55 Walkers Brook Drive, Suite 100, Reading, MA 01867
Tel: 978.532.1900

MEMORANDUM

TO: Littleton Planning Board & Conservation Commission

FROM: Aaron K. Guazzaloca

DATE: January 29, 2024

SUBJECT: Test Pit Logs and ESHGW Determination for Taylor Street Well Project

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On December 27, 2023, Weston & Sampson conducted stormwater test pits at 153 Taylor Street for the determination of estimated seasonal high groundwater elevations (ESHGW) related to the stormwater management design of the Taylor Street Well project.

At the location of the proposed stormwater infiltration trench located adjacent to the proposed well building, two test pits were conducted (TP-1 & TP-2). Data collected at TP-1 indicated ESHGW to be at an elevation of 220.45-FT± while at the location of TP-2, ESHGW was located at an elevation of 220.27-FT±. The bottom of the proposed infiltration practice at this location is set at 222.50-FT, providing 2.05-FT of separation from the bottom of the practice to ESHGW, which exceeds the minimum 2.0-FT of separation to ESHGW as required by MassDEP in the Stormwater Handbook.

At the location of the proposed stormwater infiltration basin, two test pits were also conducted (TP-3 & TP-4). Data collected at TP-3 indicated ESHGW to be at an elevation of 221.21-FT± while at the location of TP-4, ESHGW was located at an elevation of 220.87-FT±. The bottom of the proposed infiltration practice at this location is set at 229.00-FT, providing 7.79-FT of separation from the bottom of the practice to ESHGW, again exceeding the minimum required separation per MassDEP.

Two additional test pits (TP-5 & TP-6) were conducted to provide additional information on subsurface soil conditions encountered on site. Groundwater was not encountered in either TP-5 or TP-6.

Data from all six of these excavations are included in the attached test pit logs accompanying this memorandum, along with a map showing the locations of the test pits. It shall be noted that at the time the test pits were conducted, drought levels were recorded at Level 0 per the Massachusetts Drought Management Task Force, indicating normal groundwater conditions.

TEST PIT LOG

PROJECT NAME/NO.	Taylor Street Well			**TEST PIT NUMBER: TP-1**	
LOCATION	153 Taylor Street				
CLIENT	Littleton Water Department			TEST PIT LOCATION	See Plan
WEATHER	Cloudy, Wet, 52°	OPERATOR	Greg Leger	GROUNDWATER	ELE: 220.45
EQUIPMENT	John Deere 410E	DATE	12/27/23	REFUSAL	N/A
OBSERVED BY	Ed Martin	TIME	8:00 A.M.		

DEPTH BELOW GROUND SURFACE (FT)	SAMPLE ID	PID	STRATA	SOIL DESCRIPTION	REMARKS
1				Ap - Fine Loamy Sand (10YR 2/2)	**0"-8" Granular, Friable**
2				Bw - Fine Loamy Sand (10YR 4/6)	**8"-21" Massive, Very Friable**
3				C - Fine-Medium Loamy Sand (2.5Y 5/4)	**21"-86" Single Grain, Loose, Trace Fine Gravel Weeping at 75"**
4					
5					
6					
7					
8				**No Refusal**	
9					
10					
11					
12					
13					
14					
15					

NOTES

ESHGW at 75"

No redox features observed

Weston & Sampson℠

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TEST PIT LOG

PROJECT NAME/NO.	Taylor Street Well			**TEST PIT NUMBER: TP-2**	
LOCATION	153 Taylor Street				
CLIENT	Littleton Water Department			TEST PIT LOCATION	See Plan
WEATHER	Cloudy, Wet, 52°	OPERATOR	Greg Leger	GROUNDWATER	ELE: 220.27
EQUIPMENT	John Deere 410E	DATE	12/27/23	REFUSAL	N/A
OBSERVED BY	Ed Martin	TIME	8:00 A.M.		

DEPTH BELOW GROUND SURFACE (FT)	SAMPLE ID	PID	STRATA	SOIL DESCRIPTION	REMARKS
1				Ap - Fine Loamy Sand (10YR 3/2)	**0"-5", Granular, Friable**
2				Bw - Fine Sandy Loam (10YR 5/8)	**5"-21" Massive, Friable**
3				C - Fine Loamy Sand (2.5Y 6/4)	**21"-61" Single Grain, Loose**
4					
5					
6				2C - Gravelly, Medium Sandy Loam (10YR 4/4)	**61"-110" Massive, Very Friable, Cobbles up to 12" Diameter Weeping at 100"**
7					
8					
9					
10				**No Refusal**	
11					
12					
13					
14					
15					

NOTES

ESHGW at 100"

No redox features observed

Weston & Sampson

TEST PIT LOG

PROJECT NAME/NO.	Taylor Street Well			**TEST PIT NUMBER: TP-3**	
LOCATION	153 Taylor Street				
CLIENT	Littleton Water Department			TEST PIT LOCATION	See Plan
WEATHER	Cloudy, Wet, 52°	OPERATOR	Greg Leger	GROUNDWATER	ELE: 221.21
EQUIPMENT	John Deere 410E	DATE	12/27/23	REFUSAL	N/A
OBSERVED BY	Ed Martin	TIME	8:00 A.M.		

DEPTH BELOW GROUND SURFACE (FT)	SAMPLE ID	PID	STRATA	SOIL DESCRIPTION	REMARKS
1				Ap - Fine Loamy Sand (10YR 2/1)	**0"-6", Granular, Friable**
				Bw - Fine Loamy Sand (2.5Y 5/4)	**6"-13", Massive, Friable**
2					
3					
4					
5					
6				C - Fine Sand (2.5Y 6/2)	**13"-105"** **Single Grain, Loose** **Weeping at 96"**
7					
8					
9					
10				**No Refusal**	
11					
12					
13					
14					
15					

NOTES

ESHGW at 96"
No redox features observed
Very sandy, walls of test pit caving in

Weston & Sampson

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TEST PIT LOG

PROJECT NAME/NO.	Taylor Street Well			**TEST PIT NUMBER: TP-4**	
LOCATION	153 Taylor Street				
CLIENT	Littleton Water Department			TEST PIT LOCATION	See Plan
WEATHER	Cloudy, Wet, 52°	OPERATOR	Greg Leger	GROUNDWATER	ELE: 220.87
EQUIPMENT	John Deere 410E	DATE	12/27/23	REFUSAL	N/A
OBSERVED BY	Ed Martin	TIME	8:00 A.M.		

DEPTH BELOW GROUND SURFACE (FT)	SAMPLE ID	PID	STRATA	SOIL DESCRIPTION	REMARKS
1				Ap - Fine Loamy Sand (10YR 2/1)	**0"-4", Granular, Friable**
2				Bw - Very Fine Loamy Sand (2.5Y 6/4)	**4"-18"** **Massive, Friable**
3				C - Fine-Medium Loamy Sand (2.5Y 5/4)	**18"-110"** **Single Grain, Loose** **Weeping at 100"**
4					
5					
6					
7					
8					
9					
10				**No Refusal**	
11					
12					
13					
14					
15					

NOTES

ESHGW at 100"
No redox features observed
Very sandy, walls of test pit caving in

Weston & Sampson℠

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TEST PIT LOG

PROJECT NAME/NO.	Taylor Street Well			**TEST PIT NUMBER: TP-5**	
LOCATION	153 Taylor Street				
CLIENT	Littleton Water Department			TEST PIT LOCATION	See Plan
WEATHER	Cloudy, Wet, 52°	OPERATOR	Greg Leger	GROUNDWATER	Not Encountered
EQUIPMENT	John Deere 410E	DATE	12/27/23	REFUSAL	N/A
OBSERVED BY	Ed Martin	TIME	8:00 A.M.		

DEPTH BELOW GROUND SURFACE (FT)	SAMPLE ID	PID	STRATA	SOIL DESCRIPTION	REMARKS
1				Ap - Fine Loamy Sand (10YR 3/2)	**0"-6", Granular, Friable**
2				Bw - Fine Loamy Sand (10YR 5/8)	**6"-19" Massive, Friable**
3					
4					
5					
6				C - Fine Sand (2.5Y 6/3)	**19"-130" Single Grain, Loose**
7					
8					
9					
10					
11				**No Refusal**	
12					
13					
14					
15					

NOTES

ESHGW not encountered

No redox features observed, no weeping observed

Very sandy

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TEST PIT LOG

PROJECT NAME/NO.	Taylor Street Well			**TEST PIT NUMBER: TP-6**	
LOCATION	153 Taylor Street				
CLIENT	Littleton Water Department			TEST PIT LOCATION	See Plan
WEATHER	Cloudy, Wet, 52°	OPERATOR	Greg Leger	GROUNDWATER	Not Encountered
EQUIPMENT	John Deere 410E	DATE	12/27/23	REFUSAL	N/A
OBSERVED BY	Ed Martin	TIME	8:00 A.M.		

DEPTH BELOW GROUND SURFACE (FT)	SAMPLE ID	PID	STRATA	SOIL DESCRIPTION	REMARKS
1				Ap - Fine Sandy Loam (10YR 2/1)	**0"-6", Granular, Friable**
2				Bw - Fine Sandy Loam (10YR 4/6)	**6"-18" Massive, Friable**
3				C - Fine Sand (2.5Y 6/2)	**18"-62" Single Grain, Loose,**
4					
5					
6				2C - Gravelly Medium Sand (2.5Y 4/4)	**62"-140" Single Grain, Loose**
7					
8					
9					
10					
11					
12				**No Refusal**	
13					
14					
15					

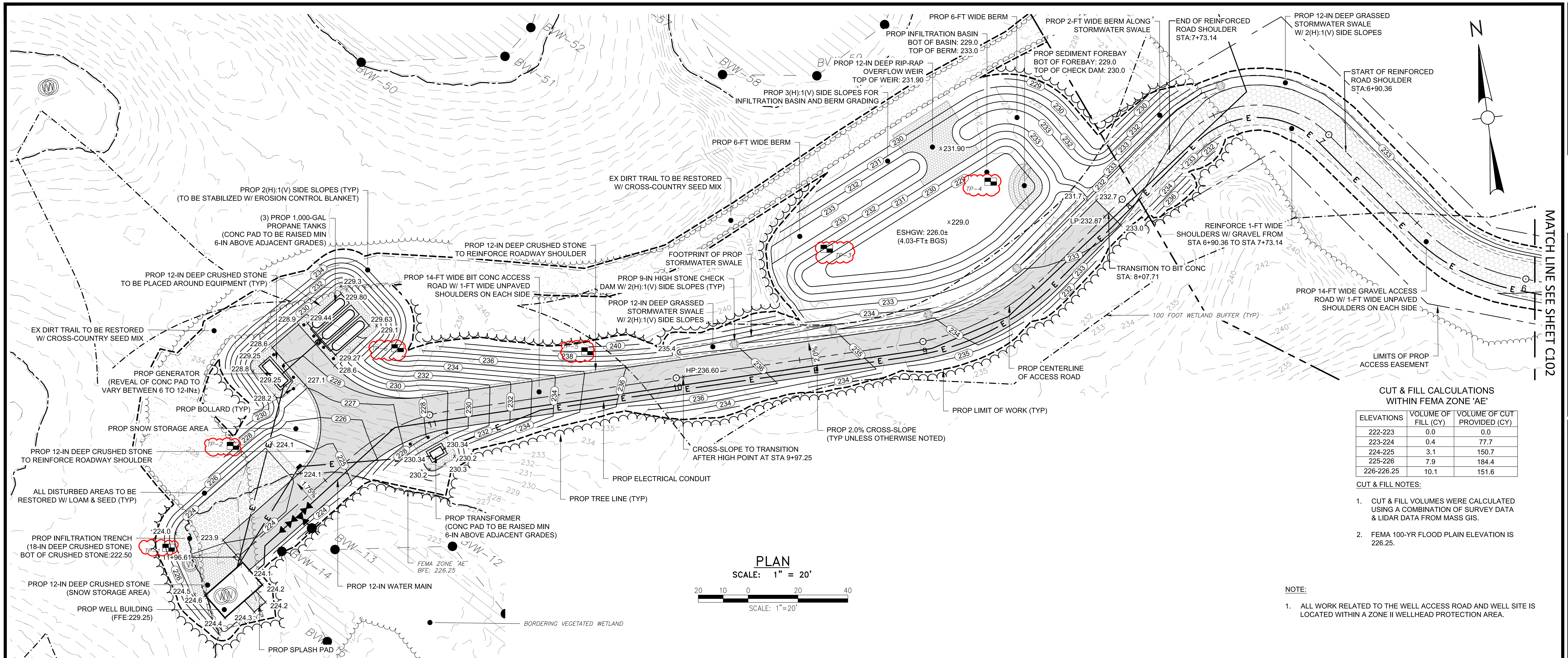
NOTES

ESHGW not encountered

No redox features observed, no weeping observed

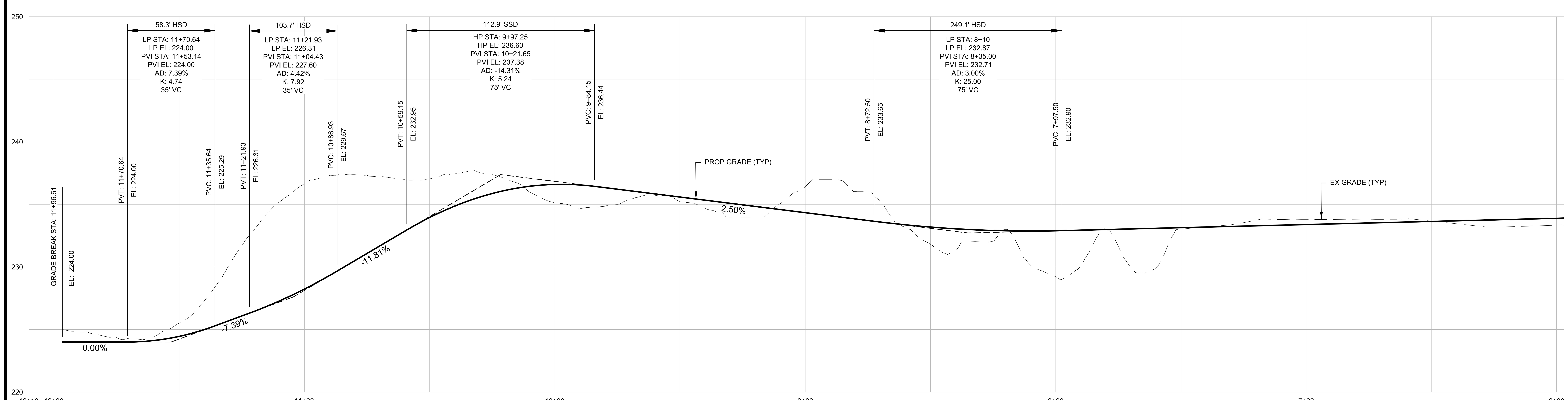
Very fine sand over a gravelly, cobbley layer

Weston & Sampson



PLAN

SCALE: 1" = 20'



PROFILE

SCALE: 1"=20' HORIZ
1"=4' VERT

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=4'

CUT & FILL CALCULATIONS WITHIN FEMA ZONE 'AE'

ELEVATIONS	VOLUME OF FILL (CY)	VOLUME OF CUT PROVIDED (CY)
222-223	0.0	0.0
223-224	0.4	77.7
224-225	3.1	150.7
225-226	7.9	184.4
226-226.25	10.1	151.6

CUT & FILL NOTES:

1. CUT & FILL VOLUMES WERE CALCULATED USING A COMBINATION OF SURVEY DATA & LIDAR DATA FROM MASS GIS.
2. FEMA 100-YR FLOOD PLAIN ELEVATION IS 226.25.

NOTE:

1. ALL WORK RELATED TO THE WELL ACCESS ROAD AND WELL SITE IS LOCATED WITHIN A ZONE II WELLHEAD PROTECTION AREA.

Project:
TAYLOR STREET WELL

LITTLETON LELWD ELECTRIC LIGHT & WATER DEPARTMENTS
LITTLETON WATER DEPARTMENT
39 AYER ROAD
LITTLETON, MA 01460
978-540-2222

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Consultants:

Revisions:

No.	Date	Description
1	12/14/23	PER PEER REVIEW

COA:

Seal:

Issued For:
PERMITTING - NOT FOR CONSTRUCTION

Scale: AS NOTED

Date: OCTOBER 2023
Drawn By: GJK/RWS
Reviewed By: SBR
Approved By: TEM
W&S Project No.: ENG23-0679
W&S File No.:

Drawing Title:
WELL SITE AND ACCESS ROAD GRADING & DRAINAGE PLAN

Sheet Number:
C103