

# PROPOSED SITE PLAN DOCUMENTS

FOR



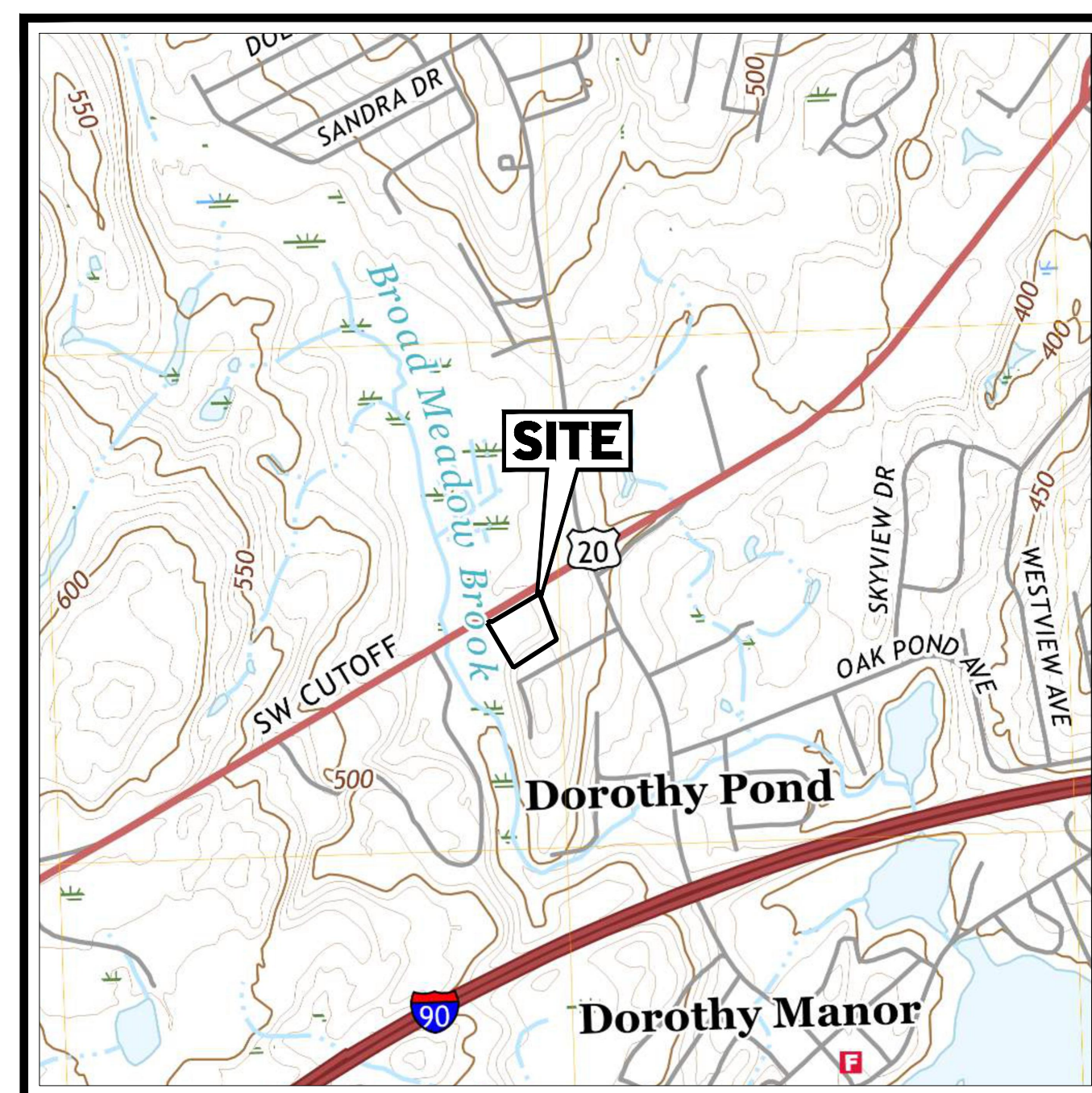
## PROPOSED SITE IMPROVEMENTS

LOCATION OF SITE  
315-317 SOUTHWEST CUTOFF, CITY OF WORCESTER  
WORCESTER COUNTY, MASSACHUSETTS  
MAP 45, BLOCK 34, LOT 13

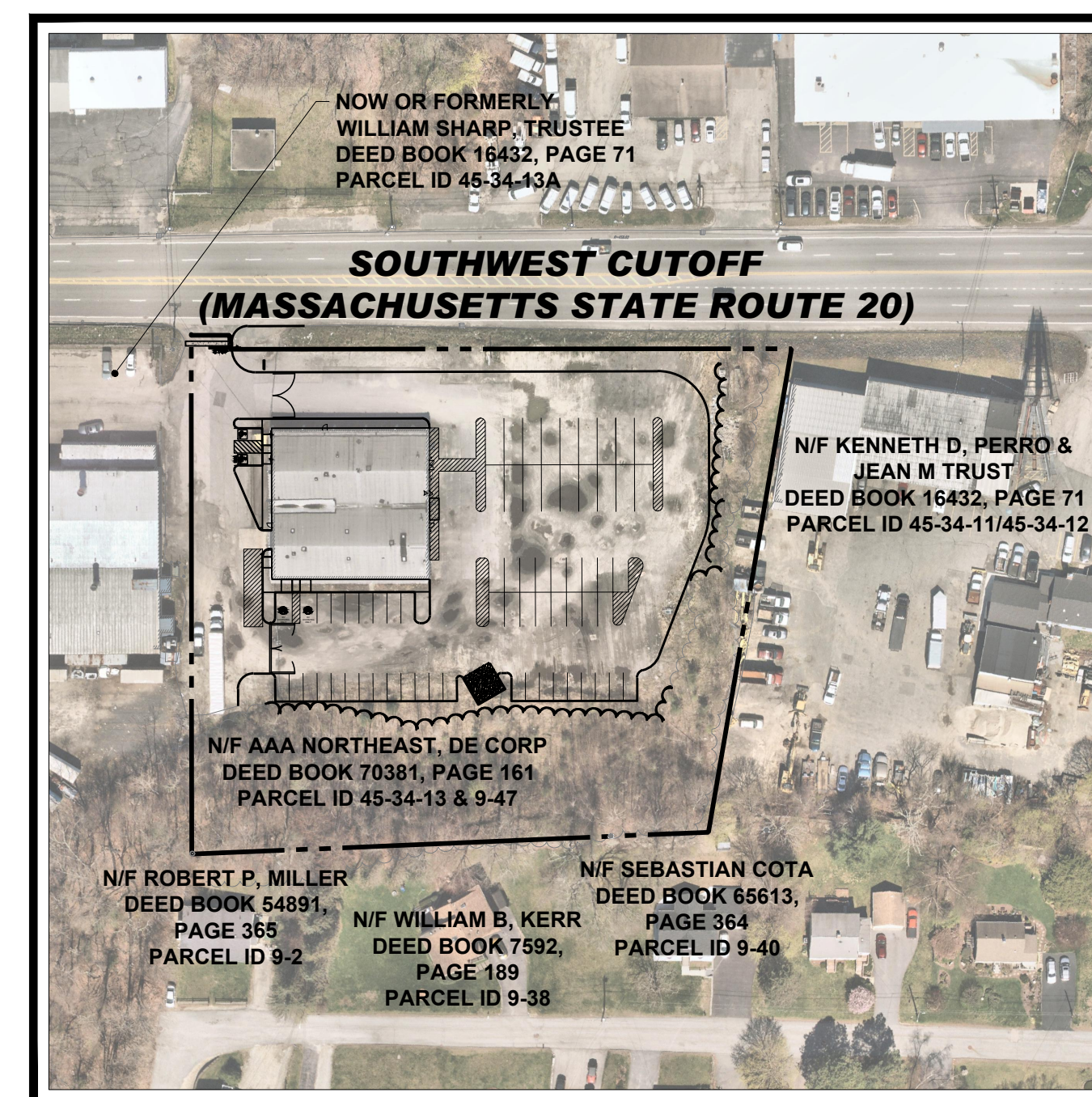
### REFERENCES AND CONTACTS

REFERENCES
<ul style="list-style-type: none"> <li>EXISTING CONDITIONS PLAN OF LAND: FELDMAN GEOSPATIAL 27 MECHANIC STREET WORCESTER MA, 01608 DATED: 07/01/2024 SURVEY JOB # 2400627-EX ELEVATIONS: NAVD 1988</li> <li>ARCHITECTURAL PLAN: VISION 3 ARCHITECTS 225 CHAPMAN STREET PROVIDENCE, RI 02905 DATED: 07/19/2024</li> </ul>

THE ABOVE REFERENCED DOCUMENTS ARE INCORPORATED BY REFERENCE AS PART OF THESE PLANS. HOWEVER, BOHLER ENGINEERING DOES NOT CERTIFY THE ACCURACY OF THE WORK REFERENCED OR DERIVED FROM THESE DOCUMENTS, BY OTHERS.



**USGS MAP**  
SCALE: 1" = 1,000'  
SOURCE: WORCESTER SOUTH, MA USGS QUADRANGLE, 2021



**AERIAL MAP**  
SCALE: 1" = 100'  
SOURCE: NEARMAP AERIAL IMAGERY

SHEET INDEX	
SHEET TITLE	SHEET NUMBER
COVER SHEET	C-101
GENERAL NOTES AND LEGEND	C-102
EXISTING CONDITIONS/DEMOLITION PLAN	C-201
SITE PLAN	C-301
GRADING PLAN	C-401
DRAINAGE PLAN	C-402
EROSION AND SEDIMENT CONTROL PLAN	C-801
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	C-802
CONSTRUCTION DETAILS	C-901
CONSTRUCTION DETAILS	C-902
CONSTRUCTION DETAILS	C-903
LANDSCAPE PLAN	L-101
LANDSCAPE NOTES AND DETAILS	L-102
LIGHTING PLAN	L-201
LIGHTING NOTES AND DETAILS	L-202
EXISTING CONDITIONS PLAN OF LAND	1 OF 1

PREPARED BY



### REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY



Know what's below.  
Call before you dig.  
ALWAYS CALL 811  
It's fast. It's free. It's the law.

### PERMIT SET

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MAA230363-00-08  
DRAWN BY: SBB  
CHECKED BY: CPB/LMD  
DATE: 10/02/2024  
CAD ID.: P-CIVL-CNDS

### PROJECT:

### SITE DEVELOPMENT PLANS FOR



### PROPOSED SITE IMPROVEMENTS

MAP: 45 | BLK: 34 | LOT: 13  
315-317 SOUTHWEST CUTOFF  
WORCESTER COUNTY  
WORCESTER, MASSACHUSETTS



352 TURNPIKE ROAD, 3rd FLOOR  
SOUTHBOROUGH, MA 01772  
Phone: (508) 480-9900

www.BohlerEngineering.com



SHEET TITLE:

**COVER SHEET**

SHEET NUMBER:

**C-101**

ORG. DATE - 10/02/2024

GENERAL NOTE:  
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT. WORK SHOULD BE STOPPED IMMEDIATELY IF THE CONTRACTOR FINDS A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL, STATE AND FEDERAL CODES.







1. THE CONTRACTOR MUST LOCATE AND CLEARLY DEFINE VERTICALLY AND HORIZONTALLY ALL ACTIVE AND INACTIVE UTILITY AND/OR SERVICE SYSTEMS THAT ARE TO BE REMOVED. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN ALL ACTIVE SYSTEMS THAT ARE NOT BEING REMOVED/RELOCATED DURING SITE ACTIVITY.
2. CONTRACTOR SHALL FIELD LOCATE EXISTING UTILITIES PRIOR TO CONSTRUCTION AND IF REQUIRED, DIG EXPLORATORY TEST PITS TO CONFIRM EXACT LOCATION AND DEPTH OF UTILITIES. CONTRACTOR SHALL NOTIFY DESIGN ENGINEER WITH ANY CONFLICTS AS NEEDED TO COORDINATE FINAL LOCATION OF ALL PROPOSED IMPROVEMENTS.
3. CONTRACTOR SHALL INSPECT ALL EXISTING UTILITY STRUCTURES THAT ARE TO REMAIN FOR THE PROJECTS REUSE TO VERIFY SUITABILITY FOR SAME. IF STRUCTURES CAN NOT BE REUSED THEN THE CONTRACTOR SHALL PROVIDE A NEW STRUCTURE. THE CONTRACTOR SHALL COORDINATE SUCH WORK WITH THE APPLICABLE UTILITY PROVIDER.
4. CONTRACTOR TO REMOVE ANY BUILDING FOUNDATION REMAINS OR ASSOCIATED IMPROVEMENTS, DELETERIOUS MATERIALS, AND/OR DEBRIS THAT IMPEDE THE WORK SHOWN ON THESE PLANS.
5. THE CONTRACTOR SHALL REVIEW THE PLANS VERSUS THE LOCATION OF EXISTING STRUCTURES, UTILITIES AND APPURTENANCES IN THE FIELD TO CONFIRM ACCURACY OF SAME AND VERIFY ITEMS TO BE REMOVED. THE CONTRACTOR SHALL CARRY COSTS FOR REMOVAL OF ANY EXISTING STRUCTURES, APPURTENANCES, AND UNDERGROUND UTILITIES, INCLUDING BUT NOT LIMITED TO DRAIN, WATER, SEWER, STEAM, IRRIGATION, GAS, TELECOM AND ELECTRIC.
6. THE CONTRACTOR SHALL MAINTAIN, ADJUST OR ABANDON EXISTING MONITORING WELLS IN ACCORDANCE WITH THE DIRECTION OF THE ENVIRONMENTAL CONSULTANT (TYP.).
7. WHERE THE LIMIT OF WORK COINCIDES WITH PROPERTY LINE, TREE LINE, PROPOSED SAWCUT OR COMBINATION THEREOF IS SHOWN ADJACENT TO THESE FEATURES FOR GRAPHICAL CLARITY.
8. EXISTING TREES TO REMAIN ARE TO BE PROTECTED DURING CONSTRUCTION UNLESS CLEARLY INDICATED OTHERWISE. REASONABLE CARE AND CAUTION SHALL BE TAKEN DURING CONSTRUCTION TO PREVENT DAMAGE AND SELECTIVE PRUNING MAY BE REQUIRED TO ENSURE THAT TREES DO NOT CONFLICT WITH THE DEVELOPMENT.
9. CONTRACTOR SHALL REPAIR/REPLACE ANY TRAFFIC LOOP DETECTORS THAT ARE DAMAGED DURING CONSTRUCTION WITHIN EXISTING OR PROPOSED RIGHTS OF WAYS. ANY SUCH WORK SHALL BE PERFORMED BY A LICENSED / DOT APPROVED SIGNAL CONTRACTOR. ANY DAMAGED LOOPS OR OTHER SIGNAL EQUIPMENT SHALL BE REPAIRED IMMEDIATELY AFTER THE WORK IS COMPLETE. THE SIGNAL CONTRACTOR SHALL BE AVAILABLE TO MAKE ANY TEMPORARY SIGNAL CHANGES IF REQUESTED BY DOT AND/OR THE MUNICIPALITY.
10. THE CONTRACTOR MUST FIELD VERIFY THE LOCATIONS WHERE PROPOSED UTILITIES CROSS EXISTING UNDERGROUND UTILITIES BY USING A TEST PIT TO DETERMINE THE EXACT SIZE, DEPTH AND LOCATION, PRIOR TO COMMENCEMENT OF CONSTRUCTION.
11. THE CONTRACTOR SHALL LOCATE ANY EXISTING UTILITY SERVICES THAT ARE TO BE TERMINATED AT THE EXISTING MAIN AND/OR PROPERTY LINE. THESE SERVICES ARE TO BE TERMINATED IN ACCORDANCE WITH MUNICIPAL / STATE TRANSPORTATION DEPARTMENT REQUIREMENTS.

### SOUTHWEST CUTOFF

(PUBLIC RIGHT-OF-WAY - 80' WIDTH)  
(LAYOUT NO. 7223-2 ROUTE 20)

NOW OR FORMERLY  
AAA NORTHEAST, DE CORP  
DEED BOOK 70381, PAGE 161  
PARCEL ID 45-34-13 & 9-47  
LOT AREA=  
114,450 SQ. FT.  
2.63 ACRES

Now or Formerly  
KENNETH D. PERRO &  
JEAN M TRUST  
DEED BOOK 16432, PAGE 71  
PARCEL ID 45-34-11/45-34-12

#### DEMOLITION ABBREVIATIONS

ABBREVIATION	DESCRIPTION
(TBA)	TO BE ABANDONED
(TBR)	TO BE REMOVED
(TBV)	TO BE VACATED
(RELO)	TO BE RELOCATED

#### REVISIONS

REV	DATE	COMMENT	DRAWN BY

**811**  
Know what's below.  
Call before you dig.  
ALWAYS CALL 811  
It's fast. It's free. It's the law.

#### PERMIT SET

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MAA230363-00-0B  
 DRAWN BY: SBB  
 CHECKED BY: CPB/LMD  
 DATE: 10/02/2024  
 CAD ID: P-CIVIL-PROP

#### SITE DEVELOPMENT PLANS FOR



#### PROPOSED SITE IMPROVEMENTS

MAP: 45 | BLK: 34 | LOT: 13  
 315-317 SOUTHWEST CUTOFF  
 WORCESTER COUNTY  
 WORCESTER, MASSACHUSETTS

### BOHLER

352 TURNPIKE ROAD, 3rd FLOOR  
 SOUTHBOROUGH, MA 01772  
 Phone: (508) 480-9900  
[www.BohlerEngineering.com](http://www.BohlerEngineering.com)



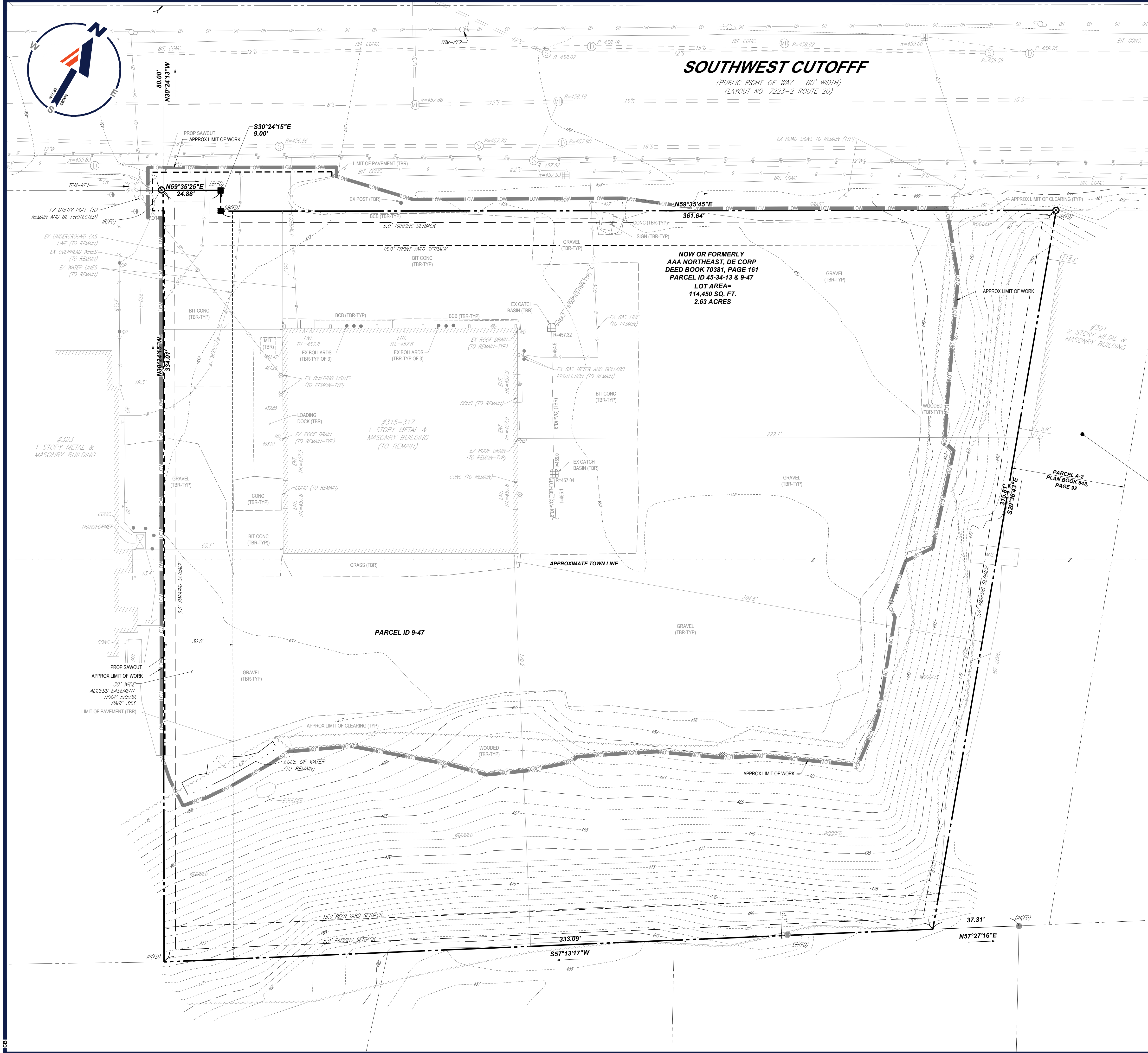
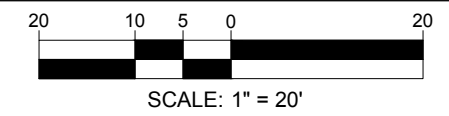
#### SHEET TITLE: EXISTING CONDITIONS/ DEMOLITION PLAN

SHEET NUMBER: **C-201**

ORG. DATE - 10/02/2024

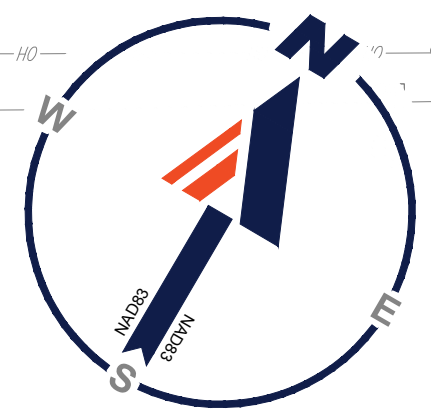
**CONTRACTOR TO VERIFY LOCATIONS OF ALL EXISTING UTILITIES ON SITE AND NOTIFY ENGINEER OF RECORD OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO CONSTRUCTION**

**THIS PLAN TO BE UTILIZED FOR DEMOLITION PURPOSES ONLY**



I:\BOHLER\NET\SHARED\MAA230363-00-0B\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\CIVIL PROP\MAA230363-00-0B-LAYOUT C-201 EXDM





# SOUTHWEST CUTOFF

(PUBLIC RIGHT-OF-WAY - 80' WIDTH)  
(LAYOUT NO. 7223-2 ROUTE 20)

### ZONING TABLE

ZONE: M.G. - 2.0 GENERAL  
USE: OFFICE SPACE AND VEHICLE STORAGE  
MAP: 45 BLOCK: 34 LOT: 13

### APPLICANT/ OWNER INFORMATION

PROPERTY OWNER: AAA NORTHEAST, DE CORP  
110 ROYAL LITTLE DRIVE  
PROVIDENCE, RI 02904

### BULK REQUIREMENTS

ITEM	CODE	PERMITTED	EXISTING	PROPOSED
FRONT YARD	TABLE 4.2	15.0'	60.7'	NO CHANGE
REAR YARD	TABLE 4.2	15.0'	170.2'	NO CHANGE
MAX FAR	TABLE 4.2	2 TO 1	TBD	NO CHANGE
BUILDING COVERAGE	TABLE 4.2	N/A	8.7%	8.7%

KEY = VARIANCE REQUIRED

### PARKING REQUIREMENTS

ITEM	CODE	PERMITTED	EXISTING	PROPOSED
MIN STALL SIZE	TABLE 4.4	9.0' X 18.0'	-	9.0' X 18.0'
MIN AISLE WIDTH	TABLE 4.4	24.0'	-	24.0'
PARKING SETBACK	§IV-7	5.0'	-	14.5'
LOADING REQUIREMENTS	TABLE 4.5	1 SPACE	1 SPACE	0 SPACES
MIN LOADING SIZE	TABLE 4.5	12.0' X 50.0'	-	12.0' X 50.0'
MIN NUMBER OF STALLS	TABLE 4.4	34 SPACES	-	68 SPACES

BANK WITH DRIVE-THRU:  
REQUIRED FOR OFFICE USE = 1 SPACE PER 300 SF GROSS FLOOR AREA = 9,908 SF / 300 SF = ~ 34 SPACES

KEY = VARIANCE REQUIRED

### MASSACHUSETTS SITE NOTES

- WHEN APPLICABLE, OWNER/ OPERATOR MUST FILE THE NOI FOR NPDES PERMITS AT APPROPRIATE AND/OR REQUIRED TIME FRAMES BASED UPON THE DESIRED START OF CONSTRUCTION. LAND DISTURBING ACTIVITIES MUST NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED FROM GOVERNING AUTHORITIES (INCLUDING STORMWATER POLLUTION PREVENTION PLAN). THE CONTRACTOR MUST STRICTLY ADHERE TO THE APPROVED SWPPP PLAN DURING CONSTRUCTION OPERATIONS (IF PROVIDED).
- ALL CONCRETE MUST BE AIR ENTRAINED AND INCLUDE THE MINIMUM COMPRESSIVE STRENGTH OF JURISDICTIONAL STANDARD PSI AT 28 DAYS (OR 4,000 PSI UNLESS OTHERWISE NOTED ON THE PLANS, DETAILS AND/OR GEOTECHNICAL REPORT. IF THERE ARE ANY DISCREPANCIES BETWEEN THE PLANS, DETAILS AND GEOTECHNICAL REPORT THEN THE GEOTECHNICAL REPORT SHALL GOVERN.
- THE CONTRACTOR MUST FILE SITE SIGNAGE APPLICATION OR PERMIT UNDER SEPARATE APPLICATION UNLESS DONE SO AS PART OF JURISDICTIONAL PERMITTING PROCEDURES.
- THE CONTRACTOR MUST REPAIR OR REPLACE, AT THE CONTRACTOR'S SOLE COST AND EXPENSE, ALL SIDEWALKS, CURBS, PAVEMENT MARKINGS, AND PAVEMENT DAMAGED BY CONSTRUCTION ACTIVITIES WHETHER SPECIFIED ON THIS PLAN OR NOT. STANDARDS OF THE DEPARTMENT OF PUBLIC WORKS, ENGINEERING DEPARTMENT, HIGHWAY DIVISION, AND/OR STATE DOT HIGHWAY DEPARTMENT.
- WHERE RETAINING WALLS ARE IDENTIFIED ON THE PLANS, TOP AND BOTTOM OF WALL WIDTHS DO NOT REPRESENT THE ACTUAL WIDTH OF THE PROPOSED WALL, RATHER THEY ARE AN ASSUMPTION BASED ON WALL TYPE AND WALL HEIGHT. WALL FOOTINGS AND/OR FOUNDATIONS ARE NOT IDENTIFIED HEREIN AND ARE TO BE SET DETERMINED BY THE CONTRACTOR OR WALL DESIGNER, AND MUST BE SET BASED UPON FINAL STRUCTURAL DESIGN SHOP DRAWINGS PREPARED BY THE APPROPRIATE PROFESSIONAL LICENSED IN THE STATE WHERE THE CONSTRUCTION OCCURS. THE CONTRACTOR MUST ENSURE THAT AN APPROPRIATELY LICENSED PROFESSIONAL DESIGNER ALL WALLS SHOWN HEREON AND PRIOR TO CONSTRUCTION. REFER TO GRADING NOTES REGARDING RETAINING WALL DESIGN.
- CONTRACTOR IS CAUTIONED OF EXISTING UTILITY SERVICES TO REMAIN IN PROXIMITY TO PROPOSED BOLLARDS AND SIGNS. CONTRACTOR SHALL PROVIDE FIELD MODIFICATION LOCATIONS OF BOLLARDS AND BOLLARDS WITH SIGNAGE AS NEEDED TO AVOID CONFLICTS WITH EXISTING UTILITY SERVICES TO REMAIN.

### MASSACHUSETTS ACCESSIBILITY DESIGN GUIDELINES

- IN ADDITION TO THE ACCESSIBILITY DESIGN GUIDELINES ON SHEET C-102, THE CONTRACTOR MUST ALSO ENSURE THAT ALL ACCESSIBLE COMPONENTS AND ACCESSIBLE ROUTES ARE CONSTRUCTED IN STRICT ACCORDANCE WITH THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD REGULATIONS 821 CMR. THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER OF RECORD, IN WRITING, OF ANY DISCREPANCIES BETWEEN THE "AMERICANS WITH DISABILITIES ACT" (ADA) CODE AND STATE BUILDING CODE AS IT RELATES TO ANY ACCESSIBLE IMPROVEMENTS BEING CONSTRUCTED PRIOR TO COMMENCING THE WORK.

**BOHLER**  
SITE CIVIL AND CONSULTING ENGINEERING  
PROGRAM MANAGEMENT  
LANDSCAPE ARCHITECTURE  
SUSTAINABLE DESIGN  
PERMITTING SERVICES  
TRANSPORTATION SERVICES

### REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

**811**  
Know what's below.  
Call before you dig.  
ALWAYS CALL 811  
It's fast. It's free. It's the law.

### PERMIT SET

PROJECT No.: MAA230363-00-B  
DRAWN BY: SBB  
CHECKED BY: CPB/LMD  
DATE: 10/02/2024  
CAD ID: P-CIVL-PROP

### SITE DEVELOPMENT PLANS

FOR

PROPOSED SITE IMPROVEMENTS  
MAP: 45 | BLK: 34 | LOT: 13  
315-317 SOUTHWEST CUTOFF  
WORCESTER COUNTY  
WORCESTER, MASSACHUSETTS

**BOHLER**  
352 TURNPIKE ROAD, 3rd FLOOR  
SOUTHBOROUGH, MA 01772  
Phone: (508) 480-9900  
www.BohlerEngineering.com

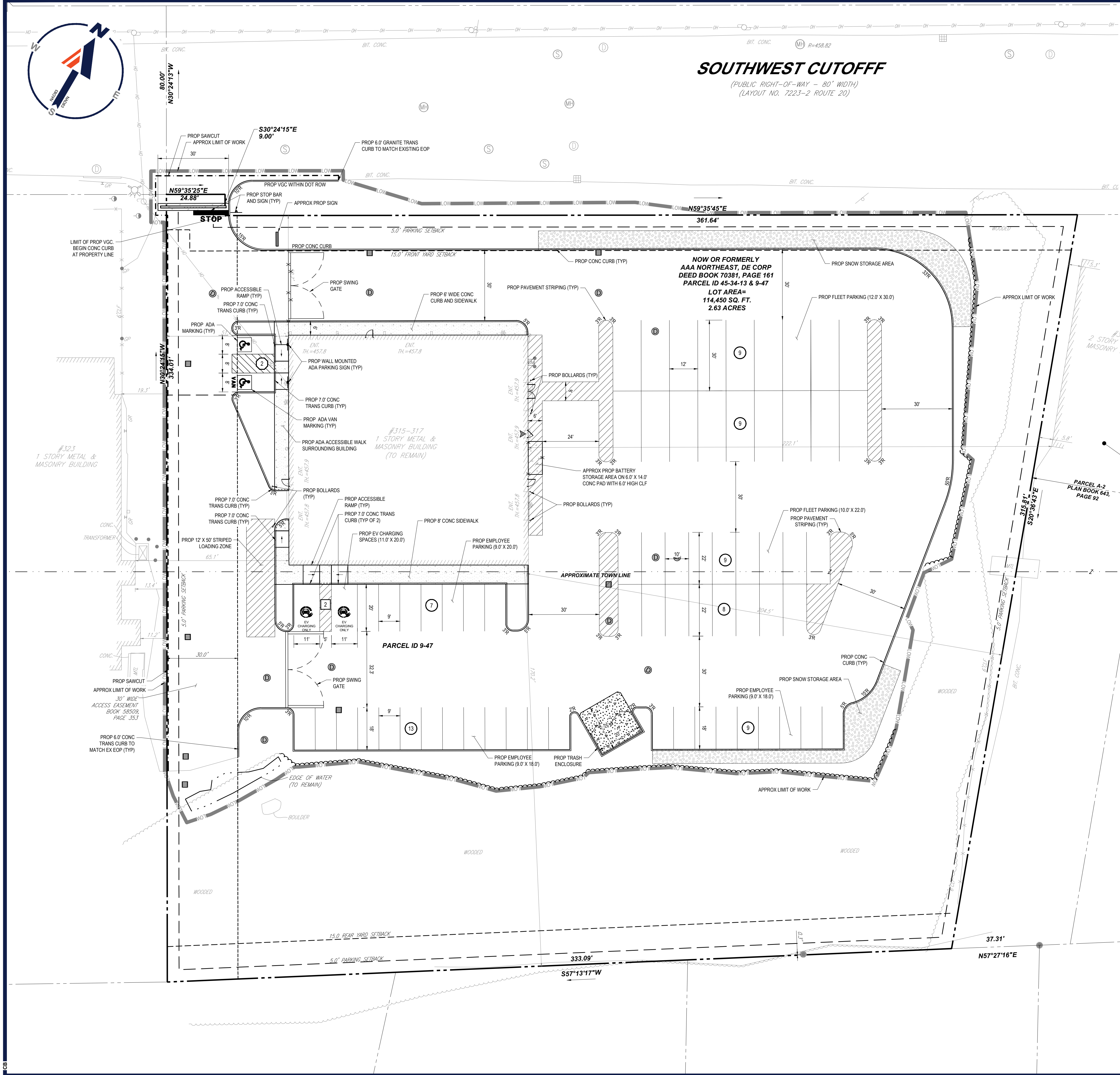
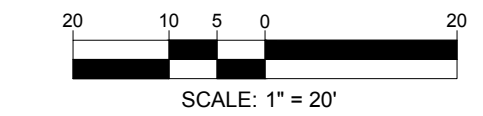


SHEET TITLE:  
**SITE PLAN**

SHEET NUMBER:  
**C-301**

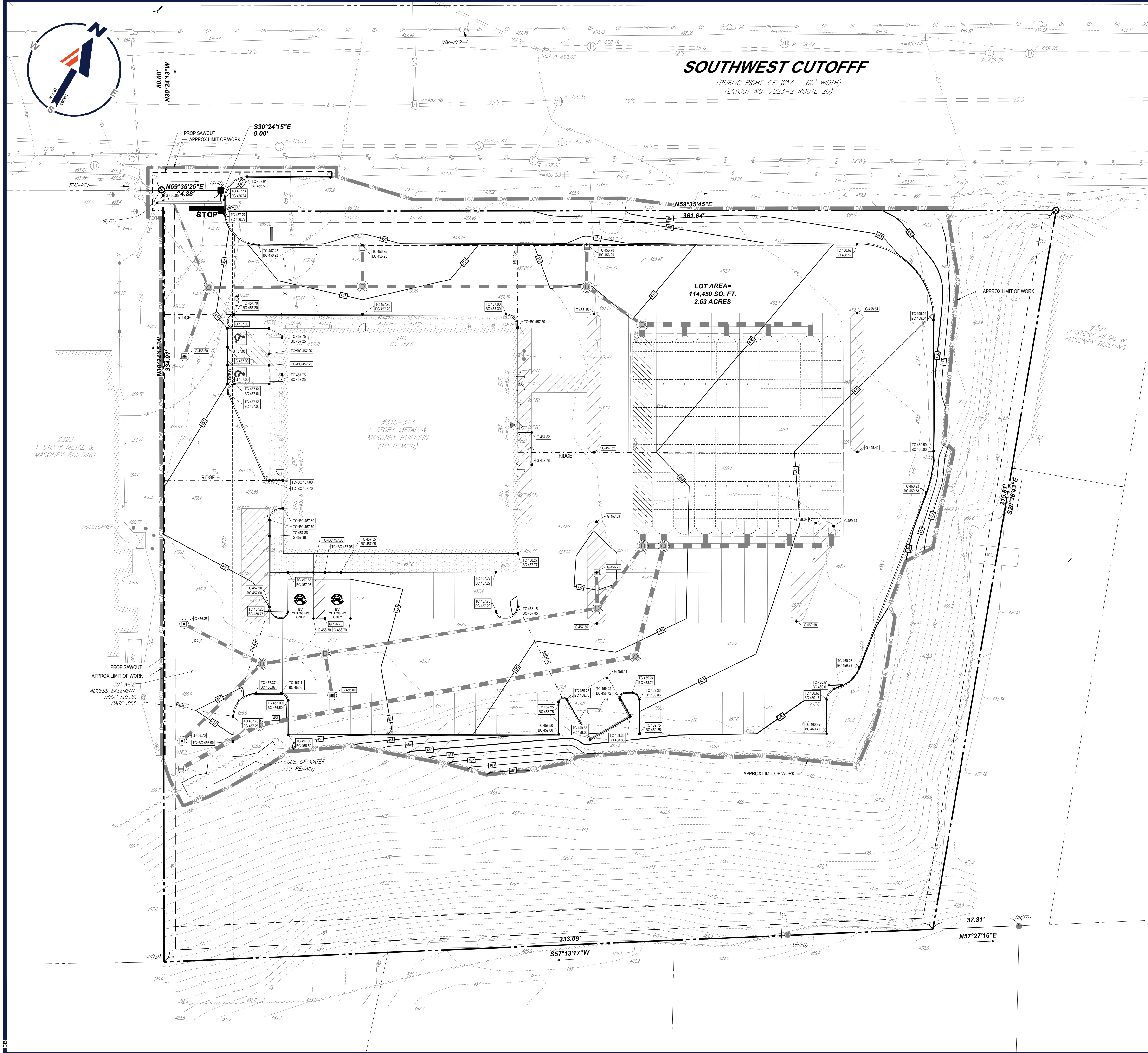
ORG. DATE - 10/02/2024

**THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY**



I:\BOHLER\NET\SHARED\MAA\PROJECTS\2023\MAA230363-00-B\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLAN\PROP-MAA230363-00-B-LAYOUT-C-301 SITE PLAN.dwg





**SOUTHWEST CUTOFF**  
(PUBLIC RIGHT-OF-WAY - 80' WIDTH)  
(LAYOUT NO. 7223-2 ROUTE 2)

**MASSACHUSETTS GRADING NOTES** (REV. 5/2024)

- PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 4" ABOVE PAVEMENT GRADE UNLESS OTHERWISE NOTED.
- THE CONTRACTOR MUST CONFIRM AND ENSURE THAT AS CONSTRUCTED IMPROVEMENTS CREATE THE FOLLOWING MINIMUM SLOPES (EXCEPT WHERE ADA REQUIREMENTS LIMIT THEM): 1.0% ON ALL CONCRETE SURFACES, 1.5% ON ASPHALT SURFACES, 1.5% IN LANDSCAPED AREAS AND 0.15% SLOPE AGAINST ALL ISLANDS, GUTTERS, AND CURBS TO PROVIDE POSITIVE DRAINAGE.
- WHERE RETAINING WALLS ARE IDENTIFIED ON THE PLANS, TOP AND BOTTOM OF WALL ELEVATIONS (G & GL) REPRESENT THE PROPOSED FINISHED GRADE AT THE FACE OF THE TOP AND THE BOTTOM OF THE WALL AND DO NOT REPRESENT THE OVERALL HEIGHT OF THE WALL TO ITS EXTENTS (I.E. ANY CAP UNITS OR COURSES BELOW GRADE, INCLUDING FOOTINGS ARE EXCLUDED). WALL FOOTINGS/FOUNDATION ELEVATIONS ARE NOT IDENTIFIED HEREIN AND ARE TO BE SET DETERMINED BY THE CONTRACTOR OR WALL DESIGNER, AND MUST BE SET BASED UPON FINAL STRUCTURAL DESIGN SHOWN PREPARED BY THE APPROPRIATE PROFESSIONAL LICENSED IN THE STATE WHERE THE CONSTRUCTION OCCURS. THE CONTRACTOR MUST ENSURE THAT THERE ARE NO UTILITIES ON THE PASSIVE SIDE OF THE RETAINING WALL. NO EXCAVATION MAY BE PERFORMED ON THE PASSIVE SIDE OF THE RETAINING WALL WITHOUT APPROPRIATELY AND SAFELY SUPPORTING THE WALL IN ACCORDANCE WITH THE STANDARD OF CARE AND ALL APPLICABLE RULES, REGULATIONS, CODES, ORDINANCES, LAWS AND STATUTES.
- USE OR GRAVITY BLOCK WALLS SHALL BE CONSTRUCTED SUCH THAT UPON COMPLETION OF CONSTRUCTION THERE IS NO UNFINISHED SURFACE OR LIFTING RINGS VISIBLE (E.G. USE OF FINISHED TOP BLOCK OR CAP STONES).
- STORMWATER RUNOFF WITHIN PROPERTY MUST BE COLLECTED ON-SITE WITH NO OVERLAND RUNOFF ONTO THE RIGHT-OF-WAY OR ADJACENT PROPERTIES TO THE MAXIMUM EXTENT POSSIBLE OR IN THE MANNER SHOWN ON THE CONSTRUCTION DRAWINGS. STORMWATER RUNOFF ONTO ADJACENT PROPERTIES SHALL BE CONTROLLED AS TO NOT ADVERSELY IMPACT SAID PROPERTIES.
- BEFORE COMMENCING GRADING WORK, CONTRACTOR SHALL SUBMIT SAMPLES OF ALL NATIVE AND IMPORTED MATERIALS WITH THEIR INTENDED FOR STRUCTURAL USES TO THE GEOTECHNICAL ENGINEER OF RECORD.
- REFER TO GENERAL NOTES SHEET FOR ADDITIONAL ADA GUIDELINES AND REQUIREMENTS.
- FOR ALL RETAINING WALLS 4 FEET OR GREATER IN HEIGHT:
  - THE OWNER OR THE OWNER'S CONTRACTOR IS TO PROVIDE A SITE-SPECIFIC RETAINING WALL DESIGN PREPARED BY THE APPROPRIATE PROFESSIONAL LICENSED (E.G. STRUCTURAL ENGINEER) IN THE STATE WHERE THE CONSTRUCTION OCCURS. SOIL TYPES, WATER TABLE ELEVATION, EXISTING & PROPOSED SURROUNDING IMPROVEMENTS/CONDITIONS (INCLUDING BUT NOT LIMITED TO SLOPES, DRIVE AISLES, ROADS, FENCING, GUIDELINES, UTILITIES, DRAINAGE FACILITIES, STRUCTURES, FOUNDATIONS), LIVE LOADS AND OTHER SITE AMENITIES THAT COULD HAVE AN INFLUENCE OR IMPACT ON THE RETAINING WALL(S) CONSTRUCTABILITY AND/OR LONGEVITY SHALL BE CONSIDERED AND INCORPORATED INTO THE RETAINING WALL DESIGN AS WELL AS THE GLOBAL STABILITY ANALYSIS.
  - PEER REVIEW AND GLOBAL STABILITY ANALYSIS OF THE RETAINING WALL DESIGN MUST BE COMPLETED BY THE OWNER'S GEOTECHNICAL ENGINEER TO CERTIFY THE DESIGN MEETS INDUSTRY STANDARDS FOR FACTOR OF SAFETY. SOIL TYPES, WATER TABLE ELEVATION AND DESIGN PROPERTIES AS NOTED ABOVE SHALL BE FIELD CONFIRMED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO WALL CONSTRUCTION.
- CONTRACTOR SHALL INSTALL CONCRETE CURBS ALONG FACE OF BUILDING WALL AS SHOWN TO PROVIDE CONSISTENT WIDTH ALONG LENGTH OF PROPOSED ACCESSIBLE RAMP AND RAMP LANDING TO MEET ADA/ABR REQUIREMENTS.
- CONTRACTOR SHALL REVIEW RETAINING WALL LOCATIONS VERSUS APPLICABLE STATE AND LOCAL CODES AND PROVIDE FALL PROTECTION (E.G. FENCING OR RAILING) IN ACCORDANCE WITH SAID CODE.
- CONTRACTOR SHALL COORDINATE WITH OWNER/OPERATOR TO REVIEW EXISTING DEPRESSIONS WITHIN EXISTING PAVEMENT AREAS TO REMAIN AND SHALL CONFIRM THAT THE SCOPE OF WORK SHALL PROVIDE POSITIVE DRAINAGE BY FIXING ANY EXISTING AREAS OF PONDING.
- BEFORE COMMENCING GRADING WORK, CONTRACTOR SHALL SUBMIT SAMPLES OF ALL NATIVE AND IMPORTED MATERIALS WITH THEIR INTENDED FOR STRUCTURAL USES TO THE GEOTECHNICAL ENGINEER OF RECORD.

**BOHLER**  
SITE CIVIL AND CONSULTING ENGINEERING  
PROGRAM MANAGEMENT  
LANDSCAPE ARCHITECTURE  
SUSTAINABLE DESIGN  
PERMITTING SERVICES  
TRANSPORTATION SERVICES

**REVISIONS**

REV	DATE	COMMENT	DRAWN BY

**811**  
Know what's below.  
Call before you dig.  
ALWAYS CALL 811  
It's fast. It's free. It's the law.

**PERMIT SET**

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MAA230363-00-0B  
DRAWN BY: SBB  
CHECKED BY: CPB/LMD  
DATE: 10/02/2024  
CAD ID.: P-CIVL-GRDR

**SITE DEVELOPMENT PLANS**  
FOR  
**AAA**  
PROPOSED SITE IMPROVEMENTS

MAP: 45 | BLK: 34 | LOT: 13  
315-317 SOUTHWEST CUTOFF  
WORCESTER COUNTY  
WORCESTER, MASSACHUSETTS

**BOHLER**  
352 TURNPIKE ROAD, 3rd FLOOR  
SOUTHBOROUGH, MA 01772  
Phone: (508) 480-9900  
www.BohlerEngineering.com



SHEET TITLE:  
**GRADING PLAN**

SHEET NUMBER:  
**C-401**

ORG. DATE - 10/02/2024

**THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY**

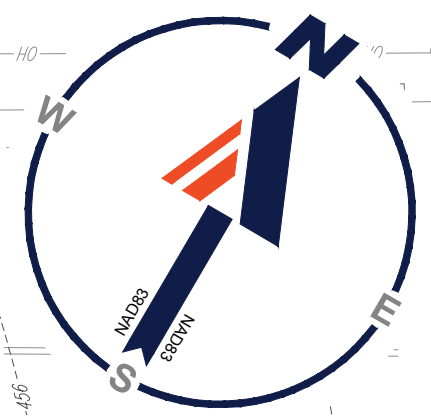
SCALE: 1" = 20'

BOHLER ENGINEERING, INC. PROJECT: 2023-MAA230363-00-0B/CAD/DRAWINGS/PLAN SETS/CIVIL SITE PLAN/SP-CIVL-GRDR/MAA230363-00-0B-LAYOUT: C-401 (GRAD)



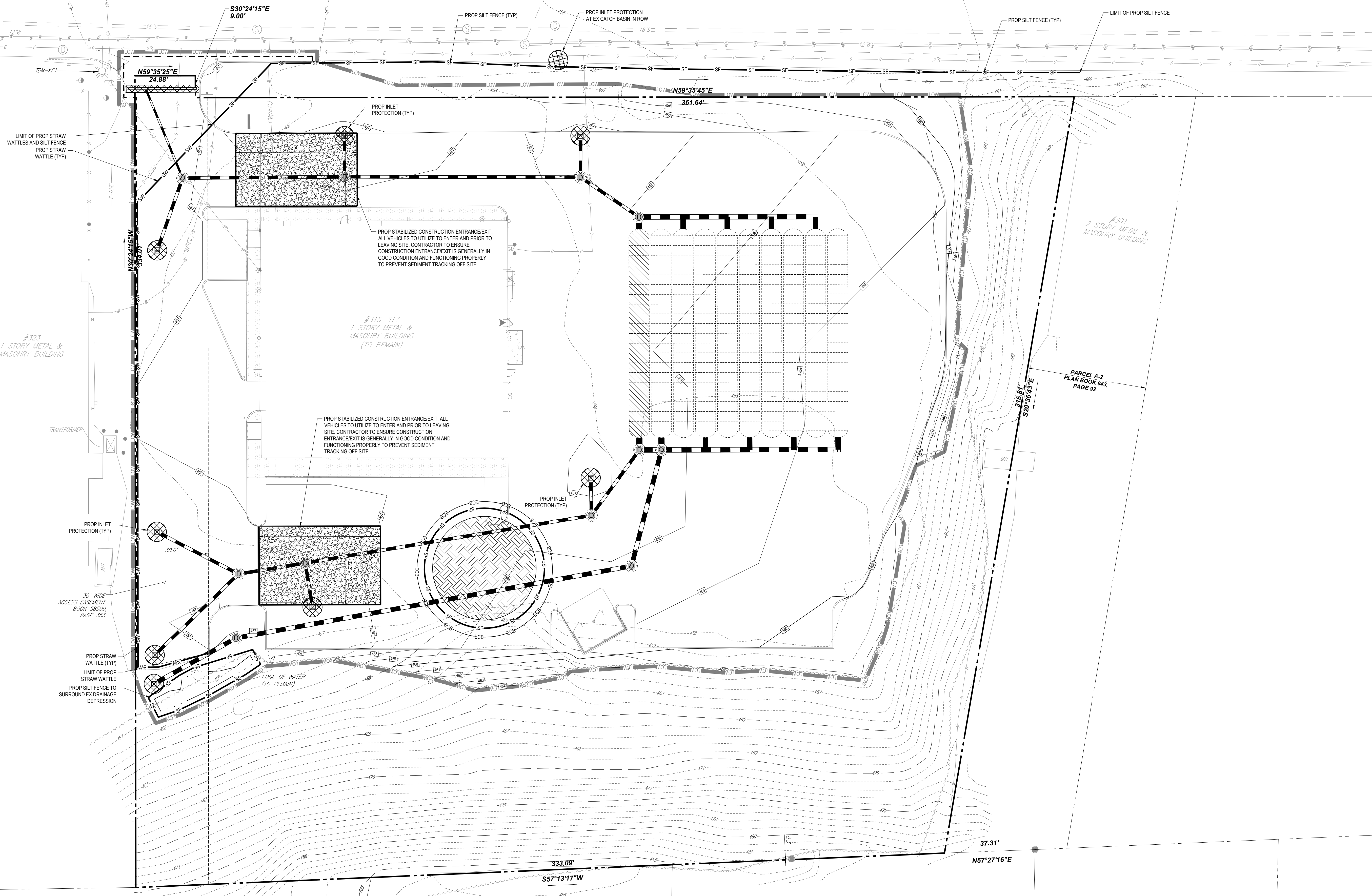






# SOUTHWEST CUTOFF

(PUBLIC RIGHT-OF-WAY - 80' WIDTH)  
(LAYOUT NO. 7223-2 ROUTE 20)



**BOHLER**  
SITE CIVIL AND CONSULTING ENGINEERING  
PROGRAM MANAGEMENT  
LANDSCAPE ARCHITECTURE  
SUSTAINABLE DESIGN  
PERMITTING SERVICES  
TRANSPORTATION SERVICES

**REVISIONS**

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

**811**  
Know what's below.  
Call before you dig.  
ALWAYS CALL 811  
It's fast. It's free. It's the law.

### PERMIT SET

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MAA230363-00-0B  
DRAWN BY: SBB  
CHECKED BY: CPB/LMD  
DATE: 10/02/2024  
CAD ID: P-CIVIL-PROP

**SITE DEVELOPMENT PLANS**  
FOR

PROPOSED SITE IMPROVEMENTS

MAP: 45 | BLK: 34 | LOT: 13  
315-317 SOUTHWEST CUTOFF  
WORCESTER COUNTY  
WORCESTER, MASSACHUSETTS

**BOHLER**

352 TURNPIKE ROAD, 3rd FLOOR  
SOUTHBOROUGH, MA 01772  
Phone: (508) 480-9900  
[www.BohlerEngineering.com](http://www.BohlerEngineering.com)



SHEET TITLE:  
**SOIL EROSION AND SEDIMENT CONTROL PLAN**

SHEET NUMBER:  
**C-801**

ORG. DATE - 10/02/2024

**THIS PLAN TO BE UTILIZED FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY**

SCALE: 1" = 20'

I:\BOHLER\NET\SHARES\MAA\PROJECTS\2023\MAA230363\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\CIVIL PROP\MAA230363-00-0B-LAYOUT C-801.EROS



## MASSACHUSETTS EROSION AND SEDIMENT CONTROL NOTES

- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE AS SET FORTH IN THE MOST CURRENT STATE SEDIMENT AND EROSION CONTROL MANUAL.
- THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS. AT A MINIMUM, AREAS SHALL BE PERMANENTLY STABILIZED ACCORDING TO THE CURRENT EDITION OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP), OR IN THE ABSENCE OF A SWPPP, THEY SHALL BE PERMANENTLY STABILIZED WITHIN 14 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL. IF THE DISTURBANCE IS WITHIN 100 FEET OF A STREAM OR POND, THE AREA SHALL BE STABILIZED WITHIN 7 DAYS OR PRIOR TO ANY STORM EVENT (THIS WOULD INCLUDE WETLANDS).
- SEDIMENT BARRIERS (SILT FENCE, STRAW BARRIERS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 8%.
- INSTALL SILTATION BARRIER AT TOE OF SLOPE TO FILTER SILT FROM RUNOFF. SEE SILTATION BARRIER DETAILS FOR PROPER INSTALLATION. SILTATION BARRIER WILL REMAIN IN PLACE PER NOTE #5.
- ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED. FOR SEDIMENT CONTROL DEVICES THAT ARE WITHIN AREAS SUBJECT TO CONSERVATION COMMISSION JURISDICTION, THE DEVICES SHALL REMAIN IN PLACE AND BE REMOVED IN ACCORDANCE WITH THE ORDER OF CONDITIONS.
- NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO TO ONE (2:1) UNLESS OTHERWISE INDICATED ON THE PLANS. SLOPE PROTECTION FOR SLOPES GREATER THAN 2:1 SHALL BE DESIGNED BY A GEOTECHNICAL ENGINEER.
- IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST, USE TEMPORARY MULCH (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
- TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST TO PROTECT FROM SPRING RUNOFF PROBLEMS.
- DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL STANDARDS.
- REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND PREPARED FOR FINAL SEEDING AS FOLLOWS:
  - SIX INCHES, OR DEPTH SPECIFIED ON THE LANDSCAPE PLAN, OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.
  - APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER WILL BE APPLIED AT THE RATE OF 800 LB PER ACRE OR 18.4 LB PER 1,000 SF USING 10-20-20 OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SF).
  - FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEED TO A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEED TO A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUEGRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYEGRASS. SEEDING RATE IS 1.03 LBS PER 1,000 SF LAWN. QUALITY SOD MAY BE SUBSTITUTED FOR SEED WHERE SLOPES DO NOT EXCEED 2:1. SOD ON SLOPES STEEPER THAN 3:1 SHOULD BE PEGGED.
  - STRAW MULCH AT THE RATE OF 70-80 LBS PER 1,000 SF. A HYDRO-APPLICATION OF WOOD OR PAPER FIBER SHALL BE APPLIED FOLLOWING SEEDING. A SUITABLE NON-TOXIC BINDER WILL BE USED ON STRAW MULCH FOR WIND CONTROL.
- ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS 70% STABILIZED. FOR EROSION CONTROL MEASURES THAT ARE WITHIN AREAS SUBJECT TO CONSERVATION COMMISSION JURISDICTION, THE MEASURES SHALL REMAIN IN PLACE AND BE REMOVED IN ACCORDANCE WITH THE ORDER OF CONDITIONS.
- WETLANDS WILL BE PROTECTED WITH BARRIERS CONSISTING OF STRAW BALES, COMPOST TUBES, SILT FENCE OR A COMBINATION THEREOF.
- ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL HAVE AN EXPOSURE WINDOW OF NOT MORE THAN 7 DAYS.
- ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IF NOT BEING ACTIVELY WORKED.

LOCATION PROTECTED AREA	MULCH STRAW	MULCH RATE (1000 SF)
WINDY AREA	SHREDDED OR CHOPPED CORNSTALKS STRAW (ANCHORED)*	185-275 POUNDS 100 POUNDS
MODERATE TO HIGH VELOCITY AREAS OR STEEP SLOPES GREATER THAN 3:1	JUTE MESH OR EXCELISOR MAT	AS REQUIRED

\* A HYDRO-APPLICATION OF WOOD OR PAPER FIBER MAY BE APPLIED FOLLOWING SEEDING. A SUITABLE NON-TOXIC BINDER SHALL BE USED TO ADDITIONAL WIND CONTROL.

\* MULCH ANCHORING - ANCHOR MULCH WITH PEG AND TWINE (1 SQ. YD/BLOCK); MULCH NETTING (AS PER MANUFACTURER); WOOD CELLULOSE FIBER (750 LBS/ACRE); CHEMICAL TACK (AS PER MANUFACTURER'S SPECIFICATIONS); USE OF A SERRATED STRAIGHT DISK WEETING FOR SMALL AREAS AND ROAD DITCHES MAY BE PERMITTED.

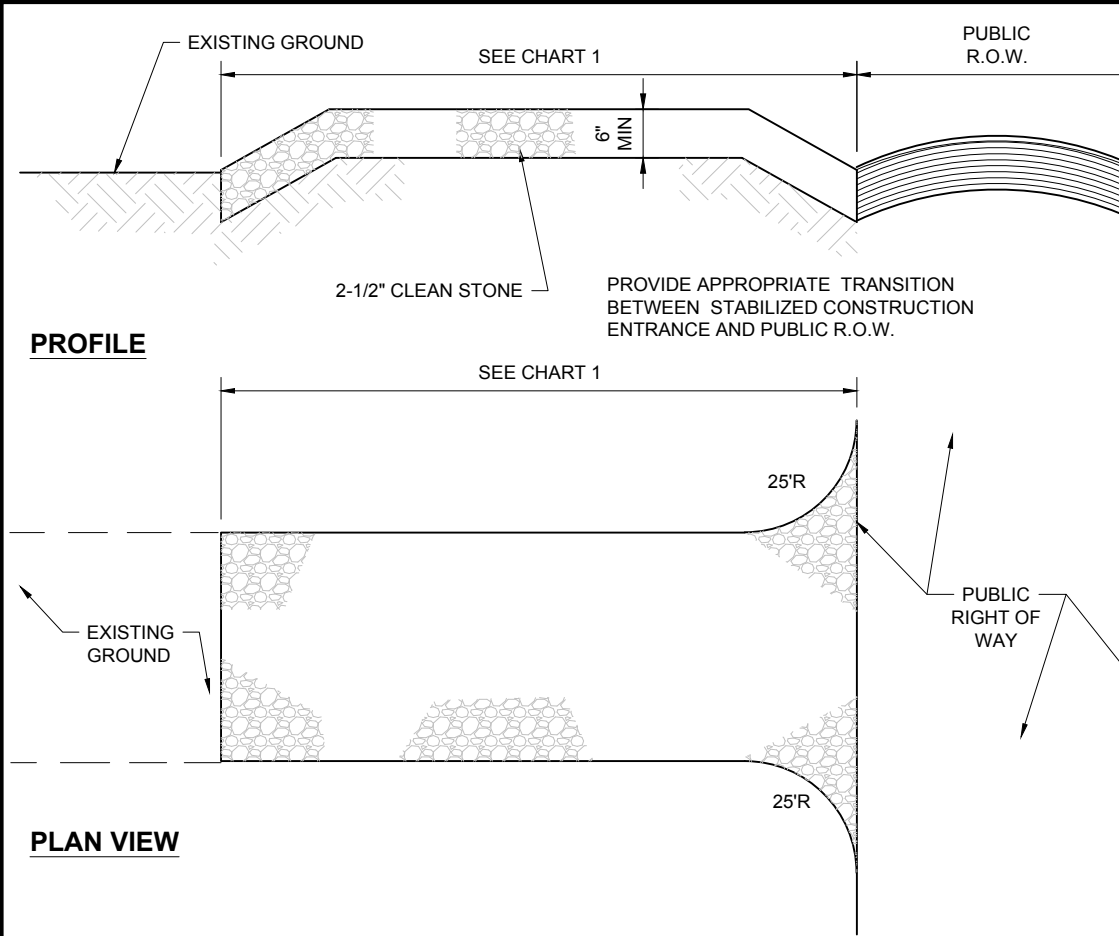
- PROPOSED LOCATIONS OF SURFACE STORMWATER MANAGEMENT BASINS CAN BE UTILIZED AS A TEMPORARY SEDIMENT TRAP DURING CONSTRUCTION. SEDIMENT TRAPS SHALL BE SIZED AND CONSTRUCTED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REQUIREMENTS.
  - TEMPORARY SEDIMENT TRAPS SHALL BE SIZED PER THE CURRENT EDITION OF THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS" AND PROVIDE A MINIMUM OF 1,800 CF PER ACRE OF TRIBUTARY AREA WITH A MAXIMUM TRIBUTARY AREA OF 5 ACRES, MAINTAIN A 2:1 LENGTH TO WIDTH RATIO, AND NOT EXCEED 5 FT IN HEIGHT. UPON SITE STABILIZATION, ACCUMULATED SEDIMENT SHALL BE REMOVED AND THE TEMPORARY SEDIMENT TRAP EXCAVATED TO 1 FOOT BELOW THE TRAP. THE AREA SHALL THEN BE SCARPED TO PREVENT COMPACTION AND PROMOTE INFILTRATION, AND GRADED AND STABILIZED IN ACCORDANCE WITH THE GRADING AND LANDSCAPE PLANS.
- STOCKPILING OF MATERIALS (DIRT, WOOD, CONSTRUCTION MATERIALS, ETC.) MUST REMAIN COVERED AT ALL TIMES TO MINIMIZE ANY DUST PROBLEMS THAT MAY OCCUR WITH ADJACENT PROPERTIES AND TO PROVIDE MAXIMUM PROTECTION AGAINST EROSION RUNOFF.
- EXISTING CATCH BASIN STRUCTURES SHALL BE PROTECTED UNTIL SUCH TIME AS THEY ARE REMOVED.
- THE CONTRACTOR MUST PERFORM DEWATERING (IF REQUIRED), IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND PAY FOR THE COSTS ASSOCIATED WITH ANY AND ALL NECESSARY DISCHARGE PERMITS ASSOCIATED WITH SAME.
- THE CONTRACTOR MUST LOCATE CONSTRUCTION WASTE MATERIAL STORAGE AREAS TO MINIMIZE EXPOSURE TO STORMWATER. THE CONTRACTOR MUST IMMEDIATELY PLACE CONSTRUCTION WASTE IN ON-SITE STORAGE CONTAINERS UNTIL THAT CONSTRUCTION WASTE IS READY FOR OFF-SITE DISPOSAL. THE CONTRACTOR MUST MAINTAIN SPILL PREVENTION AND RESPONSE EQUIPMENT AND MAKE SAME CONTINUOUSLY AVAILABLE ON-SITE FOR USE BY THE CONTRACTOR'S EMPLOYEES WHO MUST BE PROPERLY TRAINED IN THE APPLICATION OF SPILL PREVENTION AND RESPONSE PROCEDURES.
- EROSION CONTROL NOTES DURING WINTER CONSTRUCTION
  - WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15.
  - WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT THE AMOUNT OF AREA OPEN AT ONE TIME IS MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE AND IN CONFORMANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN SUCH THAT ADEQUATE PROVISIONS ARE EMPLOYED TO CONTROL STORMWATER RUNOFF.
  - CONTINUATION OF EARTHWORK OPERATION ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
  - AN AREA SHALL BE CONSIDERED TO HAVE BEEN TEMPORARILY STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR STRAW AT A RATE OF 100 LB. PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE.
- FOR AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR A PERIOD EXCEEDING 14 DAYS BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEED. IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MAY BE DORMANT SEED AT A RATE OF 200-300% HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED AS APPLICABLE. SLOPES SHALL NOT BE LEFT UNSTABILIZED OVER THE WINTER OR IN AREAS WHERE WORK HAS CEASED FOR MORE THAN 14 DAYS UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF SEDIMENT BARRIERS OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
- MULCHING REQUIREMENTS:
  - BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING OR WOOD CELLULOSE FIBER.
  - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPE EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%.
  - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1ST THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
- ALL DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE STORMWATER PREVENTION PLAN.
- DURING THE WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.

## GENERAL EROSION AND SEDIMENT CONTROL NOTES

- THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE GENERAL NOTES ARE REFERRED TO HEREIN, AND THE CONTRACTOR MUST REFER TO THEM AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY. THE CONTRACTOR MUST BE FAMILIAR WITH AND ACKNOWLEDGE FAMILIARITY WITH ALL OF THE GENERAL NOTES AND ALL OF THE PLANS' SPECIFIC NOTES.
- EROSION CONTROL MEASURES MUST CONFORM TO THE STATE, LOCAL, AND FEDERAL GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL UNLESS OTHERWISE NOTED, OR UNLESS THE PROFESSIONAL OF RECORD CLEARLY AND SPECIFICALLY, IN WRITING, DIRECTS OTHERWISE. INSTALLATION OF EROSION CONTROL, CLEARINGS, AND SITE WORK MUST BE PERFORMED EXACTLY AS INDICATED IN THE EROSION CONTROL CONSTRUCTION NOTES.
- THE DISTURBED LAND AREA OF THIS SITE IS APPROXIMATELY 1.873 ACRES.
- THE FOLLOWING EROSION CONTROL MEASURES ARE PROPOSED FOR THIS SITE:
  - STABILIZED CONSTRUCTION ENTRANCE/EXIT - A TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT IS TO BE INSTALLED AT THE DESIGNATED LOCATION SHOWN ON THE PLAN. THIS AREA MUST BE GRADED SO THAT RUNOFF WATER WILL BE RETAINED ON-SITE.
  - SEDIMENT FENCE - INSTALL SILT FENCE(S) AND/OR SILT SOCK AROUND ALL OF THE DOWNSLOPE PERIMETERS OF THE SITE, TEMPORARY FILL AND SOIL STOCKPILES.
  - INSTALL FILTER FABRIC DROP INLET PROTECTION AROUND EACH DRAINAGE INLET AS DRAINAGE STRUCTURES ARE INSTALLED TO REDUCE THE QUANTITY OF SEDIMENT. INSTALL TEMPORARY INLET PROTECTION ON INLETS DOWNSLOPE FROM DISTURBANCE, WHICH MAY BE BEYOND THE LIMITS OF DISTURBED AREA.
  - INSTALLATION OF EROSION CONTROL DEVICES MUST BE IN ACCORDANCE WITH ALL OF THE MANUFACTURER'S RECOMMENDATIONS.
- THE CONTRACTOR MUST INSPECT EROSION CONTROL MEASURES WEEKLY. THE CONTRACTOR MUST REMOVE ANY SILT DEPOSITS GREATER THAN 6 INCHES OR HALF THE EROSION CONTROL BARRIER HEIGHT COLLECTED ON THE FILTER FABRIC AND/OR SILT SOCK BARRIERS AND EXCAVATE AND REMOVE ANY SILT FROM DROP INLET PROTECTION.
- THE CONTRACTOR MUST APPLY TEMPORARY SEED AND MULCH TO ALL DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINISHED GRADE AND VEGETATED WITHIN 7 DAYS. WHEN AREAS ARE DISTURBED AFTER THE GROWING SEASON, THE CONTRACTOR MUST STABILIZE SAME WITH GEOTEXTILE FABRIC AND MAINTAIN SAME IN STRICT ACCORDANCE WITH BEST MANAGEMENT PRACTICES.
- THE CONTRACTOR MUST INSTALL ADDITIONAL EROSION CONTROL MEASURES IF THE PROFESSIONAL OF RECORD SO REQUIRES, TO PREVENT ANY, INCLUDING THE INCIDENTAL DISCHARGE OF SILT-LADEN RUNOFF FROM EXITING THE SITE.
- THE CONTRACTOR MUST BE RESPONSIBLE FOR INSPECTING AND MAINTAINING ALL EROSION CONTROL MEASURES ON THE SITE UNTIL PERMANENT PAVING AND TURF/LANDSCAPING IS ESTABLISHED. THE COSTS OF INSTALLING AND MAINTAINING THE EROSION CONTROL MEASURES MUST BE INCLUDED IN THE BID PRICE FOR THE SITE WORK AND THE CONTRACTOR IS RESPONSIBLE FOR ALL SUCH COSTS.
- THE CONTRACTOR MUST CONTINUE TO MAINTAIN ALL EROSION CONTROL MEASURES UNTIL THE COMPLETION OF CONSTRUCTION AND THE ESTABLISHMENT OF VEGETATION.
- THE CONTRACTOR MUST REMOVE EROSION CONTROL MEASURES, SILT AND DEBRIS AFTER ESTABLISHING PERMANENT VEGETATION COVER OR OTHER INSTALLING A DIFFERENT, SPECIFIED METHOD OF STABILIZATION.
- THIS PLAN REPRESENTS THE MINIMUM LEVEL OF IMPLEMENTATION OF TEMPORARY EROSION AND SEDIMENTATION CONTROL FACILITIES, MEASURES AND STRUCTURES. ADDITIONAL FACILITIES, MEASURES AND STRUCTURES MUST BE INSTALLED WHERE NECESSARY TO COMPLY WITH ALL APPLICABLE CODES AND STANDARDS AND/OR TO PREVENT ANY, INCLUDING THE INCIDENTAL DISCHARGE OF SILT-LADEN RUNOFF FROM EXITING THE SITE.
- THE CONTRACTOR MUST PROTECT ALL EXISTING TREES AND SHRUBS. THE CONTRACTOR MUST REFER TO THE LANDSCAPE AND/OR DEMOLITION PLANS) FOR TREE PROTECTION, FENCE LOCATIONS AND DETAILS.
- THE CONTRACTOR MUST REFER TO GRADING PLANS FOR ADDITIONAL INFORMATION.
- THE CONTRACTOR MUST CLEAN EXISTING AND PROPOSED DRAINAGE STRUCTURES AND INTERCONNECTING PIPES ON OR OFF-SITE AS THE JURISDICTIONAL AGENCY REQUIRES, BOTH AT THE TIME OF SITE STABILIZATION AND AT END OF PROJECT.
- SOIL EROSION CONTROL MEASURES MUST BE ADJUSTED OR RELOCATED BY THE CONTRACTOR AS IDENTIFIED DURING SITE OBSERVATION IN ORDER TO MAINTAIN THE COMPLETE EFFECTIVENESS OF ALL CONTROL MEASURES.
- THE CONTRACTOR MUST IDENTIFY, ON THE PLAN, THE LOCATION OF WASTE CONTAINERS, FUEL STORAGE TANKS, CONCRETE WASHOUT AREAS AND ANY OTHER LOCATIONS WHERE HAZARDOUS MATERIALS ARE STORED.

THE FOLLOWING CONSTRUCTION SEQUENCE IS RECOMMENDED:

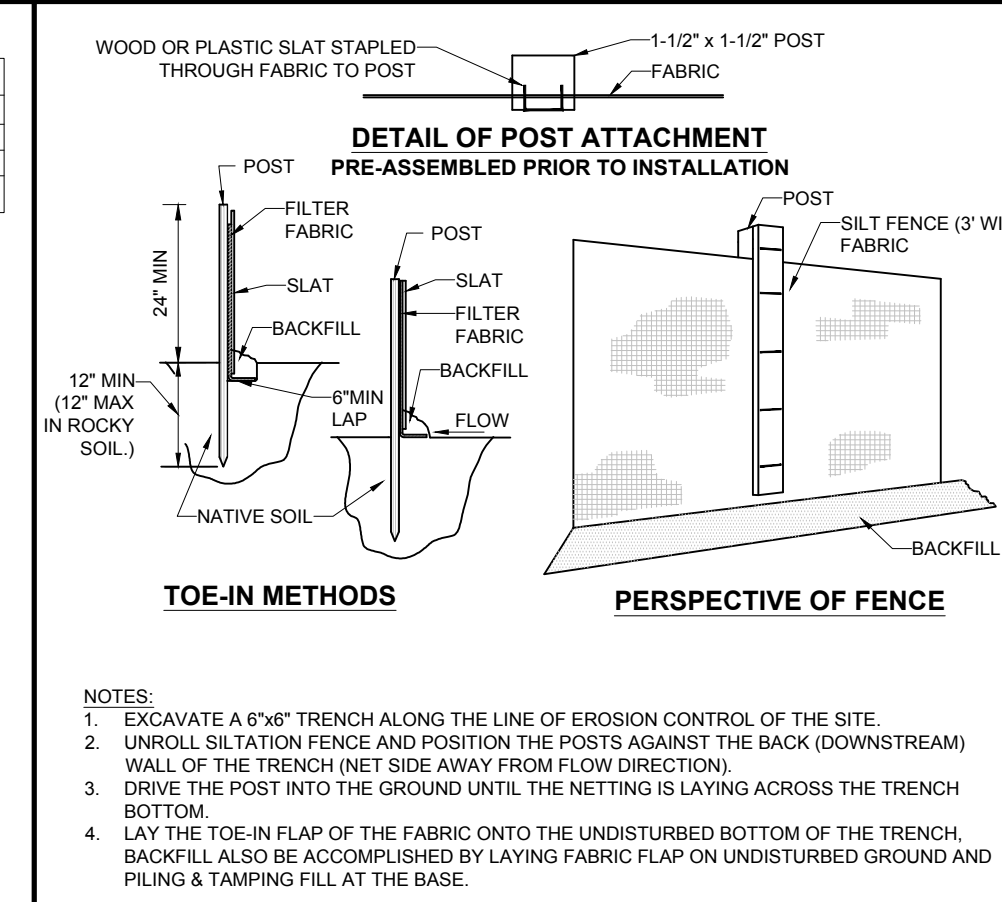
- INSTALLATION OF STABILIZED CONSTRUCTION ENTRANCE/EXIT (AS SHOWN)
- INSTALLATION OF EROSION CONTROL BARRIER (STRAW BALES AND SILT FENCE) (AS SHOWN)
- INSTALLATION OF INLET PROTECTION IN STREET (AS SHOWN)
- DEMOLITION OF EXISTING SITE STRUCTURES (SEE DEMOLITION PLAN)
- DEMOLITION OF EXISTING SITE PAVEMENT AND AMENITIES (SEE DEMOLITION PLAN)
- CLEARING AND GRUBBING
- INSTALLATION OF TEMPORARY SWALES AND SEDIMENT BASINS
- EARTHWORK AND EXCAVATION/FILLING AS NECESSARY
- CONSTRUCTION OF UTILITIES
- STABILIZE PERMANENT LAWN AREAS AND SLOPES WITH TEMPORARY SEEDING
- INSTALLATION OF INLET PROTECTION OF ON-SITE UTILITIES (AS SHOWN)
- CONSTRUCTION OF ALL CURBING AND LANDSCAPE ISLANDS AS INDICATED ON THE PLANS
- SPREAD TOPSOIL ON SLOPED AREAS AND SEED AND MULCH
- FINAL GRADING OF ALL SLOPED AREAS
- PLACE 6" TOPSOIL ON SLOPES AFTER FINAL GRADING COMPLETED. FERTILIZE, SEED, AND MULCH SEED MIXTURE TO BE INSTALLED AS REQUIRED.
- REMOVAL OF THE TEMPORARY SEDIMENT BASINS
- PAVE PARKING LOT
- LANDSCAPING PER LANDSCAPING PLAN
- REMOVE EROSION CONTROLS AS DISTURBED AREAS BECOME STABILIZED TO 70% STABILIZATION OR GREATER



PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIRED	
	COARSE GRAINED SOILS	FINE GRAINED SOILS
0 TO 2%	50 FT	100 FT
2% TO 5%	100 FT	200 FT
>5%	ENTIRE ENTRANCE STABILIZED WITH FABRIC BASE COURSE (1)	

(1) AS PRESCRIBED BY LOCAL ORDINANCE OR OTHER GOVERNING AUTHORITY.

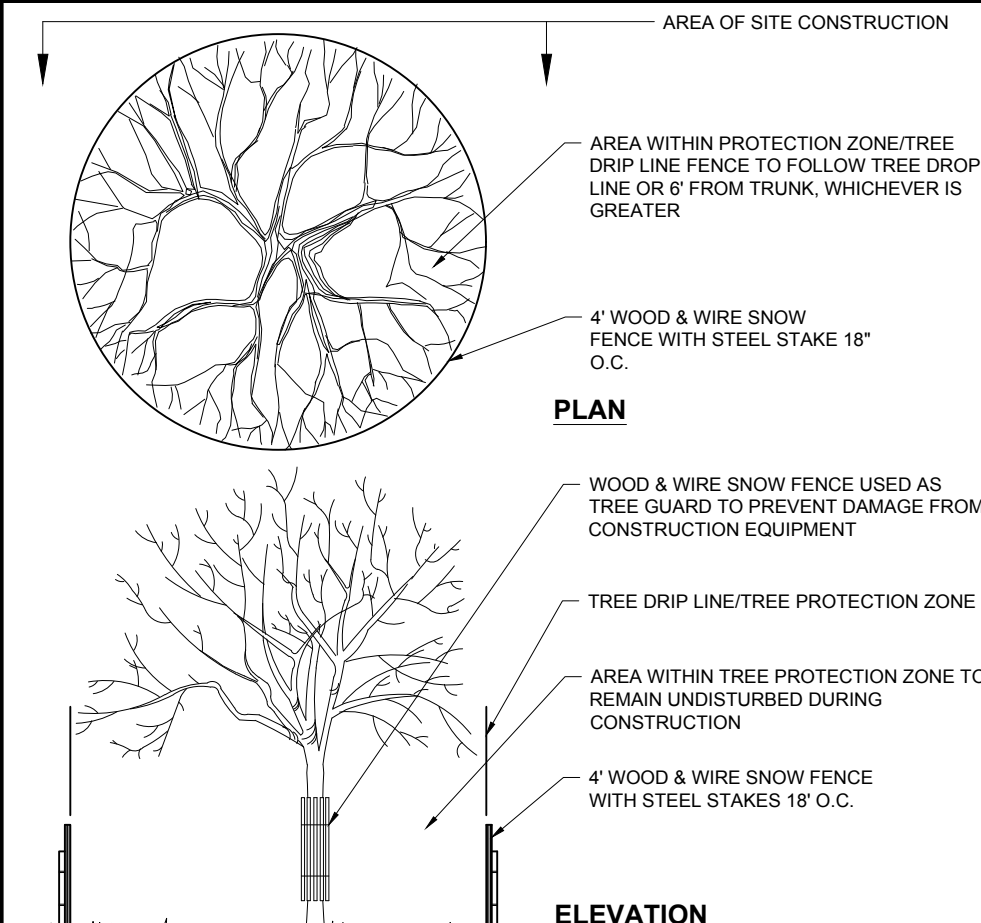
CHART 1



- EXCAVATE A 6"x6" TRENCH ALONG THE LINE OF EROSION CONTROL OF THE SITE.
- UNROLL SILTATION FENCE AND POSITION THE POSTS AGAINST THE BACK (DOWNSLOPE) WALL OF THE TRENCH (NET SIDE AWAY FROM DIRECTION OF FLOW).
- DRIVE THE POST INTO THE POSITION UNTIL THE NETTING IS LAYING ACROSS THE TRENCH BOTTOM.
- LAY THE TOE-IN FLAP OF THE FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH. BACKFILL ALSO BE ACCOMPLISHED BY LAYING FABRIC FLAP ON UNDISTURBED GROUND AND PILING & TAMPING FILL AT THE BASE.

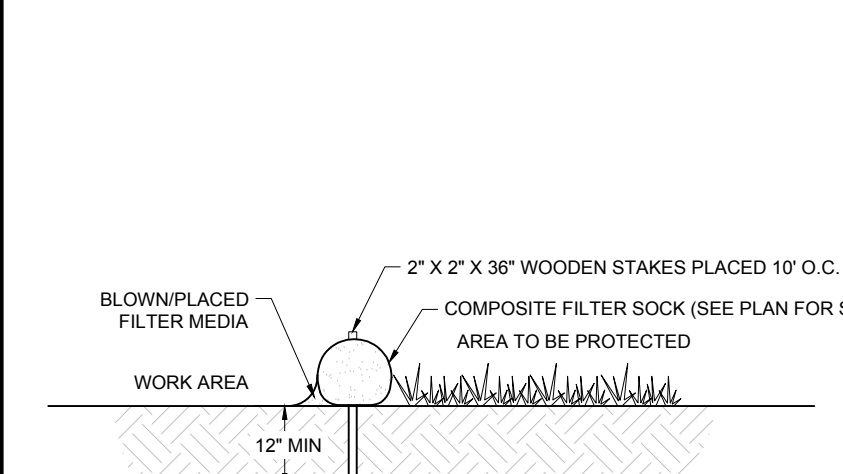
## STABILIZED CONSTRUCTION ENTRANCE

(NE-0020101 - 09/2023) NOT TO SCALE



## TREE PROTECTION DURING SITE CONSTRUCTION

(NE-0030201 - 09/2023) NOT TO SCALE



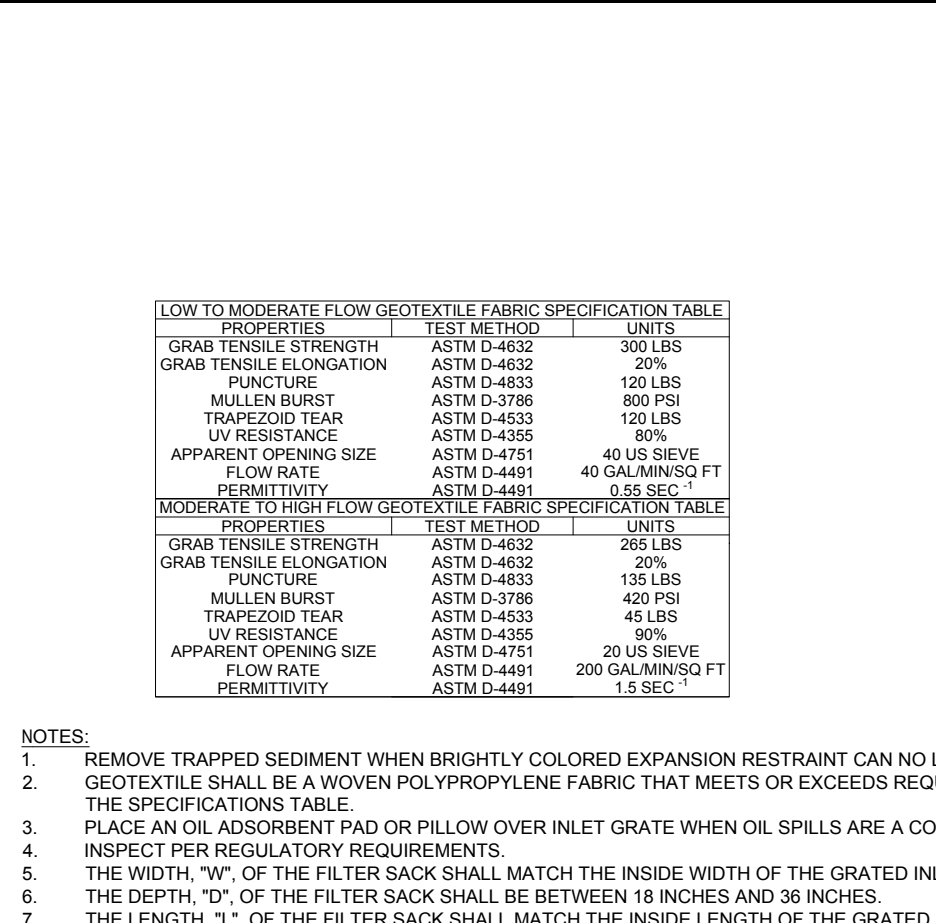
## COMPOST FILTER SOCK

(NE-0040201 - 09/2023) NOT TO SCALE

- ALL MATERIAL TO MEET MANUFACTURER SPECIFICATIONS
- COMPOST FILTER SOCK FILL TO MEET APPLICATION REQUIREMENTS
- COMPOST MATERIAL TO BE DISPERSED ON SITE AT COMPLETION OF CONSTRUCTION OR AS DIRECTED BY OWNER AFTER STABILIZATION IS ACHIEVED.

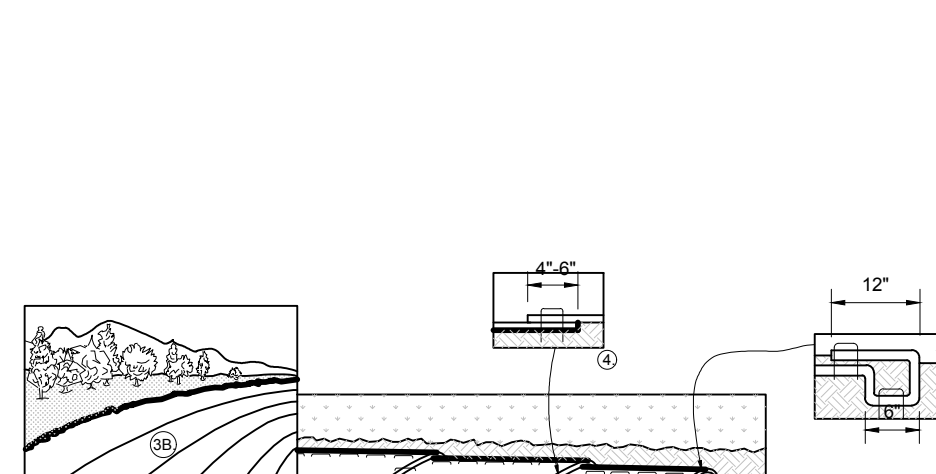
## INLET PROTECTION WITH MANUFACTURED INSERT

(NE-0050101 - 09/2023) NOT TO SCALE



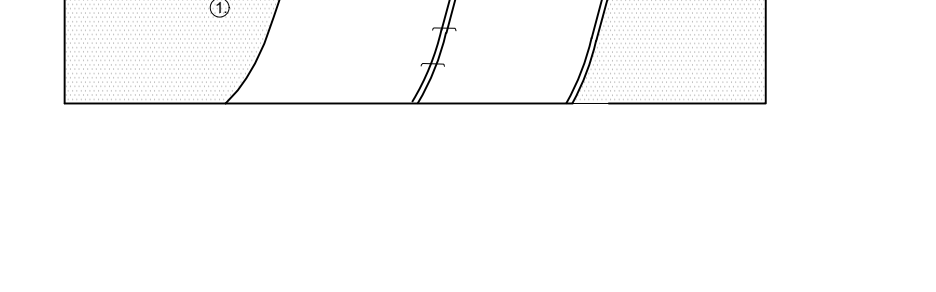
## EROSION CONTROL BLANKET STEP SLOPE PROTECTION

(NE-0049901 - 09/2023) NOT TO SCALE



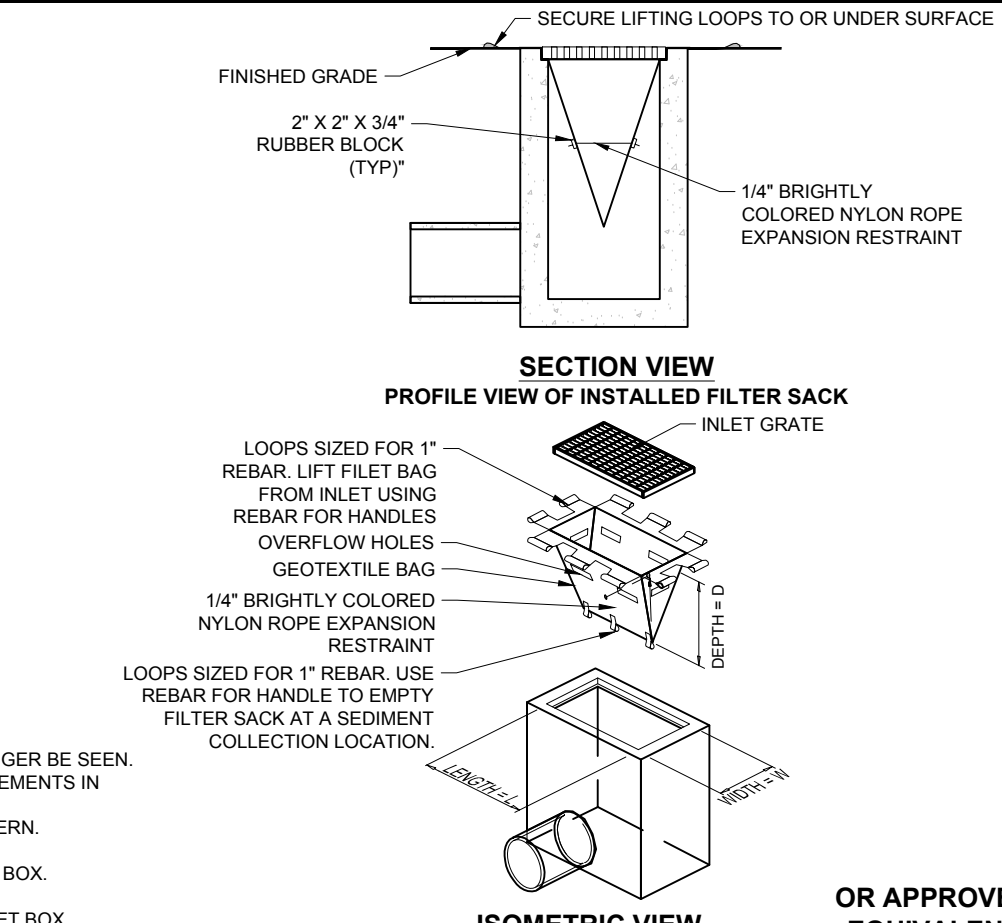
## TEMPORARY STOCK PILE WITH SILT FENCE AND FILTER SOCK

(NE-0060102 - 09/2023) NOT TO SCALE



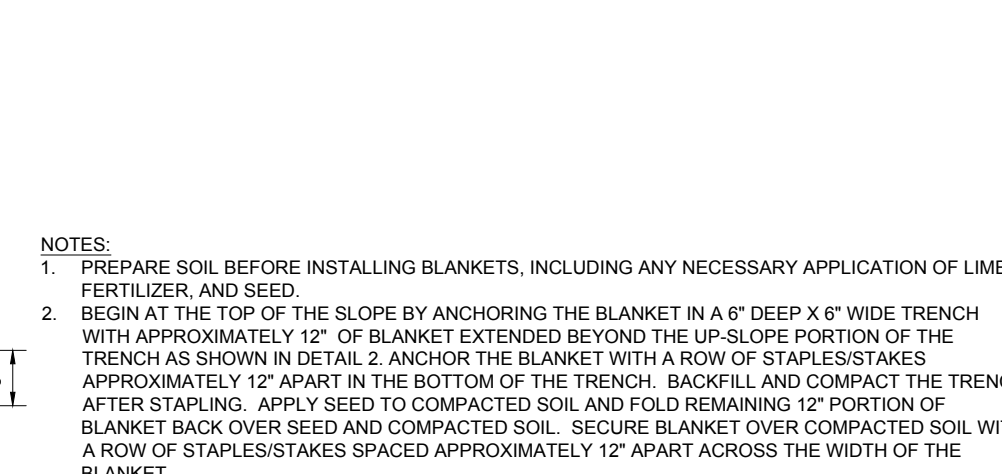
## SILT FENCE

(NE-0040101 - 09/2023) NOT TO SCALE



## EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

(NE-0060102 - 09/2023) NOT TO SCALE



## REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

**BOHLER** ENGINEERING  
 SITE CIVIL AND CONSULTING ENGINEERING  
 PROGRAM MANAGEMENT  
 LANDSCAPE ARCHITECTURE  
 SUSTAINABLE DESIGN  
 PERMITTING SERVICES  
 TRANSPORTATION SERVICES

**811**  
 Know what's below.  
 Call before you dig.  
 ALWAYS CALL 811  
 It's fast. It's free. It's the law.

## PERMIT SET

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MAA230363-00-BB  
 DRAWN BY: SBB  
 CHECKED BY: CPB/LMD  
 DATE: 10/02/2024  
 CAD ID: P-CIVIL-CND5

## SITE DEVELOPMENT PLANS

FOR  
  
 PROPOSED SITE IMPROVEMENTS

MAP: 45 | BLK: 34 | LOT: 13  
 315-317 SOUTHWEST CUTOFF  
 WORCESTER COUNTY  
 WORCESTER, MASSACHUSETTS

**BOHLER** ENGINEERING  
 352 TURNPIKE ROAD, 3rd FLOOR  
 SOUTHBOROUGH, MA 01772  
 Phone: (508) 480-9900  
 www.BohlerEngineering.com

MASSACHUSETTS PROFESSIONAL ENGINEER  
 CIVIL  
 No. 41697  
 REGISTERED

## EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

SHEET NUMBER:  
**C-803**

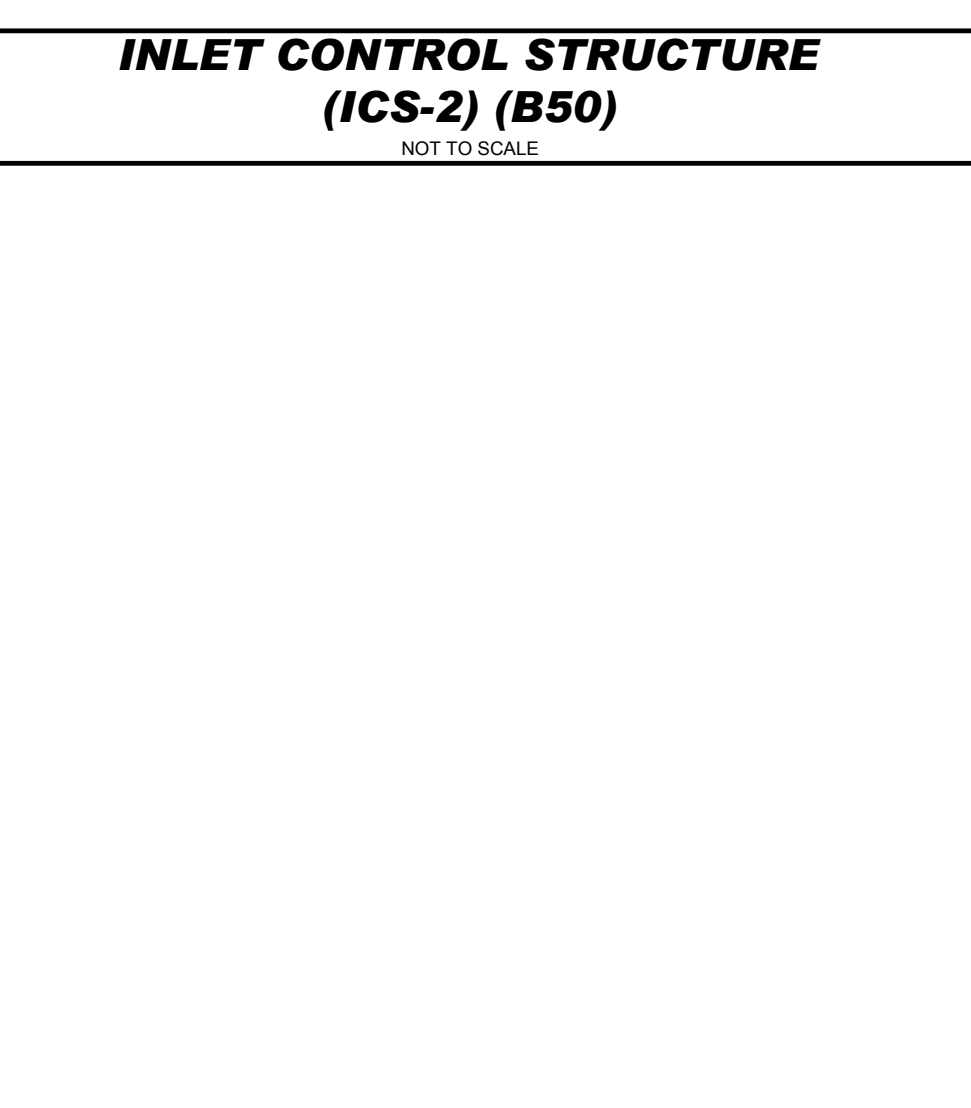
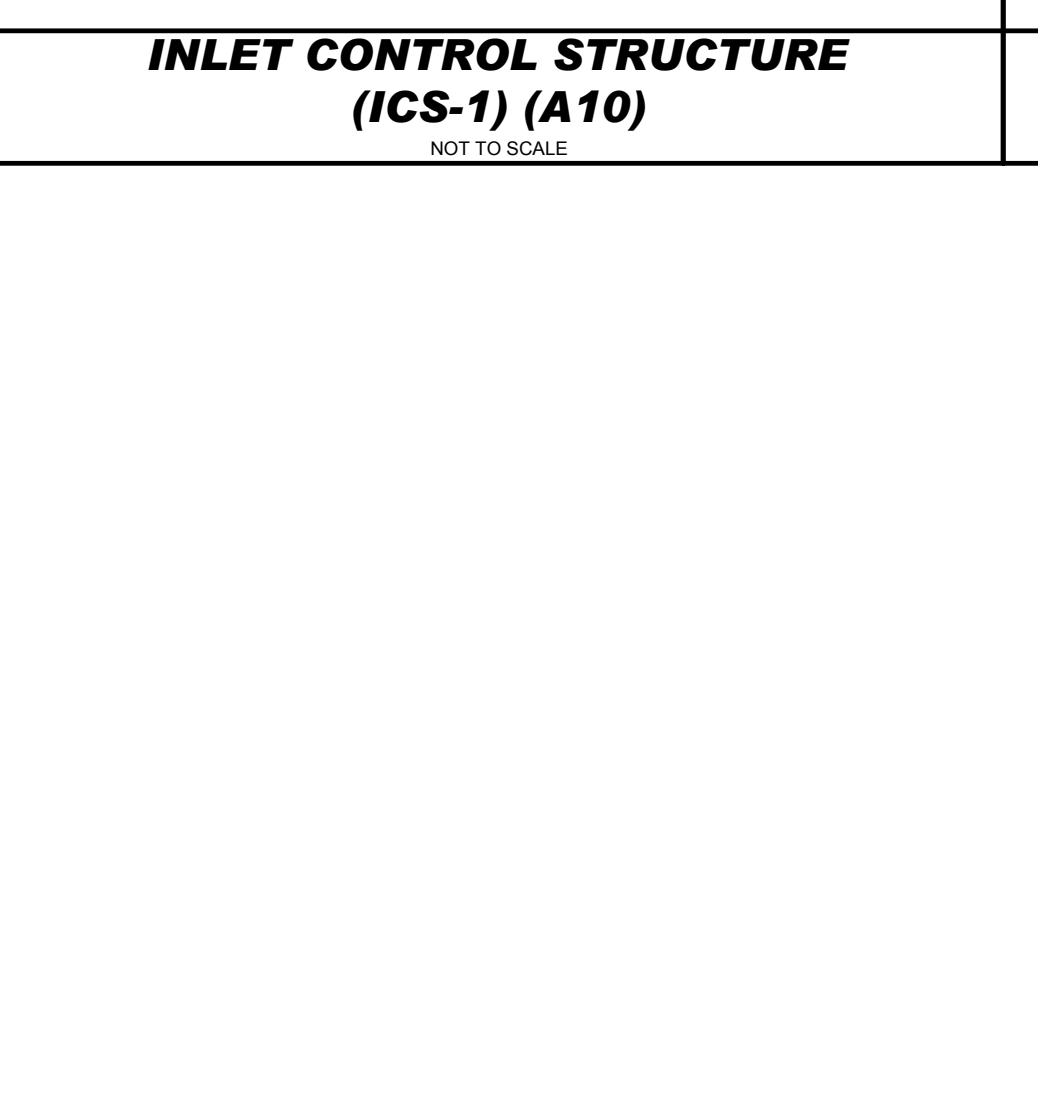
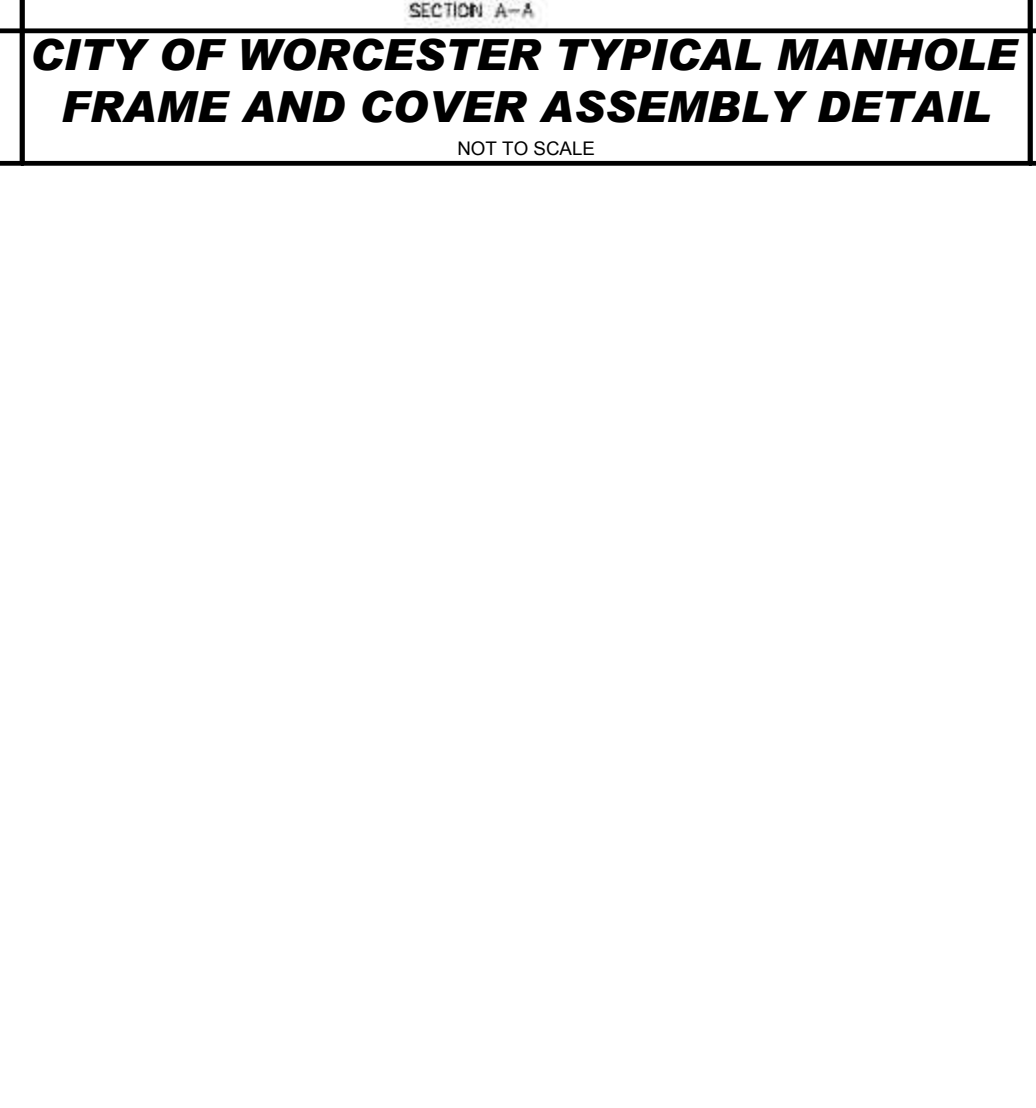
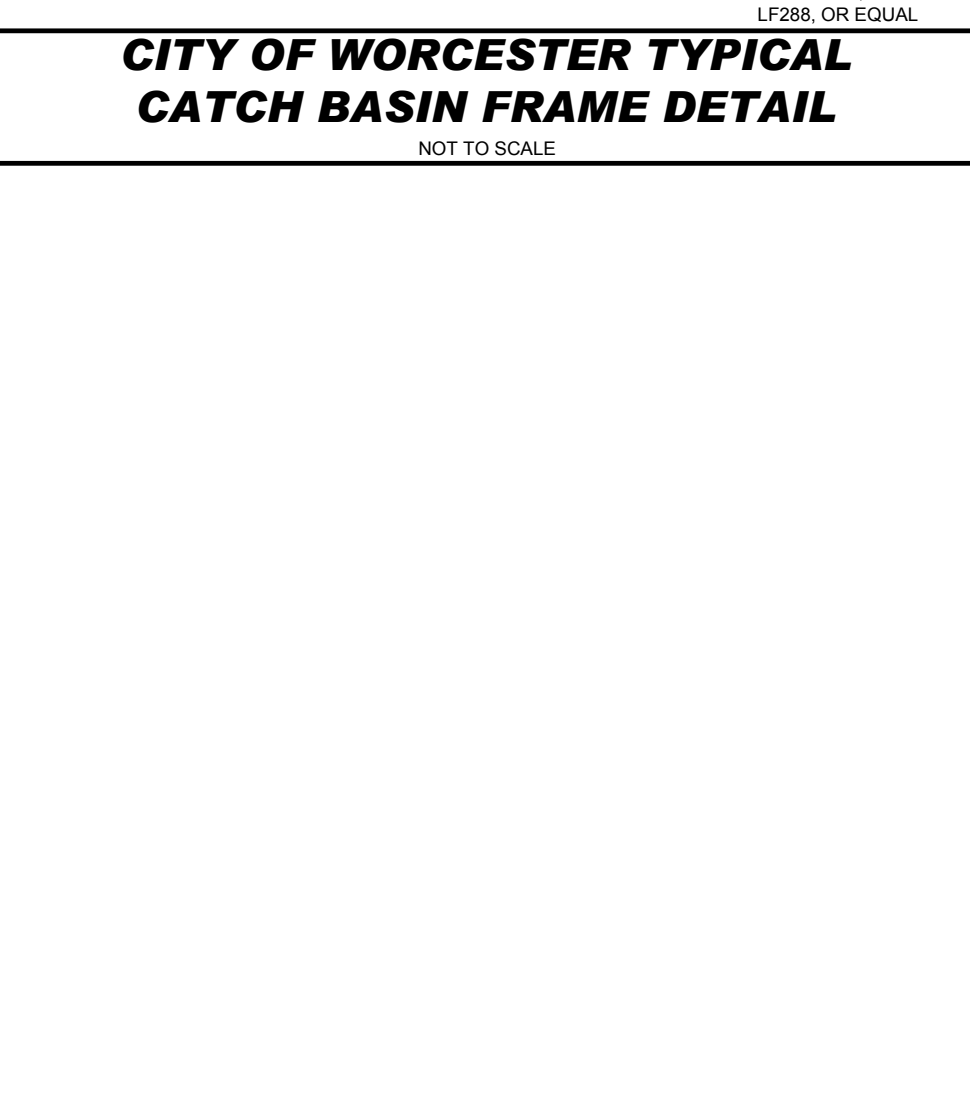
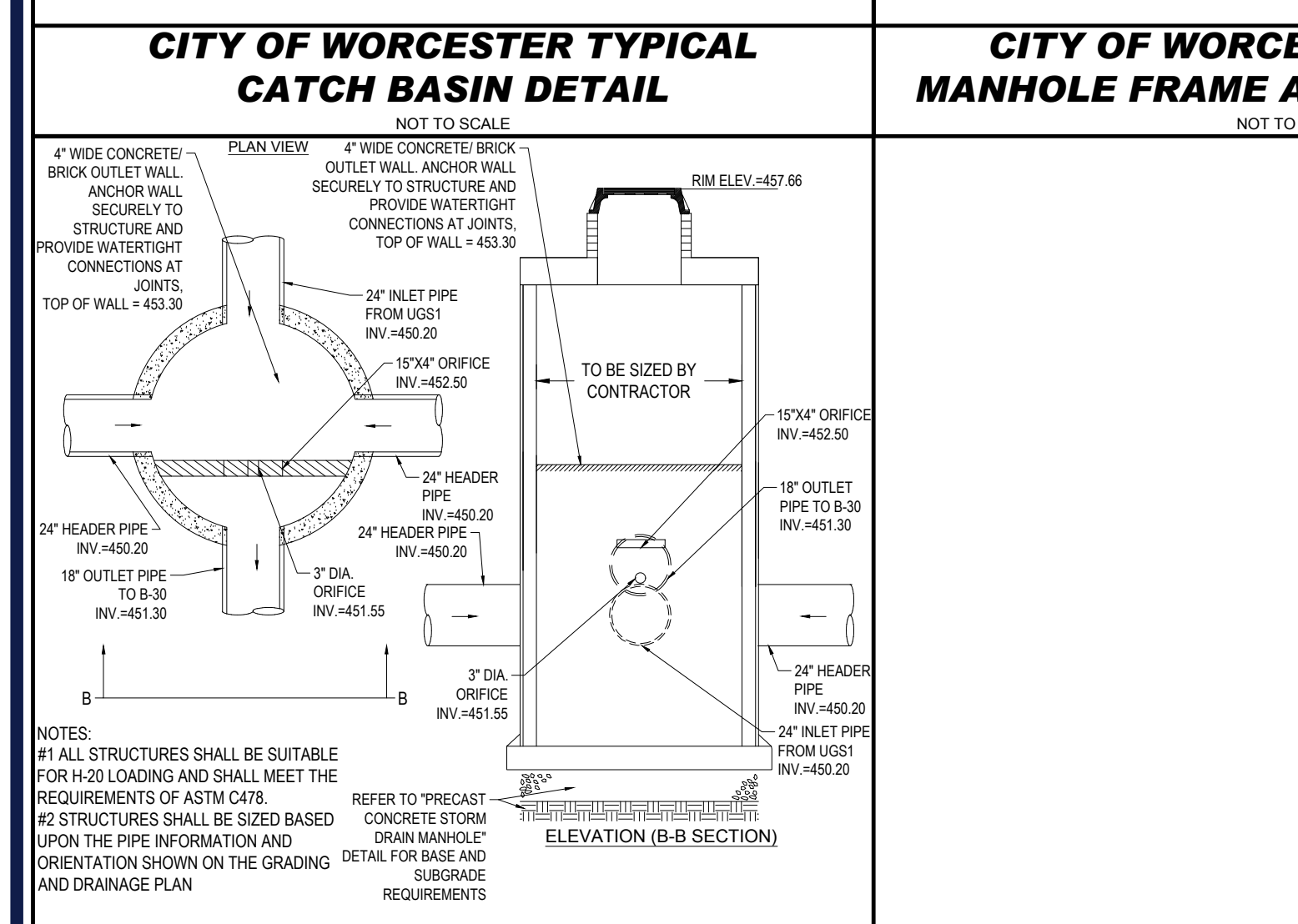
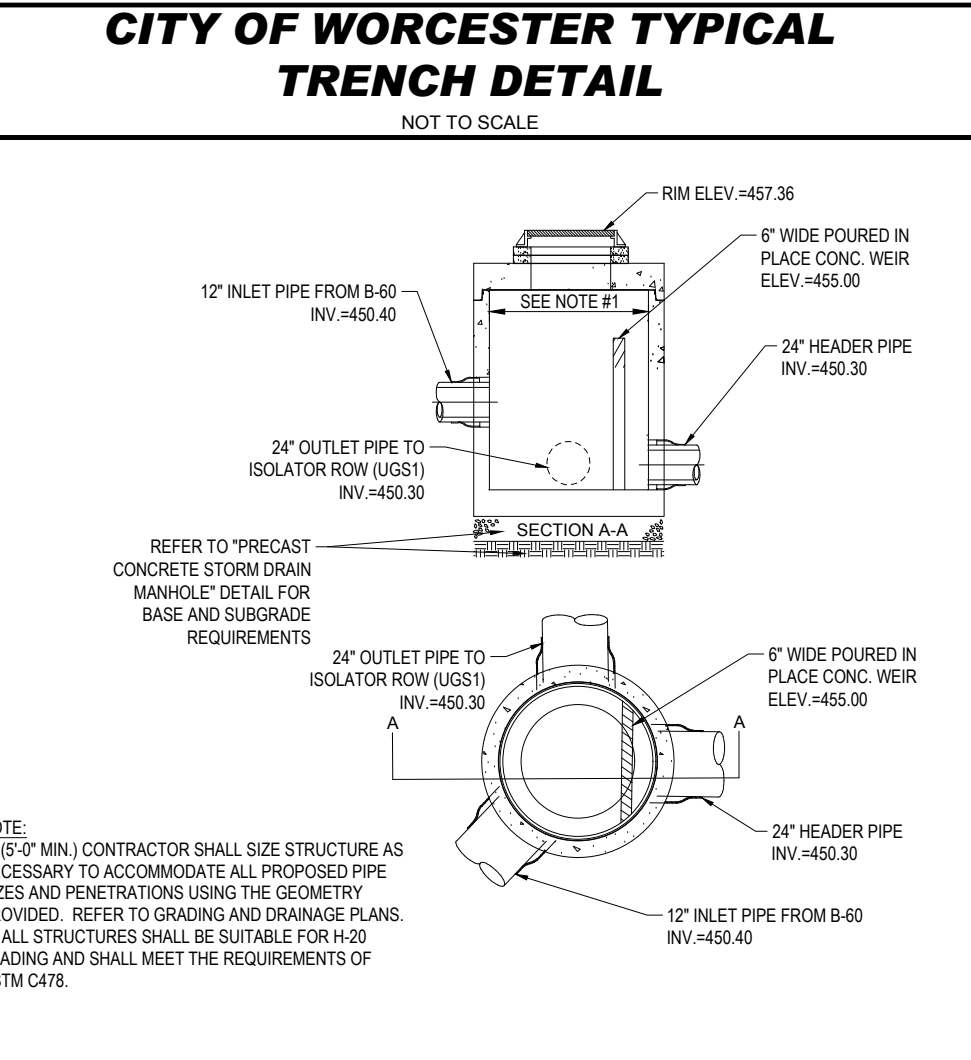
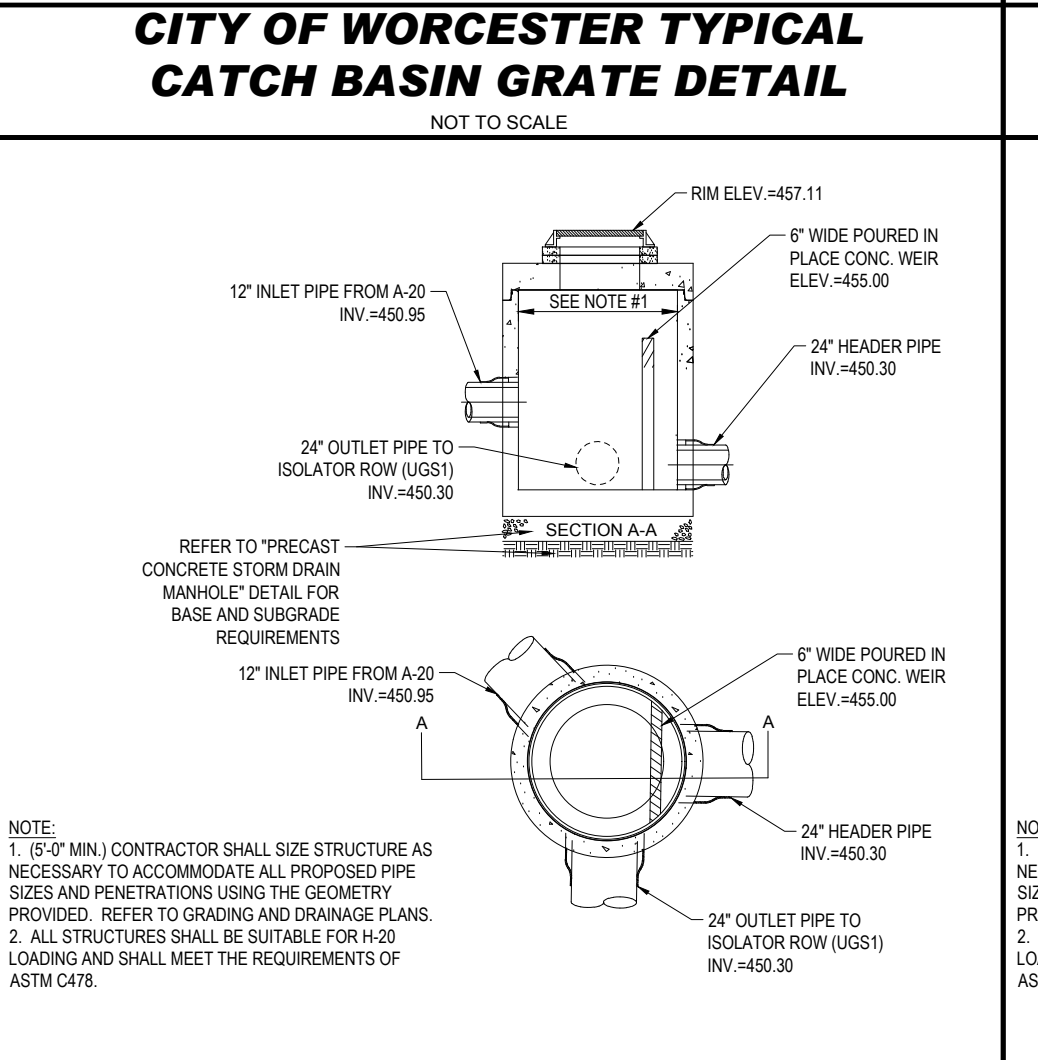
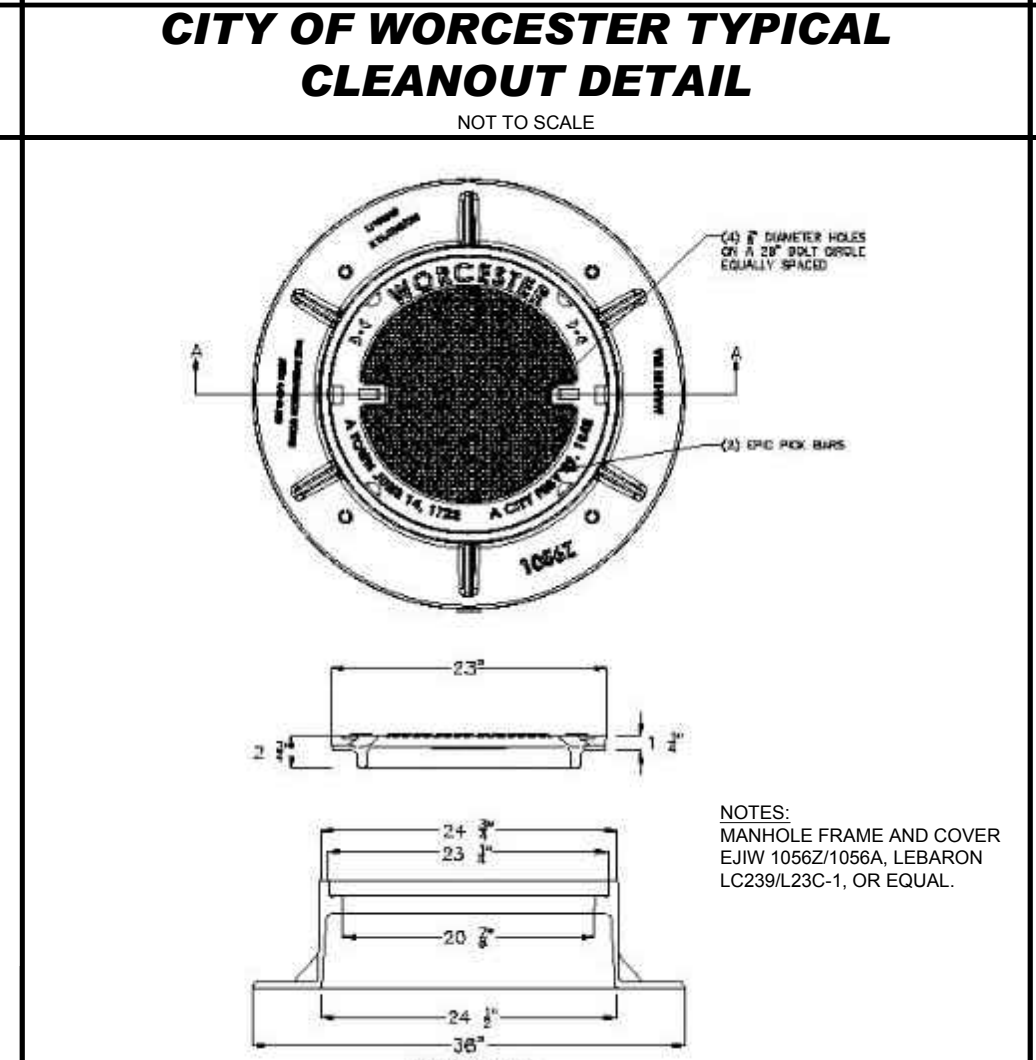
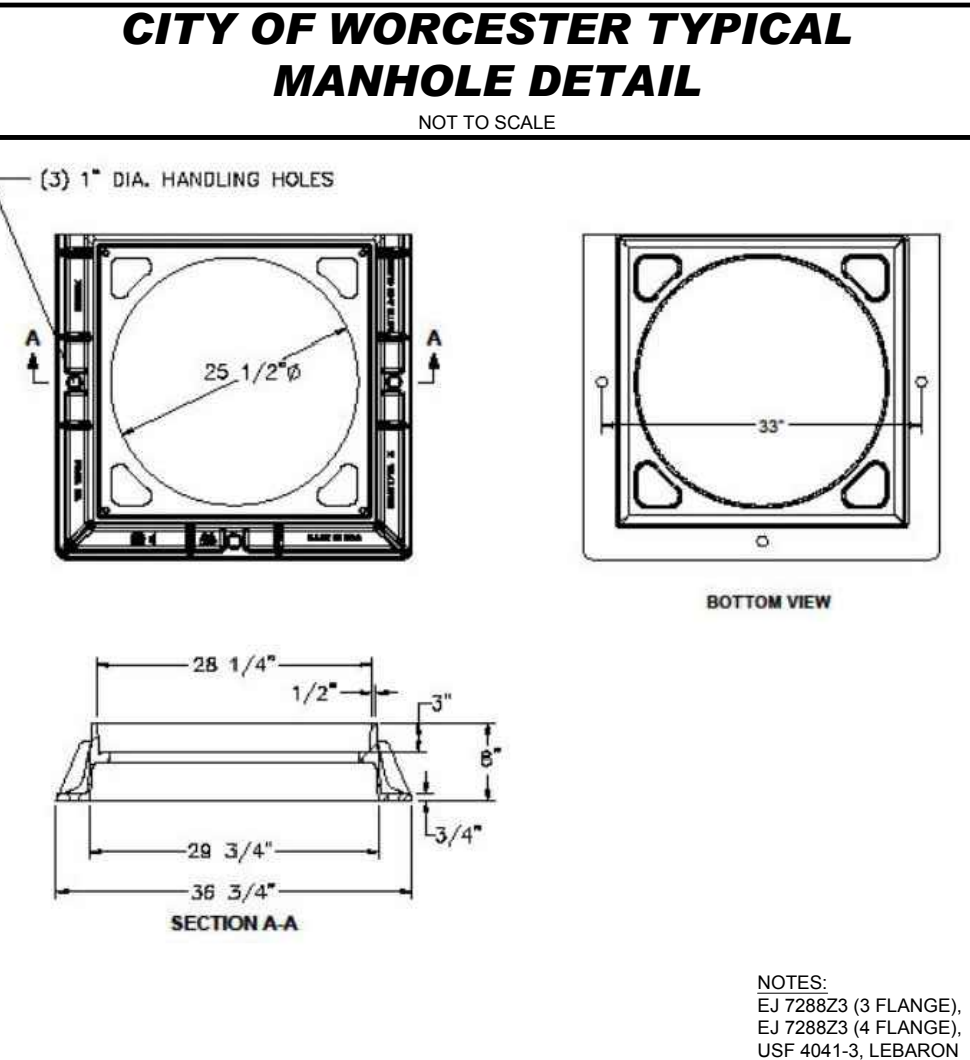
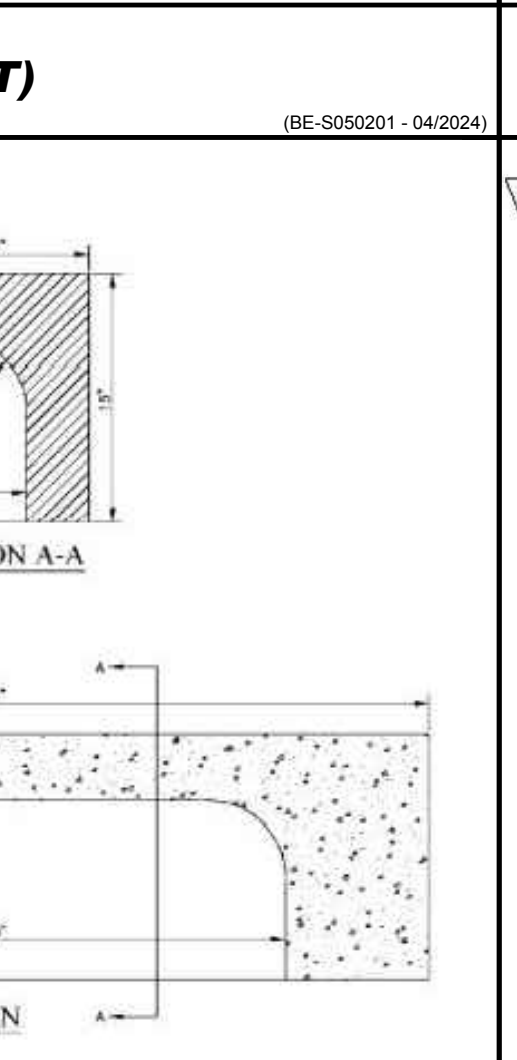
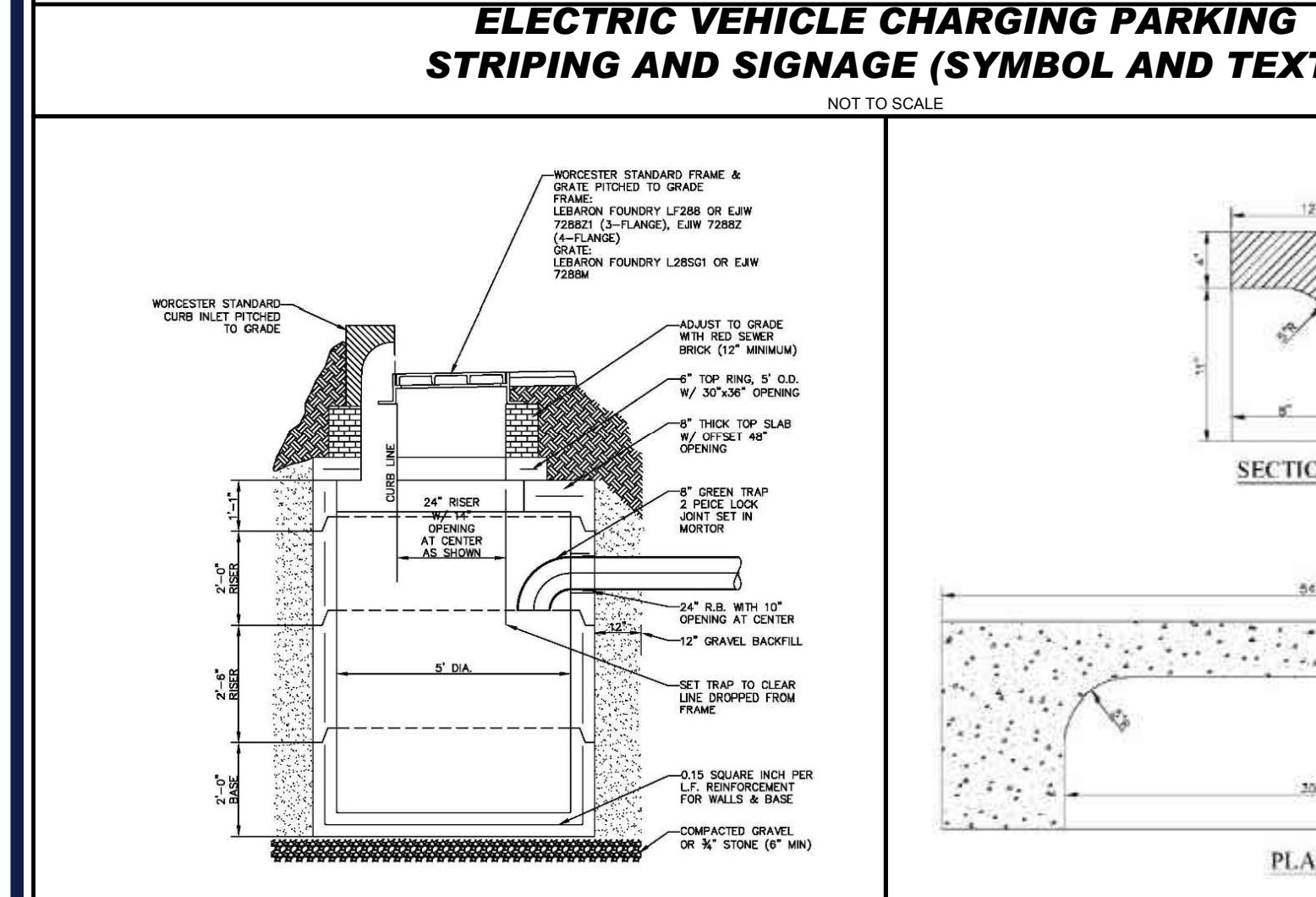
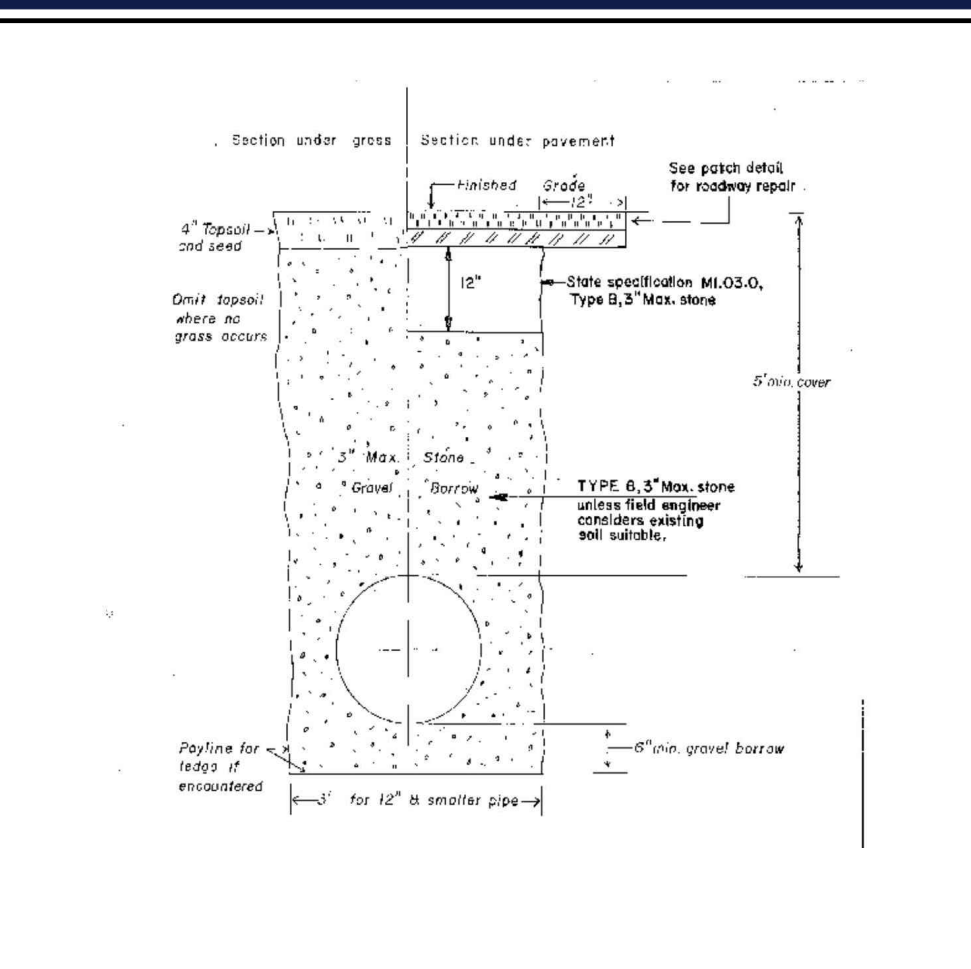
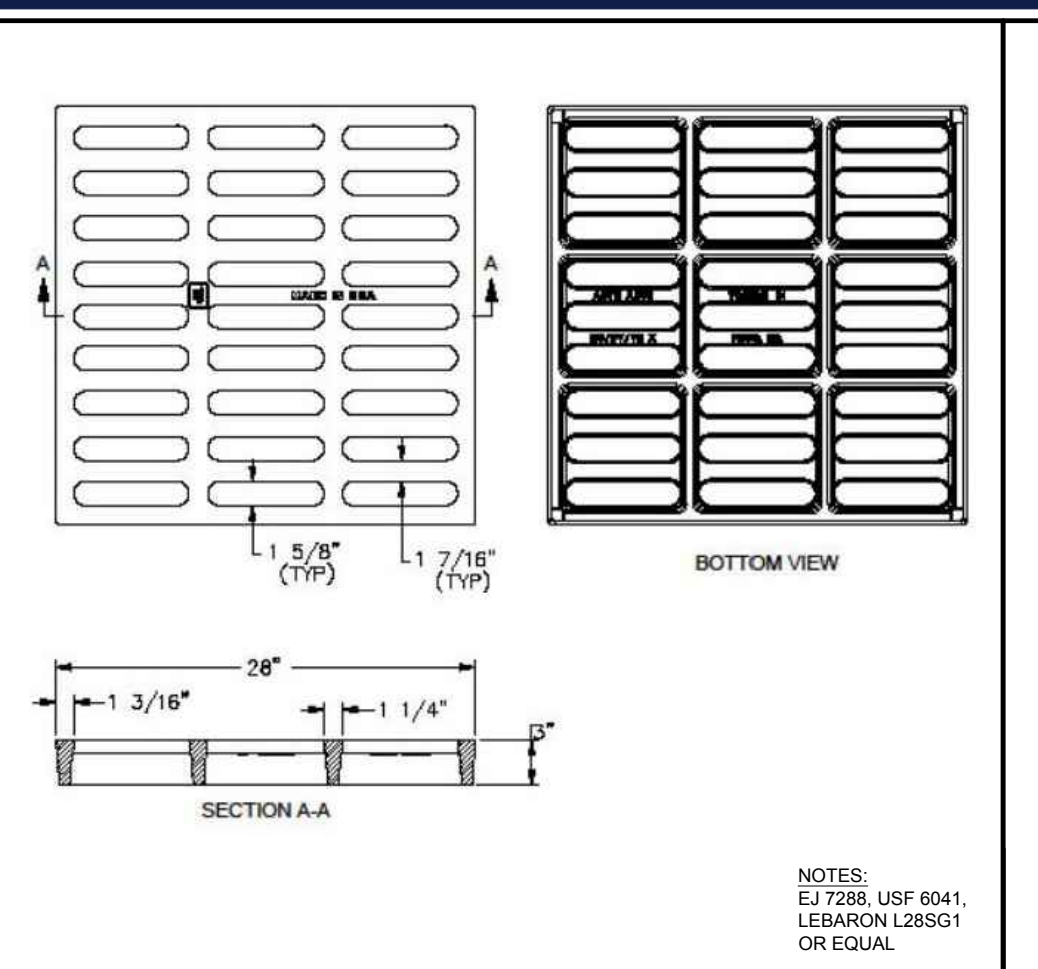
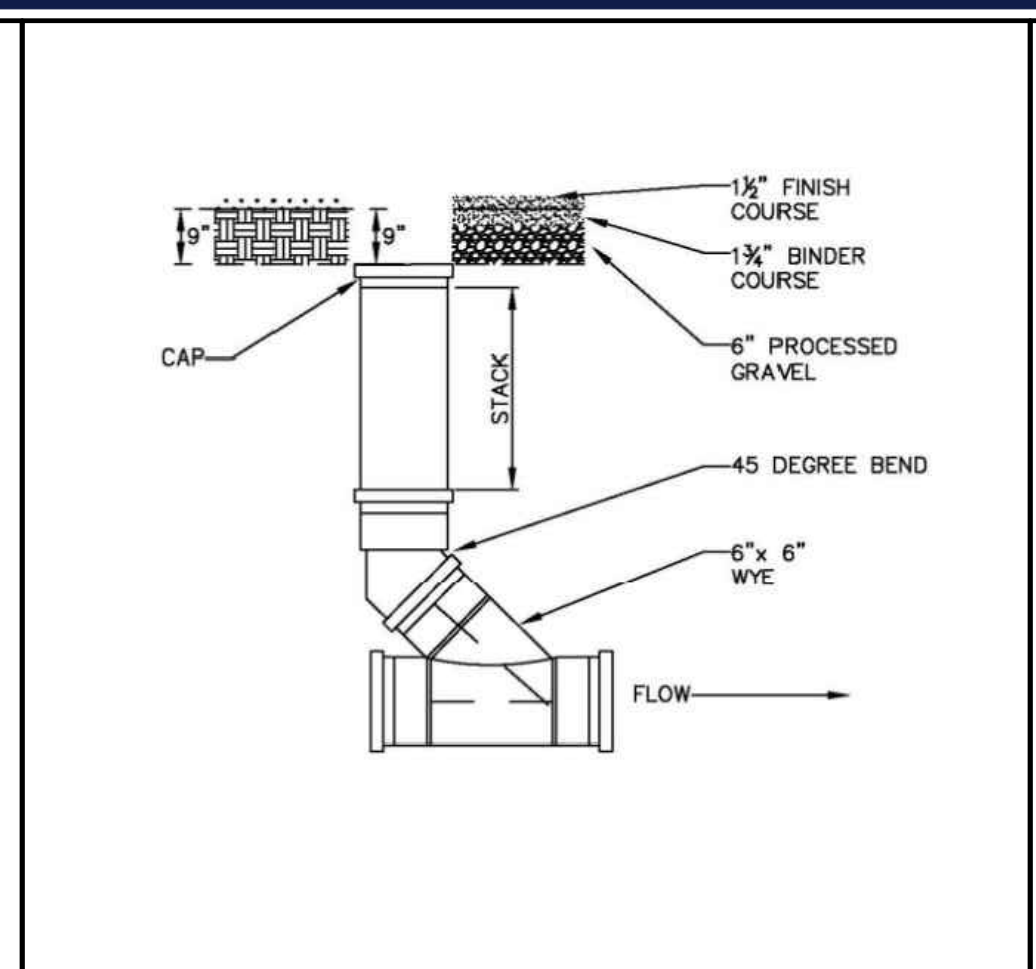
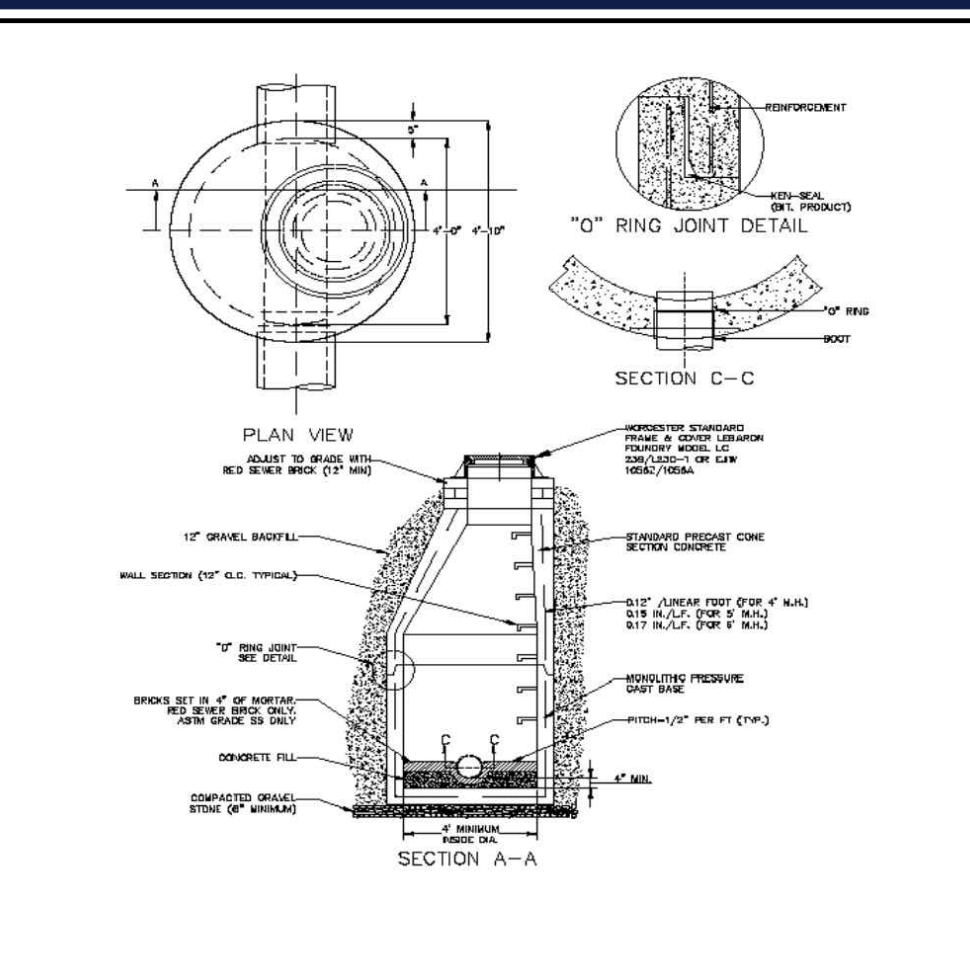
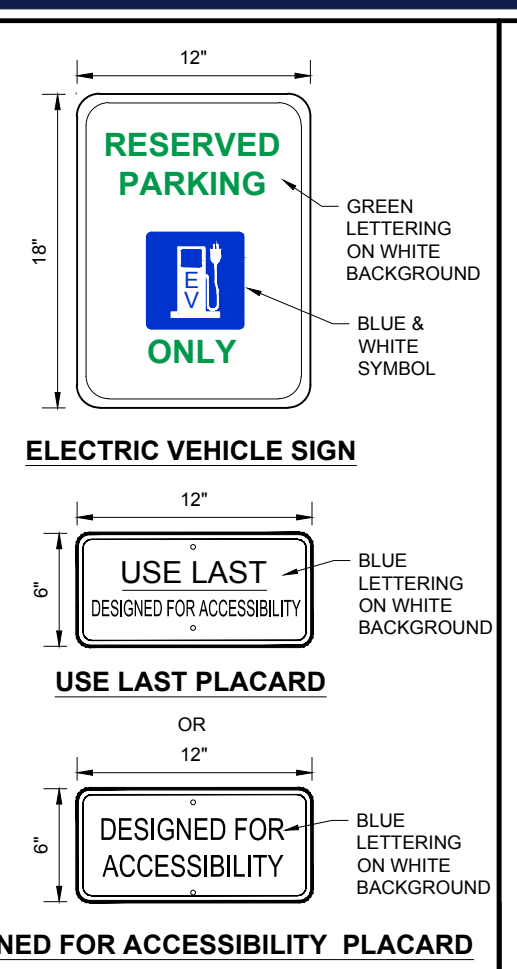
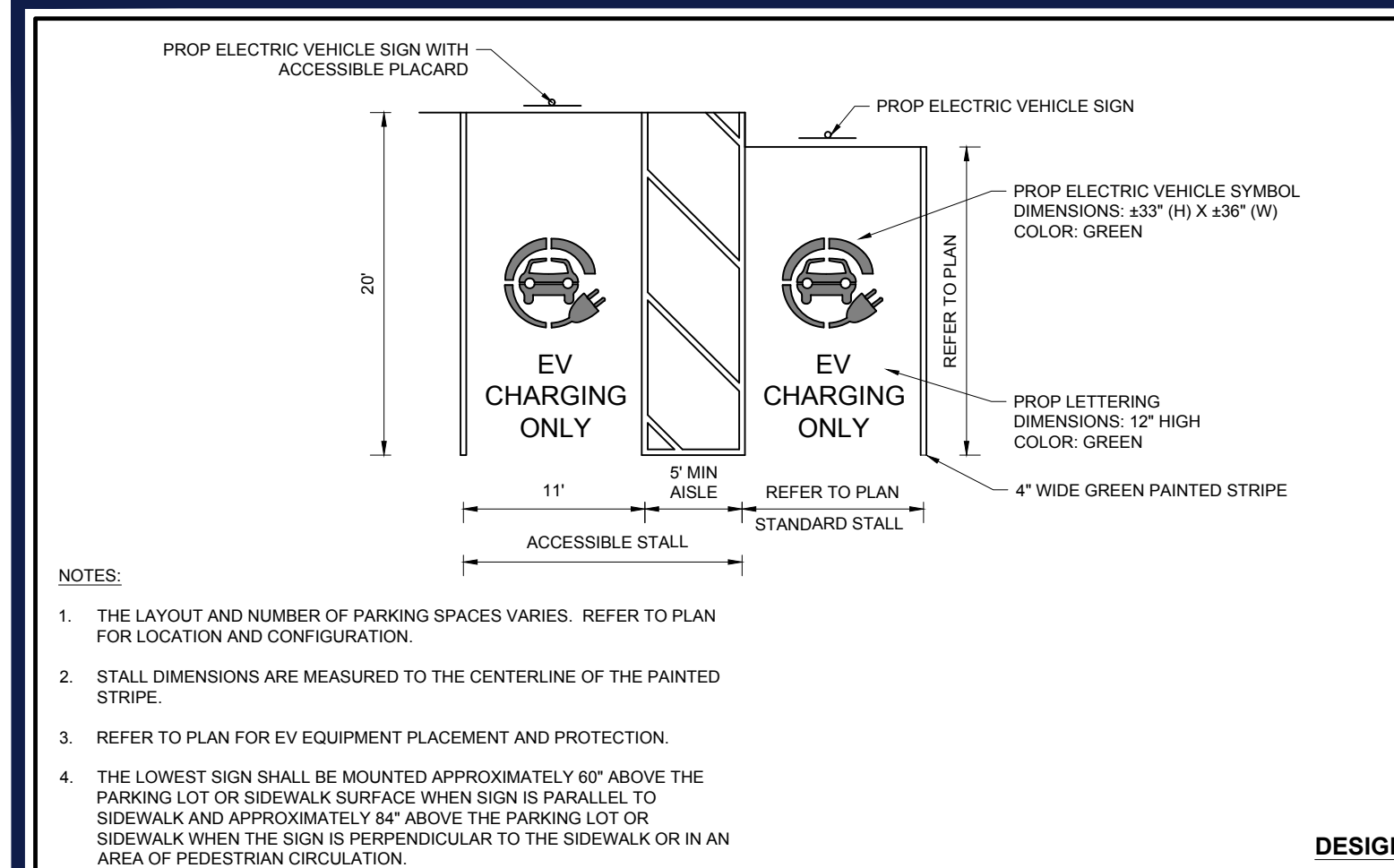
ORG. DATE - 10/02/2024

P:\2023\MAA230363-00-BB\CADD\DRAWINGS\PLAN SET\CIVIL SITE PLANS\SP-CIVIL-CND5-MAA230363-00-BB.dwg...LAYOUT1\_C-803.ERD









**BOHLER**  
SITE CIVIL AND CONSULTING ENGINEERING  
PROGRAM MANAGEMENT  
LANDSCAPE ARCHITECTURE  
SUSTAINABLE DESIGN  
PERMITTING SERVICES  
TRANSPORTATION SERVICES

**REVISIONS**

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

**811**  
Know what's below.  
Call before you dig.  
ALWAYS CALL 811  
It's fast. It's free. It's the law.

**PERMIT SET**

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT: **SITE DEVELOPMENT PLANS FOR AAA**

PROPOSED SITE IMPROVEMENTS

MAP: 45 | BLK: 34 | LOT: 13  
315-317 SOUTHWEST CUTOFF  
WORCESTER COUNTY  
WORCESTER, MASSACHUSETTS

**BOHLER**  
352 TURNPIKE ROAD, 3rd FLOOR  
SOUTHBOROUGH, MA 01772  
Phone: (508) 480-9900  
www.BohlerEngineering.com

**OSHA**  
REGISTERED PROFESSIONAL ENGINEER  
No. 41697

SHEET TITLE: **CONSTRUCTION DETAILS**

SHEET NUMBER: **C-902**

ORG. DATE - 10/02/2024

P:\2023\MAA230383\00\DRAWINGS\PLAN SET\CIVIL SITE PLANS\CIVIL-CNDIS-MAA230383\00\0401-...LAYOUT: C-902 DETL





MC-4500 STORMTECH CHAMBER SPECIFICATIONS

- 1. CHAMBERS SHALL BE STORMTECH MC-4500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, 'STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS' CHAMBER CLASSIFICATION 60x101.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPED FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, 'STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS'. LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER; 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND; 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
- TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
- TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
- TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LB/FT^2. THE ADC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
- THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
- THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD. THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
- THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

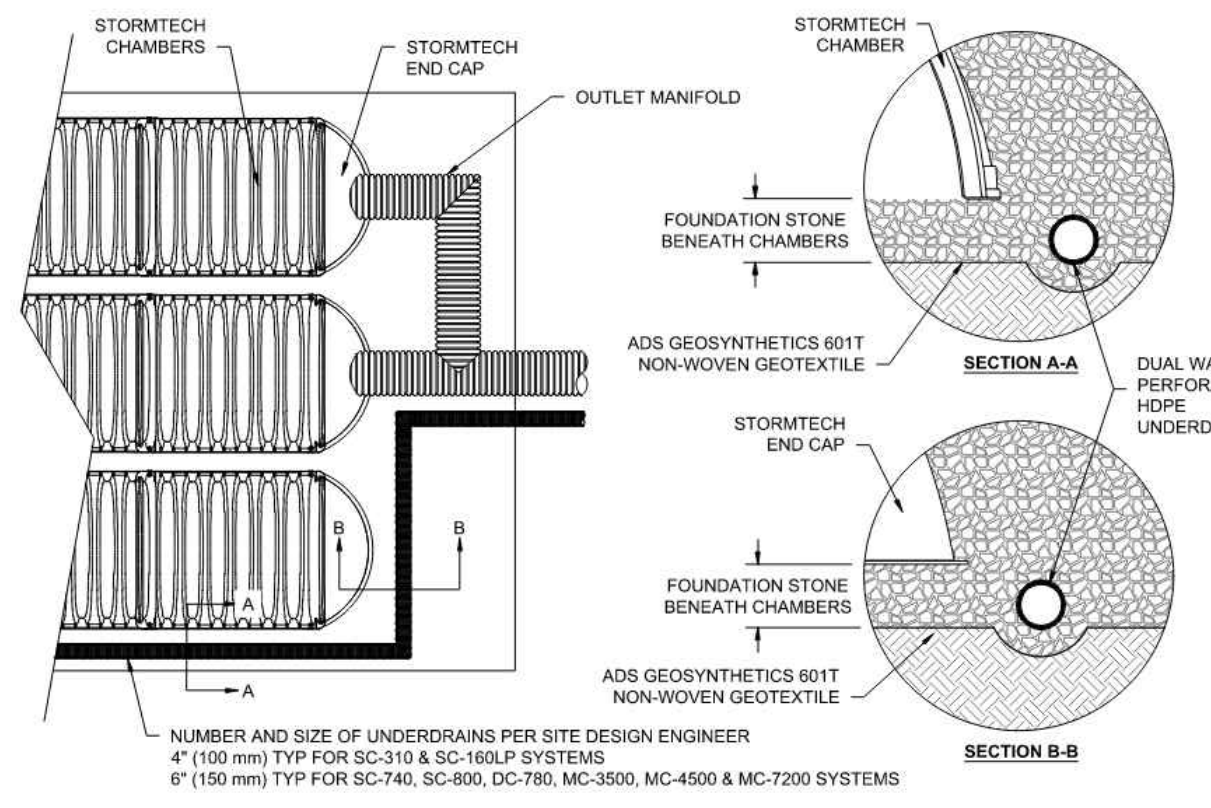
IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

- 1. STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE 'STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE'.
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
- STONE/CROTHER LOCATED OFF THE CHAMBER BED.
- BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
- BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HSE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELLED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS MUST BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM 1" (25 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL, BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
12. ADS RECOMMENDS THE USE OF 'FLEXFORM CATCH IT' INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SURFACE TO STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

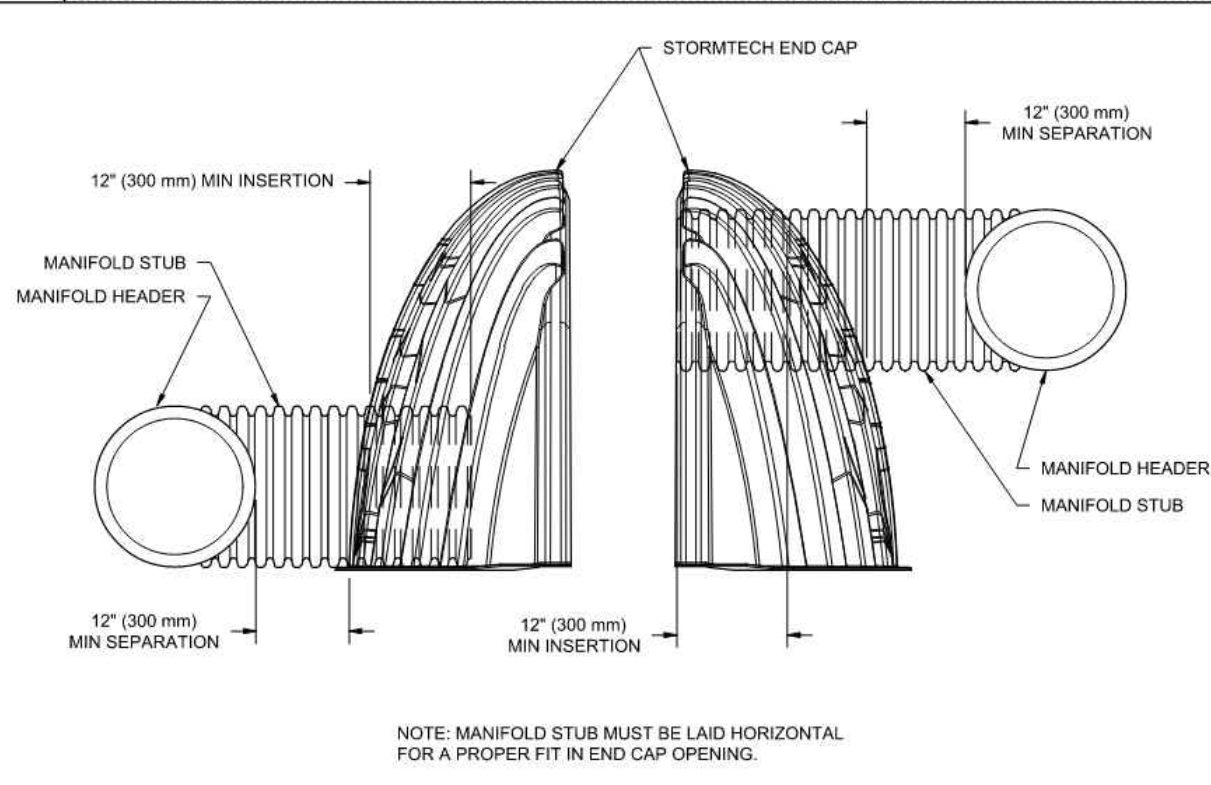
NOTES FOR CONSTRUCTION EQUIPMENT

- 1. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE 'STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE'.
2. THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
- NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
- NO RUBBER TIED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE 'STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE'.
- WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE 'STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE'.
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.
4. USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE 'DUMP AND PUSH' METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

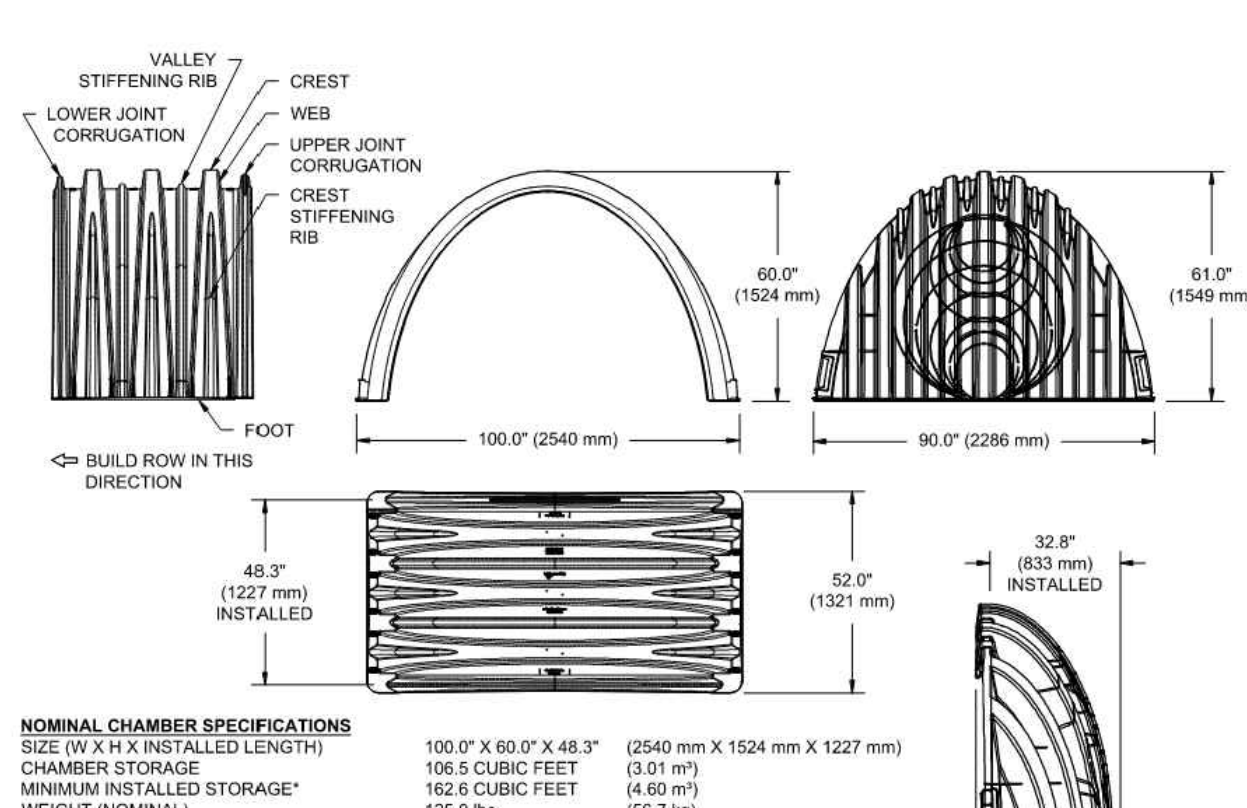
CONTACT STORMTECH AT 1-888-892-2654 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



5 UNDERDRAIN DETAIL



6 MC-SERIES END CAP INSERTION DETAIL



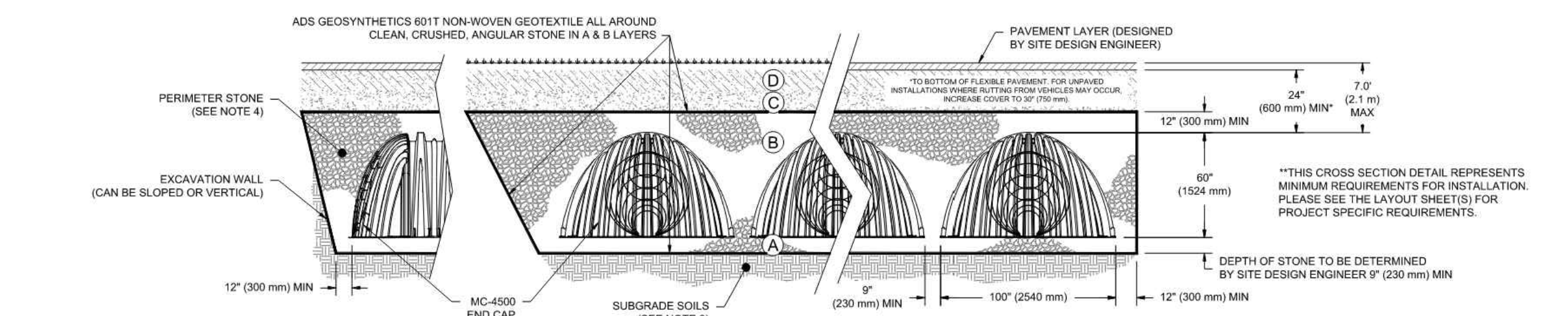
2 MC-4500 TECHNICAL SPECIFICATIONS

Table with 4 columns: PART #, STUB, B, C. Lists various part numbers and their dimensions.

ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

Table with 4 columns: MATERIAL LOCATION, DESCRIPTION, AASHTO MATERIAL CLASSIFICATIONS, COMPACTION / DENSITY REQUIREMENT. Details fill material requirements for layers D, C, B, and A.

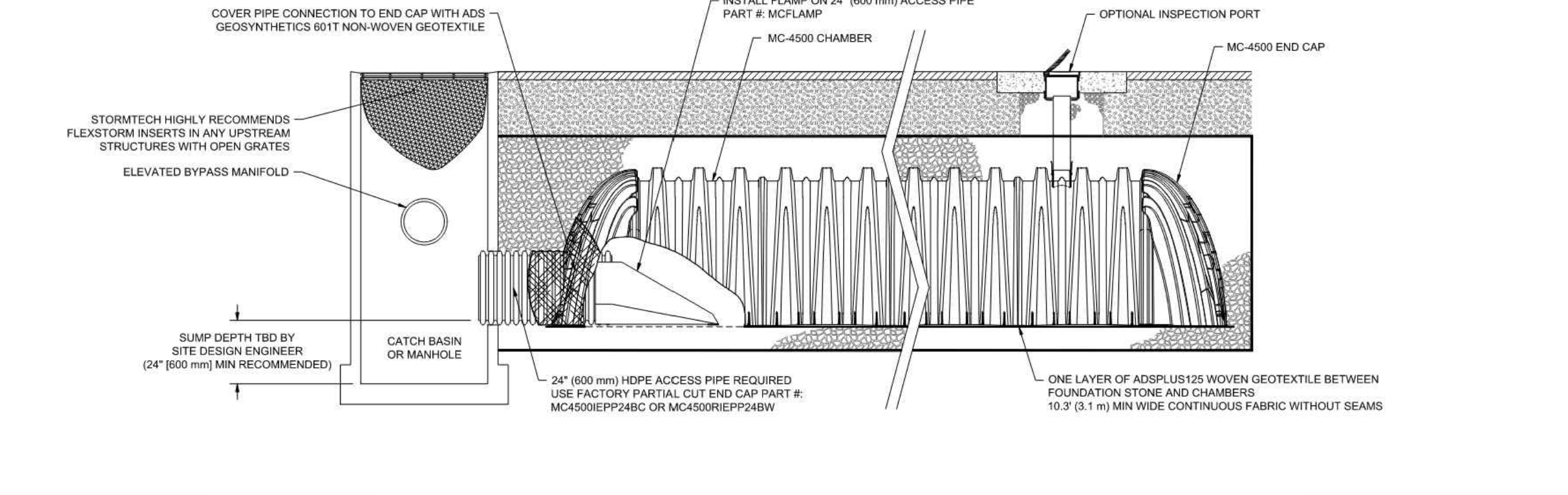
- PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE 'CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE'.
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) MAX LIFTS USING TWO FULL COVERINGS WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOLID MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT GRADE SOLLS CAN BE USED TO REPLACE THE MATERIAL. REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEERS DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 'RECYCLED CONCRETE STRUCTURAL BACKFILL'.



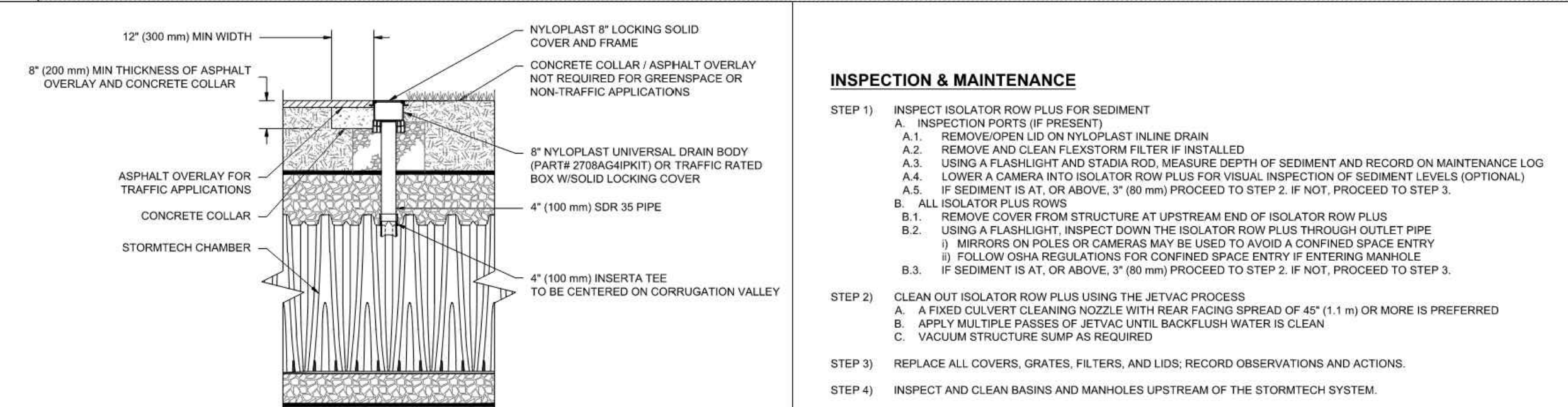
1 MC-4500 CROSS SECTION DETAIL

NOTES:

- 1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, 'STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS' CHAMBER CLASSIFICATION 60x101.
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 'STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS'.
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
- TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
- TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
- TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LB/FT^2. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.



3 MC-4500 ISOLATOR ROW PLUS DETAIL



4 4" PVC INSPECTION PORT DETAIL (MC SERIES CHAMBER)

- NOTE: INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

INSPECTION & MAINTENANCE

- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
A. INSPECTION PORTS (IF PRESENT)
A.1. REMOVE OPEN LID ON NYLOPLAST INLINE DRAIN
A.2. REMOVE AND CLEAN FLEXFORM FILTER IF INSTALLED
A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
B. ALL ISOLATOR PLUS ROWS
B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
B.3. MIRRORS OR POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
i) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
ii) IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
A. A FROD CULVERT CLEANING NOZZLE WITH REAR FACING SPRAY OF 45° (1.1 m) OR MORE IS PREFERRED
B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKLUSH WATER IS CLEAN
C. VACUUM STRUCTURE SUMP AS REQUIRED
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

- 1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

DRAWN: JLM DATE: 01/10/24
REVIEWED: JLM PROJECT NO.:
REV: NOT TO SCALE

MC-4500 STANDARD DETAILS

StormTech Chamber System
888-892-2654 | WWW.STORMTECH.COM

4640 TRUEMAN BLVD
HILLIARD, OH 43026

SHEET 1



Table with 3 columns: REV, DATE, COMMENT. Includes a section for REVISIONS.

811 Know what's below. Call before you dig. ALWAYS CALL 811. It's fast. It's free. It's the law.

PERMIT SET

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MAA230363-00-B
DRAWN BY: SBB
CHECKED BY: CPB/LMD
DATE: 10/02/2024
CAD LID: P-CIVL-CND5

SITE DEVELOPMENT PLANS FOR



PROPOSED SITE IMPROVEMENTS

MAP: 45 | BLK: 34 | LOT: 13
315-317 SOUTHWEST CUTOFF
WORCESTER COUNTY
WORCESTER, MASSACHUSETTS

BOHLER

352 TURNPIKE ROAD, 3rd FLOOR
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900



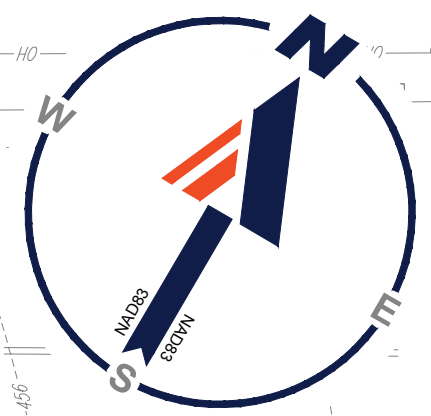
CONSTRUCTION DETAILS

SHEET NUMBER: C-903

ORG. DATE - 10/02/2024

P:\2023\MAA230363-00-B\CAD\DRAWINGS\PLAN SET\CIVIL-CND5\MAA230363-00-B-01.dwg...LAYOUT: C-903.DWG





# SOUTHWEST CUTOFF

(PUBLIC RIGHT-OF-WAY - 80' WIDTH)  
(LAYOUT NO. 7223-2 ROUTE 20)

## CITY OF WORCESTER, MASSACHUSETTS LANDSCAPE REQUIREMENTS

SECTION	REQUIREMENTS	CALCULATIONS/PROPOSED
NOTES TO TABLE 4.4	NOTE 5: a) PARKING LOCATION AND LAYOUT REQUIREMENTS FOR ALL ZONING DISTRICTS b) PARKING FACILITIES SHALL BE SET BACK A MINIMUM OF FIVE (5) FEET FROM ALL BOUNDARY LINES TO PROVIDE A BUFFER AREA FROM ADJUTING LOTS. THE BUFFER AREAS SHALL CONSIST OF PERMEABLE SURFACES AND BE APPROPRIATELY LANDSCAPED IN ACCORDANCE WITH ARTICLE V, SECTION 5(C).	PROVIDED
NOTE 6: INTERIOR LANDSCAPING	PARKING LOTS WITH MORE THAN SIXTEEN (16) PARKING SPACES SHALL HAVE LANDSCAPING IN THE INTERIOR OF THE PARKING LOT IN ADDITION TO LANDSCAPING ALONG THE EDGES OF THE LOT. NO INTERIOR LANDSCAPING IS REQUIRED, HOWEVER, FOR PARKING LOTS WHERE ALL SPACES ABUT A LANDSCAPED SETBACK AREA AS DESCRIBED IN NOTE 5, ABOVE, AND THE PARKING LOT IS IN COMPLIANCE WITH ARTICLE V, SECTION 5(C) OF THIS ORDINANCE.	INTERIOR LANDSCAPING PROVIDED
ARTICLE IV: USE REGULATIONS - SECTION 7: OFF-STREET ACCESSORY PARKING REQUIREMENTS	AT LEAST ONE (1) TREE SHALL BE PLANTED WITHIN THE PARKING LOT (INTERIOR FOR EVERY TEN (10) PROPOSED AND EXISTING SPACES. SUCH INTERIOR TREES SHALL BE IN ADDITION TO TREES REQUIRED ALONG THE EDGES OF THE LOT. INTERIOR TREES SHALL BE PLANTED IN PLANTING BEDS NO SMALLER THAN FIVE FEET BY FIVE FEET (5' X 5').  PARKING SPACES ABUTTING A LANDSCAPED SETBACK AREA (AS DESCRIBED IN NOTE 5, ABOVE) AND IN COMPLIANCE WITH ARTICLE V, SECTION 5(C) OF THIS ORDINANCE, HOWEVER, SHALL NOT BE COUNTED IN THE CALCULATION WHEN DETERMINING THE NUMBER OF INTERIOR TREES REQUIRED.  TREES SHALL BE LOCATED IN SUCH A MANNER AS TO PROVIDE SHADE OVER THE GREATEST NUMBER OF PARKING SPACES PRACTICABLE. NOTWITHSTANDING ANY OF THE FOREGOING TO THE CONTRARY, THE PLANNING BOARD MAY WAIVE OR MODIFY THESE REQUIREMENTS UPON A SPECIFIC FINDING, IN WRITING, THAT A SUBSTANTIAL HARSHIP WOULD RESULT OR WOULD OTHERWISE CAUSE THE PARKING AREA TO BE IN NONCOMPLIANCE WITH THIS ORDINANCE.	REQUIRED: 42 SPACES / 10 + 4.2 TREES PROVIDED: 5 TREES  REAR PARKING SPACES (2) SPACES ABUTTING LANDSCAPED SETBACK AND REMOVED FROM CALCULATION.  PROVIDED
SECTION 5 - APPLICATION APPROVAL PROCESS	C. LANDSCAPING DESIGN STANDARDS 1. LANDSCAPE SCREENING B. LANDSCAPING SCREENING SHALL CONSIST OF PLANTING AREAS AT LEAST FIVE (5) FEET WIDE LOCATED ALONG THE SIDEWALK EDGE AND/OR SIDE LOT LINES OF A PROPOSED USE. TREES SHALL BE THE MAJOR ELEMENTS OF LANDSCAPE SCREENING. A COMBINATION OF PLANT MATERIALS, TREES AND SHRUBS SHALL BE INCLUDED IN LANDSCAPE SCREENING AREAS. FENCING MAY BE USED, IN COMBINATION WITH TREES AND SHRUBS, WHEN APPROPRIATE. i) TREES TREES SHALL BE PLANTED EVERY TWENTY (20) TO TWENTY-FIVE (25) FEET ON CENTER. TREES TO BE PLANTED SHALL HAVE TRUNKS AT LEAST THREE (3) TO THREE AND ONE-HALF (3 1/2) INCHES IN DIAMETER WHEN MEASURED SIX (6) INCHES ABOVE THE GROUND. RECOMMENDED SPECIES OF TREES INCLUDE, BUT ARE NOT LIMITED TO: ii) SHRUBS SHRUBS SHALL BE PLANTED ALONG WITH TREES IN A LANDSCAPE SCREENING AREA. SHRUBS MAY BE DECIDUOUS OR EVERGREEN, OR A MIXTURE OF BOTH TYPES, AND SHALL BE DENSELY PLANTED TO PROVIDE A MATURE APPEARANCE WITHIN THREE (3) YEARS. FOR LANDSCAPE SCREENING AREAS ALONG A SIDEWALK EDGE, SHRUBS SHALL BE NO TALLER THAN FOUR (4) FEET HIGH. FOR LANDSCAPE SCREENING AREAS WHICH ABUT ADJACENT RESIDENTIAL USES, SHRUBS MAY BE UP TO SEVEN (7) FEET IN HEIGHT TO PROVIDE A MORE EFFECTIVE BUFFER BETWEEN LAND USES. RECOMMENDED SPECIES INCLUDE, BUT ARE NOT LIMITED TO: iii) MAINTENANCE OF LANDSCAPED AREAS ALL PLANT MATERIAL AND FENCING SHALL BE ARRANGED AND MAINTAINED SO AS NOT TO OBSCURE THE VISION OF TRAFFIC.	EXISTING VEGETATION TO REMAIN ALONG EAST AND REAR LOT LINES. PROPOSED SCREENING ALONG WESTERN LOT LINE IS NOT FEASIBLE.  PROVIDED  PROVIDED  EXISTING VEGETATION TO REMAIN  PROVIDED

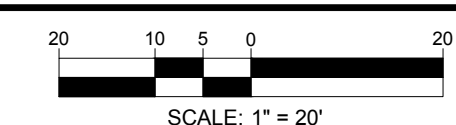
### PLANT SCHEDULE

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
<b>CANOPY TREES</b>					
GTIS	3	OLEA FRUTICOSA 'NEMERIS'	SHADEMASTER	3.3.5' CAL.	B&B
QP	2	QUERCUS PALUSTRIS	PIN OAK	3.3.5' CAL.	B&B
<b>SHRUBS</b>					
PFG	10	POTENTILLA FRUTICOSA 'GOLDFINGER'	GOLDFINGER BUSH CINQUEFOIL	18-24"	CONTAINER
<b>GROUNDCOVER</b>					
JHBC	11	JUNIPERUS HORIZONTALIS 'BLUE CHIP'	BLUE CHIP JUNIPER	15-18" SPRD	CONTAINER
<b>PERENNIALS</b>					
NFD	15	NEPETA X FAASSENII 'DROMPORE'	DROMPORE CATMINT	1 GAL.	CONTAINER

### SEED MIX KEY

	PROPOSED HYDROSEED
	PROPOSED CONSERVATION/WILDLIFE SEED MIX

**THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY**



### REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY



Know what's below. Call before you dig. ALWAYS CALL 811. It's fast. It's free. It's the law.

### PERMIT SET

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MAA230363-00-0B  
DRAWN BY: SBB  
CHECKED BY: CPB/LMD  
DATE: 10/02/2024  
CAD ID: P-CIV-L-LS-CP

PROJECT: **SITE DEVELOPMENT PLANS** FOR **AAA**

PROPOSED SITE IMPROVEMENTS

MAP: 45 | BLK: 34 | LOT: 13  
315-317 SOUTHWEST CUTOFF  
WORCESTER COUNTY  
WORCESTER, MASSACHUSETTS

**BOHLER**

352 TURNPIKE ROAD, 3rd FLOOR  
SOUTHBOROUGH, MA 01772  
Phone: (508) 480-9900  
www.BohlerEngineering.com



SHEET TITLE: **LANDSCAPE PLAN**

SHEET NUMBER: **L-101**

ORG. DATE - 10/02/2024

P:\2023\MAA230363-00-0B\CAD\DRAWINGS\PLAN SET\CIVIL SITE PLANS\SP-CIVIL-LS-CP-MAA230363-00-0B-LAYOUT-L-101-LS-CP



**MASSACHUSETTS LANDSCAPE SPECIFICATION**

1. SCOPE OF WORK:
- a) THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SODDING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.
2. MATERIALS
- a) GENERAL - ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.
  - b) TOPSOIL - NATURAL, FRIABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLODS.
  - c) LAWN:
    - (c)(a) ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM 2" THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, AND SEEDED OR SODDED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED ON THE LANDSCAPE PLAN.
    - (c)(b) LAWN SEED MIXTURE SHALL BE FRESH, CLEAN NEW CROP SEED.
    - (c)(c) SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE FREE WITH A UNIFORM THICKNESS. SOD INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PEGGED TO HOLD SOD IN PLACE.
    - (c)(d) MULCH - ALL PLANTING BEDS SHALL BE MULCHED WITH A 3" THICK LAYER OF DOUBLE SHREDDED HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN AND/OR LANDSCAPE PLAN NOTES / DETAILS.
  - d) FERTILIZER:
    - (d)(a) FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE.
    - (d)(b) FOR THE PURPOSE OF BIDDING, ASSUME THAT FERTILIZER SHALL BE 10% NITROGEN, 6% PHOSPHORUS AND 4% POTASSIUM BY WEIGHT. A FERTILIZER SHOULD NOT BE SELECTED WITHOUT A SOIL TEST PERFORMED BY A CERTIFIED SOIL LABORATORY.
  - e) PLANT MATERIAL:
    - (e)(a) ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION (FORMERLY THE AMERICAN ASSOCIATION OF NURSERYMEN).
    - (e)(b) IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.
    - (e)(c) PLANTS SHALL BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT OF EACH SPECIES FOR VERIFICATION PURPOSES DURING THE FINAL INSPECTION.
    - (e)(d) TREES WITH ABRASION OF THE BARK, SUN SCALDS, DISFIGURATION OR FRESH CUTS OF LIMBS OVER 1/4", WHICH HAVE NOT BEEN COMPLETELY CALLEDUS, SHALL BE REJECTED. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.
    - (e)(e) ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH; WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS, EGGS OR LARVAE.
    - (e)(f) CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE. IF THE CALIPER AT SIX INCHES (6") ABOVE THE GROUND EXCEEDS FOUR INCHES (4") IN CALIPER, THE CALIPER SHOULD BE MEASURED AT A POINT 12" ABOVE THE NATURAL GRADE.
    - (e)(g) SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH.
    - (e)(h) TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.
3. GENERAL WORK PROCEDURES
- a) CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH WORKDAY. ALL DEBRIS, MATERIALS AND TOOLS SHALL BE PROPERLY STORED OR DISPOSED OF.
  - b) WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DEBRIS SHALL NOT BE BURIED, INCLUDING ORGANIC MATERIALS, BUT SHALL BE REMOVED COMPLETELY FROM THE SITE.
4. SITE PREPARATIONS
- a) BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES OUTLINED HEREIN.
  - b) ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE BRANCH COLLAR. CONTRACTOR SHALL ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT. ANY EXPOSED ROOTS SHALL BE CUT BACK WITH CLEAN, SHARP TOOLS AND TOPSOIL SHALL BE PLACED AROUND THE REMAINDER OF THE ROOTS. EXISTING TREES SHALL BE MONITORED ON A REGULAR BASIS FOR ADDITIONAL ROOT OR BRANCH DAMAGE AS A RESULT OF CONSTRUCTION. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY. CONTRACTOR SHALL WATER EXISTING TREES AS NEEDED TO PREVENT SHOCK OR DECLINE.
  - c) CONTRACTOR SHALL ARRANGE TO HAVE A UTILITY STAKE-OUT TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIAL. UTILITY COMPANIES SHALL BE CONTACTED THREE (3) DAYS PRIOR TO THE BEGINNING OF WORK.
5. TREE PROTECTION
- a) CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.
  - b) A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY "VISI-FENCE", OR APPROVED EQUAL, MOUNTED ON CONCRETE POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT FEET (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.
  - c) WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING OR ANY OTHER CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE REGULARLY MAINTAINED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.
  - d) AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.
6. SOIL MODIFICATIONS
- a) CONTRACTOR SHALL OBTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY.
  - b) LANDSCAPE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE LANDSCAPE CONTRACTOR DEPENDING ON SITE CONDITIONS.
  - c) THE FOLLOWING AMENDMENTS AND QUANTITIES ARE APPROXIMATE AND ARE FOR BIDDING PURPOSES ONLY. COMPOSITION OF AMENDMENTS SHOULD BE REVISED DEPENDING ON THE OUTCOME OF A TOPSOIL ANALYSIS PERFORMED BY A CERTIFIED SOIL LABORATORY.
  - d) TO INCREASE A SANDY SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS, THOROUGHLY TILL ORGANIC MATTER INTO THE TOP 6-12". USE COMPOSTED BARK, COMPOSTED LEAF MULCH OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH HIGHER THAN 7.5.
  - (d)(a) TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. SUBSURFACE DRAINAGE LINES MAY NEED TO BE ADDED TO INCREASE DRAINAGE.
  - (d)(b) MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.
7. FINISHED GRADING
- a) UNLESS OTHERWISE CONTRACTED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBANCE AREA OF THE SITE.
  - b) LANDSCAPE CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED. THE SUBGRADE OF THE SITE MUST MEET THE FINISHED GRADE LESS THE REQUIRED TOPSOIL THICKNESS (1").
  - c) ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THIS SET OF CONSTRUCTION PLANS, UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER OR LANDSCAPE ARCHITECT.
  - d) ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER IN AND AROUND THE PLANTING BEDS. STANDING WATER SHALL NOT BE PERMITTED IN PLANTING BEDS.
8. TOPSOILING
- a) CONTRACTOR SHALL PROVIDE A 6" THICK MINIMUM LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, IN ALL PLANTING AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS.
  - b) ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION.
  - c) CONTRACTOR SHALL FURNISH TO THE APPROVING AGENCY AN ANALYSIS OF BOTH IMPORTED AND ON-SITE TOPSOIL TO BE UTILIZED IN ALL PLANTING AREAS. THE PH AND NUTRIENT LEVELS MAY NEED TO BE ADJUSTED THROUGH SOIL MODIFICATIONS AS NEEDED TO ACHIEVE THE REQUIRED LEVELS AS SPECIFIED IN THE MATERIALS SECTION ABOVE.
  - d) ALL LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE TILLED INTO THE TOP FOUR INCHES (4") IN TWO DIRECTIONS (QUANTITIES BASED ON A 1,000 SQUARE FOOT AREA - FOR BID PURPOSES ONLY [SEE SPECIFICATION 6.A.1]):
    - (d)(a) 20 POUNDS "GRO-POWER" OR APPROVED SOIL CONDITIONER/FERTILIZER
    - (d)(b) 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP OR APPROVED NITROGEN FERTILIZER
  - e) THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN CONDITIONS.
9. PLANTING
- a) INSOFAR THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.
  - b) PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.
  - c) ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN-CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.
  - d) ALL PLANTING CONTAINERS, BASKETS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM AROUND THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING.
  - e) POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.
  - f) PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS. THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING

SEASONS:

- (f)(a) PLANTS: MARCH 15 TO DECEMBER 15
- (f)(b) LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1
- (f)(c) PLANTINGS REQUIRED FOR A CERTIFICATE OF OCCUPANCY SHALL BE PROVIDED DURING THE NEXT APPROPRIATE SEASON AT THE MUNICIPALITY'S DISCRETION. CONTRACTOR SHOULD CONTACT APPROVING AGENCY FOR POTENTIAL SUBSTITUTIONS.
- (g) FURTHERMORE, THE FOLLOWING TREE VARIETIES ARE UNUSUALLY SUSCEPTIBLE TO WINTER DAMAGE. WITH TRANSPLANT SHOCK AND THE SEASONAL LACK OF NITROGEN AVAILABILITY, THE RISK OF PLANT DEATH IS GREATLY INCREASED. IT IS NOT RECOMMENDED THAT THESE SPECIES BE PLANTED DURING THE FALL PLANTING SEASON:
  - ACER RUBRUM
  - BETULA VARIETIES
  - CARPINUS VARIETIES
  - CRATAEGUS VARIETIES
  - KOELREUTERIA
  - LIQUIDAMBAR STRYACIFLUA
  - LIRIODENDRON TULIPIFERA
  - PLATANUS X ACERIFOLIA
  - POPULUS VARIETIES
  - PRUNUS VARIETIES
  - PYRUS VARIETIES
  - QUERCUS VARIETIES
  - TILIA TOMENTOSA
  - ZELKOVA VARIETIES

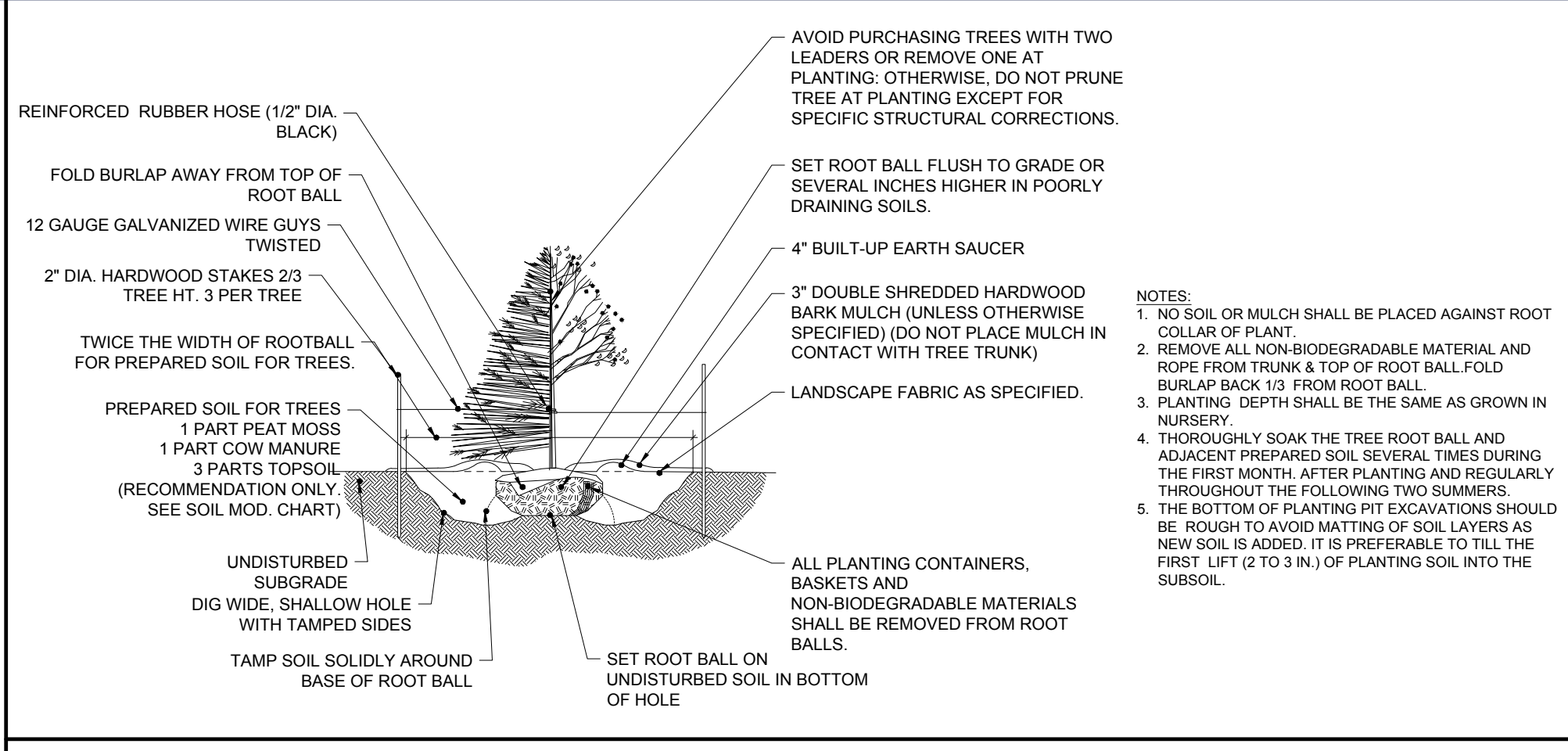
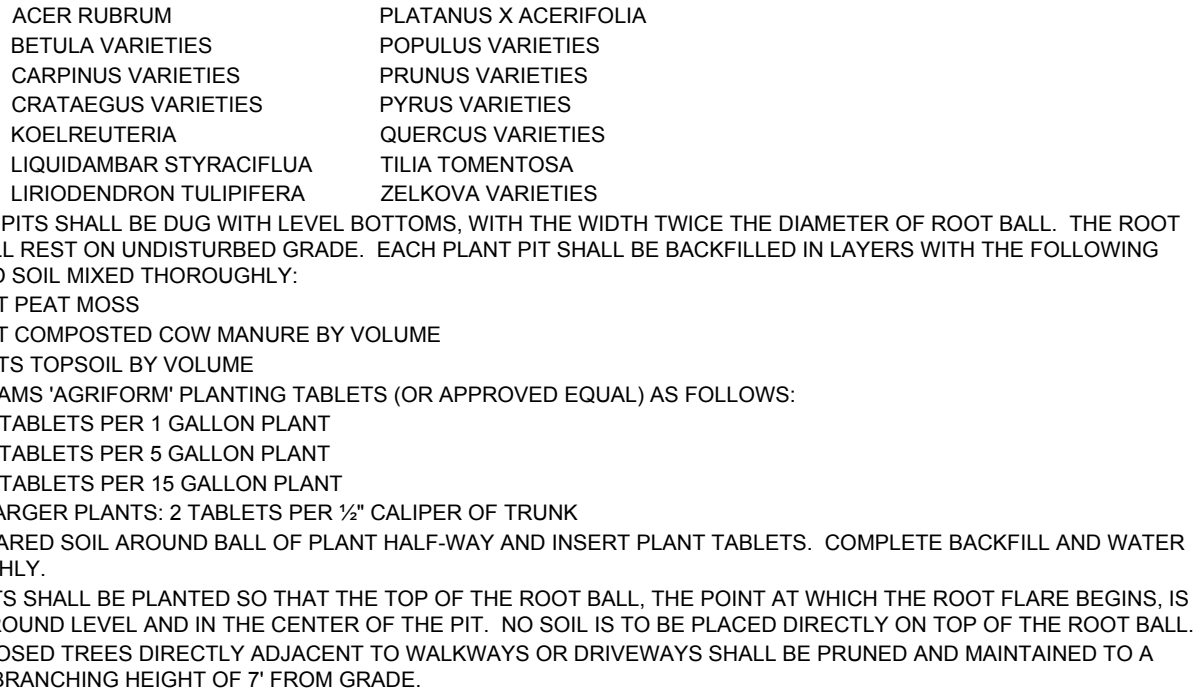
- (h) PLANTING SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:
    - (h)(a) 1 PART PEAT MOSS
    - (h)(b) 1 PART COMPOSTED COW MANURE BY VOLUME
    - (h)(c) 3 PARTS TOPSOIL BY VOLUME
    - (h)(d) 21 GRAMS AGRIFORM PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS:
      - (h)(d)(a) 2 TABLETS PER 1 GALLON PLANT
      - (h)(d)(b) 3 TABLETS PER 5 GALLON PLANT
      - (h)(d)(c) 4 TABLETS PER 15 GALLON PLANT
    - (h)(e) LARGER PLANTS: 2 TABLETS PER 1" CALIPER OF TRUNK
  - (i) FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.
  - (j) ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.
  - (k) ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GRADE.
  - (l) GROUND COVER AREAS SHALL RECEIVE A 1/2" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WEDED AND TREATED WITH A PRE-EMERGENT CHEMICAL AS PER MANUFACTURER'S RECOMMENDATION.
  - (m) NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.
  - (n) ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.
  - (o) ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.
10. TRANSPLANTING (WHEN REQUIRED)
- a) ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.
  - b) IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN WITH MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.
  - c) PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.
  - d) UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.
  - e) TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.
  - f) TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

11. WATERING

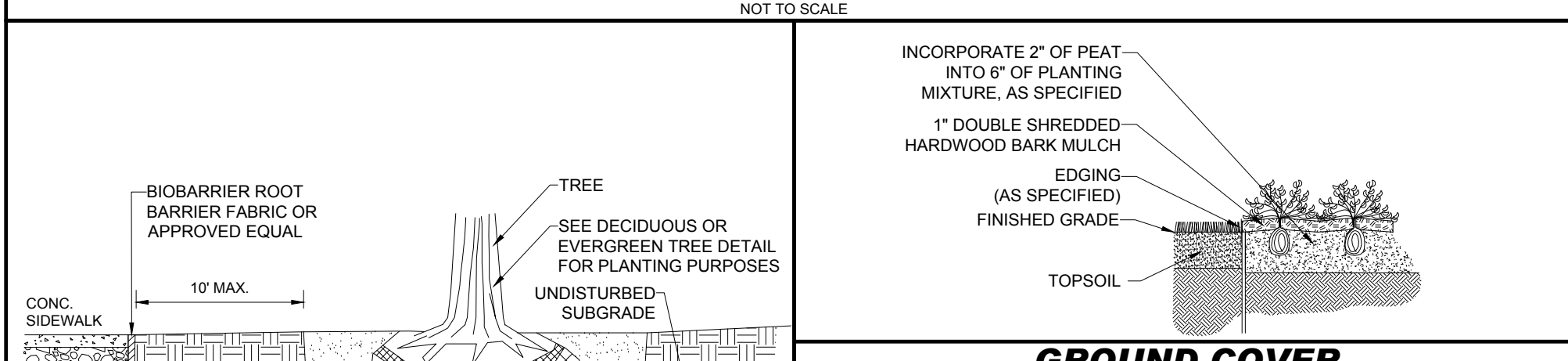
- a) NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.
- b) SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.
- c) IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

12. GUARANTEE

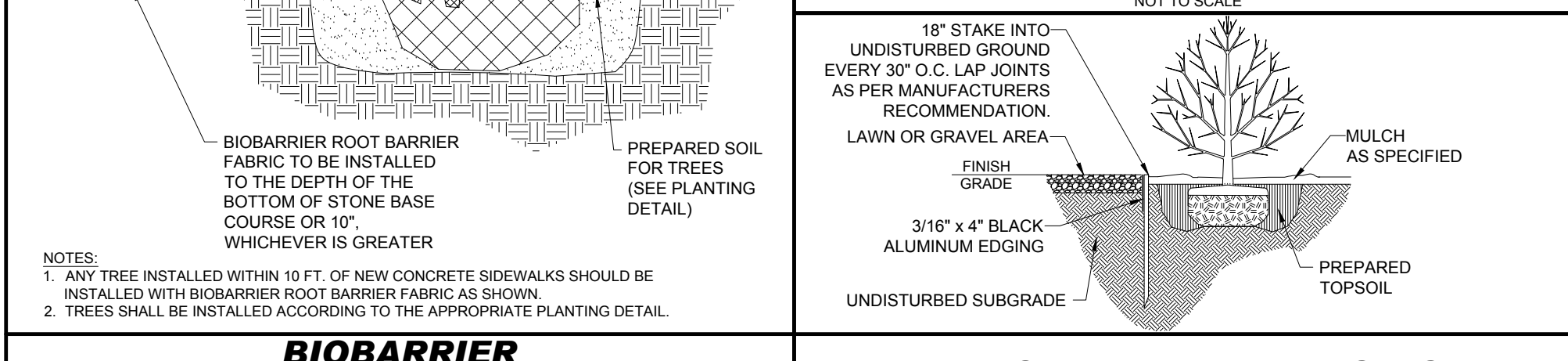
- a) THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF 1 YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.
  - b) ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE, WITHOUT EXCEPTION.
  - c) TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.
  - d) LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.
13. CLEANUP
- a) UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.
  - b) THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.
14. MAINTENANCE (ALTERNATIVE BID):
- a) A 90 DAY MAINTENANCE PERIOD SHALL COMMENCE AT THE END OF ALL LANDSCAPE INSTALLATION OPERATIONS. THE 90 DAY MAINTENANCE PERIOD ENSURES TO THE OWNER/OPERATOR THAT THE NEWLY INSTALLED LANDSCAPING HAS BEEN MAINTAINED AS SPECIFIED ON THE APPROVED LANDSCAPE PLAN. UNCE THE INITIAL 90 DAY MAINTENANCE PERIOD HAS EXPIRED, THE OWNER/OPERATOR MAY REQUEST THAT BIDDERS SUBMIT AN ALTERNATE MAINTENANCE BID FOR A MONTHLY MAINTENANCE CONTRACT. THE ALTERNATE MAINTENANCE CONTRACT WILL ENCOMPASS ANY WORK THAT IS CONSIDERED APPROPRIATE TO ENSURE THAT THE PLANT AND LAWN AREAS ARE HEALTHY AND MAINTAINED TO THE APPROVAL OF THE OWNER/OPERATOR.



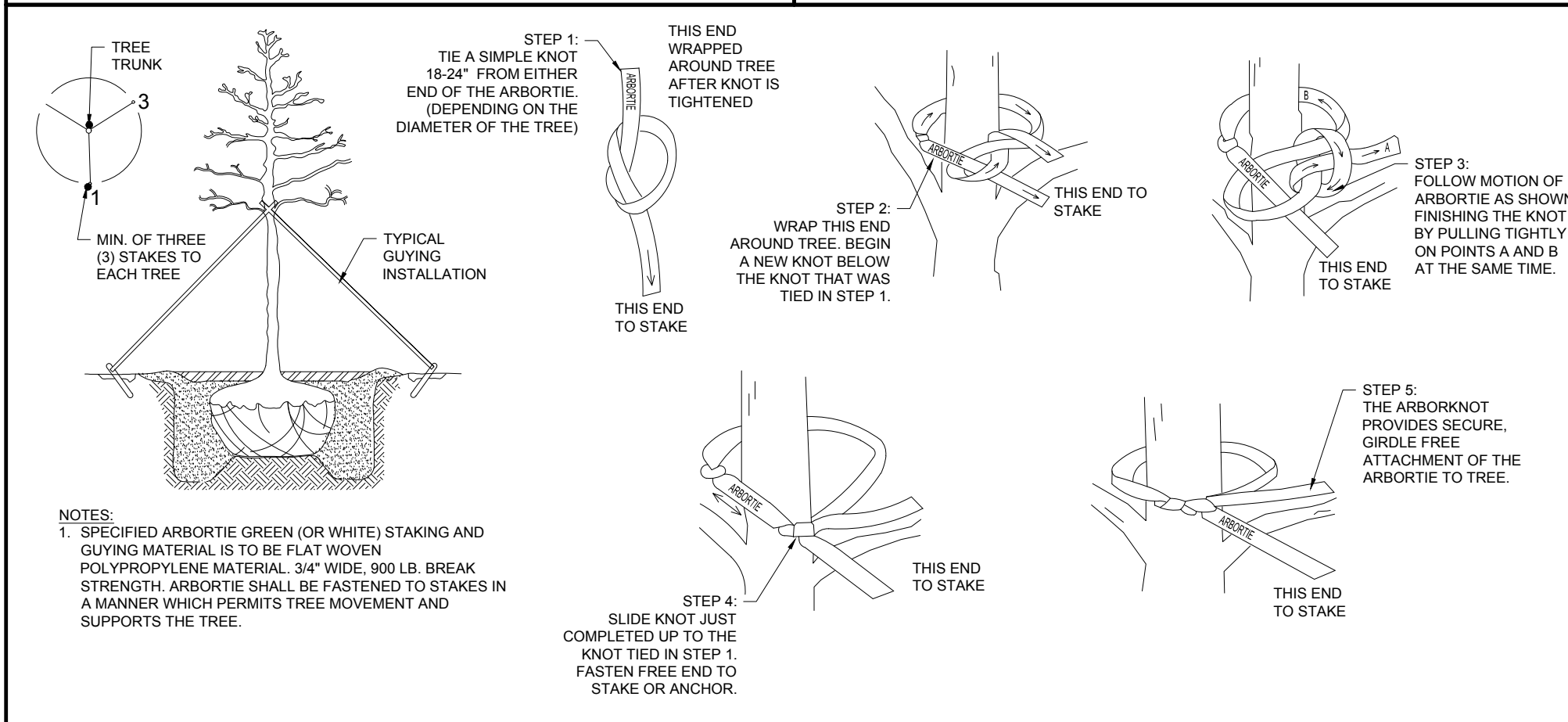
**TREE PLANTING**



**GROUND COVER PLANTING**

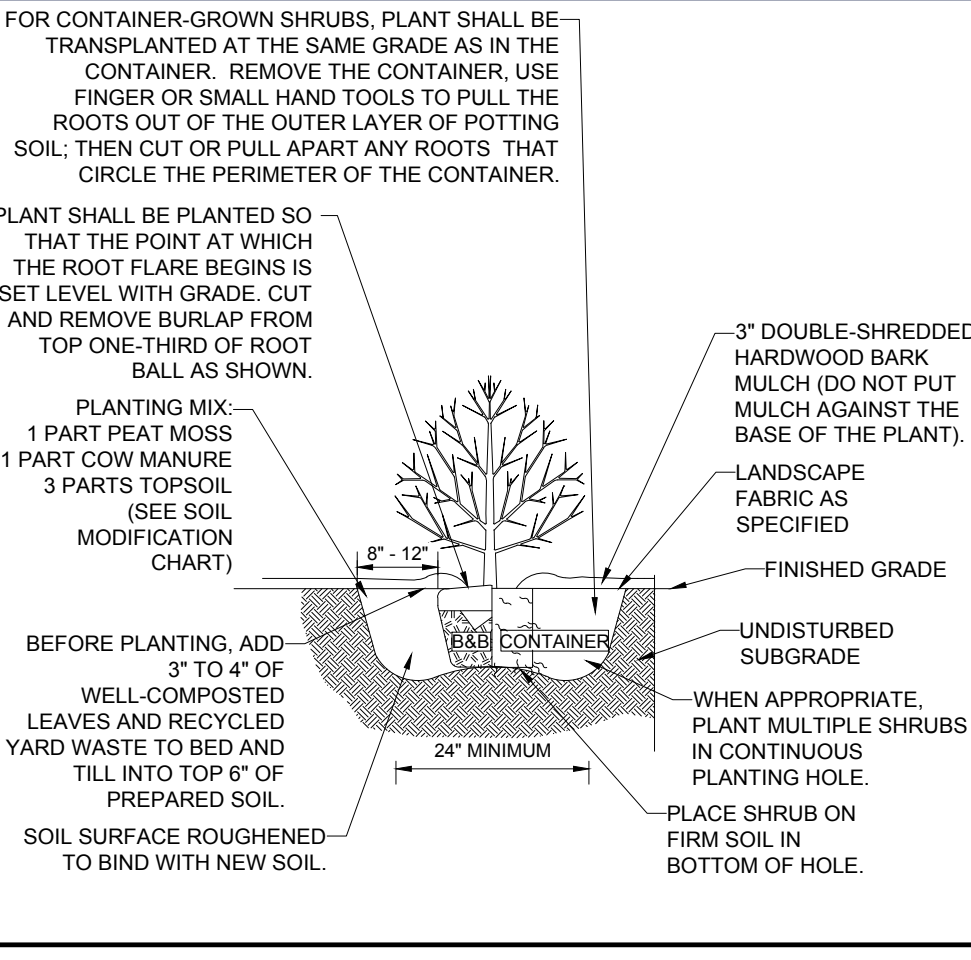


**BIOBARRIER ROOT BARRIER**



**BLACK ALUMINUM EDGING**

**ARBORTIVE STAKING**



**SHRUB PLANTING**

1. PRIOR TO SEEDING, AREA IS TO BE TOPSOILED, FINE GRADED, AND RAKED OF ALL DEBRIS LARGER THAN 2" DIAMETER.
2. PRIOR TO SEEDING, CONSULT MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
3. SEEDING RATES:
- |                          |                   |
|--------------------------|-------------------|
| a) PERENNIAL RYEGRASS    | 1/2 LB/1000 SQ FT |
| b) KENTUCKY BLUEGRASS    | 1 LB/1000 SQ FT   |
| c) RED FESCUE            | 1/2 LB/1000 SQ FT |
| d) SPREADING FESCUE      | 1/2 LB/1000 SQ FT |
| e) FERTILIZER (16.32.16) | 2 LB/1000 SQ FT   |
| f) LIQUID LIME           | 1 GAL/800 GAL     |
| g) TANK TACKIFIER        | 2 LB/1000 GAL     |
| h) TANK FIBER MULCH      | 50 LB/1000 SQ FT  |
4. GERMINATION RATES WILL VARY AS TO TIME OF YEAR FOR SOWING. CONTRACTOR TO IRRIGATE SEEDS UNTIL AN ACCEPTABLE STAND OF COVER IS APPROVED BY OWNER.

**HYDROSEED SPECIFICATIONS**

- "NEW ENGLAND CONSERVATION WILDLIFE SEED MIX" AS PREPARED BY:  
NEW ENGLAND WETLAND PLANTS, INC.  
820 WEST STREET, AMHERST, MA 01002  
PHONE: 413-548-8000  
EMAIL: INFO@NEWP.COM  
WEBSITE: WWW.NEWP.COM
- APPLICATION RATE: 1750 SQ FT/LB OR 25LBS/ACRE  
1. MINIMUM ORDER: 2 LBS
2. SPECIES:
- a) VIRGINIA WILD RYE (ELYMUS VIRGINICUS)
  - b) LITTLE BLUESTEM (SCHIZACHYRIUM SCOPARIUM)
  - c) BIG BLUESTEM (ANDROPOGON GERARDII)
  - d) RED FESCUE (FESTUCA RUBRA)
  - e) SWITCH GRASS (PANICUM VIRGATUM)
  - f) PARTRIDGE PEA (CHAMAECRISTA FASCICULATA)
  - g) COMMON LEAF TICK TREFLOW (DESMODIUM PANICULATUM)
  - h) INDIAN GRASS (SORGHASTRUM NUTANS)
  - i) BLUE VERVAIN (VERBENA HASTATA)
  - j) BUTTERFLY MILKWEED (ASCLEPIAS TUBEROSA)
  - k) BLACK EYED SUSAN (RUBECCKIA HIRTA)
  - l) COMMON SNEEZEWEED (HELENIUM AUTUNALE)
  - m) HEALTH ASTER (ASTER PILLOSUS/SYMPHYOTRICHUM PILOSUM)
  - n) EARLY GOLDENROD (SOLIDAGO JUNCEA)
  - o) UPLAND BENTGRASS (AGROSTIS PERENNANS).

**BOHLER**

SITE CIVIL AND CONSULTING ENGINEERING  
PROGRAM MANAGEMENT  
LANDSCAPE ARCHITECTURE  
SUSTAINABLE DESIGN  
PERMITTING SERVICES  
TRANSPORTATION SERVICES

**REVISIONS**

REV	DATE	COMMENT	DRAWN BY

**811**

Know what's below.  
Call before you dig.  
ALWAYS CALL 811  
It's fast. It's free. It's the law.

**PERMIT SET**

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MA0230363-00-0B  
DRAWN BY: SBB  
CHECKED BY: CPB/MLD  
DATE: 10/02/2020  
CAD LID: P-CIVIL-LSCP

**SITE DEVELOPMENT PLANS**

FOR

**PROPOSED SITE IMPROVEMENTS**

MAP: 45 | BLK: 34 | LOT: 13  
315-317 SOUTHWEST CUTOFF  
WORCESTER COUNTY  
WORCESTER, MASSACHUSETTS

**NEW ENGLAND CONSERVATION / WILDLIFE SEED MIX SPECIFICATION**

NOT TO SCALE

**BOHLER**

352 TURNPIKE ROAD, 3rd FLOOR  
SOUTHBOROUGH, MA 01772  
Phone: (508) 480-9900  
www.BohlerEngineering.com

Matthew D. Mather  
Professional Engineer  
No. 0171  
State of Massachusetts  
Civil Engineering

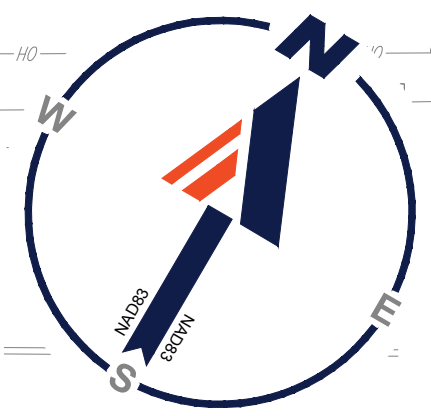
SHEET TITLE:  
**LANDSCAPE NOTES AND DETAILS**

SHEET NUMBER:  
**L-102**

ORG. DATE - 10/02/2024

P:\2023\MA0230363-00-0B\CAD\DRAWINGS\PLAN SET\CIVIL SITE PLAN\SPR-CIV-LSCP\MA0230363-00-0B-CAD\YOU1-L-102.NOTE





### SOUTHWEST CUT

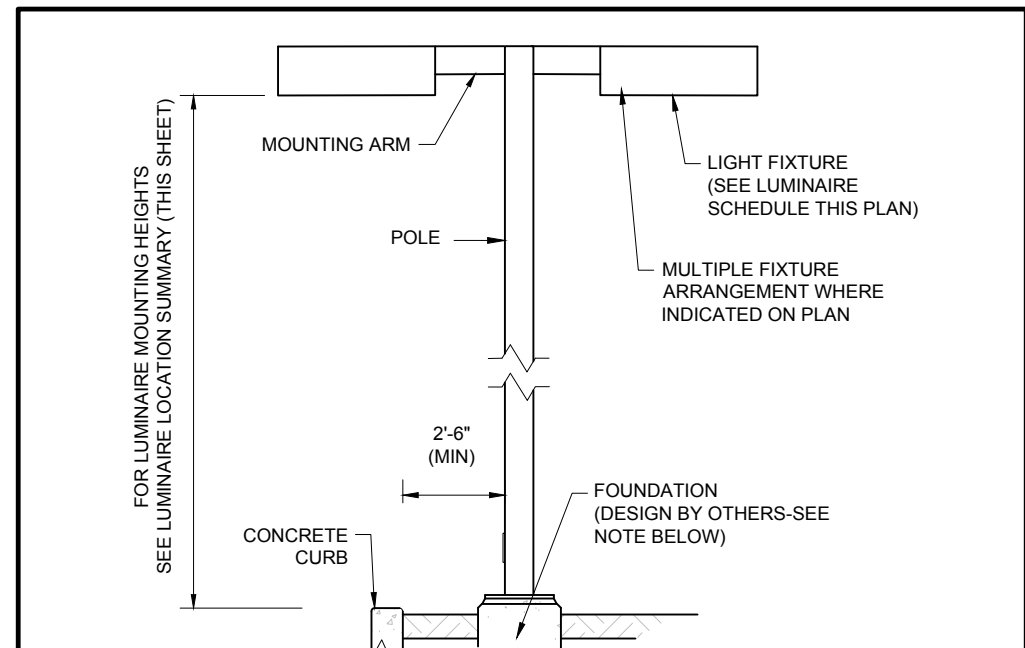
(PUBLIC RIGHT-OF-WAY - 80' W/)  
(LAYOUT NO. 7223-2 ROUTE 2)

LABEL	QTY	MOUNTING HEIGHT	ARRANGEMENT	LUM. LUMENS	LLF	DESCRIPTION
P2-S	2	25'-0" AFG	SINGLE	11804	0.900	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 2 MEDIUM, WITH HOUSE-SIDE SHIELD, ZERO UP-LIGHT (DSX1LED-P3-40K-70CRI-T2M-HS)
P3-D	1	25'-0" AFG	2 @ 90 DEGREES	13762	0.900	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 3 MEDIUM, ZERO UP-LIGHT (DSX1LED-P3-40K-70CRI-T3M)
P3-S	2	25'-0" AFG	SINGLE	11929	0.900	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 3 MEDIUM, WITH HOUSE-SIDE SHIELD, ZERO UP-LIGHT (DSX1LED-P3-40K-70CRI-T3M-HS)
P5-D	1	25'-0" AFG	BACK-BACK	14602	0.900	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 5 WIDE, ZERO UP-LIGHT (DSX1LED-P3-40K-70CRI-T5W)
PF-S	1	25'-0" AFG	SINGLE	11794	0.900	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE FORWARD THROW MEDIUM, WITH HOUSE-SIDE SHIELD, ZERO UP-LIGHT (DSX1LED-P3-40K-70CRI-TFTM-HS)
W1	7	10'-0" AFF	SINGLE	1568	0.900	LITHONIA LIGHTING, WPX LED WALL PACK, ZERO UP-LIGHT (WPX1 LED P1-40K-x)

\*REFER TO ARCHITECTURAL PLANS FOR FINAL MOUNTING HEIGHT AND LOCATIONS

LABEL	CALCTYPE	UNITS	Avg	MAX	MIN	AVGMIN	MAXMIN
ALL POINTS	ILLUMINANCE	FC	0.25	5.7	0.0	N.A.	N.A.
DRIVE AISLE	ILLUMINANCE	FC	1.53	4.0	0.6	2.55	6.67
PARKING COURT	ILLUMINANCE	FC	1.29	2.7	0.6	2.15	4.50

SECTION	REQUIREMENTS	CALCULATIONS/PROPOSED
ARTICLE IV - USE REGULATIONS SECTION 7 - OFF-STREET PARKING AND LOADING	3. GENERAL PROVISIONS FOR OFF-STREET ACCESSORY PARKING AND LOADING 3. DESIGN STANDARDS ALL LIGHTING USED TO ILLUMINATE ANY OFF-STREET PARKING OR LOADING FACILITY SHALL BE INSTALLED SO THAT DIRECT RAYS FROM SUCH LIGHTING SHALL NOT CAUSE A PUBLIC NUISANCE TO ADJACENT PROPERTY.	PROVIDED



- NOTES:
- THIS DETAIL IS FOR BID AND BUDGETARY PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING A FOUNDATION DESIGN PREPARED BY A QUALIFIED STRUCTURAL ENGINEER CONSIDERING LIGHTING MANUFACTURER REQUIREMENTS, LOCAL WIND LOADS AND SITE SPECIFIC SOIL PARAMETERS.
  - SOME SITE CONDITIONS AND/OR LOCATIONS MAY REQUIRE VIBRATION DAMPENING MEASURES AS DETERMINED BY A STRUCTURAL ENGINEER.
  - THE STRUCTURAL ENGINEER SHALL BE NOTIFIED OF THE INTENT TO MOUNT ANYTHING TO THE POLE, ASIDE FROM THE LIGHT FIXTURES, INCLUDING BUT NOT LIMITED TO CAMERAS, BANNERS, FLAGS, SIGNAGE, ETC. AS IT WILL IMPACT THE POLE AND FOUNDATION DESIGN.

### AREA LIGHT

**BOHLER**  
SITE CIVIL AND CONSULTING ENGINEERING  
PROGRAM MANAGEMENT  
LANDSCAPE ARCHITECTURE  
SUSTAINABLE DESIGN  
PERMITTING SERVICES  
TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

Know what's below.  
Call before you dig.  
ALWAYS CALL 811  
It's fast. It's free. It's the law.

**PERMIT SET**

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MAA230363-00-0B  
DRAWN BY: SBB  
CHECKED BY: CPB/LMD  
DATE: 10/02/2024  
CAD ID: P-CIVIL-LGHT

**SITE DEVELOPMENT PLANS**  
FOR  
  
PROPOSED SITE IMPROVEMENTS

MAP: 45 | BLK: 34 | LOT: 13  
315-317 SOUTHWEST CUTOFF  
WORCESTER COUNTY  
WORCESTER, MASSACHUSETTS

**BOHLER**  
352 TURNPIKE ROAD, 3rd FLOOR  
SOUTHBOROUGH, MA 01772  
Phone: (508) 480-9900  
www.BohlerEngineering.com

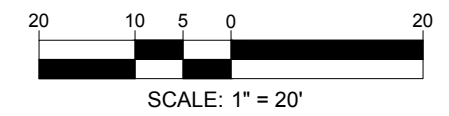


SHEET TITLE:  
**LIGHTING PLAN**

SHEET NUMBER:  
**L-201**

ORG. DATE - 10/02/2024

**THIS PLAN TO BE UTILIZED FOR LIGHTING PURPOSES ONLY**



P:\2023\MAA230363\01\CADD\DRAWINGS\PLAN SET\CIVIL SITE PLANS\CIVIL LIGHTING\MAA230363-00-0B-LAYOUT-1-201-LGHT



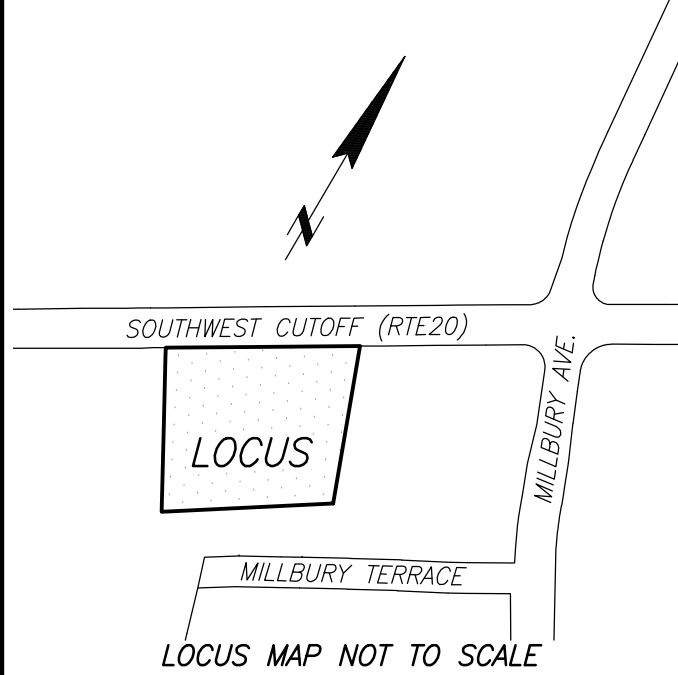




BOSTON HEADQUARTERS  
152 HAMPDEN STREET  
BOSTON, MA 02119

WORCESTER OFFICE  
27 MECHANIC STREET  
WORCESTER, MA 01608

(617)357-9740  
www.feldmangeo.com



I CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY AND THE LATEST PLANS AND DEEDS OF RECORD.

**DRAFT 6/28/2024**

TIMOTHY R. AGURKIS, PLS DATE  
(MA# 52782)  
TAGURKIS@FELDMANGEO.COM

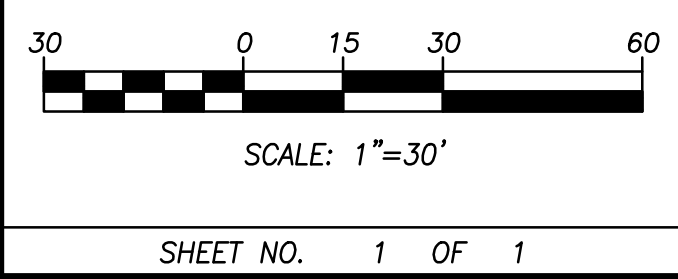
DRAWING NAME:  
**EXISTING CONDITIONS  
PLAN OF LAND**  
317 SOUTHWEST CUTOFF  
WORCESTER, MASS.

DATE: JUNE 19, 2024

REVISIONS:


FILENAME: 2400627-EX.dwg

RESEARCH: JG	FIELD CHIEF: KF
PROJ MGR: JG	APPROVED: HF
CALC: JG	CADD: HF
FIELD CHK: JG	CRD FILE: 2400627-EX



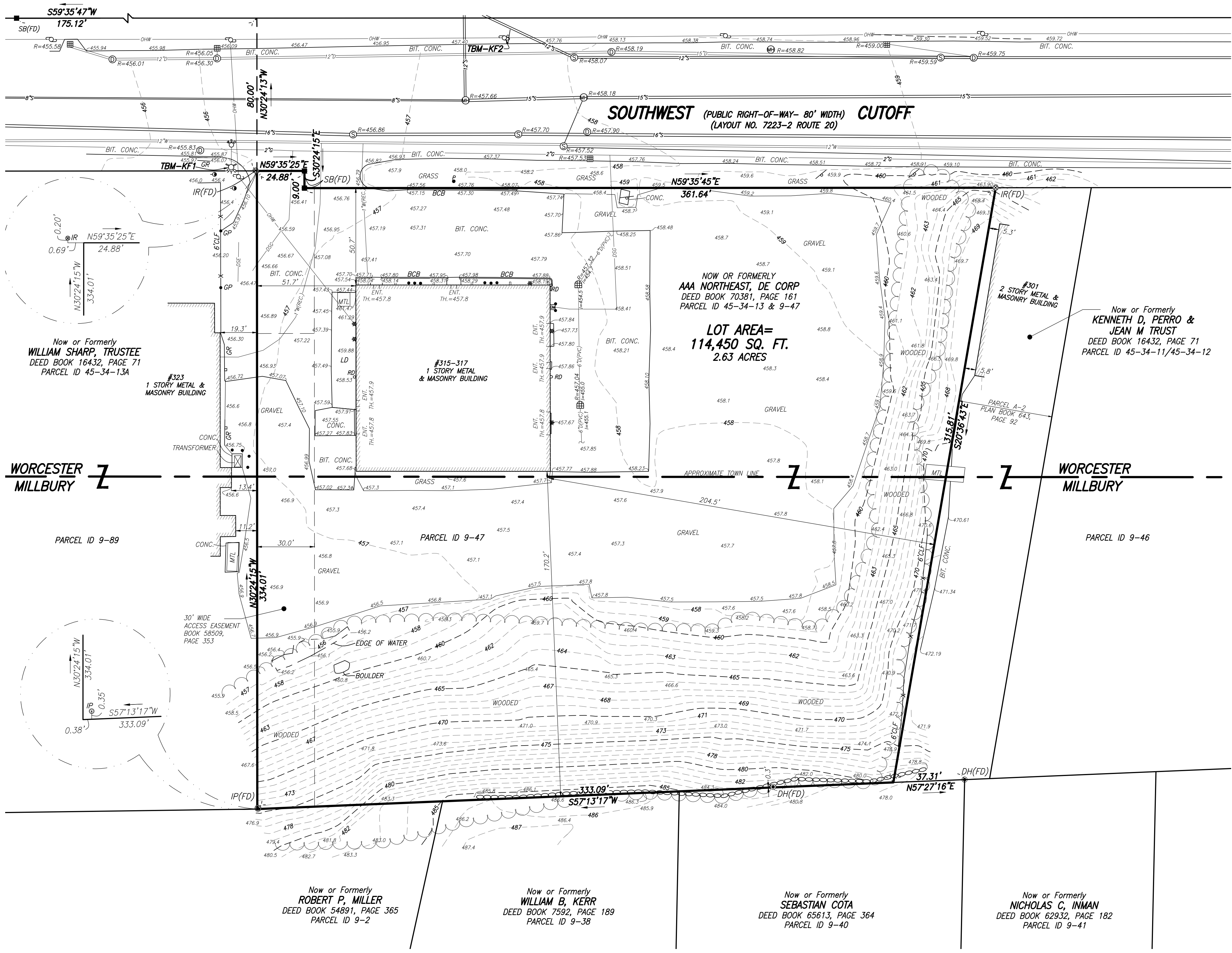
**REFERENCES PLANS**

WORCESTER COUNTY REGISTRY OF DEEDS

- PLAN OF LAND OF POINTED ROCK CONDOMINIUM, DATED JULY 10, 1986, BY BOULEY BROTHERS INC. PLAN BOOK 561, PLAN 17.
- EASEMENT PLAN OF LAND OF UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT, DATED APRIL 23, 2021, BY DAVID E. ROSS ASSOCIATES, INC. PLAN BOOK 956, PLAN 88.
- PLAN OF LAND OF WORCESTER ACRES, DATED SEPTEMBER 30, 1946, BY W.T. MOORE ENGR. BOOK 141, PLAN 122.
- SUBDIVISION PLAN OF LAND OF MILLBURY TERRACE, DATED OCTOBER 13, 1948, BY KENNETH SHAW. PLAN BOOK 156, PLAN 40.
- PLAN OF LAND OF GARRY N. BEAN, DATED SEPTEMBER 1, 1977, BY CULLINAN ENGINEERING CO. PLAN BOOK 455, PLAN 19.
- PLAN OF LAND OF KENNETH D. FERRO, DATED APRIL 19, 1990, BY BOULEY BROTHERS INC. PLAN BOOK 643, PLAN 92.
- SUBDIVISION PLAN OF LAND OF BOB MILLER'S WAY, DATED MARCH 18, 2013, BY ALPHA OMEGA ENGINEERING INC. PLAN BOOK 899, PLAN 91.
- PLAN OF LAND OF MILLBURY TERRACE, DATED SEPTEMBER 22, 1947, BY C.M. BROUGH. PLAN BOOK 145, PLAN 87.
- EXHIBIT PLAN OF 315-317 SOUTHWEST CUTOFF, DATED FEBRUARY 26, 2016, BY J.M. GRENIER ASSOCIATES INC. PLAN BOOK 58509, PLAN 355.

**NOTES:**

- BENCH MARK INFORMATION:  
BENCH MARK USED:  
ELEVATIONS WERE OBTAINED BY GPS OBSERVATIONS ON 6/19/2024.  
TEMPORARY BENCH MARKS SET:  
TBM-KF1: X-CUT IN FRONT OF LEFT BOLT OVER MAIN OPENING ON HYDRANT AT 315-317 SOUTHWEST CUTOFF, AS SHOWN HEREON. ELEVATION = 458.03  
TBM-KF2: RAILROAD SPIKE SET IN UTILITY POLE #73 ALONG NORTHERLY SIDELINE OF SOUTH WEST CUTOFF, AS SHOWN HEREON. ELEVATION = 459.04
- ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
- CONTOUR INTERVAL EQUALS ONE (1) FOOT.
- BY GRAPHIC PLOTTING ONLY, THE PARCEL SHOWN HEREON LIES WITHIN A ZONE "X" (UNSHADED), AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A.) FLOOD INSURANCE RATE MAP (F.I.R.M.) FOR WORCESTER COUNTY, MASSACHUSETTS, MAP NUMBER 25027C0807E, TOWN OF WORCESTER, HAVING AN EFFECTIVE DATE OF JULY 4, 2011.
- UTILITY INFORMATION SHOWN IS BASED ON BOTH A FIELD SURVEY AND PLANS OF RECORD. THE LOCATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM THE AFOREMENTIONED RECORD PLANS AND ARE APPROXIMATE ONLY. WE CANNOT ASSUME RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES THAT ARE OMITTED OR INACCURATELY SHOWN ON SAID RECORD PLANS. SINCE SUBSURFACE UTILITIES CANNOT BE VISIBLY VERIFIED, BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER UTILITY ENGINEERING DEPARTMENT SHOULD BE CONSULTED AND THE ACTUAL LOCATION OF SUBSURFACE STRUCTURES SHOULD BE DETERMINED IN THE FIELD. CALL, TOLL FREE, THE DIG SAFE CALL CENTER AT 1-888-344-7233 SEVENTY-TWO HOURS PRIOR TO EXCAVATION.
- THIS DOCUMENT IS AN INSTRUMENT OF SERVICE OF FELDMAN GEOSPATIAL ISSUED TO OUR CLIENT FOR PURPOSES RELATED DIRECTLY AND SOLELY TO FELDMAN GEOSPATIAL'S SCOPE OF SERVICES UNDER CONTRACT TO OUR CLIENT FOR THIS PROJECT. ANY USE OR REUSE OF THIS DOCUMENT FOR ANY REASON BY ANY PARTY FOR PURPOSES UNRELATED DIRECTLY AND SOLELY TO SAID CONTRACT SHALL BE AT THE USER'S SOLE AND EXCLUSIVE RISK AND LIABILITY, INCLUDING LIABILITY FOR VIOLATION OF COPYRIGHT LAWS, UNLESS WRITTEN CONSENT IS PROVIDED BY FELDMAN GEOSPATIAL.



**LEGEND**

- ⊙ Sewer Manhole
- ⊙ Drain Manhole
- ⊙ Hydrant
- ⊙ Catch Basin
- ⊙ Water Shut Off/Water Gate
- ⊙ D-Frame Catch Basin
- ⊙ Guy Wire
- ⊙ Utility Pole
- ⊙ Light Pole
- ⊙ Walk Light
- ⊙ Bollard
- ⊙ Post
- ⊙ Sign
- ⊙ RD Roof Drain
- ⊙ Magnail
- ⊙ Drill Hole
- ⊙ Bound Found with Drill Hole
- ⊙ Lead Plug and Tack
- ⊙ Iron Pipe
- ⊙ Iron Rod
- ⊙ Transformer
- BCB Bit. Conc. Berm
- BFA Building Footprint Area
- BIT. Bituminous
- BW Bottom of Wall
- CB Concrete Bound
- CLF Chain Link Fence
- CONC. Concrete
- DH Drill Hole
- ENT Entrance
- FD Found
- GR Guard Rail
- I Invert Elevation
- IP Iron Pipe
- IR Iron Rod
- LD Loading Dock
- MTL Metal
- R Rim Elevation
- SB Stone Bound
- SQ. FT. Square Feet
- SRW Stone Retaining Wall
- TBM Temporary Bench Mark
- TH Threshold
- Utility Continues to Unknown Destination
- GP Gate Post
- (REC) Record
- D Drain
- G Gas
- OHW Overhead Wires
- S Sewer
- W Water
- 12" (C) Pipe Size and Material
- PVC Polyvinyl Chloride
- X Metal Fence
- Guard Rail
- Stone Wall
- DSE Digsafe Electric