

# GROTON SENIOR CENTER

## 163 WEST MAIN STREET MAP 106, PARCEL 38

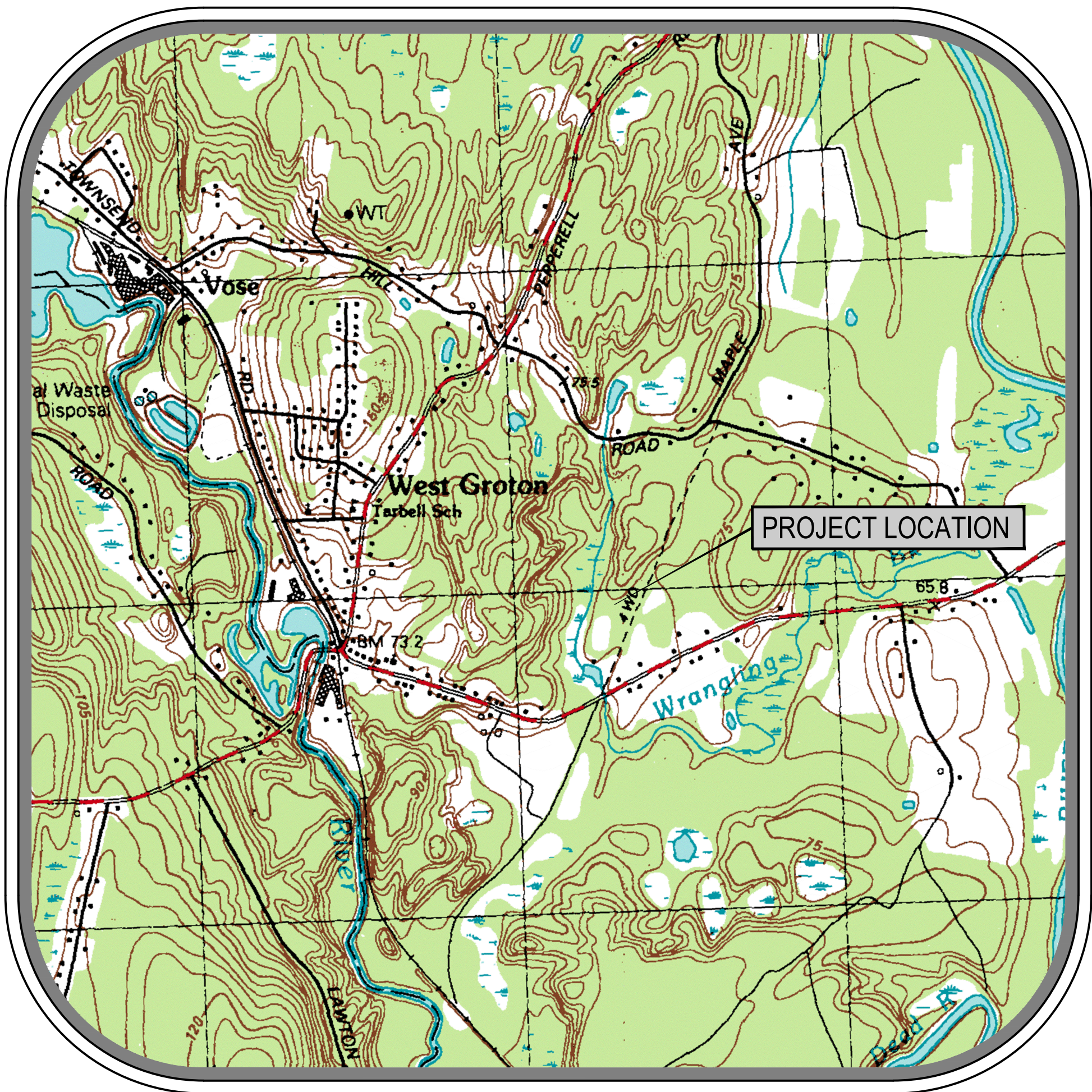
### GROTON, MASSACHUSETTS

#### SHEET INDEX

SHEET NUMBER	SHEET TITLE
SHEET C-100	CIVIL TITLE SHEET
SHEET C-101	EXISTING CONDITIONS PLAN
SHEET C-201	DEMOLITION & REMOVAL PLAN
SHEET C-202	LAYOUT PLAN
SHEET C-203	LAYOUT DETAILS
SHEET C-301	UTILITY PLAN
SHEET C-302	UTILITY DETAILS
SHEET C-401	GRADING & DRAINAGE PLAN
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SHEET C-501	EROSION CONTROL PLAN

#### ZONING INFORMATION

ZONING DISTRICT: PUBLIC USE DISTRICT			
DESCRIPTION	REQUIRED	PROPOSED	
MIN. LOT AREA	80,000 S.F.	218,671.2 S.F. (5.02 AC)	
MIN. FRONTAGE	225 FT	160 FT	
MIN. FRONT YARD	50 FT	115.6 FT	
MIN. SIDE YARD	15 FT	26.6 FT	
MIN. REAR YARD	15 FT	441.9 FT	
MAX. IMP. COVERAGE (%)	25	19.2	
MAX. BLDG. HEIGHT	35 FT (3 STORIES)	24.25 FT (2 STORIES)	



LOCUS MAP  
SCALE: 1"=1,100'

#### LEGEND

EXIST. FEATURE	DESCRIPTION	EXIST. SYM.	DESCRIPTION
---	STREAMS/RIVERS	⊙	EXISTING TELEPHONE POLE
---	LIMIT OF RIVERFRONT AREA	⬇	EXISTING GUY WIRE
---	LAKES/PONDS/SURFACE WATER	⊙	EXISTING SEWER MANHOLE
---	WETLANDS	⬆	EXISTING WETLAND FLAG
---	LIMIT OF BUFFER ZONE	⬆	EXISTING WETLAND FLAG
---	PROPERTY LINE	⬆	EXISTING CATCH BASIN
---	GUARD RAIL	⬆	EXISTING ELECTRICAL METER
---	EXISTING ELECTRICAL LINE	⬆	EXISTING SIGN
---	EXISTING SANITARY SEWER	⬆	PERC TEST
---	EXISTING OVER-HEAD WIRES	⬆	TEST PIT
---	EXISTING UNPAVED ROAD	⬆	EXISTING IRON PIPE
---	EXISTING CONTOUR (INDEX)	⬆	EXISTING DRILL HOLE
---	EX. CONTOUR (INTERMEDIATE)	⬆	EXISTING IRON ROD
---	EXISTING BUILDING/HOUSE	⬆	EXISTING STONE BOUND
---	TREE LINE	⬆	DECIDUOUS TREE
---	TREE LINE	⬆	CONIFER TREE
---	TREE LINE	⬆	EXISTING BOUND
---	TREE LINE	⬆	SHRUB
---	TREE LINE	⬆	EXISTING CLEANOUT

PROP. FEATURE	DESCRIPTION	PROP. SYM.	DESCRIPTION
---	PROPERTY LINE	⬆	PROPOSED TELEPHONE POLE
---	EROSION CONTROL	⬆	PROPOSED STORM WATER MANHOLE
---	PROPOSED WATER LINE	⬆	PROPOSED CATCH BASIN
---	PROPOSED SANITARY SEWER	⬆	PROPOSED DOUBLE CATCH BASIN
---	PROPOSED STORM DRAIN	⬆	PROPOSED ELECTRICAL TRANSFORMER
---	PRO. U/G ELEC. CABLE & TEL	⬆	PROPOSED SIGN
---	PROP. VERT. GRAN. CURB	⬆	STANDARD TREE
---	PROP. SLOPED GRAN. CURB	⬆	PINE TREE
---	PROPOSED EDGE OF PAVEMENT	⬆	SHRUB
---	PROPOSED EDGE OF CONCRETE	⬆	
---	PROPOSED CONTOUR (INDEX)	⬆	
---	PROP. CONTOUR (INTERMEDIATE)	⬆	
---	PROPOSED SPOT ELEVATION	⬆	
---	PROPOSED BUILDING/HOUSE	⬆	
---	TREE LINE	⬆	



TOWN OF  
GROTON

NEW SENIOR CENTER

OWNER:  
TOWN OF GROTON  
173 MAIN STREET  
GROTON, MA 01450

ARCHITECT:  
**HELENE • KARL**  
Architects, Inc.  
61 Skyfields Drive, Groton, Massachusetts 01450

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DUCHARME & DILLIS  
1092 MAIN STREET  
P.O. BOX 428  
BOLTON, MA 01740  
**DUCHARME & DILLIS**  
Civil Design Group, Inc.  
Civil Engineer • Land Surveyor • Wetland Consultant

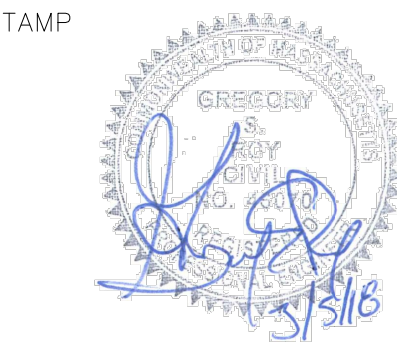
STRUCTURAL ENGINEER:  
SYMES, MAIN & MCKEE ASSOCIATES  
1000 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02138

MECHANICAL ENGINEER:  
SEAMAN ENGINEERING CORP.  
22 WEST STREET, UNIT C  
MILLBURY, MA 01527

ELECTRICAL ENGINEER:  
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CONSTRUCTION AND ENGINEERING, INC.  
379 LIBERTY STREET  
ROCKLAND, MA 02370

ADDRESS: 163 WEST MAIN ST  
GROTON, MA  
OWNER: TOWN OF GROTON  
173 MAIN ST  
GROTON, MA

MAP / PARCEL:  
MAP 106, PAR. 38



REV	DATE	DESCRIPTION
01.	3/5/18	RELOCATED BUILDING, REVIEW COMMENTS

DATE	2/9/18
SCALE	N/A
DRAWN BY	JPL
CHECKED BY	GSR
PROJECT NO.	17011

BUILDING:  
SHEET TITLE:  
CIVIL TITLE SHEET

DRAWING NO.

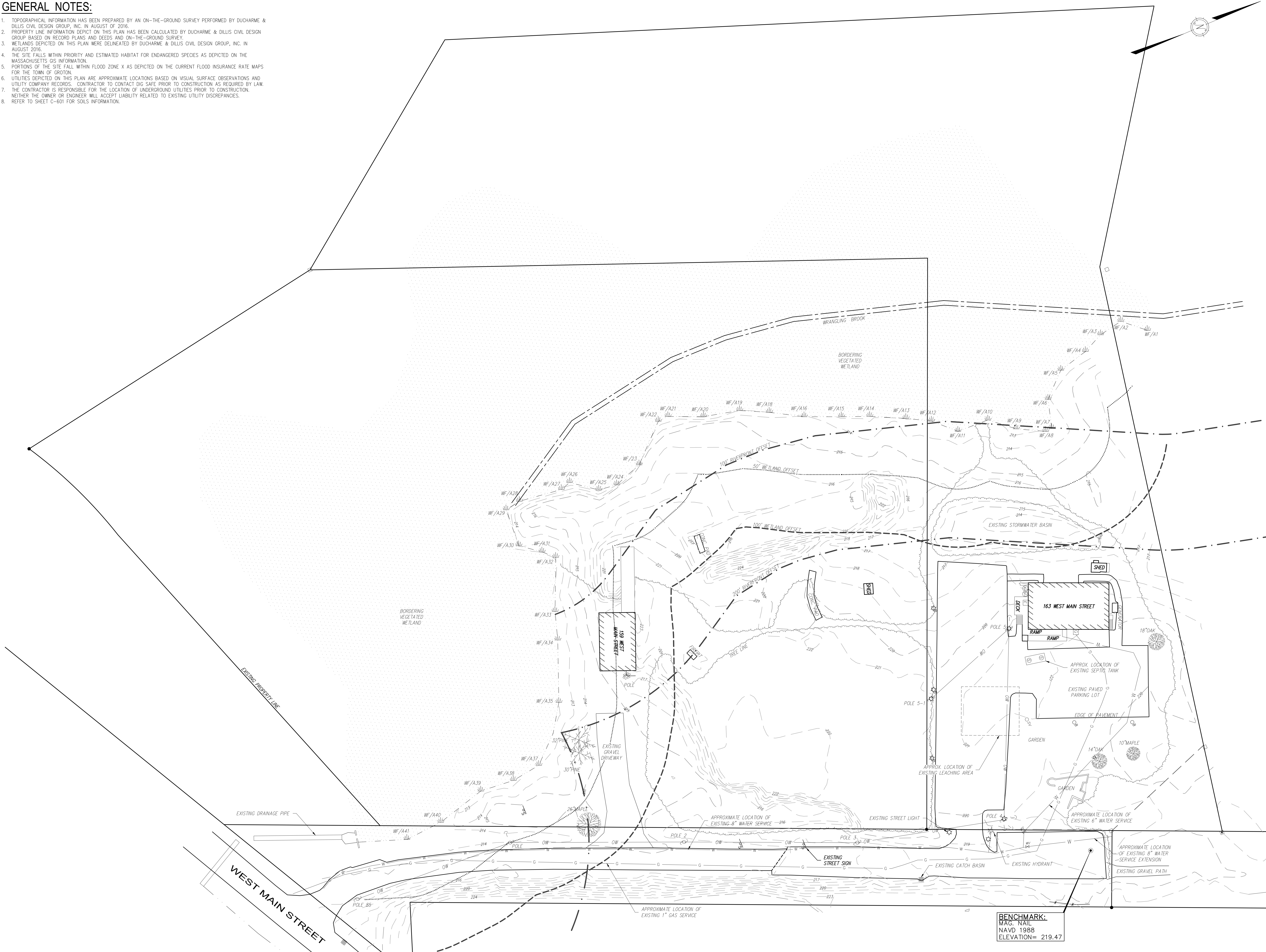
C-100

ISSUED FOR PERMIT - NOT FOR CONSTRUCTION



GENERAL NOTES:

1. TOPOGRAPHICAL INFORMATION HAS BEEN PREPARED BY AN ON-THE-GROUND SURVEY PERFORMED BY DUCHARME & DILLIS CIVIL DESIGN GROUP, INC. IN AUGUST OF 2016.
2. PROPERTY LINE INFORMATION DEPICT ON THIS PLAN HAS BEEN CALCULATED BY DUCHARME & DILLIS CIVIL DESIGN GROUP BASED ON RECORD PLANS AND DEEDS AND ON-THE-GROUND SURVEY.
3. WETLANDS DEPICTED ON THIS PLAN WERE DELINEATED BY DUCHARME & DILLIS CIVIL DESIGN GROUP, INC. IN AUGUST 2016.
4. THE SITE FALLS WITHIN PRIORITY AND ESTIMATED HABITAT FOR ENDANGERED SPECIES AS DEPICTED ON THE MASSACHUSETTS GIS INFORMATION.
5. PORTIONS OF THE SITE FALL WITHIN FLOOD ZONE X AS DEPICTED ON THE CURRENT FLOOD INSURANCE RATE MAPS FOR THE TOWN OF GROTON.
6. UTILITIES DEPICTED ON THIS PLAN ARE APPROXIMATE LOCATIONS BASED ON VISUAL SURFACE OBSERVATIONS AND UTILITY COMPANY RECORDS. CONTRACTOR TO CONTACT DIG SAFE PRIOR TO CONSTRUCTION AS REQUIRED BY LAW.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. NEITHER THE OWNER OR ENGINEER WILL ACCEPT LIABILITY RELATED TO EXISTING UTILITY DISCREPANCIES.
8. REFER TO SHEET C-601 FOR SOILS INFORMATION.



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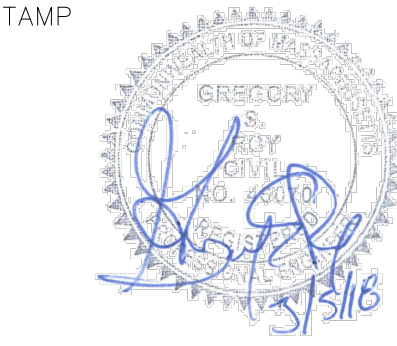
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MAP/PARCEL:  
MAP 106, PAR. 38



REV	DATE	DESCRIPTION
01.	3/5/18	RELOCATED BUILDING, REVIEW COMMENTS

DATE	2/9/18
SCALE	1"=30'
DRAWN BY	JPL
CHECKED BY	GSR
PROJECT NO.	17011

BUILDING:  
SHEET TITLE:  
EXISTING CONDITIONS

DRAWING NO.

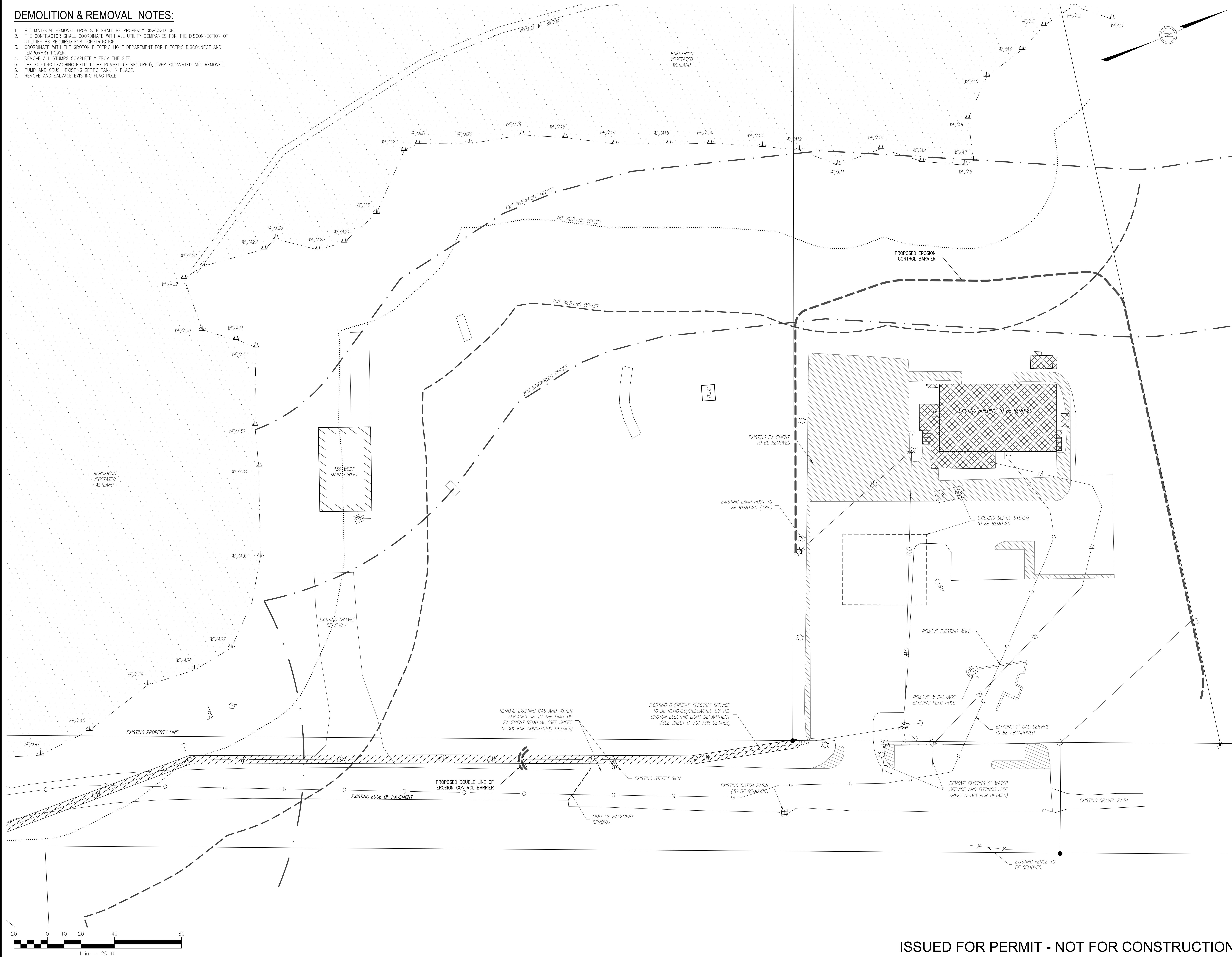
C-101

ISSUED FOR PERMIT - NOT FOR CONSTRUCTION



DEMOLITION & REMOVAL NOTES:

1. ALL MATERIAL REMOVED FROM SITE SHALL BE PROPERLY DISPOSED OF.
2. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR THE DISCONNECTION OF UTILITIES AS REQUIRED FOR CONSTRUCTION.
3. COORDINATE WITH THE GROTON ELECTRIC LIGHT DEPARTMENT FOR ELECTRIC DISCONNECT AND TEMPORARY POWER.
4. REMOVE ALL STUMPS COMPLETELY FROM THE SITE.
5. THE EXISTING LEACHING FIELD TO BE PUMPED (IF REQUIRED), OVER EXCAVATED AND REMOVED.
6. PUMP AND CRUSH EXISTING SEPTIC TANK IN PLACE.
7. REMOVE AND SALVAGE EXISTING FLAG POLE.



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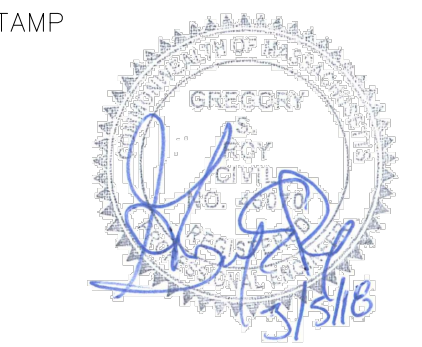
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MAP/PARCEL:  
MAP 106, PAR. 38



01.	3/5/18	RELOCATED BUILDING, REVIEW COMMENTS
REV	DATE	DESCRIPTION

DATE	2/9/18
SCALE	1"=20'
DRAWN BY	JPL
CHECKED BY	GSR
PROJECT NO.	17011

BUILDING:  
SHEET TITLE:  
**DEMOLITION &  
REMOVAL PLAN**

DRAWING NO.

C-201

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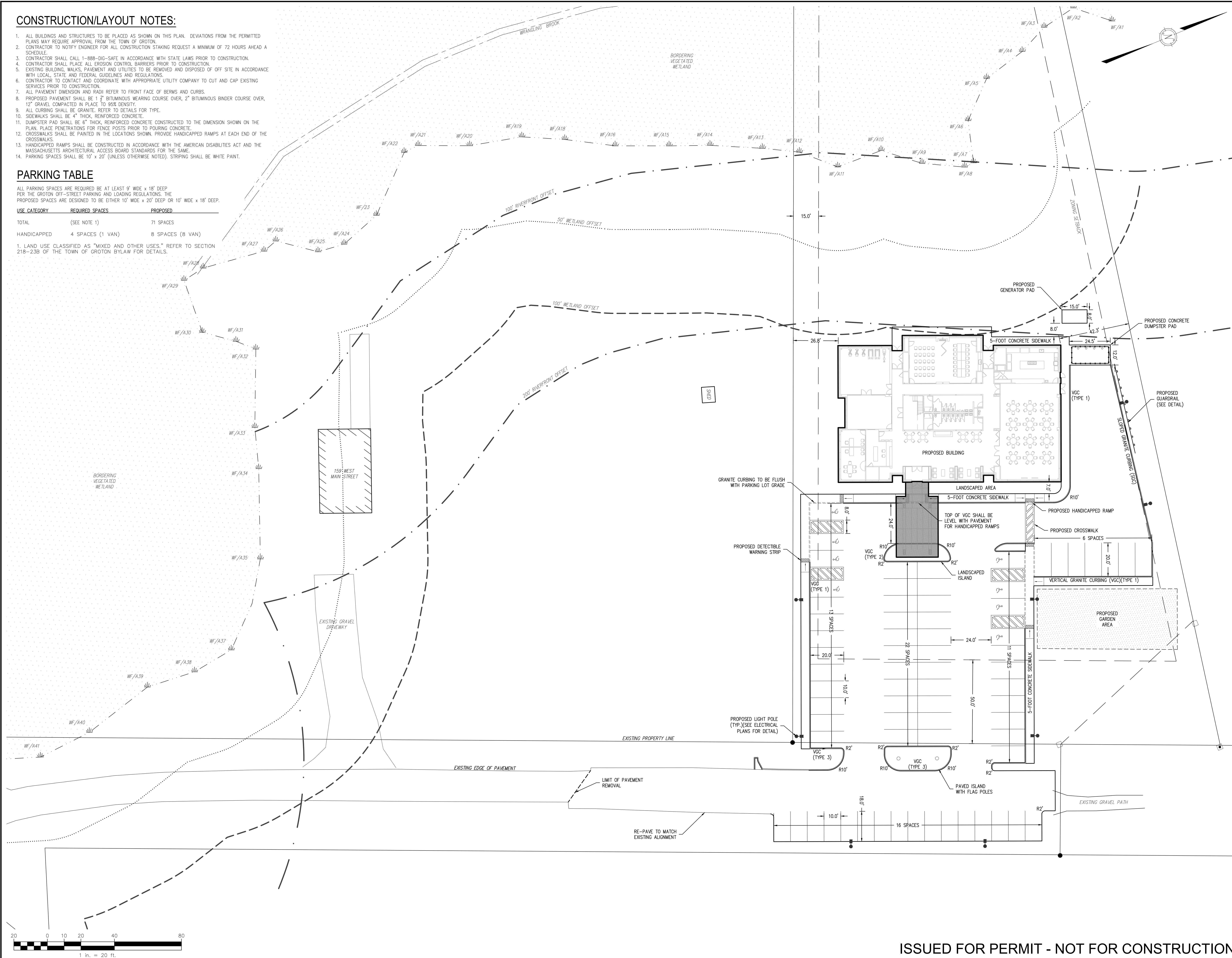


1. ALL BUILDINGS AND STRUCTURES TO BE PLACED AS SHOWN ON THIS PLAN. DEVIATIONS FROM THE PERMITTED PLANS MAY REQUIRE APPROVAL FROM THE TOWN OF GROTON.
2. CONTRACTOR TO NOTIFY ENGINEER FOR ALL CONSTRUCTION STAKING REQUEST A MINIMUM OF 72 HOURS AHEAD A SCHEDULE.
3. CONTRACTOR SHALL CALL 1-888-DIG-SAFE IN ACCORDANCE WITH STATE LAWS PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL PLACE ALL EROSION CONTROL BARRIERS PRIOR TO CONSTRUCTION.
5. EXISTING BUILDING, WALLS, PAVEMENT AND UTILITIES TO BE REMOVED AND DISPOSED OF OFF SITE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL GUIDELINES AND REGULATIONS.
6. CONTRACTOR TO CONTACT AND COORDINATE WITH APPROPRIATE UTILITY COMPANY TO CUT AND CAP EXISTING SERVICES PRIOR TO CONSTRUCTION.
7. ALL PAVEMENT DIMENSION AND RADII REFER TO FRONT FACE OF BERMS AND CURBS.
8. PROPOSED PAVEMENT SHALL BE 1" BITUMINOUS WEARING COURSE OVER, 2" BITUMINOUS BINDER COURSE OVER, 12" GRAVEL COMPACTED IN PLACE TO 98% DENSITY.
9. ALL CURBING SHALL BE GRANITE, REFER TO DETAIL FOR TYPE.
10. SIDEWALKS SHALL BE 4" THICK, REINFORCED CONCRETE.
11. DUMPER PAD SHALL BE 6" THICK, REINFORCED CONCRETE CONSTRUCTED TO THE DIMENSION SHOWN ON THE PLAN. PLACE PENETRATIONS FOR FENCE POSTS PRIOR TO POURING CONCRETE.
12. CROSSWALKS SHALL BE PAINTED IN THE LOCATIONS SHOWN. PROVIDE HANDICAPPED RAMPS AT EACH END OF THE CROSSWALKS.
13. HANDICAPPED RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICAN DISABILITIES ACT AND THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD STANDARDS FOR THE SAME.
14. PARKING SPACES SHALL BE 10' x 20' (UNLESS OTHERWISE NOTED). STRIPING SHALL BE WHITE PAINT.

ALL PARKING SPACES ARE REQUIRED BE AT LEAST 9' WIDE x 18' DEEP PER THE GROTON OFF-STREET PARKING AND LOADING REGULATIONS. THE PROPOSED SPACES ARE DESIGNED TO BE EITHER 10' WIDE x 20' DEEP OR 10' WIDE x 18' DEEP.

USE CATEGORY	REQUIRED SPACES	PROPOSED
TOTAL	(SEE NOTE 1)	71 SPACES
HANDICAPPED	4 SPACES (1 VAN)	8 SPACES (8 VAN)

1. LAND USE CLASSIFIED AS "MIXED AND OTHER USES." REFER TO SECTION 218-23B OF THE TOWN OF GROTON BYLAW FOR DETAILS.

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MECHANICAL ENGINEER:

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ELECTRICAL ENGINEER:

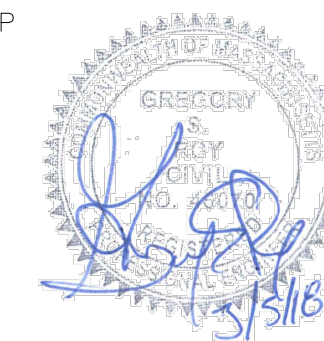
JOHN J. MURPHY, JR. ELECTRICAL  
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MAP/PARCEL:  
MAP 106, PAR. 38

STAMP



01.	3/5/18	RELOCATED BUILDING, REVIEW COMMENTS
REV	DATE	DESCRIPTION

DATE	2/9/18
SCALE	1"=20'
DRAWN BY	JPL
CHECKED BY	GSR
PROJECT NO.	17011

BUILDING:

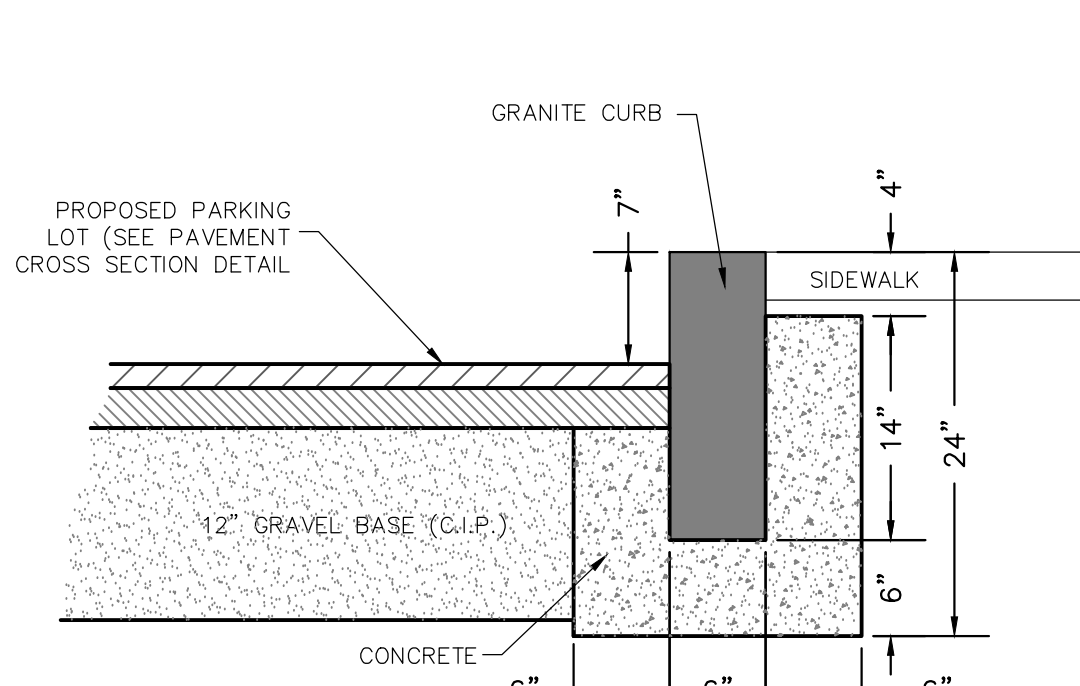
SHEET TITLE:  
LAYOUT PLAN

DRAWING NO.

C-202

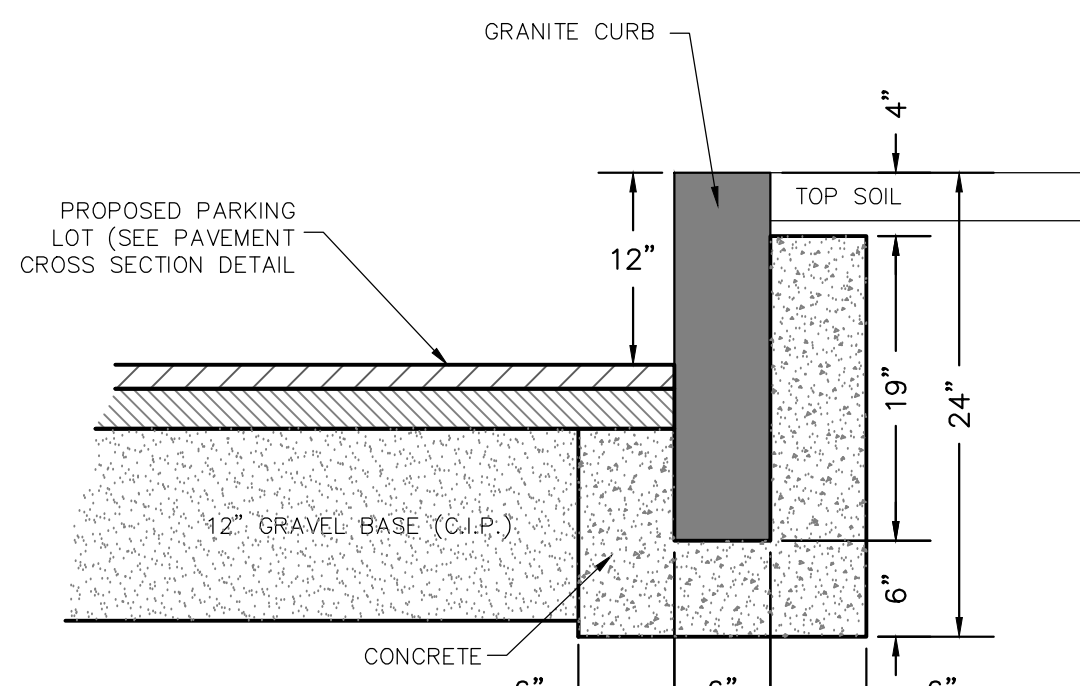
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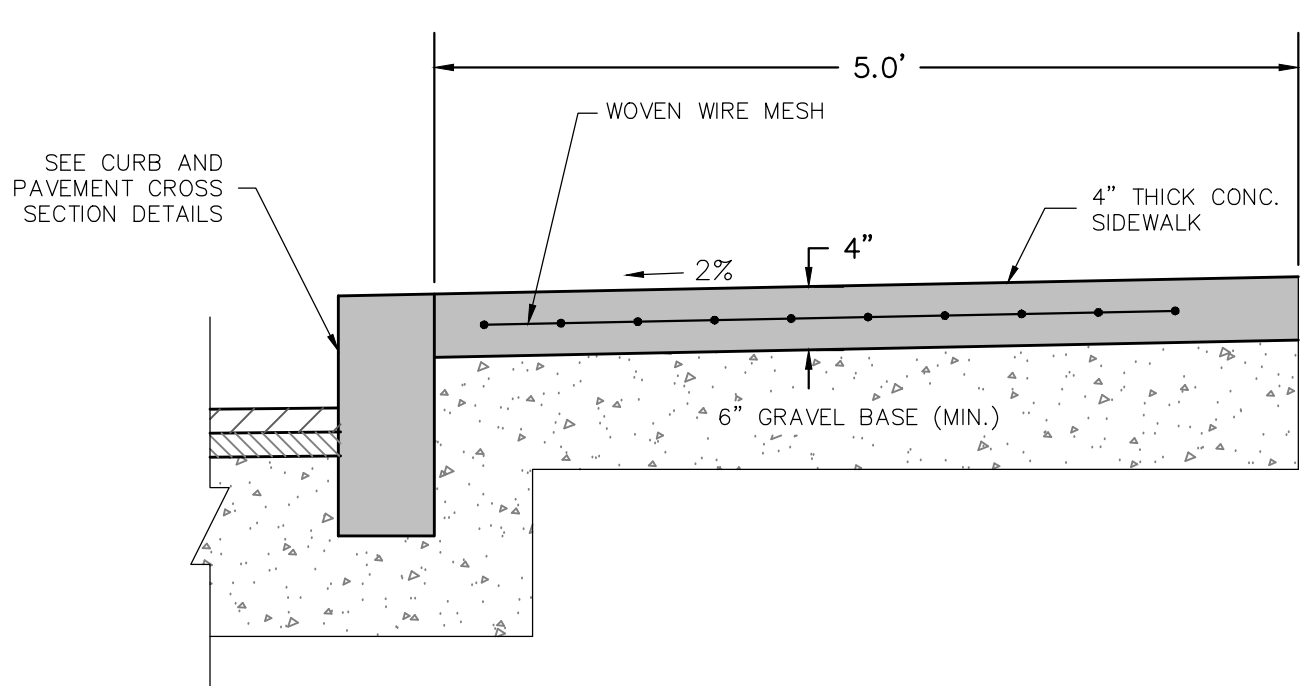
GRANITE CURB DETAIL (TYPE 1)

NOT TO SCALE



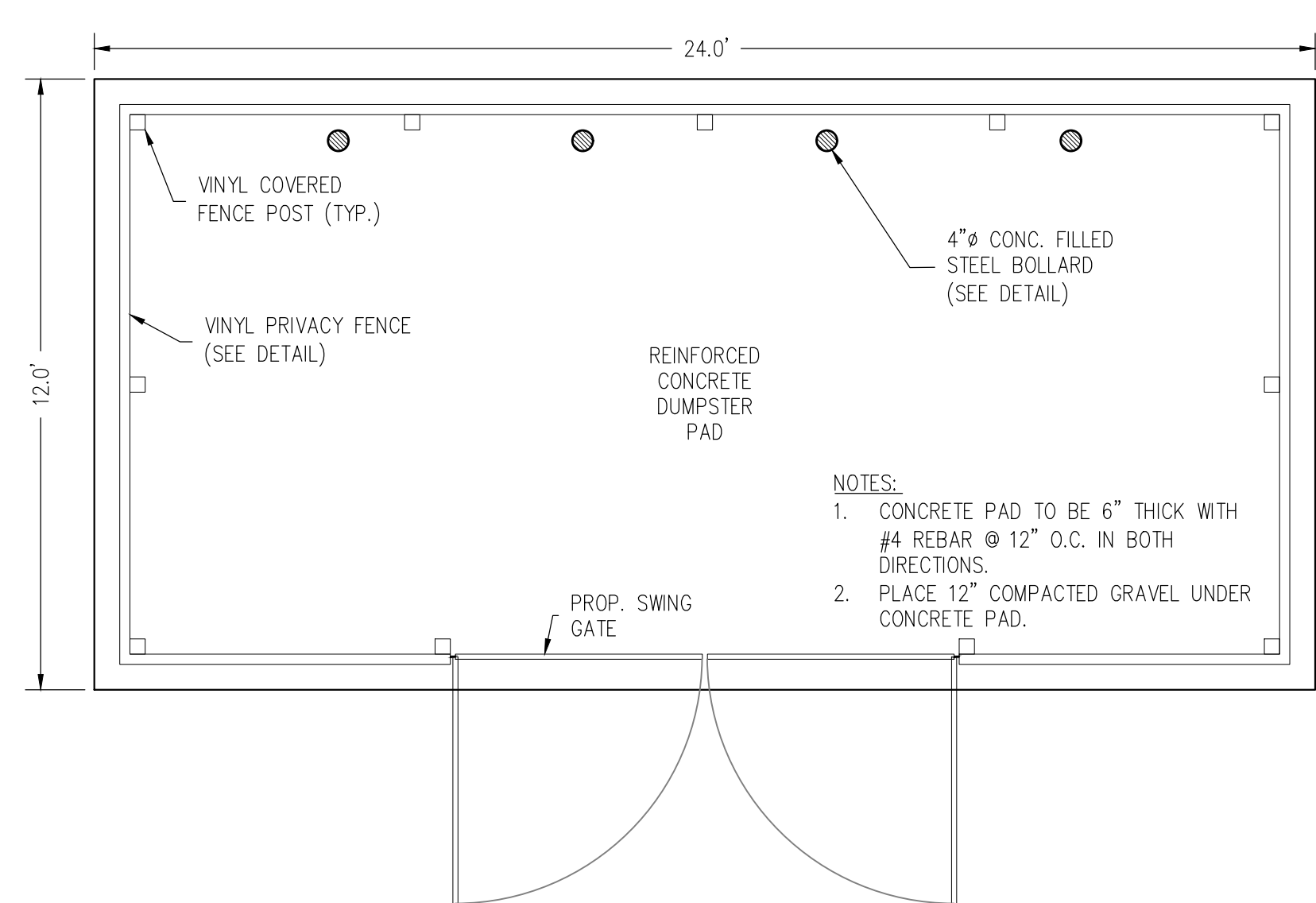
GRANITE CURB DETAIL (TYPE 2)

NOT TO SCALE



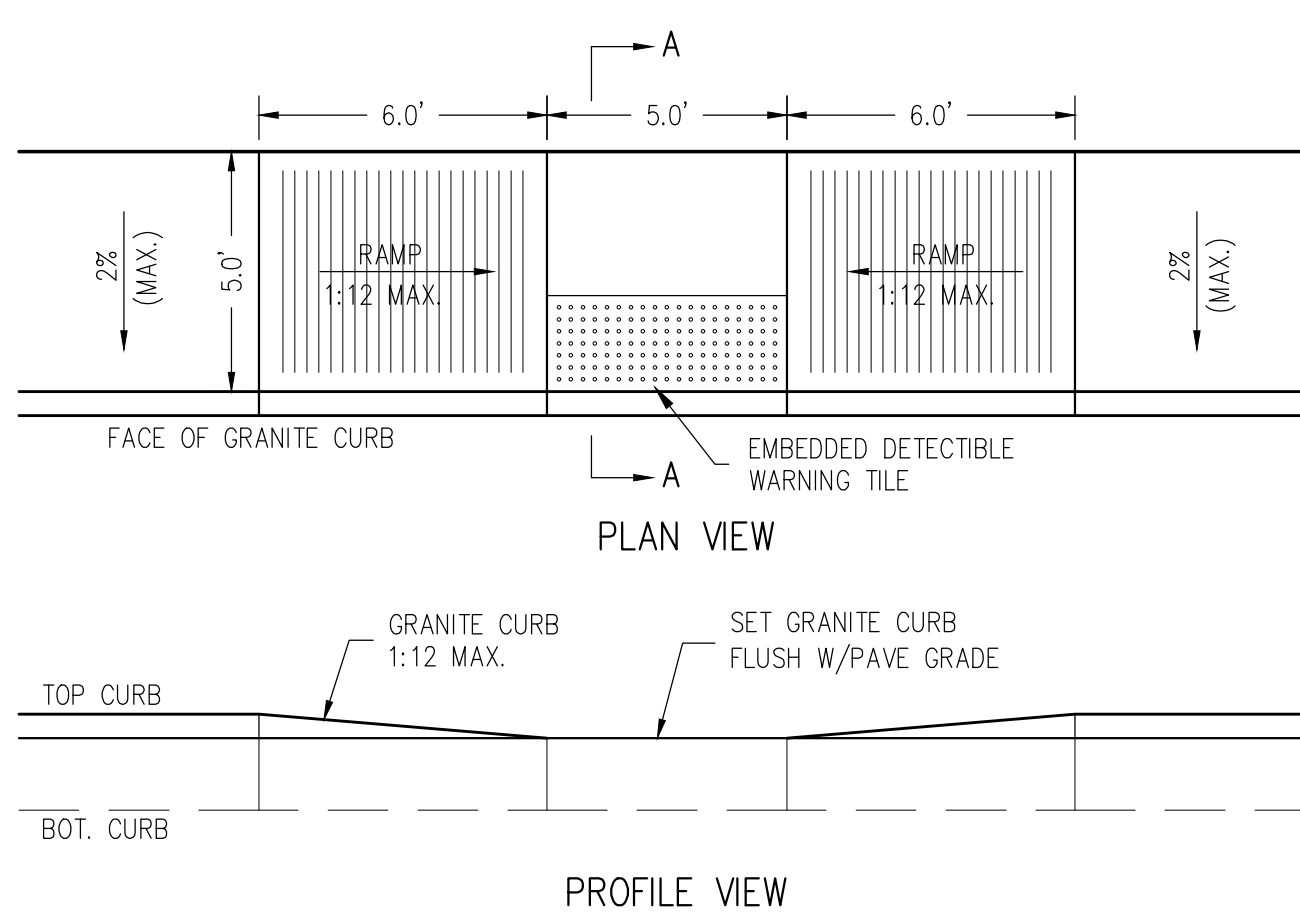
CONCRETE SIDEWALK DETAIL

NOT TO SCALE



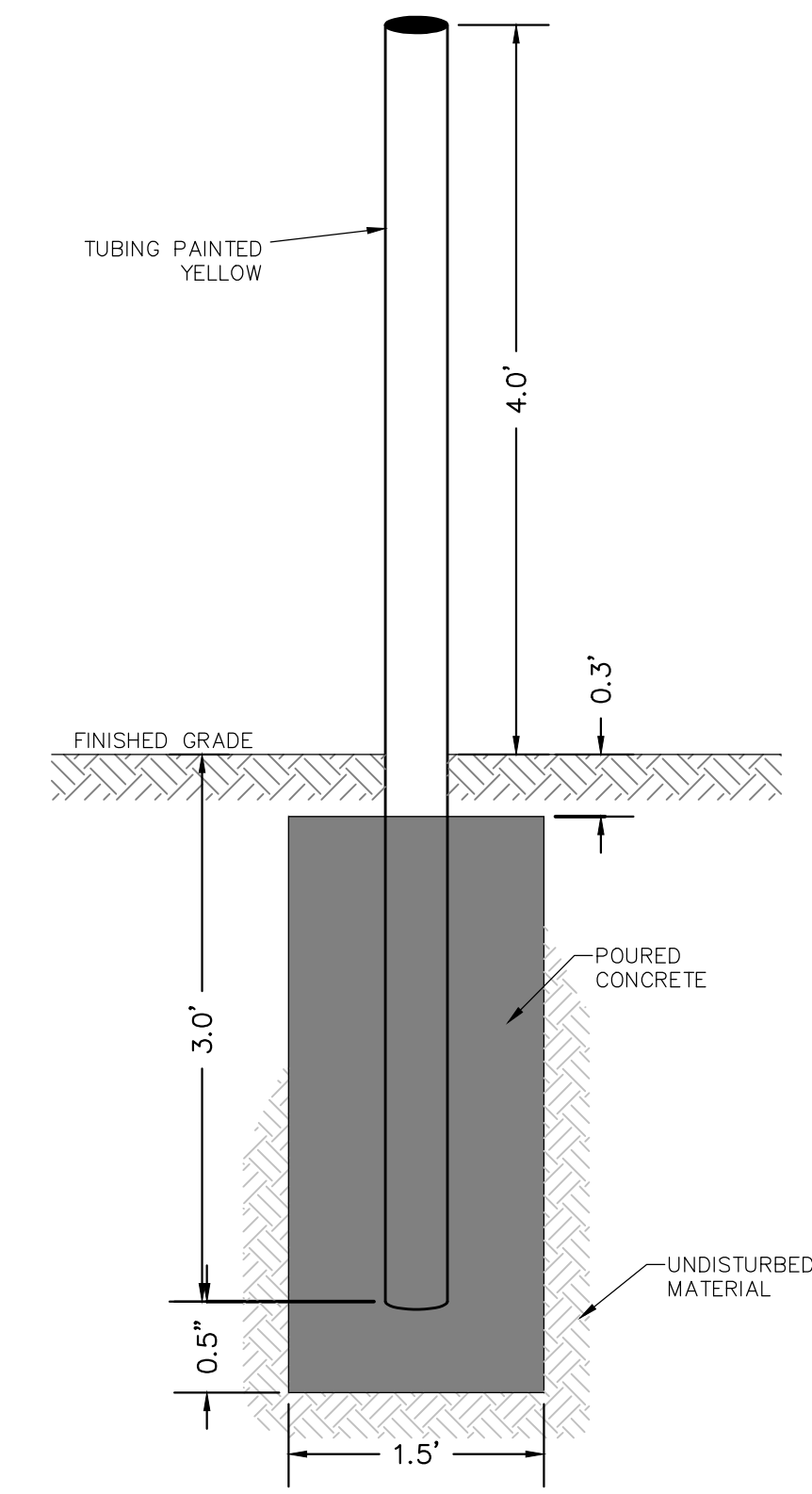
CONCRETE DUMPSTER PAD

SCALE: 1"=3'



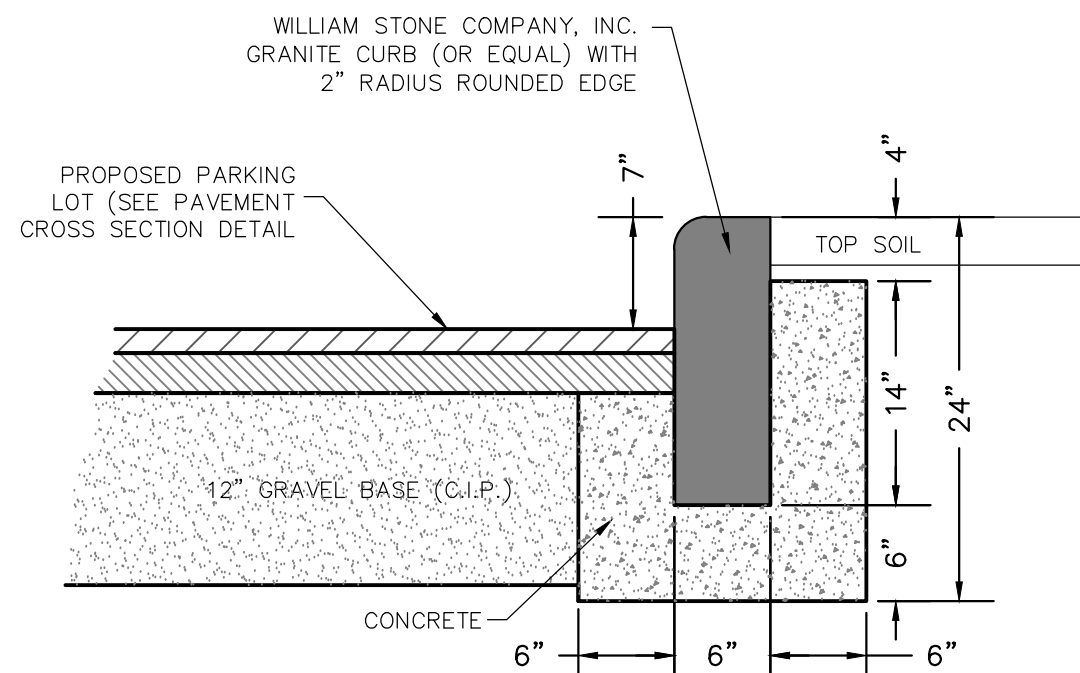
HANDICAPPED RAMP

SCALE: 1"=4'



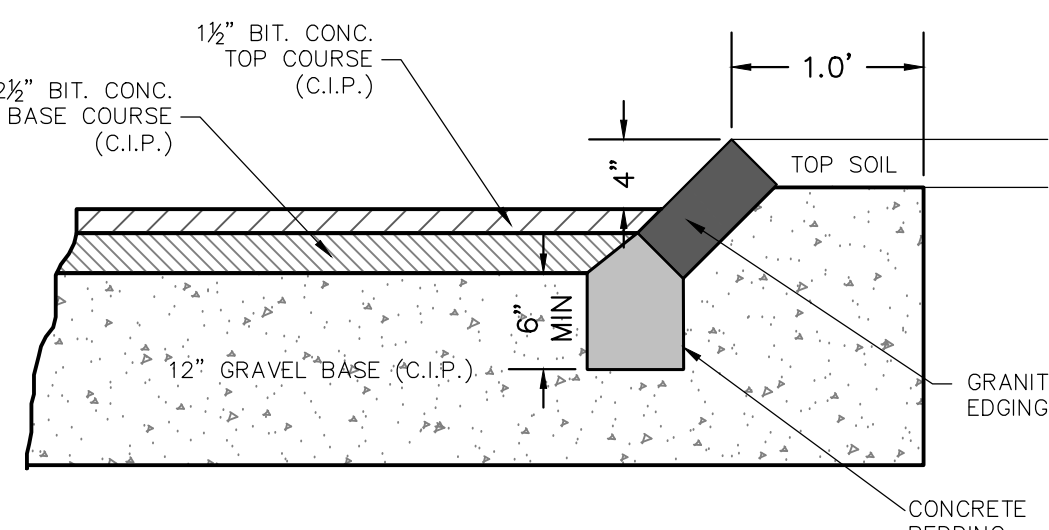
BOLLARD DETAIL

NOT TO SCALE



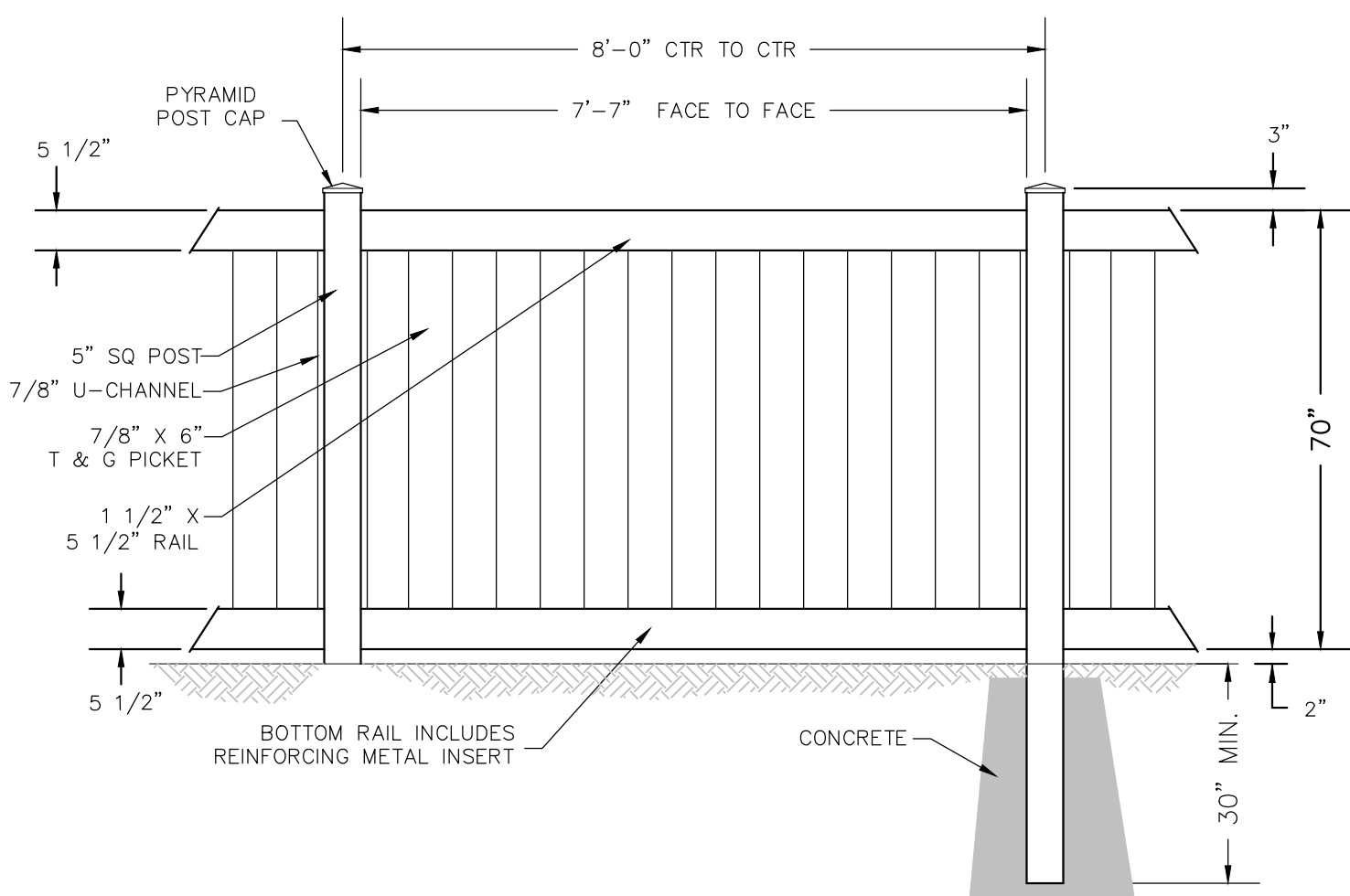
GRANITE CURB DETAIL (TYPE 3)

NOT TO SCALE



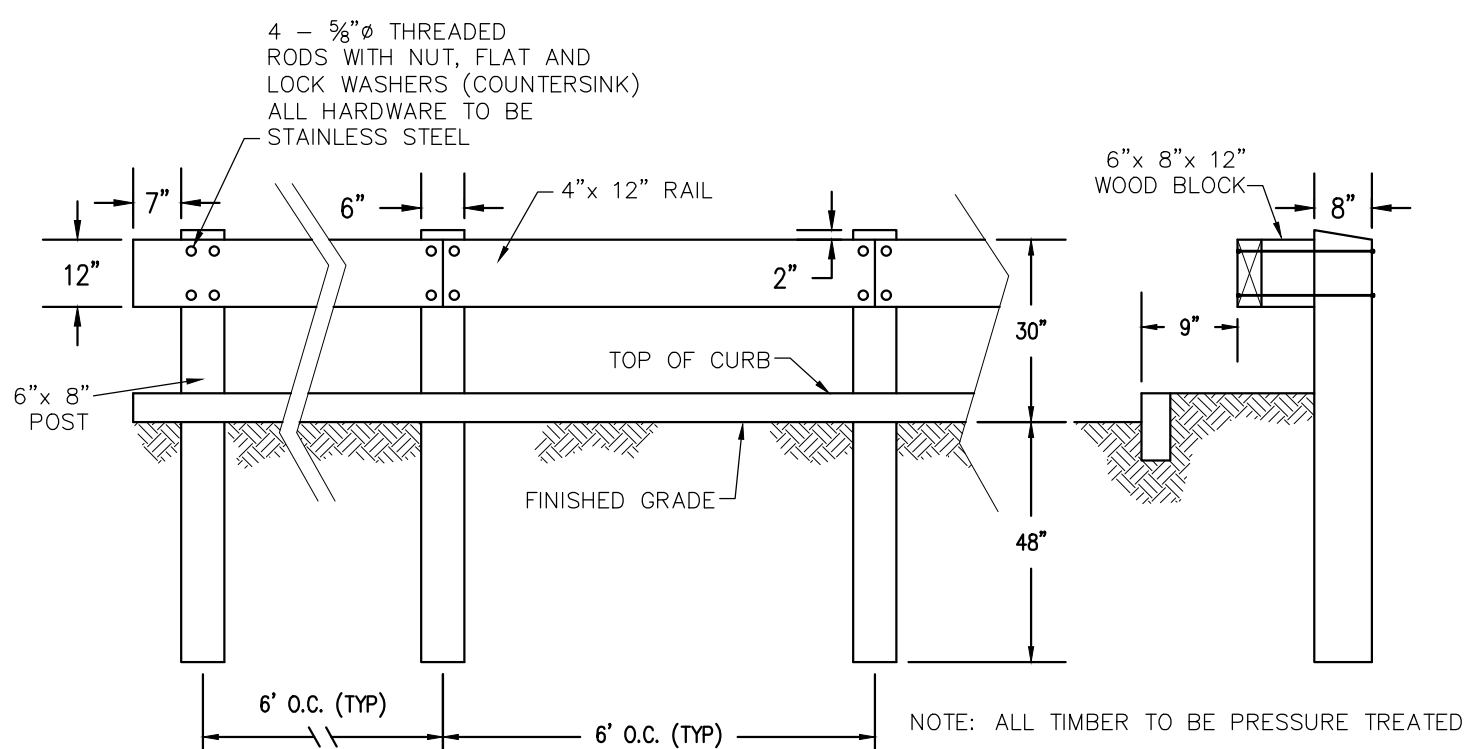
SLOPED GRANITE CURB DETAIL

NOT TO SCALE



VINYL PRIVACY FENCE DETAIL

NO SCALE



WOODEN GUARDRAIL DETAIL

NOT TO SCALE



TOWN OF GROTON

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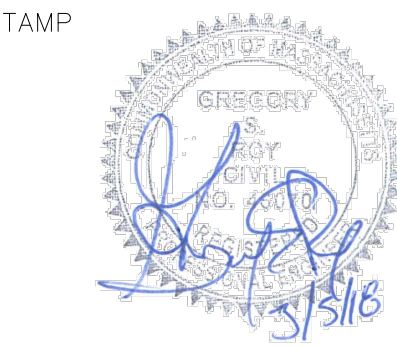
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MAP 106, PAR. 38



01.	3/5/18	RELOCATED BUILDING, REVIEW COMMENTS
REV	DATE	DESCRIPTION

DATE	2/9/18
SCALE	N/A
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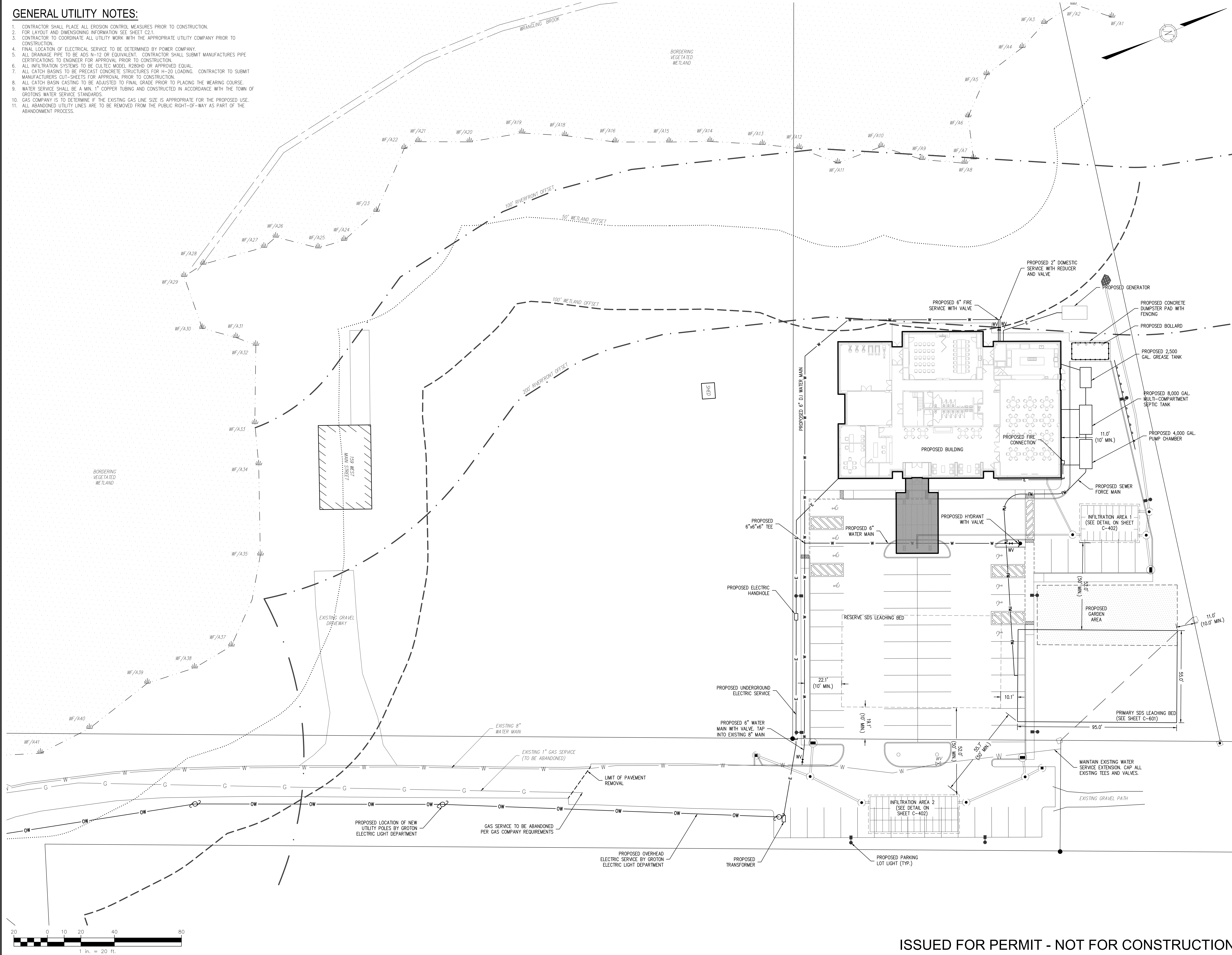
BUILDING:
SHEET TITLE: LAYOUT DETAILS

DRAWING NO.	C-203
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GENERAL UTILITY NOTES:

1. CONTRACTOR SHALL PLACE ALL EROSION CONTROL MEASURES PRIOR TO CONSTRUCTION.
2. FOR LAYOUT AND DIMENSIONING INFORMATION SEE SHEET C2.1.
3. CONTRACTOR TO COORDINATE ALL UTILITY WORK WITH THE APPROPRIATE UTILITY COMPANY PRIOR TO CONSTRUCTION.
4. FINAL LOCATION OF ELECTRICAL SERVICE TO BE DETERMINED BY POWER COMPANY.
5. ALL DRAINAGE PIPE TO BE ADS N-12 OR EQUIVALENT. CONTRACTOR SHALL SUBMIT MANUFACTURES PIPE CERTIFICATIONS TO ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
6. ALL INFILTRATION SYSTEMS TO BE CULTEC MODEL R280HD OR APPROVED EQUAL.
7. ALL CATCH BASINS TO BE PRECAST CONCRETE STRUCTURES FOR H-20 LOADING. CONTRACTOR TO SUBMIT MANUFACTURERS CUT-SHEETS FOR APPROVAL PRIOR TO CONSTRUCTION.
8. ALL CATCH BASIN CASTING TO BE ADJUSTED TO FINAL GRADE PRIOR TO PLACING THE WEARING COURSE.
9. WATER SERVICE SHALL BE A MIN. 1" COPPER TUBING AND CONSTRUCTED IN ACCORDANCE WITH THE TOWN OF GROTONS WATER SERVICE STANDARDS.
10. GAS COMPANY IS TO DETERMINE IF THE EXISTING GAS LINE SIZE IS APPROPRIATE FOR THE PROPOSED USE.
11. ALL ABANDONED UTILITY LINES ARE TO BE REMOVED FROM THE PUBLIC RIGHT-OF-WAY AS PART OF THE ABANDONMENT PROCESS.



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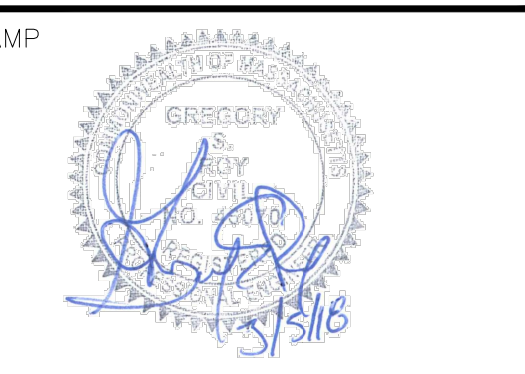
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01.	3/5/18	RELOCATED BUILDING, REVIEW COMMENTS

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SCALE	1"=20'
DRAWN BY	JPL
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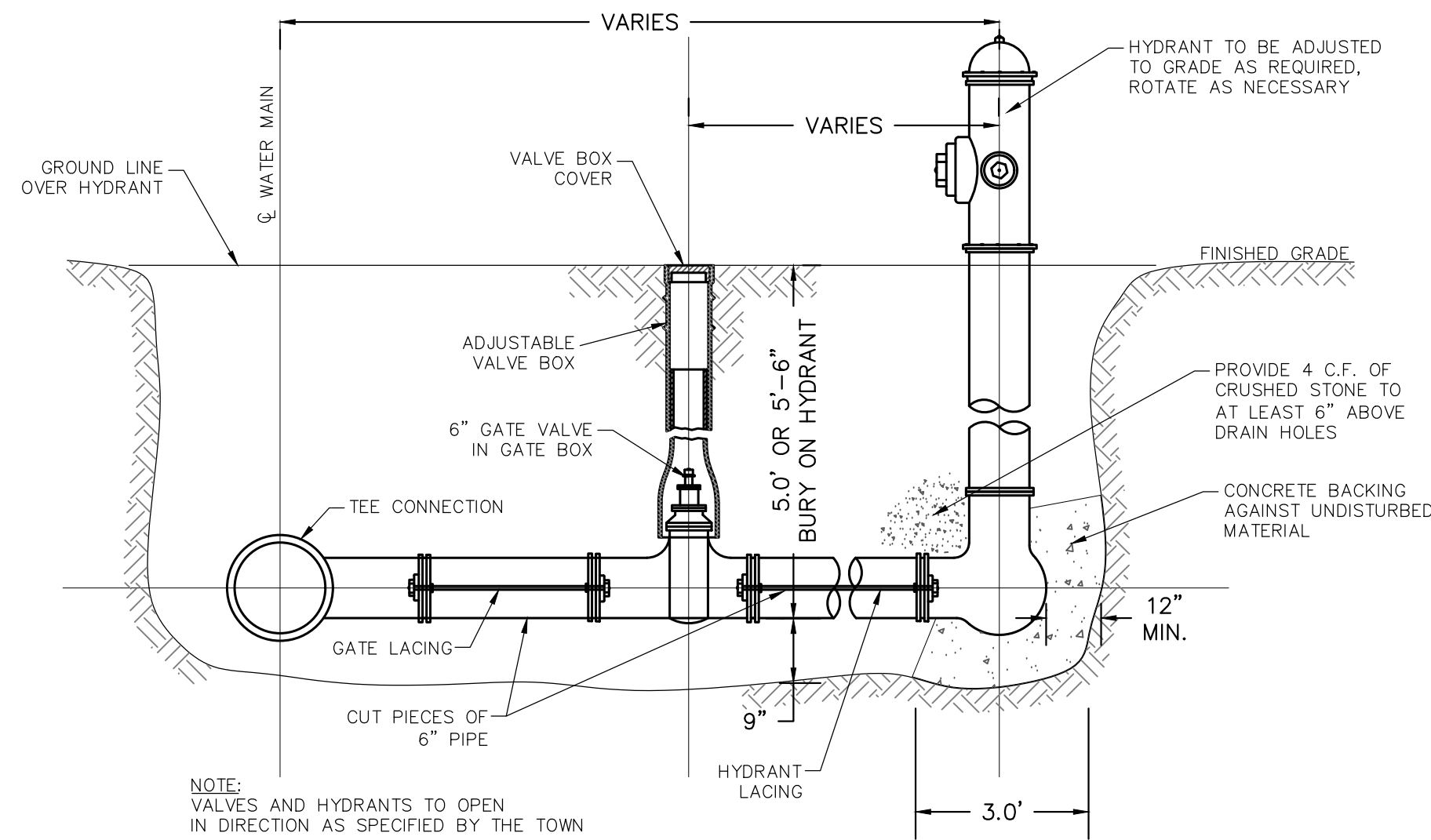
SHEET TITLE:  
UTILITY PLAN

DRAWING NO.

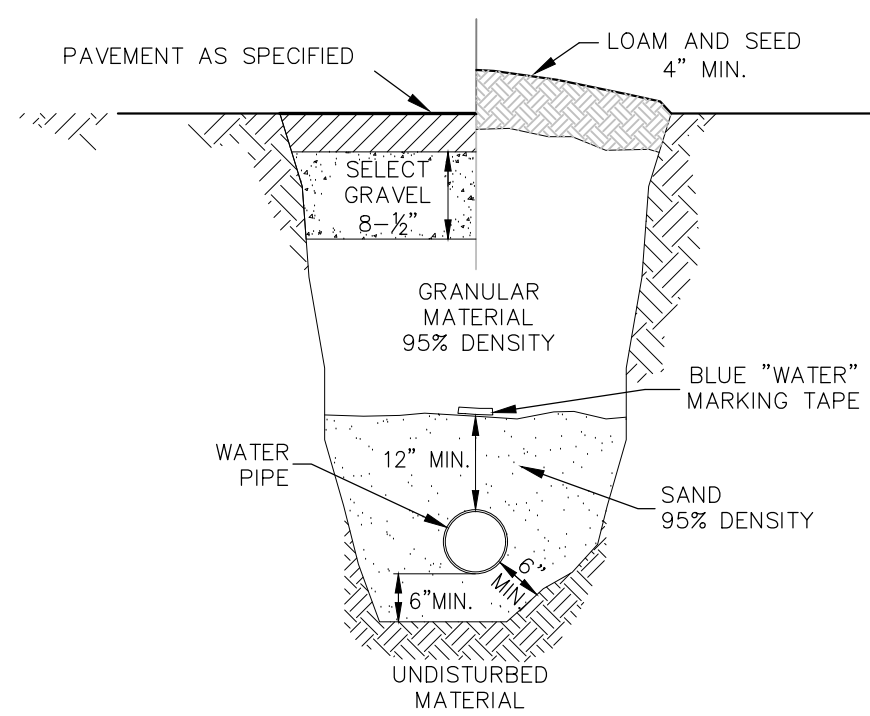
C-301

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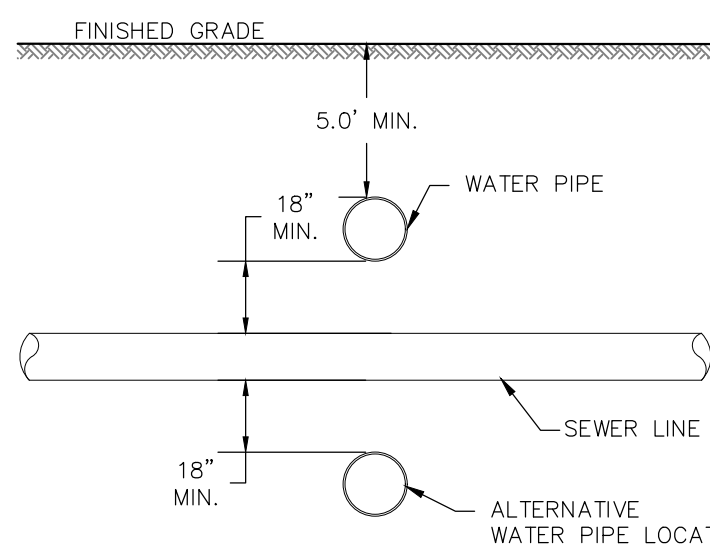




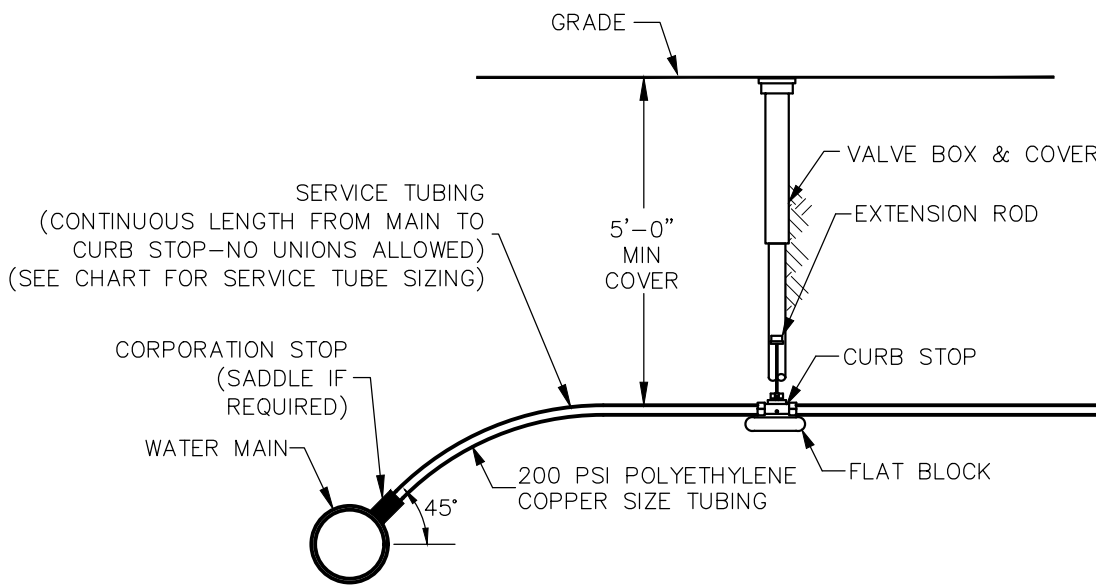
HYDRANT  
NOT TO SCALE



WATER MAIN IN TRENCH DETAIL  
NOT TO SCALE



WATER AND SEWER LINE CROSSING  
NOT TO SCALE



WATER SERVICE DETAIL  
NOT TO SCALE

NOTES:  
1. SAND BACKFILL COMPACTED TO 95% DENSITY IS REQUIRED AROUND ALL WATER SERVICES.



TOWN OF  
GROTON

NEW SENIOR CENTER

OWNER:  
TOWN OF GROTON  
173 MAIN STREET  
GROTON, MA 01450

ARCHITECT:  
**HELENE • KARL**  
Architects, Inc.  
61 Skyfields Drive, Groton, Massachusetts 01450

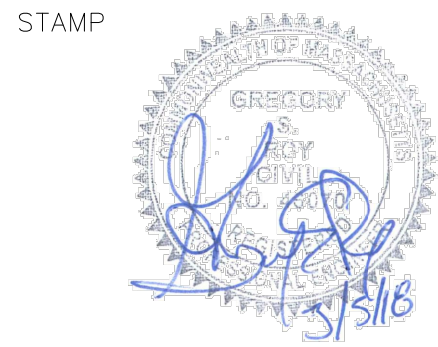
CIVIL ENGINEER:  
DUCHARME & DILLIS  
1092 MAIN STREET  
P.O. BOX 428  
BOLTON, MA 01740  
**DUCHARME & DILLIS**  
Civil Design Group, Inc.  
CIVIL ENGINEERING LAND SURVEYING ARCHITECTURAL CONSULTANTS

STRUCTURAL ENGINEER:  
SYMMES, MAINI & MCKEE ASSOCIATES  
1000 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02138

MECHANICAL ENGINEER:  
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22 WEST STREET, UNIT C  
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ELECTRICAL ENGINEER:  
JOHN J. MURPHY, JR. ELECTRICAL  
CONSTRUCTION AND ENGINEERING, INC.  
379 LIBERTY STREET  
ROCKLAND, MA 02370

ADDRESS: 163 WEST MAIN ST  
GROTON, MA  
OWNER: TOWN OF GROTON  
173 MAIN ST  
GROTON, MA  
MAP/PARCEL:  
MAP 106, PAR. 38



01.	3/5/18	RELOCATED BUILDING, REVIEW COMMENTS
REV	DATE	DESCRIPTION

DATE	2/9/18
SCALE	N/A
DRAWN BY	JPL
CHECKED BY	GSR
PROJECT NO.	17011

BUILDING:

SHEET TITLE:  
UTILITY DETAILS

DRAWING NO.

ISSUED FOR PERMIT - NOT FOR CONSTRUCTION

C-302



GRADING/DRAINAGE NOTES:

- GRADES SHOWN ON THIS PLAN REFER TO FINAL FINISHED GRADES.
- REFER TO DETAIL SHEET C-402 FOR ADDITIONAL DETAILS PERTAINING TO TYPICAL SITE CROSS SECTIONS AND OTHER PERTINENT DETAILS.
- REFER TO SHEET C-501 & C-502 FOR DETAILS RELATIVE TO SITE STABILIZATION AND OTHER EROSION CONTROL DETAILS.
- STORM DRAIN PIPE TO BE SMOOTH LINED HDPE PIPE AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC. OR APPROVED EQUAL. PROVIDED CUT SHEETS TO ENGINEER FOR APPROVAL.
- MANHOLES SHALL BE 4'-FOOT DIAMETER PRECAST CONCRETE STRUCTURES. SEE DETAIL SHEET C-402. PROVIDE CUT SHEETS TO ENGINEER FOR APPROVAL.
- UNDERGROUND STORMWATER MANAGEMENT AREAS SHALL BE CULTEC RECHARGER 902HD, OR APPROVED EQUAL. SEE DETAILS SHEET C-402. PROVIDE CUT SHEETS TO ENGINEER FOR APPROVAL.
- ISOLATOR ROW MANHOLES SHALL BE 4'-FOOT DIAMETER STRUCTURES WITH A CONCRETE WEIR AS SHOWN ON SHEET C-402. SUBMIT CUT SHEETS TO ENGINEER FOR APPROVAL.
- ROOF DRAIN SHALL BE 8" DIAMETER PVC (SDR-35) PIPING.
- RIPRAP SHALL BE ANGULAR STONE RIPRAP FREE OF CONCRETE, BRICK OR OTHER DELETERIOUS MATERIAL AND SHALL BE 4"-8" IN NOMINAL DIAMETER. REFER TO DETAIL ON SHEET C-402 FOR ADDITIONAL REQUIREMENTS INCLUDING FILTER FABRIC AND STONE PLACEMENT AND BEDDING.
- ALL CATCH BASINS GRATES SHALL BE SET AT BINDER ASPHALT GRADES AND RAISED TO FINAL FINISHED GRADES JUST PRIOR TO TOP COAT PAVEMENT PLACEMENT.
- THE CONTRACTOR SHALL USE ALL MEANS NECESSARY TO MINIMIZE COMPACTION OF SOILS IN RECHARGE AREAS BOTH DURING AND AFTER CONSTRUCTION.

DRAINAGE STRUCTURE SCHEDULE:

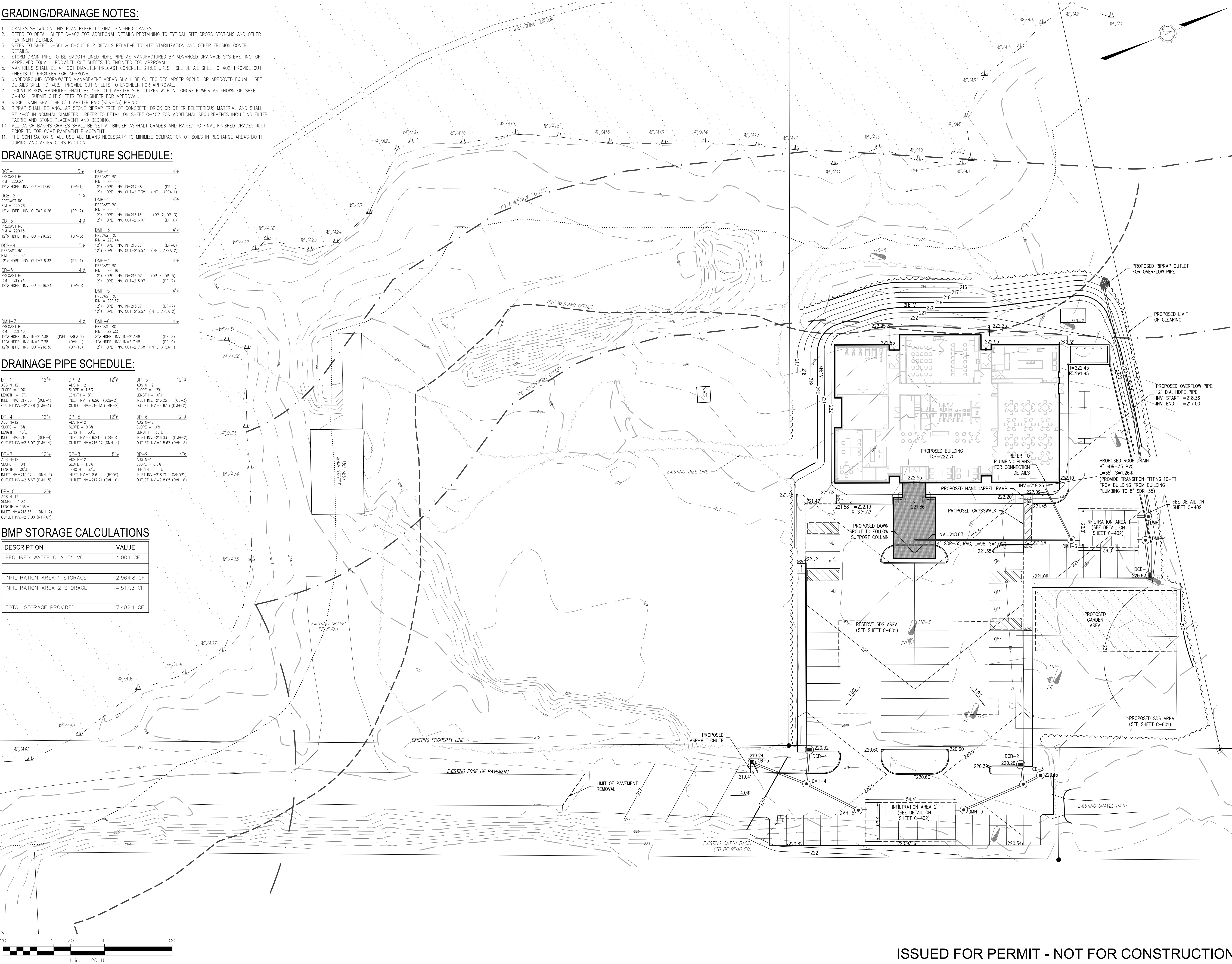
DCB-1	5'ø	DMH-1	4'ø
PRECAST RC		PRECAST RC	
RM = 220.67		RM = 220.85	
12"ø HDPE INV. OUT=217.65	(DP-1)	12"ø HDPE INV. IN=217.48	(DP-1)
		12"ø HDPE INV. OUT=217.38	(INFIL AREA 1)
DCB-2	5'ø	DMH-2	4'ø
PRECAST RC		PRECAST RC	
RM = 220.28		RM = 220.24	
12"ø HDPE INV. OUT=216.26	(DP-2)	12"ø HDPE INV. IN=216.13	(DP-2, DP-3)
		12"ø HDPE INV. OUT=216.03	(DP-6)
CB-3	4'ø	DMH-3	4'ø
PRECAST RC		PRECAST RC	
RM = 220.15		RM = 220.44	
12"ø HDPE INV. OUT=216.25	(DP-3)	12"ø HDPE INV. IN=215.67	(DP-4)
		12"ø HDPE INV. OUT=215.57	(INFIL AREA 2)
DCB-4	5'ø	DMH-4	4'ø
PRECAST RC		PRECAST RC	
RM = 220.32		RM = 220.16	
12"ø HDPE INV. OUT=216.32	(DP-4)	12"ø HDPE INV. IN=216.07	(DP-4, DP-5)
		12"ø HDPE INV. OUT=215.97	(DP-7)
CB-5	4'ø	DMH-5	4'ø
PRECAST RC		PRECAST RC	
RM = 219.24		RM = 220.57	
12"ø HDPE INV. OUT=216.24	(DP-5)	12"ø HDPE INV. IN=215.67	(DP-7)
		12"ø HDPE INV. OUT=215.57	(INFIL AREA 2)
DMH-7	4'ø	DMH-6	4'ø
PRECAST RC		PRECAST RC	
RM = 221.40		RM = 221.33	
12"ø HDPE INV. IN=217.38	(INFIL AREA 2)	8"ø HDPE INV. IN=217.48	(DP-8)
12"ø HDPE INV. IN=217.38	(DMH-1)	4"ø HDPE INV. OUT=217.48	(DP-9)
12"ø HDPE INV. OUT=218.36	(DP-10)	12"ø HDPE INV. OUT=217.38	(INFIL AREA 1)

DRAINAGE PIPE SCHEDULE:

DP-1	12"ø	DP-2	12"ø	DP-3	12"ø
ADS N-12		ADS N-12		ADS N-12	
SLOPE = 1.0%		SLOPE = 1.6%		SLOPE = 1.2%	
LENGTH = 17'±		LENGTH = 8'±		LENGTH = 10'±	
INLET INV.=217.65 (DCB-1)		INLET INV.=216.26 (DCB-2)		INLET INV.=216.25 (CB-3)	
OUTLET INV.=217.48 (DMH-1)		OUTLET INV.=216.13 (DMH-2)		OUTLET INV.=216.13 (DMH-2)	
DP-4	12"ø	DP-5	12"ø	DP-6	12"ø
ADS N-12		ADS N-12		ADS N-12	
SLOPE = 1.6%		SLOPE = 0.6%		SLOPE = 1.0%	
LENGTH = 16'±		LENGTH = 30'±		LENGTH = 36'±	
INLET INV.=216.32 (DCB-4)		INLET INV.=216.24 (CB-5)		INLET INV.=216.03 (DMH-2)	
OUTLET INV.=216.07 (DMH-4)		OUTLET INV.=216.07 (DMH-4)		OUTLET INV.=215.67 (DMH-3)	
DP-7	12"ø	DP-8	8"ø	DP-9	4"ø
ADS N-12		ADS N-12		ADS N-12	
SLOPE = 1.0%		SLOPE = 1.5%		SLOPE = 0.8%	
LENGTH = 30'±		LENGTH = 37'±		LENGTH = 88'±	
INLET INV.=215.97 (DMH-4)		INLET INV.=215.67 (DMH-5)		INLET INV.=218.71 (CANGPY)	
OUTLET INV.=215.67 (DMH-5)		OUTLET INV.=217.77 (DMH-6)		OUTLET INV.=218.05 (DMH-6)	
DP-10	12"ø				
ADS N-12					
SLOPE = 1.0%					
LENGTH = 136'±					
INLET INV.=216.36 (DMH-7)					
OUTLET INV.=217.00 (RRAP)					

BMP STORAGE CALCULATIONS

DESCRIPTION	VALUE
REQUIRED WATER QUALITY VOL.	4,004 CF
INFILTRATION AREA 1 STORAGE	2,964.8 CF
INFILTRATION AREA 2 STORAGE	4,517.3 CF
TOTAL STORAGE PROVIDED	7,482.1 CF



TOWN OF GROTON

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ARCHITECT:  
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Architects, Inc.  
61 Skyfields Drive, Groton, Massachusetts 01450

CIVIL ENGINEER:  
DCHARME & DILLIS  
1092 MAIN STREET  
P.O. BOX 428  
BOLTON, MA 01740  
**DCHARME & DILLIS**  
Civil Design Group, Inc.  
Civil Engineer and Surveyor, Professional Seal

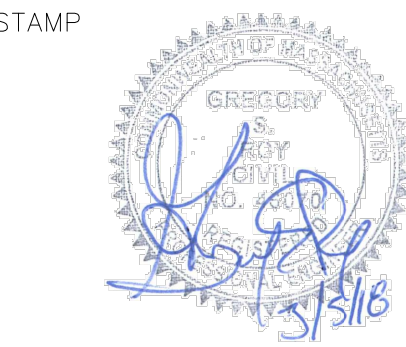
STRUCTURAL ENGINEER:  
SWANES, MAINI & MCKEE ASSOCIATES  
1000 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02138

MECHANICAL ENGINEER:  
SEAMAN ENGINEERING CORP.  
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ELECTRICAL ENGINEER:  
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CONSTRUCTION AND ENGINEERING, INC.  
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ADDRESS: 163 WEST MAIN ST  
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173 MAIN ST  
GROTON, MA

MAP/PARCEL:  
MAP 106, PAR. 38



01.	3/5/18	RELOCATED BUILDING, REVIEW COMMENTS
REV	DATE	DESCRIPTION

DATE: 2/9/18  
SCALE: 1"=20'  
DRAWN BY: JPL  
CHECKED BY: GSR  
PROJECT NO.: 17011

BUILDING:

SHEET TITLE:  
GRADING &  
DRAINAGE PLAN

DRAWING NO.

C-401

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TOWN OF  
GROTON

NEW SENIOR CENTER

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**DUCHARME & DILLIS**  
Civil Design Group, Inc.  
CIVIL ENGINEER AND SURVEYOR (MA AND CONN. STATE)

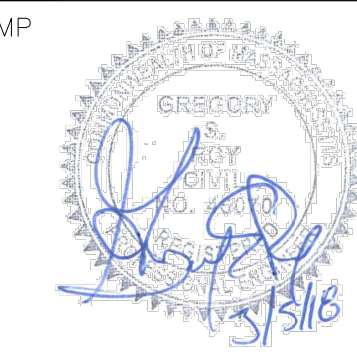
STRUCTURAL ENGINEER:  
SYMMES, MAINI & MCKEE ASSOCIATES  
1000 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02138

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173 MAIN ST  
GROTON, MA

MAP/PARCEL:  
MAP 106, PAR. 38



REV	DATE	DESCRIPTION
01.	3/5/18	RELOCATED BUILDING, REVIEW COMMENTS

DATE: 2/9/18

SCALE: N/A

DRAWN BY: JPL

CHECKED BY: GSR

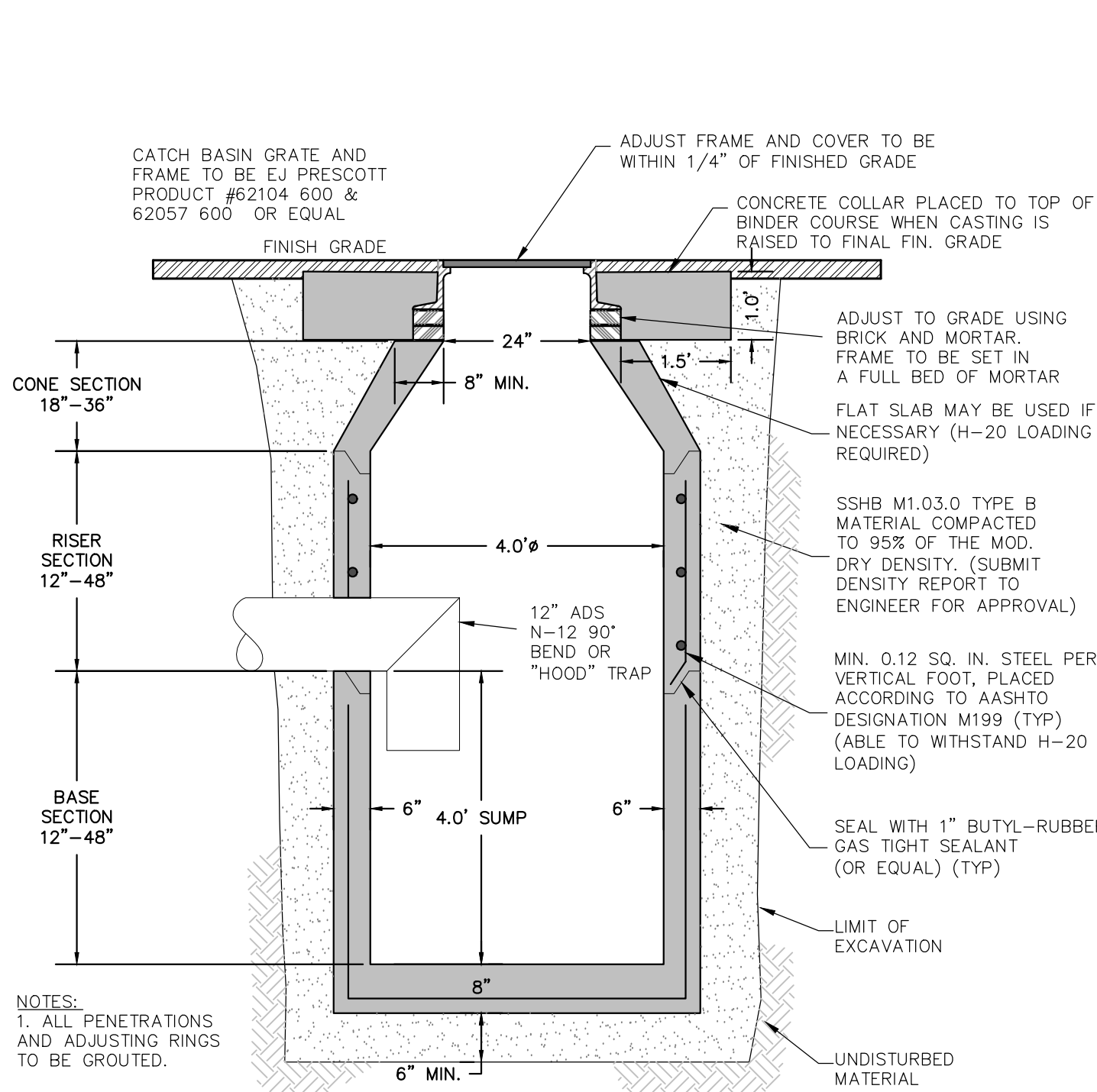
PROJECT NO. 17011

BUILDING:

SHEET TITLE:  
**GRADING &  
DRAINAGE DETAILS**

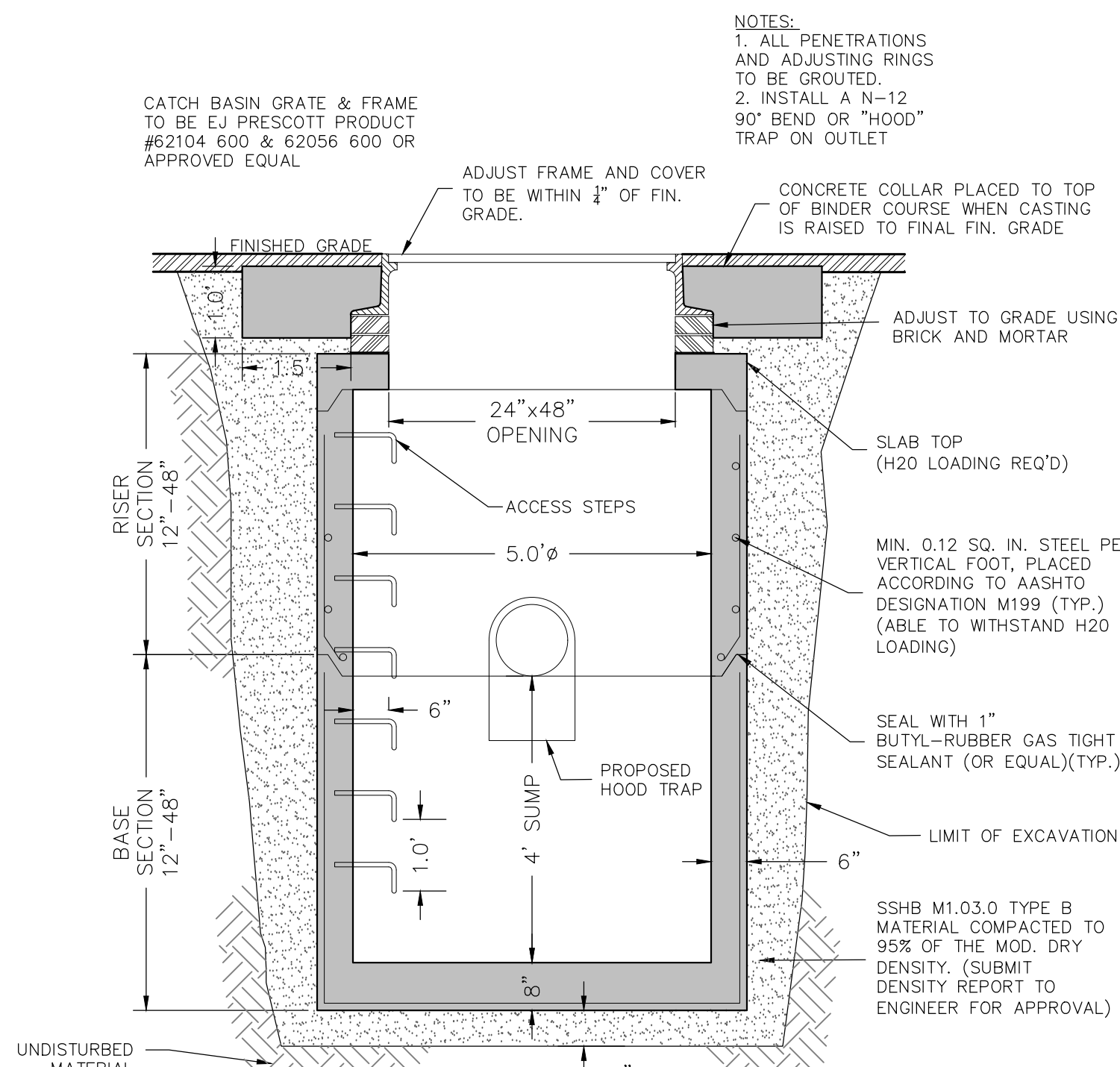
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**C-402**



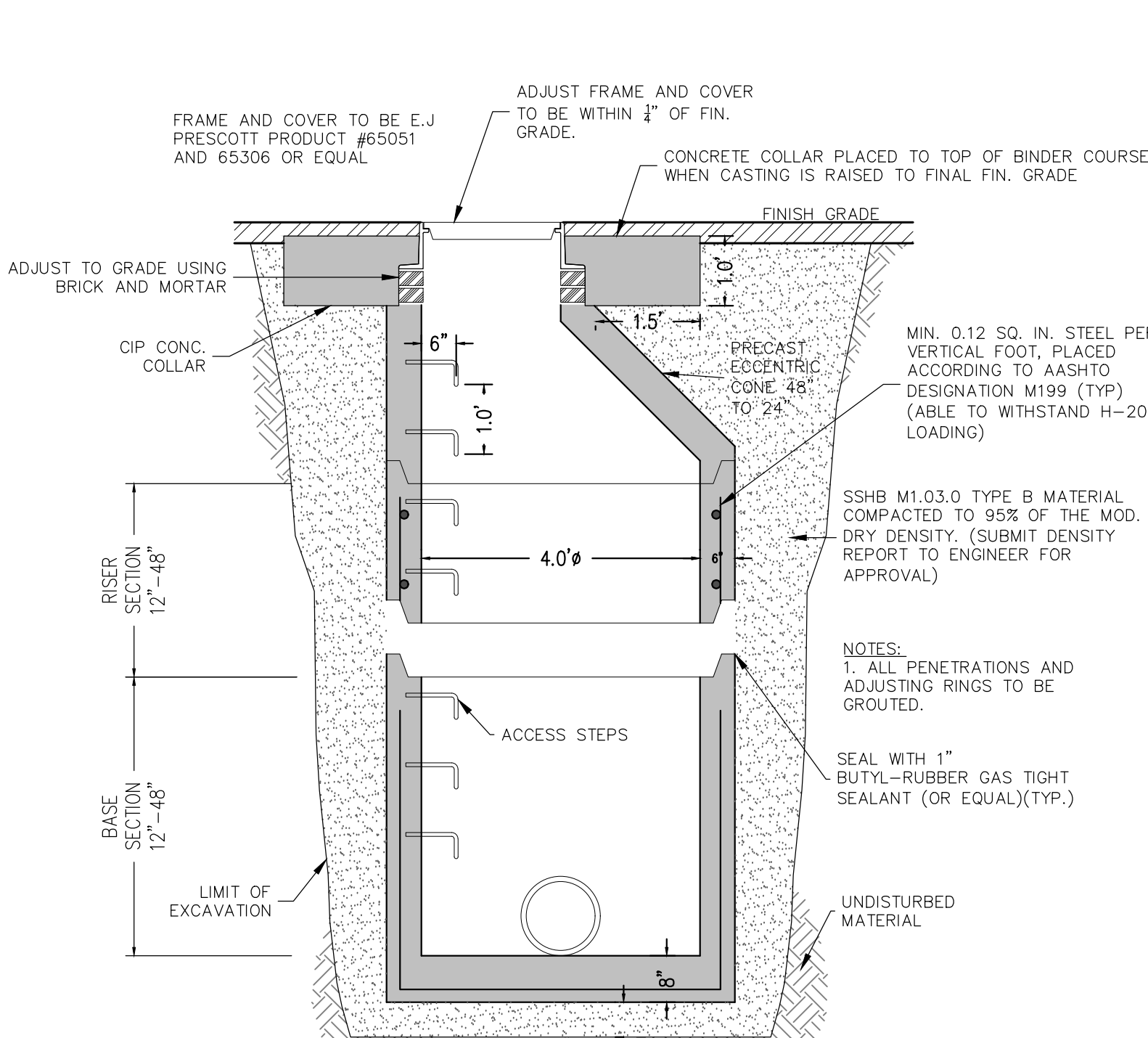
DEEP SUMP CONCRETE CATCH BASIN

NOT TO SCALE



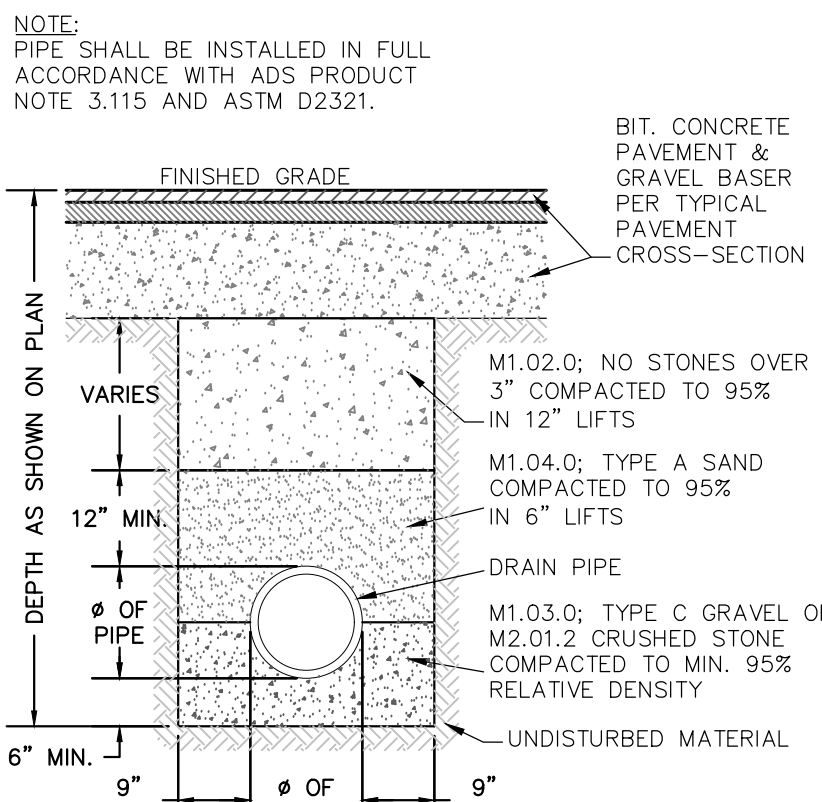
DEEP SUMP CONC. DOUBLE CATCH BASIN

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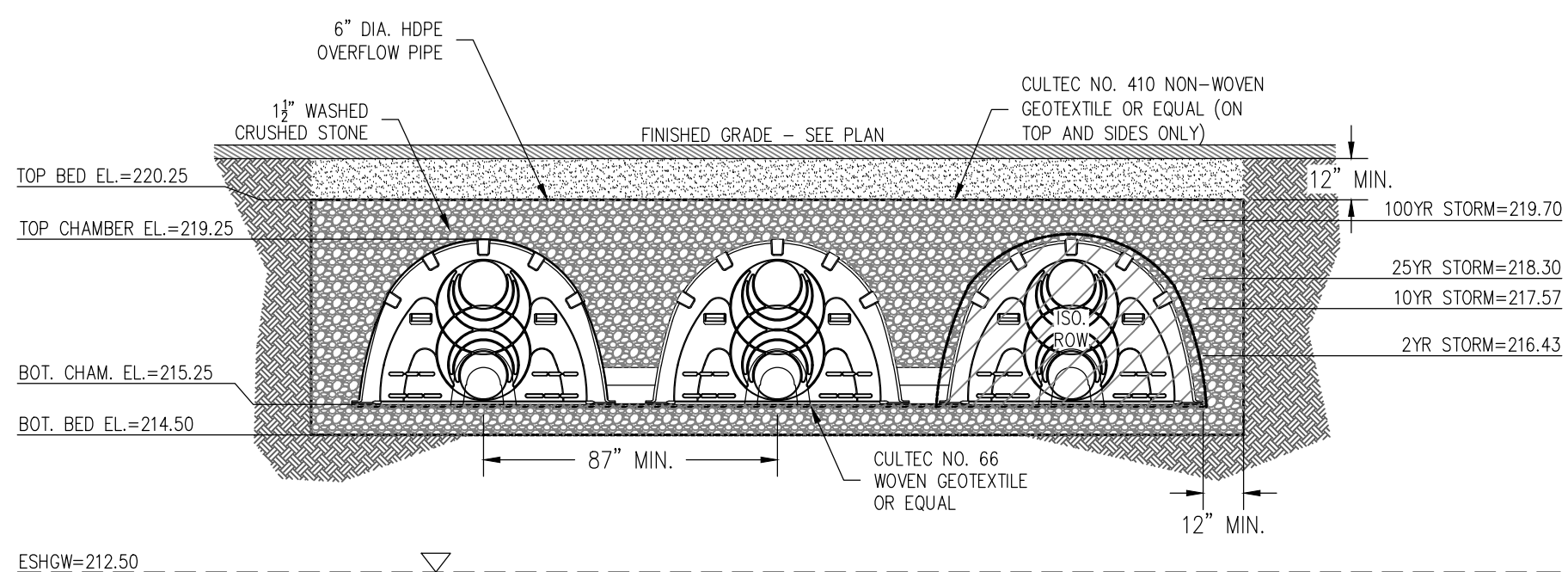
DRAIN MANHOLE DETAIL

NOT TO SCALE



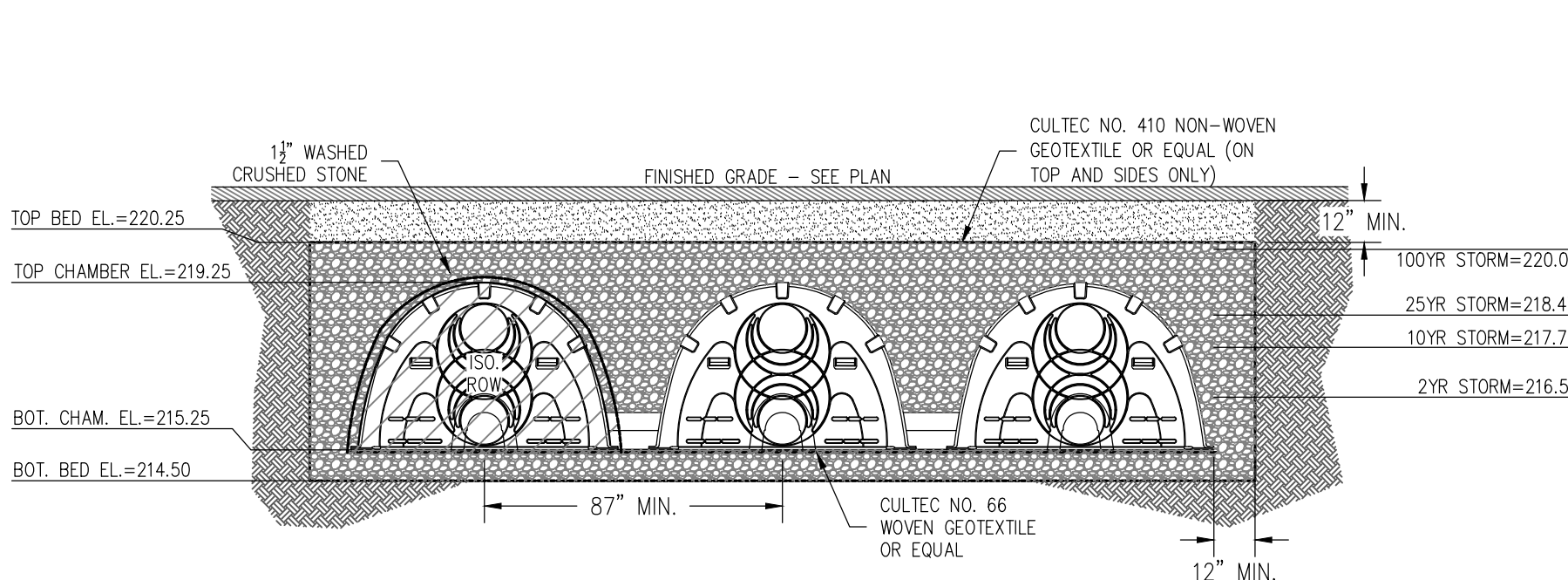
DRAIN PIPE TRENCH DETAIL

NOT TO SCALE



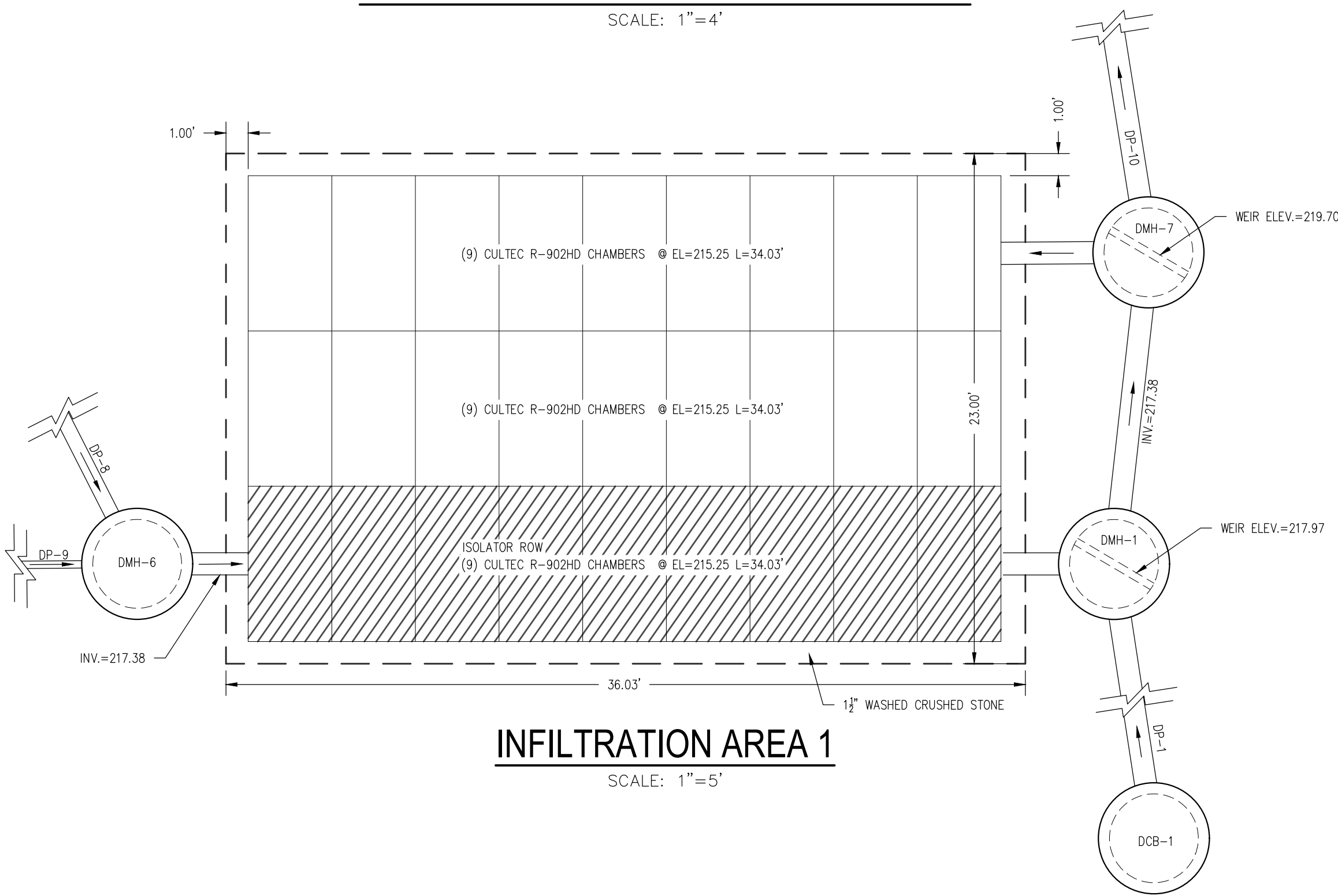
INFILTRATION AREA 1 CROSS SECTION

SCALE: 1"=4'



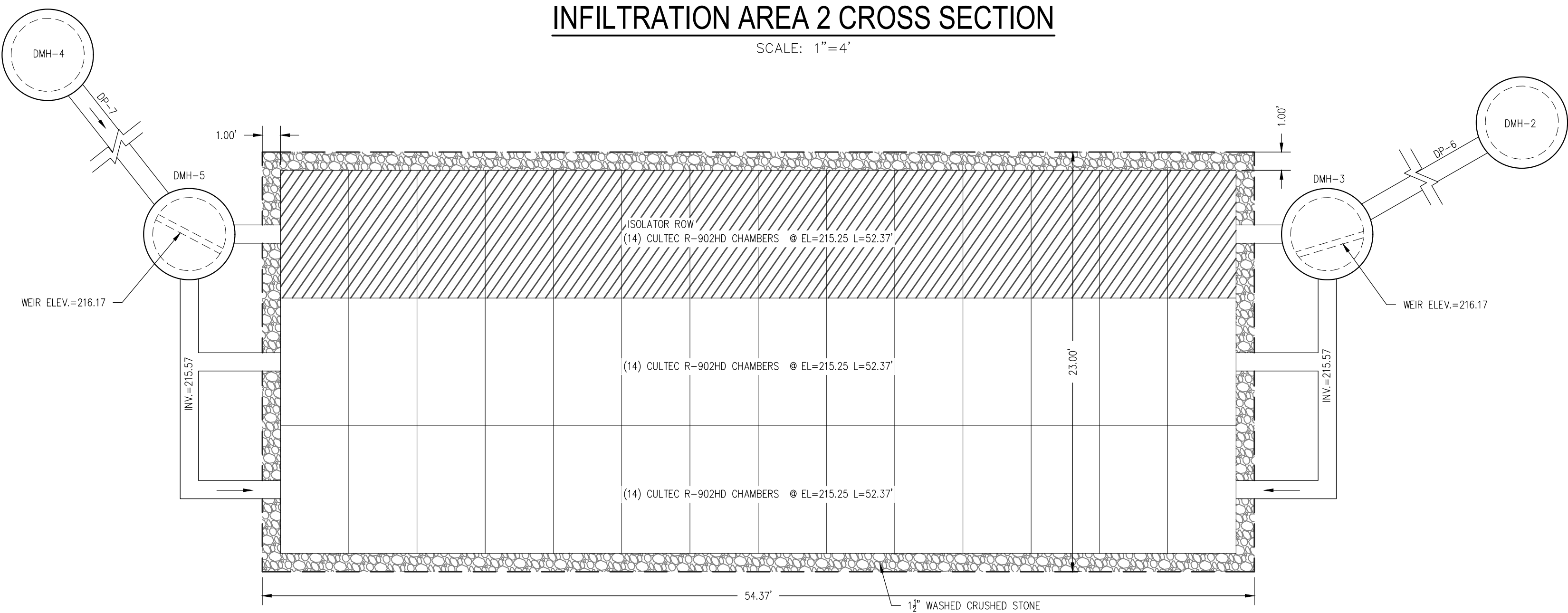
INFILTRATION AREA 2 CROSS SECTION

SCALE: 1"=4'



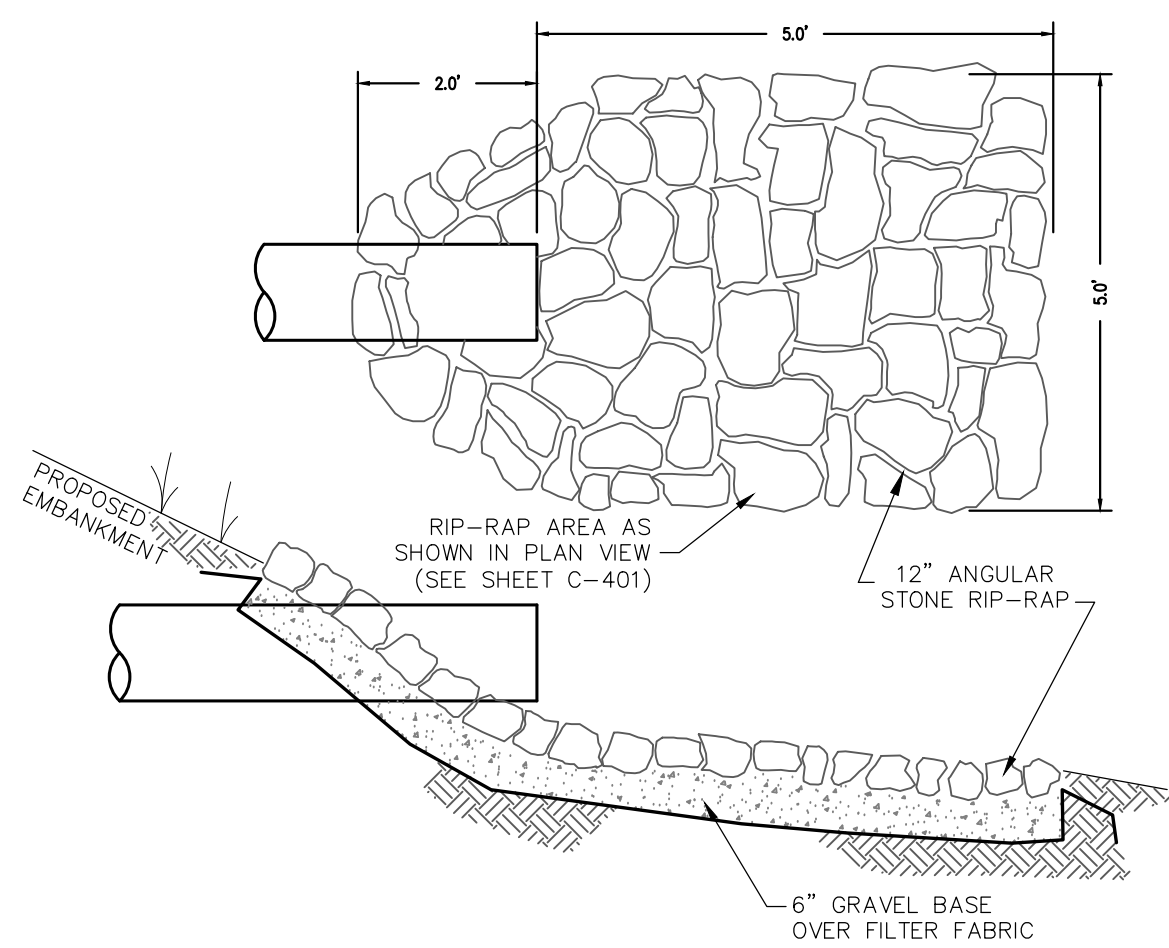
INFILTRATION AREA 1

SCALE: 1"=5'



INFILTRATION AREA 2

SCALE: 1"=5'



PIPE END DETAIL

NOT TO SCALE

ISSUED FOR PERMIT - NOT FOR CONSTRUCTION



EROSION CONTROL NOTES:

A. MANAGEMENT STRATEGIES:

- CONSTRUCTION SHALL BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
- EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY DISTURBANCE ON SITE.
- AREAS WHICH ARE NOT TO BE DISTURBED SHALL BE CLEARLY MARKED BY FLAGS, SIGNS, ETC. RETAIN EXISTING VEGETATION WHERE FEASIBLE.
- THERE SHALL BE NO STORAGE OF ANY KIND OF ANY CHEMICALS, PESTICIDES, FUELS AND OTHER POTENTIALLY TOXIC OR HAZARDOUS MATERIALS ON SITE.
- NO DEBRIS, JUNK, RUBBISH OR OTHER WASTE MATERIALS SHALL BE BURIED ON THE SITE.
- STUMPS AND OTHER WOOD DEBRIS SHALL BE DISPOSED OF IN ACCORDANCE WITH THE "POLICY ON THE DISPOSAL OF WOODWASTES" PUBLISHED BY THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS, DATED AUGUST 14, 1987.
- THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.

B. MAINTENANCE/ PERFORMANCE STANDARDS:

ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH RAINFALL WITH AN ACCUMULATION OF  $\frac{1}{8}$ " OR MORE. THE FOLLOWING ITEMS SHALL BE CHECKED IN PARTICULAR:

- THE SILT FENCE BARRIERS SHALL BE CHECKED REGULARLY FOR TEARS, DETERIORATION, AND UNDERMINING.
- ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE RESEED AS NEEDED.
- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO THE PUBLIC ROAD. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2 INCH STONE AS CONDITIONS DEMAND AND OR CLEANOUT/REPLACEMENT OF STONE IF CLOGGING OR SEDIMENTATION OCCURS. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO THE TOWN ROAD MUST BE REMOVED DAILY BY SWEEPING OR OTHER SUITABLE MEANS.
- ALL AREAS ON SITE SUBJECT TO EROSION/SEDIMENTATION SHALL BE INSPECTED ON A REGULAR BASIS. ALL ITEMS SPECIFIED ON THIS AND OTHER PLANS SHALL BE INSPECTED TO VERIFY THAT THEY ARE OPERATING AS DESIGNED AND INTENDED. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAINTAIN AND REPAIR ALL STRUCTURES.
- THE ENTIRE DRAINAGE SYSTEM SHALL BE INSPECTED ON A REGULAR BASIS AND PRIOR TO AND IMMEDIATELY AFTER ANY RAINFALL EVENT WHILE THE SITE IS DISTURBED.
  - CATCH BASINS SHALL BE INSPECTED WEEKLY TO ENSURE THAT THEY ARE WATER TIGHT, HAVE ADEQUATE SUMP CAPACITY, THAT OIL AND GAS TRAPS ARE IN PLACE. THEY SHALL ALSO BE INSPECTED AFTER EVERY SIGNIFICANT RAINFALL EVENT (I.E. A TWO-YEAR STORM EVENT OR GREATER) DURING THE FIRST THREE (3) MONTHS OF BEING PLACED IN SERVICE TO ENSURE THAT THEY ARE FUNCTIONING IN AN ADEQUATE FASHION. THE BASINS SHALL BE CLEANED WITH A VACUUM TRUCK WHEN  $\frac{1}{3}$  OF THE SUMP IS FILLED WITH SEDIMENT BUT NOT LESS THAN TWO (2) TIMES PER YEAR. AFTER THE FIRST THREE (3) MONTHS OF SERVICE THE BASINS SHALL BE INSPECTED NOT LESS THAN ONE (1) TIME PER YEAR TO ENSURE ADEQUATE FUNCTIONALITY. OIL/GAS TRAPS SHALL BE CLEANED WITH A VACUUM TRUCK AND MONITORED FOR HYDROCARBON BUILD UP SEMIANNUALLY.
  - THE DRAINAGE TRENCH DURING CONSTRUCTION SHALL BE INSPECTED MONTHLY FOR EROSION, SEDIMENT ACCUMULATION AND LEAF BUILDUP. ALL ERODED AREAS SHALL BE STABILIZED. SEDIMENT SHALL BE REMOVED AND LEAF LITTER REMOVED.
  - DEWATERING OF EXCAVATIONS DURING CONSTRUCTION SHALL BE ADDRESSED ON AN INDIVIDUAL BASIS AS NEEDED. IF TEMPORARY DEWATERING IS REQUIRED ON THE SITE OR IN CLOSE PROXIMITY TO THE 100 FT BUFFER ZONE, SEDIMENT BASINS SHALL BE CONSTRUCTED OR SILT TRAPS SHALL BE UTILIZED. SILT TRAPS AND SEDIMENT BASINS SHALL BE MAINTAINED DURING THE DEWATERING OPERATION.

D. TEMPORARY MEASURES:

- PLACE SILT FENCE AND SILT FENCE WITH STRAW BALES AS SHOWN ON THE EROSION CONTROL PLAN.
- IF LOAM IS PLACED OUTSIDE OF THE NORMAL GROWING SEASON SILT FENCE OR STRAW WADDOLES SHALL BE PLACED BETWEEN THE LAWN AREA AND PAVEMENT.
- CONSTRUCT TEMPORARY STONE PAD AT EXIT TO THE SITE AS SHOWN ON THE EROSION CONTROL PLAN.
- DURING DRY PERIODS, PROVIDE MEANS FOR MITIGATION OF DUST, SUCH AS WATERING OF ERODED AREAS.
- STOCKPILE LOCATIONS SHALL BE WITHIN THE PROPOSED LIMIT OF WORK. PLACE SILT FENCE AROUND ALL STOCK PILE AREAS. PILES LEFT FOR 21 DAYS OR MORE SHALL BE SEED OR COVER WITH PLASTIC SHEETING.
- WASTE DISPOSAL, RECEPTACLES AND TRAILERS WILL BE USED FOR THE DISPOSAL OF CONSTRUCTION DEBRIS, WHICH WILL BE REMOVED FROM SITE ACCORDING TO STATE, LOCAL AND FEDERAL GUIDELINES. CONSTRUCTION DEBRIS WILL INCLUDE PAVEMENT, UTILITY, EARTH AND BUILDING MATERIALS THAT CANNOT BE REUSED. THE RECEPTACLES WILL BE LOCATED ON-SITE AND COVERED.
- PLACE STRAW BALES AROUND CATCHBASINS AND OTHER STORMDRAIN INLETS AFTER CONSTRUCTED. CATCH BASIN INSERTS MAY BE USED IN AREAS WHERE MANEUVERABILITY AROUND APPEARANCES IS AN ISSUE.
- IN ADDITION TO WHAT IS DEPICTED ON THE PLANS, SILT FENCE SHALL BE PLACED DOWN GRADIENT (UP-GRADE OF ANY STORM WATER APPEARANCES, WETLAND BUFFER ZONES AND AREAS TO BE LEFT UNDISTURBED) TO EACH STRUCTURE DURING THE CONSTRUCTION PROCESS UNTIL THE DISTURBED AREA IS RESTORED.

E. PERMANENT STABILIZATION:

- SLOPES IN EXCESS OF 3 TO 1 SHALL BE HYDRO-MULCHED, LOADED (8" MIN.) AND SEEDED SLOPES WILL BE PROTECTED FROM WASHOUT BY MULCHING OR OTHER ACCEPTABLE SLOPE PROTECTION UNTIL VEGETATION IS ESTABLISHED.
- UNLESS OTHERWISE INDICATED HEREON ALL DISTURBED AREAS SHALL BE LOADED (8" MIN.) AND SEEDED WITH AN APPROPRIATE MIXTURE OF GRASSES SUITABLE FOR THE AREA. AREAS NOT STABILIZED BEFORE THE END OF THE FALL PLANTING SEASON SHALL BE HYDRO-MULCHED AND SEEDED IN THE SPRING.
- SLOPES STEEPER THAN 3 TO 1 SHALL BE RESTORED WITH 8" OF LOAM (MIN.), SEED, FERTILIZER AND STAKED DOWN EROSION CONTROL BLANKET SIMILAR TO NORTH AMERICAN GREEN SC 150 ON. INSTALL IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.
- THE TEMPORARY MEASURES WILL NOT BE REMOVED UNTIL PERMANENT STABILIZATION HAS OCCURRED.

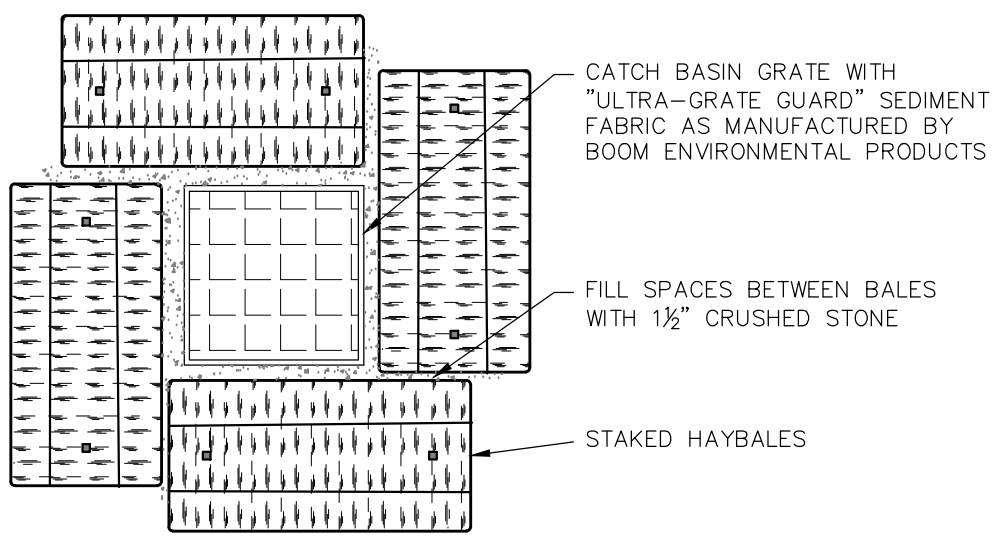
F. CONSTRUCTION SEQUENCE:

DURING THIS SEQUENCE ALL EROSION CONTROLS SHALL BE INSPECTED AND MAINTAINED. ALL DISTURBED AREAS SHALL BE STABILIZED BY SEEDING OR SOILING AS SOON AS POSSIBLE AFTER GRADING IS COMPLETE. EROSION BARRIERS SHALL BE REMOVED AFTER SLOPE STABILIZATION IS COMPLETE.

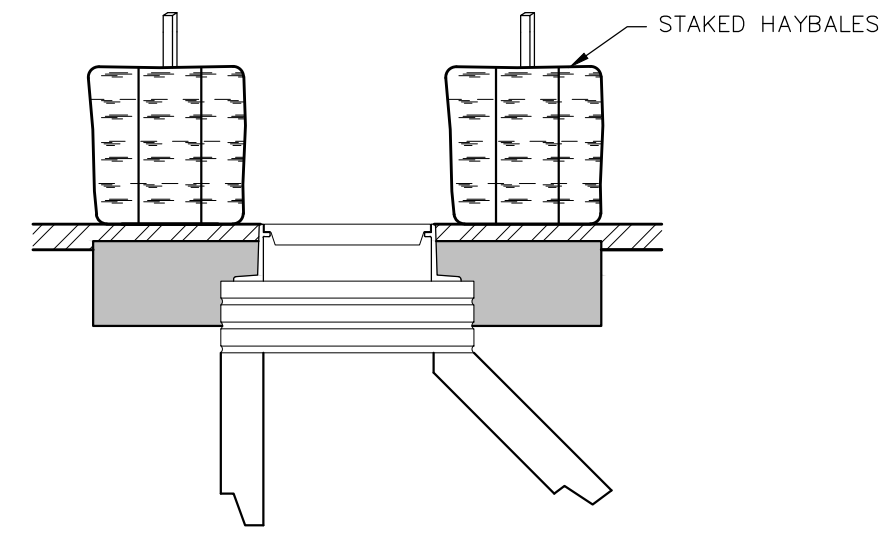
- INSTALL EROSION AND SEDIMENT CONTROL MEASURES.
- DEMOLISH AND REMOVE EXISTING BUILDING AND INFRASTRUCTURE.
- EXCAVATE TO SUBGRADE IN CUT SECTIONS, BRING FILL SECTIONS TO SUBGRADE USING EXCAVATED SOIL.
- INSTALL BUILDING PAD AND UTILITIES INCLUDING DRAINAGE SYSTEM, WATER, GAS AND ELECTRICAL UTILITIES.
- PLACE COMPACTED BASE GRAVEL FOR THE PAVED AREAS; ROUGH GRADE AREAS TO BE LOADED AND SEEDED.
- INSTALL PAVEMENT.
- FINALIZE GRADING, LOAM, SEED AND MULCH DISTURBED AREAS.

RIVER FRONT CALCULATIONS

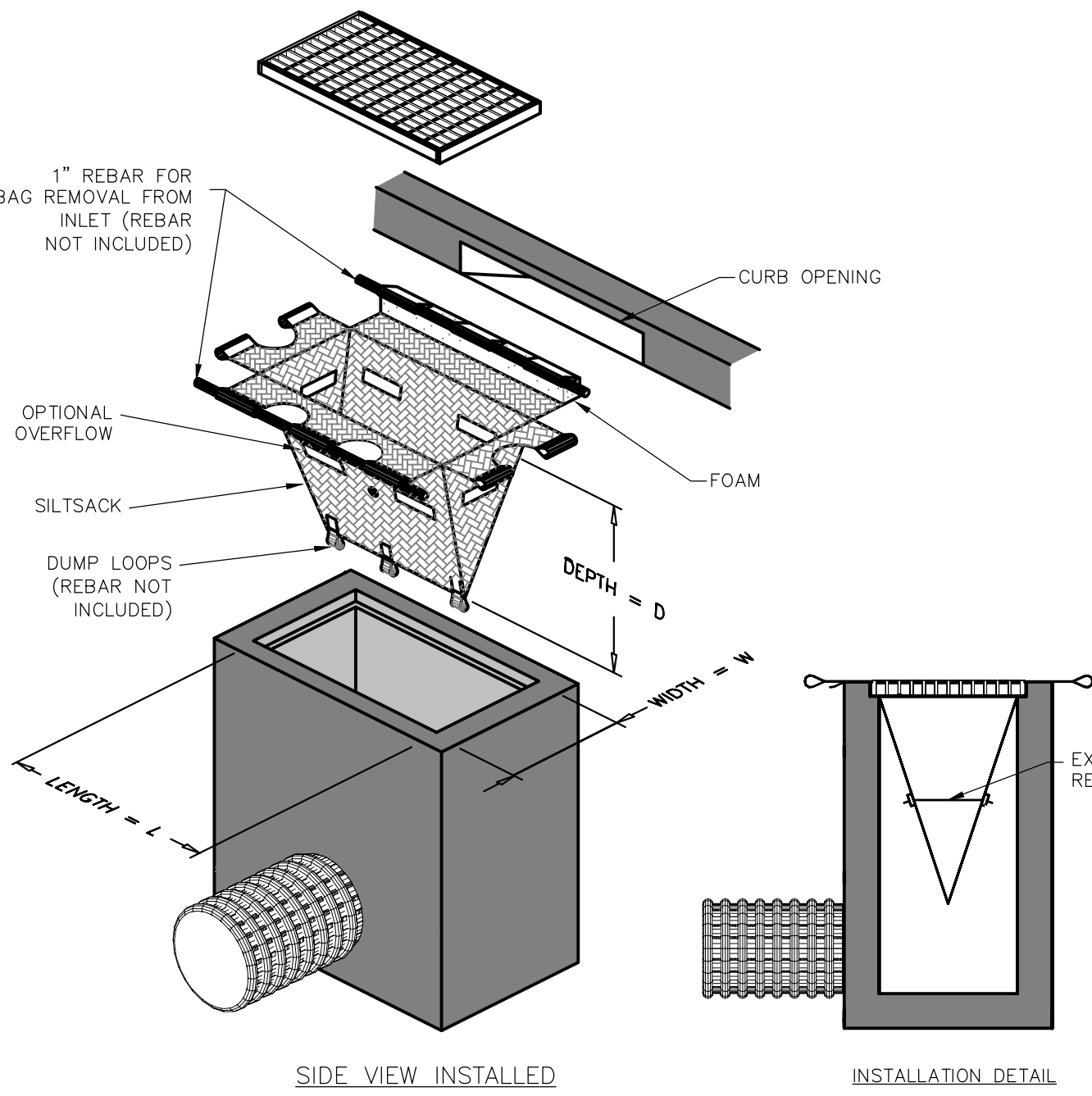
DESCRIPTION	VALUE
TOTAL AREA OF LOT	218,671.2 SF
TOTAL RIVER FRONT AREA	121,288.2 SF
MAX. ALTERATION ALLOWED (10%)	12,128.8 SF
ALTERATION PROPOSED	5,065.6 SF (4.2%)
TOTAL DISTURBED LAND AREA	75,960.0 SF



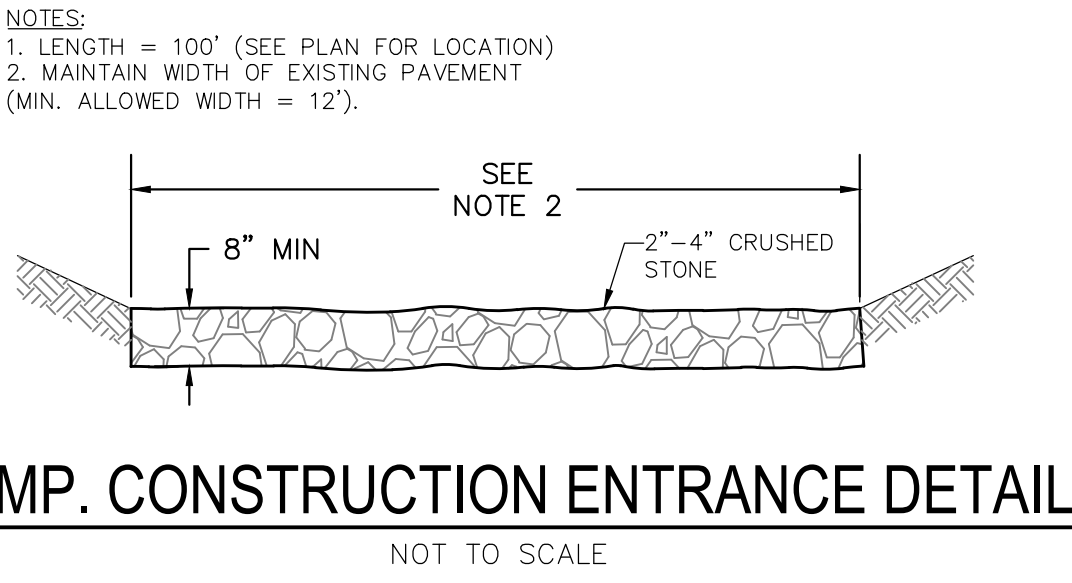
PLAN VIEW  
NOT TO SCALE



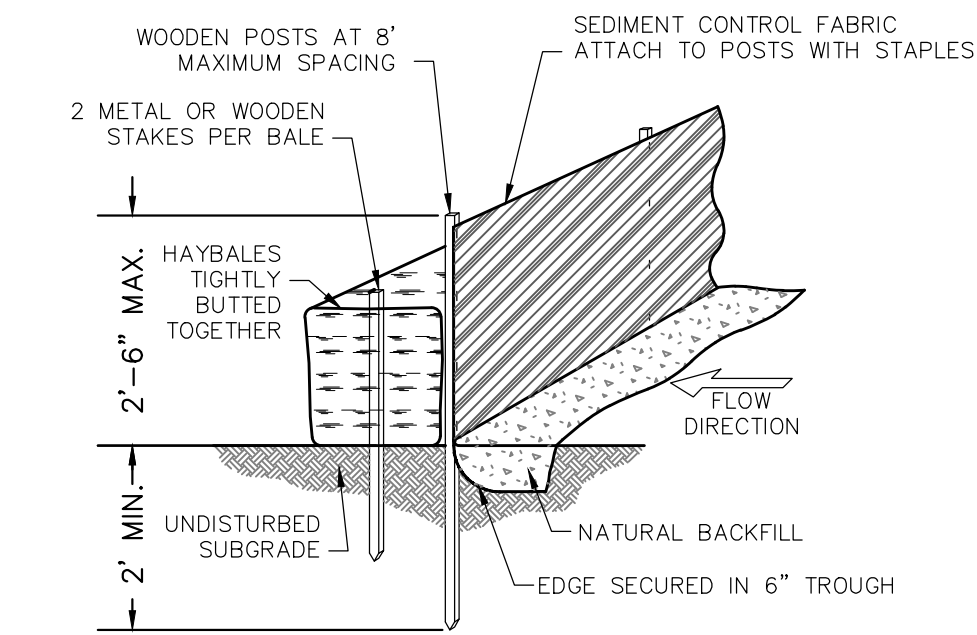
CATCH BASIN SEDIMENT TRAP  
NOT TO SCALE



SILT SACK  
NOT TO SCALE



TEMP. CONSTRUCTION ENTRANCE DETAIL  
NOT TO SCALE



SILTATION BARRIER  
NOT TO SCALE

