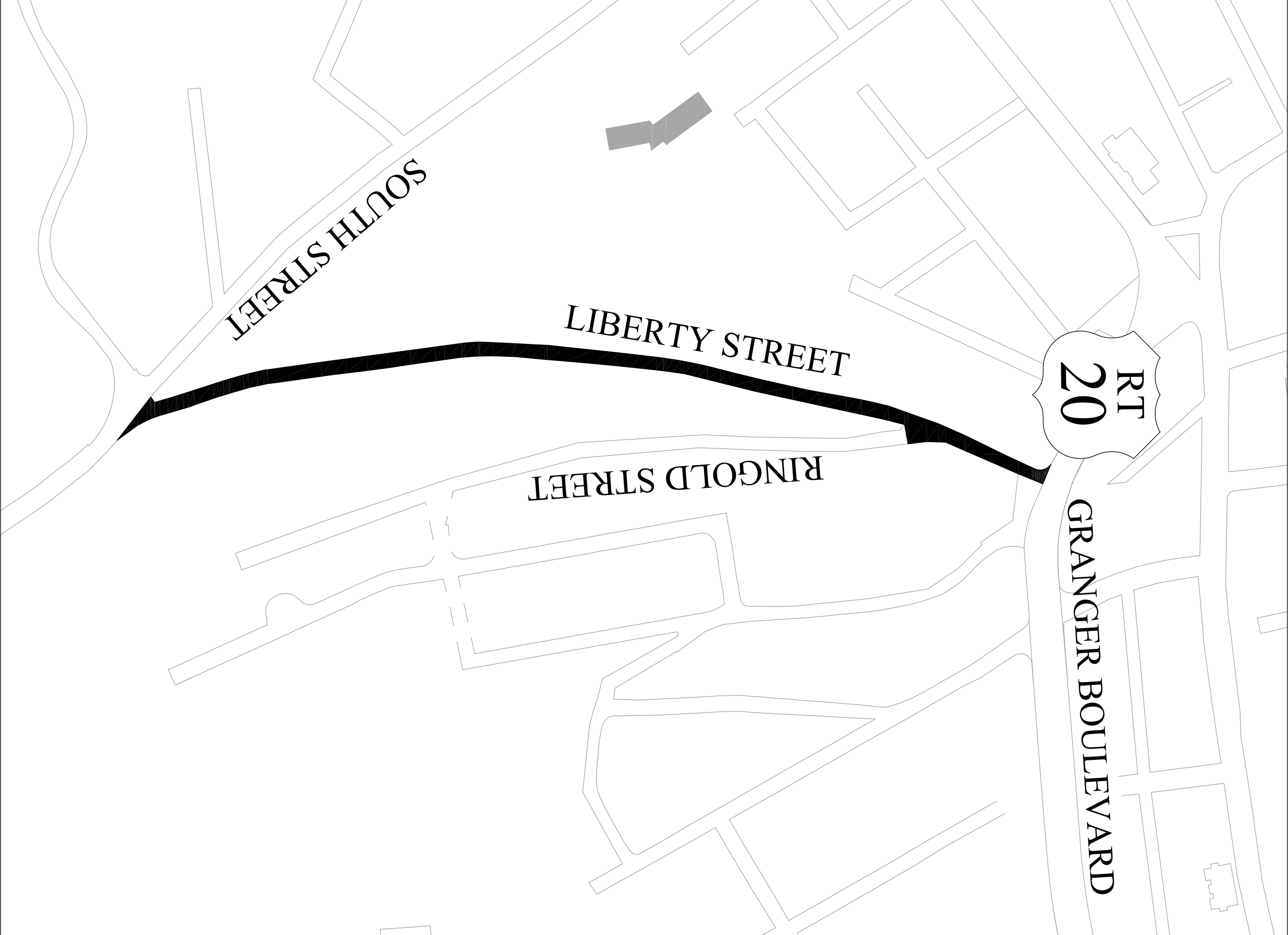


RECONSTRUCTION OF LIBERTY STREET & APPURTENANT WORK

COVER SHEET-----	1
CONSTRUCTION NOTES -----	2
& LEGENDS	
TYPICAL SECTIONS -----	3
LIBERTY STREET -----	4-6
CONSTRUCTION PLANS	
LIBERTY STREET -----	7
DRAINAGE DESIGN TABLES	
TYPICAL DETAILS -----	8-10
TRAFFIC MANAGEMENT PLAN -----	11



PREPARED BY: City of Marlborough
Department of Public Works
Engineering Division
135 Neil Street
Marlborough, MA 01752

CONTRACT NO. ED 2023-15
JUNE 29, 2023

UNLESS OTHERWISE PROVIDED FOR IN THE PROJECT SPECIFICATIONS, THE FOLLOWING DOCUMENTS SHALL GOVERN THE CONSTRUCTION ON THIS PROJECT:

- THE 2023 MHD STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES...AS AMENDED
- THE 2006 PROJECT DEVELOPMENT & DESIGN GUIDE...AS AMENDED
- THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS HIGHWAY DIVISION AND ANY AMENDMENTS THERETO
- THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1)

CONSTRUCTION ABBREVIATIONS

HMA= HOT MIX ASPHALT	ADJ.= ADJUST
CB= CATCH BASIN	
CONC= CONCRETE	
DIM= DRAIN MANHOLE	
DWP= DETECTIBLE WARNING PAVEL	
DYCL= DOUBLE YELLOW CENTERLINE	
GS= GAS GATE	
EDP= EDGE OF PAVEMENT	
EX= EXISTING	
GY= GUY WIRE	
HH= HAND HOLE	
HD= HYDRANT	
LD= LAND COURT BOUND	
OHW= OVERHEAD WIRE	
PL= PROPERTY LINE	
PROP= PROPOSED	
RD= REMOVE AND DISPOSE	
R&R= REMOVE AND RESET	
R&S= REMOVE AND STACK	
ROW= RIGHT OF WAY	
SM= SEWER MANHOLE	
SM= SIDEWALK	
SNEL= SINGLE WHITE EDGE LINE	
TOB= TRAFFIC CONTROL BOX	
TP= TYPICAL	
UP= UTILITY POLE	
WC= WHEELCHAIR RAMP	
WG= WATER GATE	

LIBERTY STREET PAVEMENT NOTES

18. ALL EXISTING CONCRETE, HMA, WALKS OR PAVEMENTS TO ADJUSTING PROPERTIES SHALL BE REMOVED AND REPLACED IN KIND AS REQUIRED TO TRANSITION TO PROPOSED GRADES.

19. BACKFILL SHALL BE UNIFORM, DISTRIBUTED IN SUCCESSIVE LAYERS, EACH LAYER BEING THOROUGHLY COMPACTED BEFORE THE NEXT LAYER IS PLACED. THE ENTIRE WIDTH OF THE TRENCH SHALL BE MECHANICALLY TAMPED THE REMAINDER OR (6) INCHES, A MINIMUM OF TWO (2) FEET ABOVE UTILITY INSTALLATION, AND MECHANICALLY TAMPED THE REMAINDER OF THE FILL IN LEFT DEPTHS NOT GREATER THAN SIX (6) INCHES. THE TOP LAYER OF BACKFILL SHALL BE FORTY-FOUR (44) INCHES (IN A TEMPORARY TRENCH), AND TWELVE (12) INCHES (IN A PERMANENT TRENCH) OF GRAVEL COMPACTED TO 97% OF MAXIMUM DENSITY.

20. ALL STRUCTURES TO BE REMODELED UNLESS OTHERWISE NOTED.

21. ALL SEEDING WORK SHALL BE CARRIED OUT BY AN APPROVED SPRAYING MACHINE SPECIFICALLY USED FOR THIS WORK AND NOT PLACED BY HAND.

22. ALL DRIVEWAYS SHALL BE SAW-CUT AT BLENDING LIMITS SHOWN, OR AS DIRECTED BY THE ENGINEER.

23. THE SURFACE OF CEMENT CONCRETE SIDEWALK SHALL BE BROOM FINISHED AND BORDERED WITH A 1.5" FINISHING TROWEL.

24. MULCH FOR BLENDING DISTURBED AREAS SHALL MATCH EXISTING.

25. ROADWAY GRADES TO BE ADJUSTED TO ENSURE SIDEWALKS MEET ADA REQUIREMENTS.

26. SIDEWALK CROSS SLOPES SHALL BE AS SHOWN ON PROPOSED TYPICAL SECTIONS.

27. ALL WATER GATE BOX TOP SECTIONS TO BE REPLACED.

28. THE CONTRACTOR SHALL COORDINATE WITH EVERSOURCE GAS FOR THE ADJUSTMENT OF GAS GATES & SERVICE BOXES.

CONSTRUCTION NOTES

1. BASE PLANS AND TOPOGRAPHIC INFORMATION WERE PREPARED FROM SURVEY DATA COMPILED BY THE CITY OF MARLBOROUGH, DEPARTMENT OF PUBLIC WORKS, ENGINEERING DIVISION.
2. EXISTING UTILITIES, WHERE SHOWN HEREON, ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY LOCATING AND CORROBORATING ANY ON-SITE ADJUST WITH DIG-SEE AND THE APPROPRIATE UTILITY COMPANY AND MAINTAINING EXISTING UTILITIES IN THEIR ORIGINAL CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MASSACHUSETTS REGULATION OF NATURAL RESOURCES, CHAPTER 91A, SECTION 27B, WHICH PROVIDES THAT THE LOCATION OF UTILITIES OR INTENTS OR OUTLINES AND/OR STRUCTURES AS REQUIRED PRIOR TO THE START OF CONSTRUCTION.
3. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH PROPOSED WORK, THE TYPE, LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE CITY ENGINEER FOR RESOLUTION OF THE CONFLICT.
4. THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE AND SEWER STRUCTURES AS NECESSARY FOR CHANGES IN GRADE AND RESET ALL WATER, SEWER AND DRAINAGE FRAMES, GRATES AND BOXES TO THE PROPOSED FINISH GRADE. STRUCTURE ADJUSTMENTS SHALL REQUIRE THE USE OF REINFORCED CONCRETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE COMMONWEALTH OF MASSACHUSETTS CONSTRUCTION STANDARDS BOARD AND THE CITY ENGINEER.
5. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALLOCATION AND ADJUSTMENT OF ELECTRIC, TELEPHONE AND CABLE TV LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND PRESERVATION OF ALL EXISTING UTILITIES OTHER THAN PRIVATE UTILITIES BY THE UTILITY COMPANIES AT NO ADDITIONAL COST TO THE OWNER. IF THE CONTRACTOR REQUESTS UTILITY COVERS IT SHALL BE DEMED PART OF THE WORK AND THERE WILL BE NO ADDITIONAL COMPENSATION.
6. TREES AND SHRUBS WITHIN THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON APPROVAL OF THE CITY ENGINEER.
7. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS, INCLUDING STAGING AREAS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
8. THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR WHERE APPLICABLE, AND SHALL BE CONSTRUCTED AS NECESSARY, NO WORK SHALL TAKE PLACE UNTIL SUCH TIME AS ALL SUTS HAVE BEEN PLACED/INSTALLED IN EXISTING CATCH BASINS AND APPROVED BY THE CITY ENGINEER.
9. THE CONTRACTOR SHALL NOT ALLOW DEREGULATING TO BE DIRECTLY DISCHARGED INTO WETLANDS, SEDIMENTATION BASINS OR BODIES OF WATER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE COMMONWEALTH OF MASSACHUSETTS CONSTRUCTION STANDARDS BOARD AND THE CITY ENGINEER.
10. CONTRACTOR IS RESPONSIBLE FOR PROPER REMOVAL AND DISPOSAL OF ALL EXCESS MATERIALS SUCH AS PIPES AND MANHOLES NOT PROPOSED FOR REUSE ON THIS PROJECT AT NO ADDITIONAL COST TO THE OWNER.
11. IT IS CRITICAL THAT THE CONTRACTOR STAY WITHIN THE RIGHT-OF-WAY LAUNCH OR LIMIT OF WORK AS SHOWN ON THE PLANS. ANY VIOLATION OF THESE LIMITS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY VIOLATION OF THESE LIMITS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY VIOLATION OF THESE LIMITS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY VIOLATION OF THESE LIMITS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
12. JOINTS BETWEEN NEW HOT MIX ASPHALT, ROADWAY PAVEMENT, AND THE LOCATIONS OF SAW CUT FOR EXISTING PAVEMENT SHALL BE SEALED WITH HOT APPLIED ASPHALTIC CRACK FILLS.
13. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NECESSITY OF MAKING HIS OWN INVESTIGATION IN ORDER TO ASSURE THAT NO DAMAGE TO EXISTING STRUCTURES, DRAINAGE LINES, TRAFFIC SIGNAL CONDUITS, ETCETERA, WILL OCCUR. THE CONTRACTOR SHALL NOTIFY MASSACHUSETTS DIG SAFE AND PROVIDE A DIG SAFE NUMBER FOR EACH LOCATION PRIOR TO DISTURBING EXISTING GROUND IN ANY WAY, NO EXISTING PUBLIC UTILITY STRUCTURES SHALL BE ABANDONED AND/OR DESTROYED WITHOUT AUTHORIZATION FROM THE ENGINEER.
14. GAS MAINS AND TELEPHONE LINES ARE ASSUMED TO HAVE 3 FEET OF COVER UNLESS NOTED OTHERWISE. WATER MAINS ARE ASSUMED TO HAVE 4 FEET OF COVER UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MARKING ALL UTILITIES AND FOR THE PROTECTION OF THESE UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR CORROBORATING THE LOCATION OF UTILITIES AND FOR THE PROTECTION OF ANY EXISTING UTILITIES WITH THE RESPECTIVE UTILITY COMPANY. RELIABILITY OF UTILITIES AND/OR THEIR LOCATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING UTILITIES WITH THE RESPECTIVE UTILITY COMPANY. RELIABILITY OF UTILITIES AND/OR THEIR LOCATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING UTILITIES WITH THE RESPECTIVE UTILITY COMPANY. RELIABILITY OF UTILITIES AND/OR THEIR LOCATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
15. ALL EXISTING STATE, COUNTY, CITY AND TOWN LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.
16. ALL UNDERGROUND UTILITY WORK MUST BE COMPLETED AND TEMPORARILY PAVED AT THE END OF EACH WEEK OR PRIOR TO ANY RAIN EVENTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
17. THE CONTRACTOR SHALL PROVIDE FOR SAFE AND PROPER PASSAGE OF VEHICULAR AND PEDESTRIAN TRAFFIC IN AREAS UNDER CONSTRUCTION.
18. ALL EXISTING CONCRETE, HYDRAULICS OR PAVEMENTS TO ADJUTING PROPERTIES SHALL BE REMOVED AND REPLACED IN KIND AS REQUIRED TO TRANSITION TO PROPOSED GRADES.
19. BACKFILL SHALL BE UNIFORM, DISTRIBUTED IN SUCCESSIVE LAYERS, EACH LAYER BEING THOROUGHLY COMPACTED BEFORE THE NEXT LAYER IS PLACED. THE ENTIRE WIDTH OF THE TRENCH SHALL BE MECHANICALLY TAMPED IN SIX (6) INCH LIFTS, A MINIMUM OF TWO (2) FEET ABOVE UTILITY INSTALLATION, AND MECHANICALLY TAMPED THE REMAINDER OF THE FILL IN LIFT DEPTHS NOT GREATER THAN SIX (6) INCHES. THE TOP LAYER OF BACKFILL SHALL BE FOURTEEN (14) INCHES (IN A TRENCH), AND TWELVE (12) INCHES (IN A PERMANENT TRENCH) OF GRAVEL COMPACTED TO 92% OF MAXIMUM DENSITY.
20. ALL STRUCTURES TO BE REMODELED UNLESS OTHERWISE NOTED.
21. ALL SEEDING WORK SHALL BE CARRIED OUT BY AN APPROVED SPRINKLING MACHINE SPECIFICALLY USED FOR THIS WORK AND SHALL BE PLACED BY HAND.
22. ALL DRIVEWAYS SHALL BE SAW-CUT AT BLENDING LIMITS SHOWN, OR AS DIRECTED BY THE ENGINEER.
23. THE SURFACE OF CEMENT CONCRETE SIDEWALK SHALL BE BROOM FINISHED AND BORDERED WITH A 1.5" FINISHING TROWEL.
24. MULCH FOR BLENDING DISTURBED AREAS SHALL MATCH EXISTING.
25. ROADWAY GRADES TO BE ADJUSTED TO ENSURE SIDEWALKS MEET ADA REQUIREMENTS.
26. SIDEWALK CROSS SLOPES SHALL BE AS SHOWN ON PROPOSED TYPICAL SECTIONS.
27. ALL WATER GATE BOX TOP SECTIONS TO BE REPLACED.
- THE CONTRACTOR SHALL COORDINATE WITH EVERSOURCE GAS FOR THE ADJUSTMENT OF GAS GATES & SERVICE BOXES

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 Checked By: _____
 Designated By: _____
 Approved By: _____

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RECONSTRUCTION OF LIBERTY STREET & APPURTENANT WORK

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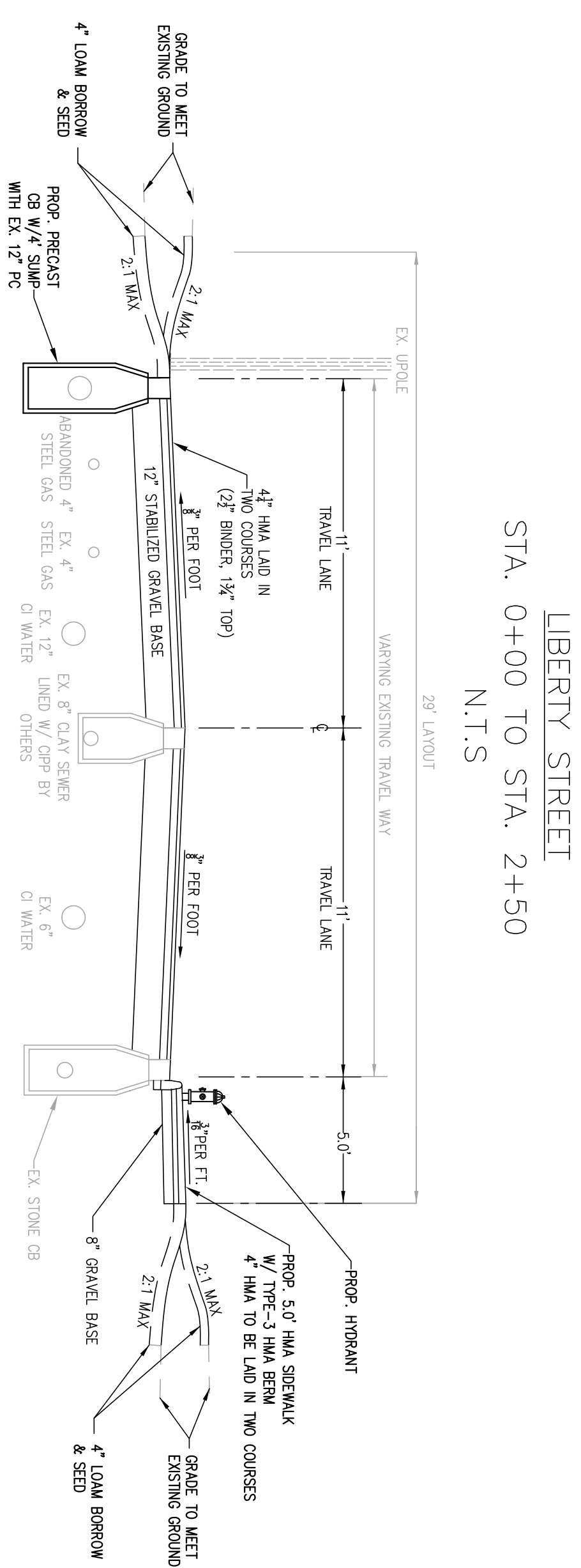
LIBERTY STREET
TYPICAL SECTIONS

Contract No: _____

Sheet No.: _____

Date: 6-29-2023

Scale:



LIBERTY STREET

STA. 0+00 TO STA. 2+50

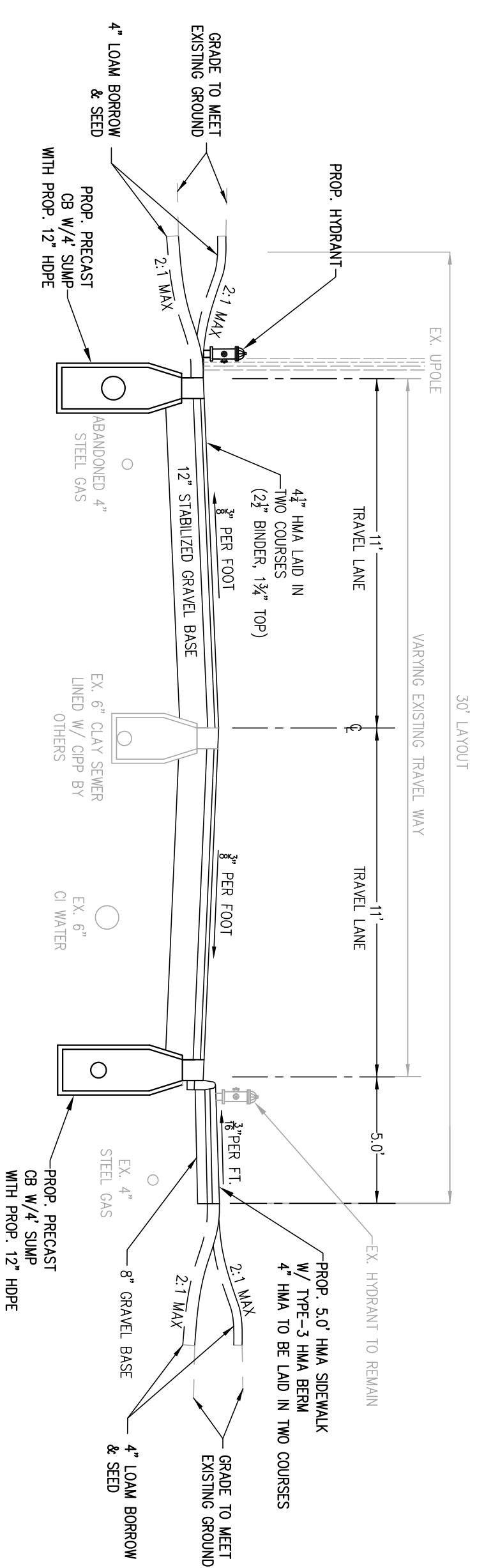
N.T.S

29' LAYOUT

LIBERTY STREET

STA. 7+00 TO STA. 14+00

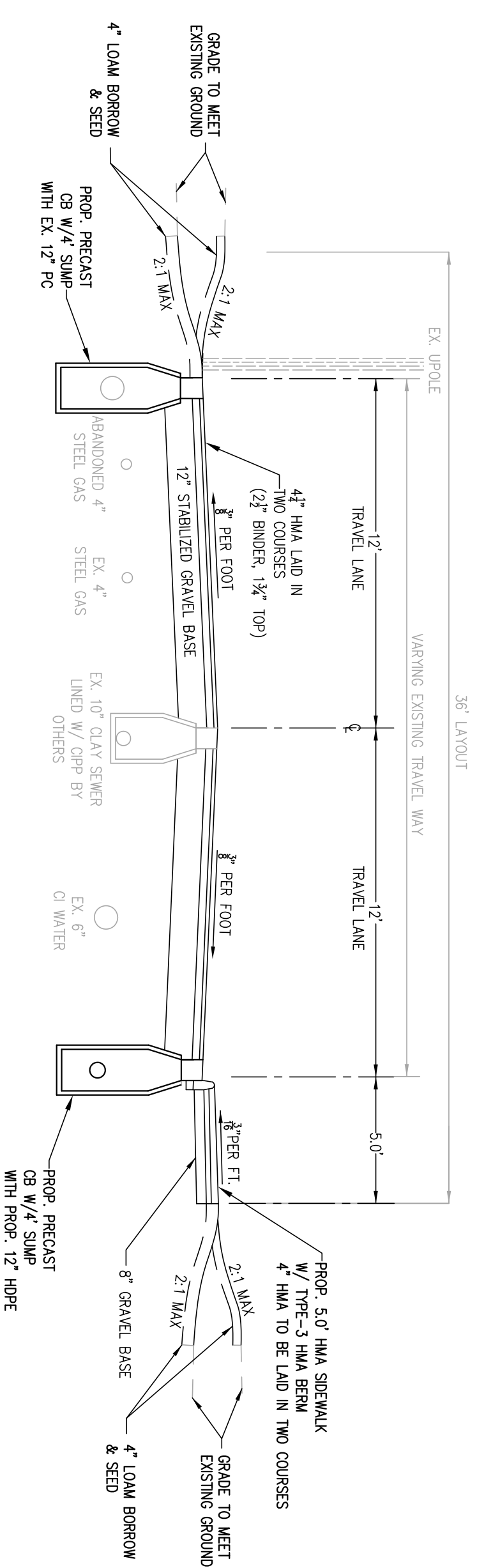
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LIBERTY STREET

STA. 19+50 TO STA. 22+5

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LIBERTY STREET

STA. 2+50 TO STA. 7+00

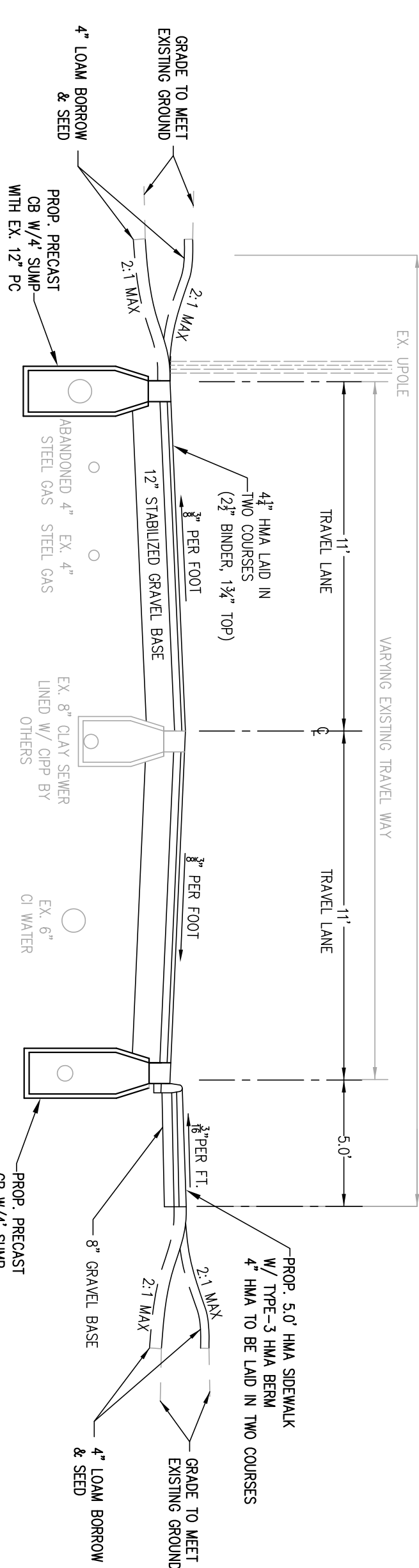
N.T.S

30' LAYOUT

LIBERTY STREET

STA. 14+00 TO STA. 19+5

N.T.S



Public Works

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Drawn By: 135 Designed By: 135 Checked By: MD Approved By: 10

Project Title

RECONSTRUCTION OF LIBERTY STREET & APPURTENANT WORK

Sheet Title:

LIBERTY STREET
TYPICAL SECTIONS

Contract No: _____

Sheet No.: _____

Date: 6-29-2023

Scale:

LIBERTY STREET EXISTING STRUCTURES TABLE 1

STRUCTURE ID	STATION	RIM ELEV.	INV. IN ELEV.	INV. OUT ELEV.	REMARKS
EX. CB#1		400.77			REMAIN
EX. CB#2		400.45			REMAIN
EX. CB#3	0+20.00	403.44		UNKNOWN	REMAIN
EX. SMH#1	0+26.53	402.23	(SMH#2) 394.35 (FAIR.) 394.35	(BLVD.) 394.25	NEW F&C
EX. DMH#1	0+29.84	UNKNOWN	UNKNOWN	UNKNOWN	NEW F&C
EX. CB#4	0+37.67	403.70		(DMH#1) 400.39	REMAIN
EX. CB#5	0+35.52	402.92		(DMH#1) 399.50	NEW F&C
EX. SMH#2	2+66.78	UNKNOWN	UNKNOWN	UNKNOWN	NEW F&C
EX. CB#6	2+68.82	411.10	(CB#7) 405.72 (CB#33) 405.72 (CB#8) 405.72	(DMH#1) 405.52	REMOVE
EX. CB#7	2+86.68	411.21		(CB#6) 406.41	REMOVE
EX. CB#8	3+61.40	413.04	(CB#10) 409.2 (CB#9) 409.76	(CB#6) 408.20	REMOVE
EX. CB#9	3+71.73	412.94		(CB#8) 409.66	REMOVE
EX. SMH#3	4+18.37	UNKNOWN			NEW F&C
EX. CB#10	5+20.86	415.44	(CB#11) 411.04 (CB#12) 411.04	(CB#8) 410.84	REMOVE
EX. CB#11	5+28.10	415.14		(CB#10) 411.86	REMOVE
EX. SMH#4	6+32.77	416.75	(SMH#5) 405.63 (SMH#4) 405.43	(SMH#4) 405.43	NEW F&C
EX. CB#12	7+11.18	416.40	(CB#13) 412.75 (CB#14) 411.65	(CB#10) 411.55	REMOVE
EX. CB#13	6+96.04	416.80		(CB#12) 413.72	REMOVE
EX. CB#14	7+72.07	417.49	(CB#15) 413.09 (CB#16) 415.97 (CB#17) 415.97	(CB#12) 412.89 (CB#14) 415.71	REMAIN
EX. CB#15	8+96.42	420.67			REMOVE
EX. CB#16	9+03.94	420.34		(CB#15) 417.48	REMOVE
EX. CB#17	9+39.51	421.86	(CB#18) 415.73 (SMH#6) 412.45	(CB#15) 415.53	NEW F&C
EX. SMH#5	9+81.96	422.57		(SMH#4) 412.25	NEW F&C
EX. CB#18	11+05.87	422.10	(CB#19) 416.82 (CB#20) 416.82	(CB#17) 416.12	REMOVE
EX. CB#19	11+07.16	422.10		(CB#18) 417.82	REMOVE
EX. SMH#6	11+63.91	UNKNOWN	UNKNOWN	UNKNOWN	NEW F&C
EX. CB#20	12+06.79	423.26	(CB#22) 419.20 (CB#21) 419.00	(CB#18) 418.54	REMOVE
EX. CB#21	12+13.08	422.73		(CB#20) 419.20	REMOVE
EX. SMH#7	13+59.29	UNKNOWN	UNKNOWN	UNKNOWN	NEW F&C
EX. CB#22	14+13.16	422.58	(CB#20) 418.93 (CB#22) 414.18	(CB#23) 418.73	REMOVE
EX. CB#23	15+37.23	419.08		(CB#25) 414.08	REMOVE
EX. CB#24	15+31.17	419.05		(CB#23) 415.09	REMOVE
EX. SMH #8	16+11.37	UNKNOWN	UNKNOWN	UNKNOWN	NEW F&C
EX. CB#25	17+15.78	414.68	(CB#23) 411.48 (CB#26) 410.50	(CB#27) 410.30	REMOVE
EX. CB#26	17+06.36	414.84		(CB#25) 410.92	REMOVE
EX. CB#27	19+00.00	411.91	(CB#25) 407.15 (CB#28) 407.79	(CB#29) 406.95	REMOVE
EX. CB#28	18+94.61	412.37		(CB#27) 408.29	REMOVE
EX. SMH#9	19+96.60	410.83	(SMH#10) 393.63 (#190) 406.73 (#202) 407.01	(SMH#8) 393.43	NEW F&C

LIBERTY STREET EXISTING STRUCTURES TABLE 2

STRUCTURE ID	STATION	RIM ELEV.	INV. IN ELEV.	INV. OUT ELEV.	REMARKS
EX. CB#29	21+06.20	408.66	(CB#30) 404.34 (CB#27) 404.04	(CB#31) 403.84	REMOVE
EX. CB#30	20+99.00	408.40		(CB#29) 404.00	REMOVE
EX. CB#31	22+89.62	404.41	(CB#31) 400.99	(DMH#2) 400.81	REMOVE
EX. CB#32	22+64.26	405.04		(DMH#2) 401.30	REMOVE
EX. DMH#2	22+95.82	405.88	(CB#31) 401.00 (CB#32) 401.00	(DMH) 400.80	REMAIN
EX. CB#33	2+95.79	413.51	8" CLAY 409.57 (CB#34) 409.57	(CB#6) 409.41	REMOVE
EX. CB#34	3+33.28	414.73		(CB#33) 411.00	REMOVE

LIBERTY STREET PROPOSED DRAINAGE STRUCTURES TABLE

STRUCTURE ID	STATION	RIM ELEV.	INV. IN ELEV.	INV. OUT ELEV.	REMARKS
PROP. CB#1	2+68.82	411.10	(CB#2) 405.82 (CB#3) 405.82 (CB#5) 405.82	(DMH#1) 405.62	DOUBLE F&C
PROP. CB#2	2+86.68	411.21		(CB#1) 406.41	
PROP. CB#3	2+94.53	413.51	8" CLAY 409.41 (CB#4) 409.41	(CB#1) 409.21	
PROP. CB#4	3+25.18	414.73		(CB#3) 411.13	
PROP. CB#5	3+61.40	413.04	(CB#7) 409.20 (CB#6) 409.20	(CB#1) 408.20	
PROP. CB#6	3+71.73	412.94		(CB#5) 409.56	
PROP. CB#7	5+20.86	415.44	(CB#10) 411.04 (CB#8) 411.04	(CB#5) 410.94	DOUBLE F&C
PROP. CB#8	5+28.10	415.14		(CB#7) 411.86	DOUBLE F&C
PROP. CB#9	6+96.04	416.80		(CB#10) 412.80	DOUBLE F&C
PROP. CB#10	7+11.18	416.40	(CB#9) 411.80 (CB#14) 411.80	(CB#7) 411.55	
PROP. CB#11	8+96.42	420.67	(CB#17) 415.00 (CB#12) 415.00	(CB#14) 414.80	
PROP. CB#12	9+03.94	420.34		(CB#11) 416.60	DOUBLE F&C
PROP. CB#13	11+05.87	422.10	(CB#14) 417.72 (CB#15) 417.59	(CB#17) 417.39	
PROP. CB#14	11+07.16	422.10		(CB#13) 418.10	
PROP. CB#15	12+06.79	423.26	(CB#16) 419.15	(CB#13) 418.95	
PROP. CB#16	12+13.08	422.73		(CB#15) 419.46	
PROP. CB#17	14+13.16	422.58		(CB#19) 419.00	
PROP. CB#18	15+31.17	419.05		(CB#19) 415.70	
PROP. CB#19	15+37.23	419.08	(CB#17) 414.40 (CB#18) 415.28	(CB#21) 414.18	
PROP. CB#20	17+06.36	414.84		(CB#21) 411.00	
PROP. CB#21	17+15.79	414.68	(CB#20) 410.50 (CB#19) 410.40	(CB#23) 409.50	
PROP. CB#22	18+94.29	412.37		(CB#23) 408.29	
PROP. CB#23	19+00.00	411.91	(CB#22) 407.79 (CB#21) 407.15	(CB#25) 406.95	
PROP. CB#24	20+99.00	408.41		(CB#25) 404.51	
PROP. CB#25	21+06.20	408.66	(CB#24) 404.30 (CB#23) 404.04	(CB#27) 403.84	
PROP. CB#26	22+64.26	405.04		(DMH#2) 401.30	
PROP. CB#27	22+89.62	404.41	(CB#25) 400.99	(DMH#2) 400.81	



DEPARTMENT OF PUBLIC WORKS

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REVISIONS

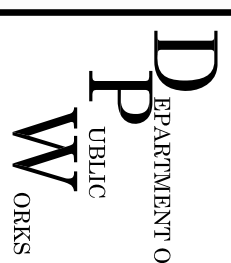
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RECONSTRUCTION OF
LIBERTY STREET &
APPURTENANT WORK

Sheet Title:
LIBERTY STREET
DRAIN DESIGN TABLES

Contract No.: ED-2023-15
Date: 6-29-2023
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RECONSTRUCTION OF
LIBERTY STREET &
APPERTENANT WORK

WATER AND DRAIN TYPICAL DETAILS

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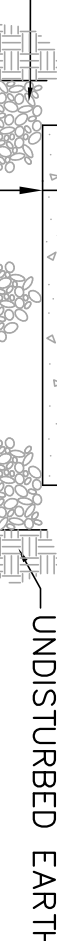
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RECONSTRUCTION OF
LIBERTY STREET &
APPURTENANT WORK

WATER AND DRAIN TYPICAL DETAILS

Contract No:

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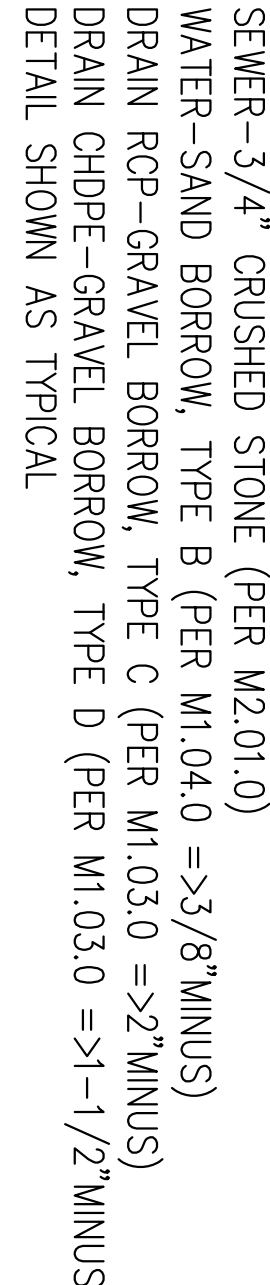
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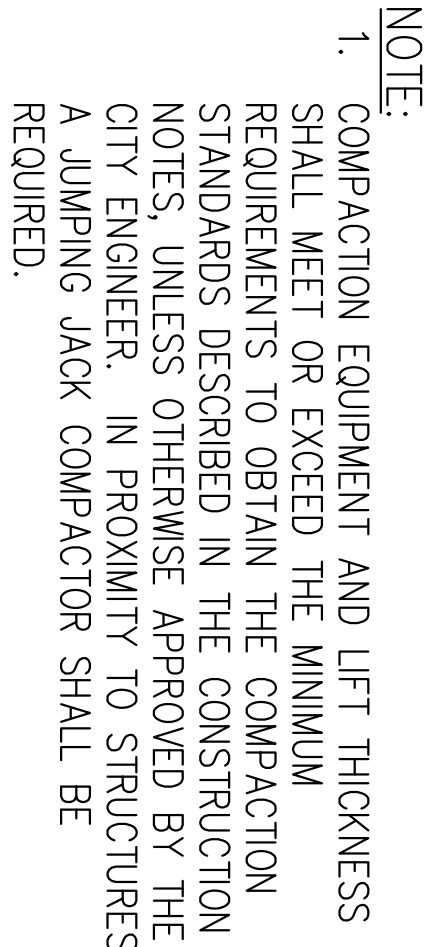
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Checked By: _____ M.D.

Approved By: _____ 12

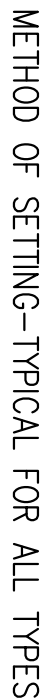


SEWER-3/4" CRUSHED STONE (PER M2.01.0)
WATER-SAND BORROW, TYPE B (PER M1.04.0 =>3/8" MINUS)
WATER-RCP-GRAVEL BORROW, TYPE C (PER M1.03.0 =>2" MINUS)
DRAIN CHDPE-GRAVEL BORROW, TYPE D (PER M1.03.0 =>1-1/2" MINUS)
DETAIL SHOWN AS TYPICAL



TYPICAL SECTION

N.T.S.



RB

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Contract No. ED-2023-15		Sheet No. 9	
Date: 6-29-2023			
Scale N.T.S.			

Project Title: RECONSTRUCTION OF LIBERTY STREET & APPURTENANT WORK	
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Drawn By: <u>C.S.</u>	Designed By: <u>C.S.</u>	Checked By: <u>M.D.</u>	Approved By: <u>P.</u>
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* = TOLERANCE FOR CONSTRUCTION $\pm 0.5\%$

6" REVEAL (MIN.)

5.0%

SIDEWALK

7.5%*

HIGH SIDE TRANSITION

1.5%

5' MIN.

LEVEL * 1.5%

1.5%*

"LEVEL LANDING" WITH DETECTABLE WARNING PANEL 1.5%* SLOPE FOR DRAINAGE

6'-6" TRANSITION (LOW SIDE)

7.5%*

DETECTABLE WARNING PANEL

PLAIN CEMENT CONCRETE

GRANITE CURB

EDGE OF ROADWAY

GUTTER LINE

ROADWAY PROFILE GRADE TRANSITION

**HIGH

2. DETECTABLE WARNING PANEL:
MATERIAL – HOMOGENEOUS GLASS AND CARBON REINFORCED COMPOSITE
METHOD OF SETTING – CAST IN PLACE REPLACEABLE TACTILE PANEL
COLOR – FEDERAL YELLOW PER FEDERAL STANDARD 595B TABLE IV, COLOR NO. 33538

N.T.S

ROADWAY PROFILE GRADE	**HIGH SIDE TRANSITION LENGTH
%	ENGLISH UNITS
=0	6'-6"
>0 TO 1	7'-8"
>1 TO 2	9'-0"
>2 TO 3	11'-0"
>3 TO 4	14'-0"
>4 TO 5	15'-0" MAX

1" REBAR FOR BAG REMOVAL FROM CATCH BASIN

DUMP STRAPS (2) EACH

EXPANSION RESTRAINT

1/4" NYLON ROPE

2" FLAT WASHERS

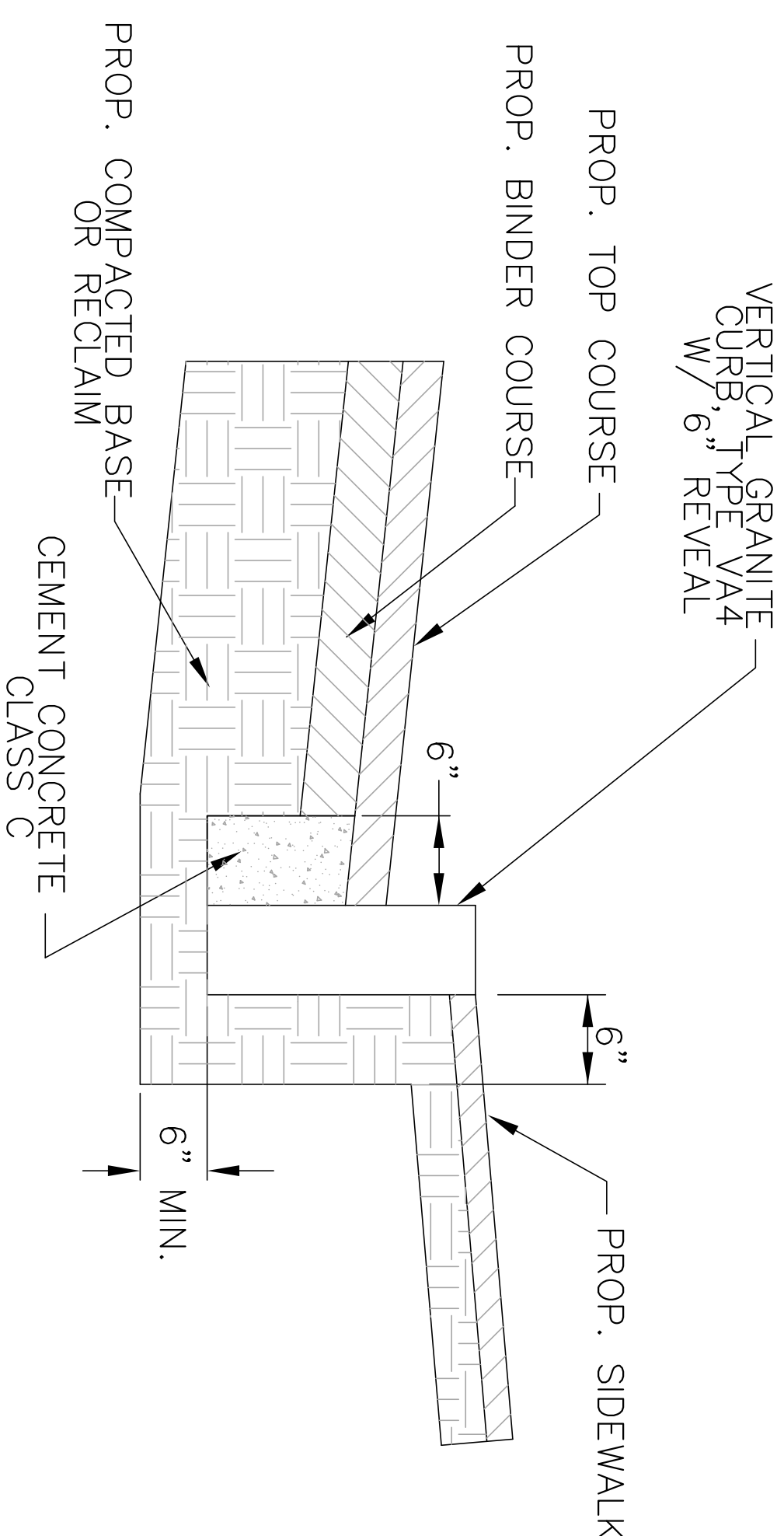
BAG DETAIL

CATCH BASIN GRATE

SILT SACK

The diagram illustrates a catch basin assembly. The main perspective view shows a rectangular basin with a grate on top. A 1" rebar is positioned across the basin for bag removal. Two dump straps are attached to the sides of the basin. A silo sack is shown at the bottom of the basin. A detail view of the bag shows an expansion restraint, 1/4" nylon rope, and 2" flat washers.

N.T.S




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PUBLIC
WORKS

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Drawn By: TS Designed By: TS Checked By: MD Approved By: TD





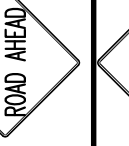
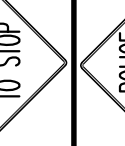



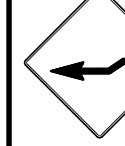
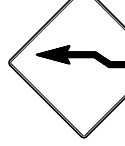
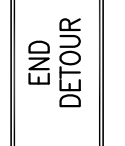

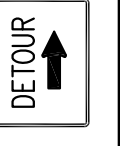
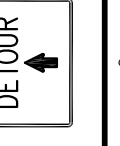

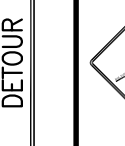

Project Title:
RECONSTRUCTION OF
LIBERTY STREET &
APURTENANT WORK

Sheet Title:

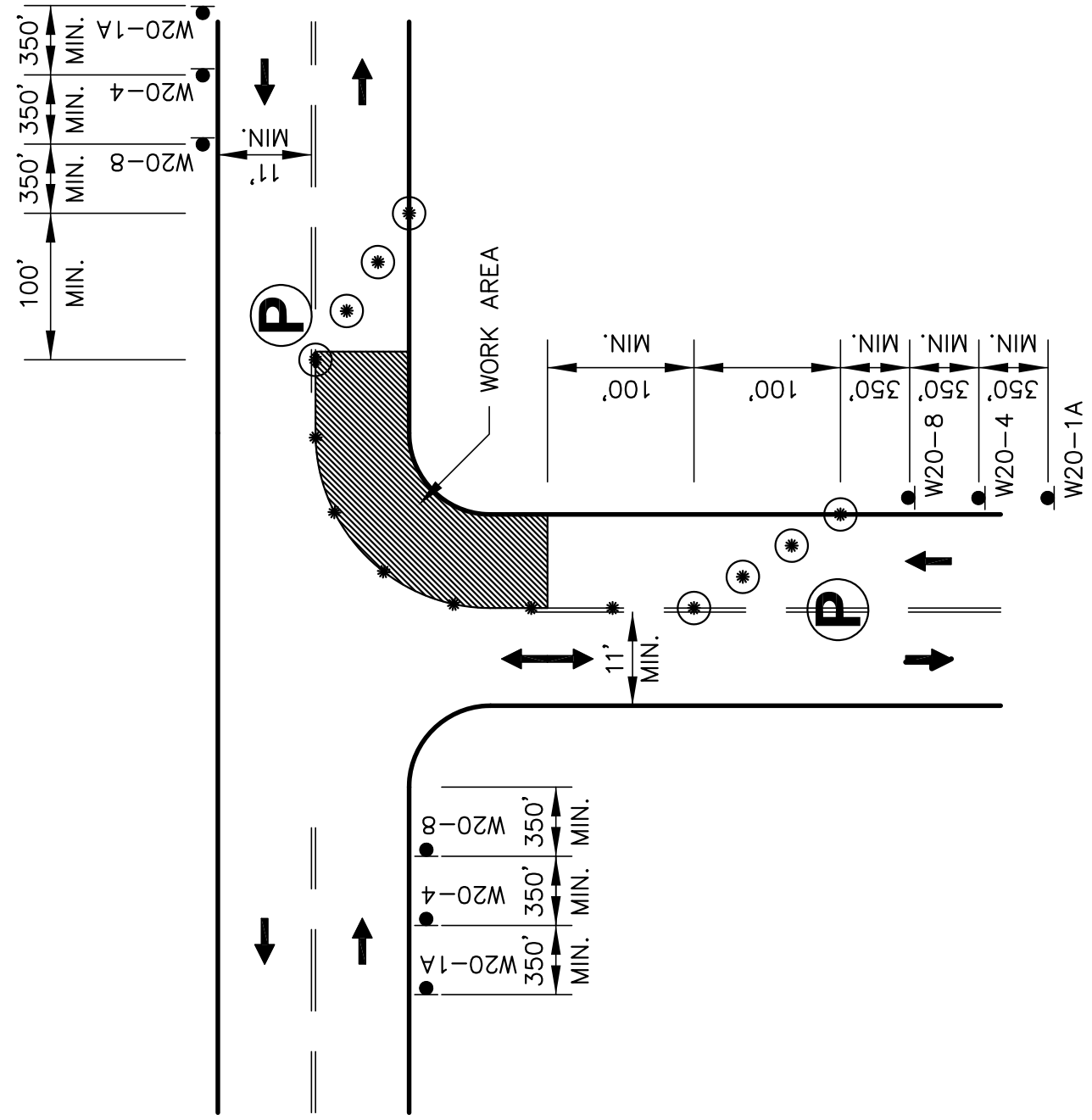
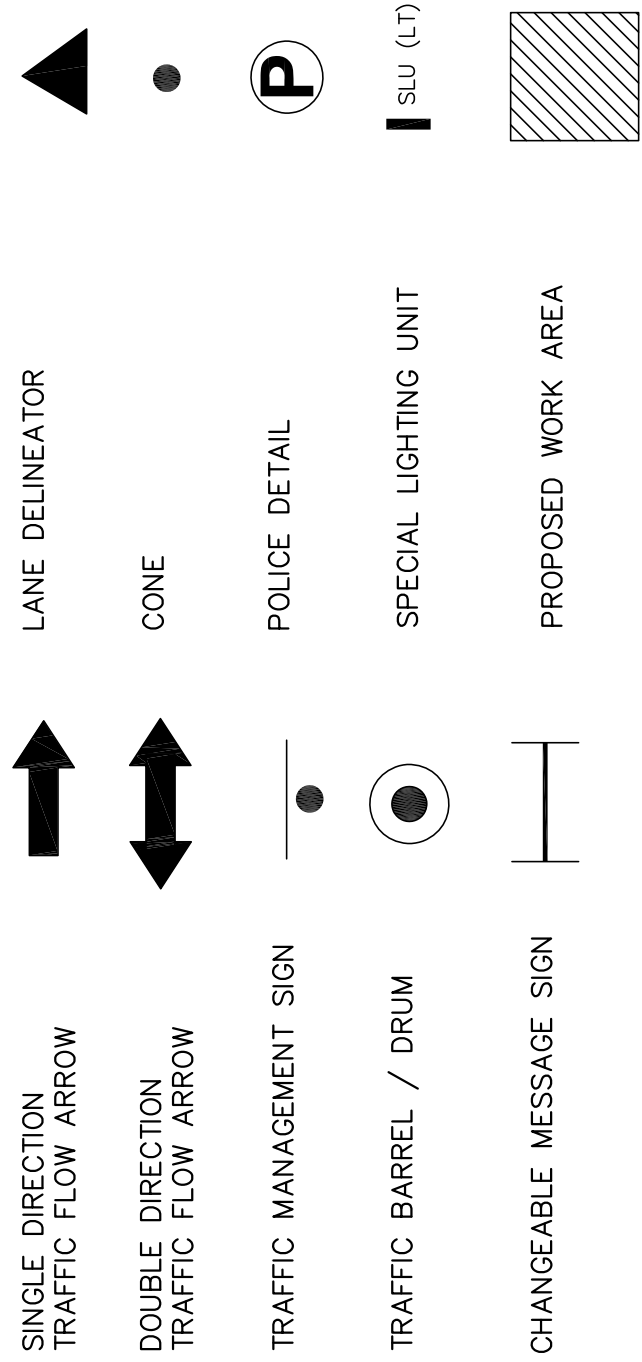
TYPICAL DETAILS

Contract No.: ED-2023-15	Sheet No.: 10
Date: 6-29-2023	
Scale: N.T.S.	

CONSTRUCTION SIGN LEGEND

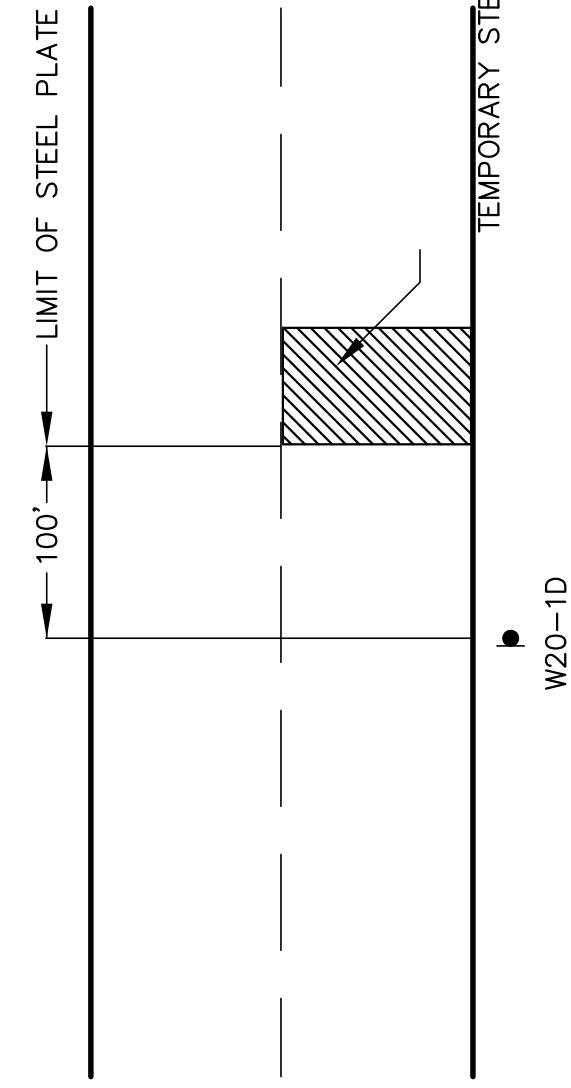
IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS		COLOR			UNIT AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW	BACK—GROUND	LEGEND	
W20—1D	48"	48"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			16.0
W20—1A	48"	48"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			16.0
W20—1B	48"	48"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			16.0
W20—1C	48"	48"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			16.0
W20—4	48"	48"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			16.0
W20—7b	48"	48"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			16.0
W20—8	48"	48"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			16.0
G20—2	36"	18"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			4.5
R11—2	48"	30"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			10.0
W5—1	48"	48"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			16.0
W1—4L	30"	30"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			6.25
W1—4R	30"	30"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			6.25
M4—8A	24"	18"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			3.0
M4—9L	30"	24"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			5.0
M4—9R	30"	24"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			5.0
M4—9V	30"	24"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			5.0
W20—2	48"	48"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			16.0
W20—2A	36"	18"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			4.5
W20—2B	48"	48"		MUTCD STANDARD DETAIL		MUTCD STANDARD DETAIL			16.0

LEGEND



NOTE:
1. ADVANCE WARNING SIGN PLACEMENT TO BE ADJUSTED AS NECESSARY.
2. ALL DRUMS AND CONES TO BE SPACED @ 20' O.C.

ONE LANE BI-DIRECTIONAL TRAFFIC AT INTERSECTIONS



TRENCH PLATE SIGNING

N.T.S.

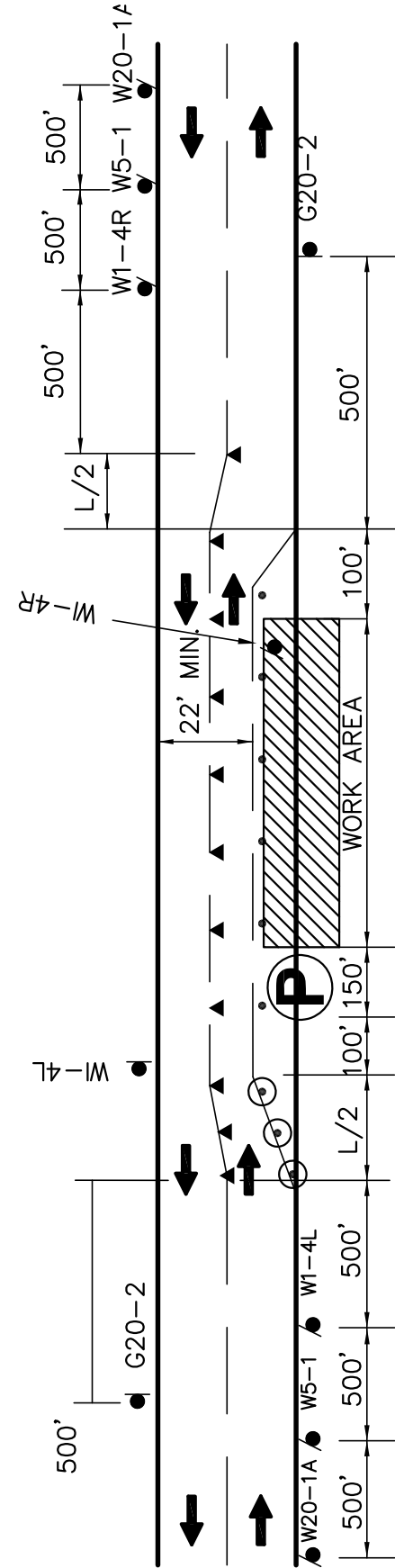
GENERAL NOTES

1. ALL CONSTRUCTION SIGNING, DRUMS, BARRICADES AND OTHER DEVICES SHALL CONFORM WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS AMENDED.
2. ALL DRUMS SHALL BE APPROXIMATELY PLACED AND MOVED AS NECESSARY TO MAINTAIN ADEQUATE ABUTTER ACCESS AT ALL TIMES. WORK MAY REQUIRE ADDITIONAL SIGNS, DRUMS AND OTHER TRAFFIC CONTROL DEVICES, GRADING AND TEMPORARY PAVEMENT FOR PASSAGE OF PEDESTRIAN, VEHICULAR AND EMERGENCY TRAFFIC THROUGH THE WORK AREAS, BOTH DURING AND AFTER WORKING HOURS, TO MAINTAIN SUCH ACCESS.
3. THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT AND SIMILAR OPERATIONS.
4. DURING WORK IN INTERSECTIONS A MINIMUM OF ONE LANE OF ALTERNATING TRAFFIC SHALL BE ALLOWED TO PASS AT ALL TIMES. (POLICE DETAILS SHALL BE PRESENT DURING THIS WORK.)
5. GRADE SEPARATIONS IN EXCESS OF 2" DURING NON-WORKING HOURS WILL REQUIRE DELINEATION BY USE OF DRUMS.
6. EXCAVATION EDGES IN EXCESS OF 4" DEEP SHALL BE PROTECTED DURING NON-WORKING HOURS BY BACKFILLING WITH A WEDGE OF GRAVEL OR SOIL TO COMPACTED 4:1 SLOPE.
7. 11' MINIMUM TRAVEL LANE WIDTHS SHALL BE MAINTAINED AT ALL TIMES.
8. NON-ESSENTIALS TRAFFIC CONTROL DEVICES SHALL BE COVERED OR REMOVED DURING NON-WORKING HOURS.
9. TRAFFIC MANAGEMENT SHALL INCLUDE CONSIDERATIONS FOR PEDESTRIANS ACCESS AT ALL TIMES.
10. NO SIGNAGE SHALL BE INSTALLED ON UTILITY POLES OR OTHER PRIVATE PROPERTY UNLESS CONTRACTOR RECEIVES WRITTEN PERMISSION FROM OWNER AND PROVIDES A COPY OF SAID AGREEMENT TO THE ENGINEER.
11. SPECIFIC SIGNAGE SHALL BE USED WHEN TEMPORARY TRENCH PLATES ARE INSTALLED. (SEE DETAIL ON THIS SHEET).
12. TRAFFIC MANAGEMENT PLAN REPRESENTS MINIMUM REQUIREMENTS. CONTRACTOR TO BE SOLELY RESPONSIBLE FOR TRAFFIC MANAGEMENT AND SAFETY IN WORK ZONE AREAS. DETOUR SHALL ONLY BE ESTABLISHED AND/OR ALTERED BY WITH THE APPROVAL OF THE ENGINEER.
13. THE PLACEMENT OF THE VARIABLE MESSAGE BOARDS SHALL BE IN PLACE TWO WEEKS PRIOR TO THE START OF CONSTRUCTION. THESE BOARDS ARE TO BE PAID FOR UNDER ITEM NO. 851 SAFETY CONTROLS FOR CONSTRUCTION OPERATIONS.
14. HOURS OF WORK SHALL BE MONDAY-FRIDAY 7:00 A.M. - 3:30 P.M.
15. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE RESPECTIVE PUBLIC SERVICE CORPORATIONS OR OFFICIALS OF THEIR INTENTIONS AT LEAST ONE WEEK IN ADVANCE OF THE COMMENCEMENT OF OPERATIONS. THE CONTRACTOR MAY HAVE TO COORDINATE ON A DAILY BASIS IF THE DETOUR OR WORK ZONES HAVE CHANGED. FOR A LIST OF SAID CORPORATIONS PLEASE SEE THE CONTRACT DOCUMENTS "GENERAL CONDITIONS".

TYPICAL TWO WAY ALTERNATING TRAFFIC

N.T.S.

NOTE: THIS DETAIL SHOWS A RIGHT LANE CLOSURE DETAIL. THIS DETAIL CAN ALSO BE USED FOR LEFT LANE CLOSURES, WITH THE SIGN PLACEMENT REVERSED AS APPROPRIATE.



TYPICAL TWO WAY STREET LANE SHIFT

N.T.S.

NOTE: THIS DETAIL SHOWS A RIGHT LANE CLOSURE DETAIL. THIS DETAIL CAN ALSO BE USED FOR LEFT LANE CLOSURES, WITH THE SIGN PLACEMENT REVERSED AS APPROPRIATE.

L=WS²/60 (FEET) FOR 40 MPH OR LESS
 L=WS²/45 (FEET) FOR 45 MPH OR MORE

W=WIDTH OF OFFSET (FT)
 S= POSTED SPEED LIMIT (MPH)


OPERATIONAL SIGNING

N.T.S.

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

CITY OF MARLBOROUGH

DEPARTMENT OF PUBLIC WORKS



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Drawn By: 1.5 Designed By: 1.5 Checked By: MD Approved By: 10

Project Title: **RECONSTRUCTION OF
LIBERTY STREET &
APPURTENANT WORK**

Sheet Title:

Contract No: ED-2023-15	Sheet No.: 11
Date: 6-29-2023	
Scale: N.T.S.	