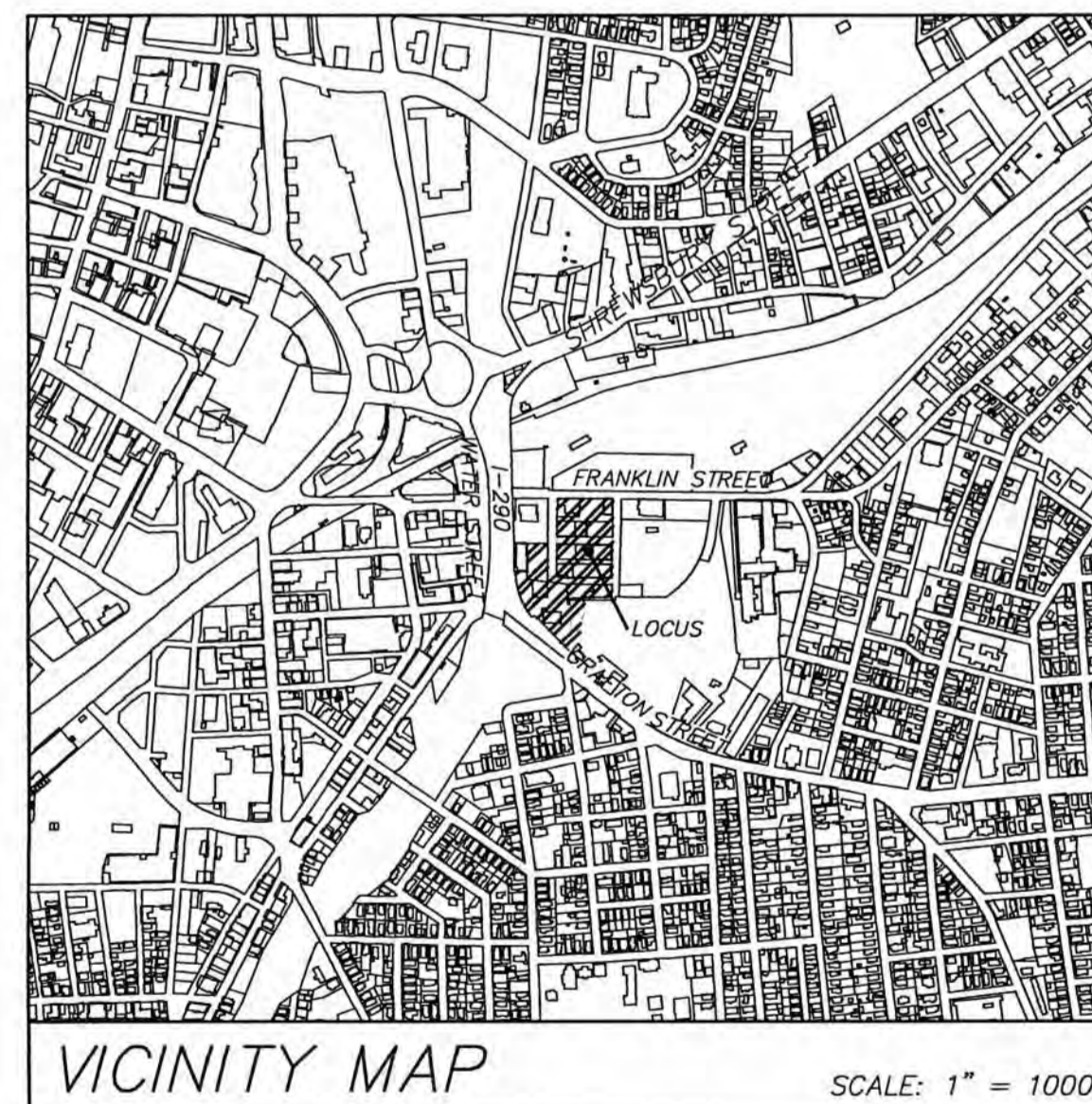


**DEFINITIVE SITE DEVELOPMENT  
RESIDENTIAL APARTMENT COMPLEX  
FRANKLIN STREET  
IN  
WORCESTER, MASSACHUSETTS  
NOVEMBER 12, 2021  
REVISIONS THROUGH OCTOBER 18, 2024**



**APPLICANT:**

GOVENTURE CAPITAL GROUP, LLC  
BRENDON GOVE  
1 MERCANTILE STREET, SUITE 630  
WORCESTER, MASSACHUSETTS 01608  
TEL: (784) 234-9008

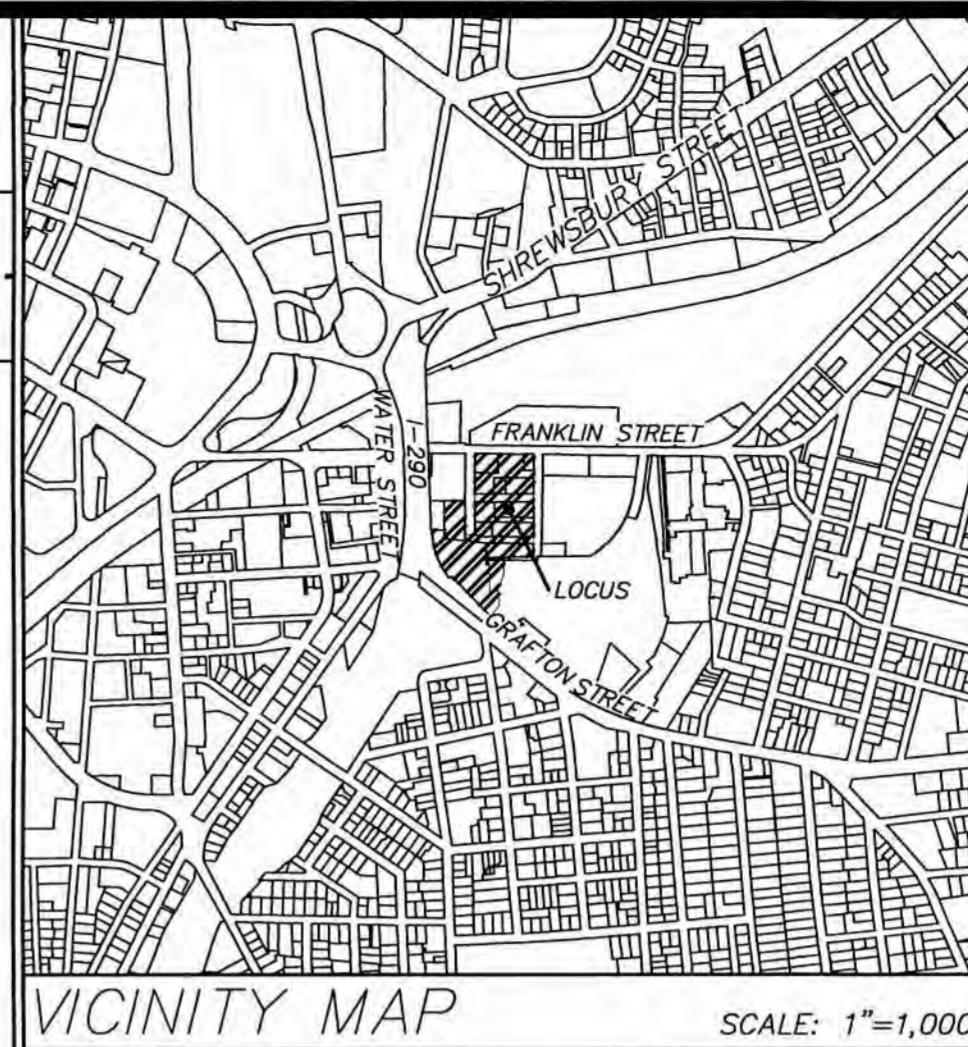
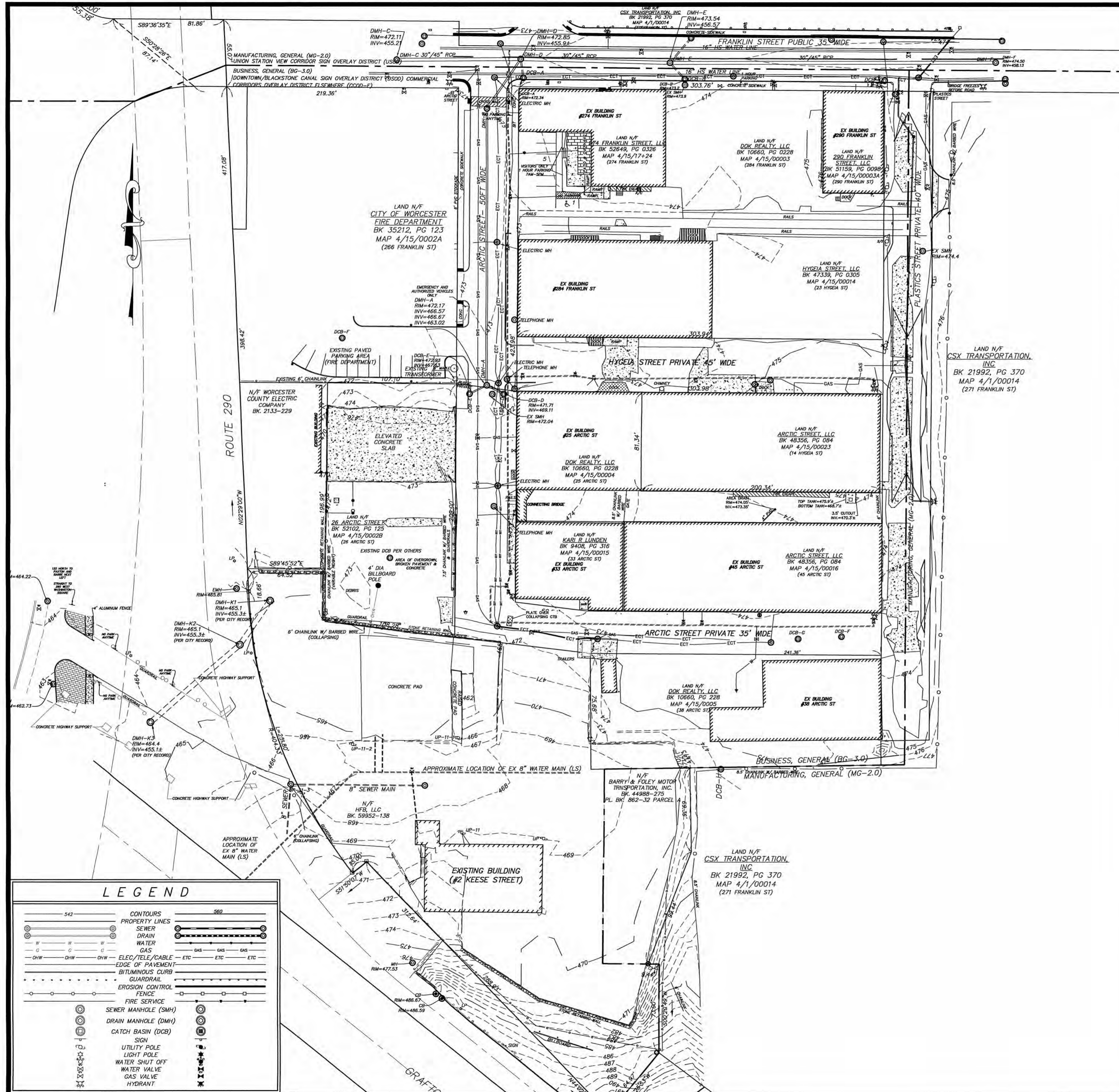
**CIVIL ENGINEER & LAND SURVEYOR:**

HANNIGAN ENGINEERING, INC.  
8 MONUMENT SQUARE  
LEOMINSTER, MASSACHUSETTS 01453  
TEL: (978) 534-1234

**PLAN INDEX**

SHEET 1	EXISTING CONDITIONS PLAN
SHEET 2	SITE DEMOLITION PLAN
SHEET 3	SITE DEVELOPMENT PLAN
SHEET 4	SITE UTILITY PLAN
SHEET 5	SITE GRADING PLAN
SHEET 6	LANDSCAPE AND LAYOUT DIAGRAM
SHEET 7	LIGHTING DIAGRAM
SHEET 8-14	CONSTRUCTION DETAILS

PERMITTING - NOT FOR CONSTRUCTION



**VICINITY MAP**  
SCALE: 1"=1,000'

**APPLICANT:**  
GOVENTURE CAPITAL GROUP, LLC  
10 E. WORCESTER STREET, SUITE 3A  
WORCESTER, MASSACHUSETTS 01605

**PROJECT INFORMATION**

**LAND INFORMATION**

MAP/PARCEL: 04-015/1,3A,4,5,7,13,14,15,16,23,17+24; 04-14-2A+3B  
DEED BOOK/PAGE: VARIUS  
PROPOSED FRONTAGE: 303.76 FT  
PROPOSED AREA: 5.96 ACRES±

**ZONING INFORMATION**

ZONING DISTRICT: BUSINESS, GENERAL (BG-3.0)  
COMMERCIAL CORRIDORS OVERLAY DISTRICT ELSEWHERE (CCOD-E)  
DOWNTOWN/BLACKSTONE CANAL SIGN OVERLAY DISTRICT (DSOD)

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MINIMUM AREA:	5,000 SF	3.89 AC
MINIMUM FRONTAGE:	40 FEET/UNIT (MAX 200')	303.76 FT
MAXIMUM HEIGHT:	100 FEET	55.17 FT
MINIMUM SETBACKS:		
FRONT YARD:	N/A	5.50 FT
FRONT YARD:	5-FT (GROUND FLOOR RESIDENCE)	5.50 FT
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FLOOR AREA RATIO:	3:1 (BUILDING:LAND)	1.9:1

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*David J. LeRoy 10/18/24*

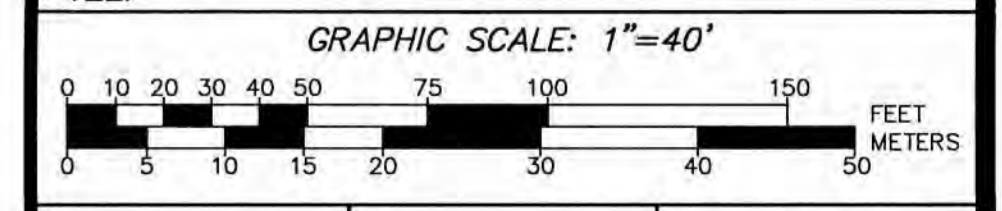
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CIVIL ENGINEERS & LAND SURVEYORS

8 MONUMENT SQUARE (978) 534-1234 (T)  
LEMINSTER, MASSACHUSETTS 01453 (978) 534-6060 (F)

WWW.HANNIGANENGINEERING.COM

**EXISTING CONDITIONS PLAN IN WORCESTER, MASSACHUSETTS**

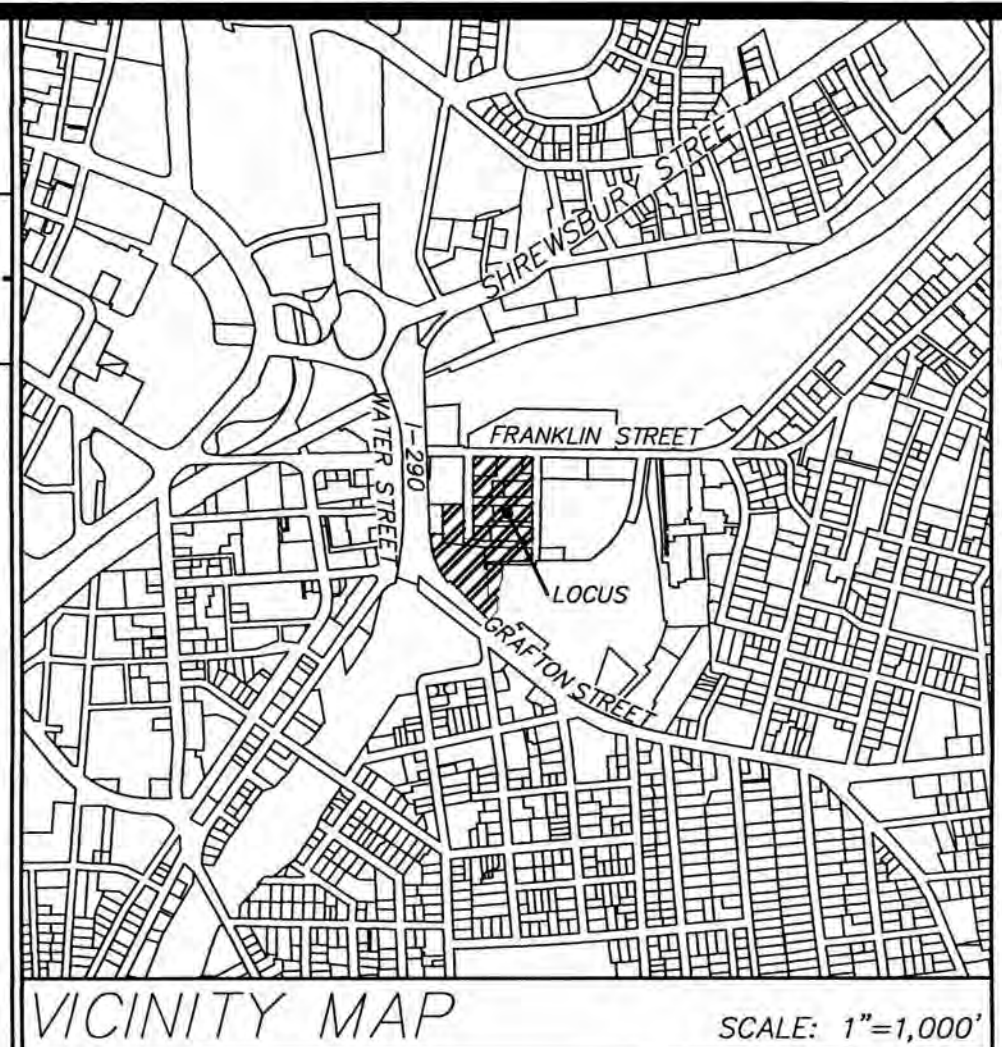
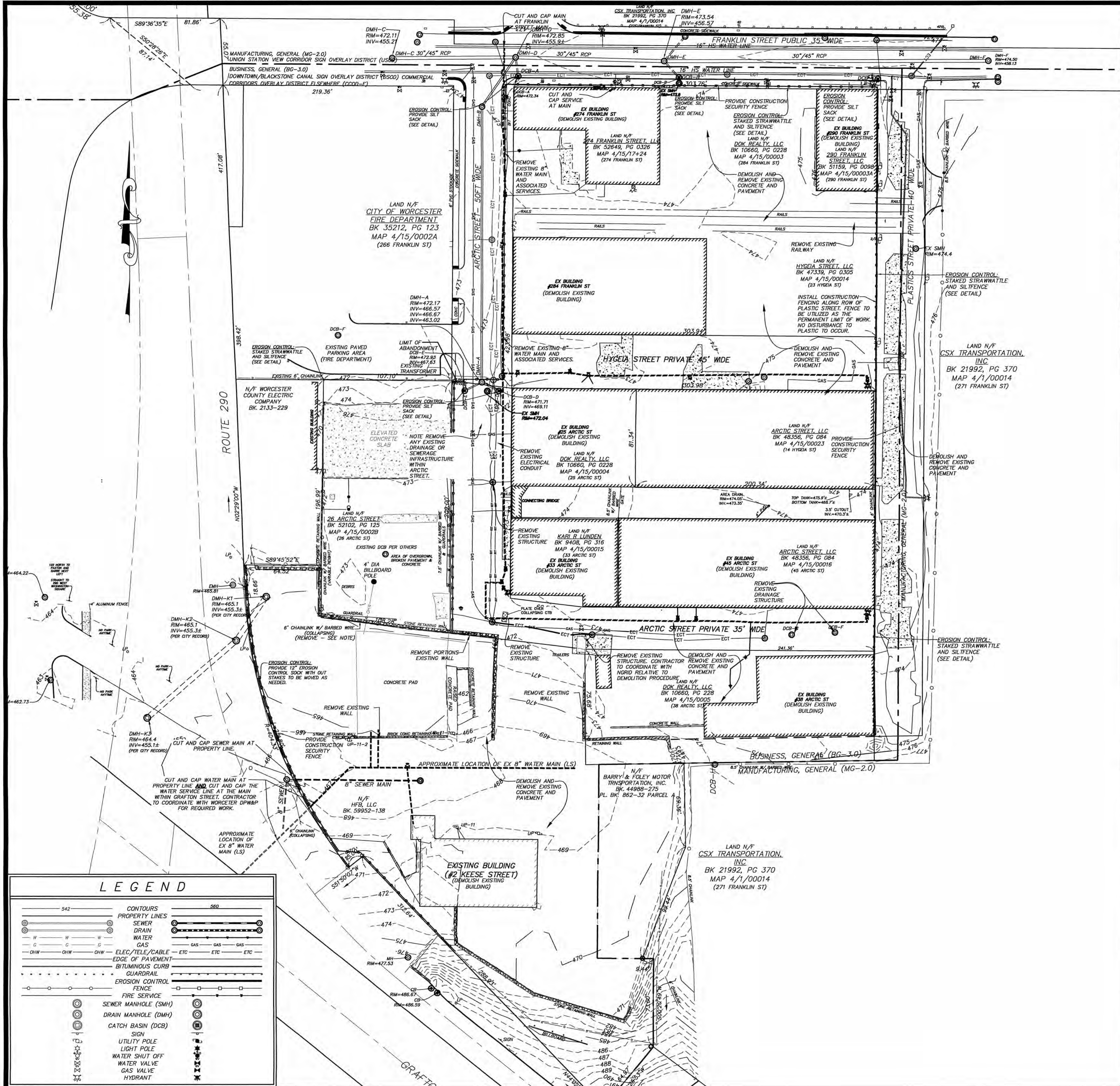
PREPARED FOR:  
GOVENTURE CAPITAL GROUP, LLC.  
BRENDAN GOVE  
10 E. WORCESTER ST.  
WORCESTER, MASSACHUSETTS 01604  
TEL:



CALC: DJL	DRWN: JHG/DJL	SCALE: 1"=40'
CHKD: DJL	APPD: WDH	DATE: NOV 12, 2021
SRV: JHG	FB: 71-144	JOB NO: 3030
TAB: (1) EXCOND	SHEET 1 OF 13	PLAN NO: C-18-9

**LEGEND**

542	CONTOURS	560
—	PROPERTY LINES	—
—	SEWER	—
—	DRAIN	—
—	WATER	—
—	GAS	—
—	ELEC/TELE/CABLE	—
—	ETC	—
—	ETC	—
—	ETC	—
—	EDGE OF PAVEMENT	—
—	BITUMINOUS CURB	—
—	GUARDRAIL	—
—	EROSION CONTROL	—
—	FENCE	—
—	FIRE SERVICE	—
—	SEWER MANHOLE (SMH)	—
—	DRAIN MANHOLE (DMH)	—
—	CATCH BASIN (DCB)	—
—	SIGN	—
—	UTILITY POLE	—
—	LIGHT POLE	—
—	WATER SHUT OFF	—
—	WATER VALVE	—
—	GAS VALVE	—
—	HYDRANT	—



**APPLICANT:**  
 GOVENTURE CAPITAL GROUP, LLC  
 10 E. WORCESTER STREET, SUITE 3A  
 WORCESTER, MASSACHUSETTS 01605

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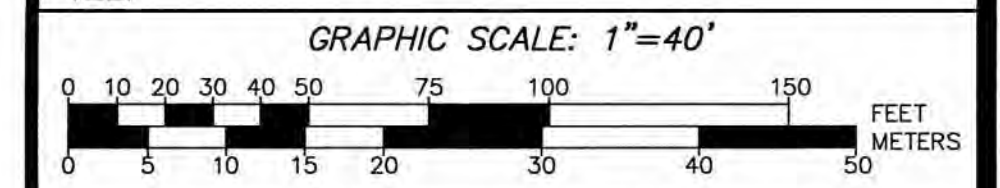


**HANNIGAN ENGINEERING, INC.**  
 CIVIL ENGINEERS & LAND SURVEYORS

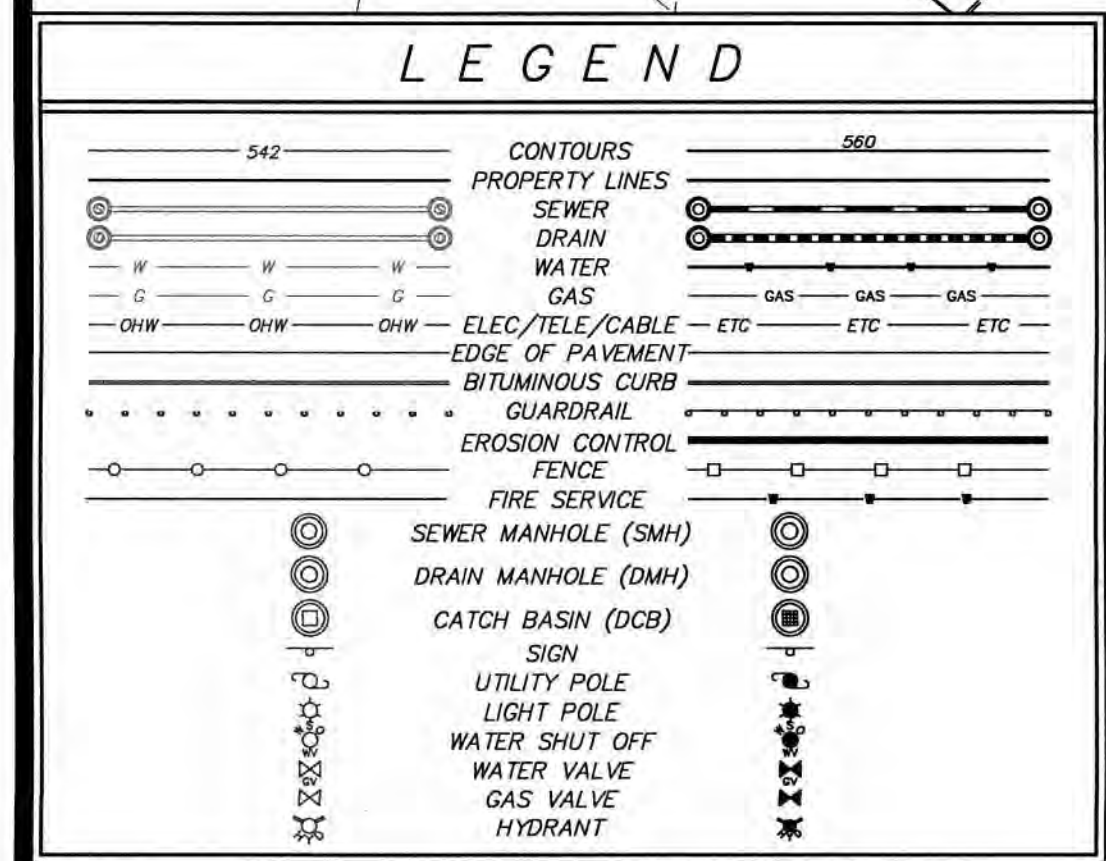
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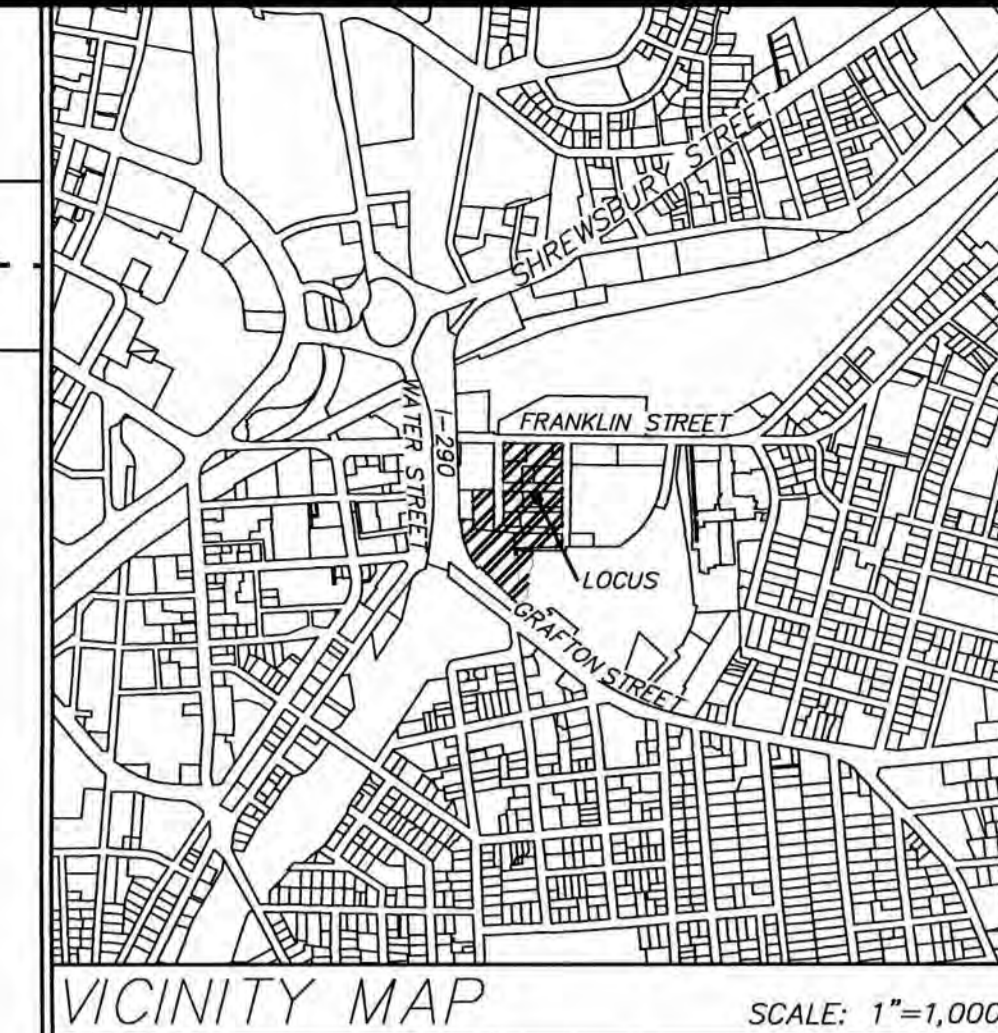
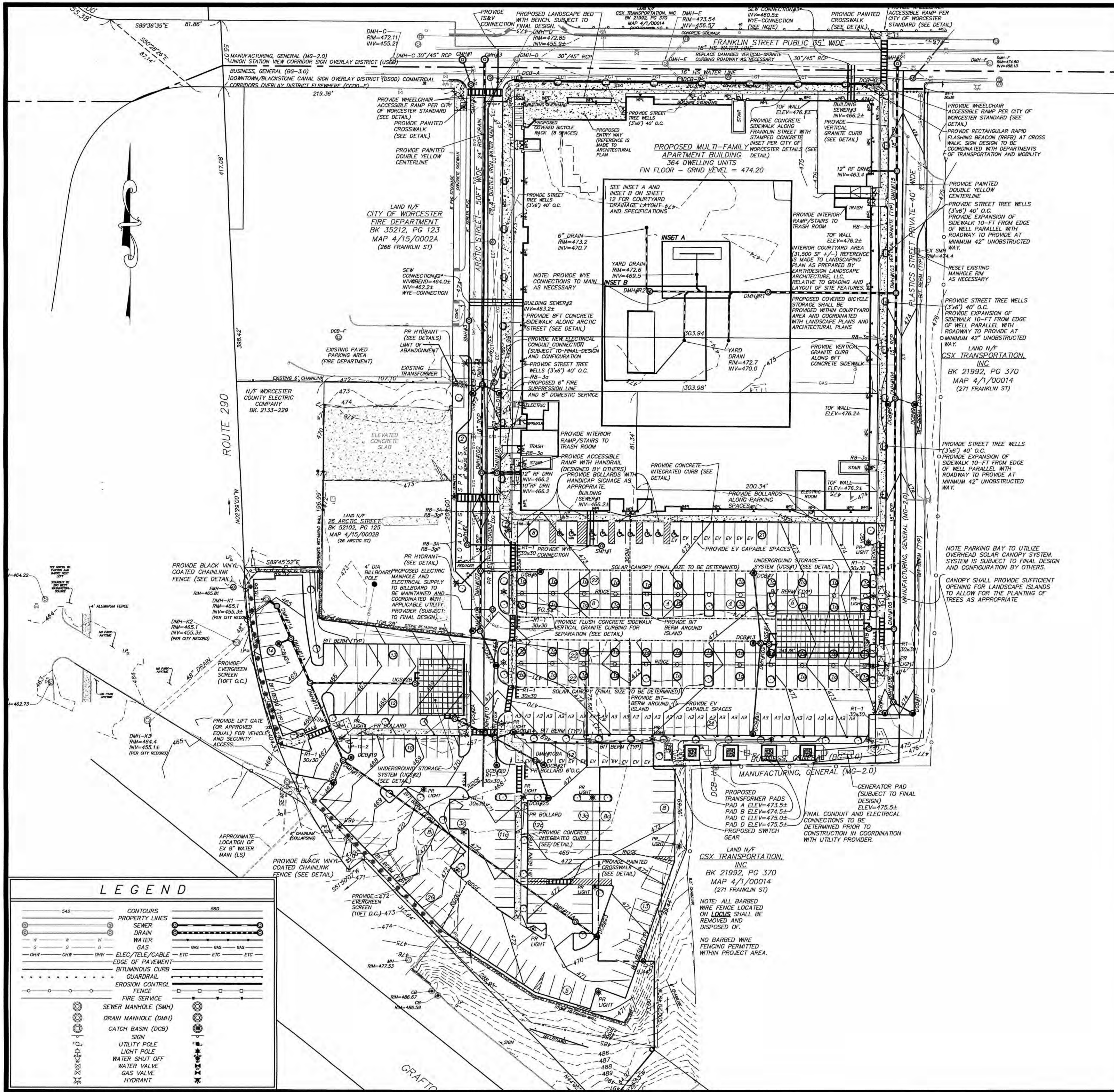
**SITE DEMOLITION PLAN**  
 IN  
**WORCESTER, MASSACHUSETTS**

PREPARED FOR:  
 GOVENTURE CAPITAL GROUP, LLC.  
 BRENDAN GOVE  
 10 E. WORCESTER ST.  
 WORCESTER, MASSACHUSETTS 01604  
 TEL:



CALC: CMA/WDH	DRWN: CMA/WDH	SCALE: 1"=40'
CHKD: WDH	APPD: WDH	DATE: NOV 12, 2021
SRV: JHG	FB: 71-144	JOB NO: 3030
TAB: (2) DEMO	SHEET 2 OF 13	PLAN NO: C-18-9





**PROJECT INFORMATION**

**LAND INFORMATION**  
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**PARKING CALCULATION:**  
**MULTI-FAMILY RESIDENTIAL CCOD-E DISTRICT**

**PER ZONING ORDINANCE**  
1 SPACE PER UNIT  
364 UNITS X 1 SPACE = 364 SPACES

**1 SPACE PER 10 UNITS (GUEST)**  
364 UNITS / 10 UNITS = 36.4 SPACES

**TOTAL SPACES REQUIRED=401 SPACES REQUIRED**

**TOTAL PROVIDED**  
TOTAL ALLOWABLE REDUCTION BY ZBA SPECIAL PERMIT 10%  
401 SPACES X 10% = 40 SPACES

**TOTAL PARKING REQUIRED = 361 SPACES**  
TOTAL PARKING PROVIDED = 361 SPACES

**COMPACT SPARKING SPACE CALCULATION**  
361 SPACES X 25% = 90 SPACES BY RIGHT  
89 COMPACT SPACES PROVIDED = 24.7%

**MISCELLANEOUS PARKING COUNT:**  
54 ELECTRIC VEHICLE CAPABLE SPACES (15%)  
9 HANDICAP ACCESSIBLE PARKING SPACES  
2 LOADING SPACES\*

\*SPECIAL PERMIT FROM WORCESTER ZONING BOARD APPEALS SOUGHT FOR REDUCTION OF REQUIRED PARKING AND LOADING SPACE REQUIREMENTS PER ARTICLE IV.SECTION 7.A.2 OF WORCESTER ZONING ORDINANCE

**APPLICANT:**  
GOVENTURE CAPITAL GROUP, LLC  
10 E. WORCESTER STREET, SUITE 3A  
WORCESTER, MASSACHUSETTS 01605

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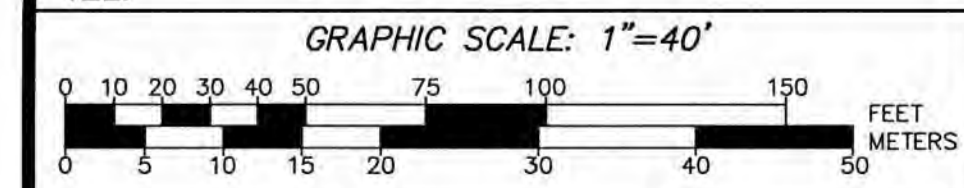
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**SITE DEVELOPMENT PLAN**  
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**WORCESTER, MASSACHUSETTS**

PREPARED FOR:  
GOVENTURE CAPITAL GROUP, LLC.  
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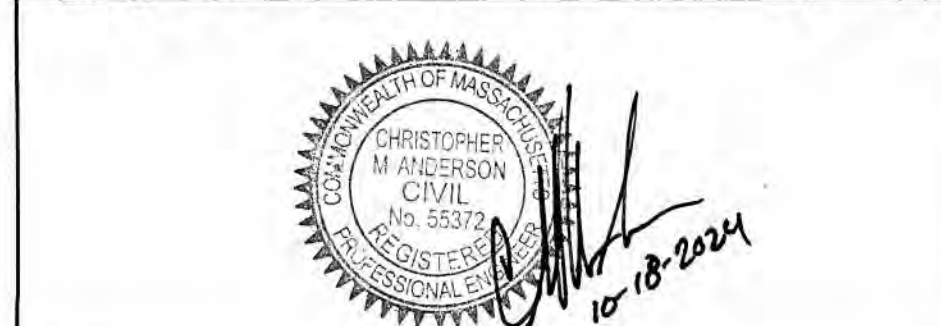
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- NOTIFICATION REQUIREMENTS SHOWN ON THIS PLAN SHALL NOT RELIEVE THE CONTRACTOR OF ANY OTHER REQUIREMENTS WHICH MAY EXIST UNDER LOCAL, STATE, OR FEDERAL JURISDICTION TO WHICH THE CONTRACTOR IS OBLIGATED.
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- ANY MATERIALS DISCOVERED ON-SITE WHICH ARE NOT SUITABLE FOR USE IN THE PROJECT AS SHOWN ON THIS PLAN SHALL BE REMOVED AND HAULED OFF-SITE TO AN APPROPRIATELY LICENSED FACILITY.
- PLANS TO BE REVIEWED BY APPLICABLE UTILITY AGENCIES FOR COMPLIANCE WITH REGULATIONS. FINAL LOCATION IS SUBJECT TO CHANGE.
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- AREAS OF FILL TO BE COMPACTED TO A MINIMUM 95% DRY DENSITY IN AREAS WITHIN ROADWAYS AND UTILITY EASEMENTS. OTHER AREAS OF FILL TO BE COMPACTED TO A MINIMUM 90% DRY DENSITY. ALL FILL MATERIALS ARE TO BE CLEAN FILL, FREE OF DELETERIOUS MATERIALS AND DEBRIS.
- ALL SIDEWALKS AND RAMPS TO CONFORM TO REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA), AS REQUIRED. SEE ARCHITECTURAL PLANS FOR PERFORMANCE REQUIREMENTS FOR PROPOSED BUILDINGS.
- THE AREA PROPOSED FOR DEVELOPMENT IS NOT WITHIN A 100 YEAR FLOOD PLAN PER F.E.M.A. FIRM PANEL #25027C-0618 E, DATED: JULY 4, 2011. COMPLIANCE WITH APPLICABLE REGULATIONS IS REQUIRED.
- ALL REINFORCED CONCRETE PIPE TO BE CLASS III UNLESS OTHERWISE NOTED.
- PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
- ALL UTILITIES ARE TO BE INSTALLED BY A LICENSED UTILITY CONTRACTOR LICENSED BY THE CITY OF WORCESTER.

**DEFINITIVE SITE PLAN**

NO.	DATE	REVISIONS	BY
11	10/18/2024	LAYOUT REVISIONS-PARKING REDUCTION	CMA
10	12/22/2023	PERMITTING/CITY COMMENT	CMA
9	11/11/2023	PERMITTING/CITY COMMENT	CMA
8	6/22/2023	LAYOUT REVISIONS	CMA
7	6/7/2023	LAYOUT REVISIONS	CMA



**HANNIGAN ENGINEERING, INC.**

CIVIL ENGINEERS & LAND SURVEYORS

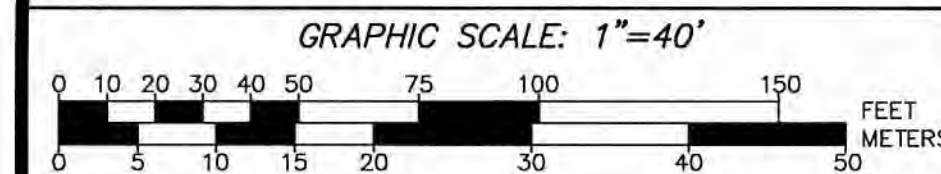
8 MONUMENT SQUARE (978) 534-1234 (T)  
 LEOMINSTER, MASSACHUSETTS 01453 (978) 534-6060 (F)

WWW.HANNIGANENGINEERING.COM

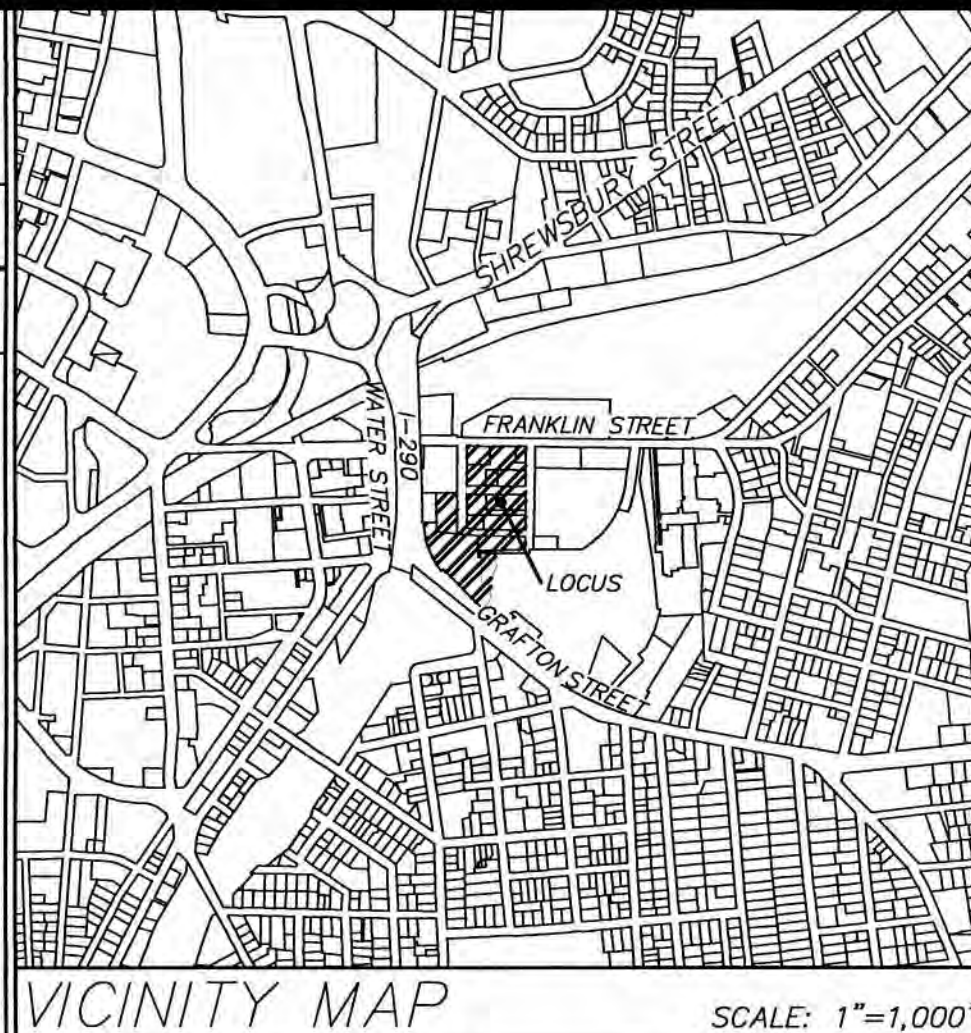
**SITE GRADING PLAN**

PREPARED FOR:  
 GOVENTURE CAPITAL GROUP, LLC.  
 BRENDAN GOVE  
 10 E. WORCESTER ST.  
 WORCESTER, MASSACHUSETTS 01604

TEL:



CALC:	CMA/WDH	DRWN:	CMA/WDH	SCALE:	1"=40'
CHKD:	WDH	APPD:	WDH	DATE:	NOV 12, 2021
SRV:	JHG	FB:	71-144	JOB NO:	3030
TAB:	(5) GRAD	SHEET	5 OF 13	PLAN NO:	C-18-9



**VICINITY MAP**

SCALE: 1"=1,000'

**PARKING CALCULATION:**  
 MULTI-FAMILY RESIDENTIAL CCOD-E DISTRICT  
 PER ZONING ORDINANCE  
 1 SPACE PER UNIT  
 364 UNITS X 1 SPACE = 364 SPACES  
 1 SPACE PER 10 UNITS (GUEST)  
 364 UNITS / 10 UNITS = 36.4 SPACES  
 TOTAL SPACES REQUIRED=401 SPACES REQUIRED

TOTAL PROVIDED  
 TOTAL ALLOWABLE REDUCTION BY ZBA SPECIAL PERMIT 10%  
 401 SPACES x 10% = 40 SPACES

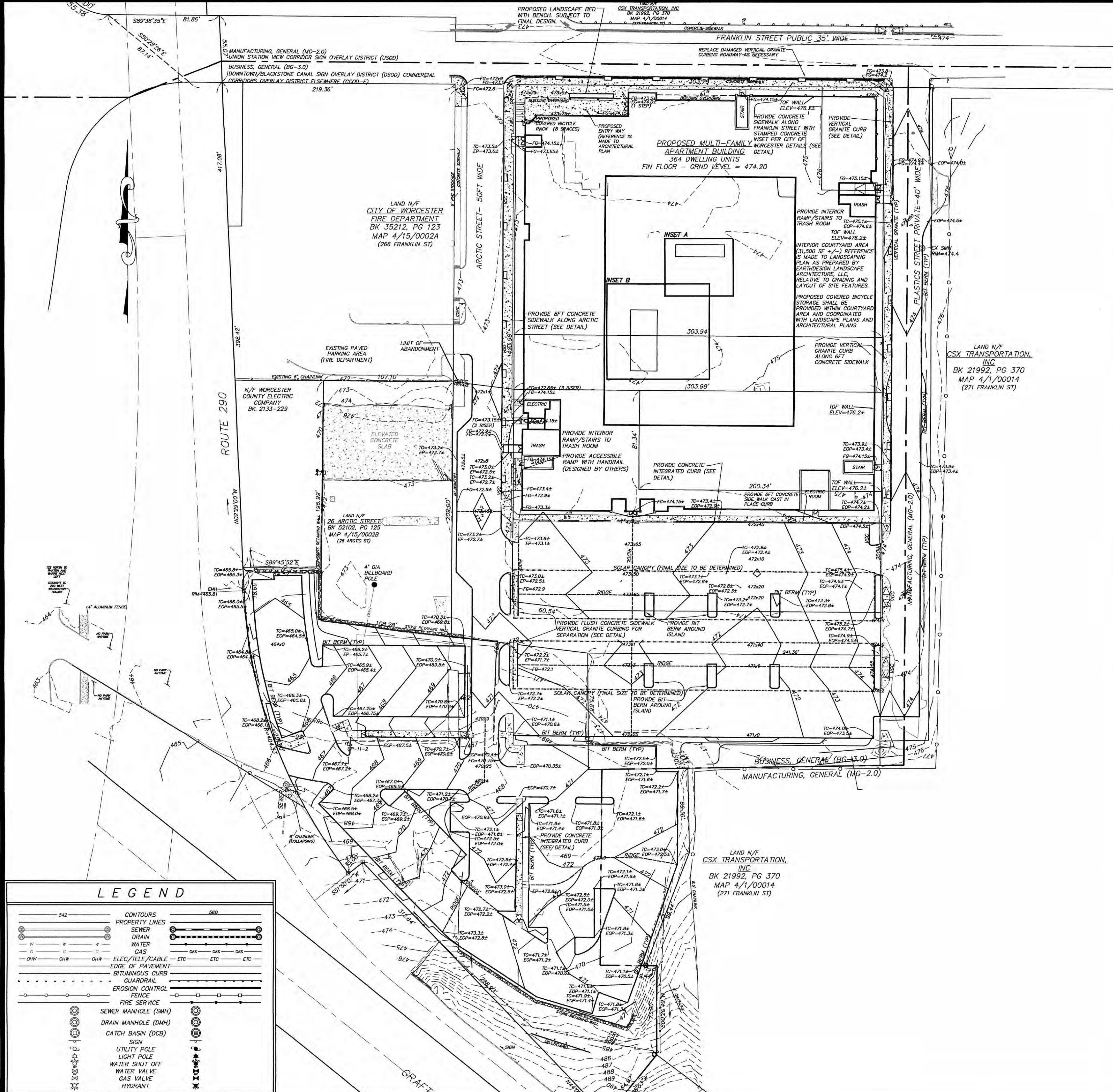
TOTAL PARKING REQUIRED = 361 SPACES  
 TOTAL PARKING PROVIDED = 361 SPACES

**COMPACT SPARKING SPACE CALCULATION**  
 361 SPACES x 25% = 90 SPACES BY RIGHT  
 89 COMPACT SPACES PROVIDED = 24.7%

**MISCELLANEOUS PARKING COUNT:**  
 54 ELECTRIC VEHICLE CAPABLE SPACES (15%)  
 9 HANDICAP ACCESSIBLE PARKING SPACES  
 2 LOADING SPACES\*

\*SPECIAL PERMIT FROM WORCESTER ZONING BOARD APPEALS SOUGHT FOR REDUCTION OF REQUIRED PARKING AND LOADING SPACE REQUIREMENTS PER ARTICLE IV, SECTION 7.A.2 OF WORCESTER ZONING ORDINANCE

**APPLICANT:**  
 GOVENTURE CAPITAL GROUP, LLC  
 10 E. WORCESTER STREET, SUITE 3A  
 WORCESTER, MASSACHUSETTS 01605



**LEGEND**

--- 542	CONTOURS	---	560
---	PROPERTY LINES	---	---
---	SEWER	---	---
---	DRAIN	---	---
---	WATER	---	---
---	GAS	---	---
---	ELEC/TELE/CABLE	---	---
---	ETC	---	---
---	ETC	---	---
---	EDGE OF PAVEMENT	---	---
---	BITUMINOUS CURB	---	---
---	GUARDRAIL	---	---
---	EROSION CONTROL FENCE	---	---
---	FIRE SERVICE	---	---
---	SEWER MANHOLE (SMH)	---	---
---	DRAIN MANHOLE (DMH)	---	---
---	CATCH BASIN (DCB)	---	---
---	SIGN	---	---
---	UTILITY POLE	---	---
---	LIGHT POLE	---	---
---	WATER SHUT OFF	---	---
---	WATER VALVE	---	---
---	GAS VALVE	---	---
---	HYDRANT	---	---

# PROJECT INFORMATION

**LAND INFORMATION**  
MAP/PARCEL: 04-015-23,34,4,5,7,13,14,15,16,23,17+24; 04-14-24+38  
DEED BOOK/PAGE: VARIUS  
PROPOSED FRONTAGE: 303.76 FT  
PROPOSED AREA: 5.96 ACRES±

**ZONING INFORMATION**  
ZONING DISTRICT: BUSINESS, GENERAL (BG-3.0)  
COMMERCIAL CORRIDORS OVERLAY DISTRICT ELSEWHERE (CCOD-E)  
DOWNTOWN/BLACKSTONE CANAL SIGN OVERLAY DISTRICT (DSOD)  
DIMENSIONAL REQUIREMENTS REQUIRED PROVIDED

**MINIMUM AREA:** 5,000 SF  
**MINIMUM FRONTAGE:** 40 FEET/UNIT (MAX 200')  
**MAXIMUM HEIGHT:** 100 FEET  
**MINIMUM SETBACKS:**  
FRONT YARD: N/A  
SIDE YARD: 5-FT (GROUND FLOOR RESIDENCE)  
REAR YARD: N/A  
**FLOOR AREA RATIO:** 3:1 (BUILDING:LAND)

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## VICINITY MAP

SCALE: 1"=1,000'

**PARKING CALCULATION:**  
MULTI-FAMILY RESIDENTIAL CCOD-E DISTRICT  
PER ZONING ORDINANCE  
1 SPACE PER UNIT  
364 UNITS X 1 SPACE = 364 SPACES  
1 SPACE PER 10 UNITS (GUEST)  
364 UNITS / 10 UNITS = 36.4 SPACES  
**TOTAL SPACES REQUIRED=401 SPACES REQUIRED**

**TOTAL PROVIDED**  
TOTAL ALLOWABLE REDUCTION BY ZBA SPECIAL PERMIT 10%  
401 SPACES X 10% = 40 SPACES  
**TOTAL PARKING REQUIRED = 361 SPACES**  
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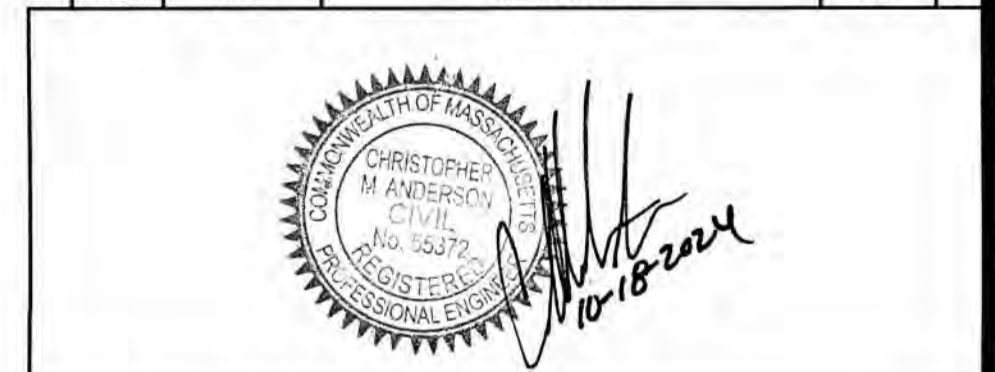
**APPLICANT:**  
GOVERNURE CAPITAL GROUP, LLC  
10 E. WORCESTER STREET, SUITE 3A  
WORCESTER, MASSACHUSETTS 01605

## LANDSCAPING NOTES:

- LANDSCAPING OF AREAS SHOULD OCCUR AS SOON AS POSSIBLE
- IF THE SEASON OR ADVERSE WEATHER CONDITIONS DO NOT PERMIT THE ESTABLISHMENT OF VEGETATION, TEMPORARY HAY MULCH, OR OTHER MEANS OF STABILIZATION SHALL BE PERFORMED.
- THE USE OF HERBICIDES MAY BE SUBJECT TO LOCAL OR STATE REGULATIONS
- CARE SHOULD BE TAKEN WITH FERTILIZERS SUCH THAT THEY ARE NOT CARRIED TO A WETLAND OR SENSITIVE AREA
- REFERENCE IS MADE TO THE LANDSCAPE PLANS AS PREPARED BY EARTHDESIGN LANDSCAPE ARCHITECTURE

## DEFINITIVE SITE PLAN

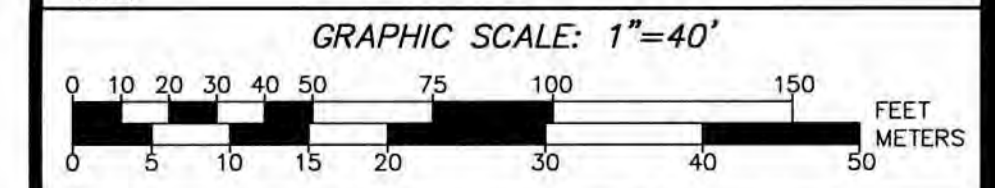
NO.	DATE	REVISIONS	BY
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9	11/1/2023	PERMITTING/CITY COMMENT	CMA
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7	6/7/2023	LAYOUT REVISIONS	CMA



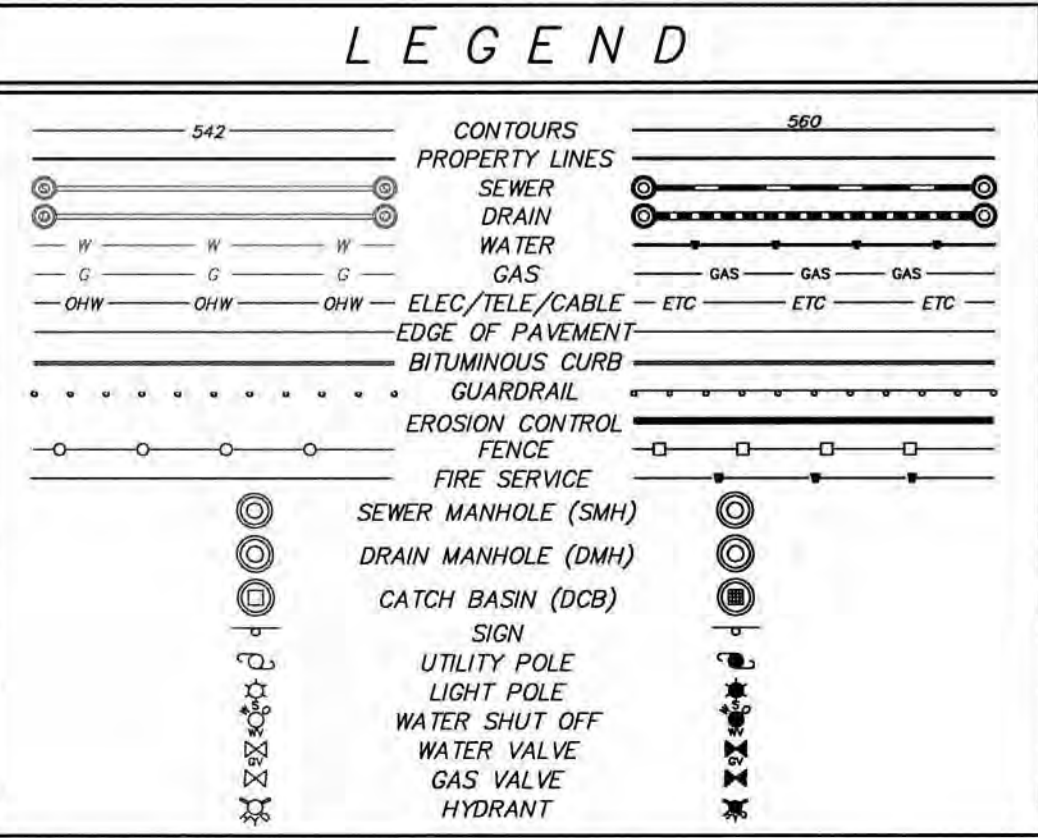
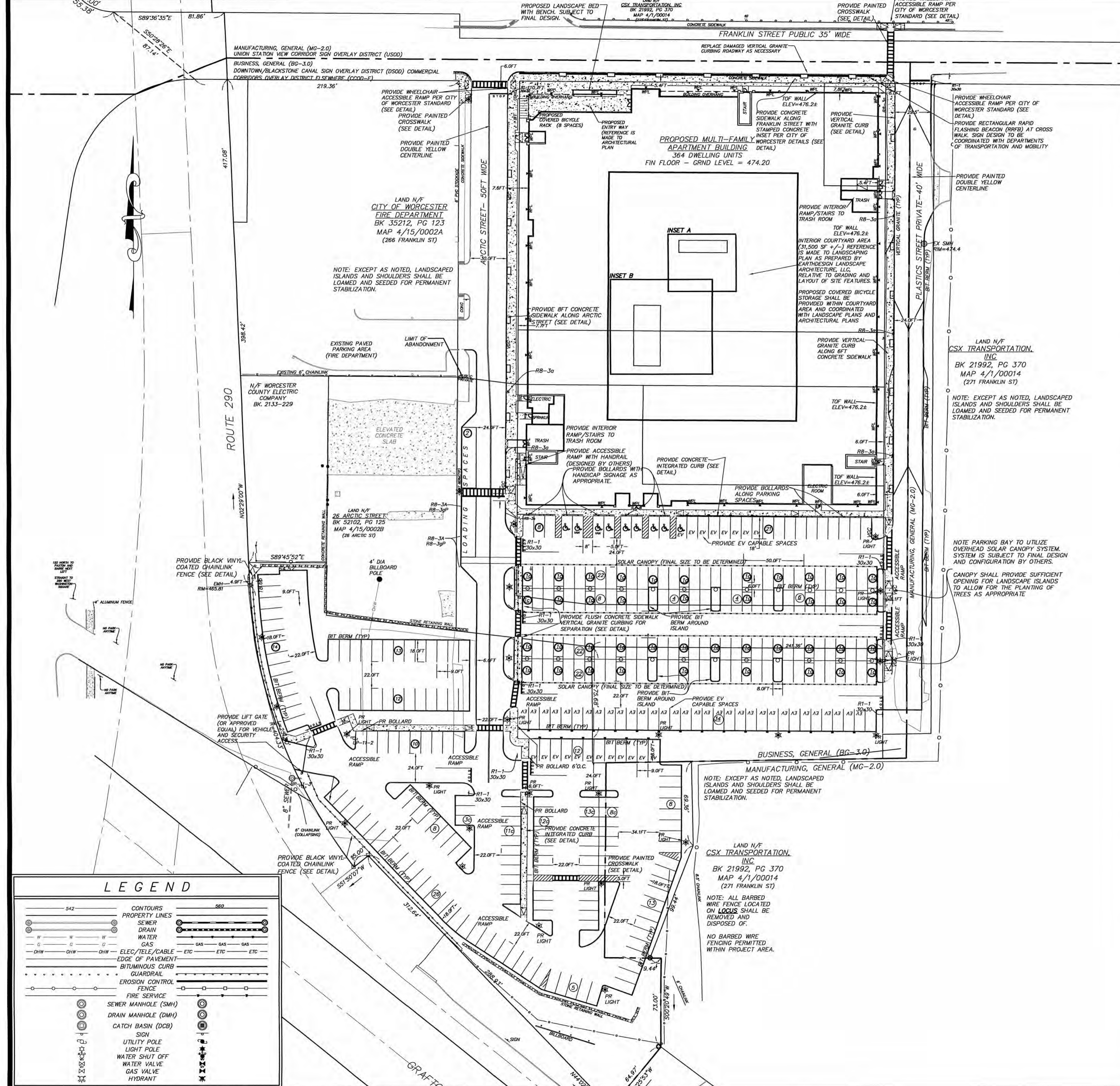
**HANNIGAN ENGINEERING, INC.**  
CIVIL ENGINEERS & LAND SURVEYORS  
8 MONUMENT SQUARE LEOMINSTER, MASSACHUSETTS 01453  
WWW.HANNIGANENGINEERING.COM

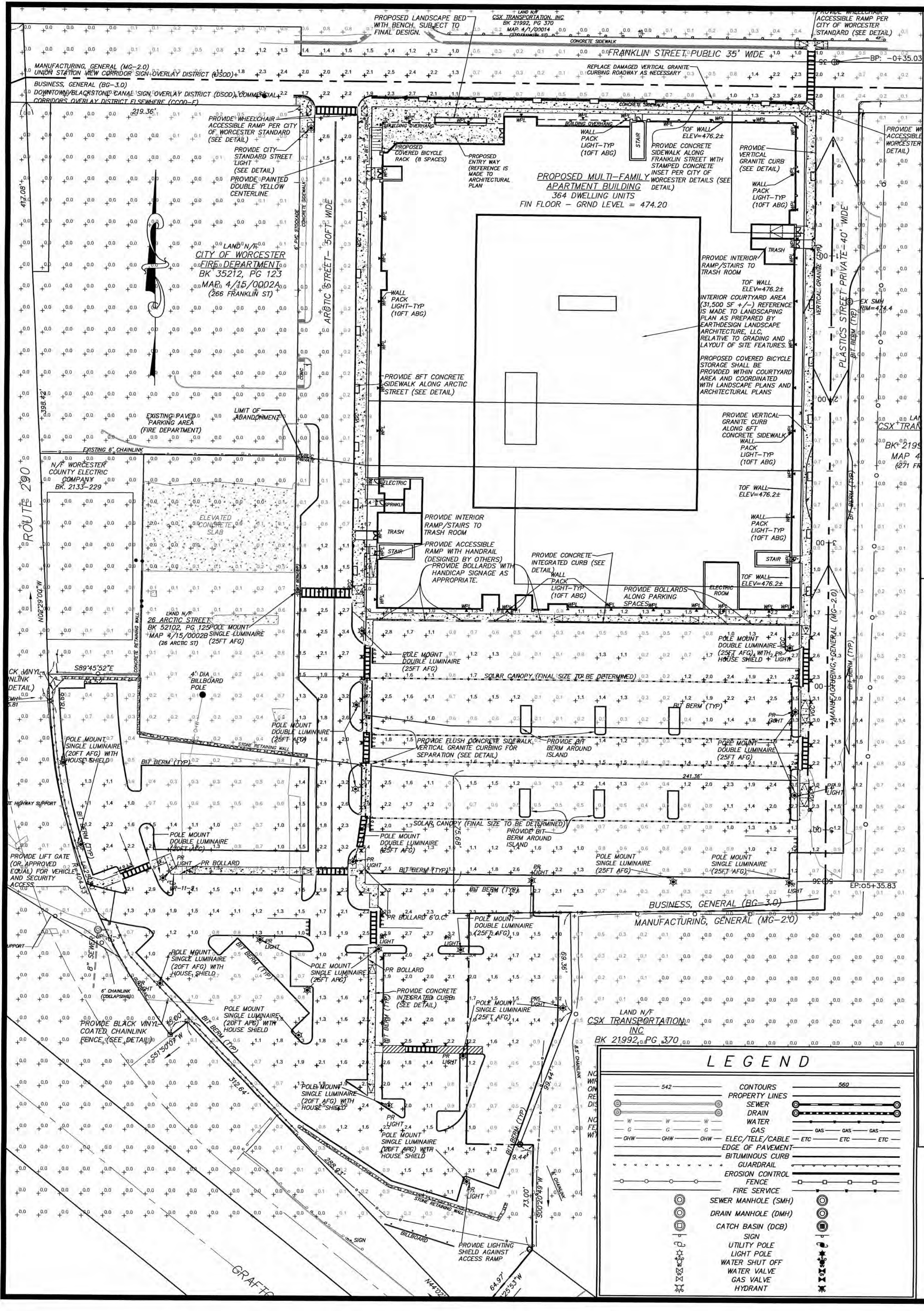
## LAYOUT PLAN IN WORCESTER, MASSACHUSETTS

PREPARED FOR: GOVERNURE CAPITAL GROUP, LLC.  
BRENDAN GOVE  
10 E. WORCESTER ST.  
WORCESTER, MASSACHUSETTS 01604  
TEL:



CALC:	CMA/WDH	DRWN:	CMA/WDH	SCALE:	1"=40'
CHKD:	WDH	APPD:	WDH	DATE:	NOV 12, 2021
SRV:	JHG	FB:	71-144	JOB NO:	3030
TAB:	(6) LL	SHEET	6 OF 13	PLAN NO:	C-18-9





### RSX1 LED Area Luminaire

**Specifications**

- EPA (H=80'): 0.57 R<sup>2</sup> (0.05 m<sup>2</sup>)
- Length: 21.8" (55.4 cm)
- Width: 13.3" (33.8 cm)
- Height: 3.0" (7.6 cm) Main Body
- Weight: 22.0 lbs (10.0 kg)

**Introduction**

The new RSX LED Area family delivers maximum value by providing significant energy savings, long life and outstanding photometric performance at an affordable price. The RSX1 delivers 1,020 to 17,000 lumens allowing it to replace 70W to 400W HID luminaires.

The RSX features an integral universal mounting mechanism that allows the luminaire to be mounted on most existing drill hole patterns. This "no-drill" solution provides significant labor savings. An easy-access door on the bottom of mounting arm allows for wiring without opening the electrical compartment. A mast arm adaptor, adjustable integral splitter and other mounting configurations are available.

**Example:** RSX1 LED P4 40R R3 MVOLT SPA DBXB

#### RS1LED

ID	Color	LED Type	Wattage	LM	Temp
R1	400	5000K	40W	4000	27°K
R2	400	5000K	80W	8000	27°K
R3	400	5000K	160W	16000	27°K
R4	400	5000K	320W	32000	27°K
R5	400	5000K	640W	64000	27°K

**Shipped included**

- Standard and Networked Sensors/Controls (Factory default settings, see table page 4)
- BAA (Bay Area) All-processor 2, with Networked. 50 luminaire sensor 1.5" x 1.5"
- CEE (Central Electronics)
- WPA (Worship Area) Power for 150W All-core with a standard or enhanced solution. Sensor coverage pattern is affected when luminaire is tilted.
- Shipped separately (requires sensor field assembly)
- EGV (External gear for use) (20' and 40' arm options)
- BS (Bracket)

**Shipped separately**

- D4000 Dark bronze
- D4001 Black
- D4002 Natural aluminum
- D4003 White
- D4004 Polished dark bronze
- D4005 Anodized black
- D4006 Anodized natural aluminum
- D4007 Anodized white

### WDGE2 LED Architectural Wall Scape Visual Comfort Optic

**Specifications**

- Depth (D1): 7"
- Depth (D2): 1.5"
- Height: 9"
- Width: 11.5"
- Weight: 13.5 lbs (without options)

**Introduction**

The WDGE LED family is designed to meet specifier's every wall-mounted lighting need in a widely accepted shape that blends with any architecture. The Clean, rectangular design comes in four sizes with lumens packages ranging from 1,200 to 25,000 lumens, providing a true site-wide solution. Equipped with rugged A&B wireless controls, the WDGE family provides additional energy savings and code compliance.

WDGE2 delivers up to 6,000 lumens with a soft, non-glared light source, creating a visually comfortable environment. When combined with multiple integrated emergency battery backup options, including an 18W cold temperature option, the WDGE2 becomes the ideal wall-mounted lighting solution for pedestrian scale applications in any environment.

**Example:** WDGE2 LED P3 40K R21 VV MOUNT SRM DBXB

#### WDGE2 LED

Model	Wattage	LM	Temp	Beam Angle	Mounting
W2200	220W	22000	27°K	15°	Standard
W2400	240W	24000	27°K	15°	Standard
W2600	260W	26000	27°K	15°	Standard
W2800	280W	28000	27°K	15°	Standard
W3000	300W	30000	27°K	15°	Standard
W3200	320W	32000	27°K	15°	Standard
W3400	340W	34000	27°K	15°	Standard
W3600	360W	36000	27°K	15°	Standard
W3800	380W	38000	27°K	15°	Standard
W4000	400W	40000	27°K	15°	Standard

**Shipped included**

- S&B (Sensor & Battery) Standard mounting bracket. Includes 18W cold temperature option. Sensor & Battery (SRM) Standard. Includes 18W cold temperature option.
- Shipped separately: 18W cold temperature option. Sensor & Battery (SRM) Standard. Includes 18W cold temperature option.

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- D4000 Dark bronze
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### PROJECT INFORMATION

**LAND INFORMATION**

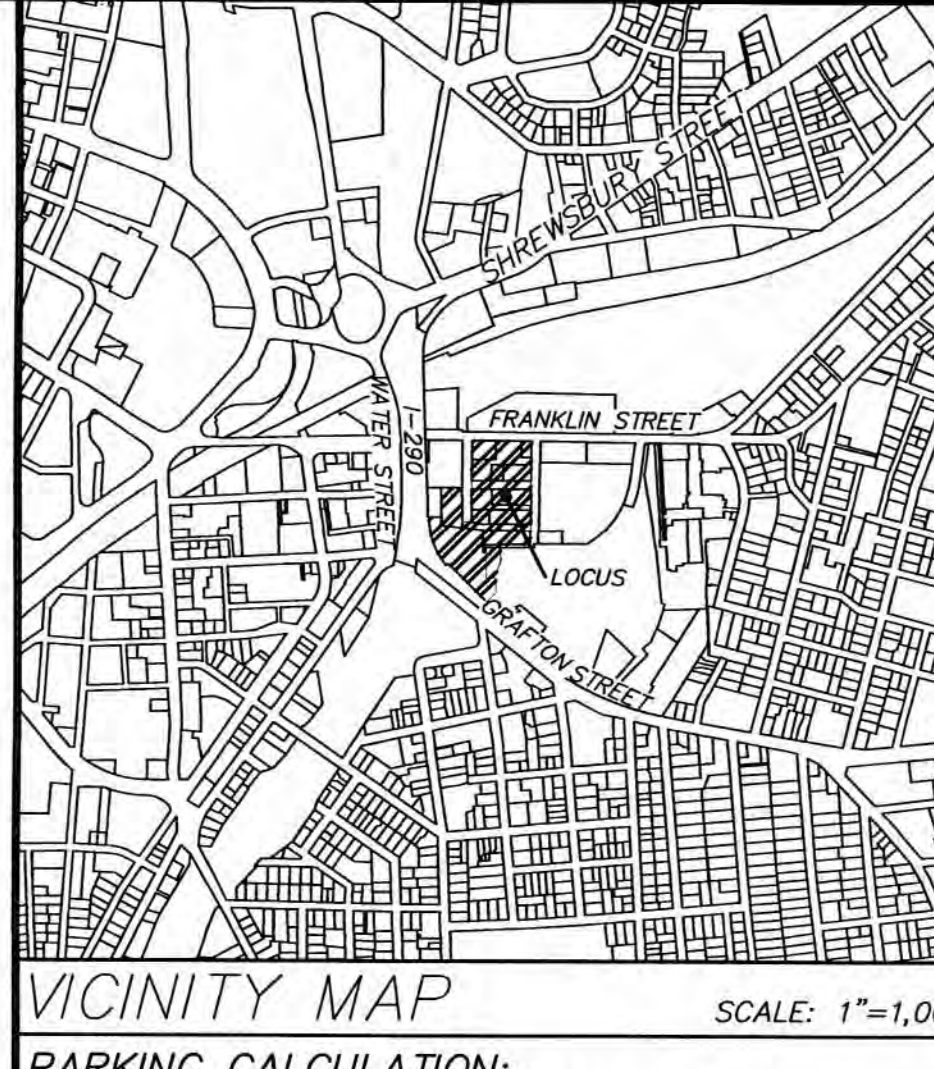
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 DEED BOOK/PAGE: VARIOUS  
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 PROPOSED AREA: 5.96 ACRES±

**ZONING INFORMATION**

ZONING DISTRICT: BUSINESS, GENERAL (BG-3.0)  
 COMMERCIAL CORRIDORS OVERLAY DISTRICT ELSEWHERE (CCOD-E)  
 DOWNTOWN/BLACKSTONE CANAL SIGN OVERLAY DISTRICT (DSOD)

**DIMENSIONAL REQUIREMENTS - REQUIRED**

Minimum Area:	40 FT <sup>2</sup> UNIT (MAX 200')	3.89 AC
Minimum Height:	100 FEET	303.76 FT
Minimum setbacks:		55.17 FT
Front Yard:	N/A	5.50 FT
Front Yard:	5 FT (GROUND FLOOR RESIDENCE)	N/A
Rear Yard:	N/A	NA
Side Yard:	10 FT	NA
Floor Area Ratio:	3:1 (BUILDING:LAND)	1.9:1



### PARKING CALCULATION:

MULTI-FAMILY RESIDENTIAL CCOD-E DISTRICT PER ZONING ORDINANCE

1 SPACE PER UNIT  
 1364 UNITS X 1 SPACE = 364 SPACES

1 SPACE PER 10 UNITS (GUEST)  
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**TOTAL PROVIDED**

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**APPLICANT:**  
 GOVERNURE CAPITAL GROUP, LLC  
 10 E. WORCESTER STREET, SUITE 3A  
 WORCESTER, MASSACHUSETTS 01605

**LIGHTING NOTE:**  
 THE PHOTOMETRIC PLAN WAS PREPARED UTILIZING VISUAL LIGHTING DESIGN SOFTWARE WITH MANUFACTURER SUPPLIED PHOTOMETRIC INFORMATION. PRIOR TO CONSTRUCTION ANY MODIFICATION SHALL BE REVIEWED TO CONFIRM CONSISTENCY WITH LIGHTING PLAN.

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- ANY DEVIATIONS IN DESIGN AS SHOWN SHALL REQUIRE A REVIEW AND APPROVAL OF THE DESIGN ENGINEER OR FIRM. CHANGES MADE IN THE FIELD MADE WITHOUT AUTHORIZATION SHALL BE SUBJECT TO REVIEW BY THE ENGINEER AND APPROPRIATE APPROVING AUTHORITY. EXPENSES INCURRED TO BRING THE UNAUTHORIZED CHANGES TO ACCEPTABLE PERFORMANCE SHALL BE BORNE BY THE COMPANY OR CONTRACTOR MAKING THE UNAUTHORIZED CHANGE.
- ANY MATERIALS DISCOVERED ON-SITE WHICH ARE NOT SUITABLE FOR USE IN THE PROJECT AS SHOWN ON THIS PLAN SHALL BE REMOVED AND HAULED OFF-SITE TO AN APPROPRIATELY LICENSED FACILITY.
- PLANS TO BE REVIEWED BY APPLICABLE UTILITY AGENCIES FOR COMPLIANCE WITH REGULATIONS. FINAL LOCATION IS SUBJECT TO CHANGE.
- APPLICANT SHOULD BE AWARE OF OBLIGATIONS TO COMPLY WITH CHAPTER 131, SECTION 40 OF THE MASSACHUSETTS GENERAL LAWS, OTHERWISE KNOWN AS THE WETLANDS PROTECTION ACT, AND THE ASSOCIATED REGULATIONS (310 CMR 10.00).
- AREAS OF FILL TO BE COMPACTED TO A MINIMUM 95% DRY DENSITY IN AREAS WITHIN ROADWAYS AND UTILITY EASEMENTS. OTHER AREAS OF FILL TO BE COMPACTED TO A MINIMUM 90% DRY DENSITY. ALL FILL MATERIALS ARE TO BE CLEAN FILL, FREE OF DELETERIOUS MATERIALS AND DEBRIS.
- ALL SIDEWALKS AND RAMPS TO CONFORM TO REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA), AS REQUIRED. SEE ARCHITECTURAL PLANS FOR CONFORMANCE REQUIREMENTS FOR PROPOSED BUILDINGS.
- THE AREA PROPOSED FOR DEVELOPMENT IS NOT WITHIN A 100 YEAR FLOOD PLAIN (FIRM) AS SHOWN ON MAPS 22022C-0818 DATED: JULY 4, 2011. COMPLIANCE WITH APPLICABLE REGULATIONS IS REQUIRED.
- ALL REINFORCED CONCRETE PIPE TO BE CLASS III UNLESS OTHERWISE NOTED.
- PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
- ALL UTILITIES ARE TO BE INSTALLED BY A LICENSED UTILITY CONTRACTOR LICENSED BY THE CITY OF WORCESTER.

### DEFINITIVE SITE PLAN

NO.	DATE	REVISIONS	BY
11	10/18/2024	LAYOUT REVISIONS-PARKING REDUCTION	CMA
10	12/22/2023	PERMITTING/CITY COMMENT	CMA
9	11/1/2023	PERMITTING/CITY COMMENT	CMA
8	6/22/2023	LAYOUT REVISIONS	CMA
7	6/7/2023	LAYOUT REVISIONS	CMA

### HANNIGAN ENGINEERING, INC.

CIVIL ENGINEERS & LAND SURVEYORS

8 MONUMENT SQUARE  
 LEOMINSTER, MASSACHUSETTS 01453

(978) 534-1234 (T)  
 (978) 534-6080 (F)

WWW.HANNIGANENGINEERING.COM

## LIGHTING DIAGRAM

IN  
 WORCESTER, MASSACHUSETTS

PREPARED FOR:  
 GOVERNURE CAPITAL GROUP, LLC.  
 BRENDAN GOVE  
 10 E. WORCESTER ST.  
 WORCESTER, MASSACHUSETTS 01604  
 TEL:

**GRAPHIC SCALE: 1" = 40'**

CALC: CMA/WDH DRWN: CMA/WDH SCALE: 1" = 40'  
 CHKD: WDH APPD: WDH DATE: NOV 12, 2021  
 SRV: JHG FB: 71-144 JOB NO: 3030  
 TAB: (7) LD SHEET 7 OF 13 PLAN NO:C-18-9

### LEGEND

	542	CONTOURS	562
		SEWER LINES	
		DRAIN LINES	
		WATER LINES	
		GAS LINES	
		ELEC./TELE./CABLE LINES	
		EDGE OF PAVEMENT	
		BITUMINOUS CURB	
		GUARDRAIL	
		EROSION CONTROL FENCE	
		FIRE SERVICE SEWER MANHOLE (SMH)	
		DRAIN MANHOLE (DMH)	
		CATCH BASIN (CBB)	
		SIGN	
		UTILITY POLE	
		LIGHT POLE	
		WATER SHUT OFF VALVE	
		GAS VALVE	
		HYDRANT	



**EROSION & SEDIMENTATION CONTROL PLAN**

**GENERAL:**

1. THE PURPOSE OF THIS PLAN IS TO PRESENT A PREVENTIVE METHOD OF CONSTRUCTION TO MINIMIZE THE IMPACT OF THE CONSTRUCTION ACTIVITIES UPON WETLANDS AND OTHER SENSITIVE AREAS. THE DATA CONTAINED ON THIS PLAN IS INTENDED TO SUPPLEMENT THE DEVELOPER OR CONTRACTORS' EXPERTISE AND IS NOT MEANT TO CIRCUMVENT LOCAL DECISIONS REQUIRED BY A VARIETY OF FIELD CONDITIONS INCLUDING WEATHER AND THE TYPE OF EQUIPMENT AVAILABLE TO THE CONTRACTOR.

2. THE CONTRACTOR IS TO BE AWARE OF THE REQUIREMENTS AND OBLIGATIONS TO COMPLY WITH CHAPTER 131, SECTION 40 OF THE MASSACHUSETTS GENERAL LAWS, OTHERWISE KNOWN AS THE WETLANDS PROTECTION ACT, AND ITS ASSOCIATED REGULATIONS (310 CMR 10.00). CERTAIN PERMITS IN THE FORM OF AN ORDER OF CONDITIONS OR OTHER FORMAT, MAY BE REQUIRED FOR THE CONSTRUCTION AS DEPICTED ON THIS PLAN. THESE PERMITS SHALL BE REVIEWED AND ADHERED TO BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PROCESS. THE CONTRACTOR SHALL ALSO MAINTAIN COPIES OF ALL PERMITS ON SITE AT ALL TIMES.

3. IF CHANGES IN THE PROJECT ARE REQUIRED DUE TO FIELD CONDITIONS THE DEVELOPER/CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER FOR REVIEW OF THESE CONDITIONS. UPON REVIEW AND PRIOR TO THE IMPLEMENTATION OF ANY CHANGES, THE CONTRACTOR AND THE ENGINEER SHALL MEET WITH THE APPROPRIATE LOCAL AND/OR STATE OFFICIAL, OR ITS AGENT, TO DETERMINE IF THE CHANGE REQUIRES MODIFICATION TO EXISTING APPROVED PERMITS.

4. ALTERATION AND/OR DESTRUCTION OF WETLAND AREAS WITHOUT PRIOR CONSENT OF THE CONSERVATION COMMISSION IS PROHIBITED. SILTATION PLUMES, ILLICIT DISCHARGES, OR INADVERTENT ALTERATION SHALL BE CONSIDERED AS ACTIVITIES NOT PERMITTED BY THE ORDER AND SHALL BE REPORTED TO THE CONSERVATION COMMISSION ALONG WITH THE PROPOSED MITIGATION MEASURES.

5. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE EROSION AND SEDIMENT CONTROL BARRIER SHALL BE INSTALLED AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN THE EROSION CONTROL BARRIER UNTIL ALL WORK IS COMPLETE AND ALL AREAS HAVE BEEN STABILIZED. THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE ONLY UPON THE APPROVAL OF THE CONSERVATION COMMISSION.

6. EROSION AND SEDIMENTATION CONTROL DEVICES, SUCH AS CHECK DAMS, SEDIMENT BASINS, ETC. ARE TO BE INSTALLED AS SHOWN ON THE SITE DEVELOPMENT PLANS WITH ASSOCIATED DETAILS, AS APPROPRIATE.

7. CONSTRUCTION OPERATIONS SHALL NOT CAUSE NOTICEABLE SEDIMENTATION PLUMES TO OCCUR ON OR SURROUNDING THE PROJECT. SHOULD SEDIMENTATION OCCUR, THE CONTRACTOR SHALL, IMMEDIATELY, STOP WORK AND INSTALL ADDITIONAL MITIGATION MEASURES TO PREVENT FURTHER SEDIMENTATION.

8. NO MATERIAL SUBJECT TO EROSION SHALL BE STOCKPILED OVERNIGHT WITHIN 100 FEET OF ANY WETLAND AREAS WITHOUT PROPER EROSION AND SEDIMENTATION DEVICES IN PLACE.

9. EQUIPMENT SHALL NOT BE PARKED WITHIN WETLAND OR BUFFER AREAS EXCEPT DURING ACTUAL OPERATIONS REQUIRING SAID EQUIPMENT.

10. ACCUMULATED SEDIMENT ALONG EROSION CONTROL BARRIERS SHALL BE PERIODICALLY REMOVED AND DISPOSED OF BY THE CONTRACTOR AS REQUIRED BY THE CONSERVATION COMMISSION OR AS DIRECTED BY THE ENGINEER.

**EROSION CONTROL METHODS:**

- IT IS OF GREAT IMPORTANCE THAT CONCENTRATION OF RUNOFF BE AVOIDED IN ORDER TO PREVENT THE TRANSPORT OF SEDIMENT.
- THE PRIMARY EROSION CONTROL METHOD TO BE UTILIZED IS TO LIMIT THE AREA OF DISTURBANCE DURING CONSTRUCTION ACTIVITIES. THIS IS ACCOMPLISHED BY PROMPT STABILIZATION OF DISTURBED AREAS UPON COMPLETION OF SEQUENCES OF CONSTRUCTION.
- EROSION AND SEDIMENT CONTROL DEVICES SUCH AS HAY BALES, SILT FENCES, DIVERSION BERMS, ETC. SHALL BE UTILIZED FOR THE PROTECTION OF THE AREAS BEYOND THE LIMIT OF CONSTRUCTION.

**DEMARCATION OF SENSITIVE AREAS:**

- IT IS RECOMMEND THAT BARRIERS BE PLACED ON THE SITE TO CONTROL THE LIMITS OF THE DISTURBANCE. FOR EXAMPLE, HAY BALE BARRIERS PROVIDE SUCH DEMARCATION AND OTHER METHODS SUCH AS LOG BARRIERS, ROPE WITH FLAGGING, ETC. MAY BE UTILIZED.
- CARE SHOULD BE TAKEN IN THE OPERATION OF EQUIPMENT, SUCH THAT ONLY THE MINIMUM AREA NEEDED TO BE ALTERED IS DISTURBED.

**CLEARING:**

- ACCESS TO THE SITE SHALL BE MADE IN THE AREA OF A PERMANENT DRIVEWAY OR ROADWAY UNLESS DOING SO WOULD RESULT IN A TRAFFIC HAZARD.
- AN AREA OF CRUSHED STONE SHALL BE PLACED AT THE DRIVEWAY ENTRANCE TO INSURE THAT MUD IS NOT TRACKED ONTO THE EXISTING ROAD (SEE CONSTRUCTION ENTRANCE DETAIL). IF MUD IS INADVERTENTLY TRACKED ONTO THE ROAD, IT SHOULD BE PROMPTLY REMOVED.
- LABORERS VEHICLES SHALL BE PARKED IN A DESIGNATED AREA AS TO MINIMIZE DISTURBED SURFACES AND TO INSURE THAT RUTS ARE NOT CREATED AND WHICH COULD CARRY WATER TO A WETLAND OR OTHER SENSITIVE AREA.
- SUITABLE MEASURES SHALL BE TAKEN TO INSURE THAT LARGE DELIVERY TRUCKS SERVING THE SITE DO NOT DAMAGE TO AREAS OF EXISTING VEGETATION OR CAUSE DISTURBANCE TO STABILIZED AREAS.

**ORDERLY CONSTRUCTION PROCEDURES:**

- THE CONTRACTOR SHALL PERFORM SITE CONSTRUCTION IN A MANNER WHICH WILL INSURE THE STABILIZATION OF AREAS IN PROXIMITY OF OR TRIBUTARY TO WETLAND AREAS AS SOON AS POSSIBLE.
- EROSION CONTROL DEVICES SUCH AS HAY BALE BARRIERS, SILT FENCES AND MULCH SHALL BE BROUGHT TO THE SITE AND STOCKPILED PRIOR TO INITIATING CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE AREAS FOR THE TEMPORARY STORAGE OF CONSTRUCTION DEBRIS. CONSTRUCTION DEBRIS SHALL NOT BE ALLOWED TO ACCUMULATE FOR AN EXTENDED PERIOD OF TIME.

**ACCESS:**

- LAND CLEARING SHALL BE PERFORMED IN PHASES CONSISTENT WITH ACTUAL CONSTRUCTION REQUIREMENTS. FINAL LAND CLEARING SHALL BE LIMITED TO RETURN TO GRADE SLOPES.
- TREES SHALL BE CUT AND STUMPS GROUND IN PLACE TO EXISTING GRADE TO MAINTAIN SOIL STABILIZATION.
- BRUSH AND BRANCHES SHOULD BE CHIPPED AND UTILIZED FOR WOOD MULCH IF PRACTICAL.
- VEHICLES UTILIZED IN THE CLEARING OPERATION SHOULD NOT TRAVEL WETLANDS OR FLOWING BROOKS OR STREAMS WITHOUT PRIOR APPROVAL FROM THE LOCAL CONSERVATION COMMISSION OR AGENT.

**GRUBBING AND STRIPPING:**

- TOP SOIL SHALL BE RETAINED FOR LANDSCAPING PURPOSES.
- GRUBBING AND STRIPPING OF SLOPES LEADING TO WETLAND AREAS SHOULD NOT BE UNDERTAKEN DURING PERIODS OF INTENSE RAINFALL.
- TOP SOIL STOCKPILE LOCATIONS ARE DEPICTED ON THE SITE DEVELOPMENT PLAN, THE EROSION CONTROL PLAN, AND/OR THE CONSTRUCTION PHASING PLAN AND SHALL BE ADHERED TO.
- WHEN WORKING IN THE VICINITY OF WETLANDS, TOP SOIL SATURATED WITH WATER SHALL BE REMOVED, AND CONTAINED PRIOR TO BEING USED.
- AREAS LEADING TO WETLANDS SHALL HAVE HAY BALE BARRIERS INSTALLED ACROSS THEM IN ARCS POINTING DOWN THE HILL AT INTERVALS SUFFICIENT TO MITIGATE RUNOFF CARRYING SEDIMENT.
- DURING PERIODS OF INTENSE RAINFALL, OR IF THE PROJECT IS TO BE LEFT FOR A PERIOD OF TIME, CONSIDERATION SHOULD BE GIVEN TO SUPPLEMENT HAY BALE BARRIERS WITH EITHER CRUSHED STONE OR ARMORED BARRIERS. CONSIDERATION MAY ALSO BE GIVEN TO DIVERTING RUNOFF INTO TEMPORARY SEDIMENTATION CONTROL AREAS.
- WHENEVER PRACTICAL, NATURAL VEGETATION SHALL BE RETAINED, PROTECTED AND SUPPLEMENTED.

**ROUGH GRADING:**

1. THE ROUGH GRADING OF THE ROADWAY SHALL FOLLOW THE FILL AND EXCAVATION SEQUENCES, RESULTING IN SLOPES BEING MAINTAINED AWAY FROM WETLANDS AND SENSITIVE AREAS AS MUCH AS PRACTICAL.

2. DURING THIS PROCESS THE EROSION POTENTIAL IS HIGH. SUFFICIENT EROSION CONTROL BARRIERS SHOULD BE KEPT IN PROXIMITY TO THE WORK AREA TO ALLOW QUICK ACTION SHOULD EROSION BECOME AN ISSUE AND TO INSURE THAT NO SEDIMENT REACHES WETLANDS OR OTHER SENSITIVE AREAS.

3. IN AREAS OF CUT AND/OR FILL WHERE SLOPES COULD DIVERT WATER TOWARD WETLAND AREAS, DIVERSION TRENCHES AND/OR SWALES SHOULD BE CONSIDERED AND IMPLEMENTED TO DIVERT WATER AWAY FROM THESE AREAS.

4. STEEP SIDE SLOPES IN EXCAVATION OR FILL SHOULD BE AVOIDED.

5. DISTURBED AREAS SHALL BE STABILIZED BY LOAMING AND SEEDING OR RIPRAPPED IMMEDIATELY AFTER THE FINISH GRADE. HAS BEEN MET. IF FINAL GRADING DOES NOT OCCUR DURING THE GROWING SEASON, THESE AREAS SHALL BE MULCHED BY HAY SECURED BY WEIGHTED SNOW FENCE, CHICKEN WIRE MESH OR JUTE NETTING WITH APPROPRIATE SECURING DEVICES.

6. A GROUND COVER SUFFICIENT TO RETAIN SOILS IN A STABILIZED CONDITION MUST BE PROVIDED WITHIN 14 WORKING DAYS, SEASON PERMITTING, ON ANY PORTION OF THE TRACT UPON WHICH FURTHER ACTIVE CONSTRUCTION IS NOT BEING UNDERTAKEN.

**DRAINAGE:**

1. IF DRAINAGE PIPES OR SWALES ARE TO BE INSTALLED, THEY SHALL BE CONSTRUCTED FROM DOWNSTREAM UP AND CONSTRUCTION SHALL INCLUDE THE PLACEMENT OF OUTFALL RIPRAP AND OTHER MITIGATIVE MEASURES SHOWN ON THE PLAN.

2. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, HAY BALES OR OTHER SUITABLE METHODS TO ENTRAP SEDIMENT SHALL BE PLACED DOWNSTREAM.

3. THE TOE OF EMBANKMENTS SHALL BE STABILIZED IMMEDIATELY, MULCHED AND TACKED DOWN BY SUITABLE MEANS.

4. IF THE PROPOSED ROADWAY IS NOT PAVED IMMEDIATELY AFTER THE INSTALLATION OF DRAINAGE STRUCTURES, HAY BALES SHALL BE PLACED TO PROTECT THE INTEGRITY OF THE STRUCTURES.

**WATER SUPPLY:**

1. IF MUNICIPAL WATER SUPPLY IS TO BE UTILIZED, CARE SHOULD BE TAKEN TO INSURE THAT THE TRENCH DOES NOT DIVERT RUNOFF WATER TO A WETLAND AREA OR ONTO A ROAD WHERE IT WILL BE CARRIED INTO A WETLAND OR SENSITIVE AREA.

2. IF PRIVATE ON-SITE WELLS ARE PROPOSED, CARE SHOULD BE TAKEN IN THE CONSTRUCTION OF THE WELL TO INSURE THAT DRILLING FLUID DOES NOT DISCHARGE TO A STREAM, WETLAND OR SENSITIVE AREA.

3. WELL DRILLING OPERATIONS SHALL BE SUCH THAT WETLANDS ARE NOT DISTURBED AND THE INSTALLATION OF THE WATER LINE WILL NOT DIRECT WATER TOWARDS A WETLAND AREA.

**BUILDING CONSTRUCTION:**

1. DURING THE CONSTRUCTION OF BUILDINGS, MATERIALS SHALL BE STOCKPILED IN A MANNER AS NOT TO DIVERT OR CONCENTRATE RUNOFF IN ORDER TO PREVENT THE TRANSPORT OF SEDIMENT.

2. THE LOT SHOULD BE KEPT LITTER FREE.

3. NO FUELS, SOLVENTS, PAINTS, ETC. SHALL BE STORED ON SITE. THESE PRODUCTS SHALL BE REMOVED FROM THE SITE EACH EVENING AND RETURNED THE FOLLOWING DAY.

4. BURIAL OF MATERIALS OR CONSTRUCTION DEBRIS IS PROHIBITED.

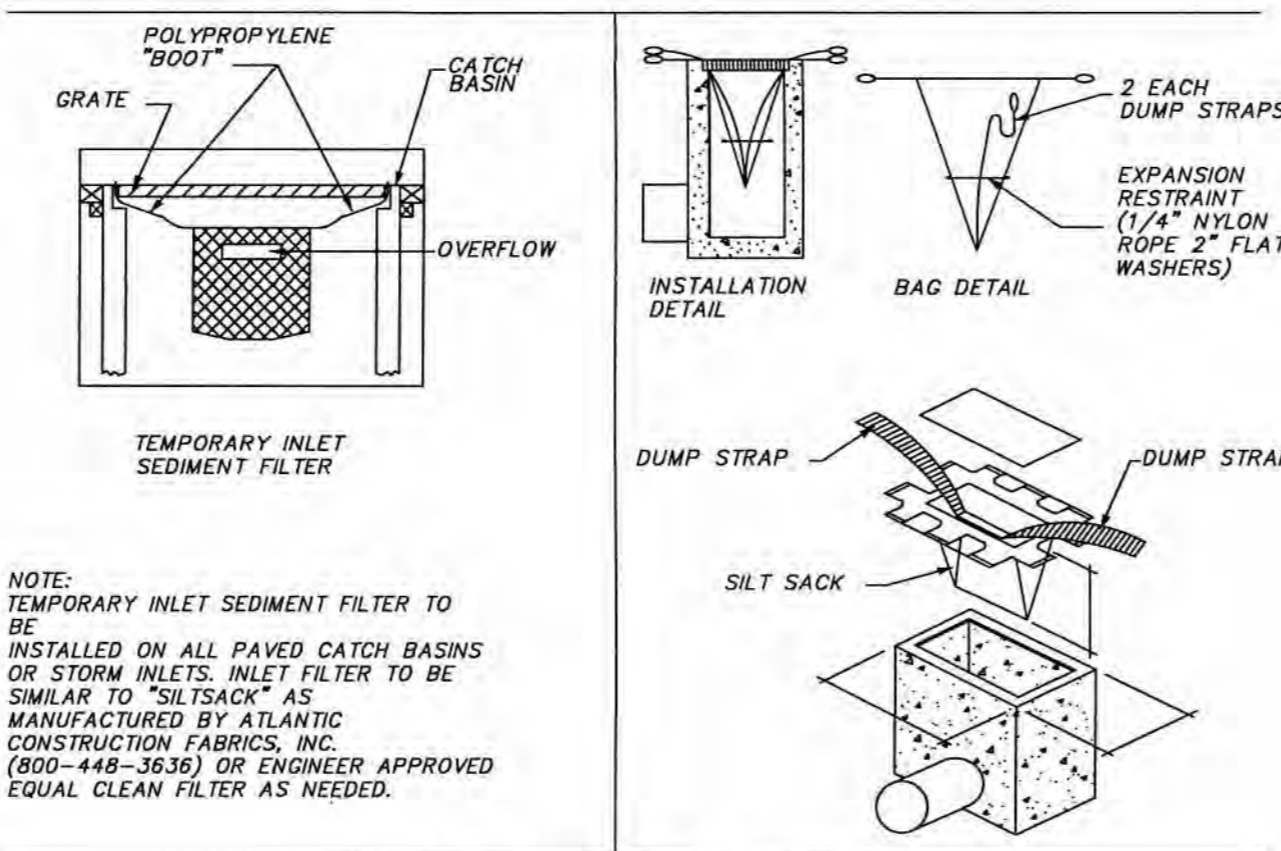
5. PLASTERERS AND PAINTERS SHALL BE INFORMED THAT DISCHARGE OF LIQUIDS INTO A WETLAND OR RESOURCE AREA IS PROHIBITED.

**LANDSCAPING:**

- LANDSCAPING OF AREAS SHOULD OCCUR AS SOON AS POSSIBLE.
- IF THE SEASON OR ADVERSE WEATHER CONDITIONS DO NOT PERMIT THE ESTABLISHMENT OF VEGETATION, TEMPORARY HAY MULCH, OR OTHER MEANS OF STABILIZATION SHALL BE PERFORMED.
- USE OF HERBICIDES MAY BE SUBJECT TO OTHER REGULATIONS.
- CARE SHOULD BE TAKEN WITH FERTILIZERS SUCH THAT THEY ARE NOT CARRIED TO A WETLAND OR SENSITIVE AREA.
- TRUNKS OF TREES SHOULD NOT BE COVERED WITH MORE THAN TWO (2) INCHES OF SOIL.
- STUMPS SHALL BE GROUND DOWN INTO A WOOD MULCH AND UTILIZED OR REMOVED FROM THE SITE.

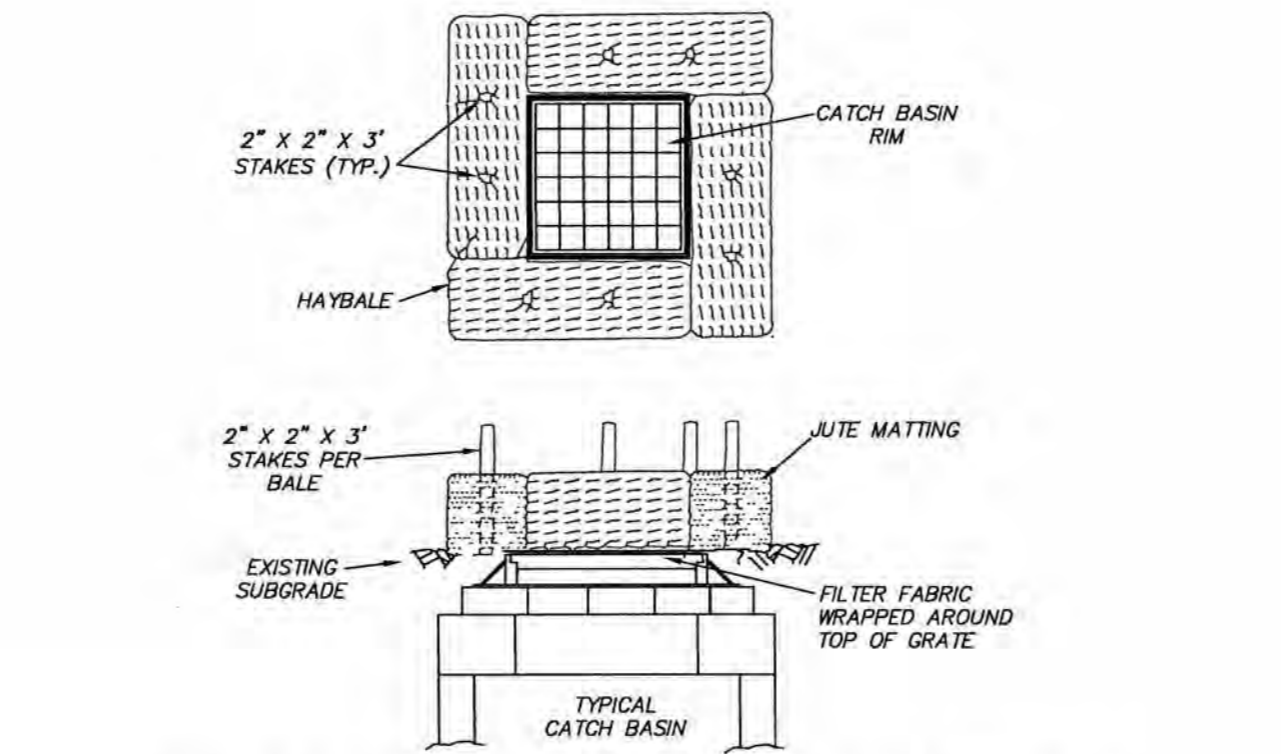
**DEWATERING:**

- NO DEWATERING ACTIVITIES PERFORMED WITHIN THE EXISTING AREA UNDER LIMITED USE SHALL BE ALLOWED TO DISCHARGE IN STORMWATER MANAGEMENT SYSTEM OR WETLAND AREAS.
- ALL DEWATERING ACTIVITIES SHALL BE COMPLIANT WITH ENVIROTRAC NOI FILING DATED MAY 18, 2016.

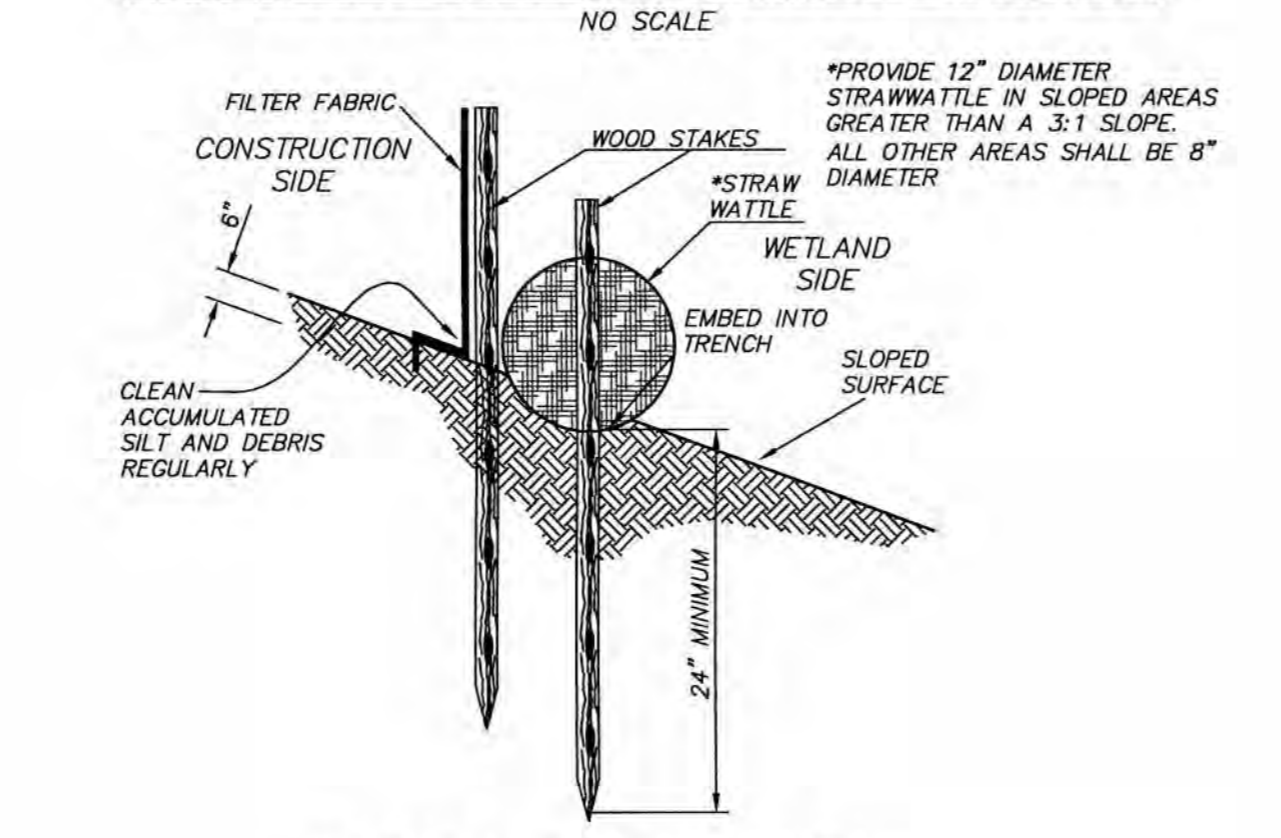


**SILT SACK DETAIL**  
NO SCALE

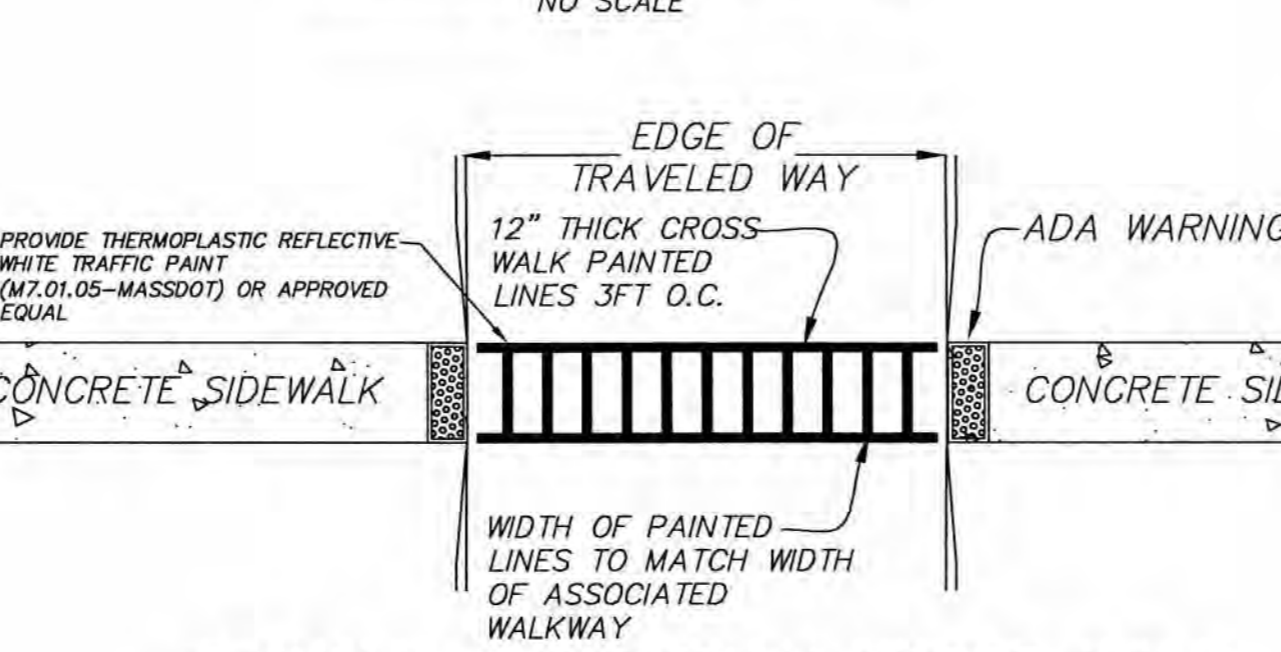
- NOTES:  
 1. INSTALL HAY BALES FOR TEMPORARY SEDIMENTATION CONTROL.  
 2. PERFORM BUILDING AND SITE CONSTRUCTION.  
 3. CLEAN OUT CATCH BASINS AND DRAINAGE.  
 4. RESTORE ALL DISTURBED AREAS.  
 5. LOAM AND SEED ALL DISTURBED AREAS.  
 6. REMOVE TEMPORARY EROSION CONTROL AFTER VEGETATION IS ESTABLISHED.



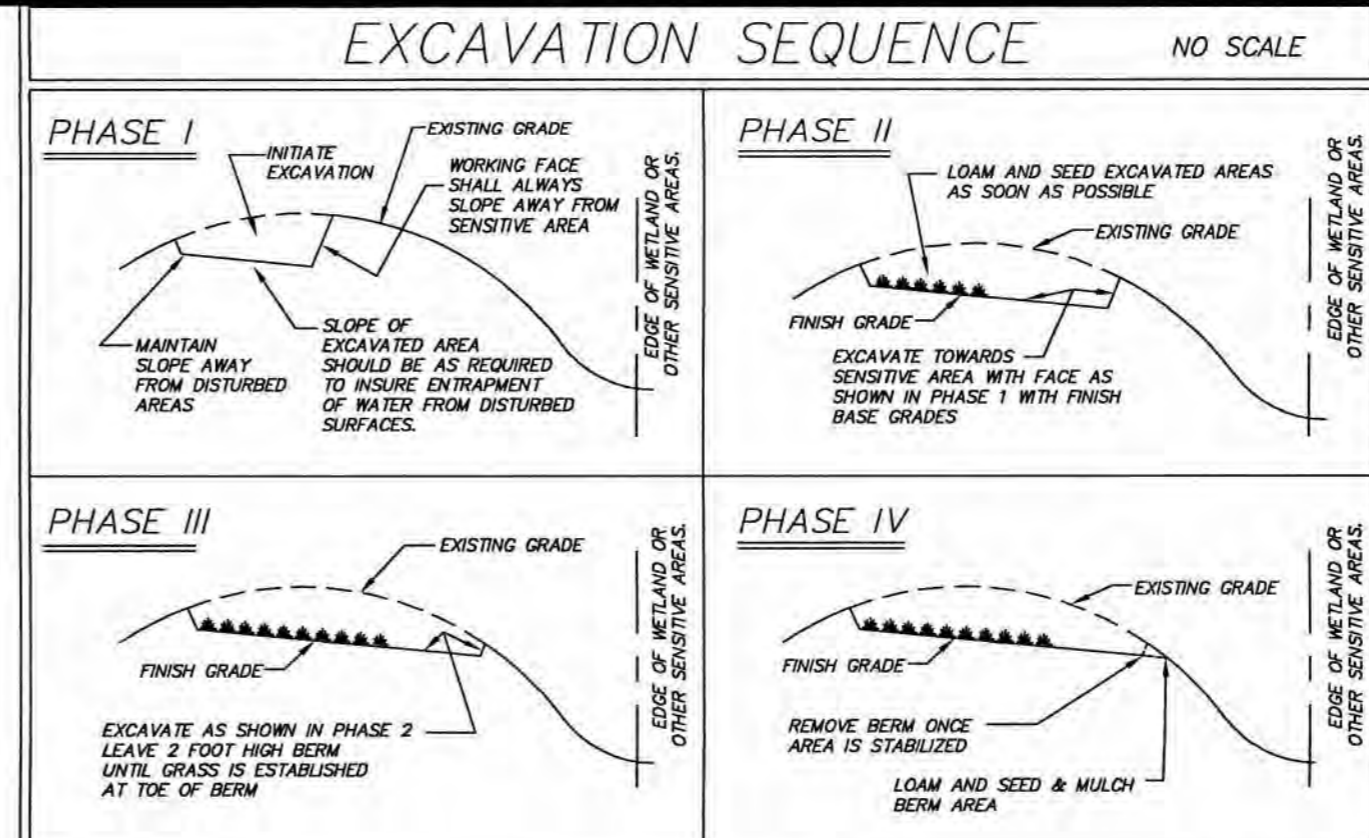
**TEMPORARY ROADWAY SEDIMENT CONTROL**  
NO SCALE



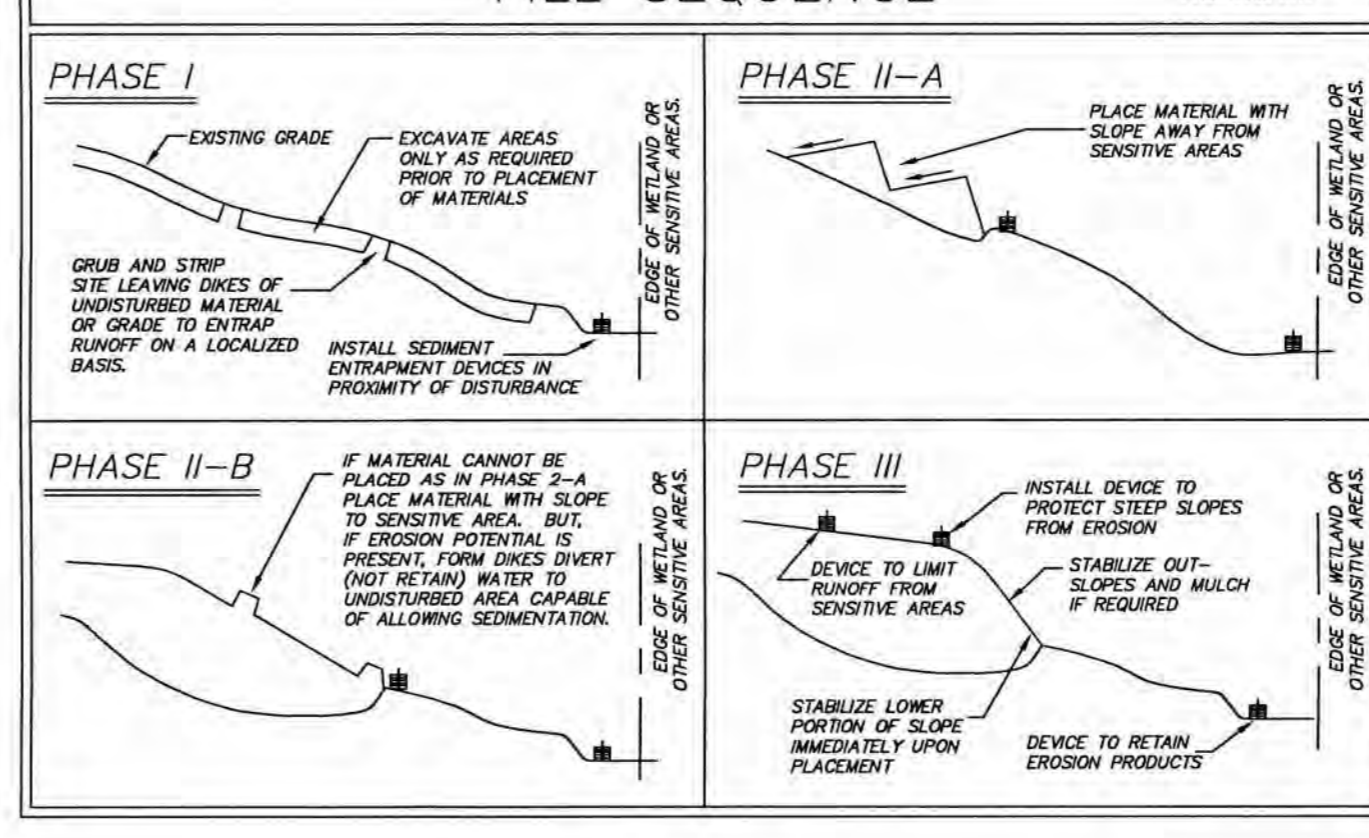
**STRAW WATTLE DETAIL**  
NO SCALE



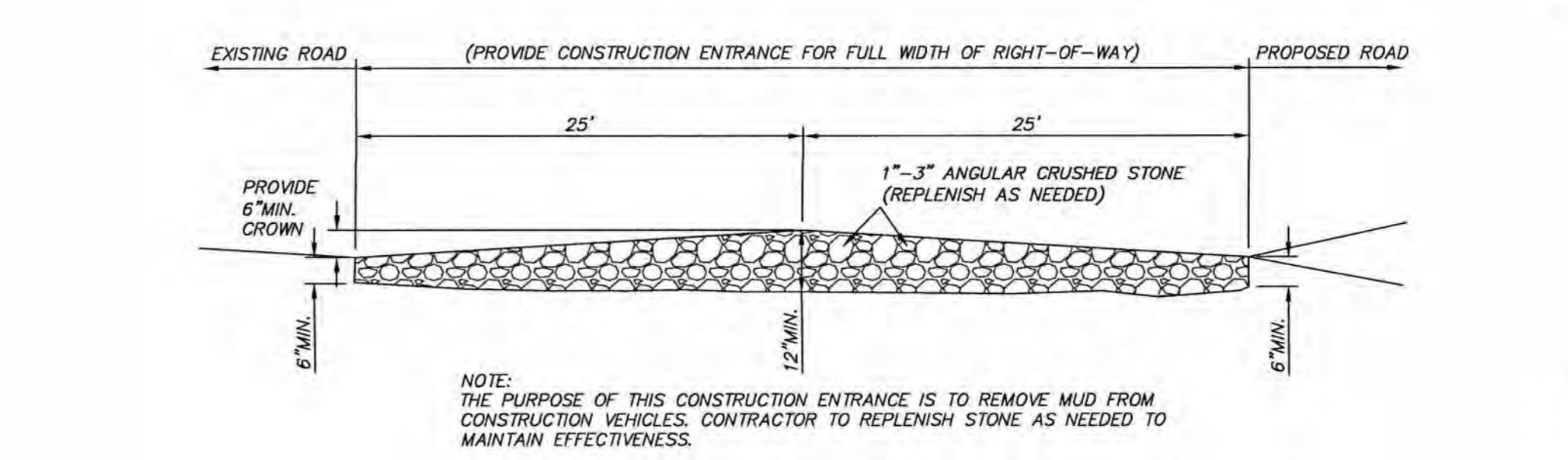
**PAINTED PEDESTRIAN CROSS WALK**  
NO SCALE  
(DIMENSIONS VARY - SEE SITE PLAN)



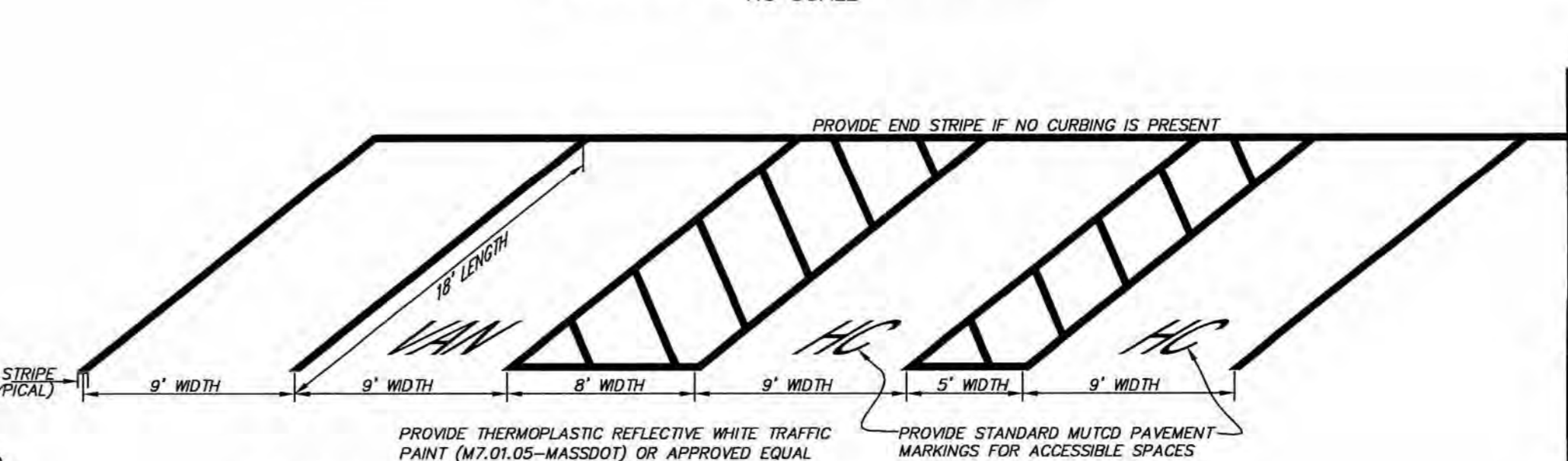
**EXCAVATION SEQUENCE**  
NO SCALE



**FILL SEQUENCE**  
NO SCALE



**CONSTRUCTION ENTRANCE**  
NO SCALE



**PARKING SPACE PAVEMENT MARKING**  
NO SCALE



**STOP LINE PAVEMENT MARKING**  
NO SCALE

**STORMWATER OPERATION AND MAINTENANCE PLAN**

THE FOLLOWING SHALL BE CONSIDERED THE OPERATION & MAINTENANCE PLAN (OMP) FOR THE STORMWATER COLLECTION FACILITY FOR THIS DEVELOPMENT. THIS OMP HAS BEEN PREPARED IN ACCORDANCE WITH THE STORMWATER MANAGEMENT POLICY AS ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

**I. SYSTEM OWNERSHIP:**  
 THE OPERATOR OF THE SITE SHALL BE CONSIDERED THE RESPONSIBLE PARTY FOR THE OPERATION AND MAINTENANCE OF THE STORMWATER MANAGEMENT SYSTEM. THE SYSTEM SHALL INCLUDE THE DRAINAGE INFRASTRUCTURE AND ALL OF ITS COMPONENTS AS SHOWN ON THE APPROVED PLANS. THE STRUCTURES OF THE SYSTEM SHALL INCLUDE THE DRAINAGE SWALES AND THE OUTFALL & CONTROL STRUCTURES. THE SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION DETAILS AND THE APPROVED PLANS.

UPON THE COMPLETION OF CONSTRUCTION THE DRAINAGE SYSTEM DESCRIBED ABOVE AND AS DEPICTED ON THE SITE PLANS SHALL BECOME PROPERTY OF THE LAND OWNER.

**II. RESPONSIBLE PARTIES:**  
 THE OPERATOR OF THE SITE SHALL BE CONSIDERED THE RESPONSIBLE PARTY FOR THE OPERATION AND MAINTENANCE OF THE STORMWATER MANAGEMENT SYSTEM. THE SYSTEM SHALL INCLUDE THE DRAINAGE INFRASTRUCTURE AND ALL OF ITS COMPONENTS AS SHOWN ON THE APPROVED PLANS. THE SYSTEM SHALL ALSO INCLUDE THE DETENTION FACILITIES AND THE OUTFALL AREAS OF THE DRAINAGE SYSTEM.

**III. INSPECTION & MAINTENANCE SCHEDULE:**  
 THE FOLLOWING MAINTENANCE SCHEDULE SHALL BE FOLLOWED IN ORDER TO MAINTAIN THE EFFECTIVENESS OF THE STORMWATER MANAGEMENT SYSTEM.

STRUCTURE TYPE	INSPECTION	MAINTENANCE	TASK
SUBDRAINS	EVERY 2 YEARS	EVERY 4 YEARS	REPLACE PEASTONE
CATCH BASINS	QUARTERLY AND AT THE END OF END OF THE FOLIAGE AND SNOW REMOVAL SEASONS	QUARTERLY, OR WHENEVER THE DEPTH OF DEPOSITS IS GREATER THAN OR EQUAL TO ONE HALF THE DEPTH FROM THE BOTTOM OF THE INVERT OF THE LOWEST PIPE	REMOVE SEDIMENT FROM SUMPS  ***GRATES TO BE KEPT CLEAR THROUGHOUT THE YEAR***
HYDROWORKS - HYDROGUARD	ANNUALLY IN THE SPRING	ANNUALLY IN THE SPRING	REMOVE SEDIMENT FROM SUMPS
PARKING LOT SWEEPING	N/A	ANNUALLY IN THE SPRING	REMOVE STREET SAND BUILDUP
PIPING/AMPHOLE CONNECTIONS	QUARTERLY AND AT THE END OF END OF THE FOLIAGE AND SNOW REMOVAL SEASONS	AS NEEDED	REMOVE SEDIMENT IF PRESENT, REPLACE/REPAIR DAMAGED CONNECTIONS.

NOTE: THE DETENTION BASINS ON THIS PROJECT MAY GROW VEGETATION IN THE BOTTOM WHICH MAY INCLUDE SPECIES PART OF THE WETLAND PROTECTION ACT. THESE PLANTS SHALL NOT BE CONSIDERED AS HAVING PROTECTION UNDER THE ACT AND SHALL BE CONSIDERED OPPORTUNISTIC GROWTH PLANTS. ADDITIONALLY, THIS AREA SHALL NOT BE CONSIDERED A CONSTRUCTED WETLAND.

NOTE ALL CONSTRUCTION DETAILS, MEANS AND METHODS SHALL CONFORM TO THE CITY OF WORCESTER DEPARTMENT OF PUBLIC WORKS CONSTRUCTION SPECIFICATIONS AS WELL AS MASSACHUSETTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES STANDARDS.

**DEFINITIVE PLAN**

NO.	DATE	REVISIONS	BY
11	10/18/2024	LAYOUT REVISIONS-PARKING REDUCTION	CMA
10	12/22/2023	PERMITTING/CITY COMMENT	CMA
9	11/1/2023	PERMITTING/CITY COMMENT	CMA
8	6/22/2023	LAYOUT REVISIONS	CMA
7	6/7/2023	LAYOUT REVISIONS	CMA



**HANNIGAN ENGINEERING, INC.**  
 CIVIL ENGINEERS & LAND SURVEYORS

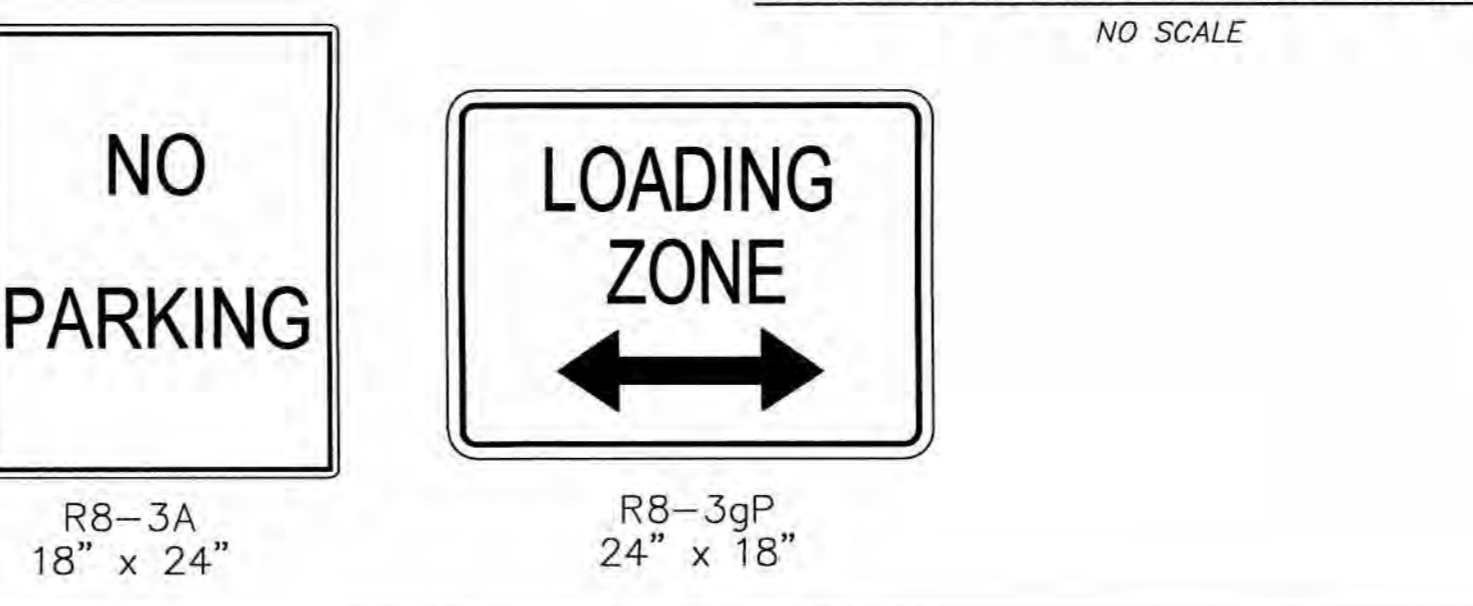
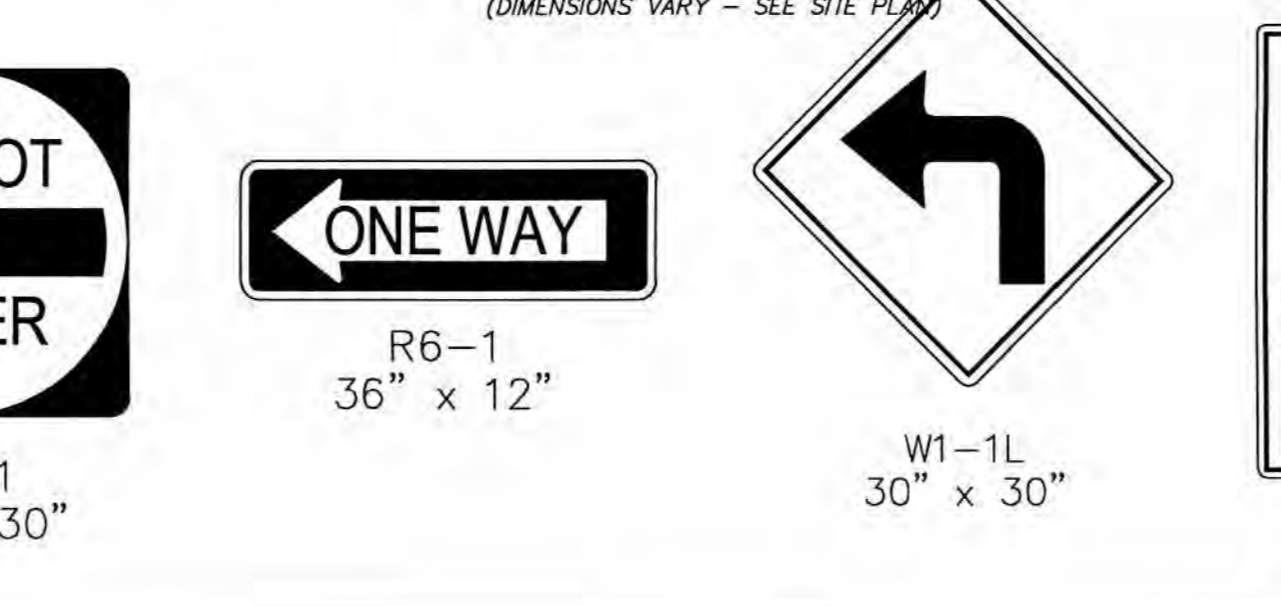
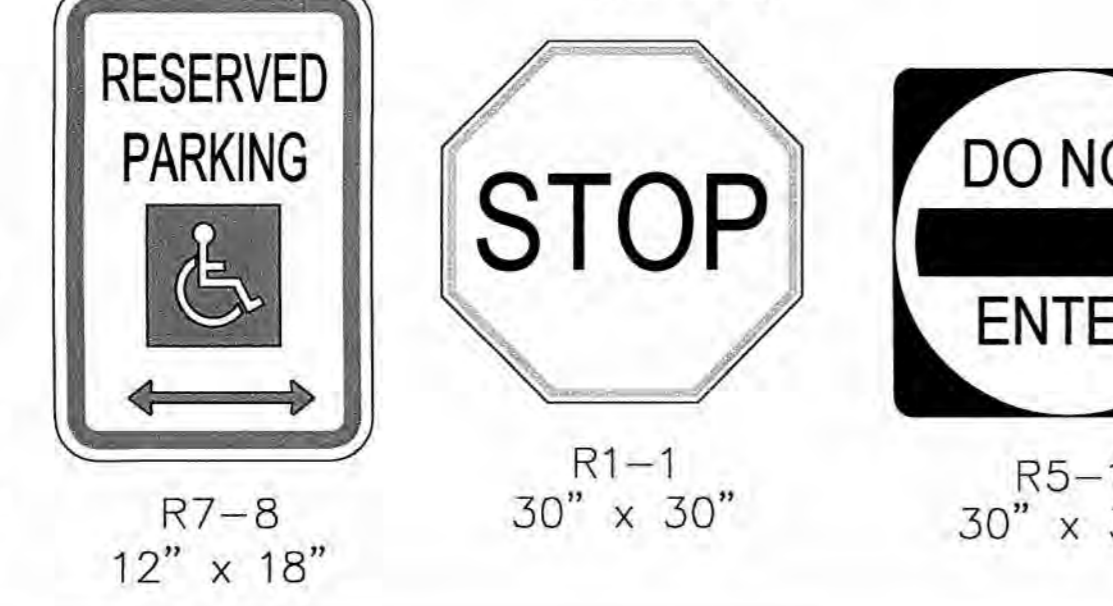
8 MONUMENT SQUARE (978) 534-1234 (F)  
 LEOMINSTER, MASSACHUSETTS 01453 (978) 534-6060 (T)  
 WWW.HANNIGANENGINEERING.COM

**CONSTRUCTION DETAILS IN WORCESTER, MASSACHUSETTS**

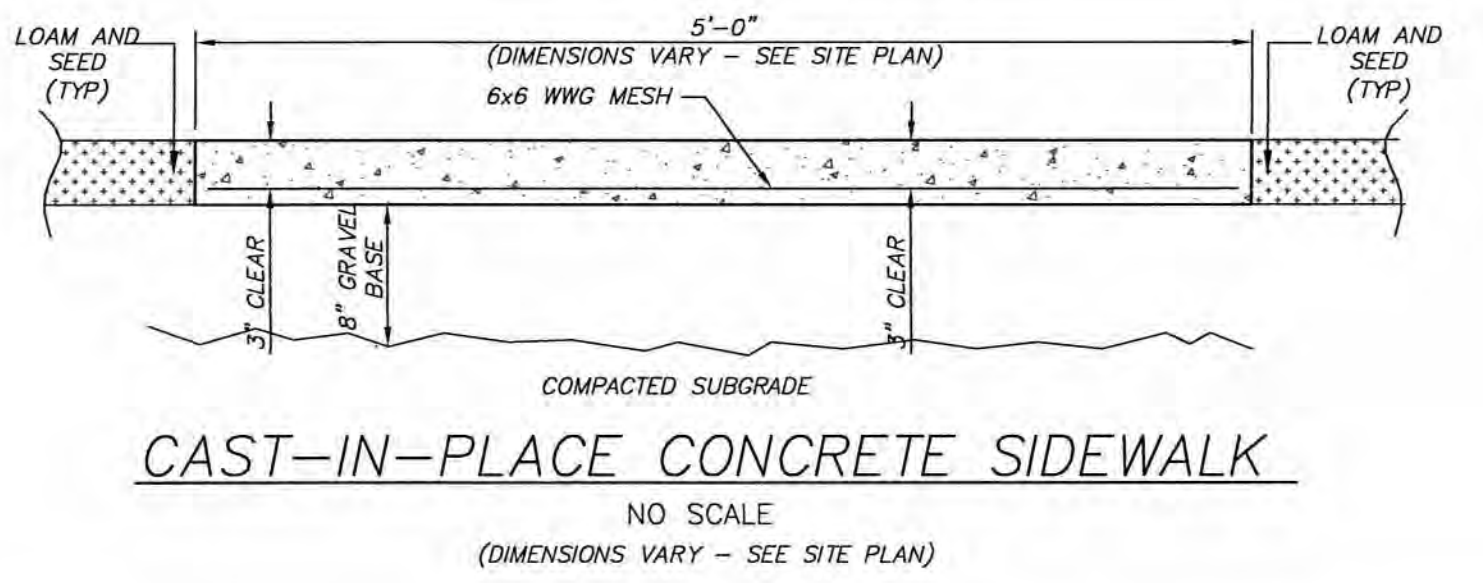
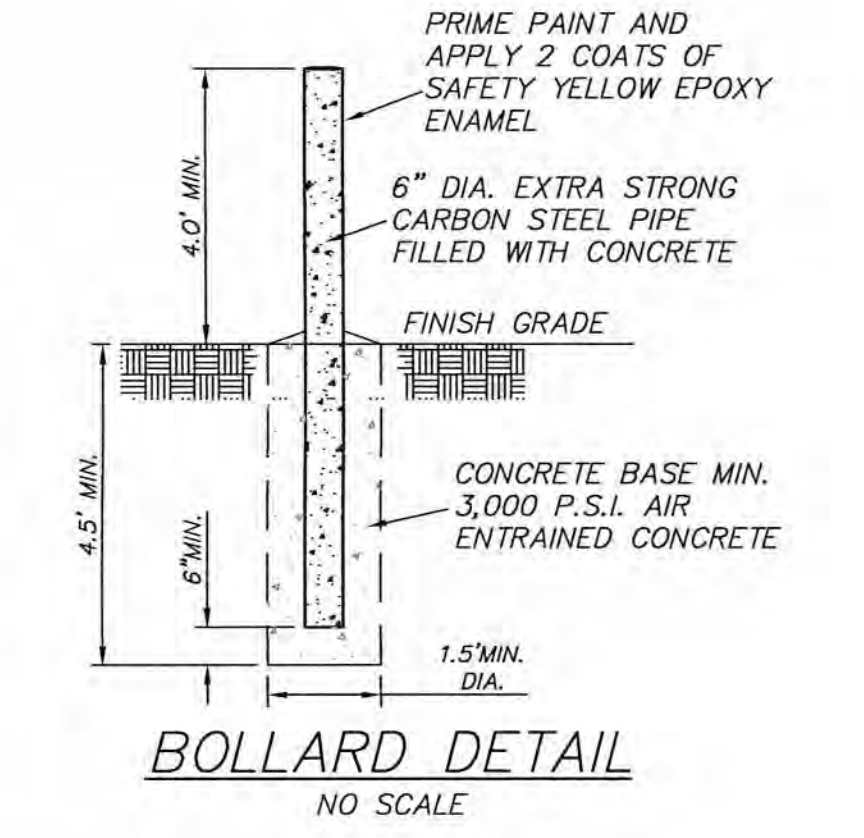
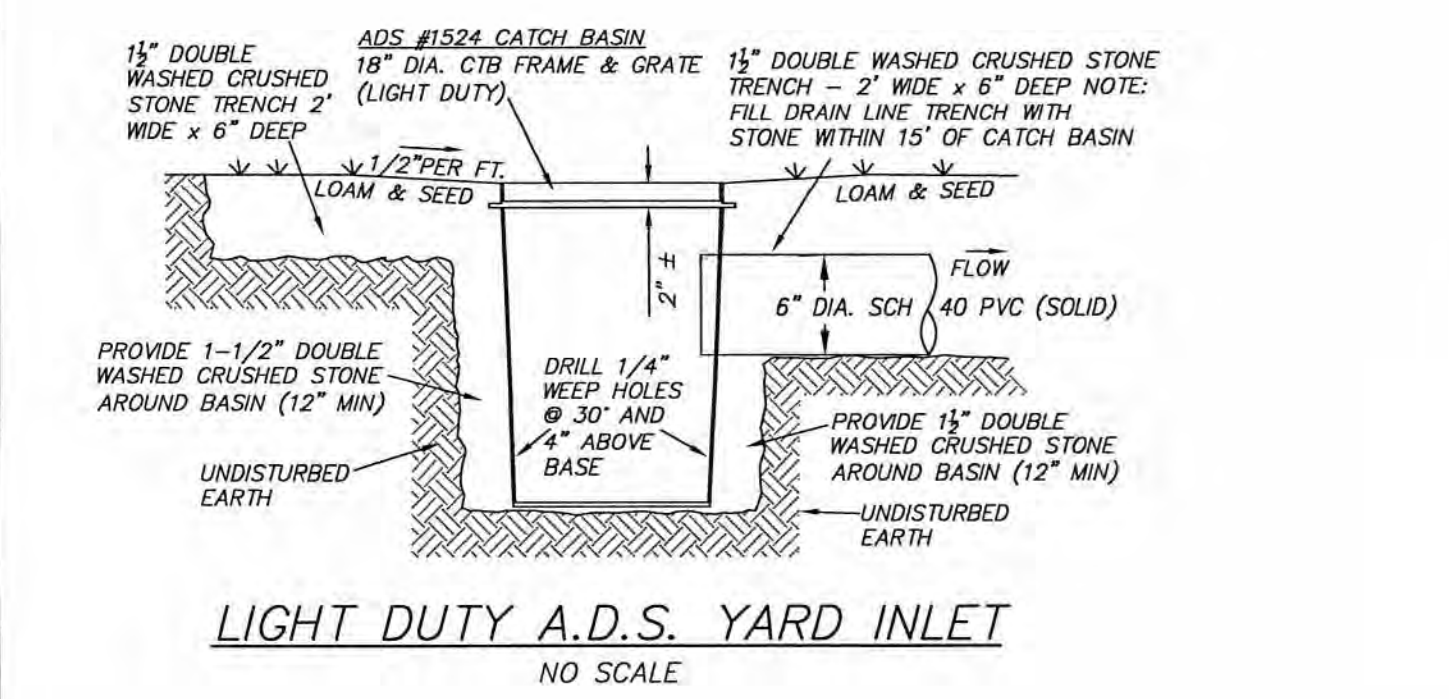
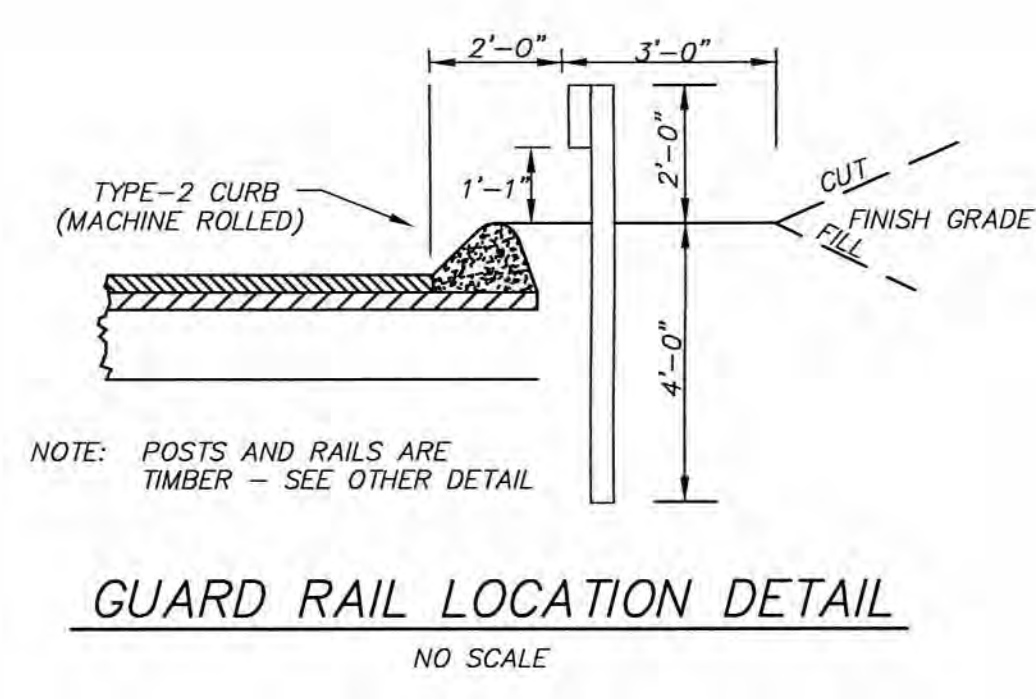
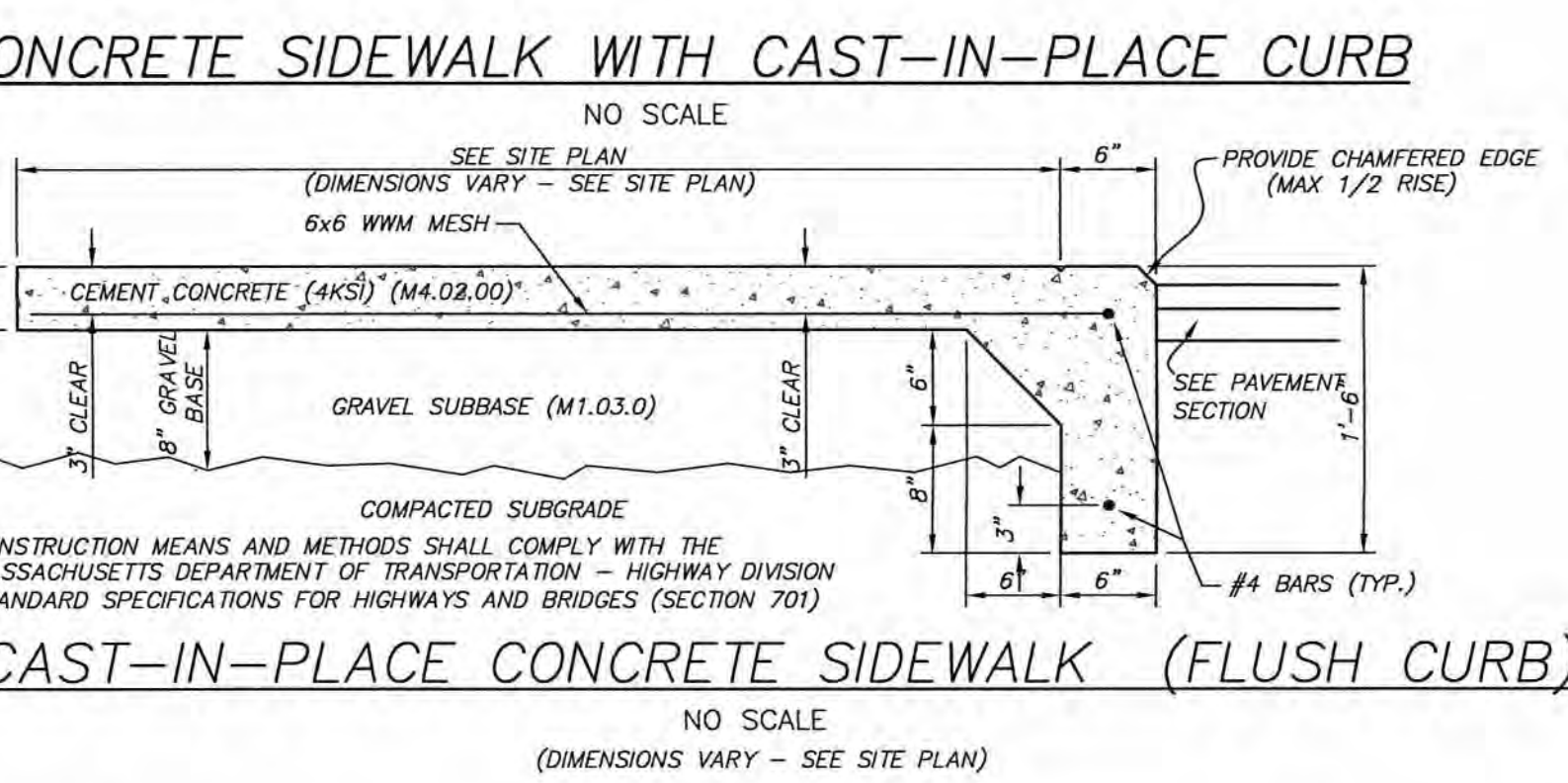
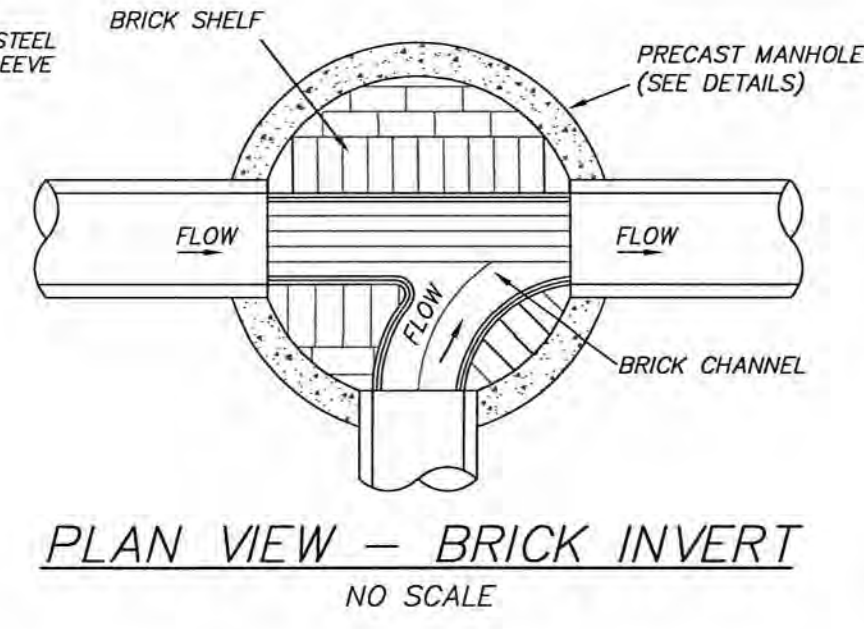
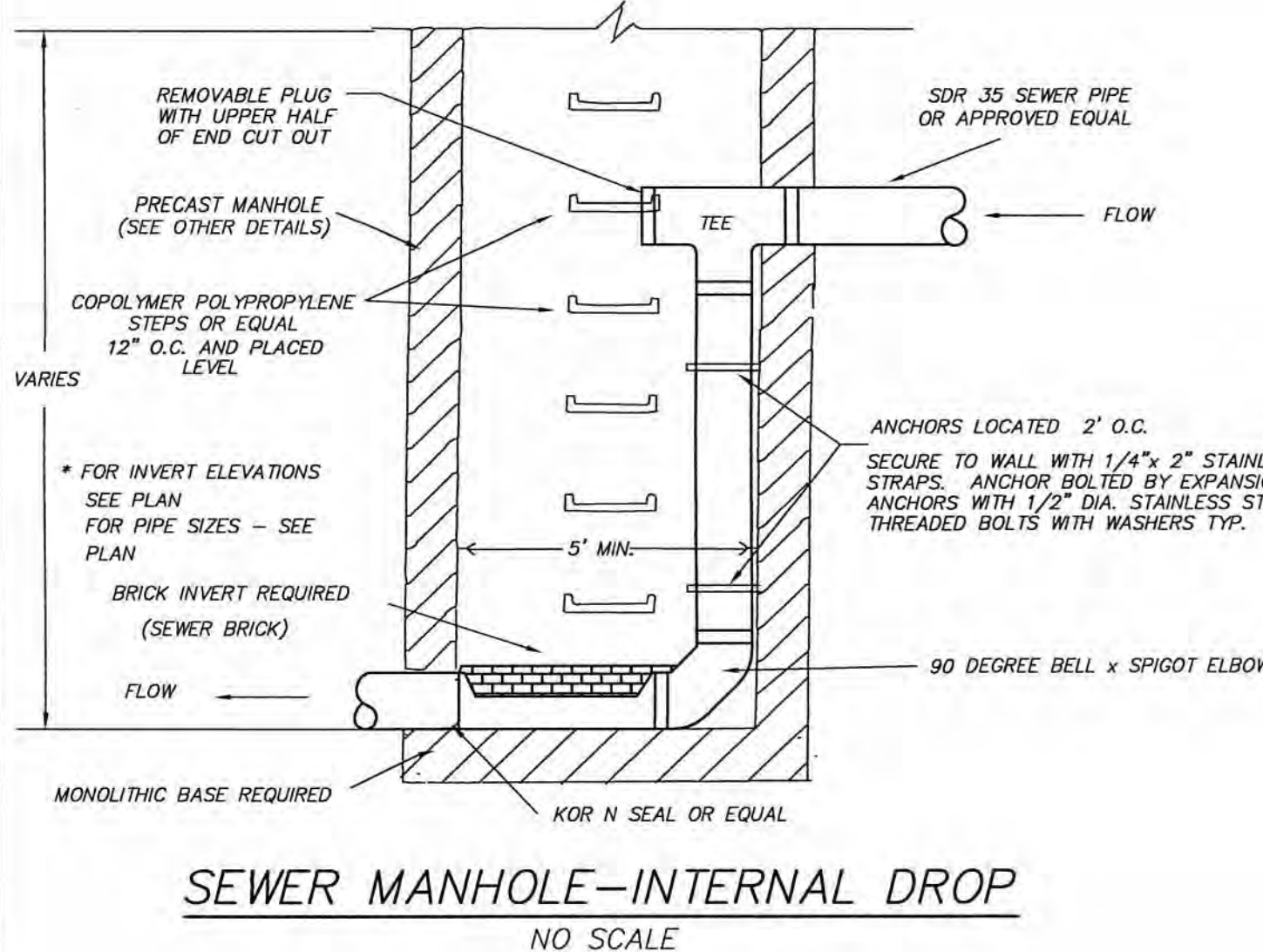
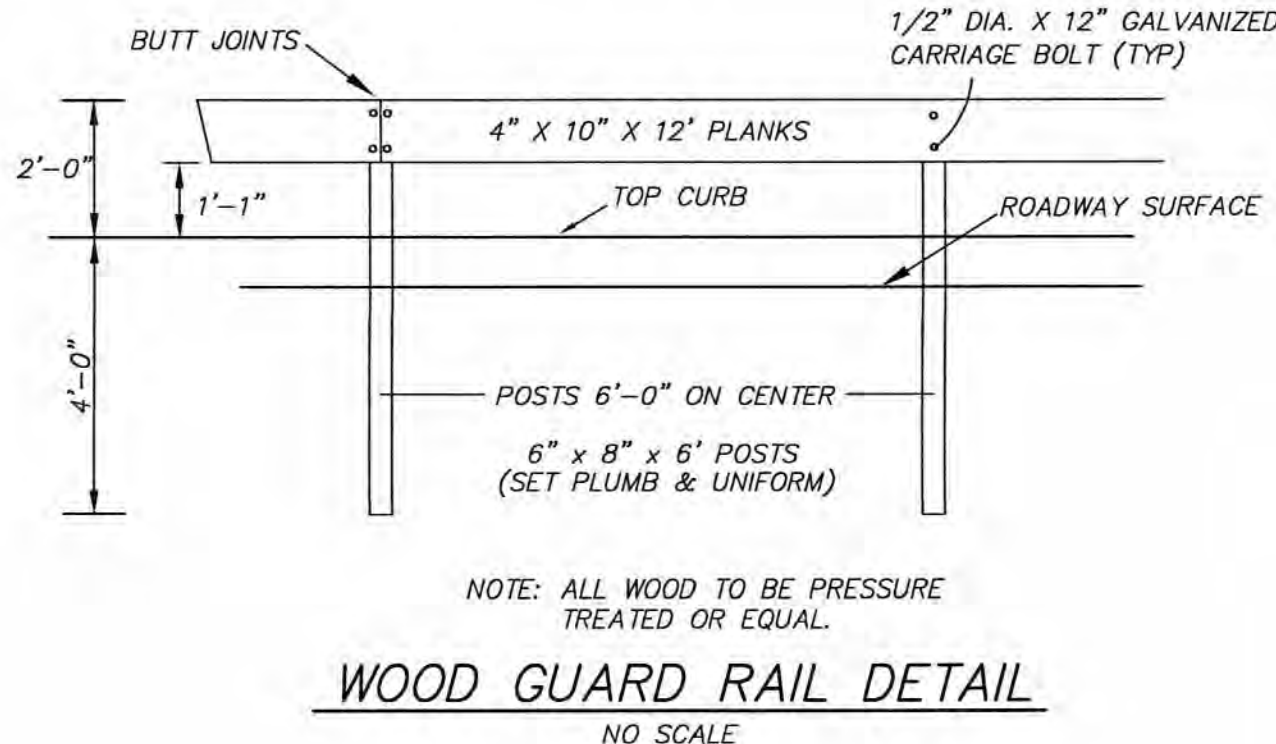
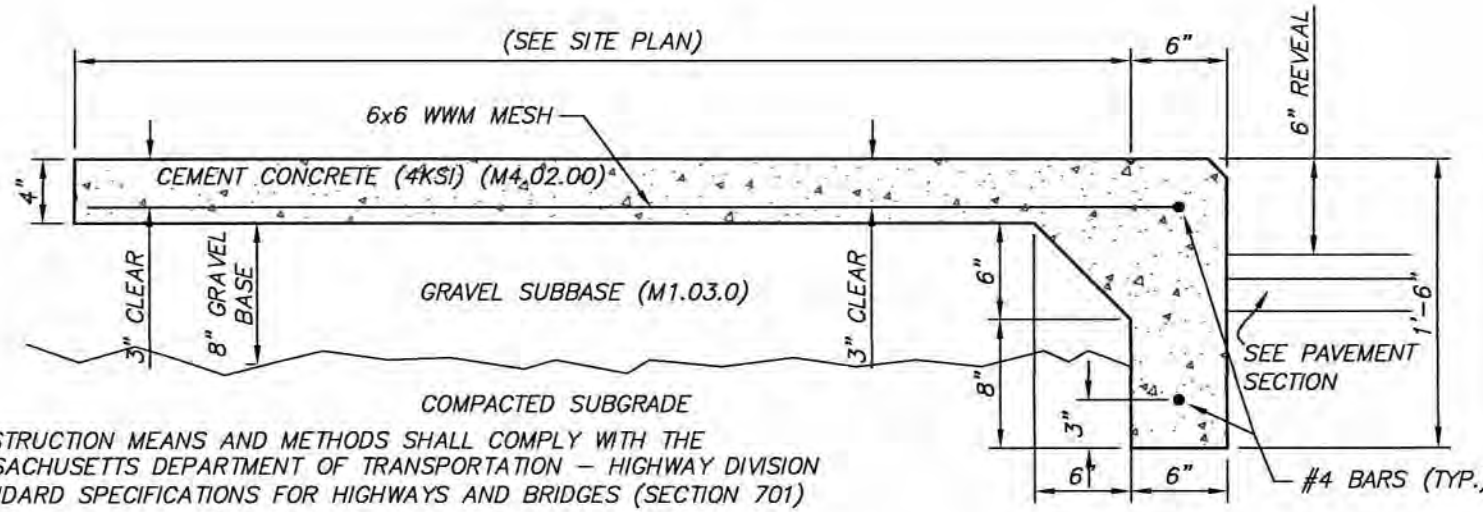
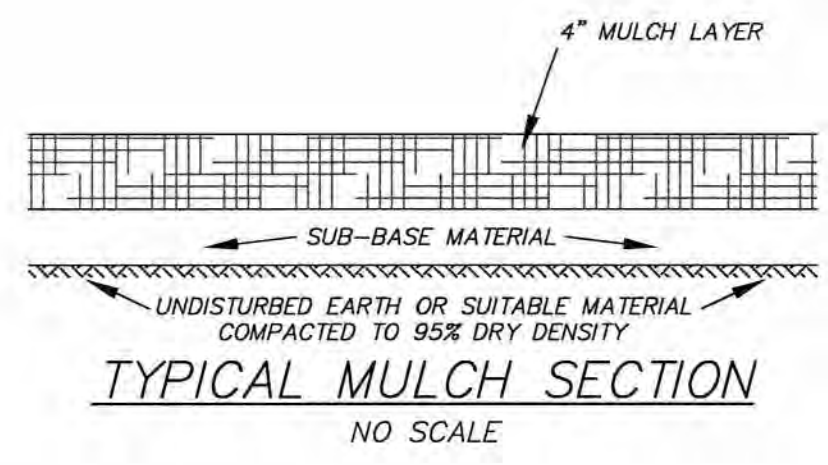
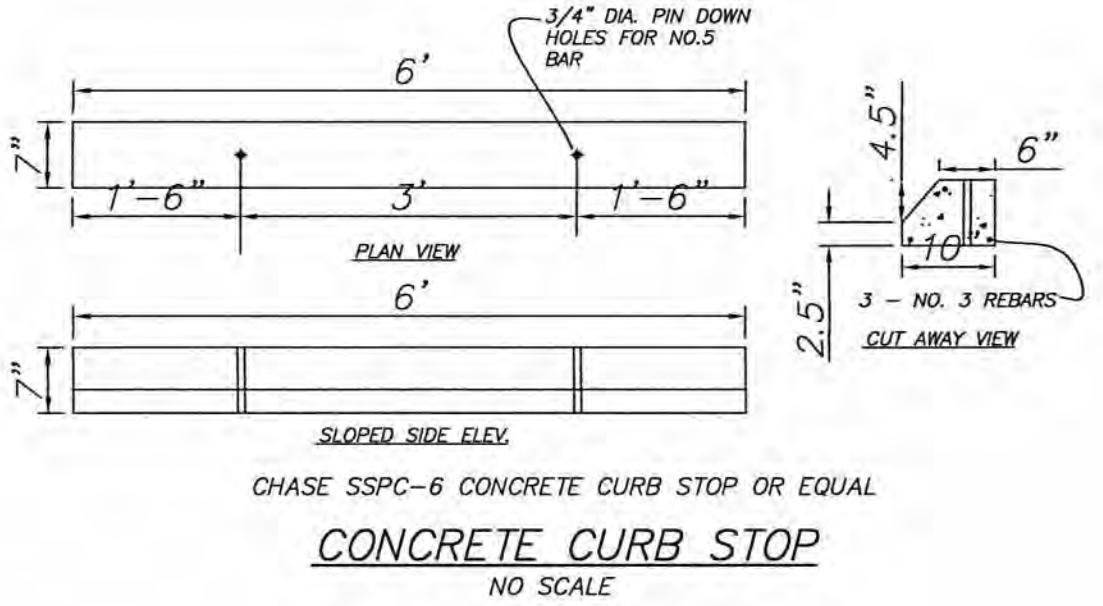
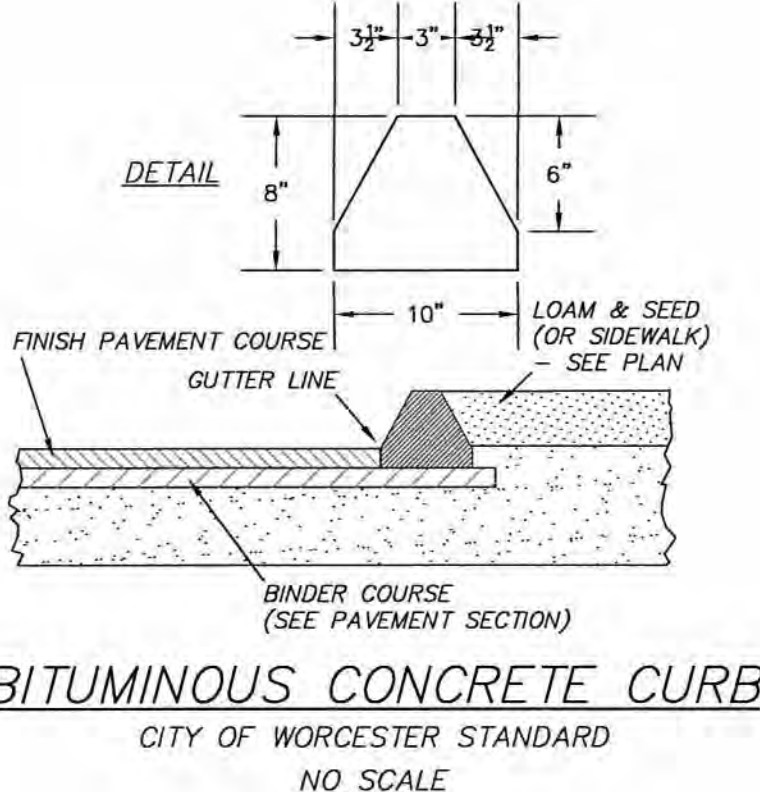
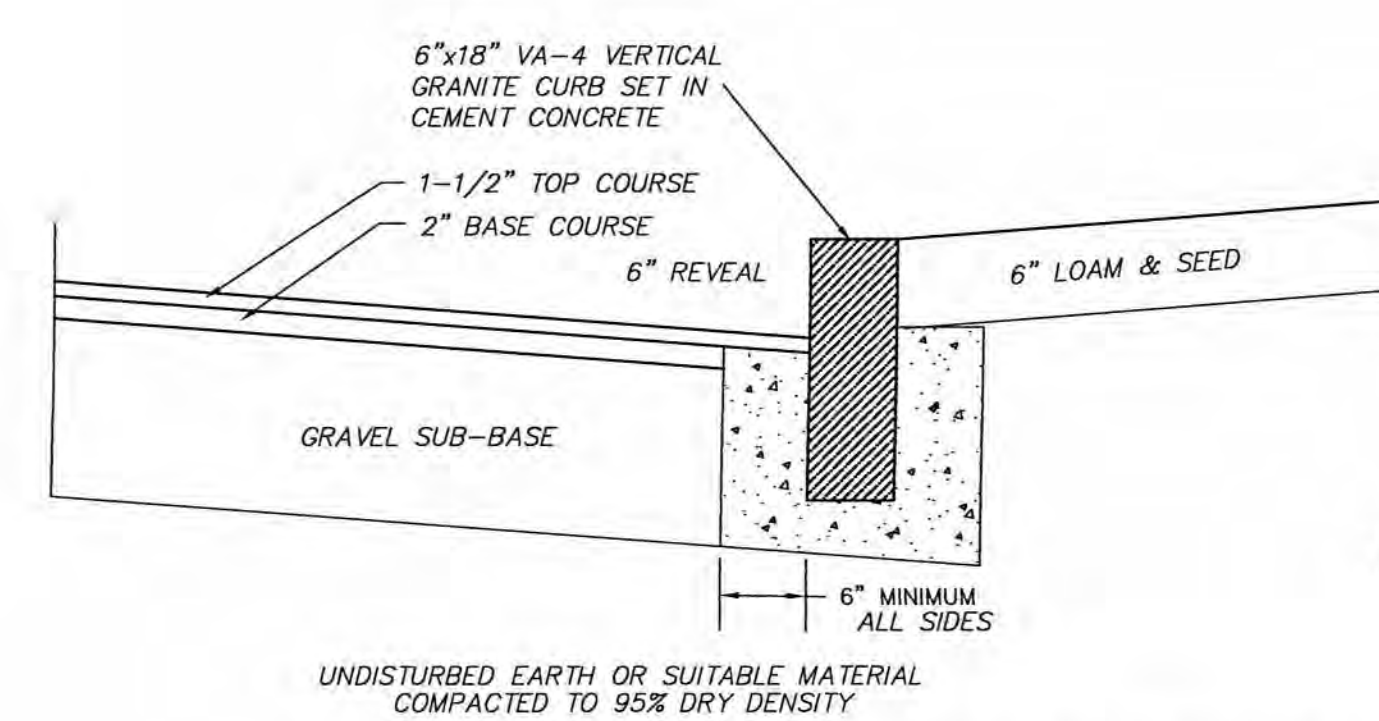
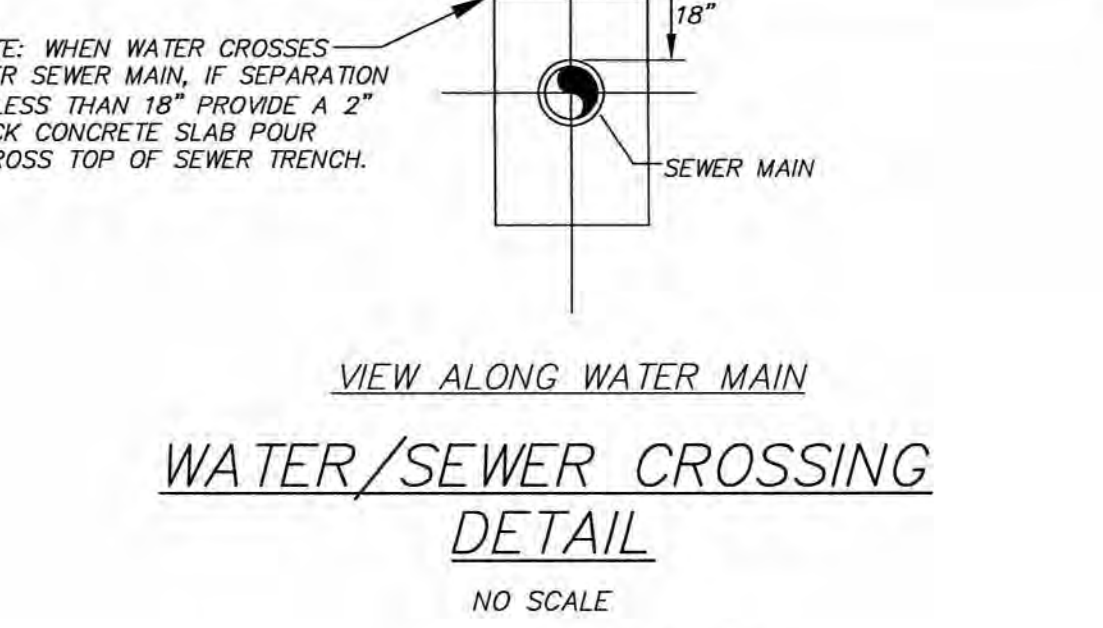
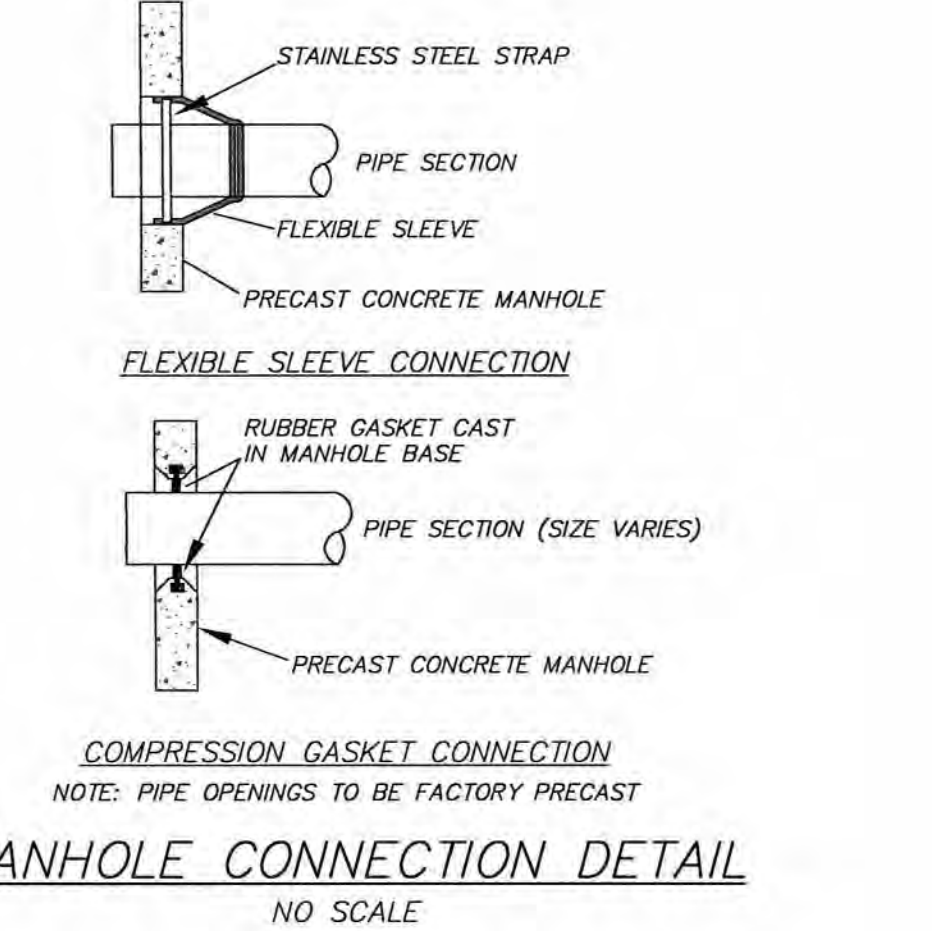
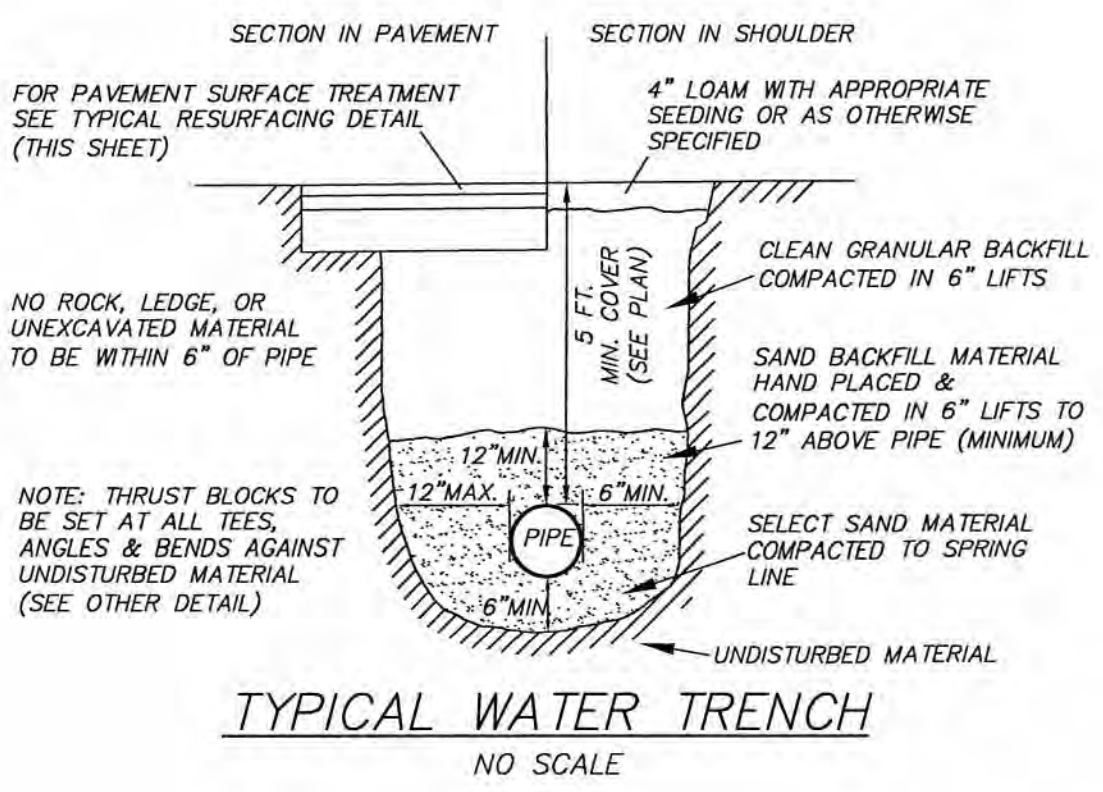
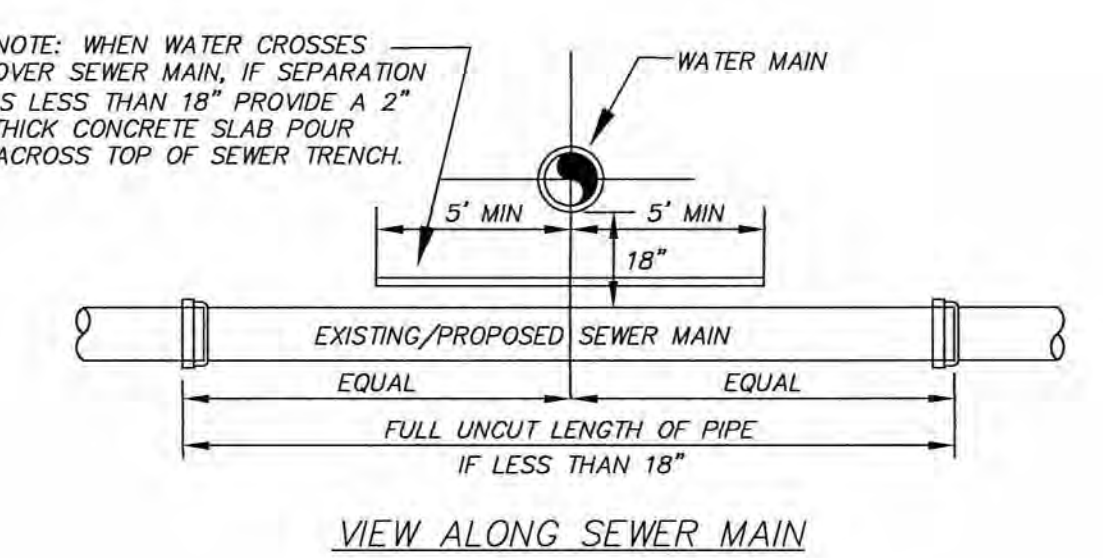
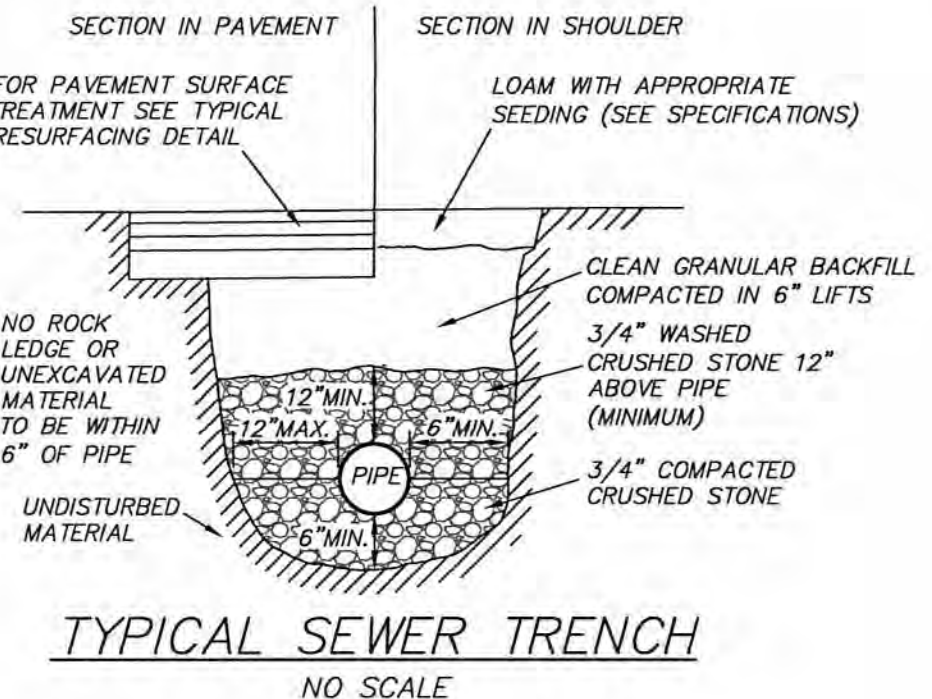
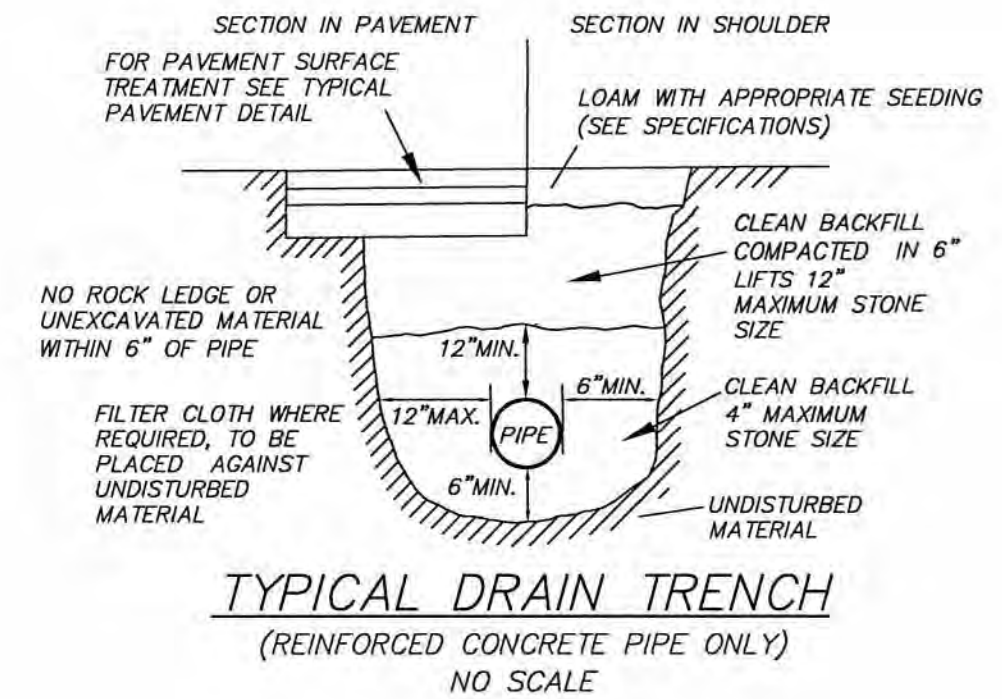
PREPARED FOR:  
 GOVENTURE CAPITAL GROUP, LLC  
 BRENDAN GOVE  
 10 E. WORCESTER STREET, SUITE 3A  
 WORCESTER, MASSACHUSETTS 01605  
 TEL:

CALC: CMA/WDH	DRWN: CMA/WDH	SCALE: NA
CHKD: WDH	APPD: WDH	DATE: NOV 12, 2021
SRV: NA	FB: NA	JOB NO: 3030
TAB: (8-14) DET	SHEET 8 OF 14	PLAN NO: C-18-9

**APPLICANT:**  
 GOVENTURE CAPITAL GROUP, LLC  
 10 E. WORCESTER STREET, SUITE 3A  
 WORCESTER, MASSACHUSETTS 01605



NOTE ALL CONSTRUCTION DETAILS, MEANS AND METHODS SHALL CONFORM TO THE CITY OF WORCESTER DEPARTMENT OF PUBLIC WORKS CONSTRUCTION SPECIFICATIONS AS WELL AS MASSACHUSETTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES STANDARDS.



NO.	DATE	REVISIONS	BY
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9	11/1/2023	PERMITTING/CITY COMMENT	CMA
8	6/22/2023	LAYOUT REVISIONS	CMA
7	6/7/2023	LAYOUT REVISIONS	CMA

**DEFINITIVE PLAN**

CHRISTOPHER M ANDERSON  
CIVIL ENGINEER  
No. 55372  
REGISTRY  
PROFESSIONAL ENGINEER

10-18-2024

**HANNIGAN ENGINEERING, INC.**  
CIVIL ENGINEERS & LAND SURVEYORS

8 MONUMENT SQUARE  
LEOMINSTER, MASSACHUSETTS 01453  
WWW.HANNIGANENGINEERING.COM

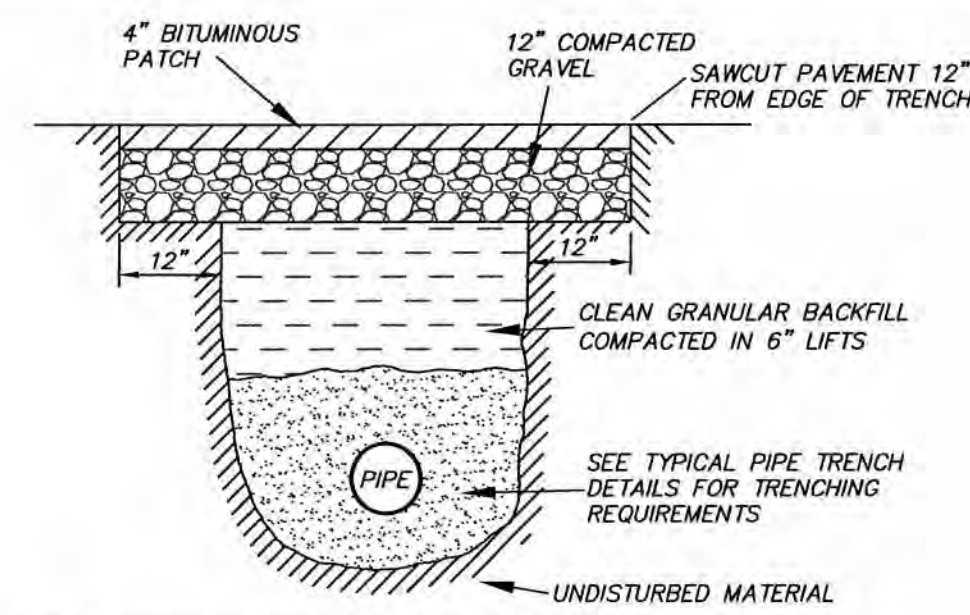
(978) 534-1234 (T)  
(978) 534-6060 (F)

**CONSTRUCTION DETAILS  
IN  
WORCESTER, MASSACHUSETTS**

PREPARED FOR:  
GOVENTURE CAPITAL GROUP, LLC  
BRENDAN GOVE  
10. E. WORCESTER STREET, SUITE 3A  
WORCESTER, MASSACHUSETTS 01605  
TEL:

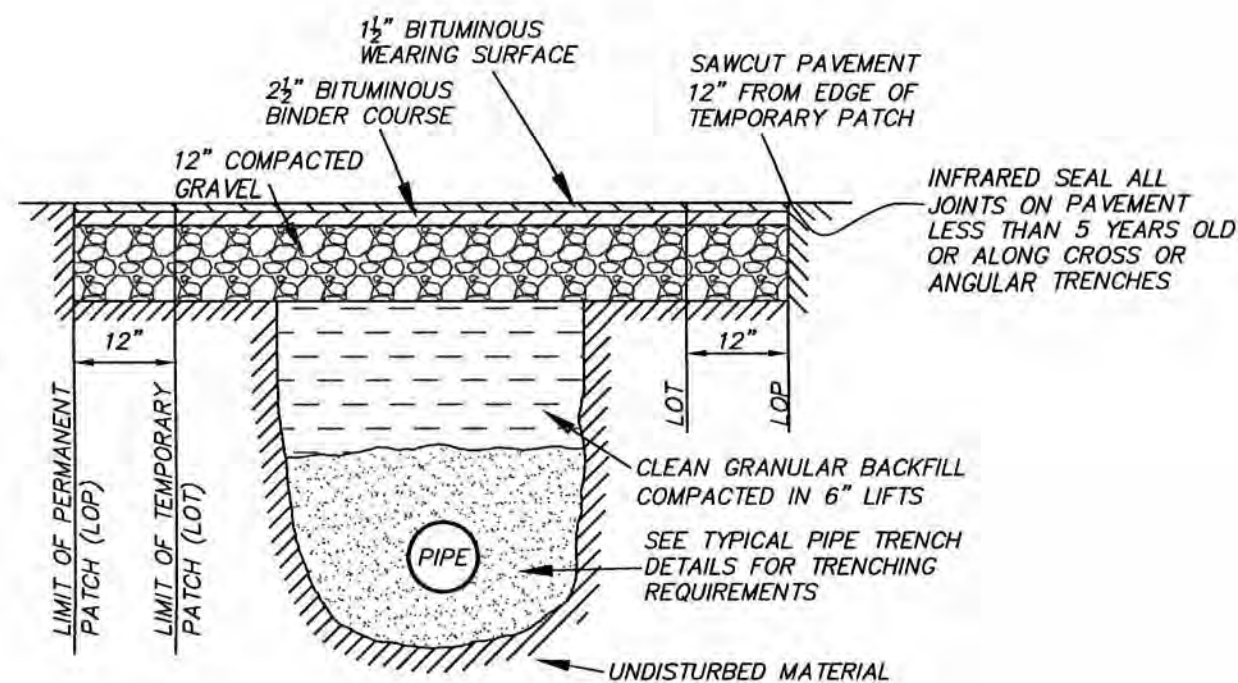
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SRV:	NA	FB:	NA	JOB NO:	3030
TAB:	(8-14) DET	SHEET	9 OF 14	PLAN NO:	C-18-9

APPLICANT:  
GOVENTURE CAPITAL GROUP, LLC  
10 E. WORCESTER STREET, SUITE 3A  
WORCESTER, MASSACHUSETTS 01605



AFTER BACKFILLING HAS BEEN COMPLETED AND SUB GRADE REESTABLISHED, A FOUR (4) INCH BITUMINOUS CONCRETE, TYPE I TEMPORARY PATCH SHALL BE INSTALLED AND MAINTAINED UNTIL A PERMANENT PATCH IS INSTALLED (SEE DETAIL).

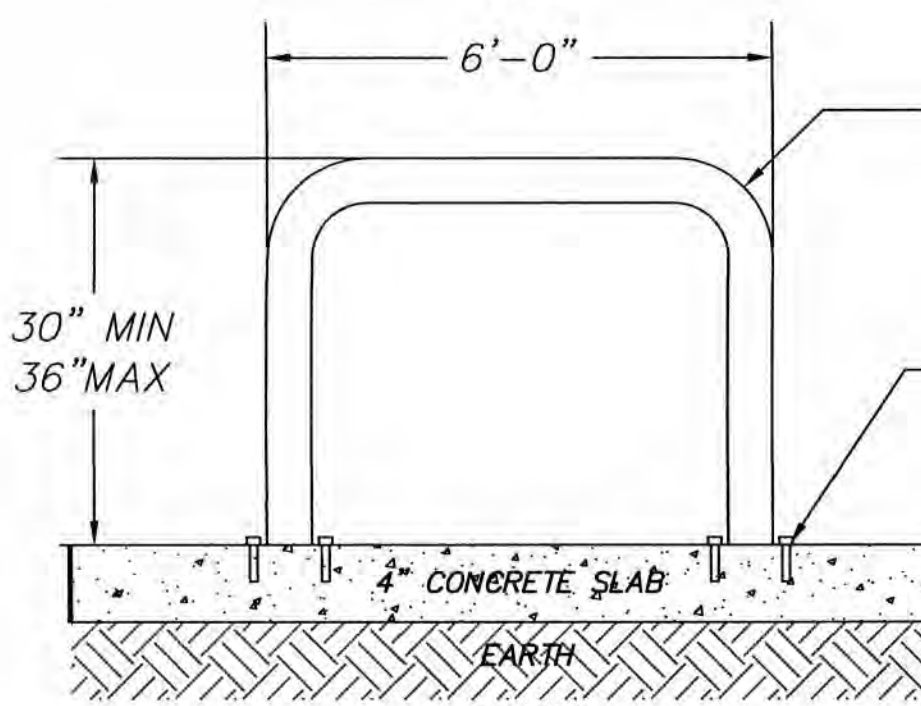
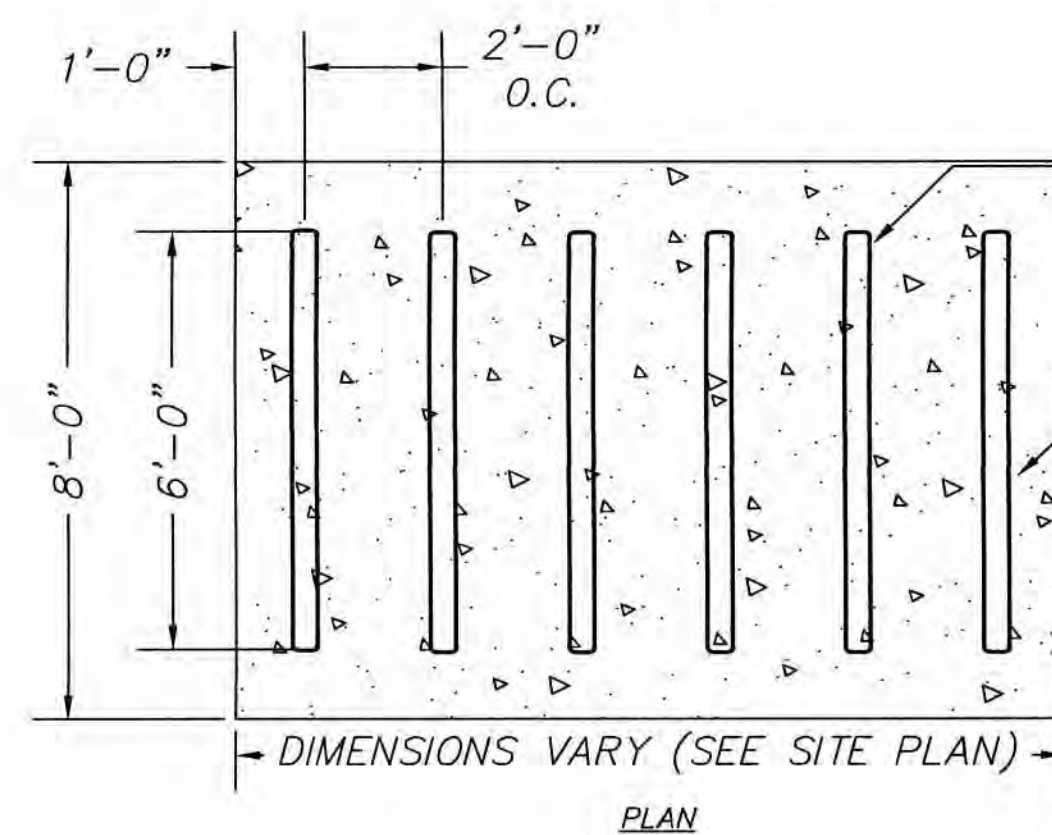
**TEMPORARY PATCH DETAIL**  
NO SCALE



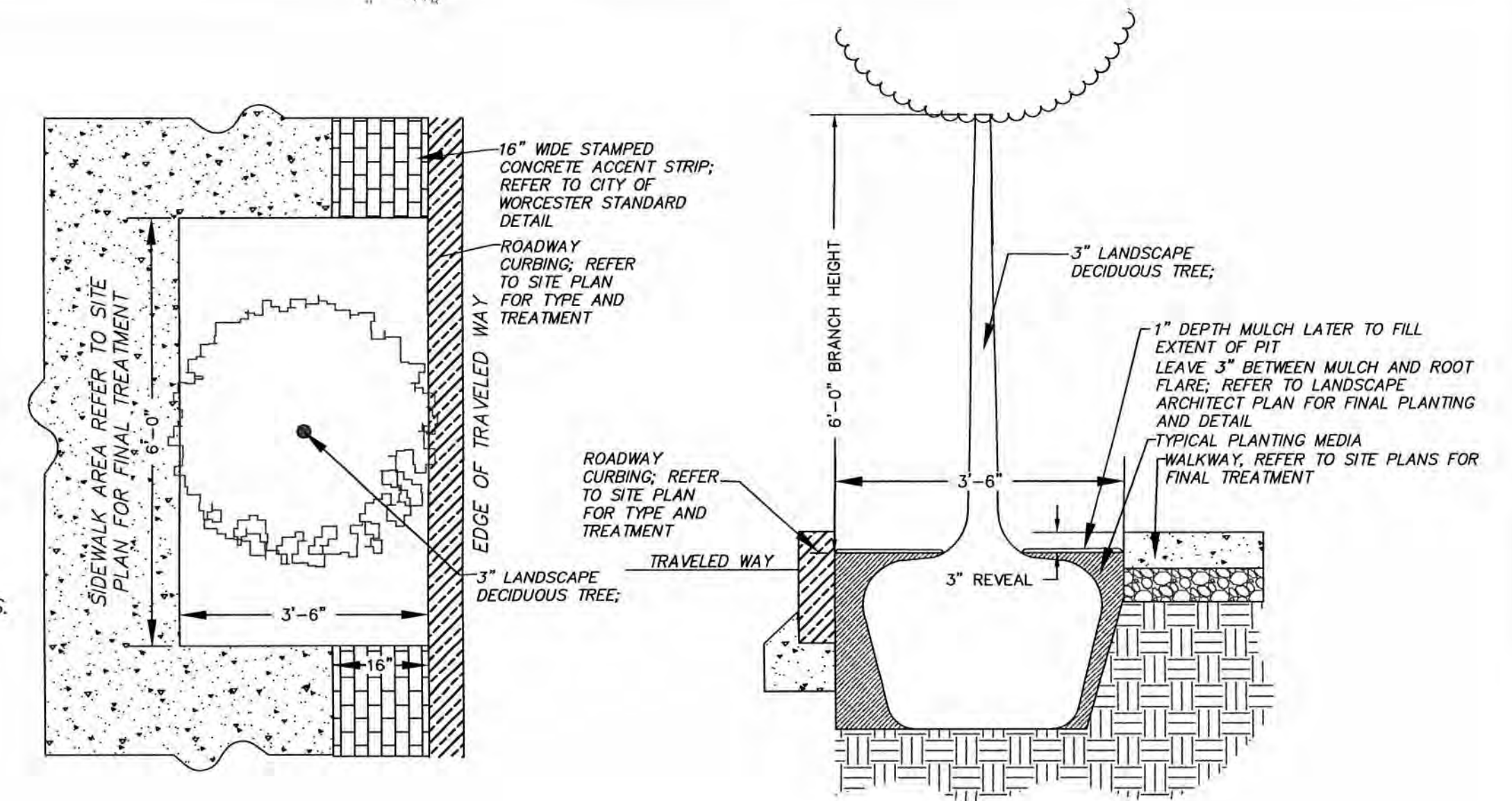
**PERMANENT PATCH DETAIL**  
NO SCALE

**TRENCH PATCHING NOTES:**

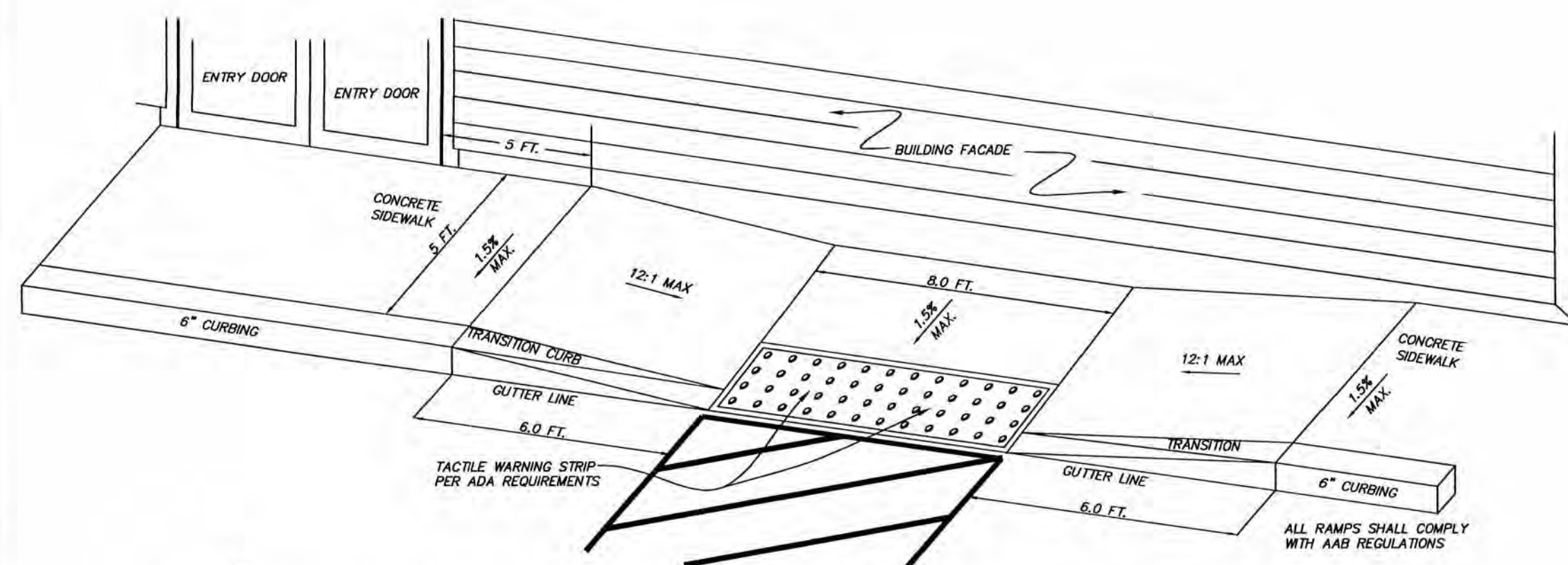
- UPON COMPLETION OF THE TRENCH/UTILITY INSTALLATION WORK, AND ONLY AFTER REQUIRED BACKFILLING AND COMPACTION HAS BEEN ACHIEVED, SHALL ROAD PATCHING OPERATIONS BEGIN. IN NO EVENT SHALL OPENINGS BE ALLOWED TO BE LEFT UN-PATCHED FOR MORE THAN FORTY-EIGHT (48) HOURS WITHOUT WRITTEN APPROVAL OF THE DEPARTMENT OF PUBLIC WORKS (DPW).
- ALL ROAD PATCHES SHALL BE PLACED PERPENDICULAR OR PARALLEL TO TRAFFIC FLOW. ANGULAR PATCHES ACROSS THE ROADWAY SHALL NOT BE PERMITTED WITHOUT DPW APPROVAL. ALL TRENCHES SHALL BE SAW-CUT TO PROVIDE A VERTICAL JOINT FOR PATCHING.
- HOT PATCH SHALL BE USED AT ALL TIMES EXCEPT WHEN SEASONAL CONDITIONS WARRANT THE USE OF A TEMPORARY COLD PATCH.
- IF A TEMPORARY PATCH IS USED, THE DPW SHALL BE NOTIFIED AS TO WHEN A PERMANENT PATCH IS TO BE PLACED. THE CONTRACTOR IS RESPONSIBLE UNTIL THE PERMANENT PATCH IS IN PLACE.
- TEMPORARY PATCHES SHALL BE MAINTAINED BY THE CONTRACTOR THROUGH ONE WINTER-SPRING SEASON. PERMANENT PATCH WILL BE REQUIRED ON ALL TRENCHES AND SHALL BE WARRANTEED FOR A PERIOD OF ONE YEAR.
- PERMANENT PATCHES IN A HEAVILY TRAVELED AREA, AS DETERMINED BY THE DPW, SHALL BE REINFORCED WITH A CONCRETE SLAB NO LESS THAN FIVE (5) INCHES THICK. CONSTRUCTION SHALL COMPLY WITH SECTION 430 OF THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
- TEMPORARY AND PERMANENT PATCHES SHALL BE NO LESS THAN FOUR (4) INCHES THICK OR THE THICKNESS OF THE EXISTING PAVEMENT, WHICHEVER IS GREATER.
- TEMPORARY AND PERMANENT PATCHES SHALL BE ROLLED AND COMPACTED TO MATCH THE EXISTING SURFACE IN A GOOD WORKMANLIKE MANNER AND ALL ABUTTING SURFACES SEALED.
- PERMANENT PATCHES WILL BE MAINTAINED BY THE CONTRACTOR FOR A PERIOD OF NINETY (90) DAYS AT WHICH TIME THE PATCH WILL BE FINALIZED BY THE INFRARED METHOD OF PATCHING. NO INFRARED PATCHING WILL BE REQUIRED ON ANY PAVEMENT THAT IS FIVE (5) YEARS OLD OR GREATER.
- ALL MATERIALS AND CONSTRUCTION METHODS MUST MEET THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
- THE REPAINTING OF TRAFFIC LINES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE TOWN SHALL BE NOTIFIED PRIOR TO THE PAINTING OF ANY NEW TRAFFIC MARKINGS.
- THE CONTRACTOR SHOULD EXERCISE EXTREME CARE TO PREVENT THE DAMAGE TO MAJOR ROOT SYSTEMS OF TREES.
- WHERE MANHOLES ARE TO BE PLACED IN THE HARDENED SURFACE, ALL MANHOLE COVERS SHALL BE SET IN CONCRETE COLLARS TO WITHIN FOUR (4) INCHES OF THE EXISTING SURFACE. A PATCH OF CLASS I BITUMINOUS PAVEMENT TYPE I SHALL BE PLACED OVER THE CONCRETE COLLAR TO A LEVEL WITH THE PAVEMENT GRADE WHEN SATISFACTORILY COMPACTED.
- WITH THE EXCEPTION OF EMERGENCY WORK, NO EXCAVATION SHALL BE PERMITTED FROM DECEMBER 1 TO APRIL 1. WORK WITHIN THIS PERIOD MAY BE ALLOWED AT THE DISCRETION OF THE TOWN.



**BICYCLE STORAGE RACK**  
NO SCALE

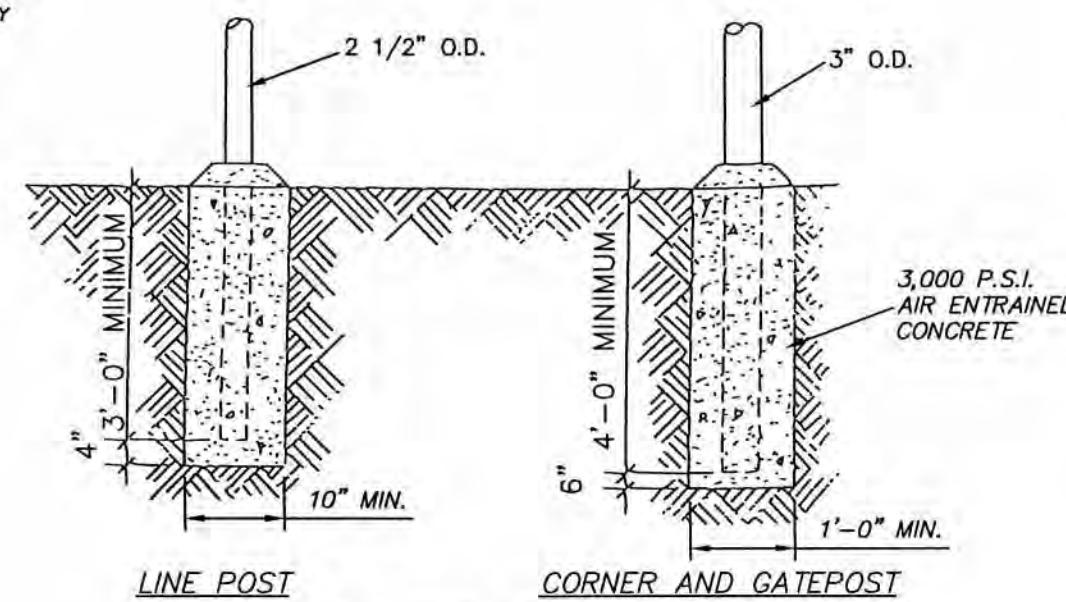


**STREET TREE PLANTING DETAIL**  
NO SCALE

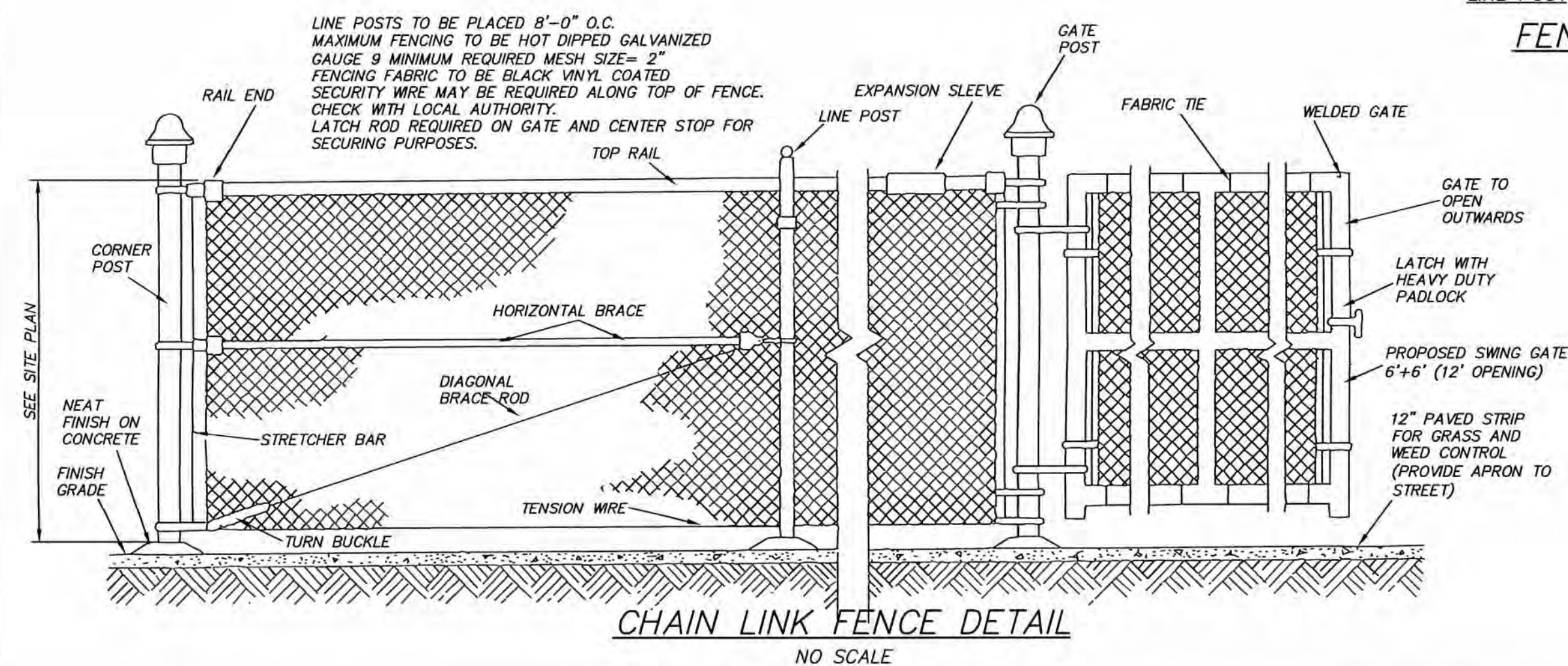


- NOTES:**
- THE DIMENSIONS SHOWN AT PARKING LOT EDGE ARE FIXED DISTANCES.
  - RAMP SECTION AND MATERIALS TO BE CONSTRUCTED IN ACCORDANCE TO CONCRETE SIDEWALK DETAIL.
  - PORTLAND CEMENT CONCRETE RAMPS ARE TO BE TEXTURED BY BROOMING IN A DIRECTION PARALLEL TO THE LENGTH OF THE RAMP.
  - CURB STOPS REQUIRED AT TRANSITION CURBING.
  - SEE ARCHITECTURAL PLANS FOR SPECIFIC BUILDING REQUIREMENTS.

**ACCESSIBLE ENTRY DETAIL**  
NO SCALE



**FENCE POST DETAIL**  
NO SCALE



**CHAIN LINK FENCE DETAIL**  
NO SCALE

**Specifications:**

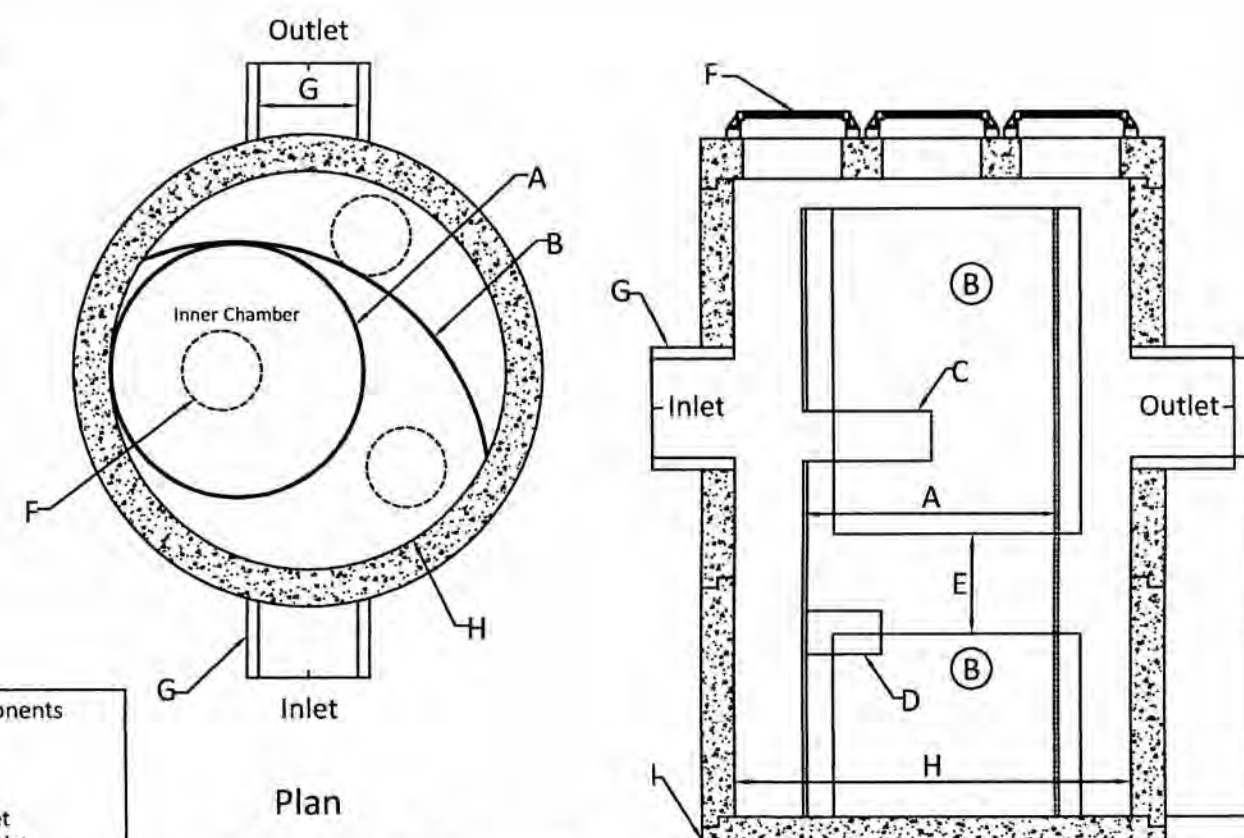
- Any alternate equal must be independently tested to the 2002 NIDEP Laboratory Separator Protocol. Separator must be sized based on this data.
- Alternate equal must be NETE Certified, MASTEP Verified, Massachusetts Plumbing Board approved and ConnDOT approved.
- Any testing performed by the manufacturer and/or field testing is unacceptable to demonstrate an alternate equal.
- Grab sampling has been deemed inaccurate by multiple independent agencies. Only mass balance testing will be accepted to verify an alternate equal.
- The separator must be designed based on the following criteria:

Flow Criteria	
Water Quality Flow Rate cfs (L/s)	
Peak Design Flow Rate cfs (L/s)	

TSS Removal Criteria	
Annual TSS Removal (%)	
NIDEP/ETV Canada TSS	
OK110 Sand	
City of Toronto	
Other	

- HydroGuard Components**
- A. Inner Chamber
  - B. Outer Baffle Wall
  - C. Inner Chamber Inlet
  - D. Inner Chamber Outlet
  - E. Outer Baffle Opening
  - F. Frame and Cover (Qty: 1-3)
  - G. Inlet and Outlet Pipes
  - H. Structure Diameter
  - I. Base Extension (HG4 - HG6)
  - J. Sump Depth



Hydroguard by Hydroworks, LLC  
U.S. Patent No. 6,951,619  
Canadian Patent No. 2,536,300  
www.hydroworks.com  
888-290-7900

**Notes:**

- Headloss K factor of 1.6 for hydraulic gradeline calculations
- Sump depths shown are typical. Additional depth can be added as required.
- Drops greater than 4" allowed with custom trough attachment.
- Inlet invert elevations should be the same or higher than the outlet invert elevation.
- Solid Cover shown. HydroGuard can be designed with an inlet grate if required.
- Oil capacities given are spill capacities.
- Sediment depths are maximum holding capacities and not recommended capacities for regular maintenance.
- Capacities are rounded down to nearest 5 gal or 11 or 0.1 m3 for metric units
- Base Extensions are not provided on standard units larger than the HG 6. Extensions can be provided if required due to groundwater/buoyancy concerns at the request of the engineer of record.
- HG4 model requires one cover. HG5 and HG6 models require two covers. HG7 to HG12 models require three covers.

Hydroguard Dimensions / Capacities							
Model	Diameter (ft) (ft)	Sump Depth (ft) (ft)	Inlet Chamber (ft) (ft)	Max Pipe (ft) (ft)	Oil Spill Volume (gal) (L)	Sediment Volume (cu ft) (m3)	Total Volume gal (L)
HG 4	4 (1.2)	5 (1.5)	32 (0.8)	21 (535)	65 (246)	35 (0.9)	465 (1779)
HG 5	5 (1.5)	5.5 (1.7)	40 (1.0)	24 (610)	130 (492)	55 (1.5)	805 (3057)
HG 6	6 (1.8)	6 (1.8)	48 (1.2)	30 (760)	200 (757)	85 (2.4)	1265 (4803)
HG 7	7 (2.1)	6.5 (2.0)	56 (1.4)	36 (915)	310 (1173)	115 (3.2)	1870 (7082)
HG 8	8 (2.4)	7 (2.1)	64 (1.6)	42 (1065)	455 (1722)	145 (4.1)	2630 (9962)
HG 10	10 (3.0)	9 (2.7)	80 (2.0)	54 (1370)	855 (3236)	320 (9.0)	5285 (20014)
HG 12	12 (3.6)	10.5 (3.2)	96 (2.4)	60 (1524)	1500 (5678)	480 (13.5)	8880 (33624)

**Hydroworks Hydroguard**

PROJECT:  
LOCATION:  
REVISION DATE: 08/05/2020



**APPLICANT:**  
GOVENTURE CAPITAL GROUP, LLC  
10 E. WORCESTER STREET, SUITE 3A  
WORCESTER, MASSACHUSETTS 01605

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7	6/7/2023	LAYOUT REVISIONS	CMA



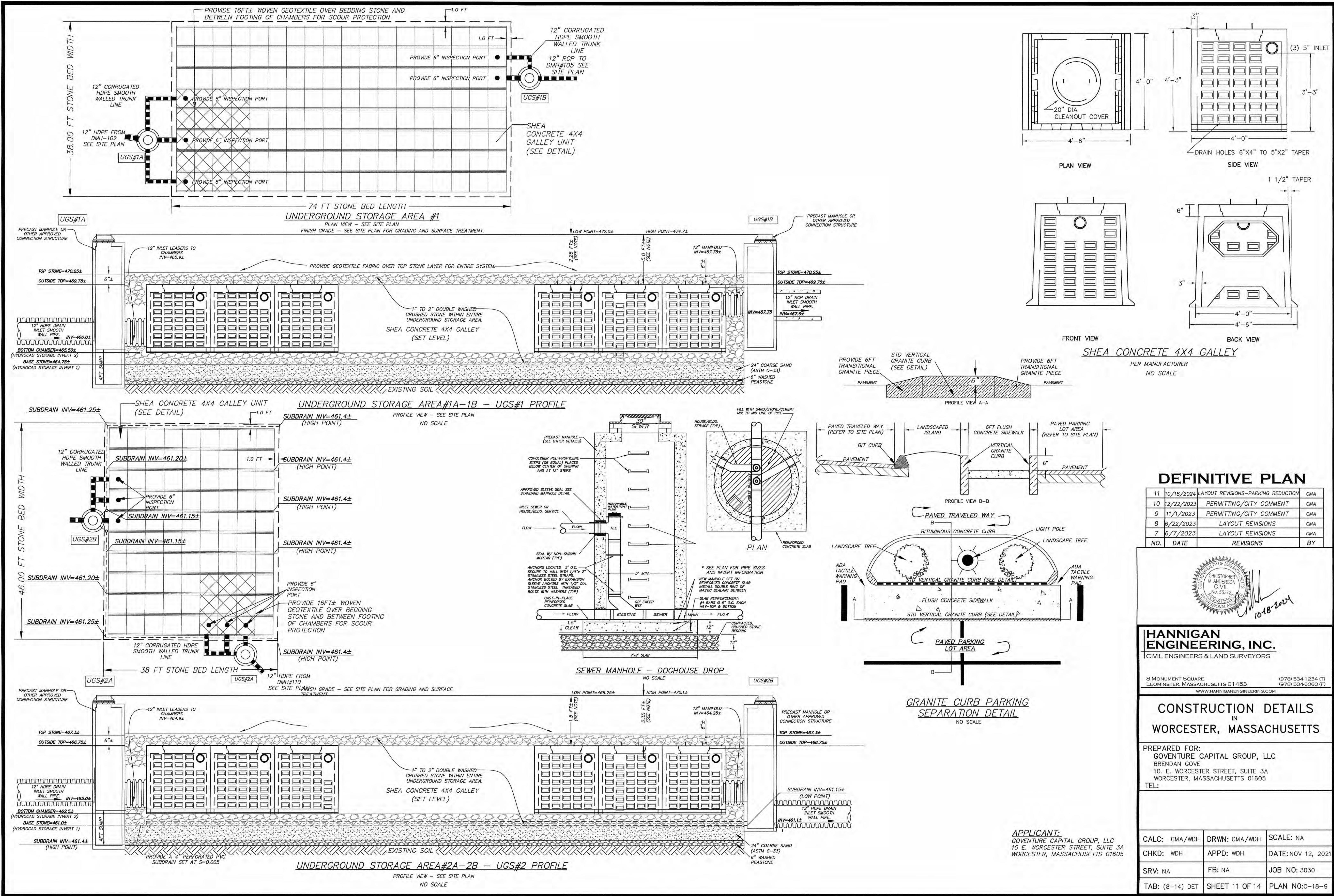
**HANNIGAN ENGINEERING, INC.**  
CIVIL ENGINEERS & LAND SURVEYORS

8 MONUMENT SQUARE (978) 534-1234 (T)  
LEOMINSTER, MASSACHUSETTS 01453 (978) 534-6060 (F)  
WWW.HANNIGANENGINEERING.COM

**CONSTRUCTION DETAILS**  
IN  
**WORCESTER, MASSACHUSETTS**

PREPARED FOR:  
GOVENTURE CAPITAL GROUP, LLC  
BRENDAN GOVE  
10 E. WORCESTER STREET, SUITE 3A  
WORCESTER, MASSACHUSETTS 01605  
TEL:

CALC: CMA/WDH	DRWN: CMA/WDH	SCALE: NA
CHKD: WDH	APPD: WDH	DATE: NOV 12, 2021
SRV: NA	FB: NA	JOB NO: 3030
TAB: (8-14) DET	SHEET 10 OF 14	PLAN NO: C-18-9



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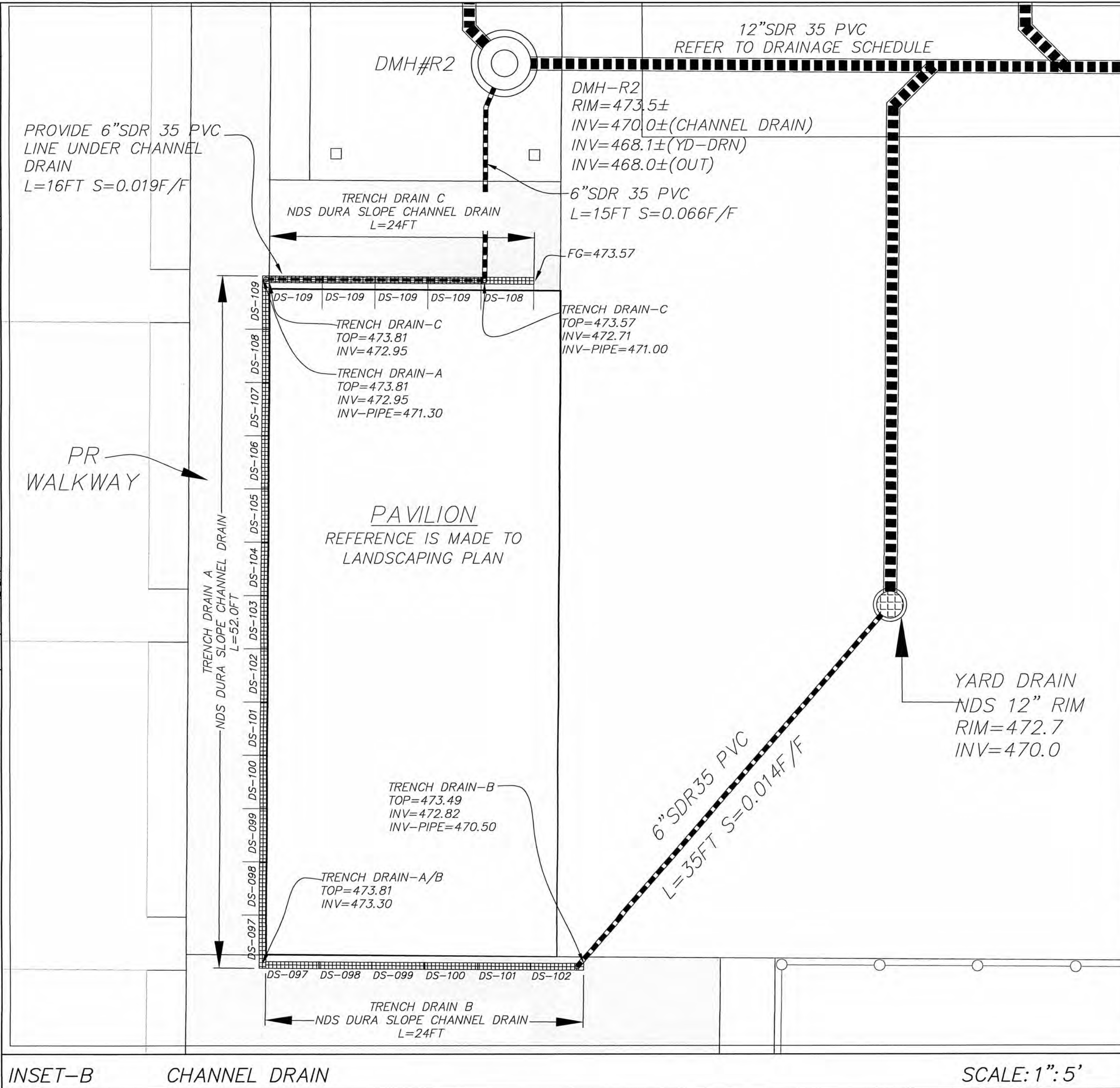
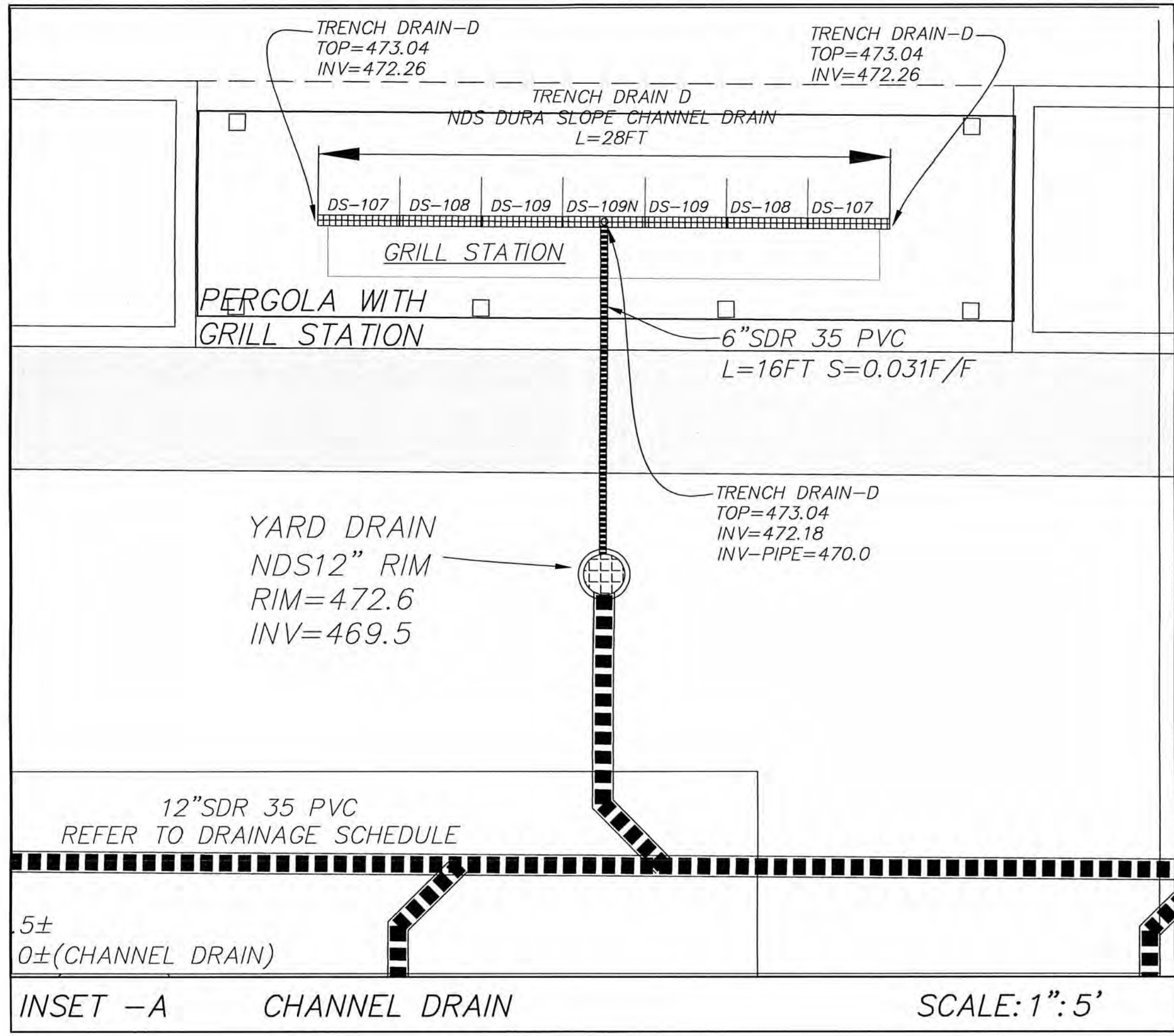
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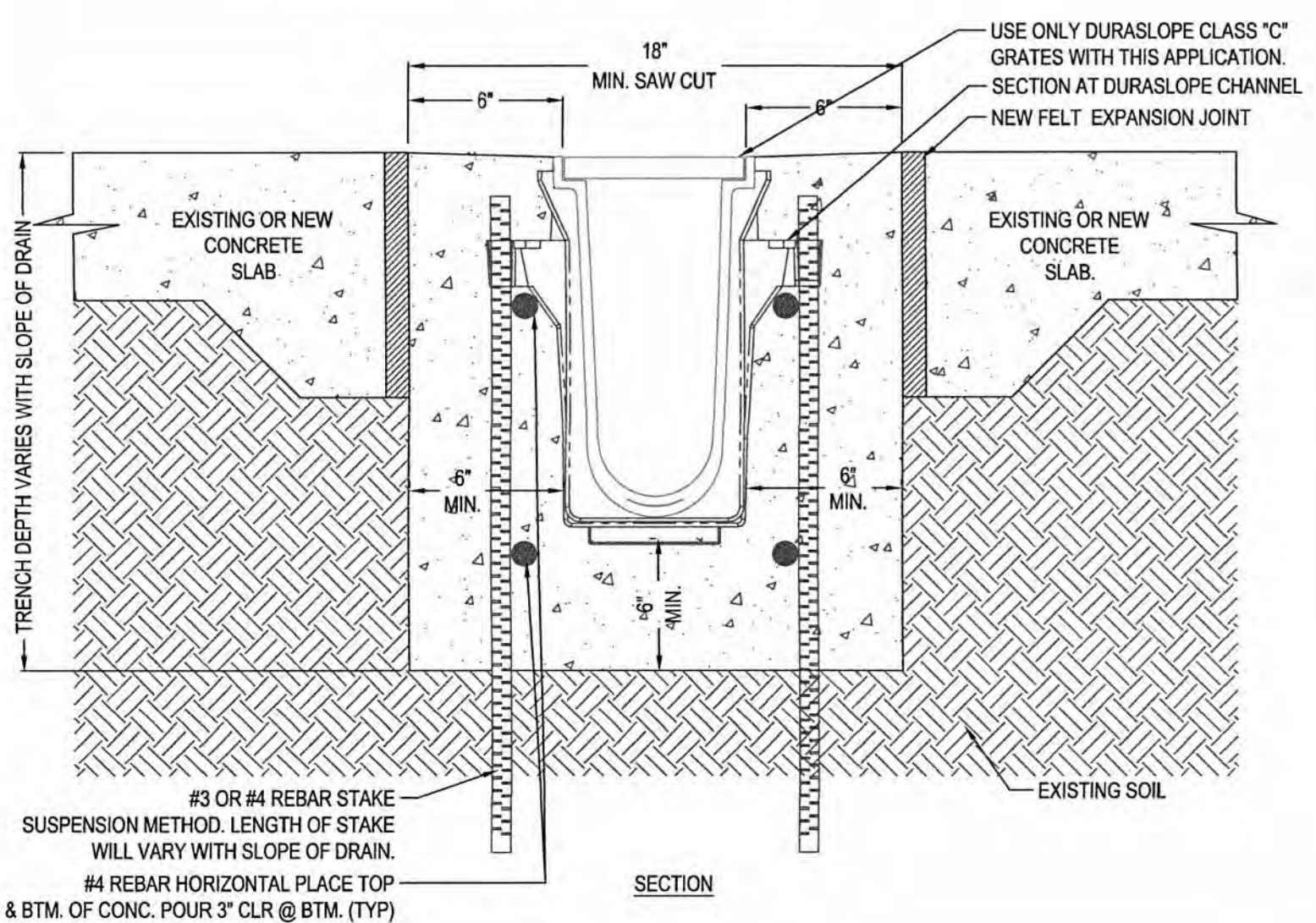
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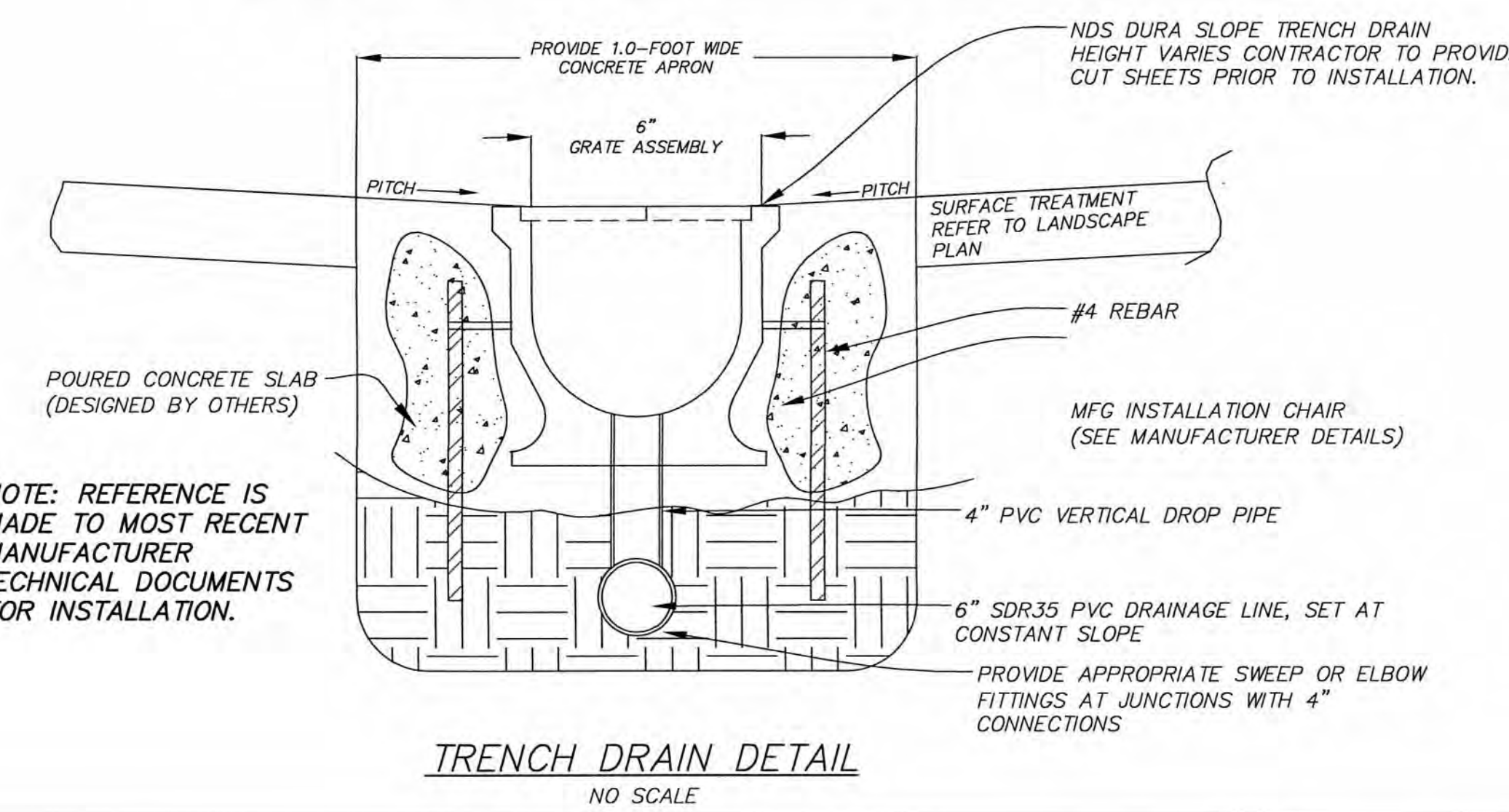
NDS, INC.  
851 NORTH HARVARD AVE.  
LINDSAY, CA 93247  
TOLL FREE: 1-800-726-1994  
PHONE: (559) 562-9888  
FAX: (559) 562-4488  
www.ndspro.com



- NOTES:
- CHANNELS TO BE INSTALLED WITH BLANK GRATE. GRATE TO BE PROTECTED FROM CONCRETE POUR (COVER HOLES WITH TAPE).
  - INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
  - DO NOT SCALE DRAWING.
  - THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY.
  - ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.

**DURA SLOPE TRENCH DRAIN SYSTEM**  
DURA SLOPE INSTALLATION DETAIL - CLASS 'C' 6" ENCASMENT, REBAR SUSPENSION METHOD

REVISION DATE 3-5-2015



**DEFINITIVE PLAN**

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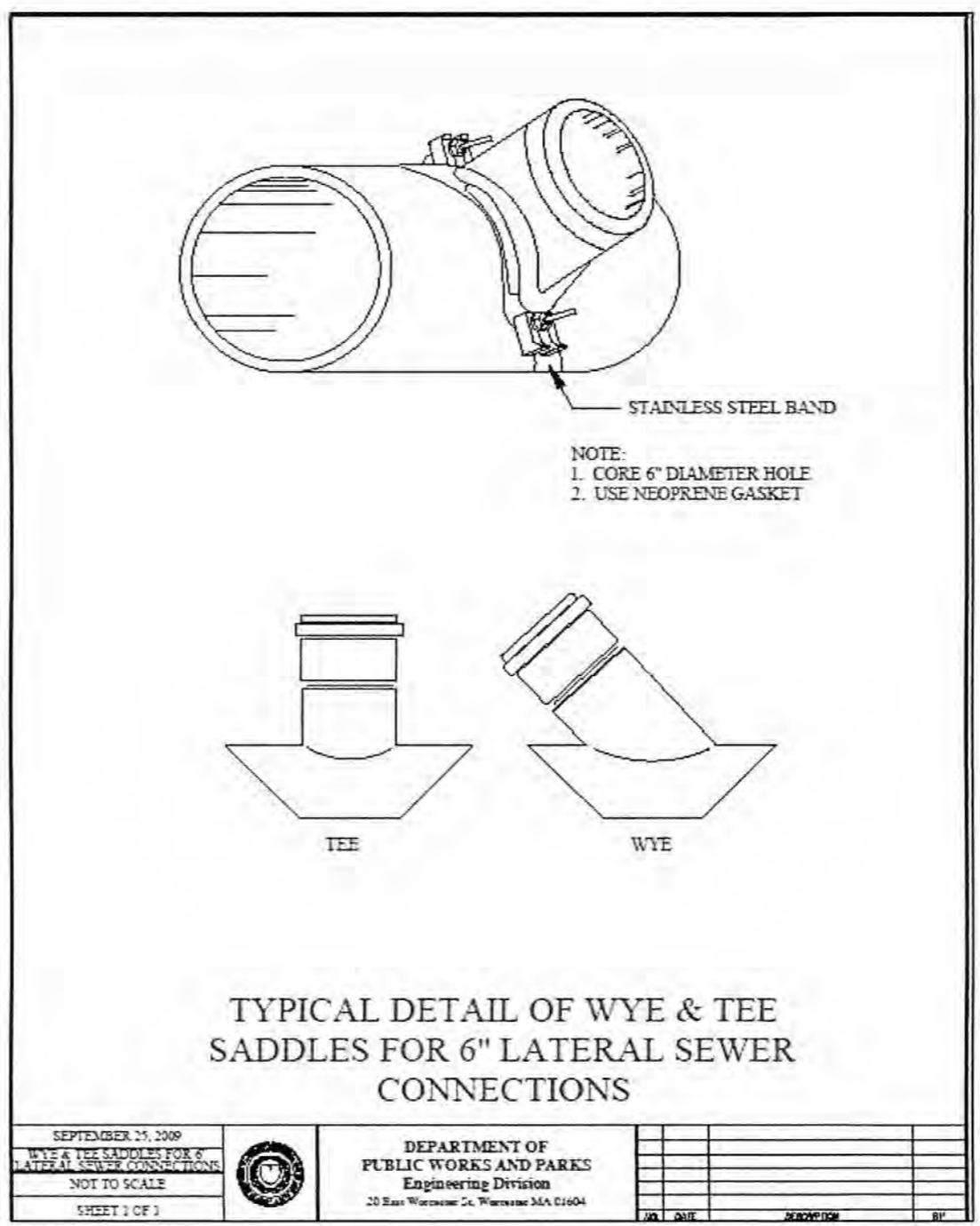
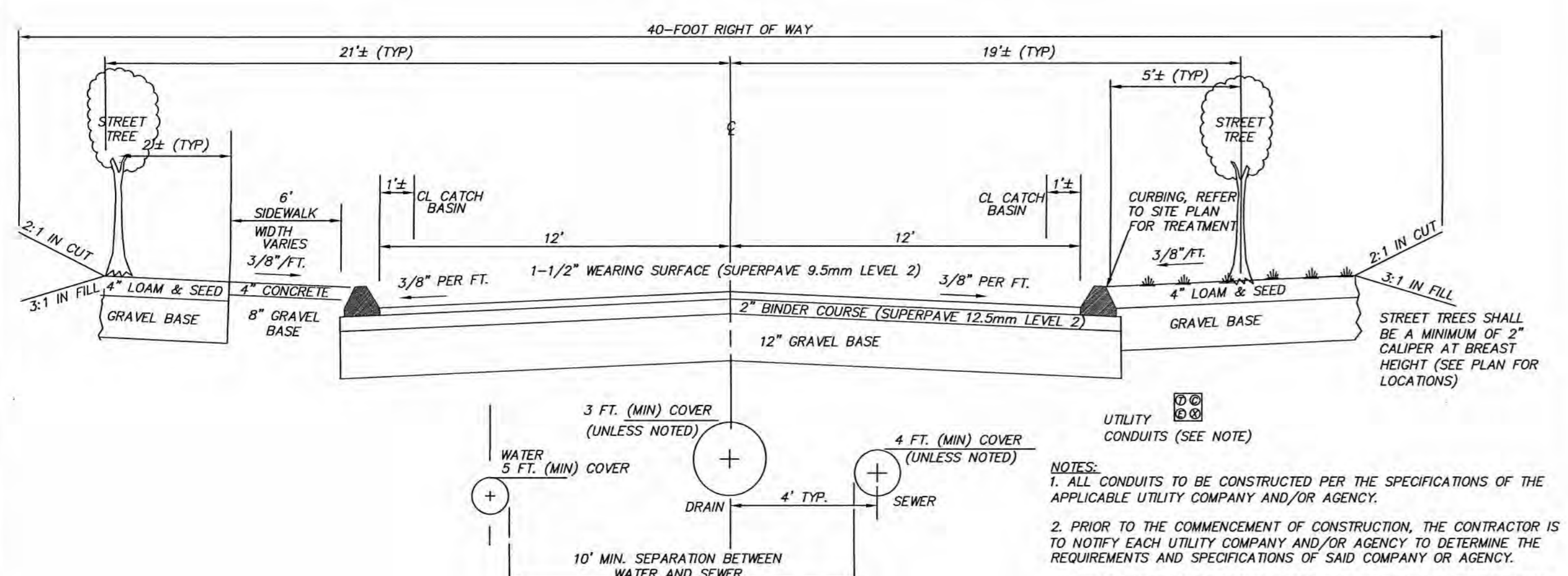
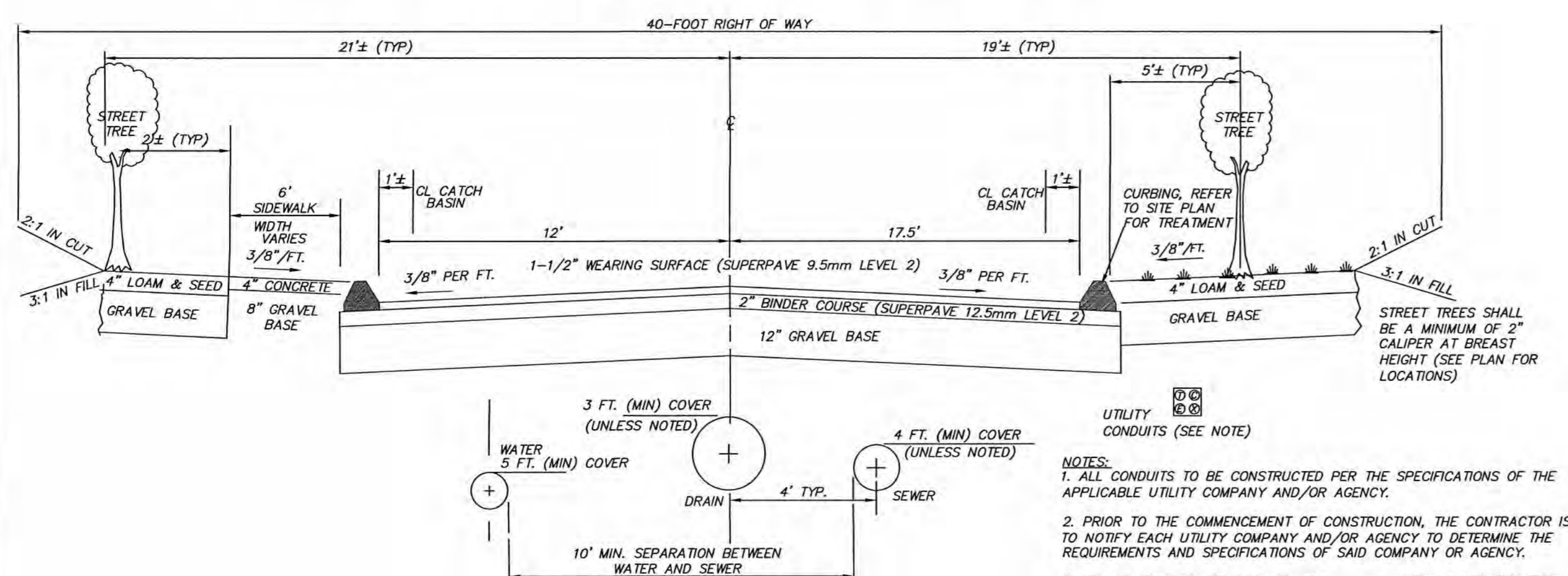
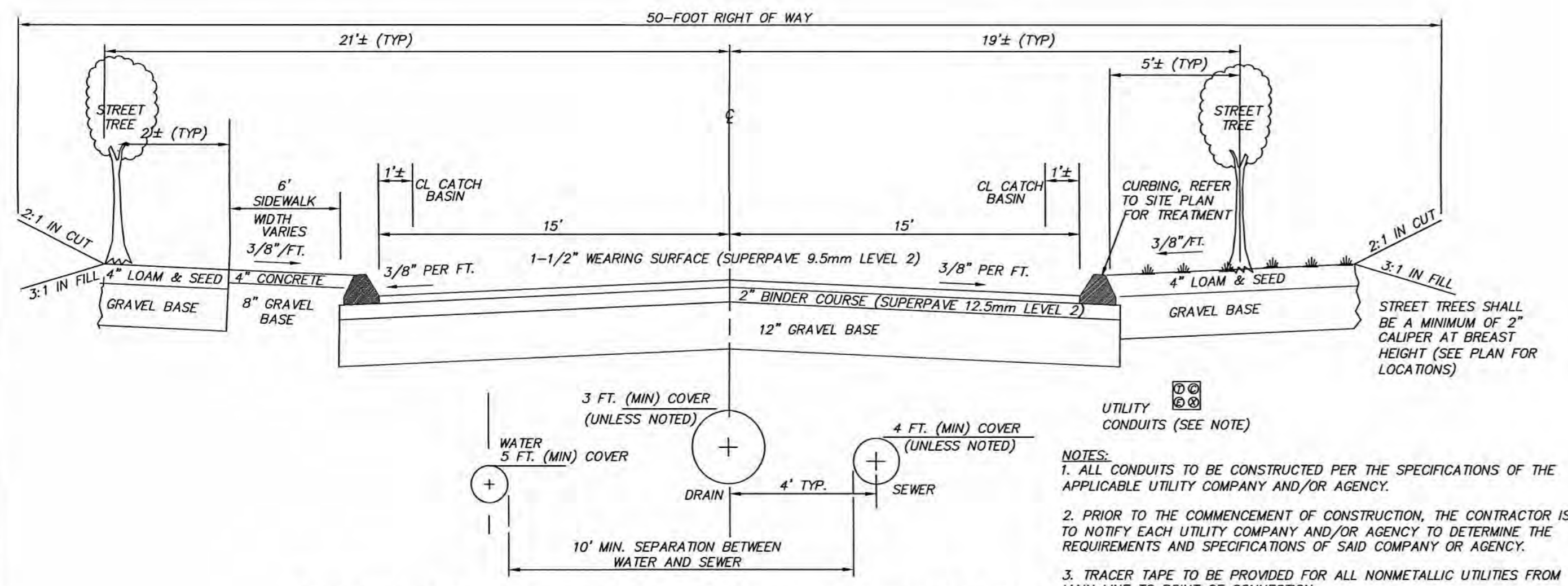
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BRENDAN GOVE  
10 E. WORCESTER STREET, SUITE 3A  
WORCESTER, MASSACHUSETTS 01605  
TEL:

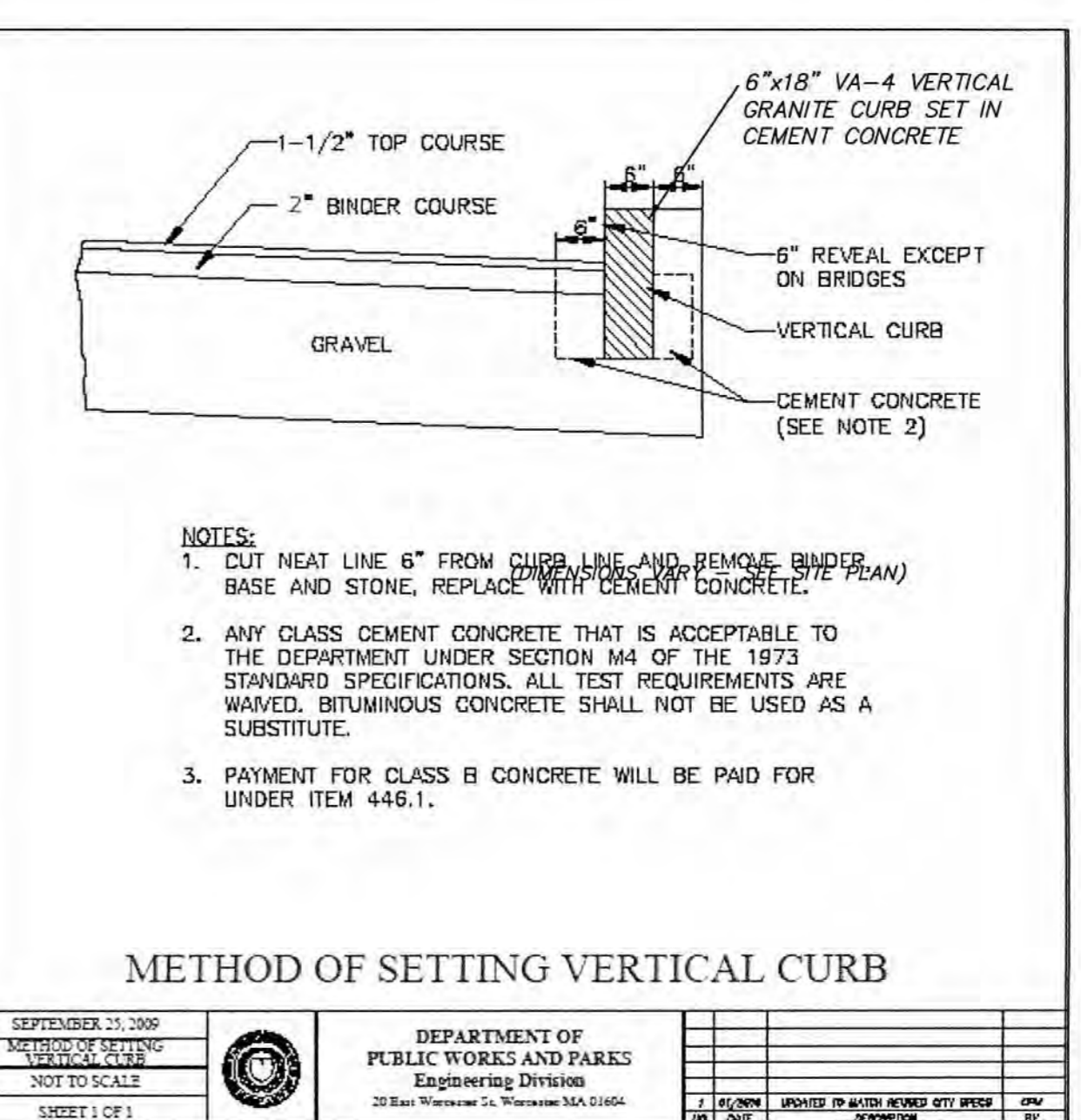
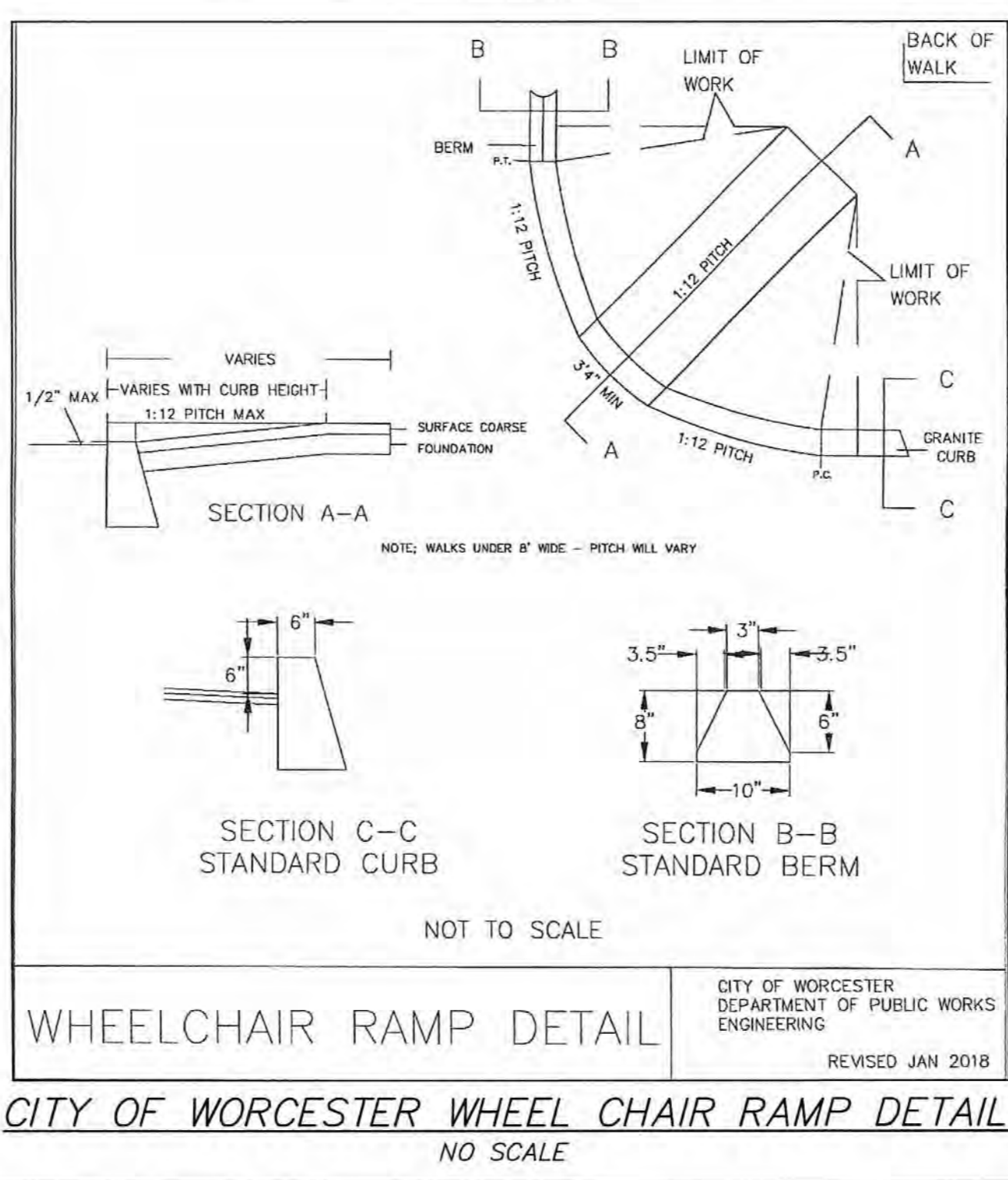
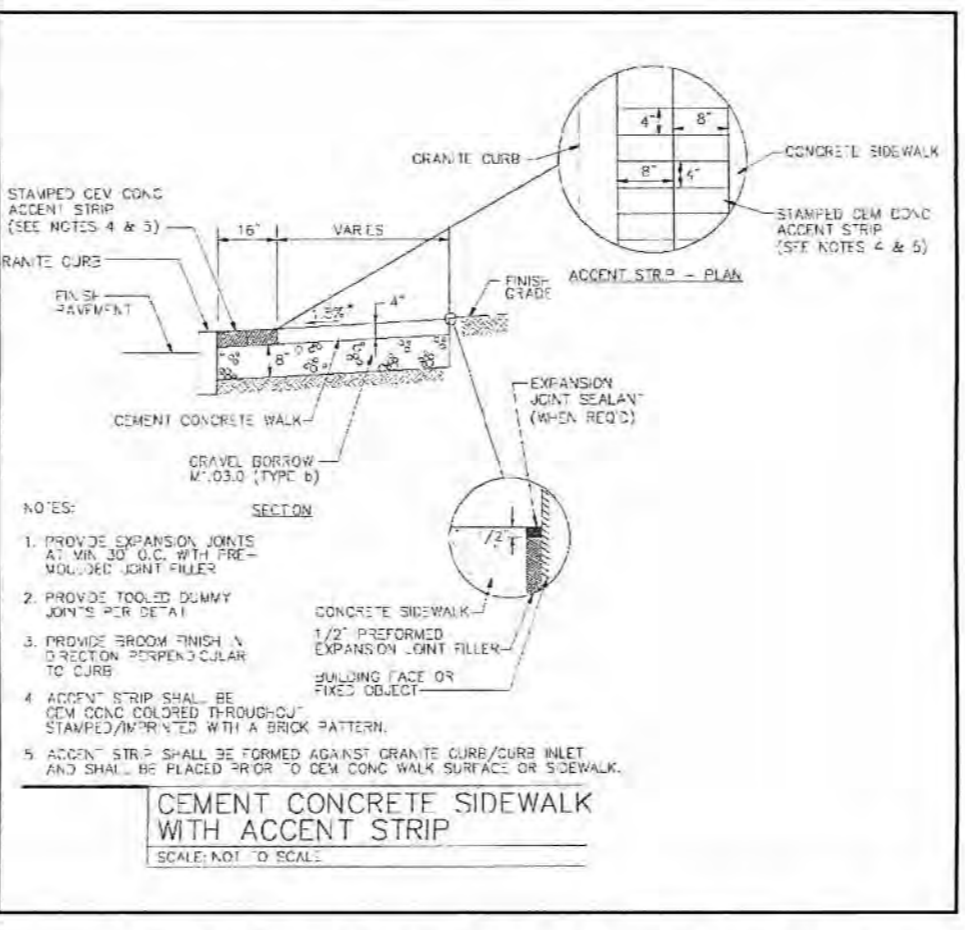
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SRV: NA	FB: NA	JOB NO: 3030
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APPLICANT:  
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10 E. WORCESTER STREET, SUITE 3A  
WORCESTER, MASSACHUSETTS 01605

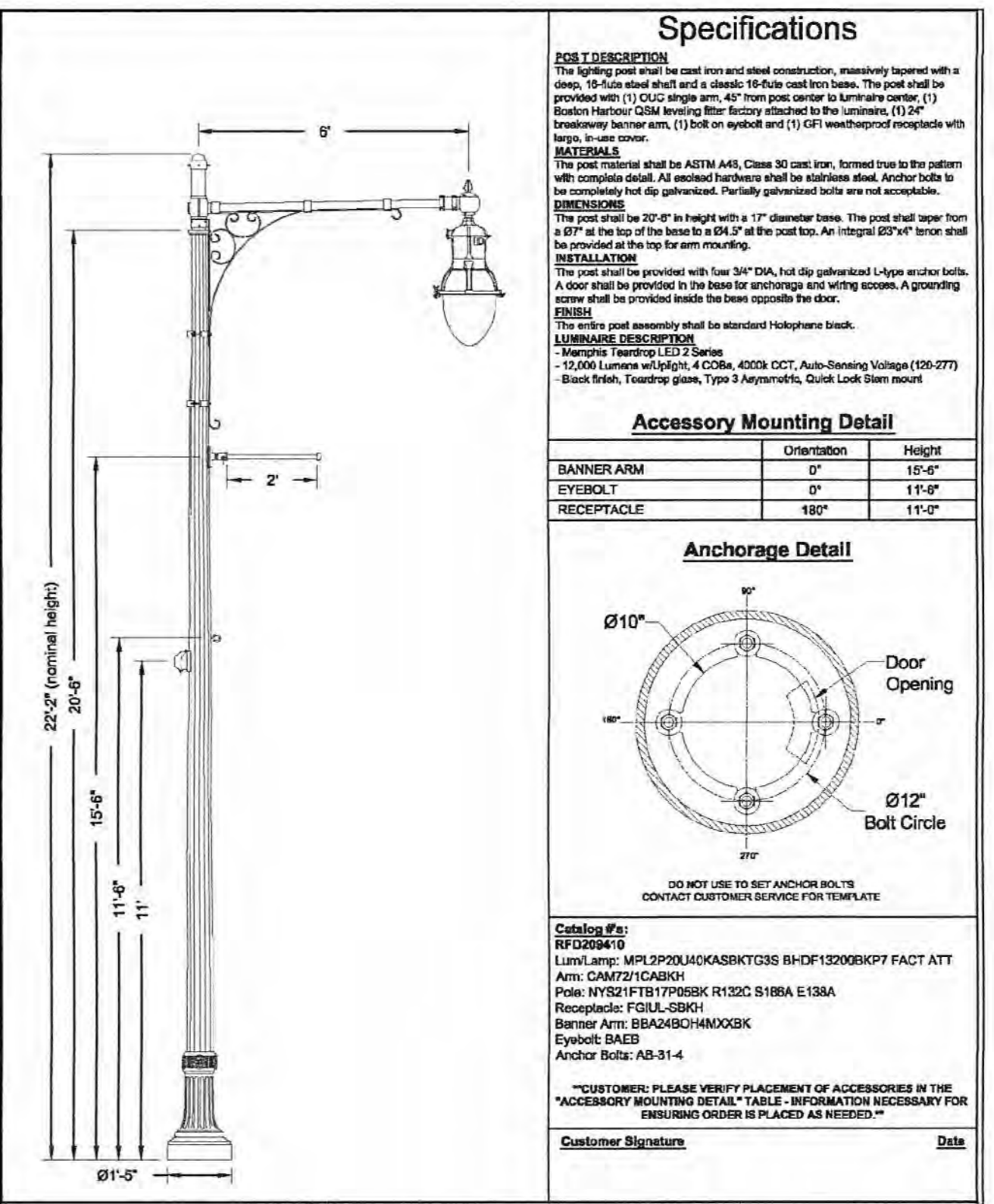
**CONSTRUCTION DETAILS FOR USE WITHIN RIGHT OF WAYS**



**CITY OF WORCESTER WYE SADDLE CONNECTIONS FOR LATERAL SEWER CONNECTIONS DETAIL**



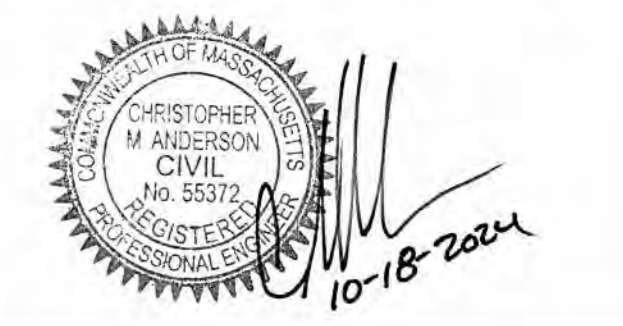
**CITY OF WORCESTER VERTICAL GRANITE CURB DETAIL**



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**DEFINITIVE PLAN**

NO.	DATE	REVISIONS	BY
11	10/18/2024	LAYOUT REVISIONS-PARKING REDUCTION	CMA
10	12/22/2023	PERMITTING/CITY COMMENT	CMA
9	11/1/2023	PERMITTING/CITY COMMENT	CMA
8	6/22/2023	LAYOUT REVISIONS	CMA
7	6/7/2023	LAYOUT REVISIONS	CMA



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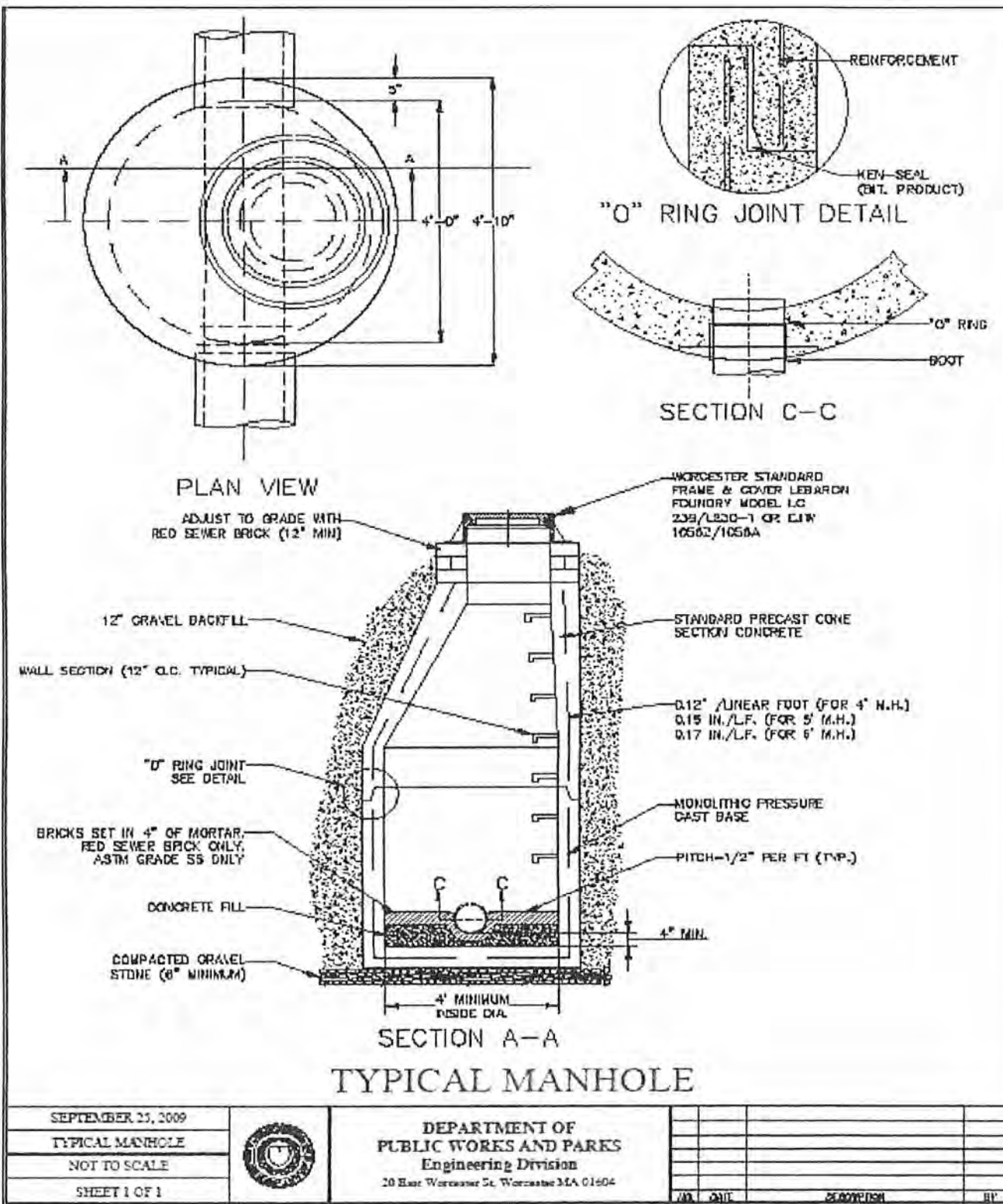
**CONSTRUCTION DETAILS IN WORCESTER, MASSACHUSETTS**

PREPARED FOR:  
GOVETURE CAPITAL GROUP, LLC  
BRENDAN GOVE  
10 E. WORCESTER STREET, SUITE 3A  
WORCESTER, MASSACHUSETTS 01605  
TEL:

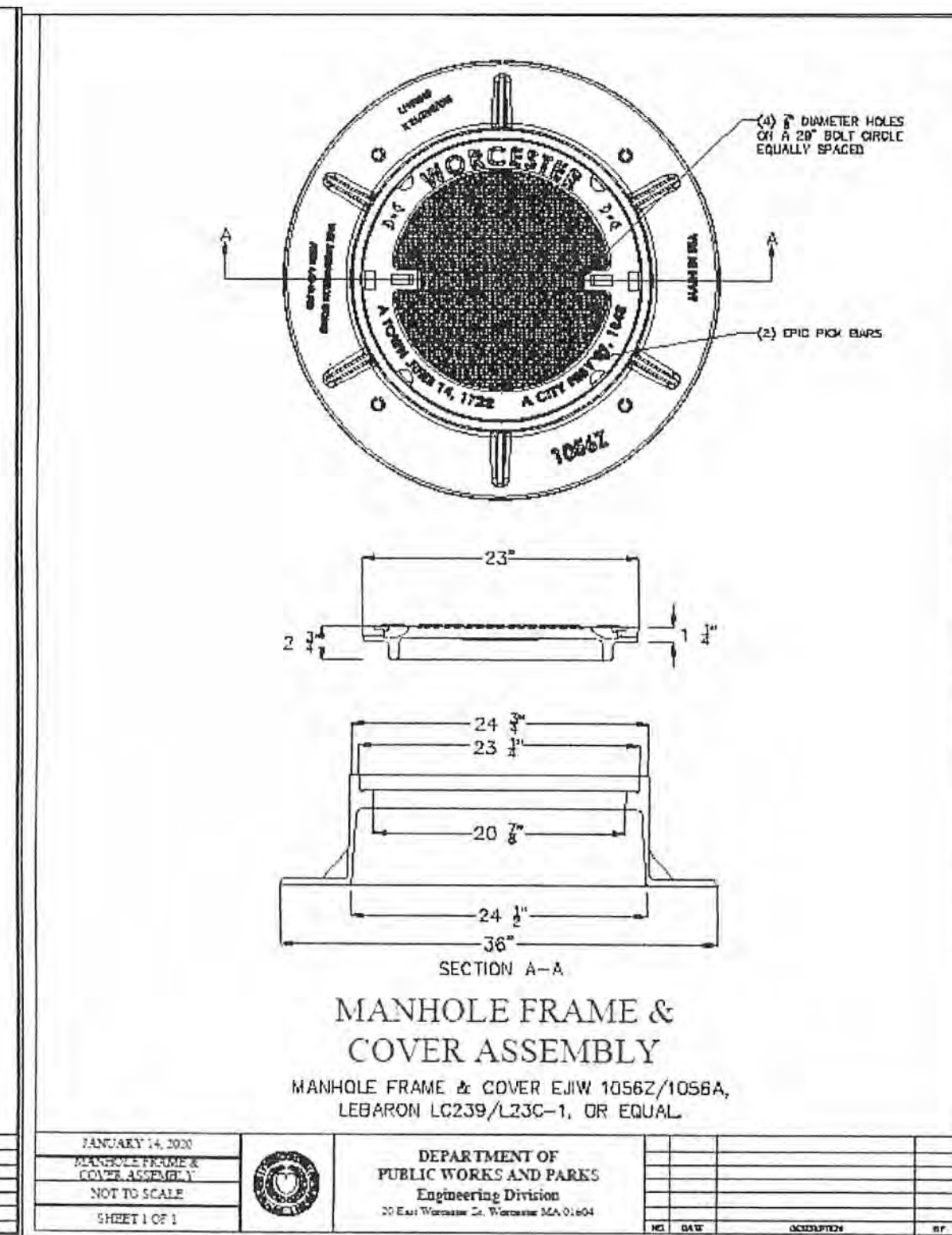
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CHKD: WDH	APPD: WDH	DATE: NOV 12, 2021
SRV: NA	FB: NA	JOB NO: 3030
TAB: (8-14) DET	SHEET 13 OF 14	PLAN NO: C-18-9

APPLICANT:  
GOVETURE CAPITAL GROUP, LLC  
10 E. WORCESTER STREET, SUITE 3A  
WORCESTER, MASSACHUSETTS 01605

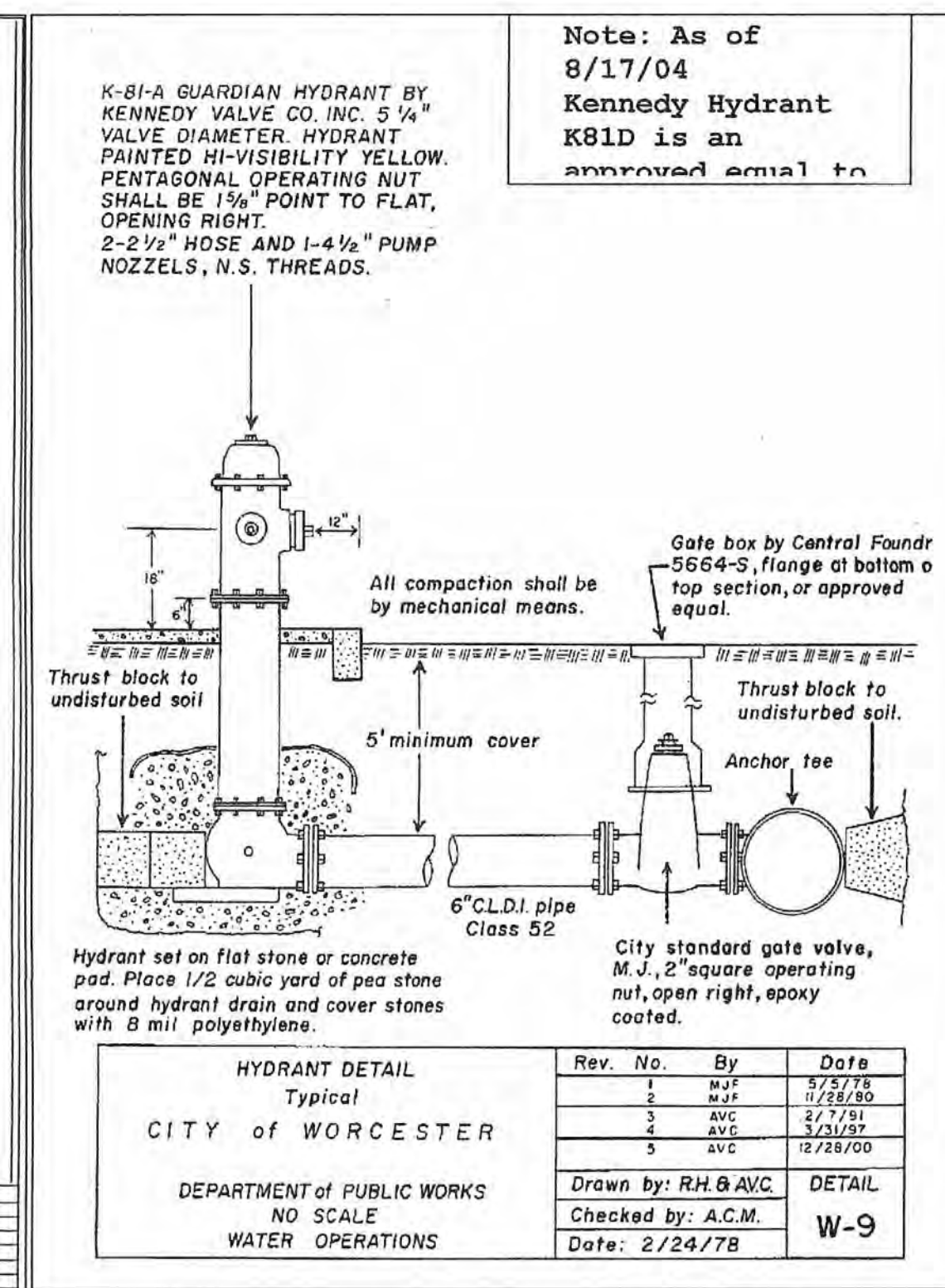
CONSTRUCTION DETAILS FOR USE WITHIN RIGHT OF WAYS



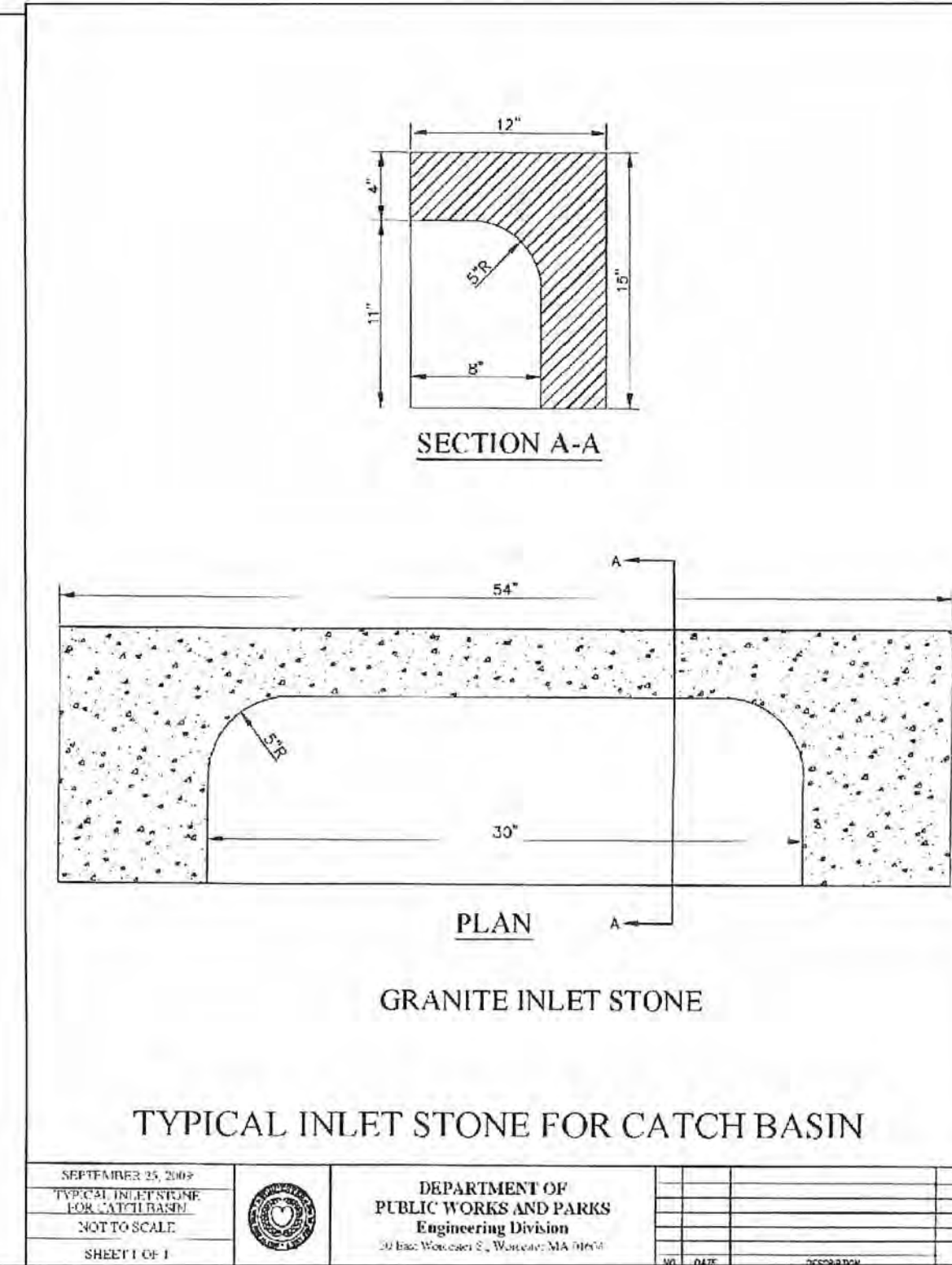
CITY OF WORCESTER TYPICAL MANHOLE DETAIL  
NO SCALE



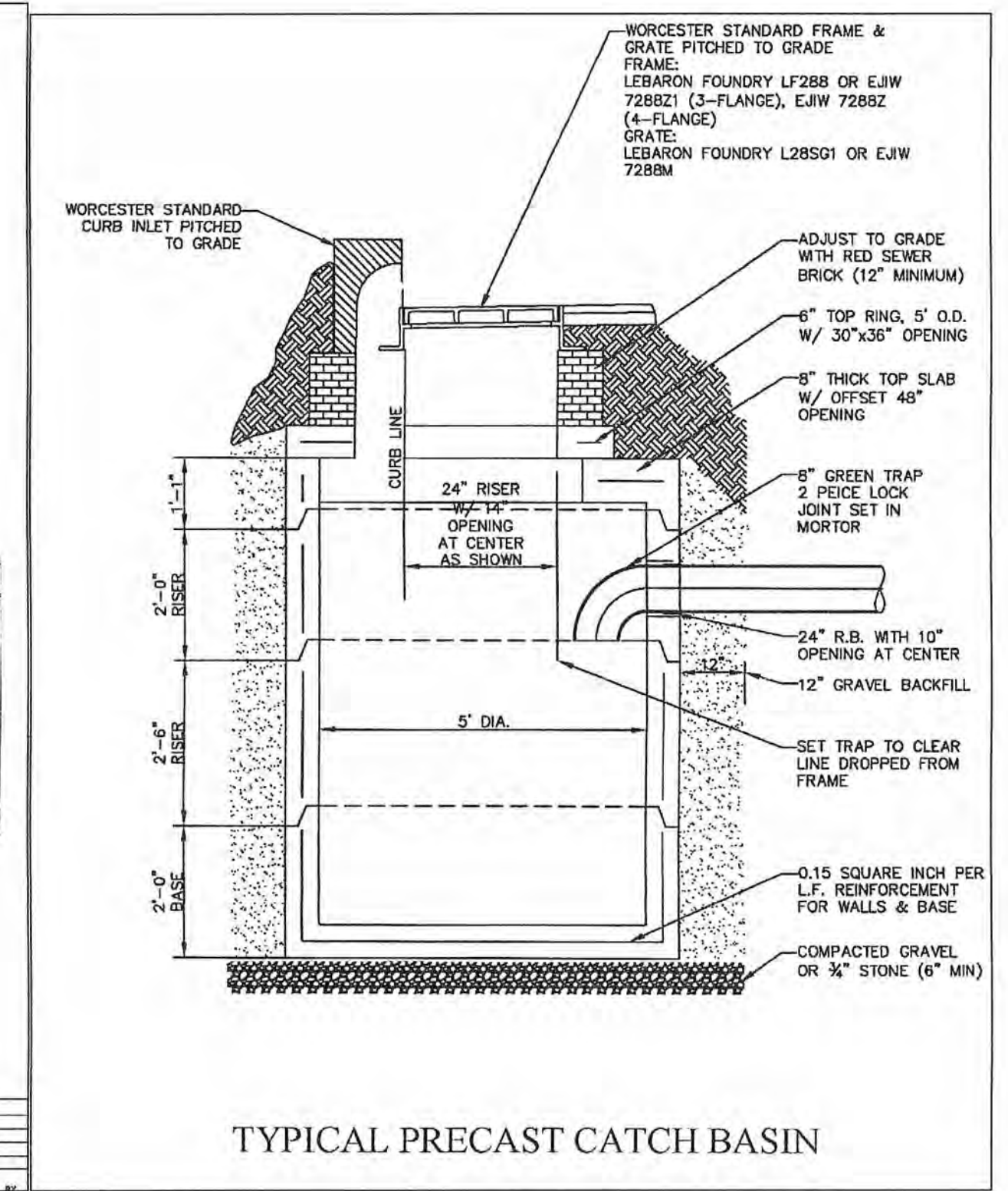
CITY OF WORCESTER TYPICAL MANHOLE FRAME AND COVER DETAIL  
NO SCALE



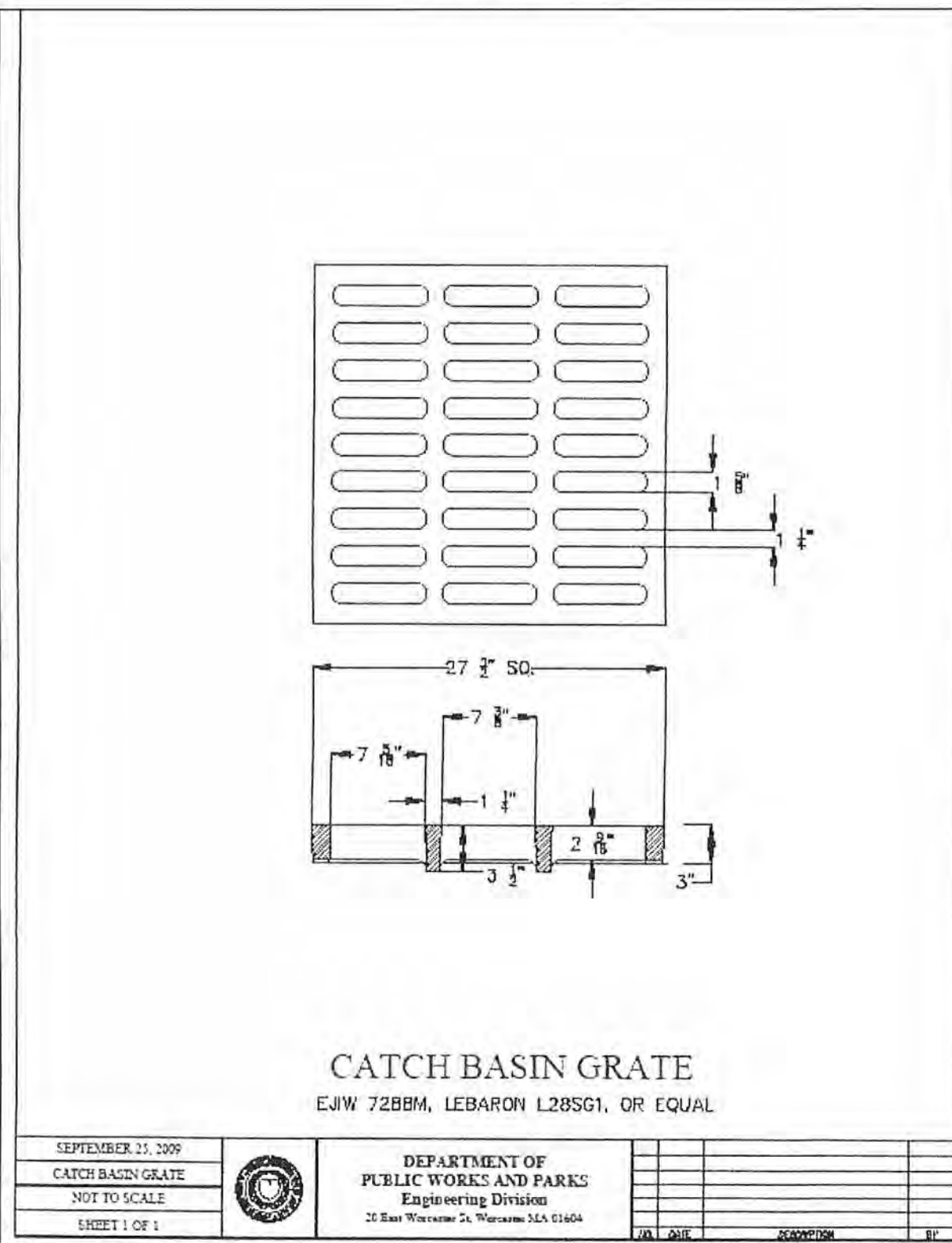
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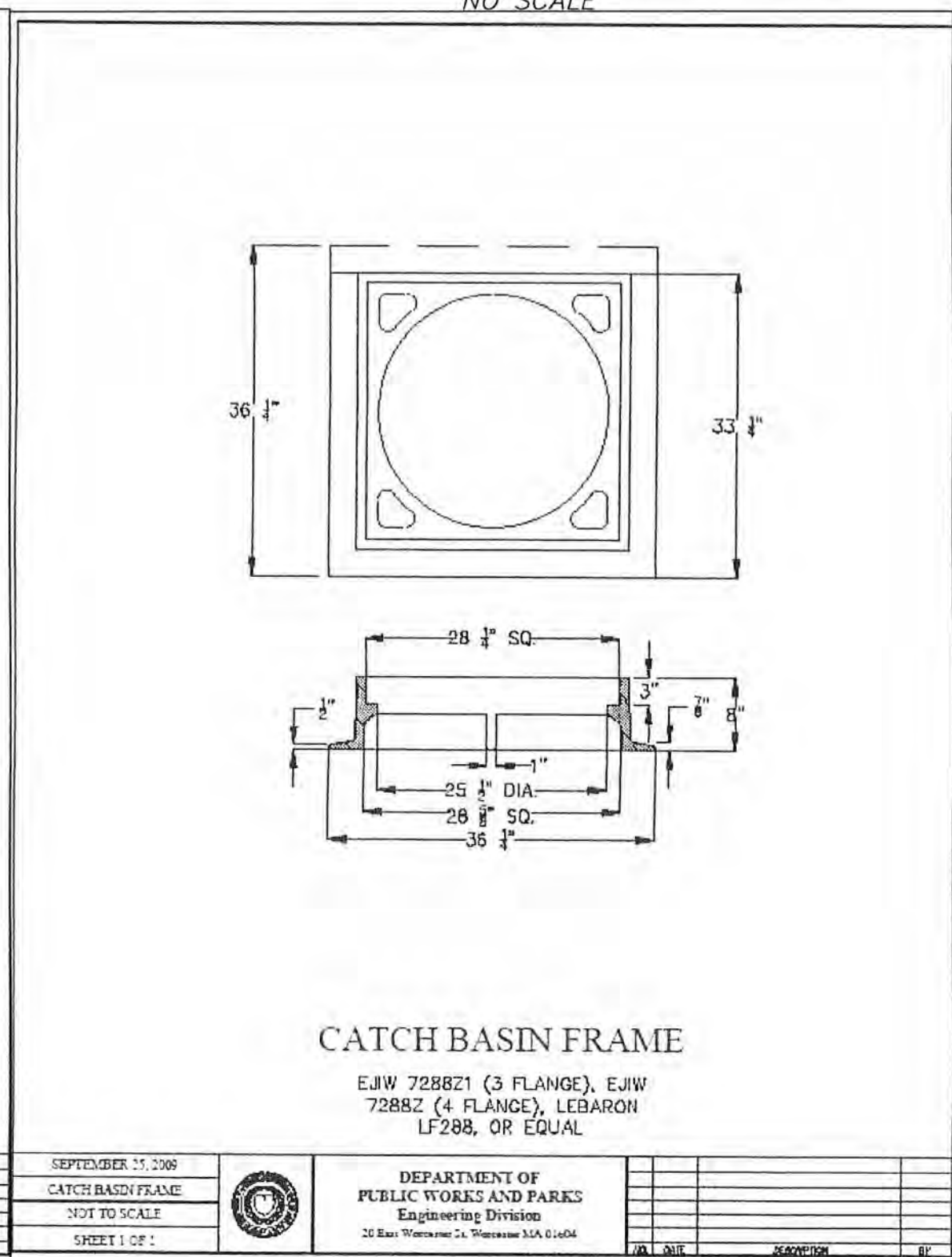
CITY OF WORCESTER TYPICAL CATCH BASIN INLET STONE DETAIL  
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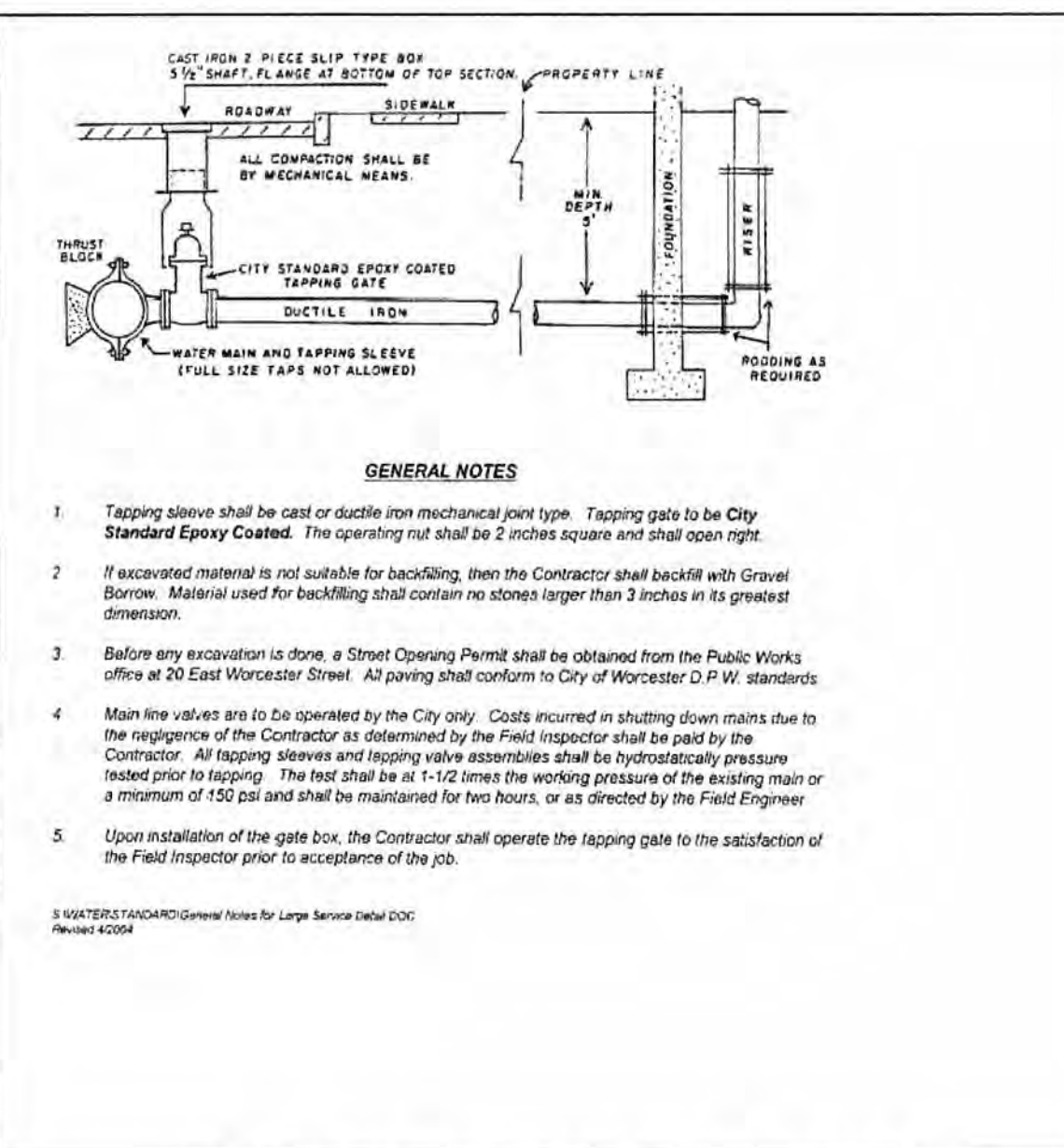
CITY OF WORCESTER TYPICAL PRECAST CATCHBASIN DETAIL  
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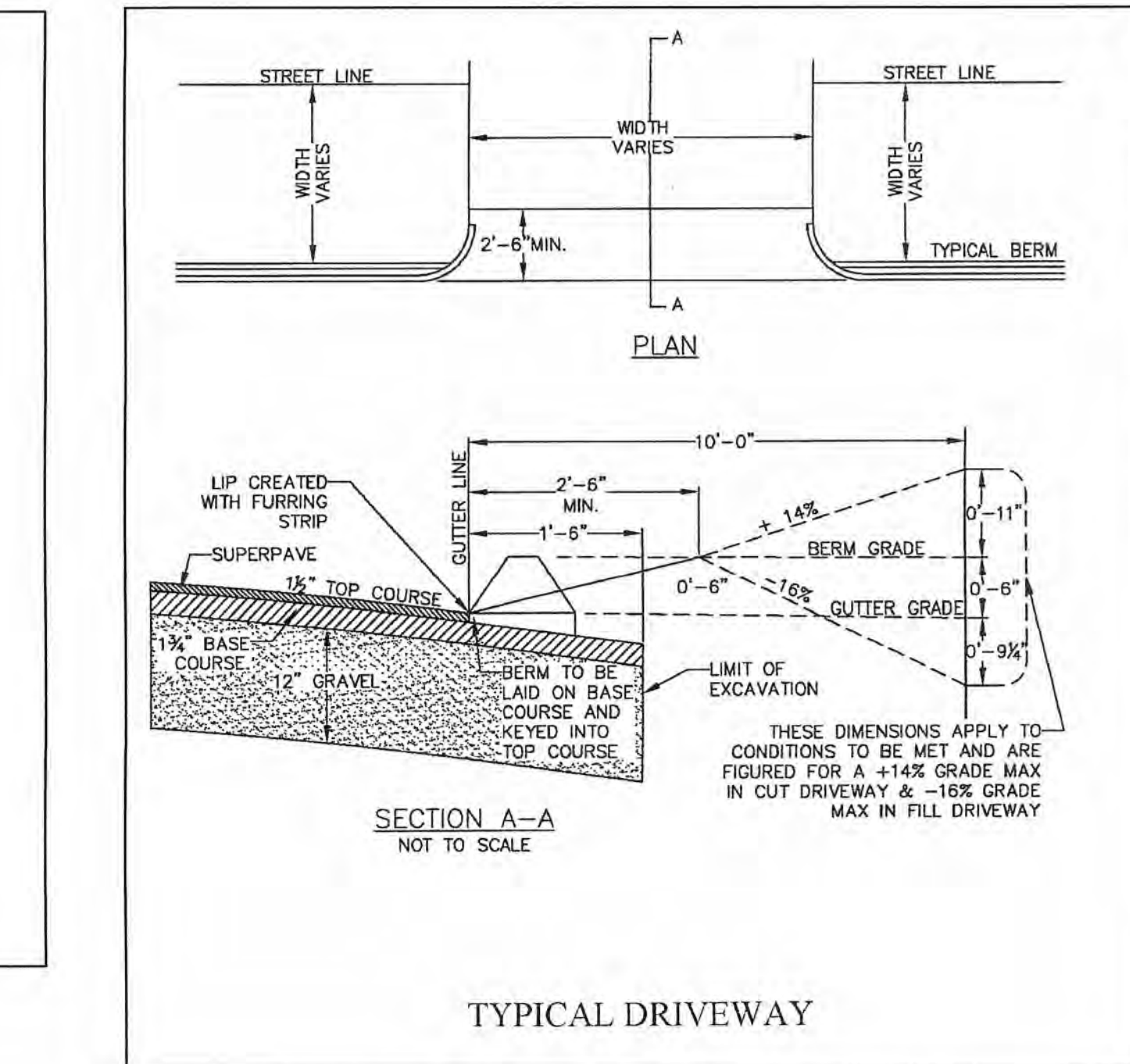
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CITY OF WORCESTER TYPICAL CATCHBASIN FRAME DETAIL  
NO SCALE

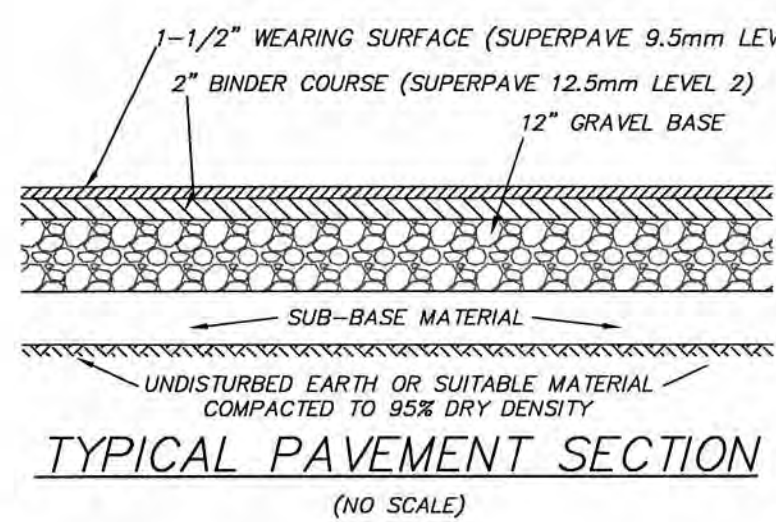


CITY OF WORCESTER TYPICAL WATER SERVICE DETAIL

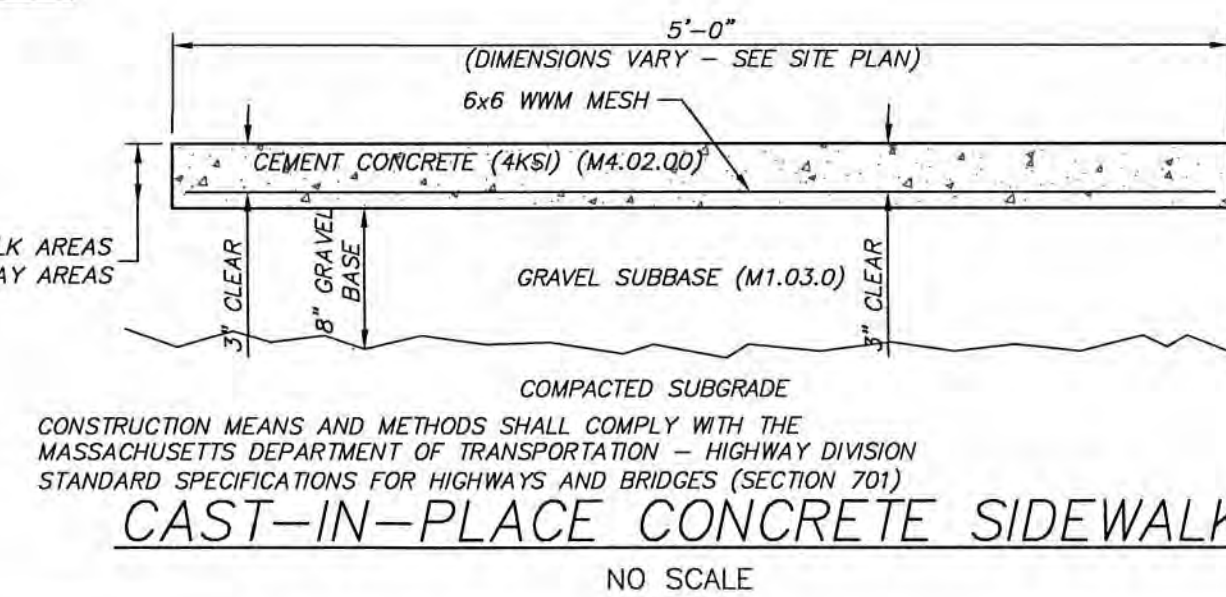


CITY OF WORCESTER TYPICAL DRIVEWAY DETAIL

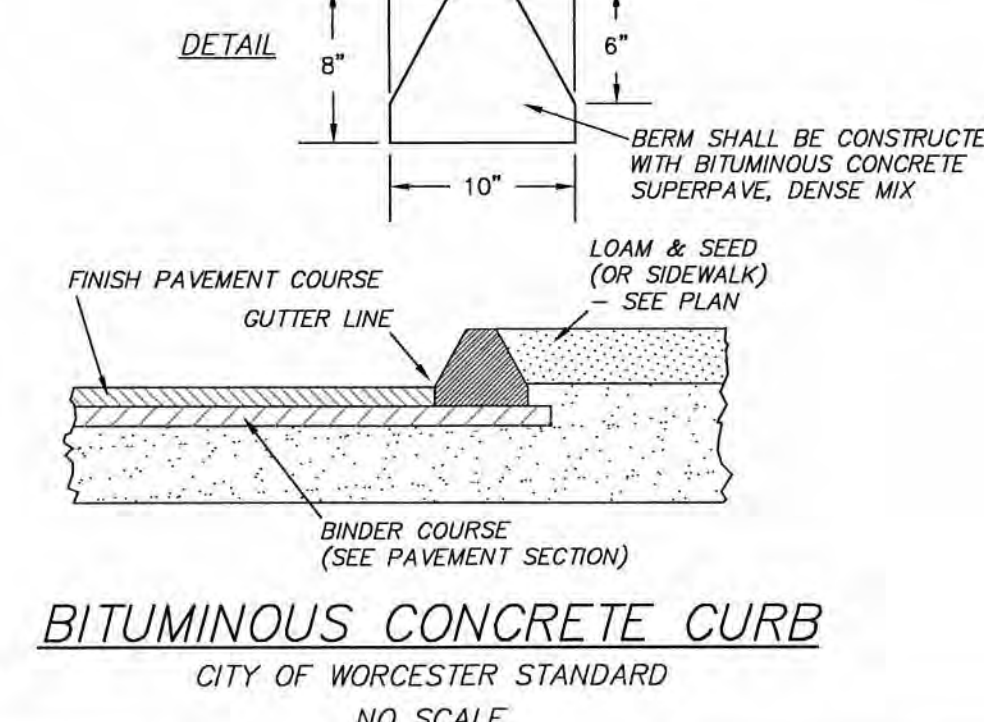
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TYPICAL PAVEMENT SECTION  
NO SCALE



CAST-IN-PLACE CONCRETE SIDEWALK  
NO SCALE



BITUMINOUS CONCRETE CURB  
NO SCALE

DEFINITIVE PLAN

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