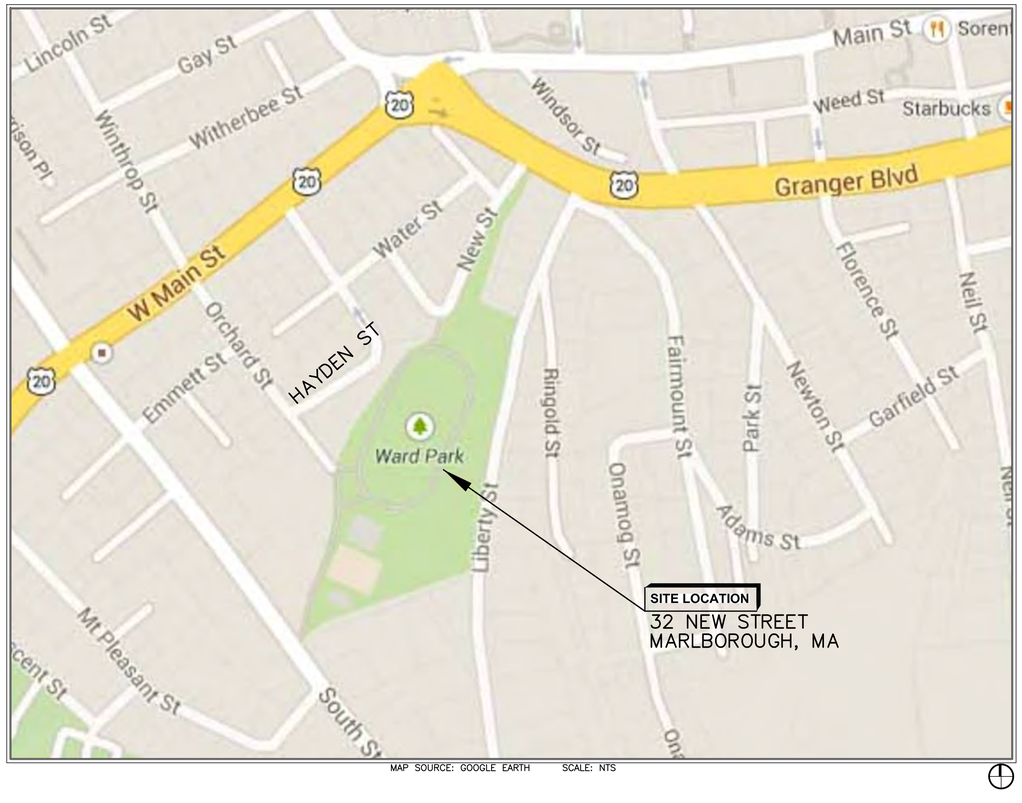
# CITY OF MARLBOROUGH, MA

# WARD PARK IMPROVEMENTS

**CONTRACT NO. ED2015-08**

## AUGUST 2014




MAP SOURCE: GOOGLE EARTH SCALE: NTS

**MAYOR**

HON. ARTHUR G. VIGEANT

**COMMISSIONER OF PUBLIC WORKS**

JOHN L. GHILONI

**CITY ENGINEER**

EVAN PILACHOWSKI, P.E.

**RECREATION DIRECTOR**

DAVID T. GRASSO

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8.12.2014

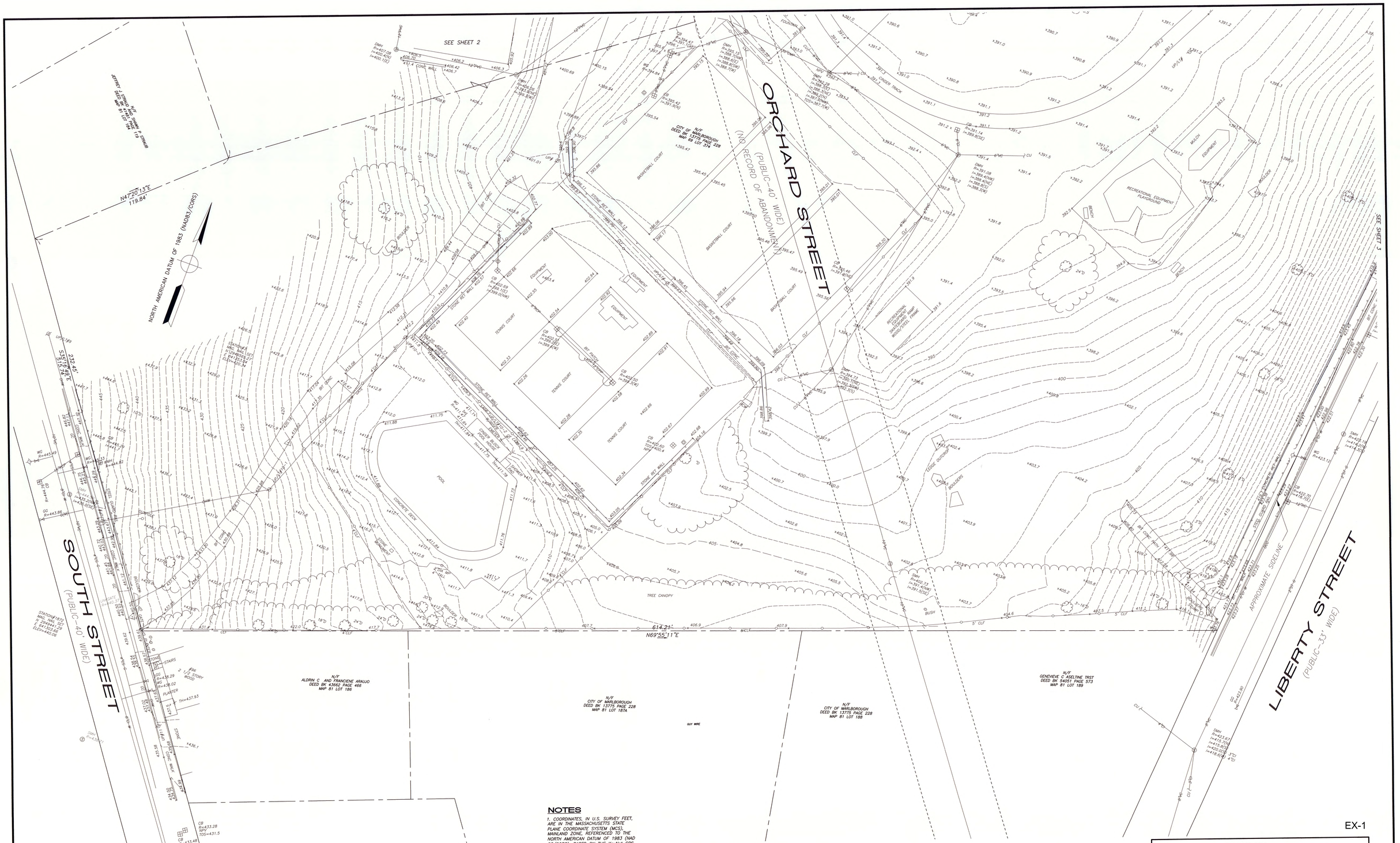
8.12.2014

CDM Smith

**CAMBRIDGE, MASSACHUSETTS**

*Water* *Environment* *Transportation* *Energy* *Facilities*

1438-79088




## NOTES

1. COORDINATES, IN U.S. SURVEY FEET, ARE IN THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (MCS), MAINLAND ZONE, REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83/CORS), BASED ON THE KeyNet GPS VIRTUAL REFERENCE SYSTEM (VRS), USING TRIMBLE R8 GNSS GPS RECEIVERS.

2. ELEVATIONS, IN U.S. SURVEY FEET, ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

3. SUBSURFACE UTILITY LINES AND FEATURES, AS SHOWN HEREON, WERE COMPILED FROM FIELD EVIDENCE AND/OR AVAILABLE RECORD INFORMATION AND THEIR LOCATIONS ARE ONLY APPROXIMATE. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD.

SMC ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN.

BEFORE DESIGNING FUTURE CONNECTIONS, THE APPROPRIATE UTILITIES MUST BE CONSULTED.

BEFORE CONSTRUCTION, ALL UTILITIES, PUBLIC AND PRIVATE, MUST BE NOTIFIED (SEE MASSACHUSETTS GENERAL LAWS, CHAPTER 82 SECTION 40). CALL "DIG SAFE" 1-888-DIG-SAFE. (888-344-7233).

## REFERENCES

1. MAPPING OF NATURAL GAS FACILITIES IN AREA OF WARD PARK IN MARLBOROUGH PREPARED BY: NSTAR GAS
2. PLAN & PROFILE OF DRAINAGE AND SANITARY SEWER FOR SOUTH, ORCHARD, AND LIBERTY STREET FROM THE CITY OF MARLBOROUGH
3. COMCAST PLANS FOR THE AREA OF WARD PARK IN MARLBOROUGH
4. PLANS FOR PROPOSED SENIOR CENTER AT WARD PARK #32 NEW STREET IN MARLBOROUGH, MA DATED 4/19/2013

0 10 20 30 METERS
0 20 40 60 80 FEET
GRAPHIC SCALE 1" = 20'

COMMONWEALTH OF MASSACHUSETTS
KEVIN HANLEY
No. 31313
REGISTERED PROFESSIONAL LAND SURVEYOR

Kevin Hanley
5th August 2014

KEVIN HANLEY, PLS
MASSACHUSETTS REG. No. 31313

EX-1

325 WOOD ROAD
SUITE 109
BRAINTREE MA 02184
(781)380-7766
FAX (781)380-7757
SMC SURVEYING AND MAPPING CONSULTANTS

# EXISTING CONDITIONS SURVEY
# ARTEMAS WARD PARK
# MARLBOROUGH, MA

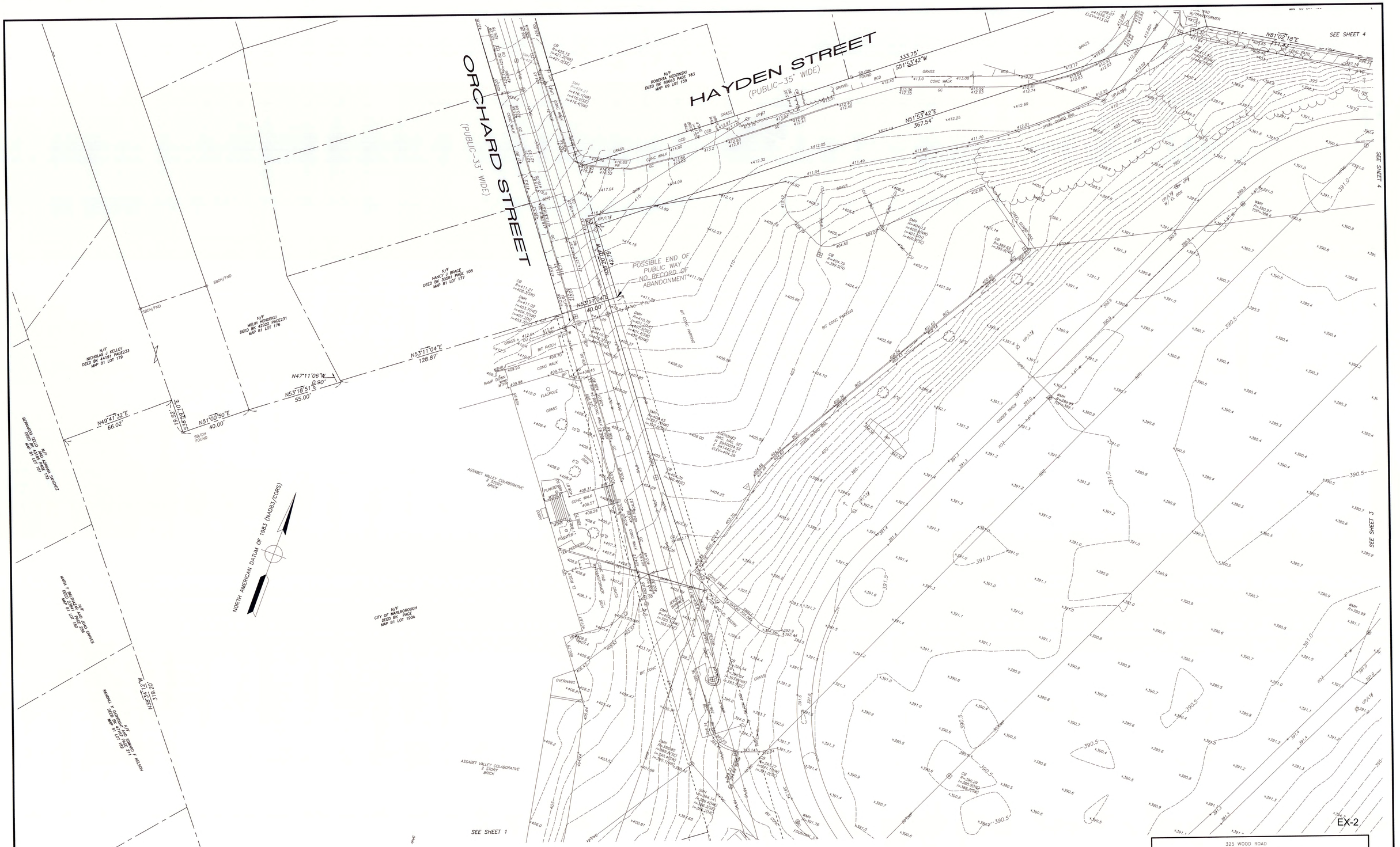
PREPARED FOR: CDM SMITH, INC.

SCALE: 1"=20'

REVISED AUGUST 4, 2014
DATE: APRIL 18, 2014

| | |
|---|---|
| REVISED: | AUGUST 4, 2014 |
| Date: | APRIL 18, 2014 |
| Job No.: | Y115.00 |
| Drawn By: | IV |
| Checked By: | KH |
| Calc'd By: | JW |
| Drawing No.: | Y11500WS.dwg |
| Sheet: | 1 OF 4 |

SMC DWG NO. Y11500WS.dwg ACCESSION NO. 1438-79089 SHEET 1 OF 4




EX-2

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| REVISED: | AUGUST 4, 2014 |
| Date: | APRIL 18, 2014 |
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| Drawn By: | IV |
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| Calc'd By: | JW |
| Drawing No.: | Y11500WS.dwg |
| Sheet: | 2 OF 4 |

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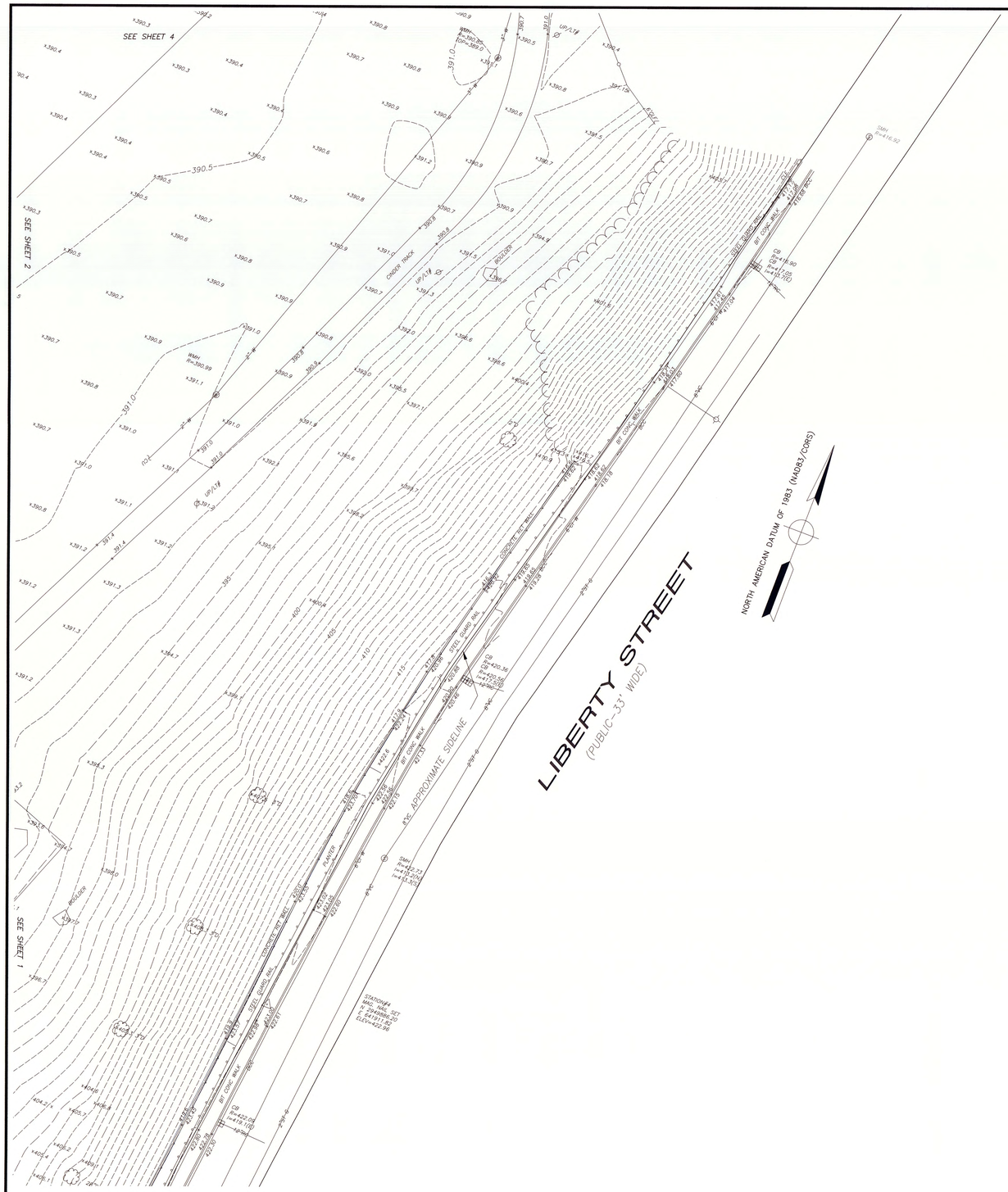
SMC DWG NO. Y11500WS.dwg ACCESSION NO. 1438-79090 SHEET 2 OF 4




## LEGEND

| | | | |
|---|---|---|---|
| △ | SURVEY CONTROL STATION | ← | GUY WIRE |
| ◉ DH | DRILL HOLE | ø UP# | UTILITY POLE |
| ○ I.PIPE | IRON PIPE FOUND | ø UP/LP# | UTILITY POLE/LIGHT POLE |
| ⊡ SB/DH | STONE BOUND WITH DRILL HOLE | ☼ LP | LIGHT POLE |
| MAG. NAIL | MAGNETIC NAIL | OHW | OVERHEAD WIRE |
| FND | FOUND | Ⓓ | DRAIN MANHOLE |
| N/F | NOW OR FORMERLY | ⊞ CB | CATCH BASIN |
| W/ | WITH | R= | RIM |
| BIT CONC | BITUMINOUS CONCRETE | I= | INVERT |
| GC | GRANITE CURB | NPV | NO PIPE VISIBLE |
| CC | CONCRETE CURB | CMP | CORRUGATED METAL PIPE |
| SBCC | SLOPED BIT CONC CURB | RCP | REINFORCED CONCRETE PIPE |
| CW | CONCRETE WALK | CPP | CORRUGARED PLASTIC PIPE |
| BCW | BIT CONC WALK | PVC | POLYVINYL CHLORIDE |
| PR | PEDESTRIAN RAMP | CIP | CAST IRON PIPE |
| ——•—— | WOOD FENCE | Ⓢ SMH | SEWER MANHOLE |
| ——x—— | OTHER FENCE | ⋈ WG | WATER GATE |
| CLF | CHAIN LINK FENCE | ⋈ GG | GAS GATE |
| RET WALL | RETAINING WALL | ⊹ | HYDRANT |
| LST | LANDSCAPE TIMBER | ——W—— | WATER LINE |
| | DECIDUOUS TREE | ——S—— | SEWER LINE |
| | | ——T—— | TELEPHONE LINE |
| | EVERGREEN TREE | ——E—— | ELECTRIC LINE |
| | | ——D—— | DRAIN LINE |
| | SHRUB | ——G—— | GAS LINE |
| ○ GP | GUARD POST (BOLLARD) | ——CATV—— | CABLE TELEVISION |
| ○ MP | METAL POST | X 6.3 | SPOT ELEVATION |
| ○ WP | WOOD POST | - - - - - - | INTERMEDIATE CONTOUR |
| TH | THRESHOLD | —— 10 —— | INDEX CONTOUR |
| □ HH | HANDHOLE | | |

## REFERENCES

1. PLAN OF THE RELOCATION OF A PORTION OF SOUTH STREET AND THE LAYOUT OF A NEW WAY IN MARLBOROUGH BY ORDER OF THE COUNTY COMMISSIONERS DATED 1970
2. PLAN OF LAND IN MARLBOROUGH OWNED BY FRANCIS CARINO AND PETER RICCI DATED JANUARY 9, 1961 RECORD AS PLAN 434 OF 1961
3. PLAN OF LAND IN MARLBOROUGH OWNED BY RALPH AND BLANCHE BOWIN DATED NAY 13, 1968 RECORDED AS PLAN 1437 OF 1968
4. AS BUILT CONDOMINIUM PLAN 106-108 SOUTH STREET DATED DECEMBER 12, 1987 RECORDED AS PLAN 743 OF 1988
5. DEFINITE SUBDIVISION PLAN OF FAHEY STREET MARLBOROUGH, MA DATED JANUARY 20, 2000 RECORDED AS PLAN 1 OF 2001
6. PLAN OF LAND IN MARLBOROUGH PREPARED FOR DAVID AND MELLISSA CHEVRETTE DATED FEBRUARY 2008 RECORD AS PLAN 120 OF 2008
7. PLOT OF A PIECE OF LAND IN MARLBOROUGH MA BELONGING TO THE ESTATE OF WINTHROP AENOLD DATE APRIL 20, 1869 PLAN BOOK 16 PLAN 48
8. CITY OF MARLBOROUGH PLAN SHOWNING THE EXTENSION OF HAYDEN STREET FOR ACCEPTANCE DATED JUNE 1947 RECORDED AS 959 OF 1947
9. CITY OF MARLBOROUGH PLAN OF WATER TERRACE FOR ACCEPTANCE DATED APRIL 1940 RECORDED AS PLAN 270 OF 1940
10. PLAN OF LAND IN MARLBOROUGH MA OWNED BY CARSON L AND GLORIA WOODWORTH DATED JULY 31, 1996 RECORD AS PLAN 749 OF 1996
11. CITY OF MARLBOROUGH PLAN OF ARTEMAS WARD PARK DATED SEPTEMBER 1934 BY FRANCIS GRANGER CITY ENGINEER
12. HOME FARM OF THE LATE DANIEL HAYDEN IN MARLBOROUGH DATED APRIL 12, 1897 RECORDED IN PLAN BOOK 106 PL 23
13. CITY OF MARLBOROUGH PLAN OF PROPOSED PLAYGROUND HAYDEN MEADOW MARLBOROUGH MASS DATED AUGUST 1923 RECORDED AS PLAN 737 OF 1923

EX-3

| | |
|---|---|
| REVISED: | AUGUST 4, 2014 |
| Date: | APRIL 18, 2014 |
| Job No.: | Y115.00 |
| Drawn By: | IV |
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| Cal'd By: | JW |
| Drawing No.: | Y11500WS.dwg |
| Sheet: | 3 OF 4 |

0 10 20 30 METERS
0 20 40 60 80 FEET
GRAPHIC SCALE 1" = 20'

COMMONWEALTH OF MASSACHUSETTS KEVIN HANLEY No. 31313 REGISTERED PROFESSIONAL LAND SURVEYOR

Kevin Hanley 5th August 2014

KEVIN HANLEY, PLS
MASSACHUSETTS REG. No. 31313


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# ARTEMAS WARD PARK
# MARLBOROUGH, MA

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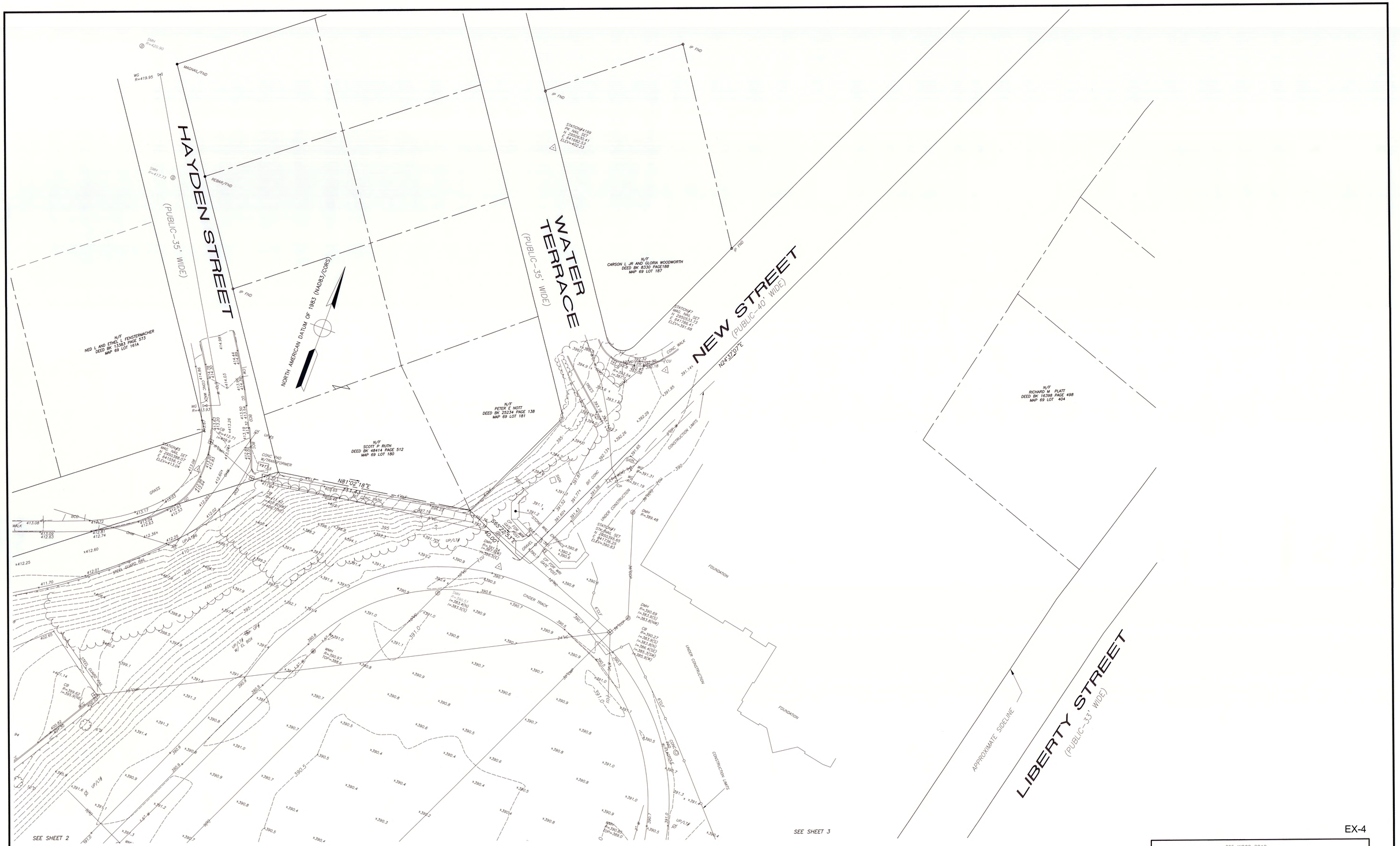
SMC DWG NO. Y11500WS.dwg ACCESSION NO. 1438-79091 SHEET 3 OF 4




EX-4

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|---|---|
| REVISED: | AUGUST 4, 2014 |
| Date: | APRIL 18, 2014 |
| Job No.: | Y115.00 |
| Drawn By: | IV |
| Checked By: | KH |
| Calc'd By: | JW |
| Drawing No.: | Y11500WS.dwg |
| Sheet: | 4 OF4 |

0 10 20 30 METERS
0 20 40 60 80 FEET
GRAPHIC SCALE 1" = 20'

COMMONWEALTH OF MASSACHUSETTS
KEVIN HANLEY
No. 31313
PROFESSIONAL LAND SURVEYOR
REGISTERED

Kevin Hanley
5th August 2014

KEVIN HANLEY, PLS
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SMC DWG NO. Y11500WS.dwg

ACCESSION NO. 1438-79092 SHEET 4 OF4

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## LEGEND

| | |
|---|---|
| SURVEY CONTROL STATION | |
| DIH | DRILL HOLE |
| I.P/IPC | IRON PIPE FOUND |
| SB/DH | STONE BOUND WITH DRILL HOLE |
| MAG. NAIL | MAGNETIC NAIL |
| FND | FOUND |
| N/F | NOW OR FORMERLY |
| W/ | WITH |
| BIT CONC | BITUMINOUS CONCRETE |
| GC | GRANITE CURB |
| CC | CONCRETE CURB |
| SBCC | SLOPED BIT CONC CURB |
| CW | CONCRETE WALK |
| BCW | BIT CONC WALK |
| PR | PEDESTRIAN RAMP |
| | WOOD FENCE |
| X | OTHER FENCE |
| CLF | CHAIN LINK FENCE |
| RET WALL | RETAINING WALL |
| LST | LANDSCAPE TIMBER |
| | DECIDUOUS TREE |
| | EVERGREEN TREE |
| | SHRUB |
| GP | GUARD POST (BOLLARD) |
| MP | METAL POST |
| WP | WOOD POST |
| TH | THRESHOLD |
| HH | HANDHOLE |
| | GUY WIRE |
| UP# | UTILITY POLE |
| UP/LP# | UTILITY POLE/LIGHT POLE |
| LP | LIGHT POLE |
| OHW | OVERHEAD WIRE |
| | DRAIN MANHOLE |
| CB | CATCH BASIN |
| R= | RIM |
| I= | INVERT |
| NPV | NO PIPE VISIBLE |
| CMP | CORRUGATED METAL PIPE |
| RCP | REINFORCED CONCRETE PIPE |
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| PVC | POLYVINYL CHLORIDE |
| CIP | CAST IRON PIPE |
| SMH | SEWER MANHOLE |
| WG | WATER GATE |
| GG | GAS GATE |
| | HYDRANT |
| W | WATER LINE |
| S | SEWER LINE |
| T | TELEPHONE LINE |
| E | ELECTRIC LINE |
| D | DRAIN LINE |
| G | GAS LINE |
| CATV | CABLE TELEVISION |
| X 6.3 | SPOT ELEVATION |
| | INTERMEDIATE CONTOUR |
| 10 | INDEX CONTOUR |

1" = 30'
15 0 30

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: S.LANDGREN/D.MELLETT
DRAWN BY: D.MELLETT
SHEET CHK'D BY: S.LANDGREN
CROSS CHK'D BY: J.OLCOTT
APPROVED BY: S.LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

EXISTING CONDITIONS PLAN OVERVIEW

PROJECT NO. 1438-103837
FILE NAME: EX05EXPL.dwg
SHEET NO.
EX-5

XREFs: [Y:\1150OWS_CDMS_3042] Images: []
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## NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY THROUGHOUT THE DURATION OF THE CONTRACT AS DIRECTED BY THE ENGINEER OR OWNER TO CONTROL VEHICLE AND PEDESTRIAN ACCESS.
2. CONTRACTOR SHALL COORDINATE WORK AND SITE ACCESS TIMES TO MINIMIZE CONFLICTS WITH ADJACENT SCHOOL. SEE SPECIFICATION SECTION 01170. CONTRACTOR SHALL SUBMIT A PEDESTRIAN SAFETY MANAGEMENT PLAN FOR STUDENTS USING ORCHARD AND NEW STREETS TO THE OWNER FOR REVIEW AND APPROVAL PRIOR TO DEMOLITION OF WALKWAYS. MAINTAIN VEHICULAR AND PEDESTRIAN ACCESS ALONG ORCHARD STREET, HAYDEN STREET AND NEW STREET AT ALL TIMES.
3. CONTRACTOR SHALL COMPLY WITH ALL ASPECTS OF 220 CMR 99.00 (DIG SAFE LAW) AND MASSACHUSETTS CHAPTER 82 SECTION 40. CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS IN WRITING AND CALL DIGSAFE AT "811", 72 HOURS PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES.
4. CONTRACTOR SHALL INSTALL ALL REQUIRED EROSION AND SEDIMENTATION CONTROL MEASURES, PRIOR TO UNDERTAKING SITE DEMOLITION AND REMOVALS.
5. CONTRACTOR SHALL IDENTIFY AND PROTECT ALL ON-SITE STRUCTURES IDENTIFIED ON THE DRAWINGS TO BE RETAINED AND PROTECTED THROUGHOUT THE DURATION OF THE CONTRACT.
6. CONTRACTOR SHALL EXCAVATE TOPSOIL AND SUBGRADE MATERIAL TO MIN. DEPTH OF 6-IN AND TO OTHER DEPTHS REQUIRED TO ACCOMMODATE NEW MATERIALS AND AGGREGATE LAYERS, AND DRAINAGE.
7. NO WORK SHALL OCCUR OUTSIDE THE LIMIT OF WORK WITHOUT PRIOR APPROVAL BY THE ENGINEER OR OWNER. DAMAGE TO ANY SITE FEATURES TO BE RETAINED SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER IN A MANNER APPROVED BY THE ENGINEER AND OWNER.
8. SEE THE APPENDIX TO THE SPECIFICATIONS FOR SOIL BORING LOGS.
9. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL HAND EXCAVATE TEST PIT TO CONFIRM LOCATIONS OF ALL SUBSURFACE UTILITIES TO BE MAINTAINED IN AREA OF WORK. DAMAGE CAUSED BY CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.
10. EXISTING LOAM AND SOD WITHIN THE FIELD AREA SHALL BE REGRADED TO MINIMUM DEPTH OF 6-IN, OR AS OTHERWISE INDICATED. WHERE OTHER EXISTING MATERIALS ARE TO BE REMOVED AND NOT REPLACED WITH NEW PAVEMENT, EXISTING BASE MATERIALS SHALL BE REMOVED TO MINIMUM DEPTH OF 8-IN.
11. ALL AREAS WITHIN LIMIT OF WORK BUT OUTSIDE OF AREAS SPECIFICALLY CALLED OUT FOR REMOVAL AND DISPOSAL, SHALL BE COORDINATED WITH OTHER SHEETS FOR LIMITS OF DISTURBANCE. REMOVE AND DISPOSE OF SOD AND SOIL AND OTHER EXISTING FEATURES TO DEPTHS AS REQUIRED FOR CONSTRUCTION.
12. SEE ELECTRICAL SHEETS FOR ADDITIONAL INFORMATION RELATED TO ELECTRICAL REMOVAL AND DISPOSAL.
13. SAW CUT EXISTING PAVEMENT AT LIMITS OF REMOVAL.
14. ENGINEER IS NOT RESPONSIBLE FOR ANY ITEMS THAT MAY BE DISCOVERED ON SITE DURING DEMOLITION OR CONSTRUCTION THAT WERE NOT PREVIOUSLY INDICATED ON THE SURVEY OR INFORMATION PROVIDED.

## EROSION AND SEDIMENT CONTROL NOTES:

1. REFER TO ALL RELEVANT EROSION AND SEDIMENTATION CONTROL SPECIFICATIONS INCLUDING, BUT NOT LIMITED TO 02100 SITE PREPARATION AND 02270 EROSION AND SEDIMENTATION CONTROL PLAN.
2. PRIOR TO ANY ACTIVITY ON THE SITE, THE CONTRACTOR SHALL PREPARE AND FILE SWPPP AND APPOINT A QUALIFIED INDIVIDUAL WHO SHALL BE RESPONSIBLE FOR MONITORING ALL ACTIVITIES TO ENSURE ENVIRONMENTAL COMPLIANCE. THIS INDIVIDUAL SHALL INSPECT AND DIRECT THE MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROL MEASURES ON SITE AND SHALL SUBMIT PROGRESS/MONITORING REPORTS AS REQUESTED TO THE ENGINEER AND OWNER.
3. APPROPRIATE EROSION CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE BEGINNING OF ALL PHASES OF CONSTRUCTION, AND SHALL BE MAINTAINED DURING CONSTRUCTION. THE EROSION CONTROL DETAILS AND SPECIFICATIONS SHALL BE CONSIDERED THE MINIMUM STANDARDS REQUIRED FOR THIS PROJECT. ADDITIONAL OR MODIFIED EROSION CONTROL MEASURES MAY BE REQUIRED AT ANY TIME DURING CONSTRUCTION AT NO ADDITIONAL COST. THESE SHALL BE MAINTAINED UNTIL THEY ARE NO LONGER NEEDED, AT WHICH TIME THEY SHALL BE REMOVED.
4. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 30 DAYS OF REMOVAL.
5. UTILIZE BEST MANAGEMENT PRACTICES AND COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS AS RELATED TO SEDIMENT AND EROSION CONTROL. MASSACHUSETTS EROSION CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS SHALL BE FOLLOWED FOR ALL WORK.
6. EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED BEFORE AND AFTER EACH PREDICTED STORM EVENT AND REPAIRED OR REPLACED AS NECESSARY. ANY ACCUMULATED SEDIMENT ADJACENT TO THE BARRIERS SHALL BE REMOVED.
7. CATCH BASIN FILTERS SHALL BE INSTALLED ON ALL CATCH BASIN STRUCTURES IN AREAS OF WORK AS APPROVED BY THE ENGINEER AND OWNER.
8. A STABILIZED CONSTRUCTION ENTRANCE, TRACKING PAD OR OTHER APPROVED STABILIZATION METHOD SHALL BE CONSTRUCTED AT ALL ENTRANCE / EXIT POINTS OF THE SITE TO REDUCE THE AMOUNT OF SOIL CARRIED ONTO IMPERVIOUS AREAS AND OFF SITE. PREVENT OFF-SITE VEHICLE TRACKING OF SEDIMENTS. ALL PAVED ROAD AND PATH SURFACES IN THE WORK AREA OR AFFECTED BY THE WORK SHALL BE SWEPT ON A REGULAR BASIS AS DIRECTED BY THE ENGINEER OR OWNER.
9. SITE DEWATERING DETAILS, INCLUDING PROPER SIZING OF PUMPS, CONTAINMENT AREAS AND TREATMENT METHODS FOR ALL DEWATERING OPERATIONS, SHALL BE SUBMITTED BY THE CONTRACTOR WHERE REQUIRED, IN A MANNER APPROVED BY THE ENGINEER AND OWNER.
10. PROTECT AND MANAGE ON AND OFF-SITE MATERIAL STORAGE AREAS. PROPERLY MANAGE ON-SITE CONSTRUCTION WASTE MATERIALS & FUELING OF CONSTRUCTION EQUIPMENT. NO DISTURBED AREAS OR STOCKPILED MATERIAL SHALL BE LEFT UNPROTECTED OR WITHOUT EROSION CONTROLS DURING ANY POINT IN THE CONSTRUCTION.
11. ALL SLOPES STEEPER THAN 3:1 MUST, UPON COMPLETION, BE IMMEDIATELY STABILIZED WITH SOD OR SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES.
12. AN ADEQUATE STOCKPILE OF EROSION CONTROL MATERIALS SHALL BE ON SITE AT ALL TIMES IN AN EASILY ACCESSIBLE LOCATION FOR EMERGENCY OR ROUTINE REPLACEMENT AND SHALL INCLUDE MATERIALS TO REPAIR OR REPLACE SEDIMENT FENCES, HAY BALES, EROSION CONTROL BLANKETS, STONE RIPRAP, FILTER BERMS OR ANY OTHER DEVICES PLANNED FOR USE DURING CONSTRUCTION.
13. THE AREA OF CONSTRUCTION SHALL REMAIN IN A STABLE CONDITION AT THE CLOSE OF EACH CONSTRUCTION DAY. EROSION CONTROLS WILL BE INSPECTED AT THIS TIME, AND REPAIRED, REINFORCED OR REPLACED AS NECESSARY.
14. ONCE BEGUN, GRADING AND CONSTRUCTION SHALL CONTINUE IN AN EXPEDITIOUS MANNER TO MINIMIZE THE OPPORTUNITY FOR EROSION.
15. ALL EXPOSED SOIL FINISH GRADE SURFACES SHALL BE IMMEDIATELY LANDSCAPED, RIPRAPPED, LOAMED, SEEDED, MULCHED OR OTHERWISE PROTECTED AND STABILIZED AS SHOWN ON THE DRAWINGS WITH A LAYER OF STRAW MULCH HAY. WHERE NECESSARY, THE LOAM AND SEEDING SHALL BE HELD IN PLACE AS SPECIFIED AS APPROVED BY THE ENGINEER. OUTSIDE OF THE GROWING SEASON, EXPOSED SOIL FINISH GRADE SURFACES SHALL BE STABILIZED WITH A LAYER OF STRAW HAY UNTIL CLIMATE CONDITIONS ALLOW FOR SEEDING. DURING CONSTRUCTION, ANY AREA OF EXPOSED SOILS THAT WILL BE LEFT IDLE FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH A LAYER OF MULCH HAY OR OTHER MEANS APPROVED BY OWNER.
16. PERMANENT SEEDING SHALL BE UNDERTAKEN IN THE SPRING, EARLY SUMMER OR EARLY FALL. WHEN SEEDING IS FOUND TO BE IMPRACTICAL, APPROPRIATE TEMPORARY STABILIZATION SHALL BE APPLIED. PERMANENT SEEDING MAY TAKE PLACE DURING THE SUMMER, ONLY IF PLANS PROVIDE FOR ADEQUATE MULCHING AND WATERING.
17. THE OWNER RESERVES THE RIGHT TO IMPOSE ADDITIONAL CONDITIONS ON PORTIONS OF THIS PROJECT TO MITIGATE ANY IMPACTS WHICH COULD RESULT FROM SITE EROSION, OR ANY NOTICEABLE DEGRADATION OF SURFACE WATER QUALITY DISCHARGING FROM THE SITE.

## LEGEND:

- REMOVE AND DISPOSE OF BITUMINOUS CONCRETE PAVEMENT
- REMOVE AND DISPOSE OF CONCRETE PAVEMENT AND BASE
- REMOVE AND DISPOSE OF LOAM AND SOD TO REQUIRED DEPTH. SEE NOTES 7 AND 11
- REMOVE AND DISPOSE CINDER TRACK AND GRAVEL WALKS
- REMOVE AND DISPOSE LOAM AND SOD TO DEPTH REQUIRED TO ACCOMMODATE NEW PAVEMENT
- REMOVE AND DISPOSE LOAM AND SOD TO DEPTH REQUIRED TO ACCOMMODATE NEW IMPROVEMENTS
- REMOVE AND DISPOSE OF EXISTING CHAIN LINK FENCE, POSTS, FOOTINGS AND APPURTENANCES REMOVE AND DISPOSE OF EXISTING STONE WALL, CURB, FOOTINGS AND APPURTENANCES REMOVE AND DISPOSE OF DRAINAGE STRUCTURES
- SOIL BORING
- PROTECT
- TEMPORARY CATCH BASIN INLET PROTECTION
- LIMIT OF WORK
- SEDIMENT FENCE
- REMOVE AND DISPOSE OF EXISTING FEATURES AND APPURTENANCES

ROBERT A. PARSONS CIVIL No. 45694 REGISTERED PROFESSIONAL ENGINEER — COMMONWEALTH OF MASSACHUSETTS 8.12.2014

SCOTT W. LANDGREN NO. 1179 REGISTERED LANDSCAPE ARCHITECT — MASSACHUSETTS 8.12.2014

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: S.LANDGREN/D.MELLETT
DRAWN BY: D.MELLETT
SHEET CHK'D BY: S.LANDGREN
CROSS CHK'D BY: J.OLCOTT
APPROVED BY: S.LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

REMOVALS AND EROSION AND SEDIMENTATION PLAN

PROJECT NO. 1438-103837
FILE NAME: L001EXPL
SHEET NO. L-1
1438-79094

XREFs: [Y11500WS, CDMS_3042, C000BSPL] Images: [Stamp]
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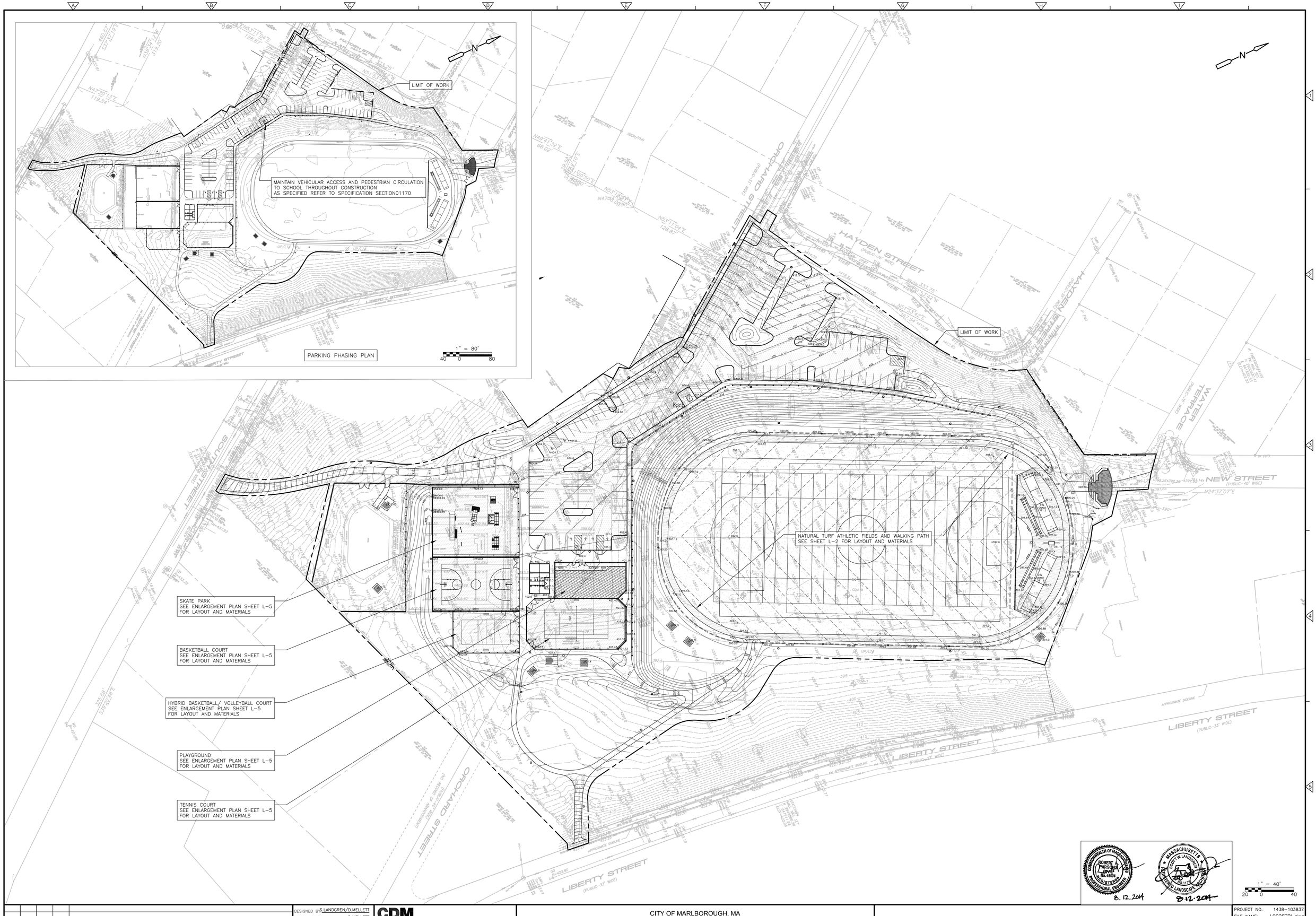


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DRAWN BY: D.MELLETT
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CROSS CHK'D BY: J.OLCOTT
APPROVED BY: S.LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

OVERALL SITE PLAN

PROJECT NO. 1438-103837
FILE NAME: L002STPL.dwg
SHEET NO. L-2

XREFs: [Y11500WS, C000BSPL, CDMS_3042] Images: [Stamp]
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**NOTES:**

1. ALL DIMENSIONS SHOWN ARE IN FEET.

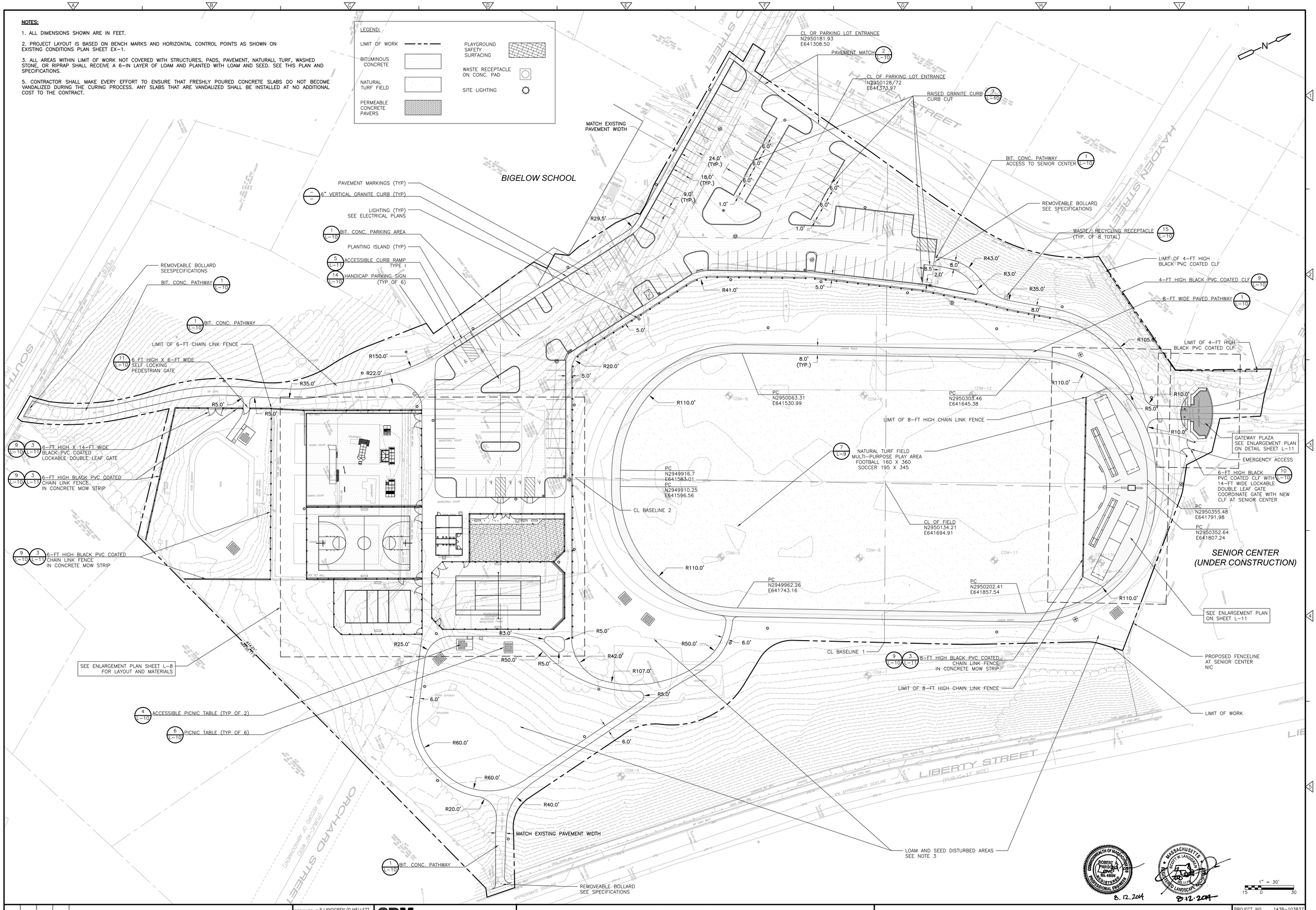
2. PROJECT LAYOUT IS BASED ON BENCH MARKS AND HORIZONTAL CONTROL POINTS AS SHOWN ON EXISTING CONDITIONS PLAN SHEET EX-1.

3. ALL AREAS WITHIN LIMIT OF WORK NOT COVERED WITH STRUCTURES, PADS, PAVEMENT, NATURALL TURF, WASHED STONE, OR RIPRAP SHALL RECEIVE A 6-IN LAYER OF LOAM AND PLANTED WITH LOAM AND SEED. SEE THIS PLAN AND SPECIFICATIONS.

5. CONTRACTOR SHALL MAKE EVERY EFFORT TO ENSURE THAT FRESHLY POURED CONCRETE SLABS DO NOT BECOME VANDALIZED DURING THE CURING PROCESS. ANY SLABS THAT ARE VANDALIZED SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE CONTRACT.

LEGEND:

- LIMIT OF WORK
- BITUMINOUS CONCRETE
- NATURAL TURF FIELD
- PERMEABLE CONCRETE PAVERS
- PLAYGROUND SAFETY SURFACING
- WASTE RECEPTACLE ON CONC. PAD
- SITE LIGHTING

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DRAWN BY: D.MELLETT
SHEET CHK'D BY: S.LANDGREN
CROSS CHK'D BY: J.OLCOTT
APPROVED BY: S.LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

LAYOUT AND MATERIALS PLAN

PROJECT NO. 1438-103837
FILE NAME: L003STPL.dwg
SHEET NO.
L-3
1438-79096

XREFs: [CDMS_3042, C0008SPL, C0010RWP, Y11500WS] Images: [Stamp]
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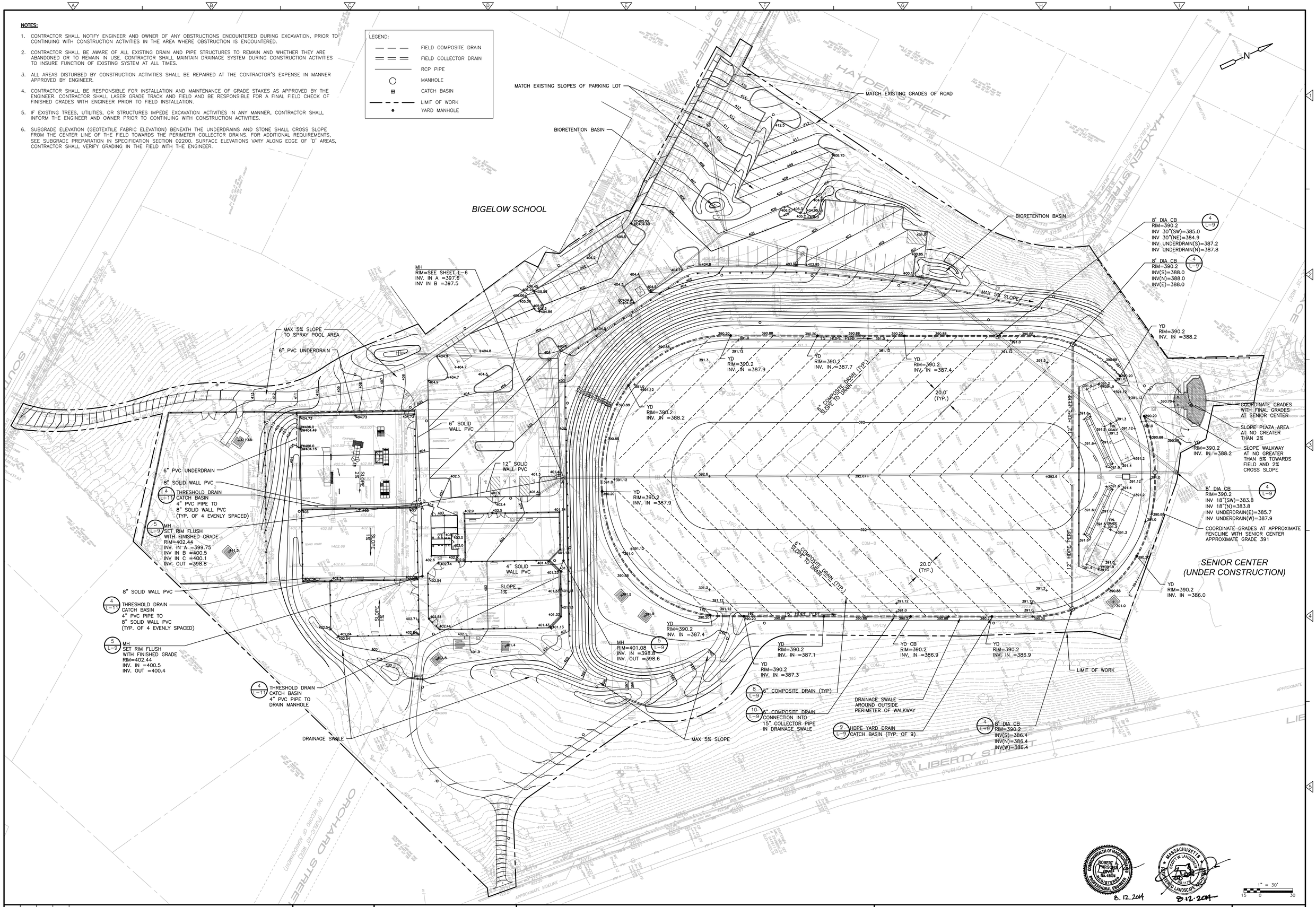
**NOTES:**

1. CONTRACTOR SHALL NOTIFY ENGINEER AND OWNER OF ANY OBSTRUCTIONS ENCOUNTERED DURING EXCAVATION, PRIOR TO CONTINUING WITH CONSTRUCTION ACTIVITIES IN THE AREA WHERE OBSTRUCTION IS ENCOUNTERED.
2. CONTRACTOR SHALL BE AWARE OF ALL EXISTING DRAIN AND PIPE STRUCTURES TO REMAIN AND WHETHER THEY ARE ABANDONED OR TO REMAIN IN USE. CONTRACTOR SHALL MAINTAIN DRAINAGE SYSTEM DURING CONSTRUCTION ACTIVITIES TO INSURE FUNCTION OF EXISTING SYSTEM AT ALL TIMES.
3. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE IN MANNER APPROVED BY ENGINEER.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF GRADE STAKES AS APPROVED BY THE ENGINEER. CONTRACTOR SHALL LASER GRADE TRACK AND FIELD AND BE RESPONSIBLE FOR A FINAL FIELD CHECK OF FINISHED GRADES WITH ENGINEER PRIOR TO FIELD INSTALLATION.
5. IF EXISTING TREES, UTILITIES, OR STRUCTURES IMPEDE EXCAVATION ACTIVITIES IN ANY MANNER, CONTRACTOR SHALL INFORM THE ENGINEER AND OWNER PRIOR TO CONTINUING WITH CONSTRUCTION ACTIVITIES.
6. SUBGRADE ELEVATION (GEOTEXTILE FABRIC ELEVATION) BENEATH THE UNDERDRAINS AND STONE SHALL CROSS SLOPE FROM THE CENTER LINE OF THE FIELD TOWARDS THE PERIMETER COLLECTOR DRAINS. FOR ADDITIONAL REQUIREMENTS, SEE SUBGRADE PREPARATION IN SPECIFICATION SECTION 02200. SURFACE ELEVATIONS VARY ALONG EDGE OF 'D' AREAS, CONTRACTOR SHALL VERIFY GRADING IN THE FIELD WITH THE ENGINEER.

LEGEND:

- FIELD COMPOSITE DRAIN
- FIELD COLLECTOR DRAIN
- RCP PIPE
- MANHOLE
- CATCH BASIN
- LIMIT OF WORK
- YARD MANHOLE




| REV. NO. | DATE | DRWN | CHKD | REMARKS |
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DESIGNED BY: S.LANDGREN/D.MELLETT
DRAWN BY: D.MELLETT
SHEET CHK'D BY: S.LANDGREN
CROSS CHK'D BY: J.OLCOTT
APPROVED BY: S.LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

GRADING AND DRAINAGE PLAN

PROJECT NO. 1438-103837
FILE NAME: L004GRPL.dwg
SHEET NO. L-4
1438-79097

1" = 30'

XREFs: [C000BSPL, Y11500WS, CDMS_3042, C001DRWP] Images: [Stamp]
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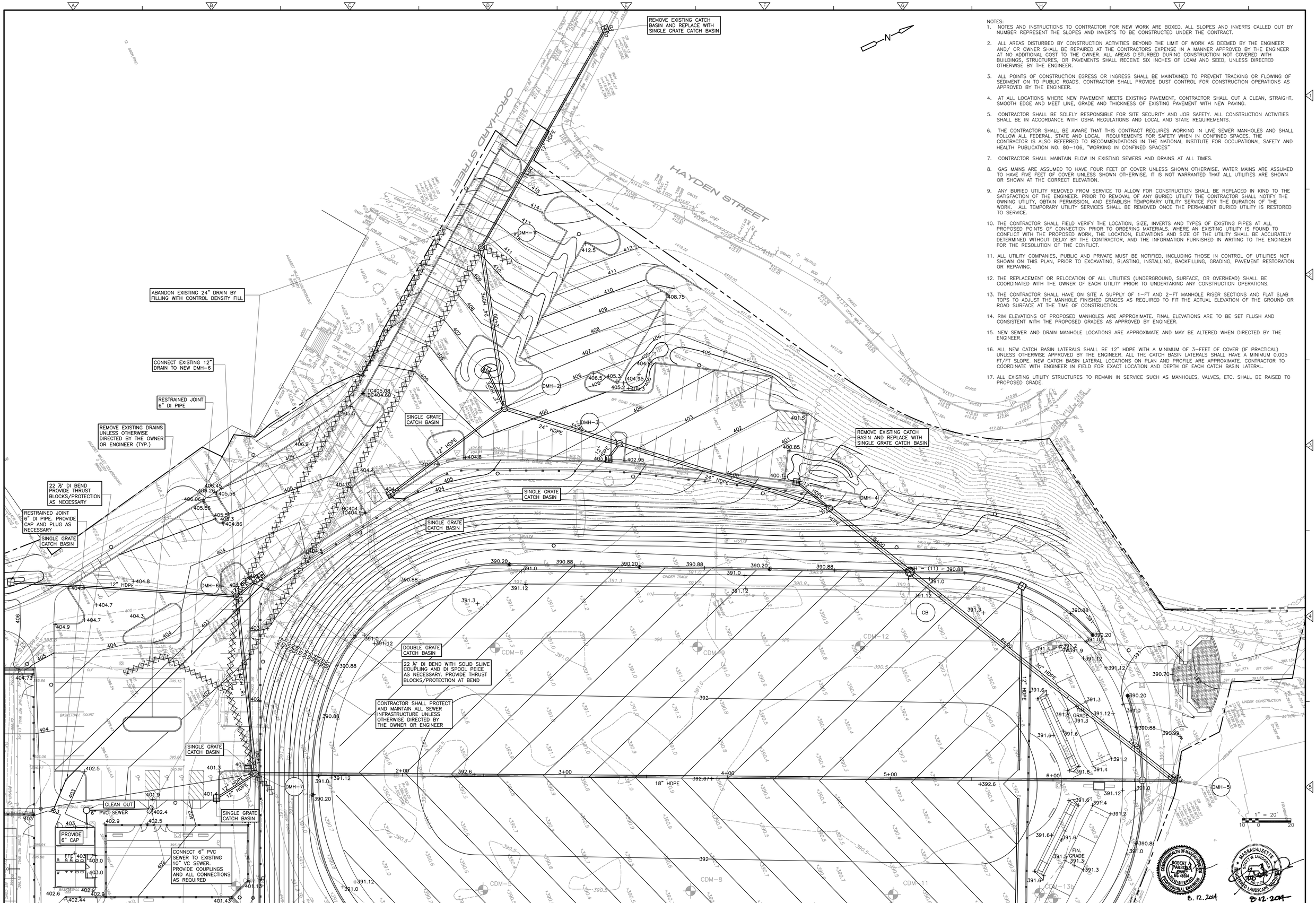


NOTES:

1. NOTES AND INSTRUCTIONS TO CONTRACTOR FOR NEW WORK ARE BOXED. ALL SLOPES AND INVERTS CALLED OUT BY NUMBER REPRESENT THE SLOPES AND INVERTS TO BE CONSTRUCTED UNDER THE CONTRACT.
2. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES BEYOND THE LIMIT OF WORK AS DEEMED BY THE ENGINEER AND/ OR OWNER SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE IN A MANNER APPROVED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER. ALL AREAS DISTURBED DURING CONSTRUCTION NOT COVERED WITH BUILDINGS, STRUCTURES, OR PAVEMENTS SHALL RECEIVE SIX INCHES OF LOAM AND SEED, UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
3. ALL POINTS OF CONSTRUCTION EGRESS OR INGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ON TO PUBLIC ROADS. CONTRACTOR SHALL PROVIDE DUST CONTROL FOR CONSTRUCTION OPERATIONS AS APPROVED BY THE ENGINEER.
4. AT ALL LOCATIONS WHERE NEW PAVEMENT MEETS EXISTING PAVEMENT, CONTRACTOR SHALL CUT A CLEAN, STRAIGHT, SMOOTH EDGE AND MEET LINE, GRADE AND THICKNESS OF EXISTING PAVEMENT WITH NEW PAVING.
5. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. ALL CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA REGULATIONS AND LOCAL AND STATE REQUIREMENTS.
6. THE CONTRACTOR SHALL BE AWARE THAT THIS CONTRACT REQUIRES WORKING IN LIVE SEWER MANHOLES AND SHALL FOLLOW ALL FEDERAL, STATE AND LOCAL REQUIREMENTS FOR SAFETY WHEN IN CONFINED SPACES. THE CONTRACTOR IS ALSO REFERRED TO RECOMMENDATIONS IN THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH PUBLICATION NO. 80-106, "WORKING IN CONFINED SPACES"
7. CONTRACTOR SHALL MAINTAIN FLOW IN EXISTING SEWERS AND DRAINS AT ALL TIMES.
8. GAS MAINS ARE ASSUMED TO HAVE FOUR FEET OF COVER UNLESS SHOWN OTHERWISE. WATER MAINS ARE ASSUMED TO HAVE FIVE FEET OF COVER UNLESS SHOWN OTHERWISE. IT IS NOT WARRANTED THAT ALL UTILITIES ARE SHOWN OR SHOWN AT THE CORRECT ELEVATION.
9. ANY BURIED UTILITY REMOVED FROM SERVICE TO ALLOW FOR CONSTRUCTION SHALL BE REPLACED IN KIND TO THE SATISFACTION OF THE ENGINEER. PRIOR TO REMOVAL OF ANY BURIED UTILITY THE CONTRACTOR SHALL NOTIFY THE OWNING UTILITY, OBTAIN PERMISSION, AND ESTABLISH TEMPORARY UTILITY SERVICE FOR THE DURATION OF THE WORK. ALL TEMPORARY UTILITY SERVICES SHALL BE REMOVED ONCE THE PERMANENT BURIED UTILITY IS RESTORED TO SERVICE.
10. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION, SIZE, INVERTS AND TYPES OF EXISTING PIPES AT ALL PROPOSED POINTS OF CONNECTION PRIOR TO ORDERING MATERIALS. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATIONS AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE ENGINEER FOR THE RESOLUTION OF THE CONFLICT.
11. ALL UTILITY COMPANIES, PUBLIC AND PRIVATE MUST BE NOTIFIED, INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THIS PLAN, PRIOR TO EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, PAVEMENT RESTORATION OR REPAVING.
12. THE REPLACEMENT OR RELOCATION OF ALL UTILITIES (UNDERGROUND, SURFACE, OR OVERHEAD) SHALL BE COORDINATED WITH THE OWNER OF EACH UTILITY PRIOR TO UNDERTAKING ANY CONSTRUCTION OPERATIONS.
13. THE CONTRACTOR SHALL HAVE ON SITE A SUPPLY OF 1-FT AND 2-FT MANHOLE RISER SECTIONS AND FLAT SLAB TOPS TO ADJUST THE MANHOLE FINISHED GRADES AS REQUIRED TO FIT THE ACTUAL ELEVATION OF THE GROUND OR ROAD SURFACE AT THE TIME OF CONSTRUCTION.
14. RIM ELEVATIONS OF PROPOSED MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH AND CONSISTENT WITH THE PROPOSED GRADES AS APPROVED BY ENGINEER.
15. NEW SEWER AND DRAIN MANHOLE LOCATIONS ARE APPROXIMATE AND MAY BE ALTERED WHEN DIRECTED BY THE ENGINEER.
16. ALL NEW CATCH BASIN LATERALS SHALL BE 12" HDPE WITH A MINIMUM OF 3-FEET OF COVER (IF PRACTICAL) UNLESS OTHERWISE APPROVED BY THE ENGINEER. ALL THE CATCH BASIN LATERALS SHALL HAVE A MINIMUM 0.005 FT/FT SLOPE. NEW CATCH BASIN LATERAL LOCATIONS ON PLAN AND PROFILE ARE APPROXIMATE. CONTRACTOR TO COORDINATE WITH ENGINEER IN FIELD FOR EXACT LOCATION AND DEPTH OF EACH CATCH BASIN LATERAL.
17. ALL EXISTING UTILITY STRUCTURES TO REMAIN IN SERVICE SUCH AS MANHOLES, VALVES, ETC. SHALL BE RAISED TO PROPOSED GRADE.

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: B.PARSONS
DRAWN BY: T.PETRUHKIN
SHEET CHK'D BY: B.PARSONS
CROSS CHK'D BY: J.OLCOTT
APPROVED BY: B.PARSONS
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

DRAINAGE PLAN

PROJECT NO. 1438-103837
FILE NAME: L005DRPL.dwg
SHEET NO. L-5

XREFs: [CDMS_3042, C0005VPL, C0008SPL, C0010RWP] Images: [Stamp]
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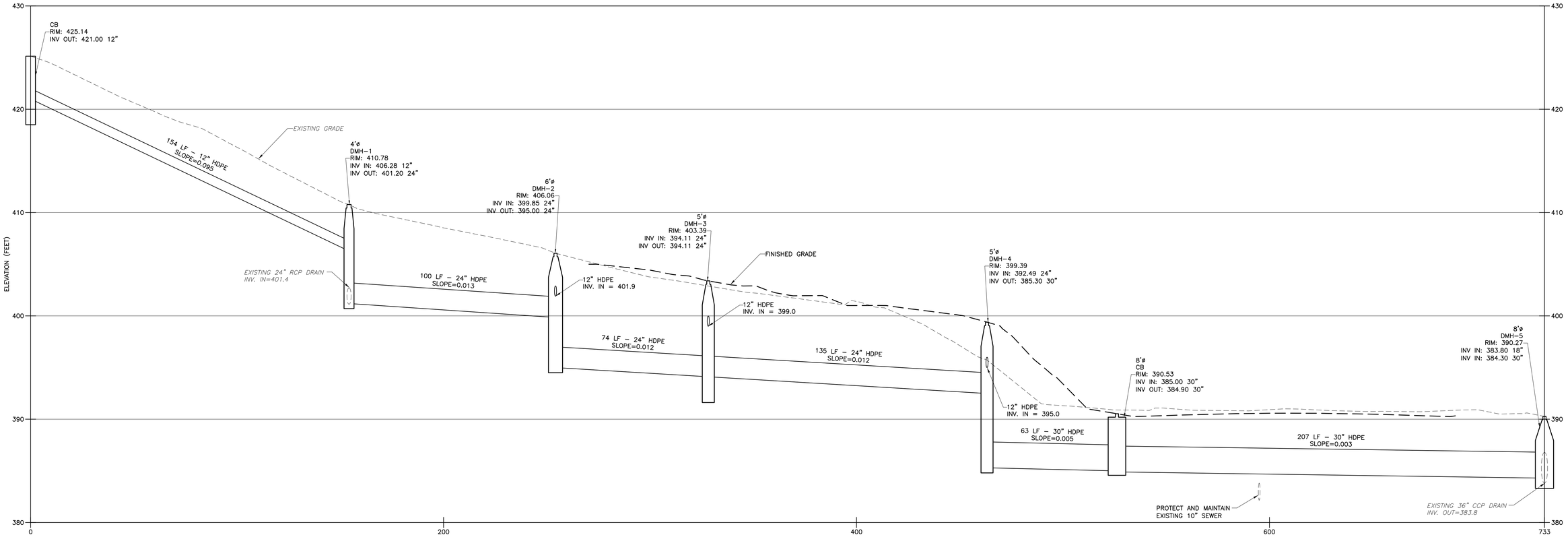
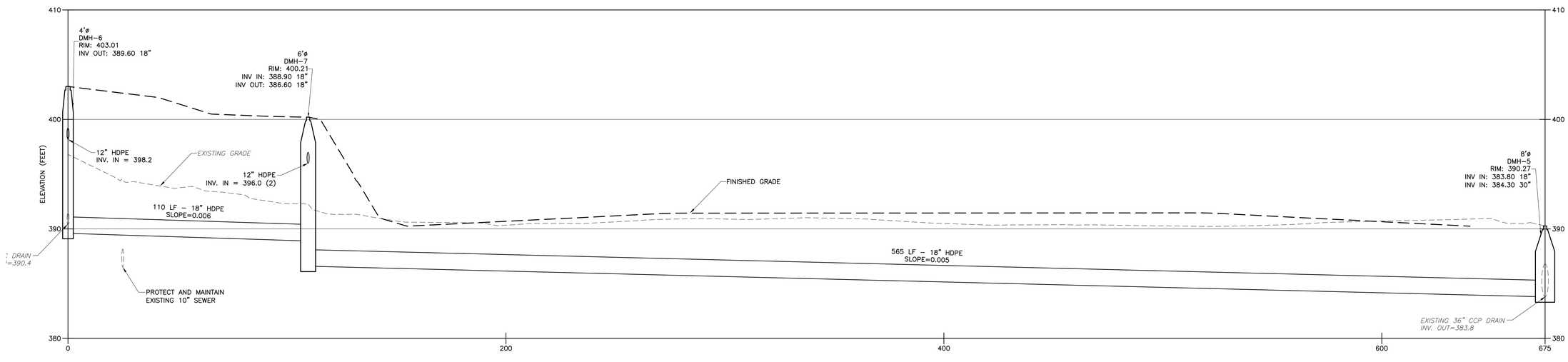



PROFILE 1:
SCALE VER: 1"=4'
SCALE HOR: 1"=20'




PROFILE 2:
SCALE VER: 1"=4'
SCALE HOR: 1"=20'

8.12.2014

8.12.2014

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: B.PARSONS
DRAWN BY: T.PETRUHKIN
SHEET CHK'D BY: B.PARSONS
CROSS CHK'D BY: J.OLCOTT
APPROVED BY: B.PARSONS
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

DRAINAGE PROFILE

PROJECT NO. 1438-103837
FILE NAME: L006DRPF.dwg
SHEET NO.
L-6

XREFs: [CDMS_3042, C000SVPL, C000BSPL, C001DRWP] Images: []
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LEGEND:

- LIMIT OF WORK
- SHADE TREE
- ORNAMENTAL TREE
- RUDBECKIA (BLACK EYED SUSAN)
- LIATRIS
- CAREX
- LIRIOPE
- LIMIT OF FIELD IRRIGATION
- LIMIT OF LANDSCAPE IRRIGATION

PLANT LIST

| KEY | QUAN | BOTANICAL NAME | COMMON NAME | SIZE | COND | COMMENTS |
|---|---|---|---|---|---|---|
| **TREES** | | | | | | |
| AB | 8 | ACER RUBRUM ' BOWHALL' | RED MAPLE 'BOWHALL' | 2" -2 1/2" CAL | B&B | SINGLE LEADER |
| AR | 16 | ACER RUBRUM 'OCTOBER GLORY' | RED MAPLE 'OCTOBER GLORY' | 2" -2 1/2" CAL | B&B | SINGLE LEADER |
| CJ | 7 | CERCIDIPHYLLUM JAPONICUM | KATSURA TREE | 2" -2 1/2" CAL | B&B | SINGLE LEADER |
| GT | 10 | GLEDITSIA TRIACANTHOS VAR. INERMIS 'SHADEMASTER' | THORNLESS HONEY LOCUST 'SHADEMASTER' | 2" -2 1/2" CAL | B&B | SINGLE LEADER |
| QP | 6 | QUERCUS PALUSTRIS | PIN OAK | 2" -2 1/2" CAL | B&B | SINGLE LEADER |
| ZS | 5 | ZELCOVA SERRATA 'AUTUMN GLOW' | JAPANESE ZELCOVA 'AUTUMN GLOW' | 2" -2 1/2" CAL | B&B | SINGLE LEADER |
| BN | 2 | BETULA NIGRA ' HERITAGE' | RIVER BIRCH 'HERITAGE' | 2" -2 1/2" CAL | B&B | MULTI-STEMMED |
| CC | 5 | CERCIS CANADENSIS | EASTERN REDBUD | 2" -2 1/2" CAL | B&B | MULTI-STEMMED |
| **SHRUBS** | | | | | | |
| CS | 80 | CORNUS SERICEA 'ARTIC FIRE' | REDOSIER DOGWOOD | 5 GAL | CONT. | |
| IG | 82 | ILEX GLABRA 'NIGRA' | INKBERRY | 5 GAL | CONT. | |
| **PERENNIALS/ GRASSES** | | | | | | |
| BR | 16 | ATHYRIUM X'BRANFORD RAMBLER' | FERN 'BRANFORD RAMBLER' | 1 QT | CONT. | SPACING 15-18" |
| CM | 220 | CAREX MORROW II ' ICE DANCE' | SEDGE 'ICE DANCE' | 1 QT | CONT. | SPACEING 12-15" |
| LS | 125 | LIATRIS SPICATA 'KOBOLD' | SPIKED GAY FEATHER 'KOBOLD' | 1 QT | CONT. | SPACING 24"-30" |
| LP | 7040 | LIRIOPE MUSCARI 'BIG BLUE' | LILYTURF 'BIG BLUE' | 1 QT | CONT. | SPACING 12" O.C. |
| RF | 900 | RUDBECKIA FULGIDA VAR. SULLIVANTII 'LITTLE GOLD STAR' | BLACK EYED SUSAN | 1 QT | CONT. | SPACING 12-15" |

NOTES:

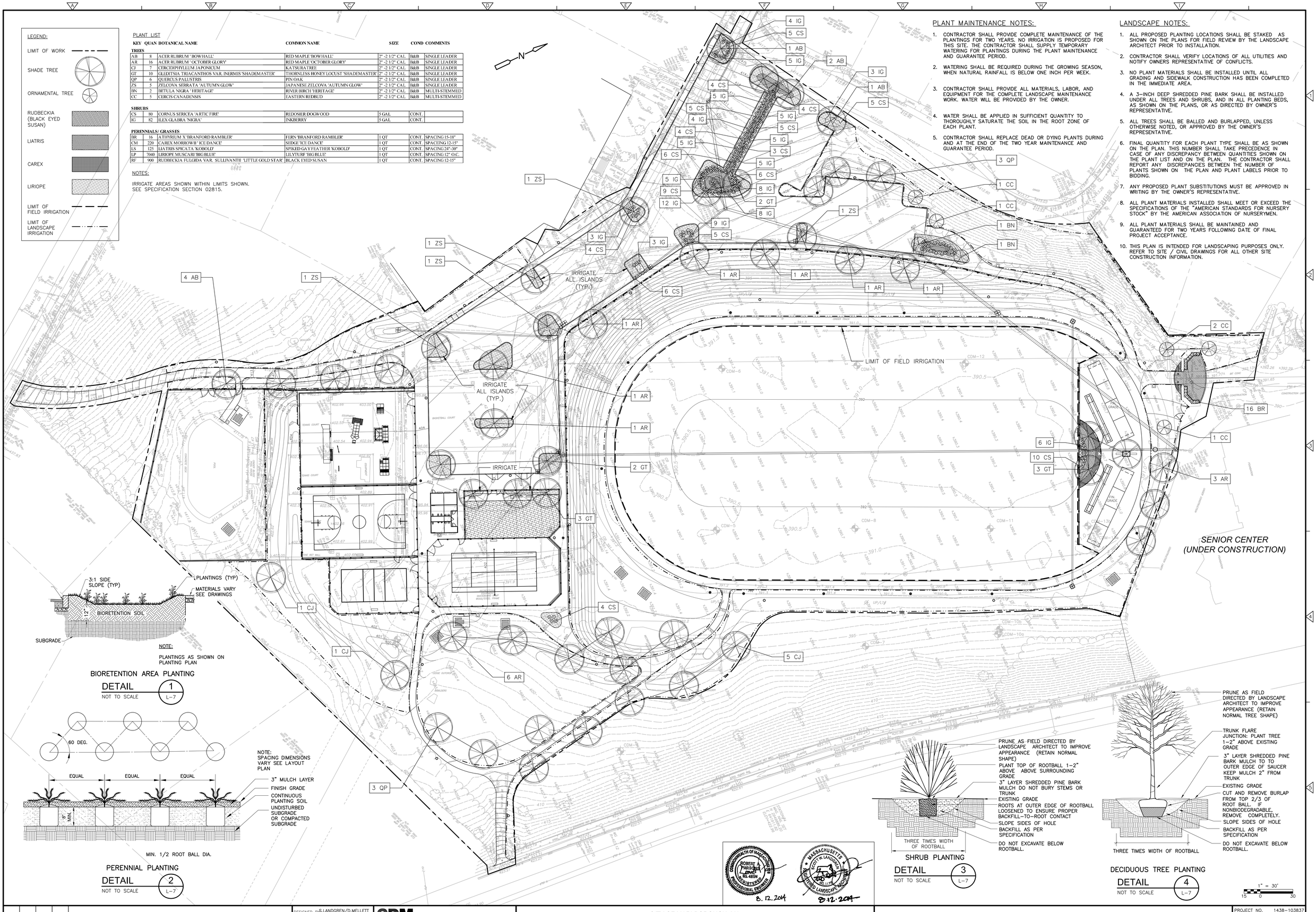
IRRIGATE AREAS SHOWN WITHIN LIMITS SHOWN.
SEE SPECIFICATION SECTION 02815.

PLANT MAINTENANCE NOTES:

1. CONTRACTOR SHALL PROVIDE COMPLETE MAINTENANCE OF THE PLANTINGS FOR TWO YEARS. NO IRRIGATION IS PROPOSED FOR THIS SITE. THE CONTRACTOR SHALL SUPPLY TEMPORARY WATERING FOR PLANTINGS DURING THE PLANT MAINTENANCE AND GUARANTEE PERIOD.
2. WATERING SHALL BE REQUIRED DURING THE GROWING SEASON, WHEN NATURAL RAINFALL IS BELOW ONE INCH PER WEEK.
3. CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT FOR THE COMPLETE LANDSCAPE MAINTENANCE WORK. WATER WILL BE PROVIDED BY THE OWNER.
4. WATER SHALL BE APPLIED IN SUFFICIENT QUANTITY TO THOROUGHLY SATURATE THE SOIL IN THE ROOT ZONE OF EACH PLANT.
5. CONTRACTOR SHALL REPLACE DEAD OR DYING PLANTS DURING AND AT THE END OF THE TWO YEAR MAINTENANCE AND GUARANTEE PERIOD.

LANDSCAPE NOTES:

1. ALL PROPOSED PLANTING LOCATIONS SHALL BE STAKED AS SHOWN ON THE PLANS FOR FIELD REVIEW BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL UTILITIES AND NOTIFY OWNERS REPRESENTATIVE OF CONFLICTS.
3. NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND SIDEWALK CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
4. A 3-INCH DEEP SHREDDED PINE BARK SHALL BE INSTALLED UNDER ALL TREES AND SHRUBS, AND IN ALL PLANTING BEDS, AS SHOWN ON THE PLANS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
5. ALL TREES SHALL BE BALLED AND BURLAPPED, UNLESS OTHERWISE NOTED, OR APPROVED BY THE OWNER'S REPRESENTATIVE.
6. FINAL QUANTITY FOR EACH PLANT TYPE SHALL BE AS SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLAN AND PLANT LABELS PRIOR TO BIDDING.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE.
8. ALL PLANT MATERIALS INSTALLED SHALL MEET OR EXCEED THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
9. ALL PLANT MATERIALS SHALL BE MAINTAINED AND GUARANTEED FOR TWO YEARS FOLLOWING DATE OF FINAL PROJECT ACCEPTANCE.
10. THIS PLAN IS INTENDED FOR LANDSCAPING PURPOSES ONLY. REFER TO SITE / CIVIL DRAWINGS FOR ALL OTHER SITE CONSTRUCTION INFORMATION.




BIORETENTION AREA PLANTING
DETAIL 1 / L-7
NOT TO SCALE

PERENNIAL PLANTING
DETAIL 2 / L-7
NOT TO SCALE

SHRUB PLANTING
DETAIL 3 / L-7
NOT TO SCALE

DECIDUOUS TREE PLANTING
DETAIL 4 / L-7
NOT TO SCALE

COMMONWEALTH OF MASSACHUSETTS ROBERT A. PARSONS No. 46934 REGISTERED PROFESSIONAL ENGINEER 8.12.2014

COMMONWEALTH OF MASSACHUSETTS SCOTT W. LANDGREN No. 1172 REGISTERED LANDSCAPE ARCHITECT 8.12.2014

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: S.LANDGREN/D.MELLETT
DRAWN BY: D.MELLETT
SHEET CHK'D BY: S.LANDGREN
CROSS CHK'D BY: J.OLCOTT
APPROVED BY: S.LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

PLANTING PLAN

PROJECT NO. 1438-103837
FILE NAME: L007PLPL.dwg

SHEET NO.
L-7

1438-80000

XREFs: [C0000BSPL, Y11500WS, CDMS_3042, C0010RWP] Images: [Stamp]
Last saved by: MELLETTDA Time: 8/13/2014 12:36:53 PM
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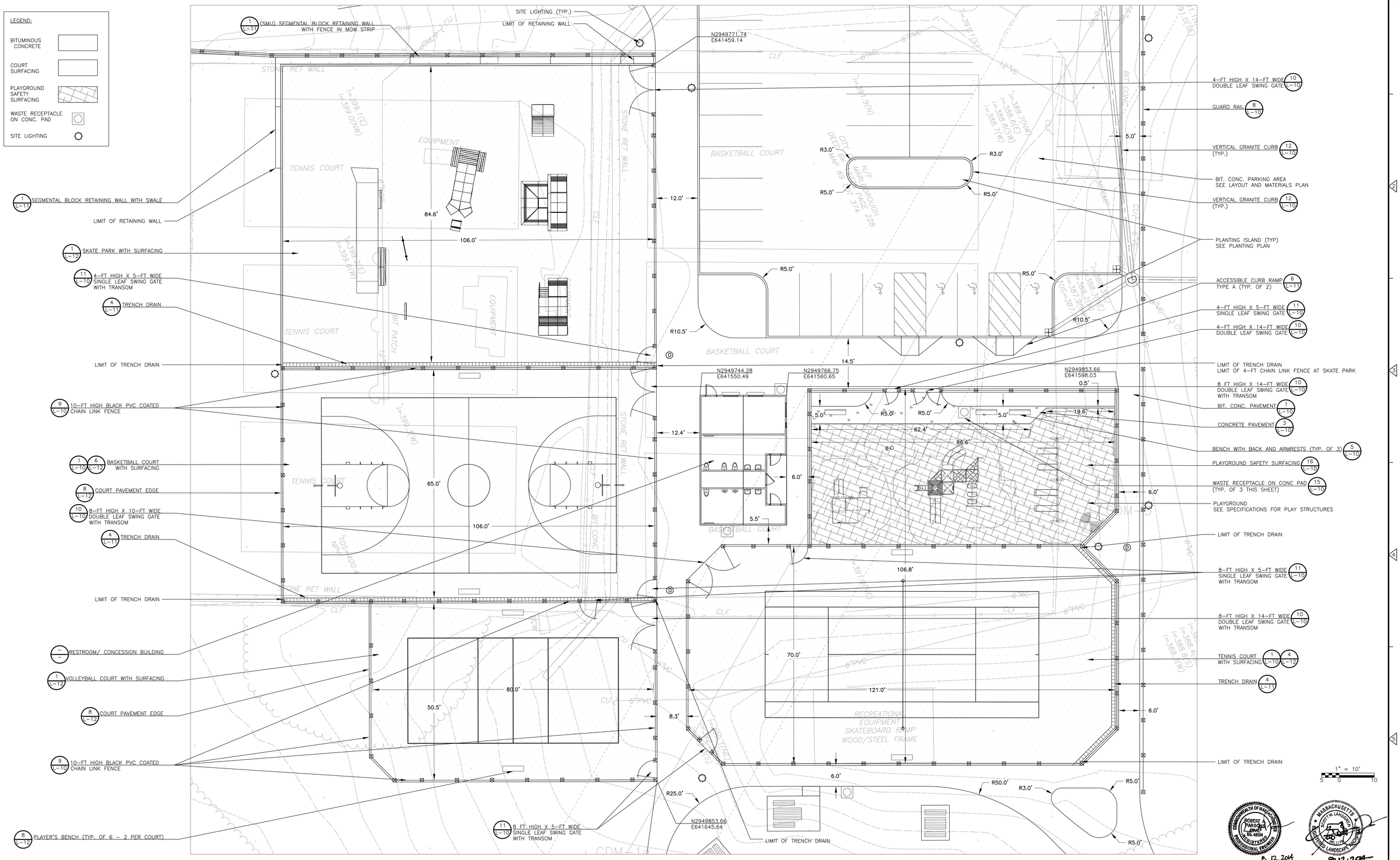
**NOTES:**

1. ALL DIMENSIONS SHOWN ARE IN FEET.

2. PROJECT LAYOUT IS BASED ON BENCH MARKS AND HORIZONTAL CONTROL POINTS AS SHOWN ON EXISTING CONDITIONS PLAN SHEET EX-1.

3. ALL AREAS WITHIN LIMIT OF WORK NOT COVERED WITH STRUCTURES, PADS, PAVEMENT, NATURALL TURF, WASHED STONE, OR RIPRAP SHALL RECEIVE A 6-IN LAYER OF LOAM AND PLANTED WITH LOAM AND SEED. SEE THIS PLAN AND SPECIFICATIONS.

5. CONTRACTOR SHALL MAKE EVERY EFFORT TO ENSURE THAT FRESHLY POURED CONCRETE SLABS DO NOT BECOME VANDALIZED DURING THE CURING PROCESS. ANY SLABS THAT ARE VANDALIZED SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE CONTRACT.




| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: S.LANDGREN/D.MELLETT
DRAWN BY: D.MELLETT
SHEET CHK'D BY: S.LANDGREN
CROSS CHK'D BY: J.OLCOTT
APPROVED BY: S.LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

SITE ENLARGEMENT PLAN

PROJECT NO. 1438-103837
FILE NAME: L008STPL.dwg

SHEET NO.
L-8

1438-80001

XREFs: [CDMS_3042_C000BSPL_C001DRWP_Y1150WS] Images: [Stamp]
Last saved by: MELLETTDA Time: 8/13/2014 9:39:20 AM
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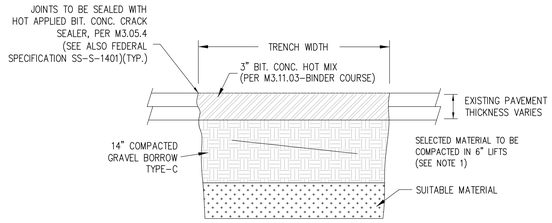


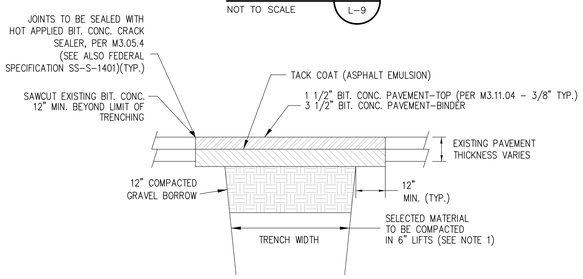

NOTE 1:

COMPACTION EQUIPMENT SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS TO OBTAIN THE COMPACTION STANDARDS DESCRIBED IN THE CONSTRUCTION NOTES, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. IN PROXIMITY TO STRUCTURES, A JUMPING JACK COMPACTOR SHALL BE REQUIRED.

## TEMPORARY TRENCH PAVING TYPICAL SECTION

N.T.S

**DETAIL 1** NOT TO SCALE L-9



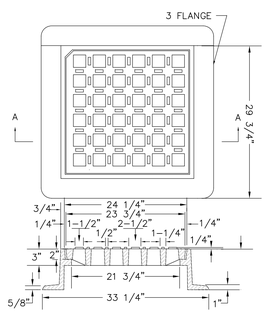

NOTE 1:

COMPACTION EQUIPMENT SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS TO OBTAIN THE COMPACTION STANDARDS DESCRIBED IN THE CONSTRUCTION NOTES UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. IN PROXIMITY TO STRUCTURES, A JUMPING JACK COMPACTOR SHALL BE REQUIRED.

## TYPICAL FINAL TRENCH PAVING

N.T.S

**DETAIL 2** NOT TO SCALE L-9



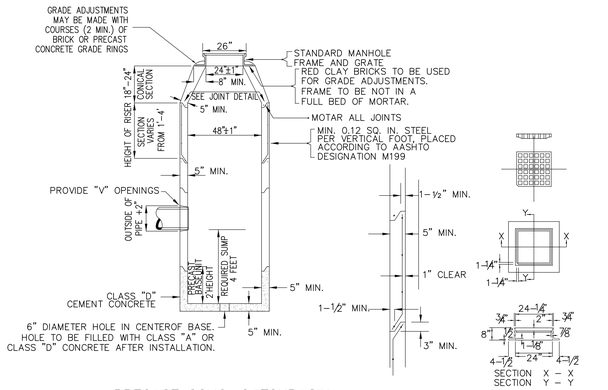

SECTION A-A

NOTE: FRAME AND GRATE SHALL BE HEAVY DUTY CLASS 30 GRAY IRON.

## CATCH BASIN FRAME AND GRATE

N.T.S.

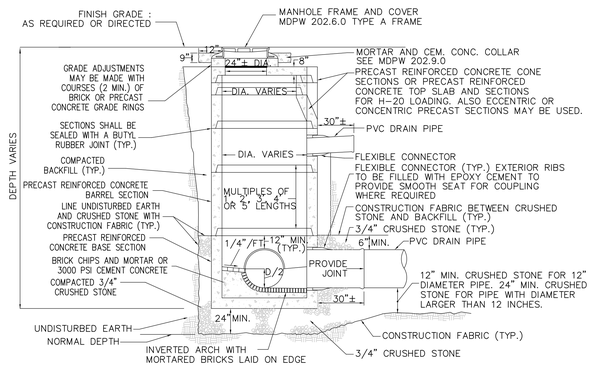
**DETAIL 3** NOT TO SCALE L-9




## PRECAST CONC. CATCHBASIN

N.T.S.

**DETAIL 4** NOT TO SCALE L-9



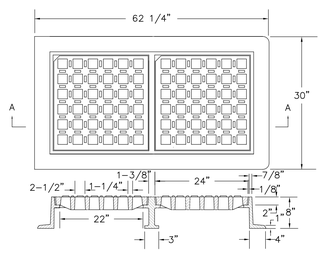

NOTES

1. THE MANHOLE SHALL BE PRECAST CEMENT CONCRETE MANUFACTURED IN ACCORDANCE WITH ASTM C-478 DESIGNED FOR H-20 LOADING. MANHOLES SHALL BE 48" DIA. UNLESS OTHERWISE INDICATED ON GENERAL PLANS.
2. CONSTRUCTION FABRIC SHALL BE INSTALLED WITH A MINIMUM 1 FOOT OVERLAP AT JOINTS. THE FABRIC SHALL ALSO OVERLAP BETWEEN THE GRAVEL BORROW AND CRUSHED STONE, OVER PIPE AND AT MANHOLES.
3. PVC PIPE FOR LATERAL CONNECTIONS SHALL BE INSTALLED AND TEMPORARILY PLUGGED AS REQUIRED OR DIRECTED.
4. SEE GENERAL PLANS FOR PIPE SIZE, LINE AND GRADE.
5. BACKFILL MATERIAL SHALL CONSIST OF SUITABLE EXCAVATED MATERIAL AND/OR GRAVEL BORROW AS DIRECTED BY THE ENGINEER.

## PRECAST CONCRETE DRAIN MANHOLE

N.T.S.

**DETAIL 5** NOT TO SCALE L-9



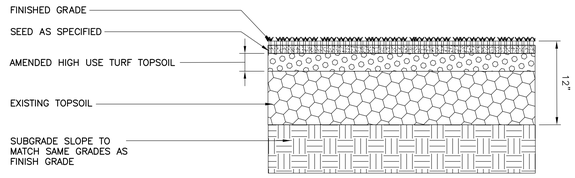

SECTION A-A

NOTE: FRAME AND GRATE SHALL BE HEAVY DUTY CLASS 30 GRAY IRON.

## DOUBLE CATCH BASIN FRAME AND GRATE

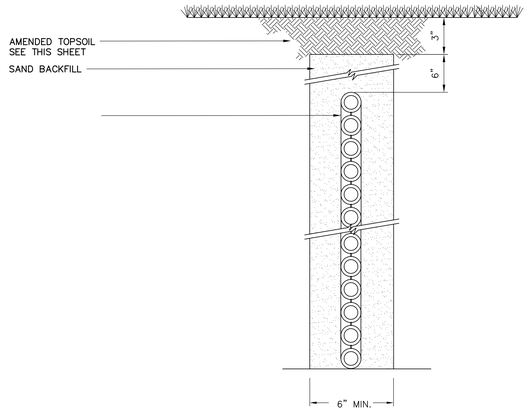
N.T.S.

**DETAIL 6** NOT TO SCALE L-9



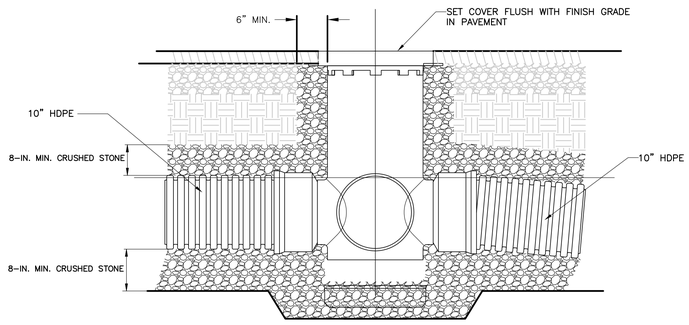

## NATURAL TURF FIELD

**DETAIL 7** NOT TO SCALE L-9



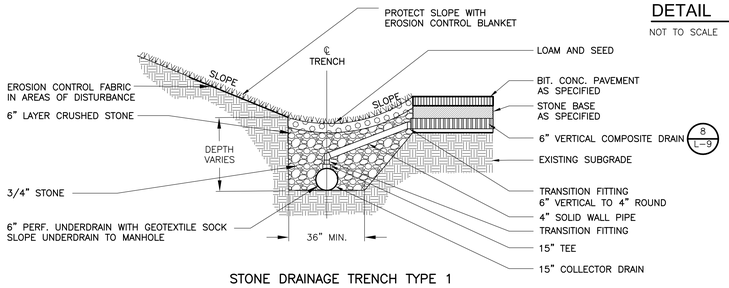

## VERTICAL COMPOSITE DRAIN

**DETAIL 8** NOT TO SCALE L-9




## HDPE DRAIN CATCH BASIN

**DETAIL 9** NOT TO SCALE L-9




## STONE DRAINAGE TRENCH TYPE 1

**DETAIL 10** NOT TO SCALE L-9

COMMONWEALTH OF MASSACHUSETTS ROBERT A. PARSONS JR. NO. 49094 REGISTERED PROFESSIONAL ENGINEER 8.12.2014

MASSACHUSETTS SCOTT W. LANDGREN NO. 1313 REGISTERED LANDSCAPE ARCHITECT 8-12-2014

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: D.MELLET/S.LANDGREN
DRAWN BY: D.MELLET
SHEET CHK'D BY: S.LANDGREN
CROSS CHK'D BY: J.OLCOTT
APPROVED BY: S.LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

DETAILS I - DRAINAGE

PROJECT NO. 1438-103837
FILE NAME: L009DRDT.dwg
SHEET NO. L-9
1438-80002

XREFs: [CDMS_3042] Images: []
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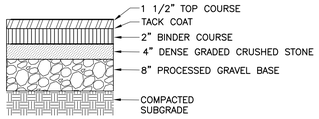
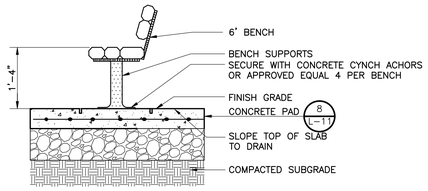



BIT. CONC. PAVEMENT

DETAIL 1 / L-10

NOT TO SCALE

1.) BASE COURSE SHALL EXTEND 3" MIN. BEYOND EDGE OF PAVEMENT

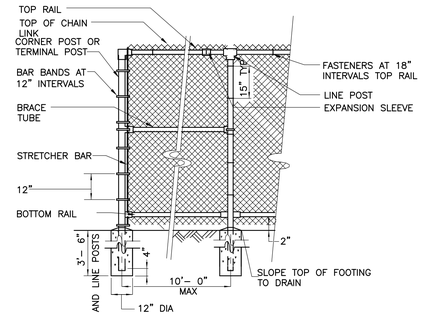



SECTION

DIRECT MOUNT BENCH

DETAIL 5 / L-10

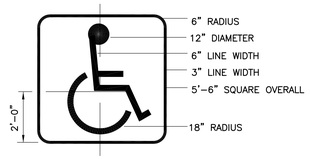
NOT TO SCALE




CHAIN LINK FENCE

DETAIL 9 / L-10

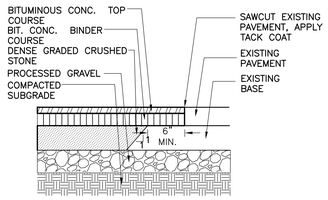
NOT TO SCALE




HANDICAP PAVEMENT SYMBOL

DETAIL 13 / L-10

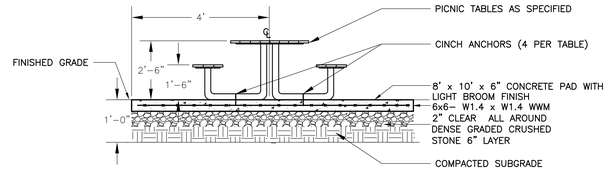
NOT TO SCALE




PAVEMENT MATCH

DETAIL 2 / L-10

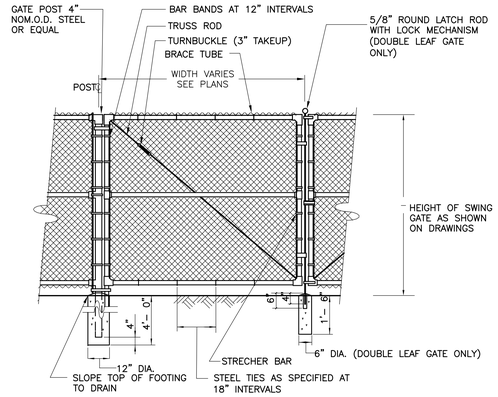
NOT TO SCALE




PICNIC TABLE ON 8'W x 10'L CONC. PAD

DETAIL 6 / L-10

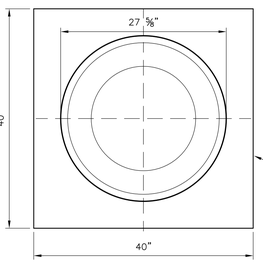
NOT TO SCALE



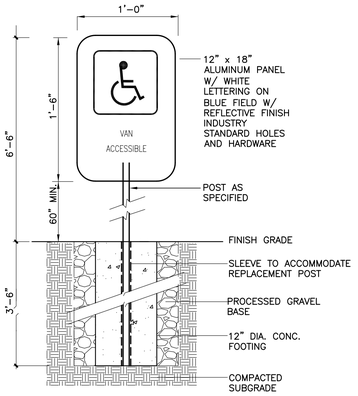

CHAIN LINK FENCE-DBL LEAF SWING GATE

DETAIL 10 / L-10

NOT TO SCALE



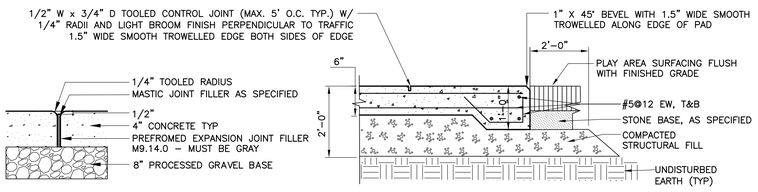

PLAN




ACCESSIBLE PARKING SIGN

DETAIL 14 / L-10

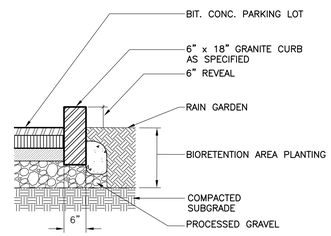
NOT TO SCALE




CONCRETE PAVEMENT AND JOINTS AT PLAY AREA

DETAIL 3 / L-10

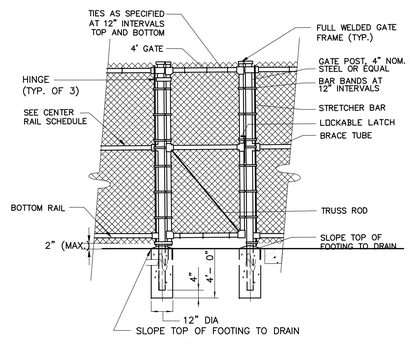
NOT TO SCALE




RAISED GRANITE CURB

DETAIL 7 / L-10

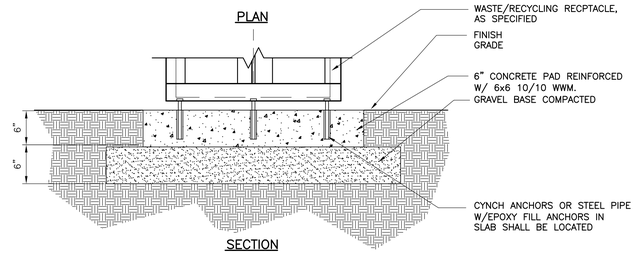
NOT TO SCALE




CHAIN LINK FENCE PEDESTRIAN GATE

DETAIL 11 / L-10

NOT TO SCALE

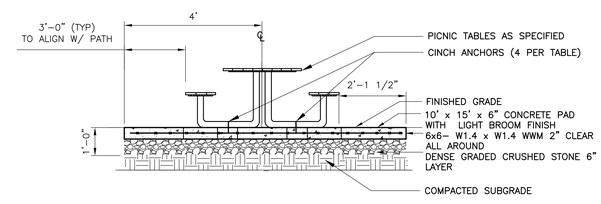


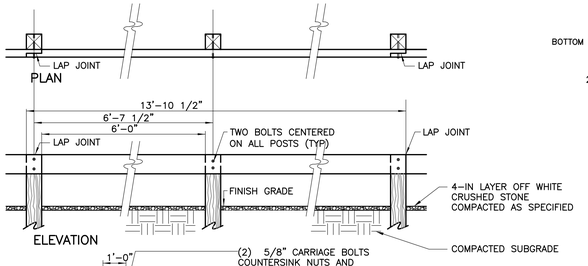

SECTION

WASTE / RECYCLING RECEPTACLE

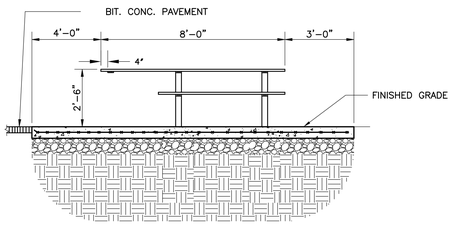
DETAIL 15 / L-10

NOT TO SCALE



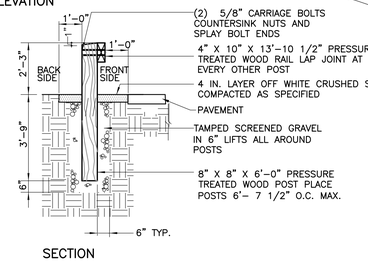

ELEVATION




ACCESSIBLE PICNIC TABLE ON 10'W x 15'L CONC. PAD

DETAIL 4 / L-10

NOT TO SCALE

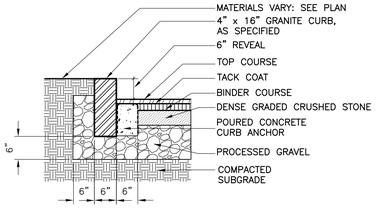



SECTION

WOOD GUARDRAIL

DETAIL 8 / L-10

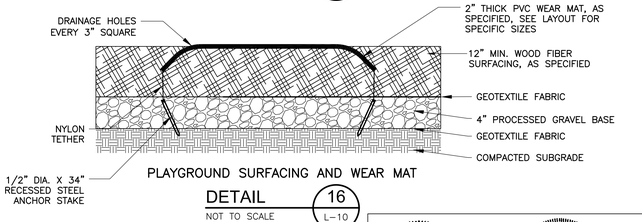
NOT TO SCALE




VERTICAL GRANITE CURB

DETAIL 12 / L-10

NOT TO SCALE




PLAYGROUND SURFACING AND WEAR MAT

DETAIL 16 / L-10

NOT TO SCALE

COMMONWEALTH OF MASSACHUSETTS ROBERT A. PARSONS JR. NO. 48694 REGISTERED PROFESSIONAL ENGINEER

8.12.2014

MASSACHUSETTS SCOTT W. LANDGREN NO. 1311 REGISTERED LANDSCAPE ARCHITECT

8.12.2014

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: D.MELLET/S.LANDGREN
DRAWN BY: D.MELLET
SHEET CHK'D BY: S.LANDGREN
CROSS CHK'D BY: J.OLCOTT
APPROVED BY: S.LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

DETAILS II - SITE DETAILS

PROJECT NO. 1438-103837
FILE NAME: L010STDT.dwg
SHEET NO. L-10
1438-80003

XREFs: [CDMS_3042] Images: []
Last saved by: MELLETTDA Time: 8/13/2014 7:23:36 AM
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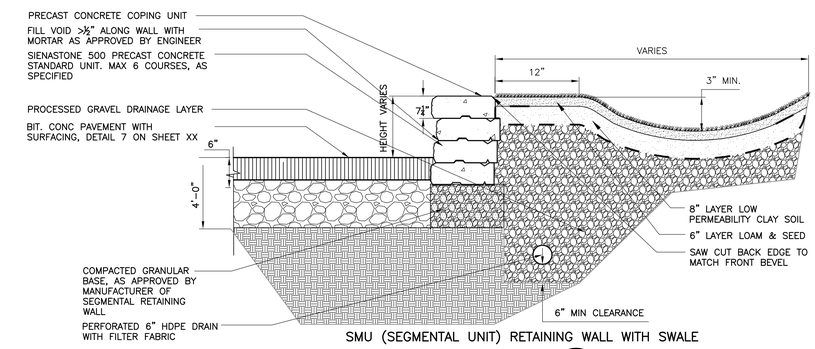
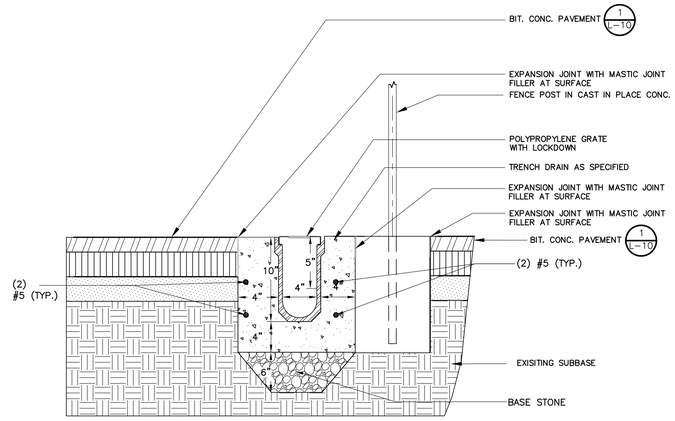


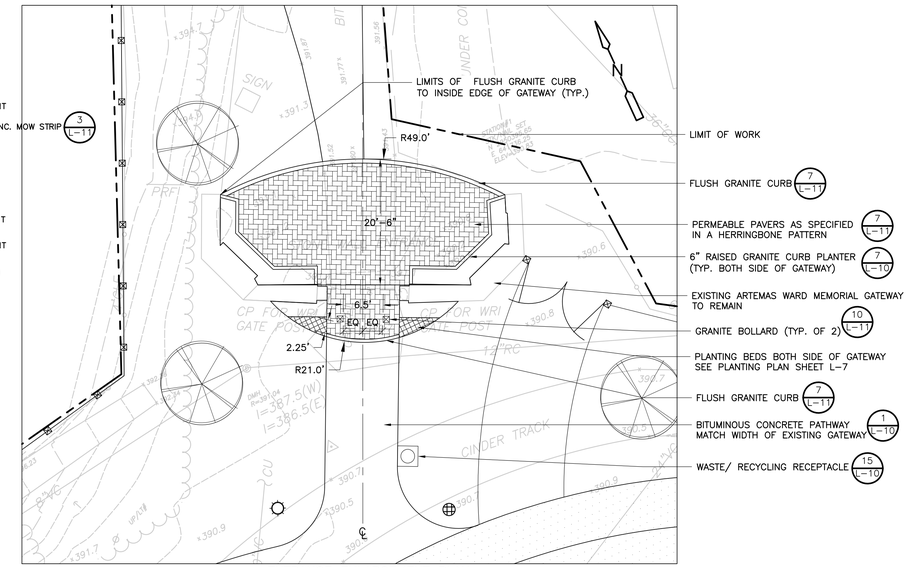

SMU (SEGMENTAL UNIT) RETAINING WALL WITH SWALE

SECTION 1 / L-11
NOT TO SCALE



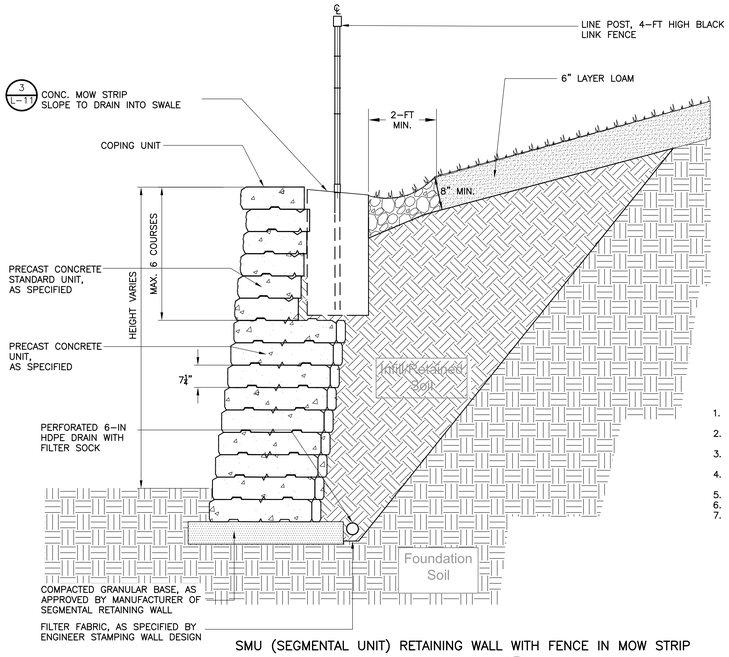

CONCRETE TURF CURB WITH TRENCH DRAIN

DETAIL 4 / L-11
NOT TO SCALE



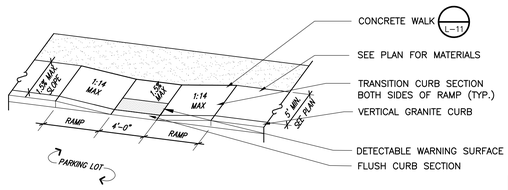

ENTRANCE ENLARGEMENT PLAN

DETAIL 12 / L-11
1"=10'-0"




SMU (SEGMENTAL UNIT) RETAINING WALL WITH FENCE IN MOW STRIP

SECTION 2 / L-11
NOT TO SCALE

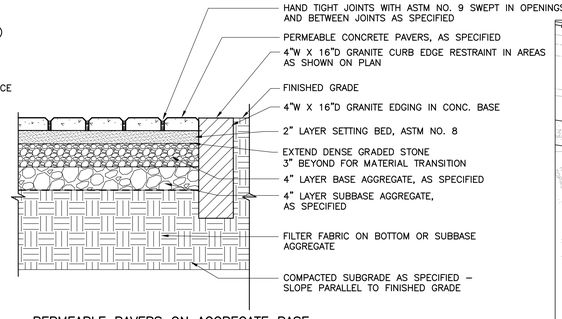



NOTES:

1. DIMENSIONS ARE SUBJECT TO CHANGE IN FIELD. ALL SLOPES AND DIMENSIONS TO COMPLY WITH A.D.A. AND MAAB REQUIREMENTS.
2. PROVIDE EXPANSION JOINT AT TOPS OF RAMP AND AT BACK OF WALK AT INTERFACE OF CURB.
3. PROVIDE HEAVY BROOM FINISH ON RAMP AND SIDE SLOPES PERPENDICULAR TO FLOW OF TRAFFIC.
4. MINIMUM WALK DIMENSIONS ARE FROM BACK OF CURB. TRANSITION CURB LENGTH AS REQUIRED TO MEET CODE.
5. FIXED OBJECTS (i.e. UTILITY POLES, HYDRANTS ETC.) MUST NOT ENCROACH ON ANY
6. PART OF A WHEELCHAIR RAMP, INCLUDING TRANSITION SLOPES.
7. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP, EXCLUDING CURB TRANSITIONS, TO BE LOCATED OUTSIDE OF THE CROSSWALK.

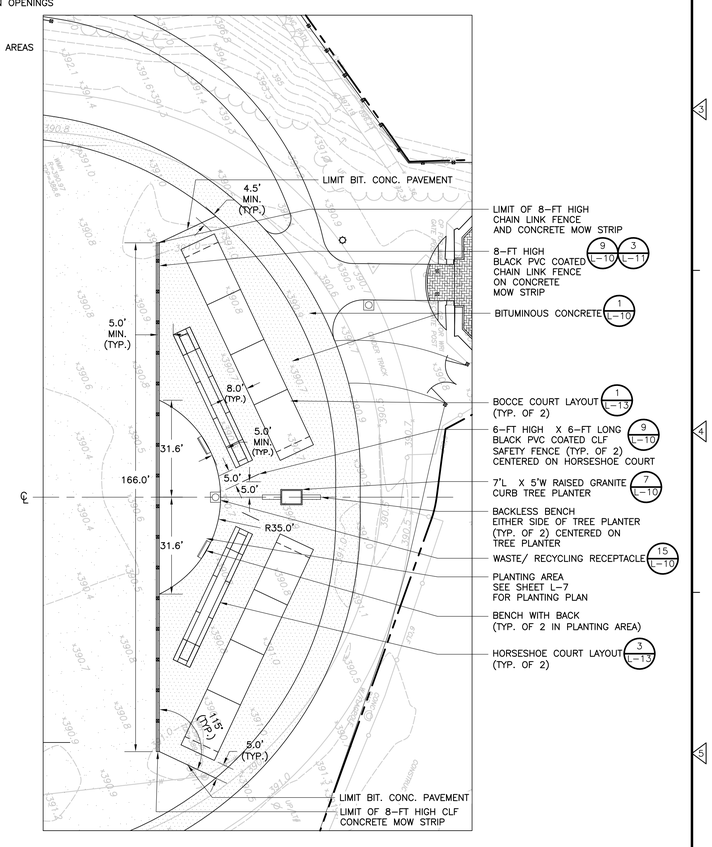
ACCESSIBLE CURB RAMP TYPE I

DETAIL 5 / L-11
NOT TO SCALE



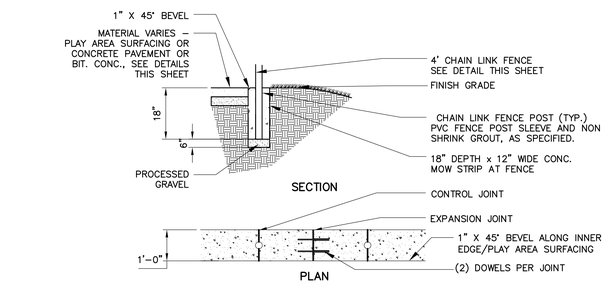

PERMEABLE PAVERS ON AGGREGATE BASE

DETAIL 7 / L-11
NOT TO SCALE



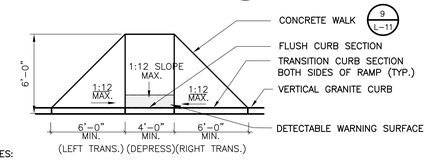

BOCCE/ HORSHOE COURTS ENLARGEMENT

DETAIL 13 / L-11
1"=20'-0"




CAST IN PLACE CONC. MOW STRIP/CURB

DETAIL 3 / L-11
NOT TO SCALE

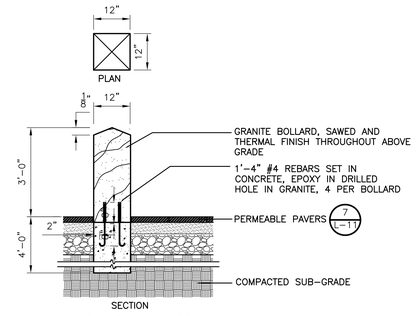



NOTES:

1. DIMENSIONS ARE SUBJECT TO CHANGE IN FIELD. ALL SLOPES AND DIMENSIONS TO COMPLY WITH A.D.A. AND MAAB REQUIREMENTS.
2. PROVIDE EXPANSION JOINT AT TOPS OF RAMP AND AT BACK OF WALK AT INTERFACE OF CURB.
3. PROVIDE HEAVY BROOM FINISH ON RAMP AND SIDE SLOPES PERPENDICULAR TO FLOW OF TRAFFIC.
4. MINIMUM WALK DIMENSIONS ARE FROM BACK OF CURB. TRANSITION CURB LENGTH AS REQUIRED TO MEET CODE.
5. FIXED OBJECTS (i.e. UTILITY POLES, HYDRANTS ETC.) MUST NOT ENCROACH ON ANY
6. PART OF A WHEELCHAIR RAMP, INCLUDING TRANSITION SLOPES.
7. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP, EXCLUDING CURB TRANSITIONS, TO BE LOCATED OUTSIDE OF THE CROSSWALK.

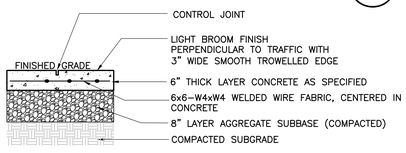
ACCESSIBLE CURB RAMP

DETAIL 6 / L-11
NOT TO SCALE



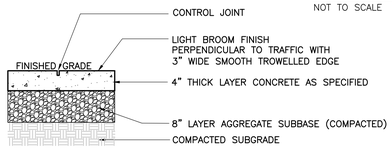

GRANITE BOLLARD

DETAIL 10 / L-11
NOT TO SCALE




CONCRETE PAD

DETAIL 8 / L-11
NOT TO SCALE




CONCRETE WALK

DETAIL 9 / L-11
NOT TO SCALE

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: D.MELLET/S.LANDGREN
DRAWN BY: D.MELLET
SHEET CHK'D BY: S.LANDGREN
CROSS CHK'D BY: J.OLCOTT
APPROVED BY: S.LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

DETAILS III - SITE DETAILS

PROJECT NO. 1438-103837
FILE NAME: L011STDT.dwg
SHEET NO. L-11
1438-80004

XREFs: [CCOOBSPL, CCOOSVPL, CDMS_3042] Images: []
Last saved by: MELLETDA Time: 8/13/2014 9:21:40 AM
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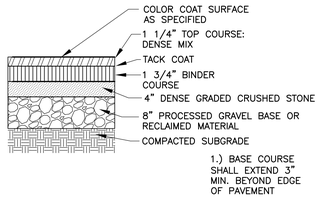
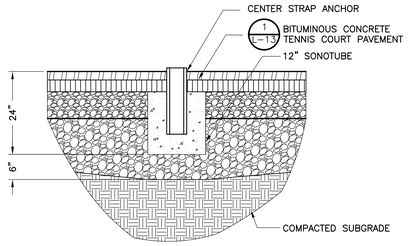


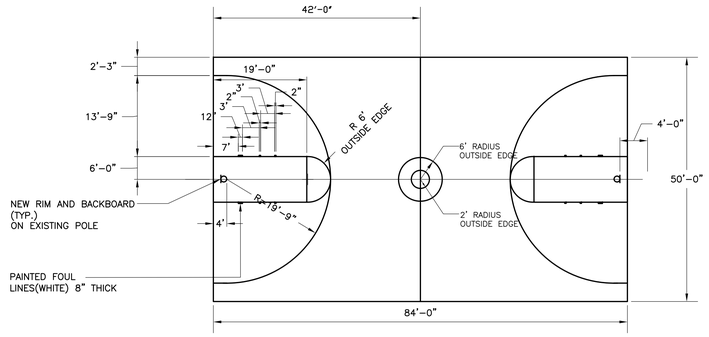

BIT. CONC. TENNIS COURT/BASKETBALL PAVEMENT

DETAIL 1 / L-12
NOT TO SCALE




TENNIS NET CENTER STRAP ANCHOR

DETAIL 3 / L-12
NOT TO SCALE

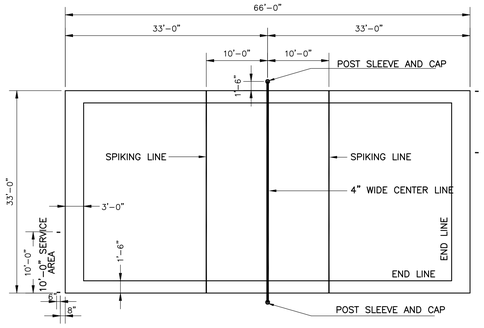



BASKETBALL COURT LAYOUT

DETAIL 6 / L-12
NOT TO SCALE

NOTES:

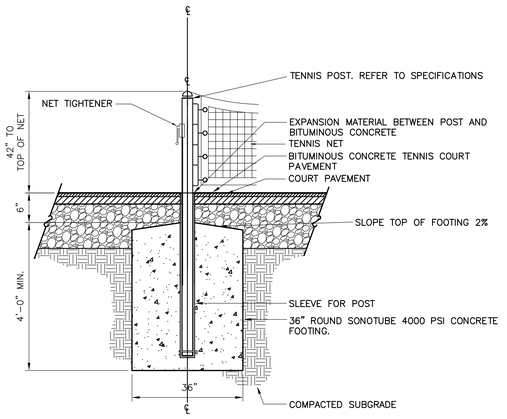
1. COURT LAYOUT LINES PAINTED 2" WIDE (WHITE).
2. PAINTED LINE DIMENSIONS APPLY FOR BOTH ENDS OF COURT.
3. ALL DIMENSION LINES APPLY TO INSIDE EDGE OF PAINTED LINES.




VOLLEYBALL COURT

DETAIL 9 / L-12
N.T.S.
NOT TO SCALE

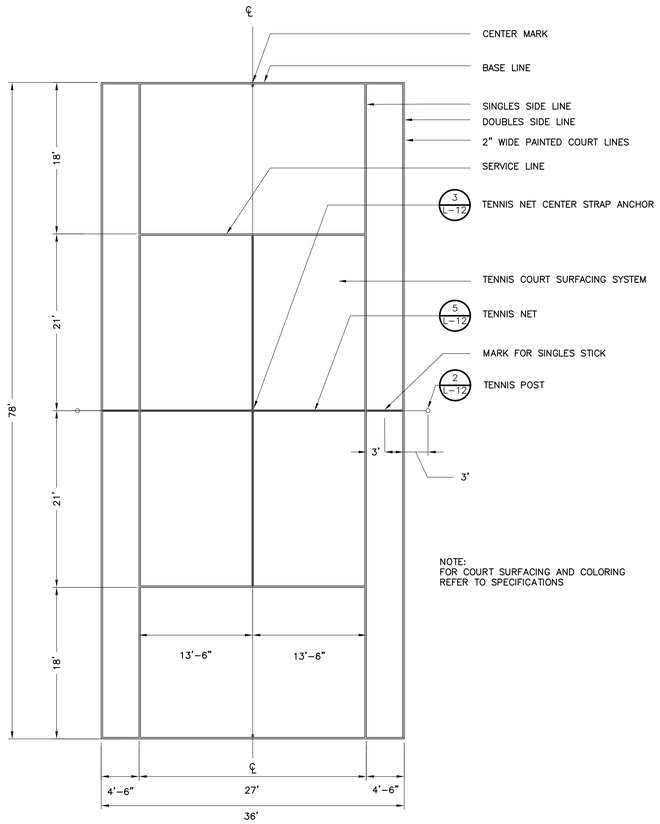
NOTE:
1. ALL DIMENSIONS ARE TO INSIDE EDGE OF LINES EXCEPT AS NOTED.
2. ALL LINES ARE 2" WIDE, EXCEPT AS NOTED, COLOR YELLOW




TENNIS POST

DETAIL 2 / L-12
NOT TO SCALE

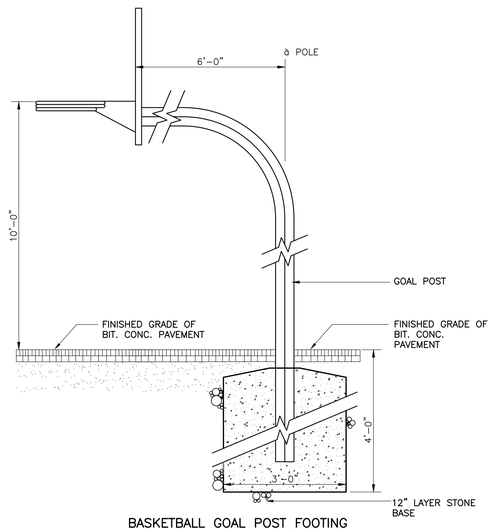
NOTE:
ALL POSTS TO BE SET IN SLEEVE SUBSEQUENT TO PAVING AND SURFACING. SECURE WITH "POUR ROCK" OR EQUAL.




TENNIS COURT LAYOUT

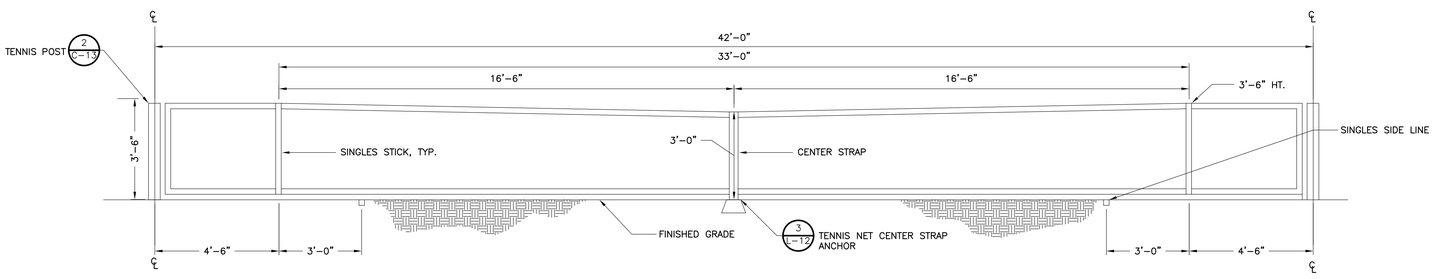
DETAIL 4 / L-12
NOT TO SCALE

NOTE:
FOR COURT SURFACING AND COLORING REFER TO SPECIFICATIONS



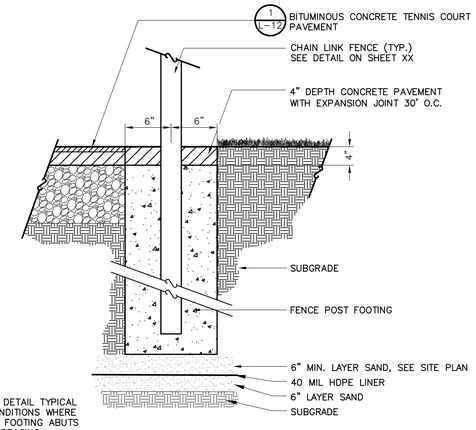

BASKETBALL GOAL POST FOOTING

DETAIL 7 / L-12
NOT TO SCALE




TENNIS NET

DETAIL 5 / L-12
NOT TO SCALE




NOTE: EDGE DETAIL TYPICAL FOR ALL CONDITIONS WHERE FENCE POST FOOTING ABUTS NATURAL SURFACING

BASKETBALL/ VOLLEY COURT PAVEMENT EDGE

DETAIL 8 / L-12
NOT TO SCALE

COMMONWEALTH OF MASSACHUSETTS ROBERT PARSONS JENKS No. 49094 REGISTERED PROFESSIONAL ENGINEER
8.12.2014

MASSACHUSETTS SCOTT W. LANDGREN NO. 1178 REGISTERED LANDSCAPE ARCHITECT
8-12-2014

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: D.MELLET/S.LANDGREN
DRAWN BY: D.MELLET
SHEET CHK'D BY: S.LANDGREN
CROSS CHK'D BY: J.OLCOTT
APPROVED BY: S.LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

DETAILS IV - SITE DETAILS

PROJECT NO. 1438-103837
FILE NAME: L012STDT.dwg
SHEET NO.
L-12
1438-80005

XREFs: [CDMS_3042] Images: []
Last saved by: MELLETDA Time: 8/13/2014 7:47:14 AM
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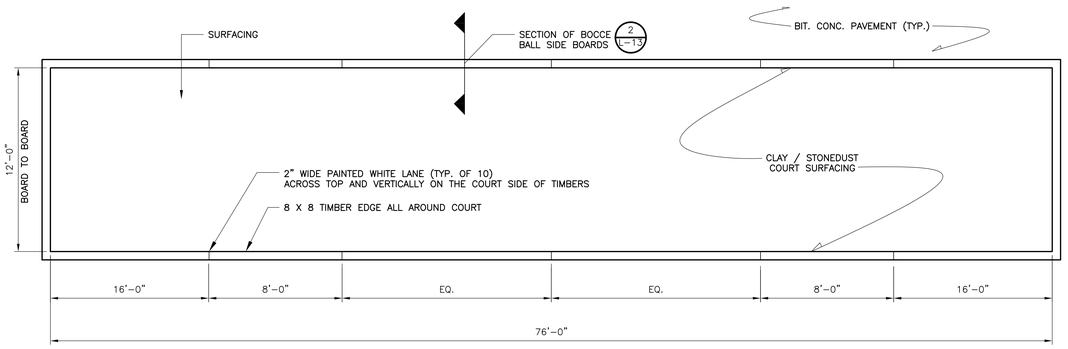
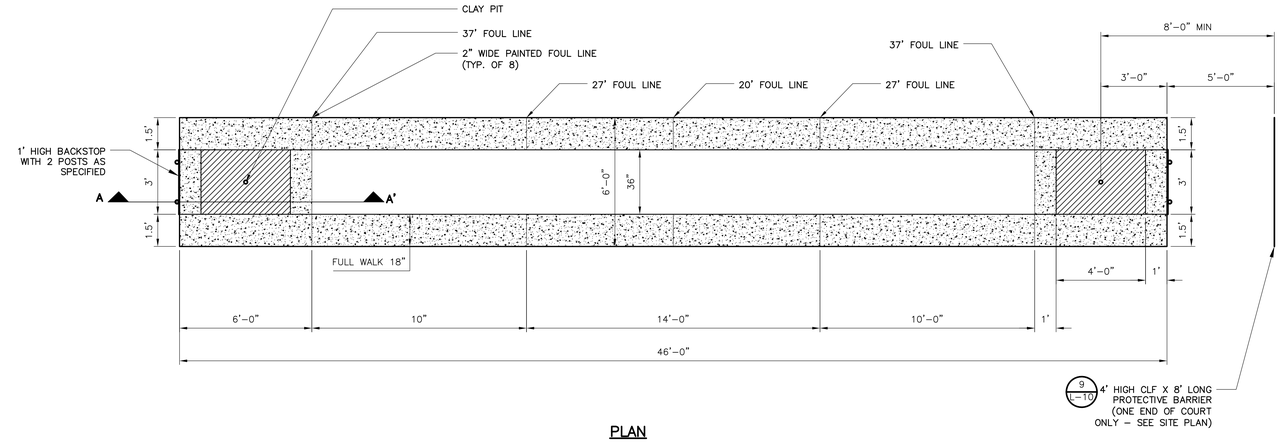



BOCCE COURT LAYOUT

DETAIL 1 / L-13

NOT TO SCALE

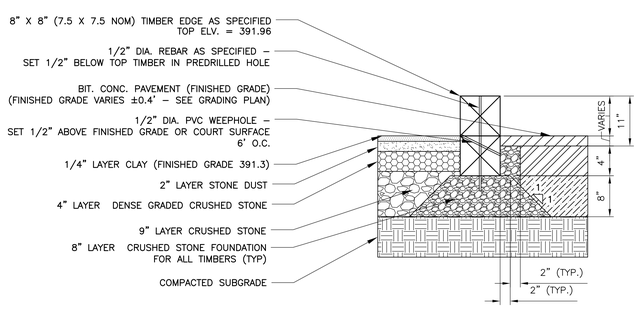



PLAN

HORSESHOE COURT LAYOUT

DETAIL 3 / L-13

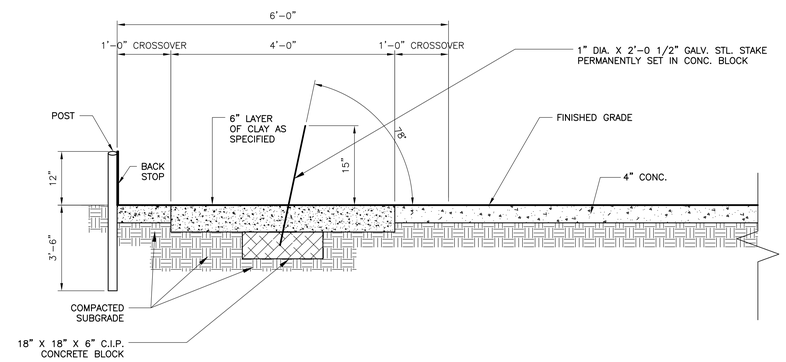
NOT TO SCALE




SECTION OF BOCCE BALL SIDE BOARDS

DETAIL 2 / L-13

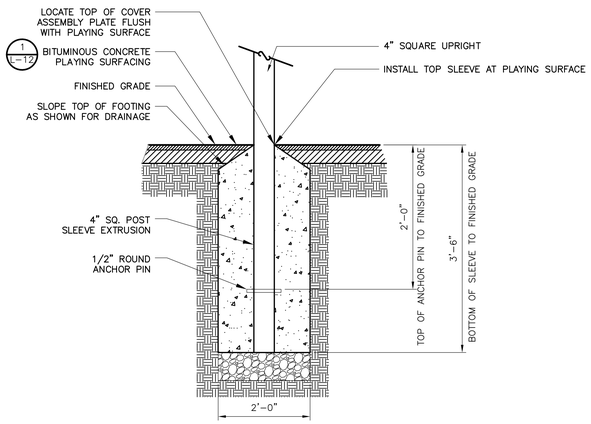
NOT TO SCALE




HORSESHOE COURT SECTION A–A' THROUGH PIT AREA

DETAIL 4 / L-13

NOT TO SCALE




VOLLEYBALL POST FOOTING

DETAIL 5 / L-13

NOT TO SCALE

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: D.MELLET/S.LANDGREN
DRAWN BY: D.MELLET
SHEET CHK'D BY: S.LANDGREN
CROSS CHK'D BY: J.OLCOTT
APPROVED BY: S.LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

DETAILS V - SITE DETAILS
BOCCE COURT & HORESHOES

PROJECT NO. 1438-103837
FILE NAME: L013STDT.dwg
SHEET NO.
L-13
1438-80006

XREFs: [CDMS_3042] Images: []
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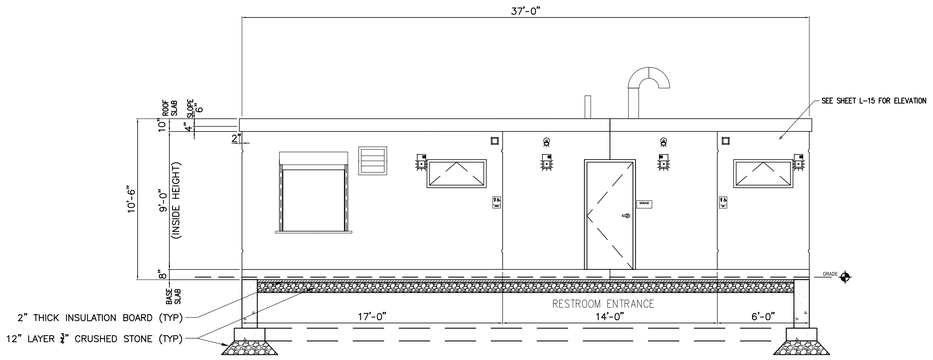
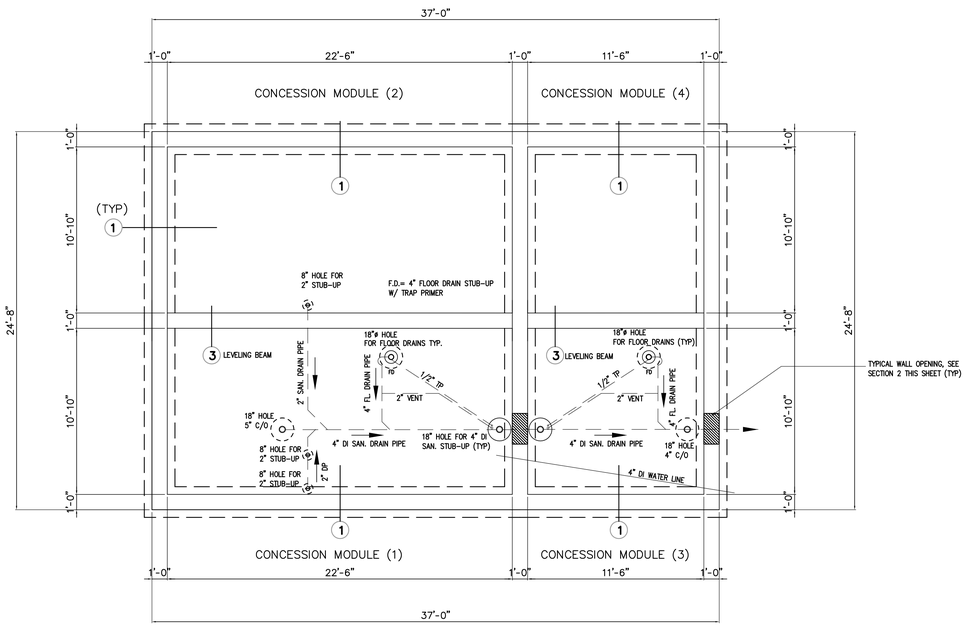



## ELEVATION

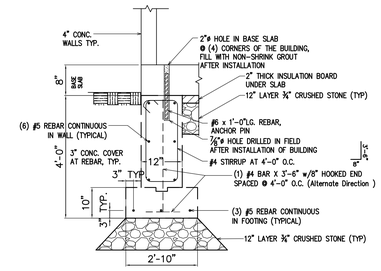
1/4" = 1'-0"




PRE–MANUFACTURED CONCRETE CONCESSION BUILDING FOUNDATION AND PIPING PLAN

## PLAN

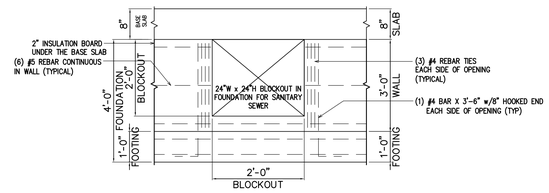
1/4" = 1'-0"




SECTION I: FOUNDATION WALL DETAIL

SECTION 1 / L-3

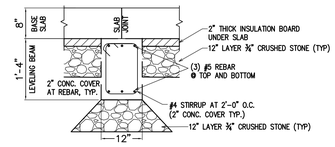
NTS




SECTION 2: TYPICAL WALL OPENING DETAIL

SECTION 2 / L-3

NTS




SECTION 3: LEVELING BEAM DETAIL

SECTION 3 / L-3

NTS

GENERAL NOTES:

1. THIS DRAWING HAS BEEN PROVIDED TO SHOW DESIGN INTENT FOR PROPOSAL PURPOSES ONLY AND SHALL NOT BE CONSIDERED FOR CONSTRUCTION.
2. THE DESIGN LAYOUT HAS BEEN PROVIDED BY UNITED CONCRETE PRODUCTS 173 CHURCH STREET, YALESVILLE, CT 06492, TEL. (800)234–3119, WWW.UNITEDCONCRETE.COM.
3. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FROM THE PRE–MANUFACTURED CONCRETE REST ROOM MANUFACTURER WHICH SHALL BE PREPARED BY AND BEAR THE STAMP OF A REGISTERED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT OF THE COMMONWEALTH OF MASSACHUSETTS.
4. ALL DRAWINGS SHALL COMPLY ALL APPLICABLE CODES INCLUDING 521 CMR MA ARCHITECTURAL ACCESS BOARD, ADA, MASS BUILDING CODE, MASS ELECTRICAL CODE, MODEL ENERGY CODE, BOCA INTERNATIONAL MECHANICAL CODE AND OTHER APPLICABLE CODES, LATEST EDITIONS.
6. ALL HANDICAP ACCESSIBLE TOILET STALLS SHALL MEET THE LATEST REQUIREMENTS OF 521 CMR 30 PUBLIC TOILET ROOMS.
7. CONTRACTOR SHALL VERIFY ALL REQUIRED PENETRATIONS IN FOUNDATIONS PRIOR TO CONSTRUCTION.
8. CONCRETE COMPRESSIVE STRENGTH: 5000 PSI @ 28 DAYS
9. STRUCTURES SHALL BE WET CAST USING A SELF COMPACTING CONCRETE MIX.
10. THE SUPPORTING BASE FOR THE STRUCTURES SHALL BE A CAST–IN–PLACE CONCRETE FOUNDATION WALL WITH FOOTING.
11. CONTRACTOR SHALL PROVIDE / VERIFY LOCATIONS AND SIZES OF ALL OPENINGS IN THE STRUCTURES.
12. THE CONTRACTOR SHALL PROVIDE FIVE SETS OF STAMPED SHOP DRAWINGS AND DESIGN CALCULATIONS, SUITABLE FOR CONSTRUCTION. THESE DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE CITY FOR A BUILDING PERMIT, AND TO THE ENGINEER FOR REVIEW.

1/4" = 1'- 0"

2 1 0 2 4

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: S. LANDGREN
DRAWN BY: M. DODSON
SHEET CHK'D BY: S. LANDGREN
CROSS CHK'D BY: J. OLCOTT
APPROVED BY: S. LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

DETAILS VI - RESTROOM BUILDING FOUNDATION PLAN

PROJECT NO. 1438–103837
FILE NAME: L014STDT.dwg

SHEET NO.

L-14

1438–80007

XREFs: [CDMS_3042] Images: []
Last saved by: DODSONMA Time: 8/12/2014 4:03:52 PM
pw:\\bocpwspp1.PW_MAIN\1438\103837\04 Design Services NM_50%\02 Civil\10 CADD\L014STDT.dwg
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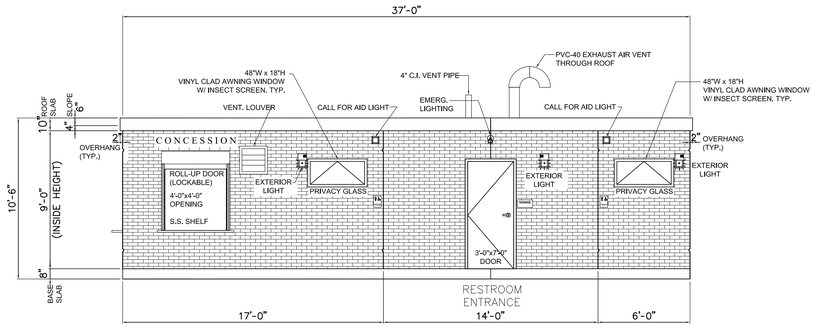
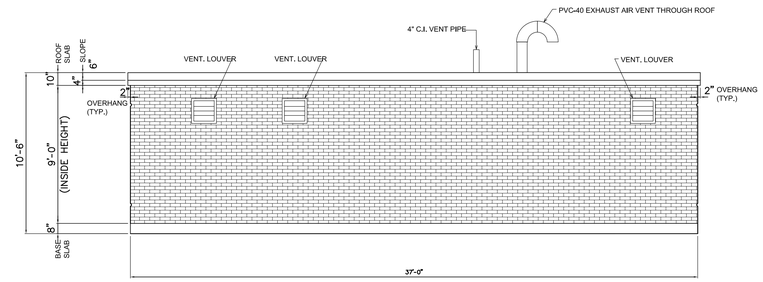



A

## ELEVATION

1/4" = 1'-0"




B

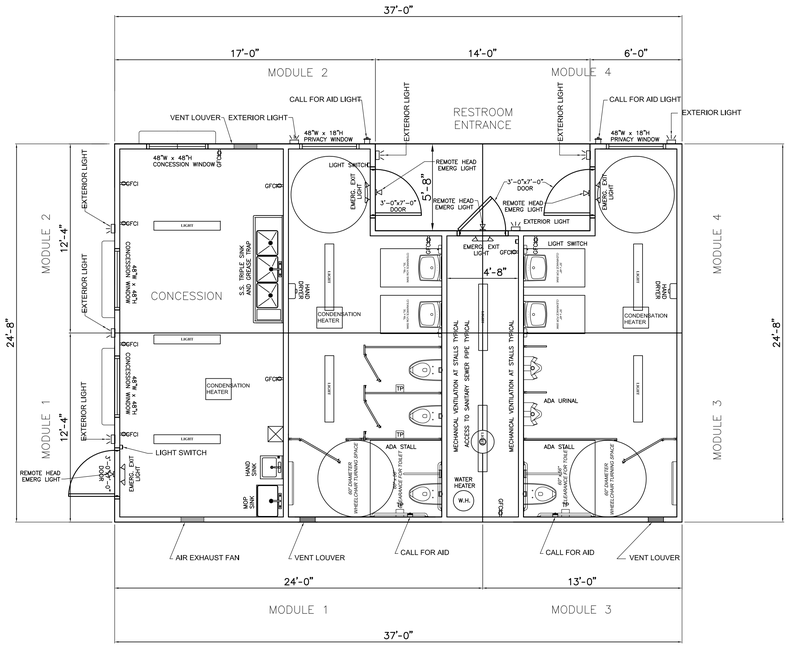
## ELEVATION

1/4" = 1'-0"

B

## ELEVATION

1/4" = 1'-0"




A

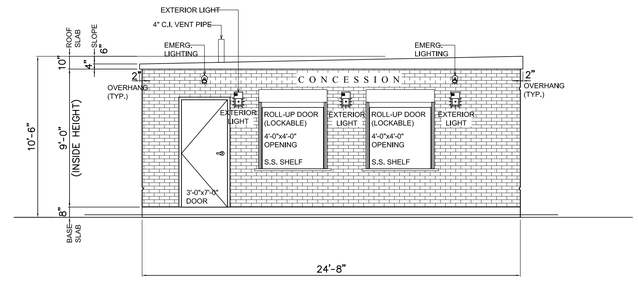
## ELEVATION

1/4" = 1'-0"

PRE-MANUFACTURED CONCRETE CONCESSION BUILDING

## PLAN

1/4" = 1'-0"




C

## ELEVATION

1/4" = 1'-0"

C

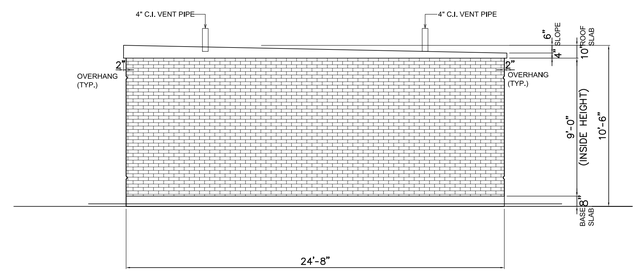
## ELEVATION

1/4" = 1'-0"

D

## ELEVATION

1/4" = 1'-0"




D

## ELEVATION

1/4" = 1'-0"

GENERAL NOTES:

1. THIS DRAWING HAS BEEN PROVIDED TO SHOW DESIGN INTENT FOR PROPOSAL PURPOSES ONLY AND SHALL NOT BE CONSIDERED FOR CONSTRUCTION.
2. THE DESIGN LAYOUT HAS BEEN PROVIDED BY UNITED CONCRETE PRODUCTS 173 CHURCH STREET, YALESVILLE, CT 06492, TEL. (800)234-3119, WWW.UNITEDCONCRETE.COM.
3. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FROM THE PRE-MANUFACTURED CONCRETE REST ROOM MANUFACTURER WHICH SHALL BE PREPARED BY AND BEAR THE STAMP OF A REGISTERED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT OF THE COMMONWEALTH OF MASSACHUSETTS.
4. ALL DRAWINGS SHALL COMPLY ALL APPLICABLE CODES INCLUDING 521 CMR MA ARCHITECTURAL ACCESS BOARD, ADA, MASS BUILDING CODE, MASS ELECTRICAL CODE, MODEL ENERGY CODE, BOCA INTERNATIONAL MECHANICAL CODE AND OTHER APPLICABLE CODES, LATEST EDITIONS.
6. ALL HANDICAP ACCESSIBLE TOILET STALLS SHALL MEET THE LATEST REQUIREMENTS OF 521 CMR 30 PUBLIC TOILET ROOMS.
7. CONTRACTOR SHALL VERIFY ALL REQUIRED PENETRATIONS IN FOUNDATIONS PRIOR TO CONSTRUCTION.
8. CONCRETE COMPRESSIVE STRENGTH: 5000 PSI @ 28 DAYS
9. STRUCTURES SHALL BE WET CAST USING A SELF COMPACTING CONCRETE MIX.
10. THE SUPPORTING BASE FOR THE STRUCTURES SHALL BE A CAST-IN-PLACE CONCRETE FOUNDATION WALL WITH FOOTING.
11. CONTRACTOR SHALL PROVIDE / VERIFY LOCATIONS AND SIZES OF ALL OPENINGS IN THE STRUCTURES.
12. THE CONTRACTOR SHALL PROVIDE FIVE SETS OF STAMPED SHOP DRAWINGS AND DESIGN CALCULATIONS, SUITABLE FOR CONSTRUCTION. THESE DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE CITY FOR A BUILDING PERMIT, AND TO THE ENGINEER FOR REVIEW.

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| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: S. LANDGREN
DRAWN BY: M. DODSON
SHEET CHK'D BY: S. LANDGREN
CROSS CHK'D BY: J. OLCOTT
APPROVED BY: S. LANDGREN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

DETAILS VII - RESTROOM BUILDING PLAN AND SECTIONS

PROJECT NO. 1438-103837
FILE NAME: L015STDT.dwg

SHEET NO.
L-15

1438-80008

| ONE LINE OR CONTROL DIAGRAM | PLAN | DESCRIPTION |
|---|---|---|
| 52 CS | — | MEDIUM VOLTAGE DRAWOUT TYPE POWER CIRCUIT BREAKER<br>CS=CONTROL SWITCH |
| FRAME / TRIP | CB | LOW VOLTAGE AIR OR MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED. |
| * | | COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC MOTOR STARTER, FULL VOLTAGE NON-REVERSING UNLESS OTHERWISE NOTED:<br>* FVR – FULL VOLTAGE REVERSING<br>RVNR – REDUCED VOLTAGE NON-REVERSING<br>RVAT – REDUCED VOLTAGE AUTOTRANSFORMER<br>RVSS – REDUCED VOLTAGE SOLID STATE<br>2S1W – TWO SPEED, ONE WINDING<br>RS2W – TWO SPEED, TWO WINDING<br>(DIAGRAMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE) |
| * | | NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE<br>* AMPERE RATING NOTED IF OTHER THAN 30A<br>(DIAGRAMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE) |
| * | F | FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE,<br>* AMPERE RATING AND FUSE SIZE AS NOTED<br>✱ AMPERE RATING NOTED IF OTHER THAN 30A FUSE RATING<br>(DIAGRAMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE) |
| | P 2 | MANUAL MOTOR STARTER WITH THERMAL OVERLOAD HEATER, 1 POLE UNLESS OTHERWISE NOTED "P" INDICATES WITH PILOT LIGHT "2" INDICATES TWO POLE<br>(DIAGRAMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE) |
| | — | DRAWOUT TYPE EQUIPMENT OR DEVICE |
| | — | MEDIUM VOLTAGE CABLE TERMINATION |
| | — | MEDIUM VOLTAGE AIR INTERRUPTER SWITCH |
| ✱ | — | MEDIUM VOLTAGE FUSED AIR INTERRUPTER SWITCH<br>✱ FUSE RATING |
| | — | MEDIUM VOLTAGE FUSED MOTOR CONTROLLER |
| 480V _KVA 120/208V 3P, 4W | T | TRANSFORMER, RATINGS AND CONNECTIONS AS NOTED. UNLESS OTHERWISE NOTED ON THE SINGLE LINE DIAGRAMS, ALL DRY TYPE TRANSFORMERS SERVICING ADMINISTRATIVE AND LABORATORY SPACES SHALL HAVE A K FACTOR OF 4. ISOLATION TRANSFORMERS SHALL HAVE A K-20 RATING |
| * A TO 5 | — | CURRENT TRANSFORMER<br>* QUANTITY<br>A = PRIMARY AMPERES |
| * V TO 120 | — | POTENTIAL TRANSFORMER<br>* QUANTITY<br>V = PRIMARY VOLTAGE |
| | G | GENERATOR, RATINGS AND CONNECTIONS AS NOTED |
| ATS N S 100A | — | AUTOMATIC OR MANUAL TRANSFER SWITCH NO.1 (ATS-1), (MTS-1) "N" INDICATES NORMAL OR PREFERRED SOURCE "S" INDICATES STANDBY OR ALTERNATE SOURCE 100A INDICATES CONTINUOUS CURRENT RATING |
| * | * | VARIABLE SPEED DRIVE CONTROLLER<br>* D.C. = D.C. DRIVE CONTROLLER<br>SCR = SILICON CONTROLLED RECTIFIER<br>VFD = VARIABLE FREQUENCY DRIVE |
| #KW | E | UNIT HEATER – ELECTRIC HEATING COIL AND FAN<br># – RATING |
| — | U | UNIT HEATER – GAS FIRED, STEAM OR WATER HEATING COIL AND FAN |
| 5 | M | MOTOR, NUMERAL INDICATES HORSEPOWER |
| VS VM * | — | VOLTMETER WITH SWITCH, 3 PHASE |
| AS AM * | — | AMMETER WITH SWITCH, 3 PHASE |

| ONE LINE OR CONTROL DIAGRAM | PLAN | DESCRIPTION |
|---|---|---|
| * | — | METER<br>* WM – WATTMETER<br>WHM – WATTHOUR METER<br>WHDM – WATTHOUR DEMAND METER<br>WHDR – WATTHOUR DEMAND RECORDER<br>PF – POWER FACTOR METER<br>ETM – ELAPSED TIME METER<br>TRANSDUCER<br>AX – CURRENT TRANSDUCER<br>WX – WATT TRANSDUCER<br>WHX – WATTHOUR TRANSDUCER |
| * | * | RELAY, NO. AS INDICATED<br>25 – SYNCHRONISM CHECK RELAY<br>27 – UNDERVOLTAGE RELAY<br>32 – DIRECTIONAL POWER RELAY<br>38 – BEARING PROTECTIVE DEVICE<br>40 – LOSS OF EXCITATION RELAY<br>42 – RUNNING CONTACTOR/PILOT RELAY<br>46 – REVERSE PHASE/PHASE BALANCE/CURRENT RELAY<br>47 – PHASE SEQUENCE VOLTAGE RELAY<br>49 – MACHINE OR TRANSFORMER THERMAL RELAY<br>50/51 – INSTANTANEOUS/TIME OVERCURRENT RELAY<br>50G – INSTANTANEOUS GROUND<br>51 – TIME OVERCURRENT RELAY<br>51G – TIME OVERCURRENT RELAY, GROUNDING RESISTOR TYPE<br>51N – TIME OVERCURRENT RELAY, RESIDUAL TYPE<br>51V – TIME OVERCURRENT RELAY WITH VOLTAGE RESTRAINT<br>51X – AUXILIARY RELAY (TRIPS CB AND ALARMS)<br>59 – OVERVOLTAGE RELAY<br>60 – NEGATIVE SEQUENCE VOLTAGE RELAY<br>62 – TIME DELAY RELAY<br>63 – OVERPRESSURE RELAY<br>64 – GENERATOR FIELD GROUND RELAY<br>67 – AC DIRECTIONAL OVERCURRENT RELAY<br>74 – ALARM LATCHING RELAY<br>83 – AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY<br>86 – LOCKING-OUT RELAY<br>87 – DIFFERENTIAL PROTECTIVE RELAY<br>B – SUFFIX INDICATES "BUS"<br>G – SUFFIX INDICATES "GENERATOR"<br>GF – GROUND FAULT<br>ST – SHUNT TRIP<br>T – SUFFIX INDICATES "TRANSFORMER"<br>X – SUFFIX INDICATES "AUXILIARY" |
| * | — | SPECIAL CAPACITOR<br>* SC – SURGE CAPACITOR<br>PF – POWER FACTOR CORRECTION CAPACITOR |
| * | — | TUNED POWER FACTOR CORRECTION CAPACITOR |
| | — | PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY CLOSED |
| | — | PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY OPEN |
| | ES | EMERGENCY STOP PUSHBUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT) |
| STOP START | PBL | START-STOP PUSHBUTTON CONTROL STATION (MOMENTARY CONTACT) WITH LOCKOUT DEVICE ON STOP |
| | PBM | START-STOP PUSHBUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP |
| OFF ON | S/S | OFF/ON SELECTOR SWITCH |
| L R (XO) (OX) | LR | LOCAL/REMOTE SELECTOR SWITCH |
| A B C* (XOO) (OXO) (OOX) | * | 3 POSITION SELECTOR SWITCH, MAINTAINED CONTACT<br>O-OPEN X-CLOSED<br>(see table below)<br>NAMEPLATE (A/B/C)<br>HOA – HAND/OFF/AUTO<br>HOR – HAND/OFF/REMOTE<br>LOR – LOCAL/OFF/REMOTE<br>RSL – RAISE/STOP/LOWER<br>TOA – TEST/OFF/AUTO |
| GD/VF # | GD/VF # | GAS DETECTOR / VENTILATION FAILURE ALARM<br># INDICATES TYPE OF UNIT<br>1=MASTER, 2=REMOTE |
| 42 # | — | MOTOR STARTER COIL, NUMBER AS INDICATED TO DENOTE INTERLOCKING ONLY |
| CR # | — | CONTROL RELAY COIL, NUMBER AS INDICATED |

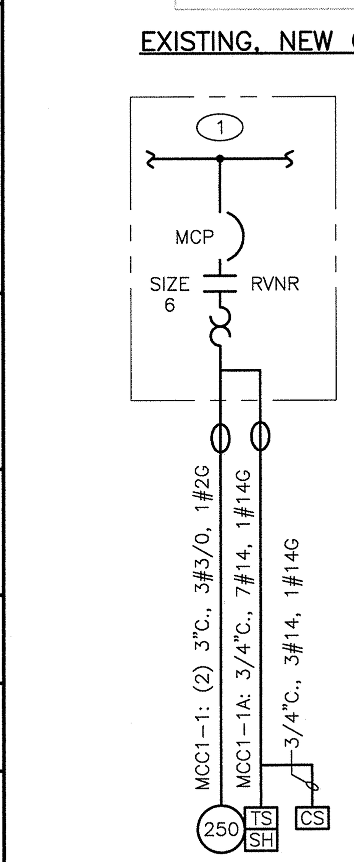
| POSITION | TOP CONTACT | MIDDLE CONTACT | BOTTOM CONTACT |
|---|---|---|---|
| A | X | O | O |
| B | O | X | O |
| C | O | O | X |

| ONE LINE OR CONTROL DIAGRAM | PLAN | DESCRIPTION |
|---|---|---|
| * | — | PILOT LIGHT, COLOR AS NOTED<br>* R – RED<br>G – GREEN<br>B – BLUE<br>W – WHITE<br>A – AMBER |
| * | — | PILOT LIGHT, PUSH-TO-TEST TYPE, COLOR AS NOTED ABOVE. |
| * # RANGE SETPOINT; * NOTC; NCTO; NOTO; NCTC | | TIME DELAY RELAY<br>RANGE AS NOTED<br>SETPOINT AS NOTED<br># NUMBER AS INDICATED<br>* TDE – TIME DELAY AFTER ENERGIZATION ON DELAY<br>TDD – TIME DELAY AFTER DE-ENERGIZATION OFF DELAY<br>NOTC – NORMALLY OPEN, TIMED CLOSING WHEN ENERGIZED<br>NCTO – NORMALLY CLOSED, TIMED OPENING WHEN ENERGIZED<br>NOTO – NORMALLY OPEN, TIMED OPENING WHEN DE-ENERGIZED<br>NCTC – NORMALLY CLOSED, TIMED CLOSING WHEN DE-ENERGIZED |
| — | * – ## | FIELD INSTRUMENT, TAG NO. AS INDICATED<br>* INDICATES INSTRUMENT TYPE DEFINED ON LOOP SHEETS OR P & ID<br>## INDICATES LOOP NO. |
| | LS OR ■ | LIQUID LEVEL (FLOAT) SWITCH<br>NORMALLY OPEN, CLOSES ON RISING LEVEL<br>NORMALLY CLOSED, OPENS ON RISING LEVEL |
| | PS OR ■ | PRESSURE OR VACUUM SWITCH<br>NORMALLY OPEN, CLOSES ON RISING PRESSURE<br>NORMALLY OPEN, CLOSES ON DROPPING PRESSURE<br>NORMALLY CLOSED, OPENS ON RISING PRESSURE<br>NORMALLY CLOSED, OPENS ON DROPPING PRESSURE |
| | TS OR (T) OR ■ | TEMPERATURE SWITCH OR THERMOSTAT<br>NORMALLY OPEN, CLOSES ON RISING TEMPERATURE<br>NORMALLY OPEN, CLOSES ON DROPPING TEMPERATURE<br>NORMALLY CLOSED, OPENS ON RISING TEMPERATURE<br>NORMALLY CLOSED, OPENS ON DROPPING TEMPERATURE |
| | FS OR ■ | FLOW SWITCH (AIR, WATER, ETC.)<br>NORMALLY OPEN, CLOSES ON INCREASED FLOW<br>NORMALLY CLOSED, OPENS ON INCREASED FLOW |
| | ZS OR ■ | POSITION (LIMIT) SWITCH<br>NORMALLY OPEN<br>NORMALLY OPEN – HELD CLOSED<br>NORMALLY CLOSED<br>NORMALLY CLOSED – HELD OPEN |
| | WS OR ■ | TORQUE SWITCH<br>NORMALLY OPEN, CLOSES ON HIGH TORQUE<br>NORMALLY CLOSED, OPENS ON HIGH TORQUE |
| # | — | UTILIZED IN CONJUNCTION WITH OTHER CONTROL SCHEMATIC SYMBOLS TO DEPICT THE PHYSICAL LOCATION OF THE DEVICE<br># REPRESENTS LOCATION<br>SEE LOCATION LEGEND ON DRAWING |
| | — | CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED |
| | — | CONDUCTORS ELECTRICALLY CONNECTED |
| | S | SOLENOID VALVE |

| ONE LINE OR CONTROL DIAGRAM | PLAN | DESCRIPTION |
|---|---|---|
| LA | — | LIGHTNING ARRESTER |
| | ◉ | GROUND OR GROUND ROD |
| 30A | — | FUSE, AMPERE RATING AS NOTED |
| | HTR | STRIP HEATER OR HEATING ELEMENT |
| | — | INDUCTOR |
| TG | TG | TACHOMETER GENERATOR |
| | — | CONTACT, NORMALLY OPEN (NO) |
| | — | CONTACT, NORMALLY CLOSED (NC) |
| | — | OVERLOAD RELAY HEATER |
| K | — | KEY INTERLOCK |
| TB | — | TERMINAL OR TEST BLOCK |
| RTD | — | RESISTANCE TEMPERATURE DETECTOR |
| VE OR VE | — | VIBRATION DETECTOR |
| DM | DM | DAMPER MOTOR |
| ETM | — | ELAPSED TIME METER |
| M | M | MOTOR OPERATED VALVE OR GATE |
| | — | INDICATES LIMITS OF ELECTRICAL EQUIPMENT OR WIRING ENCLOSURE |

EXISTING WORK | NEW WORK | FUTURE EXPANSION

**EXISTING, NEW OR FUTURE CONDITION DESIGNATION**




INDICATES CONDUIT IS ALL OR PARTIALLY LOCATED UNDERGROUND. CONDUIT SIZE SHOWN INDICATES THE SIZE WITHIN STRUCTURE. UNDERGROUND CONDUIT SIZE IS SHOWN ON DUCT BANK SECTIONS.

MCC1-1: (2) 3"C., 3#3/0, 1#2G DENOTES A QUANTITY OF TWO (2) 3-INCH CONDUITS EACH CONTAINING THREE NO. 3/0 AWG CONDUCTORS AND 1 NO. 2 AWG GROUND CONDUCTOR, FROM NEMA SIZE 6 STARTER IN MCC-1 TO 250HP MOTOR LOAD.

MCC1-1A: 3/4"C., 7#14, 1#14G DENOTES ONE 3/4-INCH CONDUIT CONTAINING SEVEN NO. 14 AWG CONTROL CONDUCTORS AND 1 NO. 14 AWG GROUND CONDUCTOR.

MCC1-1 AND MCC1-1A: DENOTES CONDUIT IDENTIFICATION (ID) (TYPICAL)

NOTES:
1. PROTECTIVE/CONTROL DEVICE AS SHOWN.
2. CONTROL/AUXILIARY DEVICES AT OR NEAR EQUIPMENT. EQUIPMENT SHALL BE INSTALLED AND WIRED AS REQUIRED BY EQUIPMENT FURNISHED AND/OR CONTROL DIAGRAM.

**TYPICAL ONE LINE BLOCK SHOWING POWER AND CONTROL TO EQUIPMENT**

NOTES:

1. IN GENERAL CONDUIT ROUTING FOR EQUIPMENT AND DEVICES IS NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS WHICH SHALL INCLUDE CONDUITS SHOWN ON ONE-LINE AND RISER DIAGRAMS AND HOME-RUNS SHOWN ON PLAN DRAWINGS. REFER TO SPECIFICATIONS FOR MATERIALS AND INSTALLATION REQUIREMENTS.

2. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUITS REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.

3. SWITCHGEAR AND MOTOR CONTROL CENTER COMPARTMENT DESIGNATIONS AS INDICTED BELOW:
   BLANK: NOT INTENDED FOR USE. PLATE ONLY
   SPACE: EQUIPPED WITH REQUIRED BUS AND HARDWARE FOR THE FUTURE ADDITION OF BREAKERS AND/OR STARTERS WITHIN THE SIZE AND RANGE SHOWN
   SPARE: CONTAINS A COMPLETELY INSTALLED BREAKER AND/OR STARTER OF SIZE AND TYPE INDICATED FOR FUTURE USE.

4. INTERPRETATION OF ELECTRICAL DRAWINGS: CIRCUIT IDENTIFICATION, ROUTING, AND SIZES OF CONDUITS AND WIRES ARE SHOWN ON THE FOLLOWING DRAWINGS:

A. POWER ONE LINE DIAGRAMS: POWER, CONTROL AND SIGNAL WIRING REQUIREMENTS FOR ELECTRICAL DISTRIBUTION EQUIPMENT AND UTILIZATION EQUIPMENT POWERED FROM SWITCHGEAR, SWITCHBOARDS, MOTOR CONTROL CENTERS AND MAJOR POWER DISTRIBUTION PANELBOARDS ARE TYPICALLY SHOWN ON THE ONE LINE DIAGRAMS. THE PARAMETERS IDENTIFIED ON THE ONE LINE DIAGRAMS ARE: CIRCUIT IDENTIFICATION, CIRCUIT ORIGIN AND DESTINATION, CONDUIT SIZE, WIRE SIZE AND QUANTITY FOR COMPLETE CIRCUIT LENGTH, AND AUXILIARY DEVICES ASSOCIATED WITH THE CONTROL/PROTECTION OF THE POWERED EQUIPMENT, AND SIZE OF THE GROUNDING ELECTRODE CONDUCTORS.

B. INSTRUMENTATION AND CONTROL RISER DIAGRAMS: POWER, CONTROL, SIGNAL AND DATA HIGHWAY WIRING REQUIREMENTS FOR INSTRUMENTS AND CONTROL DEVICES CONTROLLED/MONITORED FROM INSTRUMENTATION AND CONTROL PANELS SUCH AS RTUS, PLCS, TERMINAL CABINETS, AND REMOTE I/O PANELS ARE TYPICALLY SHOWN ON THE INSTRUMENTATION AND CONTROL ONE LINE DIAGRAMS. THE PARAMETERS IDENTIFIED ON THE ONE LINE DIAGRAMS ARE: CIRCUIT IDENTIFICATION, CIRCUIT ORIGIN AND DESTINATION, CONDUIT SIZE, WIRE SIZE, QUANTITY AND TYPE FOR COMPLETE CIRCUIT LENGTH, AND AUXILIARY DEVICES ASSOCIATED WITH THE CONTROL/PROTECTION OF THE POWERED EQUIPMENT.

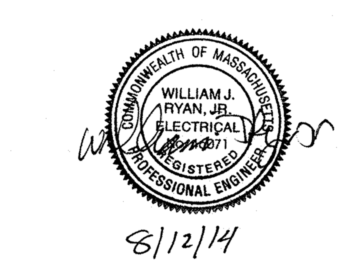
C. FLOOR PLANS: FOR DETERMINING THE LENGTH OF CIRCUITS LOCATED WITHIN STRUCTURES, FLOOR PLANS SHOW THE LOCATION OF ELECTRICAL DISTRIBUTION EQUIPMENT, CONTROL PANELS, UTILIZATION EQUIPMENT, INSTRUMENTS, ANCILLARY EQUIPMENT AND DEVICES AND THE ANTICIPATED PENETRATION LOCATIONS WHERE CONDUITS EXIT/ENTER THE STRUCTURE. HOMERUNS MAY ALSO BE SHOWN FROM MISCELLANEOUS EQUIPMENT NOT SHOWN ON A ONE LINE OR RISER DIAGRAM.

D. SITE PLANS: FOR DETERMINING THE LENGTH OF CIRCUITS EXTERIOR TO STRUCTURES AND TO IDENTIFY THE SPECIFIC REQUIREMENTS OF THE UNDERGROUND CONDUITS OR DUCT BANKS, SITE PLANS SHOW THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS WITH SECTIONS INDICATING THE CONDUIT SIZE, ARRANGEMENT AND CIRCUIT ROUTING.

E. NOTE THAT CONDUIT SIZE WITHIN STRUCTURE IS INDICATED ON ONE-LINE DIAGRAM AND UNDERGROUND SIZE IS INDICATED ON DUCT BANK SECTIONS.

**GENERAL NOTE**

THIS IS A STANDARD LEGEND. SOME SYMBOLS MAY NOT APPEAR ON THE DRAWINGS.

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| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: K. TERRAY
DRAWN BY: B. MOLLING
SHEET CHK'D BY: K. TERRAY
CROSS CHK'D BY: S. LANDGREN
APPROVED BY: W. RYAN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

ELECTRICAL LEGEND SHEET I

PROJECT NO. 1438-103837
FILE NAME: E001LGND.DWG
SHEET NO.
E-1
1438-80009

| SYMBOL | DESCRIPTION |
|---|---|
| A 3 b | INCANDESCENT, COMPACT FLUORESCENT OR H.I.D. TYPE LIGHTING FIXTURE<br>"A" – FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE)<br>"b" – CONTROLLED BY SWITCH "b"<br>"3" – CIRCUIT NUMBER |
| A 3 b | FLUORESCENT TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE |
| A 3 b | WALL MOUNTED INCANDESCENT, COMPACT FLUORESCENT OR H.I.D. TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE |
| A 3 OR A 3 | CROSS HATCH INDICATES LIGHTING FIXTURE THAT IS UNSWITCHED AND SHALL REMAIN ON AT ALL TIMES. NOTATIONS SAME AS ABOVE. |
| A 3 b OR A 3 b | SHADED AREA INDICATES LIGHTING FIXTURE THAT IS EQUIPPED WITH EMERGENCY BACKUP POWER SOURCE. NOTATIONS SAME AS ABOVE. |
| A 3 | POLE MOUNTED AREA H.I.D. TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE |
| A 3 | POLE MOUNTED ROADWAY H.I.D. TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE |
| EM 3 (*) | EMERGENCY LIGHTING BATTERY UNIT WITH TWO LAMP HEADS<br>"EM" – FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE)<br>"3" – SUPERVISORY CIRCUIT<br>* – FIXTURE TAG # |
| R–2 BU–1(*) | REMOTE EMERGENCY ADJUSTABLE WALL LIGHTING FIXTURE WITH TWO LAMP HEADS<br>"R–2" – FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE)<br>* – HOME RUN TO BATTERY UNIT INDICATED. CONDUIT SHALL BE 3/4" AND CONTAIN (2) NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND (1) NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE INDICATED. |
| A 3 | COMBINATION BATTERY UNIT AND EXIT SIGN. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN. |
| A 3 | CEILING MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE. WHEN USED, ARROW INDICATES DIRECTION OF EGRESS. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN. (DOUBLE FACE DOUBLE CHEVRONS SHOWN) |
| A 3 | WALL MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE. WHEN USED, ARROW INDICATES DIRECTION OF EGRESS. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN. |
| RH–3 E 3 BU–1(*) | REMOTE EMERGENCY CEILING LIGHTING FIXTURE.<br>"RH–3" – FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE)<br>"3" – SUPERVISORY CIRCUIT<br>* – HOME RUN TO BATTERY UNIT INDICATED. CONDUIT SHALL BE 3/4" AND CONTAIN 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE INDICATED. |
| | HOME RUN TO DESIGNATED EQUIPMENT. BRANCH CIRCUIT CONDUIT WITH 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE NOTED. NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS. FOR MINIMUM SIZE CONDUIT PERMITTED REFER TO THE SPECIFICATIONS. |
| | CONDUIT CONCEALED IN WALL, IN SLAB ABOVE, OR ABOVE CEILING. |
| | CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND. |
| | CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL. |
| | 'X' INDICATES EXPLOSION PROOF CONDUIT SEAL FITTING. |
| | CONCRETE ENCASED DUCTBANK. WIDTH VARIES, SEE DUCTBANK SECTION/DETAILS FOR REQUIREMENTS AND WIDTH |
| | CONDUIT STUBBED OUT AND CAPPED |
| (2) 3"C., 3#3/0, 1#2G | DENOTES A QUANTITY OF TWO (2) 3–INCH CONDUITS EACH CONTAINING THREE NO. 3/0 AWG CONDUCTORS AND 1 NO. 2 AWG GROUND CONDUCTOR. |
| 2–2/C#16 SH | DENOTES A QUANTITY OF TWO INSTRUMENT CABLES. EACH CABLE TO CONSIST OF TWO NO. 16 AWG CONDUCTORS TWISTED TOGETHER AND COVERED WITH A METALLIC SHIELD AND AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED. |
| 2–3/C#16 SH | SAME AS ABOVE EXCEPT CABLE TO CONSIST OF THREE NO. 16 AWG CONDUCTORS TWISTED, SHIELDED AND COVERED WITH AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED. |
| (3) 4"C. | THREE 4–INCH CONDUITS |
| | FLEXIBLE METAL CONDUIT "WHIP" (3/4"C., 2#12, 1#12G UNLESS OTHERWISE NOTED) FOR LIQUID TIGHT MOTOR CONNECTIONS |
| | 'X' INDICATES CONDUIT SEAL FITTING IN OTHER THAN CODE REQUIRED LOCATIONS. |
| | INDICATES MOTOR STARTER AND/OR MOTOR CONTROL EQUIPMENT WITHIN THE ENCLOSURE. |

| SYMBOL | DESCRIPTION |
|---|---|
| $a | SINGLE POLE SWITCH "a" INDICATES FIXTURES CONTROLLED. |
| $2a | DOUBLE POLE SWITCH "a" INDICATES FIXTURES CONTROLLED. |
| $3c | THREE WAY SWITCH "c" INDICATES FIXTURES CONTROLLED. |
| $4a | FOUR WAY SWITCH "a" INDICATES FIXTURES CONTROLLED. |
| $Da | DIMMER SWITCH "a" INDICATES FIXTURES CONTROLLED |
| $OS | SINGLE POLE SWITCH<br>"OS" INDICATES A PASSIVE INFRARED OCCUPANCY SENSOR |
| $2OS | DOUBLE POLE SWITCH<br>"OS" INDICATES PROGRAMMABLE OCCUPANCY SENSOR CAPABLE OF INBOARD/OUTBOARD SWITCHING |
| $DT | SINGLE POLE SWITCH<br>"DT" INDICATES DUAL TECHNOLOGY PROGRAMMABLE OCCUPANCY SENSOR CAPABLE OF SENSING MOTION AND SOUND |
| C 3 | LIGHTING CONTACTOR WITH NUMBER OF POLES AS INDICATED |
| TM | TIME SWITCH |
| | PUSH BUTTON STATION |
| TYPE A | INDICATES ALL LIGHTING FIXTURES WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE TYPE "A" UNLESS OTHERWISE NOTED. SEE LIGHTING FIXTURE SCHEDULE FOR TYPES |
| | LIGHTING PANELBOARD (LP–#)<br>SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS |
| | POWER PANELBOARD (PP–#) OR DISTRIBUTION PANELBOARD (DP–#)<br>SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS |
| | LIGHTING CONTACTOR PANELBOARD (LCP–#)<br>SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS |
| * 4 | DUPLEX RECEPTACLE, 20A, 120V, 2P, 3W<br>* GFCI – GROUND FAULT CIRCUIT INTERRUPTER TYPE<br>WP – WEATHERPROOF<br>T – TRANSIENT VOLTAGE SURGE SUPPRESSOR<br>IC – ISOLATED GROUND<br>4 – CIRCUIT NUMBER |
| * 4 | DUPLEX RECEPTACLE, 20A, 120V, 2P, 3W<br>MOUNTED ABOVE COUNTER–TOP OR 42" AFF<br>* NOTATIONS SAME AS ABOVE |
| * 60 3 4W | SPECIAL PURPOSE RECEPTACLE<br>* – VOLT RATING<br>"3" – NUMBER OF POLES<br>"60" – AMPERE RATING<br>"4W" – 4 WIRES IN ADDITION TO GROUND |
| | MULTI–OUTLET ASSEMBLY, SYMBOL DENOTES RECEPTACLE TYPE |
| | FLUSH FLOOR OUTLET BOX WITH TYPE OUTLET INDICATED |
| | UNDER FLOOR DUCT SYSTEM WITH TYPE OUTLETS INDICATED |
| | THREE CELL UNDER FLOOR DUCT SYSTEM JUNCTION BOX |
| J OR J | JUNCTION BOX |
| P | PULL BOX |
| TC | TERMINAL CABINET |
| OS | OCCUPANCY SENSOR |
| PC | PHOTOCELL |
| ESA | EMERGENCY EYEWASH/SHOWER ALARM STATION WITH FLOW SWITCH(ES) |
| | INDICATED EQUIPMENT AND MATERIALS TO BE DEMOLISHED |
| DUST | INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 12 CONSTRUCTION (OR GASKETED AND SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED. |
| DAMP OR WET | INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 4X CONSTRUCTION (OR GASKETED AND SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED. |
| CORROSIVE | INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 4X CONSTRUCTION (OR CORROSION RESISTANT CONSTRUCTION SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED. |
| CLASS I, DIV. 1 GROUP D | INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL CONFORM TO N.E.C. REQUIREMENTS FOR THE HAZARDOUS AREA CLASSIFICATION SHOWN. |

| SYMBOL | DESCRIPTION |
|---|---|
| | GROUND SYSTEM GRID OR LOOP, 36" BELOW FINISHED GRADE UNLESS OTHERWISE NOTED. |
| | EXOTHERMIC WELD CONNECTION |
| | 3/4" x 10'–0" GROUND ROD. UNLESS SPECIFIED OTHERWISE. |
| | GROUND ROD TEST WELL STATION<br>(SEE DETAIL SHEET FOR REQUIREMENTS) |
| | COMMUNICATION SYSTEMS |
| K | TELEPHONE OUTLET FOR DESK TYPE HANDSET<br>K = KEY SYSTEM |
| K | TELEPHONE OUTLET FOR WALL TYPE HANDSET (MOUNT UP 4'–6")<br>K = KEY SYSTEM |
| | PAGE/PARTY TELEPHONE OUTLET FOR DESK TYPE HANDSET |
| | PAGE/PARTY TELEPHONE OUTLET FOR WALL TYPE HANDSET, MOUNT UP 4'–6" |
| S H W | PAGING SPEAKER, WALL MOUNTED<br>H = HORN TYPE<br>W = WIDE ANGLE TYPE |
| S W | PAGING SPEAKER, WALL MOUNTED, BI–DIRECTIONAL, HORN TYPE<br>W = WIDE ANGLE TYPE |
| S | PAGING SPEAKER, FLUSH MOUNTED CEILING TYPE |
| S | PAGING SPEAKER, SURFACE MOUNTED CEILING TYPE |
| VC | REMOTE WALL MOUNTED VOLUME CONTROL FOR CEILING SPEAKER, MOUNT UP 5'–0" |
| A | PAGING SPEAKER AMPLIFIER ASSEMBLY |
| TM | TELEPHONE CABINET OR BACKBOARD AS NOTED |
| P OR C | "C" – DATA INPUT/OUTPUT CABLE OUTLET<br>"P" – PROCESS COMPUTER SYSTEM (CAT6 RJ–45 JACK) |
| GD/VF # | GAS DETECTOR/VENTILATION FAILURE ALARM,<br># INDICATES TYPE OF UNIT.<br>1 = MASTER, 2 = REMOTE |
| GB | GAS DETECTION/VENTILATION FAILURE WEATHERPROOF DUAL–LITE BEACON MOUNT TOP OF DEVICE UP 6'–8" A.F.F. |
| 15 G | GAS DETECTION/VENTILATION FAILURE HORN/STROBE MOUNT TOP OF DEVICE UP 6'–8" A.F.F. |
| G | GAS DETECTION/VENTILATION FAILURE HORN, MOUNT TOP OF DEVICE UP 6'–8" A.F.F. |
| G | GAS DETECTION/VENTILATION FAILURE STROBE, MOUNT TOP OF DEVICE UP 6'–8" A.F.F. |
| | SECURITY SYSTEMS |
| SACP | SECURITY ALARM CONTROL PANEL |
| DS | SECURITY ALARM DOOR SWITCH |
| K | SECURITY ALARM KEY PAD |
| R | SECURITY SYSTEM CARD ACCESS READER |
| WS | SECURITY ALARM WINDOW SWITCH |
| | SECURITY ALARM MOTION DETECTOR |
| CCTV | CLOSED CIRCUIT TV CAMERA |
| PTZ | PAN, TILT, ZOOM CAMERA LENS CONTROLS |
| GB | GLASS BREAK DETECTOR |
| | FIRE ALARM SYSTEMS |
| H 200 R | FIRE ALARM HEAT DETECTOR 135 FIXED TEMPERATURE UNLESS OTHERWISE NOTED.<br>"200" – 200 FIXED TEMPERATURE<br>"R" – FIXED TEMPERATURE RATE–OF–RISE TYPE |
| I | FIRE ALARM SMOKE DETECTOR PHOTOELECTRIC TYPE UNLESS OTHERWISE NOTED.<br>"I" – IONIZATION TYPE. |
| D | FIRE ALARM DUCT SMOKE DETECTOR |
| FACP | FIRE ALARM CONTROL PANEL |
| FV | FIRE ALARM VENTILATION PANEL WITH GRAPHIC PANEL |
| FA | REMOTE FIRE ALARM ANNUNCIATOR PANEL |

| SYMBOL | DESCRIPTION |
|---|---|
| F | FIRE ALARM MASTER BOX |
| F | FIRE ALARM HORN, MOUNT UP 7'–6" |
| 15 F | FIRE ALARM STROBE, MOUNT UP 6'–8"<br>15 = CANDELA RATING |
| 15 F | FIRE ALARM HORN AND STROBE LIGHT COMBINATION, MOUNT UP 6'–8"<br>15 = CANDELA RATING |
| F | FIRE ALARM MANUAL PULL STATION, MOUNT UP 4'–0" |
| VSS | SPRINKLER VALVE SUPERVISORY SWITCH |
| SFS | SPRINKLER FLOW ALARM SWITCH |
| F | FIRE ALARM BELL |
| FB | WEATHERPROOF HI–INTENSITY FIRE ALARM STROBE LIGHT WITH HORN |
| PIR | PASSIVE INFRARED DETECTOR |
| R | SMOKE BEAM DETECTOR (RECEIVER) |
| T | SMOKE BEAM DETECTOR (TRANSMITTER) |
| | FIRE ALARM SMOKE DETECTOR REMOTE INDICATOR AND TEST SWITCH |

| ABBREVIATIONS | |
|---|---|
| A | AMPS |
| AC | ALTERNATING CURRENT |
| AFF | ABOVE FINISHED FLOOR |
| AFG | ABOVE FINISHED GRADE |
| AL | ALUMINUM |
| AIC | AMPERE INTERRUPTING CAPACITY |
| AMP | AMPERE |
| ATS | AUTOMATIC TRANSFER SWITCH |
| AUTO | AUTOMATIC |
| AUX | AUXILIARY |
| AWG | AMERICAN WIRE GAUGE |
| BKR | BREAKER |
| BLDG | BUILDING |
| C | CONDUIT |
| CB | CIRCUIT BREAKER |
| CGD | COMBUSTIBLE GAS DETECTOR |
| CKT | CIRCUIT |
| CLB | CURRENT LIMITING BREAKER |
| CLF | CURRENT LIMITING FUSE |
| CP | CONTROL PANEL |
| CPT | CONTROL POWER TRANSFORMER |
| CR | CONTROL RELAY |
| CS | CONTROL SWITCH/CONTROL STATION |
| CT | CURRENT TRANSFORMER |
| CU | COPPER |
| CWS | CONDUIT WALL SEAL |
| DC | DIRECT CURRENT |
| DIA | DIAMETER |
| DMU | DIGITAL METERING UNIT |
| DN | DOWN |
| EC | EMPTY CONDUIT |
| ELEC | ELECTRICAL |

| ABBREVIATIONS (CONTINUED) | |
|---|---|
| ELEV | ELEVATION |
| EM | EMERGENCY |
| ENCL | ENCLOSURE OR ENCLOSED |
| EQUIP | EQUIPMENT |
| EWC | ELECTRIC WATER COOLER |
| EWH | ELECTRIC WATER HEATER |
| EX | EXISTING |
| FO | FIBER OPTIC |
| FU | FUSE |
| GCP | GENERATOR CONTROL PANEL |
| GEN | GENERATOR |
| G, GND | GROUND |
| GFI | GROUND FAULT INTERRUPTER |
| GRS | GALVANIZED RIGID STEEL |
| HACR | HEATING & AIR CONDITIONING RATED |
| HH | HANDHOLE |
| HT | HEIGHT |
| HID | HIGH INTENSITY DISCHARGE |
| HP | HORSEPOWER |
| HZ | HERTZ |
| ID | IDENTIFICATION |
| INSTR | INSTRUMENT |
| K | KILO (PREFIX) |
| kcmil | 1000 CIRCULAR MILS |
| KVA | KILOVOLT AMPERES |
| KW | KILOWATTS |
| LA | LIGHTING ARRESTER |
| LTG | LIGHTING |
| LP | LIGHTING PANEL |
| LV | LOW VOLTAGE |
| MAX | MAXIMUM |
| MCB | MAIN CIRCUIT BREAKER |
| MCC | MOTOR CONTROL CENTER |
| MCP | MOTOR CIRCUIT PROTECTOR |
| MDP | MAIN DISTRIBUTION PANEL |
| MFR | MANUFACTURER |
| MH | MANHOLE |
| MIN | MINIMUM |
| MLO | MAIN LUGS ONLY |
| MTD | MOUNTED |
| MTS | MANUAL TRANSFER SWITCH |
| MV | MEDIUM VOLTAGE |
| N | NEUTRAL |
| NC | NORMALLY CLOSED |
| NO | NORMALLY OPEN OR NUMBER |
| NTS | NOT TO SCALE |
| OH | OVERHEAD |
| OL | OVERLOAD |
| PB | PULL BOX |
| PCP | PUMP CONTROL PANEL |
| PH | PHASE |
| PMH | POWER MANHOLE |
| PNL | PANEL OR PANELBOARD |
| PR | PAIR |
| PRI | PRIMARY |
| PT | POTENTIAL TRANSFORMER |
| PVC | POLYVINYL CHLORIDE |
| RECPT | RECEPTACLE |
| REQD | REQUIRED |
| QTY | QUANTITY |
| SA | SURGE ARRESTER |
| SEC | SECONDS OR SECONDARY |
| SH | SHIELDED OR SPACE HEATER |
| SHH | SIGNAL HANDHOLE |
| SPD | SURGE PROTECTIVE DEVICE |
| SS | STAINLESS STEEL |
| SV | SOLENOID VALVE |
| SW | SWITCH |
| SWBD | SWITCHBOARD |
| SWGR | SWITCHGEAR |
| TC | TIME TO CLOSE OR TRAY CABLE |
| TEL | TELEPHONE |
| TO | TIME TO OPEN |
| TVSS | TRANSIENT VOLTAGE SURGE SUPRESSOR |
| TS | TWISTED SHIELDED OR THERMAL SWITCH |
| TYP | TYPICAL |
| UG | UNDERGROUND |
| UPS | UNINTERRUPTIBLE POWER SUPPLY |
| V | VOLTS |
| VA | VOLT AMPS |
| VFD | VARIABLE FREQUENCY DRIVE |
| W | WATTS, WIDTH, WITH, WIRE |
| WP | WEATHERPROOF |
| XP | EXPLOSION PROOF |
| XFMR | TRANSFORMER |

A E–4 — SHEET NO. WHERE DETAIL IS DRAWN

SYMBOL WHERE THERE IS A DETAIL

DETAIL 1/4" = 1'–0" — A E–3 — SHEET NO. WHERE THERE IS A DETAIL

SYMBOL WHERE DETAIL IS DRAWN

## DETAIL SYMBOL

1 E–4 — SHEET NO. WHERE SECTION IS DRAWN

SYMBOL WHERE THERE IS A SECTION

SECTION 1/4" = 1'–0" — 1 E–3 — SHEET NO. WHERE SECTION IS TAKEN

SYMBOL WHERE SECTION IS DRAWN

## SECTION SYMBOL

**GENERAL NOTE**

THIS IS A STANDARD LEGEND. SOME SYMBOLS MAY NOT APPEAR ON THE DRAWINGS.

COMMONWEALTH OF MASSACHUSETTS WILLIAM J. RYAN, JR. ELECTRICAL No. 40074 REGISTERED PROFESSIONAL ENGINEER

8/12/14

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: K. TERRAY
DRAWN BY: B. MOLLING
SHEET CHK'D BY: K. TERRAY
CROSS CHK'D BY: S. LANDGREN
APPROVED BY: W. RYAN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

# ELECTRICAL LEGEND SHEET II

PROJECT NO. 1438–103837
FILE NAME: E002LGND.DWG
SHEET NO. E-2
1438–800010

XREFs: [CDMS_3042] Images: []
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NOTES:

1. DISCONNECT AND REMOVE EXISTING LIGHT POLES, FIXTURES AND OVERHEAD CABLES. PULL CABLES BACK AND MAKE SAFE. ABANDON CONDUIT. PULL WIRES BACK AND MAKE SAFE.
2. DISCONNECT AND REMOVE EXISTING ELECTRICAL BOX.

ELECTRICAL SITE DEMOLITION PLAN

PLAN

1" = 30'

15 0 30

WILLIAM J. RYAN, JR.
REGISTERED PROFESSIONAL ENGINEER
No. 42071

8/12/14

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: K. TERRAY
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APPROVED BY: W. RYAN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

ELECTRICAL SITE DEMOLITION PLAN

PROJECT NO. 1438-103837
FILE NAME: E003STPL.DWG
SHEET NO.
E-3
1438-800011

XREFs: [CDMS_3042, C000BSPL, Y11500WS] Images: []
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## CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

| NO. | DESCRIPTION |
|---|---|
| 1 | 2"C., 2#6, 2#8, 1#6G |
| 2 | 2"C., 2#10, 1#10G |
| 3 | 2"C., 6#10, 1#10G |
| 4 | 2"C., 6#8, 1#8 |
| 5 | NOT USED |
| 6 | 2"C., 3#1, 1#6G |
| 7 | 1"C., 2#6, 1#6G |
| 8 | 1"C., 2#8, 1#8G |
| 9 | 1"C., 2#10, 1#10G |
| 10 | 1"C., 3#10, 1#10G |
| 11 | 1"C., 3#8, 1#8G |
| 12 | 2"C., 9#10, 1#10G |

NOTES:

1. CONTRACTOR SHALL COORDINATE WITH THE UTILITY TO RELOCATE EXISTING UTILITY POLE #6.

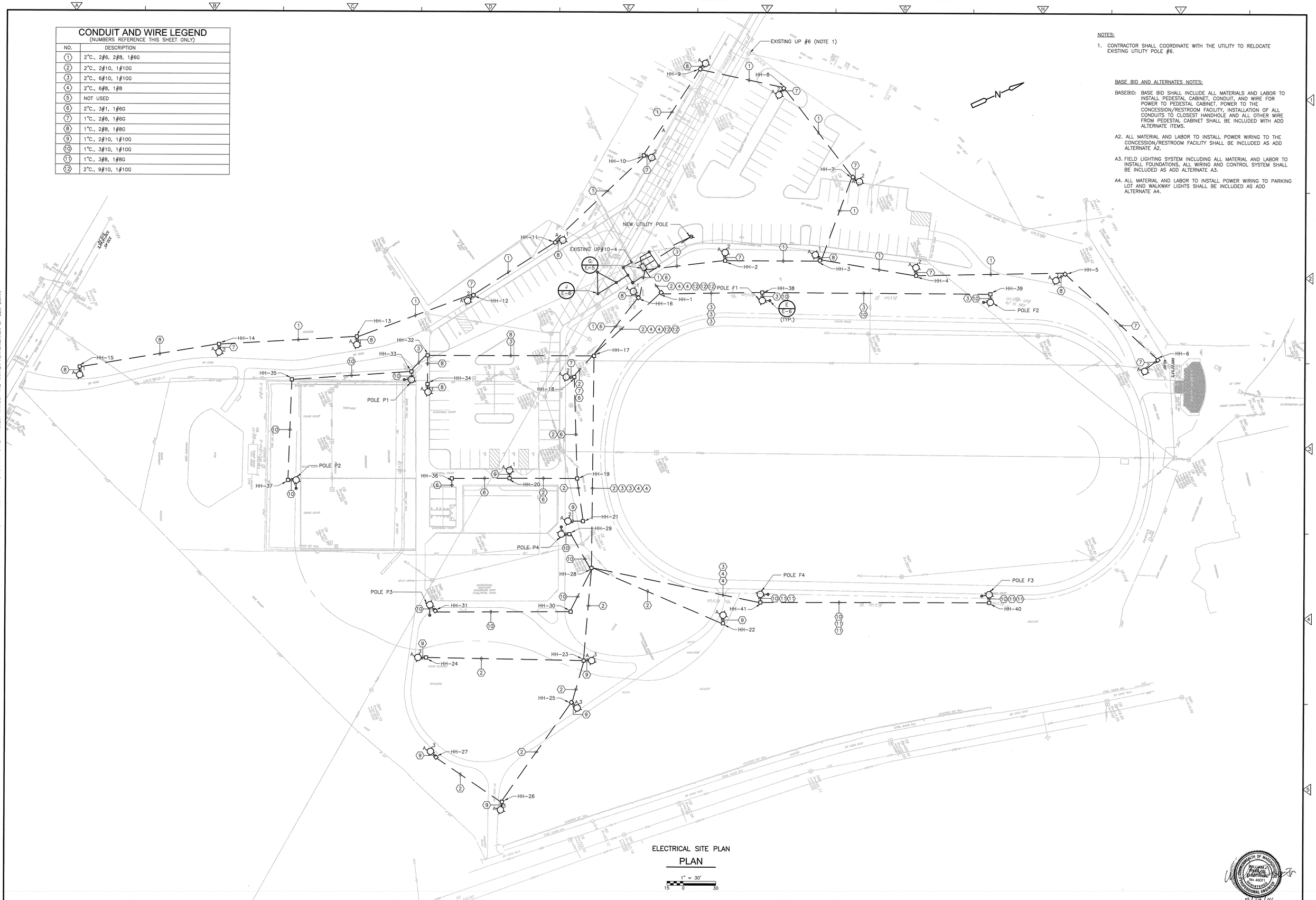
BASE BID AND ALTERNATES NOTES:

BASEBID: BASE BID SHALL INCLUDE ALL MATERIALS AND LABOR TO INSTALL PEDESTAL CABINET, CONDUIT, AND WIRE FOR POWER TO PEDESTAL CABINET. POWER TO THE CONCESSION/RESTROOM FACILITY, INSTALLATION OF ALL CONDUITS TO CLOSEST HANDHOLE AND ALL OTHER WIRE FROM PEDESTAL CABINET SHALL BE INCLUDED WITH ADD ALTERNATE ITEMS.

A2. ALL MATERIAL AND LABOR TO INSTALL POWER WIRING TO THE CONCESSION/RESTROOM FACILITY SHALL BE INCLUDED AS ADD ALTERNATE A2.

A3. FIELD LIGHTING SYSTEM INCLUDING ALL MATERIAL AND LABOR TO INSTALL FOUNDATIONS, ALL WIRING AND CONTROL SYSTEM SHALL BE INCLUDED AS ADD ALTERNATE A3.

A4. ALL MATERIAL AND LABOR TO INSTALL POWER WIRING TO PARKING LOT AND WALKWAY LIGHTS SHALL BE INCLUDED AS ADD ALTERNATE A4.




ELECTRICAL SITE PLAN

PLAN

1" = 30'

15 0 30

8/12/14

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: K. TERRAY
DRAWN BY: B. MOLLING
SHEET CHK'D BY: K. TERRAY
CROSS CHK'D BY: S. LANDGREN
APPROVED BY: W. RYAN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

ELECTRICAL SITE PLAN

PROJECT NO. 1438-103837
FILE NAME: E004STPL.DWG
SHEET NO.
E-4
1438-80012

XREFs: [CDMS_3042, C000BSPL, EXXXSTPL, Y11500WS] Images: []
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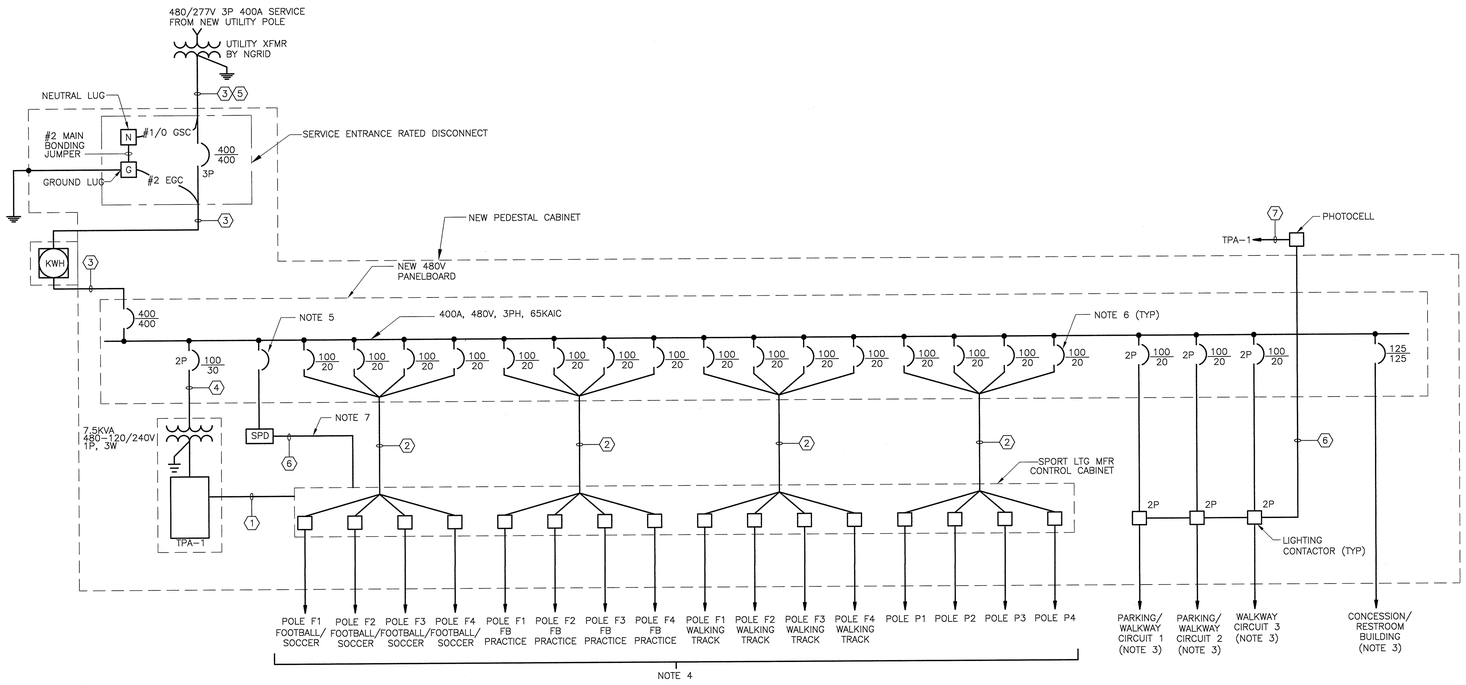



## SINGLE LINE DIAGRAM

N.T.S.

NOTES:

1. PEDESTAL CABINET SHALL HAVE PROVISIONS FOR A NEW 24"x 72" SPORTS LIGHTING PANEL, A NEW 480V PANELBOARD A NEW 120/240V TRANSFORMER PANEL ASSEMBLY.
2. SIZE AND/OR ARRANGEMENT OF PEDESTAL ENCLOSURE SHALL BE MODIFIED AS NECESSARY TO SUIT EQUIPMENT ACTUALLY FURNISHED.
3. FOR CONDUIT AND WIRE SIZES SEE SITE PLANS SHEET E-4.
4. FOR CONDUIT AND WIRING BETWEEN THE SPORT LIGHTING CONTROL PANEL AND THE RESPECTIVE POLES, SEE SHEET E-4.
5. CIRCUIT BREAKER SHALL BE SIZED PER THE MANUFACTURER'S RECOMMENDATIONS.
6. ALL CIRCUIT BREAKERS SHALL BE 3P UNLESS OTHERWISE NOTED.

### CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

| NO. | DESCRIPTION |
|---|---|
| 1 | 3/4"C., 2#12, 1#12G (120V CONTROL WIRING) |
| 2 | 1 1/2"C., 3#8, 1#8G |
| 3 | 2(3"C., 3#3/0, 1#4G.S.C.) |
| 4 | 3/4"C., 2#10, 1#10G |
| 5 | 3"C., SPARE |
| 6 | 3/4"C., 2#14, 1#14G |
| 7 | 3/4"C., 2#12, 1#12G |

BASE BID AND ALTERNATES NOTES:

BASEBID: BASE BID SHALL INCLUDE ALL MATERIALS AND LABOR TO INSTALL PEDESTAL CABINET, CONDUIT, AND WIRE FOR POWER TO PEDESTAL CABINET. POWER TO THE CONCESSION/RESTROOM FACILITY, INSTALLATION OF ALL CONDUITS TO CLOSEST HANDHOLE AND ALL OTHER WIRE FROM PEDESTAL CABINET SHALL BE INCLUDED WITH ADD ALTERNATE ITEMS.

A2. ALL MATERIAL AND LABOR TO INSTALL POWER WIRING TO THE CONCESSION/RESTROOM FACILITY SHALL BE INCLUDED AS ADD ALTERNATE A2.

A3. FIELD LIGHTING SYSTEM INCLUDING ALL MATERIAL AND LABOR TO INSTALL FOUNDATIONS, ALL WIRING AND CONTROL SYSTEM SHALL BE INCLUDED AS ADD ALTERNATE A3.

A4. ALL MATERIAL AND LABOR TO INSTALL POWER WIRING TO PARKING LOT AND WALKWAY LIGHTS SHALL BE INCLUDED AS ADD ALTERNATE A4.

### TPA-1

7.5 KVA 1-PHASE TRANSFORMER — 480 VOLT PRIMARY — 30 AMP 2 POLE PRIMARY MAIN BREAKER — 65 KA
40 AMP 2 POLE SECONDARY MAIN BREAKER
40 AMP BUS RATING — 12 POLES — 10 KA SHORT CIRCUIT RATING
120/240 VOLTS SECONDARY — 1 PHASE 3 WIRE — 60 Hz. — ELECTRONIC GRADE: NO
LOCATION: PEDESTAL CABINET
ENCLOSURE RATING: NEMA 1
MOUNTING: SURFACE

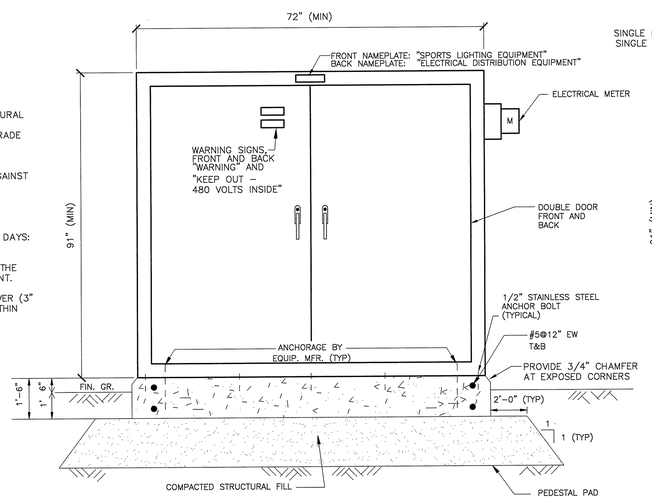
| CIRCUIT NO. | DESCRIPTION | LOAD KVA LINE 1 | LOAD KVA LINE 2 | BREAKER AMPS/ POLES | NOTES | CIRCUIT NO. | DESCRIPTION | LOAD KVA LINE 1 | LOAD KVA LINE 2 | BREAKER AMPS/ POLES | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | PEDESTAL LIGHT | 0.1 | | 20 /1 | 5 | 2 | PEDESTAL HEATER | 0.25 | | 20 /1 | 5 |
| 3 | PEDESTAL RECEPTACLE | | 0.32 | 20 /1 | 5 | 4 | PHOTOCELL | | 0.1 | 20 /1 | 5 |
| 5 | SPARE | | | 20 /1 | | 6 | SPARE | | | 20 /1 | |
| 7 | SPARE | | | 20 /1 | | 8 | SPARE | | | 20 /1 | |
| 9 | SPARE | | | 20 /1 | | 10 | SPARE | | | 20 /1 | |
| 11 | SPARE | | | 20 /1 | | 12 | SPARE | | | 20 /1 | |
| | TOTAL LINE KVA THIS SIDE | 0.1 | 0.32 | | | | TOTAL LINE KVA THIS SIDE | 0.25 | 0.1 | | |
| | | | | | | | TOTAL KVA PER LINE | 0.35 | 0.42 | | |
| | | | | | | | TOTAL KVA | 0.77 | | | |

NOTES:
1. PROVIDE LOCKING HARDWARE
3. 30 ma GFI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)
5. BRANCH CIRCUIT WIRING: 3/4"C, 2#12 & 1#12G

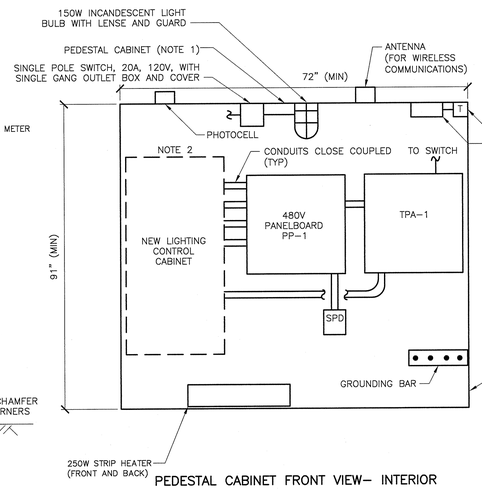
NOTES CONT.:
2. 5 ma GROUND FAULT INTERRUPTER (GFI) CIRCUIT BREAKER
4. PROVIDE LOCKING HARDWARE & PAINT BREAKER HANDLE RED (FACP)
6.

PEDESTAL CABINET PAD NOTES:

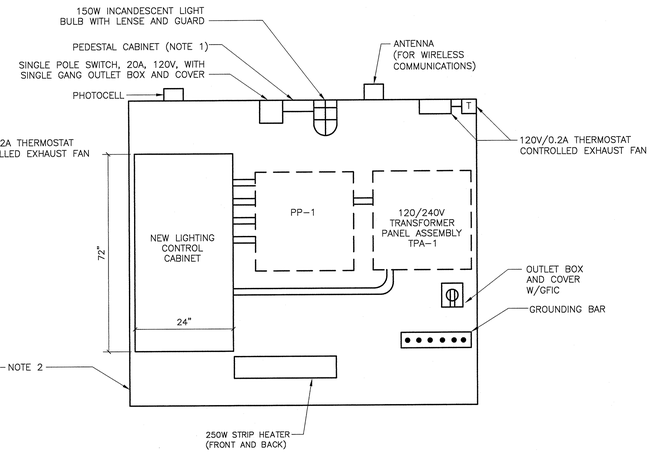
1. REMOVE ALL COMPRESSIBLE ORGANIC DEPOSITS AND REPLACE WITH STRUCTURAL FILL WITHIN LIMITS SHOWN. EXTEND STRUCTURAL FILL TO 4'-0" BELOW GRADE (MIN.).
2. PROVIDE 3" CLEAR COVER OVER REINFORCING FOR CONCRETE CAST AGAINST SOIL, AND 2" EVERYWHERE ELSE.
3. PROVIDE 3/4" CHAMFER AT EXPOSED CORNERS.
4. MINIMUM CONCRETE STRENGTH AT 28 DAYS: 4,000 psi.
5. DIMENSIONS TO BE COORDINATED BY THE CONTRACTOR W/ APPROVED EQUIPMENT.
6. PROVIDE 1 1/2" CRUSHED STONE COVER (3" MIN DEPTH) ON EXPOSED GROUND WITHIN FENCE LINE LIMITS (WHEN PROVIDED).



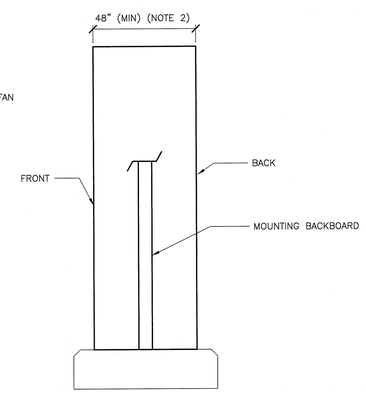

PEDESTAL CABINET
## DETAIL G
N.T.S.




PEDESTAL CABINET FRONT VIEW– INTERIOR
## ELEVATION
N.T.S.




PEDESTAL CABINET BACK VIEW– INTERIOR
## ELEVATION
N.T.S.




PEDESTAL CABINET SIDE VIEW– INTERIOR
## ELEVATION
N.T.S.

COMMONWEALTH OF MASSACHUSETTS
WILLIAM J. RYAN, JR.
ELECTRICAL
No. 46011
REGISTERED PROFESSIONAL ENGINEER
8/12/14

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: K. TERRAY
DRAWN BY: B. MOLLING
SHEET CHK'D BY: K. TERRAY
CROSS CHK'D BY: S. LANDGREN
APPROVED BY: W. RYAN
DATE: AUGUST 2014

CDM Smith
50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000

CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

ELECTRICAL ONE LINE DIAGRAM

PROJECT NO. 1438-103837
FILE NAME: E0050LDI.DWG
SHEET NO.
E-5
1438-800013

XREFs: [CDMS_30X2] Images: []
Last saved by: MOLLINGBL, Time: 8/11/2014 3:58:09 PM
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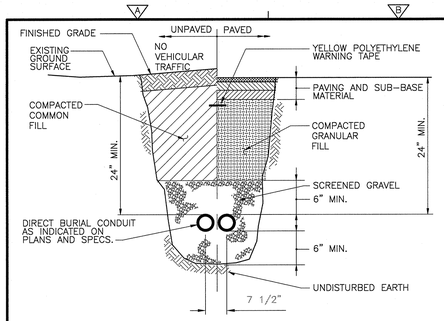
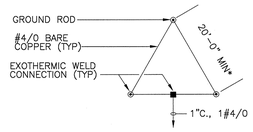



TYPICAL DIRECT BURIAL CONDUIT INSTALLATION

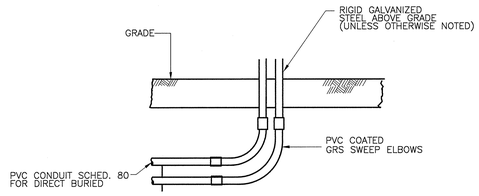
DETAIL A
N.T.S.




* WHERE PRACTICABLE

GROUND GRID

DETAIL B
N.T.S.

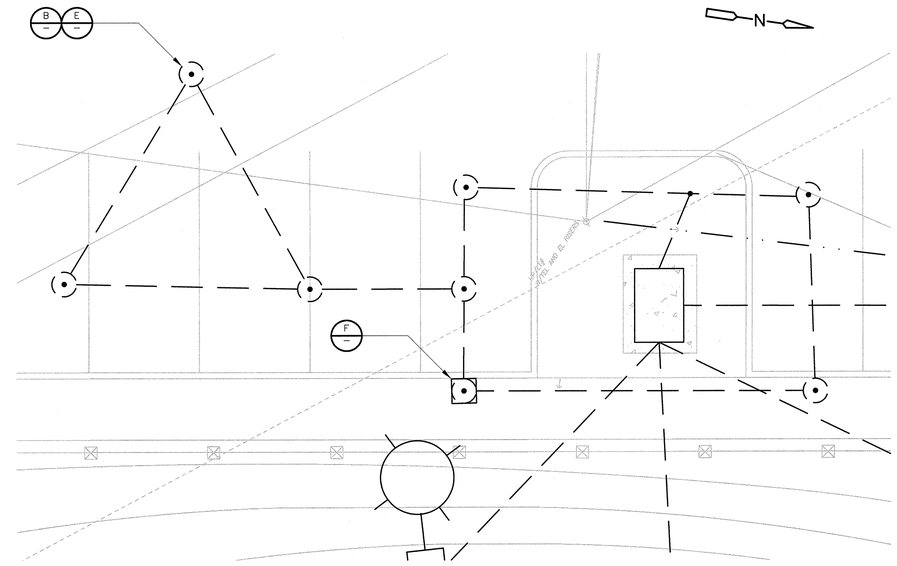



TYPICAL CONDUIT TRASITION FROM BELOW GRADE TO ABOVE GRADE

DETAIL C
N.T.S.

NOTES:

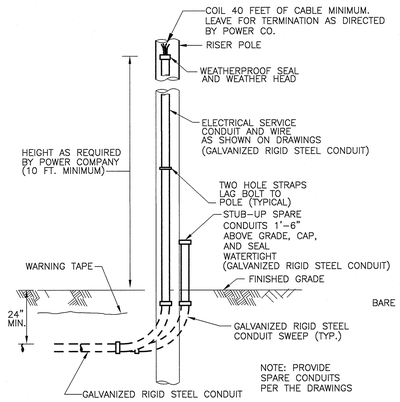
1. LIGHT FIXTURE AND POLE WERE SELECTED TO MATCH SENIOR CENTER PARKING LOT LIGHT FIXTURES. ANY SUBSTITUTIONS SHALL BE REVIEWED BY THE CLIENT FOR APPROVAL.

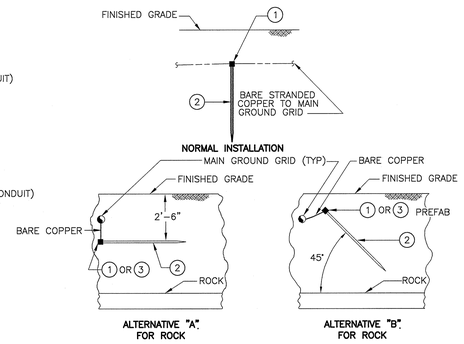



ENLARGED GROUNDING PLAN

DETAIL J

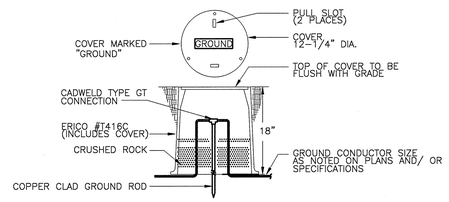
1" = 5'
2.5 0 5




GROUND ROD

DETAIL E
N.T.S.

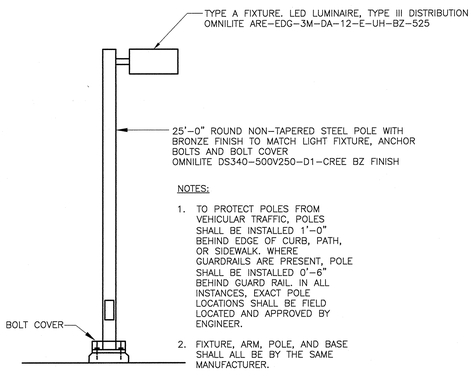



NOTES:

1. TO IMPROVE SYSTEM RESISTANCE, ERICO GEM MAY BE USED AS A BACKFILL MATERIAL IN AN AUGERED HOLE.

GROUND ROD INSPECTION HOUSING

DETAIL F
N.T.S.

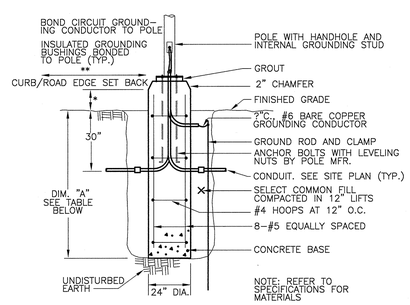



NOTES:

1. TO PROTECT POLES FROM VEHICULAR TRAFFIC, POLES SHALL BE INSTALLED 1'-0" BEHIND EDGE OF CURB, PATH, OR SIDEWALK. WHERE GUARDRAILS ARE PRESENT, POLE SHALL BE INSTALLED 0'-6" BEHIND GUARD RAIL. IN ALL INSTANCES, EXACT POLE LOCATIONS SHALL BE FIELD LOCATED AND APPROVED BY ENGINEER.
2. FIXTURE, ARM, POLE, AND BASE SHALL ALL BE BY THE SAME MANUFACTURER.

PARKING/WALKWAY AREA LIGHTING ASSEMBLY DETAIL

DETAIL H
N.T.S.




| POLE HEIGHT | DIMENSION "A" |
|---|---|
| 10'-0" | 4'-6" |
| 20'-0" | 4'-6" |
| 30'-0" | 6'-6" |
| 40'-0" | 6'-6" |

* =2" AT WALKWAYS; 18" AT ROADWAYS & PARKING AREAS

** =48" AT WALKWAYS; 24" AT ROADWAYS

PARKING/WALKWAY AREA LIGHTING POLE FOUNDATION

DETAIL I
N.T.S.

**LIGHTING FIXTURE SCHEDULE**

| TYPE | LOCATION | LAMPS PWR-LMP TYP | MOUNTING | DESCRIPTION | ACCEPTABLE MANUFACTURER'S CATALOG NUMBERS * ADD VOLTAGE | | | REMARKS |
|---|---|---|---|---|---|---|---|---|
| A | PARKING LOT/ WALKWAYS | LED | POLE | 120 LEDs - TYPE III DISTRIBUTION - 480V<br>SLIM, LOW PROFILE TO MINIMIZE WIND LOAD REQUIREMENTS<br>DIE CAST ALUM. SIDES WITH INTEGRAL WEATHERTIGHT LED DRIVER COMPARTMENTS<br>HIGH PERFORMANCE ALUMINUM HEAT SINKS | OMNILITE ARE-EDG-3M-DA-12-E-UH-BZ-525 | NOTE 1 | | SEE SHEET E-6 FOR DETAIL |

XREFs: [C0008SPL, Y11500WS, EXXXSTPL, CDMS_3042] Images: []
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CITY OF MARLBOROUGH, MA

ARTEMAS WARD PARK IMPROVEMENTS

ELECTRICAL DETAILS

PROJECT NO. 1438-103837
FILE NAME: E006DETL.DWG

SHEET NO.
E-6

1438-800014