

# EAST PARK RENOVATION

180 SHREWSBURY STREET  
WORCESTER, MASSACHUSETTS



## OWNER

Worcester Department of Public Works and Parks (WDPWP)  
50 Officer Manny Familia Way  
Worcester, Massachusetts 01605

## CIVIL ENGINEER/SURVEYOR/ AND LANDSCAPE ARCHITECT

Beals and Thomas, Inc.  
144 Turnpike Road  
Southborough, Massachusetts 01772

## ELECTRICAL ENGINEER

Asplundh Engineering Services  
25 Forbes Boulevard, Suite #1A  
Foxboro, Massachusetts 02035

## IRRIGATION ENGINEER

Aqueous Consultants, LLC  
1 Dundee Park Drive, Suite 10  
Andover, Massachusetts 01810

**Eric D. Batista**

*City Manager*

**Jay J. Fink, P.E.**

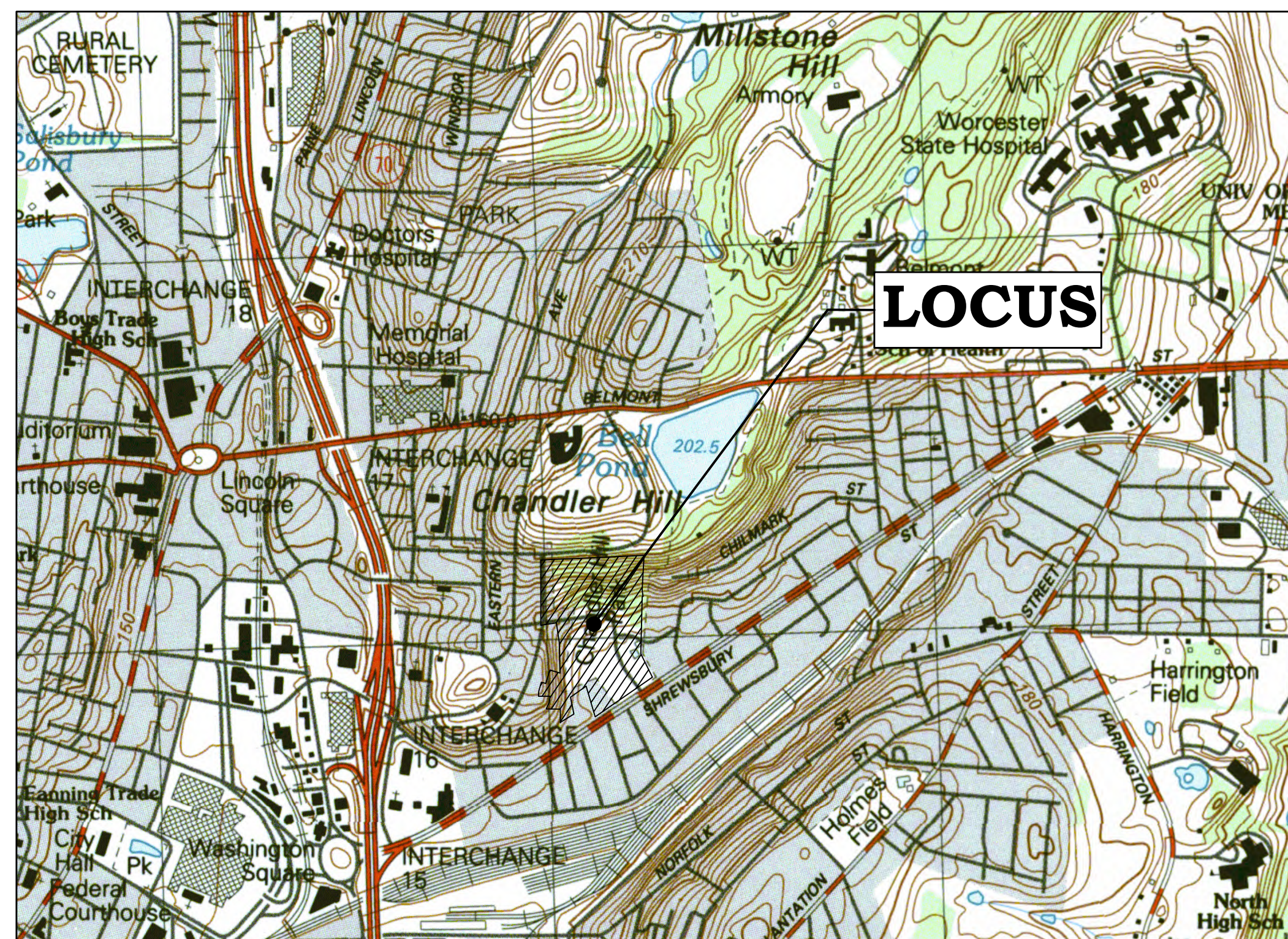
*Commissioner*

*Department of Public Works & Parks*

**Robert C. Antonelli, Jr.**

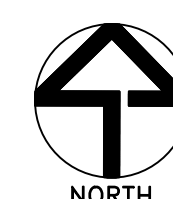
*Assistant Commissioner*

*Department of Public Works & Parks*



**Locus Map**

Scale: 1" = 1000'



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**Issued For Bidding - June 16, 2023**

Job No.: 3131.02  
Plan No.: 313102P004A-001  
Sheet 1 of 24



GENERAL NOTES

1. THE CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND OBTAIN NECESSARY CONSTRUCTION PERMITS. THE CONTRACTOR SHALL PAY FEES AND POST BONDS ASSOCIATED WITH THE SAME, AND COORDINATE WITH THE ENGINEER AND ARCHITECT AS REQUIRED.
2. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY AND CONSTRUCTION MEANS AND METHODS.
3. LIMIT OF WORK SHALL BE EROSION CONTROL BARRIERS, LIMIT OF GRADING, SITE PROPERTY LINES, AND/OR AS INDICATED ON DRAWINGS.
4. PORTIONS OF THE ROADWAY, SIDEWALK, AND ROADSIDE AREA DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION PRIOR TO DISTURBANCE. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO OWNER.
5. CONTRACTOR SHALL VERIFY UTILITY STUB LOCATIONS AND ELEVATIONS IN THE FIELD PRIOR TO COMMENCING WORK.
6. ANY ALTERATION TO THESE DRAWINGS MADE IN THE FIELD DURING CONSTRUCTION SHALL BE RECORDED BY THE CONTRACTOR ON RECORD DRAWINGS.
7. EXISTING TREES AND SHRUBS OUTSIDE THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON PRIOR APPROVAL OF THE OWNER.
8. CONTRACTORS AND SUBCONTRACTORS SHALL OBTAIN A TRENCH PERMIT PRIOR TO ANY TRENCHING ON SITE IN ACCORDANCE WITH 520 CMR 14.00.
9. FOR DRAWING LEGIBILITY, ALL EXISTING TOPOGRAPHIC FEATURES, EXISTING UTILITIES, PROPERTY BOUNDARIES, EASEMENTS, ETC. MAY NOT BE SHOWN ON ALL DRAWINGS. REFER TO ALL REFERENCED DRAWINGS AND OTHER DRAWINGS IN THIS SET FOR ADDITIONAL INFORMATION.

EROSION CONTROL AND SEDIMENTATION NOTES

1. A SEDIMENT CONTROL BARRIER SHALL BE INSTALLED ALONG THE EDGE OF PROPOSED WORK AS INDICATED ON THE PLANS PRIOR TO THE COMMENCEMENT OF DEMOLITION OR CONSTRUCTION.
2. CONTRACTOR SHALL CLEAN AND MAINTAIN ALL SEDIMENT AND EROSION CONTROL MEASURES FOR THE DURATION OF CONSTRUCTION TO ENSURE THEIR CONTINUED FUNCTIONALITY.
3. ADDITIONAL EROSION CONTROL MEASURES AND/OR SEDIMENT CONTROL BARRIERS SHALL BE IMPLEMENTED AS CONDITIONS WARRANT OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
4. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED ON A DAILY BASIS DURING CONSTRUCTION TO ENSURE THAT CHANNELS, DITCHES, AND PIPES REMAIN CLEAR OF DEBRIS AND THAT THE EROSION AND SEDIMENTATION CONTROL MEASURES ARE INTACT.
5. ALL POINTS OF CONSTRUCTION EGRESS OR INGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC WAYS. ANY SEDIMENT TRACKED ONTO PUBLIC WAYS SHALL BE SWEEPED AT THE END OF EACH WORKING DAY.
6. ALL STOCKPILE AREAS SHALL BE LOCATED WITHIN LIMIT OF WORK LINE AND STABILIZED TO PREVENT EROSION.
7. ALL DEBRIS GENERATED DURING SITE PREPARATION ACTIVITIES SHALL BE LEGALLY DISPOSED OF OFF SITE.
8. CONTRACTOR SHALL PROVIDE CRIBBING AS NECESSARY TO PROTECT EXISTING UTILITY LINES DURING CONSTRUCTION.
9. SITE ELEMENTS TO REMAIN SHALL BE PROTECTED FOR THE DURATION OF CONSTRUCTION.
10. ALL TOPSOIL ENCOUNTERED WITHIN THE LIMIT OF WORK SHALL BE STRIPPED TO ITS FULL DEPTH AND STOCKPILED FOR REUSE. EXCESS TOPSOIL SHALL BE DISPOSED OF ON SITE AS DIRECTED BY OWNER. TOPSOIL STOCKPILES SHALL REMAIN SEGREGATED FROM OTHER EXCAVATED SOIL MATERIALS.
12. TEMPORARY DIVERSION DITCHES, PERMANENT DITCHES, CHANNELS, EMBANKMENTS, AND ANY DENUDEd SURFACE WHICH WILL BE EXPOSED FOR A PERIOD OF ONE MONTH OR MORE SHALL BE CONSIDERED CRITICAL VEGETATION AREAS. THESE AREAS SHALL BE MULCHED WITH STRAW. MULCH SHALL BE SPREAD UNIFORMLY IN A CONTINUOUS BLANKET OF SUFFICIENT THICKNESS TO COMPLETELY HIDE THE SOIL FROM VIEW.
13. CONTRACTOR SHALL PROVIDE DUST CONTROL BY SPRINKLING OR OTHER APPROVED METHODS NECESSARY AND/OR AS DIRECTED BY THE OWNER OR THEIR REPRESENTATIVE.
14. FILTER BAGS SHALL BE INSTALLED IN ALL EXISTING CATCH BASINS PRIOR TO COMMENCEMENT OF CONSTRUCTION. FILTER BAGS SHALL ALSO BE INSTALLED IN ALL NEWLY INSTALLED CATCH BASIN PRIOR TO PERMANENT PAVEMENT INSTALLATION TO CONTROL SILTATION.

LAYOUT AND MATERIALS NOTES

1. ALL LINES AND DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE LINES FROM WHICH THEY ARE MEASURED UNLESS OTHERWISE INDICATED.
2. DIMENSIONS OF PARKING SPACES AND DRIVEWAYS ARE FROM FACE OF CURB.
3. CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE OWNER AND OWNER'S REPRESENTATIVE FOR RESOLUTION.
4. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN SITE PLAN DIMENSIONS BEFORE PROCEEDING WITH ANY PORTION OF SITE WORK WHICH MAY BE AFFECTED SO THAT PROPER ADJUSTMENTS TO THE SITE LAYOUT CAN BE MADE IF NECESSARY.
5. ACCESSIBLE RAMPS SHALL BE CONSTRUCTED PER MASSACHUSETTS STATE CODE AND THE AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES (WHICHEVER IS MORE STRINGENT).
6. EACH HANDICAP PARKING SPACE SHALL BE IDENTIFIED BY A SIGN SIX (6) FEET IN HEIGHT LOCATED AT THE FACE OF THE CURB. THE SIGN SHALL CONTAIN THE INTERNATIONAL SYMBOL OF ACCESSIBILITY AS DESCRIBED IN THE AMERICANS WITH DISABILITIES ACT, PUBLIC LAW 101-336, (SEE DETAIL).
9. REFER TO PLANS BY ASPLUNDH ENGINEERING SERVICES FOR ALL SITE LIGHT LOCATIONS AND CONSTRUCTION DETAILS.
10. COORDINATE THE LOCATION OF ALL SITE LIGHTS WITH IMPROVEMENTS SHOWN ON THESE DRAWINGS.
11. CONTRACTOR SHALL PROTECT EXISTING PROPERTY MONUMENTS AND ABUTTING PROPERTIES DURING CONSTRUCTION.

LIGHTING NOTES

1. DIMENSIONS FOR LIGHT LOCATIONS ARE TO THE CENTER OF MOUNTING POLES.
2. LIGHT MOUNTING POLES SHALL BE LOCATED A MINIMUM OF FIVE (5) FEET FROM BACK OF CURB. POLES SHALL BE FLUSH WITH GRADE UNLESS OTHERWISE NOTED.
3. CUTOFF LUMINAIRE FIXTURES SHALL BE UTILIZED TO ENSURE NO OFF SITE GLARE IS CREATED.
4. LIGHT POLES LOCATED IN PLANTING ISLANDS SHALL BE CENTERED BETWEEN EDGES OF PAVEMENT ON OPPOSITE SIDES OF THE POLE. LIGHT POLES IN PARKING AREAS SHALL BE CENTERED ON THE INTERSECTIONS OF PAINT STRIPES.

IRRIGATION NOTES

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SHOWING DIMENSIONS, PRODUCT TYPE, VACUUM BREAKERS, VALVES, PIPE SIZES, PIPE TYPES, CONTROLLER LOCATIONS, ETC. AND DETAILS OF CONSTRUCTION AND INSTALLATION FOR ALL IRRIGATION EQUIPMENT. .

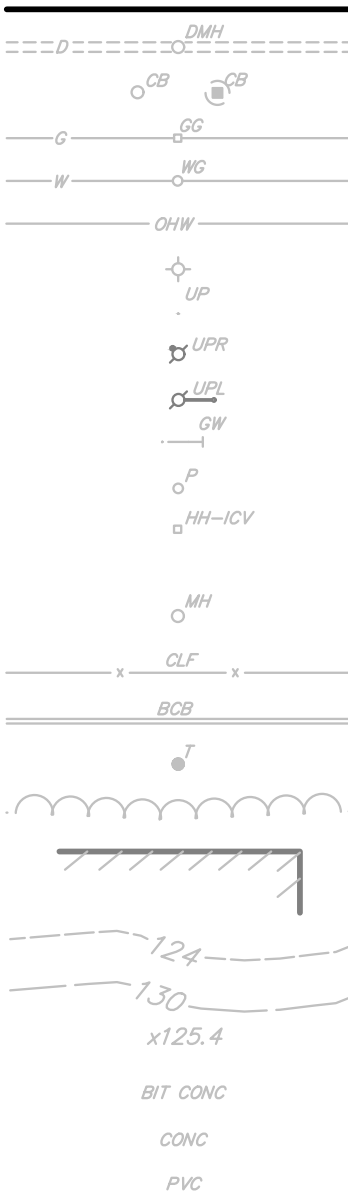
GRADING, DRAINAGE AND UTILITY NOTES

1. UNDERGROUND UTILITIES WERE COMPILED FROM AVAILABLE RECORD PLANS OF UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE AND ASSUMED. BEFORE COMMENCING SITE WORK CONTACT "DIG SAFE" AT 1-888-344-7233 TO LOCATE UNDERGROUND UTILITIES. ANY DAMAGE TO EXISTING UTILITIES OR STRUCTURES SHALL BE THE CONTRACTOR'S RESPONSIBILITY. NO EXCAVATION SHALL BE PERFORMED UNTIL UTILITY COMPANIES ARE PROPERLY NOTIFIED.
2. SITE WORK SHALL MEET OR EXCEED THE SITE WORK SPECIFICATIONS PREPARED FOR THIS PROJECT.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK WHICH COULD BE AFFECTED.
4. WORK PERFORMED AND MATERIALS FURNISHED SHALL CONFORM WITH THE LINES, GRADES AND OTHER SPECIFIC REQUIREMENTS AND SPECIFICATIONS OF THE CITY OF WORCESTER DPW.
5. AT LOCATIONS WHERE EXISTING CURBING OR PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE. BLEND NEW PAVEMENT, CURBS AND EARTHWORK SMOOTHLY INTO EXISTING BY MATCHING LINES, GRADES AND JOINTS. PITCH EVENLY BETWEEN SPOT GRADES. GRADE ALL AREAS TO DRAIN.
6. CONTRACTOR SHALL VERIFY EXISTING GRADES IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
7. GRADES SHALL PITCH EVENLY BETWEEN SPOT ELEVATIONS. PAVED AREAS MUST PITCH TO DRAIN AT A MINIMUM OF 1/8" PER FOOT UNLESS SPECIFIED OTHERWISE. ANY DISCREPANCIES NOT ALLOWING THIS MINIMUM PITCH SHALL BE REPORTED TO THE ENGINEER PRIOR TO CONTINUING WORK.
8. THE CONTRACTOR SHALL SCHEDULE WORK TO ALLOW THE FINISHED SUBGRADE ELEVATIONS TO DRAIN PROPERLY WITHOUT PUDDING OR PONDING. SPECIFICALLY, ALLOW WATER TO ESCAPE WHERE PROPOSED CURB MAY RETAIN RUNOFF PRIOR TO APPLICATION OF THE FINISH GRADE AND/OR SURFACE PAVING. CONTRACTOR SHALL PROVIDE TEMPORARY POSITIVE DRAINAGE AS REQUIRED.
9. THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE RESPECTIVE UTILITY COMPANIES FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES, AS REQUIRED.
10. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE OWNER AND ENGINEER FOR RESOLUTION.
11. UTILITY COVERS, GRATES, ETC. SHALL BE ADJUSTED TO BE FLUSH WITH THE PAVEMENT FINISH GRADE UNLESS OTHERWISE NOTED. RIM ELEVATIONS OF DRAINAGE STRUCTURES AND SANITARY SEWER MANHOLES ARE APPROXIMATE.
12. CONTRACTOR SHALL INSTALL UTILITIES (INCLUDING CONCRETE PADS) PER UTILITY COMPANY AND DPW STANDARDS.
13. SANITARY PIPE SHALL BE SDR-35 PVC UNLESS OTHERWISE NOTED.
15. WATER PIPE SHALL BE CLASS 52 CEMENT LINED DUCTILE IRON. WATER SERVICES SHALL BE COPPER TYPE K OR PE AS REQUIRED BY THE WATER DEPARTMENT.
16. WATER UTILITY IMPROVEMENTS SHALL COMPLY WITH THE AMERICAN WATERWORKS ASSOCIATION STANDARDS AND THE CITY OF WORCESTER WATER DEPARTMENT SPECIFICATIONS.
17. WATER LINES SHALL HAVE MINIMUM FIVE (5) FEET OF COVER.
18. CONTRACTOR SHALL PROTECT UNDERGROUND UTILITIES FROM EXCESSIVE VEHICULAR LOADS DURING CONSTRUCTION. ANY DAMAGE TO THE UTILITIES RESULTING FROM CONSTRUCTION LOADS SHALL BE RESTORED TO ORIGINAL CONDITION.
19. ELECTRIC LOCATIONS AND ROUTING ARE SUBJECT TO REVIEW AND APPROVAL BY APPROPRIATE UTILITY COMPANIES AND FIRE DEPARTMENT.
20. EXCAVATION WITHIN THE PROXIMITY OF EXISTING UTILITY LINES SHALL BE PERFORMED BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
27. UNLESS OTHERWISE INDICATED, EXISTING UTILITIES TO BE ABANDONED SHALL BE CAPPED AND ABANDONED IN PLACE UNLESS THEY CONFLICT WITH PROPOSED IMPROVEMENTS. CAP REMAINING PORTIONS WHERE PARTIALLY REMOVED.
28. ABANDON EXISTING UTILITY SERVICES IN ACCORDANCE WITH UTILITY COMPANY AND CITY REQUIREMENTS.
29. CONTRACTOR SHALL REMOVE ALL EROSION AND SEDIMENT CONTROL BARRIERS AFTER RE-VEGETATION AND STABILIZATION OF DISTURBED AREAS, FOLLOWING APPROVAL OF THE CONSERVATION COMMISSION AND WETLAND SPECIALIST.

PLANTING NOTES

1. PLANT MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN HORTICULTURE INDUSTRY ASSOCIATION.
2. ANY PROPOSED SUBSTITUTIONS OF PLANT MATERIAL SHALL BE MADE WITH MATERIAL EQUIVALENT TO THE DESIRED MATERIAL IN OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE. PROPOSED SUBSTITUTIONS WILL ONLY BE CONSIDERED IF SUBMITTED WITH ENUMERATED REASONS WHY SUBSTITUTIONS ARE PROPOSED.
3. VERIFY ALL EXISTING UTILITY LINES PRIOR TO PLANTING AND REPORT ANY CONFLICTS TO THE OWNER OR OWNER'S REPRESENTATIVE.
4. NO PLANT SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING.
5. PLANT MATERIALS SHALL BEAR SAME RELATIONSHIP TO GRADE AS THEY BORE TO GRADE IN THE NURSERY.
6. PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.
7. LOAM AND SEED DISTURBED AREAS UNLESS OTHERWISE INDICATED.
8. REGRADE STOCKPILE AREA AFTER REMOVAL OF SURPLUS MATERIALS (SEE SITE WORK SPECIFICATIONS). LOAM AND SEED THE DISTURBED AREA.
9. TOPSOIL STRIPPED FROM THE SITE AND PROPERLY STOCKPILED MAY, UPON APPROVAL OF THE ENGINEER, BE USED FOR PREPARATION OF LAWNS AND PLANTING BEDS. IT SHALL BE FREE OF LARGE (ONE (1) INCH OR GREATER) COBBLES, ROOTS, OLD SOD, TRASH, WOOD OR OTHER CONTAMINANTS AND BE OF A FRIABLE CONSISTENCY AND SUITABLE FOR PLANT GROWTH.
11. LANDSCAPE CONTRACTOR SHALL FURNISH TOPSOIL AS NEEDED. TOPSOIL SHALL BE FERTILE, FRIABLE, NATURAL AND PRODUCTIVE TOPSOIL OF GOOD CLAY-LOAM TYPE. IT SHALL BE FREE OF WEED SEEDS. TOPSOIL SHALL BE WITHOUT ADMIXTURE OF SUBSOIL AND SHALL BE REASONABLY FREE OF STONES, LUMPS, ROOTS, STICKS AND OTHER FOREIGN MATTER. TOPSOIL SHALL NOT BE WORKED OR APPLIED IN A MUDDY OR WET CONDITION.
11. TOPSOIL SHALL BE SPREAD TO A MINIMUM DEPTH OF FOUR (4) INCHES ON ALL STRIPPED PLANTED AREAS INCLUDING SLOPE STABILIZATION, LAWN AREAS, AND PLANTING BEDS AFTER EARTH FILLS HAVE PROPERLY SETTLED AND SUBGRADE HAS BEEN APPROVED BY THE OWNER. THE SETTLED TOPSOIL SHALL BE UP TO THE FINISHED GRADE AS REQUIRED ON THE DRAWINGS. SCARIFY SUBGRADE TO A DEPTH OF TWO (2) INCHES BEFORE PLACING TOPSOIL.
12. REMOVE ALL ROCKS AND DEBRIS FROM SOIL SURFACE AND GRADE TO AN EVEN SURFACE.
13. AFTER SEEDING, THE SURFACE OF THE SOIL SHALL BE EVENLY RAKED WITH A FINE-TOOTHED RAKE AND THEN ROLLED WITH A HAND ROLLER WEIGHING NOT LESS THAN ONE HUNDRED (100) POUNDS PER FOOT OF WIDTH.
14. WATER THE MULCH AND SEED BEDS THOROUGHLY AND IMMEDIATELY AFTER COMPLETION OF MULCHING AND SEEDING OPERATIONS. SOIL SHALL BE MOISTENED TO A DEPTH OF FOUR (4) INCHES. CONTRACTOR SHALL INSTRUCT OWNERS REPRESENTATIVE ON APPROPRIATE WATERING PROCEDURES DURING INITIAL ESTABLISHMENT.
15. IF CERTAIN AREAS OF THE LAWN DO NOT SHOW A PROMPT "CATCH", THESE AREAS SHALL BE RESEEDED AT THE SAME RATE AND IN THE SAME MANNER IN TEN (10) DAY INTERVALS. THIS SEEDING PROCESS SHALL CONTINUE UNTIL A GROWTH OF GRASS IS ESTABLISHED OVER THE ENTIRE AREA.
16. PROTECT NEWLY TOPSOILED, GRADED AND/OR SEEDED AREAS FROM TRAFFIC AND EROSION. KEEP AREAS FREE OF TRASH AND DEBRIS RESULTING FROM LANDSCAPE CONTRACTOR OPERATIONS.
17. PLACE WARNING SIGNS IN SEEDED AREAS AND ERECT BARRICADES TO PREVENT DAMAGE BY PERSONS OR MACHINES; MAINTAIN THESE PROTECTIONS FOR AT LEAST THIRTY (30) DAYS.
18. REPAIR AND RE-ESTABLISH GRADES IN SETTLED, ERODED, AND RUTTED AREAS TO THE SPECIFIED GRADE AND TOLERANCES.
19. THE LANDSCAPE CONTRACTOR SHALL CLEAN UP AND REMOVE ANY DEBRIS FROM THE SITE CAUSED BY THE LANDSCAPE CONTRACTOR OR THEIR SUBCONTRACTORS.
20. PLANT MATERIAL SHALL BE MAINTAINED BY THE LANDSCAPE CONTRACTOR FOR THE DURATION OF THE PROJECT.

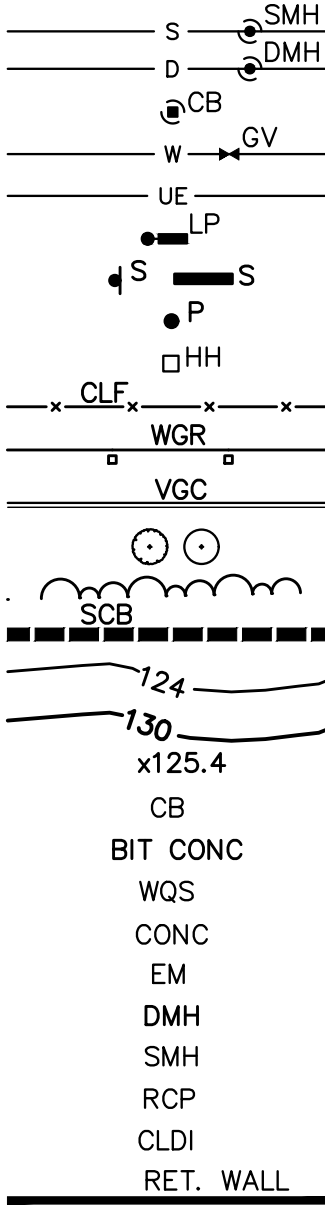
EXISTING LEGEND



- LOCUS PROPERTY LINE  
DRAIN LINE/MANHOLE  
CATCH BASIN  
GAS LINE/GATE  
WATER LINE/GATE  
OVERHEAD WIRE  
LIGHT POLE  
UTILITY POLE  
UTILITY POLE w/ RISER  
UTILITY POLE w/ LIGHT  
GUY WIRE  
POST  
HAND HOLE-IRRIGATION  
CONTROL VALVE  
MISC. MANHOLE  
CHAIN LINK FENCE  
BITUMINOUS CONCRETE BERM  
TREE  
TREE LINE  
  
BUILDING  
MINOR CONTOUR  
MAJOR CONTOUR  
SPOT ELEVATION  
BITUMINOUS CONCRETE  
CONCRETE  
POLYVINYL CHLORIDE

PROPOSED LEGEND

PROPOSED



- SEWER LINE/MANHOLE  
DRAIN LINE/MANHOLE  
CATCH BASIN  
WATER LINE/GATE  
UNDERGROUND ELECTRIC  
LIGHT POLE  
SIGN  
POST  
HAND HOLE  
CHAIN LINK FENCE  
GUARDRAIL/GUIDERAIL  
VERTICAL GRANITE CURB  
TREE  
TREE LINE  
SEDIMENTATION CONTROL BARRIER  
MINOR CONTOUR  
MAJOR CONTOUR  
SPOT ELEVATION  
CATCH BASIN  
BITUMINOUS CONCRETE  
WATER QUALITY STRUCTURE  
CONCRETE  
ELECTRIC METER  
DRAIN MANHOLE  
SEWER MANHOLE  
REINFORCED CONCRETE PIPE  
CEMENT LINED DUCTILE IRON  
RETAINING WALL

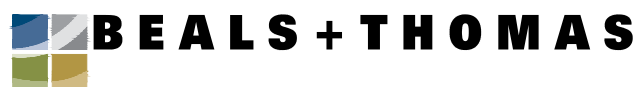
PREPARED FOR:

WORCESTER  
DEPARTMENT OF  
PUBLIC WORKS  
AND PARKS  
(WDPWP)

50 OFFICER MANNY FAMILIA WAY  
WORCESTER, MASSACHUSETTS

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PREPARED BY:



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0	06/16/2023	ISSUED FOR BIDDING
ISSUE DATE		DESCRIPTION
NBB	NBB	DJL/JRM
DES	DWN	CHK'D
		JRM
		APP'D

PROJECT:

EAST PARK  
RENOVATION  
180 SHREWSBURY STREET  
WORCESTER, MASSACHUSETTS

SCALE: N/A DATE: JUNE 16, 2023

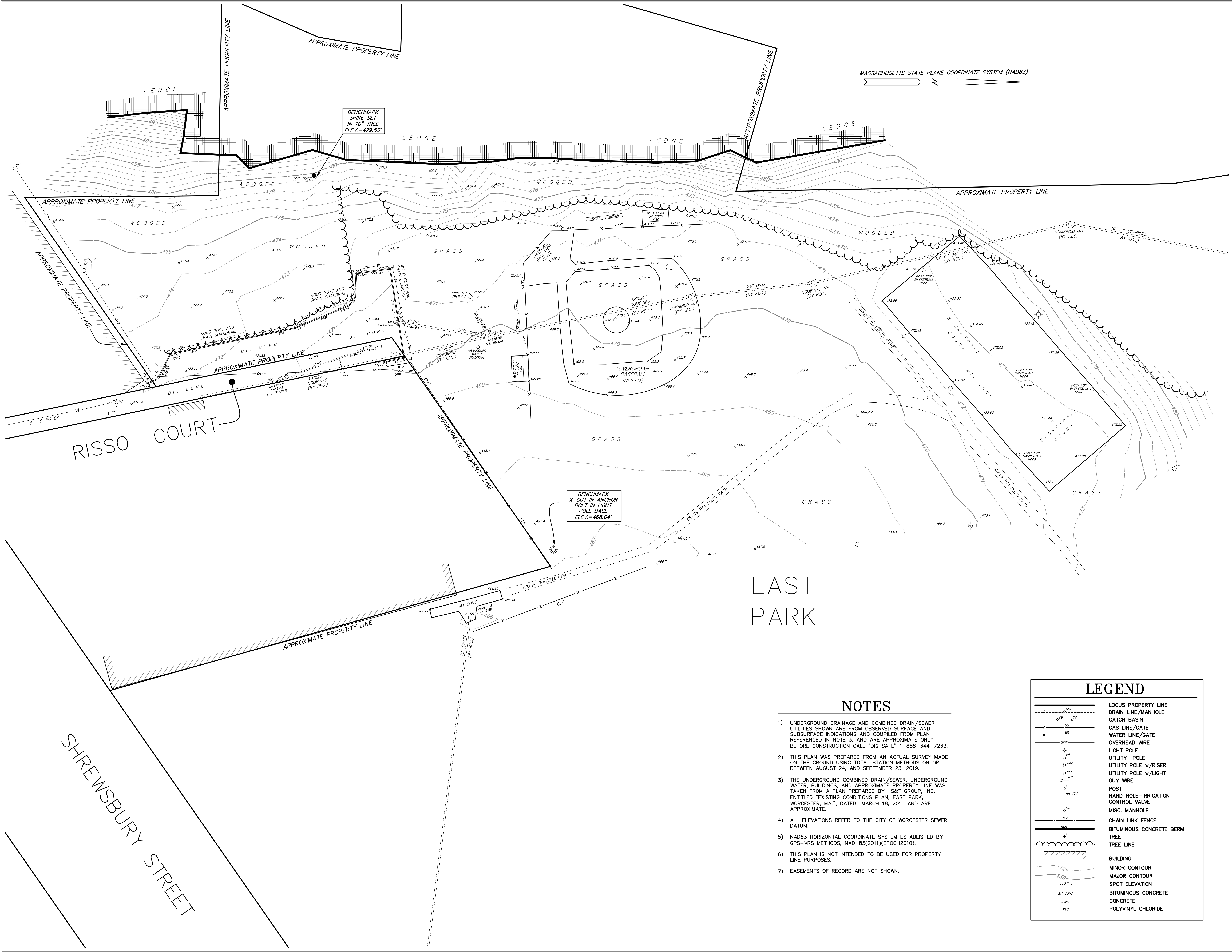
NOTES, REFERENCES  
AND LEGEND

B+T JOB NO.3131.02	C11
B+T PLAN NO. 313102P004A-002	

BEALS AND THOMAS, INC. SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, OR PROCEDURES UTILIZED BY THE CONTRACTOR, NOR FOR THE SAFETY OF PUBLIC OR CONTRACTOR'S EMPLOYEES; OR FOR THE FAILURE OF THE CONTRACTOR TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

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EAST  
PARK

### NOTES

- 1) UNDERGROUND DRAINAGE AND COMBINED DRAIN/SEWER UTILITIES SHOWN ARE FROM OBSERVED SURFACE AND SUBSURFACE INDICATIONS AND COMPILED FROM PLAN REFERENCED IN NOTE 3, AND ARE APPROXIMATE ONLY. BEFORE CONSTRUCTION CALL "DIG SAFE" 1-888-344-7233.
- 2) THIS PLAN WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND USING TOTAL STATION METHODS ON OR BETWEEN AUGUST 24, AND SEPTEMBER 23, 2019.
- 3) THE UNDERGROUND COMBINED DRAIN/SEWER, UNDERGROUND WATER, BUILDINGS, AND APPROXIMATE PROPERTY LINE WAS TAKEN FROM A PLAN PREPARED BY HS&T GROUP, INC. ENTITLED "EXISTING CONDITIONS PLAN, EAST PARK, WORCESTER, MA.", DATED: MARCH 18, 2010 AND ARE APPROXIMATE.
- 4) ALL ELEVATIONS REFER TO THE CITY OF WORCESTER SEWER DATUM.
- 5) NAD83 HORIZONTAL COORDINATE SYSTEM ESTABLISHED BY GPS-VRS METHODS, NAD\_83(2011)(EPOCH2010).
- 6) THIS PLAN IS NOT INTENDED TO BE USED FOR PROPERTY LINE PURPOSES.
- 7) EASEMENTS OF RECORD ARE NOT SHOWN.

### LEGEND

LOCUS PROPERTY LINE	LOCUS PROPERTY LINE
DRAIN LINE/MANHOLE	DRAIN LINE/MANHOLE
CATCH BASIN	CATCH BASIN
GAS LINE/GATE	GAS LINE/GATE
WATER LINE/GATE	WATER LINE/GATE
OVERHEAD WIRE	OVERHEAD WIRE
LIGHT POLE	LIGHT POLE
UTILITY POLE	UTILITY POLE
UTILITY POLE w/ RISER	UTILITY POLE w/ RISER
UTILITY POLE w/ LIGHT	UTILITY POLE w/ LIGHT
GUY WIRE	GUY WIRE
POST	POST
HAND HOLE-IRRIGATION	HAND HOLE-IRRIGATION
CONTROL VALVE	CONTROL VALVE
MISC. MANHOLE	MISC. MANHOLE
CHAIN LINK FENCE	CHAIN LINK FENCE
BITUMINOUS CONCRETE BERM	BITUMINOUS CONCRETE BERM
TREE	TREE
TREE LINE	TREE LINE
BUILDING	BUILDING
MINOR CONTOUR	MINOR CONTOUR
MAJOR CONTOUR	MAJOR CONTOUR
SPOT ELEVATION	SPOT ELEVATION
BITUMINOUS CONCRETE	BITUMINOUS CONCRETE
CONCRETE	CONCRETE
POLYVINYL CHLORIDE	POLYVINYL CHLORIDE

PREPARED FOR:  
**CITY OF WORCESTER**  
DEPT. OF PUBLIC WORKS AND PARKS  
50 SKYLINE DRIVE  
WORCESTER, MA 01605

RECORD OWNER:  
**CITY OF WORCESTER**

5		
4		
3		
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1		
0	10/15/2019	INITIAL ISSUE
	ISSUE DATE	DESCRIPTION
AJV	MEB	MEB
FLD	CALC	DWN
		CHK'D

MARK E. BENSON  
No. 48416  
10/15/19  
Mark E. Benson  
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### TOPOGRAPHIC PLAN

**EAST PARK**  
**WORCESTER, MA**  
(WORCESTER COUNTY)

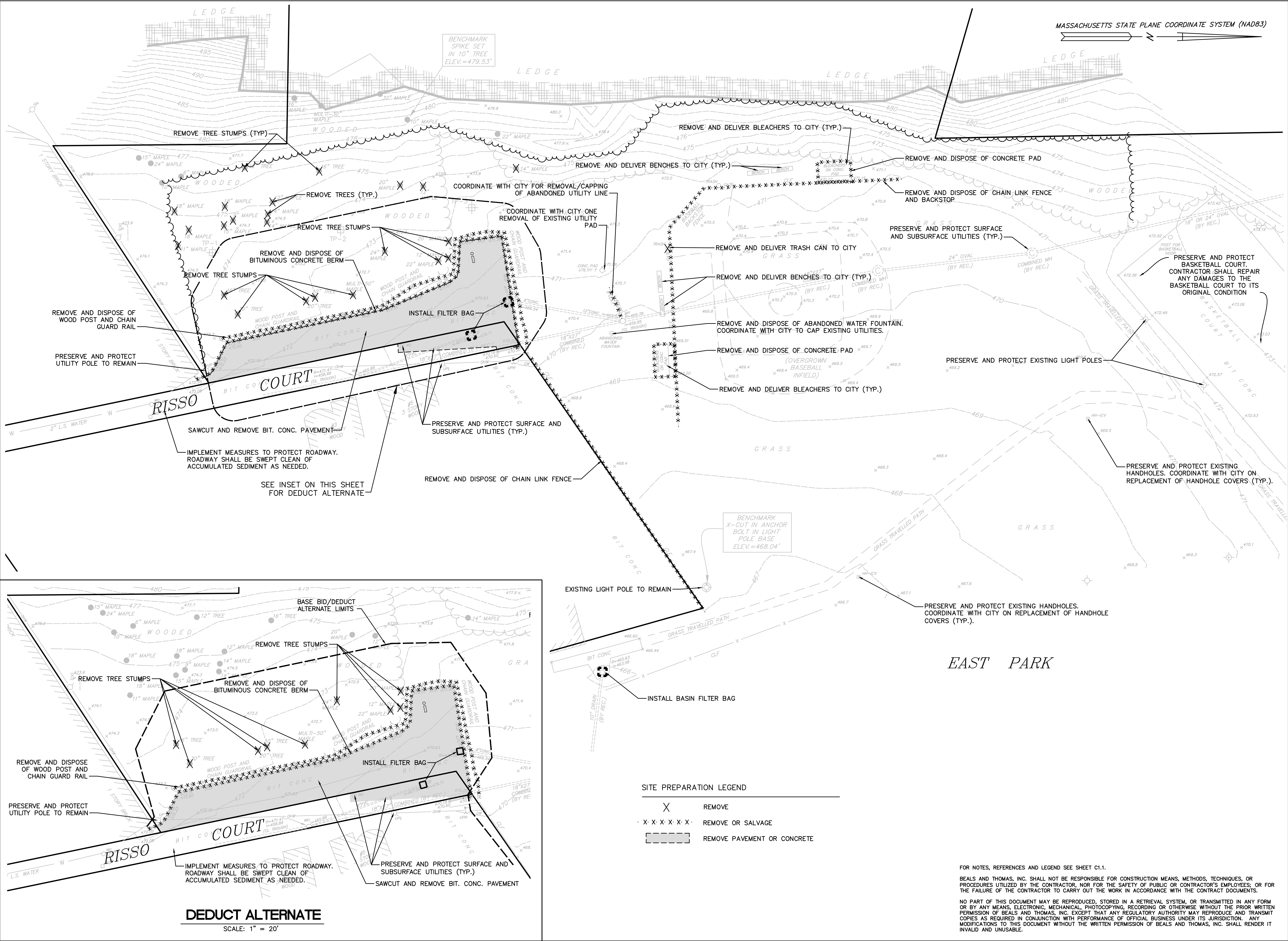
PREPARED BY:  
**BEALS + THOMAS**  
Civil Engineers + Landscape Architects +  
Land Surveyors + Planners +  
Environmental Specialists

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DATE: OCTOBER 15, 2019  
SCALE: 1"=20'  
B+T JOB NO. 3131.00  
B+T PLAN NO. 313100P01A-001  
SHEET No. 1 OF 1

TP





PREPARED FOR:

**WORCESTER  
DEPARTMENT OF  
PUBLIC WORKS  
AND PARKS  
(WDPWP)**

50 OFFICER MANNY FAMILIA WAY  
WORCESTER, MASSACHUSETTS

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DES	DWN	CHK'D APP'D

PROJECT:

**EAST PARK  
RENOVATION**

180 SHREWSBURY STREET  
WORCESTER, MASSACHUSETTS

SCALE: 1" = 20' DATE: JUNE 16, 2023

METERS  
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FEET  
0 10 20 40 60

**SITE PREPARATION  
PLAN**

B+T JOB NO.3131.02

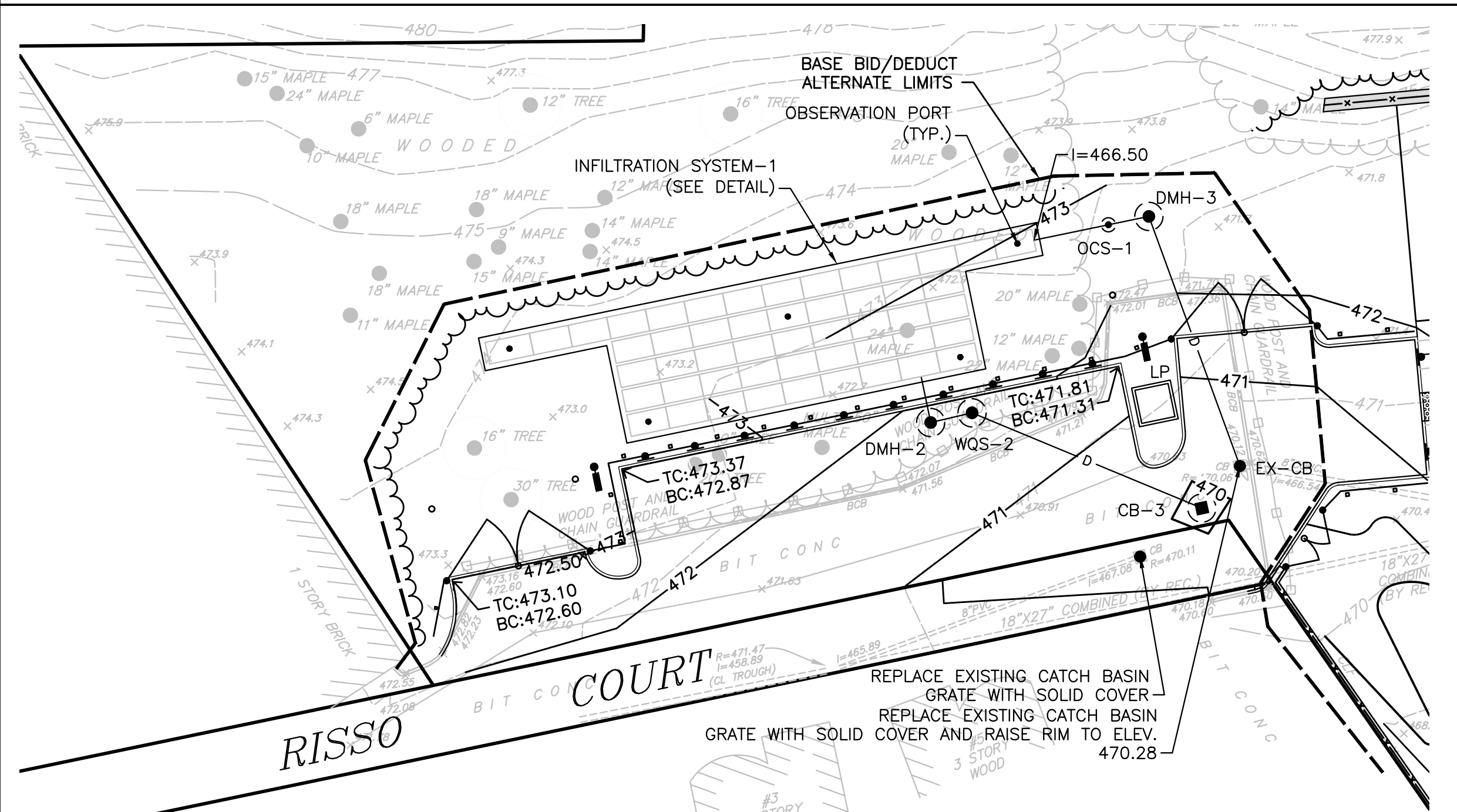
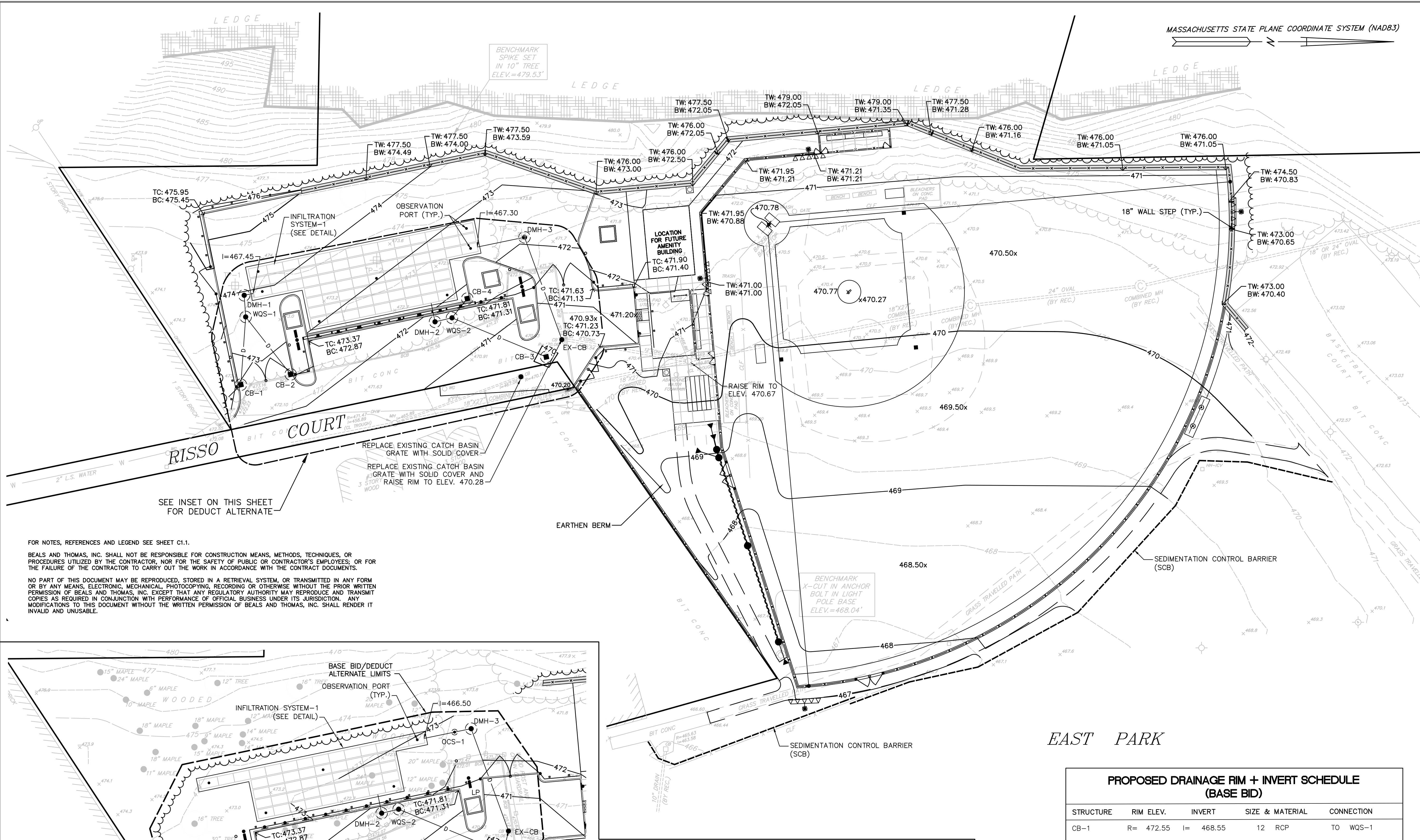
B+T PLAN NO.  
313100P003A-001

**C2.1**









DEDUCT ALTERNATE  
SCALE: 1" = 20'

PROPOSED DRAINAGE RIM + INVERT SCHEDULE (DEDUCT ALTERNATE)				
STRUCTURE	RIM ELEV.	INVERT	SIZE & MATERIAL	CONNECTION
CB-3	R= 469.80	I= 466.84	12 RCP	TO WQS-2
DMH-2	R= 471.82	I= 466.58 I= 466.58	12 RCP 10 HDPE	FROM WQS-2 TO INF. SYS.-1
DMH-3	R= 472.50	I= 467.09 I= 466.99	10 HDPE 12 RCP	FROM OCS-1 TO EX-CB
OCS-1	R= 472.80	I= 467.20 I= 466.30	10 HDPE 10 HDPE	FROM DMH-3 FROM INF. SYS.-1
EX-CB	R= 470.28	I= 466.54	12 RCP	FROM DMH-3
WQS-2	R= 471.70	I= 466.62 I= 466.62	12 RCP 12 RCP	FROM CB-3 TO DMH-2

PROPOSED DRAINAGE RIM + INVERT SCHEDULE (BASE BID)				
STRUCTURE	RIM ELEV.	INVERT	SIZE & MATERIAL	CONNECTION
CB-1	R= 472.55	I= 468.55	12 RCP	TO WQS-1
CB-2	R= 472.55	I= 468.55	12 RCP	TO WQS-1
CB-3	R= 469.80	I= 466.84	12 RCP	TO WQS-2
CB-4	R= 471.80	I= 467.80	12 RCP	TO WQS-2
DMH-1	R= 473.95	I= 467.63 I= 467.53	12 RCP 10 HDPE	FROM WQS-1 TO INF. SYS.-1
DMH-2	R= 471.82	I= 466.58 I= 466.58	12 RCP 10 HDPE	FROM WQS-2 TO INF. SYS.-1
DMH-3	R= 472.15	I= 467.09 I= 466.99	10 HDPE 12 RCP	FROM INF. SYS.-1 TO EX-CB
EX-CB	R= 470.28	I= 466.54	12 RCP	FROM DMH-3
WQS-1	R= 473.56	I= 467.96 I= 467.92 I= 467.82	12 RCP 12 RCP 12 RCP	FROM CB-1 FROM CB-2 TO DMH-1
WQS-2	R= 471.70	I= 467.59 I= 466.62 I= 466.62	12 RCP 12 RCP 12 RCP	FROM CB-4 FROM CB-3 TO DMH-2

PREPARED FOR:

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PROJECT:

**EAST PARK  
RENOVATION**

180 SHREWSBURY STREET  
WORCESTER, MASSACHUSETTS

SCALE: 1" = 20' DATE: JUNE 16, 2023

METERS  
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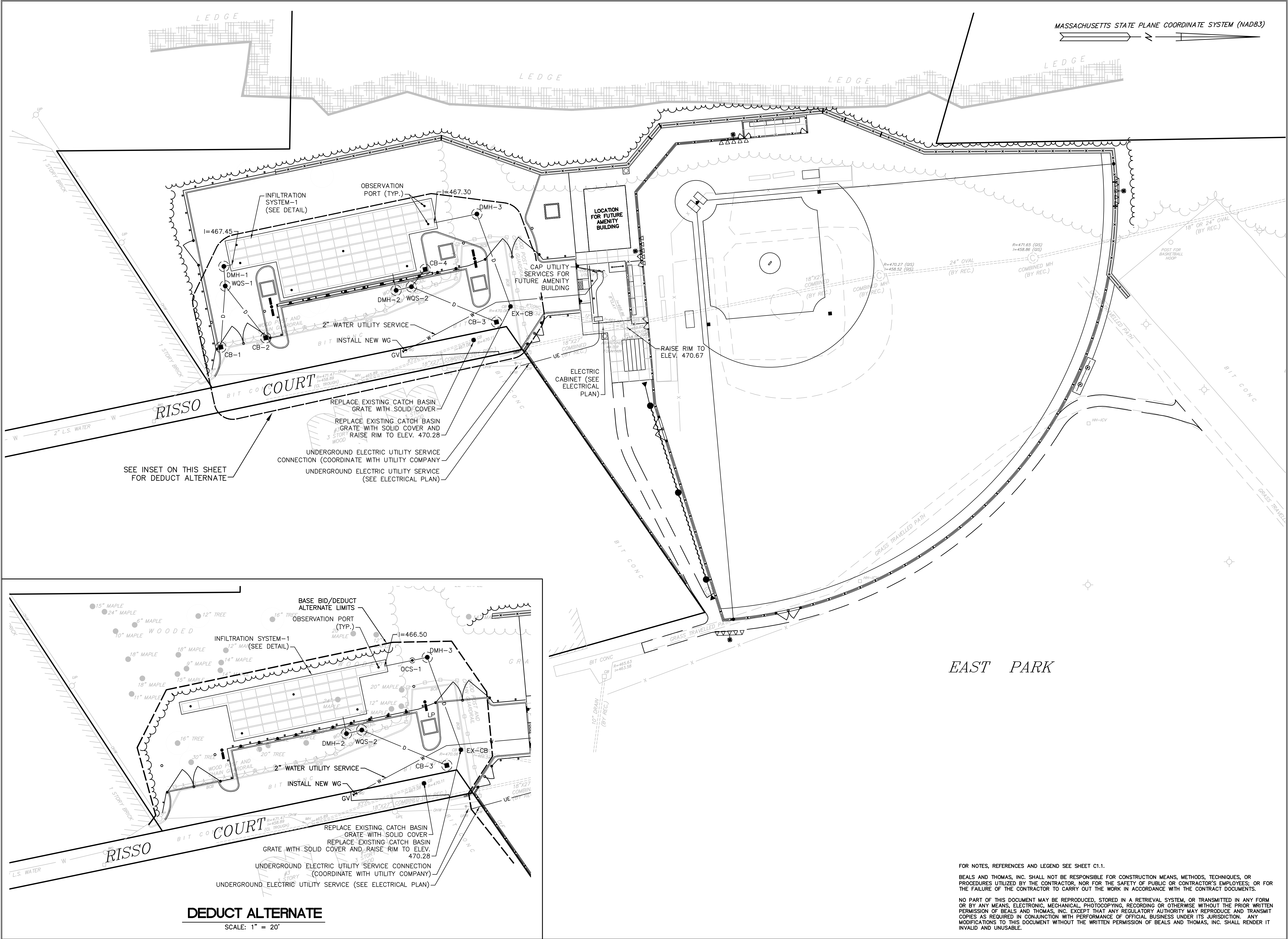
**GRADING AND  
DRAINAGE PLAN**

B+T JOB NO.3131.02

B+T PLAN NO.  
313100P003A-003

**C4.1**





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PROJECT:

EAST PARK  
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180 SHREWSBURY STREET  
WORCESTER, MASSACHUSETTS

SCALE: 1" = 20'

DATE: JUNE 16, 2023

METERS

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FEET

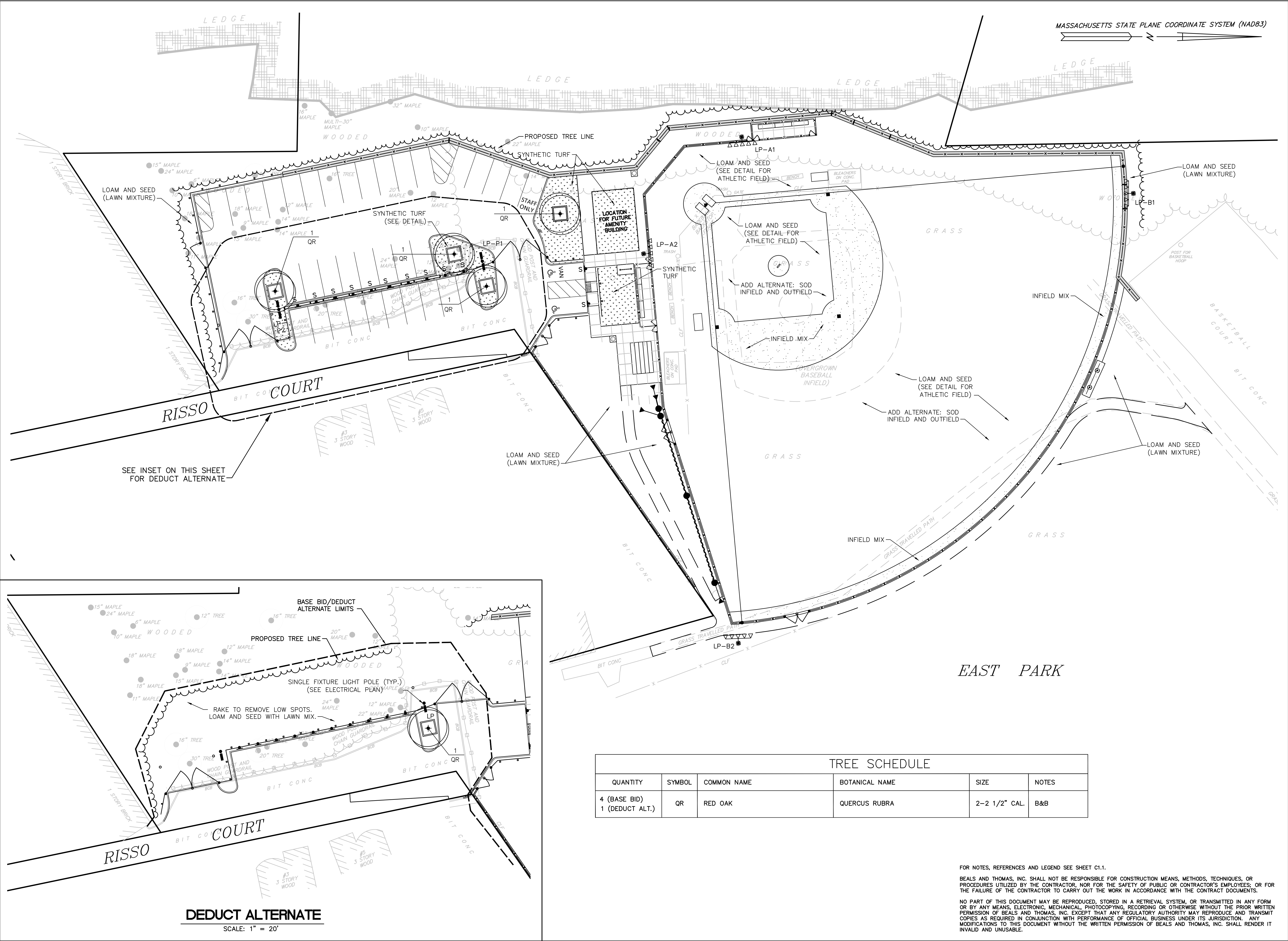
UTILITIES PLAN

B+T JOB NO.3131.02

B+T PLAN NO.  
313100P003A--004

C5.1





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PROJECT:

**EAST PARK  
RENOVATION**

180 SHREWSBURY STREET  
WORCESTER, MASSACHUSETTS

SCALE: 1" = 20' DATE: JUNE 16, 2023

METERS  
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FEET  
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**LANDSCAPE AND  
LIGHTING PLAN**

B+T JOB NO.3131.02

B+T PLAN NO.  
313100P003A-005

**C6.1**

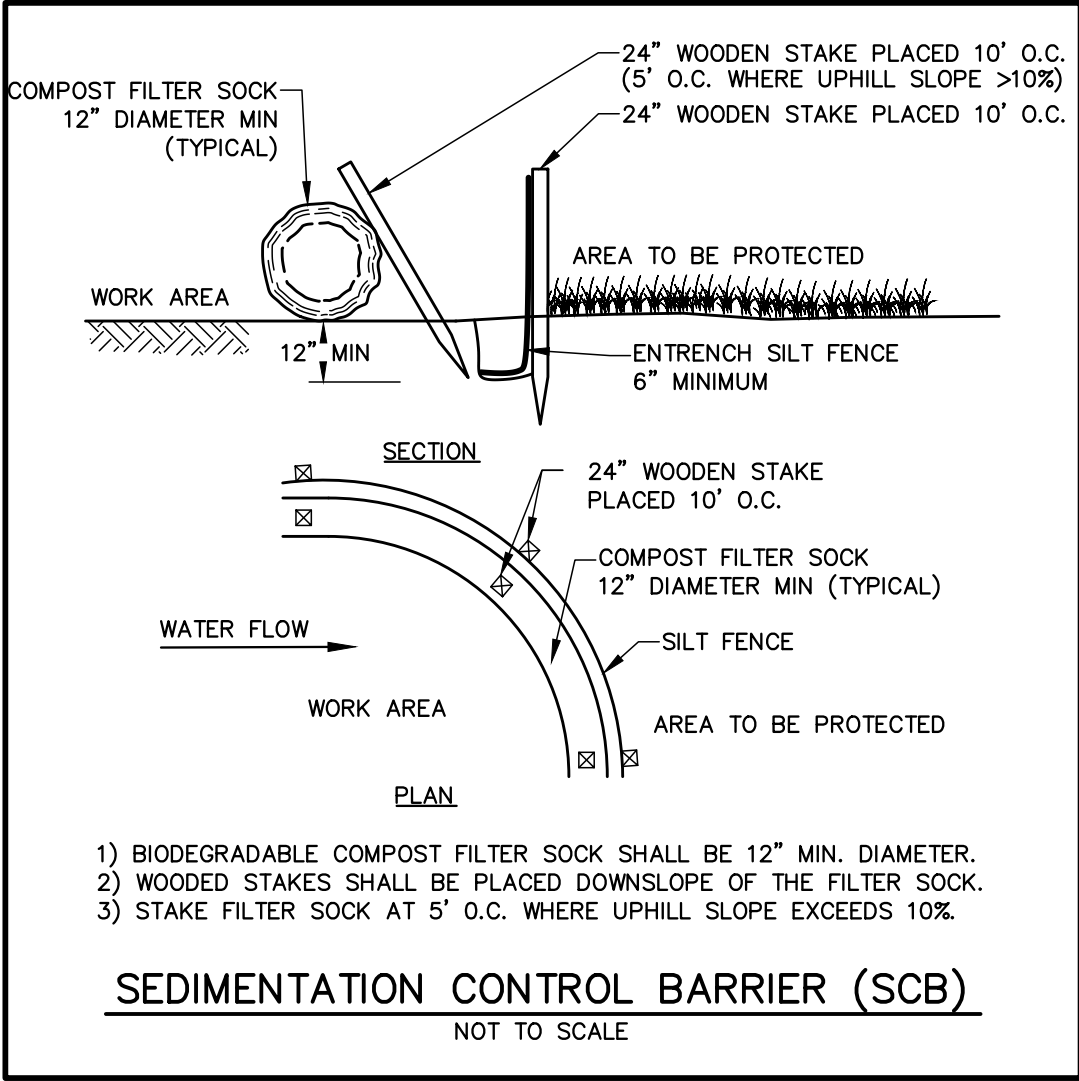
TREE SCHEDULE					
QUANTITY	SYMBOL	COMMON NAME	BOTANICAL NAME	SIZE	NOTES
4 (BASE BID) 1 (DEDUCT ALT.)	QR	RED OAK	QUERCUS RUBRA	2-2 1/2" CAL.	B&B

FOR NOTES, REFERENCES AND LEGEND SEE SHEET C1.1.

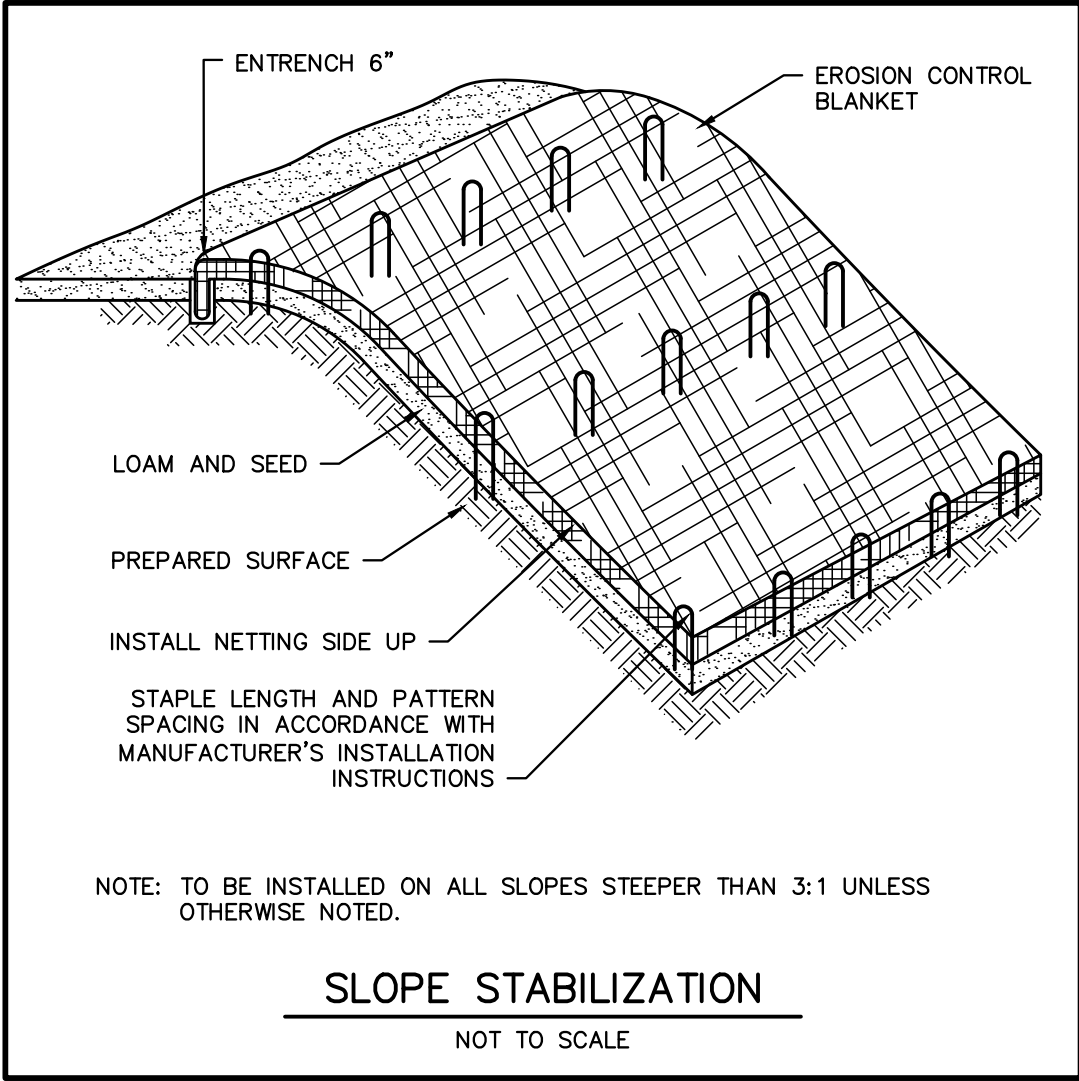
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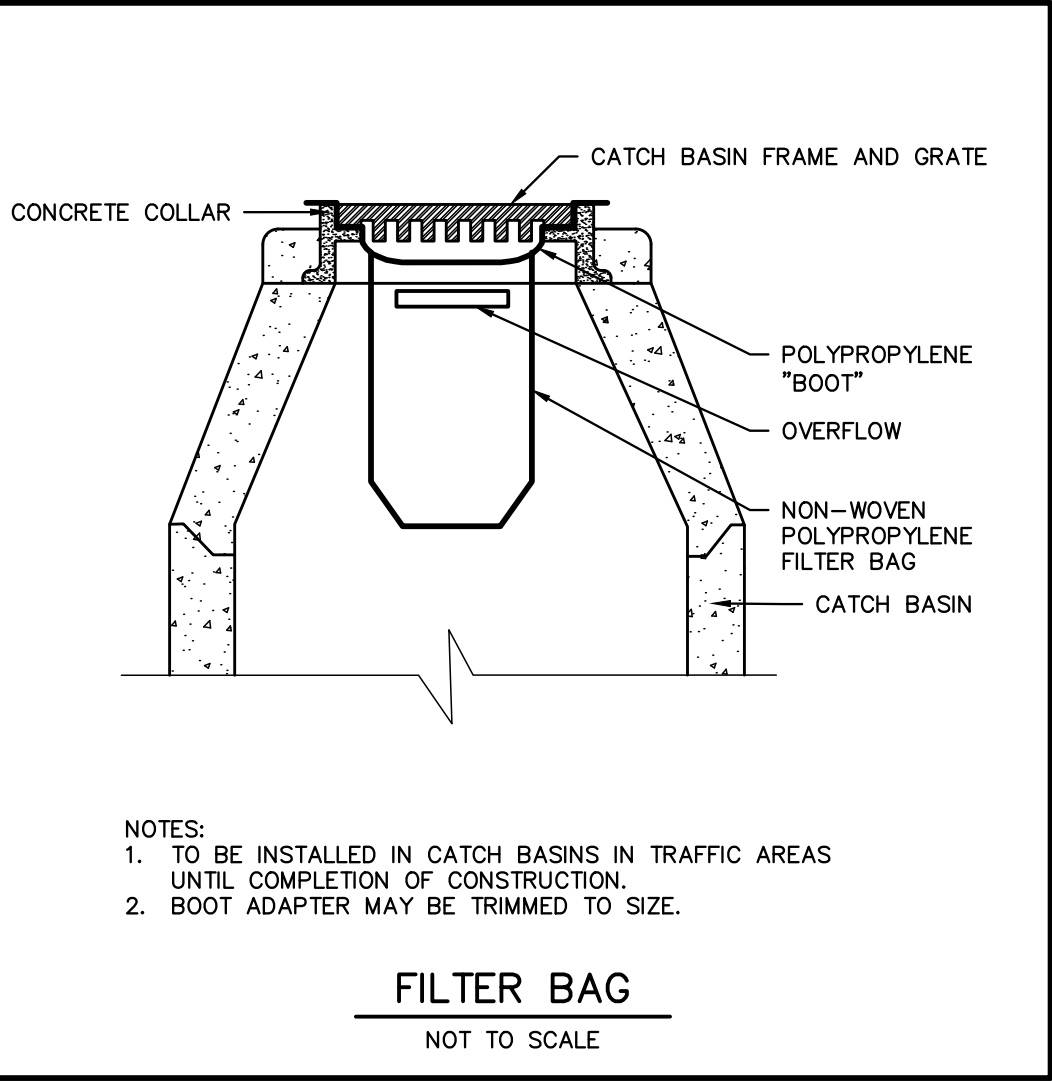




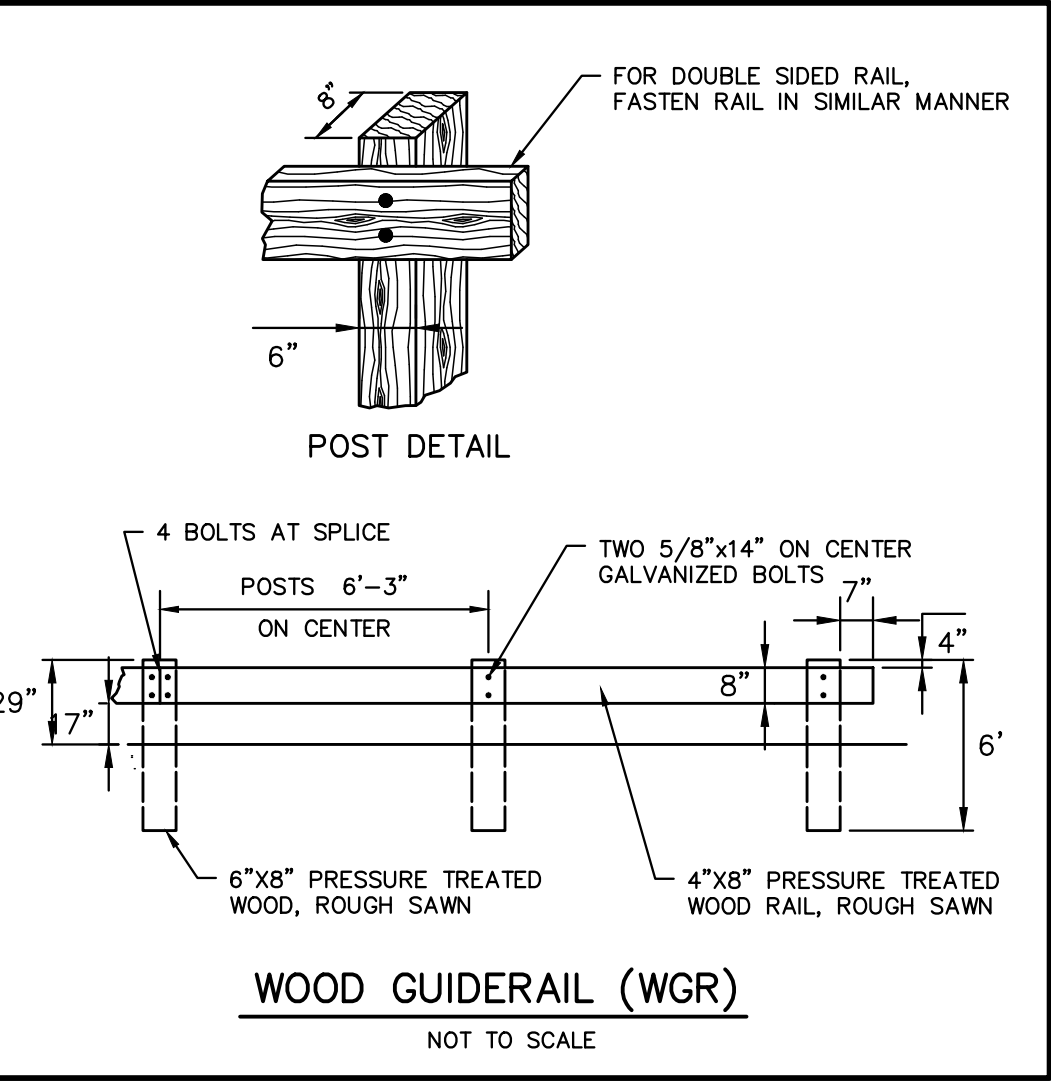
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NOT TO SCALE



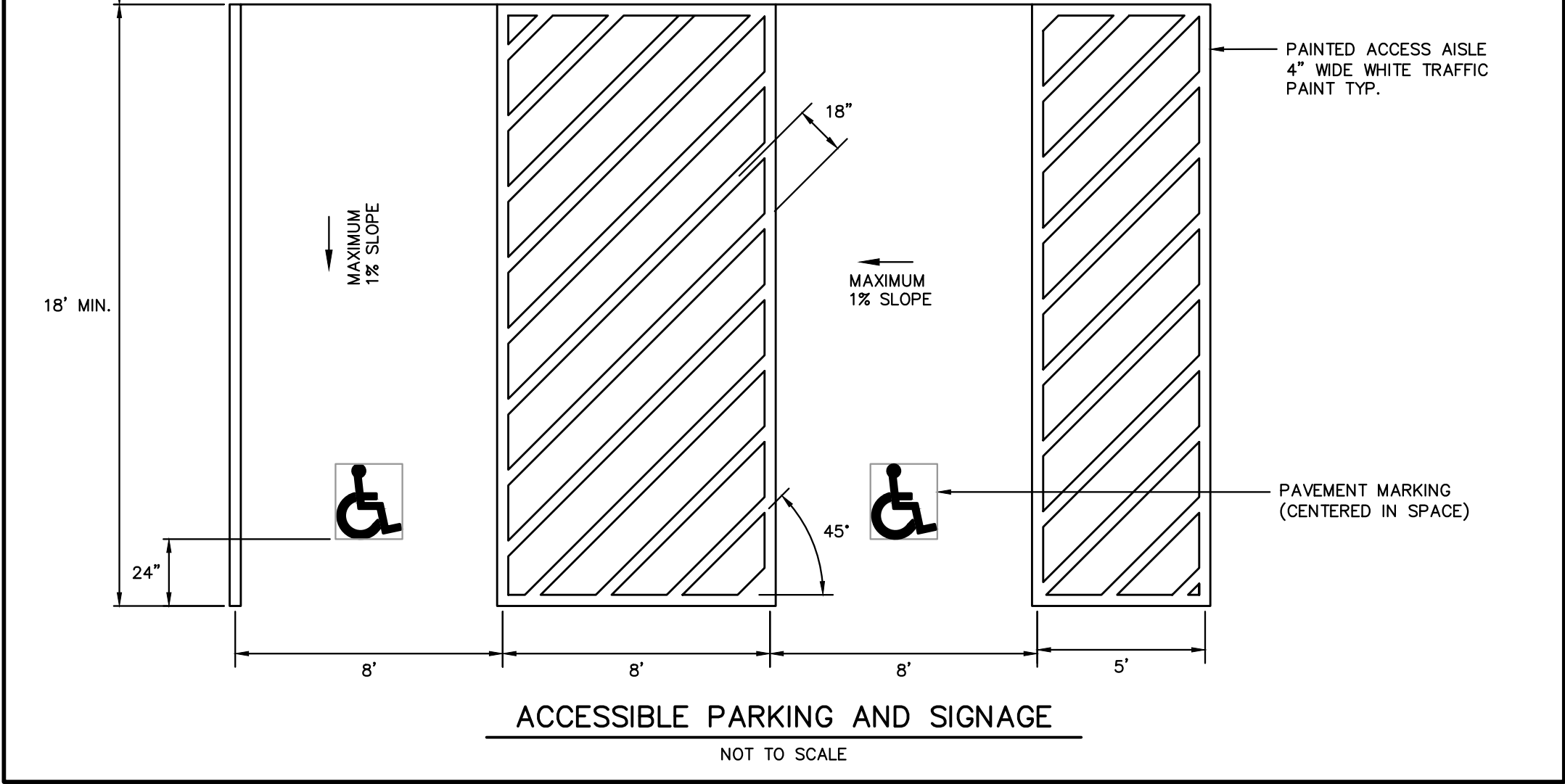
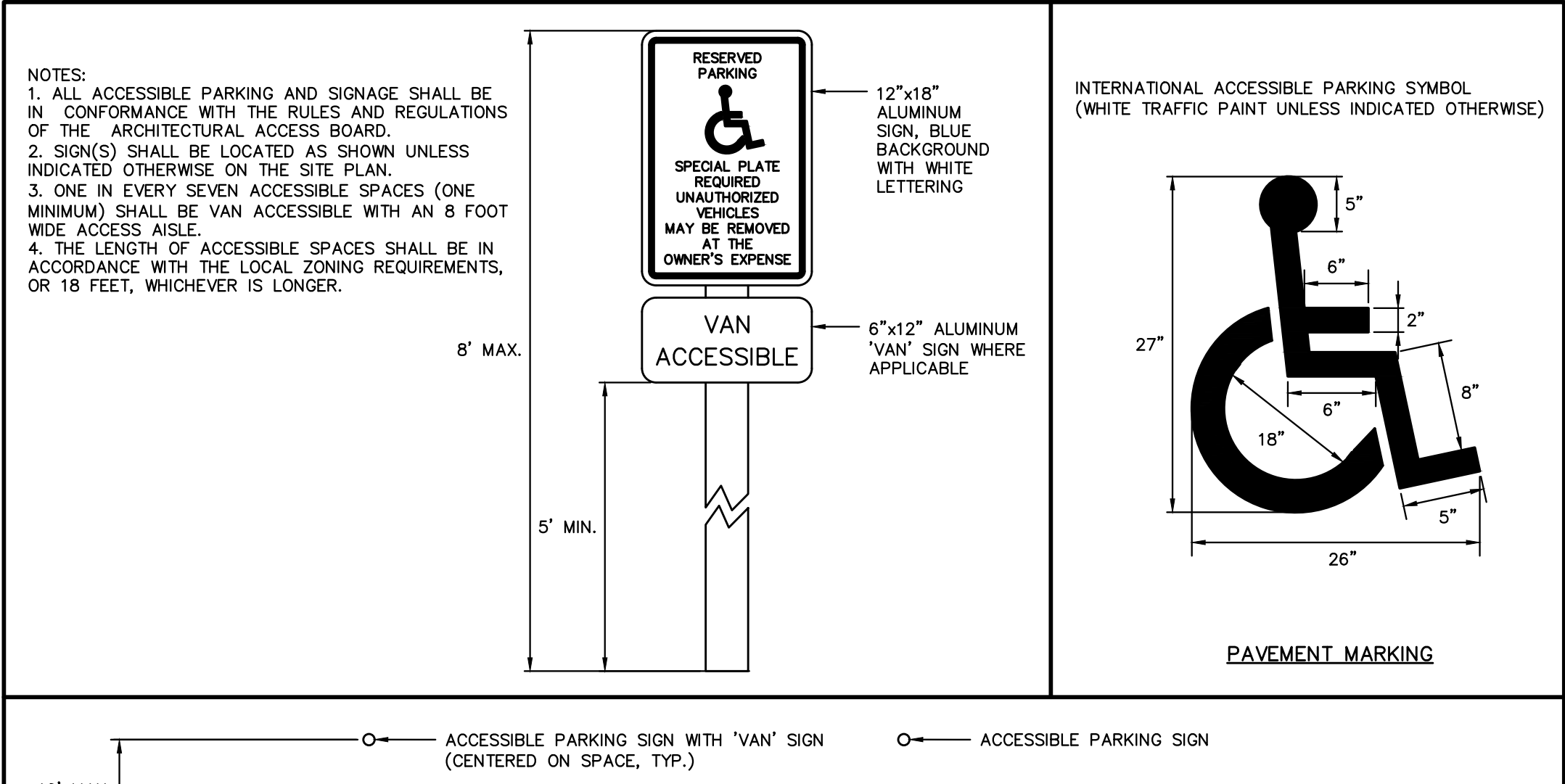
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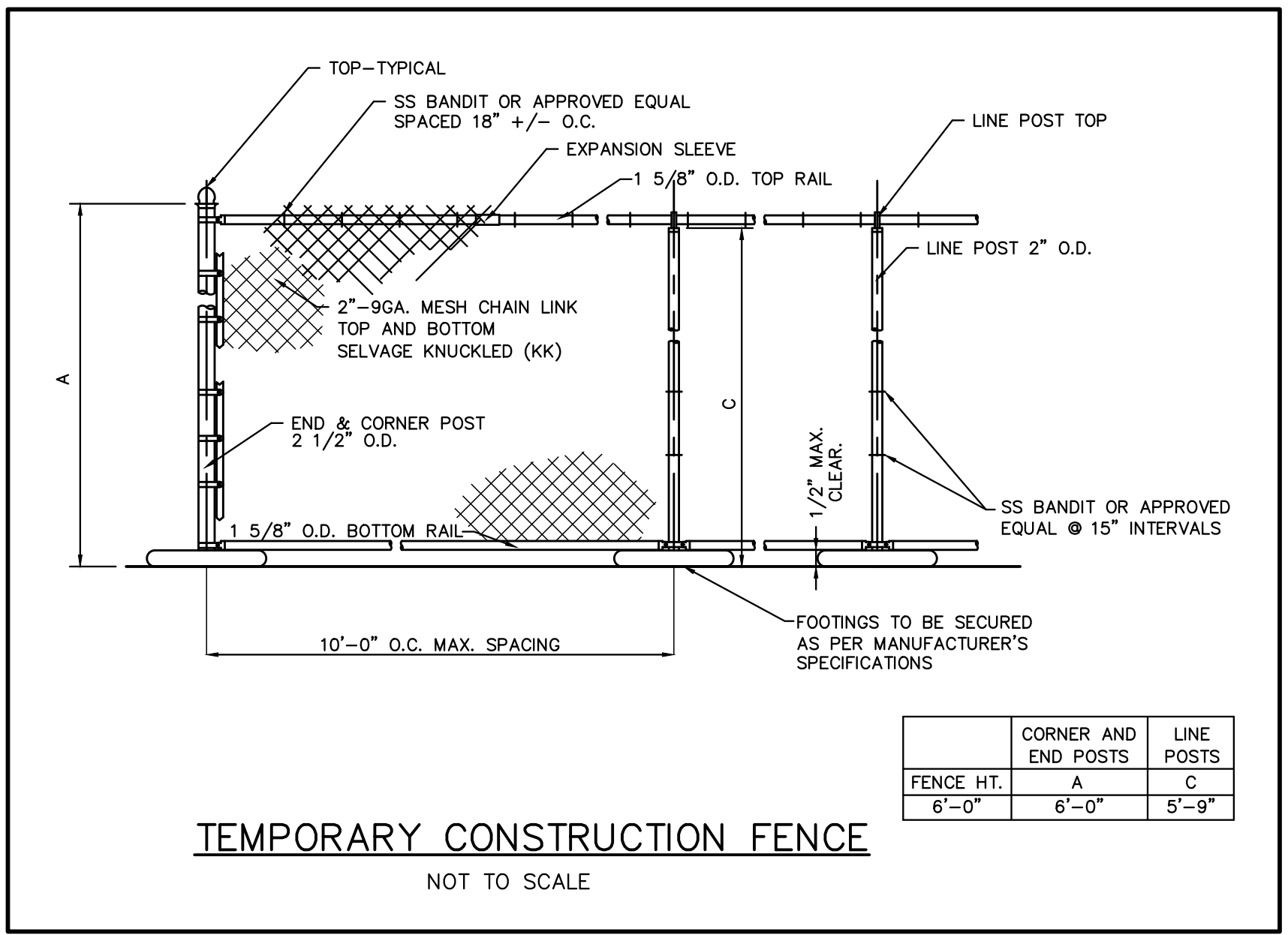
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**WOOD GUIDERAIL (WGR)**  
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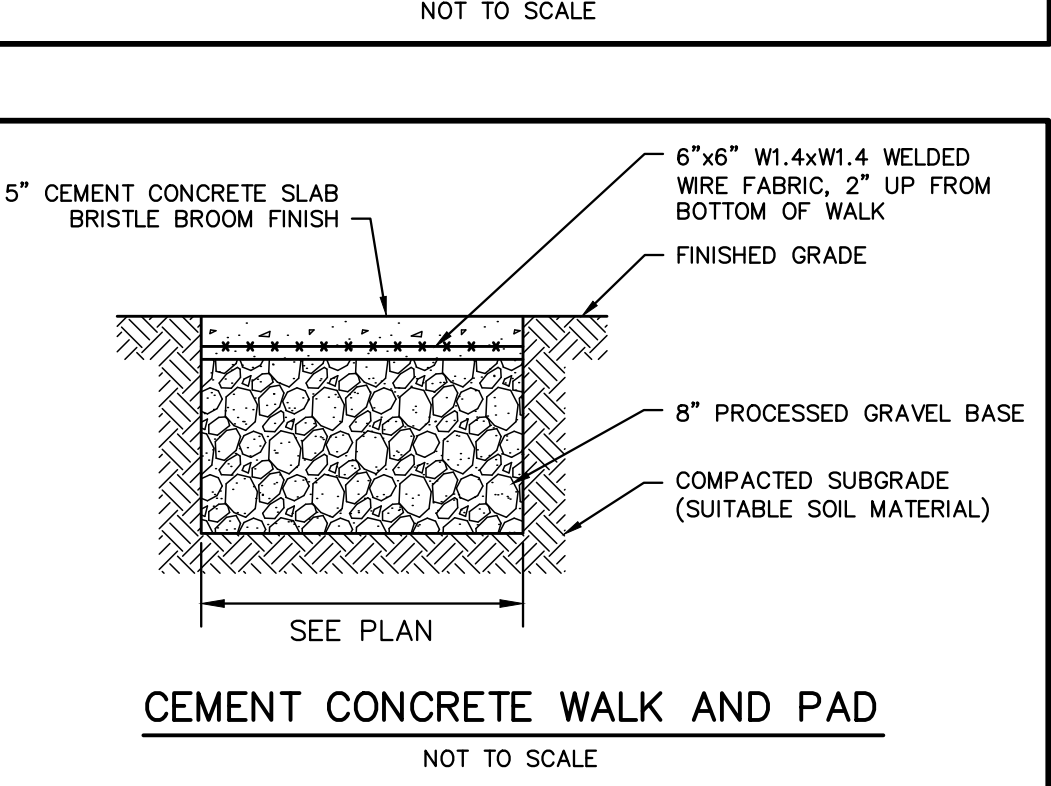


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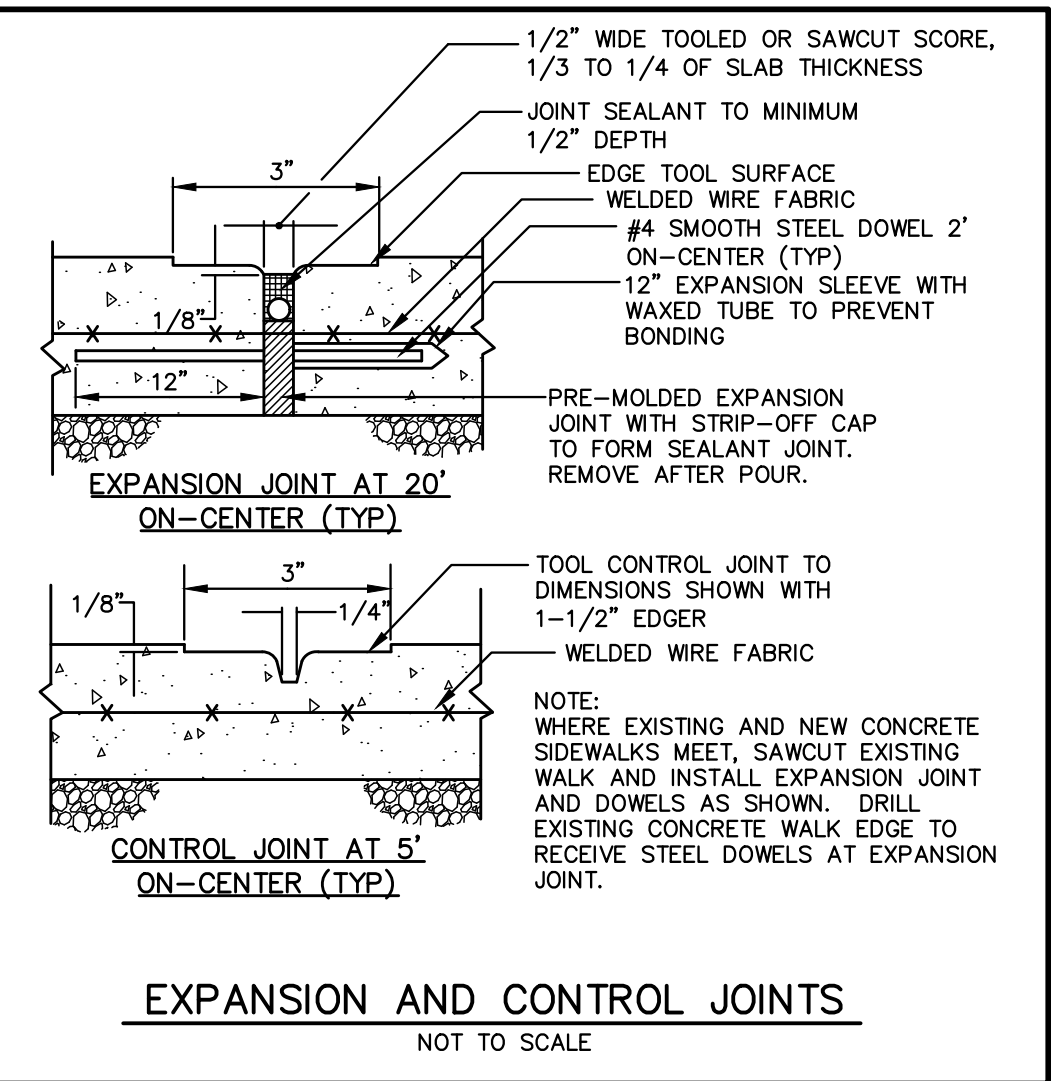


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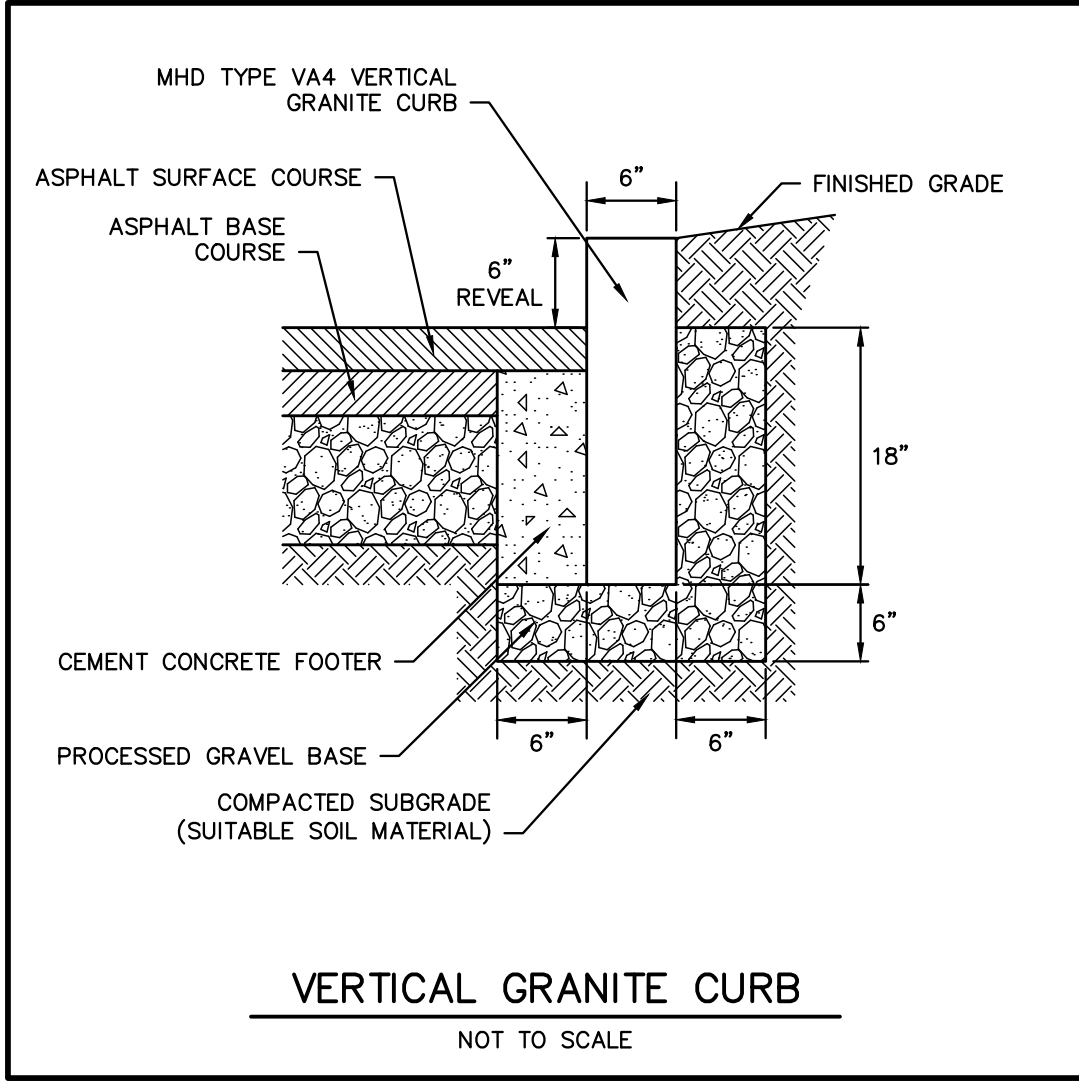
FENCE HT.	CORNER AND END POSTS	LINE POSTS
6'-0"	6'-0"	5'-9"



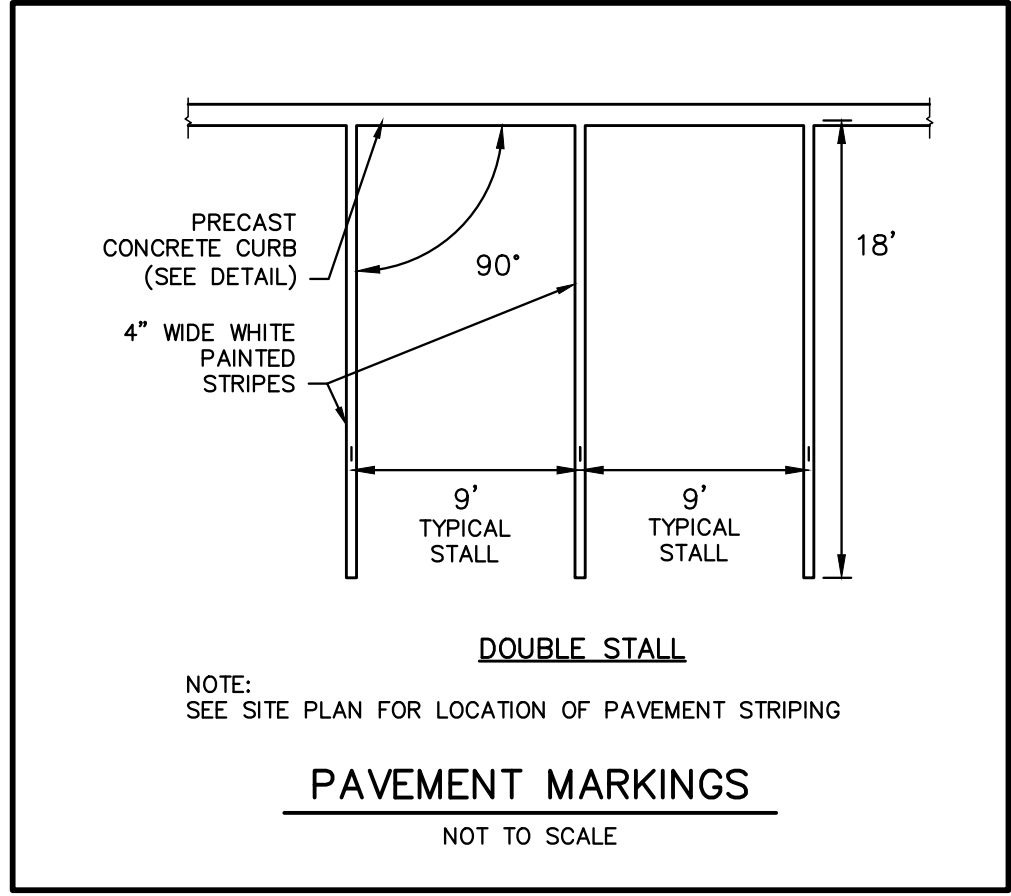
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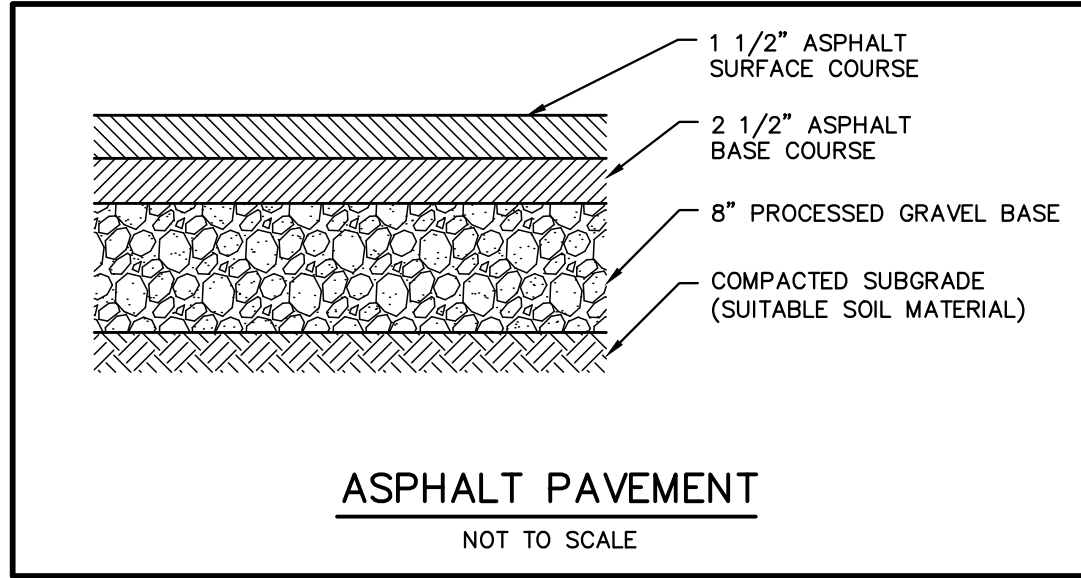
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NOT TO SCALE



**VERTICAL GRANITE CURB**  
NOT TO SCALE



**PAVEMENT MARKINGS**  
NOT TO SCALE



**ASPHALT PAVEMENT**  
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PROJECT:

**EAST PARK  
RENOVATION**

180 SHREWSBURY STREET  
WORCESTER, MASSACHUSETTS

SCALE: AS NOTED DATE: JUNE 16, 2023

**SITE DETAILS #1**

B+T JOB NO.3131.02	<b>C7.1</b>
B+T PLAN NO. 313102P004A-003	

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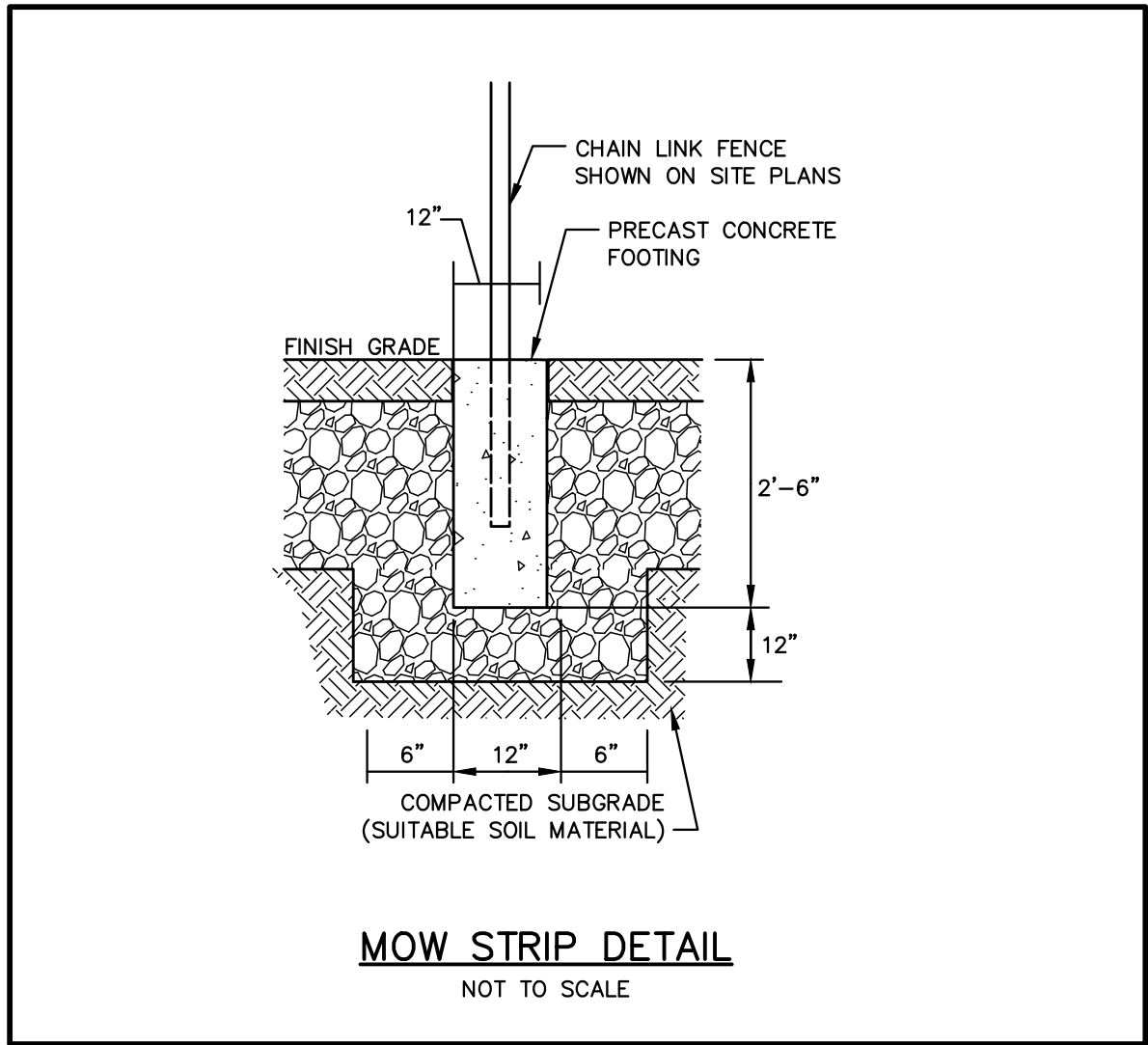
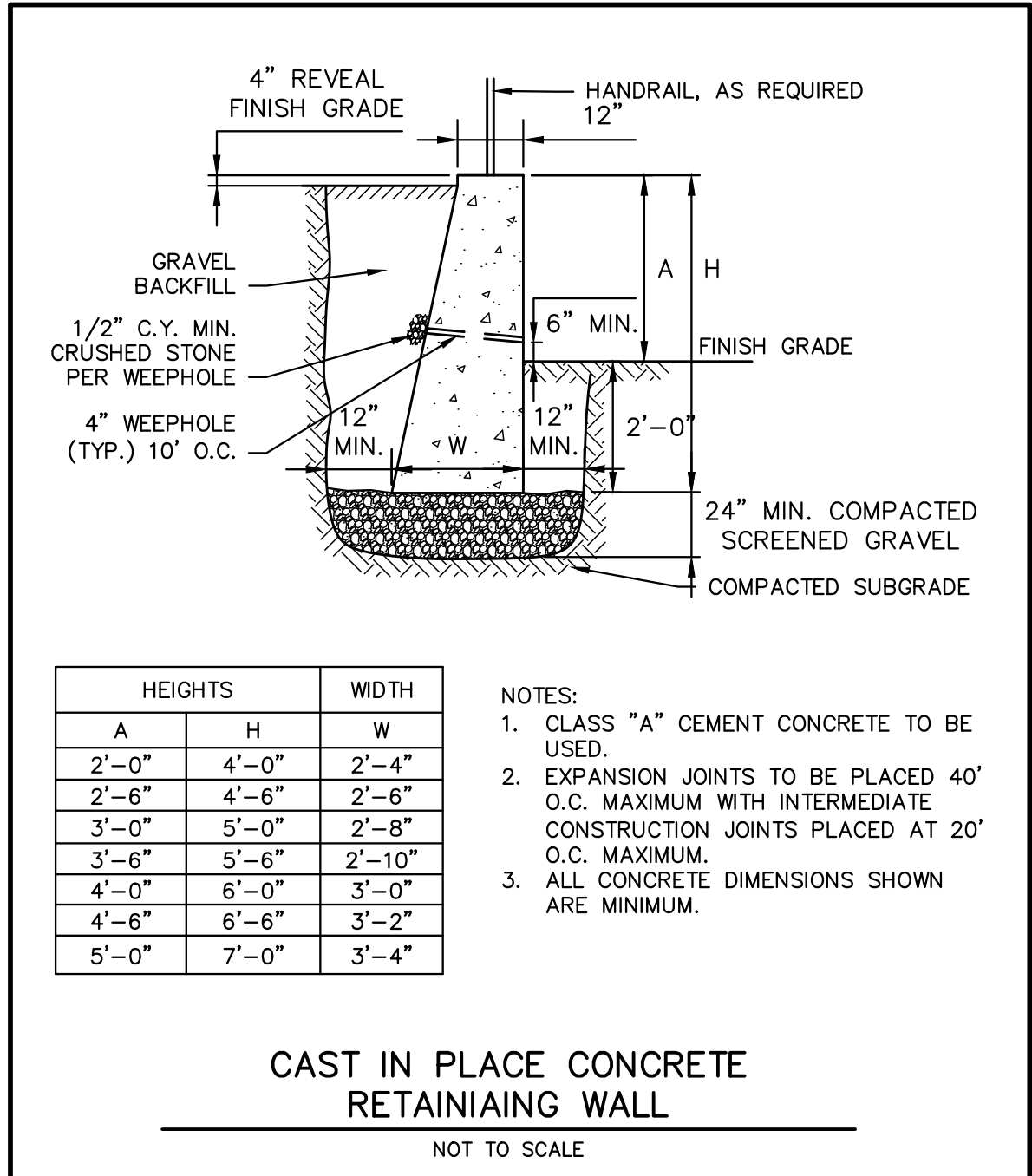
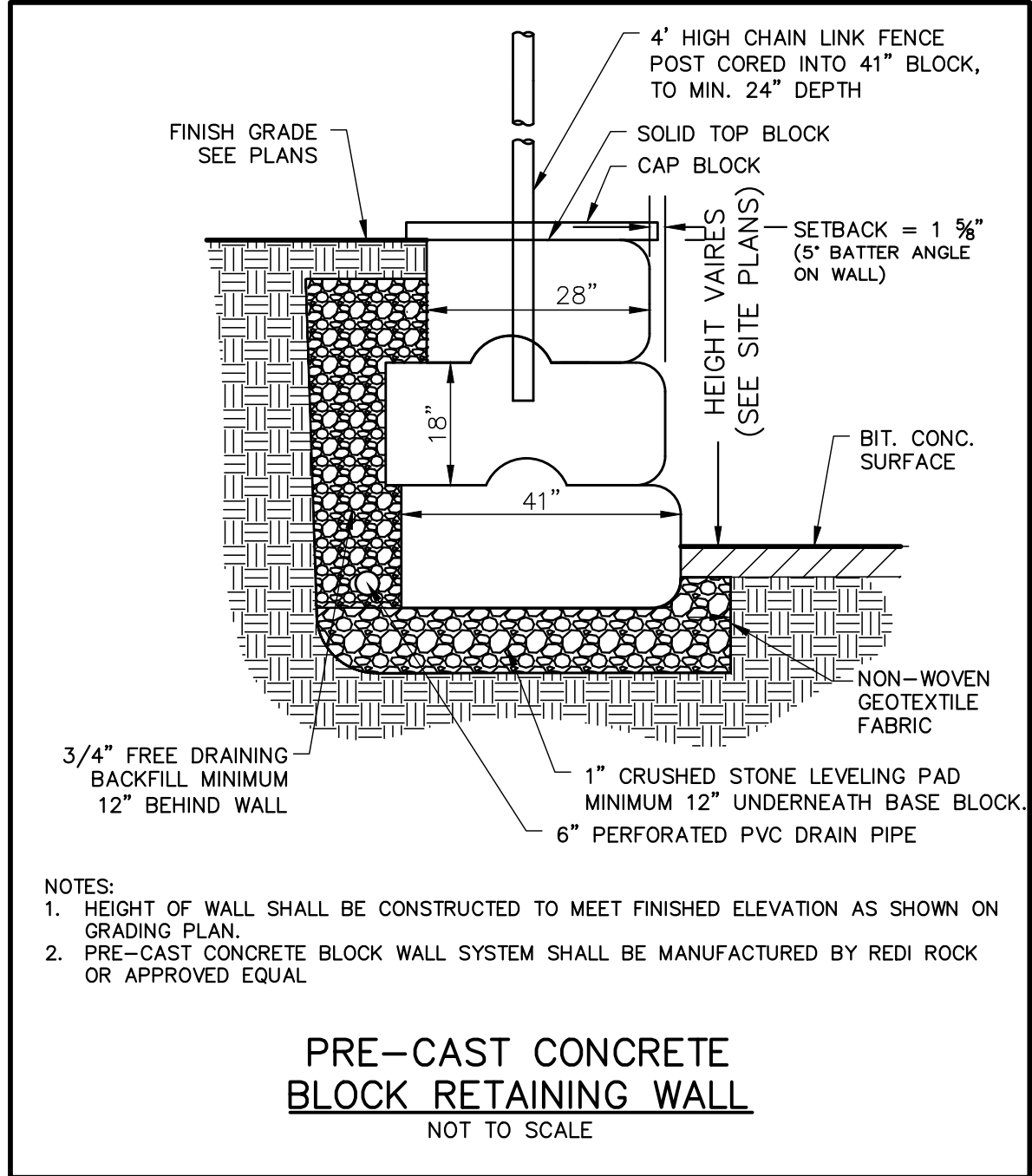
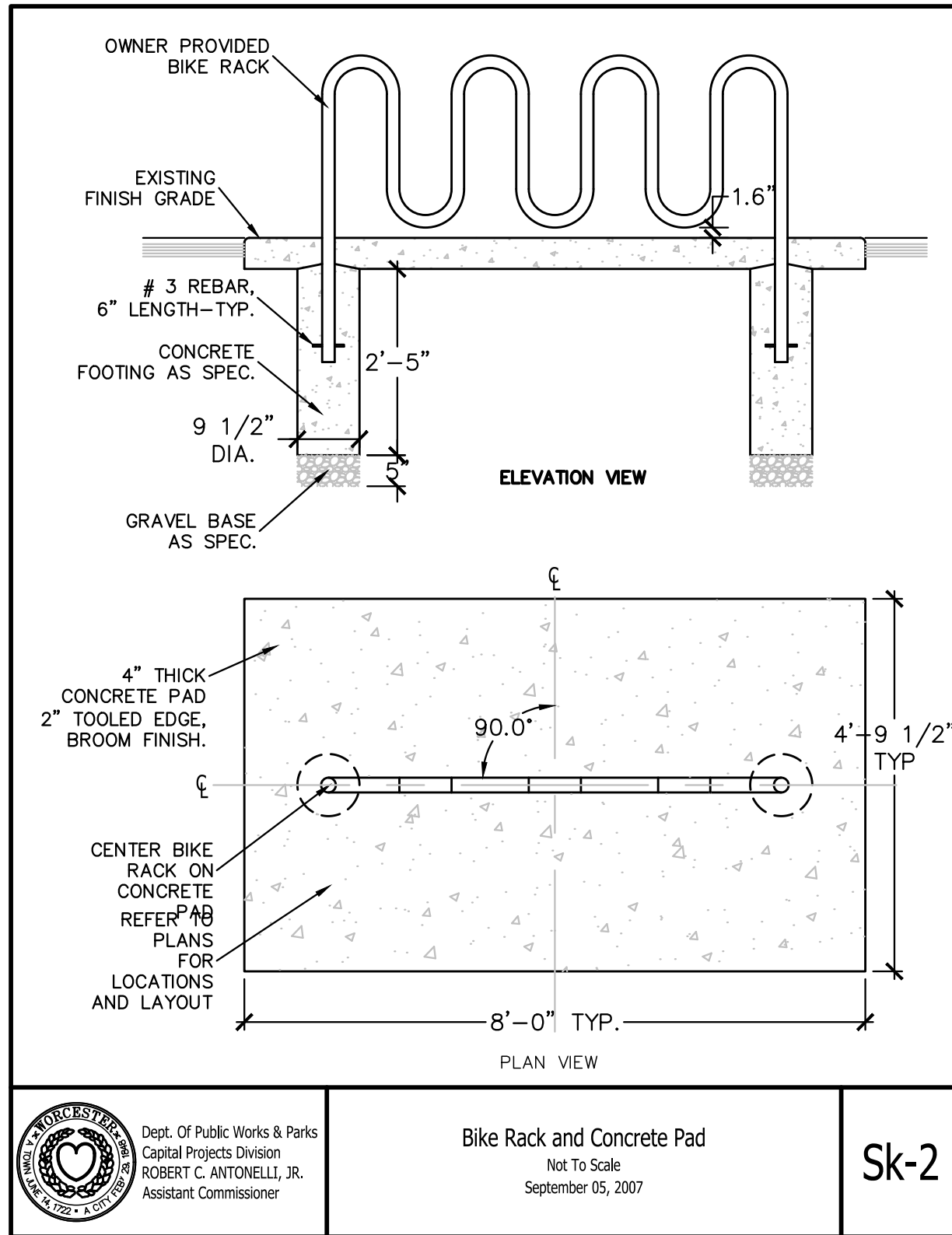
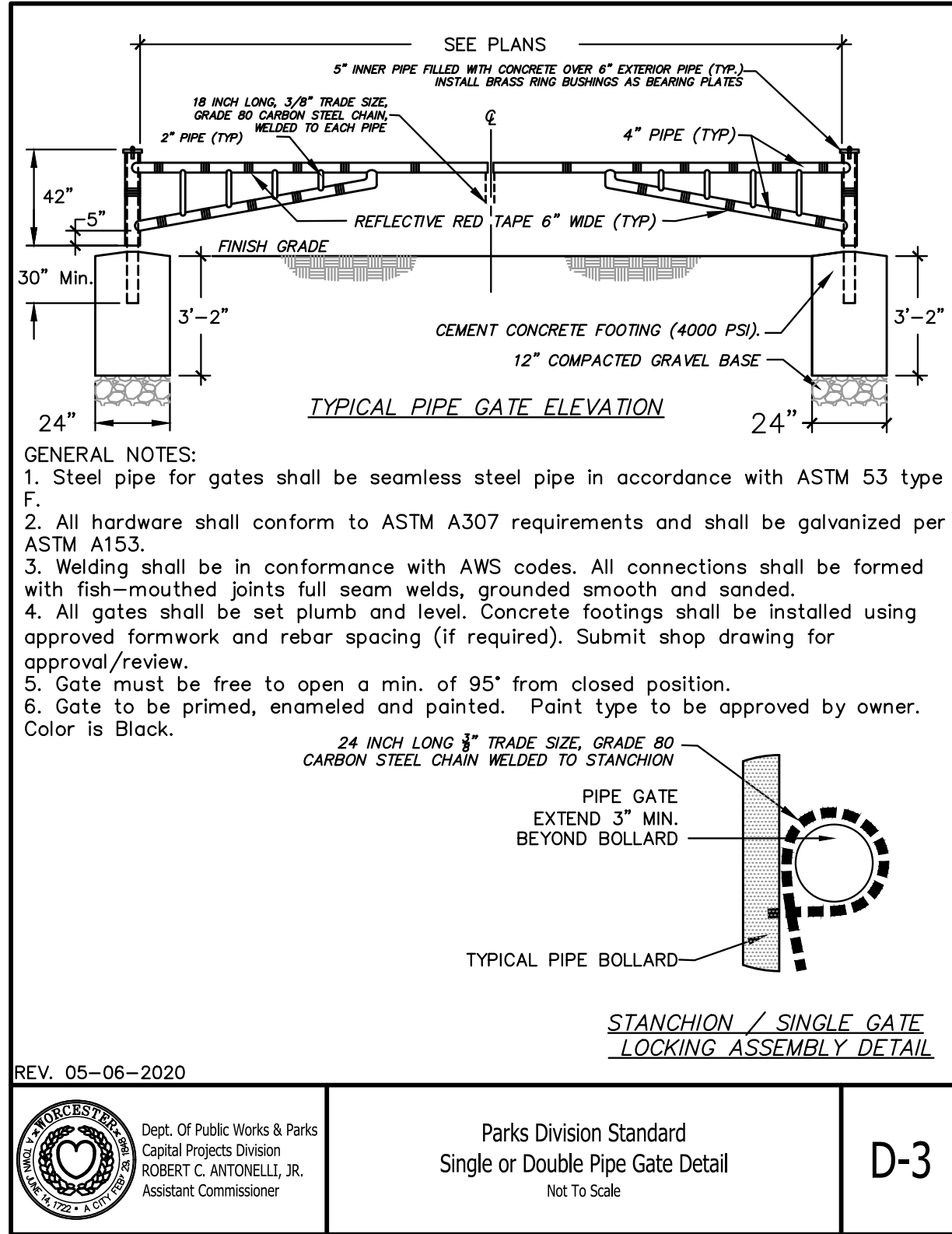
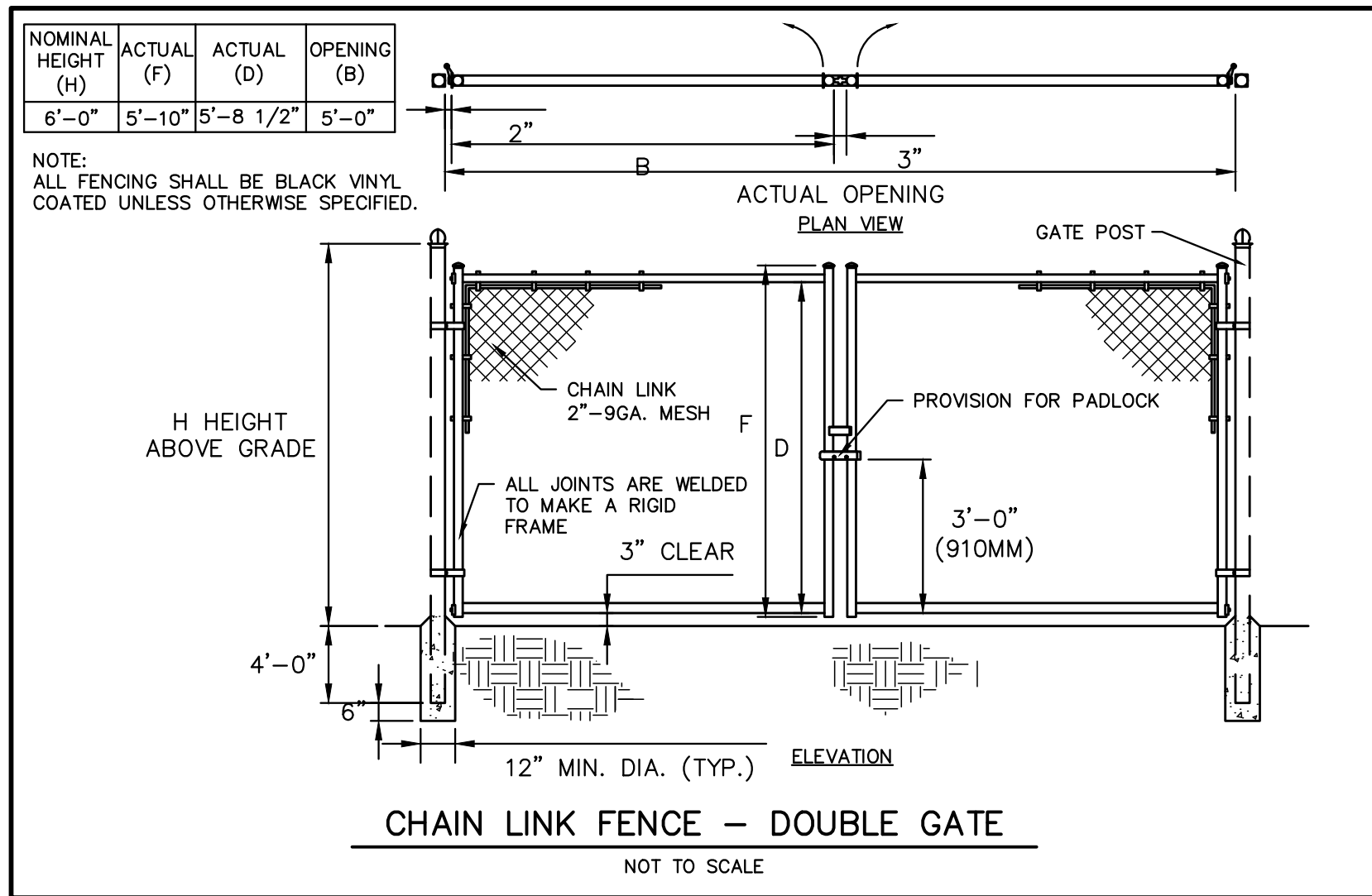
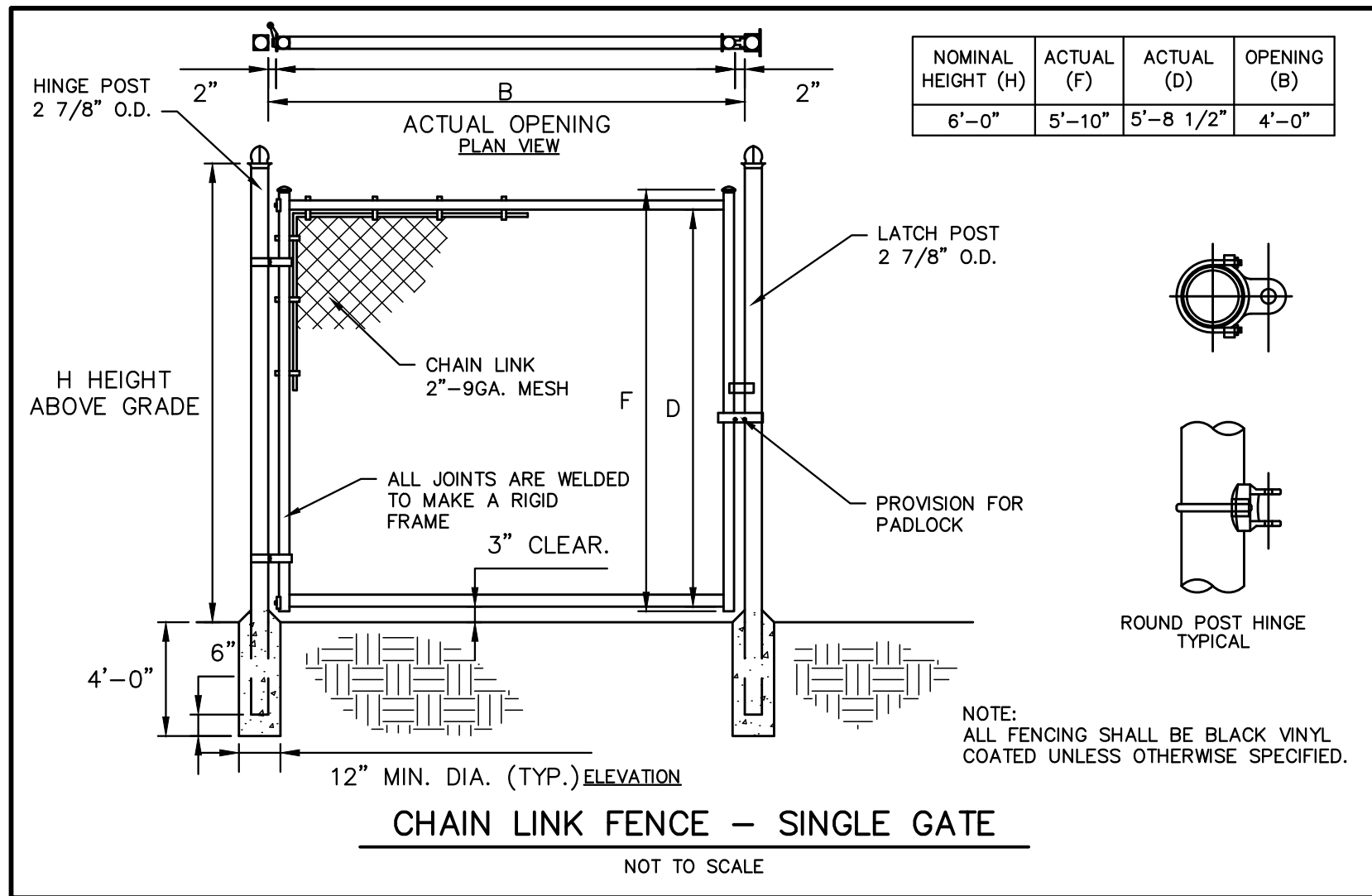
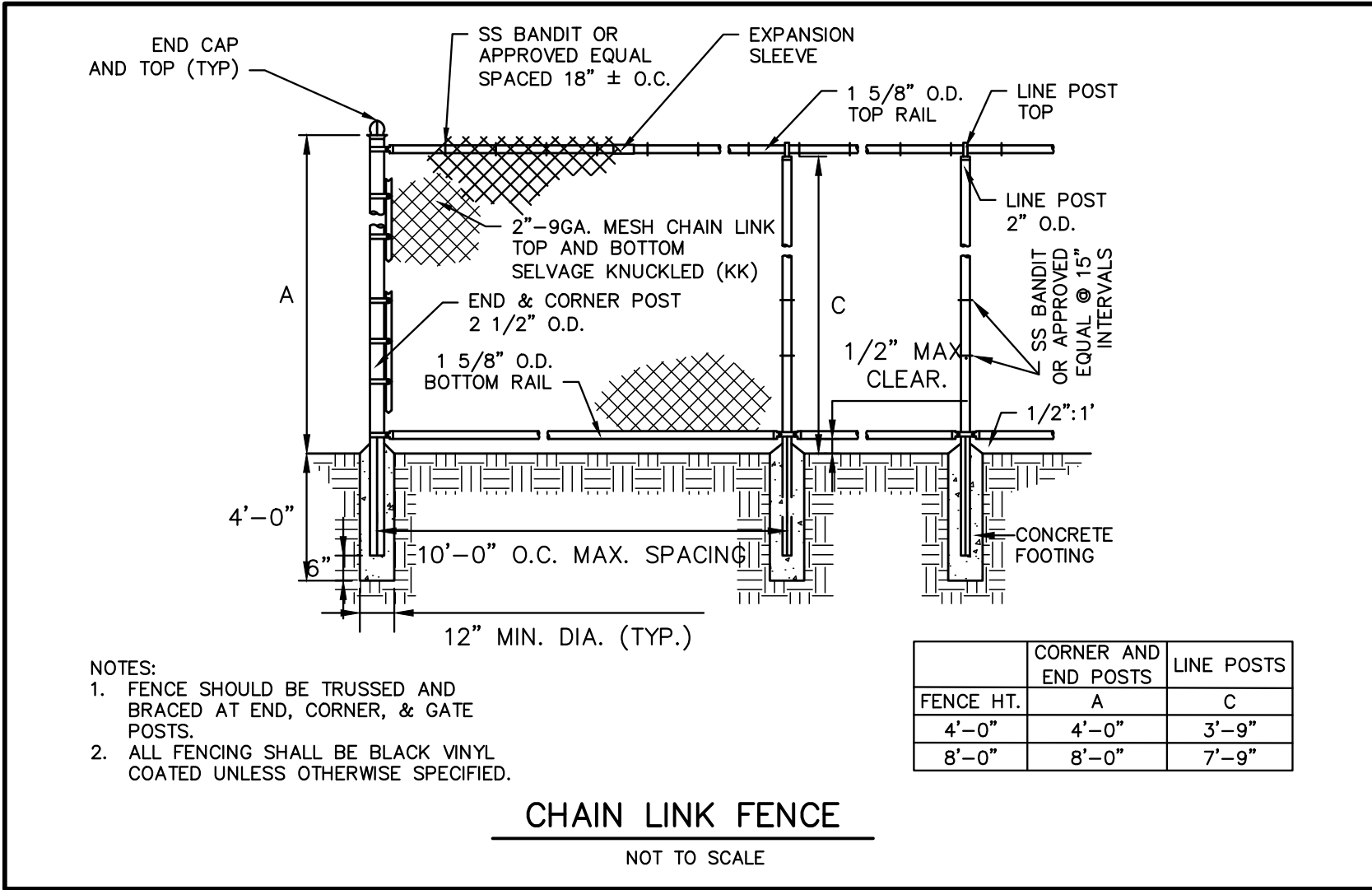
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PROJECT:

**EAST PARK  
RENOVATION**  
180 SHREWSBURY STREET  
WORCESTER, MASSACHUSETTS

SCALE: AS NOTED DATE: JUNE 16, 2023

## SITE DETAILS #2

B+T JOB NO.3131.02


B+T PLAN NO.  
313102P004A-004

**C7.2**



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# EAST PARK RENOVATION

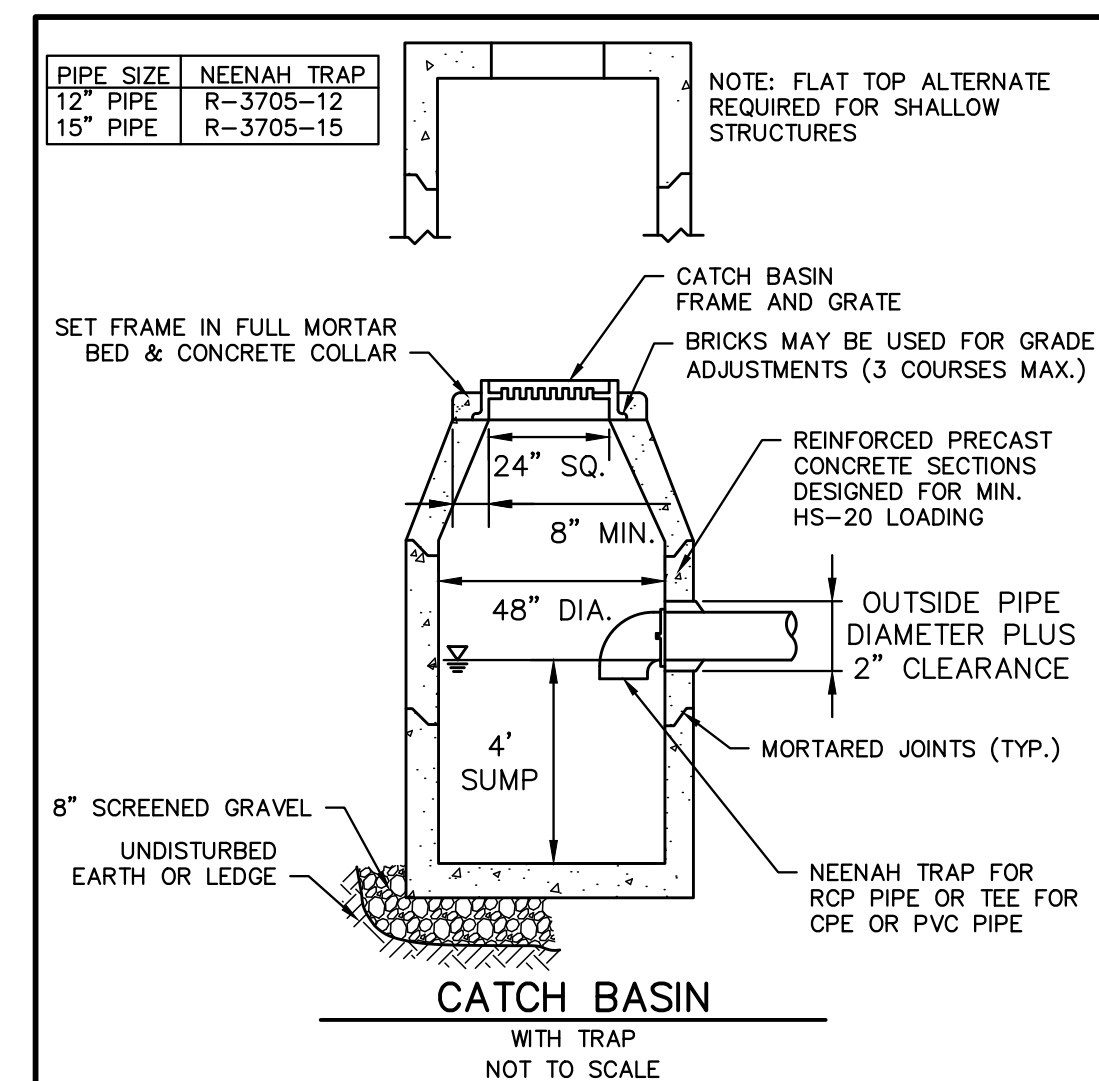
180 SHREWSBURY STREET  
WORCESTER, MASSACHUSETTS

### SITE DETAILS #3

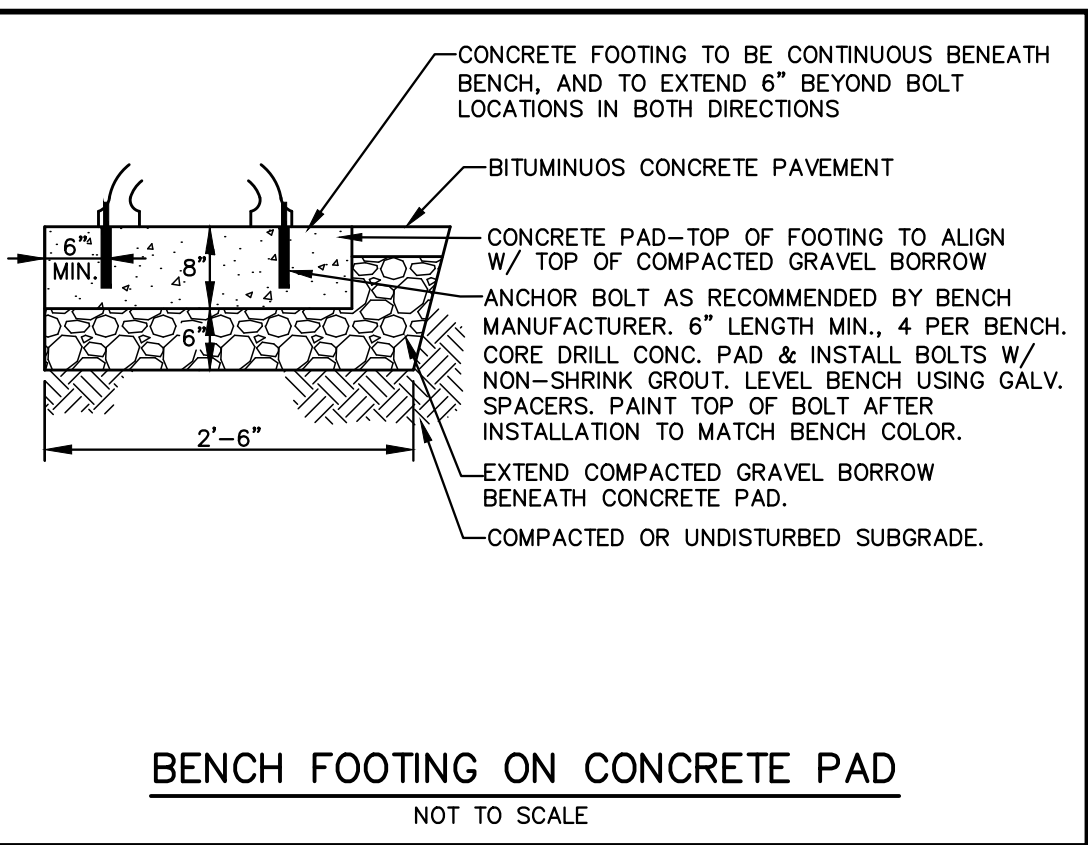
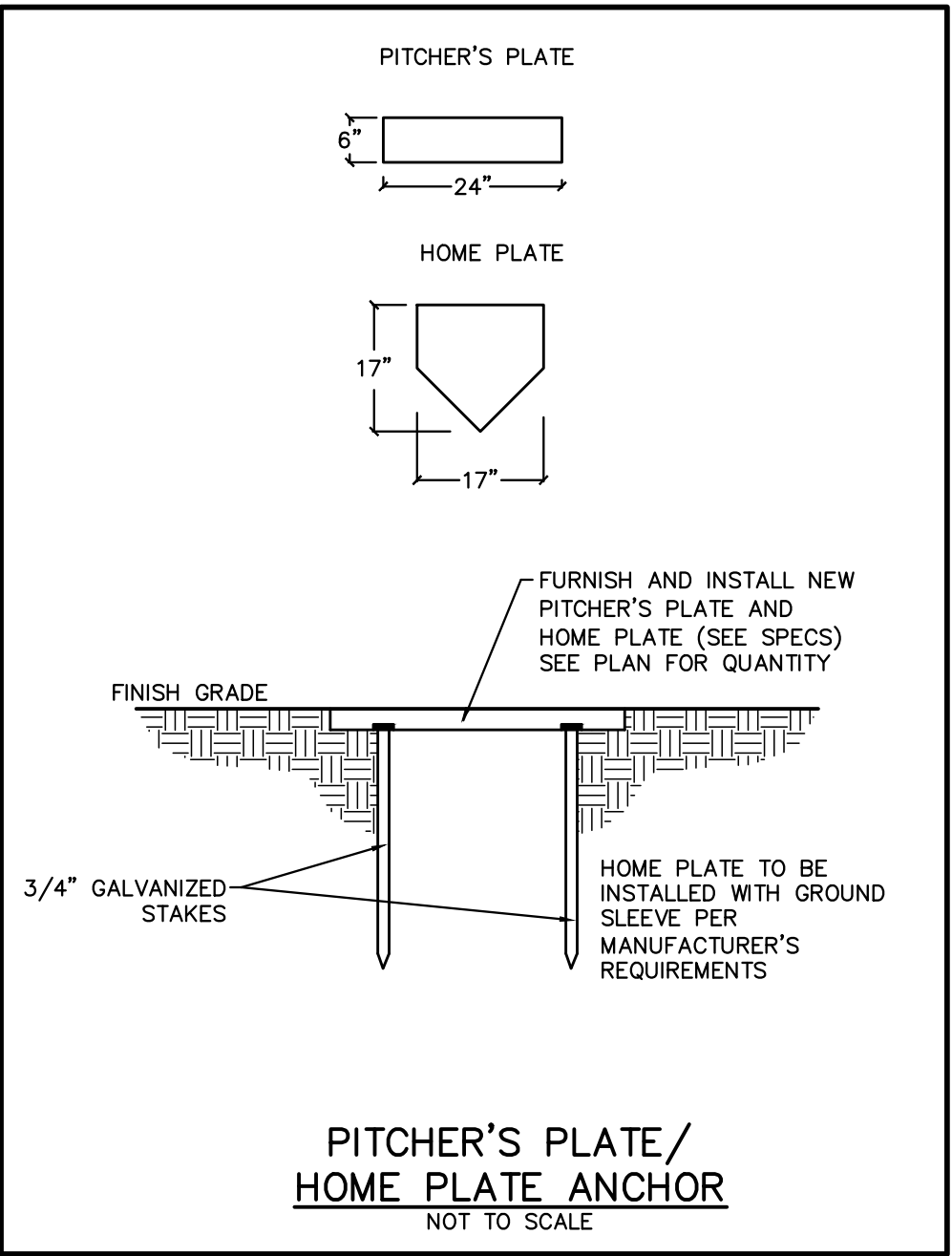
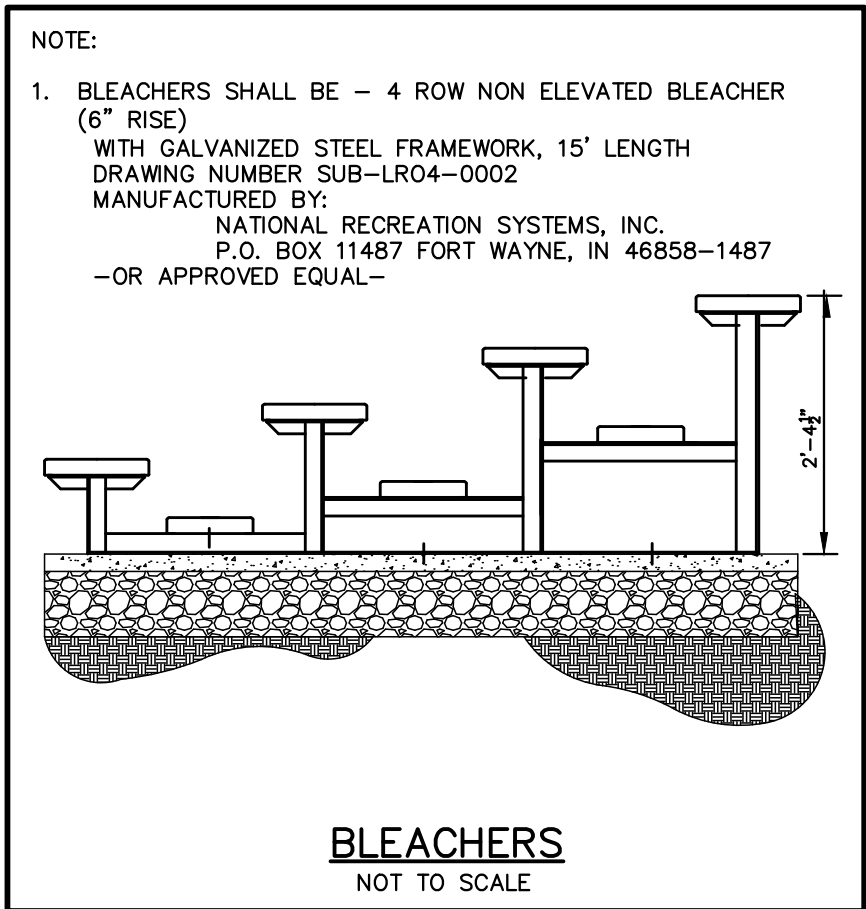
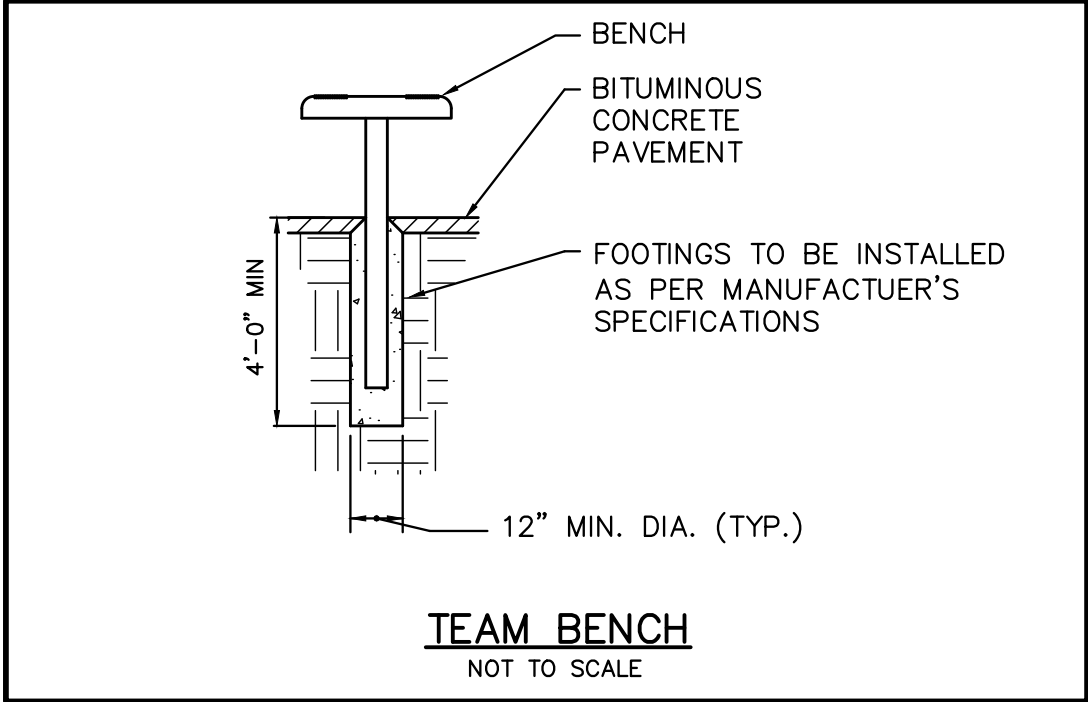
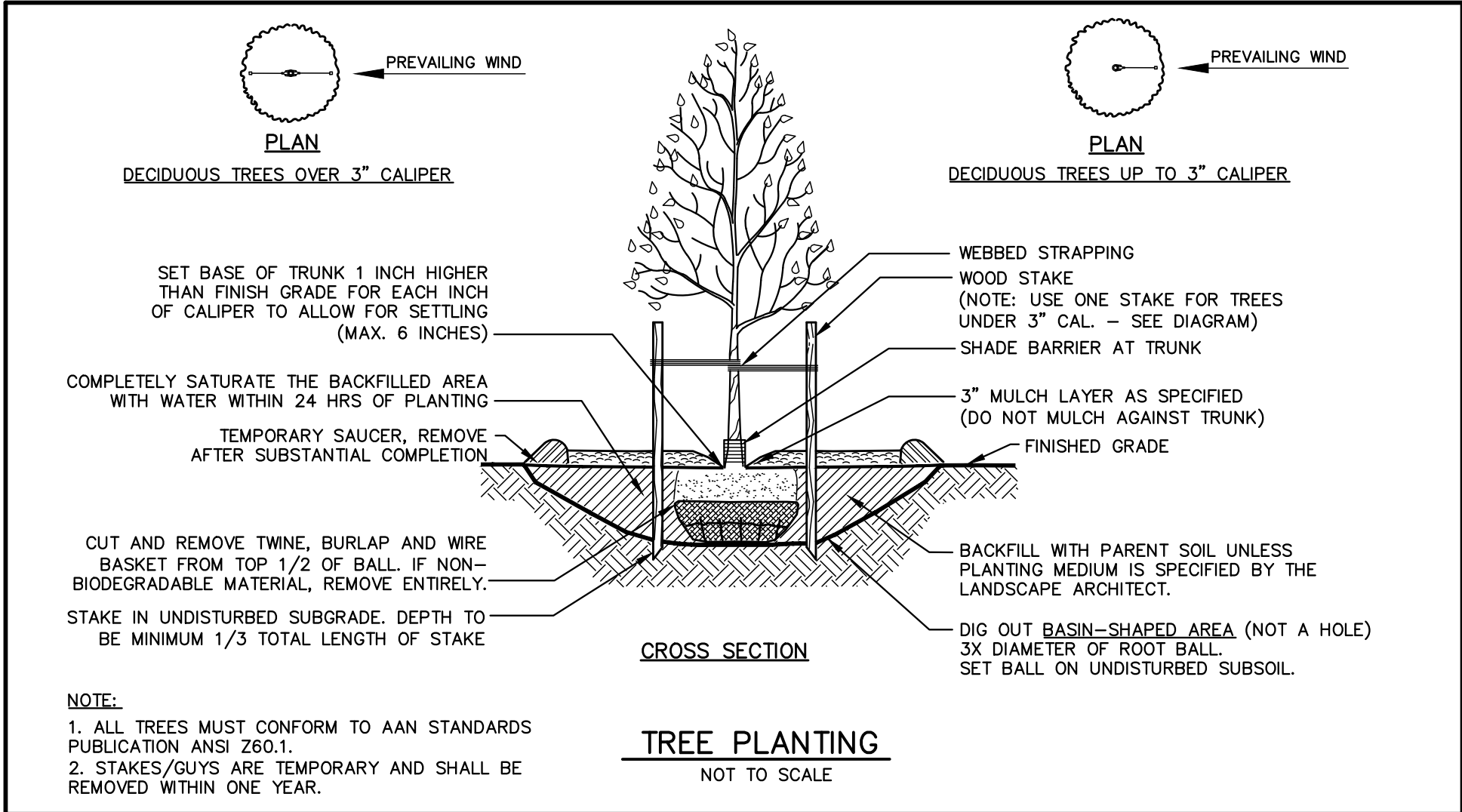
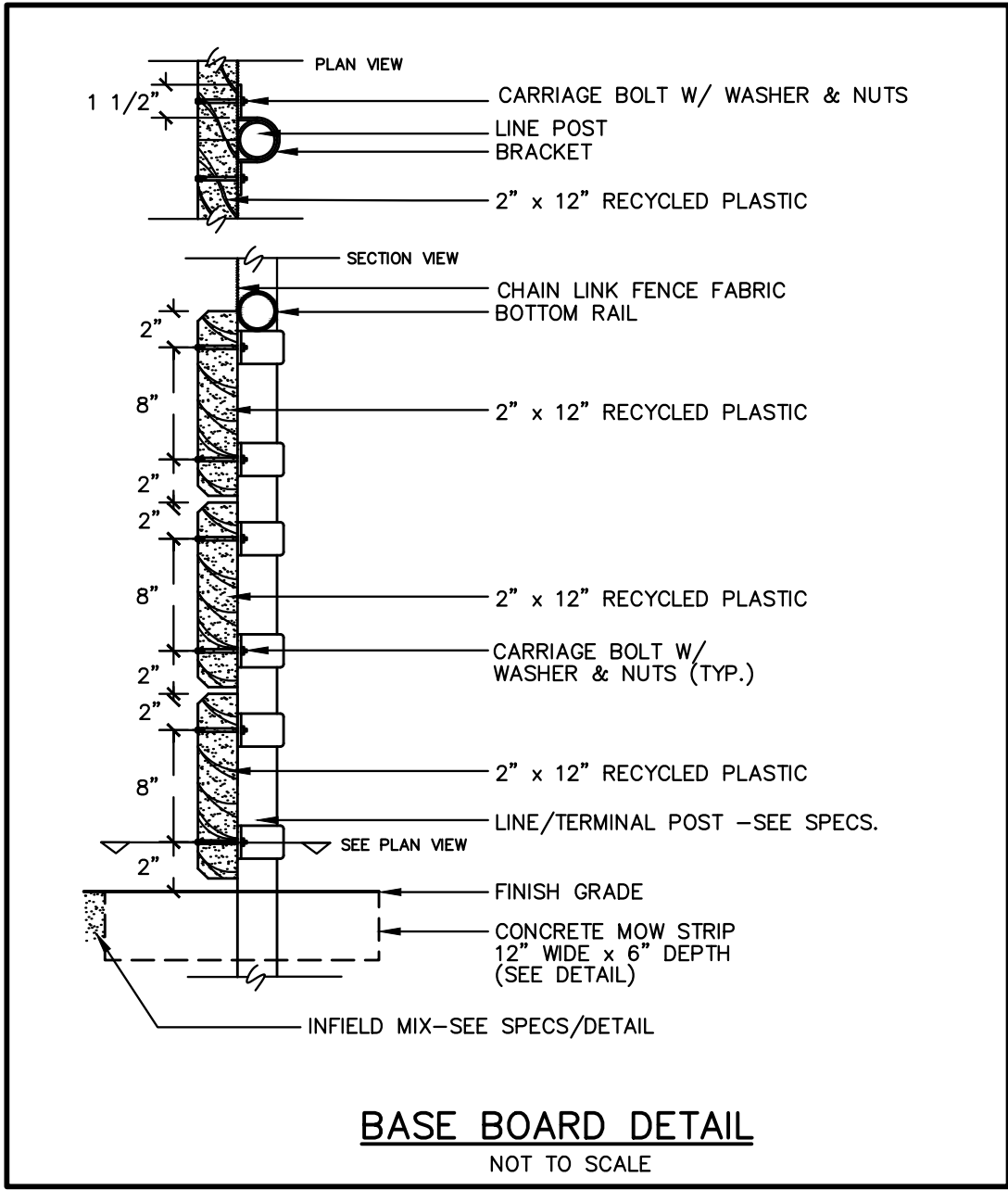
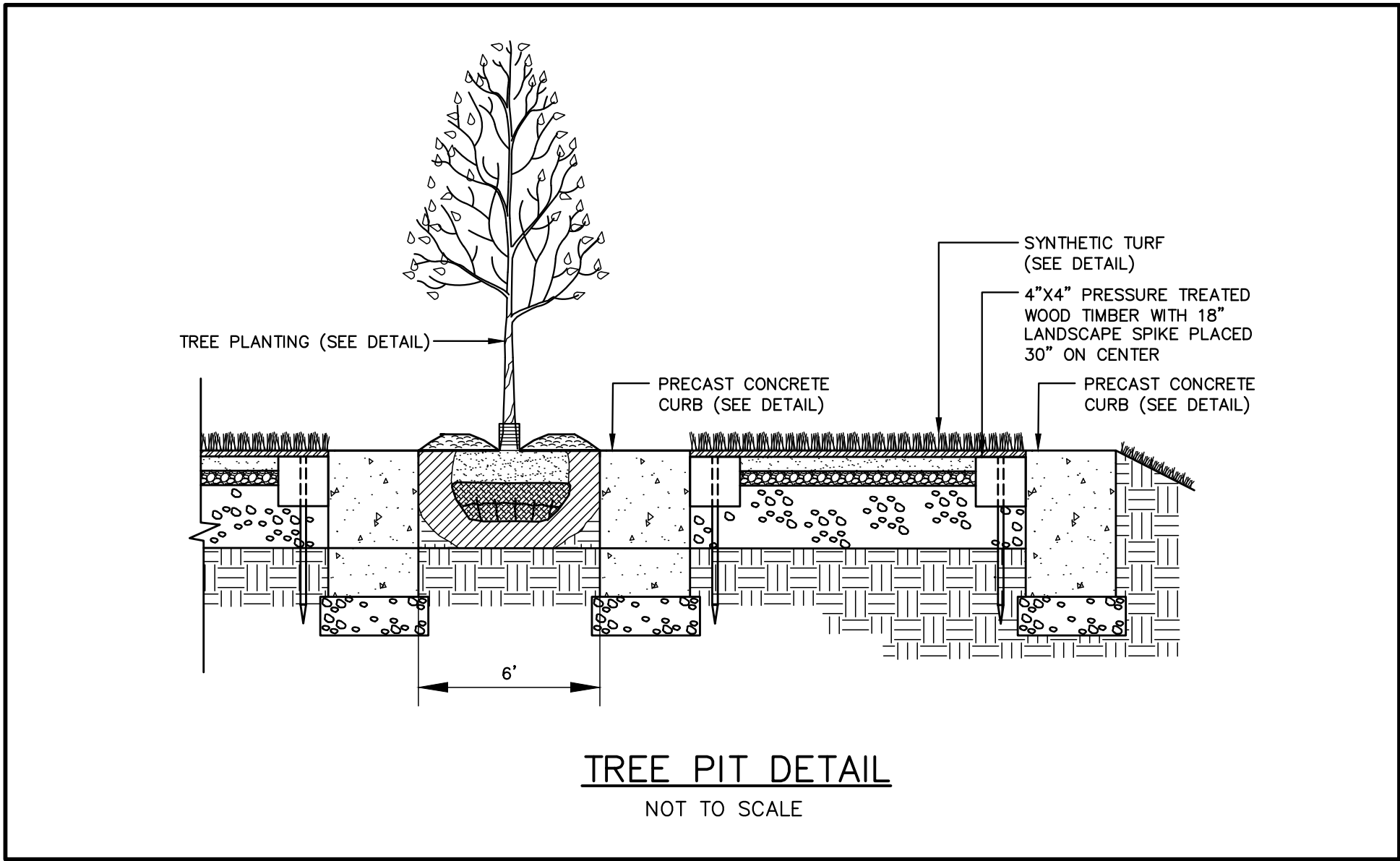
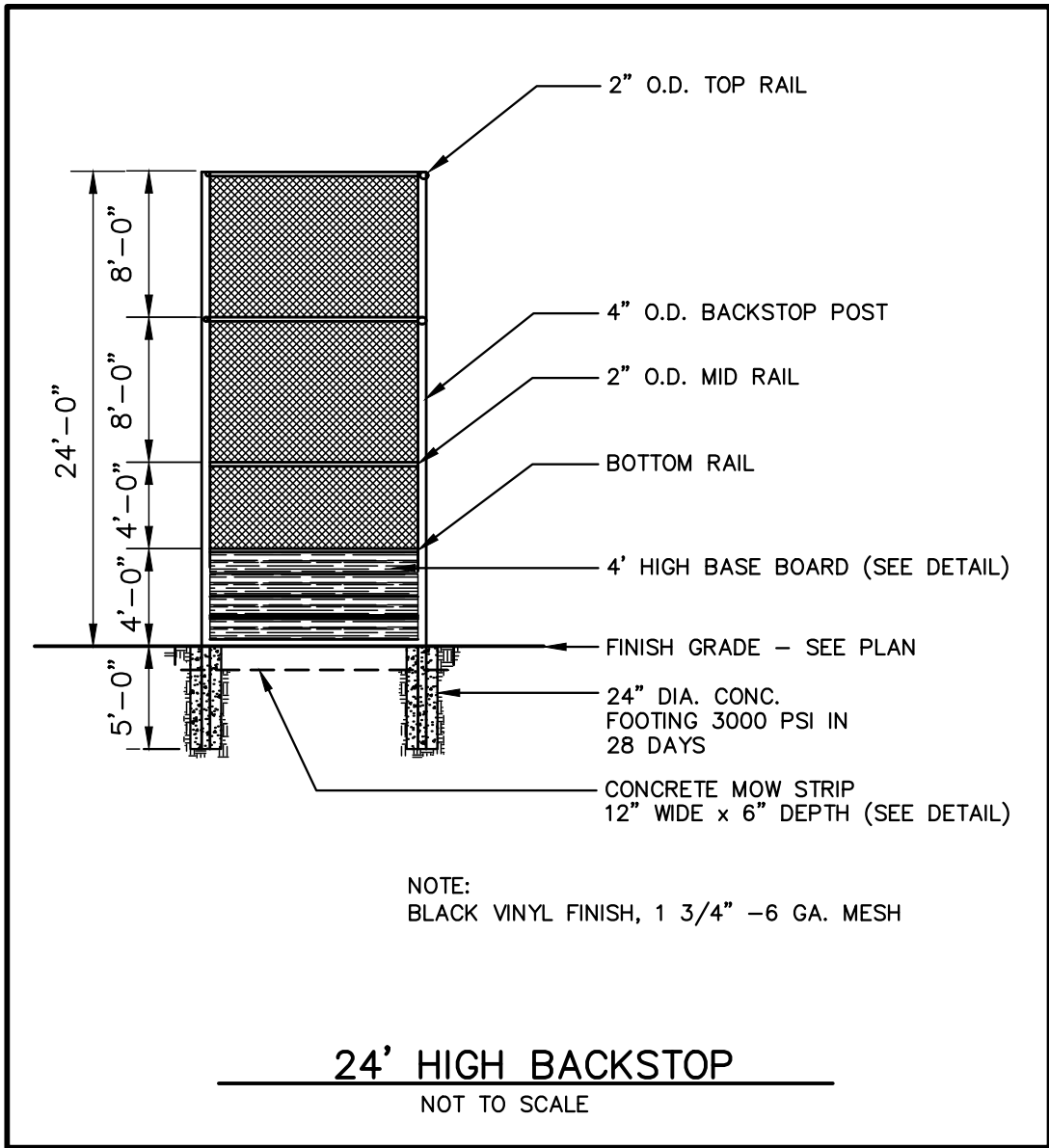
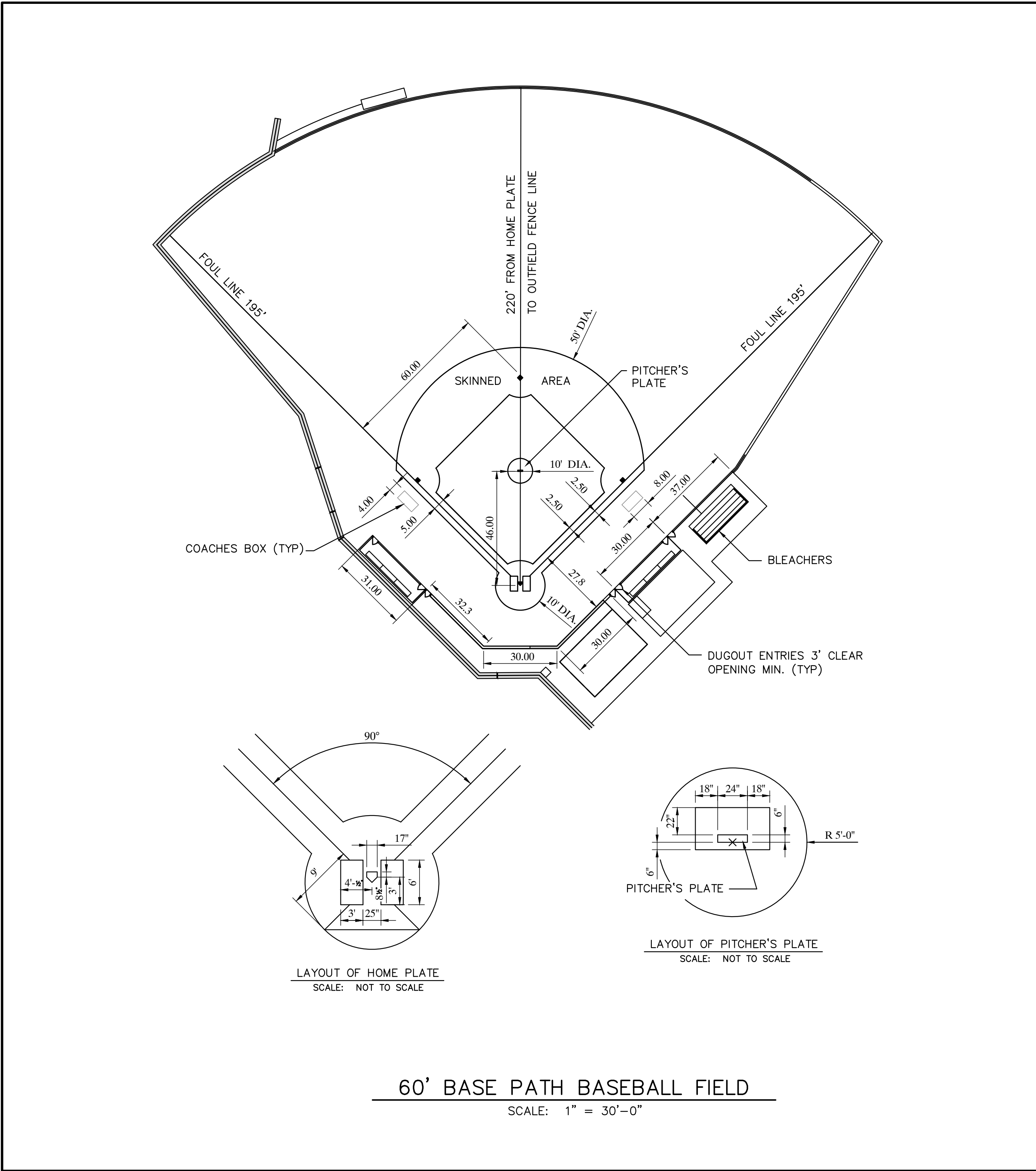
B+T PLAN NO.  
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## C7.3

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PROJECT:

**EAST PARK  
RENOVATION**

180 SHREWSBURY STREET  
WORCESTER, MASSACHUSETTS

SCALE: AS NOTED DATE: JUNE 16, 2023

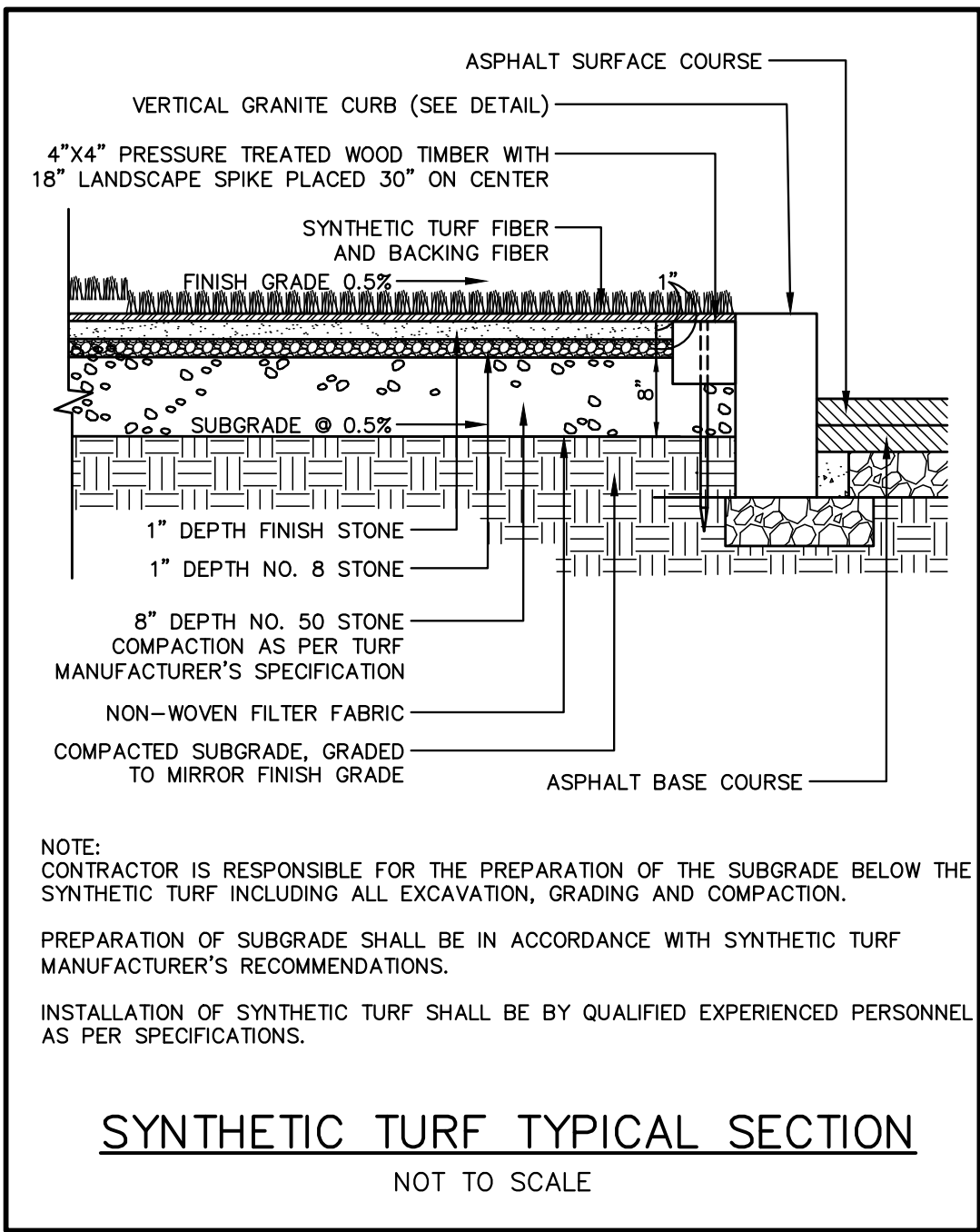
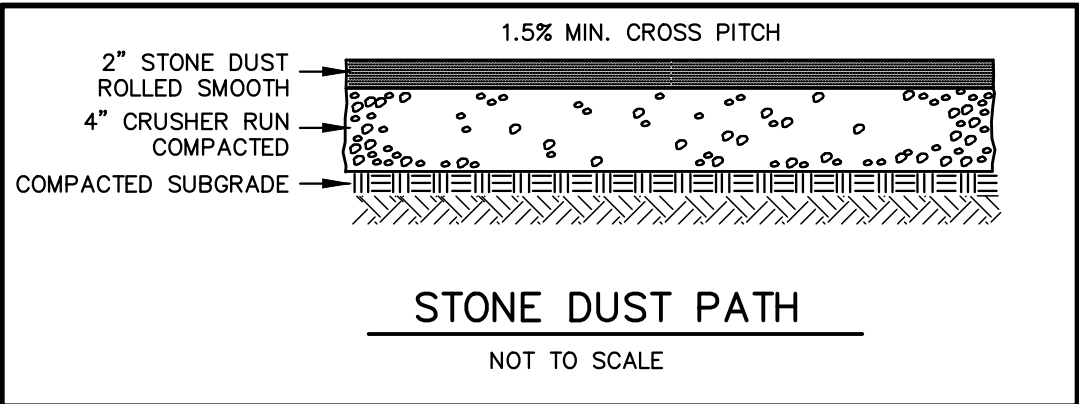
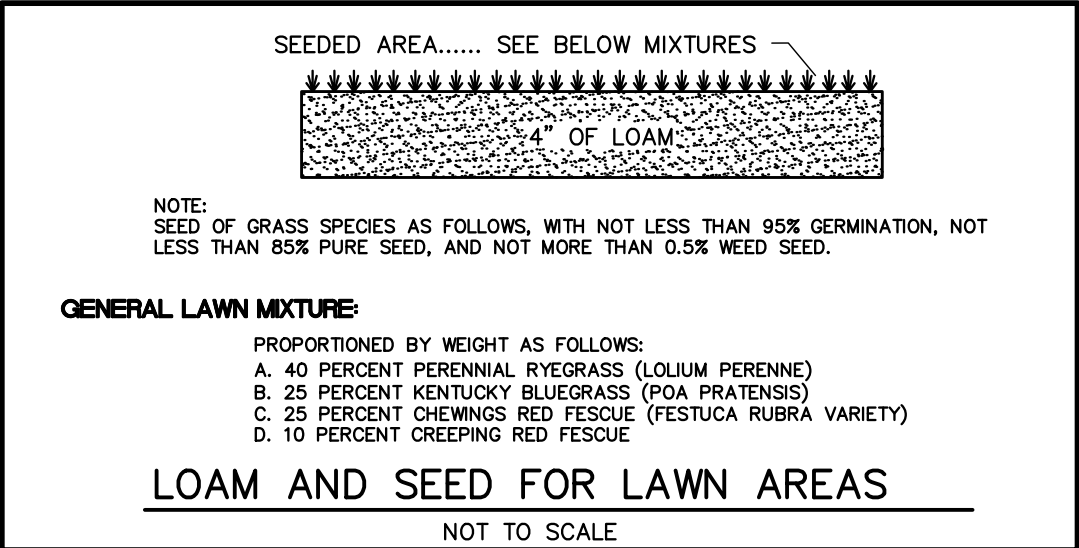
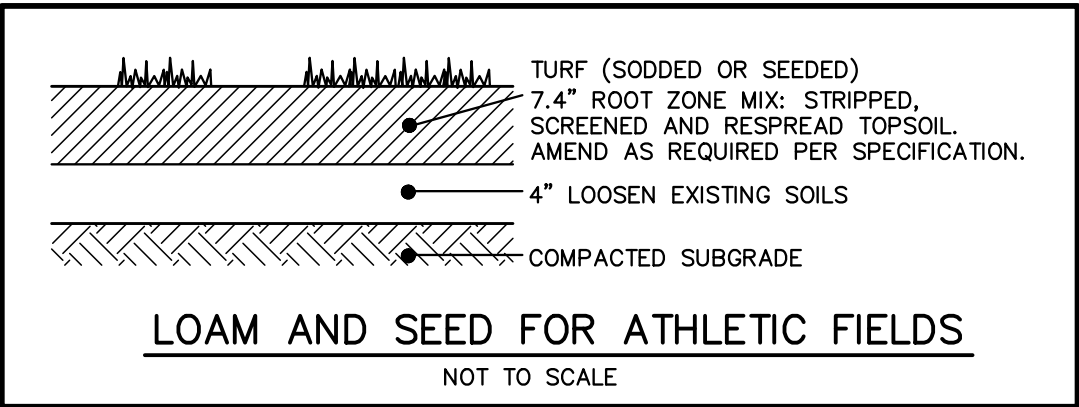
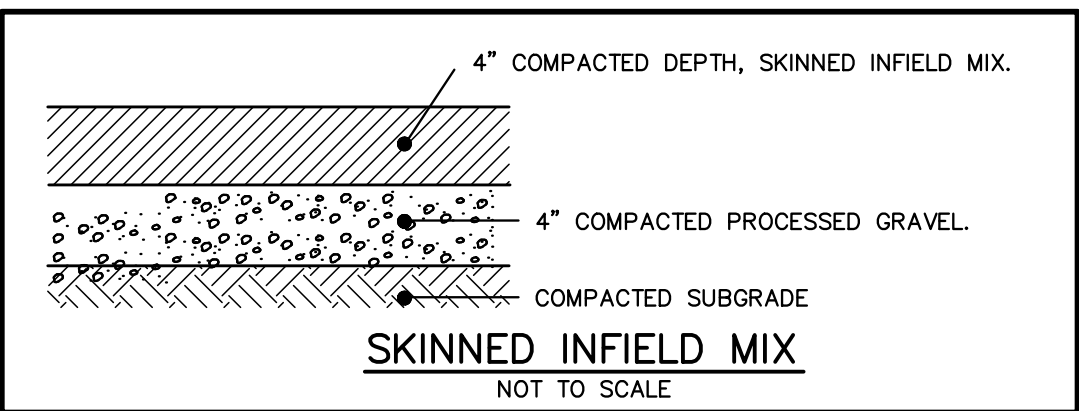
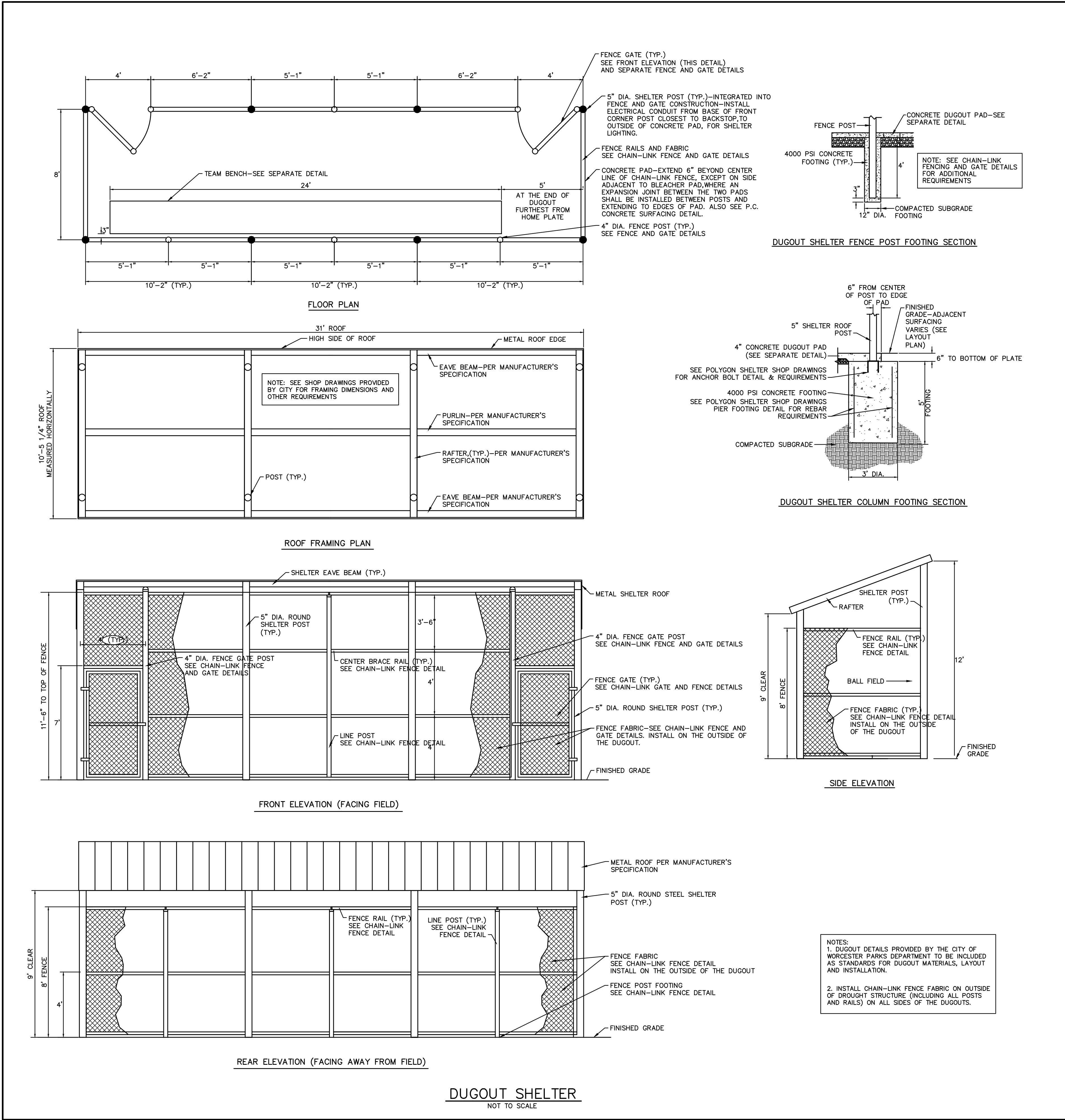
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B+T PLAN NO.  
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**C7.4**





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ISSUE DATE DESCRIPTION		
NBB	NBB	DJL/JRM JRM
DES	DWN	CHK'D APP'D

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**EAST PARK  
RENOVATION**  
180 SHREWSBURY STREET  
WORCESTER, MASSACHUSETTS

SCALE: AS NOTED DATE: JUNE 16, 2023

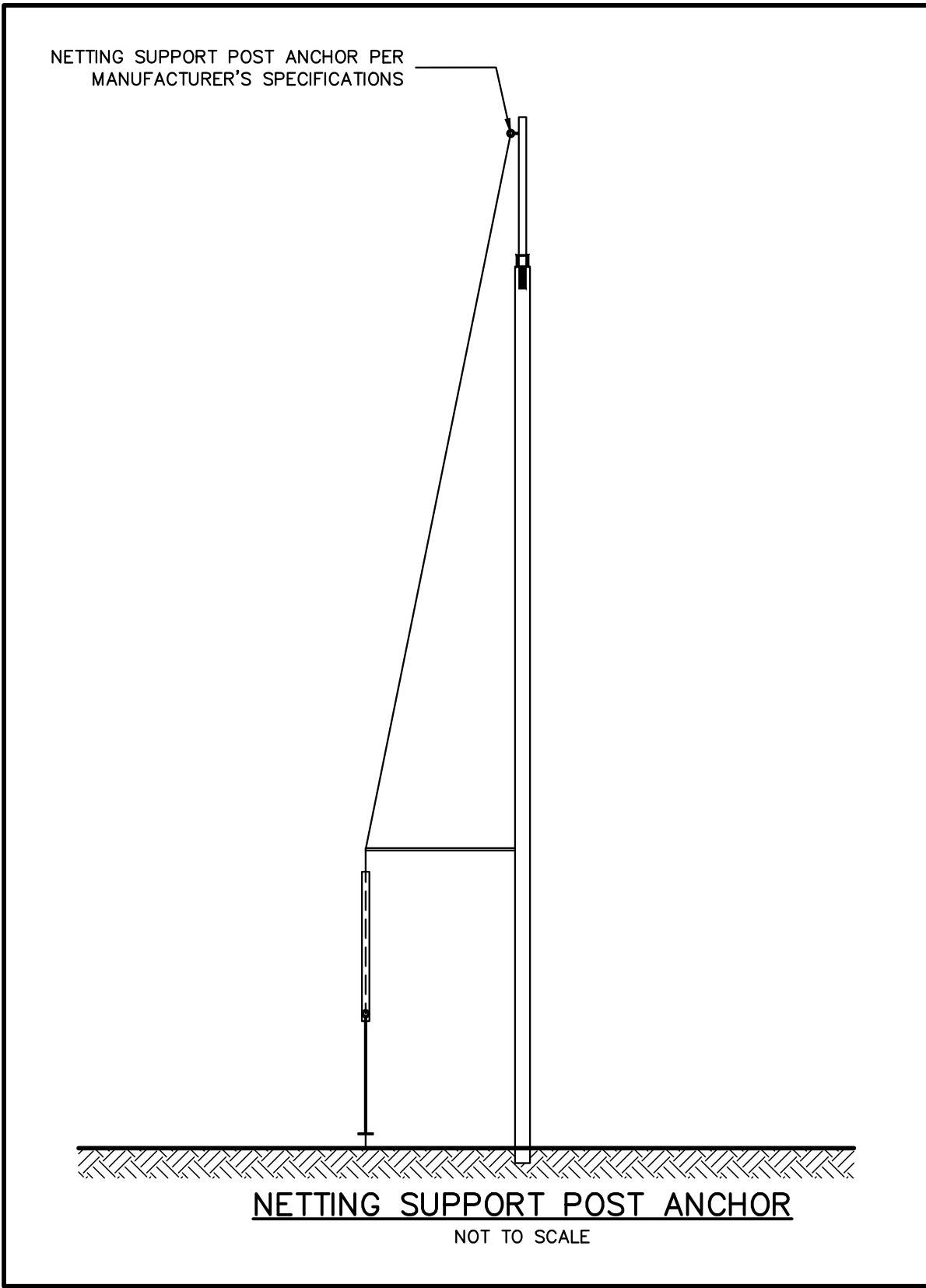
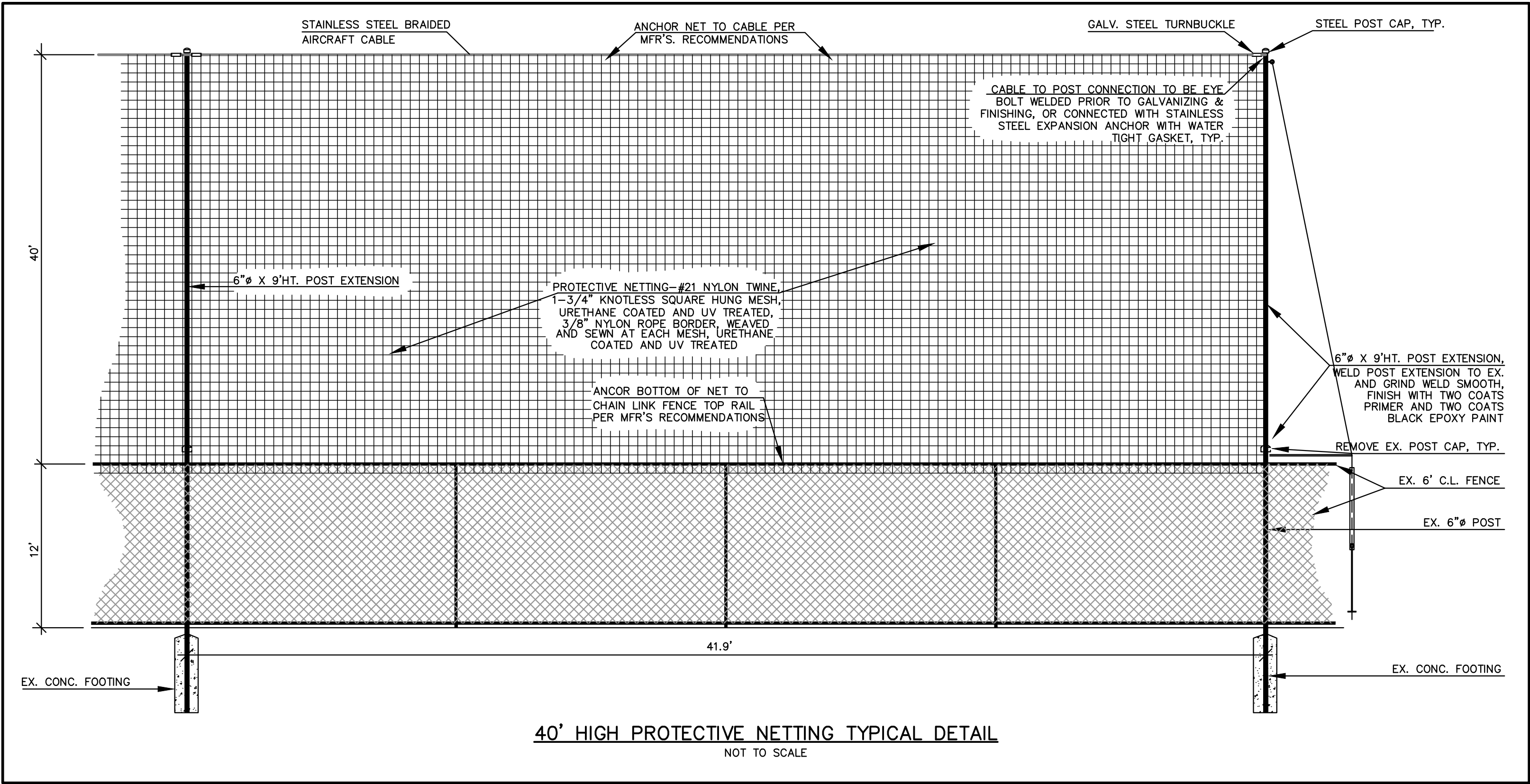
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313102P004A-007

**C7.5**





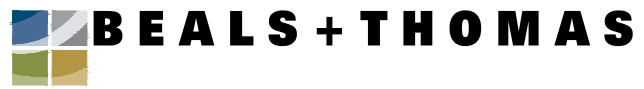
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PROJECT:

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RENOVATION**

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**SITE DETAILS #6**

B+T JOB NO.3131.02

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**C7.6**

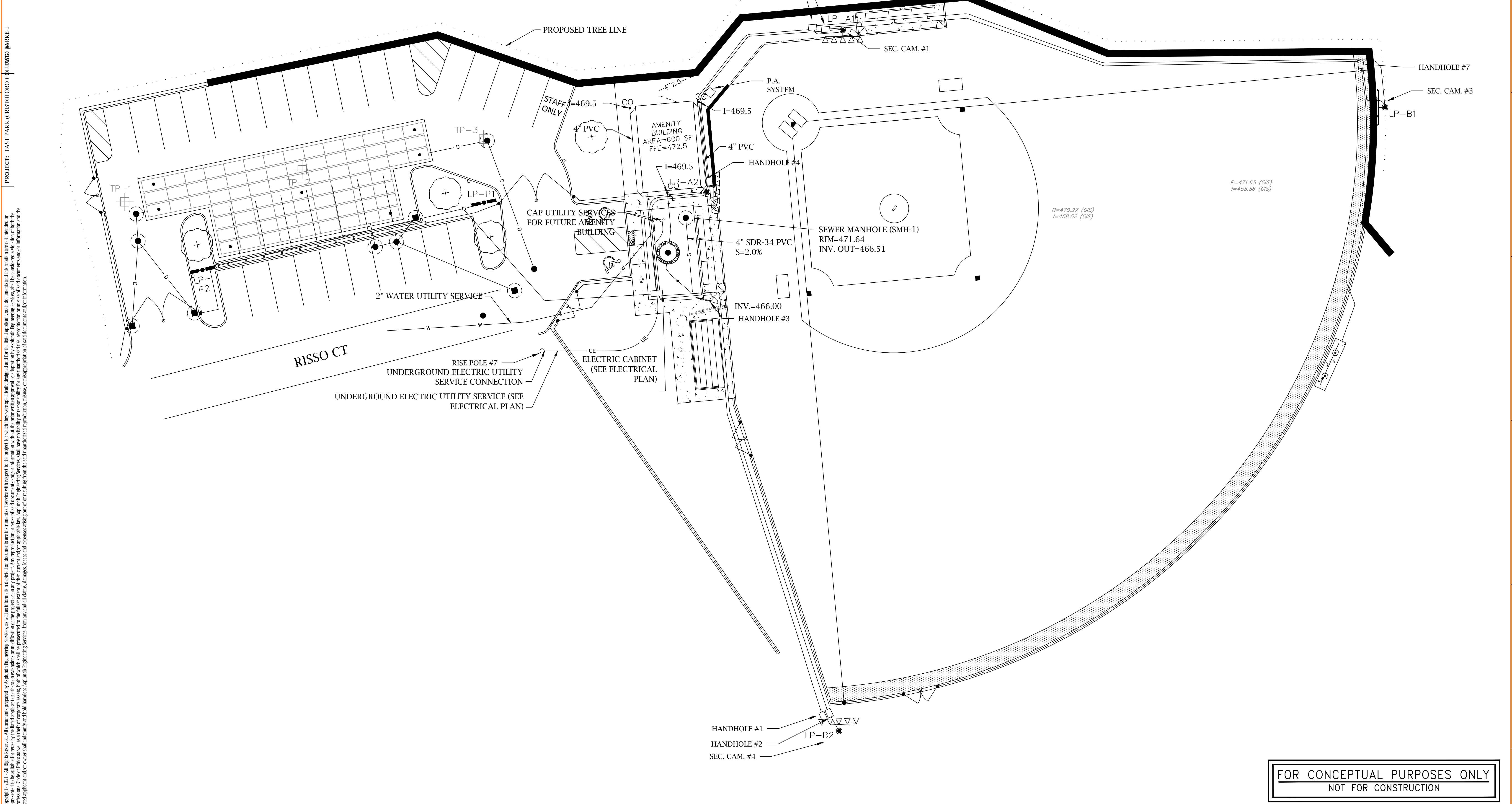
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BAR SCALE:

METERS  
0 5 10 15  
0 10 20 40 60  
FEET

SCALE: 1"=20'

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SITE PLAN

PROJ. NO.	A224550	DWG. NO.	E-1
SCALE	1" = 20'-0"	SIZE	D
SHEET	1	of	1



A

B

C

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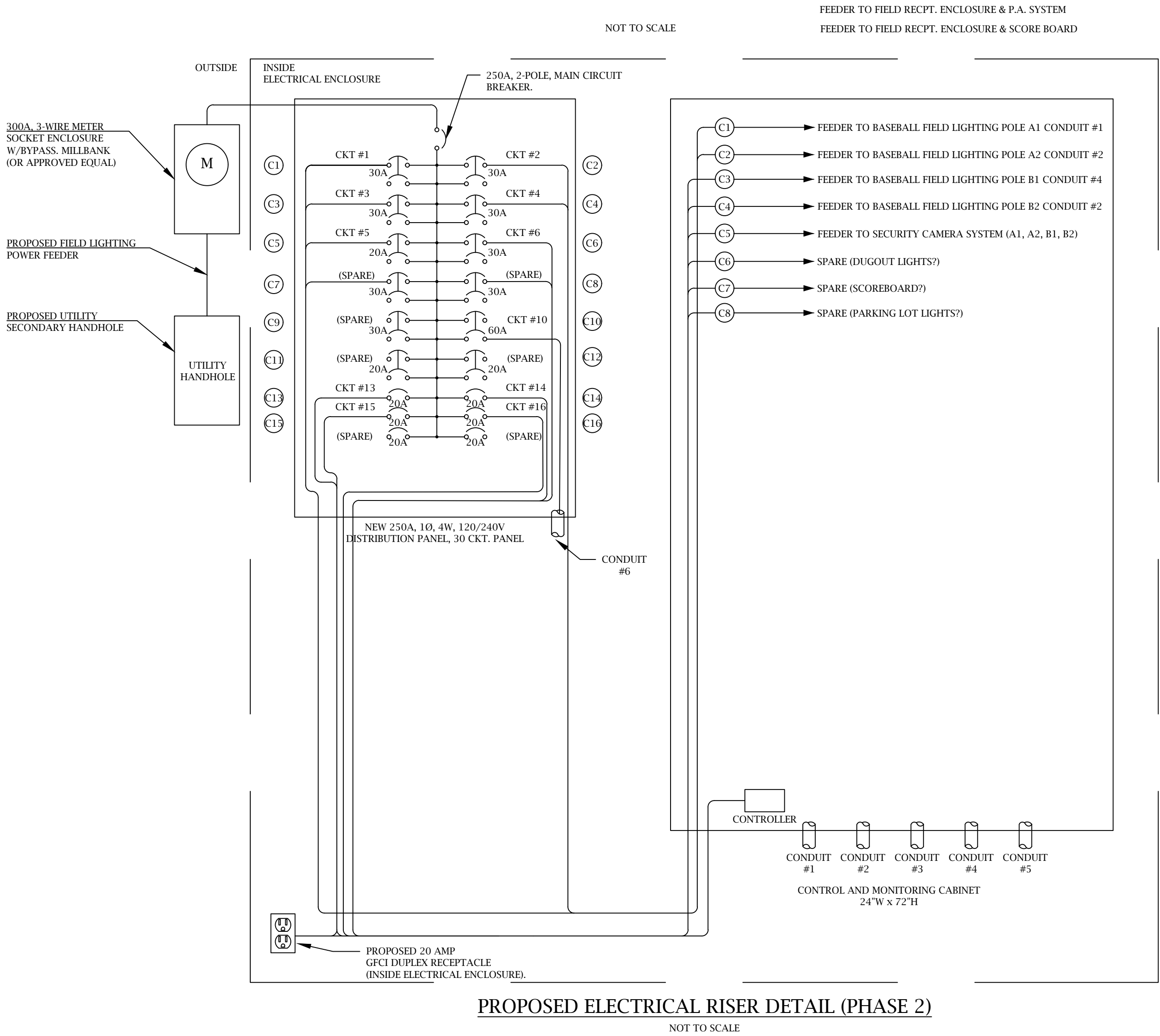
D

E

F

PROJECT: EAST PARK (CRISTOFORO COLUMBO PARK) - PHASE 2

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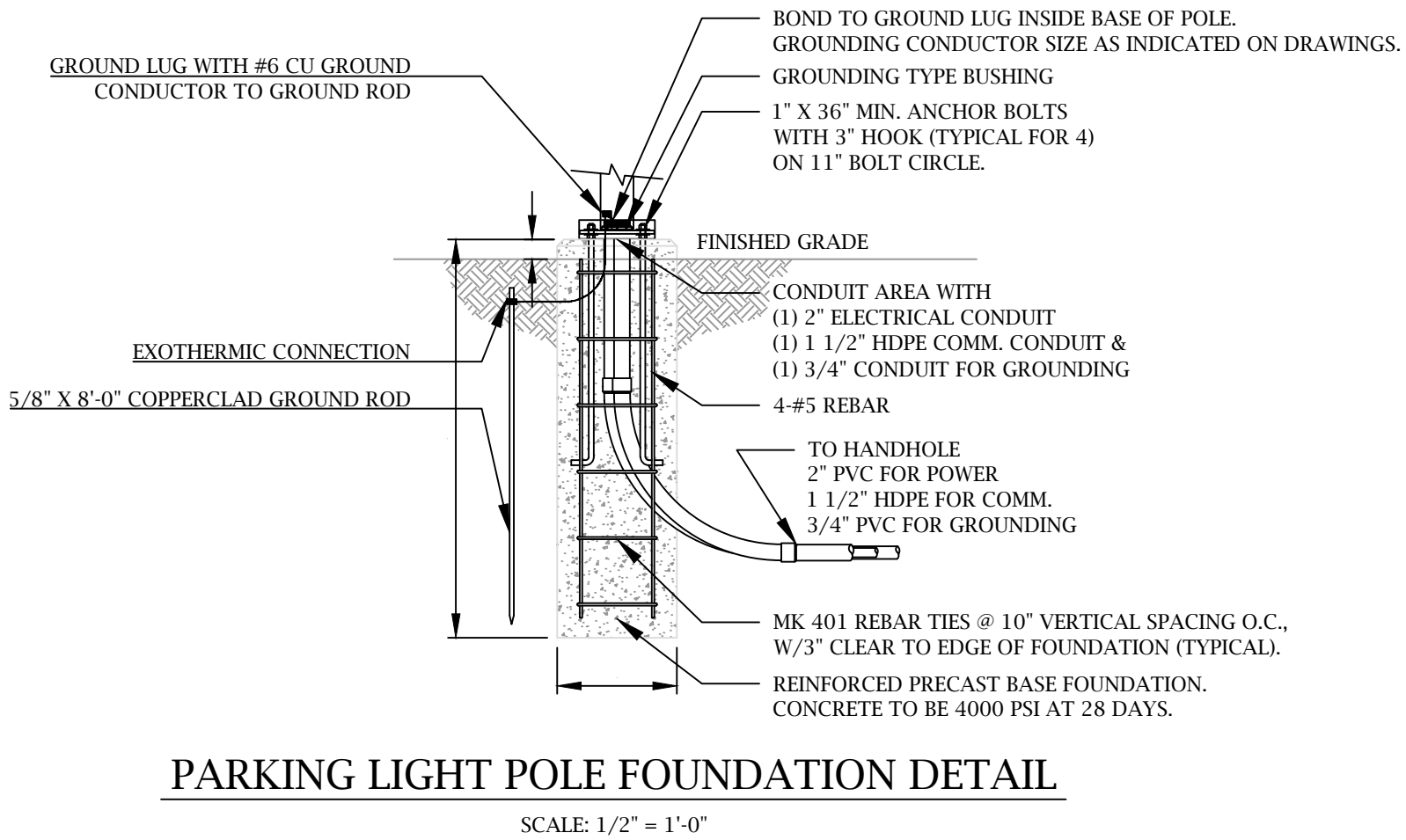
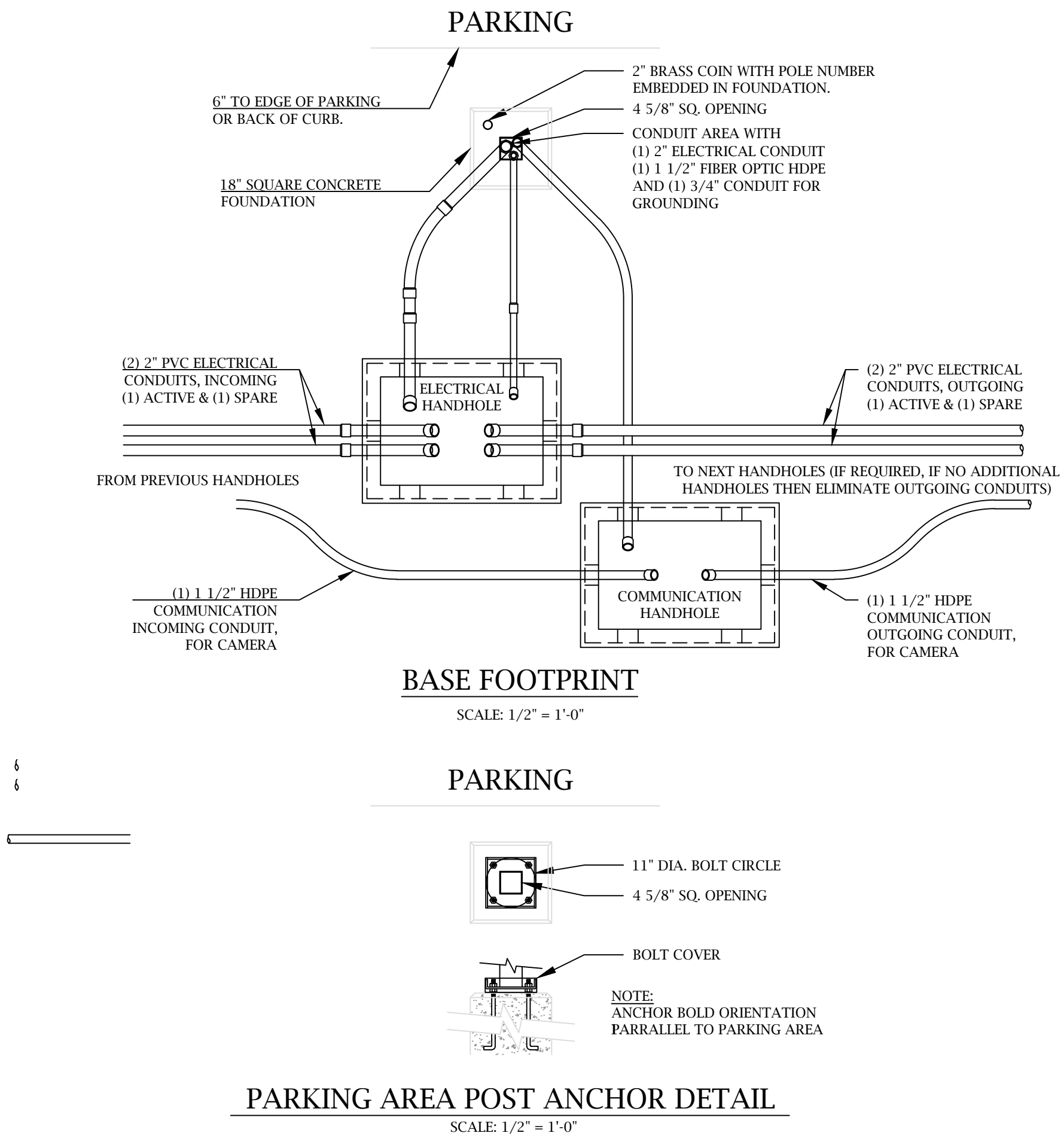
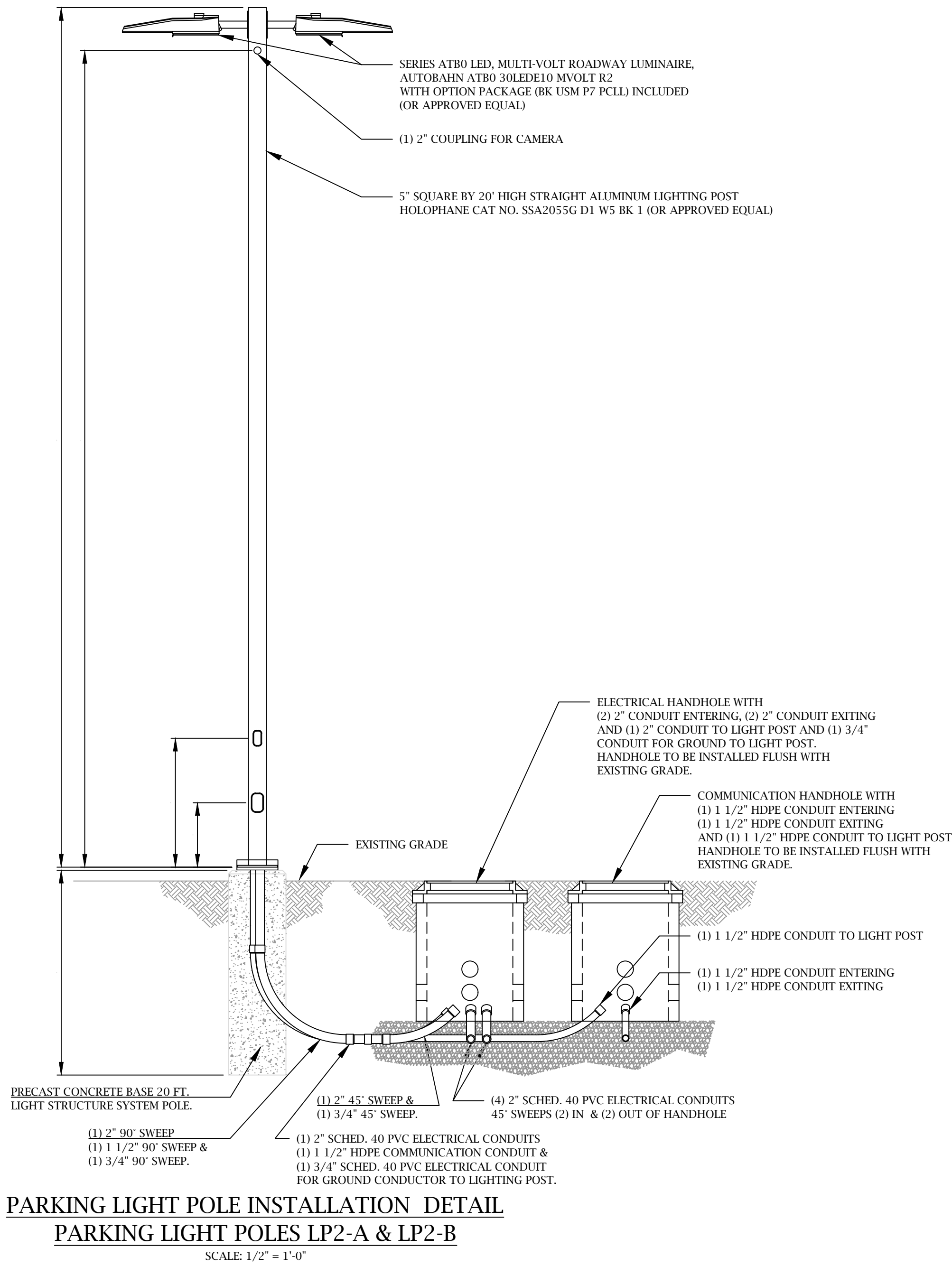
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ELECTRICAL CABINET

PROJ. NO.	A224550	DWG. NO.	E-2
SCALE	NTS	SIZE	D
SHEET	1	of	1

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PARKING LOT LIGHTING

PROJ. NO.	A224550	DWG. NO.	E-3
SCALE	NTS	SIZE	D
SHEET	1	of	1

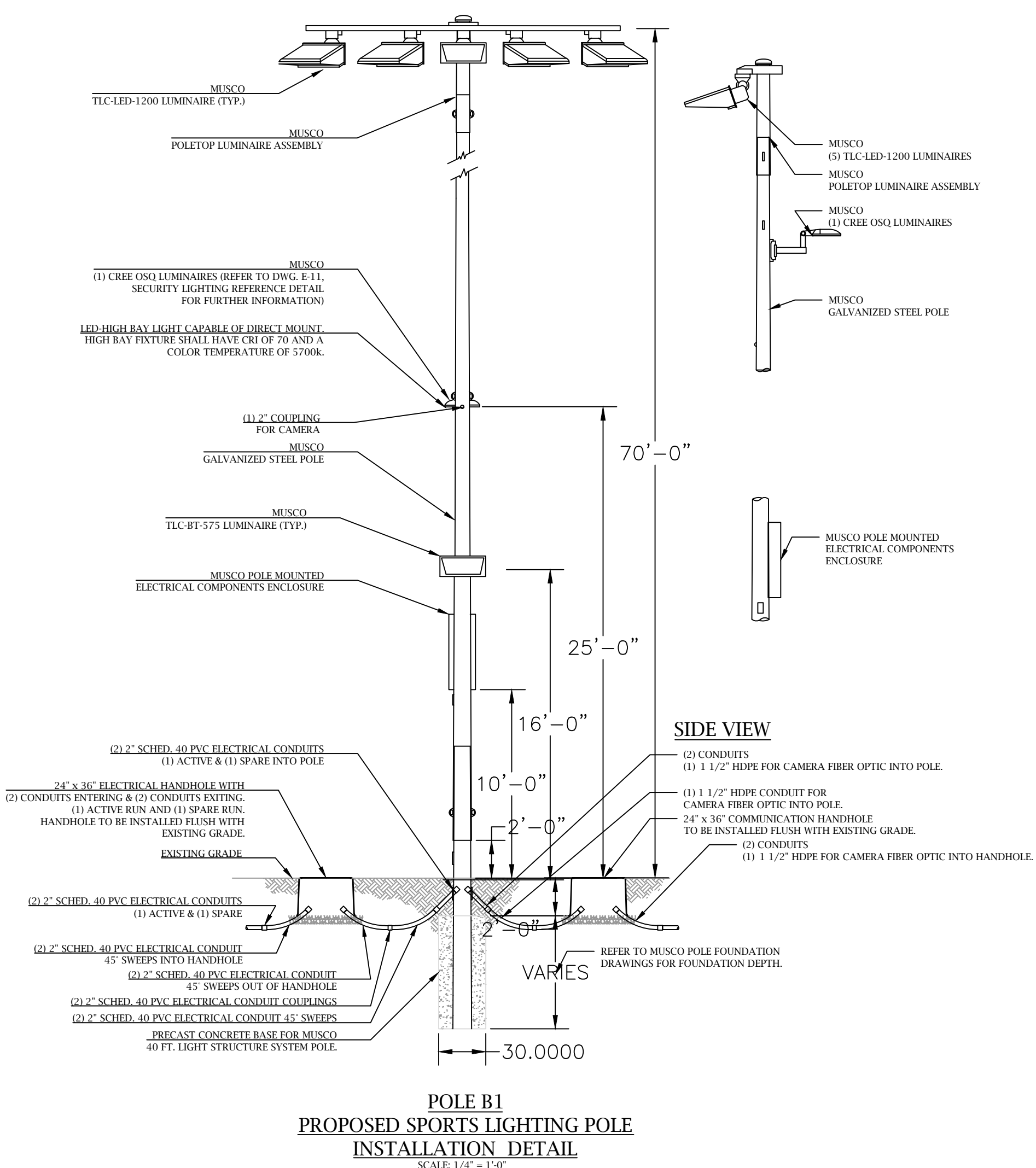
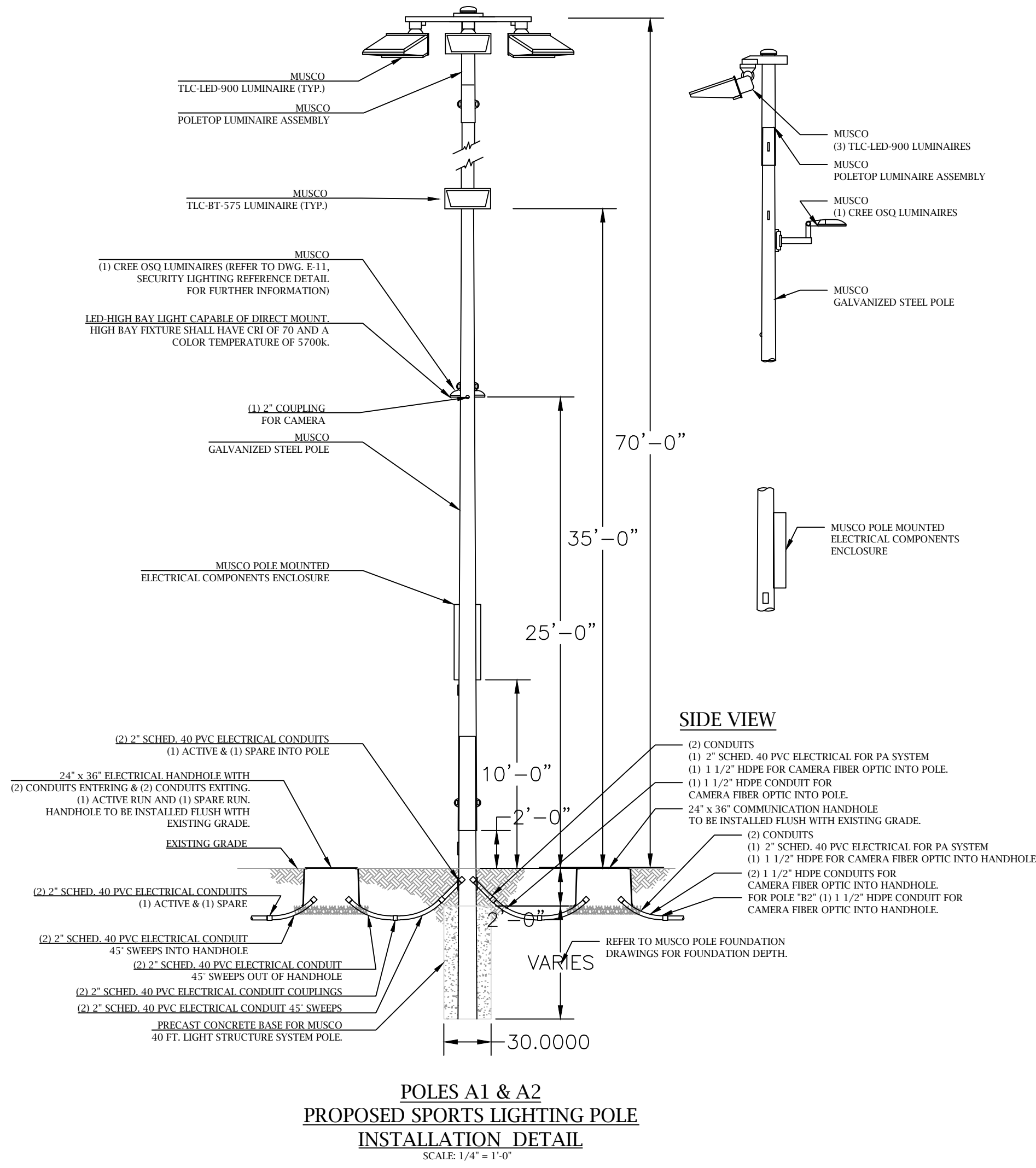


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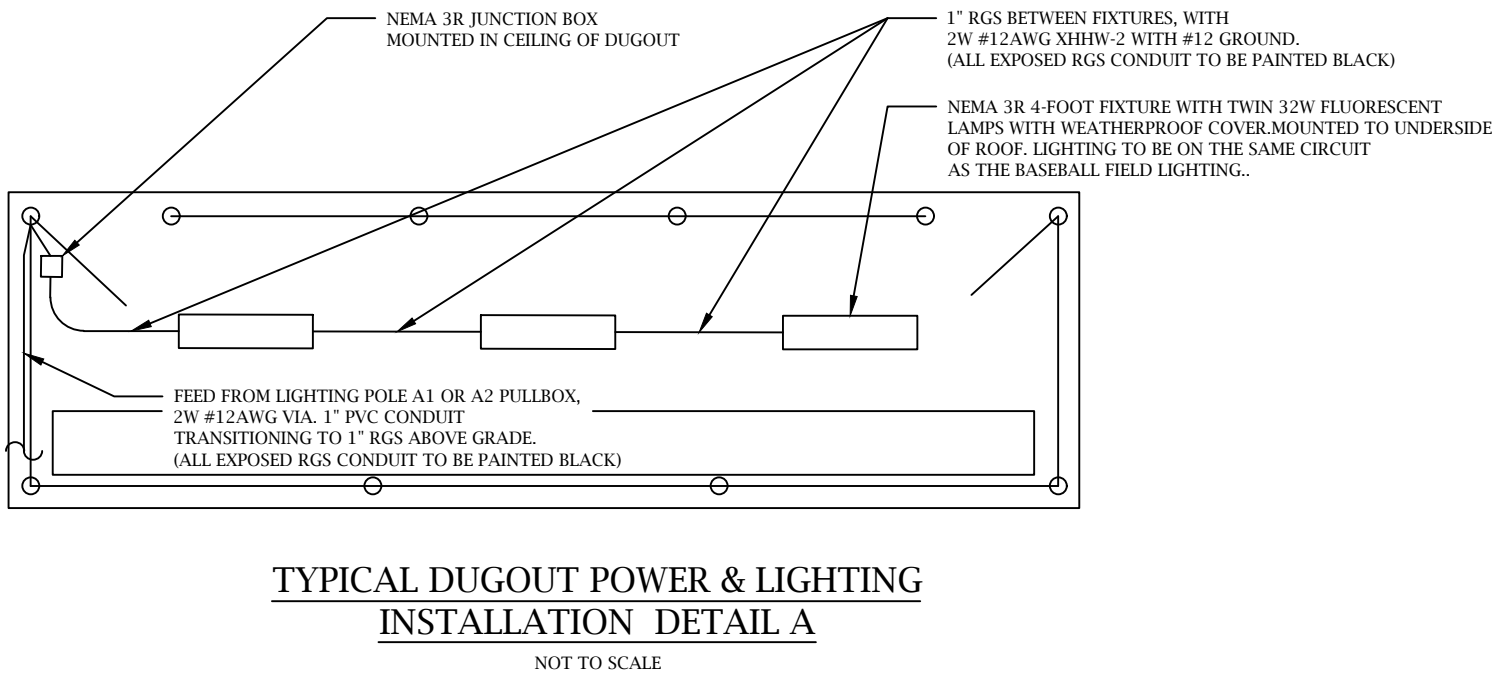
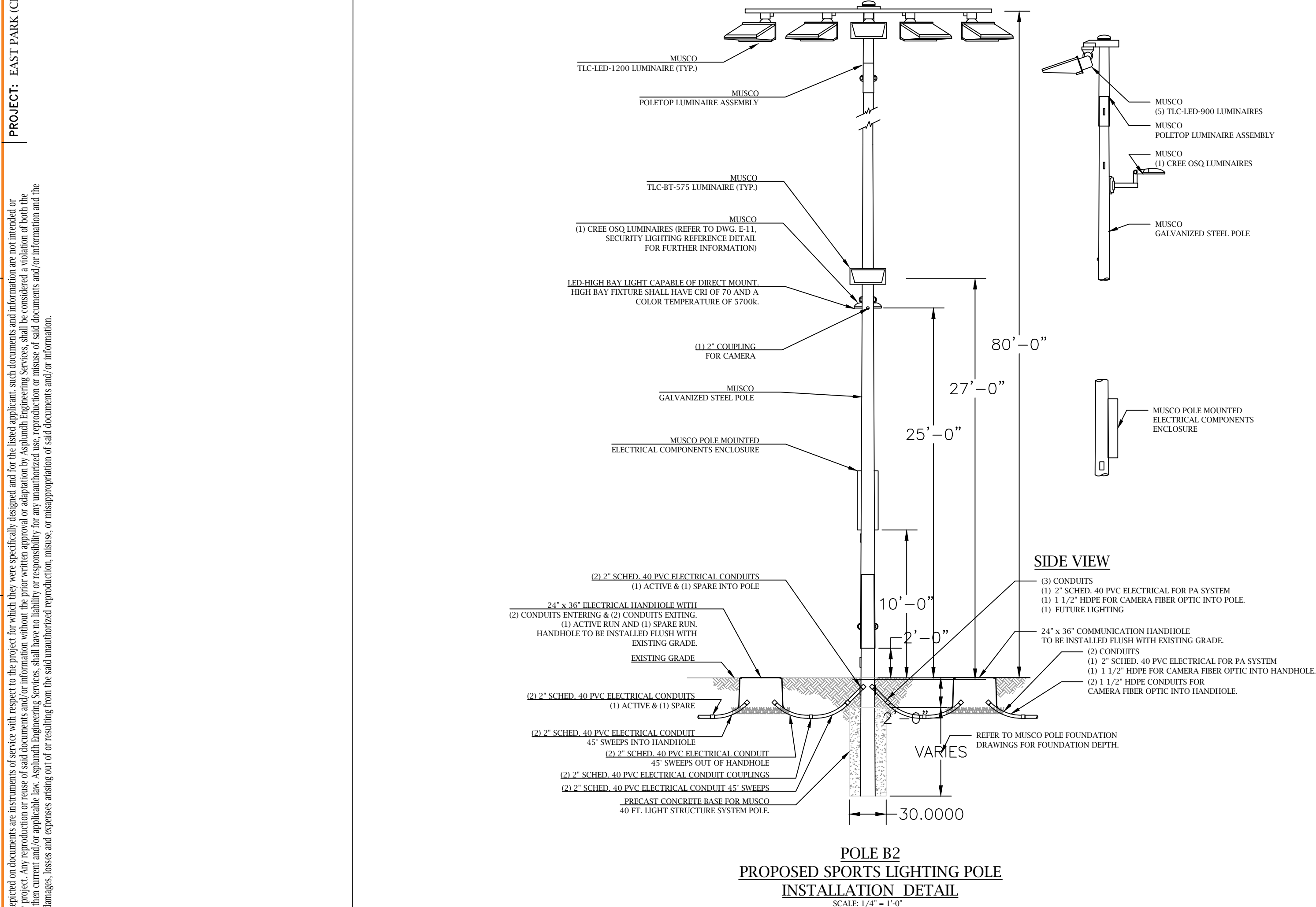
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LIGHTING POLES


PROJ. NO.	A224550	DWG. NO.	E-4
SCALE	NTS	SIZE	D
SHEET	1	of	1



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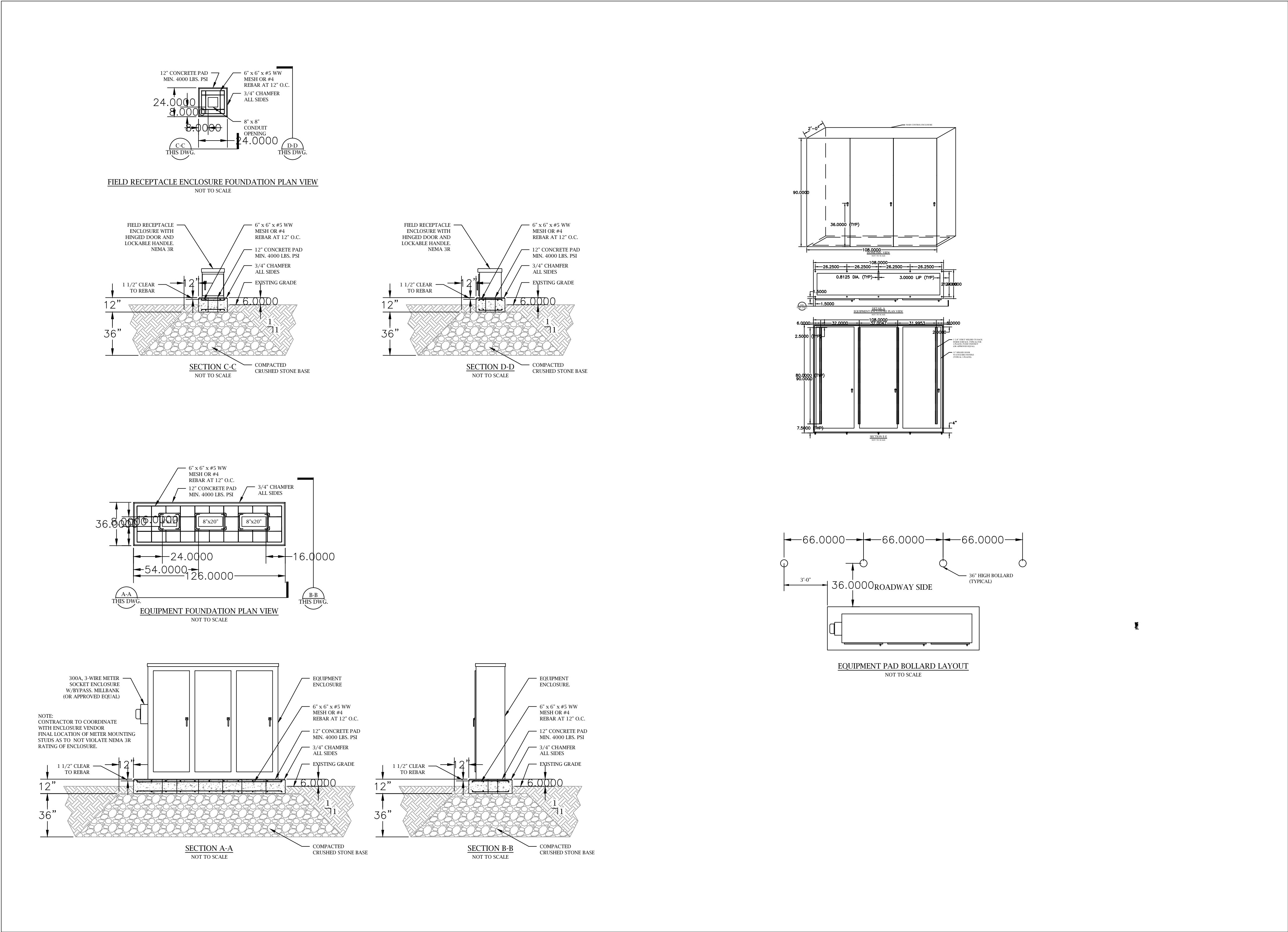
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LIGHTING POLES  
DUGOUT LIGHTING

PROJ. NO.	A224550	DWG. NO.	E-5
SCALE	NTS	SIZE	D
SHEET	1	of	1



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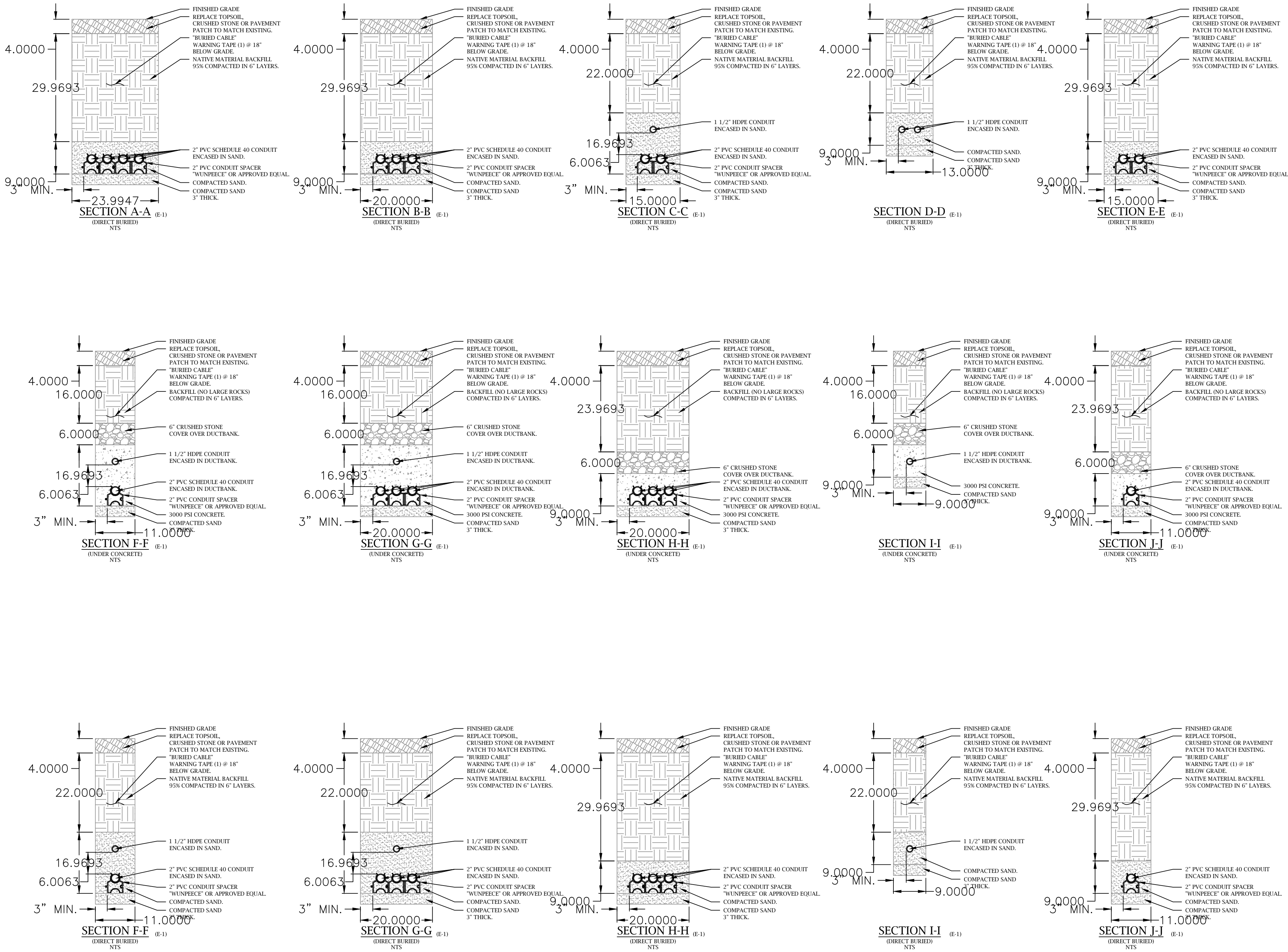
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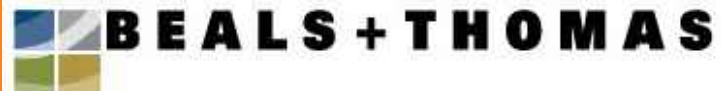
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ELECTRICAL ENCLOSURE  
DETAILS

PROJ. NO.	A224550	DWG. NO.	E-6
SCALE	NTS	SIZE	D
SHEET	1	of	1





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CONDUIT TRENCH LAYOUT

PROJ. NO.	A224550	DWG. NO.	E-7
SCALE	NTS	SIZE	D
SHEET	1	of	1



### System Requirements: Control System Summary

Project Name: East Park Little League | Project #: 224497  
Control System ID: 1 of 1  
Distribution Panel Location/ID: Service 1

### Circuit Summary

Switching Schedule	
Field/Switch Description	Switches
Little League	1
Spare 1	3
Spare 2	4
Spare 3	5
Security	2

Control Module ID: 1 Lighting Circuit Voltage: 208/60/3

Circuit Summary by Switch							
Switch	Zone Description	Pole ID	# of Fixtures	Full load amperes	Contactor Size (Amps)	Cabinet #	Contactor ID
1	Little League	A1	4	11.94	30	1	C1
	Little League	A2	4	11.94	30	1	C2
	Little League	B1	6	23.97	30	1	C3
	Little League	B2	6	23.97	30	1	C4
2	Security	A1, A2, B1, B2	4	1.33	30	1	C5
3	Spare 1	P1	0	0	30	1	C6
4	Spare 2	P2	0	0	30	1	C7
5	Spare 3	P3	0	0	30	1	C8

Sales Representative: Mike Berry | Project Engineer: Tanner Lanphier | Scan: 224497C | Document ID: 224497P1V3-051713222

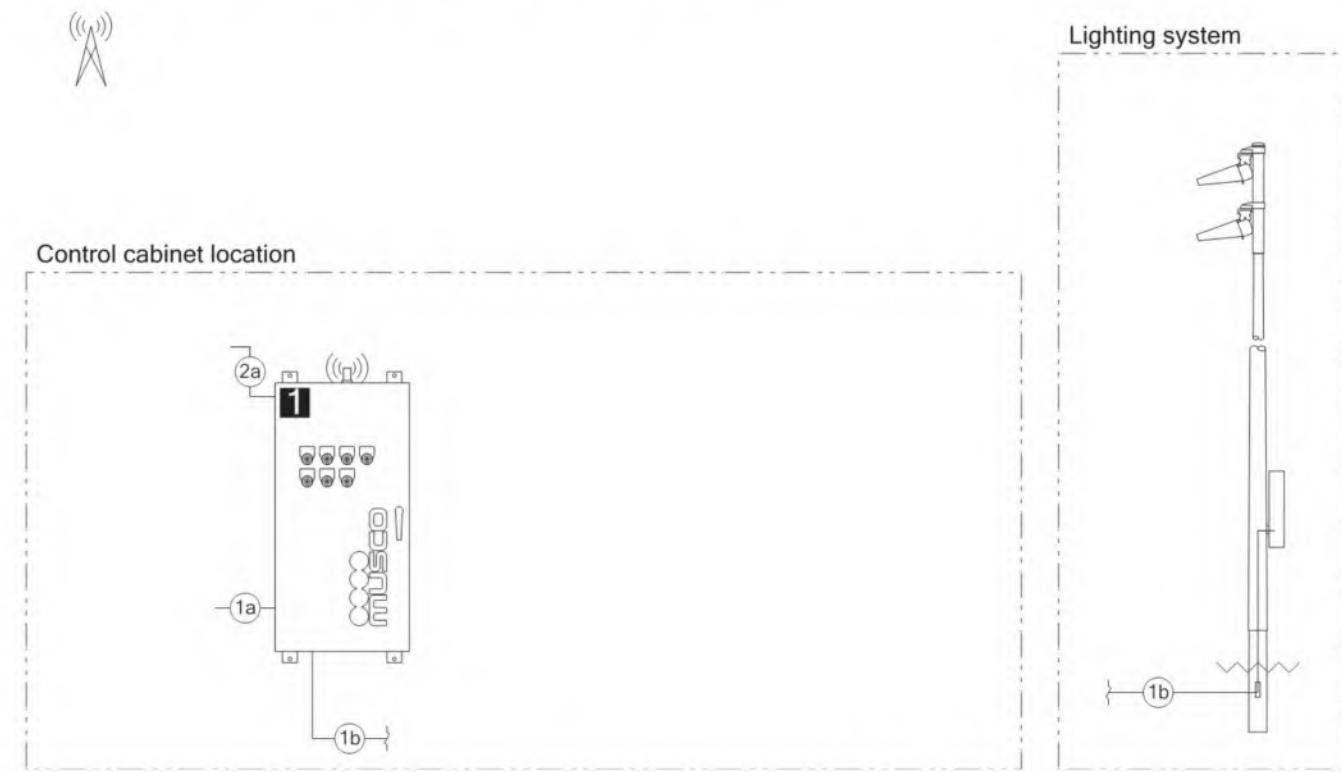


Page 3 of 3 -- 17-May-2023

### System Requirements: Control System Summary

Project Name: East Park Little League | Project #: 224497  
Control System ID: 1 of 1  
Distribution Panel Location/ID: Service 1

### Equipment Layout and Connection Details



Connection Details		Equipment	
ID	Description	ID	Description
1a	Line power to contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.	1	Control and monitoring cabinet - primary
1b	Load power from contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.		
2a	Control power with equipment ground to control cabinet. Requires dedicated 20 A circuit. Provide transformer if control voltage not present.		

Sales Representative: Mike Berry | Project Engineer: Tanner Lanphier | Scan: 224497C | Document ID: 224497P1V3-051713222



Page 2 of 3 -- 17-May-2023

### System Requirements: Control System Summary

Project Name: East Park Little League | Project #: 224497  
Control System ID: 1 of 1  
Distribution Panel Location/ID: Service 1

### Project Information

### Control System

Control System ID:	101
Control System Type:	Control-Link * Control and Monitoring System
Communication Type:	PowerLine-SD

## Power Requirements

**Control cabinet(s):**  
Control voltage (phase to neutral)  
VA loading - Inrush  
VA loading - Sealed

**Lighting Circuits:**  
Voltage/Hertz/Phase

	Description	Qty	Size (in)
120/60			
2533.0	Control and monitoring cabinet -	1	24 X 72
284.0	primary		
208/60/3			

### Important Notes:

1. Please confirm that the lighting circuit voltage listed above is accurate for this facility. This is the voltage/phase being connected and utilized at each lighting pole's electrical components enclosure/disconnect. Inaccurate voltage/phase can result in additional costs and delays. Contact your Musco sales representative to confirm this item.
2. In a 3 phase design, all 3 phases are to be run to each pole location. Musco's single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each circuit at each pole location. Contactors are 3 pole and 100% rated for the published continuous load.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
5. Size overcurrent devices using the full load amps column of the Circuit Summary by Switch chart (Minimum power factor is 0.9). Size conduct per code unless otherwise specified as larger to allow for harness connectors.
6. Avoid use of in-ground junction/pull boxes when possible. If used, all wire connectors must be UL listed for Wet Locations to prevent leakage current.
7. Control power wiring must be in separate conduit from line or load power wiring. Communication cables must be in separate conduit from any power wiring.
8. Refer to Installation Instructions for more details on equipment information and the installation requirements.

Sales Representative: Mike Berry | Project Engineer: Tanner Lanphier | Scan: 224497C | Document ID: 224497P1V3-051713222



Page 1 of 3 -- 17-May-202

East Park Little League

Westerly, MA

Lighting System

Fixture Data Summary					
Fixture ID	Fix Height	Fix Type	Fixture Qty	Component Lum.	Level
A1-A2	70'	10'	5	TLC-B450	2.8k W
B1	70'	20'	1	TLC-B475	0.8k W
		30'	1	CR65-CR2	0.51k W
		40'	5	TLC-B475	0.8k W
		50'	1	TLC-B475	0.8k W
B2	60'	20'	1	CR65-CR2	0.51k W
		30'	6	FUTURE	7.0k W
		40'	1	TLC-B475	0.8k W
		50'	1	CR65-CR2	0.51k W
		60'	6	TLC-B475	0.8k W
		70'	2	FUTURE	7.0k W

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Ltfs League	10.2k W	20
B	Security	5.41k W	4
D	Baseball / Multipurpose	6.17k W	8

Fixture Type Summary

Type	Source	Rating	Lumens	L80	L90	Quantity
TLC-B475-100	LED STRIP - 75 OHM	170W	100,000	+100,000	+100,000	10
CR65-CR2	LED STRIP - 75 OHM	100W	10,000	10,000	—	4
TLC-B475-100	LED STRIP - 75 OHM	80W	50,000	+100,000	+100,000	6
TLC-B475	LED STRIP - 75 OHM	170W	50,000	+100,000	+100,000	4

Single Luminaire Ampage Draw Chart

Driver (at min power factor)		Max Line Ampage Per Luminaire									
Single Phase Voltage	Type	200	240	277	347	480	600	660	720	792	960
TLC-B475-100	10'	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CR65-CR2	10'	1	1	1	1	1	1	1	1	1	1
TLC-B475-100	20'	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TLC-B475	20'	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Light Level Summary

Calculation Data Summary		Requirements					
Min. Value	Calculation Method	Min.	Max.	Min.	Standard	Auxiliary	Fixture Qty
Ltfs League 50k @ 10' FOV	Max Vertical (By Fixture)	7000	0	20000	0.00	0.00	20
Ltfs League Spk @ 10'	Horizontal Beamance	0.07	0	0.24	0.00	0.00	20
Ltfs League Spk @ 10'	Max Vertical Beamance (into)	0.07	0	0.06	0.00	0.00	20
Ltfs League 50k (into)	Horizontal Beamance	0.14	0	60	1.74	1.39	20
Ltfs League 50k (out)	Horizontal Beamance	0.14	0	60	1.74	1.39	20
Zone GR2	Horizontal Beamance	7	0	60	4374.00	4.8	24

From Hometown to Professional

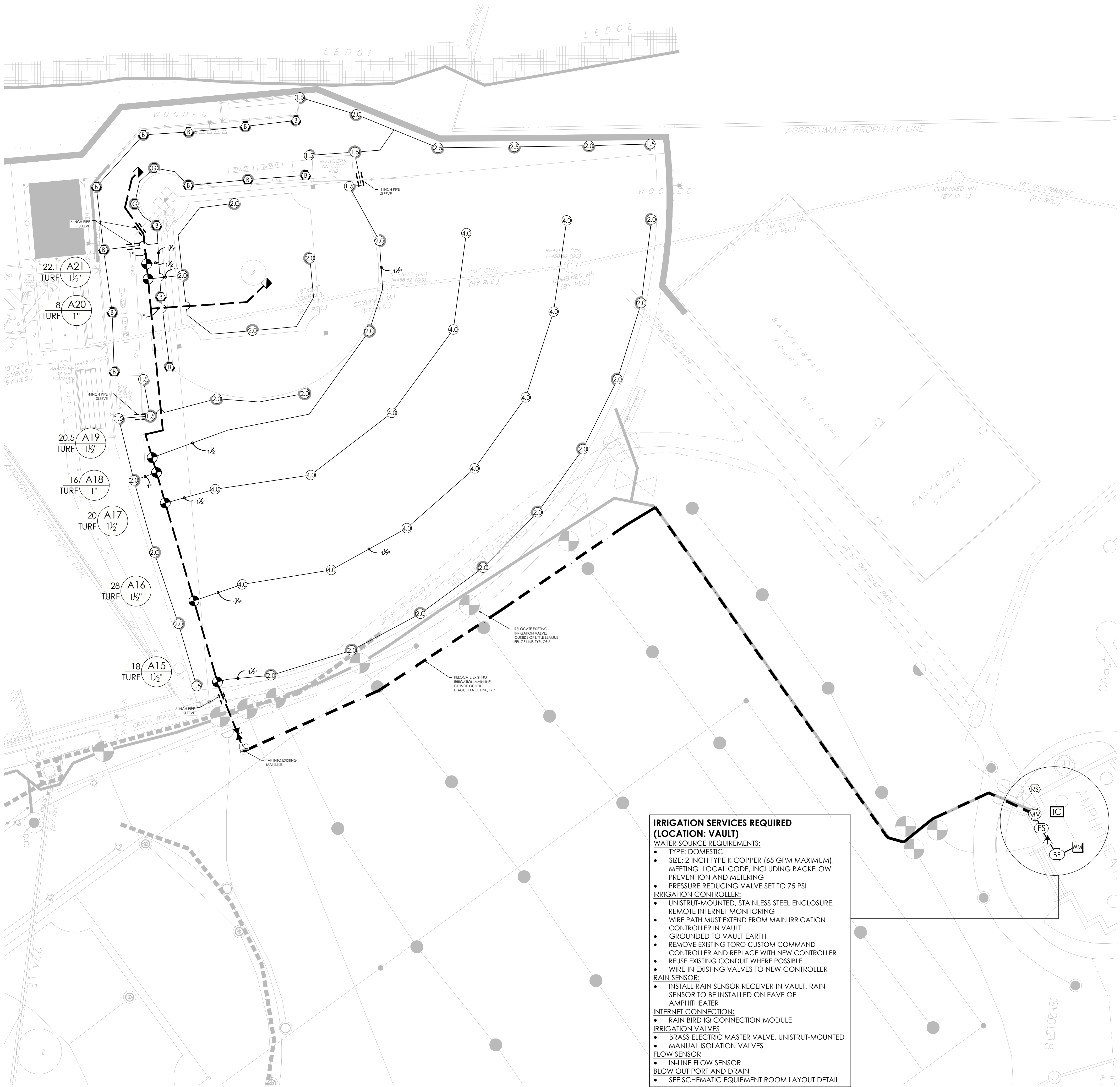
**MUSCO**  
Lighting  
We Make It Happen.

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PROJECT SUMMARY

ENGINEERED DESIGN BY: #E246937C 17 May 2013





- IRRIGATION SERVICES REQUIRED  
(LOCATION: VAULT)**
- WATER SOURCE REQUIREMENTS:**
- TYPE: DOMESTIC
  - SIZE: 2-INCH TYPE K COPPER (65 GPM MAXIMUM), MEETING LOCAL CODE, INCLUDING BACKFLOW PREVENTION AND METERING
  - PRESSURE REDUCING VALVE SET TO 75 PSI
- IRRIGATION CONTROLLER:**
- UNISTRUT-MOUNTED, STAINLESS STEEL ENCLOSURE, REMOTE INTERNET MONITORING
  - WIRE PATH MUST EXTEND FROM MAIN IRRIGATION CONTROLLER IN VAULT
  - GROUNDED TO VAULT EARTH
  - REMOVE EXISTING TORO CUSTOM COMMAND CONTROLLER AND REPLACE WITH NEW CONTROLLER
  - REUSE EXISTING CONDUIT WHERE POSSIBLE
  - WIRE-IN EXISTING VALVES TO NEW CONTROLLER
- RAIN SENSOR:**
- INSTALL RAIN SENSOR RECEIVER IN VAULT, RAIN SENSOR TO BE INSTALLED ON EAVE OF AMPHITHEATER
- INTERNET CONNECTION:**
- RAIN BIRD IQ CONNECTION MODULE
- IRRIGATION VALVES**
- BRASS ELECTRIC MASTER VALVE, UNISTRUT-MOUNTED
  - MANUAL ISOLATION VALVES
- FLOW SENSOR**
- IN-LINE FLOW SENSOR
- BLOW OUT PORT AND DRAIN**
- SEE SCHEMATIC EQUIPMENT ROOM LAYOUT DETAIL

**IRRIGATION NOTES**

1. SEE IRRIGATION DETAILS AND SPECIFICATIONS SECTION 328400 FOR ADDITIONAL REQUIRED INFORMATION. SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION.
2. COORDINATE FINAL LOCATION OF IRRIGATION AND VALVE BOXES WITH FINAL APPROVED LANDSCAPE. IN GENERAL, PLACE ALL VALVE BOXES WITHIN PLANTER BEDS TO MAXIMUM EXTENT PRACTICABLE FOR LANDSCAPE.
3. ALL PIPE AND VALVE LOCATIONS ARE DIAGRAMMATIC FOR CLARITY; CONTRACTOR SHALL FIELD VERIFY.
4. SPECIFIED VALVE BOX LOCATIONS AND COLORS SHALL BE APPROVED BY LANDSCAPE ARCHITECT AND/OR OWNER'S REPRESENTATIVE.
5. ALL CONTROL WIRE SHALL BE 14 AWG, DIRECT BURIAL, INSTALLED PARALLEL TO MAINLINE WITH DBY/R-6 WIRE SPLICE KITS.
6. IRRIGATION SYSTEM IS DESIGNED FOR DOMESTIC SUPPLY AT 88 GPM MAXIMUM. SYSTEM TO PRODUCE 75-PSI DYNAMIC PRESSURE MINIMUM AT EACH AT-GRADE IRRIGATION POINT OF CONNECTION. CONTRACTOR SHALL TEST DYNAMIC PRESSURE BEFORE STARTING WORK AND REPORT ANY DEVIATION TO THE OWNER'S REPRESENTATIVE BEFORE CONTINUING.
7. INSTALL CONTROLLER AS LOCATED APPROXIMATELY ON DRAWINGS, AS DIRECTED BY OWNER'S REPRESENTATIVE. HARD WIRE TO 120 VOLT, DEDICATED 20-AMP CIRCUIT, POWER SUPPLY USING LICENSED ELECTRICIAN. COORDINATE WITH SITE COMMUNICATIONS CONTRACTOR TO PROVIDE INTERNET SERVICE TO IRRIGATION CONTROLLER.
8. COORDINATE LOCATION OF ALL EXISTING AND FUTURE UTILITIES ON SITE, CONTACT PROPER AUTHORITIES AND UTILITY COMPANIES BEFORE THE START OF WORK.

**IRRIGATION MATERIAL LIST**

SYMBOL	NAME	DETAIL #
IC	CONVENTIONAL, INTERNET BASED IRRIGATION CONTROLLER	1
RS	WIRELESS RAIN SENSOR	2
FS	2-INCH FLOW SENSOR	1
WM	2-INCH WATER METER	1
PC	2-INCH POINT OF CONNECTION	-
BF	2-INCH BACKFLOW PREVENTER	1
▲	2-INCH PRESSURE REDUCING VALVE (25 - 75 PSI) & STRAINER	1
---	IRRIGATION MAINLINE 2 1/2-INCH PVC SCHEDULE 40	1,7
---	EXISTING IRRIGATION MAINLINE	-
---	IRRIGATION LATERAL PVC SCHEDULE 40 SIZE AS NOTED. UNLABELED PIPE = 1-INCH	7
----	PIPE SLEEVE: PVC SDR 35 SOLVENT WELD (SIZE AS NOTED)	8
⊙	SPRINKLER ZONE VALVE	4
MV	2-INCH MASTER VALVE	1
✂	2.5-INCH ISOLATION VALVE	6
□	QUICK COUPLING VALVE	5
⊙	6-INCH POP-UP SPRINKLER (MEDIUM)	9
⊙	6-INCH POP-UP SPRINKLER (LARGE)	
⊙	6-INCH POP-UP ROTOR	10

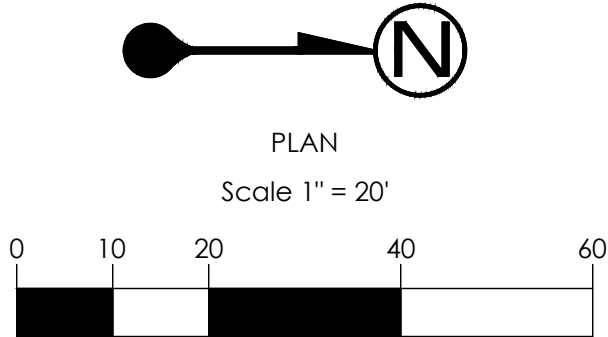
VALVE LABEL

FLOW (GPM) → A26 11.3

VALVE NUMBER → 11.3

VALVE SIZE (INCHES) → 1"

LANDSCAPE TYPE → TURF



PREPARED BY:

**Aqueous**

**AQUEOUS CONSULTANTS, LLC**  
Andover, MA 01810  
1 Dundee Park Drive, Suite 10  
(978) 470-1695

CLIENT NAME

**BEALS AND THOMAS, INC.**  
  
PLYMOUTH, MA

PROJECT NAME

**EAST PARK RENOVATION**  
  
WORCESTER, MA

REV.	DATE	DESCRIPTION

APPLICABLE SEAL

PROJECT NO. 22-0094

DESIGN: JS

REVIEW: AEH/MI

SCALE: AS SHOWN

DATE: 06/15/2023

SHEET NAME

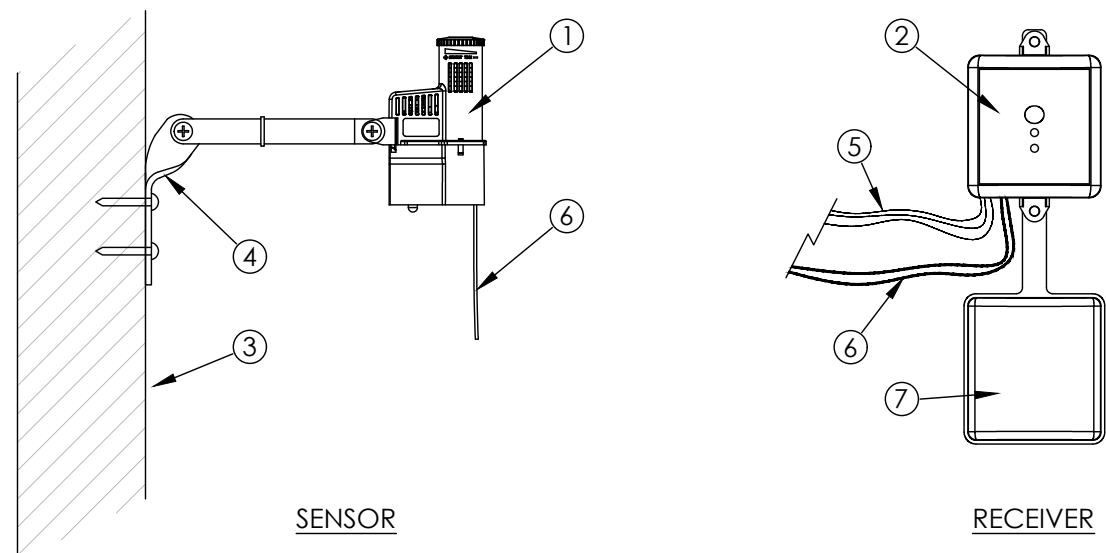
**IRRIGATION LAYOUT**

**IR-1.00**



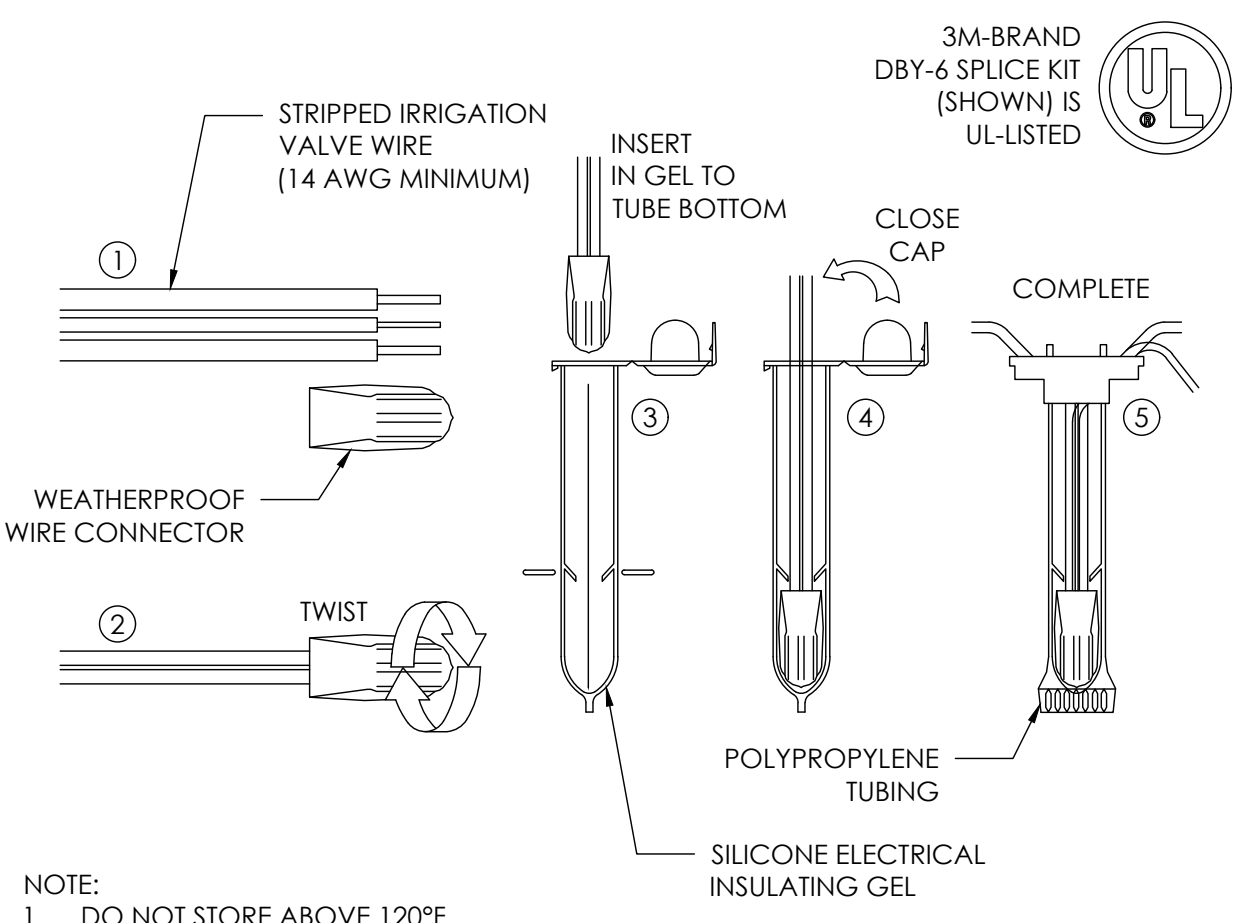






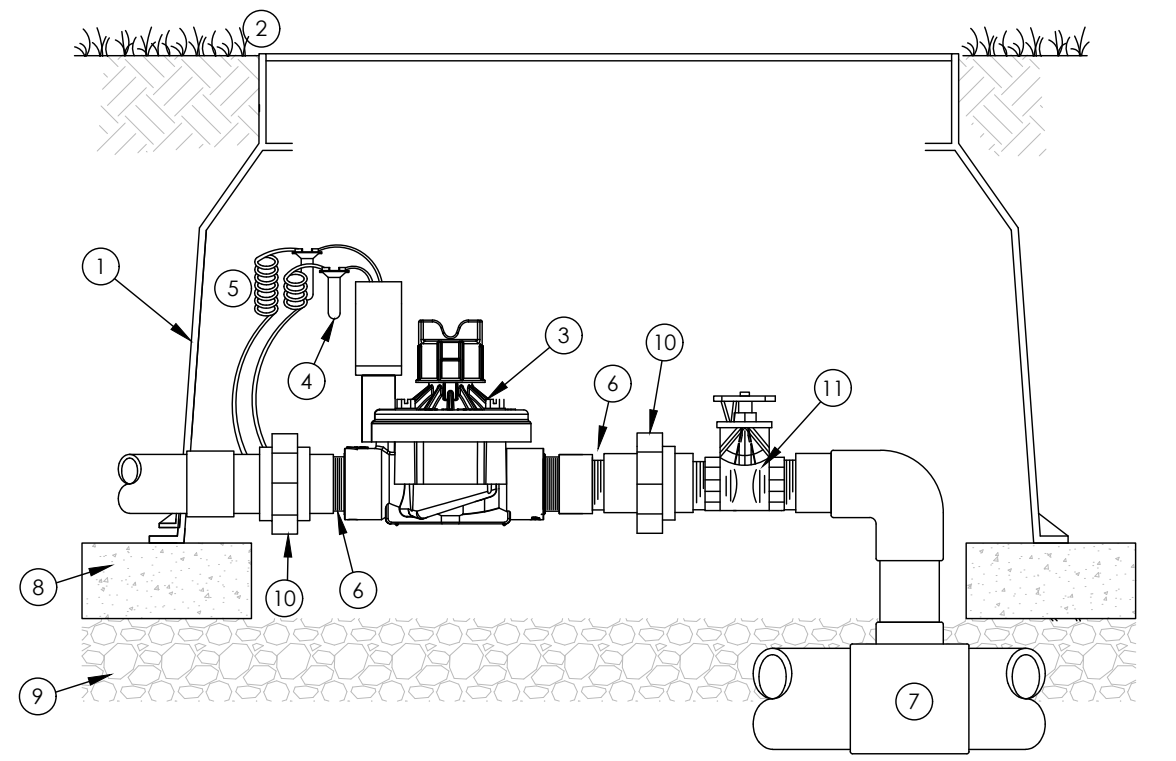
- NOTES:**
1. MODEL AS SHOWN: HUNTER WIRELESS RAIN-CLIK RAIN SENSOR.
  2. MOUNT SENSOR ON ANY SURFACE WHERE IT WILL BE EXPOSED TO UNOBSTRUCTED RAINFALL, BUT NOT IN THE PATH OF SPRINKLER SPRAY. LOCATE NO MORE THAN 1000' FROM RECEIVER UNIT.
  3. MOUNT RECEIVER UNIT NO MORE THAN 6' FROM CONTROLLER.
  4. WIRE RECIEVER UNIT TO IRRIGATION CONTROLLER, FOLLOW MANUFACTURER INSTRUCTIONS.
  5. WIRELESS SENSOR IS DESIGNED TO BE INSTALLED IN CONJUNCTION WITH 24VAC CIRCUITS ONLY. DO NOT USE WITH 110 OR 220VAC CIRCUITS.

**2 WIRELESS RAIN SENSOR**  
IR-2.01 NOT TO SCALE



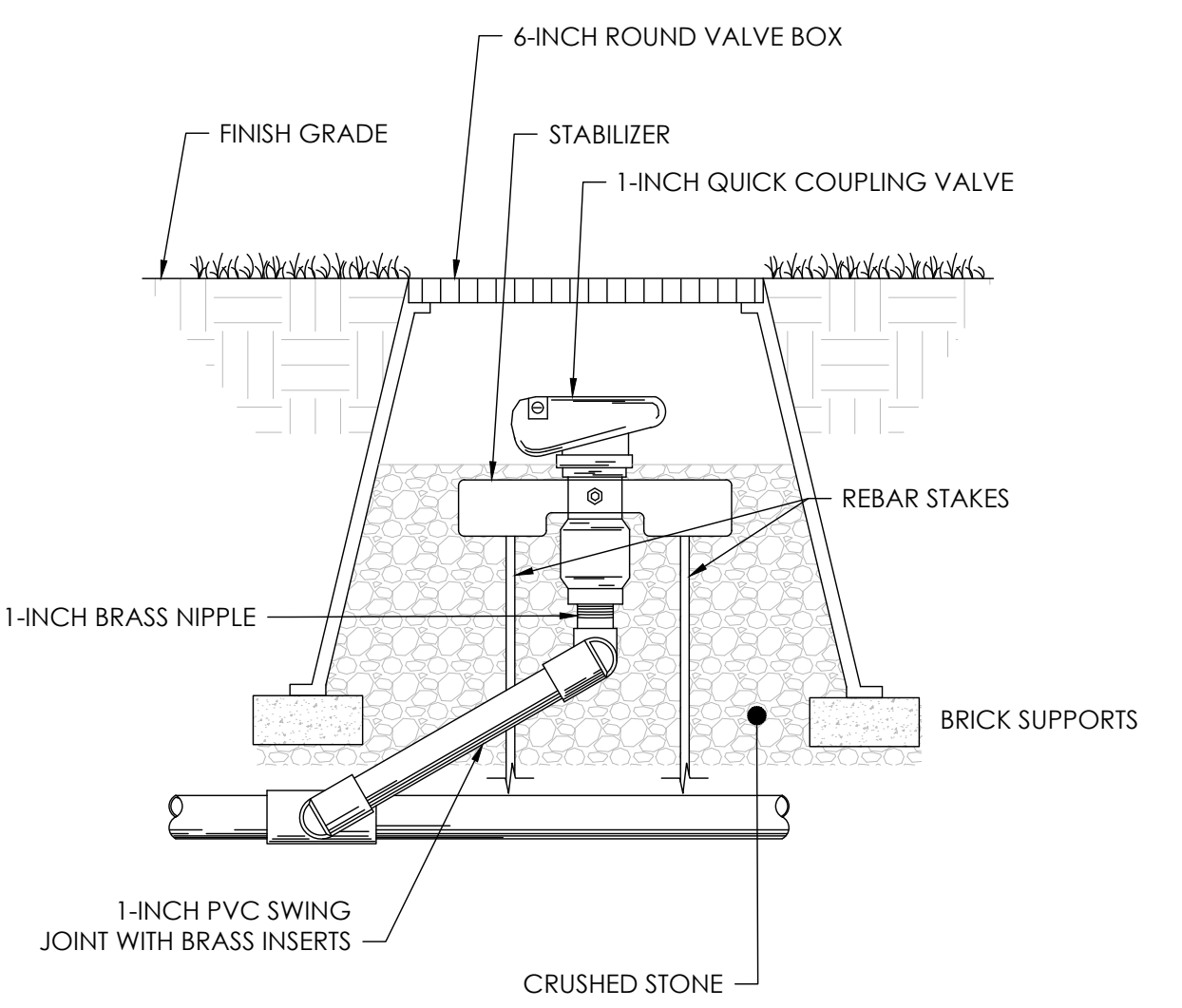
- NOTE:**
1. DO NOT STORE ABOVE 120°F
  2. VOLTAGE RATING = 600 VOLTS
  3. DO NOT USE IN DIRECT ULTRAVIOLET (UV) EXPOSURE
  4. FOR USE WITH UNDERGROUND CONDUCTORS
  5. DIRECT BURY SPLICE KIT SHALL BE UL-LISTED

**3 WIRE SPLICE KIT**  
IR-2.01 NOT TO SCALE

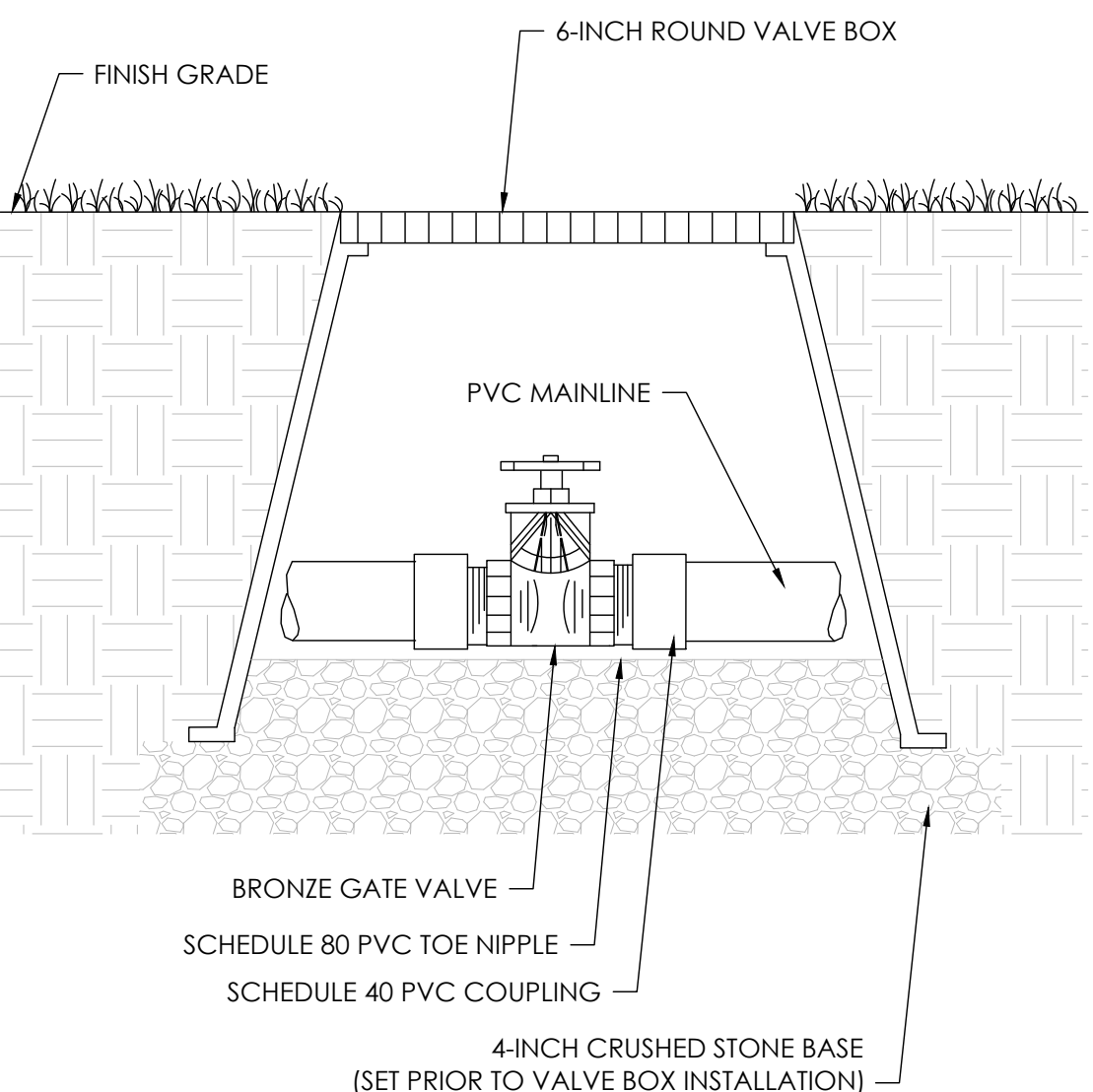


- NOTES:**
1. VALVE BOX (SEE SPECIFICATIONS)
  2. FINISH GRADE
  3. ELECTRIC CONTROL VALVE
  4. WATERPROOF DBY-6 CONNECTORS
  5. 30' COILED WIRE
  6. SCH 80 TOE NIPPLE
  7. MAINLINE SERVICE TEE
  8. BRICK SUPPORTS (4)
  9. 4" WASHED 3/4" GRAVEL
  10. PVC SLIP UNIONS
  11. BRONZE GATE VALVE

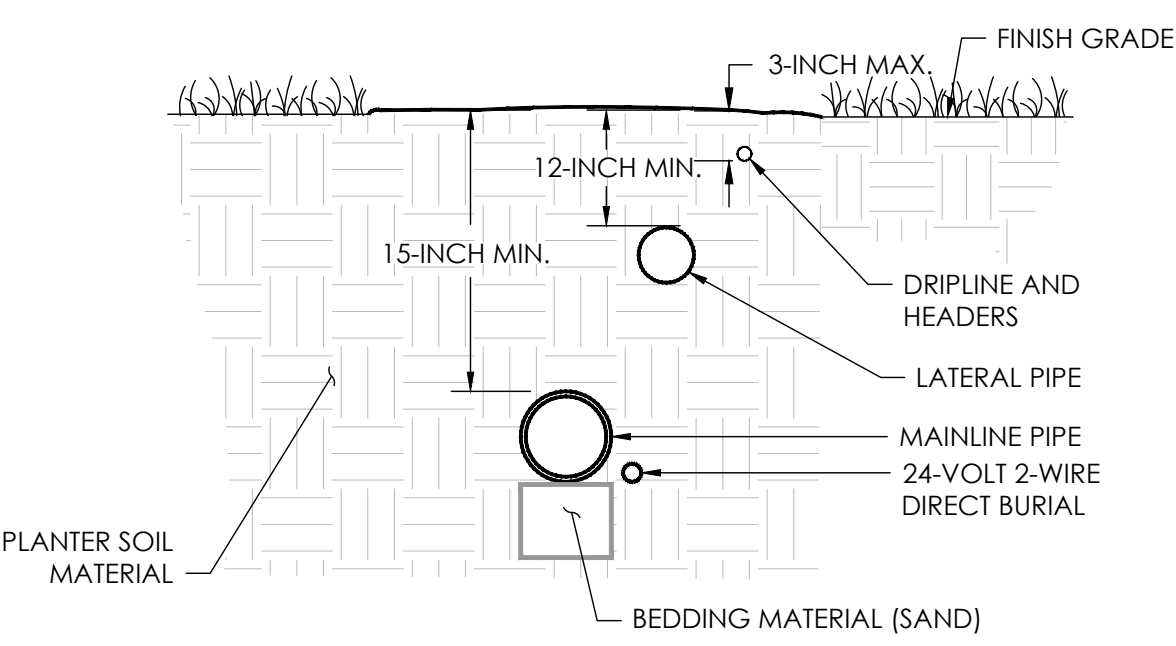
**4 ELECTRIC ZONE VALVE with MANUAL ISOLATION VALVE**  
IR-2.01 NOT TO SCALE



**5 QUICK COUPLING VALVE**  
IR-2.01 NOT TO SCALE

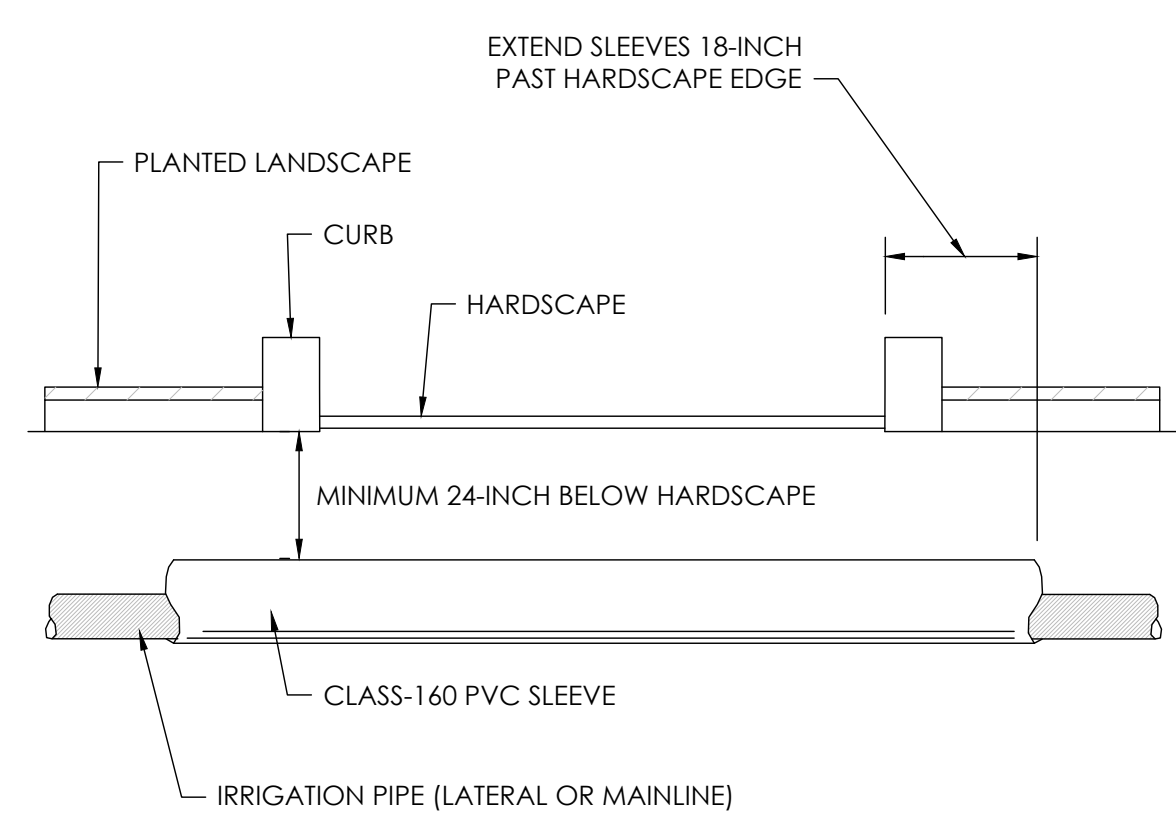


**6 ISOLATION VALVE DETAIL**  
IR-2.01 NOT TO SCALE

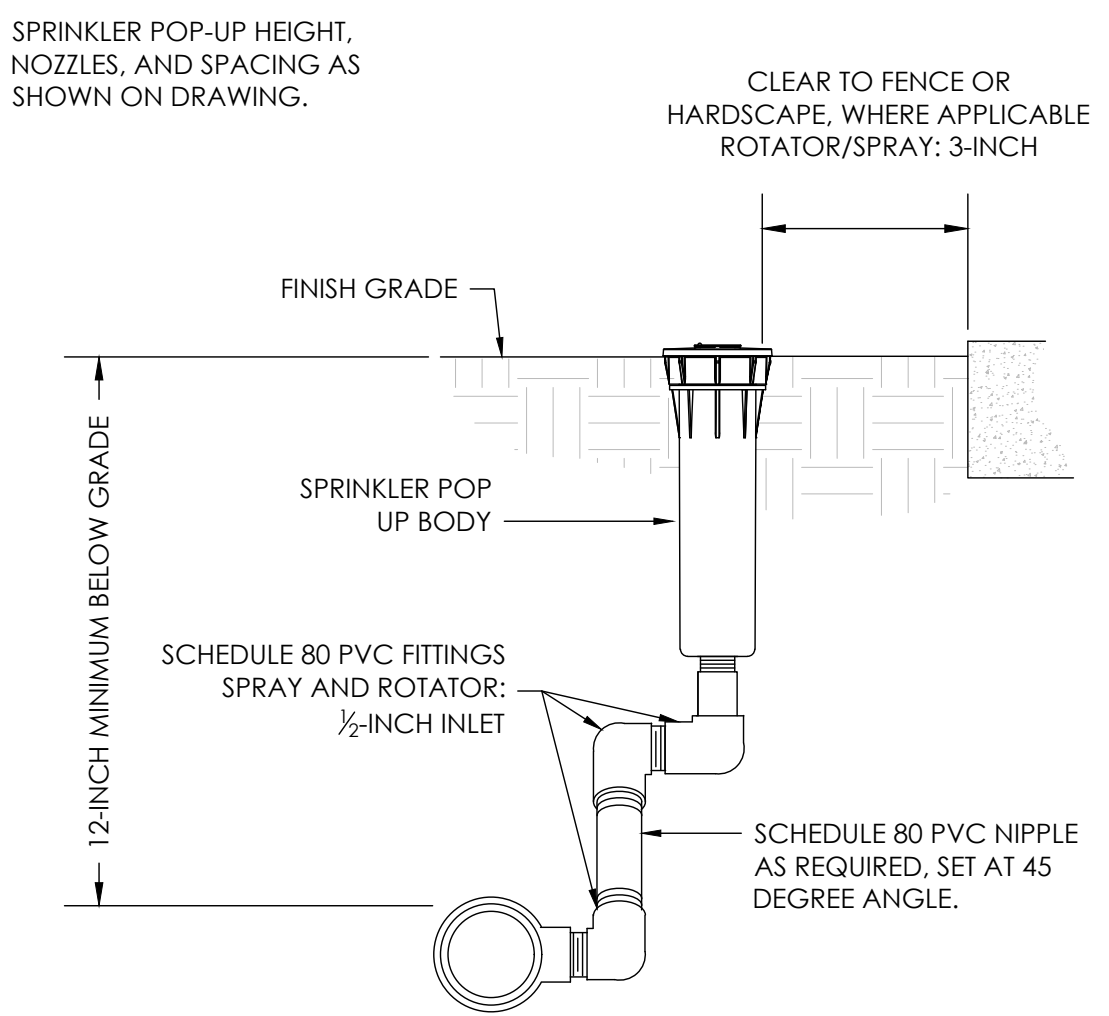


- NOTES:**
1. WIRE SHALL BE TAPED AT 10' INTERVALS
  2. TIE LOOSE LOOP OF WIRE AT CHANGES OF DIRECTION
  3. HAND DIG FOR ALL IRRIGATION PIPE IN PLANTER BEDS.

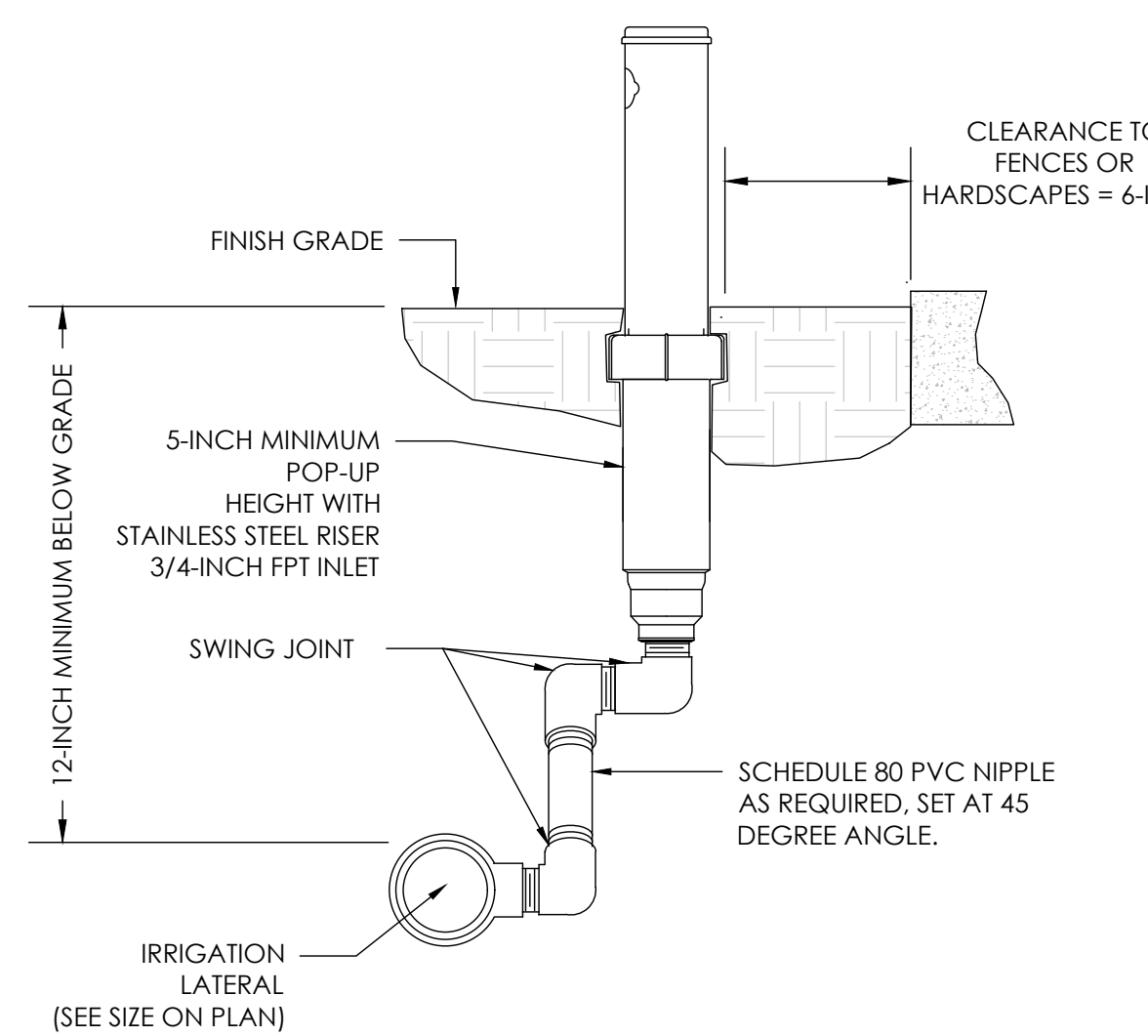
**7 AT-GRADE IRRIGATION TRENCH**  
IR-2.01 NOT TO SCALE



**8 SLEEVE UNDER HARDSCAPE**  
IR-2.01 NOT TO SCALE



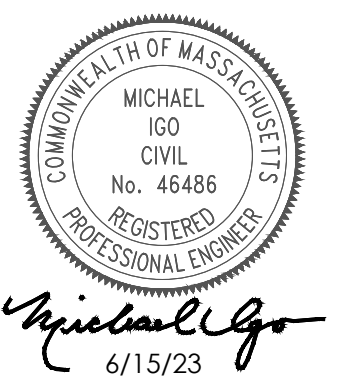
**9 6-INCH POP-UP SPRINKLER**  
IR-2.01 NOT TO SCALE



**10 GEAR-DRIVEN ROTOR SPRINKLER**  
IR-2.01 NOT TO SCALE

REV.	DATE	DESCRIPTION

APPLICABLE SEAL



PROJECT NO.	22-0094
DESIGN:	JS
REVIEW:	AEH/MI
SCALE:	AS SHOWN
DATE:	06/15/2023

SHEET NAME

**IRRIGATION DETAILS - 2**