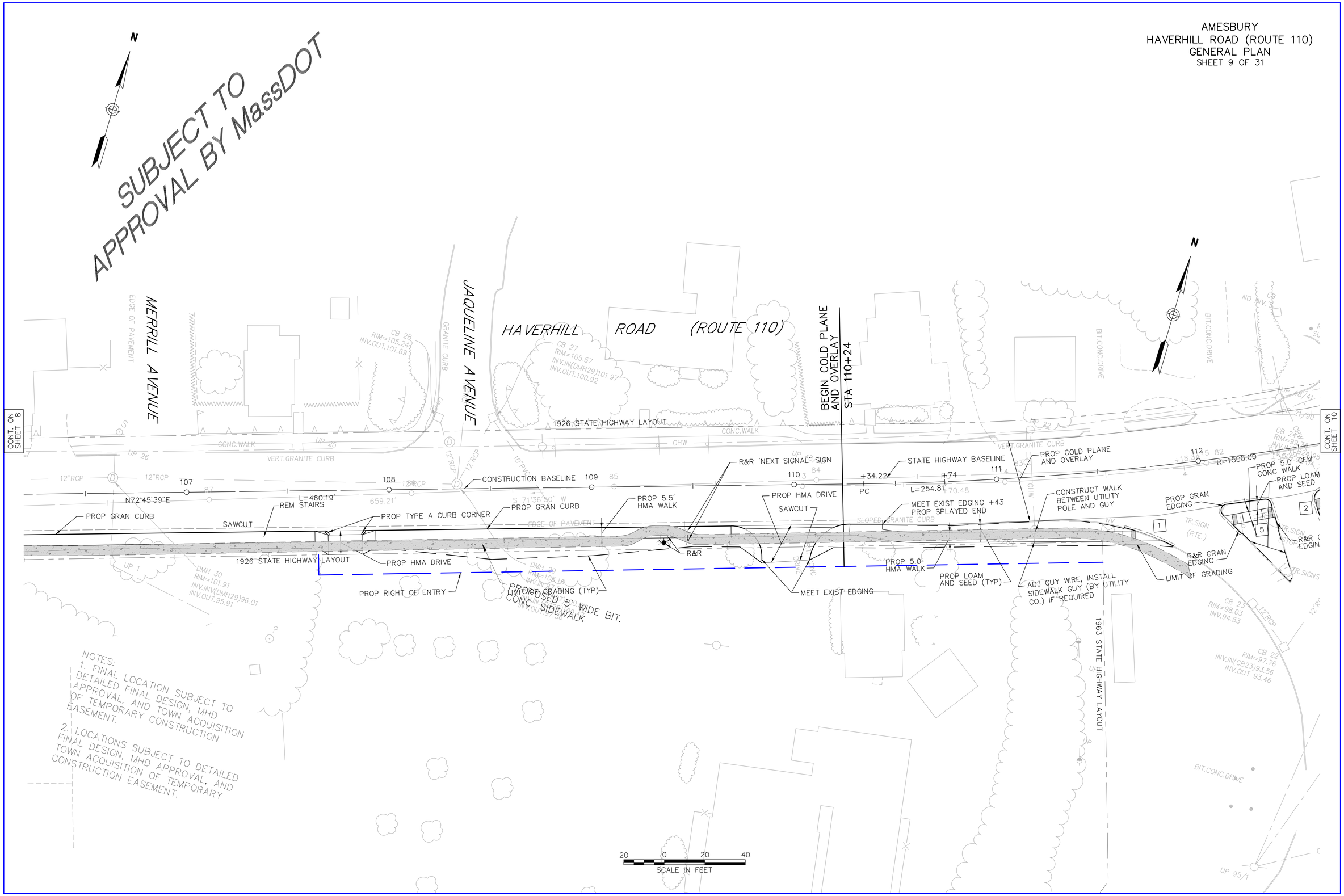
AMESBURY
HAVERHILL ROAD (ROUTE 110)
GENERAL PLAN
SHEET 9 OF 31



NOTES:
1. FINAL LOCATION SUBJECT TO DETAILED FINAL DESIGN, MHD APPROVAL, AND TOWN ACQUISITION OF TEMPORARY CONSTRUCTION EASEMENT.
2. LOCATIONS SUBJECT TO DETAILED FINAL DESIGN, MHD APPROVAL, AND TOWN ACQUISITION OF TEMPORARY CONSTRUCTION EASEMENT.

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AMESBURY
HAVERHILL ROAD (ROUTE 110)
GENERAL PLAN
SHEET 10 OF 31

N

HAVERHILL ROAD (ROUTE 110)

HILLSIDE AVENUE

(ROUTE 150)

1963 STATE HIGHWAY LAYOUT

1926 STATE HIGHWAY LAYOUT

1926 STATE HIGHWAY BASELINE

CONSTRUCTION BASELINE

STATE HIGHWAY BASELINE

PROP LOAM AND SEED

LIMIT OF GRADING (TYP)

PROP HMA WALK

PROP COLD PLANE AND OVERLAY

SAWCUT

PROP LOAM AND SEED

PROP CURB TRANSITION (TYP)

PROP 5.0' HMA WALK

PROP 5.0' CEM CONC WALK

PROP LOAM AND SEED

PROP GRAN EDGING

R&R GRAN EDGING

LIMIT OF GRADING

PROP MAST ARM FOUNDATION

PROP LOAM AND SEED

SLOPED GRANITE CURB

5.0'

BIT.CONC.WALK

BIT.CONC.SIDEWALK

VERT.GRANITE CURB

GRASS

STONE RET.WALL

BIT.CONC.DRIVE

BRICK

EMTR

OHW

TR.SIGN

TR.SIGN (RTE.)

TR.SIGN (DO NOT ENTER)

TR.SIGN (SPEED LIMIT)

TR.SIGNS

MILE MARKER 65.6

12"RCP

UP 21/90

UP 48/41

UP 48/17-1

UP 16/84

UP 19-84

UP 0/25

UP 48/15

UP 13

UP 14

LP

MB

CP

MULCH

STOP

EDGE OF PAVEMENT

SMH 58
RIM=89.42
INV.IN.(SMH57)76.22
INV.IN(8"PVC)76.22
INV.IN(6"PVC)80.42
INV.OUT.76.12

SMH 57
RIM=92.29
INV.IN.84.99
INV.OUT.84.89

SMH 56
RIM=95.65
INV.OUT.87.95

CBCI 7
RIM=99.11
INV.OUT.95.81

CBCI 8.3
RIM=99.59
INV.OUT.96.39

CBCI 9
RIM=100.39

CBCI 10
RIM=80.80
INV.IN.76.0
INV.OUT(CB11)75.9

CBCI 11
RIM=83.90
INV.(CB10)79.4
INV.79.5

DMH 8.1
RIM=100.46
INV.IN.(DMH)95.81
INV.IN(CB9)95.26
INV.IN(CB8.3)96.76
INV.OUT(DMH)95.66

8"PVC

2-12"PVC

12"RCP

OUT(DMH13).96.75

112 113 114 115 116 117 118 119 120

PT +89.03 R=1500.00

PC +34.37 L=207.74' R=1500.00

PT +42.12

PT +33.29

PC +77.53

N63°01'40"E L=145.35'

N70°57'46"E L=450.53'

+99.30

LIMIT OF WORK 118+83

CONT. ON SHEET 9

CONT ABOVE

CONT BELOW

1 2 3 4 5

20 0 20 40
SCALE IN FEET

SUBJECT TO APPROVAL BY MassDOT

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AMESBURY
HAVERHILL ROAD (ROUTE 110)
ALIGNMENT & GRADING PLAN
SHEET 11 OF 31

SUBJECT TO APPROVAL BY MassDOT

HAVERHILL ROAD CONSTRUCTION ℄

	STATION		NORTHING	EASTING
BEGIN	100+00.00		15641.5636	−9641.4008
		S59°54'03"E 119.61'		
PC	101+19.61		15581.5792	−9537.9193
		RADIUS = 550.00' TANGENT = 241.08' LENGTH = 454.42' DELTA = 47°20'19"		
PT	105+74.02		15532.1248	−9099.0950
		N72°45'39"E 460.19'		
PC	110+34.22		15668.5090	−8659.5763
		RADIUS = 1500.00' TANGENT = 127.71' LENGTH = 254.81' DELTA = 9°43'59"		
PT	112+89.03		15764.2830	−8423.7819
		N63°01'40"E 145.35'		
PC	114+34.37		15830.2065	−8294.2448
		RADIUS = 1500.00' TANGENT = 104.04' LENGTH = 207.74' DELTA = 7°56'07"		
PT	116+42.12		15911.3289	−8103.1760
		N70°57'46"E 450.53'		
END	120+92.65		16058.2835	−7677.2848

TRAVERSE DATA

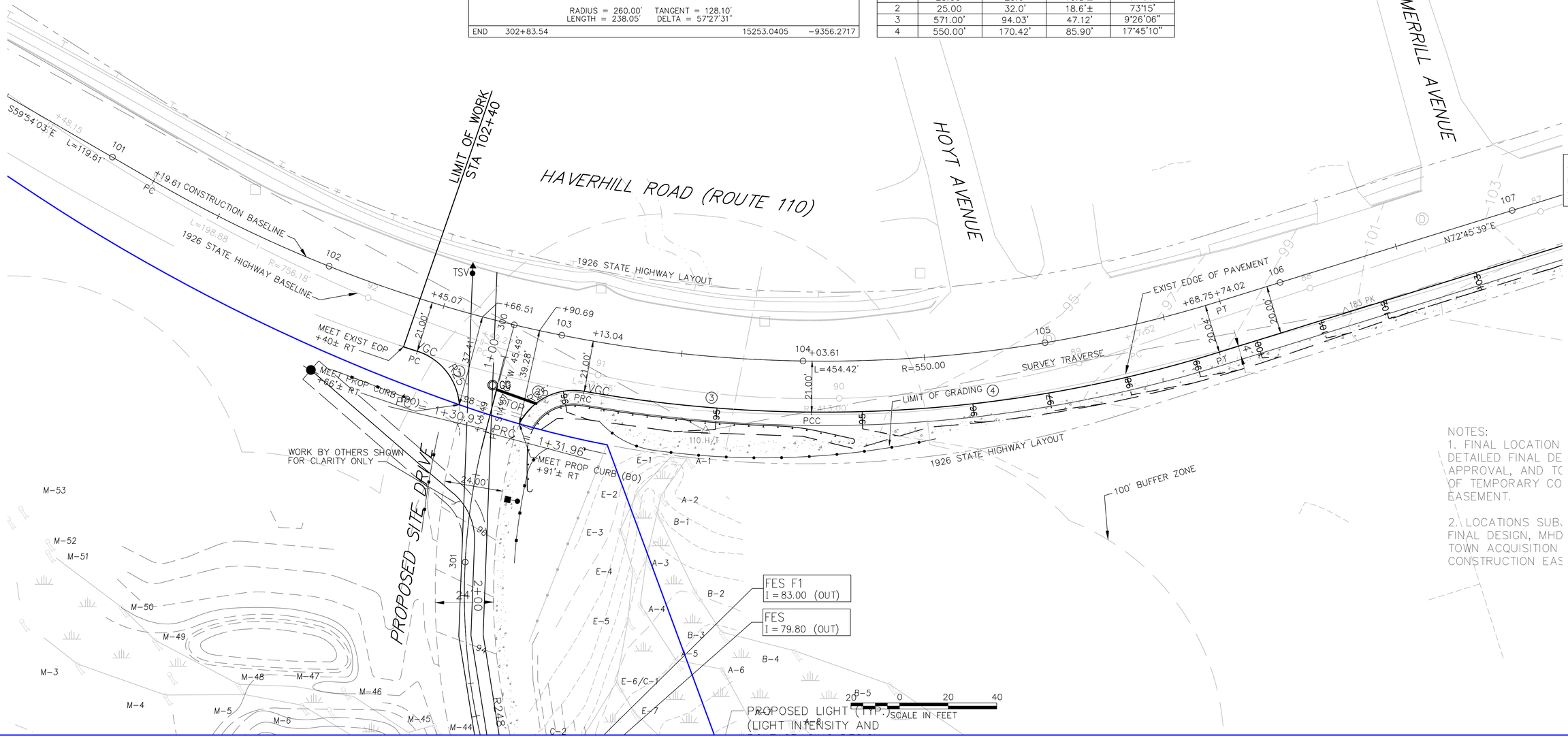
POINT	NORTHING	EASTING	ELEV.
107 PK	15609.3923	−10971.2310	113.90
108 PK	15806.7110	−10300.9768	113.53
109 PK	15712.4182	−9737.6653	110.08
110 H/T	15478.7823	−9310.6655	95.38
183 PK	15527.6194	−9047.0135	100.96
184 PK	15576.7029	−8892.9111	104.69
185 H/T	15756.3583	−8356.9185	101.40
186 PK	15284.2572	−8495.4193	90.02
187 DHSB	16168.6464	−8038.7891	−−

PROPOSED SITE DRIVE CONSTRUCTION ℄

	STATION		NORTHING	EASTING
BEGIN	300+00.00		15522.3711	−9389.4788
		S14°57'07"W 45.49'		
PC	300+45.49		15478.4247	−9401.2148
		RADIUS = 260.00' TANGENT = 128.10' LENGTH = 238.05' DELTA = 57°27'31"		
END	302+83.54		15253.0405	−9356.2717

CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	DELTA
1	25.00'	29.6'	16.8'±	67°56'
2	25.00	32.0'	18.6'±	73°15'
3	571.00'	94.03'	47.12'	9°26'06"
4	550.00'	170.42'	85.90'	17°45'10"



NOTES:
1. FINAL LOCATION
DETAILED FINAL DE
APPROVAL, AND TC
OF TEMPORARY CO
EASEMENT.

2. LOCATIONS SUB
FINAL DESIGN, MHD
TOWN ACQUISITION
CONSTRUCTION EAS

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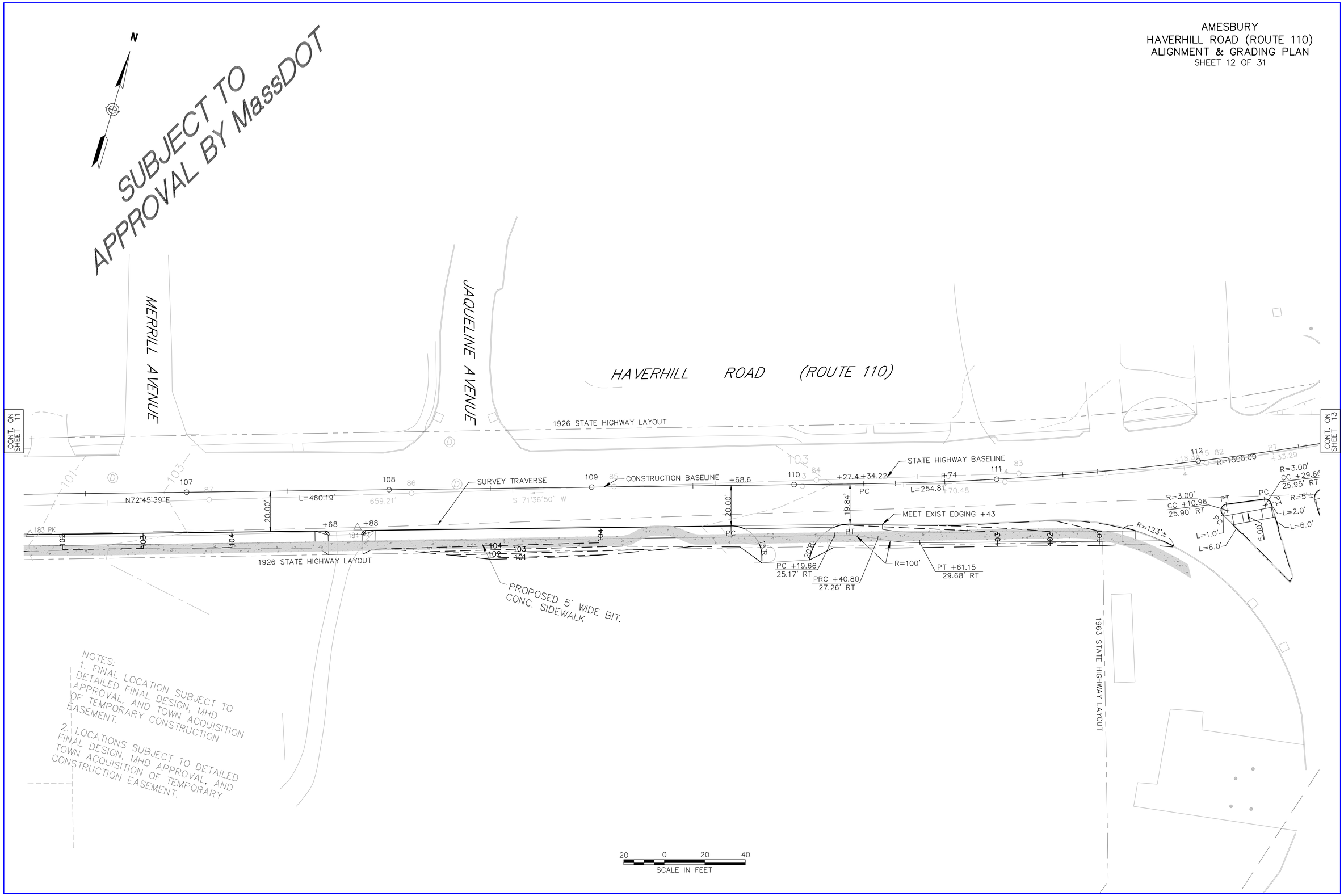
AMESBURY
HAVERHILL ROAD (ROUTE 110)
ALIGNMENT & GRADING PLAN
SHEET 12 OF 31



NOTES:
1. FINAL LOCATION SUBJECT TO DETAILED FINAL DESIGN, MHD APPROVAL, AND TOWN ACQUISITION OF TEMPORARY CONSTRUCTION EASEMENT.
2. LOCATIONS SUBJECT TO DETAILED FINAL DESIGN, MHD APPROVAL, AND TOWN ACQUISITION OF TEMPORARY CONSTRUCTION EASEMENT.

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AMESBURY
HAVERHILL ROAD (ROUTE 110)
ALIGNMENT & GRADING PLAN
SHEET 13 OF 31

N

(ROUTE 150)
1963 STATE HIGHWAY LAYOUT

CONSTRUCTION BASELINE
STATE HIGHWAY BASELINE

112 PT +18.38 R=1500.00
113 +89.03 PT +33.29
114 +34.37 PC
115 PC +17.53
116 PT +99.30
117 +42.12 PT
118 CONT. BELOW

N63°01'40"E L=145.35'
L=207.74' R=1500.00

CONT. ON SHEET 12

1926 STATE HIGHWAY LAYOUT

HAVERHILL ROAD (ROUTE 110)

HILLSIDE AVENUE

R=3.00'
CC +10.96
25.90' RT

R=3.00'
CC +29.66
25.95' RT

R=123'±
R=5'±
R=9.5'
L=1.0'
L=6.0'
L=2.0'
L=6.0'
5.00'
185 H/T

STATE HIGHWAY BASELINE

1963 STATE HIGHWAY LAYOUT

20 0 20 40
SCALE IN FEET

N

1963 STATE HIGHWAY LAYOUT

LIMIT OF WORK
118+83

CONT ABOVE

118 PT +21.82 R=1500.00
119 +22.53 PC
120 +83.53

N70°57'46"E L=450.53'

STATE HIGHWAY BASELINE
CONSTRUCTION BASELINE

20 0 20 40
SCALE IN FEET

SUBJECT TO
APPROVAL BY MHD

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AMESBURY
HAVERHILL ROAD (ROUTE 110)
TRAFFIC PLAN
SHEET 14 OF 31

BEGIN COLD PLANE AND OVERLAY STA 110+24

HAVERHILL (ROUTE 110)

1926 STATE HIGHWAY LAYOUT

MEET EXIST MARKINGS

12" SYCHL 3:1, 10' O.C.

MATCH LINE SEE BELOW

MATCH LINE, SEE ABOVE

PROP 8' TS POST W/PED SIGNAL HEAD W/PED PUSH BUTTON W/R10-3e(R) & SADDLE STA 113+74.0, 25.5' LT

PROP TS POLE W/25' MAST ARM W/D3-1½ D3-2 STA 114+15.0, 25.5' LT

PROP TS 2 TYPE 1 TS CONTROLLER W/TYPE 6 CABINET & FOUNDATION W/CONCRETE PAD STA 114+55.0, 43.5' LT

PROP SERVICE CONNECTION

CONSTRUCT OVER EXIST CONDUIT

PROP POWER SOURCE

CUT & EXTEND EXIST CONDUIT

PROP PRE-EMPTION DETECTOR (TYP)

PROP PRE-EMPTION STROBE

PROP VIDEO DETECTOR

PROP TS POLE W/35' MAST ARM W/D3-1, D3-2 STA 114+83.0, 33.5' RT

PROP TS POLE W/25' MAST ARM W/PED SIGNAL HEAD W/PED PUSH BUTTON W/R10-3e(L) & SADDLE STA 113+72.0, 32.0' RT

PROP VIDEO DETECTOR ZONE (TYP)

CONSTRUCT OVER EXIST CONDUIT

PROP TS POLE W/25' MAST ARM STA 115+29.5, 32.5' LT

CUT & EXTEND EXIST CONDUIT

MEET EXIST MARKINGS

1963 STATE HIGHWAY LAYOUT

1926 STATE HIGHWAY LAYOUT

HILLSIDE (ROUTE 150)

AVENUE

ROAD

EMTR

SUBJECT TO APPROVAL BY MassDOT

CONSTRUCTION NOTES:

1. SEE SHEET XX FOR TRAFFIC SIGNAL DATA.
2. REMOVE ALL EXISTING TS EQUIPMENT, AND ABANDON ALL TS CONDUIT UNLESS OTHERWISE NOTED.
3. PULL BOXES SHALL BE ADJACENT TO CURB UNLESS OTHERWISE NOTED AND SHALL NOT BE LOCATED IN WHEELCHAIR RAMPS.
4. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC.
5. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
6. TRAFFIC SIGNAL FOUNDATIONS TO BE LOCATED BY STATION AND OFFSET.
7. THE TOP OF ALL MAST ARM FOUNDATIONS SHALL BE LOCATED 2"± ABOVE FINISHED GRADE.
8. RETAIN ALL EXISTING SIGNS UNLESS OTHERWISE NOTED.
9. TS POST/POLE, WITH PEDESTRIAN PUSH BUTTON, NOT LOCATED WITHIN A PAVED SURFACE SHALL BE POSITIONED SO AS TO PROVIDE A 10" MAX CLEAR REACH ZONE BETWEEN THE PEDESTRIAN PUSH BUTTON AND THE PAVED SURFACE PER 521 CMR AND AS SHOWN ON SHEET X.

SCALE IN FEET 20 0 20 40

HAVERHILL (ROUTE 110) ROAD

LIMIT OF WORK 118+83

MEET EXIST MARKINGS

MATCH LINE SEE ABOVE

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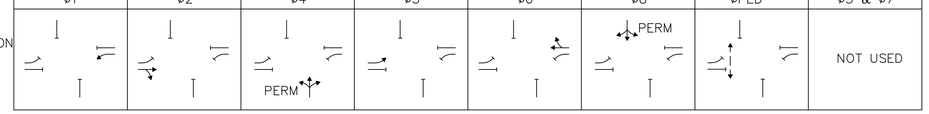
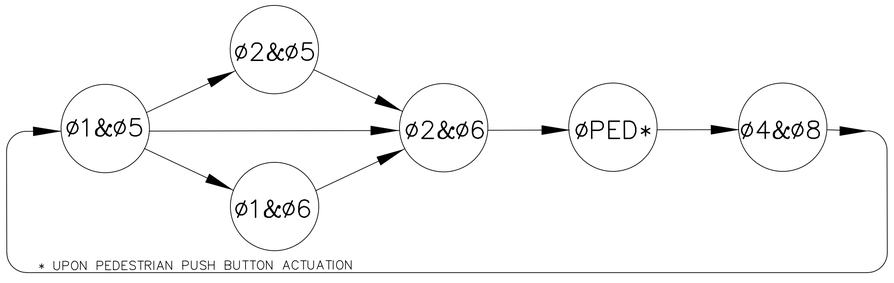
AMESBURY
HAVERHILL ROAD (ROUTE 110)
TRAFFIC PLAN
SHEET 15 OF 31

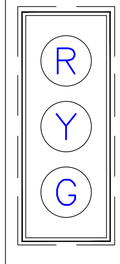
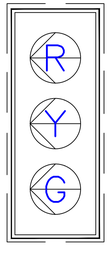
SEQUENCE AND TIMING																									
APPROACH	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASHING OPERATION
MINIMUM INTERVAL			6			10			6			6			10			6								
VEHICLE EXTENSION			2			2			2			2			2			2								
MAXIMUM 1			15			40			40			15			40			40								
MAXIMUM 2			15			40			40			15			40			40								
YELLOW CLEARANCE				3			4			4			3			4			4							
RED CLEARANCE					2.5			1.5			1			2.5			1.5			1							
PEDESTRIAN INTERVAL																					7	11	1				
HAVEHILL ROAD	EB	A	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←G–	←Y–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–				←FR–
HAVEHILL ROAD	EB	B,C	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				FY
HAVEHILL ROAD	WB	D	←G–	←Y–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–				←FR–
HAVEHILL ROAD	WB	E,F	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R				FY
HILLSIDE AVENUE	NB	G,H	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R				FR
HILLSIDE AVENUE	SB	J,K	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R				FR
PEDESTRIAN X–ING	P1–P2	NB–SB	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW				OUT
DETECTOR			NON–LOCK			NON–LOCK			NON–LOCK			NON–LOCK			NON–LOCK			NON–LOCK			–						
RECALL			OFF			SOFT			OFF			OFF			SOFT			OFF			–						
			ø1			ø2			ø4			ø5			ø6			ø8			øPED			ø3 & ø7			

NOTES:
1. AUTOMATIC FLASHING OPERATION PER M.U.T.C.D. SECTION 4D.12.
2. * UPON PEDESTRIAN PUSH BUTTON ACTUATION
3. PERM = PERMISSIVE
4. ø4 & ø8 DUAL ENTRY
5. MAXIMUM 1 = NORMAL OPERATION
6. MAXIMUM 2 = NOT USED
7. STOP AND GO OPERATION FOR 24 HOURS PER DAY. FLASHING OPERATION FOR EMERGENCY ONLY.



PREFERENTIAL PHASE SEQUENCE



PROPOSED SIGNAL HEAD DATA		
B,C,E,F,G,H,J,K	A,D	P1–P2
		W/COUNTDOWN TIMER
ALL 12" LENS		

NOTES:
1. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED.
2. ALL SIGNAL HEADS SHALL BE EQUIPPED WITH 5"± LOUVERED BACKPLATES. ALL BACKPLATES SHALL CONTAIN A 2" WIDE YELLOW REFLECTIVE BORDER.
3. ALL SIGNAL HEADS SHALL BE EQUIPPED WITH TUNNEL VISORS.
4. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED WITH L.E.D. MODULES.

DETECTOR DATA				
DETECTOR NO.	ZONE SIZE	CAMERA	DELAY /EXT	CALL PHASE
1	TO BE FIELD ADJUSTED	V1	0	ø5
2	TO BE FIELD ADJUSTED	V1	0	ø2
3	TO BE FIELD ADJUSTED	V1	0	ø1
4	TO BE FIELD ADJUSTED	V1	0	ø6
5	TO BE FIELD ADJUSTED	V1	0	ø4
6	TO BE FIELD ADJUSTED	V1	0	ø8

NOTE: DELAY AND EXTENSION TIMINGS SHALL BE PROGRAMMED IN THE CONTROLLER ONLY

SEQUENCE & TIMING NOTES:
1. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
2. THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
3. IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.
4. IF THE ASSIGNED RIGHT–OF–WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.

PROPOSED PRE–EMPTION PHASING & PRIORITY			
DETECTOR & PRIORITY	PRE–EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		ø2&ø5
D2	2		ø1&6
D3	3		ø4
D4	4		ø8

EMERGENCY VEHICLE PRE–EMPTION OPERATION.
1. EMERGENCY VEHICLE PRE–EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
2. PRE–EMPTION SIGNALS SHALL BE SERVICED ON A FIRST COME, FIRST SERVE BASIS.
3. IN RESPONSE TO A PRE–EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE–EMPTION PHASE #1 (OR #2, #3, #4) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE–EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE–EMPTION PHASE CLEARANCES FOR THE ASSOCIATED PHASE(S) AS SHOWN IN THE SEQUENCE AND TIMING CHART AND SERVICE SUBSEQUENT EMERGENCY VEHICLE PRE–EMPTION PHASES AS NECESSARY.
4. UNLESS OTHERWISE STATED, ONCE A PRE–EMPTION CALL HAS BEEN RECEIVED BY THE TRAFFIC SIGNAL CONTROLLER AND THE PRE–EMPTION PHASE IS BEING SERVICED, IT SHALL REMAIN IN THAT PHASE AS LONG AS THE CALL IS PRESENT.
5. MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE–EMPTION DEMAND.
6. PRE–EMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE–EMPTION GREEN IS ON.

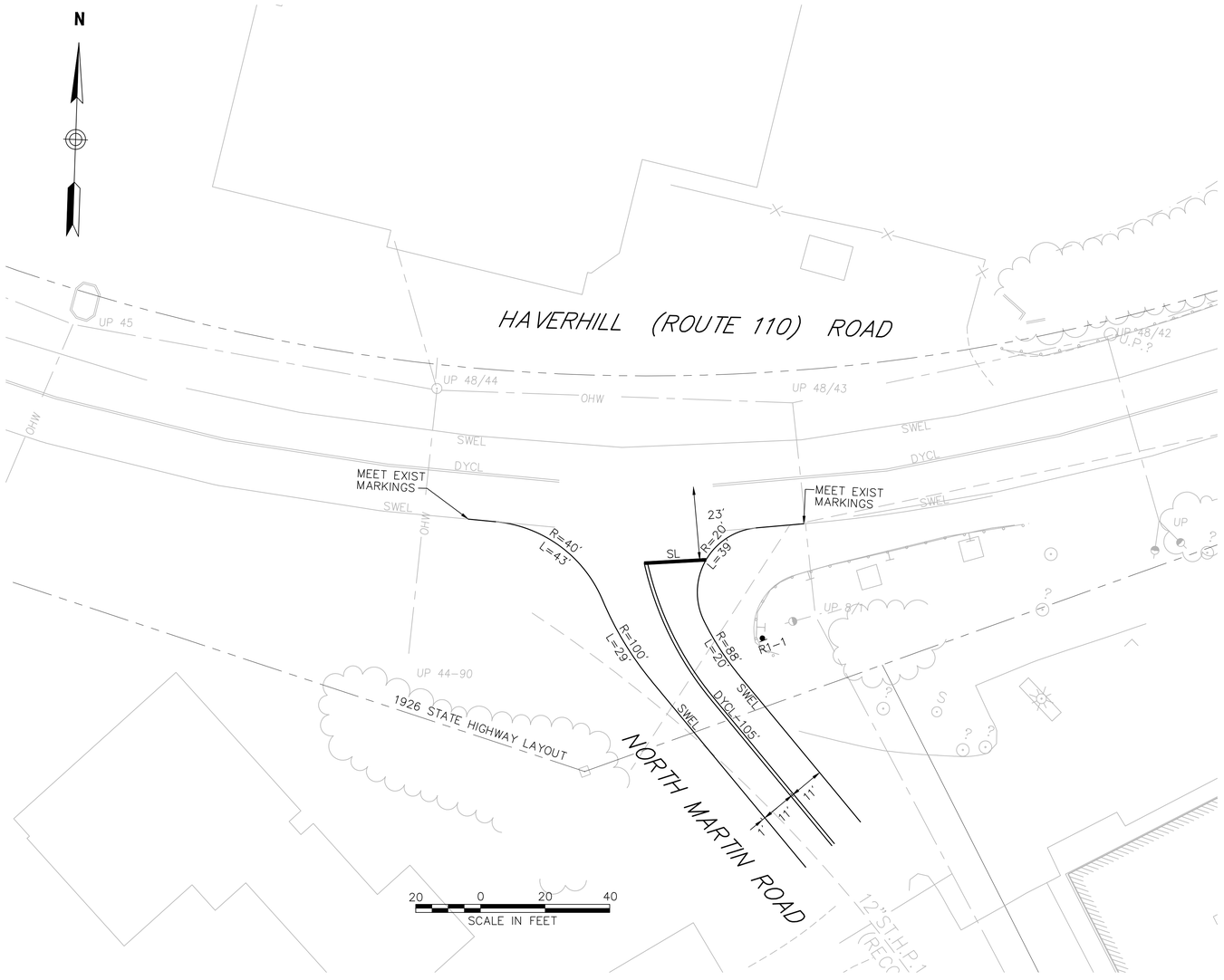
SUBJECT TO APPROVAL BY MassDOT

ITEM 816.01
TRAFFIC SIGNAL RECONSTRUCTION
HAVERHILL ROAD (ROUTE 110) AT HILLSIDE AVENUE (ROUTE 150)
LIST OF MAJOR ITEMS REQUIRED

QUANTITY	DESCRIPTION
1	8ø TS 2 TYPE 1 CONTROLLER IN A TYPE 6 BASE MOUNTED CABINET INCL. FOUNDATION AND CONCRETE PAD
3	TS 25' MAST ARM TYPE 2, STEEL, INCL. FOUNDATION
1	TS 35' MAST ARM TYPE 2, STEEL, INCL. FOUNDATION
1	TS POST 8' STANDARD INCL. FOUNDATION
10	SIGNAL HEAD, 3–SECTION, 12" LENSES
2	PEDESTRIAN SIGNAL HEAD (L.E.D.)
2	PEDESTRIAN PUSH BUTTON W/R10–3e AND SIGN SADDLE
6	PULL BOX–12"x12"
1	VIDEO DETECTION SYSTEM (1 CAMERAS. VDP & CABLES)
4	EMERGENCY PRE–EMPTION OPTICAL DETECTORS & DETECTOR CABLE
2	EMERGENCY PRE–EMPTION 2 CHANNEL PHASE SELECTOR
1	EMERGENCY PRE–EMPTION SYSTEM CHASSIS
1	EMERGENCY PRE–EMPTION STROBE (WHITE LENS)
1	SERVICE CONNECTION (OVERHEAD)

PLUS NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC CONTROL SIGNAL.

AMESBURY
HAVERHILL ROAD (ROUTE 110)
TRAFFIC PLAN
SHEET 16 OF 31



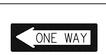
SUBJECT TO APPROVAL BY MassDOT

CONSTRUCTION NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
3. RETAIN ALL EXISTING SIGNS UNLESS OTHERWISE NOTED.

AMESBURY
HAVERHILL ROAD (ROUTE 110)
SIGN SUMMARY

TRAFFIC SIGN SUMMARY

IDENTIFI-CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
R1-1	30"	30"		SEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS			2	RED	WHITE	WHITE	P5-2	6.38	12.76
R3-2	30"	30"					2	WHITE	RED/ BLACK	BLACK	P5-2	6.25	12.50
R3-5L	30"	36"					2	WHITE	BLACK	BLACK	4 MTD ON MAST ARM	7.50	15.00
R3-7L	30"	30"					2	WHITE	BLACK	BLACK	P5-2	6.25	12.50
R5-1	30"	30"					3	RED/ WHITE	WHITE	– –	P5-3	6.25	18.75
R6-1	36"	12"					4	BLACK/ WHITE	BLACK	BLACK	4 MTD W/OTHERS	3.00	12.00
R10-3f	5"	8"		AS PER MASSHIGHWAY DEPARTMENT STANDARD			2	WHITE	BLACK	BLACK	2 MTD ON TS POLE/ TS POST	ITEM 816.01	
R10-22	12"	18"					4	WHITE	BLACK	BLACK	P5-4	1.50	6.00
H1-2	24"	24"					1	YELLOW	YELLOW CLUSTER	– – –	P5-1	ITEM 827.21	
D3-1	VARIES	12"	HAVERHILL RD	6	3 3	N/A	2	GREEN	WHITE	WHITE	2 MTD ON TS POLE	ITEM 874	
D3-1	VARIES	12"	HILLSIDE AVE	6	3 3	N/A	2	GREEN	WHITE	WHITE	2 MTD ON TS POLE	ITEM 874	
RET D3-1	–	–											
RET D6-1	–	–											
RET D6-2	–	–											

IDENTIFI-CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
RET D6-3	–	–											
RET D6-4	–	–											
RET D6-5	–	–											
RET D6-6	–	–											
R&R D6-7	–	–											
R&S D8-1	–	–											
RET D8-2	–	–											
RET D8-3	–	–											

NOTE: HIGH INTENSITY REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION" FOR TEXT DIMENSIONS, AS AMENDED; THE 1977 MASSHIGHWAY DEPARTMENT CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED, FOR SIGNS AND SUPPORTS; AND THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED.

SUBJECT TO APPROVAL BY MassDOT

TRAFFIC SIGN SUMMARY

IDENTIFI-CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
RET D8-4	–	–	110 WEST MERRIMAC NEXT RIGHT										
RET D8-5	–	–	150 NORTH AMESBURY NEXT RIGHT										
RET D8-6	–	–	150 NORTH DOWNTOWN AMESBURY										
RET D8-7	–	–	110 WEST MERRIMAC										
RET D8-8	–	–	NORTH 150 DOWNTOWN AMESBURY										
RET D8-9	–	–	110 WEST MERRIMAC										
RET D8-10	–	–	110 WEST MERRIMAC										
R&R D8-11	–	–	110 EAST SALISBURY										

SUBJECT TO APPROVAL BY MassDOT

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

INDEX

SHEET NO.	DESCRIPTION
1	Title Sheet
2	Light, Medium & Short Span Load Diagrams
3	Heavy Load Diagrams
4	Details
5	Cored Pier Foundations

THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION 1988 STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, THE ENGLISH EDITION OF SUPPLEMENTAL SPECIFICATIONS DATED JUNE 6, 2006, THE AMENDMENTS TO THE STANDARD AND SUPPLEMENTAL SPECIFICATIONS, THE 1977 CONSTRUCTION STANDARDS, THE ENGLISH EDITION OF SUPPLEMENTAL DRAWINGS DATED APRIL 2003, THE 2001 "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" WITH LATEST REVISIONS, THE 2003 "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" WITH LATEST REVISIONS, THE 1990 "STANDARD DRAWINGS FOR SIGNS AND SUPPORTS," AND THE 2004 EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

MAST ARM & FOUNDATION

Details Standard Drawings

NOTES

1. For these standard drawings the Design Wind Speed for all Mast Arm Structures shall be **130 MPH**.

2. For these standard drawings the Design Wind Speed for mast arm foundations located in the following counties: Plymouth, Bristol, Barnstable, Dukes, and Nantucket counties in District 5 and Berkshire county in District 1 shall be **130 MPH**. The design wind speed for mast arm foundations for the remainder of the state shall be **110 MPH.**

3. For these standard drawings the mast arm structure design life shall be 25 years.

4. For these standard drawings the Fatigue Category no. 2 was used and truck induced gusts were excluded in the design.

5. These standard drawings do not apply for mast arm structures at intersections with an ADT greater than 40,000 vehicles and a truck percentage of greater than 10%. The responsibility for the design of mast structures and foundations will rest with the design engineer. The structure design life will be 50 years and the fatigue category shall be no. 1. The design wind speed criteria shall be as shown in Notes Nos. 1 & 2. The design will be submitted to MassDOT for review and comment.

6. For strain pole, dual mast arm designs, or mast arms longer than 45 feet, notes 1, 2, 3 and 4 will apply, if ADT (>40,000 vehicles) and truck percentage (10%) criterion is met, note 5 design criteria (50 year design life, fatigue category no. 1, wind design speed notes 1 and 2) will apply. The responsibility for the design of these structures and foundations will rest with the design engineer. The design will be submitted to MassDOT for review and comment.

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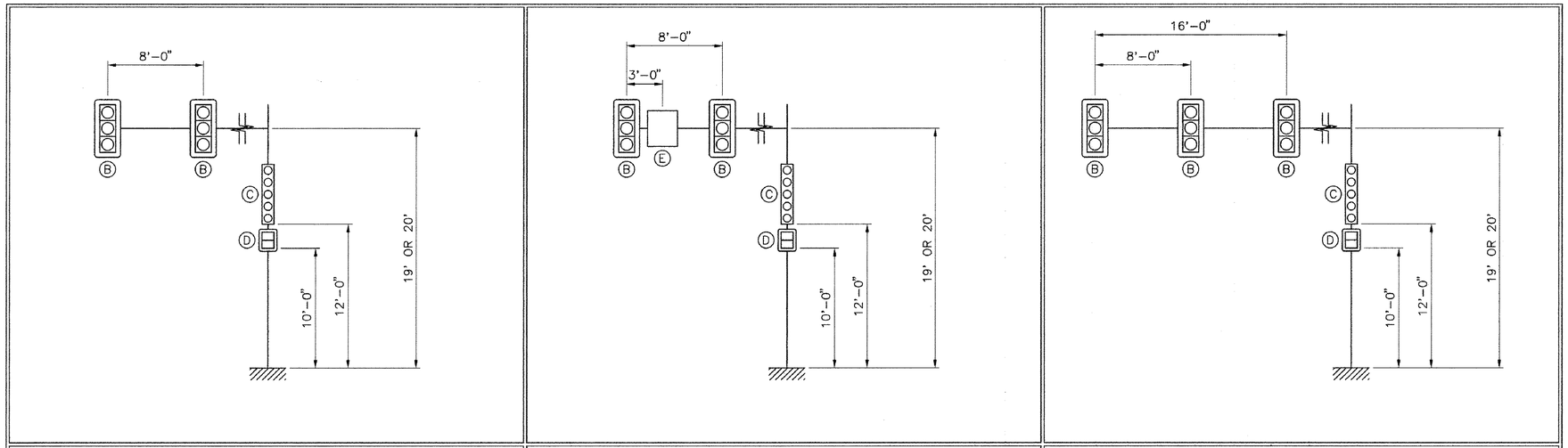
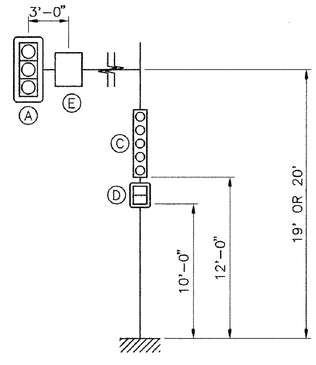


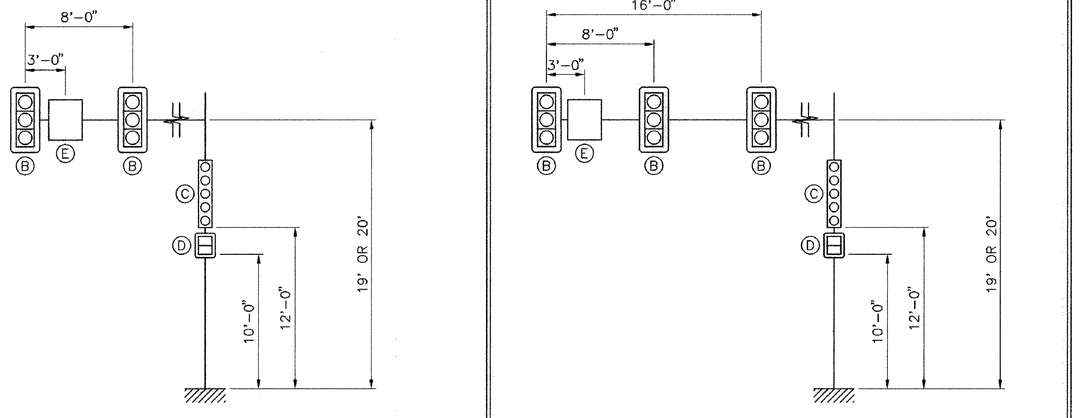
20', 25', 40' & 45' SPANS | 30' SPAN | 35' SPAN

LOAD DEFINITIONS – LIGHT LOADS



15' SPAN

SHORT SPAN LOADING



20' & 25' SPANS | 30', 35', 40' & 45' SPANS

LOAD DEFINITIONS – MEDIUM LOADS

DEVICE	DESCRIPTION	PROJ. AREA (FT~2)	WEIGHT (LBS)
A	3 SECTION, 3 WAY SIGNAL	13.50	202
B	3 SECTION, 1 WAY SIGNAL	8.67	74
C	5 SECTION, 1 WAY SIGNAL	13.33	110
D	DUAL PEDESTRIAN SIGNAL	8.00	80
E	30" X 36" REGULATORY SIGN	7.50	23

NOTE: ALL SIGNALS HAVE 5.0" BACKPLATES

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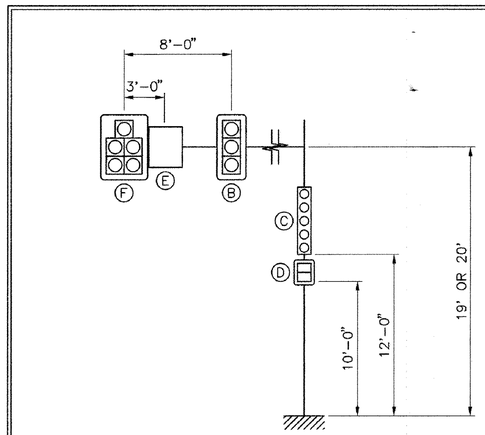
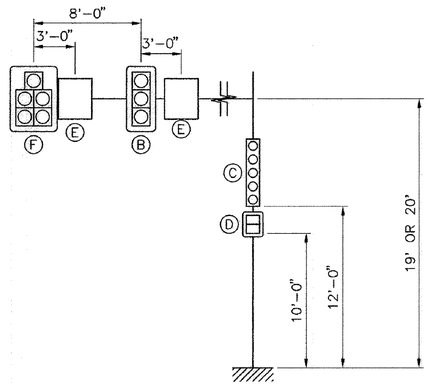
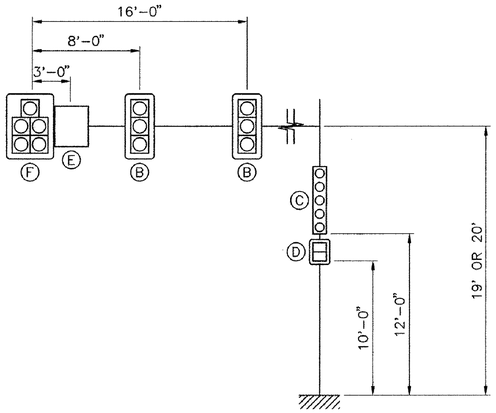


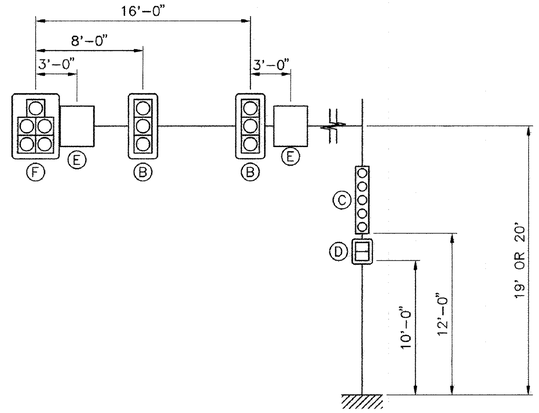
20' SPAN



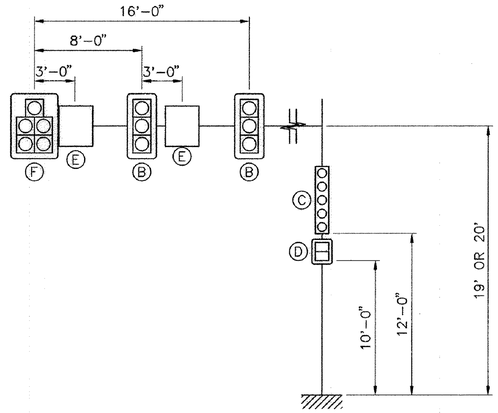
25' SPAN



30' SPAN



35' SPAN



40' & 45' SPANS

LOAD DEFINITIONS – HEAVY LOADS

DEVICE	DESCRIPTION	PROJ. AREA (FT^2)	WEIGHT (LBS)
(A)	3 SECTION, 3 WAY SIGNAL	18.29	202
(B)	3 SECTION, 1 WAY SIGNAL	8.67	74
(C)	5 SECTION, 1 WAY SIGNAL	13.33	110
(D)	DUAL PEDESTRIAN SIGNAL	8.00	80
(E)	30" X 36" REGULATORY SIGN	7.50	23
(F)	5 SECTION, 2 WAY SIGNAL	21.95	215
NOTE: ALL SIGNALS HAVE 5.0" BACKPLATES			

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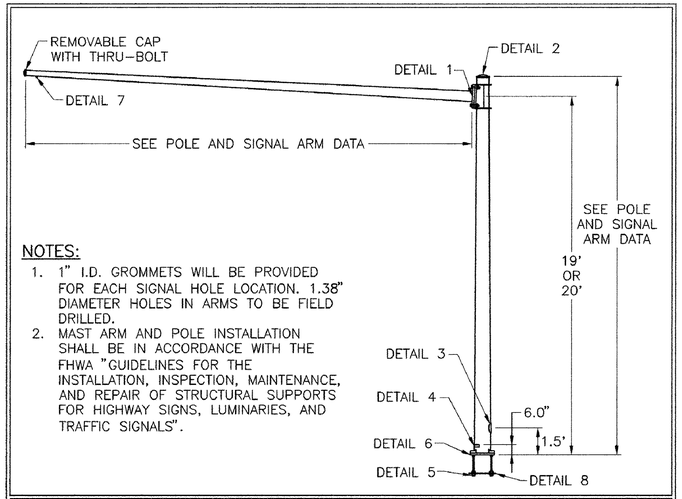
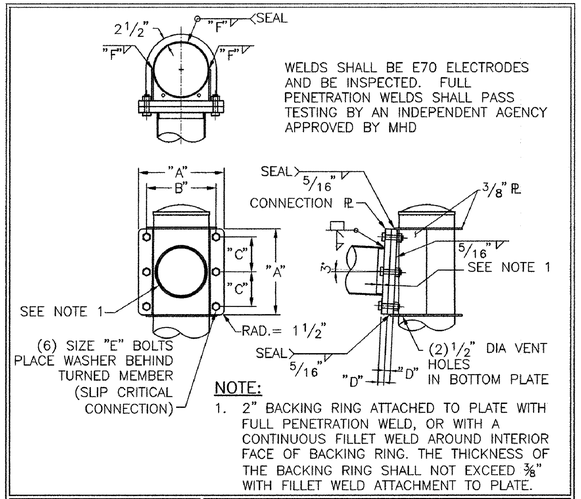


NOTES:

1. 1" I.D. GROMMETS WILL BE PROVIDED FOR EACH SIGNAL HOLE LOCATION. 1.38" DIAMETER HOLES IN ARMS TO BE FIELD DRILLED.
2. MAST ARM AND POLE INSTALLATION SHALL BE IN ACCORDANCE WITH THE FHWA "GUIDELINES FOR THE INSTALLATION, INSPECTION, MAINTENANCE, AND REPAIR OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES, AND TRAFFIC SIGNALS".

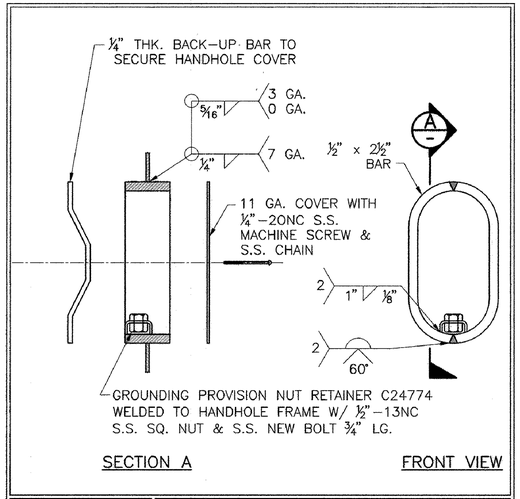
MAST ARM ELEVATION



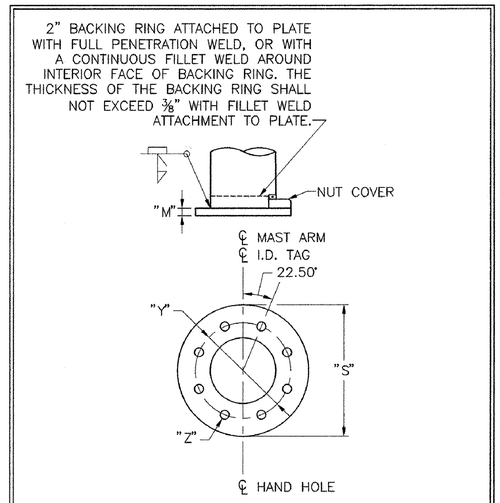
NOTE:

1. 2" BACKING RING ATTACHED TO PLATE WITH FULL PENETRATION WELD, OR WITH A CONTINUOUS FILLET WELD AROUND INTERIOR FACE OF BACKING RING. THE THICKNESS OF THE BACKING RING SHALL NOT EXCEED 3/8" WITH FILLET WELD ATTACHMENT TO PLATE.

DETAIL 1 | SIGNAL ARM ATTACHMENT



DETAIL 3 | 4"x8" HANDHOLE

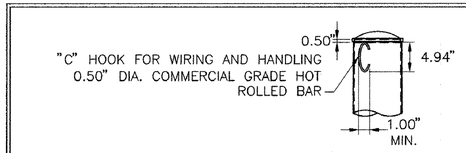


DETAIL 6 | POLE BASE

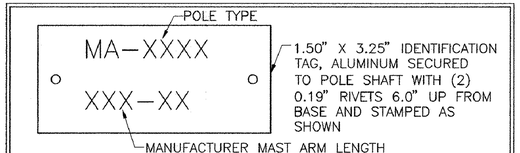
MATERIAL DATA

COMPONENT	DESIGNATION	YIELD (KSI)	COMPONENT	DESIGNATION	YIELD (KSI)
POLE TUBE	ASTM A595 GR. A	55	ARM TUBE	ASTM A595 GR. A	55
POLE BASE PLATE	AASHTO M270	50	ARM CONNECTION PLATE	AASHTO M270	50
ANCHOR BOLTS	AASHTO M314	55	ARM CONNECTING BOLTS	AASHTO M164 **	
GALVANIZING	AASHTO M111 OR M232				

** BOLTS WHICH ACCUMULATE RUST OR DIRT SHALL BE DISCARDED.



DETAIL 2 | POLE TOP



DETAIL 4 | I.D. TAG

POLE AND SIGNAL ARM DATA – LIGHT LOADS

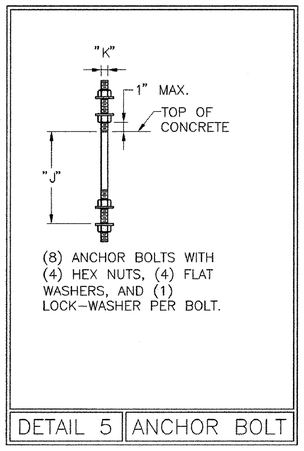
LOCATIONS	SIGNAL ARM TUBE				POLE TUBE				POLE BASE				ANCHOR BOLT		SIGNAL ARM ATTACHMENT DATA					
	SPAN (FT)	FIXED END DIA. (IN)	FREE END DIA. (IN)	WALL THK.	BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	WALL THK.	PLATE CIRCLE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	EMBED. LENGTH "J" (IN)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"F" (IN)
	15.00	9.00	6.90	7 GA.	12.00	9.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	19.00	15.00	7.50	1.00	1.00	0.188
	20.00	9.00	6.20	7 GA.	12.00	9.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	19.00	15.00	7.50	1.00	1.00	0.188
	25.00	10.00	6.50	7 GA.	13.00	10.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	20.00	16.00	8.00	1.00	1.00	0.188
	30.00	12.50	8.30	3 GA.	15.50	12.56	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	23.50	19.00	9.50	1.25	1.25	0.250
	35.00	13.00	8.10	3 GA.	16.00	13.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	24.50	20.00	10.00	1.25	1.25	0.250
	40.00	13.00	7.40	3 GA.	16.00	13.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	24.50	20.00	10.00	1.25	1.25	0.250
	45.00	13.50	7.20	3 GA.	16.50	13.56	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.313

POLE AND SIGNAL ARM DATA – MEDIUM LOADS

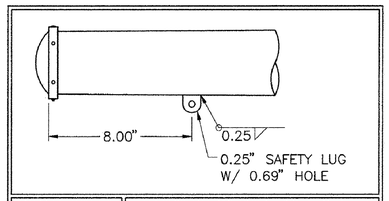
LOCATIONS	SIGNAL ARM TUBE				POLE TUBE				POLE BASE				ANCHOR BOLT		SIGNAL ARM ATTACHMENT DATA					
	SPAN (FT)	FIXED END DIA. (IN)	FREE END DIA. (IN)	WALL THK.	BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	WALL THK.	PLATE CIRCLE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	EMBED. LENGTH "J" (IN)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"F" (IN)
	15.00	9.00	6.90	7 GA.	12.00	9.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	19.00	15.00	7.50	1.00	1.00	0.188
	20.00	10.00	7.20	3 GA.	13.00	10.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	20.00	16.00	8.00	1.00	1.00	0.250
	25.00	11.00	7.50	3 GA.	14.00	11.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	23.50	19.00	9.50	1.25	1.25	0.250
	30.00	13.00	8.80	3 GA.	16.00	13.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	23.50	19.00	9.50	1.25	1.25	0.250
	35.00	14.00	9.10	3 GA.	17.00	14.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.250
	40.00	15.00	9.40	3 GA.	18.00	15.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.250
	45.00	16.00	9.70	0 GA.	19.00	16.06	21.00	0 GA.	29.50	24.00	1.50	1.813	1.50	36.00	29.50	24.00	12.00	1.75	1.50	0.313

POLE AND SIGNAL ARM DATA – HEAVY LOADS

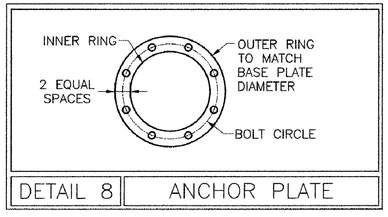
LOCATIONS	SIGNAL ARM TUBE				POLE TUBE				POLE BASE				ANCHOR BOLT		SIGNAL ARM ATTACHMENT DATA					
	SPAN (FT)	FIXED END DIA. (IN)	FREE END DIA. (IN)	WALL THK.	BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	WALL THK.	PLATE CIRCLE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	EMBED. LENGTH "J" (IN)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"F" (IN)
	15.00	9.00	6.90	7 GA.	12.00	9.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	19.00	15.00	7.50	1.00	1.00	0.188
	20.00	12.50	9.70	3 GA.	15.50	12.56	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	24.00	19.00	9.50	1.25	1.25	0.250
	25.00	14.00	10.50	3 GA.	17.00	14.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.250
	30.00	15.50	11.30	3 GA.	18.50	15.56	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.250
	35.00	16.50	11.60	0 GA.	19.50	16.56	21.00	0 GA.	34.50	28.00	1.75	2.063	1.75	36.00	29.50	24.00	12.00	1.75	1.50	0.313
	40.00	17.50	11.90	0 GA.	20.50	17.56	21.00	0 GA.	34.50	28.00	1.75	2.063	1.75	36.00	29.50	24.00	12.00	1.75	1.50	0.313
	45.00	18.50	12.20	0 GA.	21.50	18.56	21.00	0 GA.	34.50	28.00	1.75	2.063	1.75	36.00	31.50	26.00	13.00	2.00	1.50	0.313



DETAIL 5 | ANCHOR BOLT



DETAIL 7 | SAFETY HANGER LUG



DETAIL 8 | ANCHOR PLATE

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PIER FOUNDATIONS FOR 110 MPH WIND SPEED ZONE

LIGHT LOADING CONDITIONS

SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'–6"	6'–0"	18–#8	3'–6"	8'–0"	18–#8	3'–6"	8'–0"	18–#8	3'–6"	9'–0"	18–#8
WET SAND	3'–6"	7'–0"	18–#8	3'–6"	9'–0"	18–#8	3'–6"	9'–0"	18–#8	3'–6"	9'–0"	18–#8
CLAY (MEDIUM STIFF)	3'–6"	11'–0"	18–#8	3'–6"	12'–0"	18–#8	3'–6"	12'–0"	18–#8	3'–6"	12'–0"	18–#8
ALLUVIAL	3'–6"	8'–0"	18–#8	3'–6"	10'–0"	18–#8	3'–6"	10'–0"	18–#8	3'–6"	11'–0"	18–#8

MEDIUM LOADING CONDITIONS

SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'–6"	7'–0"	18–#8	3'–6"	9–0"	18–#8	4'–0"	9–0"	18–#9	4'–6"	8'–0"	18–#10
WET SAND	3'–6"	8'–0"	18–#8	3'–6"	9'–0"	18–#8	4'–0"	10'–0"	18–#9	4'–6"	9'–0"	18–#10
CLAY (MEDIUM STIFF)	3'–6"	11'–0"	18–#8	3'–6"	12'–0"	18–#8	4'–0"	13'–0"	18–#9	4'–6"	14'–0"	18–#10
ALLUVIAL	3'–6"	9'–0"	18–#8	3'–6"	10'–0"	18–#8	4'–0"	11'–0"	18–#9	4'–6"	10'–0"	18–#10

HEAVY LOADING CONDITIONS

SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'–6"	8'–0"	18–#8	4'–0"	9'–0"	18–#9	4'–6"	10'–0"	18–#10	5'–0"	9'–0"	23–#10
WET SAND	3'–6"	8'–0"	18–#8	4'–0"	10'–0"	18–#9	4'–6"	11'–0"	18–#10	5'–0"	10'–0"	23–#10
CLAY (MEDIUM STIFF)	3'–6"	12'–0"	18–#8	4'–0"	14'–0"	18–#9	4'–6"	15'–0"	18–#10	5'–0"	16'–0"	23–#10
ALLUVIAL	3'–6"	10'–0"	18–#8	4'–0"	11'–0"	18–#9	4'–6"	12'–0"	18–#10	5'–0"	12'–0"	23–#10

PIER FOUNDATIONS FOR 130 MPH WIND SPEED ZONE

LIGHT LOADING CONDITIONS

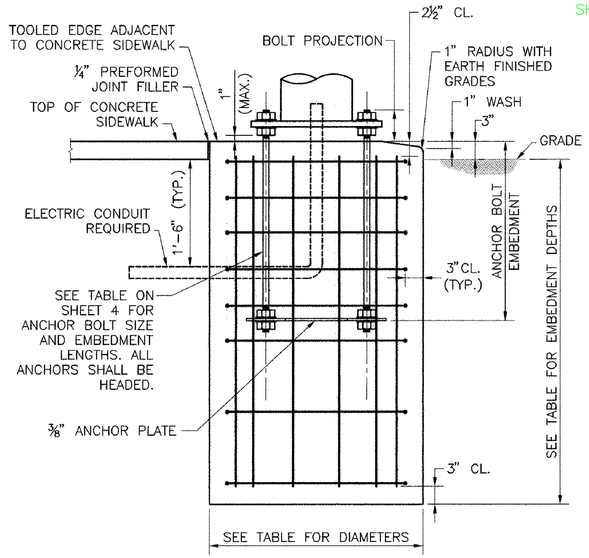
SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'–6"	7'–0"	18–#8	3'–6"	9'–0"	18–#8	3'–6"	10'–0"	18–#8	3'–6"	10'–0"	18–#8
WET SAND	3'–6"	8'–0"	18–#8	3'–6"	10'–0"	18–#8	3'–6"	11'–0"	18–#8	3'–6"	11'–0"	18–#8
CLAY (MEDIUM STIFF)	3'–6"	12'–0"	18–#8	3'–6"	13'–0"	18–#8	3'–6"	13'–0"	18–#8	3'–6"	13'–0"	18–#8
ALLUVIAL	3'–6"	9'–0"	18–#8	3'–6"	12'–0"	18–#8	3'–6"	12'–0"	18–#8	3'–6"	13'–0"	18–#8

MEDIUM LOADING CONDITIONS

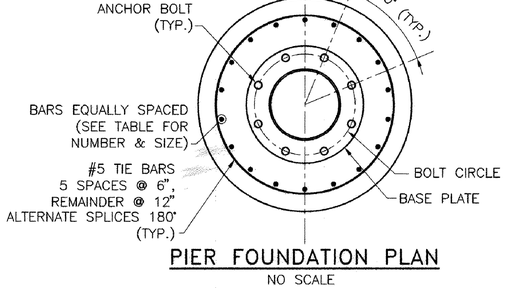
SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'–6"	8'–0"	18–#8	3'–6"	10'–0"	18–#8	4'–0"	11'–0"	18–#9	4'–6"	10'–0"	18–#10
WET SAND	3'–6"	8'–0"	18–#8	3'–6"	11'–0"	18–#8	4'–0"	12'–0"	18–#9	4'–6"	11'–0"	18–#10
CLAY (MEDIUM STIFF)	3'–6"	12'–0"	18–#8	3'–6"	14'–0"	18–#8	4'–0"	15'–0"	18–#9	4'–6"	15'–0"	18–#10
ALLUVIAL	3'–6"	10'–0"	18–#8	3'–6"	13'–0"	18–#8	4'–0"	13'–0"	18–#9	4'–6"	12'–0"	18–#10

HEAVY LOADING CONDITIONS

SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'–6"	9'–0"	18–#8	4'–0"	11'–0"	18–#9	4'–6"	12'–0"	18–#10	5'–0"	11'–0"	23–#10
WET SAND	3'–6"	10'–0"	18–#8	4'–0"	12'–0"	18–#9	4'–6"	13'–0"	18–#10	5'–0"	12'–0"	23–#10
CLAY (MEDIUM STIFF)	3'–6"	14'–0"	18–#8	4'–0"	15'–0"	18–#9	4'–6"	16'–0"	18–#10	5'–0"	17'–0"	23–#10
ALLUVIAL	3'–6"	11'–0"	18–#8	4'–0"	13'–0"	18–#9	4'–6"	15'–0"	18–#10	5'–0"	14'–0"	23–#10



PIER FOUNDATION DETAIL
NO SCALE

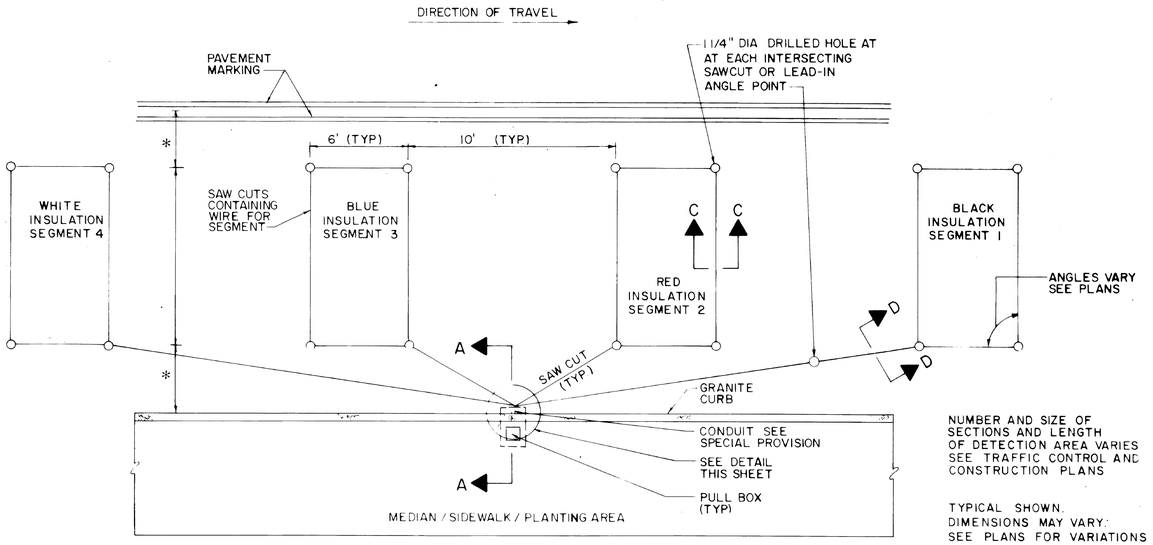


PIER FOUNDATION PLAN
NO SCALE

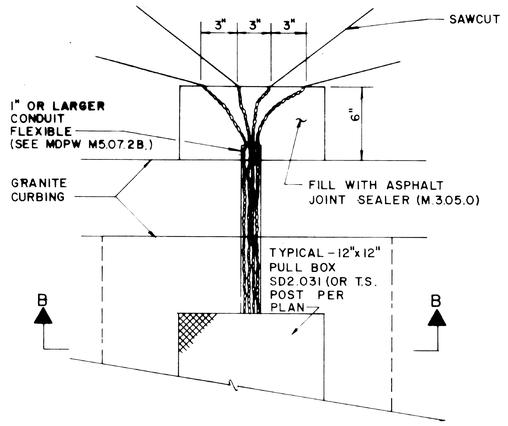
NOTES:

1. FOUNDATIONS SHALL BE 4000 PSI, 1½", 565 CEMENT CONCRETE.
2. REINFORCEMENT SHALL BE ASTM A615 GRADE 60.
3. ANCHOR BOLTS SHALL BE SET BY TEMPLATE.
4. PROVIDE FOR ELECTRICAL CONDUIT.
5. EXCAVATION SHALL BE BY THE AUGER METHOD TO THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATIONS WITHOUT DISTURBING THE SOIL AROUND AND BELOW THE PROPOSED FOUNDATION BOTTOM. ALTERNATE METHODS OF EXCAVATION MAY BE SUBMITTED TO MASSHIGHWAY FOR APPROVAL IF THEY MEET THE REQUIREMENTS LISTED IN NOTES 6, 7, AND 8.
6. THE EARTH WALLS OF THE FOUNDATION SHALL BE ADEQUATELY AND SECURELY PROTECTED AT ALL TIMES AGAINST CAVE–INS, DISPLACEMENT OF THE SURROUNDING EARTH AND FOR THE EXCLUSION OF GROUND WATER. THIS MAY BE DONE BY THE USE OF STEEL CYLINDER LINERS OR CASINGS THAT ARE APPROVED BY MASSHIGHWAY. IF LINERS ARE USED THEY MAY BE RECLAIMED PROVIDED THAT THEY ARE WITHDRAWN AS THE CONCRETE IS BEING PLACED, MAINTAINING A SUFFICIENT HEAD OF CONCRETE WITHIN THE LINER TO PREVENT REDUCTION IN THE FOUNDATION DIAMETER AND TO PREVENT EXTRANEOUS MATERIAL FROM FALLING IN FROM THE SIDES AND MIXING WITH THE CONCRETE.
7. IF THE SOIL IS DISTURBED OR REMOVED BEYOND THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATION, IT SHALL BE REPLACED WITH CONCRETE. ANY ADDITIONAL COST FOR THE CONCRETE SHALL BE PAID FOR BY THE CONTRACTOR.
8. SPECIAL CARE SHOULD BE GIVEN TO AREAS WHERE WET SOIL IS ENCOUNTERED, TO INSURE THAT THE PREAUGERED HOLE DOES NOT COLLAPSE. THIS MAY REQUIRE THE USE OF STEEL CYLINDER LINERS OR CASINGS TO HOLD THE SOIL IN PLACE UNTIL READY FOR CONCRETE PLACEMENT. THE STEEL CYLINDERS OR CASINGS SHALL BE WITHDRAWN AS THE FOUNDATION CONCRETE IS PLACED.
9. DETERMINATION OF EXISTING SOIL CONDITIONS SHALL BE MADE BY THE DESIGN ENGINEER.
10. IF LEDGE OR POOR SOIL IS ENCOUNTERED (i.e. ONE WHICH DOES NOT APPLY TO THE DESIGN TABLES SHOWN ON THIS SHEET), AN ALTERNATIVE DESIGN SHALL BE PROVIDED BY THE DESIGN ENGINEER. DECISIONS MADE IN NOTES 8 AND 9 SHALL BE SUBMITTED TO MASSHIGHWAY FOR APPROVAL. IF UTILITIES OR OTHER UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL BACKFILL THE AREA TO ITS ORIGINAL CONDITION UNTIL AN ALTERNATE DESIGN HAS BEEN PROVIDED BY THE ENGINEER.

THIS PLAN NOT DESIGNED BY
VANASSE HANGEN BRUSTLIN, INC.
IT WAS PROVIDED BY THE MASSDOT
AND ALL INFORMATION CONTAINED
HEREIN IS ASSUMED TO BE CORRECT.



PLAN OF SEGMENTED DETECTOR DETAIL
NOT TO SCALE

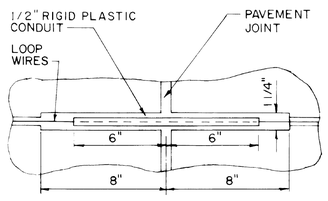


DETAIL - PLAN VIEW
NOT TO SCALE

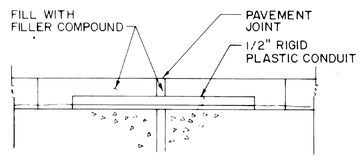
DETECTOR NOTES

1. IN BASE OR HANDHOLE, SPLICE ALL SEGMENTS TO TYPE II-SHIELDED LOOP DETECTOR LEAD-IN CABLE. SEGMENTS SHALL BE SPLICED IN IN PARALLEL, IN SERIES, OR IN A COMBINATION OF PARALLEL & SERIES AS SHOWN ON THE PLAN SHEET FOR EACH DETECTOR. NUMBER OF TURNS OF WIRE SHALL ALSO BE AS SHOWN ON THE PLAN SHEET FOR EACH DETECTOR. SEE NOTE 12.
2. SEE SPECIAL PROVISIONS FOR REQUIREMENTS OF DETECTOR AMPLIFIER.
3. LEAD-IN WIRES SHALL BE TWISTED FROM SEGMENT TO SPLICE WITH SHIELDED CABLE. FIVE TURNS PER FOOT. LEAD-IN SHALL BE TYPE II (M8.16.11).
4. BEFORE STARTING ANY SPLICING THE ELECTRICAL CONTRACTOR SHALL FURNISH DATA SHEETS ON THE MATERIALS AND/OR METHODS TO BE USED IN ACCORDANCE WITH THE DEPARTMENTS STANDARD OPERATING PROCEDURES FOR APPROVAL OF SHOP DRAWINGS. SEE SECTION 815.64, ESPECIALLY PARAGRAPH 1.
5. THE METALLIC SHIELD WHICH SHALL ENCASE THE DETECTOR LEADS FROM A SPLICE (TYPICALLY LOCATED IN A PULL BOX NEAR THE ROAD WAY COMPONENT OF THE DETECTOR) TO THE CONTROLLER, AND THE DRAIN WIRE UNDER THE METALLIC SHIELD, SHALL BE FIRMLY BONDED TO THE EARTH GROUNDING BUS IN THE CONTROLLER. HOWEVER, THE SHIELD AND DRAIN WIRE SHALL BE CAREFULLY INSULATED FROM THE TRANSFORMER NEUTRAL OR FROM EARTH GROUND AT ALL OTHER POINTS ALONG ITS LENGTH. SPECIFICALLY, THIS INCLUDES CAREFUL INSULATION OF THE EXPOSED PORTION OF THE SHIELD AND THE DRAIN WIRE AT THE END AWAY FROM THE CONTROLLER WHERE IT IS SPLICED TO WIRES LEADING TO THE ROADWAY COMPONENT OF THE DETECTOR. THIS IS IMPORTANT TO AVOID A GROUND RETURN LOOP.
6. FILL ALL CONDUIT OPENINGS WITH DUCT SEAL.
7. AFTER SAW CUTS ARE COMPLETE, BLOW OUT OIL AND WATER WITH FREE COMPRESSED AIR UNTIL CUTS ARE CLEAN AND DRY. INSERT WIRE INTO CLEAN SLOT WITH A BLUNT, SMOOTH, ROUND EDGED TOOL OF WOOD OR PLASTIC SUCH AS A PAINT STIRRER, DO NOT USE A SCREWDRIVER. THEN INSERT FOAM PLASTIC HOLD DOWN STRIPS, SIMILAR TO ETHA FOAM 5B. STRIPS SHALL BE ABOUT 2" LONG, PLACED IN THE SLOT ABOUT EVERY 2 FEET. THEN POUR SEALER, TAKING CARE TO ELIMINATE BUBBLES.
8. THE COMBINED ROADWAY LOOP, TWISTED LEAD-IN WIRES, SPLICE AND SHIELDED LEAD-IN CABLE SHALL HAVE A RESISTANCE TO GROUND OF AT LEAST 100 MEGOHMS. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
9. FOR INSTALLATION OF SINGLE (ONE SEGMENT) SMALL WIRE LOOP DETECTOR. DETAIL IS THE SAME.
10. CUT LOOPS IN BINDER AND FILL WITH APPROVED FLEXIBLE SEALER.
11. DETECTOR WIRE SHALL BE A DIFFERENT COLOR FOR EACH SEGMENT OF A DETECTOR GROUP. SEE DETAIL.
12. SPLICING PATTERN P= SERIES/PARALLEL: SPLICE SEGMENTS 1 AND 3 OF AN INDIVIDUAL DETECTOR IN SERIES. SPLICE SEGMENTS 2 AND 4 IN SERIES. SPLICE THE RESULTANT TWO GROUPS IN PARALLEL. SPLICE THE RESULTANT COMBINATION TO ONE LEAD-IN CABLE. CONNECT THIS CABLE TO AN OTHERWISE UNUSED AMPLIFIER CHANNEL.

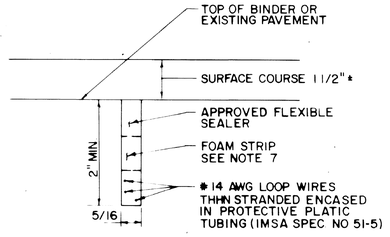
   SPLICING PATTERN S=SERIES: SPLICE ALL SEGMENTS (TYPICALLY FOUR, BUT MAY BE LESS) OF AN INDIVIDUAL DETECTOR IN SERIES. SPLICE THE RESULTANT COMBINATION TO ONE LEAD-IN CABLE TO AN OTHERWISE UNUSED AMPLIFIER CHANNEL.



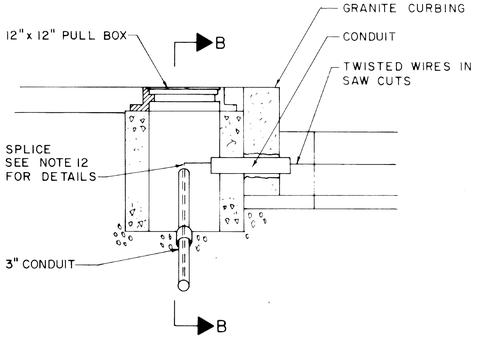
PLAN
TREATMENT AT PAVEMENT JOINTS
NOT TO SCALE



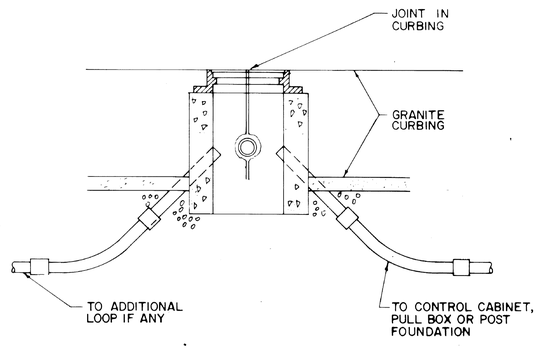
VERTICAL SECTION
TREATMENT AT PAVEMENT JOINTS
NOT TO SCALE



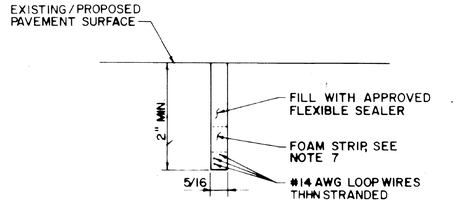
SECTION C-C & D-D
LOOPS IN BINDER COURSE OR EXISTING PAVEMENT TO BE RESURFACE
NOT TO SCALE



SECTION A-A
NOT TO SCALE



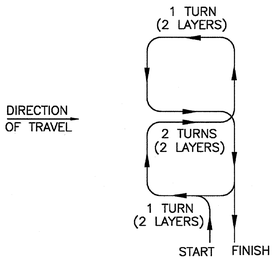
SECTION B-B
NOT TO SCALE



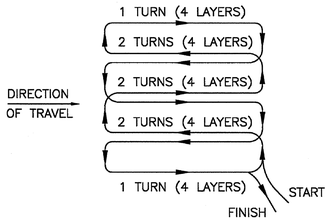
SECTION C-C & D-D
LOOPS IN SURFACE COURSE
NOT TO SCALE

THIS PLAN NOT DESIGNED BY VANASSE HANGEN BRUSTLIN, INC. IT WAS PROVIDED BY THE MASSDOT AND ALL INFORMATION CONTAINED HEREIN IS ASSUMED TO BE CORRECT.

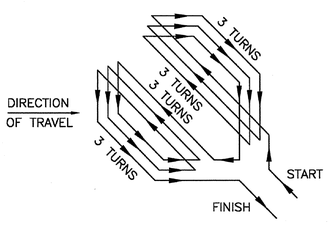
WINDING DETAILS



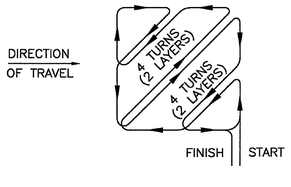
TYPE Q DETECTOR



TYPE D–Q DETECTOR

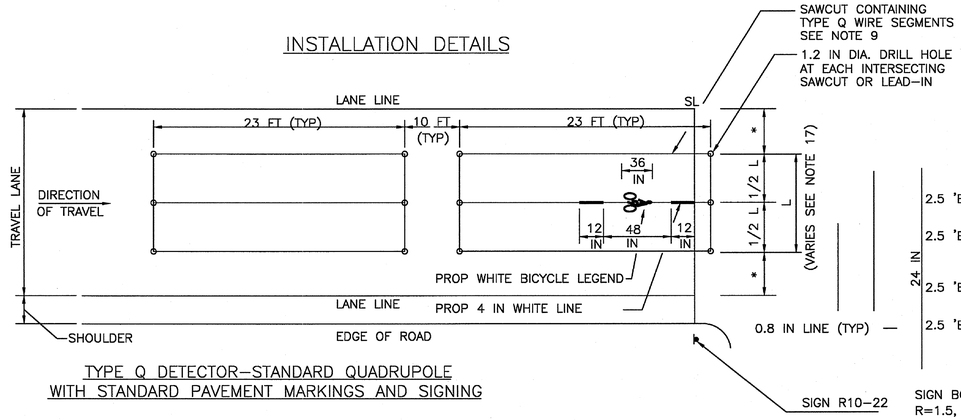


TYPE D–1 DETECTOR

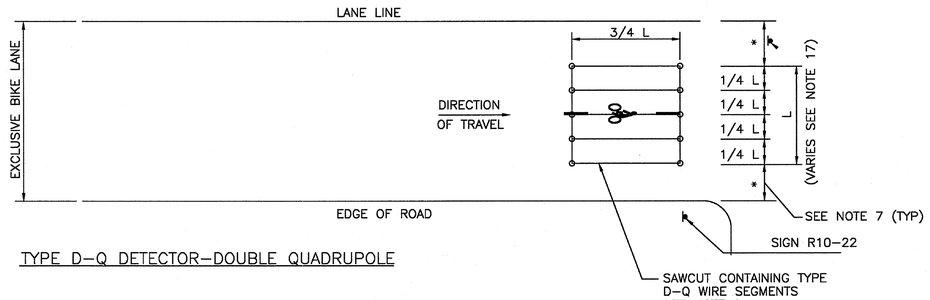


TYPE D–2 DETECTOR

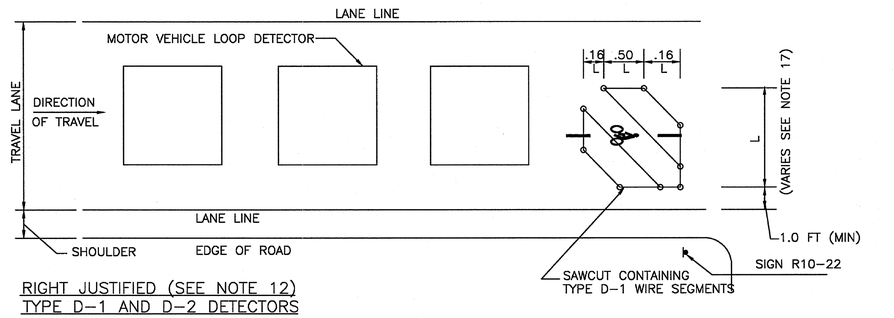
INSTALLATION DETAILS



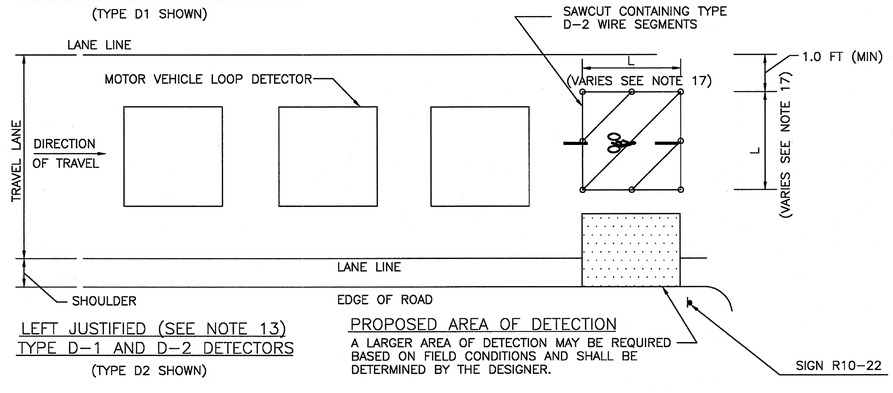
TYPE Q DETECTOR–STANDARD QUADRUPOLE
WITH STANDARD PAVEMENT MARKINGS AND SIGNING



TYPE D–Q DETECTOR–DOUBLE QUADRUPOLE



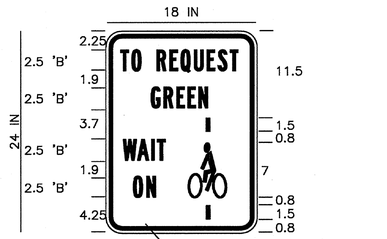
RIGHT JUSTIFIED (SEE NOTE 12)
TYPE D–1 AND D–2 DETECTORS
(TYPE D1 SHOWN)



LEFT JUSTIFIED (SEE NOTE 13)
TYPE D–1 AND D–2 DETECTORS
(TYPE D2 SHOWN)

PROPOSED AREA OF DETECTION
A LARGER AREA OF DETECTION MAY BE REQUIRED BASED ON FIELD CONDITIONS AND SHALL BE DETERMINED BY THE DESIGNER.

SIGN R10–22

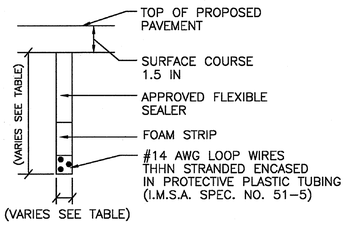


SIGN BORDER:
R=1.5, TH=0.5, INS=.38

WHITE BACKGROUND
BLACK LEGEND AND LINES

NOTE: ALL SIGN DIMENSIONS IN INCHES

NOTE: SIGN PANEL NOT SHOWN TO SCALE



SECTION THRU LOOP DETECTOR

SAWCUT SLOT DEPTH GUIDE		
TURNS OF WIRE	SLOT SIZE	
	DEPTH (IN)	WIDTH (IN)
1	1.5	0.5
2	1.5	0.5
3	1.5	0.5
4	2.0	0.5
5	2.0	0.5
6	2.0	0.5
7	2.0	0.5
8	2.0	0.5

BICYCLE LOOP DETECTOR DETAILS

NOTES:

1. REFER TO VEHICLE LOOP DETECTOR DETAIL SHEET FOR ADDITIONAL NOTES AND CONSTRUCTION DETAILS.
2. ALL DETAILS ARE GRAPHICAL WITH NO SCALE.
3. THE NUMBER, SIZE, LOCATION AND LENGTH OF DETECTION AREA VARIES AND SHALL BE DETERMINED BY THE DESIGNER REFER TO TRAFFIC SIGNAL PLAN.
4. BICYCLE LOOPS SHALL BE CONNECTED TO SEPARATE LOOP DETECTOR AMPLIFIERS CAPABLE OF HIGHER LEVELS OF SENSITIVITY.
5. BICYCLE LOOPS SHALL BE INSTALLED IN THE BASE COURSE OF EXISTING PAVEMENT. THE EXISTING PAVEMENT SHALL BE COLD PLANED TO THE BASE COURSE AND SAWCUT FOR LOOP INSTALLATION.
6. SIGNS AND PAVEMENT MARKINGS SHALL BE INSTALLED FOR ALL BICYCLE DETECTORS TO INFORM CYCLISTS OF THE DETECTION AREA.
7. * OFFSETS FROM LANE LINE EQUAL UNLESS OTHERWISE NOTED. SEE PLANS.
8. TYPE Q DETECTORS SHALL BE WIRED IN A FIGURE EIGHT PATTERN WITH A DOUBLE LAYER DESIGN ("2–4–2") WITH 2 TURNS IN THE PERIMETER SLOTS AND 4 TURNS IN THE CENTER SLOT AS SHOWN IN THE WINDING DETAIL.
9. BICYCLES WILL BE DETECTED WITHIN 4 IN. OF THE INTERIOR LONGITUDINAL LOOP WIRES FOR TYPE Q AND D–Q DETECTORS.
10. PROVIDE 3 TURNS FOR TYPE D–1 DETECTORS.
11. INSTALL 2 LAYERS OF WIRE WOUND IN THE SAME DIRECTION IN BOTH LAYERS FOR TYPE D–2 DETECTORS. THE RESULT IS 4 TURNS IN EACH DIAGONAL.
12. RIGHT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
    a) BICYCLE STOPPING ON THE RIGHT SIDE OF A THRU TRAVEL LANE.
    b) BICYCLE STOPPING ON THE RIGHT SIDE OF AN EXCLUSIVE LEFT TURN LANE.
13. LEFT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
    a) BICYCLE STOPPING ON THE LEFT SIDE OF A SHARED LEFT/THRU LANE.
    b) BICYCLE STOPPING JUST TO THE RIGHT OF THE CENTERLINE WHEN TURNING LEFT ON A TWO–LANE ROADWAY.
14. RECTANGULAR LOOP DETECTORS SHALL BE CONSIDERED FOR BICYCLES STOPPING ON EITHER THE LEFT OR RIGHT SIDE OF A TWO–LANE ROADWAY. THE MINIMUM OFFSET FROM LANE LINE OR CURB LINE SHALL BE 1.0 FT.
15. PAVEMENT CORES OR TEST PITS MAY BE REQUIRED TO DETERMINE THE DEPTH OF EXISTING PAVEMENT AND CONFIRM THAT THE DETECTION OPTION CHOSEN AND CORRESPONDING WINDING PATTERN CAN BE ACCOMMODATED.
16. THESE DETAILS APPLY TO BICYCLE LOOPS INSTALLED IN ROADWAYS. PUSH BUTTON ACTUATION SHALL BE CONSIDERED FOR RECREATIONAL BIKE PATHS.
17. THE MINIMUM DIMENSION FOR L SHALL BE 6 FT MIN. FOR DETECTORS TYPE D–Q, D–1 & D–2. FINAL DIMENSIONS SHALL BE DETERMINED BY THE DESIGN ENGINEER.

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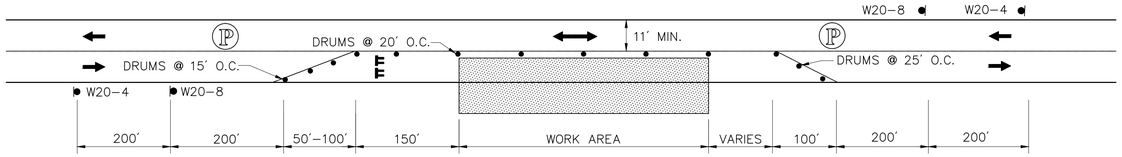
AND ALL INFORMATION CONTAINED
HEREIN IS ASSUMED TO BE CORRECT.

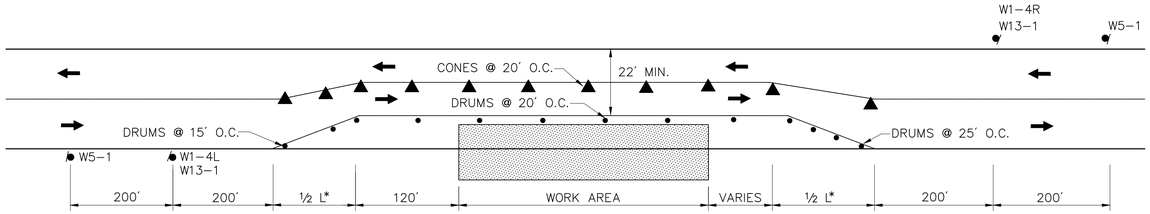
OPERATIONAL SIGNING

LANE CLOSURES SHOWN ARE FOR TEMPORARY CONSTRUCTION.
ALL DRUMS AND SIGNS ARE SHOWN AS THEY SHOULD APPEAR
DURING THE WORKING DAY, OR WHILE OPERATING IN THE WORK ZONE.



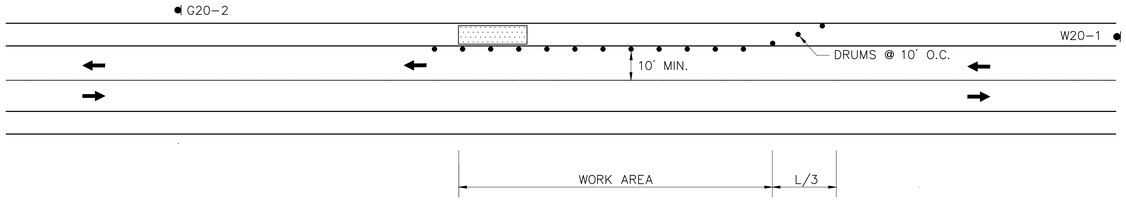
TYPICAL TWO WAY STREET LANE CLOSURE

NOT TO SCALE



TYPICAL TWO WAY STREET LANE SHIFT

NOT TO SCALE



SHOULDER WORK WITH MINOR ENCROACHMENT

NOT TO SCALE

FOR POSTED SPEEDS OF 40 MPH OR LESS

$* L = \frac{WS^2}{60}$

L=TAPER LENGTH
W=WIDTH OF ROADWAY TO BE SHIFTED OR REDIRECTED
S=POSTED SPEED LIMIT

TEMPORARY SIGNS

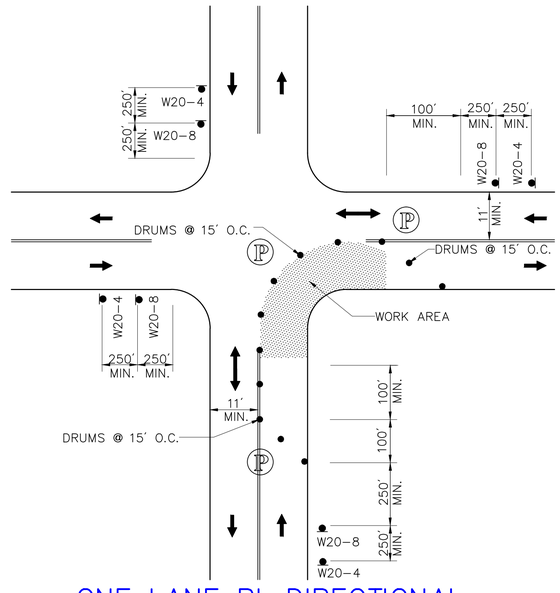
SIGN DESIGNATION	LEGEND	HEIGHT	WIDTH
W20-1	ROAD WORK AHEAD	48"	48"
W20-4	ONE LANE ROAD AHEAD	48"	48"
W20-8	POLICE OFFICER AHEAD	48"	48"
W5-1	ROAD NARROWS	36"	36"
W13-1	ADVISORY SPEED PLATE	24"	24"
W1-4R		30"	30"
W1-4L		30"	30"
G20-2	END ROAD WORK	24"	60"

GENERAL NOTES

1. ALL CONSTRUCTION SIGNING, DRUMS, BARRICADES AND OTHER DEVICES SHALL CONFORM WITH THE 2003 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AS AMENDED.
2. ALL DRUMS SHALL BE SET AT 20' ON CENTER MAX. UNLESS OTHERWISE NOTED OR ADJUSTED BY THE ENGINEER.
3. ALL DRUMS SHALL BE APPROXIMATELY PLACED AND MOVED AS NECESSARY TO MAINTAIN ADEQUATE ABUTTER ACCESS AT ALL TIMES. WORK MAY REQUIRE ADDITIONAL SIGNS, DRUMS AND OTHER TRAFFIC CONTROL DEVICES, GRADING AND TEMPORARY PAVEMENT FOR PASSAGE OF PEDESTRIAN, VEHICULAR AND EMERGENCY TRAFFIC THROUGH THE WORK AREAS, BOTH DURING AND AFTER WORKING HOURS, TO MAINTAIN SUCH ACCESS.
4. THE CONTRACTOR SHALL NOTIFY EACH ABUTTOR AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT AND SIMILIAR OPERATIONS.
5. A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION ON TWO WAY STREETS SHALL BE MAINTAINED AT ALL TIMES, EXCEPT THAT DURING WORKING HOURS, TRAFFIC MAY BE REDUCED TO ONE LANE UNDER POLICE CONTROL FOR SHORT TIME PERIODS WHEN REQUIRED FOR THE WORK, AS SHOWN.
6. GRADE SEPARATIONS IN EXCESS OF 2" DURING NON-WORKING HOURS WILL REQUIRE DELINEATION BY USE OF DRUMS.
7. EXCAVATION EDGES IN EXCESS OF 4" DEEP SHALL BE PROTECTED DURING NON-WORKING HOURS BY BACKFILLING WITH A WEDGE OF GRAVEL OR SOIL TO COMPACTED 1:4 SLOPE.
8. 11' MINIMUM LANE WIDTHS SHALL BE MAINTAINED.
9. NON-ESSENTIAL TRAFFIC CONTROL DEVICES SHALL BE COVERED OR REMOVED DURING NON-WORKING HOURS.
10. THE GENERAL SEQUENCE OF WORK IS DEPENDENT UPON THE REMOVAL AND RELOCATION OF THE EXISTING UTILITY POLES AND WIRES THAT ARE FOUND TO BE IN CONFLICT WITH THE PROPOSED WORK, BY THE UTILITY COMPANIES. THE CONTRACTOR SHALL SCHEDULE THE WORK IN EACH AREA TO COORDINATE WITH THE POLE RELOCATION WORK.
11. ADVISORY SPEED PLATES (W13-1) SHALL BE USED IF APPROPRIATE AND AS DIRECTED BY THE ENGINEER.

LEGEND

- DRUM
- TRAFFIC CONE
- (P) POLICE OFFICER
- CONSTRUCTION SIGN
- TYPE III BARRICADES
- WORK AREA PUBLIC ACCESS RESTRICTED
- PROPOSED TRAFFIC FLOW
- SPECIAL LIGHTING UNIT (SLU)
- NTS NOT TO SCALE



ONE LANE BI-DIRECTIONAL TRAFFIC AT INTERSECTIONS

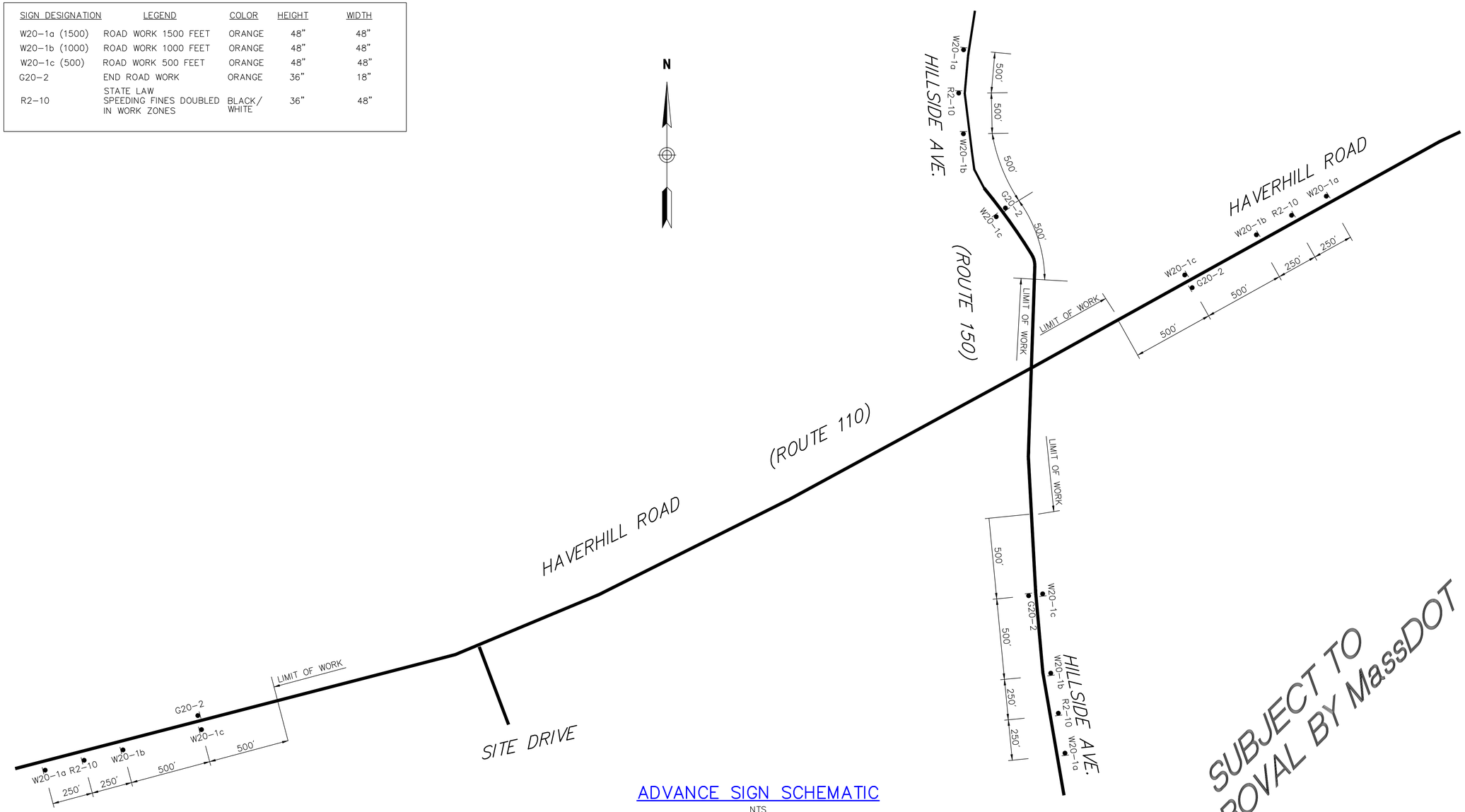
NOT TO SCALE

NOTE:
1. ADVANCE WARNING SIGN PLACEMENT TO BE ADJUSTED AS NECESSARY

SUBJECT TO APPROVAL BY MassDOT

TEMPORARY SIGNS

SIGN DESIGNATION	LEGEND	COLOR	HEIGHT	WIDTH
W20-1a (1500)	ROAD WORK 1500 FEET	ORANGE	48"	48"
W20-1b (1000)	ROAD WORK 1000 FEET	ORANGE	48"	48"
W20-1c (500)	ROAD WORK 500 FEET	ORANGE	48"	48"
G20-2	END ROAD WORK	ORANGE	36"	18"
R2-10	STATE LAW SPEEDING FINES DOUBLED IN WORK ZONES	BLACK/ WHITE	36"	48"



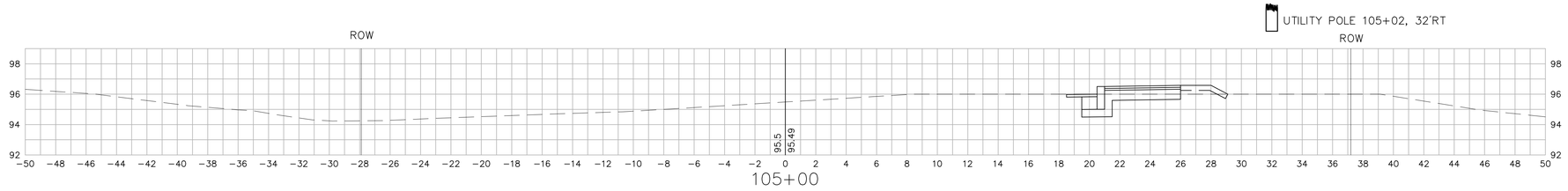
ADVANCE SIGN SCHEMATIC

NTS

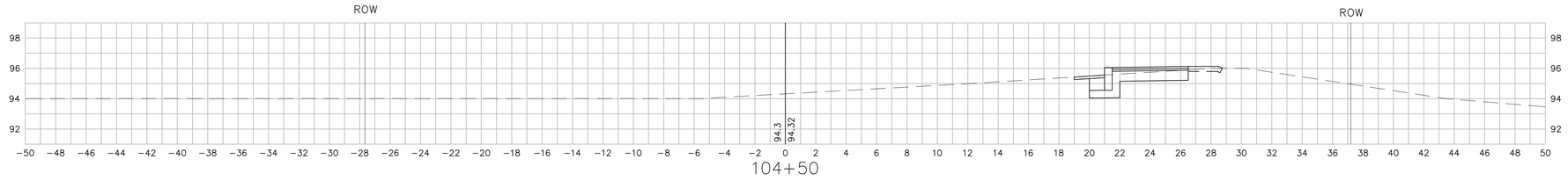
ALL ADVANCE SIGNS TO BE IN PLACE FOR THE DURATION OF THE PROJECT.

SUBJECT TO APPROVAL BY MassDOT

AMESBURY
HAVERHILL ROAD (ROUTE 110)
CROSS SECTIONS
SHEET 28 OF 31



105+00



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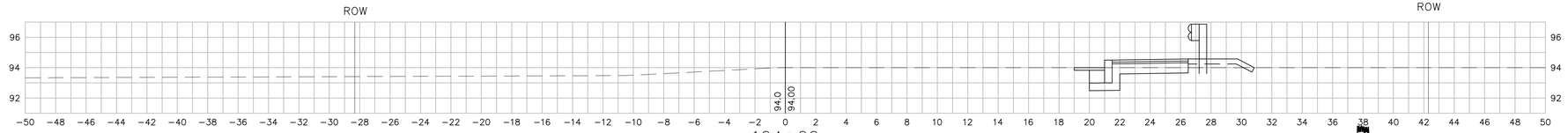

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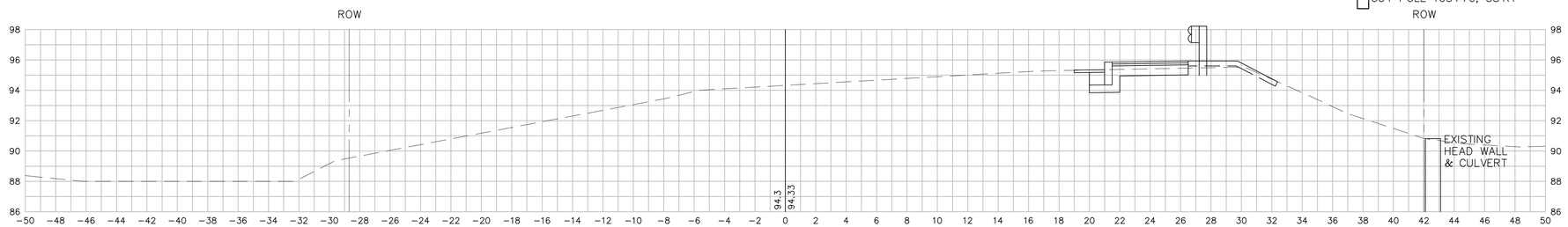

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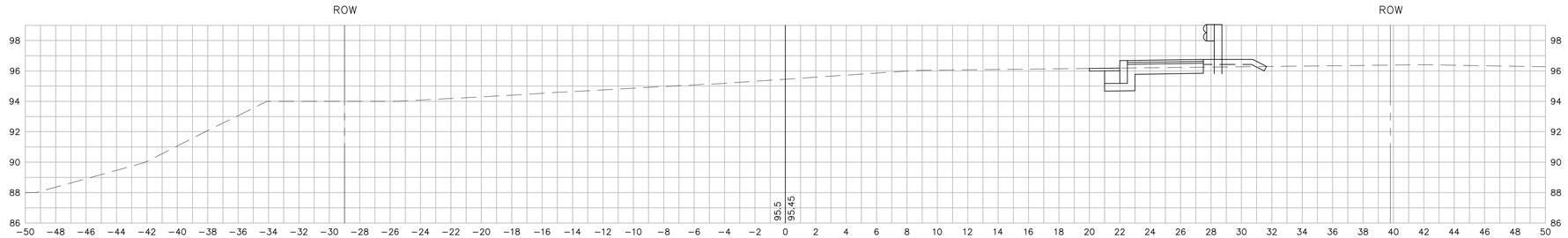
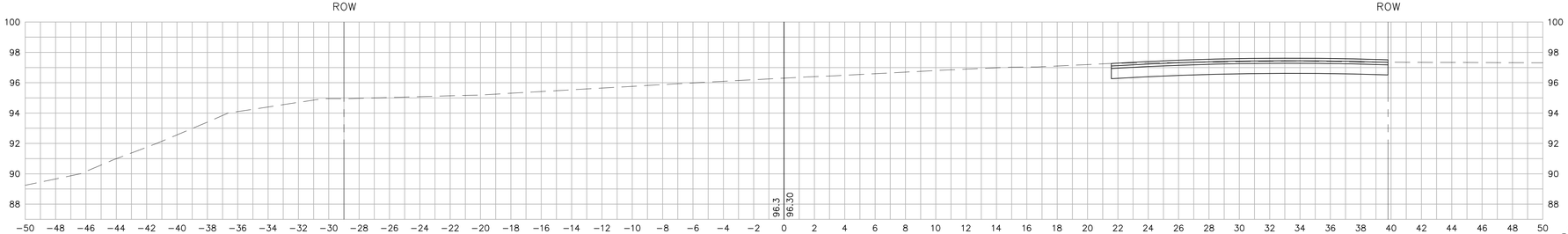


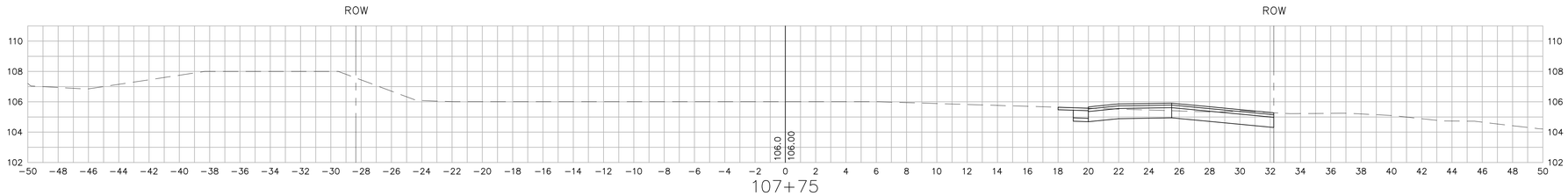
103+00



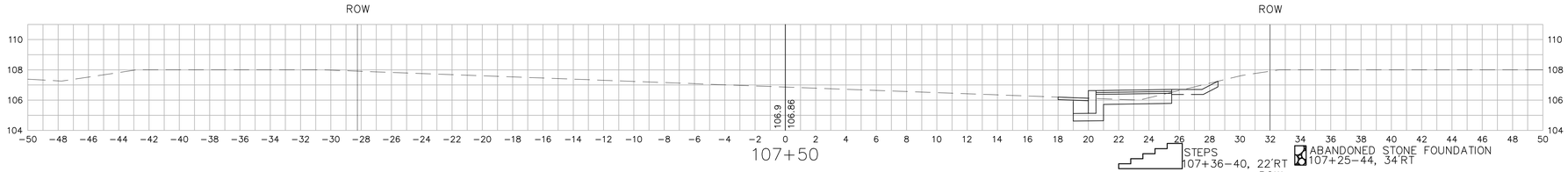
102+75

SUBJECT TO
APPROVAL BY MassDOT

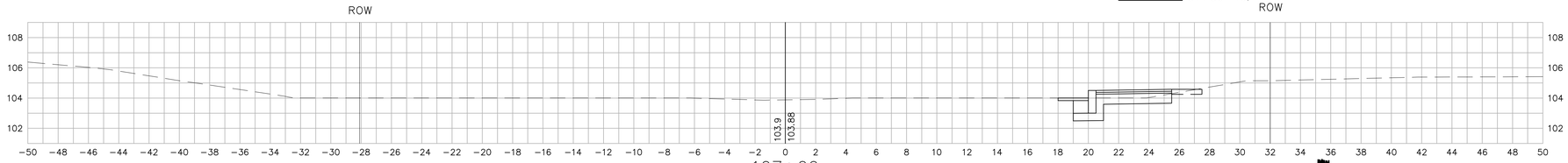
AMESBURY
HAVERHILL ROAD (ROUTE 110)
CROSS SECTIONS
SHEET 29 OF 31



107+75



107+50



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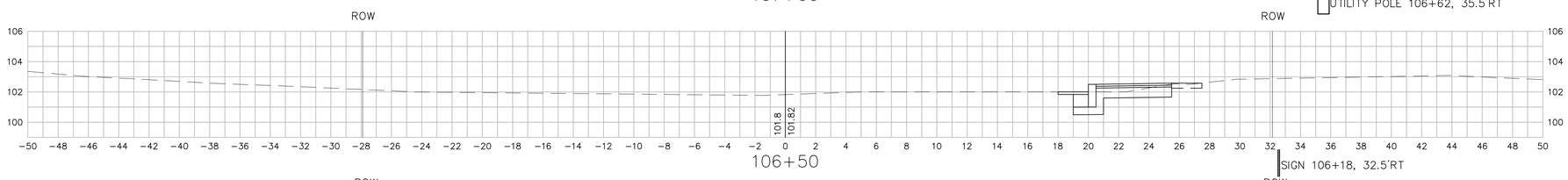

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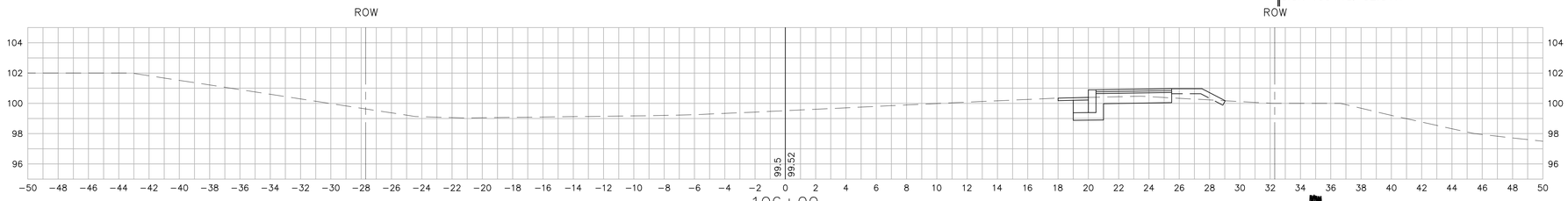

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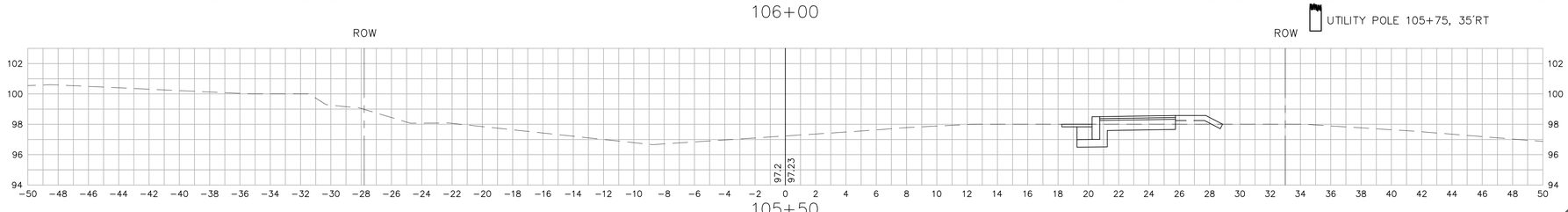


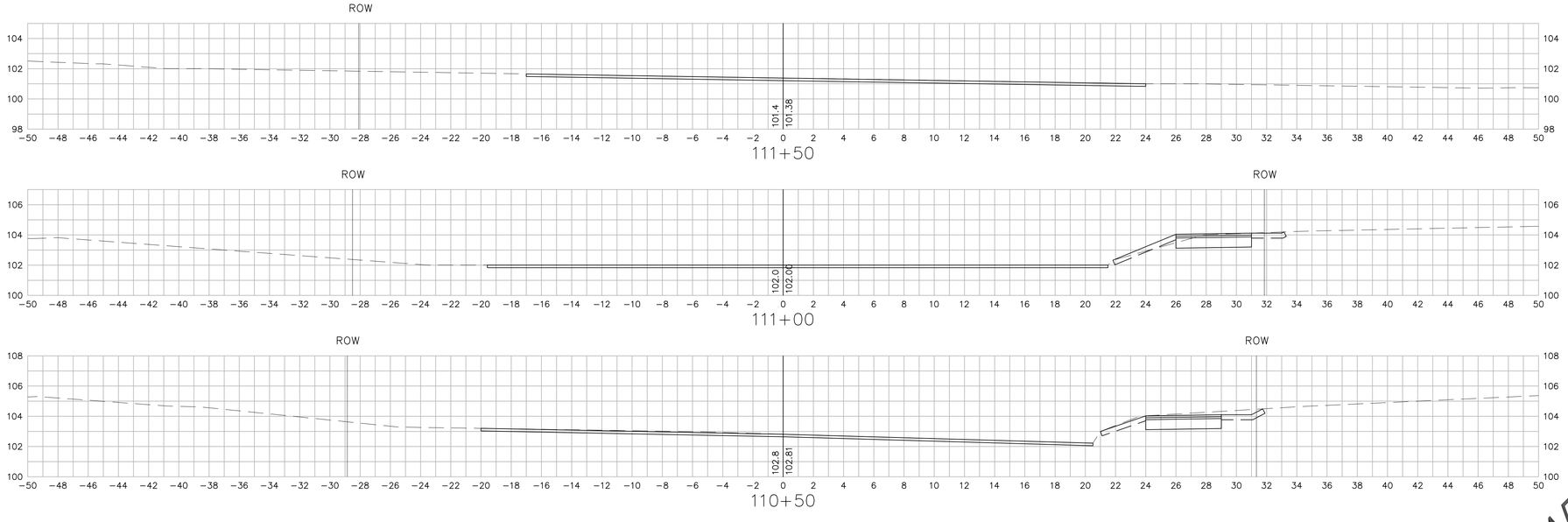
105+50

SUBJECT TO APPROVAL BY MassDOT

AMESBURY
HAVERHILL ROAD (ROUTE 110)
CROSS SECTIONS
SHEET 30 OF 31

SUBJECT TO APPROVAL BY MassDOT

AMESBURY
HAVERHILL ROAD (ROUTE 110)
CROSS SECTIONS
SHEET 31 OF 31

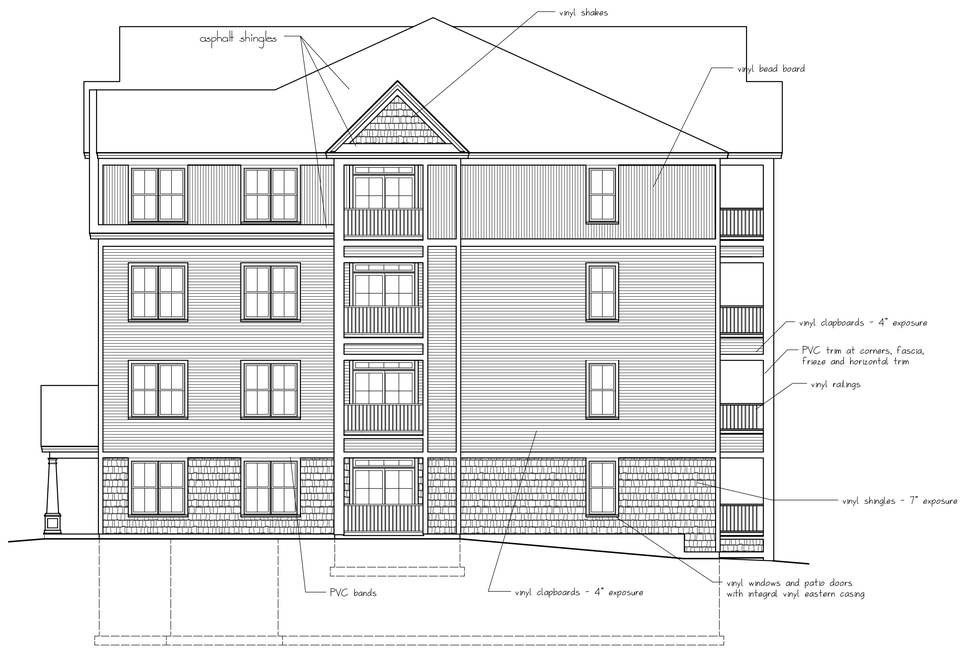


SUBJECT TO APPROVAL BY MassDOT

\\vhb\proj\Wat-TS\09407.04\cad\te\planset\09407xs.dwg

FRONT ELEVATION

REFER TO SECTIONS FOR HEIGHTS, MATERIALS, AND DETAILS.
PROVIDE 5/4 X PVC TRIM AT EXTERIOR APPURTENANCES SUCH AS HORNS, VENTS, ETC. SIZE AND PLACE TRIM WITH RESPECT TO EXTERIOR SIDING GRADATIONS.
PROVIDE OPENINGS AND BLOCKING AS REQUIRED FOR THE MECHANICAL AND ELECTRICAL ITEMS NOT SHOWN ON THE ELEVATIONS. COORDINATE THE WORK WITH THE OTHER TRADES.
CAULK ALL EXTERIOR OPENINGS WITH MATERIALS APPROPRIATE FOR THE APPLICABLE SUBSTRATES.
INSTALL VINYL TRIM AT ALL INSIDE CORNERS.
ALL FASCIA, RAKE AND TRIM BOARDS AND BANDS SHALL BE PVC TRIM.
ALL CORNER BOARDS SHALL BE 2 SIDED PVC TRIM WITH INTEGRAL RECEPTOR FOR VINYL SIDING.
SOFFITS SHALL BE VINYL PERFORATED SOFFIT MATERIAL.
CONTRACTOR SHALL ALLOW FOR TWO CLAPBOARD AND SHINGLE AND TRIM COLOR SELECTIONS.
PROVIDE GUTTERS AND DOWNSPOUTS AT HIGH ROOF ABOVE BUILDING ENTRIES. FINAL LOCATION OF GUTTERS AND DOWNSPOUTS TO BE FIELD DETERMINED. ALTERNATE TO GUTTERS AND DOWNSPOUTS MAY BE METAL RAIN DIVERTERS LOCATED IN VALLEYS.



RIGHT SIDE ELEVATION

DAVID M. WHITE, ARCHITECT
54 Todd Farm Lane
P. O. Box 817
New London, New Hampshire 03257
(603) 763-1335

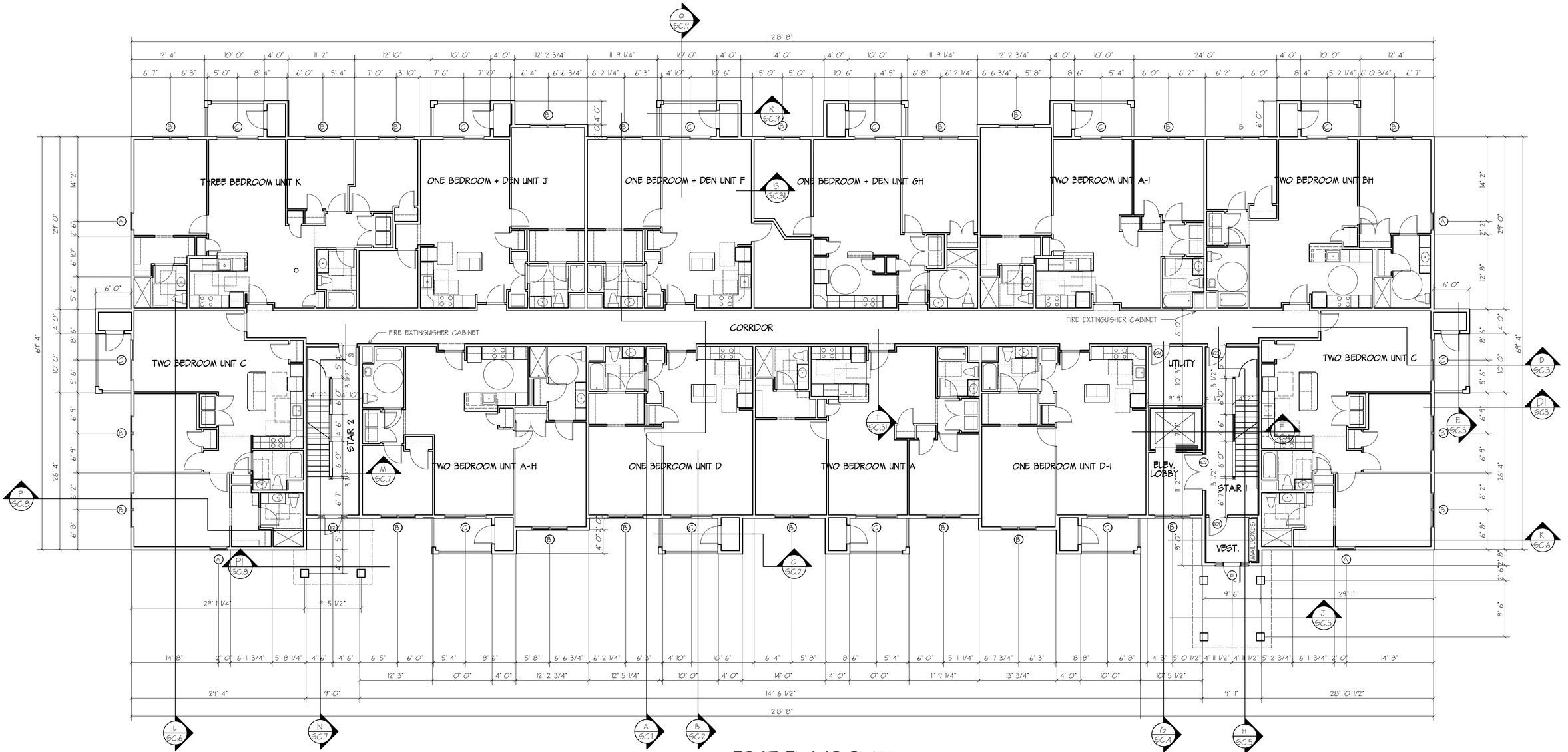
CORCORAN JENNISON, ASSOCIATES, LLC
150 Mt. Vernon Street Suite 500
Boston, MA 02125

AMESBURY HEIGHTS
HaVerhill Road
Amesbury, Massachusetts

ELEVATIONS
BUILDING 3
Scale: 1/8" = 1'-0"
Commission No: 14-003
Date: June 8, 2015

REVISIONS:

DRG. NO.
A.13



FIRST FLOOR PLAN

SCALE: 1/8" = 1' 0"

14,772. SF

720 SF PATIOS/DECKS

REFER TO SITE PLANS FOR LOCATIONS AND DETAILS FOR ALL SIDEWALKS, STEPS AND RAMPS.

NOTE: PROVIDE FIRE EXTINGUISHERS AND CABINETS AT EACH END OF THE CORRIDOR ON EACH FLOOR.

DAVID M. WHITE, ARCHITECT
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New London, New Hampshire 03257
(603) 763-1335

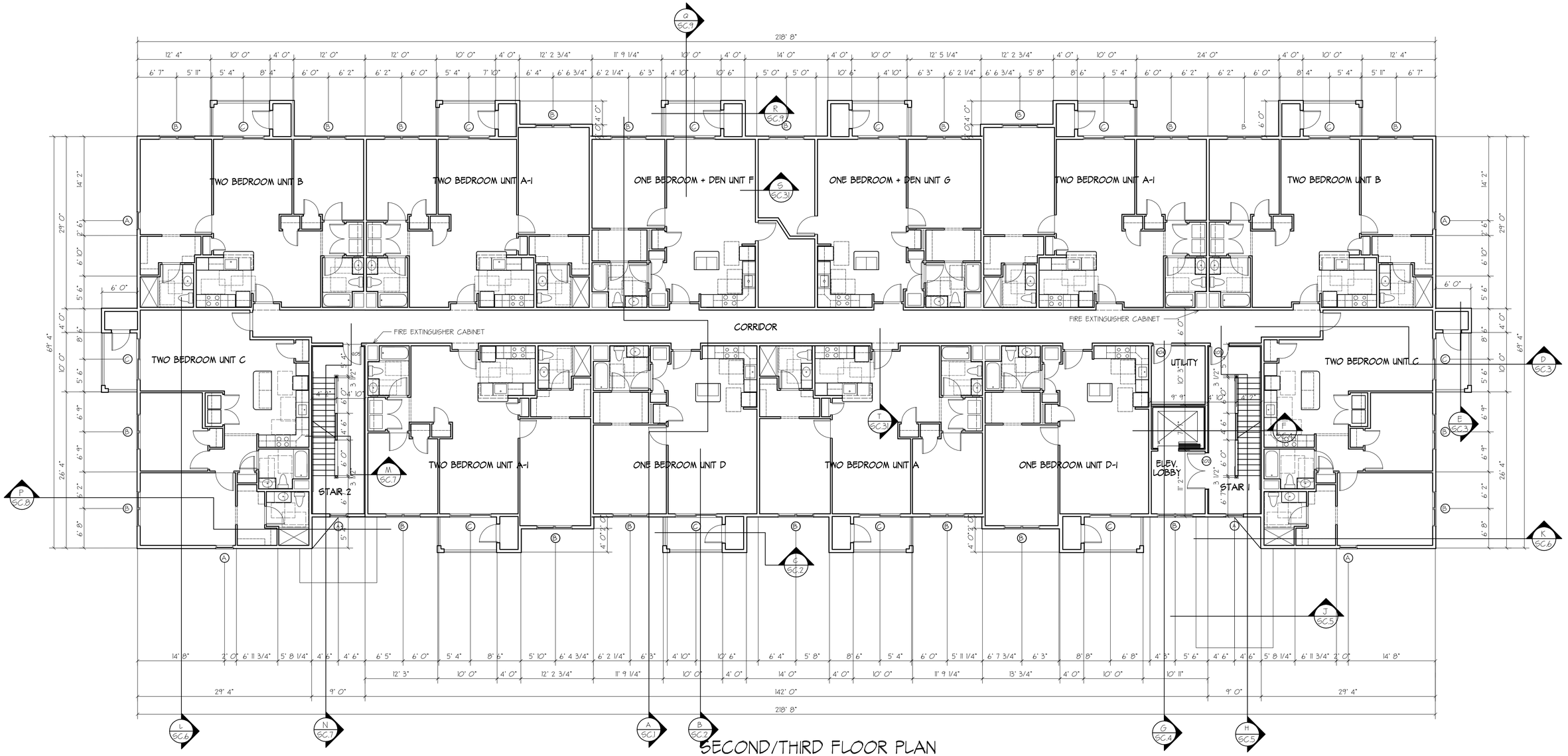
CORCORAN JENNISON ASSOCIATES, LLC
150 Mount Vernon Street Suite 500
Boston, Massachusetts 02125

AMESBURY HEIGHTS
Haverhill Road
Amesbury, Massachusetts

FIRST FLOOR PLAN
BUILDINGS 1 & 2
Scale: 1/8" = 1' 0"
Commission No: 14-03
Date: February 21, 2015

REVISIONS:

DRG. NO.
A.2



SECOND/THIRD FLOOR PLAN

SCALE: 1/8" = 1' 0"
14,697 SF
720 SF DECKS

DAVID M. WHITE, ARCHITECT
54 Todd Farm Lane
P. O. Box 817
New London, New Hampshire 03257
(603) 763-1335

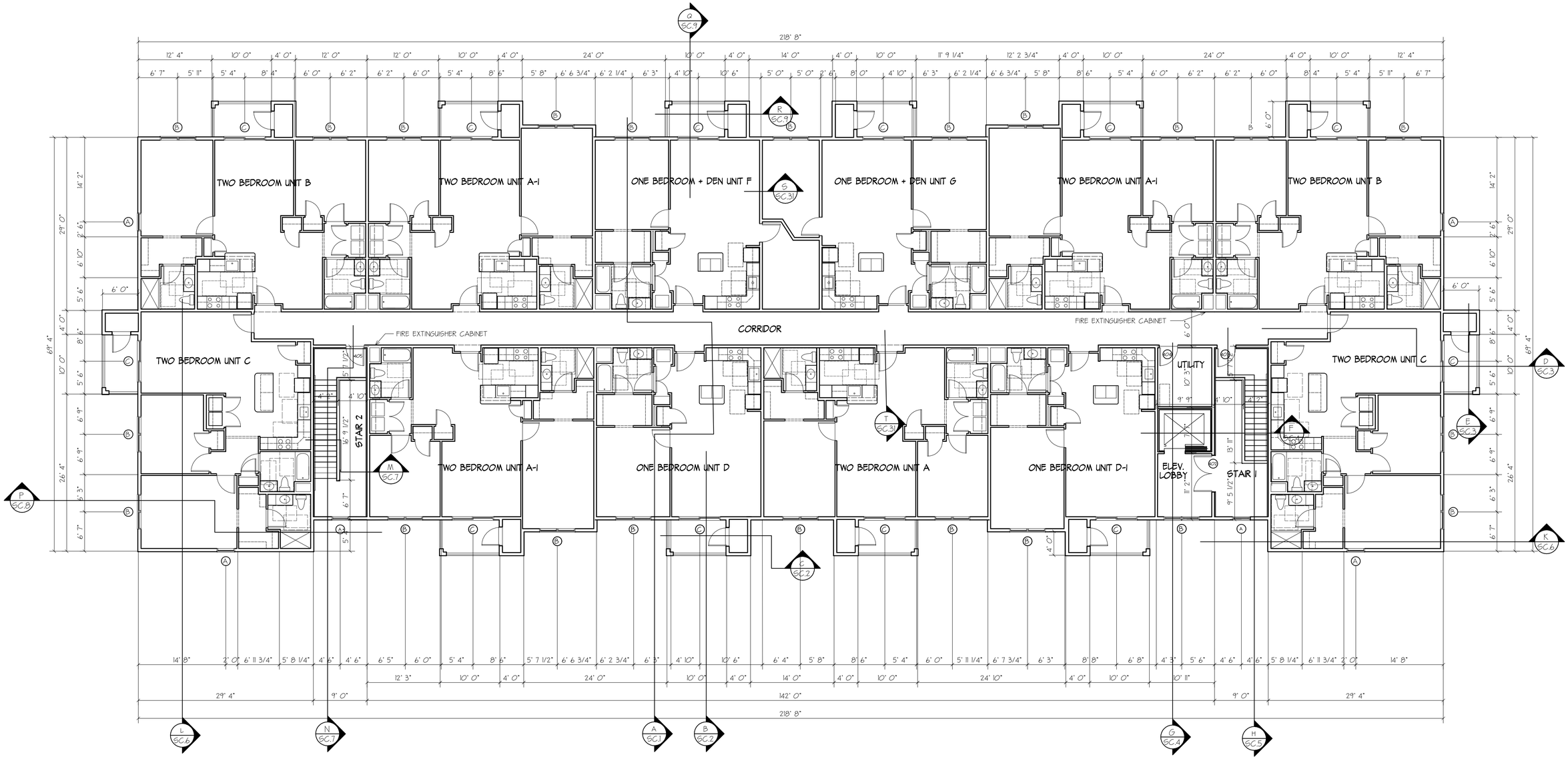
CORCORAN JENNISON ASSOCIATES, LLC
150 Mount Vernon Street Suite 500
Boston, Massachusetts 02125

AMESBURY HEIGHTS
Haverhill Road
Amesbury, Massachusetts

SECOND/THIRD FLOOR PLAN
BUILDINGS 1 & 2
Scale: 1/8" = 1' 0"
Commission No: 14-03
Date: June 8, 2015

REVISIONS:

DRG. NO.
A3



FOURTH FLOOR PLAN

SCALE: 1/8" = 1' 0"
14,697 SF
720 SF DECKS

DAVID M. WHITE, ARCHITECT
54 Todd Farm Lane
P. O. Box 817
New London, New Hampshire 03257
(603) 763-1335

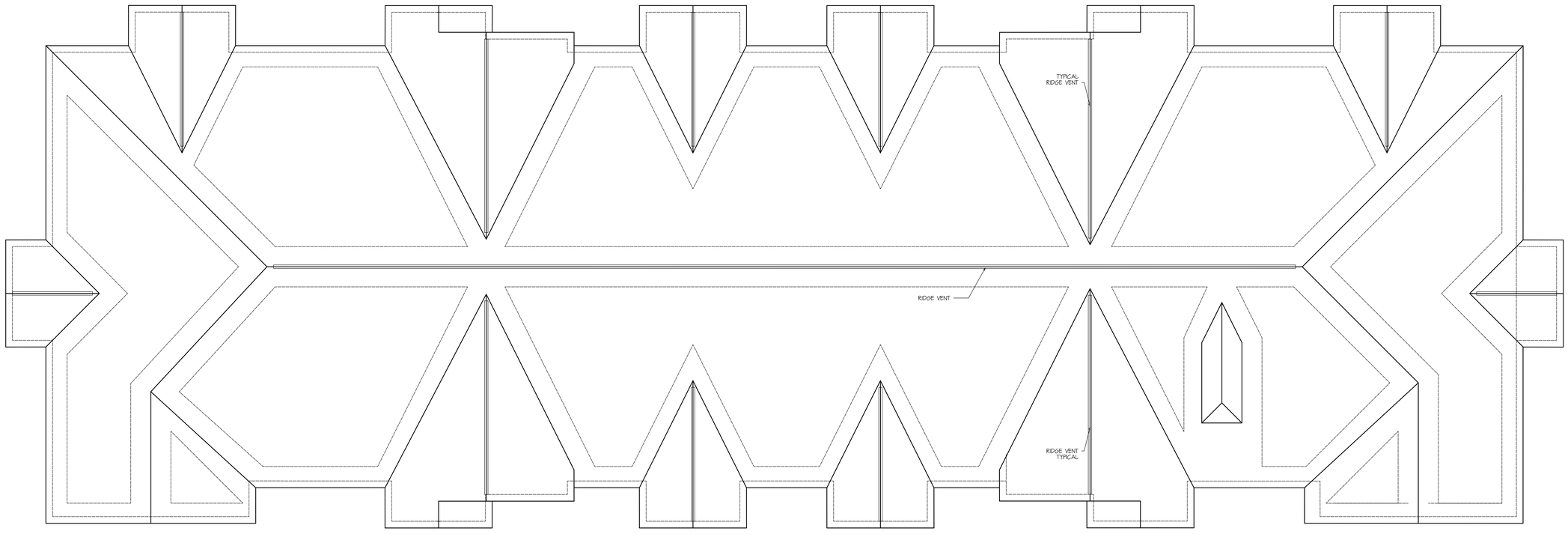
CORCORAN JENNISON ASSOCIATES, LLC
150 Mount Vernon Street Suite 500
Boston, Massachusetts 02125

AMESBURY HEIGHTS
Haverhill Road
Amesbury, Massachusetts

FOURTH FLOOR PLAN
BUILDINGS 1 & 2
Scale: 1/8" = 1' 0"
Commission No: 14-03
Date: June 8, 2015

REVISIONS:

DRG. NO.
A4



ROOF PLAN

SCALE: 1/8" = 1' 0"

PROVIDE ICE AND WATER GUARD AS FOLLOWS AND AS INDICATED ON THE ROOF PLAN.

AT ALL EAVES INSTALL TWO LAYERS OF IEWG WITH A SIX INCH OVERLAP.

ON ALL RAKES INSTALL A SINGLE LAYER OF IEWG.

AT ALL VALLEYS AND HIPS INSTALL A SINGLE LAYER OF IEWG, 18" ON EACH SURFACE.

AT ALL ROOF/WALL INTERSECTIONS INSTALL A SINGLE LAYER OF IEWG, 18" ON EACH SURFACE AND INSTALL ALUMINUM FLASHING, 6" ON THE VERTICLE AND 4" ON THE HORIZONTAL.

INSTALL 15# FELT ON ALL AREAS NOT COVERED WITH IEWG.

AT THE ROOF EAVES AND RAKES INSTALL AN 8" WHITE ALUMINUM DRIP EGDE.

DAVID M. WHITE, ARCHITECT
54 Todd Farm Lane
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New London, New Hampshire 03257
(603) 763-1335

CORCORAN JENNISON ASSOCIATES, LLC
150 Mount Vernon Street Suite 500
Boston, Massachusetts 02125

Haverhill Road
Amesbury, Massachusetts

ROOF PLAN
BUILDINGS 1 & 2
Scale: 1/8" = 1' 0"
Commission No: 14-03
Date: June 8, 2015

REVISIONS:

DRG. NO.
A.5

REAR ELEVATION

RIGHT SIDE ELEVATION

DAVID M. WHITE, ARCHITECT
54 Todd Farm Lane
P. O. Box 817
New London, New Hampshire 03257
(603) 763-1335

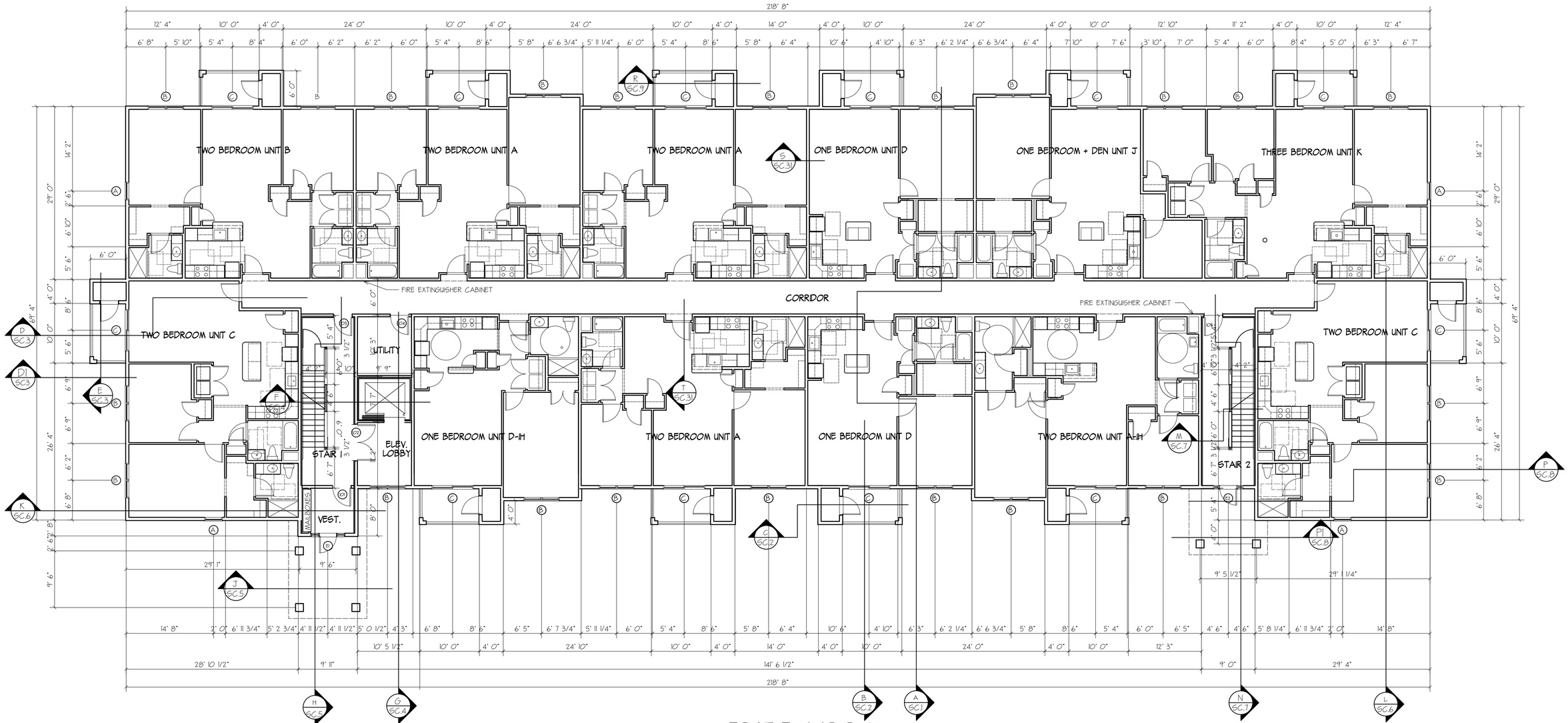
CORCORAN JENNISON, ASSOCIATES, LLC
150 Mt. Vernon Street Suite 500
Boston, MA 02125

AMESBURY HEIGHTS
HaVerhill Road
Amesbury, Massachusetts

ELEVATIONS
buildings 1 & 2
Scale: 1/8" = 1'0"
Commission No: 14-003
Date: June 8, 2015

REVISIONS:

DRG. NO.
A.7



FIRST FLOOR PLAN

SCALE: 1/8" = 1' 0"

14,772 SF

720 SF PATIOS/DECKS

REFER TO SITE PLANS FOR LOCATIONS AND DETAILS FOR ALL SIDEWALKS, STEPS AND RAMPS.

NOTE: PROVIDE FIRE EXTINGUISHERS AND CABINETS AT EACH END OF THE CORRIDOR ON EACH FLOOR.

DAVID M. WHITE, ARCHITECT
54 Todd Farm Lane
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New London, New Hampshire 03257
(603) 763-1335

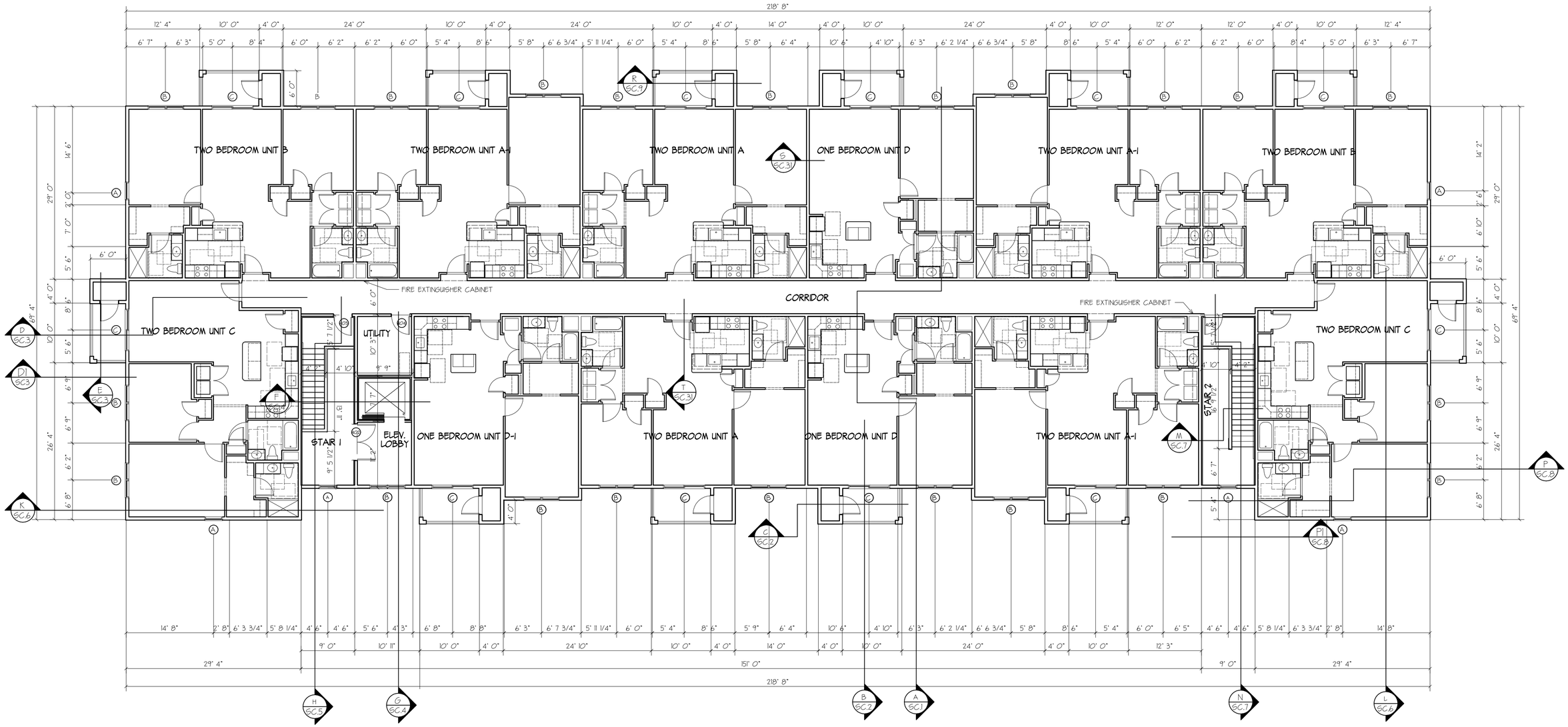
CORCORAN JENNISON ASSOCIATES, LLC
150 Mount Vernon Street Suite 500
Boston, Massachusetts 02125

AMESBURY HEIGHTS
Haverhill Road
Amesbury, Massachusetts

FIRST FLOOR PLAN
BUILDING 3
Scale: 1/8" = 1' 0"
Commission No: 14-03
Date: June 8, 2015

REVISIONS:

DRG. NO.
A.9



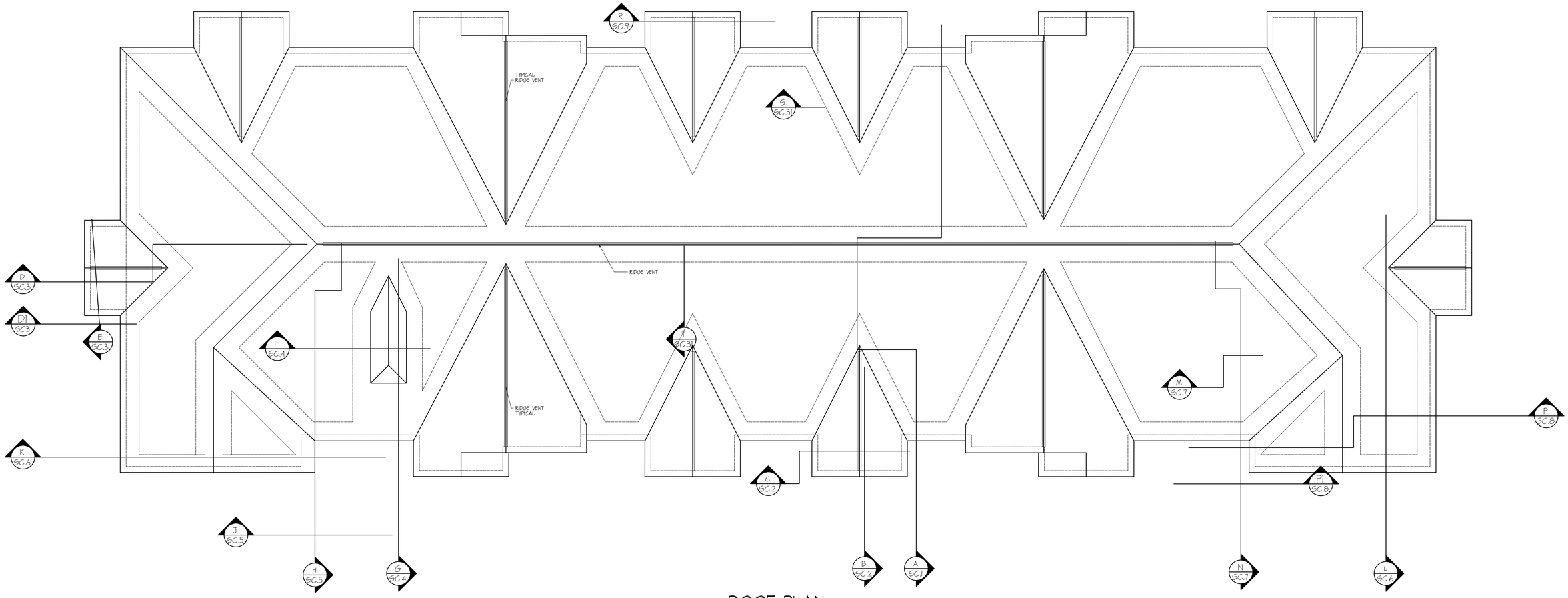
FOURTH FLOOR PLAN

SCALE: 1/8" = 1' 0"

14,697 SF

720 SF DECKS

	DAVID M. WHITE, ARCHITECT 54 Todd Farm Lane P. O. Box 817 New London, New Hampshire 03257 (603) 763-1335	CORCORAN JENNISON ASSOCIATES, LLC 150 Mount Vernon Street Suite 500 Boston, Massachusetts 02125	AMESBURY HEIGHTS Haverhill Road Amesbury, Massachusetts	FOURTH FLOOR PLAN BUILDING 3 Scale: 1/8" = 1' 0" Commission No: 14-03 Date: June 8, 2015	REVISIONS:	DRG. NO. A.11



ROOF PLAN

SCALE: 1/8" = 1' 0"

PROVIDE ICE AND WATER GUARD AS FOLLOWS AND AS INDICATED ON THE ROOF PLAN.

AT ALL EAVES INSTALL TWO LAYERS OF IEWG WITH A SIX INCH OVERLAP.

ON ALL RAKES INSTALL A SINGLE LAYER OF IEWG.

AT ALL VALLEYS AND HIPS INSTALL A SINGLE LAYER OF IEWG, 18" ON EACH SURFACE.

AT ALL ROOF/WALL INTERSECTIONS INSTALL A SINGLE LAYER OF IEWG, 18" ON EACH SURFACE AND INSTALL ALUMINUM FLASHING, 6" ON THE VERTICLE AND 4" ON THE HORIZONTAL.

INSTALL 15# FELT ON ALL AREAS NOT COVERED WITH IEWG.

AT THE ROOF EAVES AND RAKES INSTALL AN 8" WHITE ALUMINUM DRIP EGDE.

DAVID M. WHITE, ARCHITECT
54 Todd Farm Lane
P. O. Box 817
New London, New Hampshire 03257
(603) 763-1335

CORCORAN JENNISON ASSOCIATES, LLC
150 Mount Vernon Street Suite 500
Boston, Massachusetts 02125

Haverhill Road
Amesbury, Massachusetts

ROOF PLAN
BUILDING 3
Scale: 1/8" = 1' 0"
Commission No: 14-03
Date: June 8, 2015

REVISIONS:

DRG. NO.
A.12

REAR ELEVATION

LEFT SIDE ELEVATION

DAVID M. WHITE, ARCHITECT
54 Todd Farm Lane
P. O. Box 817
New London, New Hampshire 03257
(603) 763-1335

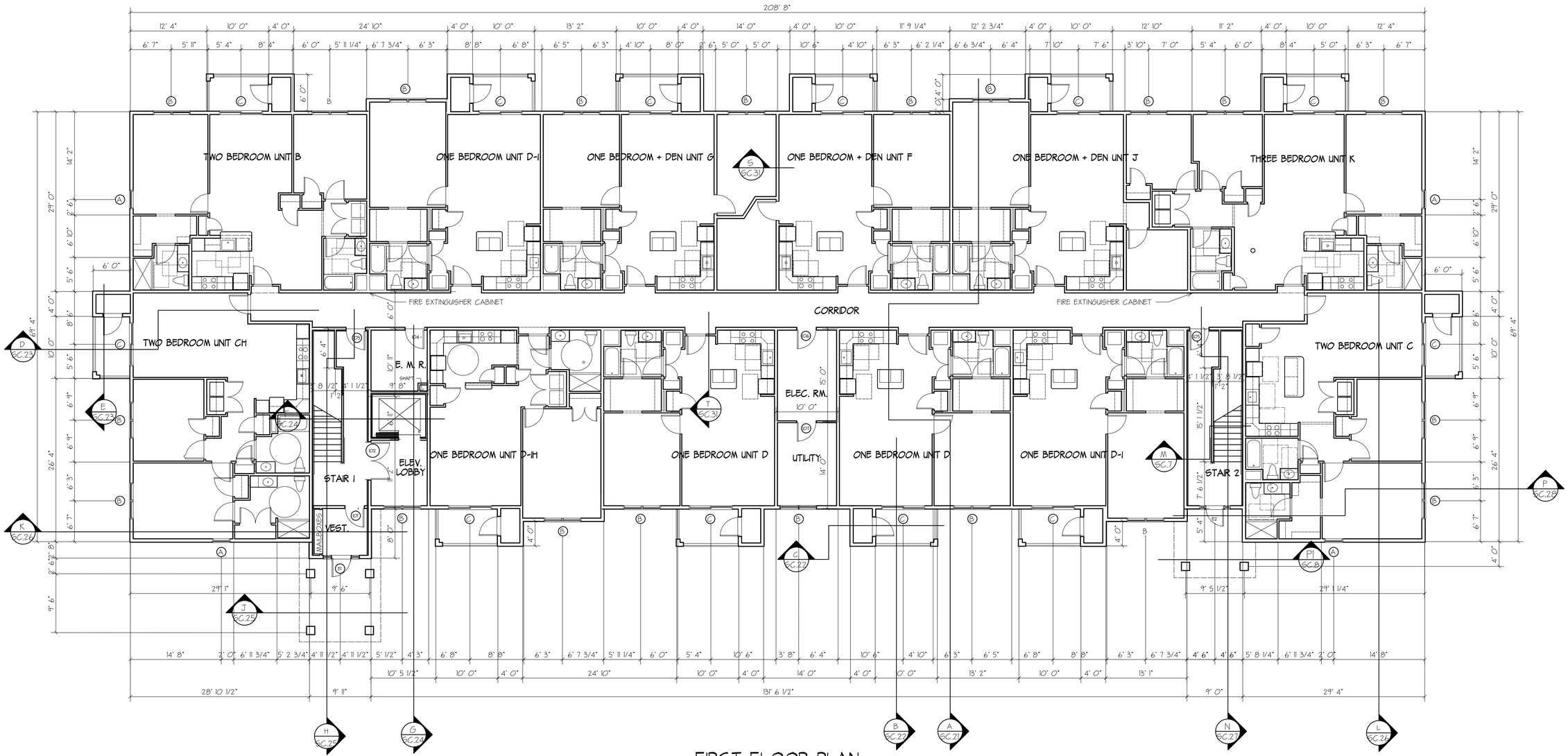
CORCORAN JENNISON, ASSOCIATES, LLC
150 Mt. Vernon Street Suite 500
Boston, MA 02125

AMESBURY HEIGHTS
HaVerhill Road
Amesbury, Massachusetts

ELEVATIONS
BUILDING 3
Scale: 1/8" = 1'0"
Commission No: 14-003
Date: June 8, 2015

REVISIONS:

DRG. NO.
A.14



FIRST FLOOR PLAN

SCALE: 1/8" = 1' 0"

14,112 SF

720 SF PATIOS

REFER TO SITE PLANS FOR LOCATIONS AND DETAILS FOR ALL SIDEWALKS, STEPS AND RAMPS.

NOTE: PROVIDE FIRE EXTINGUISHERS AND CABINETS AT EACH END OF THE CORRIDOR ON EACH FLOOR.

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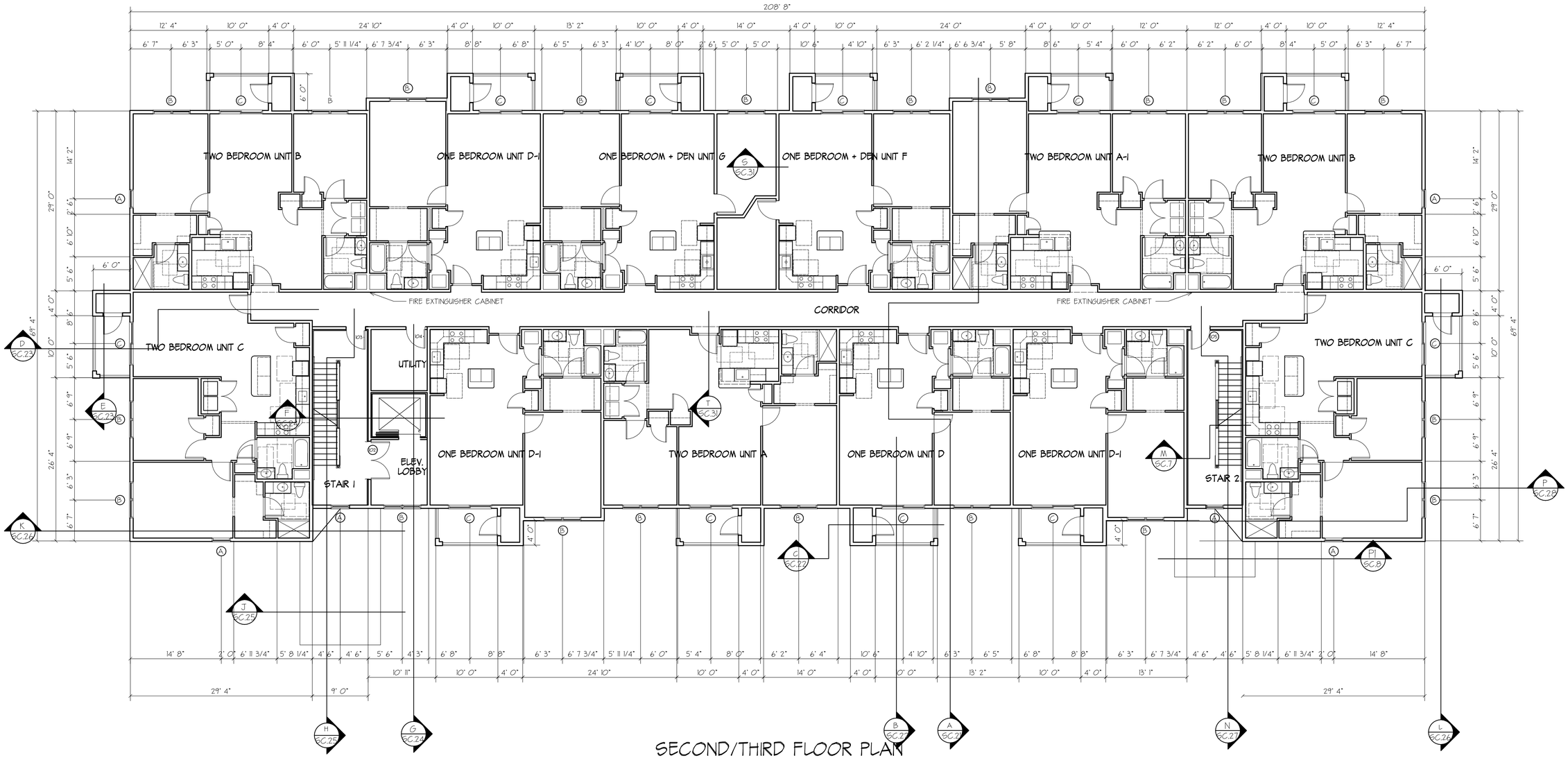
Boston, Massachusetts 02125

AMESBURY HEIGHTS
Haverhill Road
Amesbury, Massachusetts

FIRST FLOOR PLAN
BUILDINGS 4 & 5
Scale: 1/8" = 1' 0"
Commission No: 14-03
Date: June 8, 2015

REVISIONS:

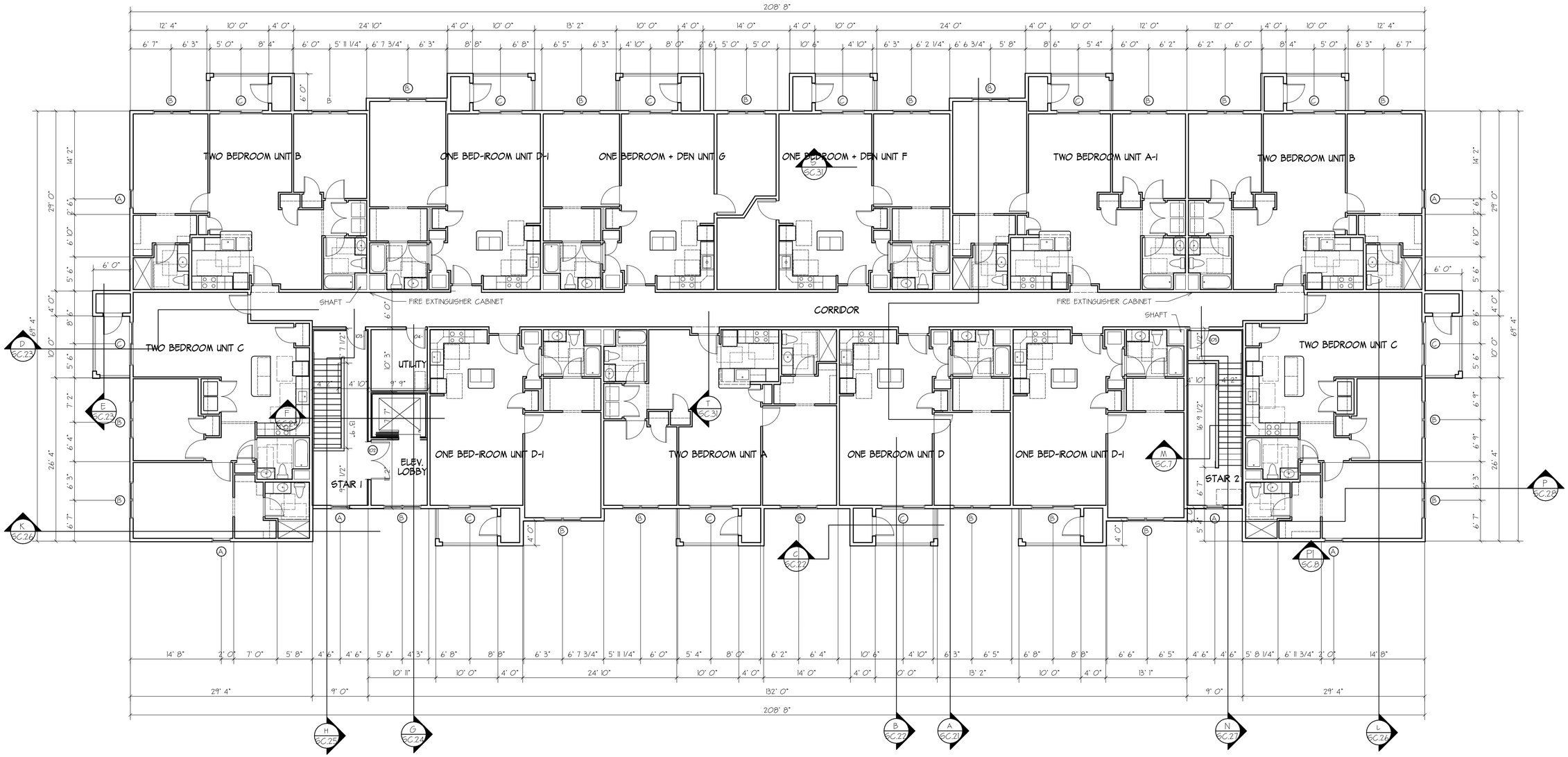
DRG. NO.
A.15



SECOND/THIRD FLOOR PLAN

SCALE: 1/8" = 1' 0"
14,057 SF
720 SF DECKS

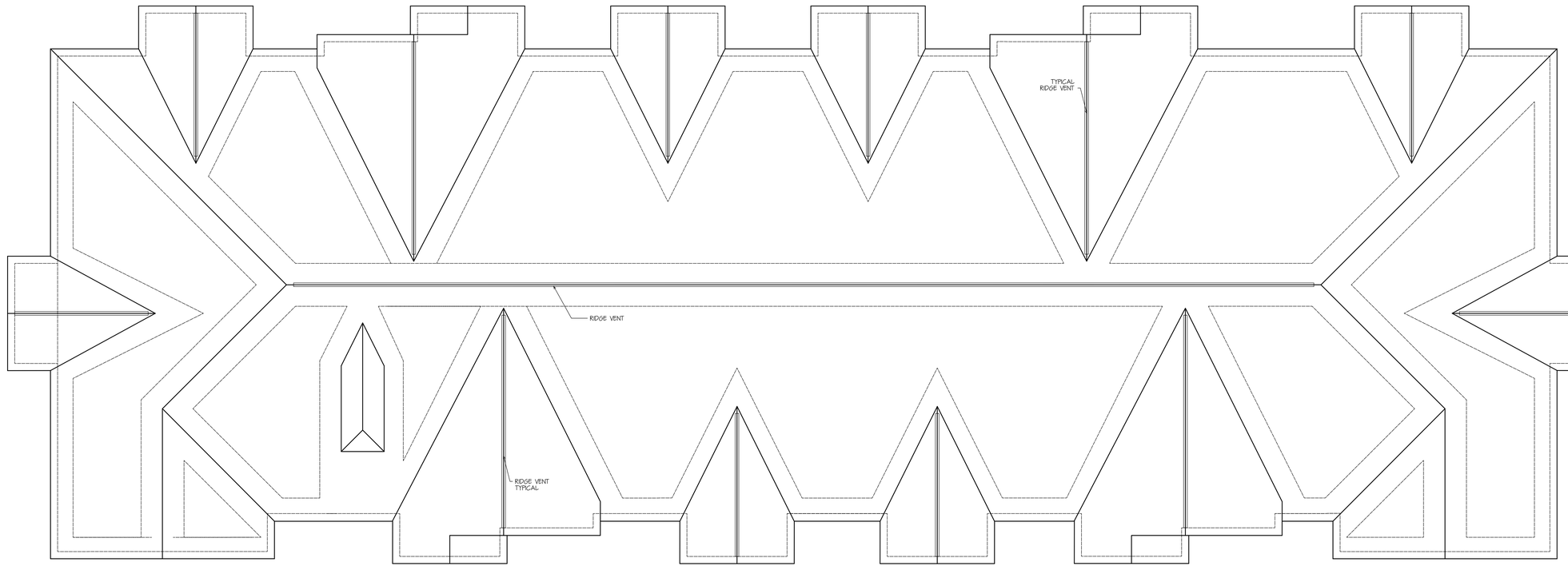
	DAVID M. WHITE, ARCHITECT 54 Todd Farm Lane P. O. Box 817 New London, New Hampshire 03257 (603) 763-1335	CORCORAN JENNISON ASSOCIATES, LLC 150 Mount Vernon Street Suite 500 Boston, Massachusetts 02125	AMESBURY HEIGHTS Haverhill Road Amesbury, Massachusetts	SECOND/THIRD FLOOR PLAN BUILDINGS 4 & 5 Scale: 1/8" = 1' 0" Commission No: 14-03 Date: June 8, 2015	REVISIONS:	DRG. NO. A.16



FOURTH FLOOR PLAN

SCALE: 1/8" = 1' 0"
14, 057 SF
720 SF DECKS

	DAVID M. WHITE, ARCHITECT 54 Todd Farm Lane P. O. Box 817 New London, New Hampshire 03257 (603) 763-1335	CORCORAN JENNISON ASSOCIATES, LLC 150 Mount Vernon Street Suite 500 Boston, Massachusetts 02125	AMESBURY HEIGHTS Haverhill Road Amesbury, Massachusetts	FOURTH FLOOR PLAN BUILDINGS 4 & 5 Scale: 1/8" = 1' 0" Commission No: 14-03 Date: June 8, 2015	REVISIONS:	DRG. NO. A.17



ROOF LPAN

SCALE: 1/8" = 1' 0"

PROVIDE ICE AND WATER GUARD AS FOLLOWS AND AS INDICATED ON THE ROOF PLAN.

AT ALL EAVES INSTALL TWO LAYERS OF IEWG WITH A SIX INCH OVERLAP.

ON ALL RAKES INSTALL A SINGLE LAYER OF IEWG.

AT ALL VALLEYS AND HIPS INSTALL A SINGLE LAYER OF IEWG, 18" ON EACH SURFACE.

AT ALL ROOF/WALL INTERSECTIONS INSTALL A SINGLE LAYER OF IEWG, 18" ON EACH SURFACE AND INSTALL ALUMINUM FLASHING, 6" ON THE VERTICLE AND 4" ON THE HORIZONTAL.

INSTALL 15# FELT ON ALL AREAS NOT COVERED WITH IEWG.

AT THE ROOF EAVES AND RAKES INSTALL AN 8" WHITE ALUMINUM DRIP EGDE.

DAVID M. WHITE, ARCHITECT
54 Todd Farm Lane
P. O. Box 817
New London, New Hampshire 03257
(603) 763-1335

CORCORAN JENNISON ASSOCIATES, LLC
150 Mount Vernon Street Suite 500
Boston, Massachusetts 02125

Haverhill Road
Amesbury, Massachusetts

ROOF PLAN
BUILDINGS 4 & 5
Scale: 1/8" = 1' 0"
Commission No: 14-03
Date: June 8, 2015

REVISIONS:

DRG. NO.
A.18

FRONT ELEVATION

REFER TO SECTIONS FOR HEIGHTS, MATERIALS, AND DETAILS.
PROVIDE 5/4 X PVC TRIM AT EXTERIOR APPURTENANCES SUCH AS HORNS, VENTS, ETC. SIZE AND PLACE TRIM WITH RESPECT TO EXTERIOR SIDING GRADATIONS.
PROVIDE OPENINGS AND BLOCKING AS REQUIRED FOR THE MECHANICAL AND ELECTRICAL ITEMS NOT SHOWN ON THE ELEVATIONS. COORDINATE THE WORK WITH THE OTHER TRADES.
CAULK ALL EXTERIOR OPENINGS WITH MATERIALS APPROPRIATE FOR THE APPLICABLE SUBSTRATES.
INSTALL VINYL TRIM AT ALL INSIDE CORNERS.
ALL FASCIA, RAKE AND TRIM BOARDS AND BANDS SHALL BE PVC TRIM.
ALL CORNER BOARDS SHALL BE 2 SIDED PVC TRIM WITH INTEGRAL RECEPTOR FOR VINYL SIDING.
SOFFITS SHALL BE VINYL PERFORATED SOFFIT MATERIAL.
CONTRACTOR SHALL ALLOW FOR TWO CLAPBOARD AND SHINGLE AND TRIM COLOR SELECTIONS.
PROVIDE GUTTERS AND DOWNSPOUTS AT HIGH ROOF ABOVE BUILDING ENTRIES. FINAL LOCATION OF GUTTERS AND DOWNSPOUTS TO BE FIELD DETERMINED. ALTERNATE TO GUTTERS AND DOWNSPOUTS MAY BE METAL RAIN DIVERTERS LOCATED IN VALLEYS.

LEFT SIDE ELEVATION

DAVID M. WHITE, ARCHITECT
54 Todd Farm Lane
P. O. Box 817
New London, New Hampshire 03257
(603) 763-1335

CORCORAN JENNISON, ASSOCIATES, LLC
150 Mt. Vernon Street Suite 500
Boston, MA 02125

AMESBURY HEIGHTS
HaVerhill Road
Amesbury, Massachusetts

ELEVATIONS
BUILDING 4 & 5
Scale: 1/8" = 1'-0"
Commission No: 14-003
Date: June 8, 2015

REVISIONS:

DRG. NO.
A.19

REAR ELEVATION

RIGHT SIDE ELEVATION

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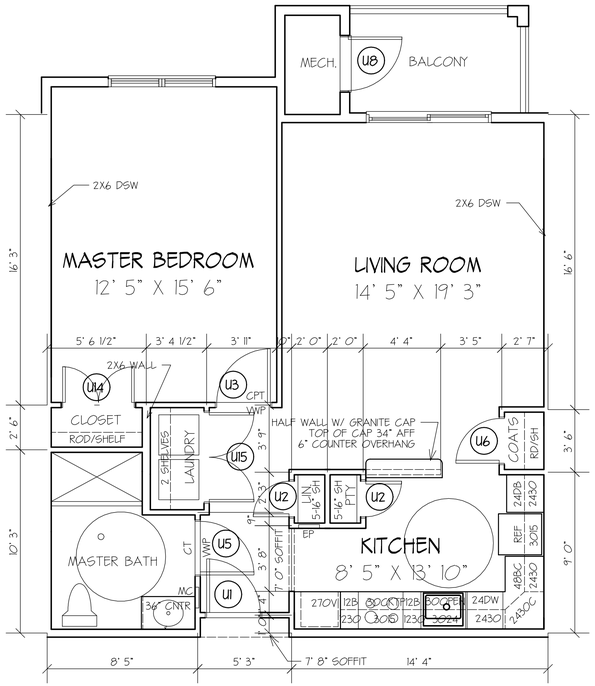
Boston, MA 02125

AMESBURY HEIGHTS
HaVerhill Road
Amesbury, Massachusetts

ELEVATIONS
BUILDING 4 & 5
Scale: 1/8" = 1'0"
Commission No: 14-003
Date: June 8, 2015

REVISIONS:

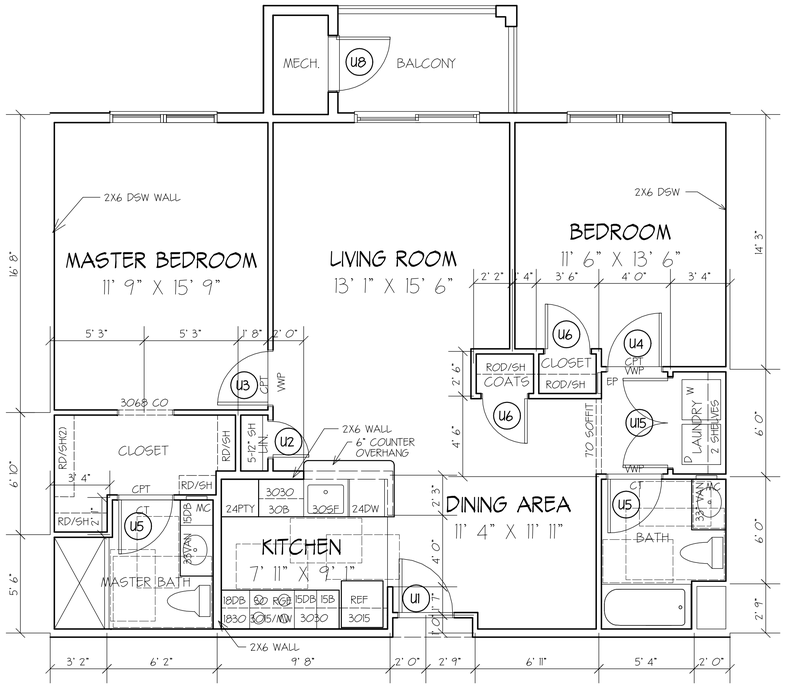
DRG. NO.
A.20



ONE BEDROOM UNIT D-IH

SCALE: 1/4" = 1' 0"

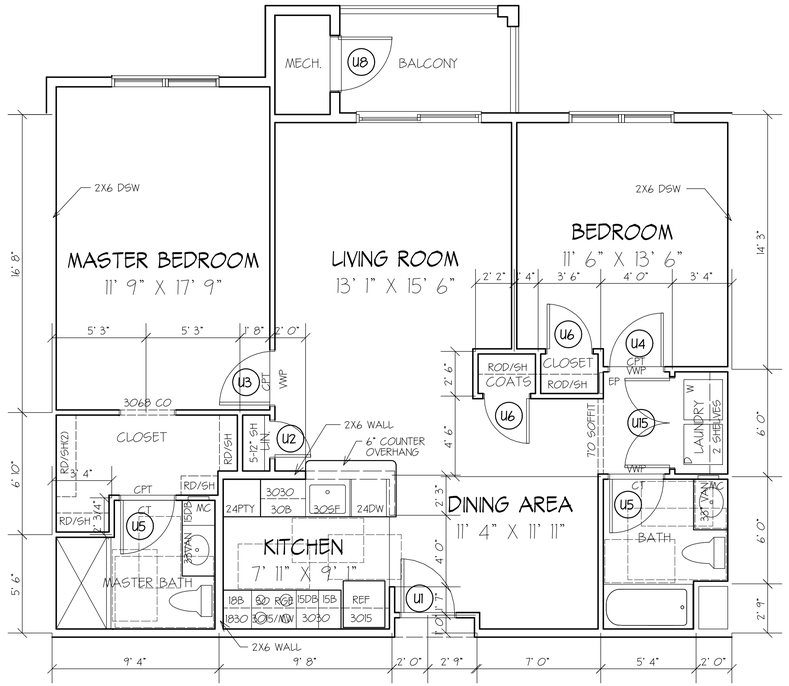
856 GROSS SQUARE FEET



TWO BEDROOM UNIT A

SCALE: 1/4" = 1' 0"

1121 GROSS SQUARE FEET



TWO BEDROOM UNIT A-1

SCALE: 1/4" = 1' 0"

1146 GROSS SQUARE FEET

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AMESBURY HEIGHTS

Haverhill Road
Amesbury, Massachusetts

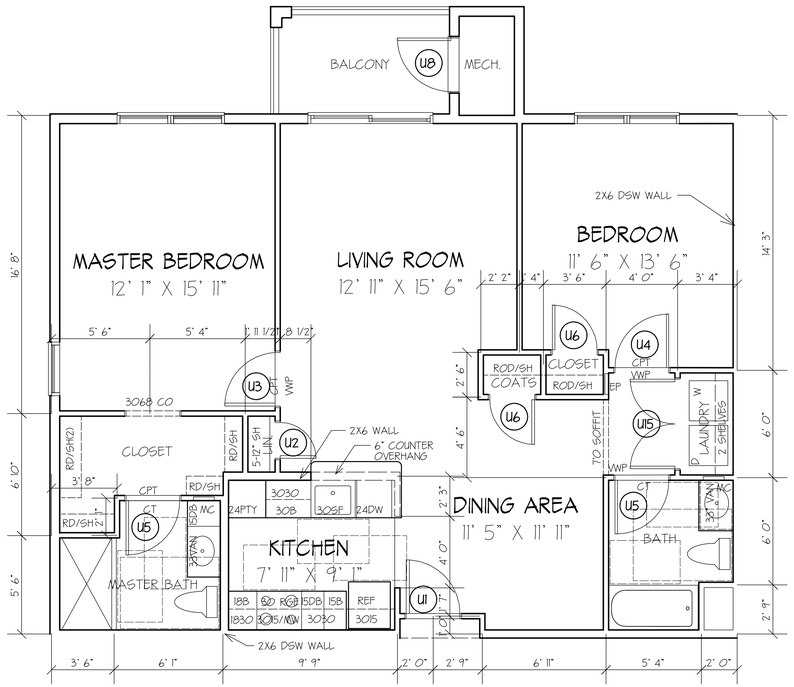
UNITS A, A-1 & D-IH

Scale: 1/4" = 1' 0"
Commission No: 14-03
Date: June 8, 2015

REVISIONS:

DRG. NO.

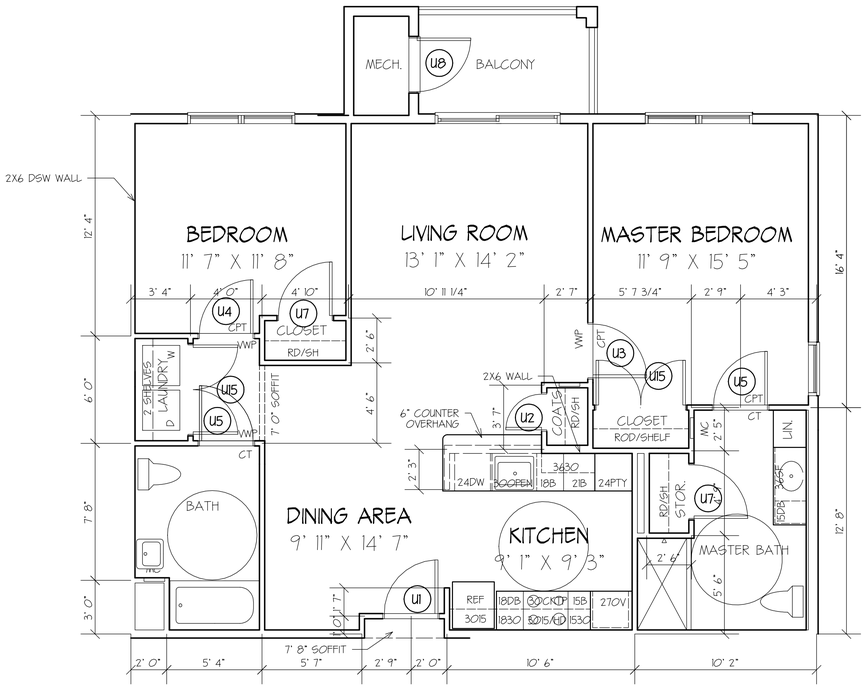
U.1



TWO BEDROOM UNIT B

SCALE: 1/4" = 1' 0"

1131 GROSS SQUARE FEET

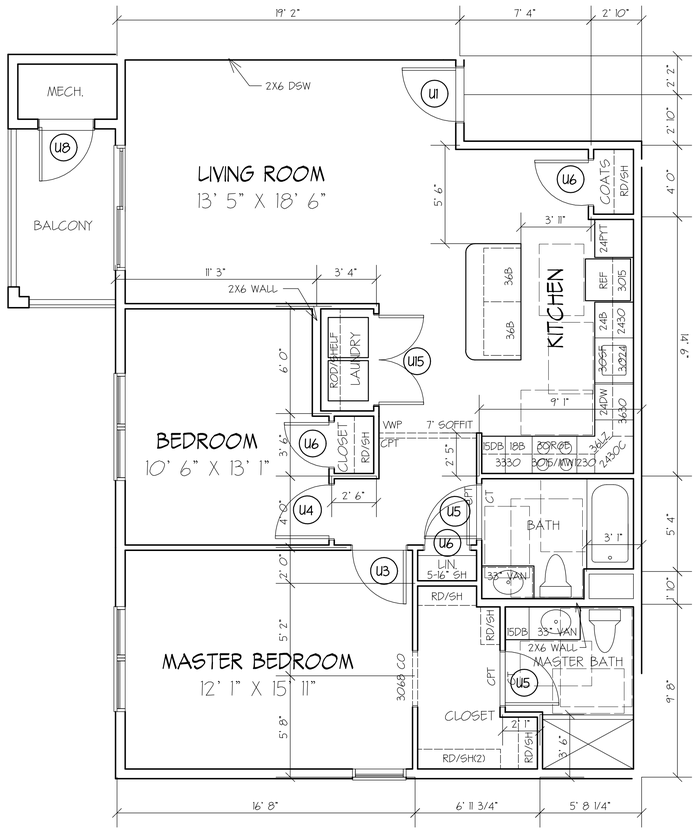


TWO BEDROOM UNIT BH

SCALE: 1/4" = 1' 0"

1131 GROSS SQUARE FEET

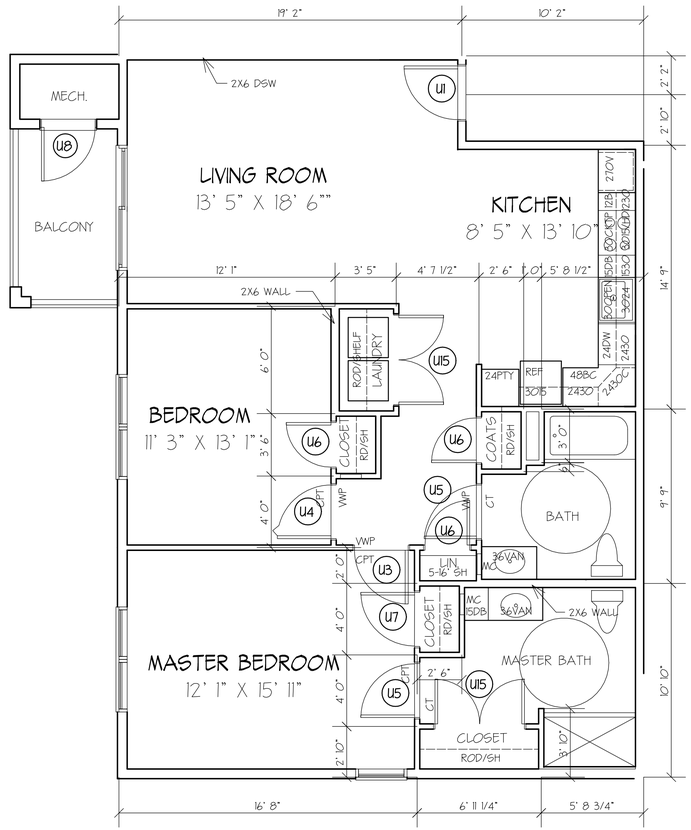
	DAVID M. WHITE, ARCHITECT 54 Todd Farm Lane P. O. Box 817 New London, New Hampshire 03257 (603) 763-1335	CORCORAN JENNISON ASSOCIATES, LLC 150 Mount Vernon Street Suite 500 Boston, Massachusetts 02125	AMESBURY HEIGHTS Haverhill Road Amesbury, Massachusetts	UNITS B & BH Scale: 1/4" = 1' 0" Commission No: 14-03 Date: June 8, 2015	REVISIONS:	DRG. NO. U.2



TWO BEDROOM UNIT C

SCALE: 1/4" = 1' 0"

1150 GROSS SQUARE FOOTAGE



TWO BEDROOM UNIT CH

SCALE: 1/4" = 1' 0"

1150 GROSS SQUARE FOOTAGE

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AMESBURY HEIGHTS

Haverhill Road
Amesbury, Massachusetts

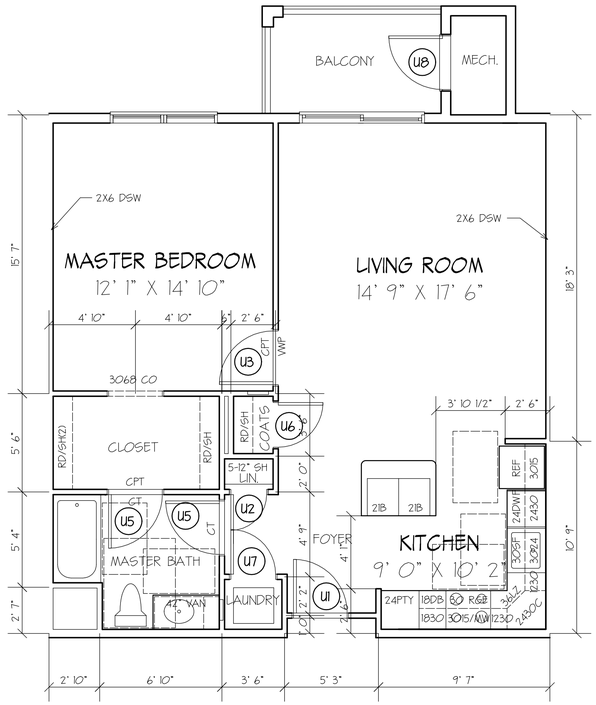
UNITS C, CH & J-1

Scale: 1/4" = 1' 0"
Commission No: 14-03
Date: June 8, 2015

REVISIONS:

DRG. NO.

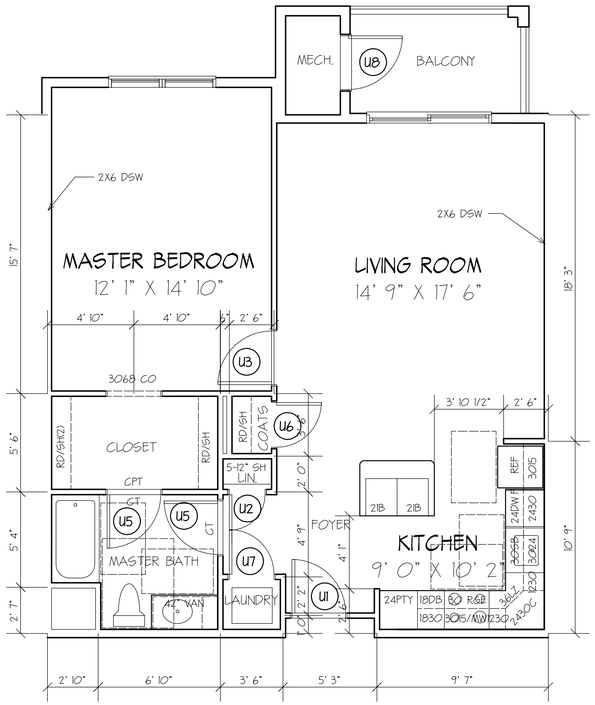
U.3



ONE BEDROOM UNIT D

SCALE: 1/4" = 1' 0"

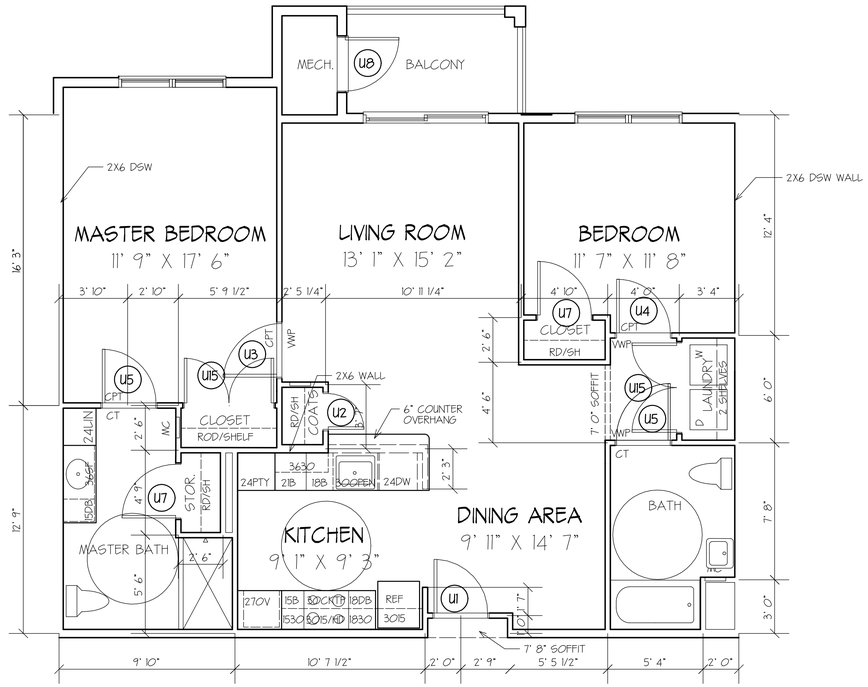
830 GROSS SQUARE FEET



ONE BEDROOM UNIT D-1

SCALE: 1/4" = 1' 0"

855 GROSS SQUARE FEET



TWO BEDROOM UNIT A-1H

SCALE: 1/4" = 1' 0"

1146 GROSS SQUARE FEET

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AMESBURY HEIGHTS

Haverhill Road
Amesbury, Massachusetts

UNITS A-1H, D & D-1

Scale: 1/4" = 1' 0"
Commission No: 14-03
Date: June 8, 2015

REVISIONS:

DRG. NO.

U.4

ONE BEDROOM PLUS DEN UNIT F

SCALE: 1/4" = 1' 0"

960 GROSS SQUARE FEET

ONE BEDROOM UNIT GH

SCALE: 1/4" = 1' 0"

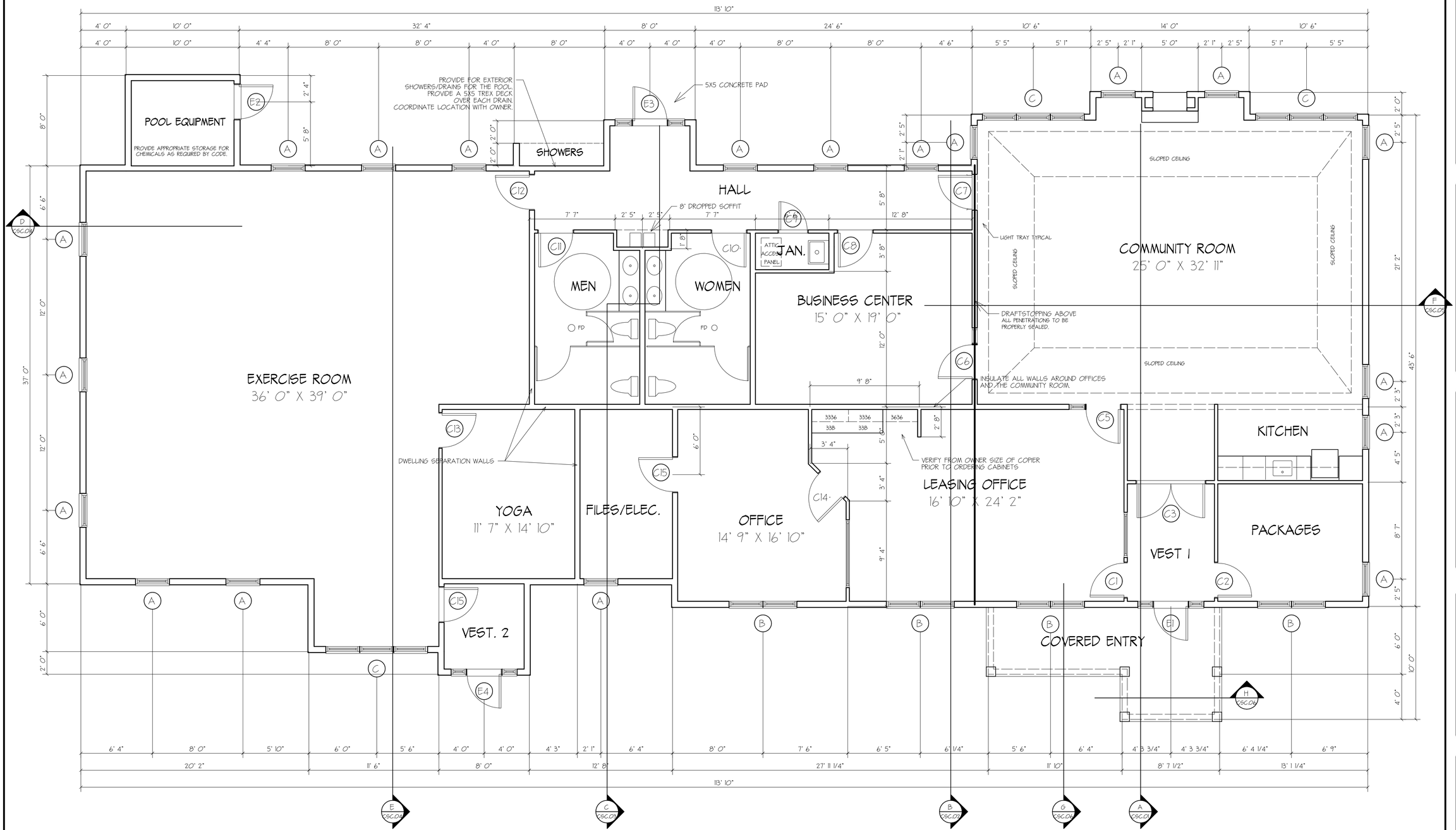
990 GROSS SQUARE FEET

ONE BEDROOM PLUS DEN UNIT G

SCALE: 1/4" = 1' 0"

990 GROSS SQUARE FEET

	DAVID M. WHITE, ARCHITECT 54 Todd Farm Lane P. O. Box 817 New London, New Hampshire 03257 (603) 763-1335	CORCORAN JENNISON ASSOCIATES, LLC 150 Mount Vernon Street Suite 500 Boston, Massachusetts 02125	AMESBURY HEIGHTS Haverhill Road Amesbury, Massachusetts	UNIT F, G & GH PLANS Scale: 1/4" = 1' 0" Commission No: 14-03 Date: June 8, 2015	REVISIONS:	DRG. NO. U.5



FLOOR PLAN

SCALE: 1/8" = 1' 0"

4766 ENCLOSED SF

194 COVERED EXTERIOR SF

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AMESBURY HEIGHTS
Haverhill Road
Amesbury Massachusetts

FLOOR PLAN
CLUBHOUSE
Scale: 1/4" = 1' 0"
Commission No: 14-03
Date: June 10, 2015

REVISIONS:

DRG. NO.
C.1

ROOF NOTES:

PROVIDE ICE AND WATER GUARD AS FOLLOWS AND AS INDICATED ON THE ROOF PLAN:

AT ALL EAVES INSTALL THREE COURSES OF I&WG WITH A SIX INCH OVERLAP.

AT ALL VALLEYS AND HIPS INSTALL A SINGLE COURSE OF I&WG, 18" ON EACH SURFACE AND ONE ADDITIONAL COURSE ON EACH SIDE.

AT ALL ROOF/WALL INTERSECTIONS INSTALL A SINGLE COURSE OF I&WG, 18" ON EACH SURFACE AND INSTALL ALUMINUM FLASHING, 6" ON THE VERTICLE AND 4" ON THE HORIZONTAL.

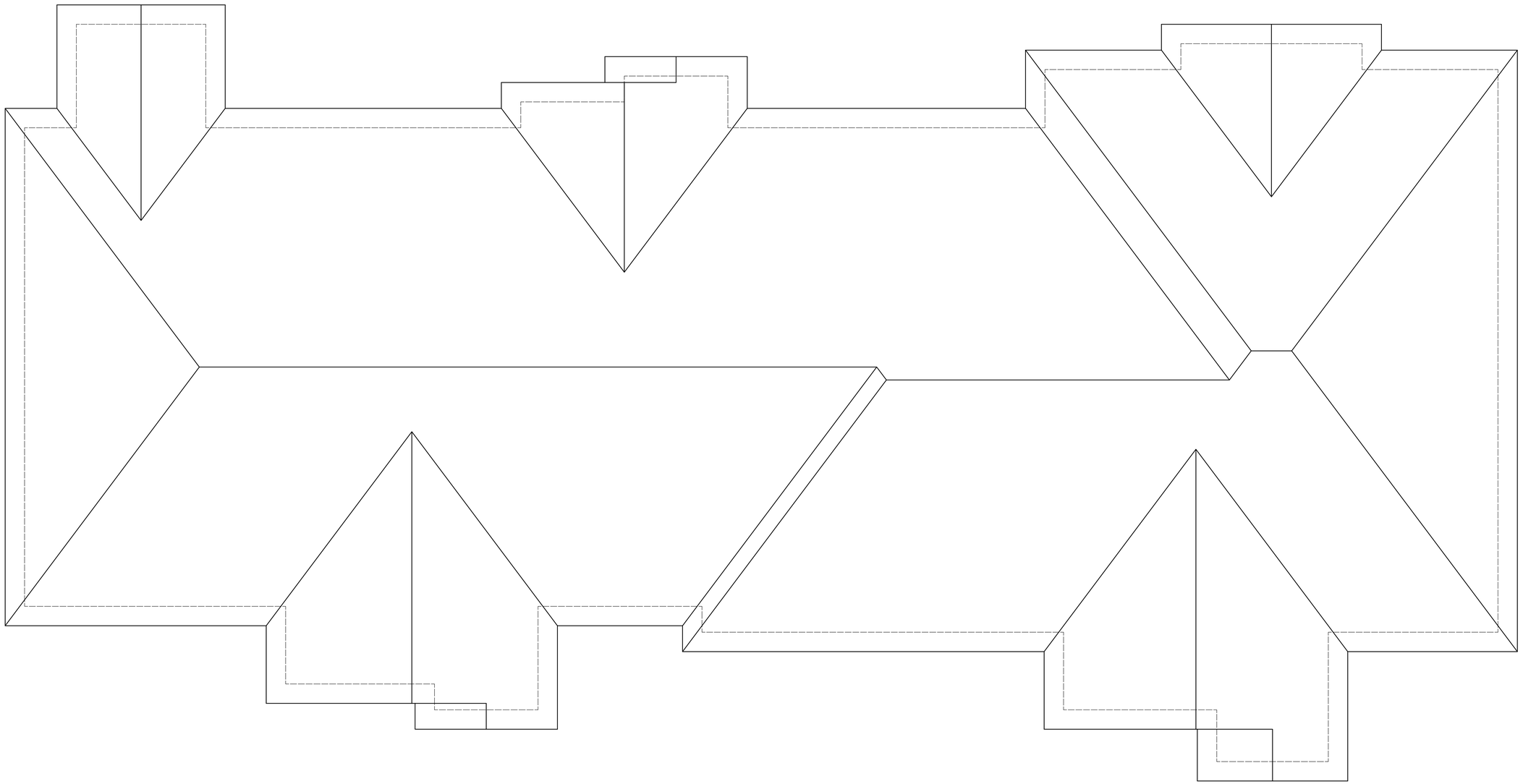
AT ALL RAKES INSTALL A SINGLE COURSE OF I&WG.

AT THE ROOF EAVES AND RAKES INSTALL AN 8" WHITE ALUMINUM RITE FLOW DRIP EDGE.

ALL ROOF PENETRATIONS SHALL BE ON THE REAR OF THE BUILDING. REFER TO MECHANICAL AND PLUMBING PLANS FOR PENETRATIONS. ALL PENETRATIONS SHALL BE PERFORMED BY THEIR RESPECTIVE TRADES IN ACCORDANCE WITH INDUSTRY STANDARDS.

ALL SIDE TO SIDE ROOF PITCHES ARE 12/12 AND ALL FRONT TO BACK ROOF PITCHES ARE 9/12.

INSTALL 15# FELT ON ALL AREAS NOT COVERED WITH I&WG.



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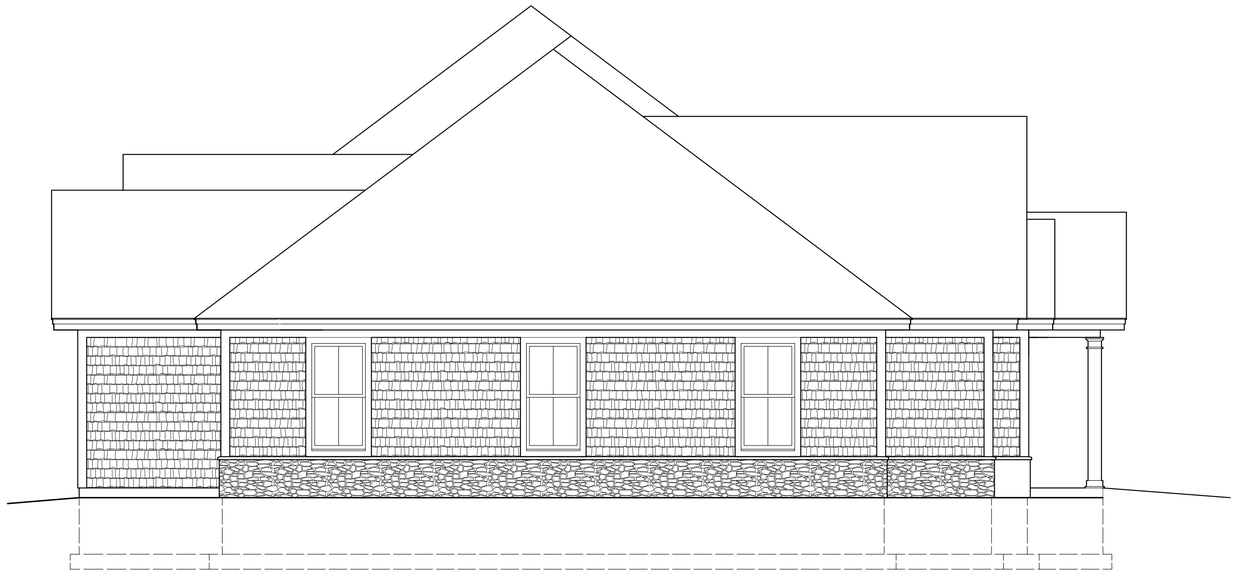
Haverhil Road
Amesbury Massachusetts

ROOF PLAN
CLUBHOUSE
Scale: 1/4" = 1'-0"
Commission No: 14-03
Date: June 14, 2013

REVISIONS:

DRG. NO.
C.2



LEFT SIDE ELEVATION

SCALE: 1/8" = 1' 0"

SIDING NOTES:

PROVIDE 5/4" PVC MATERIAL TRIM AT EXTERIOR APPURTENANCES SUCH AS EXHAUST HOODS HORNS, VENTS, ETC. SIZE AND PLACE TRIM WITH RESPECT TO EXTERIOR SIDING GRADATIONS.

PROVIDE OPENINGS AND BLOCKING AS REQUIRED FOR THE MECHANICAL AND ELECTRICAL ITEMS NOT SHOWN ON THE ELEVATIONS. COORDINATE THE WORK WITH THE OTHER TRADES.

CAULK ALL EXTERIOR OPENINGS WITH MATERIALS APPROPRIATE FOR THE APPLICABLE SUBSTRATES.

ALL FASCIA, RAKE AND OTHER TRIM BOARDS SHALL BE 3/4" PVC MATERIAL.

SOFFITS SHALL BE VINYL PERFORATED SOFFIT MATERIAL.

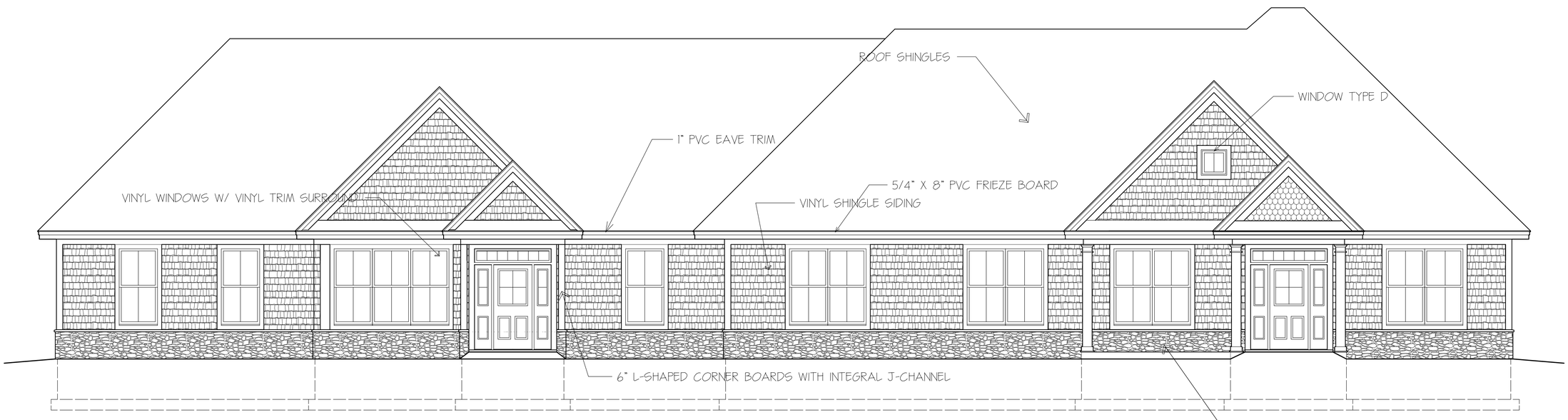
CONTRACTOR SHALL ALLOW FOR TWO CLAPBOARD AND SHINGLE COLOR SELECTIONS.

LOCATION OF ALL EXTERIOR INTAKE AND EXHAUST HOODS TO BE FIELD COORDINATED WITH THE ARCHITECT OR OWNER'S REPRESENTATIVE.

INTAKE AND EXHAUST HOODS TO MATCH SIDING COLOR IN THE FIELD IN WHICH THEY ARE LOCATED.

PROVIDE .026 WHITE BREAK ALUMINUM FLASHING AT ALL HORIZONTAL TRIM PIECES. EXPOSED EDGE OF FLASHING SHALL EXTEND 1" OVER TRIM AND 3" UP UNDER SIDING.

GUTTERS AND DOWNSPOUTS ARE NOT SHOWN ON THESE ELEVATIONS. REFER TO ROOF PLANS FOR LOCATIONS OF GUTTERS. LOCATIONS OF DOWNSPOUTS SHALL BE COORDINATED WITH THE CIVIL DRAWINGS OR FIELD LOCATED.



FRONT ELEVATION

SCALE: 1/8" = 1' 0"

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AMESBURY HEIGHTS
Haverhill Road
Amesbury Massachusetts

ELEVATIONS
CLUBHOUSE
Scale: 1/4" = 1' 0"
Commission No: 14-03
Date: June 10, 2015

REVISIONS:

DRG. NO.

C.3

RIGHT SIDE ELEVATION

SCALE: 1/8" = 1' 0"

REAR ELEVATION

SCALE: 1/8" = 1' 0"

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ELEVATIONS
CLUBHOUSE

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DRG. NO.

C.4