

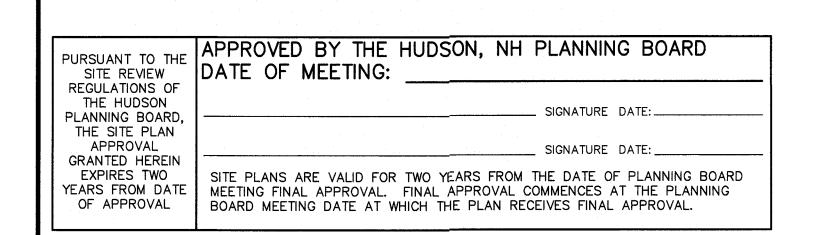
VICINITY PLAN

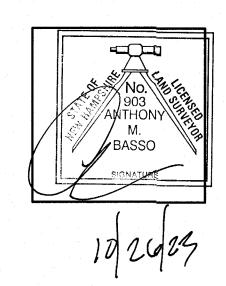
SCALE: 1" = 1.000

MAP 182 LOT 217
LOWELL ROAD & CENTRAL STREET
HUDSON, NEW HAMPSHIRE

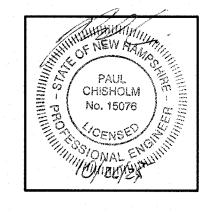
OWNER / APPLICANT:
NOTTINGHAM SQUARE CORPORATION
46 LOWELL ROAD
HUDSON, NH 03051

PREPARED BY:
KEACH-NORDSTROM ASSOCIATES, INC.
10 COMMERCE PARK NORTH, SUITE 3
BEDFORD, NEW HAMPSHIRE 03110
(603) 627-2881









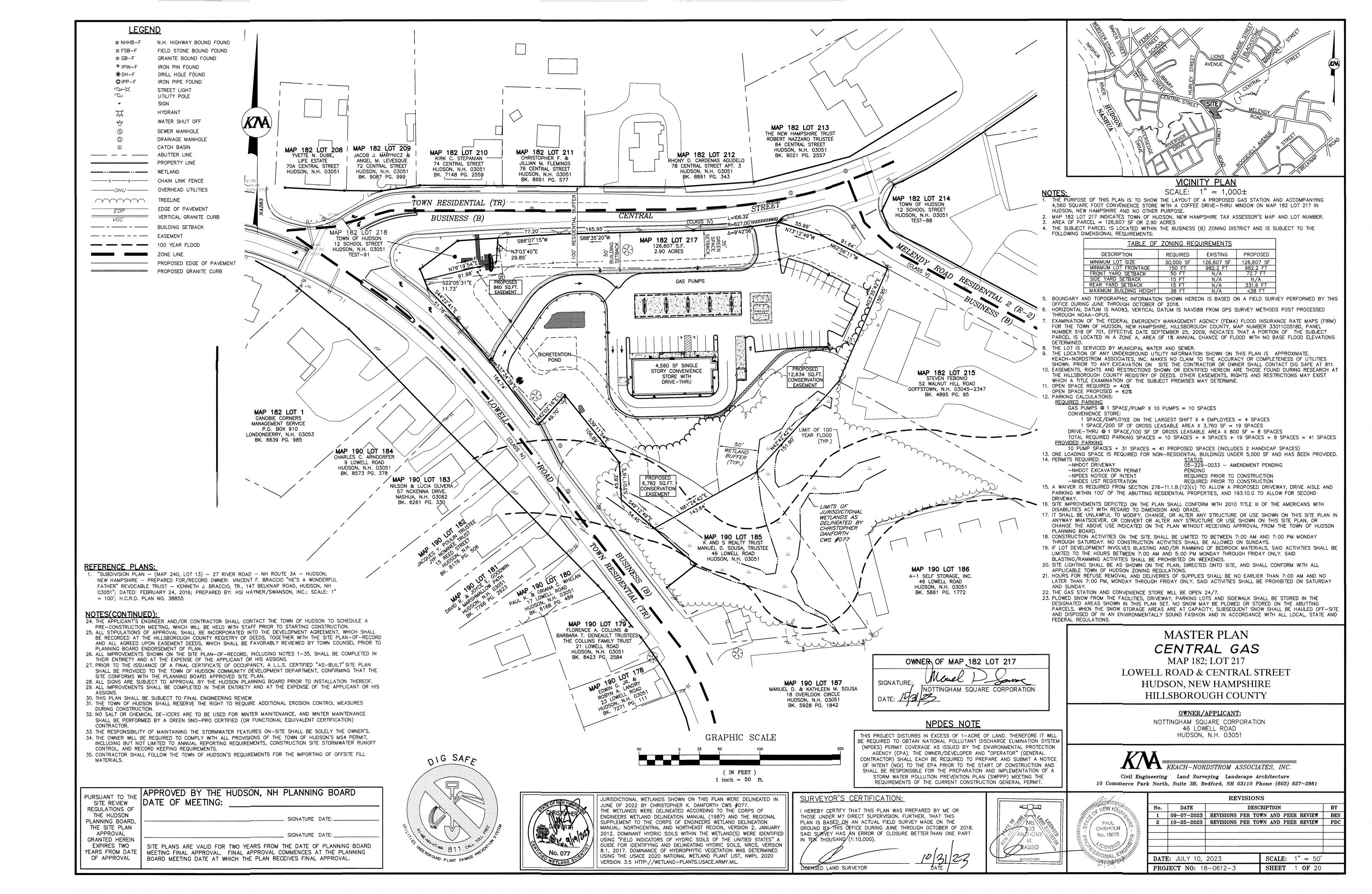
KEACH-NORDSTROM ASSOCIATES, INC.

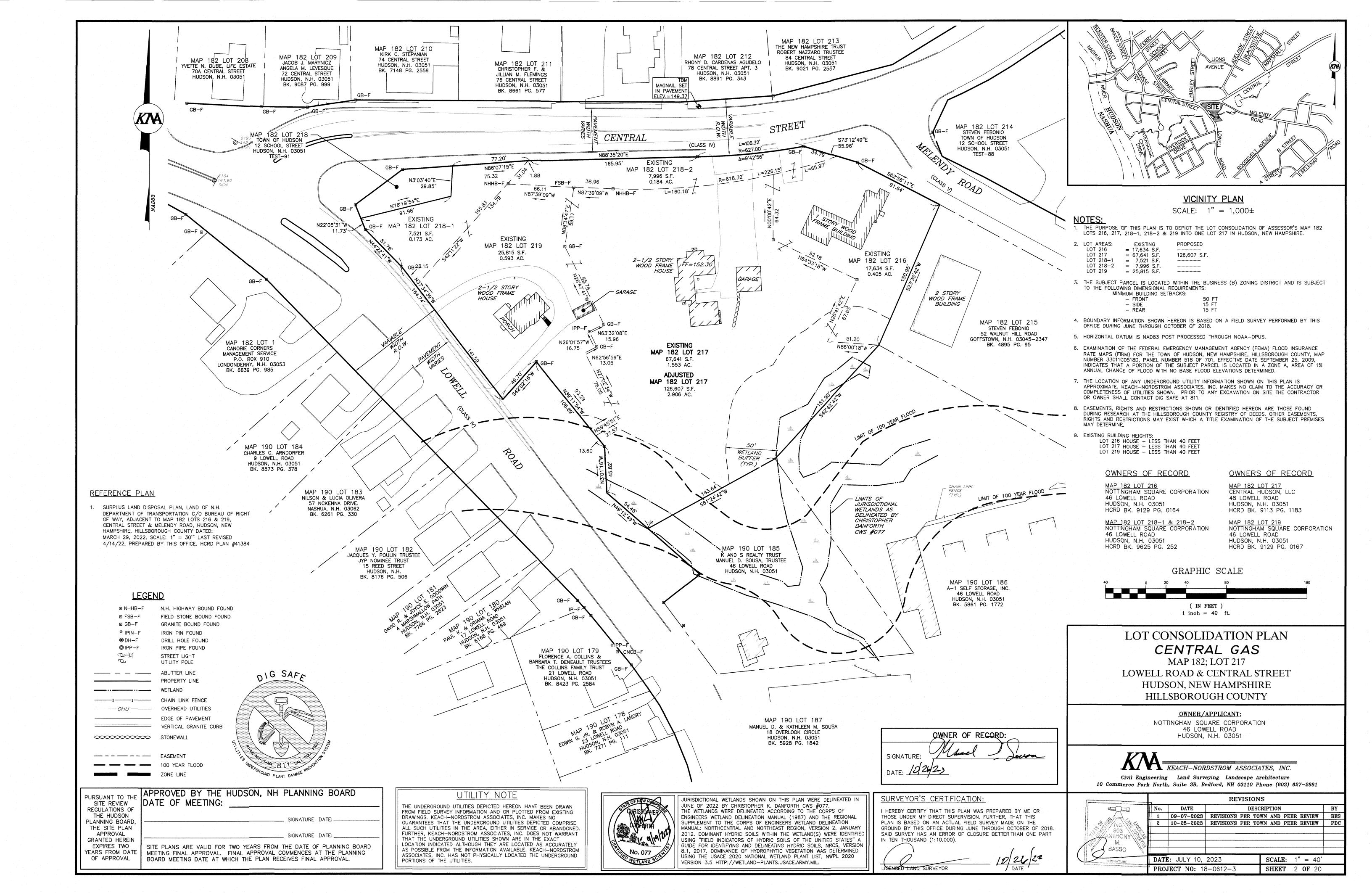
Civil Engineering Land Surveying Landscape Architecture

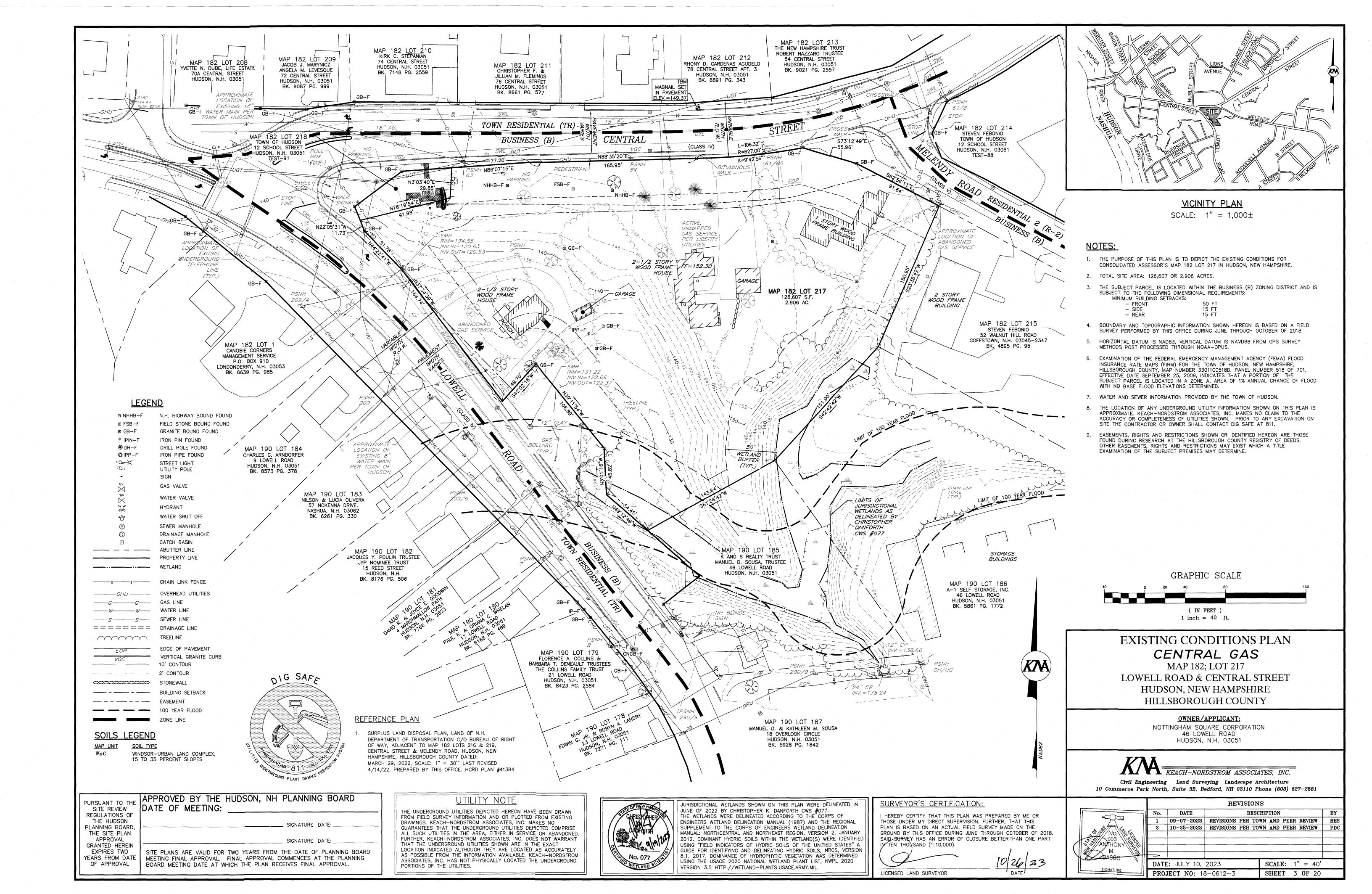
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-288

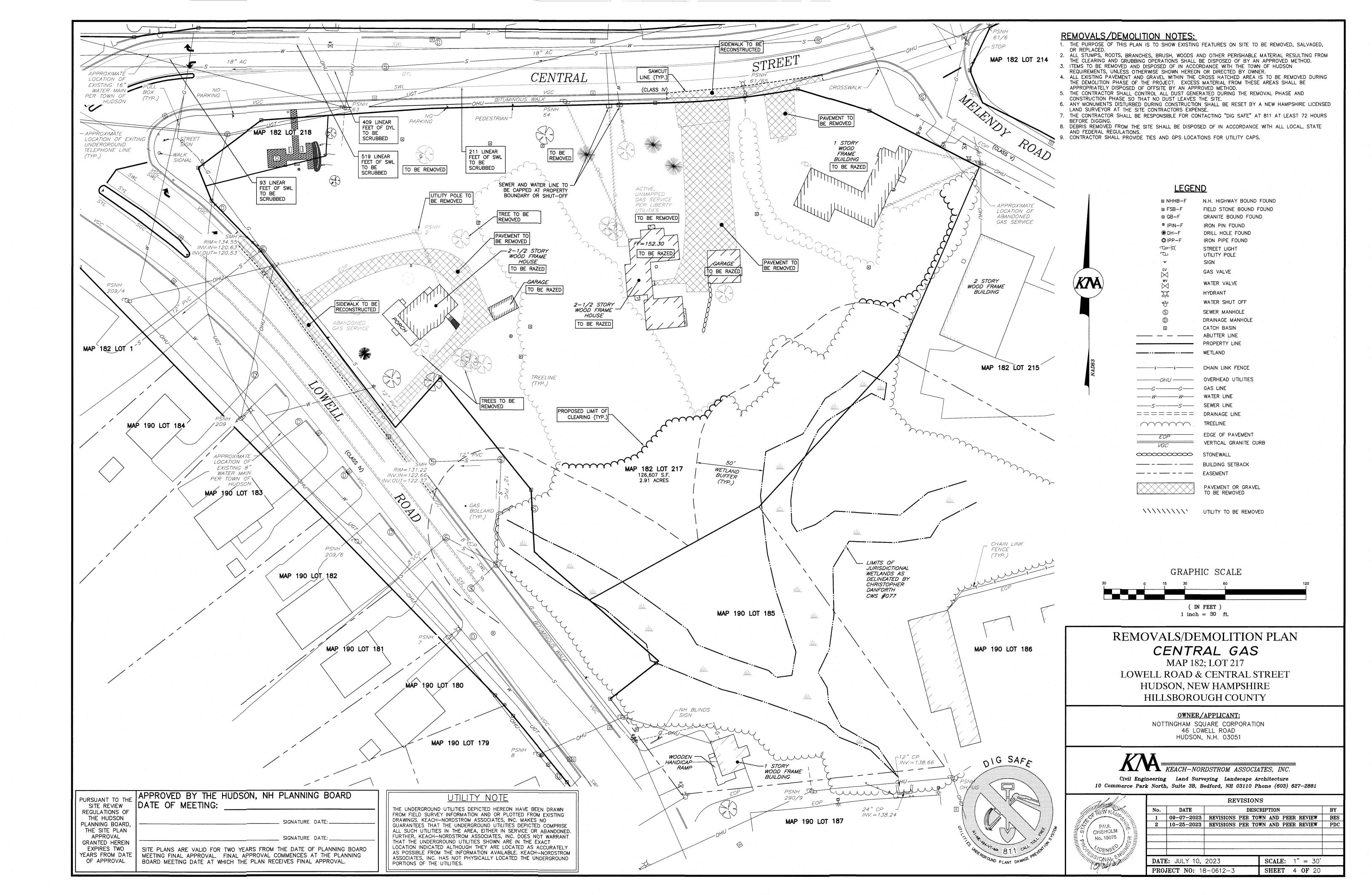
JULY 10, 2023
REVISED: OCTOBER 25, 2023
PROJECT NO. 18-0612-3

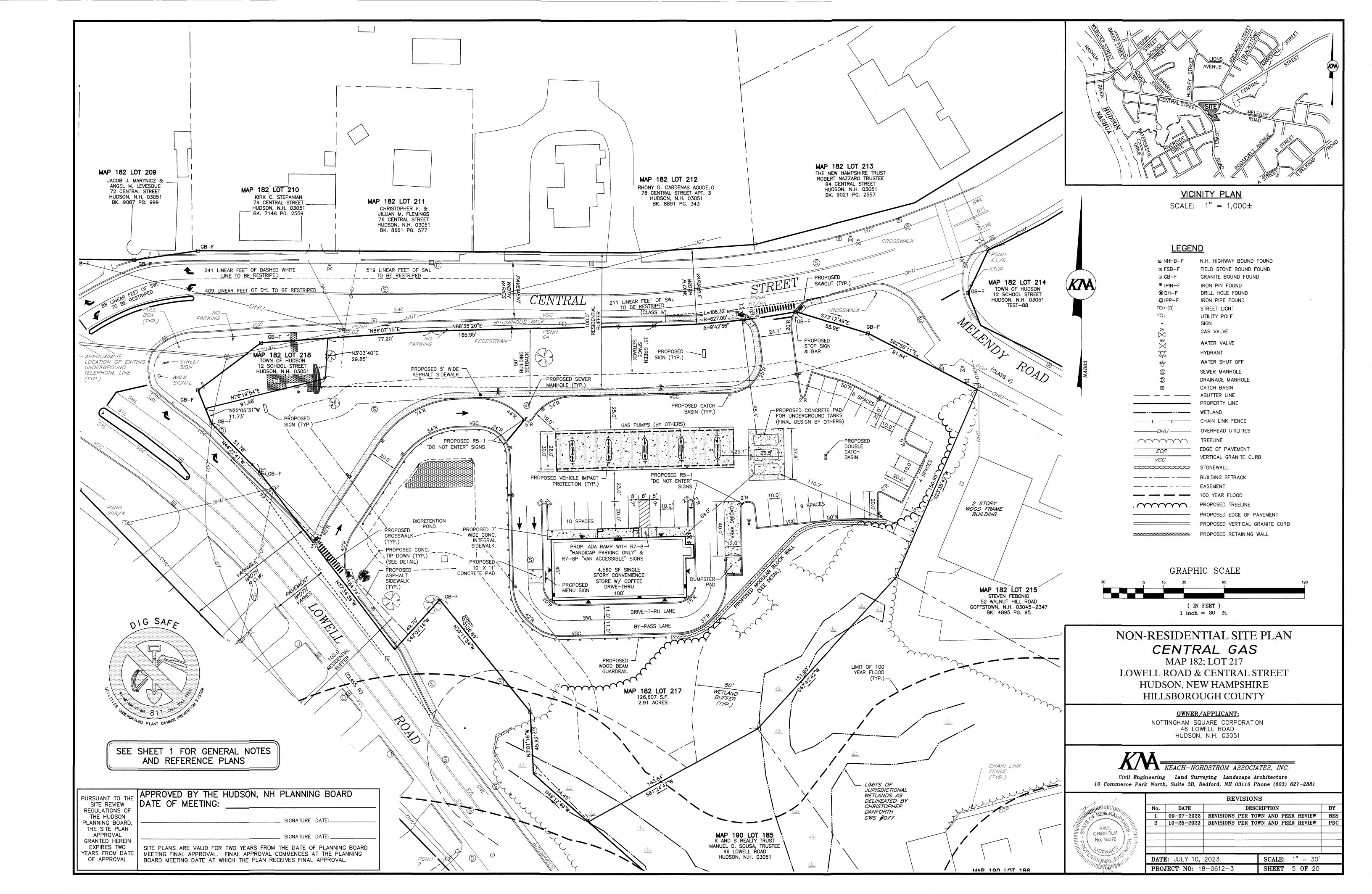
SHEET TITLE	SHEET No.
MASTER PLAN	
LOT CONSOLIDATION PLAN	2
EXISTING CONDITIONS PLAN	3
REMOVALS/DEMOLITION PLAN	4
NON-RESIDENTIAL SITE PLAN	<b>5</b>
GRADING AND DRAINAGE PLAN	6
UTILITY PLAN	7
EROSION CONTROL PLAN	8
LANDSCAPE PLAN	9
LIGHTING PLAN	10
TRUCK TURNING PLAN	11
EASEMENT PLAN	12
LOWELL ROAD ENTRANCE - DRIVEWAY PROFIL	E 13
SIGHT DISTANCE PLAN & PROFILE	14
SEWER PROFILE	15
CONSTRUCTION DETAILS	16 - 20

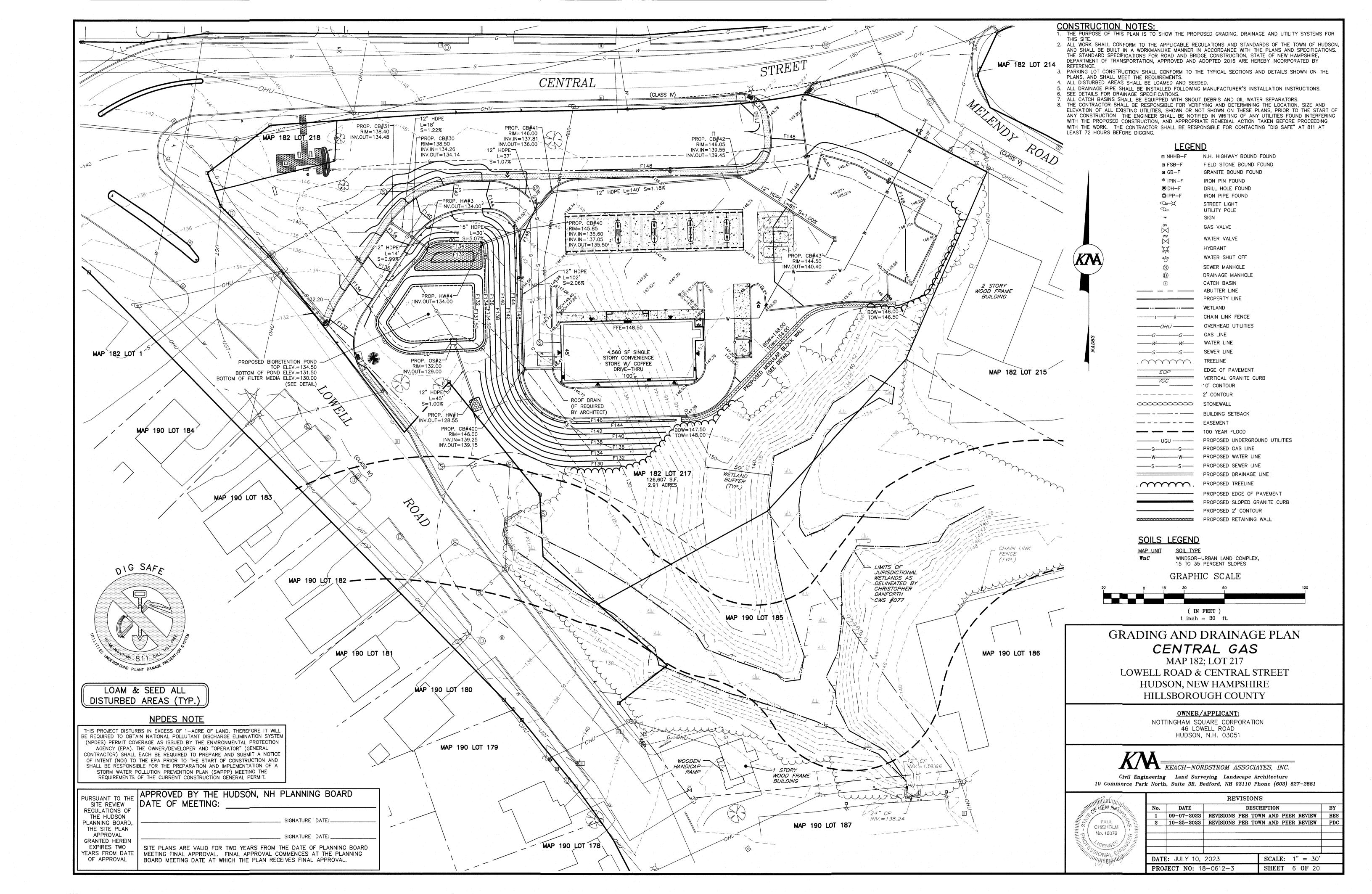


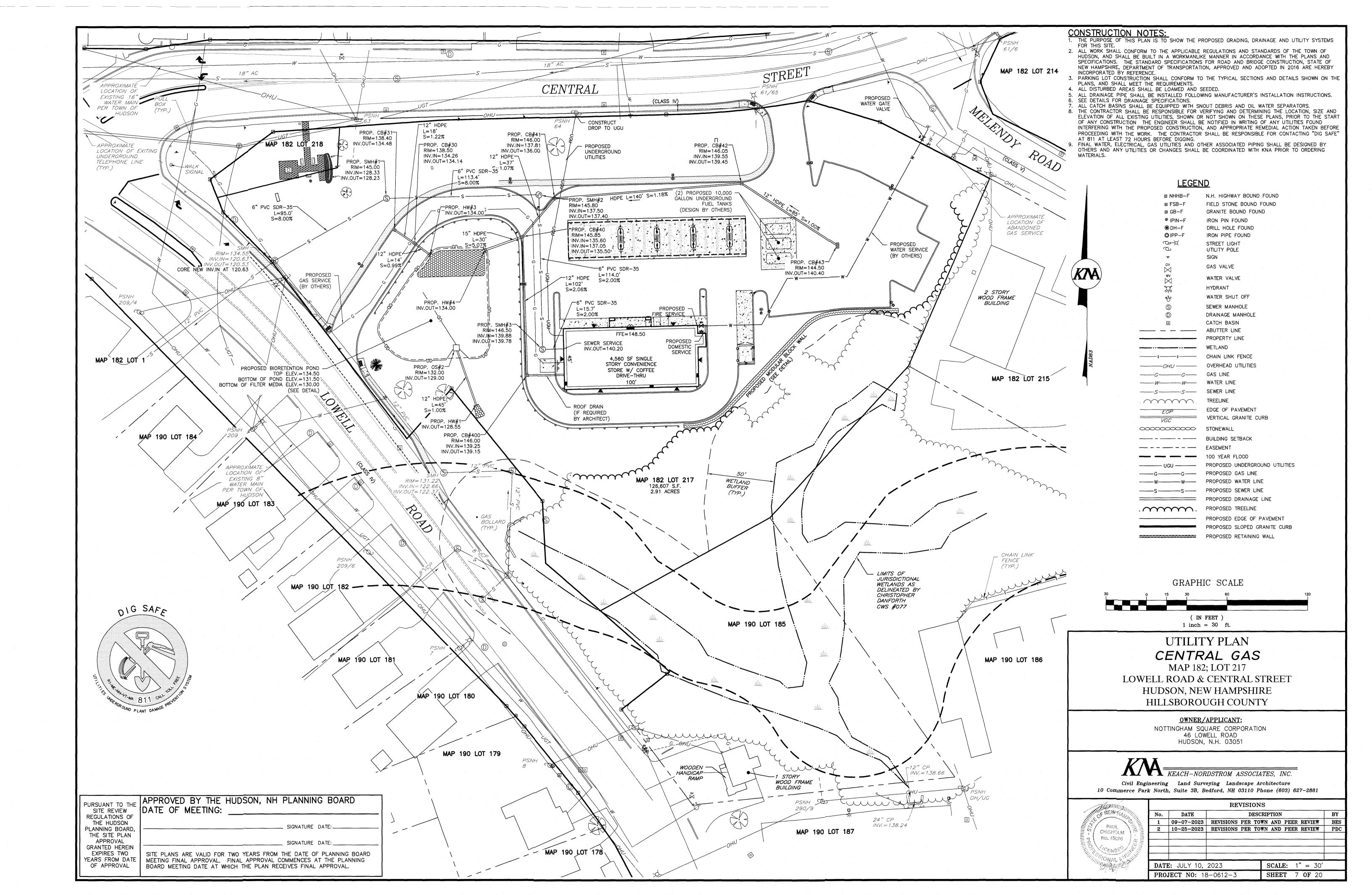


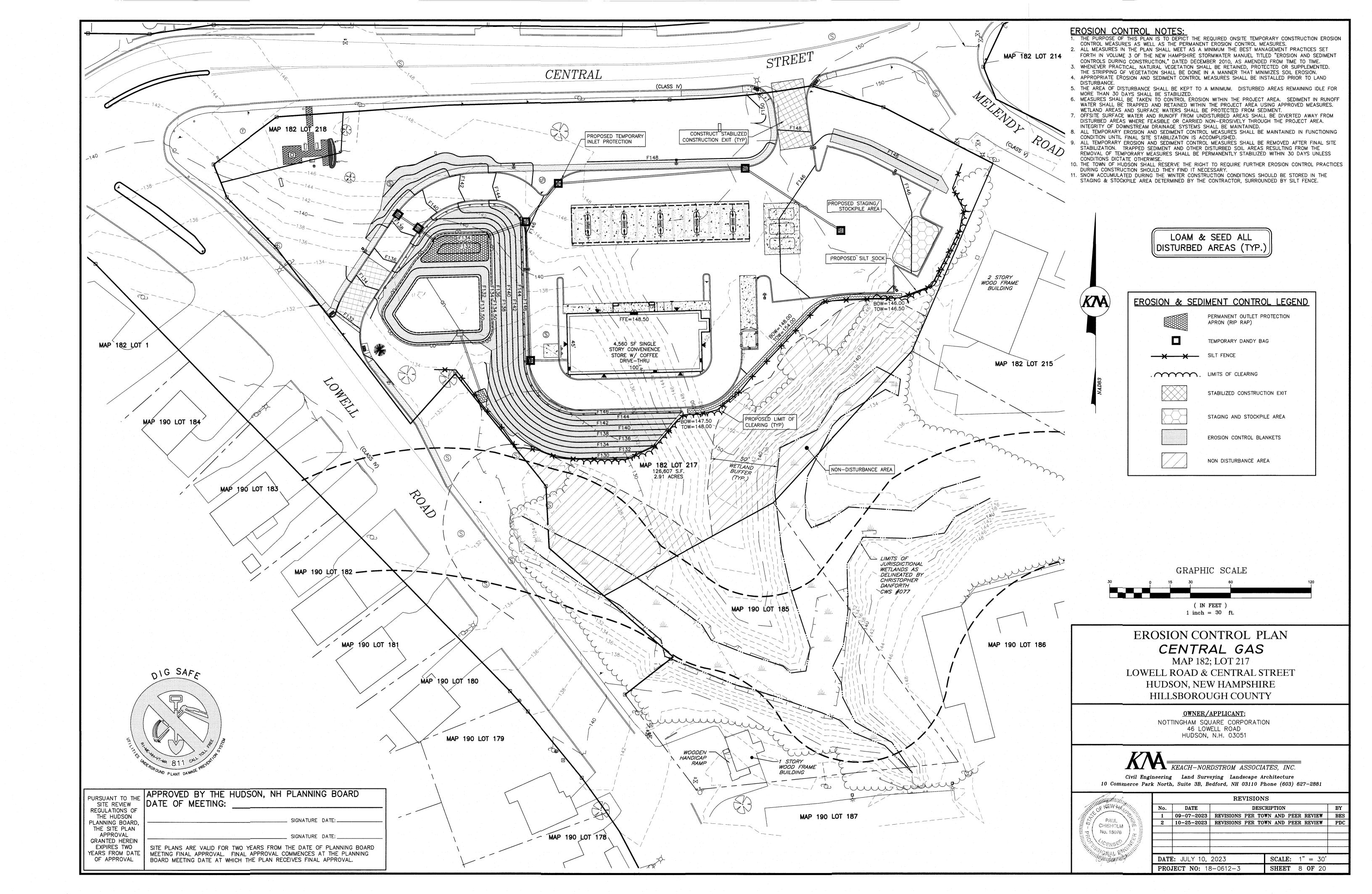


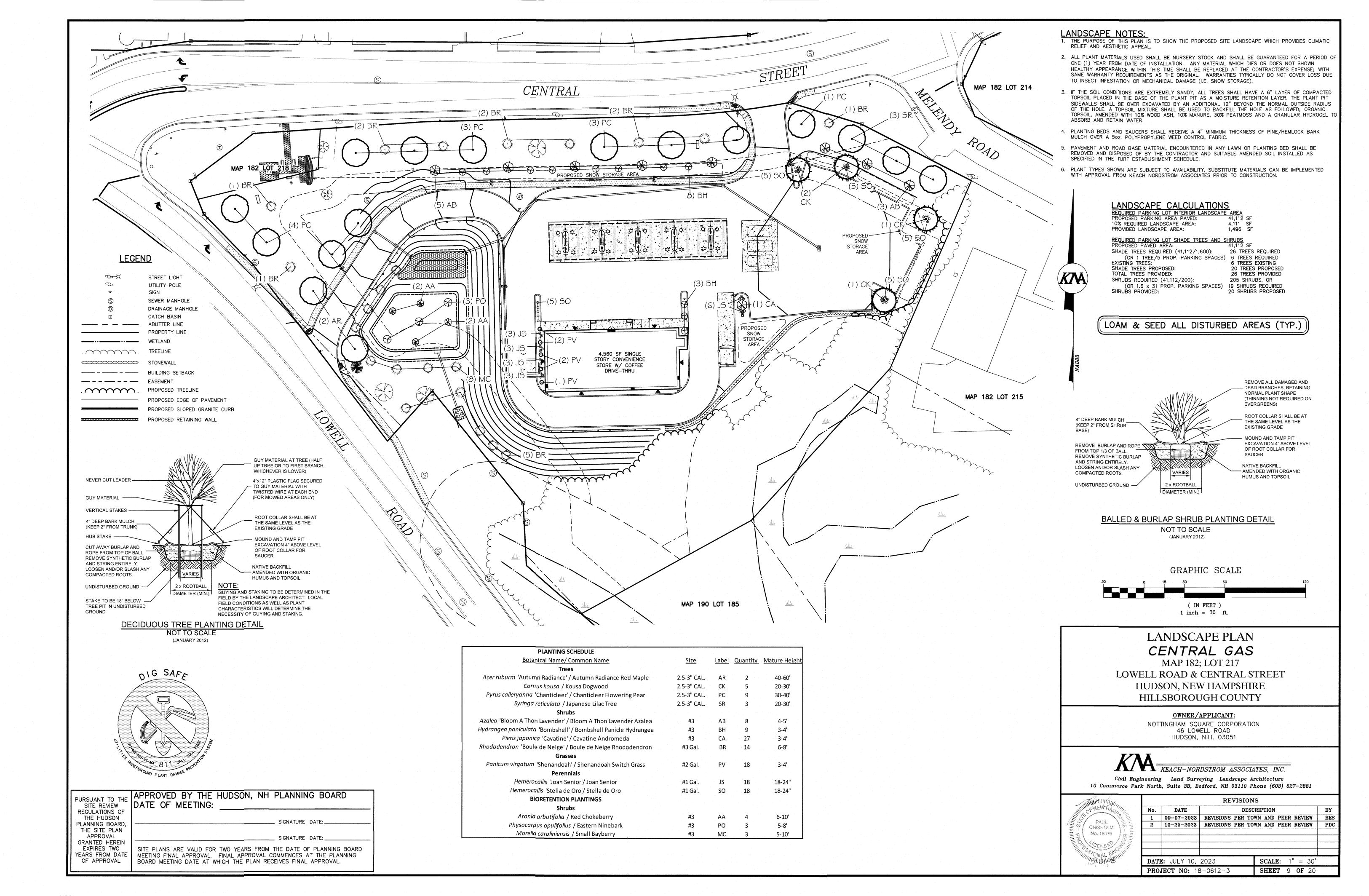


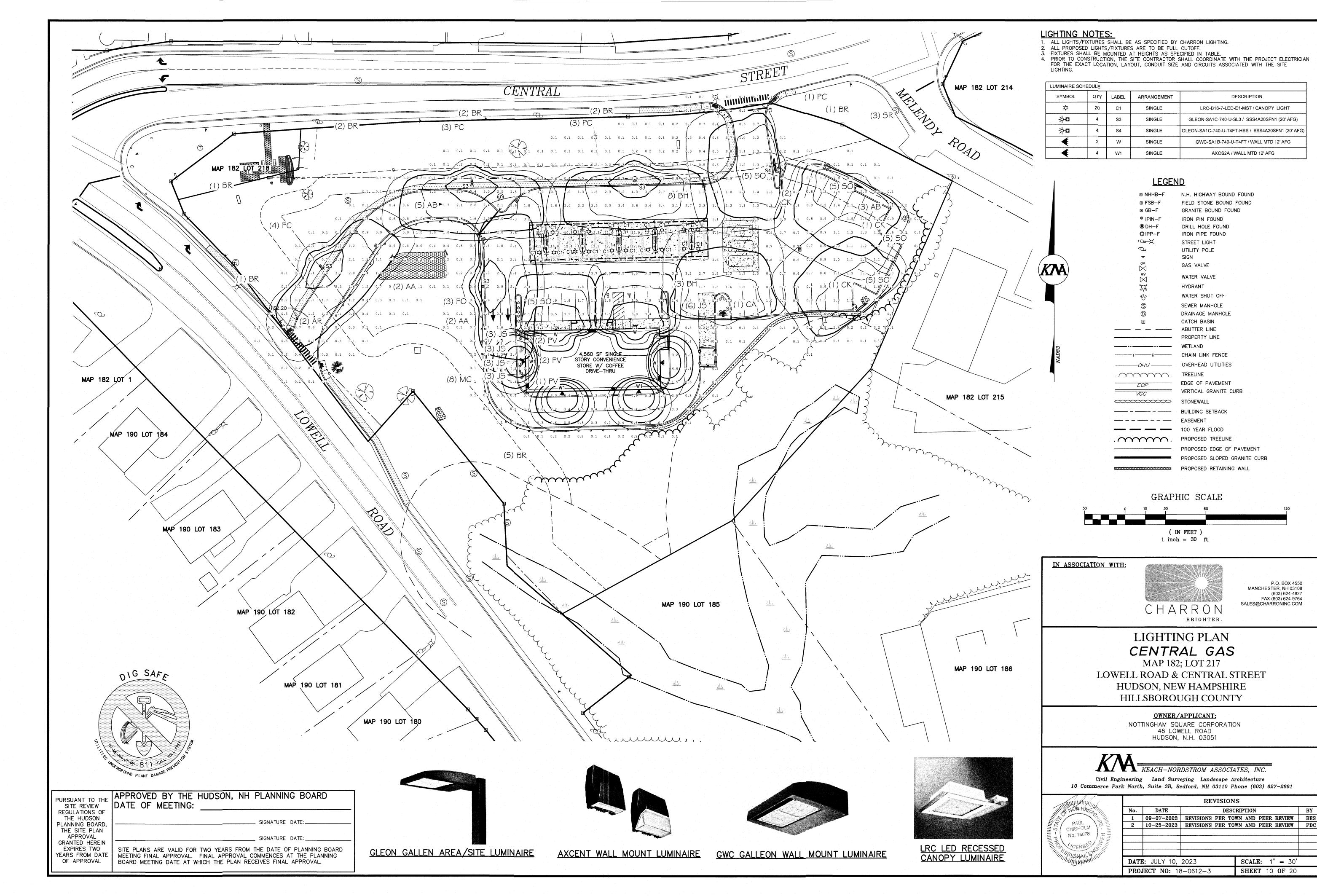


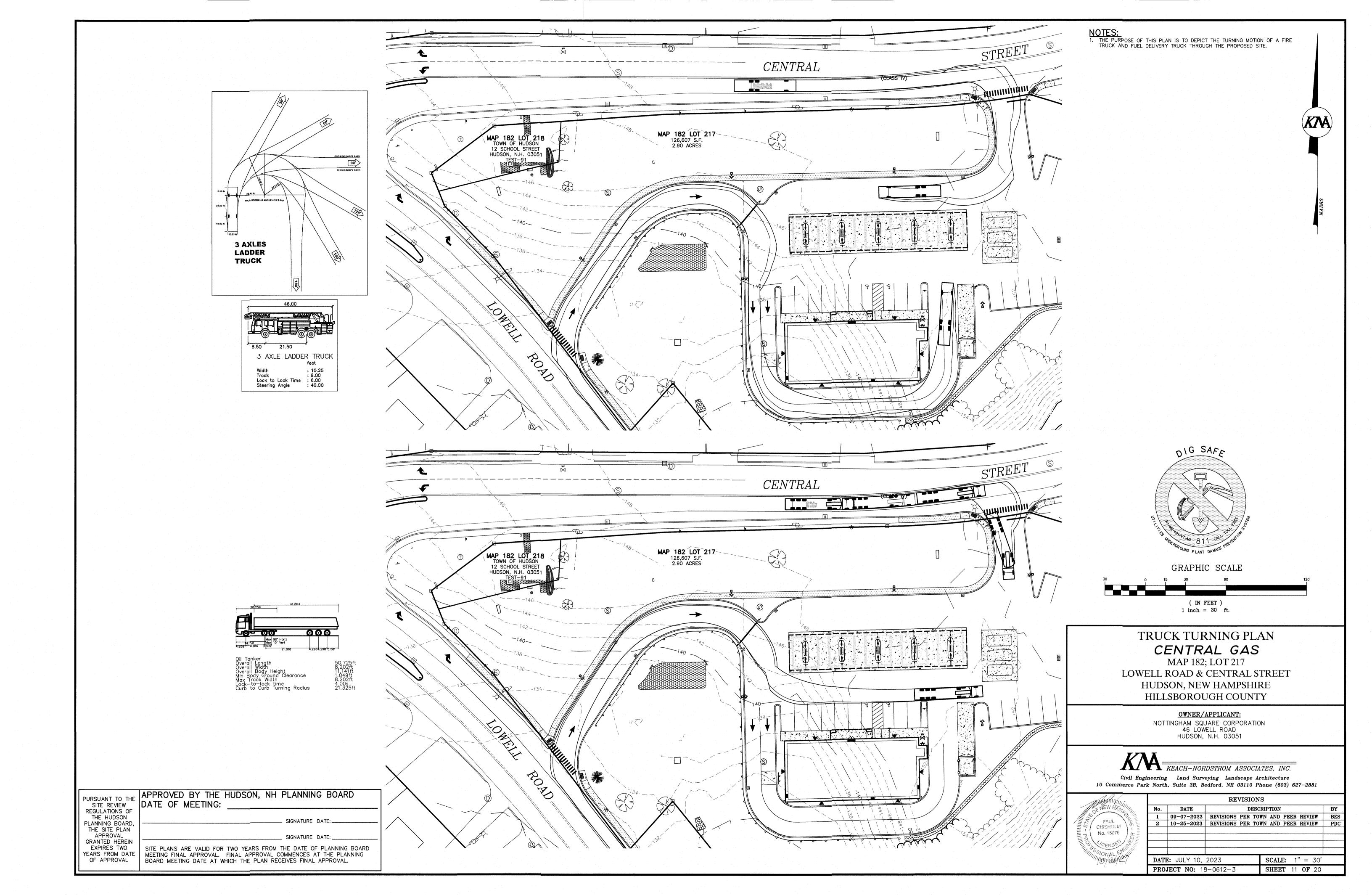


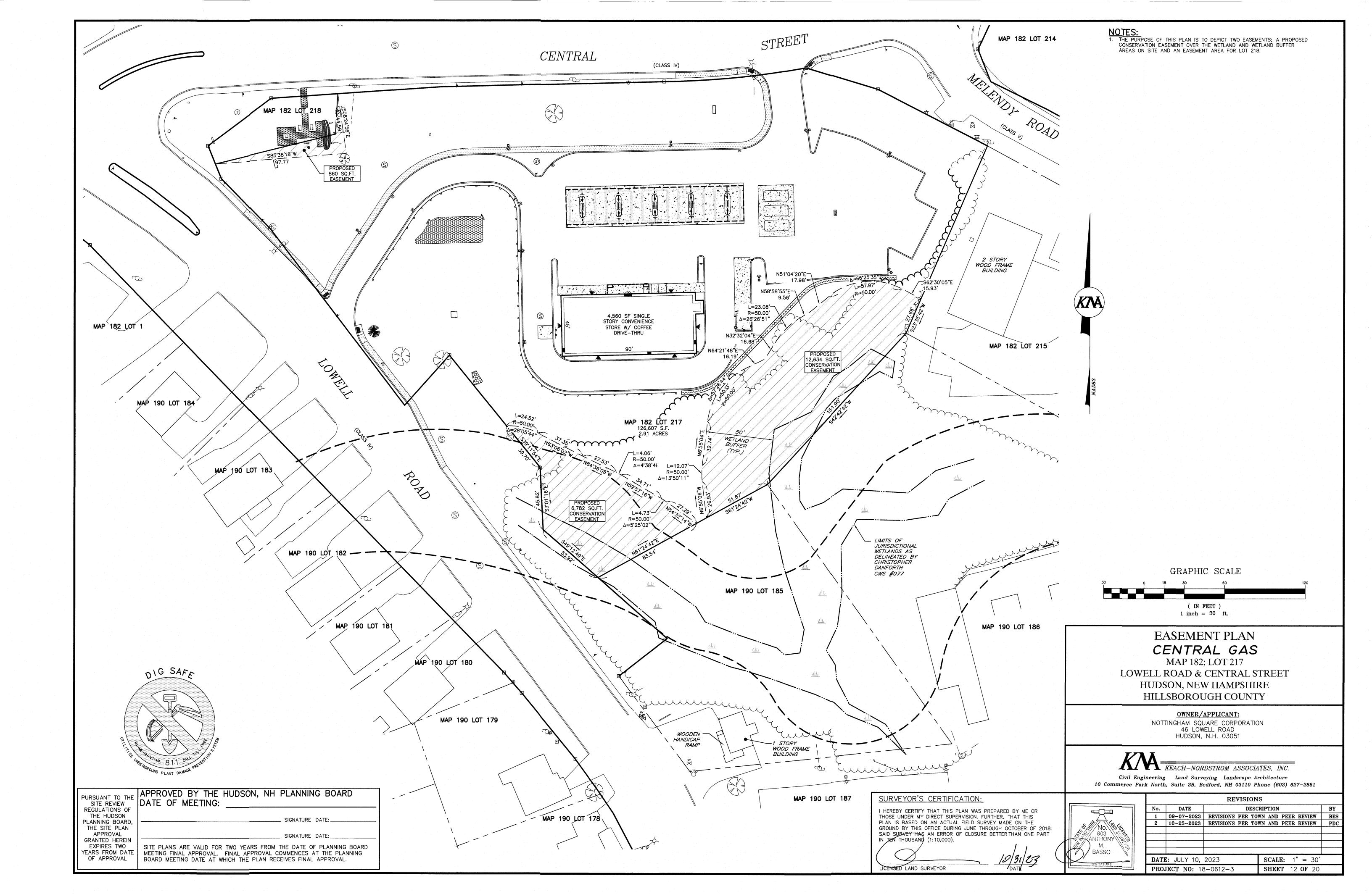


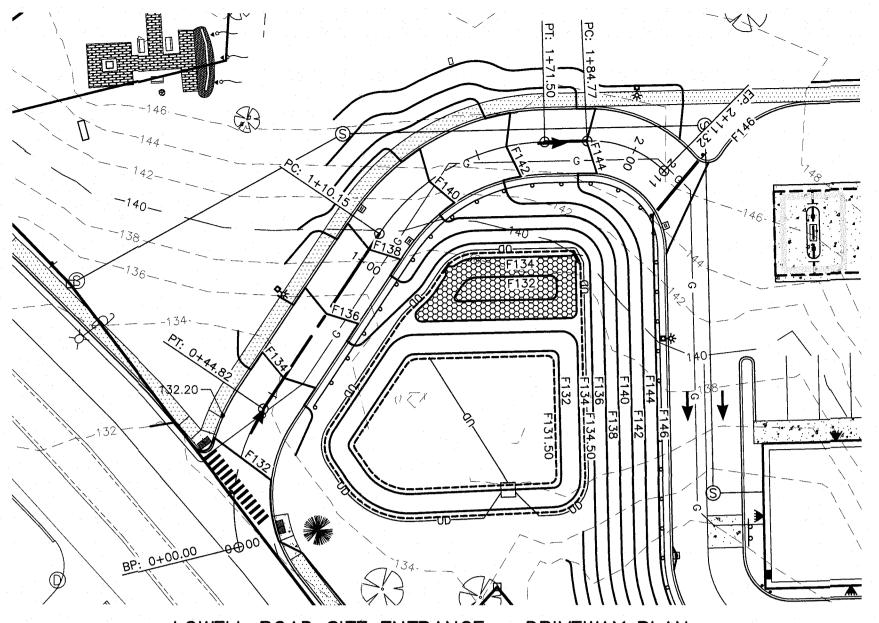






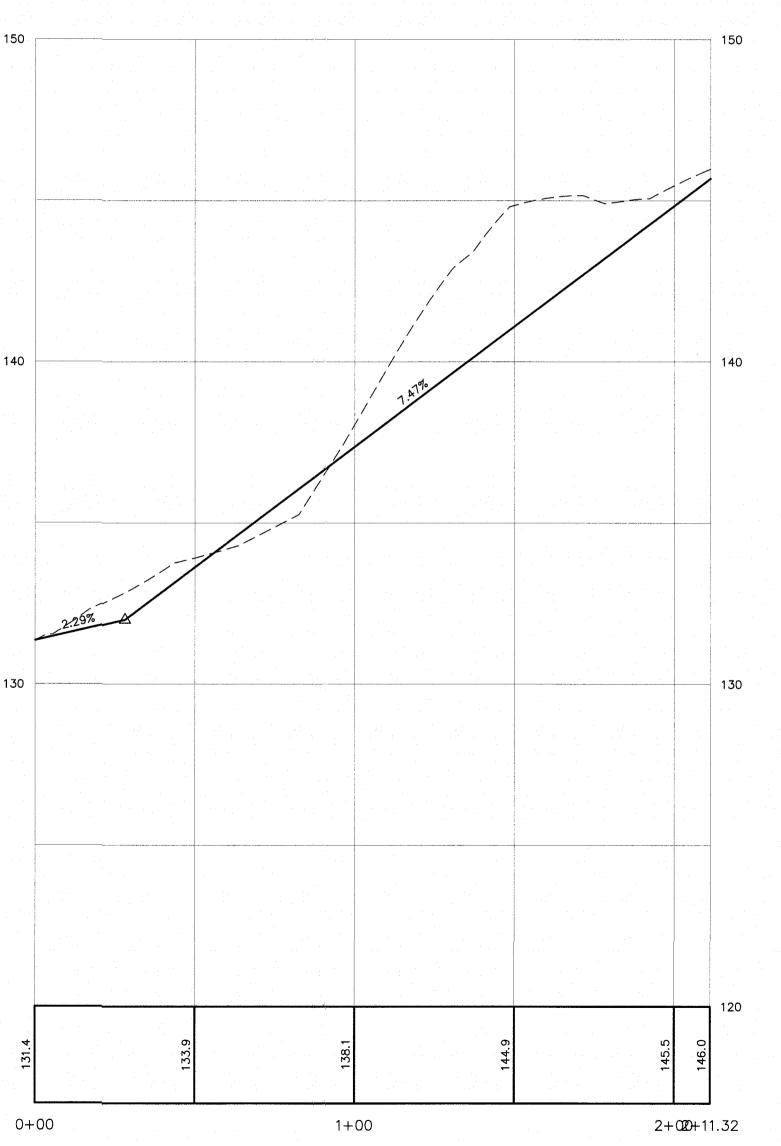






LOWELL ROAD SITE ENTRANCE - DRIVEWAY PLAN

SCALE: 1" = 30'



0+00

APPROVED BY THE HUDSON, NH PLANNING BOARD DATE OF MEETING:

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.

SIGNATURE DATE: \_\_\_\_

SIGNATURE DATE: \_

PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN

APPROVAL GRANTED HEREIN

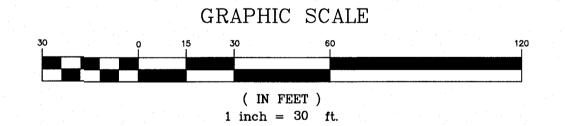
EXPIRES TWO YEARS FROM DATE OF APPROVAL LOWELL ROAD SITE ENTRANCE - DRIVEWAY PLAN

SCALE: 1" = 30' (HORIZ.) 1" = 3' (VERT.)

### **LEGEND**

N.H. HIGHWAY BOUND FOUND FIELD STONE BOUND FOUND GRANITE BOUND FOUND DRILL HOLE FOUND IRON PIPE FOUND STREET LIGHT UTILITY POLE SIGN GAS VALVE WATER VALVE HYDRANT WATER SHUT OFF SEWER MANHOLE DRAINAGE MANHOLE CATCH BASIN ——— — ABUTTER LINE OVERHEAD UTILITIES FOP EDGE OF PAVEMENT VGC VERTICAL GRANITE CURB \_\_\_\_\_\_2' CONTOUR PROPOSED EDGE OF PAVEMENT PROPOSED SLOPED GRANITE CURB PROPOSED 2' CONTOUR





# LOWELL ROAD ENTRANCE - DRIVEWAY PROFILE CENTRAL GAS

MAP 182; LOT 217

LOWELL ROAD & CENTRAL STREET HUDSON, NEW HAMPSHIRE HILLSBOROUGH COUNTY

#### OWNER/APPLICANT:

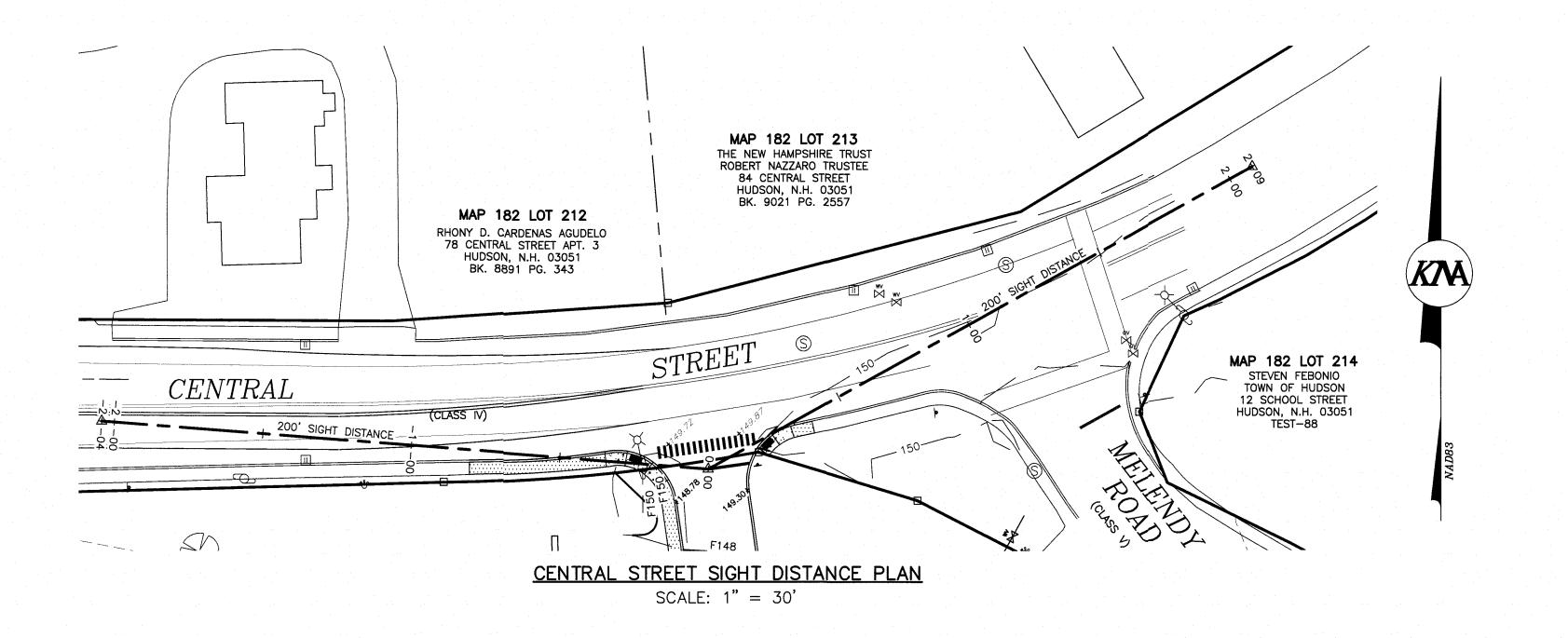
NOTTINGHAM SQUARE CORPORATION
46 LOWELL ROAD
HUDSON, N.H. 03051

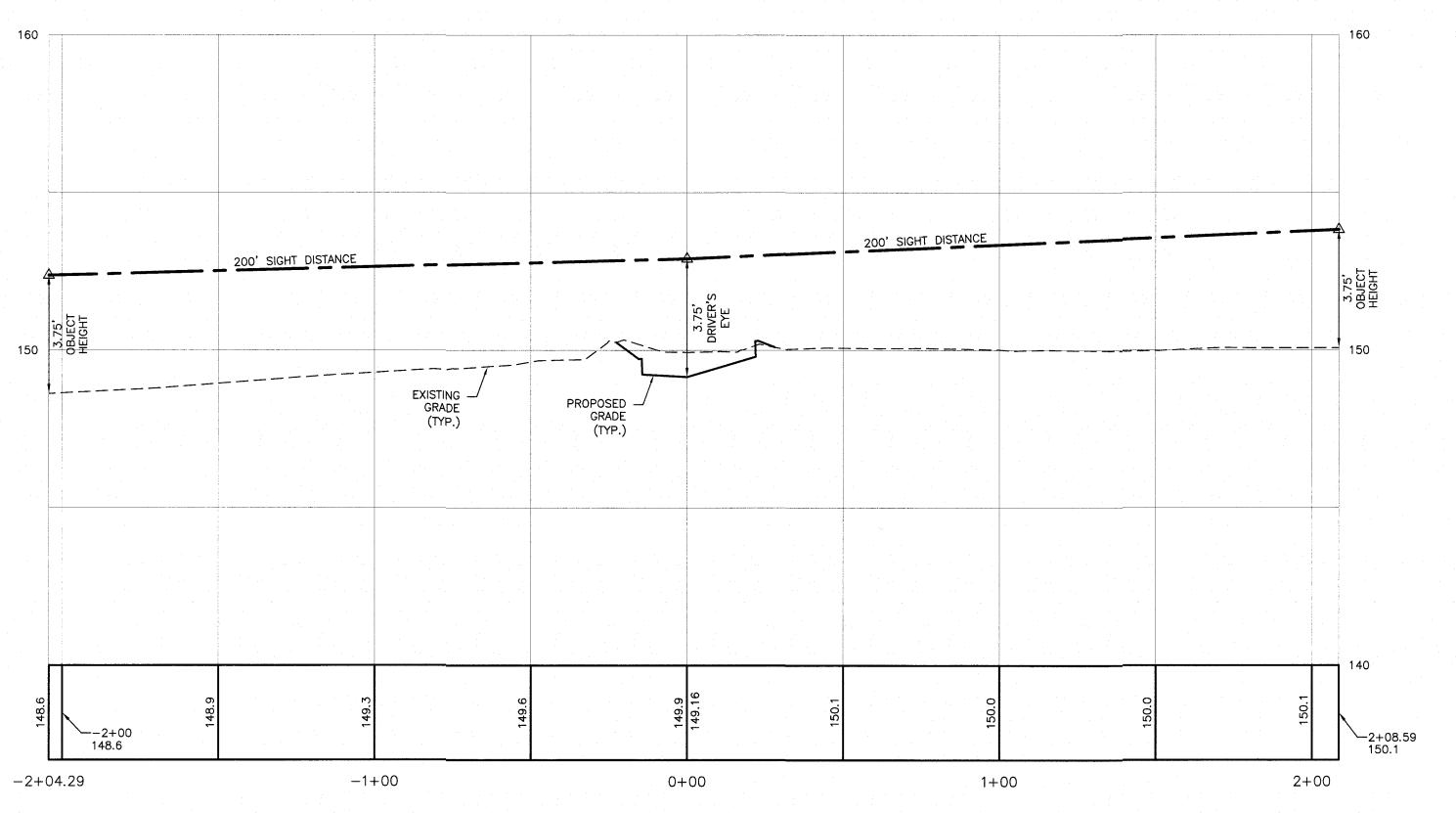


KEACH-NORDSTROM ASSOCIATES, INC.

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2	10-25-2023	REVISIONS	PER	TOWN	AND	PEER	REVIEW	PDC
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DATI	E: JULY 10,	2023		S	CAL	E: 1	" = 30	,
PROJECT NO: 18-0612-3				S	HEE	<b>T</b> 13	<b>OF</b> 20	)





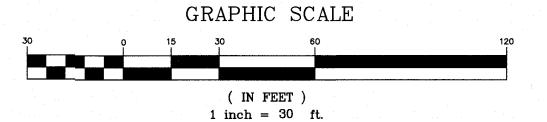
CENTRAL STREET SIGHT DISTANCE PROFILE SCALE: 1" = 30' (HORIZ.) 1" = 3' (VERT.)

APPROVED BY THE HUDSON, NH PLANNING BOARD PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN DATE OF MEETING: SIGNATURE DATE: \_\_\_ APPROVAL GRANTED HEREIN SIGNATURE DATE: \_ SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL. EXPIRES TWO YEARS FROM DATE OF APPROVAL

□ NHHB-F	N.H. HIGHWAY BOUND FOUND
⊡ FSB−F	FIELD STONE BOUND FOUND
□ GB-F	GRANITE BOUND FOUND
© IPIN-F	IRON PIN FOUND
DH−F	DRILL HOLE FOUND
◎IPP-F	IRON PIPE FOUND
<i>G</i> →X	STREET LIGHT UTILITY POLE
	SIGN
gv ⋈	GAS VALVE
₩V	WATER VALVE
X	HYDRANT
***	WATER SHUT OFF
<u></u> \$	SEWER MANHOLE
<b>(</b>	DRAINAGE MANHOLE
	CATCH BASIN
	ABUTTER LINE
	PROPERTY LINE
OHU	OVERHEAD UTILITIES
<b>~~~~</b> .	TREELINE
EOP	EDGE OF PAVEMENT
VGC	VERTICAL GRANITE CURB
	10' CONTOUR
	2' CONTOUR
	PROPOSED EDGE OF PAVEMENT
	PROPOSED SLOPED GRANITE CUR
	PROPOSED 2' CONTOUR

**LEGEND** 





## SIGHT DISTANCE PLAN & PROFILE

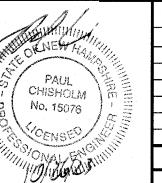
## CENTRAL GAS MAP 182; LOT 217

LOWELL ROAD & CENTRAL STREET HUDSON, NEW HAMPSHIRE HILLSBOROUGH COUNTY

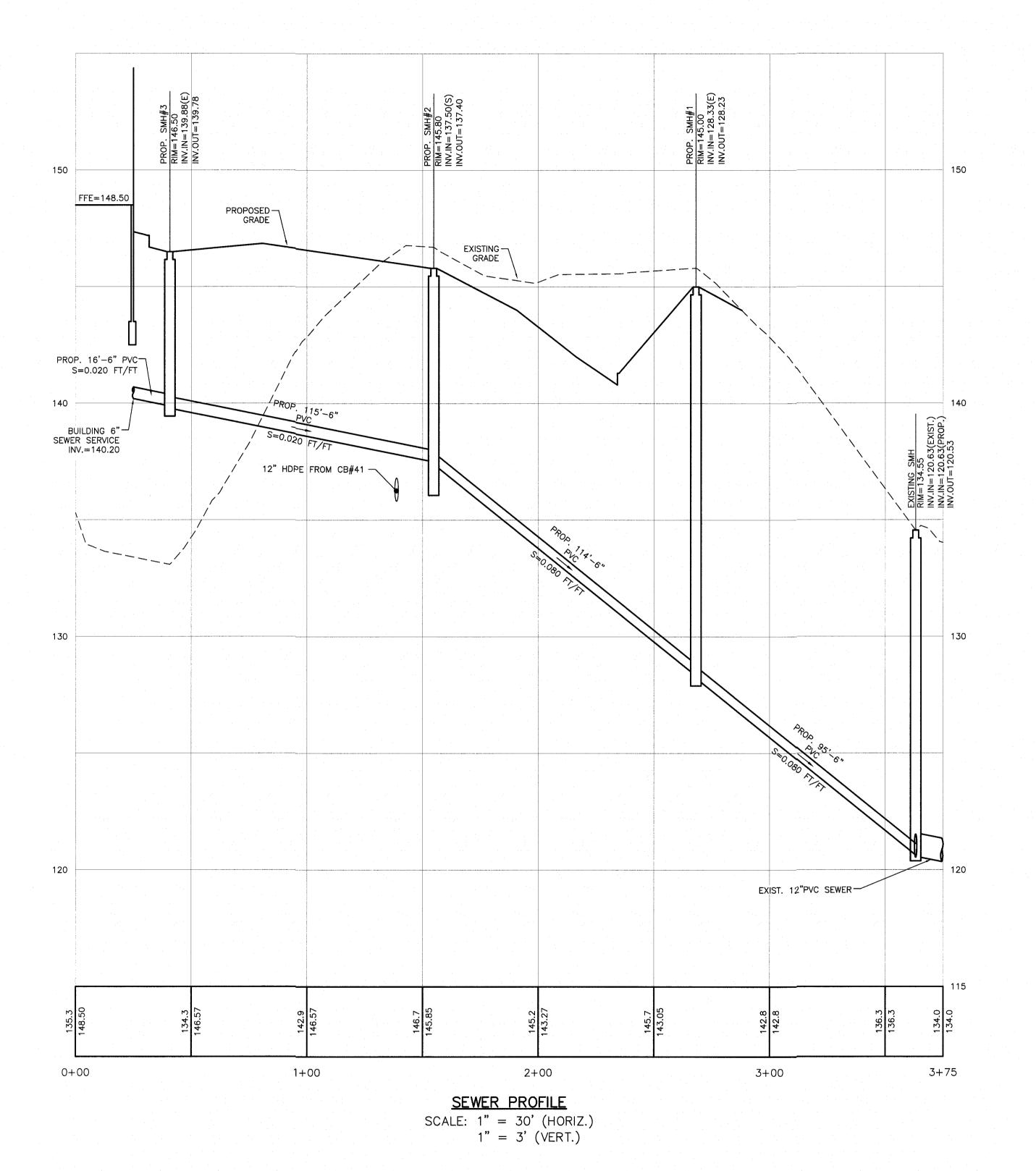
OWNER/APPLICANT:
NOTTINGHAM SQUARE CORPORATION
46 LOWELL ROAD
HUDSON, N.H. 03051



\*\* KEACH-NORDSTROM ASSOCIATES, INC.



REVISIONS									
No.	DATE		DESCRIPTION					BY	
1	09-07-2023	REVISIONS	PER	TOWN	AND	PEER	REVIE	ew .	BES
2	10-25-2023	REVISIONS	PER	TOWN	AND	PEER	REVIE	EW	PDC
DATE	E: JULY 10,	2023		,	SCAL	<b>E</b> : 1	" =	30'	
PROJ	IECT NO: 18	3-0612-3			SHEE	T 14	OF	20	



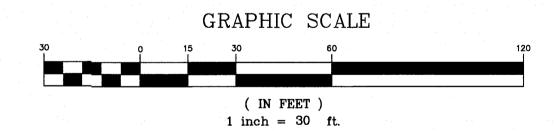
PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN

EXPIRES TWO
YEARS FROM DATE
OF APPROVAL

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD
MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING
BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.

GRANTED HEREIN EXPIRES TWO

DIG SAFE



## SEWER PROFILE CENTRAL GAS

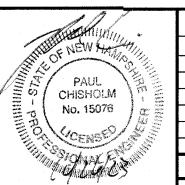
MAP 182; LOT 217

LOWELL ROAD & CENTRAL STREET HUDSON, NEW HAMPSHIRE HILLSBOROUGH COUNTY

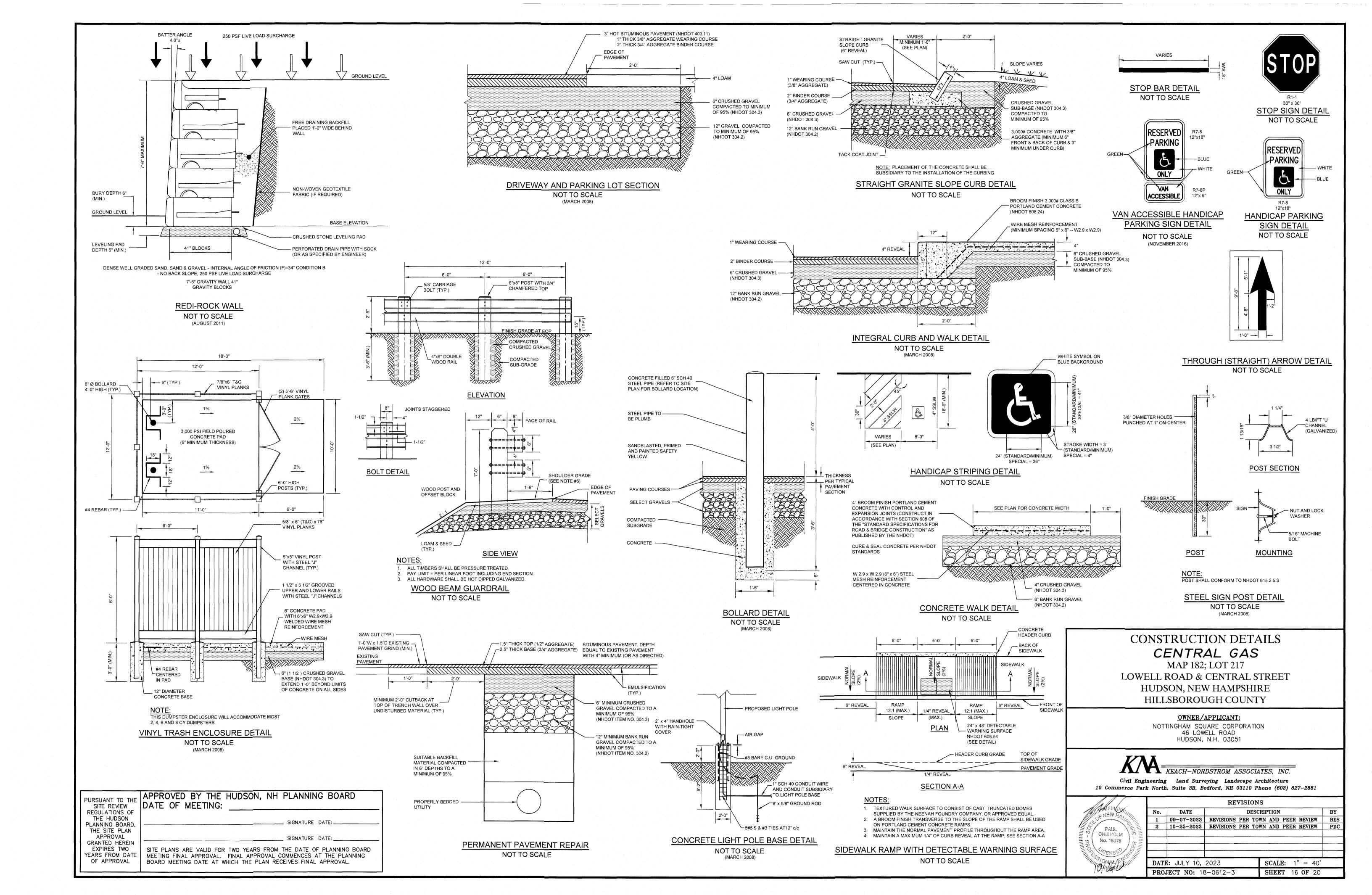
OWNER/APPLICANT:
NOTTINGHAM SQUARE CORPORATION
46 LOWELL ROAD
HUDSON, N.H. 03051

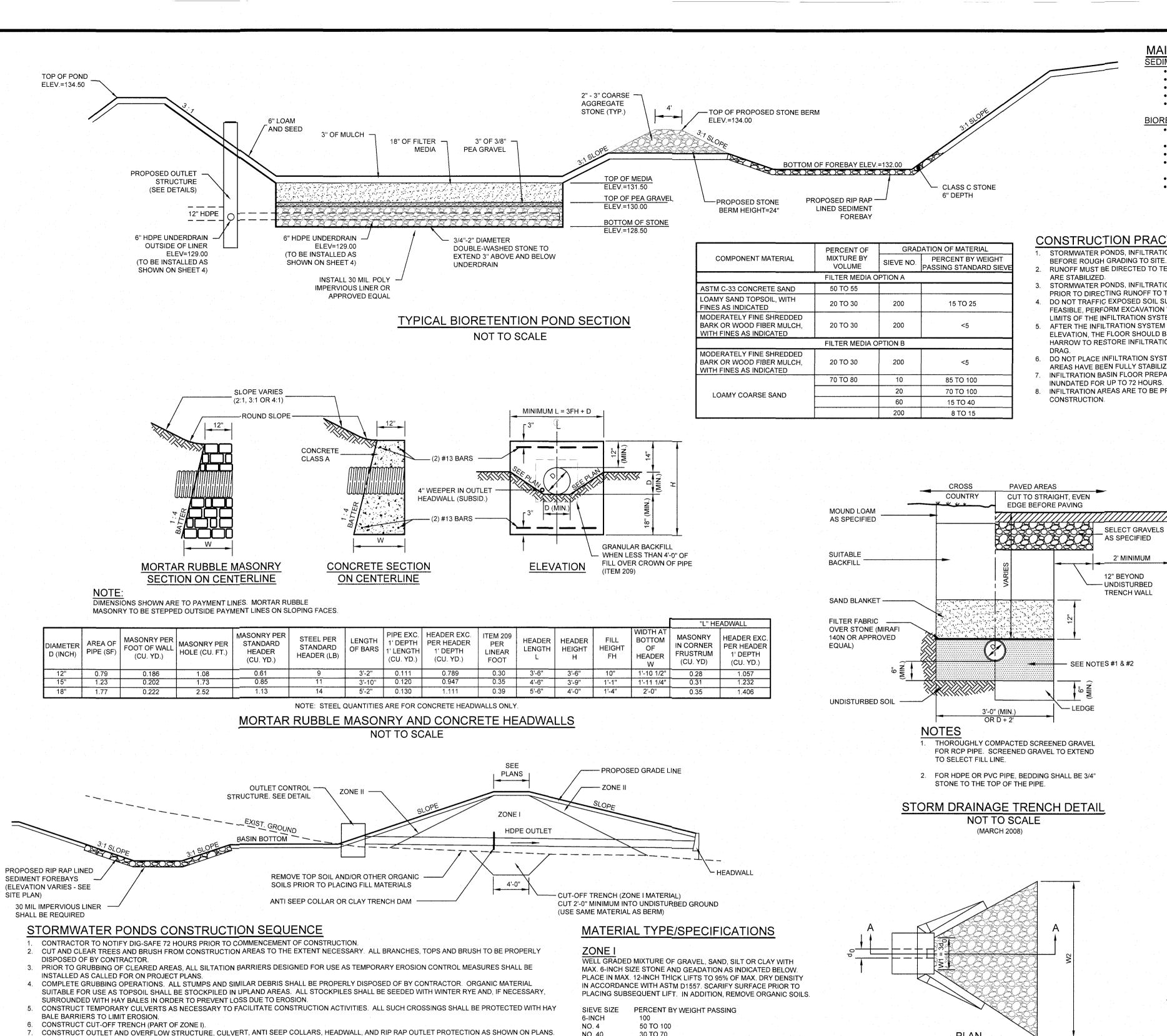


KEACH-NORDSTROM ASSOCIATES, INC.



REVISIONS							
No.	DATE		DESCRIPTION BY				
1	09-07-2023	REVISIONS	PER '	TOWN AND	PEER	REVIEW	BES
2	10-25-2023	REVISIONS	PER ?	TOWN AND	PEER	REVIEW	PDC
				· ·			
DATI	E: JULY 10,	2023		SCA	<b>.E</b> : 1	" = 30'	
PRO	JECT NO: 18	3-0612-3		SHE	E <b>T</b> 15	<b>OF</b> 20	





50 TO 100 NO. 4 NO. 40 30 TO 70

20 TO 40

NO. 200

DRAINAGE LAYER: PLACE IN MAX. 12-INCH THICK LIFTS TO 95% OF MAX. DRY DENSITY IN ACCORDANCE WITH ASTM D1557.

SIEVE SIZE PERCENT BY WEIGHT PASSING

1-INCH 100 NO. 4 70-100 0-12 (IN SAND PORTION ONLY) NO. 200

## PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL NOT TO SCALE

GEOTEXTILE FABRIC OR

FILTER MATERIAL TO BE

PLACED BETWEEN SOIL

AND RIP RAP (TYP.)

LOCATION	La	W1	W2	d50	DEPTH
PROP. HW#1	9'	3'	7'	4"	10"
PROP. HW#2	8'	3'	6'	4"	10"
DBUD H/V#3	17'	Δ'	11'	<b>/</b> "	10"

<u>PLAN</u>

SECTION A-A

(MARCH 2008)

#### MAINTENANCE REQUIREMENTS:

- INSPECT AT LEAST ANNUALL . CONDUCT PERIODIC MOWING OF EMBANKMENTS (GENERALLY TWO TIMES PER YEAR) TO CONTROL GROWTH OF WOODY VEGETATION ON EMBANKMENTS
- REMOVE DEBRIS FROM OUTLET STRUCTURES AT LEAST ONCE ANNUALLY; REMOVE AND DISPOSE OF ACCUMULATED SEDIMENT BASED ON INSPECTION
- INSTALL AND MAINTAIN A STAFF GAGE OR OTHER MEASURING DEVICE, TO INDICATE DEPTH OF SEDIMENT ACCUMULATION AND LEVEL AT WHICH CLEAN-OUT IS REQUIRED.

#### BIORETENTION PONDS

- SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY AND FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24-HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.
- TRASH AND DEBRIS SHOULD BE REMOVED AT EACH INSPECTION
- INLET AND OUTLET STRUCTURES SHOULD BE REPAIRED AT EACH INSPECTION AND ANY DEBRIS REMOVED. INSPECTION OF PRE-TREATMENT MEASURES AT LEAST TWICE ANNUALLY AND REMOVAL OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION.
- BUT NO LESS THAN ONCE ANNUALLY. PHOTOS OF PRACTICES SHALL BE TAKEN AND STORED DURING EACH INSPECTION.
- AT LEAST ONCE ANNUALLY, THE SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF THE POND DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO THE REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE BASIN BOTTOM.

4'-10" (MIN.)

4'-0" (MIN.)

#### CONSTRUCTION PRACTICE REQUIREMENTS

- STORMWATER PONDS, INFILTRATION BASINS, AND SWALES MUST BE INSTALLED
- BEFORE ROUGH GRADING TO SITE.

AS SPECIFIED

2' MINIMUM

12" BEYOND

UNDISTURBED

TRENCH WALL

- RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMPs
- STORMWATER PONDS, INFILTRATION BASINS, AND SWALES MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
- 4. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATION WITH EQUIPMENT POSITIONED OUTSIDE THE
- LIMITS OF THE INFILTRATION SYSTEM AFTER THE INFILTRATION SYSTEM AREA IS EXCAVATED TO THE FINAL DESIGN
- ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING
- 6. DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
- INFILTRATION BASIN FLOOR PREPARATION WILL INCLUDE GRASS TURF THAT CAN BE INUNDATED FOR UP TO 72 HOURS.
- 8. INFILTRATION AREAS ARE TO BE PROTECTED FROM OVER-COMPACTION DURING

PRIME JOINT

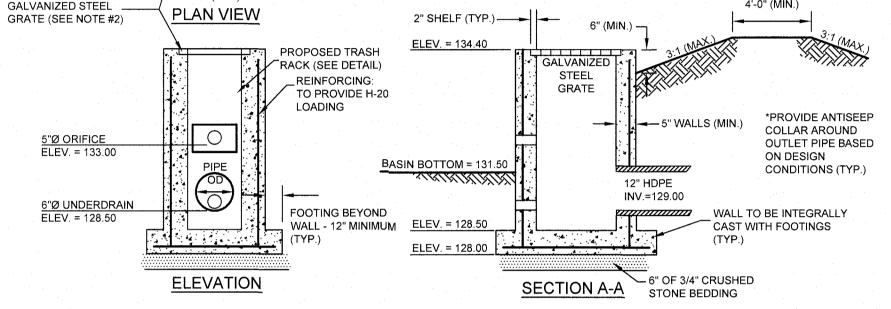
WITH EMULSION

SURFACE COURSE TO

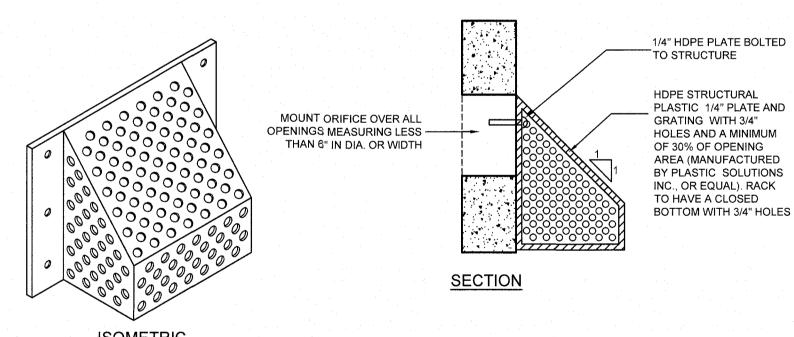
MATCH EXISTING, OR

AS SPECIFIED

- 1. ALL CEMENT CONCRETE TO BE 4,000 PSI MINIMUM.
- 2. GALVANIZED STEEL GRATE SHALL BE BOLTED TO TOP OF STRUCTURE. GRATE OPENINGS TO BE A MAXIMUM SIZE OF 2"x2".
- 3. OUTLET PIPE SHALL NOT BE LESS THAN 15" MINIMUM.
- 4. ALL OPENINGS CAST IN AS REQUIRED.
- 5. PRECAST REINFORCED CONCRETE STRUCTURE TO MEET ASTM C-478
- DESIGNATION AND H-20 LOADING.



#### OUTLET STRUCTURE #2 AT BIORETENTION POND #1 NOT TO SCALE



TRASH RACK DETAIL NOT TO SCALE

TABLE 7-24 RECOMMENDE	D RIP RAP GRADATION RANGES
PERCENT OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE
100% 85% 50% 15%	1.5 TO 2.0 d50 1.3 TO 1.8 d50 1.0 TO 1.5 d50 0.3 TO 0.5 d50

#### CONSTRUCTION SPECIFICATIONS:

- THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
- THE ROCK OR GRAVEL USED FOR FILTER OR RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
- 3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP RAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
- 4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

#### MAINTENANCE

THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR RAIN EVENT. IF THE RIP RAP HAS BEEN DISPLACED, UNDERMINED, OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

## CONSTRUCTION DETAILS CENTRAL GAS

### MAP 182; LOT 217

LOWELL ROAD & CENTRAL STREET HUDSON, NEW HAMPSHIRE

## OWNER/APPLICANT:

HILLSBOROUGH COUNTY

NOTTINGHAM SQUARE CORPORATION 46 LOWELL ROAD HUDSON, N.H. 03051



**L** KEACH-NORDSTROM ASSOCIATES, INC. Civil Engineering Land Surveying Landscape Architecture

10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

REVISIONS						
OF NEW HAMO	No.	DATE		DESCRIPTION	N	BY
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ANTA DOWN	<b>DATE:</b> JULY 10, 2023 <b>SCALE:</b> 1" = 40'					
	PRO	JECT NO: 18	3-0612-3	SHE	<b>ET</b> 17 <b>OF</b> 20	

#### APPROVED BY THE HUDSON, NH PLANNING BOARD PURSUANT TO THE DATE OF MEETING: SITE REVIEW REGULATIONS OF THE HUDSON SIGNATURE DATE:. PLANNING BOARD THE SITE PLAN APPROVAL SIGNATURE DATE: \_ GRANTED HEREIN EXPIRES TWO SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD YEARS FROM DATE MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING OF APPROVAL BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.

12. AFTER STABILIZATION, REMOVE AND SUITABLY DISPOSE OF TEMPORARY EROSION CONTROL MEASURES.

10. APPLY TOPSOIL TO SLOPES AND OTHER AREAS DISTURBED BY CONSTRUCTION. TOPSOIL USED MAY BE NATIVE ORGANIC MATERIAL SCREENED SO AS TO

4-INCH COMPACTED THICKNESS. UPON COMPLETION OF TOPSOILING, FINISHED SECTIONS ARE TO BE LIMED, SEEDED AND MULCHED. CONSTRUCTION

PERSONNEL SHALL INSPECT COMPLETED SECTIONS OF WORK ON A REGULAR BASIS AND REMEDY ANY PROBLEM AREAS UNTIL A HEALTHY STAND OF

BE FREE OF ROOTS, BRANCHES, STONES, AND OTHER DELETERIOUS MATERIALS. TOPSOIL SHALL BE APPLIED SO AS TO PROVIDE A MINIMUM OF A

11. MAINTAIN, REPAIR, AND REPLACE AS NECESSARY TEMPORARY EROSION CONTROL MEASURES UNTIL SUCH TIME AS THE ENTIRE CONSTRUCTION AREA

13. MONITOR CONSTRUCTION ACTIVITIES TO INSURE CONSTRUCTION ACTIVITIES ARE BEING PERFORMED IN SUCH A WAY AS NOT TO ENDANGER THE

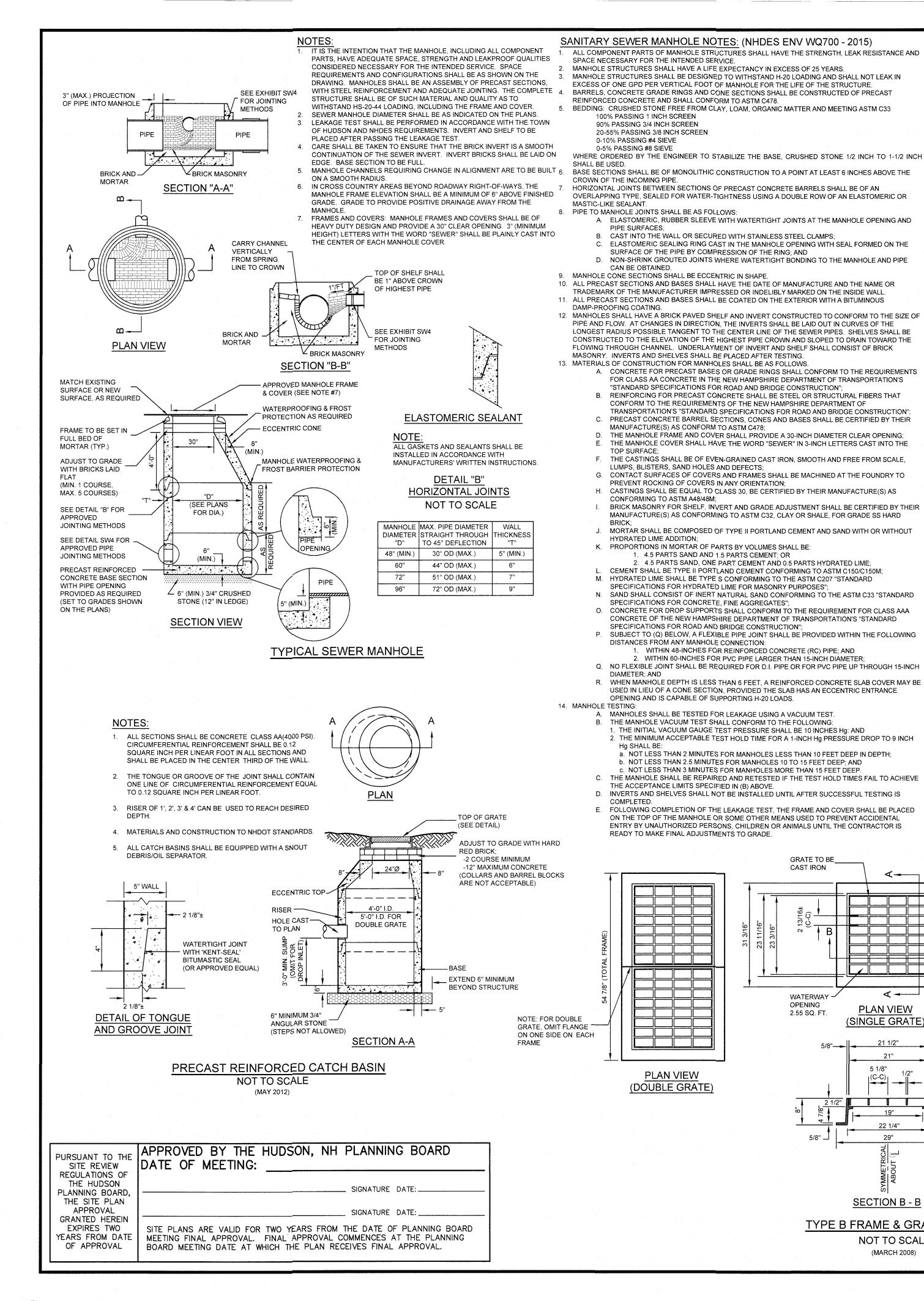
INTEGRITY OF EARTH EMBANKMENTS, STORMWATER CONTROL STRUCTURE, CULVERT AND RIP RAP OUTLET PROTECTION.

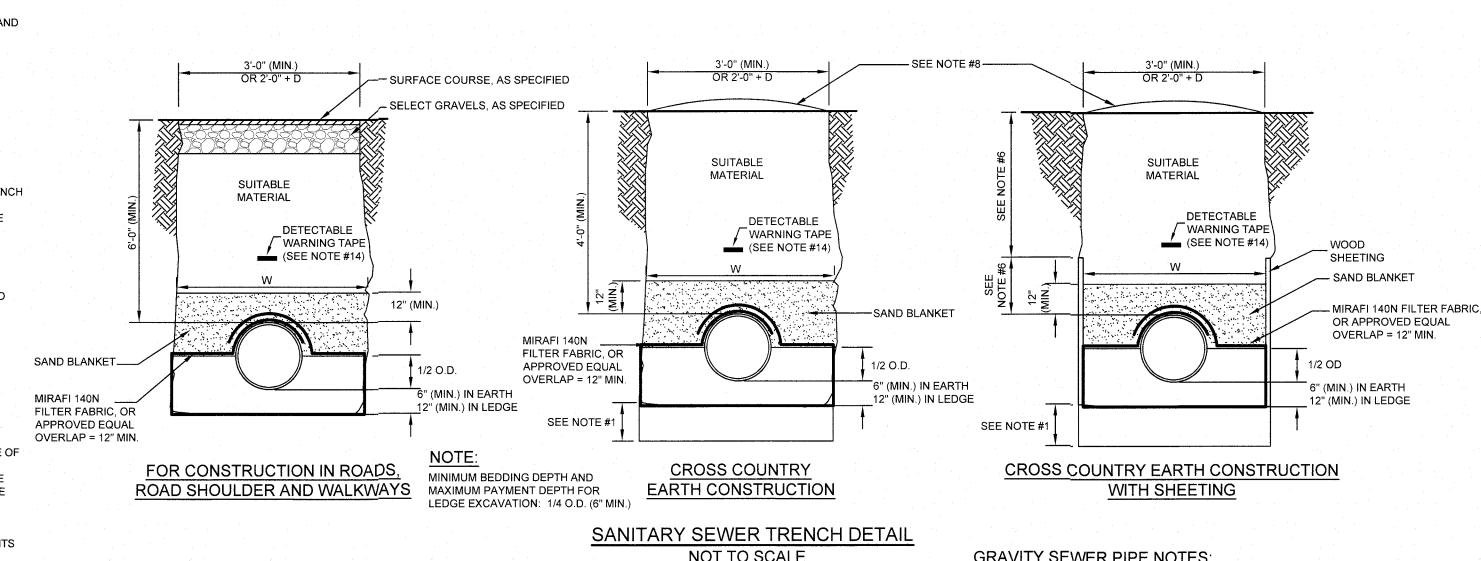
CONSTRUCT ZONE I PORTION OF EARTH EMBANKMENT.

CONSTRUCT ZONE II PORTION OF EARTH EMBANKMENT.

HAS BEEN STABILIZED (A MINIMUM OF ONE WINTER SHALL HAVE PASSED).

GRASS HAS BECOME ESTABLISHED.





WITH THE PIPE.

2 1/2"

SECTION A - A

GRATE TO BE

< →

**PLAN VIEW** 

(SINGLE GRATE)

SECTION B - B

TYPE B FRAME & GRATE DETAIL

NOT TO SCALE

(MARCH 2008)

CAST IRON

WATERWAY -

OPENING

2.55 SQ. FT.

ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE. REFILL WITH BEDDING MATERIAL, ALSO SEE NOTE #7. BEDDING: CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33/C33M STONE SIZE NO. 67.

100% PASSING 1 INCH SCREEN 90 - 100% PASSING 3/4 INCH SCREEN 20 - 55% PASSING 3/8 INCH SCREEN

0 - 10% PASSING # 4 SIEVE 0 - 5% PASSING # 8 SIEVE WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, GRADED CRUSHED STONE 1/2 INCH TO 1-1/2 INCHES SHALL

SAND BLANKET: GRADED CLEAN SAND FREE FROM ORGANIC MATTER, SO THAT 100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAN 15% WILL PASS A # 200 SIEVE. BLANKET MAY BE OMITTED FOR CAST IRON, DUCTILE IRON AND REINFORCED CONCRETE PIPE PROVIDED, HOWEVER, THAT NO STONE LARGER THAN 2 INCHES IS IN CONTACT

MIRAFI 140 N FILTER FABRIC, OR APPROVED EQUAL, SHALL BE

INSTALLED ABOVE PIPE. SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS AND FRAVELED WAYS SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL AND ALL ROCKS OVER 6 INCHES IN LARGEST DIMENSION, OR ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. IN CROSS COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT IF HE/SHE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER WILL BE PRESERVED FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WHEN NECESSARY.

BASE COURSE. IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF PUBLIC WORKS

AND HIGHWAYS " 6. WOOD SHEETING, IF REQUIRED, WHERE PLACED ALONGSIDE THE PIPE AND EXTENDING BELOW MID-DIAMETER, SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.

W = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS. W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D. W SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.

8. FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES DESIGN STANDARDS REQUIRE 10 FEET OF SEPARATION BETWEEN WATER AND SEWER. HOWEVER, SHOULD CONSTRUCTION REVEAL OR EXPOSE A WATERLINE (MAIN OR SERVICE) RUNNING APPROXIMATELY PARALLEL AND LESS THAN 10 FEET HORIZONTALLY FROM THE PROPOSED SEWER INSTALLATION AND WHERE IT IS NOT PRACTICAL TO RELOCATE THE SEWER, A DEVIATION MAY BE GRANTED PROVIDED THAT THE SEWER IS CONSTRUCTED IN ACCORDANCE WITH THE FORCE MAIN CONSTRUCTION REQUIREMENT SPECIFIED BELOW:

A. FORCE MAINS SHALL BE CONSTRUCTED FROM DUCTILE IRON, HIGH DENSITY POLYETHYLENE, OR PVC PER ENV-WQ 704.06(a). PVC SHALL CONFORM TO ASTM D2241-05 OR ASTM D1785-05 HDPE SHALL CONFORM TO ASTM D3035-03a

D.I. SHALL BE CORROSION PROTECTED IN CORROSIVE

10. WHERE WATER LINES AND SEWER LINES CROSS, THEY SHOULD CROSS AS PERPENDICULAR AS POSSIBLE AND THE WATER MAIN SHALL CROSS AT LEAST 18" INCHES ABOVE THE SEWER. FURTHER, THE SEWER JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATER

11. ALL SEWERS AT 8 PERCENT SLOPE, OR GREATER, SHALL HAVE IMPERVIOUS TRENCH DAMS CONSTRUCTED EVERY 300 FEET.

12. UNLESS OTHERWISE NOTED, ALL GRANULAR MATERIAL SHALL BE PLACED IN 12" LIFTS AND COMPACTED TO 95% OF THE MODIFIED PROCTOR TEST 13. WHERE WATER MAINS CROSS UNDER SEWER MAINS, BOTH THE SEWER AND WATER MAINS SHALL BE PRESSURE RATED PIPE PER ENV-WQ 704.06 AND TESTED PER AWWA C600-05 AT 1.5 TIMES DESIGN PRESSURE OR 100 PSI, WHICHEVER IS GREATER, WITH NO JOINTS WITHIN 9 FEET OF THE CROSSING POINT AND 18" MINIMUM VERTICAL SEPARATION.

14. ALL SEWERS SHALL BE MARKED USING METAL IMPREGNATED MARKING TAPE OR TRACER WIRE THAT CAN BE LOCATED USING METAL DETECTION

15. GRAVITY PIPE SEWER TESTING:

A. ALL NEW GRAVITY SEWERS SHALL BE TESTED FOR WATER TIGHTNESS BY THE USE OF LOW-PRESSURE AIR TESTS. LOW-PRESSURE AIR TESTING SHALL BE IN CONFORMANCE WITH ASTM F1417-92(2005) "STANDARD TEST METHOD FOR INSTALLATION ACCEPTANCE OF PLASTIC GRAVITY SEWER LINES USING LOW-PRESSURE

UNI-BELL PVC PIPE ASSOCIATION UNI-B-6, "LOW-PRESSURE AIR TESTING OF INSTALLED SEWER PIPE" (1998).

C. ALL NEW GRAVITY SEWERS SHALL BE CLEANED AND VISUALLY INSPECTED USING A LAMP TEST AND BY INTRODUCING WATER TO DETERMINE THAT THERE IS NO STANDING WATER IN THE SEWER AND SHALL BE TRUE TO LINE AND GRADE FOLLOWING INSTALLATION AND PRIOR TO USE.

D. ALL PLASTIC SEWER PIPE SHALL BE DEFLECTION TESTED NOT LESS THAN 30 DAYS NOR MORE THAN 90 DAYS FOLLOWING INSTALLATION. THE MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5 PERCENT OF AVERAGE INSIDE DIAMETER. A RIGID BALL OR MANDREL WITH A DIAMETER OF AT LEAST 95 PERCENT OF THE AVERAGE INSIDE PIPE DIAMETER SHALL BE USED FOR TESTING PIPE DEFLECTION. THE DEFLECTION TEST SHALL BE CONDUCTED WITHOUT MECHANICAL PULLING DEVICES.

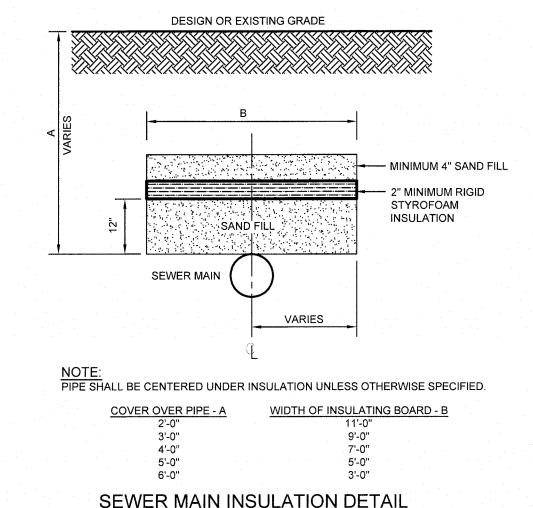
#### **GRAVITY SEWER PIPE NOTES**

PLASTIC GRAVITY SEWER PIPE AND FITTINGS SHALL BE CERTIFIED BY THE MANUFACTURER AS COMPLYING WITH THE STANDARDS LISTED IN TABLE 704-2, BELOW, AS IN EFFECT WHEN THE PIPES WERE MANUFACTURED:

ASTM STANDARD	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034	POLYVINYL CHLORIDE (PVC), SOLID WALL	8-INCH THROUGH 15-INCH (SDR 35)
F679	PVC, SOLID WALL	18-INCH THROUGH 60-INCH (T-1 & T-2)
F794	PVC, PROFILE, DUAL-WALLED CORRUGATED	4-INCH THROUGH 48-INCH
F1760	PVC, RECYCLED, NON-PRESSURE	ALL DIAMETERS

PLASTIC SEWER PIPE SHALL HAVE A PIPE STIFFNESS RATING OF AT LEAST 46 POUNDS PER SQUARE INCH AT 5 PERCENT PIPE DIAMETER DEFLECTION, AS MEASURED BY THE MANUFACTURER IN ACCORDANCE WITH THE ASTM D2412 STANDARD IN EFFECT WHEN PIPE WAS MANUFACTURED.

3. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL AND CERTIFIED BY THE MANUFACTURER AS CONFORMING TO THE ASTM D3212 STANDARD IN EFFECT WHEN THE JOINT SEALS WERE MANUFACTURED, AND SHALL BE PUSH-ON, BELL-AND-SPIGOT TYPE.



## CONSTRUCTION DETAILS CENTRAL GAS

NOT TO SCALE

(AUGUST 2011)

MAP 182; LOT 217

LOWELL ROAD & CENTRAL STREET HUDSON, NEW HAMPSHIRE HILLSBOROUGH COUNTY

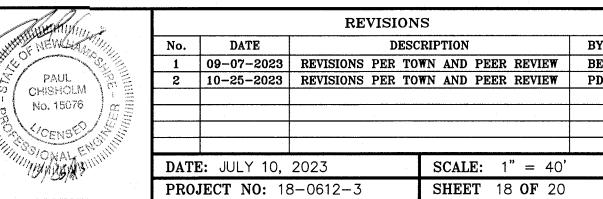
#### OWNER/APPLICANT:

NOTTINGHAM SQUARE CORPORATION 46 LOWELL ROAD HUDSON, N.H. 03051



KEACH-NORDSTROM ASSOCIATES. INC.

Civil Engineering Land Surveying Landscape Architecture 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881



#### NEW HAMPSHIRE MAINTAINS A CLEAR OPENING DESIGNATION OF 30" FOR ITS MANHOLE CASTINGS.

FEATURES:

• 3" LETTERING COVERS MARKED SEWER

NONROCKING COVER

DIAMOND SURFACE DESIGN

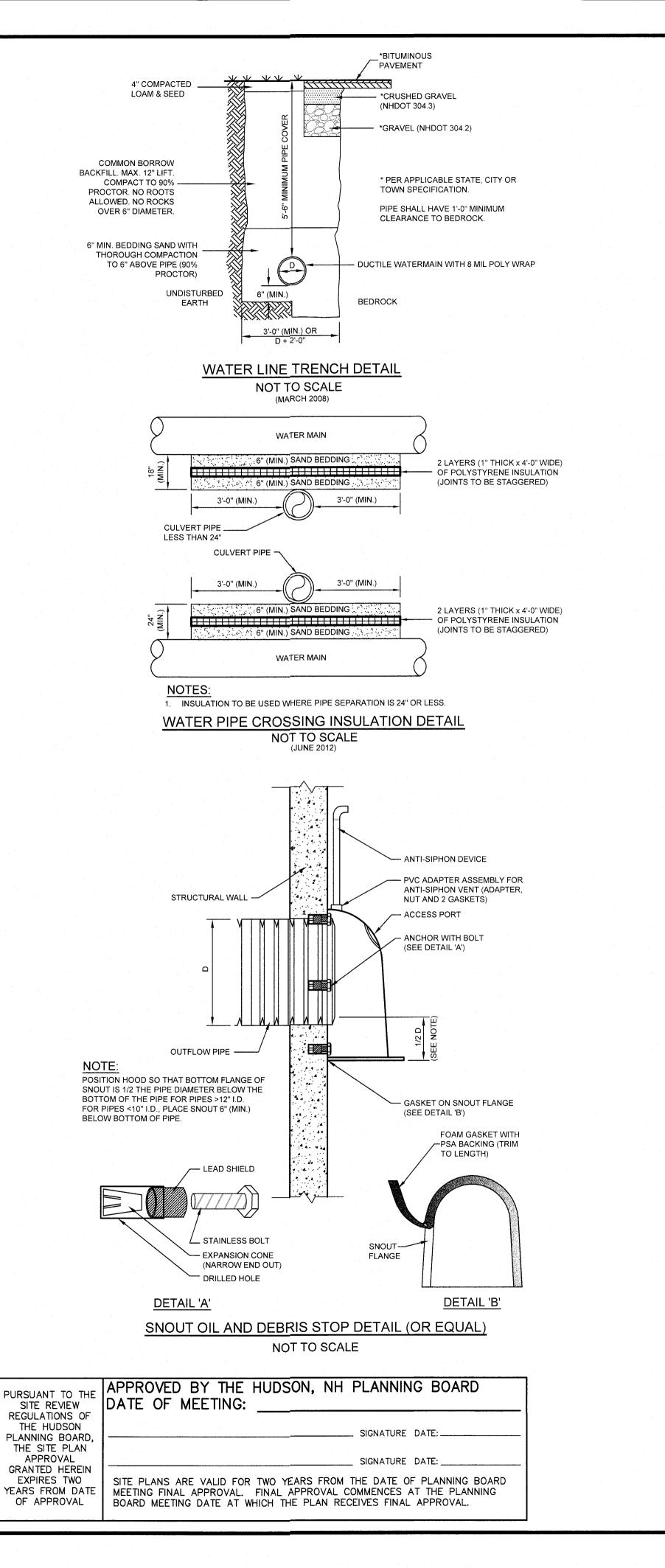
FULLY MACHINED FRAME AND COVER

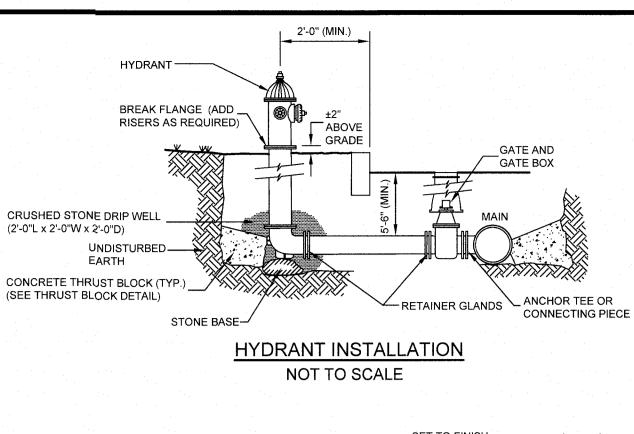
 H-20 LOAD RATED GRAY CAST IRON MEETS ASTM A48 CLASS 30

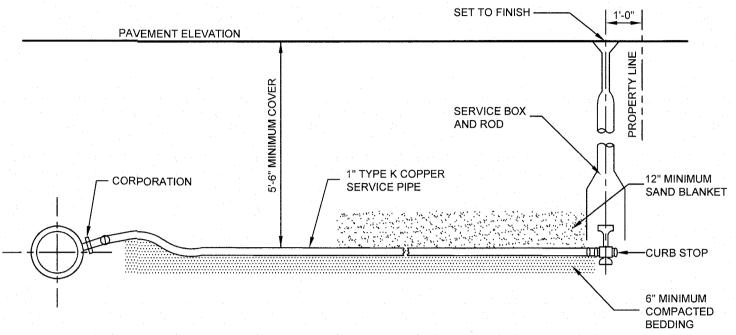
SECTION

SEWER MANHOLE FRAME AND COVER DETAIL NOT TO SCALE (MARCH 2008)

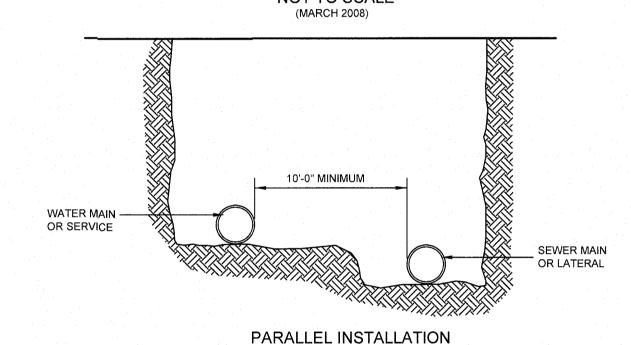
32"

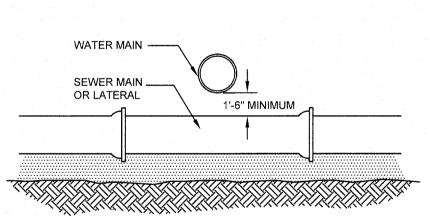






## WATER SERVICE CONNECTION NOT TO SCALE



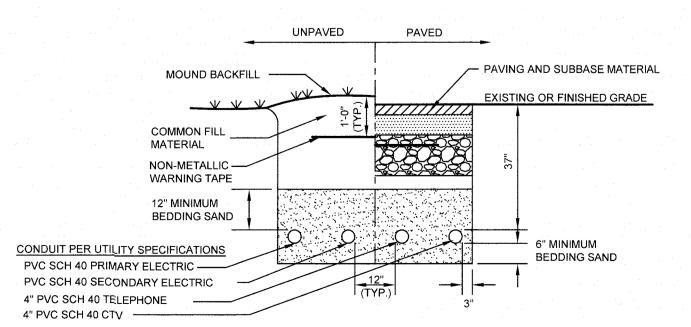


# MAIN CROSSINGS

WATER MAIN/SEWER MAIN SEPARATION

NOT TO SCALE

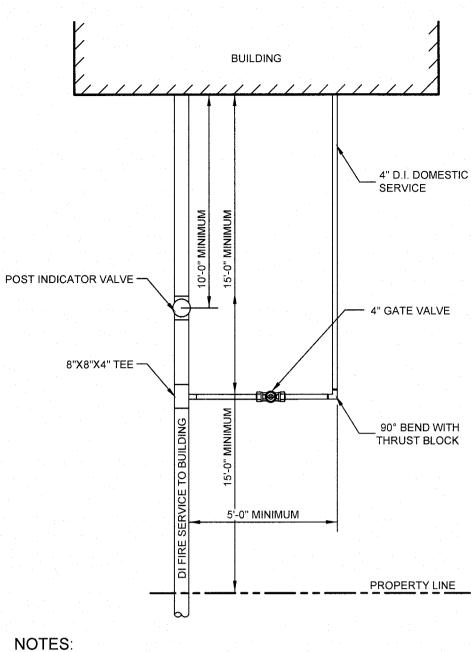
(AUGUST 2011)



NOTES:

1 INSTALLATION AND MATERIALS OF UNDERGROUND UTILITIES
SHALL CONFORM TO LOCAL UTILITY COMPANY SPECIFICATIONS.
2. COORDINATE WITH UTILITY COMPANIES PRIOR TO THE START OF

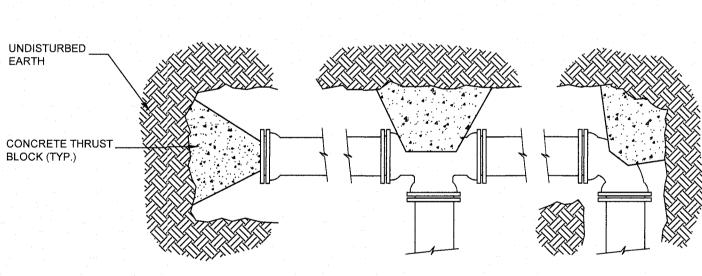
UTILITY TRENCH DETAIL
NOT TO SCALE



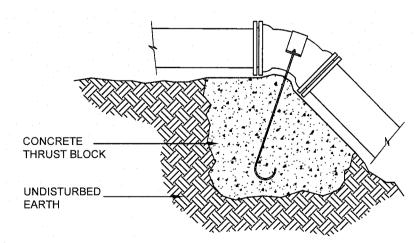
- ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO TOWN OF HUDSON SPECIFICATIONS.
- 2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5'-6" FROM TOP OF PIPE TO FINISH GRADE.
- 3. SEE DETAIL FOR SERVICE AND VALVE BOX INSTALLATION DETAIL.
- 4. SEE DETAIL A-11 FOR OUTSIDE SERVICE ENTRANCE PLAN VIEW.

# DOMESTIC SERVICE TAPPED OFF FIRE SERVICE (A-24) NOT TO SCALE

(MARCH 2008)



PLAN - HORIZONTAL BENDS, TEES AND PLUGS



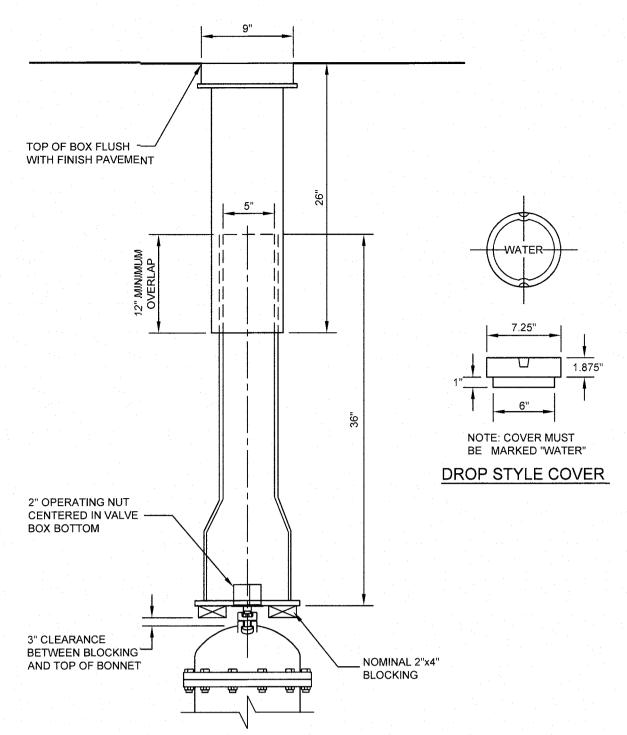
### **ELEVATION - VERTICAL BENDS**

#### NOTES

- THRUST BLOCK DIMENSIONS TO BE DETERMINED IN FIELD BY
  ENGINEER BASED ON PIPE SIZE, WATER PRESSURE AND SOIL TYPE.
- 2. STONE BACKING MAY BE SUBSTITUTED FOR CONCRETE THRUST BLOCKS PROVIDED THE STONE(S) ARE OF EQUAL SIZE AND BEAR ON UNDISTURBED EARTH.
- 3. USE OF JOINT RESTRAINT SYSTEMS SHALL NOT ELIMINATE THRUST BLOCK REQUIREMENTS (WHERE POSSIBLE).

THRUST BLOCKS

NOT TO SCALE
(MARCH 2008)



#### **BOTTOM DETAIL**

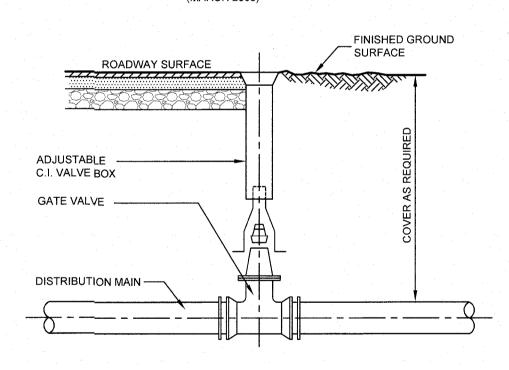
## IOTES: ALL MATERIALS AND INSTALLAT

1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO PENNICHUCK WATER WORKS, INC. TECHNICAL SPECIFICATIONS.

2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5'-0" FROM TOP OF PIPE TO FINISH GRADE.

## VALVE BOX DETAIL

(A-09) NOT TO SCALE (MARCH 2008)



WATER AND GAS GATE VALVE
NOT TO SCALE
(MARCH 2008)

# CONSTRUCTION DETAILS CENTRAL GAS

MAP 182; LOT 217

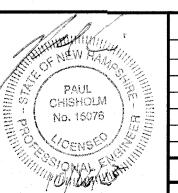
LOWELL ROAD & CENTRAL STREET HUDSON, NEW HAMPSHIRE HILLSBOROUGH COUNTY

#### OWNER/APPLICANT:

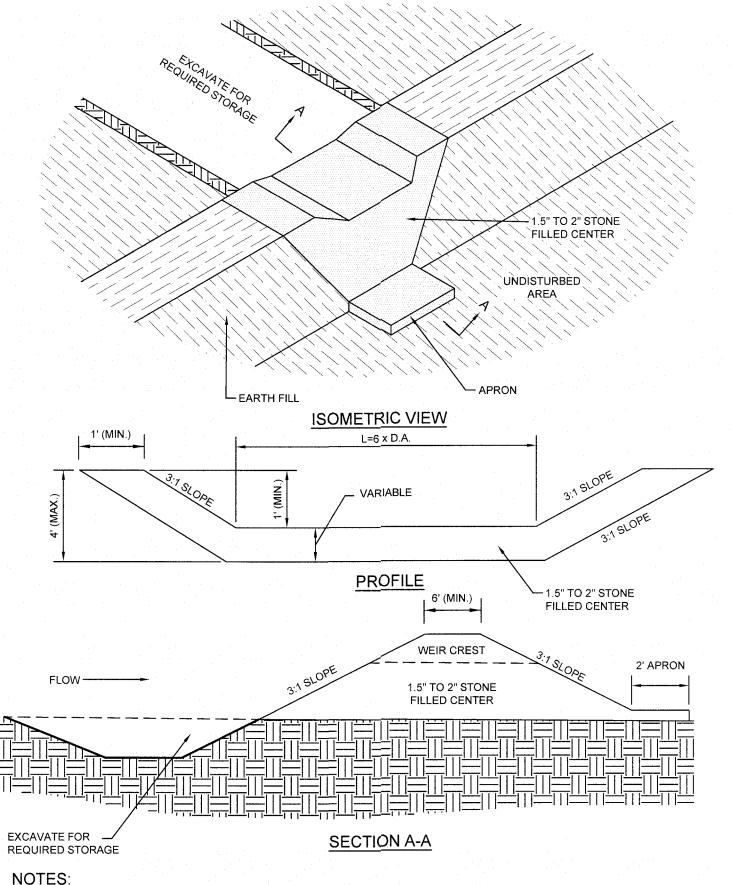
NOTTINGHAM SQUARE CORPORATION 46 LOWELL ROAD HUDSON, N.H. 03051



KEACH-NORDSTROM ASSOCIATES, INC.



		REVISIONS	
No.	DATE	DESCRIPTION	BY
1	09-07-2023	REVISIONS PER TOWN AND PEER REVIEW	BES
2	10-25-2023	REVISIONS PER TOWN AND PEER REVIEW	PDC
DA	TE: JULY 10,	2023 <b>SCALE:</b> 1" = 40'	
PR	OJECT NO: 1	8-0612-3 <b>SHEET</b> 19 <b>OF</b> 20	



- THE TRAP SHALL BE INSTALLED AS CLOSE TO THE DISTURBED AREA OR SOURCE OF SEDIMENT AS POSSIBLE
- THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE TRAP SHALL BE LESS THAN 5 ACRES.
- THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA. 4. THE SIDE SLOPES OF THE TRAP SHALL BE 3:1 OR FLATTER, AND SHALL BE STABILIZED IMMEDIATELY AFTER THEIR CONSTRUCTION
- 5. THE OUTLET OF THE TRAP SHALL BE A MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP AND SHALL DISCHARGE TO A STABILIZED AREA.
- THE TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED. THE MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED
- 8. SEDIMENT TRAPS AND/OR BASINS SHOULD BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL BASINS/PONDS ARE STABILIZED.

#### TEMPORARY SEDIMENT TRAP DETAIL

#### TURF ESTABLISHMENT SCHEDULE

- O ESTABLISH AND MAINTAIN PERMANENT AND TEMPORARY TURF AREAS, RESTORE GROWTH TO EXISTING TURF AREAS DISTURBED DURING CONSTRUCTION AND CONTROL SOIL EROSION. PREPARATION AND EXECUTION:
- 1. RAKE THE SUBGRADE OF ALL AREAS TO BE LOAMED AND SEEDED TO REMOVE RUBBISH, STICKS, ROOTS AND
- STONES LARGER THAN 1 INCH.
- PLACE LOAM OVER AREAS TO BE SEEDED AND SPREAD. FINE GRADE SURFACE AND SUPPLEMENT WITH SUITABLE LOAM WHERE NEEDED TO CREATE A UNIFORM SURFACE ACCORDING TO THE FINISH GRADES INDICATED; TOP AND BOTTOM OF SLOPES SHALL BE ROUNDED. NO LOAM SHALL BE SPREAD IF THE SUBGRADE IS EXCESSIVELY WET OR FROZEN.
- 4. APPLY LIME EVENLY OVER LOAM SURFACE AND THOROUGHLY INCORPORATE LIME INTO THE LOAM BY HEAVY RAKING TO AT LEAST ONE-HALF THE DEPTH OF THE LOAM
- APPLY NO PHOSPHATE, SLOW RELEASE FERTILIZER AND MIX WITH THE UPPER 2 INCHES OF LOAM. DETERMINE APPROPRIATE MIXTURE FOR AREA TO BE SEEDED BASED ON EXAMINATION OF PROJECT PLANS. UNIFORMLY SPREAD THE SEED BY BROADCASTING OR HYDROSEEDING. IF BROADCASTING, LIGHTLY RAKE INTO
- THE PREPARED SURFACE AND ROLL. IF, HYDROSEEDING, USE 4 TIMES THE RECOMMENDED RATE OF INOCULANT. AFTER SEED IS SPREAD, WATER THOROUGHLY WITH A FINE SPRAY. SEEDING FOR PERMANENT COVER SHALL OCCUR BETWEEN SEPTEMBER 15 AND OCTOBER 15 AND BETWEEN APRIL 15 AND JUNE 15. SEEDING SHALL NOT BE DONE DURING WINDY WEATHER, WHEN THE GROUND IS FROZEN OR
- EXCESSIVELY WET OR OTHERWISE UNTILLABLE 8. WITHIN 24 HOURS AFTER SEEDING OPERATION, UNIFORMLY MULCH THE AREA WITH STRAW. ANCHOR MULCH ON
- ALL SLOPES EXCEEDING 3: 1 USING MULCH NETTING INSTALLED IN ACCORDANCE WITH THE MANUFACTURER. PROTECT AND PREVENT AGAINST WASHOUTS, ANY WASHOUTS WHICH OCCUR SHALL BE PROMPTLY REGRADED AND RESEEDED.
- 10. WHEN IT IS IMPRACTICAL TO ESTABLISH PERMANENT GROWTH ON DISTURBED EARTH BY OCTOBER 15, A TEMPORARY SEED MIXTURE SHALL BE USED. WHEN TEMPORARY SEEDING CANNOT ESTABLISH VISIBLE GROWTH, THE DISTURBED AREA SHALL BE COVERED WITH SIX INCHES OF MULCH FOR THE WINTER.

#### MAINTENANCE

PURSUANT TO THE

SITE REVIEW

REGULATIONS OF

THE HUDSON

PLANNING BOARD

THE SITE PLAN

APPROVAL

GRANTED HEREIN

EXPIRES TWO

YEARS FROM DATE

OF APPROVAL

ALL SEEDED AREAS SHALL BE KEPT WATERED AND IN GOOD CONDITION. RESEED AS NECESSARY TO ESTABLISH HEALTHY UNIFORM GROWTH OVER THE ENTIRE SEEDED AREA. MAINTAIN SEEDED AREAS IN AN APPROVED CONDITION UNTIL FINAL ACCEPTANCE. MAINTENANCE SHALL INCLUDE REPAIRS FOR DAMAGE CAUSED BY EROSION.

**APPLICATION RATES:** LOAM SHALL BE APPLIED AT A MINIMUM COMPACTED THICKNESS OF 4 INCHES.

DATE OF MEETING:

- LIME SHALL BE APPLIED AT A RATE OF 75 TO 100 POUNDS PER 1,000 S.F. FERTILIZER SHALL BE APPLIED AT A RATE OF 30 POUNDS PER 1,000 S.F. IT IS RECOMMENDED THAT THE SOIL BE
- TESTED PRIOR TO APPLYING ANY FERTILIZERS TO DETERMINE WHAT LEVELS AND RATES ARE NECESSARY. 4. SEED MIXTURE FOR LAWN AREAS SHALL BE APPLIED AT A RATE OF AT LEAST 80 POUNDS PER ACRE OR 2 POUNDS
- TEMPORARY SEED MIXTURE SHALL BE APPLIED AT A RATE OF 2 POUNDS PER 1,000 S.F.
- SEED MIXTURE FOR SLOPE AREAS SHALL BE APPLIED AT A RATE OF 80 POUNDS PER ACRE OR 2 POUNDS PER 1,000 8.
- SEED MIXTURE FOR STORMWATER MANAGEMENT AREAS SHALL BE APPLIED AT A RATE OF 70 POUNDS PER ACRE OR 1.6 POUNDS PER 1,000 S.F.

APPROVED BY THE HUDSON, NH PLANNING BOARD

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD

MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING

BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.

SIGNATURE DATE:

SIGNATURE DATE: \_\_\_

8. MULCH SHALL BE APPLIED AT A RATE OF 90 POUNDS PER 1,000 S.F.

#### MATERIALS:

 LOAM USED FOR TOPSOIL SHALL BE FRIABLE, FERTILE, NATURAL FREE-DRAINING LOAM; FREE OF ROOTS, GRASS, STICKS, WEEDS, CLAY, SOD LUMPS, DEBRIS AND STONES LARGER THAN 1 INCH IN ANY DIMENSION. SOIL SHALL NOT BE EXCESSIVELY ACID OR ALKALINE AND CONTAIN NO TOXIC MATERIALS.

**EROSION CONTROL MATERIAL NOTE** 

PRODUCTS, EXCEPT FOR SILT FENCE INSTALLED IN

WELDED PLASTIC, PLASTIC, OR MULTI-FILAMENT OR

PREVENT EXPOSURE OF THE MATS TO THE SURFACE.

OPENING SIZE OF GREATER THAN 1//8 INCH.

ALL MANUFACTURED EROSION AND SEDIMENT CONTROL

ACCORDANCE WITH ENV-WQ 1506.04, UTILIZED FOR, BUT NOT

LIMITED TO, SLOPE PROTECTION, RUNOFF DIVERSION, SLOPE

MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AN

TURF REINFORCEMENT MATS SHALL BE COVERED WITH SOIL TO

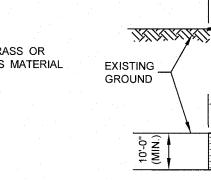
INTERRUPTION, PERIMETER CONTROL, INLET PROTECTION,

CHECK DAMS, AND SEDIMENT TRAPS SHALL NOT CONTAIN

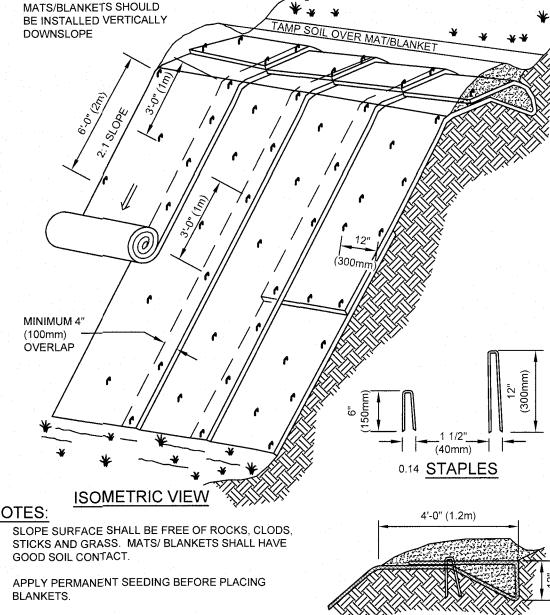
- 2. LIME SHALL BE GROUND LIMESTONE CONTAINING NO LESS THAN 95% CALCIUM AND MAGNESIUM CARRONATES
- FERTILIZER SHALL BE NO PHOSPHORUS, SLOW RELEASE. SEED MIXTURE FOR LAWN AREAS SHALL BE 99% PURE LIVE SEED AND CONSIST OF THE
- FOLLOWING: 25% CREEPING RED FESCUE
- 25% KENTUCKY BLUEGRASS 25% REDTOP
- 25% MANHATTAN PERENNIAL RYEGRASS TEMPORARY SEEDING MIXTURE SHALL BE AN APPROVED CONSERVATION MIX OR CONSIST OF THE FOLLOWING:
- 15% BLACKWELL OR SHELTER SWITCHGRASS 30% NIAGRA OR KAW BIG BLUESTEM 30% CAMPER OR BLAZE LITTLESTEM

15% NE-27 OR BLAZE SAND LOVEGRASS

- 10% VIKING BIRDSFOOT TREFOIL INOCULUM SPECIFIC TO BIRDSFOOT TREFOIL MUST BE USED WITH THIS MIXTURE. IF SEEDING BY HAND, A STICKING AGENT SHALL BE USED. IF SEEDING WITH A
- HYDROSEEDER USE FOUR TIMES THE RECOMMENDED AMOUNT OF INOCULUM 6. SEED MIXTURE FOR SLOPE AREAS SHALL BE 99% PURE LIVE SEED AND SHALL CONSIST OF THE FOLLOWING:
  - 30% CREEPING RED FESCUE 40% PERENNIAL RYE GRASS
  - 15% BIRDSFOOT TREFOIL
  - \*IN ADDITION TO THE MIX SPECIFIED ABOVE, CROWN VETCH SHALL BE USED ON ALL SLOPES STEEPER THAN 3:1. CROWN VETCH SHALL BE APPLIED AT A RATE OF 10 POUNDS PER ACRE AND INOCULUM SPECIFIC TO CROWN VETCH MUST BE USED.
- SEED MIXTURE FOR STORMWATER MANAGEMENT AREAS, INCLUDING DETENTION BASINS AND VEGETATED TREATMENT SWALES SHALL CONSIST OF THE FOLLOWING:
  - 25% CREEPING RED FESCUE 15% SWITCH GRASS 15% FOX SEDGE
- 15% CREEPING BENTGRASS 10% FLATPEA
- 20% WILDFLOWER VARIETY STRAW USED FOR MULCH SHALL CONSIST OF MOWED AND PROPERLY CURED GRASS OR LEGUME MOWINGS, FREE FROM WEEDS, TWIGS, DEBRIS OR OTHER DELETERIOUS MATERIAL
- AND ROT OR MOLD NATIVE PLANTINGS SHOULD BE USED FOR ALL NEW GREENSCAPES. 10. ALL WILDFLOWER SEEDING MIXES SHOULD BE FREE OF INVASIVE SPECIES.



STABILIZED CONSTRUCTION EXIT DETAIL NOT TO SCALE



AREA TO BE PROTECTED

## 1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS

SECTION VIEW

PLAN VIEW

STAKE ON 10' LINEAL SPACING

WATER FLOW

2"x2" WOODEN --

FILTREXX<sup>®</sup>SILTSOXX<sup>™</sup>

**WORK AREA** 

(12"-18" TYPICAL) OR -

APPROVED EQUAL

WORK AREA

AREA TO BE

PROTECTED

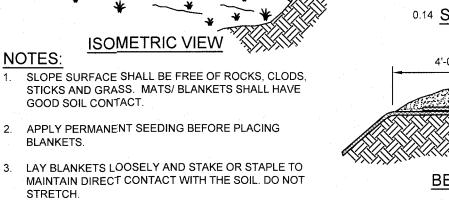
FILTREXX<sup>®</sup>COMPOST

¯SILTSOXX(™)

3" TO 4"

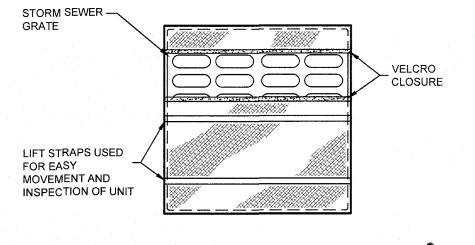
- 2. SILTSOXX COMPOST/SOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS.
- 3. SILTSOXX<sup>™</sup> DEPICTED IS FOR MINIMUM SLOPES. GREAT SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER.
- 4. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED

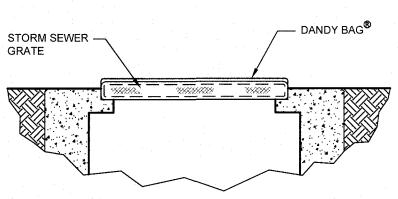
FILTREXX® SILTSOXX DETAIL



### **EROSION CONTROL BLANKETS - SLOPE INSTALLATION** NOT TO SCALE

(AUGUST 2011)





#### HI-FLOW DANDY BAG® (SAFETY ORANGE)

4. EROSION BLANKETS TO BE A BCN150 OR AN APPROVED

ALTERNATIVE WHICH MUST CONSIST OF ALL NATURAL

MECHANICAL PROPERTIES	TEST METHOD	UNITS	MARV
GRAB TENSILE STRENGTH	ASTM D 4632	kN (ibs)	1.62 (365) x 0.89 (200)
GRAB TENSILE ELONGATION	ASTM D 4632	%	24 x 10
PUNCTURE STRENGTH	ASTM D 4833	kN (lbs)	0.40 (90)
MULLEN BURST STRENGTH	ASTM D 3786	kPa (psi)	3097 (450)
TRAPEZOID TEAR STRENGTH	ASTM D 4533	kN (lbs)	0.51 (115) x 0.33 (75)
UV RESISTANCE	ASTM D 4355	%	90
APPARENT OPENING SIZE	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
FLOW RATE	ASTM D 4491	1/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	5907 (145)
PERMITTIVITY	ASTM D 4491	Sec <sup>-1</sup>	2.1

#### MAINTENANCE

3" MINUS STONE BERM

3" MINUS STONE BERM

(WHERE REQUIRED)

2% (3" TO 6" HIGH)

EXISTING

**PAVEMENT** 

WHERE GRADE EXCEEDS

MUD AND SOIL PARTICLES WILL EVENTUALLY CLOG THE VOIDS IN THE CRUSHED STONE AND THE EFFECTIVENESS OF THE CRUSHED STONE PAD WILL NOT BE SATISFACTORY. WHEN THIS OCCURS, THE PAD SHOULD BE TOPDRESSED WITH NEW CRUSHED STONE OR COMPLETE REPLACEMENT OF THE PAD MAY BE NECESSARY WHEN THE PAD BECOMES COMPLETELY

2. IF WASHING FACILITIES ARE USED, THE SEDIMENT TRAPS SHOULD BE CLEANED OUT AS OFTEN AS NECESSARY TO ASSURE THAT ADEQUATE TRAPPING EFFICIENCY AND STORAGE VOLUME IS AVAILABLE. VEGETATIVE FILTER STRIPS SHOULD BE MAINTAINED TO INSURE A VIGOROUS STAND OF VEGETATION AT ALL TIMES.

#### CONSTRUCTION SPECIFICATIONS:

- STONE FOR A STABILIZED CONSTRUCTION EXIT SHALL BE 3 INCH MINIMUM STONE, RECLAIMED STONE OR RECYCLED CONCRETE EQUIVALENT.
- 2. THE LENGTH OF THE STABILIZED EXIT SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY. 3. THE THICKNESS OF THE STONE FOR THE STABILIZED EXIT SHALL NOT BE LESS THAN 3
- 4. THE WIDTH OF THE EXIT SHALL NOT BE LESS THAN THE FULL WIDTH OF THE AREA WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICHEVER IS GREATER. 5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING
- THE STONE. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT. 6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION EXIT SHALL BE PIPED BENEATH THE EXIT. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES
- THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE. 7. THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
- 8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- 9. THE MOUNTABLE BERM IS REQUIRED FOR 50' LONG EXITS.

#### CONSTRUCTION SEQUENCE

- THE CONTRACTOR WILL ENSURE THAT NO MORE THAN 5 ACRES IS DISTURBED AT ANY ONE TIME.
- FIRST CUT AND CLEAR TREES AND BRUSH ONLY WITHIN DESIGNATED LIMITS OF CLEARING AS NECESSARY TO FACILITATE PROPOSED CONSTRUCTION. ALL TREES, BRANCHES AND OTHER VEGETATIVE MATERIALS SHALL BE PROPERLY DISPOSED OF OFF SITE BY THE CONTRACTOR. THIS PROJECT IS MANAGED TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
- PRIOR TO COMMENCEMENT OF ANY EARTHMOVING OPERATIONS, ALL APPLICABLE TEMPORARY EROSION CONTROL MEASURES, INCLUDING SPECIFIED PERIMETER SILTATION FENCING AND STABILIZED CONSTRUCTION EXIT SHALL BE IN
- PLACE AS SHOWN ON THE PROJECT PLANS. COMPLETE GRUBBING OPERATIONS. ALL STUMPS AND SIMILAR ORGANIC DEBRIS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR. NATIVE ORGANIC SOIL MATERIALS SUITABLE FOR USE AS TOPSOIL SHALL BE STOCKPILED WITHIN AREAS OUT OF THE WAY OF OTHER CONSTRUCTIONS ACTIVITIES AND DRAINAGE FLOW. STOCKPILES SHALL BE TEMPORARILY SEEDED WITH WINTER RYE AND BE SURROUNDED WITH STRAW BALES AND/OR FABRIC SILTATION FENCE IN
- ORDER TO PREVENT LOSS DUE TO EROSION. 5. BEGIN EARTHMOVING OPERATIONS, COMMENCING WITH WORK NEEDED TO BALANCE SITE AND FACILITATE BUILDING
- FOUNDATION AND RETAINING WALL CONSTRUCTION. PERMANENT DOWNSLOPE WORK SHALL BE PROTECTED FROM UPGRADIENT STORMWATER FLOW BY THE CONSTRUCTION OF TEMPORARY EARTHEN DIKES OR EXCAVATED SWALES. 6. ONCE BUILDING FOUNDATION WORK IS UNDERWAY, CONTINUE EARTHMOVING OPERATIONS UNTIL DESIGN SUBGRADE IS
- 7. DETENTION BASINS/SWALES SHALL BE INSTALLED BEFORE ROUGH GRADING THE SITE. 8. DITCHES/SWALES/BASINS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM
- 9. TEMPORARY WATER DIVERSION (SWALES, BASINS, ETC.) MUST BE USED AS NECESSARY UNTIL SOILS ARE STABILIZED. 10. INSTALL DRAINAGE SWALE SYSTEMS AND OTHER UTILITIES WORKING FROM LOW TO HIGH. INCOMPLETE WORK SHALL BE PROTECTED FROM SILTATION BY THE USE OF SILTATION BARRIERS AROUND SWALES UNTIL THE SITE HAS BECOME FULLY
- 11. DEEPLY TILL THE BASE OF THE INFILTRATION BASIN TO RESTORE INFILTRATION RATES FOLLOWED BY A PASS WITH A LEVELING DRAG. STORMWATER FLOWS ARE NOT TO BE DIRECTED TO THE INFILTRATION AREA UNTIL CONTRIBUTING
- AREAS HAVE BEEN FULLY STABILIZED. 12. PLACE GRAVEL AND CRUSHED GRAVEL OVER PROPOSED DRIVEWAY, WALKS AND PARKING AREAS AND COMPACT IN
- 13. COMPLETE EXCAVATION/STABILIZATION GRADING ACTIVITIES. WHEN COMPLETE, IMMEDIATELY BEGIN TOPSOILING
- PROPOSED TURF AREAS USING STOCKPILED LOAM SUPPLEMENTED WITH BORROW LOAM, IF NECESSARY, TO LEAVE A THICKNESS OF 4 INCHES OF FRIABLE LOAM. 14. FINE GRADE ALL FUTURE TURF AREAS AND HYDROSEED WITH THE SPECIFIED SEED MIXTURE IMMEDIATELY AFTER FINE
- GRADING IS COMPLETED. ALL AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE. 15. INSTALL THE BINDER COURSE OF PAVEMENT OVER ALL DESIGNATED AREAS.
- 16. CONTINUE TO MONITOR AND RECTIFY MINOR SITE AND SLOPE EROSION UNTIL ENTIRE SITE APPEARS TO BE COMPLETELY STABILIZED AND VEGETATED WITH A HEALTHY STAND OF TURF OR GROUND COVER. MAINTAIN SPECIFIED SILTATION/EROSION CONTROL MEASURES THROUGH ONE WINTER.

#### 17. INSTALL THE SPECIFIED WEARING COURSE OF PAVEMENT OVER THE BINDER COURSE. 18. COMPLETE INSTALLATION OF LANDSCAPING, SIGNAGE AND OTHER SITE AMENITIES.

#### **EROSION CONTROL NOTES**

- EXPOSED EARTHWORK SHALL BE CONFINED TO AS LIMITED AN AREA AS IS PRACTICAL AT ANY GIVEN TIME THROUGHOUT THE CONSTRUCTION SEQUENCE. AT NO TIME SHALL MORE THAN FIVE (5) ACRES OF SITE AREA BE IN AN UNSTABLE CONDITION UNLESS AN ENVIRONMENTAL MONITOR IS EMPLOYED THROUGH THE DURATION OF CONSTRUCTION. NO GIVEN AREA OF THE SITE SHALL BE LEFT IN AN UNSTABILIZED CONDITION FOR A PERIOD OF TIME EXCEEDING FORTY-FIVE (45) CALENDAR DAYS
- TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED IN STRICT ACCORDANCE WITH PROJECT PLANS. IN ADDITION, SIMILAR MEASURES SHALL BE INSTALLED WHERE AND WHEN THE FIELD CONDITION, OR FIELD OPERATION OF THE INDIVIDUAL SITE CONTRACTOR, MAY WARRANT. ALL TEMPORARY EROSION CONTROL MEASURES USED SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER 0.25" OF RAINFALL OR MORE. THEY SHALL BE CLEANED AND
- MAINTAINED AND OTHERWISE KEPT IN AN EFFECTIVE OPERATING MANNER THROUGHOUT THE CONSTRUCTION PERIOD 3. ALL DISTURBED AREAS DESIGNATED TO BE TURF, SHALL RECEIVE A MINIMUM APPLICATION OF 4 INCHES OF LOAM
- (COMPACTED THICKNESS), PRIOR TO FINAL SEEDING AND MULCHING. 4. EROSION CONTROL AND STABILIZATION SHALL BE IN ACCORDANCE WITH HILLSBOROUGH COUNTY CONSERVATION DISTRICT-VEGETATIVE STANDARD AND SPECIFICATIONS FOR SEEDING GRASSES AND LEGUMES FOR LONG-TERM COVER
- 5. ALL SWALES AND DITCHLINES SHALL BE PERIODICALLY CLEANED OF DEPOSITED SEDIMENT SO AS TO MAINTAIN AN EFFECTIVE GRADE AND CROSS SECTION. ALL SWALES AND DITCHLINES SHALL BE FULLY STABILIZED PRIOR TO HAVING
- STORMWATER DIRECTED TOWARDS THEM. 6. IN THE EVENT THAT, DURING CONSTRUCTION OF ANY PORTION OF THIS PROJECT, A WINTER SHUTDOWN IS NECESSARY,
- THE CONTRACTOR SHALL STABILIZE ALL INCOMPLETE WORK AND PROVIDE FOR SUITABLE METHODS OF DIVERTING RUNOFF IN ORDER TO ELIMINATE SHEET FLOW ACROSS FROZEN SURFACES.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED A. BASE COURSE GRAVELS ARE INSTALLED IN AREAS TO BE PAVED;
  - B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
- C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED; OR D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED. 8. DUST SHALL BE CONTROLLED BY THE USE OF WATER AS NECESSARY THROUGHOUT THE CONSTRUCTION PERIOD, IN
- ACCORDANCE WITH ENV-A 1000 9. IN NO WAY ARE THOSE TEMPORARY EROSION CONTROL MEASURES INDICATED ON THESE PLANS TO BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR SHALL USE JUDGEMENT IN INSTALLING SUPPLEMENTARY EROSION CONTROL MEASURES
- WHERE AND WHEN SPECIFIC SITE CONDITIONS AND/OR CONSTRUCTION METHODOLOGIES MAY WARRANT. THE TOWN RESERVES THE RIGHT TO REQUIRE ADDITIONAL EROSION CONTROL MEASURES DURING CONSTRUCTION. 11. AREAS HAVING FINISH GRADE SLOPES OF 3:1 OR STEEPER, SHALL BE STABILIZED WITH JUTE MATTING WHEN AND IF FIELD CONDITIONS WARRANT, OR IF SO ORDERED. JUTE MATTING INSTALLED TO CONFORM WITH THE RECOMMENDED BEST
- MANAGEMENT PRACTICE OUTLINED IN VOLUME 3 OF THE NEW HAMPSHIRE STORMWATER MANUAL "EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION.
- 12. DETENTION BASINS/SWALES \$HALL BE INSTALLED BEFORE ROUGH GRADING THE SITE 13. DITCHES/SWALES/BASINS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM
- 14. TEMPORARY WATER DIVERSION (SWALES, BASINS, ETC.) MUST BE USED AS NECESSARY UNTIL SOILS ARE STABILIZED.
- 15. ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. 16. ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

#### WINTER CONSTRUCTION NOTES:

- ALL PROPOSED POST-DEVELOPMENT VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 4:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE PLACEMENT OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE
- COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS. 2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER OCTOBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3 OR, IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON, BE
- CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- A. BASE COURSE GRAVELS ARE INSTALLED IN AREAS TO BE PAVED:
- B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED:
- C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED; OR
- D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

## **CONSTRUCTION DETAILS** CENTRAL GAS

MAP 182; LOT 217

LOWELL ROAD & CENTRAL STREET HUDSON, NEW HAMPSHIRE

## OWNER/APPLICANT:

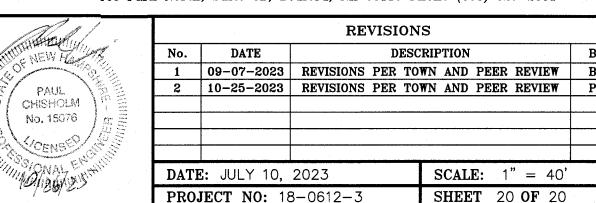
HILLSBOROUGH COUNTY

NOTTINGHAM SQUARE CORPORATION 46 LOWELL ROAD HUDSON, N.H. 03051



■ KEACH-NORDSTROM ASSOCIATES. INC.

Civil Engineering Land Surveying Landscape Architecture 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881



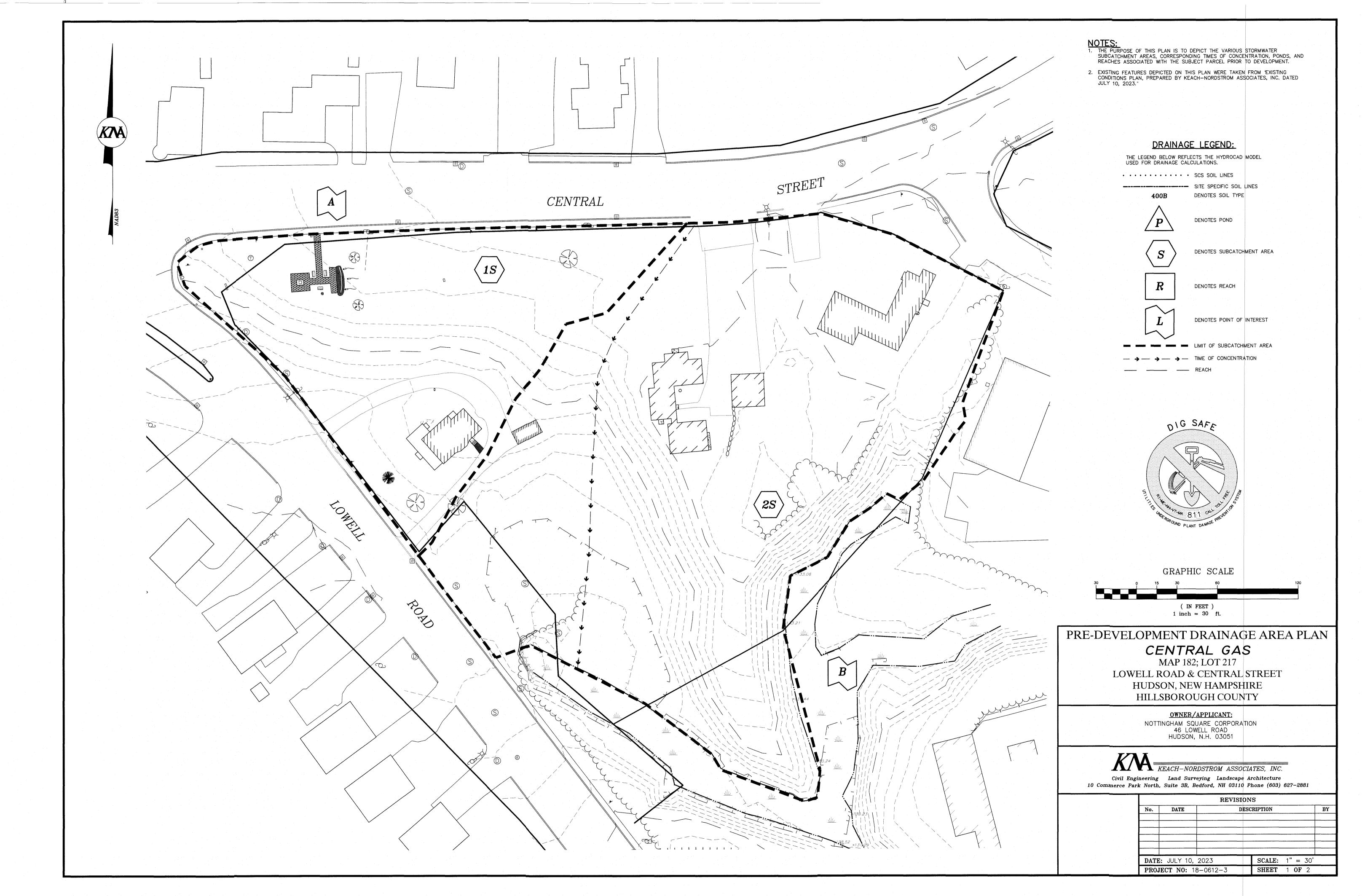
# 50'-0" (MIN.) 6" (MIN.) THICKNESS OF 3" COARSE AGGREGATE PLAN VIEW

- 6" (MIN )

PROFILE

50'-0" (MIN.)

-FILTER



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