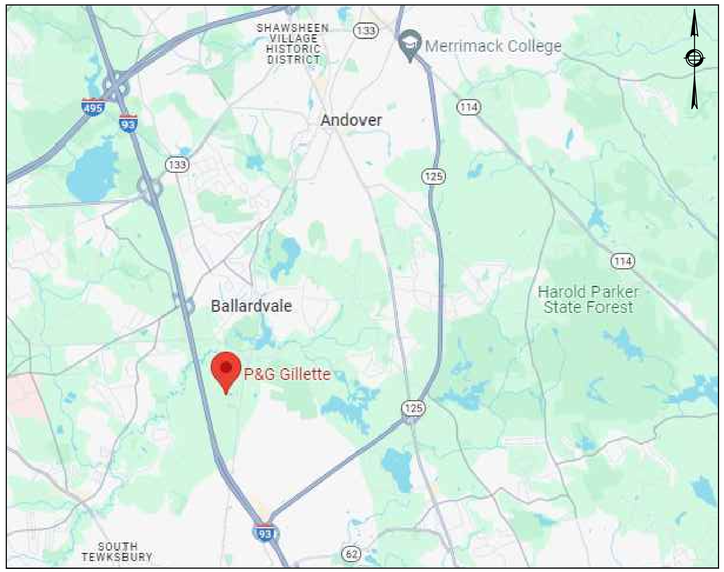
# P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

## ANDOVER, MA

**PLANNING BOARD SUBMISSION & NOTICE OF INTENT FILING APRIL 2024**

**AERIAL PROJECT SITE MAP**

NOT TO SCALE




**LOCUS PROJECT SITE MAP**

NOT TO SCALE

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Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

PERMTTING SET

NOT FOR CONSTRUCTION

16 APRIL 2024

Key Plan:

Stamp:

COMMONWEALTH OF MASSACHUSETTS
DEBORAH L. COLBERT
CIVIL
No. 37073
REGISTERED
PROFESSIONAL ENGINEER

| No. | Date | Revision |
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| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:

COVER SHEET

Drawing No.:

C-000

## GENERAL NOTES

1. THE EXISTING CONDITIONS SHOWN ON THIS BASE MAP ARE THE RESULT OF AN ON THE GROUND INSTRUMENT SURVEY PERFORMED BETWEEN MARCH 11, 2020 AND MAY 21, 2020, AND BETWEEN JULY 17, 2023 AND JANUARY 30, 2024 BY GREEN INTERNATIONAL AFFILIATES, INC. (GREEN).
2. HORIZONTAL AND VERTICAL CONTROL WAS ESTABLISHED BY GREEN INTERNATIONAL AFFILIATES, INC, BETWEEN MARCH 11, 2020 AND APRIL 6, 2020. HORIZONTAL DATUM IS BASED ON THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (MAINLAND) NAD83 (2011), 2010.00 EPOCH. VERTICAL DATUM IS NAVD88 (COMPUTED USING GEOID18B).
3. THE EXISTING CONDITIONS OF WETLAND FLAGS SHOWN ON THIS BASE MAP ARE THE RESULT OF RTK SURVEY PERFORMED BETWEEN NOVEMBER 13, 2019 AND NOVEMBER 21, 2019 BY GREEN INTERNATIONAL AFFILIATES, INC. (GREEN).
4. THE CONTRACTOR SHALL CALL DIGSAFE AT 1-800-322-4844 AT LEAST 72 HOURS, SATURDAYS, SUNDAYS, AND HOLIDAYS EXCLUDED, PRIOR TO EXCAVATING AT ANY LOCATION. A COPY OF THE DIGSAFE PROJECT REFERENCE NUMBER(S) SHALL BE GIVEN TO THE OWNER PRIOR TO EXCAVATION.
5. LOCATIONS OF EXISTING PIPES, CONDUITS, UTILITIES, AND OTHER UNDERGROUND OBJECTS ARE NOT WARRANTED TO BE CORRECT AND THE CONTRACTOR SHALL HAVE NO CLAIM ON THAT ACCOUNT SHOULD THEY BE OTHER THAN SHOWN.
6. THE CONTRACTOR SHALL NOT STORE ANY APPARATUS, MATERIALS, SUPPLIES, OR EQUIPMENT ON DRAINAGE STRUCTURES OR WITHIN 100 FEET OF WETLANDS.
7. PORTIONS OF EXISTING UTILITY INFORMATION WERE TAKEN FROM PLANS ON RECORD WITH THE TOWN OF ANDOVER ENGINEERING DEPT. AND GILLETTE INCLUDING SPRINKLER WATER RETENTION BASIN PLAN 7/26/2010 BY CAPACCIO ENVIRONMENTAL ENGINEERING, INC. AND ANDOVER BIOTECHNOLOGY PARK PLAN 1/29/1993 BY MARINAGE ENGINEERING ASSOCIATES, INC., GIS, AND GILLETTE PLANS BY ANDERSON NICHOLS DATED 2/12/1968.

## GENERAL CONSTRUCTION NOTES

1. ALL CONSTRUCTION DEBRIS SHALL BE DISPOSED OF LEGALLY OFF SITE.
2. CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL. DUST CONTROL SHALL INCLUDE THE WATERING OF UNPAVED ROAD SURFACES AND STREET SWEEPING OF PAVED SURFACES. STREET SWEEPING SHALL OCCUR ON THE PAVED SURFACES WITHIN THE SITE AND OFF THE SITE WHERE VEHICLE TRACKING OF SEDIMENTS HAS OCCURRED.
3. ALL SITE WORK SHALL BE SECURED AT THE END OF THE WORK DAY TO REDUCE EROSION AND SEDIMENT PROBLEMS. THIS INCLUDES AS APPLICABLE, COVERING STOCKPILES OF SOIL, INSTALLING TEMPORARY VEGETATION OR BY USING GEOTEXTILES TO COVER DISTURBED AREAS WITH STEEPER SLOPES.
4. DEWATERING OPERATION SHALL COMPLY WITH THE REQUIREMENTS OF THE U.S. EPA NPDES CONSTRUCTION GENERAL PERMIT FOR CONSTRUCTION SITES THAT ARE GREATER THAN 1 ACRE.
5. CONSTRUCTION FENCING SHALL BE SET TO PREVENT UNCONTROLLED ACCESS TO THE SITE AT ALL TIMES AND ADJUSTED AS NECESSARY THROUGHOUT CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER DEPENDING ON PHASING.
6. THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER IMMEDIATELY WITH ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE EXISTING CONDITIONS PLAN PREPARED BY GREEN INTERNATIONAL AFFILIATES, INC.
7. ALL AREAS DISTURBED WITHIN THE LIMIT OF WORK SHALL BE RESTORED TO EXISTING CONDITIONS OR BETTER.
8. AREA OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION, AT NO ADDITIONAL COST TO THE OWNER.

## UTILITY NOTES

SUBSURFACE UTILITY LOCATIONS HAVE BEEN PLOTTED TO MEET UTILITY QUALITY LEVEL C AS DESCRIBED IN ASCE STANDARDS 38-02. THE UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS BASED ON ABOVE-GROUND FIELD OBSERVATION AND EXISTING RECORD INFORMATION RECEIVED FROM UTILITY STAKE-HOLDERS. UTILITY RECORDS PLANS WERE REQUESTED AND RECEIVED FROM THE FOLLOWING COMPANIES/AGENCIES/MUNICIPALITIES.

| NAME | REQUESTED | RECEIVED |
|---|---|---|
| ANDOVER DPW | X | X |
| NATIONAL GRID ELECTRIC | X | X |
| COLUMBIA GAS | X | X |
| VERIZON | X | X |
| TENNESSEE GAS PIPELINE | X | X |
| PANAM RAILWAYS | X | X |
| MBTA | X | X |
| COMCAST CABLE CORP | X | X |
| CENTURY LINK | X | X |
| CROWN CASTLE | X | X |
| AT&T c/o SIEANA ENG. GROUP | X | X |
| MCI-VERIZON BUSINESS | X | X |
| RAYTHEON | X | X |
| MASSDOT | X | X |

## SUMMARY OF UTILITY MAPPING QUALITY LEVELS:

THE FOLLOWING IS A SUMMARY OF THE SURVEY MAPPING LEVELS FOR UTILITIES AS DESCRIBED IN ASCE STANDARD 38-02, "STANDARD GUIDELINE FOR THE DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". THESE GUIDELINES ARE MORE FULLY DESCRIBED IN THE ASCE STANDARD.

UTILITY QUALITY LEVEL A:
PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. MINIMALLY INTRUSIVE EXCAVATION EQUIPMENT IS TYPICALLY USED TO MINIMIZE THE POTENTIAL FOR UTILITY DAMAGE. A PRECISE HORIZONTAL AND VERTICAL LOCATION, AS WELL AS OTHER UTILITY ATTRIBUTES, IS SHOWN ON PLAN DOCUMENTS. ACCURACY IS TYPICALLY SET TO 15-MM VERTICAL AND TO APPLICABLE HORIZONTAL SURVEY AND MAPPING ACCURACY AS DEFINED OR EXPECTED BY THE PROJECT OWNER.

UTILITY QUALITY LEVEL B:
INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES. QUALITY LEVEL B DATA SHOULD BE REPRODUCIBLE BY SURFACE GEOPHYSICS AT ANY POINT OF THEIR DEPICTION. THIS INFORMATION IS SURVEYED TO APPLICABLE TOLERANCES DEFINED BY THE PROJECT AND REDUCED ONTO PLAN DOCUMENTS.

UTILITY QUALITY LEVEL C:
INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION.

UTILITY QUALITY LEVEL D:
INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.
INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.

## SITE PREPARATION NOTES

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES AND PROCEDURES; AND FOR THE SAFETY PRECAUTIONS AND PROGRAMS REQUIRED FOR THE WORK UNDER THIS CONTRACT. THE CONTRACT DOCUMENTS DO NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY AND THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING ALL SAFETY BARRIERS, WARNING FLASHERS, AND THE LIKE AS REQUIRED FOR THE PROTECTION OF WORKERS AND THE PUBLIC. COMPLY WITH OSHA REQUIREMENTS.
2. PRIOR TO THE START OF WORK, INSTALL WOVEN POLYPROPYLENE GEOTEXTILE FILTER BAGS IN CATCH BASINS AND/OR DRYWELL STRUCTURES ON AND NEAR THE SITE. WHEN INSTALLING FILTER BAGS, HOLD APPROXIMATELY SIX INCHES OUTSIDE THE FRAME AND REPLACE THE GRATE, USING THE WEIGHT OF THE GRATE TO HOLD THE FILTER BAG IN PLACE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY CONSTRUCTION PERMITS REQUIRED FOR THIS PROJECT.
4. THE CONTRACTOR SHALL PROTECT ALL UTILITIES WITHIN THE PROJECT AREA, IN THE STREET, AND ON ADJACENT PROPERTIES FROM DAMAGE AND UNDERMINING DURING EXCAVATION.
5. AS OF JANUARY 1, 2009, ALL TRENCH EXCAVATION CONTRACTORS SHALL COMPLY WITH MASSACHUSETTS GENERAL LAWS CHAPTER 82A, TRENCH EXCAVATION SAFETY REQUIREMENTS, TO PROTECT THE GENERAL PUBLIC FROM UNAUTHORIZED ACCESS TO UNATTENDED TRENCHES. A TRENCH EXCAVATION PERMIT IS REQUIRED. THIS APPLIES TO ALL TRENCHES ON PUBLIC AND PRIVATE PROPERTY.
6. REMOVE ALL EXISTING SURFACE FEATURES SUCH AS BIT. CONC., CURBING AND ASSOCIATED UNDERGROUND ELECTRICAL CONDUITS, MANHOLE, MANHOLE FRAME AND COVERS, AND THE LIKE TO ALLOW FOR THE CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS.
7. REMNANTS OF PREVIOUS BUILDING FOUNDATIONS, UTILITY STRUCTURES AND UNDERGROUND UTILITIES MAY BE ENCOUNTERED DURING EXCAVATION AND SHALL BE REMOVED AND DISPOSED OF LEGALLY OFF SITE, UNLESS SPECIFIED TO BE PROTECTED AND RETAINED.
8. THE CONTRACTOR SHALL PERFORM ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY IN CONFORMANCE WITH THE TOWN OF ANDOVER STANDARD SPECIFICATIONS.
9. ALL EXISTING WATER AND GAS SERVICES DESIGNATED TO BE REMOVED OR ABANDONED SHALL BE CUT AND CAPPED AT THE MAIN IN THE STREET.
10. ALL EXISTING SEWER AND DRAIN LINES DESIGNATED TO BE REMOVED OR ABANDONED SHALL BE CUT AND CAPPED AT THE MAIN IN THE STREET.
11. ALL EXISTING UTILITY FRAMES, COVERS AND/OR GRATES WITHIN PROJECT LIMITS ARE TO BE ADJUSTED TO PROPOSED FINISHED GRADE UNLESS OTHERWISE NOTED.
12. TEMPORARY CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS SHOWN ON PLANS.
13. CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION FENCE AS NOTED ON PLANS.
14. CONTRACTOR SHALL DIG TEST PITS FOR UTILITY INFO AS SHOWN ON PLANS PRIOR TO ANY SITE WORK BEING PERFORMED OR ORDERING ANY MATERIAL.

## UTILITY NOTES

1. ALL UTILITY COMPANIES, PUBLIC AND PRIVATE, MUST BE NOTIFIED, INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THIS PLAN, (SEE CHAPTER 370, ACTS OF 1963, MASSACHUSETTS) PRIOR TO DESIGNING, EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, PAVEMENT RESTORING OR REPAVING.
2. THE LOCATION OF EXISTING PIPES OR OTHER UNDERGROUND STRUCTURES OR PROPERTY LINES ARE NOT WARRANTED TO BE EXACT, NOR IS IT WARRANTED THAT ALL UNDERGROUND PIPES OR STRUCTURES ARE SHOWN. THE CONTRACTOR SHALL CALL "DIG SAFE" (1-888-344-7233) 72 HOURS (EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS) PRIOR TO ANY EXCAVATION TO OBTAIN ACCURATE UTILITY LOCATIONS.
3. UTILITY WORK WITHIN THE ZONE 10 FT OUTSIDE OF FOUNDATION WALL OF THE BUILDING SHALL CONFORM TO EFFECTIVE BUILDING CODE REQUIREMENTS, AND THE MECHANICAL, ELECTRICAL AND PLUMBING SPECIFICATIONS. UTILITIES, WITHIN THIS AREA (10 FT FROM THE FOUNDATION WALL), ARE SHOWN ON THIS DRAWING FOR COORDINATION PURPOSES. REFER TO THE MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS AND SPECIFICATIONS FOR PIPE SIZES AND MATERIALS.
4. CONTRACTOR TO ADJUST UTILITY ELEMENT MEANT TO BE FLUSH WITH GRADE (CLEAN-OUTS, UTILITY MANHOLES, CATCH BASINS, INLETS, ECT.) THAT ARE AFFECTED BY SITE WORK OR GRADE CHANGES, WHETHER SPECIFICALLY NOTED ON THE PLANS OR NOT.
5. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE TAKEN FROM RECORD INFORMATION SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UNDERGROUND UTILITIES.
6. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
7. THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE STRUCTURES AS NECESSARY FOR CHANGES IN GRADE, AND RESET ALL WATER AND DRAINAGE FRAMES, GRATES, AND BOXES TO THE PROPOSED FINISH SURFACE GRADE.
8. THE LOCATION, SIZE, DEPTH, AND SPECIFICATIONS FOR CONSTRUCTION OF PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY, THE RESPECTIVE UTILITY COMPANY (GAS, TELEPHONE, ELECTRICAL). FINAL DESIGN AND LOCATIONS AT THE BUILDING WILL BE PROVIDED BY THE ARCHITECT. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE UTILITY CONNECTION WITH THE RESPECTIVE COMPANIES PRIOR TO ANY UTILITY CONSTRUCTION.
9. ALL WORK MUST COMPLY WITH STATE AND LOCAL PERMITS, AS WELL AS THE TOWN OF ANDOVER REQUIREMENTS.

## SITE GRADING NOTES

1. PROPOSED GRADING SHALL MATCH EXISTING GRADES AT THE LIMIT OF WORK. WHERE PROPOSED GRADES MEET EXISTING GRADES, CONTRACTOR SHALL BLEND GRADES TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND NEW WORK AND ENSURE NO PONDING AREAS ARE CREATED.
2. GRADE ALL AREAS TO DRAIN.
3. PROPOSED WALKWAYS SHALL BE CONSTRUCTED WITH A CROSS SLOPE OF NO MORE THAN 1.5% AND A LONGITUDINAL SLOPE OF NO MORE THAN 4.5%.
4. LANDINGS AT BUILDING ENTRANCES SHALL BE CONSTRUCTED WITH SLOPES NO MORE THAN 1.5% IN ANY DIRECTION.
5. HANDICAP PARKING SPACES SHALL BE CONSTRUCTED WITH SLOPES NO MORE THAN 1.5% IN ANY DIRECTION.
6. CONTRACTORS SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS AND STRUCTURES.

## EROSION AND SEDIMENT CONTROLS

1. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) WILL BE REQUIRED FOR THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING THE SWPPP IN ACCORDANCE WITH THE EPA'S NPDES CONSTRUCTION GENERAL PERMIT (CGP) AND FILING A NOTICE OF INTENT TO THE EPA PURSUANT TO THE NPDES PHASE I STORMWATER PROGRAM.
2. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING THE EROSION AND SEDIMENT DURING THE CONSTRUCTION PROCESS. SITE SPECIFIC CONDITIONS MAY REQUIRE MODIFICATIONS IN THE FIELD, BUT THE CONTRACTOR MUST ENSURE THAT THE PROJECT SPECIFICATIONS THAT ARE DEVELOPED IN THE FIELD MEET THE MINIMUM REQUIREMENTS OF THIS PLAN.
3. DURING CONSTRUCTION, TRENCH EXCAVATIONS SHALL BE BACKFILLED AS SOON AS POSSIBLE AND SHOULD NOT DIRECT RUNOFF AROUND TREATMENT AND DETENTION FACILITIES.
4. IN ORDER TO MINIMIZE EROSION AND SEDIMENT RUNOFF FROM THE SITE, THE CONTRACTOR SHOULD MAINTAIN EXISTING VEGETATION WHERE POSSIBLE AND STABILIZE THE DISTURBED PORTIONS OF THE SITE AS QUICKLY AS POSSIBLE. THIS MAY INCLUDE PHASING THE PROJECT AS NEEDED TO MINIMIZE THE SIZE OF THE DISTURBED AREAS ON THE SITE.
5. THE CONTRACTOR MUST ALSO ANTICIPATE INCREASED RUNOFF FROM STEEPER SLOPES AND DURING HIGH GROUNDWATER CONDITIONS. THIS MAY OCCUR DURING THE WET SEASON (TYPICALLY MARCH THROUGH APRIL) OR AFTER SIGNIFICANT PRECIPITATION EVENTS.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF SILT FENCES, DRAINAGE SWALES, EARTH DIKES, TEMPORARY SETTLING BASINS, CHECK DAMS AND TEMPORARY OR PERMANENT SEDIMENT BASINS. THESE PRACTICES DIVERT FLOWS FROM EXPOSED SOILS, LIMIT RUNOFF AND THE DISCHARGE OF POLLUTANTS FROM EXPOSED AREAS OF THE SITE TO THE DEGREE ATTAINABLE.
7. THE CONTRACTOR SHALL, AT ALL TIMES, HAVE A STOCKPILE OF STRAW WATTLES AND SILT FENCE ADEQUATE TO REINFORCE/REPLACE EROSION AND SEDIMENT CONTROL AS NEEDED.
8. ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY OR FINAL STABILIZATION WITHIN 14 DAYS OF THE INITIAL DISTURBANCE. AFTER THIS TIME, ANY DISTURBANCE IN THE AREA MUST BE STABILIZED AT THE END OF EACH WORK DAY. THE FOLLOWING EXCEPTIONS APPLY:

   i) STABILIZATION IS NOT REQUIRED IF WORK IS TO CONTINUE IN THE AREA WITHIN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS.

   ii) STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION WITH A DEPTH OF 2 FEET OR GREATER.

## ABBREVIATIONS

| | |
|---|---|
| BIT | BITUMINOUS |
| BLDG | BUILDING |
| BM | BENCHMARK |
| BWL | BROKEN WHITE LINE |
| BYL | BROKEN YELLOW LINE |
| CB | CATCH BASIN |
| CC | CEMENT CONCRETE |
| CEN | CENTER |
| CI | CAST IRON PIPE |
| CLDI | CEMENT-MORTAR LINED DUCTILE IRON PIPE |
| CLF | CHAIN LINK FENCE |
| CMP | CORRUGATED METAL PIPE |
| CNO | CAN NOT OPEN |
| CONC | CONCRETE |
| CPP | CORRUGATED PLASTIC PIPE |
| CSP | CORRUGATED STEEL PIPE |
| CULV | CULVERT |
| DBWL | DOUBLE WHITE LINE |
| DBYL | DOUBLE YELLOW LINE |
| DH | DRILL HOLE |
| DIA | DIAMETER |
| DIP | DUCTILE IRON PIPE |
| DMH | DRAIN MANHOLE |
| DSK | DISK |
| DWL | DOTTED WHITE LINE |
| DYL | DOTTED YELLOW LINE |
| EL | ELEVATION |
| EHH | ELECTRIC HAND HOLE |
| EMH | ELECTRIC MANHOLE |
| EOP | EDGE OF PAVEMENT |
| EX | EXISTING |
| FF | FINISH FLOOR |
| FP | FIRE PROTECTION |
| GIP | GALVANIZED IRON PIPE |
| GMH | GAS MANHOLE |
| GRAV | GRAVEL |
| HDW | HEADWALL |
| HH | HAND HOLE |
| HYD | HYDRANT |
| INV | INVERT |
| IP | IRON PIPE |
| LSA | LANDSCAPED AREA |
| MAG | MAG NAIL |
| MH | MANHOLE |
| MDHL | DRILL HOLE |
| MP | METAL PLATE |
| OHW | OVERHEAD WIRE |
| PL | PLASTIC |
| PVC | POLYVINYL CHLORIDE PIPE |
| PVMT | PAVEMENT |
| RC | REINFORCED CONCRETE |
| RCP | REINFORCED CONCRETE PIPE |
| REC | RECORD |
| RET | RETAINING |
| ROW | RIGHT OF WAY |
| SB | STONE BOUND |
| SL | STOP LINE |
| SMH | SEWER MANHOLE |
| ST | STEEL |
| THH | TELEPHONE HAND HOLE |
| TMH | TELEPHONE MANHOLE |
| TOS | TOP OF SEDIMENT |
| TOW | TOP OF WATER |
| TYP | TYPICAL |
| VC | VITRIFIED CLAY PIPE |
| VGC | VERTICAL GRANITE CURB |

## LEGEND

| | |
|---|---|
| | BUSH |
| BM # | BENCHMARK |
| BOL | BOLLARD |
| | BOUND (CONC, STONE, LAND COURT, ETC.) |
| CB | CATCH BASIN - SQUARE |
| CB | CATCH BASIN - D-FRAME |
| CB | CATCH BASIN - ROUND |
| | DELENEATOR / REFLECTOR POST |
| DSK | DISK (CA/T, USC&GS, LAND COURT, ETC.) |
| | DRAIN MANHOLE |
| MDHL | DRILL HOLE |
| EHH | ELECTRIC HANDHOLE |
| | ELECTRIC MANHOLE |
| EM | ELECTRIC METER |
| | FIRE HYDRANT |
| FES | FLARED END SECTION |
| FP | FLAG POLE |
| GG | GAS GATE |
| GM | GAS METER |
| GPL | GUY POLE |
| | GUY WIRE ANCHOR |
| | HANDICAP SYMBOL |
| ICV | IRRIGATION CONTROL VALVE |
| | LIGHT POLE |
| | LIGHT POLE DOUBLE LIGHT |
| MMAG | MAG NAIL |
| MG | MISCELLANEOUS GATE |
| MHB | MASSACHUSETTS HIGHWAY BOUND |
| MW | MONITORING WELL |
| | OTHER MANHOLE |
| POST | CIRCULAR POST |
| POST | SQUARE POST |
| | ROCK |
| | SEWER MANHOLE |
| SN | STAKE AND NAIL |
| SP | STAND PIPE |
| | SUPPORT POLE |
| | TACKTILE/DETECTABLE WARNING PAD |
| THH | TELEPHONE HANDHOLE |
| | TELEPHONE MANHOLE |
| TB | TOWN LINE BOUND (CORNER) |
| | TRAVERSE POINT |
| MREB | IRON ROD |
| 22" | TREE |
| | SIGN |
| | SIGN - DOUBLE POST |
| | UNIDENTIFIED OBJECT |
| ULT# | UTILITY POLE W/ LIGHT |
| UPL# | UTILITY POLE |
| VP | VENT PIPE |
| WG | WATER GATE |
| WSO | WATER SHUTOFF |
| WF# | WETLAND FLAG |


**GREEN INTERNATIONAL AFFILIATES, INC.**
Civil and Structural Engineers
100 Ames Pond Dr, Suite 200
Tewksbury, Massachusetts
GreenIntl.com
(978) 923-0400


Client:
P&G
30 BURTT ROAD
ANDOVER, MA

Subconsultants:

Project Title:

EXISTING CONDITIONS PLAN

Project Location:
30 BURTT ROAD
ANDOVER, MA

Stamp:
COMMONWEALTH OF MASSACHUSETTS
SPARTAK VAKA No. 51616 REGISTERED PROFESSIONAL LAND SURVEYOR
S. Vaka
3/29/2024

| No. | Date | Revision |
|---|---|---|
| #1 | 01/22/2021 | WETLAND UPDATES PER CON.COM |
| #2 | 04/08/2021 | WETLAND UPDATES PER CON.COM |
| #3 | 06/13/2023 | REVISED BUFFERS |
| #4 | 07/28/2023 | ADDITIONAL SURVEY |
| #5 | 01/30/2024 | ADDITIONAL SURVEY |
| #6 | 03/22/2024 | ADDITIONAL SURVEY |
| #7 | 03/27/2024 | ADDED RR RECORD INFO |
| #8 | 03/29/2024 | RR REMAINS & SHEET EDITS |

Project No.:

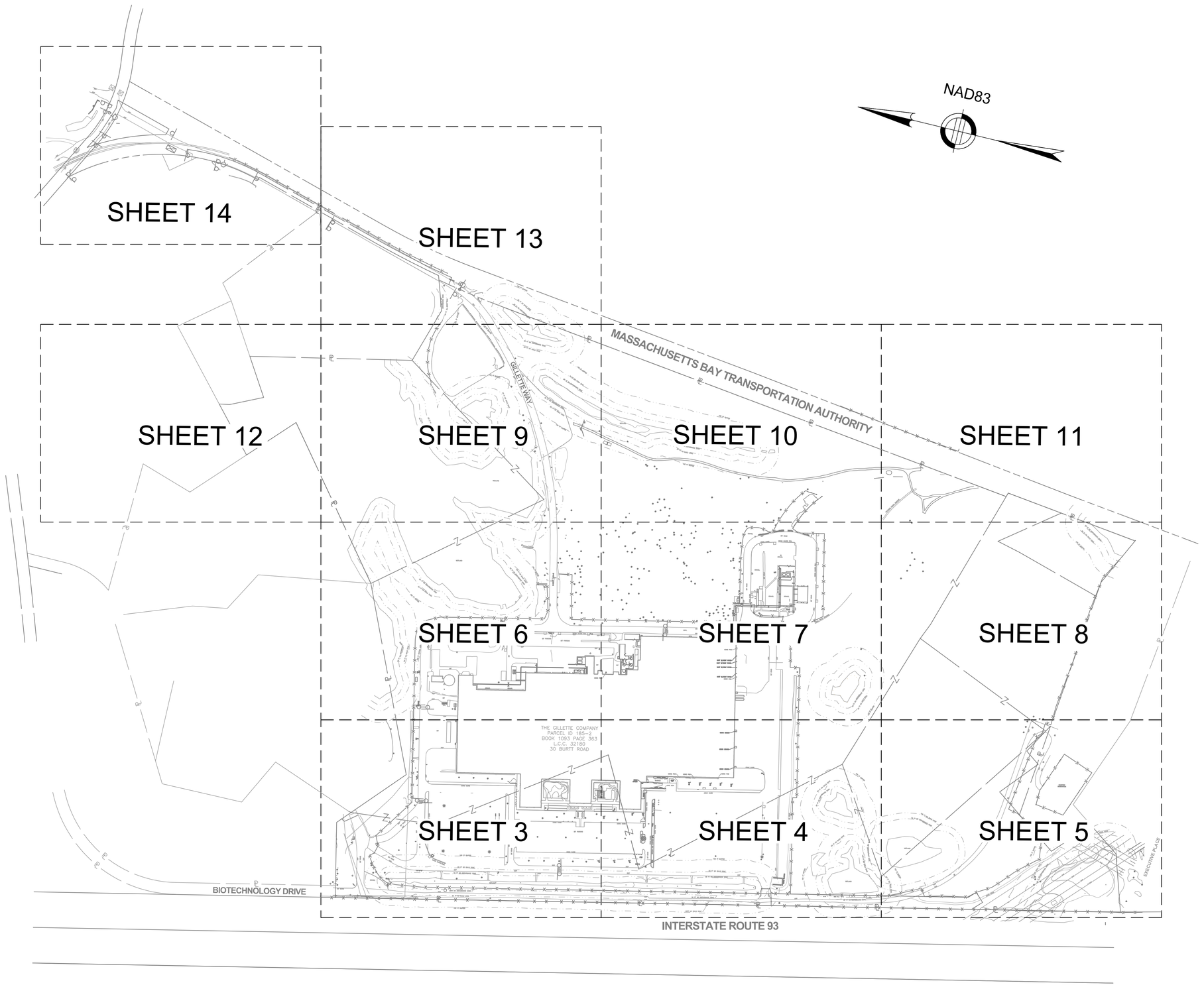
Drawn By: MJP/CM/GL
Designed By:
Checked By: DP/SV
Date: 3/29/2024
Scale: NTS

Drawing Title:
NOTES & LEGEND

Sheet No. 1 of 14

Drawing No.: C-100


X:\Shared\Engineering\Projects\2020\2017\DWG\REVIEW WORKING FILES\ECosse Alta Ave\Basemap\Gillette_Andover_Basemap.dwg Printed 4/1/2024 1:15 PM




0 100' 200' 400'

1" = 200 FEET


**GREEN INTERNATIONAL AFFILIATES, INC.**
Civil and Structural Engineers
100 Ames Pond Dr, Suite 200
Tewksbury, Massachusetts
GreenIntl.com
(978) 923-0400


Client:

P&G
30 BURTT ROAD
ANDOVER, MA

Subconsultants:

Project Title:

# EXISTING CONDITIONS PLAN

Project Location:
30 BURTT ROAD
ANDOVER, MA

Stamp:

COMMONWEALTH OF MASSACHUSETTS
SPARTAK VAKA
No. 51616
REGISTERED PROFESSIONAL LAND SURVEYOR

S. Vaka

3/29/2024

| No. | Date | Revision |
|---|---|---|
| #1 | 01/22/2021 | WETLAND UPDATES PER CON.COM |
| #2 | 04/08/2021 | WETLAND UPDATES PER CON.COM |
| #3 | 06/13/2023 | REVISED BUFFERS |
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| #6 | 03/22/2024 | ADDITIONAL SURVEY |
| #7 | 03/27/2024 | ADDED RR RECORD INFO |
| #8 | 03/29/2024 | RR REMAINS & SHEET EDITS |

Project No.:

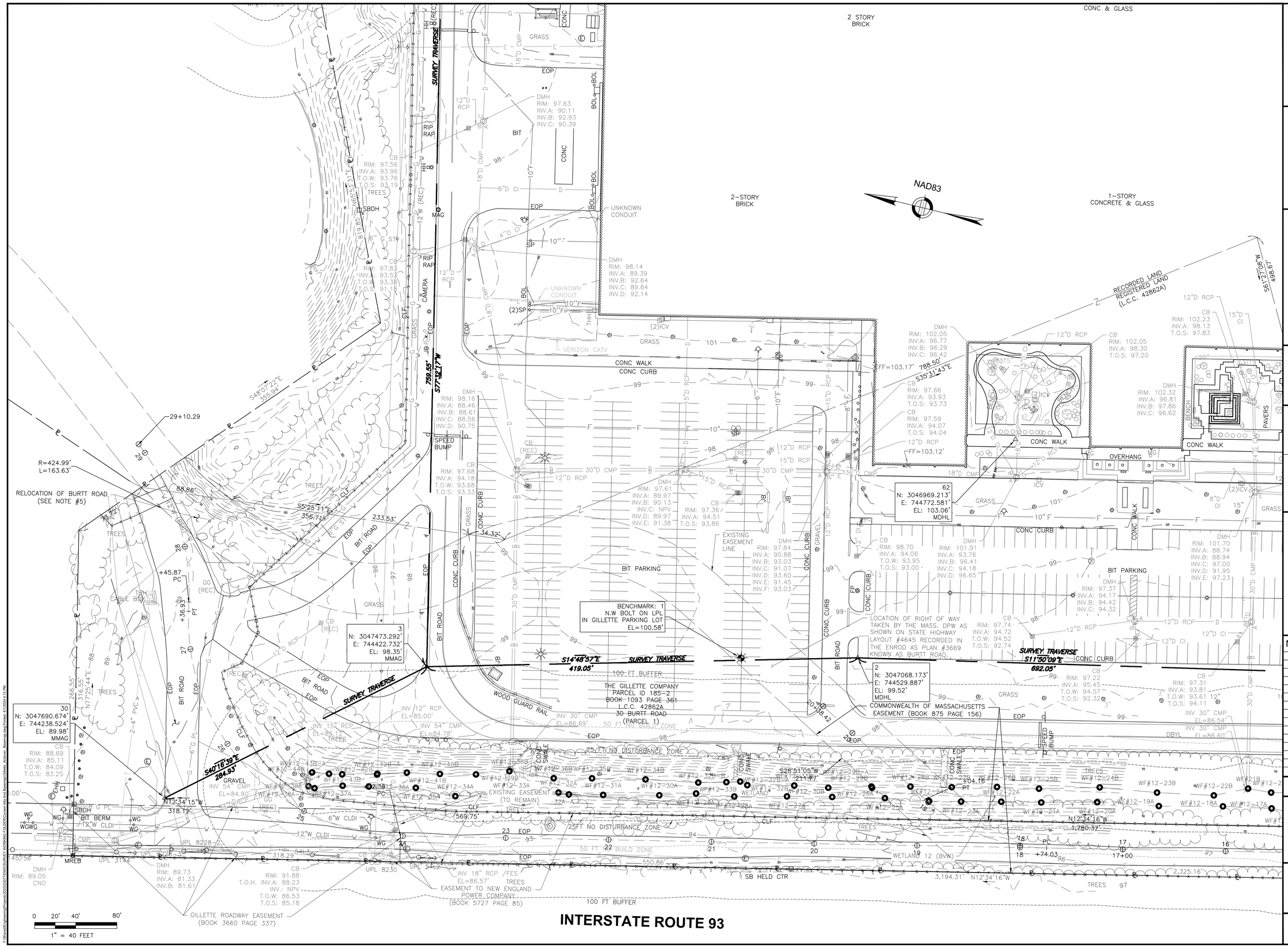
Drawn By: MJP/CM/GL
Designed By:
Checked By: DP/SV
Date: 3/29/2024
Scale: 1"=200'

Drawing Title:
Key Plan

Sheet No.
2 of 14

Drawing No.:
C-101


V:\Shared Engineering\Projects\2020\20277\DWG\SURVEY WORKING FOLDER\Current Alta And Basemap\Gillette_Andover_Basemap.dwg Printed: 4/1/2024 4:19 PM





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Civil and Structural Engineers
100 Ames Pond Dr, Suite 200
Tewksbury, Massachusetts
GreenIntl.com
(978) 923-0400


Client:

P&G
30 BURTT ROAD
ANDOVER, MA

Subconsultants:

Project Title:

# EXISTING CONDITIONS PLAN

Project Location:
30 BURTT ROAD
ANDOVER, MA

Stamp:

COMMONWEALTH OF MASSACHUSETTS
SPARTAK VAKA No. 51616 REGISTERED PROFESSIONAL LAND SURVEYOR
S. Vaka
3/29/2024

| No. | Date | Revision |
|---|---|---|
| #1 | 01/22/2021 | WETLAND UPDATES PER CON.COM |
| #2 | 04/08/2021 | WETLAND UPDATES PER CON COM |
| #3 | 06/13/2023 | REVISED BUFFERS |
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| #6 | 03/22/2024 | ADDITIONAL SURVEY |
| #7 | 03/27/2024 | ADDED RR RECORD INFO |
| #8 | 03/29/2024 | RR REMAINS & SHEET EDITS |

Project No.:

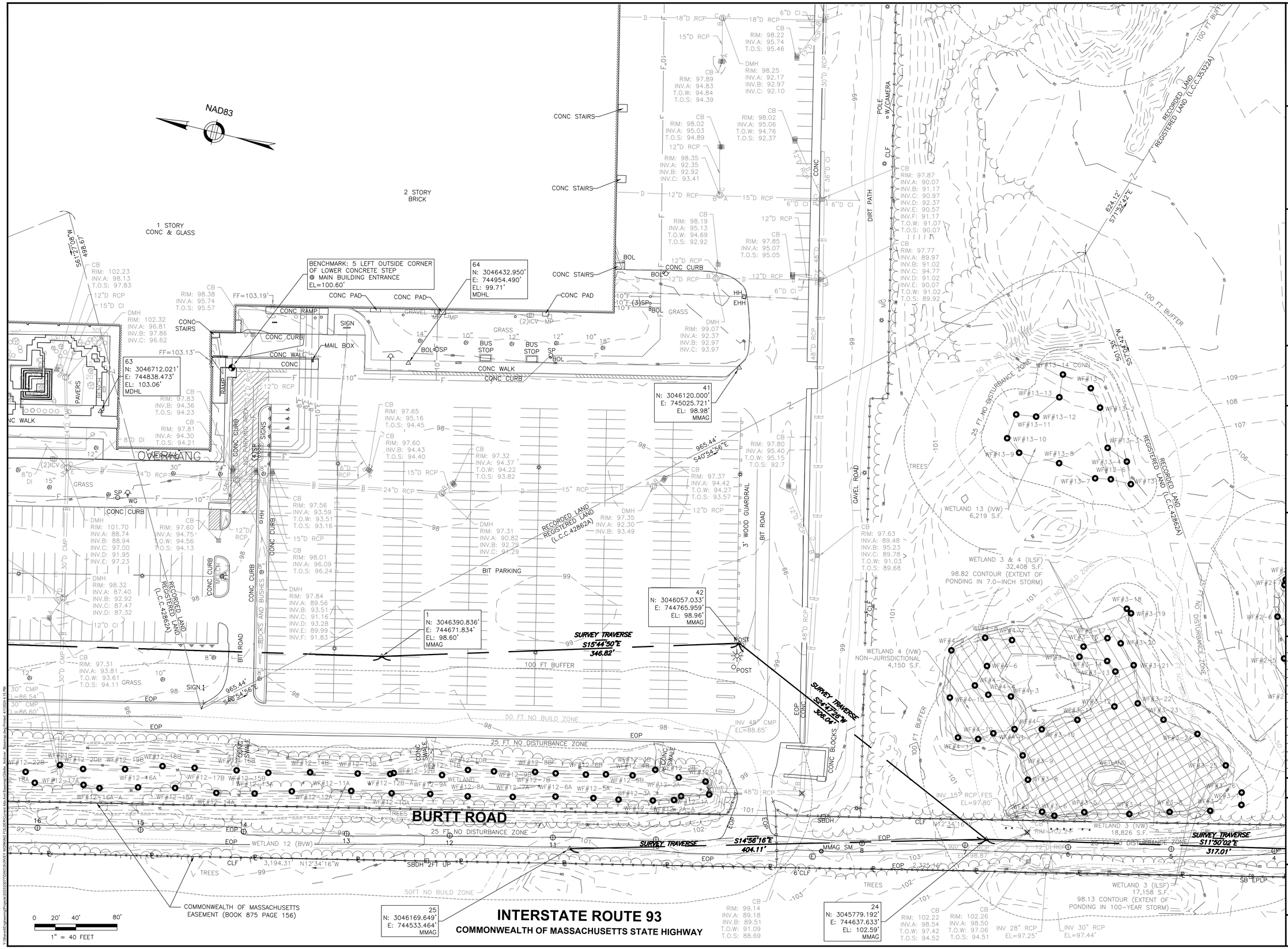
Drawn By: MJP/CM/GL
Designed By:
Checked By: DP/SV
Date: 3/29/2024
Scale: 1"=40'

Drawing Title:
Existing Conditions

Sheet No.
3 of 14

Drawing No.:
C-102

V:\Shared\Engineering\Projects\2020\2017\DWG\SURVEY WORKING FILES\Current Alta And Boundary\Gillette_Andover_Boundary.dwg Printed: 4/1/2024 4:16 PM





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Civil and Structural Engineers
100 Ames Pond Dr, Suite 200
Tewksbury, Massachusetts
GreenIntl.com
(978) 923-0400


Client:

P&G
30 BURTT ROAD
ANDOVER, MA

Subconsultants:

Project Title:

# EXISTING CONDITIONS PLAN

Project Location:
30 BURTT ROAD
ANDOVER, MA

Stamp:

SPARTAK VAKA No. 51616 REGISTERED PROFESSIONAL LAND SURVEYOR COMMONWEALTH OF MASSACHUSETTS

S. Vaka
3/29/2024

| No. | Date | Revision |
|---|---|---|
| #1 | 01/22/2021 | WETLAND UPDATES PER CON.COM |
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| #5 | 01/30/2024 | ADDITIONAL SURVEY |
| #6 | 03/22/2024 | ADDITIONAL SURVEY |
| #7 | 03/27/2024 | ADDED RR RECORD INFO |
| #8 | 03/29/2024 | RR REMAINS & SHEET EDITS |

Project No.:

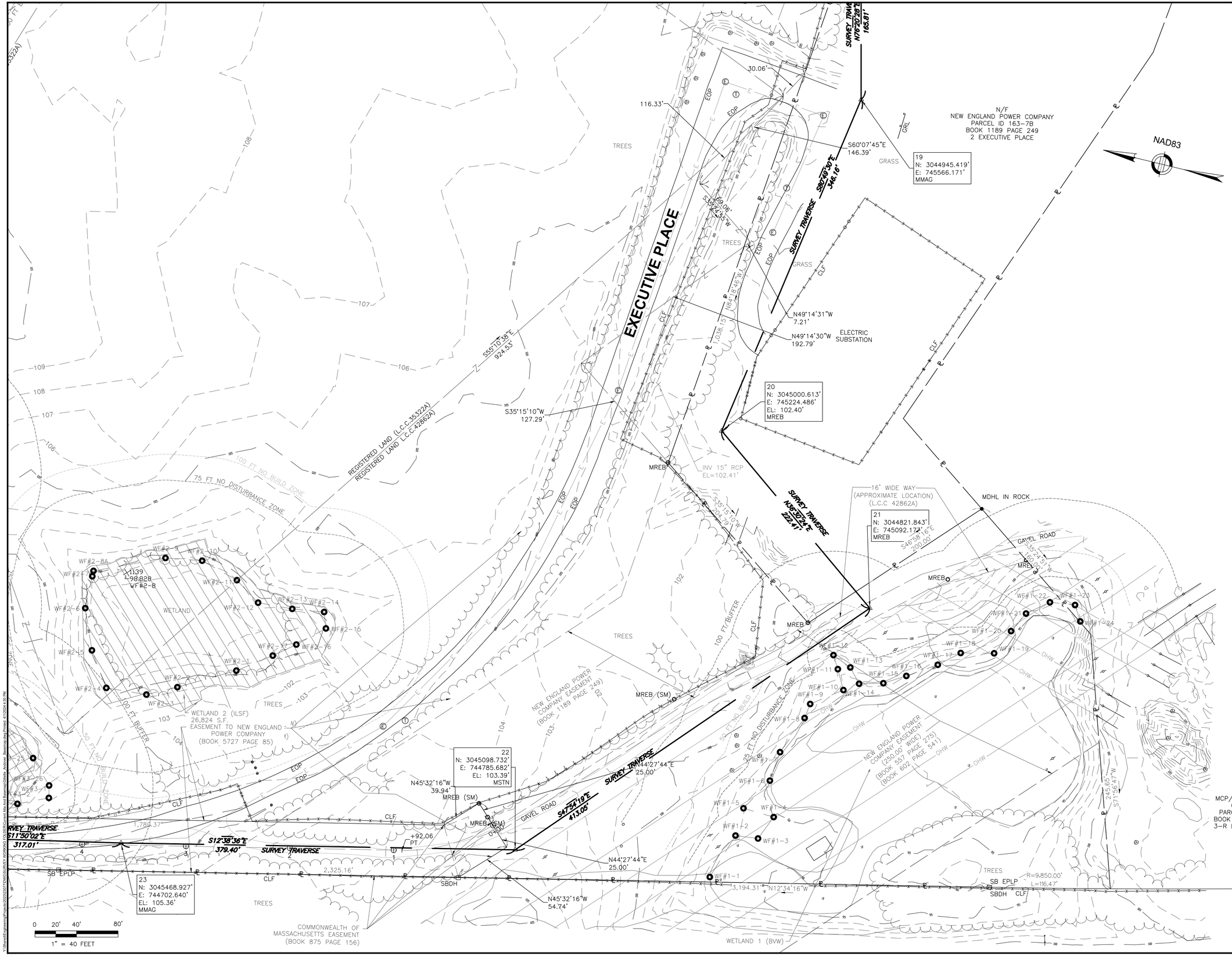
Drawn By: MJP/CM/GL
Designed By:
Checked By: DP/SV
Date: 3/29/2024
Scale: 1"=40'

Drawing Title:
Existing Conditions

Sheet No.
4 of 14

Drawing No.:
C-103


X:\Shared Engineering\Projects\2023\2023170\WORKFILE WORKING FOLDER\Cosmo Civil Plan Base\Cosmo_Base.dwg Printed: 4/1/2024 4:15 PM





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Civil and Structural Engineers
100 Ames Pond Dr, Suite 200
Tewksbury, Massachusetts
GreenIntl.com
(978) 923-0400


Client:

P&G
30 BURTT ROAD
ANDOVER, MA

Subconsultants:

Project Title:

# EXISTING CONDITIONS PLAN

Project Location:
30 BURTT ROAD
ANDOVER, MA

Stamp:

COMMONWEALTH OF MASSACHUSETTS
SPARTAK VAKA No. 51616 REGISTERED PROFESSIONAL LAND SURVEYOR
S. Vaka
3/29/2024

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| #8 | 03/29/2024 | RR REMAINS & SHEET EDITS |

Project No.:

Drawn By: MJP/CM/GL
Designed By:
Checked By: DP/SV
Date: 3/29/2024
Scale: 1"=40'

Drawing Title:
Existing Conditions

Sheet No.
5 of 14

Drawing No.:
C-104


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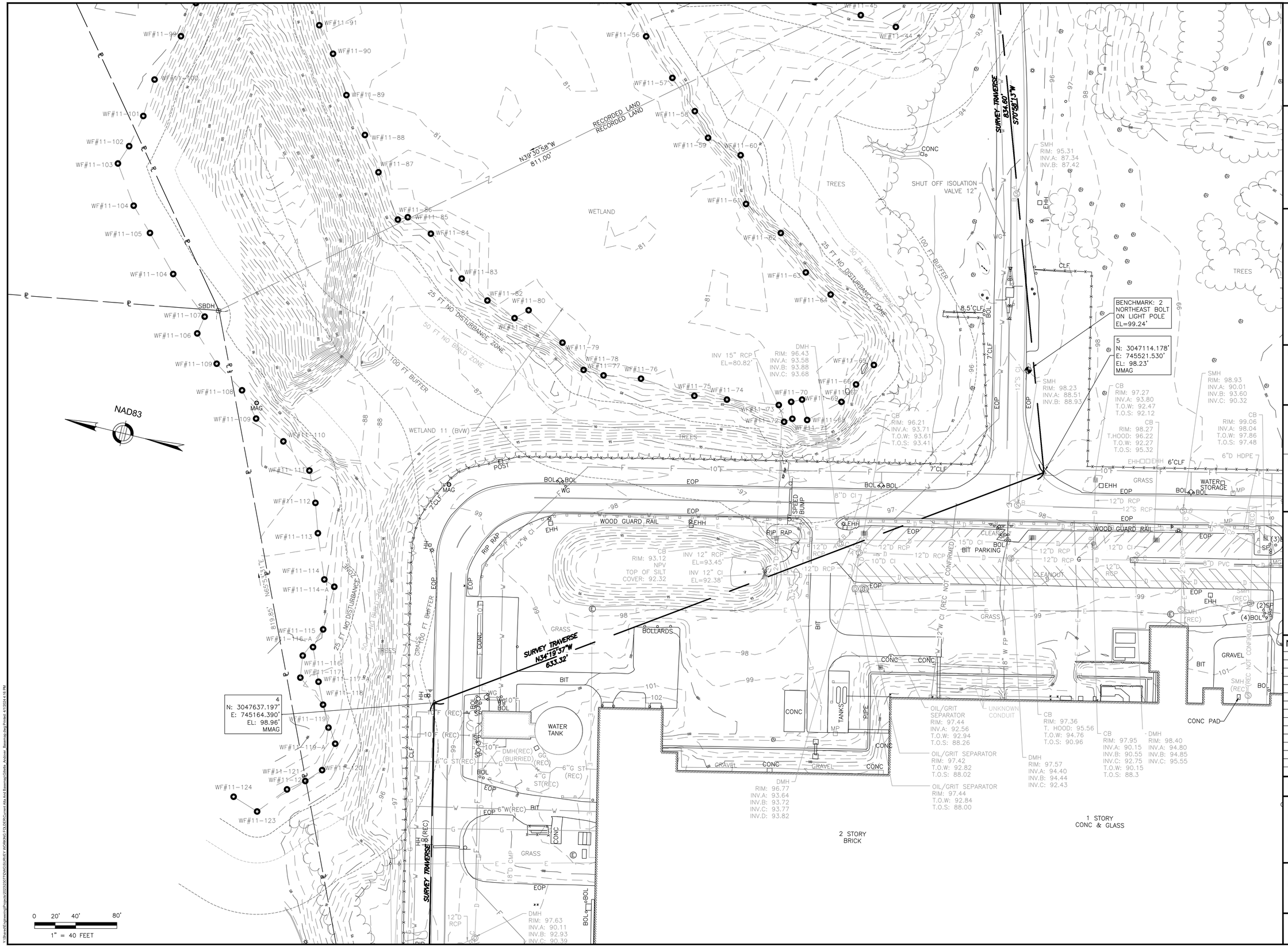



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Civil and Structural Engineers
100 Ames Pond Dr, Suite 200
Tewksbury, Massachusetts
GreenIntl.com
(978) 923-0400


Client:

P&G
30 BURTT ROAD
ANDOVER, MA

Subconsultants:

Project Title:

# EXISTING CONDITIONS PLAN

Project Location:
30 BURTT ROAD
ANDOVER, MA

Stamp:

COMMONWEALTH OF MASSACHUSETTS
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Project No.:

Drawn By: MJP/CM/GL
Designed By:
Checked By: DP/SV
Date: 3/29/2024
Scale: 1"=40'

Drawing Title:
Existing Conditions

Sheet No.
6 of 14

Drawing No.:
C-105


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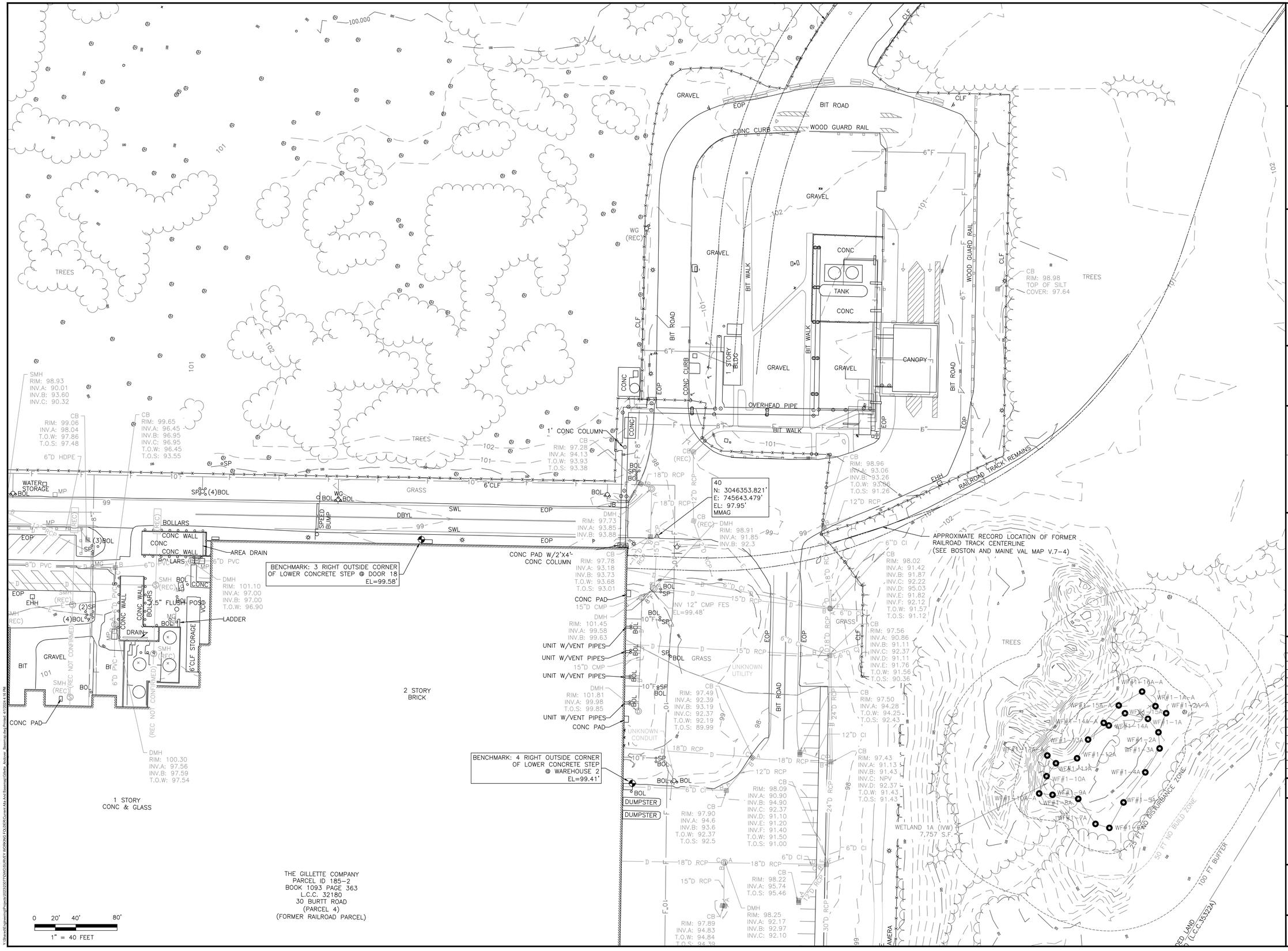



**GREEN INTERNATIONAL AFFILIATES, INC.**
Civil and Structural Engineers
100 Ames Pond Dr, Suite 200
Tewksbury, Massachusetts
GreenIntl.com
(978) 923-0400


Client:

P&G
30 BURTT ROAD
ANDOVER, MA

Subconsultants:

Project Title:

EXISTING CONDITIONS PLAN

Project Location:
30 BURTT ROAD
ANDOVER, MA

Stamp:

COMMONWEALTH OF MASSACHUSETTS
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S. Vaka
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Drawn By: MJP/CM/GL
Designed By:
Checked By: DP/SV
Date: 3/29/2024
Scale: 1"=40'

Drawing Title:
Existing Conditions

Sheet No.
7 of 14

Drawing No.:
C-106

V:\Shared\Engineering\Projects\2023\2023177\SURVEY\WORKING FOLDER\Current AAs And Basemap\Grade_Andover_Basemap.dwg Printed: 4/1/2024 4:19 PM

THE GILLETTE COMPANY
PARCEL ID 185-2
BOOK 1189 PAGE 254
30 BURTT ROAD
(PARCEL 12)

THE GILLETTE COMPANY
PARCEL ID 185-2
BOOK 1100 PAGE 62
30 BURTT ROAD
(FORMER RAILROAD PARCEL)

THE GILLETTE COMPANY
PARCEL ID 185-2
CERT. 6284
L.C.C. 35322A
30 BURTT ROAD

N/F
NEW ENGLAND POWER COMPANY
PARCEL ID 163-7B
BOOK 1189 PAGE 249
2 EXECUTIVE PLACE

PROPOSED BURTT ROAD EXTENSION
(BOOK 5727 PAGE 85)

RECORDED LAND
RECORDED LAND

RECORDED LAND
REGISTERED LAND (L.C.C. 35322A)

RECORDED LAND
REGISTERED LAND (L.C.C. 35322A)

292.27'
N37°38'10"W

101.00'
S13°32'30"W

821.67'
S7°30'10"E

S16°08'50"W
373.39'

S67°19'50"E
71.97'

624.12'
S71°52'42"E

657.76'
N22°48'50"E

61.85'

332.43'

N7°00'27"E

WF#5-7
WF#5-8
WF#5-6
WF#5-5
WF#5-4
WF#5-3
WF#5-3-A
WF#5-2
WF#5-1

25' NO DISTURBANCE ZONE
50' NO BUILD ZONE
100 FT. BUFFER

FIBER CABLE

14
N: 3044991.279'
E: 746458.306'
MSTN

15
N: 3044870.310'
E: 746318.608'
MREB

16
N: 3044922.757'
E: 746112.744'
MREB

17
N: 3044970.433'
E: 745903.503'
MREB

18
N: 3044984.574'
E: 745727.285'
MREB

MREB (SM)
MREB (SM)

N49°07'43"E
184.81'

226.39'
(REC. 229.11')
S64°10'06"W

WETLAND 5 (BVW)

SURVEY TRAVERSE
S75°42'20"E
212.44'

SURVEY TRAVERSE
S7°08'51"E
214.80'

SURVEY TRAVERSE
S65°24'45"E
176.76'

SURVEY TRAVERSE
N76°20'29"E
165.81'

279.68'
N64°18'15"E

30.06'

CLF

990
+94.07
991
989

102
107
106

NAD83

0 20' 40' 80'
1" = 40 FEET


**GREEN INTERNATIONAL AFFILIATES, INC.**
Civil and Structural Engineers
100 Ames Pond Dr, Suite 200
Tewksbury, Massachusetts
GreenIntl.com
(978) 923-0400


Client:
P&G
30 BURTT ROAD
ANDOVER, MA

Subconsultants:

Project Title:

# EXISTING CONDITIONS PLAN

Project Location:
30 BURTT ROAD
ANDOVER, MA

Stamp:

COMMONWEALTH OF MASSACHUSETTS
SPARTAK VAKA No. 51616 REGISTERED PROFESSIONAL LAND SURVEYOR
S. Vaka
3/29/2024

| No. | Date | Revision |
|---|---|---|
| #1 | 01/22/2021 | WETLAND UPDATES PER CON.COM |
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| #7 | 03/27/2024 | ADDED RR RECORD INFO |
| #8 | 03/29/2024 | RR REMAINS & SHEET EDITS |

Project No.:

Drawn By: MJP/CM/GL
Designed By:
Checked By: DP/SV
Date: 3/29/2024
Scale: 1"=40'

Drawing Title:
Existing Conditions

Sheet No.
8 of 14

Drawing No.:
C-107

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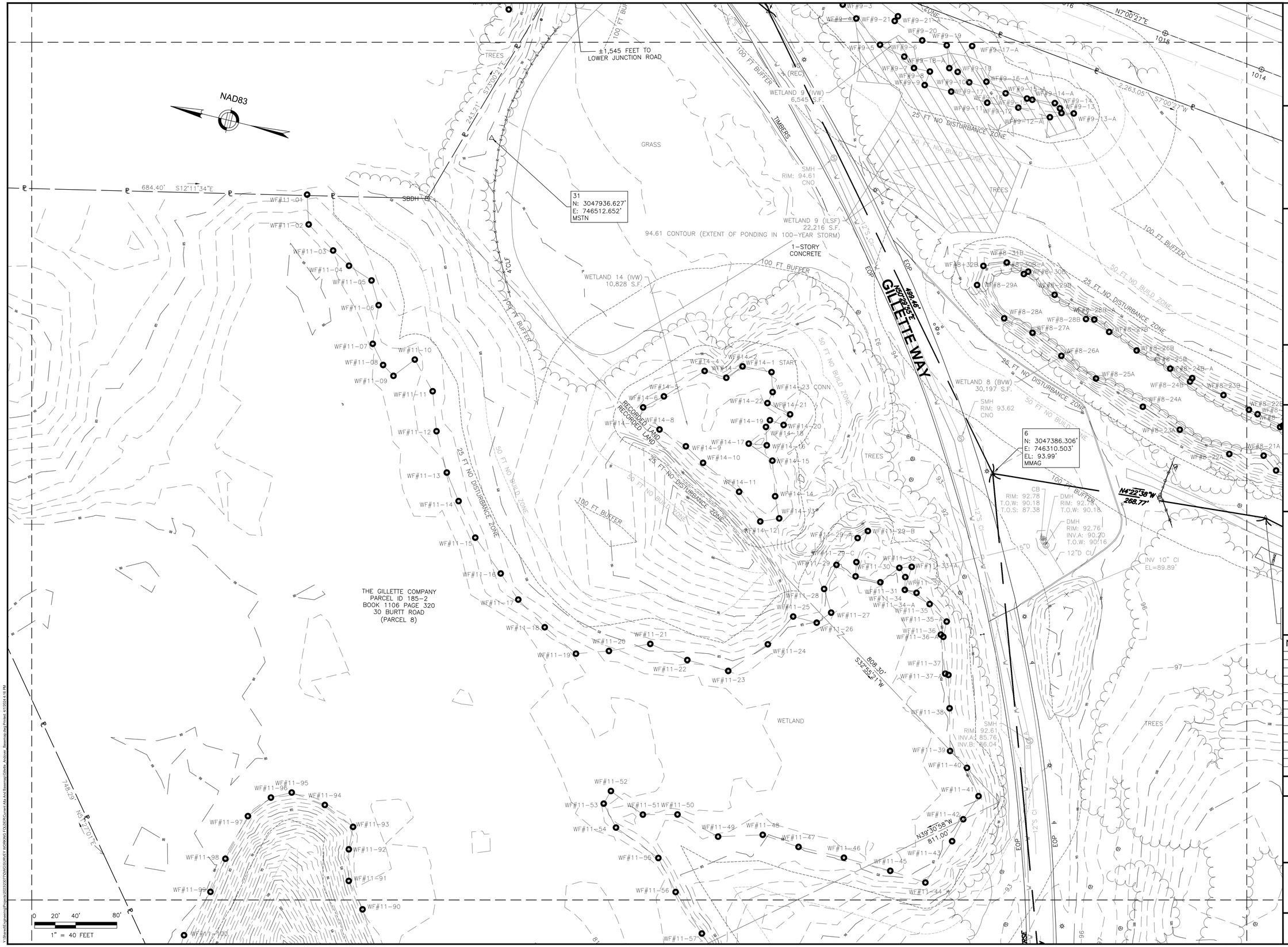


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Civil and Structural Engineers
100 Ames Pond Dr, Suite 200
Tewksbury, Massachusetts
GreenIntl.com
(978) 923-0400

Client:
P&G Gillette
P&G
30 BURTT ROAD
ANDOVER, MA

Subconsultants:

Project Title:

EXISTING CONDITIONS PLAN

Project Location:
30 BURTT ROAD
ANDOVER, MA

Stamp:
COMMONWEALTH OF MASSACHUSETTS
SPARTAK VAKA No. 51616 REGISTERED PROFESSIONAL LAND SURVEYOR
S. Vaka
3/29/2024

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Project No.:

Drawn By: MJP/CM/GL
Designed By:
Checked By: DP/SV
Date: 3/29/2024
Scale: 1"=40'

Drawing Title:
Existing Conditions

Sheet No.
9 of 14

Drawing No.:
C-108

# MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NAD83

RAILROAD SIDELINE
RAILROAD BASELINE
FIBER CABLE
CLF
WG (REC)
SMH (REC)
1014
1013
1012
1011
1010
1009
1008
1007
1006
1005
1004
1003
1002
N7°00'27"E
2,263.05'
S7°00'27"W
11
N: 3046333.787'
E: 746617.574'
MREB
SURVEY TRAVERSE
N6°23'49"E
351.01'
SURVEY TRAVERSE
N51°57'35"W
333.61'
SURVEY TRAVERSE
N13°07'23"E
217.37'
SURVEY TRAVERSE
N11°20'05"W
374.11'
8
N: 3047118.327'
E: 746331.015'
MREB
9
N: 3046906.637'
E: 746281.664'
MREB
10
N: 3046539.819'
E: 746355.192'
MREB
100 FT BUFFER
50 FT NO BUILD ZONE
25 FT NO DISTURBANCE ZONE
DIRT PATH
WETLAND 8 (BVW)
30,197 S.F.
WETLAND 7 (IVW)
NON-JURISDICTIONAL
146 S.F.
WETLAND 6 (IVW)
NON-JURISDICTIONAL
289 S.F.
APPROXIMATE RECORD LOCATION OF FORMER RAILROAD TRACK CENTERLINE
(SEE BOSTON AND MAINE VAL MAP V.7-4)
GATE
WETLAND
WF#8-23B
WF#8-22B-A
WF#8-22B
WF#8-21B-A
WF#8-21B
WF#8-20B-A
WF#8-20B
WF#8-19B
WF#8-21A
WF#8-20A
WF#8-19A
WF#8-18A
WF#8-17A
WF#8-18B
WF#8-17B
WF#8-16B
WF#8-15B
WF#8-16A
WF#8-15A
WF#8-14B
WF#8-13B
WF#8-14A
WF#8-13A
WF#8-12A
WF#8-12B
WF#8-11B
WF#8-10B
WF#8-11A
WF#8-10A
WF#8-10B-A
WF#8-9B
WF#8-9A
WF#8-8A
WF#8-8B
WF#8-7B
WF#8-7A
WF#8-7A-A
WF#8-6B-A
WF#8-6B
WF#8-6A
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WF#8-4B
WF#8-4A
WF#8-3B
WF#8-3A
WF#8-2B
WF#8-2A
WF#8-1B
WF#8-1A
WF#7-3
WF#7-2
WF#7-1
WF#6-3
WF#6-2
WF#6-1
100.000
0 20' 40' 80'
1" = 40 FEET


**GREEN INTERNATIONAL AFFILIATES, INC.**
Civil and Structural Engineers
100 Ames Pond Dr, Suite 200
Tewksbury, Massachusetts
GreenIntl.com
(978) 923-0400


Client:
P&G

P&G
30 BURTT ROAD
ANDOVER, MA

Subconsultants:

Project Title:

EXISTING CONDITIONS PLAN

Project Location:
30 BURTT ROAD
ANDOVER, MA

Stamp:

COMMONWEALTH OF MASSACHUSETTS
SPARTAK VAKA No. 51616 REGISTERED
PROFESSIONAL LAND SURVEYOR
S. Vaka
3/29/2024

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Project No.:

Drawn By: MJP/CM/GL
Designed By:
Checked By: DP/SV
Date: 3/29/2024
Scale: 1"=40'

Drawing Title:
Existing Conditions

Sheet No.
10 of 14

Drawing No.:
C-109

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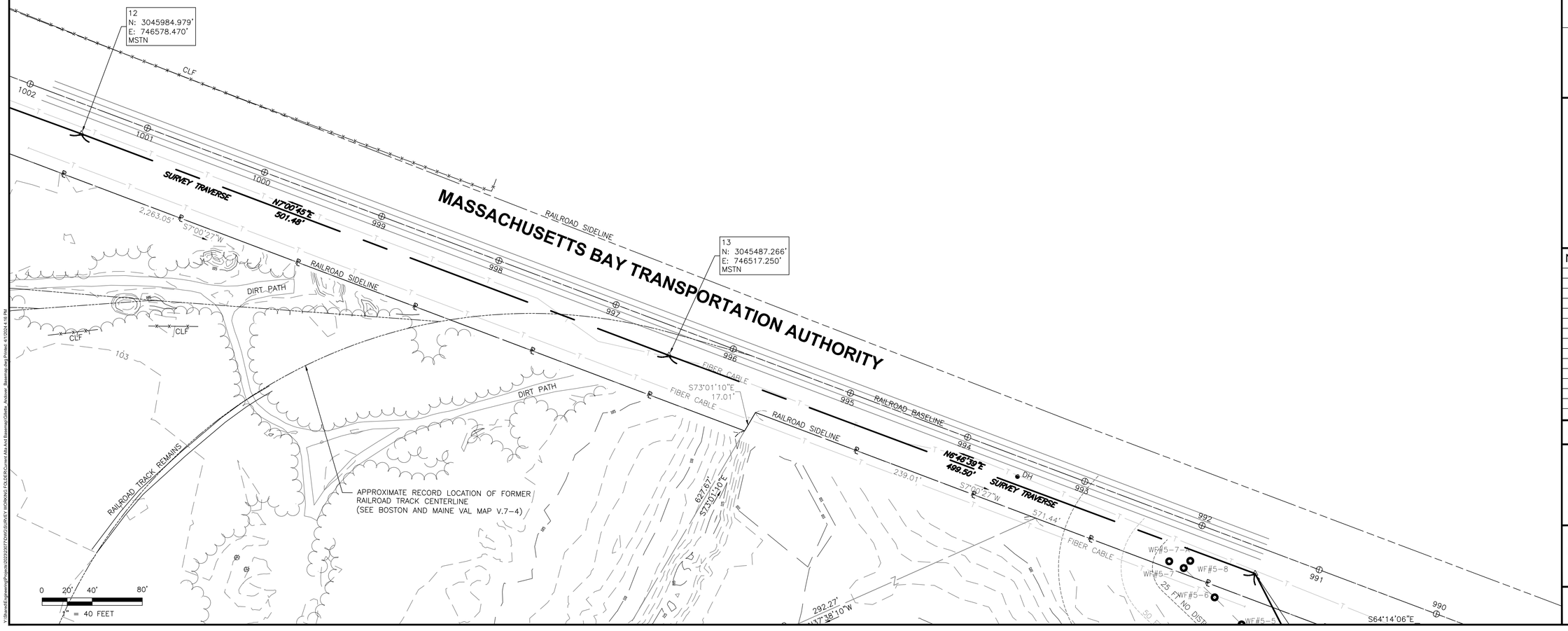



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GreenIntl.com
(978) 923-0400


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ANDOVER, MA

Subconsultants:

Project Title:

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| #5 | 01/30/2024 | ADDITIONAL SURVEY |
| #6 | 03/22/2024 | ADDITIONAL SURVEY |
| #7 | 03/27/2024 | ADDED RR RECORD INFO |
| #8 | 03/29/2024 | RR REMAINS & SHEET EDITS |

Project No.:

Drawn By: MJP/CM/GL
Designed By:
Checked By: DP/SV
Date: 3/29/2024
Scale: 1"=40'

Drawing Title:
Existing Conditions

Sheet No.
11 of 14

Drawing No.:
C-110


J:\Shared\Engineering\Projects\2019\2019170\WORKING FILES\PC\Cover Alta And Basemap\Gillette_Andover_Basemap.dwg Printed: 4/1/2024 1:16 PM

0 20' 40' 80'

1" = 40 FEET


**GREEN INTERNATIONAL AFFILIATES, INC.**
Civil and Structural Engineers
100 Ames Pond Dr, Suite 200
Tewksbury, Massachusetts
GreenIntl.com
(978) 923-0400


Client:

P&G
30 BURTT ROAD
ANDOVER, MA

Subconsultants:

Project Title:

# EXISTING CONDITIONS PLAN

Project Location:
30 BURTT ROAD
ANDOVER, MA

Stamp:

COMMONWEALTH OF MASSACHUSETTS
SPARTAK VAKA No. 51616
REGISTERED PROFESSIONAL LAND SURVEYOR

S. Vaka

3/29/2024

| No. | Date | Revision |
|---|---|---|
| #1 | 01/22/2021 | WETLAND UPDATES PER CON.COM |
| #2 | 04/08/2021 | WETLAND UPDATES PER CON COM |
| #3 | 06/13/2023 | REVISED BUFFERS |
| #4 | 07/28/2023 | ADDITIONAL SURVEY |
| #5 | 01/30/2024 | ADDITIONAL SURVEY |
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Drawing Title:
Existing Conditions

Sheet No.
12 of 14

Drawing No.:
C-111

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Drawing Title:
Existing Conditions

Sheet No.
13 of 14

Drawing No.:
C-112

NAD83

81
N: 3048484.563'
E: 746972.251'
EL: 94.32'
MMAG SET /33

33
N: 3048484.563'
E: 746972.251'
MMAG

80
N: 3047992.016'
E: 746832.695'
EL: 96.38'
MMAG SET

7
N: 3047704.008'
E: 746695.888'
MMAG

BENCHMARK: 8
EAST BOLE ON
LP BASE
EL=96.45'

BENCHMARK: 7
X FOUND ON
LP BASE
EL=97.87'

SURVEY TRAVERSE
S11°49'20"E
511.94'

N15°49'20"E
318.84'

N25°22'11"E
318.84'

S60.00'
S15°51'18"W

N15°51'18"E
560.00'

NOT TANGENT

PT
+31.60

+31.51
PC

R=5,912.17'
L=354.28'

L=354.35'(REC)

N71°35'38"E
19.31'

L=44.98'
L=45.00'(REC)

R=3,944.17'
L=296.85'
L=296.87'(REC)

METAL RAIL

BIT. CURB

FIBER CABLE

80L

GAS

W

WG
WG (REC)

SMH
SMH (REC)

EOD

TOP OF BANK

RIM: 95.69
INV.A: 81.44
INV.B: 83.51
INV.C: 82.49

MDHL IN ROCK

WF#10-1
WF#10-2
WF#10-3
WF#10-4
WF#10-5
WF#10-6

WF#9-1
WF#9-2
WF#9-3
WF#9-4
WF#9-5
WF#9-6
WF#9-17-A
WF#9-18-A
WF#9-19
WF#9-20
WF#9-21
WF#9-21-A
WF#9-22
WF#9-23
MIPE

1027
1026
1025
1024
1023
1022
1021
1020
1019
1018
1017
1016
1015

90
85
95

THE GILLETTE COMPANY
PARCEL ID 159-12C
BOOK 1093 PAGE 363
0 LOWELL JUNCTION ROAD
(PARCEL 5)
(FORMER RAILROAD PARCEL)

EXCAVATION OF PARCEL 5
WITHIN 50' OF CENTERLINE OF
TRACKS REQUIRES PERMIT FROM
RAILROAD CHIEF ENGINEER
(BOOK 927 PAGE 371)

N/F
RENY REAL ESTATE, LLC
PARCEL ID 161-6
BOOK 8554 PAGE 111
0 LOWELL JUNCTION ROAD

42' WIDE ROAD EASEMENT
(BOOK 1103 PAGE 440)

10' GILLETTE EASEMENT
BOOK 927 PAGE 371

GILLETTE EASEMENT
BOOK 1107 PAGE 426
PLAN 5861

TOWN OF ANDOVER
SEWER & WATER LINE EASEMENT
(BOOK 1237 PAGE 260)

TOWN OF ANDOVER
SEWER & WATER LINE EASEMENT
(BOOK 1237 PAGE 260)

EXISTING
EASEMENT LINE

100 FT. BUFFER

50 FT. NO BUILD ZONE

25 FT. NO DISTURBANCE ZONE

NO BUILD ZONE

DISTURBANCE ZONE

100 FT. BUFFER

TREES

±1,545 FEET TO
LOWER JUNCTION ROAD

0 20' 40' 80'
1" = 40 FEET

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LINE OF TOWN OF ANDOVER ROADWAY EASEMENT TAKING (BOOK 1103 PAGE 491 & 493) (PLAN 5826)

83
N: 3049478.080'
E: 747318.722'
EL: 91.05'
MREB SET

APPROXIMATE LOCATION TOWN SLOPE EASEMENT (BOOK 1113 PAGE 331) (PLAN 5900)

THE GILLETTE COMPANY
PARCEL ID 159-12
BOOK 1093 PAGE 363
38 LOWELL JUNCTION ROAD
(PARCEL 6)

PROPERTY LINE OF
38 LOWELL JUNCTION ROAD
AS SHOWN ON L.C.C. 35487A

BENCHMARK: 10
EAST BOLT
LP BASE
EL=92.30'

BENCHMARK: 11
MAG NAIL SET
UP#81
EL=92.07'

82
N: 3048976.899'
E: 747088.073'
EL: 92.15'
MMAG SET

16' WIDE RIGHT OF WAY EASEMENT (PLAN 5799)

GILLETTE EASEMENT
BOOK 1100 PAGE 62
(PLAN 5799)

10' GILLETTE EASEMENT
(BOOK 927 PAGE 371)

GILLETTE EASEMENT
BOOK 1100 PAGE 62
(PLAN 5799)

DRIVEWAY EASEMENT AREA
BOOK 927 PAGE 371
(NOT PLOTTABLE)

85
N: 3049528.525'
E: 746957.651'
EL: 90.11'
MMAG

84
N: 3049527.199'
E: 746954.235'
EL: 90.12'
MREB

ALLEGRA ANDOVER LLC
PARCEL ID 159-12B
BOOK 17583 PAGE 325
0 LOWELL JUNCTION ROAD

LINE OF TOWN OF ANDOVER ROADWAY EASEMENT TAKING
(BOOK 1103 PAGE 491 & 493)
(PLAN 5826)

N/F
ALLEGRA ANDOVER LLC
PARCEL ID 159-13
BOOK 17583 PAGE 325
44 LOWELL JUNCTION ROAD

12' WIDE SLOPE EASEMENT
(L.C. CERTIFICATE 6010)
(L.C. DOCUMENT 20362)

32' WIDE SLOPE EASEMENT
(L.C. CERTIFICATE 6010)
(L.C. DOCUMENT 20362)

BENCHMARK: 9
EAST BOLT ON
LP BASE
EL=94.25'

LOWELL JUNCTION ROAD
(PUBLIC - 50' WIDE)

GILLETTE WAY

RAILROAD SIDELINE

RAILROAD BASELINE

RR TRACKS

METAL RAIL

EOP

BIT CURB

CBDH

SOLAR PANEL

TRAILER

CONTAINER

NAD83

0 20' 40' 80'
1" = 40 FEET


GREEN INTERNATIONAL AFFILIATES, INC.
Civil and Structural Engineers
100 Ames Pond Dr, Suite 200
Tewksbury, Massachusetts
GreenIntl.com
(978) 923-0400


Client:
P&G Gillette

P&G
30 BURTT ROAD
ANDOVER, MA

Subconsultants:

Project Title:

EXISTING CONDITIONS PLAN

Project Location:
30 BURTT ROAD
ANDOVER, MA

Stamp:
COMMONWEALTH OF MASSACHUSETTS
SPARTAK VAKA No. 51616 REGISTERED PROFESSIONAL LAND SURVEYOR
S. Vaka
3/29/2024

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Sheet No.
14 of 14

Drawing No.:
C-113


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## GENERAL NOTES:

1. TOPOGRAPHIC DATA, PROPERTY LINE INFORMATION, AND EXISTING SITE FEATURES WERE OBTAINED FROM A PLAN ENTITLED "EXISTING CONDITIONS PLAN – 30 BURTT ROAD, ANDOVER, MA", PREPARED BY GREEN INTERNATIONAL AFFILIATES INC., DATED 01/15/2024.
2. FLOODPLAIN INFORMATION WAS OBTAINED FROM THE FLOOD INSURANCE RATE MAP (FIRM) NO. 25009C0356F DATED JULY 3, 2012. THE SITE IS LOCATED IN ZONE X (AREA OF MINIMAL FLOOD HAZARD)
3. THE CONTRACTOR SHALL COMPLY WITH MASSACHUSETTS GENERAL LAWS CHAPTER 82, SECTION 40, AS AMENDED, WHICH STATES THAT NO ONE MAY EXCAVATE IN THE COMMONWEALTH OF MASSACHUSETTS EXCEPT IN AN EMERGENCY WITHOUT 72 HOURS NOTICE, EXCLUSIVE OF SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS, TO NATURAL GAS PIPELINE COMPANIES, AND MUNICIPAL UTILITY DEPARTMENTS THAT SUPPLY GAS, ELECTRICITY, TELEPHONE, OR CABLE TELEVISION SERVICE IN OR TO THE CITY OR TOWN WHERE THE EXCAVATION IS TO BE MADE. THE CONTRACTOR SHALL CALL "DIG SAFE" AT 1-888-DIG-SAFE.
4. THE CONTRACTOR SHALL COMPLY WITH MASSACHUSETTS GENERAL LAWS CHAPTER 82A, ALSO REFERRED TO AS JACKIE'S LAW, AS DETAILED IN SECTION 520 CMR 14.00 OF THE CODE OF MASSACHUSETTS REGULATIONS.
5. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, RULES, REGULATIONS AND SAFETY CODES IN THE CONSTRUCTION OF ALL IMPROVEMENTS.
6. THE LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES ARE APPROXIMATE AND ALL UTILITIES MAY NOT BE SHOWN. PRESENCE AND LOCATIONS OF ALL UTILITIES WITHIN THE LIMIT OF WORK MUST BE DETERMINED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND CONTACTING THE CONTROLLING AUTHORITIES AND/OR UTILITY COMPANIES RELATIVE TO THE LOCATIONS AND ELEVATIONS OF THEIR LINES. THE CONTRACTOR SHALL KEEP A RECORD OF ANY DISCREPANCIES OR CHANGES IN THE LOCATIONS OF ANY UTILITIES SHOWN OR ENCOUNTERED DURING CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE OWNER AND NITSCH ENGINEERING. ANY DAMAGE RESULTING FROM THE FAILURE OF THE CONTRACTOR TO MAKE THESE DETERMINATIONS AND CONTACTS SHALL BE BORNE BY THE CONTRACTOR.
7. THE CONTRACTOR SHALL, THROUGHOUT CONSTRUCTION, TAKE ADEQUATE PRECAUTIONS TO PROTECT ALL WALKS, GRADING, SIDEWALKS AND SITE DETAILS OUTSIDE OF THE LIMIT OF WORK AS DEFINED ON THE DRAWINGS AND SHALL REPAIR AND REPLACE OR OTHERWISE MAKE GOOD AS DIRECTED BY THE ENGINEER OR OWNER'S DESIGNATED REPRESENTATIVE ANY SUCH OR OTHER DAMAGE SO CAUSED.
8. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY AND ALL CONSTRUCTION MEANS AND METHODS.
9. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SITE AND CONSTRUCTION DOCUMENTS TO DEVELOP A THOROUGH UNDERSTANDING OF THE PROJECT, INCLUDING ANY SPECIAL CONDITIONS AND CONSTRAINTS.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BECOME FAMILIAR WITH THE PROJECT SITE AND TO VERIFY ALL CONDITIONS IN THE FIELD AND REPORT DISCREPANCIES BETWEEN PLANS AND ACTUAL CONDITIONS TO THE OWNER OR OWNER'S REPRESENTATION IMMEDIATELY.
11. THE CONTRACTOR SHALL CONDUCT ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS.
12. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE ESTABLISHMENT AND USE OF ALL VERTICAL AND HORIZONTAL CONSTRUCTION CONTROLS.
13. ELEVATIONS REFER TO NAD83.
14. FOR SOIL INFORMATION REFER TO GEOTECHNICAL REPORT PREPARED BY GEI CONSULTANTS DATED JUNE, 2023.

## DEMOLITION NOTES:

1. SITE PREPARATION AND DEMOLITION SHALL INCLUDE THOSE AREAS WITHIN THE LIMIT OF WORK LINE AS SHOWN ON THE CONTRACT DOCUMENTS.
2. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
3. CONSULT ALL OF THE DRAWINGS AND SPECIFICATIONS FOR COORDINATION REQUIREMENTS BEFORE COMMENCING DEMOLITION.
4. THE CONTRACTOR SHALL COORDINATE SITE DEMOLITION EFFORTS WITH ALL TRADES THAT MAY BE AFFECTED BY THE WORK.
5. ALL ITEMS REQUIRING REMOVAL SHALL BE REMOVED TO FULL DEPTH TO INCLUDE BASE MATERIAL AND FOOTINGS OR FOUNDATIONS AS REQUIRED TO FACILITATE CONSTRUCTION, AND LEGALLY DISPOSED OF OFFSITE BY CONTRACTOR.
6. UTILITY PIPES DESIGNATED TO BE ABANDONED IN PLACE SHALL BE PLUGGED AT THEIR ENDS WITH WATERTIGHT BRICK MASONRY OR CEMENT MORTAR WITH A MINIMUM THICKNESS OF 8 INCHES.
7. UTILITY PIPES DESIGNATED TO BE REMOVED SHALL CONSIST OF THE COMPLETE REMOVAL AND DISPOSAL OF THE ENTIRE LENGTH OF PIPE AND BACKFILL AND 95% COMPACTION OF THE VOID WITH ORDINARY BORROW. WHEN THE VOID IS WITHIN THE FOOTPRINT OF THE NEW BUILDING, GRAVEL BORROW SHALL BE USED TO BACKFILL THE VOID.
8. UTILITY STRUCTURES DESIGNATED TO BE ABANDONED IN PLACE SHALL HAVE THEIR CAST IRON CASTINGS REMOVED AND DISPOSED, INLET AND OUTLET PIPES PLUGGED, THE BOTTOM OF THE STRUCTURES SHALL BE BROKEN, THE VOID OF THE STRUCTURES SHALL BE BACKFILLED AND COMPACTED TO 95% WITH ORDINARY BORROW OR FLOWABLE FILL, AND THE TOP OF THE STRUCTURE SHALL BE REMOVED SO THAT IT IS AT LEAST 36 INCHES BELOW FINISH GRADE.
9. UTILITY STRUCTURES DESIGNATED TO BE REMOVED SHALL CONSIST OF THE REMOVAL AND DISPOSAL OF CAST IRON CASTINGS, PLUGGING OF INLET AND OUTLET PIPES, REMOVAL OF THE STRUCTURE, AND BACKFILL AND 95% COMPACTION OF THE VOID WITH ORDINARY BORROW. WHEN HE VOID IS WITHIN THE FOOTPRINT OF THE NEW BUILDING, GRAVEL BORROW SHALL BE USED TO BACKFILL THE VOID.
10. ALL DEBRIS GENERATED DURING SITE PREPARATION ACTIVITIES SHALL BE LEGALLY DISPOSED OF OFFSITE.
11. AT ALL LOCATIONS WHERE EXISTING CURBING, CONCRETE PAVEMENT OR BITUMINOUS CONCRETE ROADWAY ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE.
12. EXTEND DESIGNATED LIMIT OF WORK AS NECESSARY TO ACCOMPLISH ROUGH GRADING, EROSION CONTROL, TREE PROTECTION, AND SITE WORK AS REQUIRED BY THESE DRAWINGS AND SPECIFICATIONS.
13. THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL RUBBISH AND DEBRIS FOUND THEREON. STORAGE OF SUCH MATERIALS ON THE PROJECT SITE WILL NOT BE PERMITTED. THE CONTRACTOR SHALL LEAVE THE SITE IN SAFE, CLEAN, AND LEVEL CONDITION UPON COMPLETION OF THE SITE DEMOLITION WORK.
14. REMOVE AND STOCKPILE ALL EXISTING SITE LIGHTS, BENCHES, TRASH RECEPTACLES, TRAFFIC SIGNS, GRANITE CURB, AND OTHER SITE IMPROVEMENTS WITHIN LIMIT OF WORK LINE UNLESS OTHERWISE NOTED.
15. ALL EXISTING TREES AND SHRUBS TO REMAIN SHALL BE PROTECTED AND MAINTAINED THROUGHOUT THE TIME OF CONSTRUCTION, AS SPECIFIED AND DIRECTED BY THE LANDSCAPE ARCHITECT.
16. BEFORE ANY TREES OR SHRUBS ARE REMOVED, THE CONTRACTOR SHALL ARRANGE A CONFERENCE ON THE SITE WITH THE OWNER OR OWNER'S REPRESENTATIVE TO IDENTIFY TREES AND SHRUBS THAT ARE TO BE REMOVED, AS WELL AS THOSE WHICH ARE TO BE PROTECTED. DO NOT COMMENCE CLEARING OPERATIONS WITHOUT A CLEAR UNDERSTANDING OF EXISTING CONDITIONS TO BE PRESERVED.
17. THE CONTRACTOR SHALL REMOVE FROM THE AREA OF CONSTRUCTION PAVEMENT, CONCRETE, CURBING, POLES AND FOUNDATIONS, ISLANDS, TREE BERMS AND OTHER FEATURES WITHIN THE LIMITS OF CONSTRUCTION AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION WHETHER SPECIFIED ON THE DRAWINGS OR NOT.
18. REMOVE AND DISPOSE OF ALL UTILITIES AND SITE APPURTENANCES WITHIN THE PROPOSED BUILDING FOOTPRINT. CUT AND CAP AS REQUIRED.
19. SEE ARCHITECTURAL AND MEP PLANS FOR DEMOLITION SEQUENCING.
20. REMOVE AND REPLACE IN KIND SITE FEATURES SUCH AS BUT NOT LIMITED TO: CHAIN LINK FENCING, BOLLARDS, SMOKING SHELTERS, AND SITE LIGHTING.

## UTILITY NOTES:

1. ALL UTILITY CONNECTIONS ARE SUBJECT TO THE APPROVAL OF, AND GRANTING OF PERMITS BY, THE LOCAL MUNICIPALITY. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL PERMITS AND APPROVALS RELATED TO UTILITY WORK PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR OBTAINING ALL PERMISSIONS FOR, AND FOR CONDUCTING ALL PREPARATIONS RELATED TO, WORK AFFECTING ANY UTILITIES WITHIN THE JURISDICTION OF ANY NON-MUNICIPAL UTILITY COMPANY, INCLUDING BUT NOT LIMITED TO ELECTRIC, TELEPHONE, AND/OR GAS. THE CONTRACTOR SHALL NOTIFY ALL APPROPRIATE AGENCIES, DEPARTMENTS, AND UTILITY COMPANIES, IN WRITING, AT LEAST 7 DAYS (OR PER UTILITY COMPANY REQUIREMENT) AND NOT MORE THAN 30 DAYS PRIOR TO ANY CONSTRUCTION.
3. THE CONTRACTOR SHALL MAINTAIN UTILITIES SERVICING BUILDINGS AND FACILITIES WITHIN OR OUTSIDE THE PROJECT LIMIT UNLESS THE INTERRUPTION OF SERVICE IS COORDINATED WITH THE OWNER.
4. ALL WATER AND DRAIN WORK SHALL BE PERFORMED ACCORDING TO THE REQUIREMENTS AND STANDARD SPECIFICATIONS OF THE LOCAL MUNICIPALITY.
5. GAS, TELECOMMUNICATIONS AND ELECTRIC SERVICES ARE TO BE DESIGNED BY THE MECHANICAL, ELECTRIC, AND PLUMBING CONSULTANTS.
6. INSTALL WATER LINES WITH A MINIMUM OF FIVE FEET OF COVER AND A MAXIMUM OF SEVEN FEET COVER FROM THE FINAL DESIGN GRADES.
7. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES EXCEPT THOSE NOTED TO BE ABANDONED AND/OR REMOVED & DISPOSED.
8. ALL ONSITE UTILITIES SHALL BE INSTALLED UNDERGROUND UNLESS OTHERWISE NOTED.
9. ALL EXISTING AND PROPOSED MANHOLE FRAMES, COVERS, VALVES, CLEANOUTS, CASTINGS, ETC. SHALL BE RAISED TO FINISHED GRADE PRIOR TO FINAL GRADING AND PAVING CONSTRUCTION.
10. ASSUME ALL DRAINAGE LINES ARE 12" CPP UNLESS OTHERWISE NOTED. ASSUME ALL DRAIN LINES INSTALLED WITH 5' OF COVER.
11. ALL WATER PIPING SHALL BE CEMENT LINED DUCTILE IRON CLASS 56. ASSUME ALL WATER LINES INSTALLED WITH 5' OF COVER.
12. CONTRACTOR TO PROVIDE TEMPORARY SITE FIRE PROTECTION CONNECTIONS, HYDRANTS, AND PIVS AS REQUIRED TO MEET FULL FIRE PROTECTION REQUIREMENTS AS NOTED ON THE PLUMING AND FIRE PROTECTION ENGINEER'S PLANS.
13. CONTRACTOR SHALL CONNECT NEW 10"WATER MAIN TO EXISTING MAIN WITH 10"x10" TEE AND 10"GATE VALVE. COORDINATE SHUT DOWN OR INSTALLATION OF WET TAP VALVES AS REQUIRED.
14. PROPOSED 10" CLDI FIRE SERVICES SHALL BE CONNECTED TO NEW MAIN WITH 10"x10" TEES AND 10"GATE VALVES ON THE NEW SERVICE LINE.
15. ALL FIRE PROTECTION PRESSURE INDICATOR VALVES (PIVS) SERVICE CONNECTIONS WILL HAVE 10"x10" TEES, 10"GATE VALVES, EACH WITH 2 PROTECTIVE BOLLARDS.
16. ALL HYDRANT CONNECTIONS SHALL HAVE 6"X10" TEES, 6" VALVES & 2 EA. PROTECTIVE BOLLARDS.
17. PROTECT AND MAINTAIN EXISTING PRESSURE INDICATOR VALVES (PIVS) DURING DURATION OF CONSTRUCTION AS DIRECTED BY THE FIRE PROTECTION ENGINEER. THIS MAY REQUIRE TEMPORARY RELOCATION UNTIL NEW CONNECTIONS ARE CONSTRUCTED.

## EARTH MOVING AND GRADING NOTES:

1. ALL TOPSOIL ENCOUNTERED WITHIN THE WORK AREA SHALL BE STRIPPED TO ITS FULL DEPTH AND STOCKPILED FOR REUSE. EXCESS TOPSOIL SHALL BE REMOVED FROM THE SITE UNLESS OTHERWISE DIRECTED BY THE OWNER. TOPSOIL PILES SHALL REMAIN SEGREGATED FROM EXCAVATED SUBSURFACE SOIL MATERIALS.
2. GRADES WITHIN HANDICAP PARKING SPACES AND ACCESS AISLES SHALL NOT EXCEED 1.5% IN ANY DIRECTION.
3. CROSS SLOPES OF ALL PEDESTRIAN WALKS SHALL NOT EXCEED 1.5%.
4. RUNNING SLOPE OF ALL PEDESTRIAN WALKS SHALL NOT EXCEED 4.5%, UNLESS OTHERWISE NOTED.
5. THE CONTRACTOR SHALL EXERCISE CAUTION IN ALL EXCAVATION ACTIVITY DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES.
6. ALL PAVED AREAS MUST PITCH TO DRAIN AT A MINIMUM OF 1% UNLESS OTHERWISE NOTED.
7. PROVIDE POSITIVE DRAINAGE AWAY FROM FACE OF BUILDINGS AT ALL LOCATIONS.
8. PITCH EVENLY BETWEEN CONTOUR LINES AND BETWEEN SPOT GRADES. SPOT GRADE ELEVATIONS TAKE PRECEDENCE OVER CONTOUR LINES.
9. ALL PROPOSED TOP OF CURB ELEVATIONS ARE SIX INCHES (6") ABOVE BOTTOM OF CURB ELEVATIONS UNLESS OTHERWISE NOTED. ALL PROPOSED TOP OF CAPE COD BERM ELEVATIONS ARE FOUR INCHES (4") ABOVE BOTTOM OF CURB ELEVATION UNLESS OTHERWISE NOTED.
10. THE CONTRACTOR SHALL BLEND NEW GRADING SMOOTHLY INTO EXISTING GRADING AT LIMITS OF GRADING.
11. WHERE NEW PAVING MEETS EXISTING PAVING, MEET LINE AND GRADE OF EXISTING PAVING WITH SMOOTH TRANSITION BETWEEN EXISTING AND NEW SURFACES.
12. THE CONTRACTOR SHALL VERIFY EXISTING GRADES IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ARCHITECT OR OWNER'S REPRESENTATIVE PRIOR TO STARTING WORK.
13. PITCH TOPS OF ALL WALLS AT ONE-EIGHTH INCH (1/8") PER FOOT FROM BACK OF WALL TO FACE OF WALL.
14. SURPLUS MATERIALS SHALL BE REMOVED FROM THE SITE UNLESS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE. REFER TO EARTHWORK SPECIFICATIONS.
15. ANY AREAS OUTSIDE OF THE LIMIT OF WORK THAT ARE DISTURBED SHALL BE RESTORED BY THE CONTRACTOR TO THE PRE-CONSTRUCTION CONDITION/GRADE AT NO COST TO THE OWNER.
16. EXCAVATION REQUIRED WITHIN PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO ADDITIONAL COST TO OWNER.

## PROPOSED LEGEND

- LIMIT OF WORK
- EXISTING UTILITY TO BE ABANDONED, REMOVED AND DISPOSED IF IN CONFLICT WITH NEW SITE IMPROVEMENTS, OR AS INDICATED ON DRAWINGS
- EROSION CONTROL BARRIER
- CONSTRUCTION FENCE
- W — DOMESTIC WATER PIPE
- FP — FIRE PROTECTION PIPE
- S — SANITARY SEWER PIPE
- FM — SANITARY SEWER FORCEMAIN
- SANITARY SEWER VENT PIPE
- D — STORM DRAIN PIPE
- E — ELECTRIC DUCTBANK
- T/C — TELECOM DUCTBANK
- FUTURE UTILITY, SHOWN FOR INFORMATION ONLY
- INLET PROTECTION
- 99 — ELEVATION CONTOURS
- 100 — ELEVATION CONTOURS
- MATCH LINE
- CO — CLEANOUT
- DRAIN MANHOLE
- Q — WATER QUALITY STRUCTURE
- CATCH BASIN
- WATER QUALITY INLET
- SEWER MANHOLE
- FORCEMAIN CLEANOUT
- SEPTIC TANK
- 8' DIAMETER SEPTIC PUMP CHAMBER
- 6' DIAMETER SEPTIC VALVE CHAMBER
- TMH — TELECOM MANHOLE
- EMH — ELECTRIC MANHOLE
- WV — WATER VALVE
- HYD — FIRE HYDRANT
- R&D EXISTING STRUCTURE
- WETLANDS
- 25 FT NO DISTURBANCE ZONE
- 50 FT NO BUILD ZONE
- 100 FT BUFFER
- REMOVE AND STOCKPILE GRASS AREA
- STABILIZED CONSTRUCTION ENTRANCE
- R&D PAVEMENT
- R&D CONCRETE
- ISOLATED VEGETATED WETLAND
- LAND SUBJECT TO FLOODING
- FULL-DEPTH PAVEMENT

## ABBREVIATIONS

| | |
|---|---|
| BC | BOTTOM OF CURB ELEVATION |
| BW | BOTTOM OF WALL ELEVATION |
| CB | CATCH BASIN |
| CCB | CAPE COD BERM |
| CI | CAST IRON |
| CO | CLEANOUT |
| CPP | CORRUGATED POLYETHYLENE PIPE |
| DCB | DOUBLE CATCH BASIN |
| CLDI | CEMENT LINED DUCTILE IRON PIPE |
| DMH | DRAIN MANHOLE |
| EHH | ELECTRIC HANDHOLE |
| EMH | ELECTRIC MANHOLE |
| FFE | FINISHED FLOOR ELEVATION |
| HP | HIGH POINT |
| HYD | FIRE HYDRANT |
| INV | INVERT ELEVATION |
| LF | LINEAR FEET |
| LOW | LIMIT OF WORK |
| LP | LOW POINT |
| M&P | MAINTAIN AND PROTECT |
| OCS | OUTLET CONTROL STRUCTURE |
| PERF | PERFORATED |
| PVC | POLYVINYL CHLORIDE PIPE |
| R&D | REMOVE AND DISPOSE |
| R&S | REMOVE AND STOCKPILE |
| RD | ROOF DRAIN |
| RIM | RIM ELEVATION |
| SMH | SEWER MANHOLE |
| TC | TOP OF CURB ELEVATION |
| TW | TOP OF WALL ELEVATION |
| THH | TELECOM HANDHOLE |
| TMH | TELECOM MANHOLE |
| TYP | TYPICAL |
| VGC | VERTICAL GRANITE CURB |
| WQI | WATER QUALITY INLET |
| WQS | WATER QUALITY STRUCTURE |
| WV | WATER VALVE |

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

PERMTTING SET

NOT FOR CONSTRUCTION

16 APRIL 2024

Key Plan:

Stamp:

COMMONWEALTH OF MASSACHUSETTS
DEBORAH L. COLBERT
CIVIL
No. 37073
REGISTERED PROFESSIONAL ENGINEER

| No. | Date | Revision |
|---|---|---|

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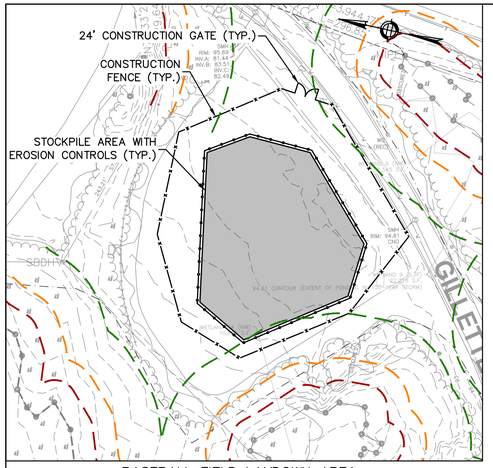
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | NTS |

Drawing Title:

CIVIL NOTES, LEGEND, AND ABBREVIATIONS

Drawing No.:

C-001




BASEBALL FIELD LAYDOWN AREA
SCALE: 1"=80'

STOCKPILE AREA WITH EROSION CONTROLS (TYP.)

STOCKPILE AREA WITH EROSION CONTROLS (TYP.)

LOCATION OF FORMER RAILROAD TRACK CENTERLINE (SEE BOSTON AND MAINE VAL MAP v.7-4)

APPROXIMATE RECORD LOCATION OF FORMER RAILROAD TRACK CENTERLINE (SEE BOSTON AND MAINE VAL MAP v.7-4)

CONSTRUCTION FENCE (TYP.)

INLET PROTECTION

STOCKPILE AREA WITH EROSION CONTROLS (TYP.)

MATERIAL LAYDOWN AREA WITH EROSION CONTROLS (TYP.)

STOCKPILE AREA WITH EROSION CONTROLS (TYP.)

24' CONSTRUCTION GATE (TYP.)

TRADE PARTNER TRAILER AREA

MATERIAL LAYDOWN AREA WITH EROSION CONTROLS (TYP.)

STOCKPILE AREA WITH EROSION CONTROLS (TYP.)

24' CONSTRUCTION GATE (TYP.)

CONSTRUCTION FENCE WITH 24' CONSTRUCTION GATE (TYP.)

PERIMETER EROSION CONTROLS (TYP.)

24' CONSTRUCTION GATE (TYP.)

N12°34'16"W 1,780.37'

INTERSTATE ROUTE 93
COMMONWEALTH OF MASSACHUSETTS STATE HIGHWAY
(300 FT. WIDE - LAYOUT 4645-SECTION 1)

INTERSTATE ROUTE 93
COMMONWEALTH OF MASSACHUSETTS STATE HIGHWAY

SCALE:
1" = 80'
80 40 0 80 160

Project:
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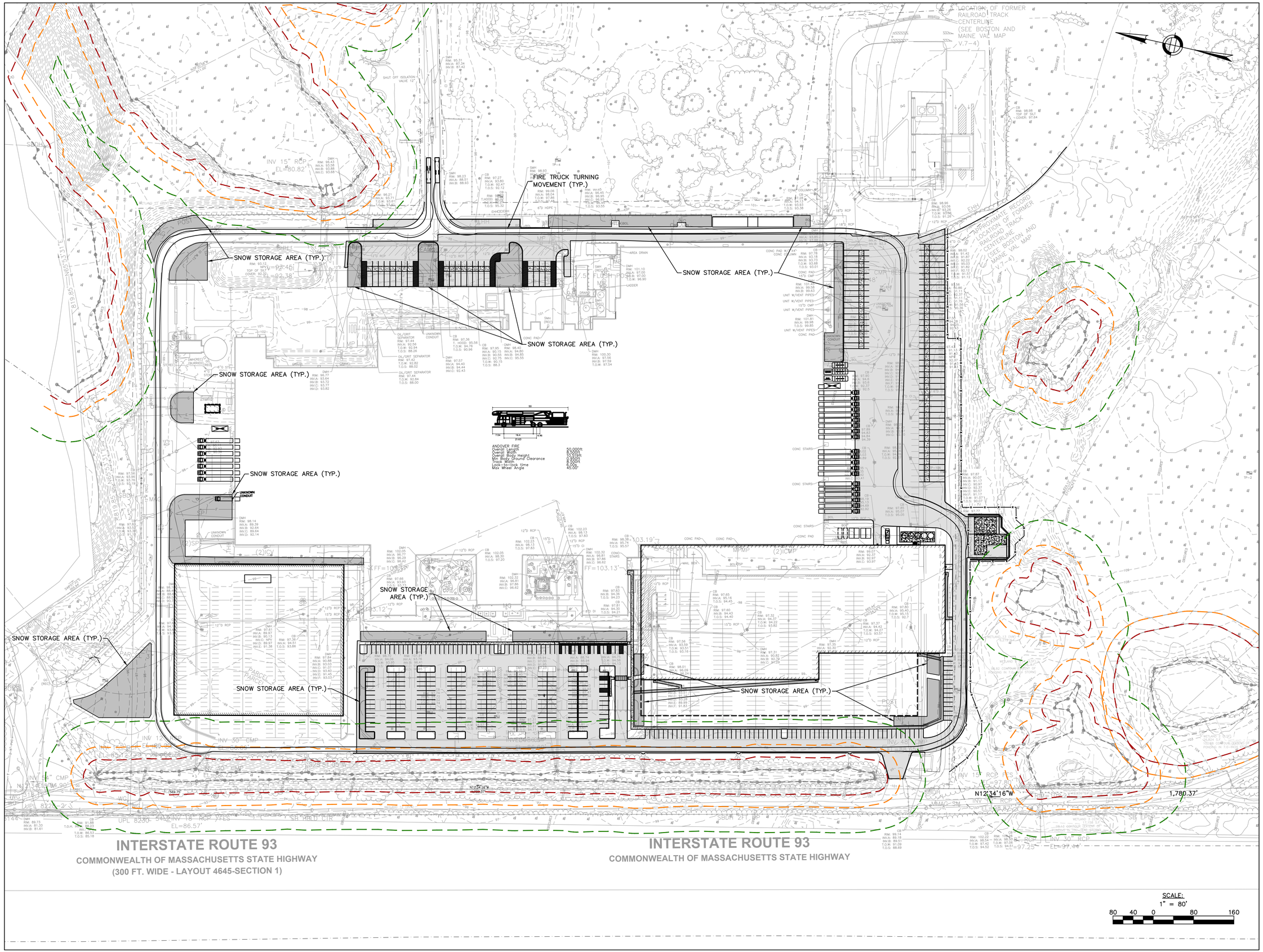
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:
CONSTRUCTION LAYDOWN PLAN

Drawing No.:
C-002

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| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:
SNOW STORAGE AND FIRETRUCK TURNING PLAN

Drawing No.:
C-003

C-100, C-200, C-300, C-400, C-500

C-101, C-201, C-301, C-401, C-501

C-102, C-202, C-302, C-402, C-502

C-103, C-203, C-303, C-403, C-503

INTERSTATE ROUTE 93
COMMONWEALTH OF MASSACHUSETTS STATE HIGHWAY
(300 FT. WIDE - LAYOUT 4645-SECTION 1)

NOTE:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND AND ABBREVIATIONS.

SCALE:
1" = 80'
80 40 0 80 160

Project:
P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

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| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:
KEY PLAN

Drawing No.:
C-004

25 FT NO DISTURBANCE ZONE BOUNDARY

50 FT NO BUILD ZONE BOUNDARY

100 FT BUFFER

GILLETTE WAY

MATCHLINE (SEE SHEET C101)

MATCHLINE (SEE SHEET C102)

LIMIT OF WORK (TYP)

PERIMETER EROSION CONTROL (TYP.)

INLET PROTECTION (TYP.)

TEMPORARY CONSTRUCTION FENCE (TYP.)

PROTECT INFILTRATION SYSTEM FOOTPRINT FROM COMPACTION AND SEDIMENTATION DURING CONSTRUCTION (TYP.)

UNKNOWN CONDUIT

1-STORY CONCRETE & GLASS

CONC PAD

NOTES:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND AND ABBREVIATIONS.
2. REFER TO SHEETS C-600 AND C-601 FOR EROSION AND SEDIMENT CONTROL DETAILS AND NOTES.

SCALE: 1" = 40'

40 20 0 40 80

Project:

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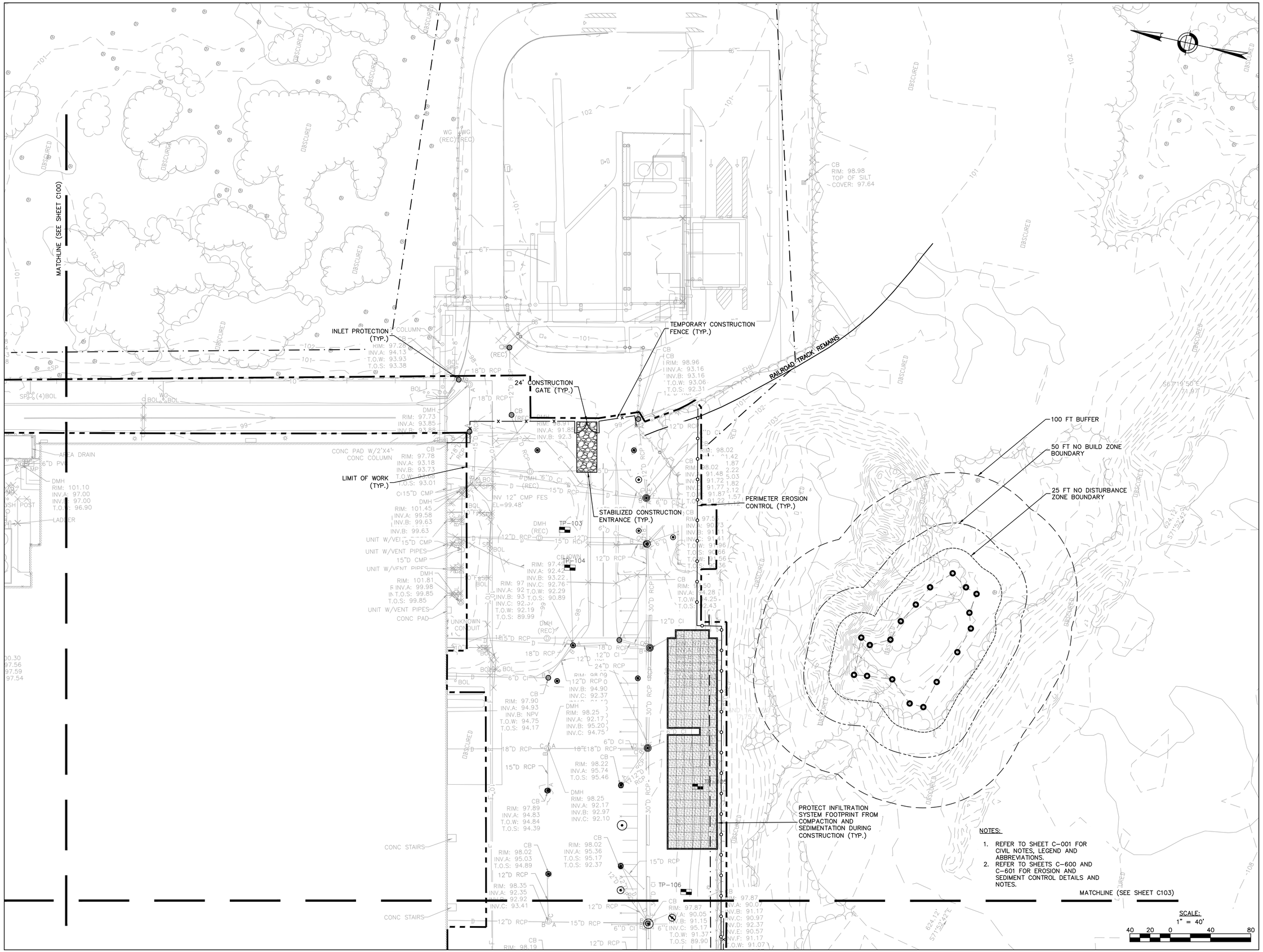
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:

EROSION AND SEDIMENTATION CONTROL PLAN

Drawing No.:

C-100




NOTES:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND AND ABBREVIATIONS.
2. REFER TO SHEETS C-600 AND C-601 FOR EROSION AND SEDIMENT CONTROL DETAILS AND NOTES.

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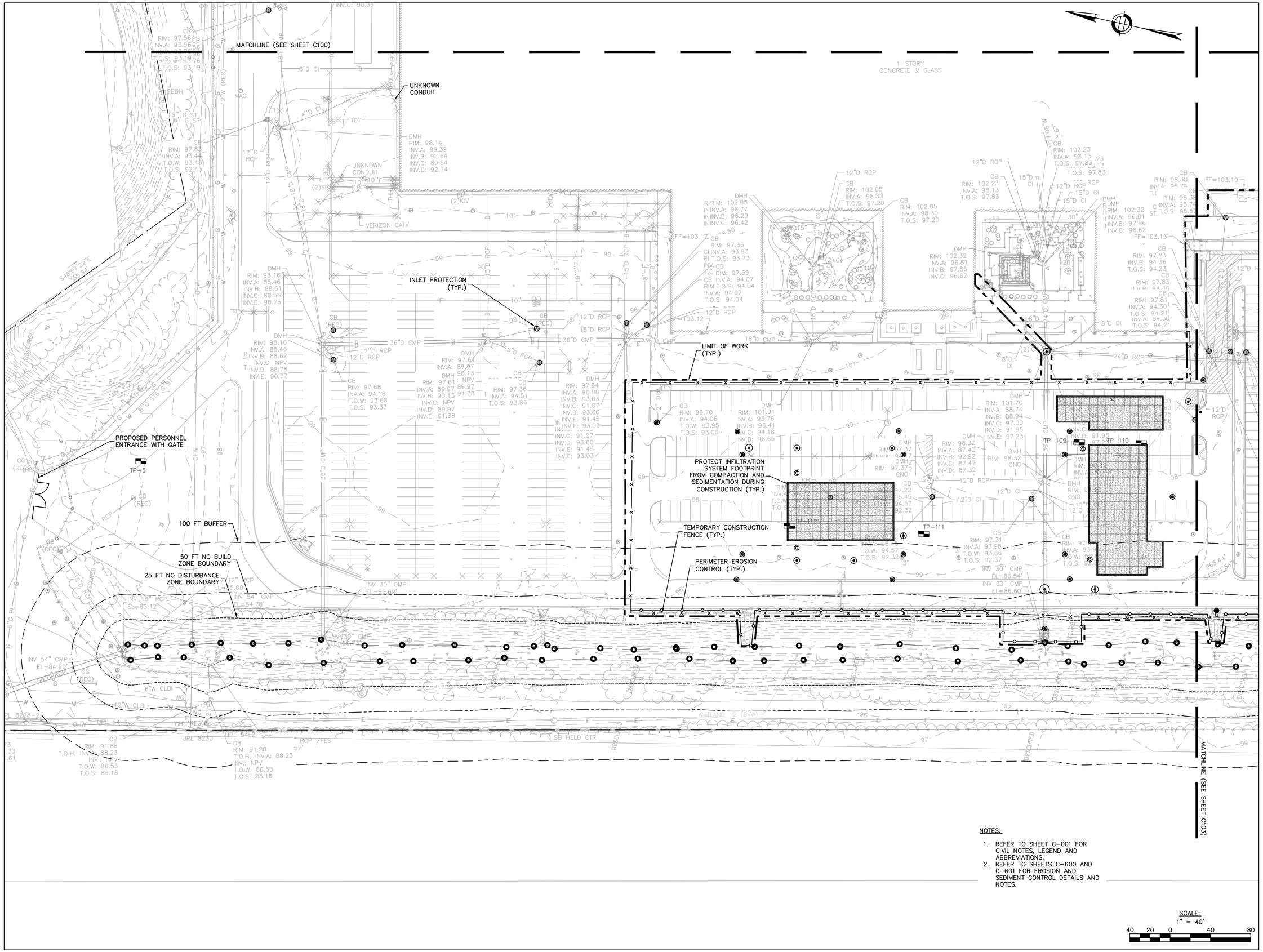
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:

EROSION AND SEDIMENTATION CONTROL PLAN

Drawing No.:

C-101




NOTES:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND AND ABBREVIATIONS.
2. REFER TO SHEETS C-600 AND C-601 FOR EROSION AND SEDIMENT CONTROL DETAILS AND NOTES.

SCALE:
1" = 40'
40 20 0 40 80

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

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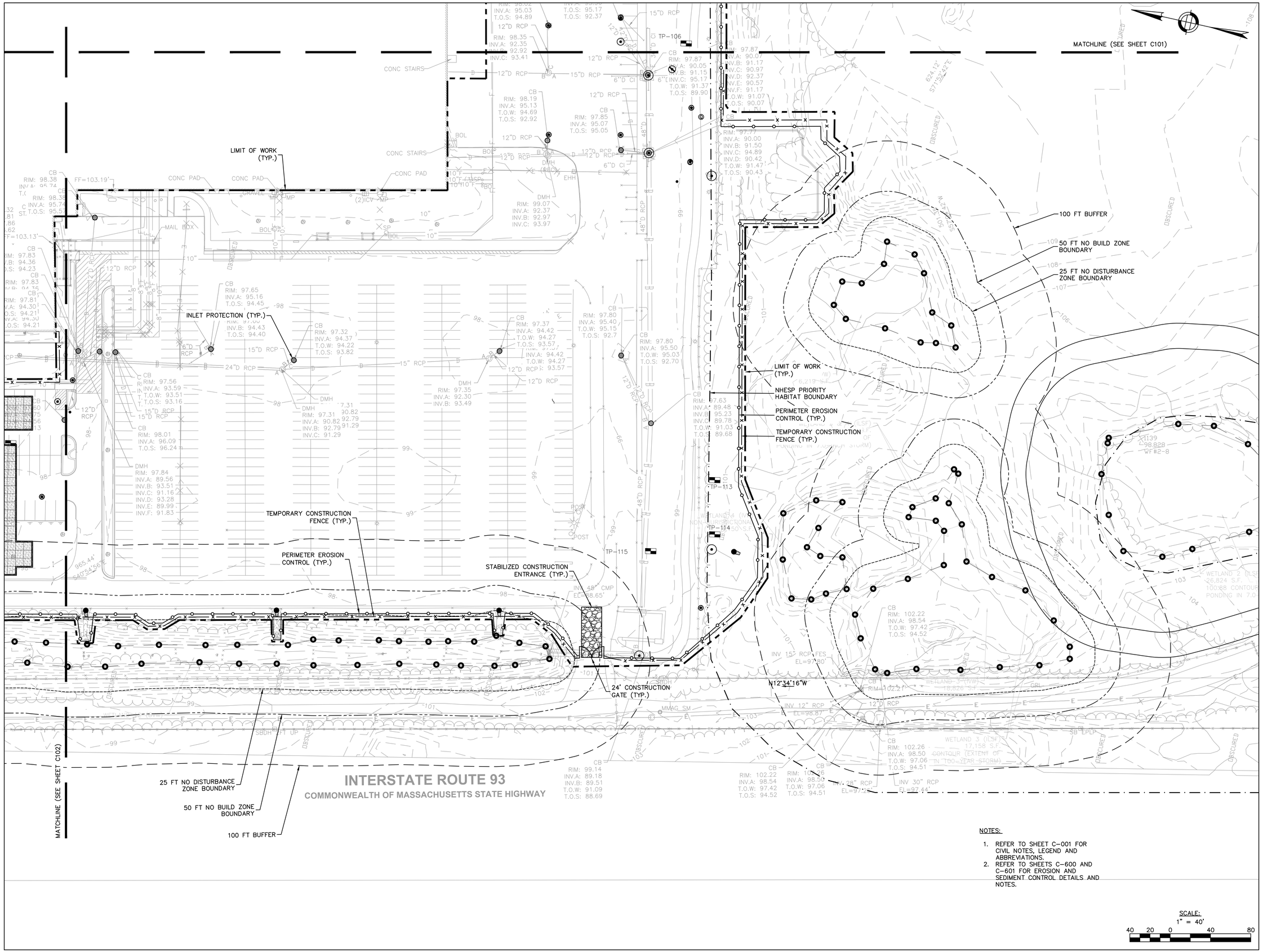
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:
EROSION AND SEDIMENTATION CONTROL PLAN

Drawing No.:
C-102




NOTES:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND AND ABBREVIATIONS.
2. REFER TO SHEETS C-600 AND C-601 FOR EROSION AND SEDIMENT CONTROL DETAILS AND NOTES.

SCALE:
1" = 40'
40 20 0 40 80

Project:
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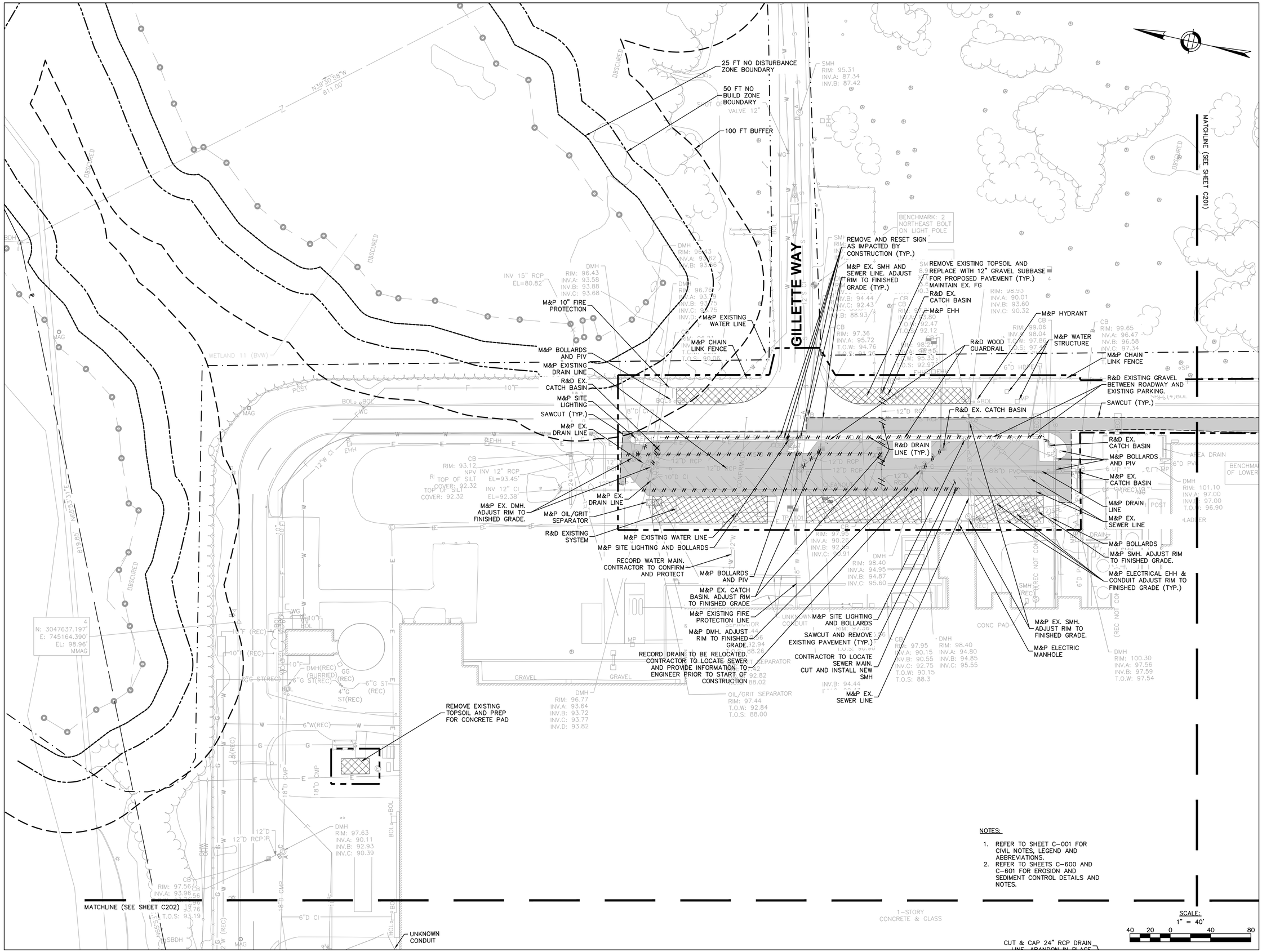
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:
EROSION AND SEDIMENTATION CONTROL PLAN

Drawing No.:
C-103




NOTES:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND AND ABBREVIATIONS.
2. REFER TO SHEETS C-600 AND C-601 FOR EROSION AND SEDIMENT CONTROL DETAILS AND NOTES.

Project:

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CIVIL
No. 37073
REGISTERED PROFESSIONAL ENGINEER

| No. | Date | Revision |
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| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:

SITE DEMOLITION PLAN

Drawing No.:

C-200

MATCHLINE (SEE SHEET C200)

REMOVE EXISTING TOPSOIL AND REPLACE WITH GRAVEL SUBBASE FOR PROPOSED PAVEMENT (TYP.)

M&P CATCH BASIN

SAWCUT (TYP.)

M&P EXISTING LIGHT POLE

M&P EXISTING FENCE

M&P SIGNAGE

RAILROAD TRACK REMAINS

APPROXIMATE RECORD LOCATION OF FORMER RAILROAD CENTERLINE (SEE BOSTON & MAINE VAL. MAP V.7-4)

R&D EXISTING FENCE

M&P DRAIN LINE

M&P EX. STRUCTURE

CONTRACTOR TO LOCATE EXISTING DMH AND CATCH BASINS

LIMIT OF WORK (TYP.)

M&P BOLLARDS

R&D BOLLARDS

M&P CATCH BASINS

M&P BOLLARDS

M&D BOLLARDS AND HYDRANT

M&P DUMPSTERS

M&P DRAIN LINE

SAWCUT (TYP.)

M&P DRAIN LINE

CUT & CAP 10" FIRE PROTECTION LINE

REMOVE EXISTING TOPSOIL AND REPLACE WITH GRAVEL SUBBASE FOR PROPOSED PAVEMENT (TYP.)

M&P CATCH BASIN

M&P CATCH BASINS

R&D EXISTING LIGHT POLE AND ASSOCIATED ELECTRICAL

M&P DRAIN LINE

M&P CATCH BASINS

R&D EXISTING LIGHT POLE AND ASSOCIATED ELECTRICAL

M&P DRAIN LINE

LIMIT OF WORK (TYP.)

R&D EXISTING FENCE

R&D EXISTING LIGHT POLE AND ASSOCIATED ELECTRICAL

100 FT BUFFER

50 FT NO BUILD ZONE BOUNDARY

25 FT NO DISTURBANCE ZONE BOUNDARY

MATCHLINE (SEE SHEET C203)

BENCHMARK: 3 RIGHT OUTSIDE CORNER OF LOWER CONCRETE STEP @ DOOR 18 EL=99.58'

BENCHMARK: 4 RIGHT OUTSIDE CORNER OF LOWER CONCRETE STEP @ WAREHOUSE 2 EL=99.41'

NOTES:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND AND ABBREVIATIONS.
2. REFER TO SHEETS C-600 AND C-601 FOR EROSION AND SEDIMENT CONTROL DETAILS AND NOTES.

SCALE:
1" = 40'
40 20 0 40 80

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

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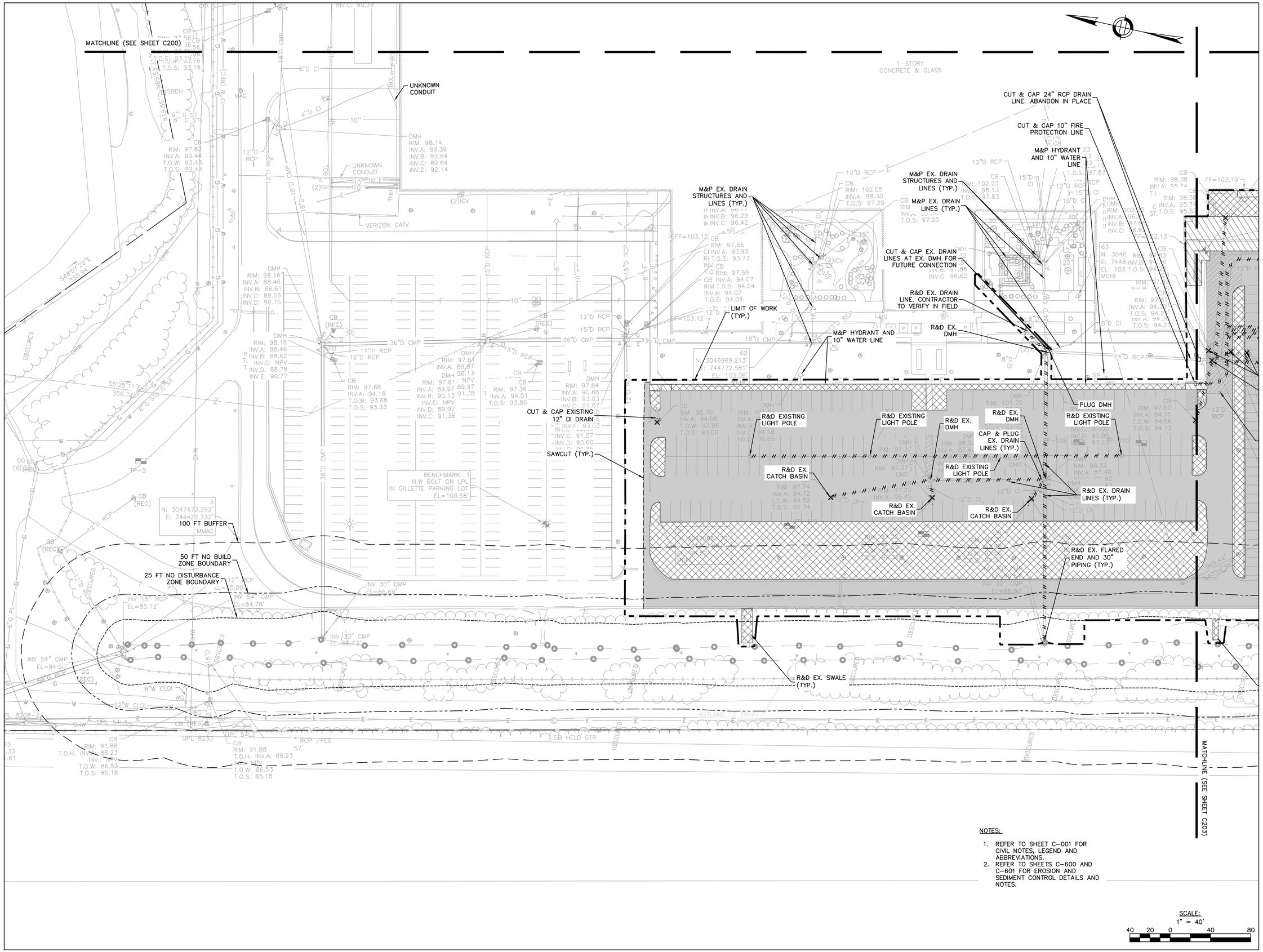
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:
SITE DEMOLITION PLAN

Drawing No.:
C-201




NOTES:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND AND ABBREVIATIONS.
2. REFER TO SHEETS C-600 AND C-601 FOR EROSION AND SEDIMENT CONTROL DETAILS AND NOTES.

SCALE:
1" = 40'
40 20 0 40 80

Project:
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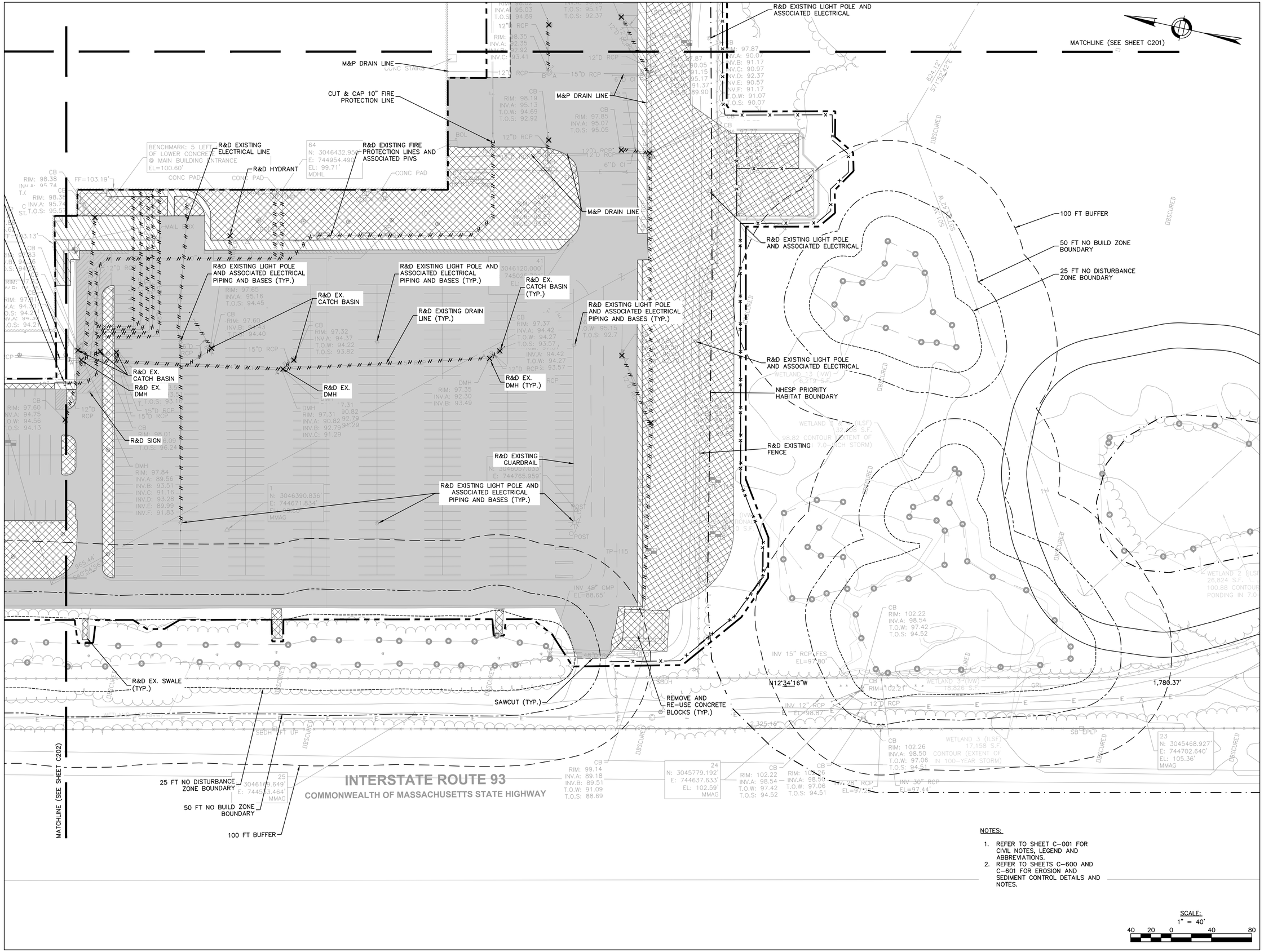
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:
SITE DEMOLITION PLAN

Drawing No.:
C-202




NOTES:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND AND ABBREVIATIONS.
2. REFER TO SHEETS C-600 AND C-601 FOR EROSION AND SEDIMENT CONTROL DETAILS AND NOTES.

SCALE:
1" = 40'
40 20 0 40 80

Project:
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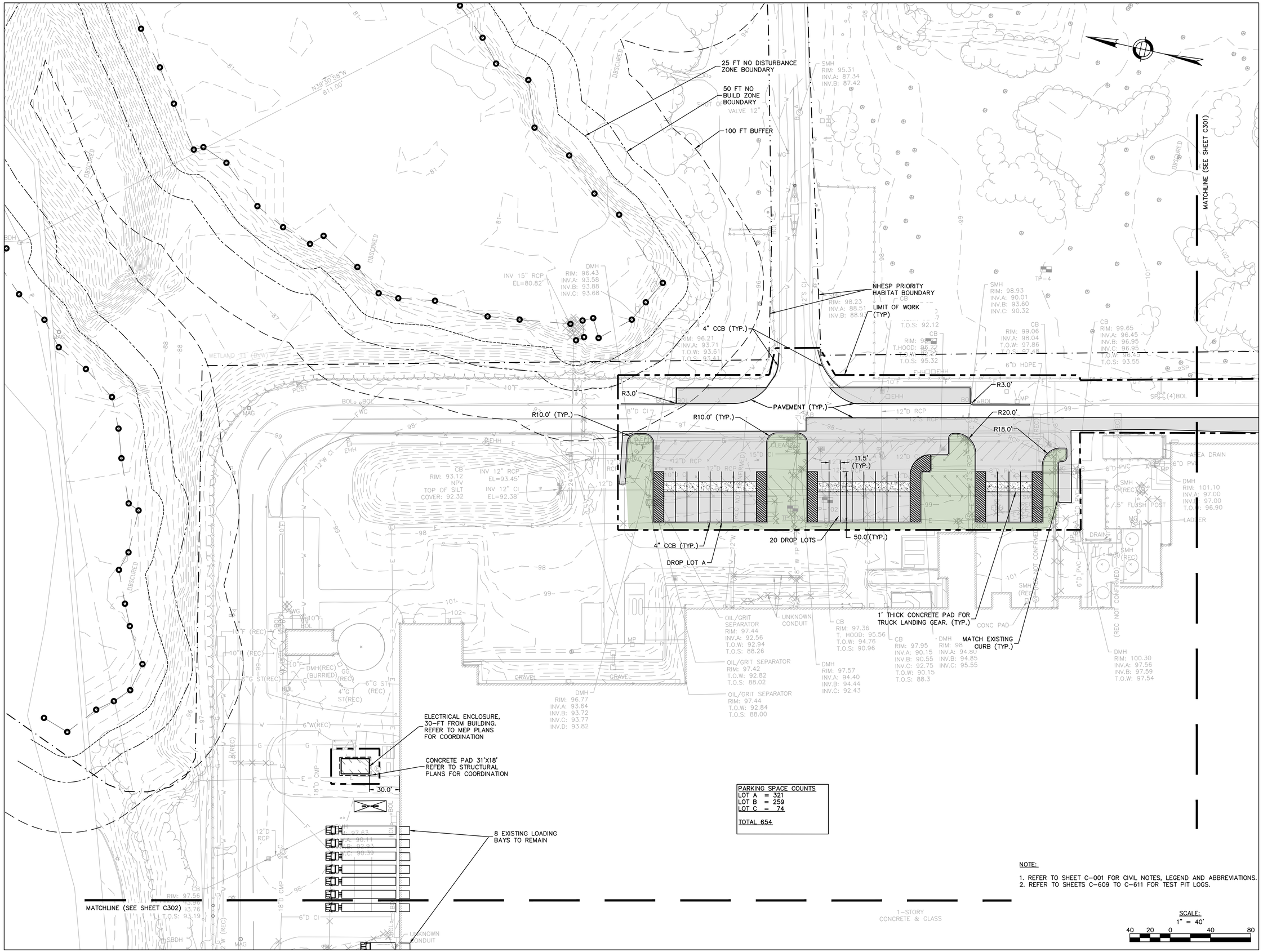
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:
SITE DEMOLITION PLAN

Drawing No.:
C-203




Project:

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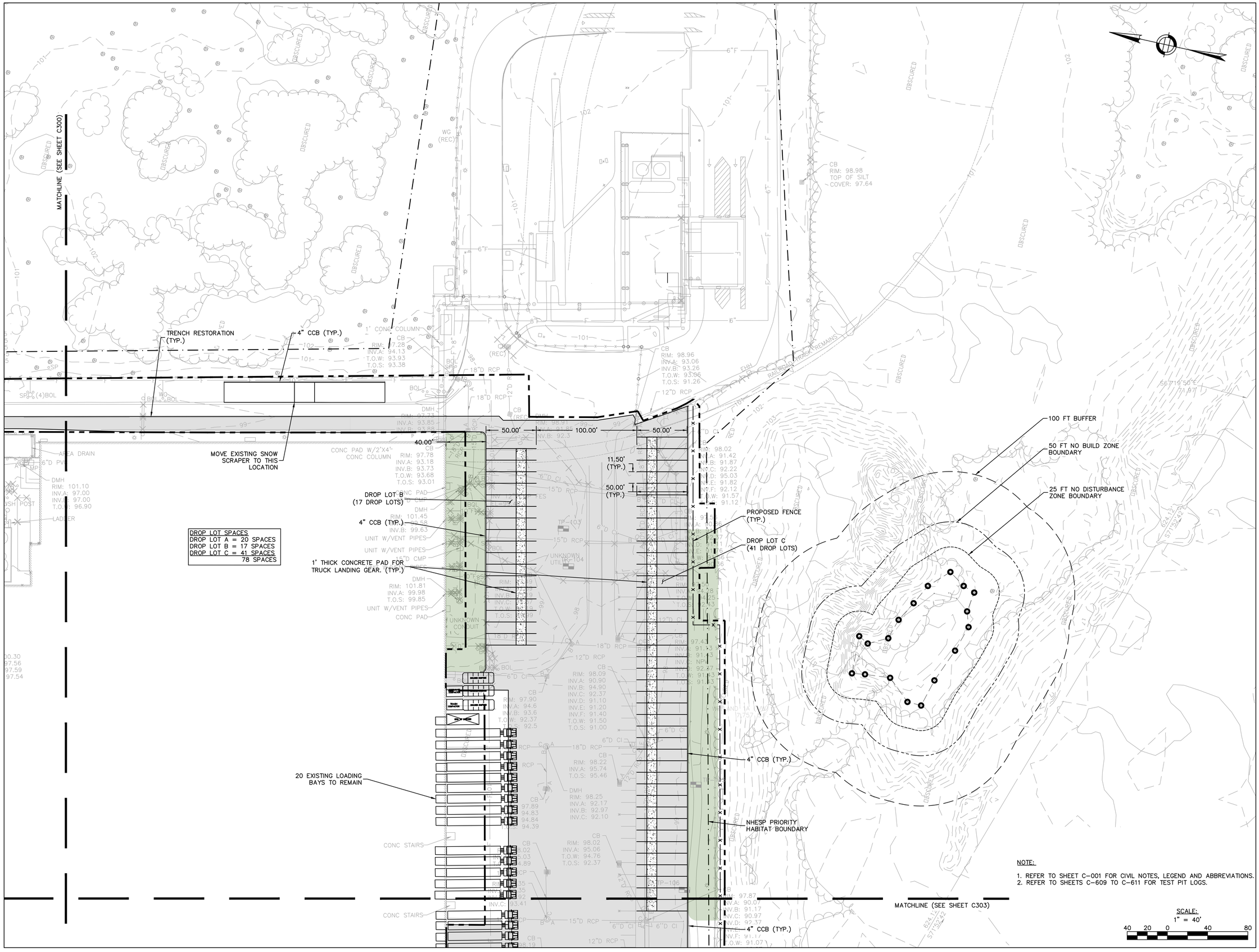
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:

CIVIL LAYOUT PLAN

Drawing No.:

C-300




Project:

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DEBORAH L. COLBERT CIVIL No. 37073 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

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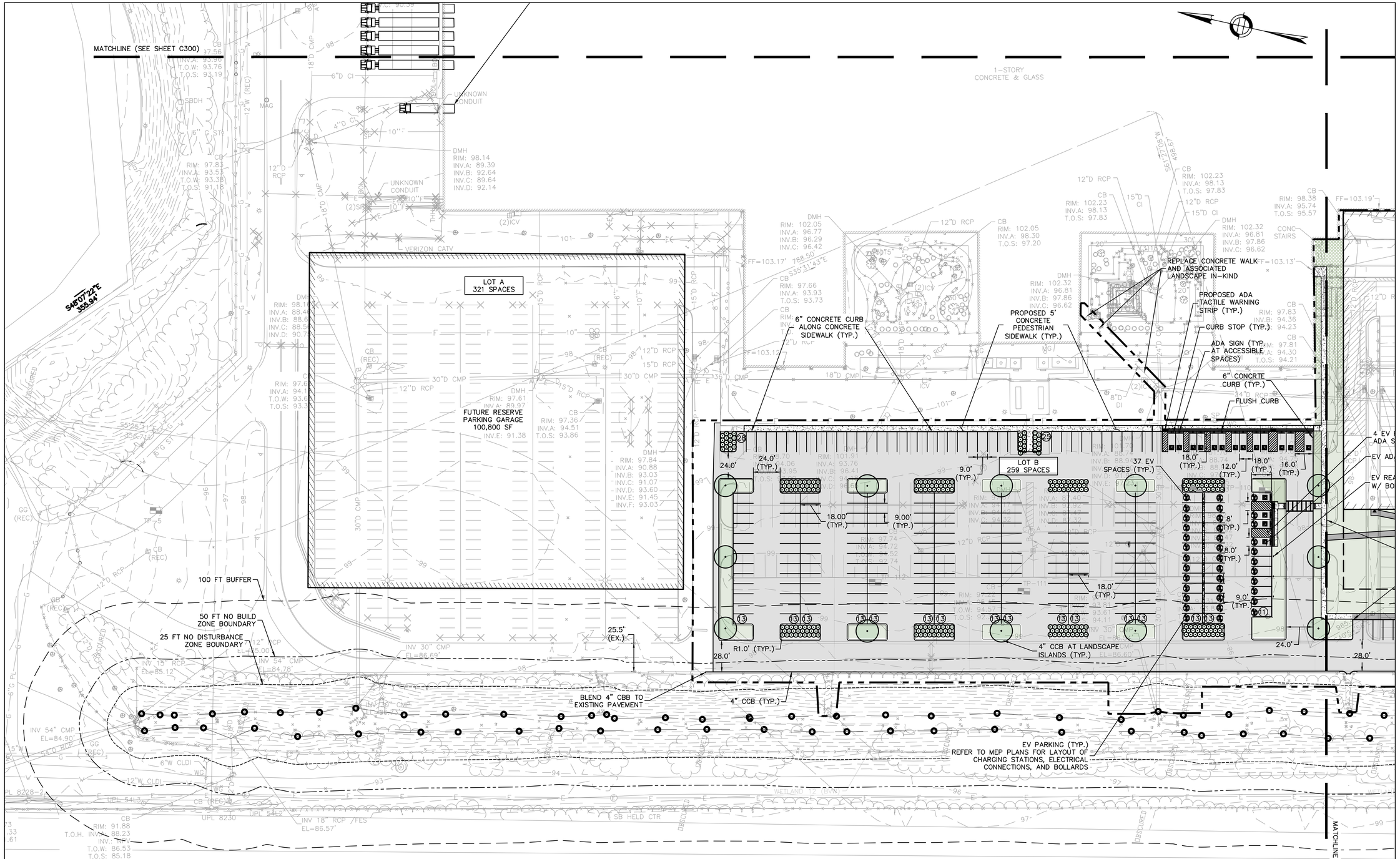
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:

CIVIL LAYOUT PLAN

Drawing No.:

C-301




FUTURE RESERVE PARKING GARAGE

| TOTAL PARKING COUNT BY TIER FOR PROPOSED GARAGE | | ADA SPACE BY TIER | | EV SPACES BY TIER | |
|---|---|---|---|---|---|
| GRADE LEVEL | 330 | GRADE LEVEL | 8 | GRADE LEVEL | 38 (INCL 1 VAN) |
| TIER 1 | 337 | TIER 1 | 8 | TIER 1 | 38 |
| TIER 2 | 337 | TIER 2 | 8 | TIER 2 | 38 |
| TIER 3 | 337 | TIER 3 | 8 | TIER 3 | 38 |
| ROOF (TIER 4) | 278 | ROOF (TIER 4) | 8 | ROOF (TIER 4) | 38 |
| TOTALS | 1619 | TOTALS | 32 | SUB - TOTAL | 190 |
| | | ADA VAN SPACE | 6 | LOT B AND C | 36 |
| | | | | TOTAL | 226 EV |

OVERALL SPACE REQUIREMENT

| USES | SF/USE GROSS | SF/USE NET | PARKING RATIO | SPACES REQUIRED | EXISTING SPACES | EXISTING TO REMAIN | PROPOSED NEW | FINAL TOTAL SPACES |
|---|---|---|---|---|---|---|---|---|
| WAREHOUSE | N/A | 330,625 | 1/600 SF NFA | 551 | | | | |
| MANUFACTURING | N/A | 300,985 | 1/300 SF NFA | 1,003 | | | | |
| OFFICE | 103,977 | N/A | 1/300 SF GFA | 347 | | | | |
| LABORATORY | 10,555 | N/A | 1/300 SF GFA | 35 | | | | |
| ACCESSORY | 40,624 | N/A | N/A | | | | | |
| TOTAL | | | | 1,936 | 1,001 | 321 | 333 | 654 |

NUMBER OF DUMPSTERS - 5

OTHER REQUIREMENTS OF PROVIDED SURFACE PARKING

| DISABLED | PERCENTAGE REQUIRED | TOTAL SPACES REQUIRED | SPACES PROPOSED |
|---|---|---|---|
| ADA SPACES | 2% | 14 | 14 |
| ADA VAN SPACES | 1/8 OF ADA SPACES | 3 | 3 |
| EV SPACES | 10.95% | 36.5 | 37 |
| EV VAN SPACES | AT LEAST 1 | 1 | 4 |

NOTE:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND AND ABBREVIATIONS.
2. REFER TO SHEETS C-609 TO C-611 FOR TEST PIT LOGS.

SCALE:
1" = 40'
40 20 0 40 80

Project:
P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

PERMTTING SET

NOT FOR CONSTRUCTION

16 APRIL 2024

Key Plan:

Stamp:

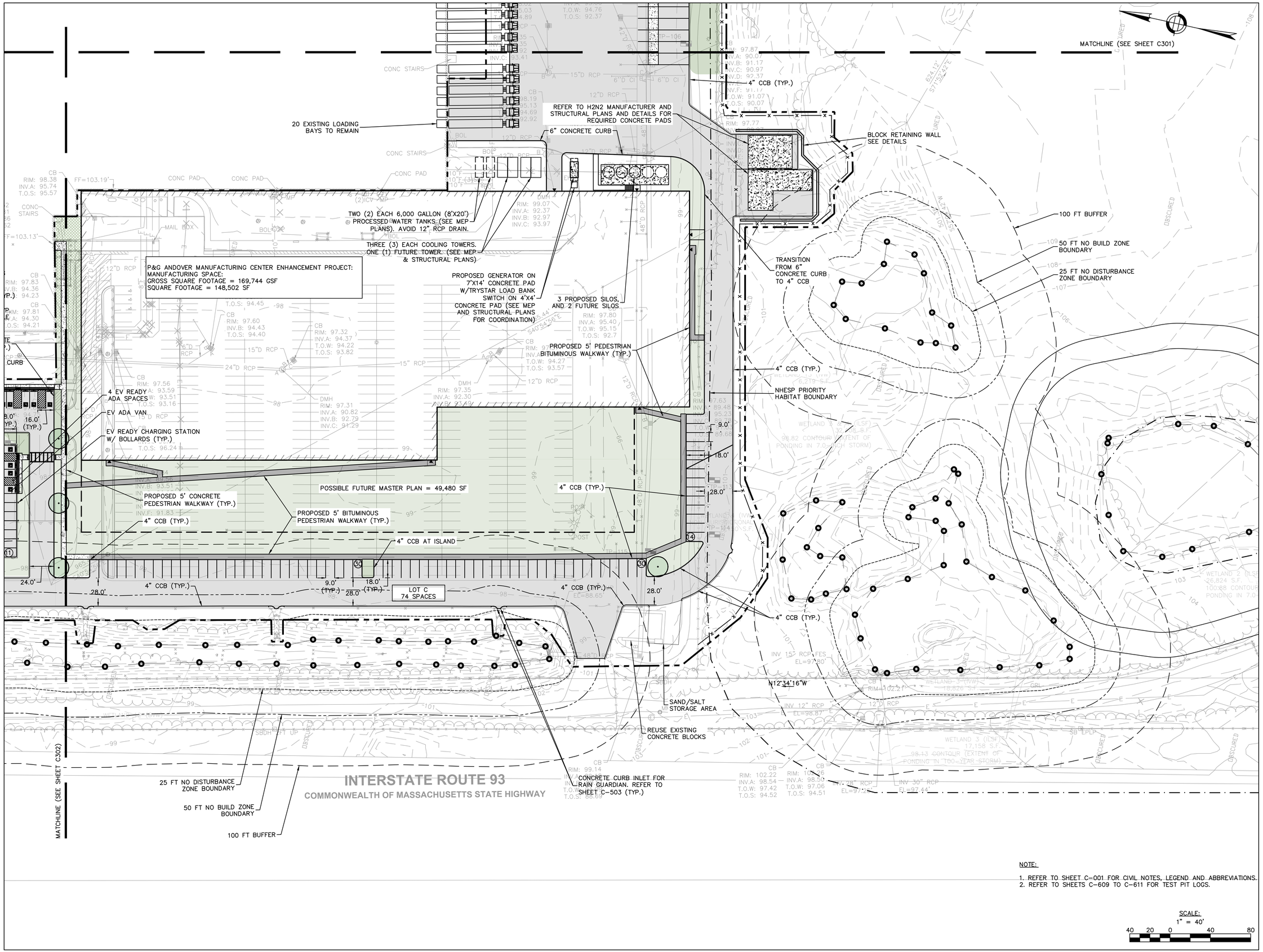
COMMONWEALTH OF MASSACHUSETTS
DEBORAH L. COLBERT
CIVIL
No. 37073
REGISTERED
PROFESSIONAL ENGINEER

| No. | Date | Revision |
|---|---|---|
| | | |

| | |
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:
CIVIL LAYOUT PLAN

Drawing No.:
C-302




NOTE:

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2. REFER TO SHEETS C-609 TO C-611 FOR TEST PIT LOGS.

SCALE:
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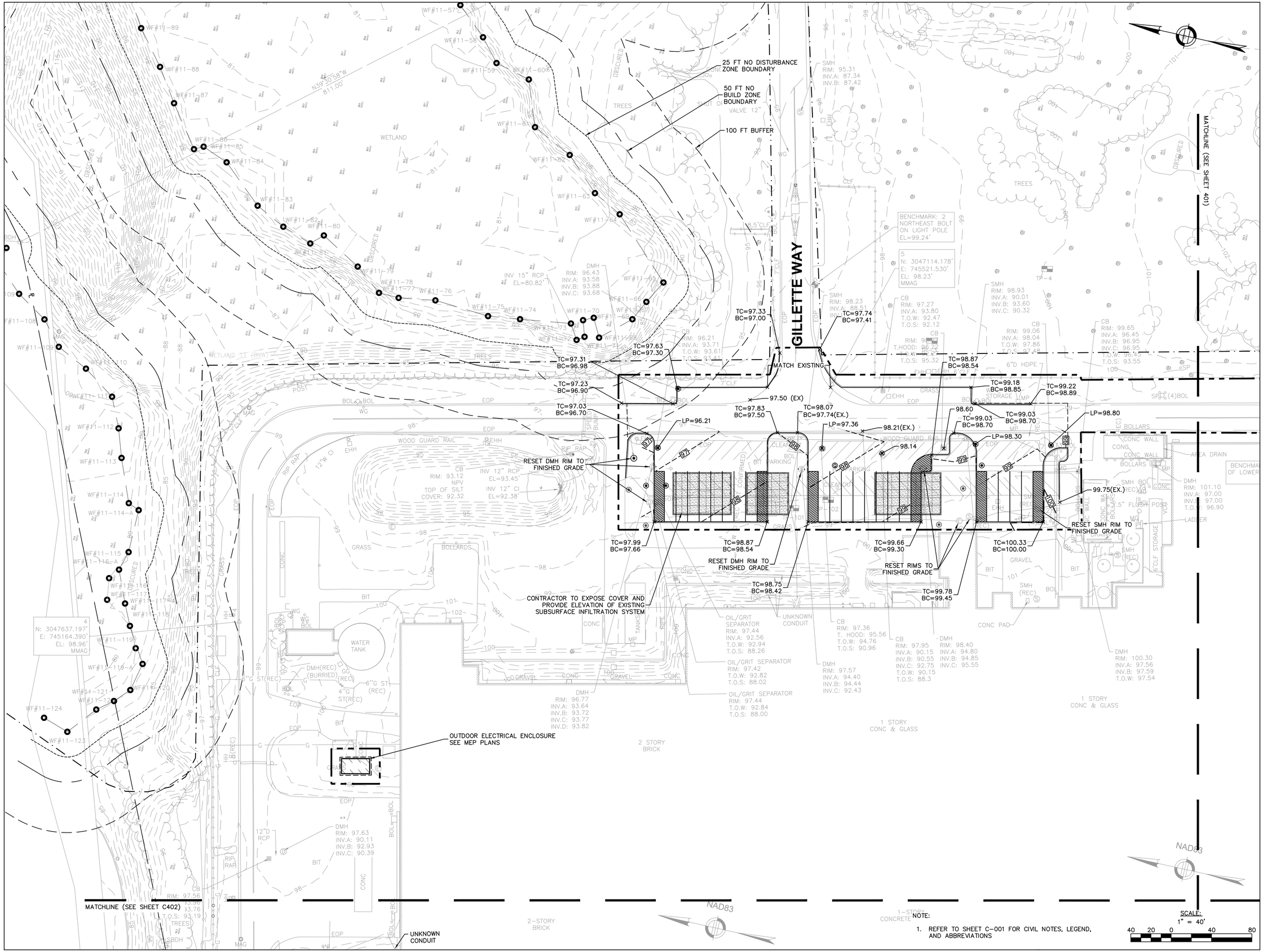
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:
CIVIL LAYOUT PLAN

Drawing No.:
C-303




NOTE:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND, AND ABBREVIATIONS

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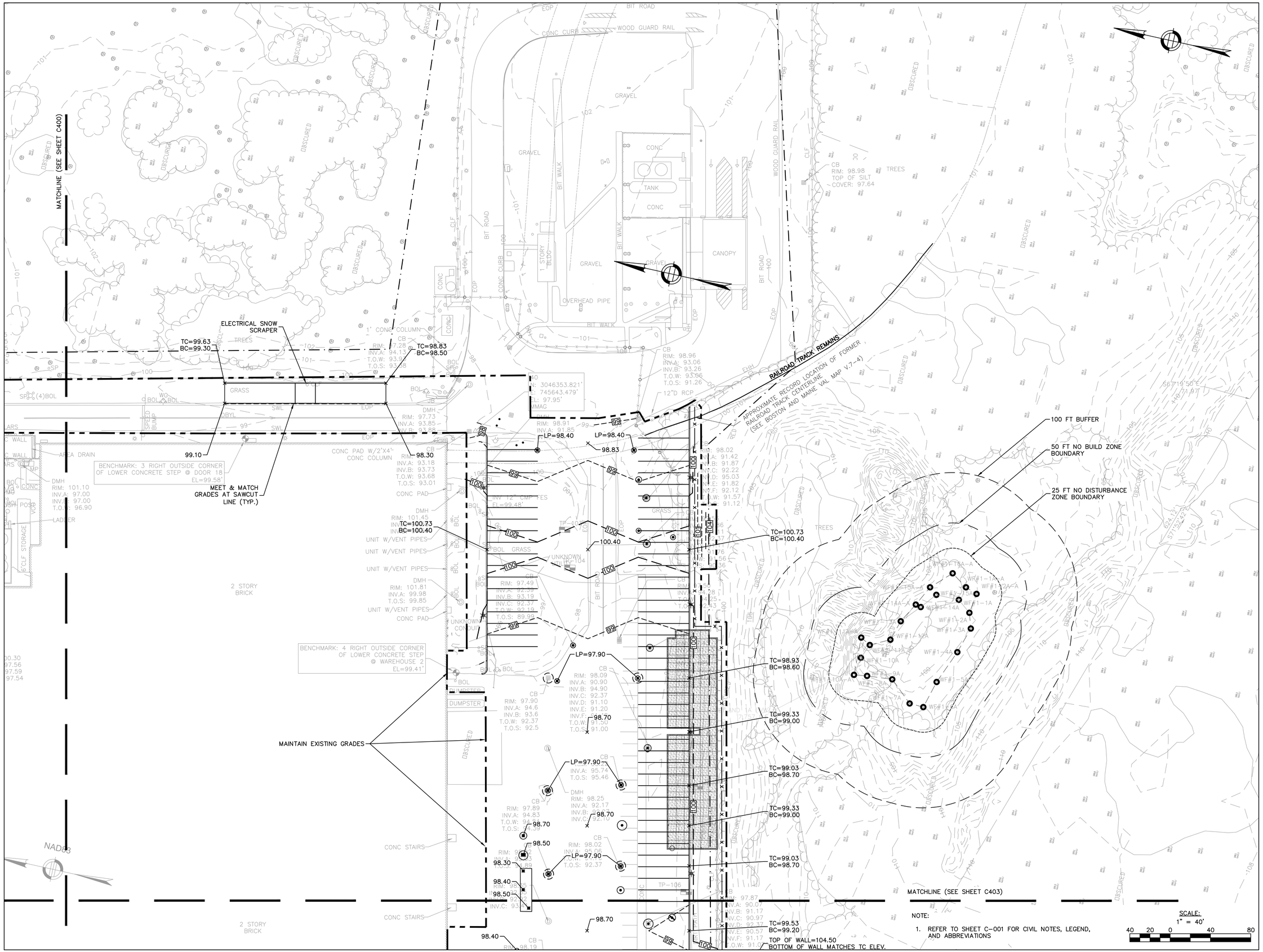
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:

CIVIL GRADING PLAN

Drawing No.:

C-400




NOTE:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND, AND ABBREVIATIONS

SCALE: 1" = 40'

40 20 0 40 80

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

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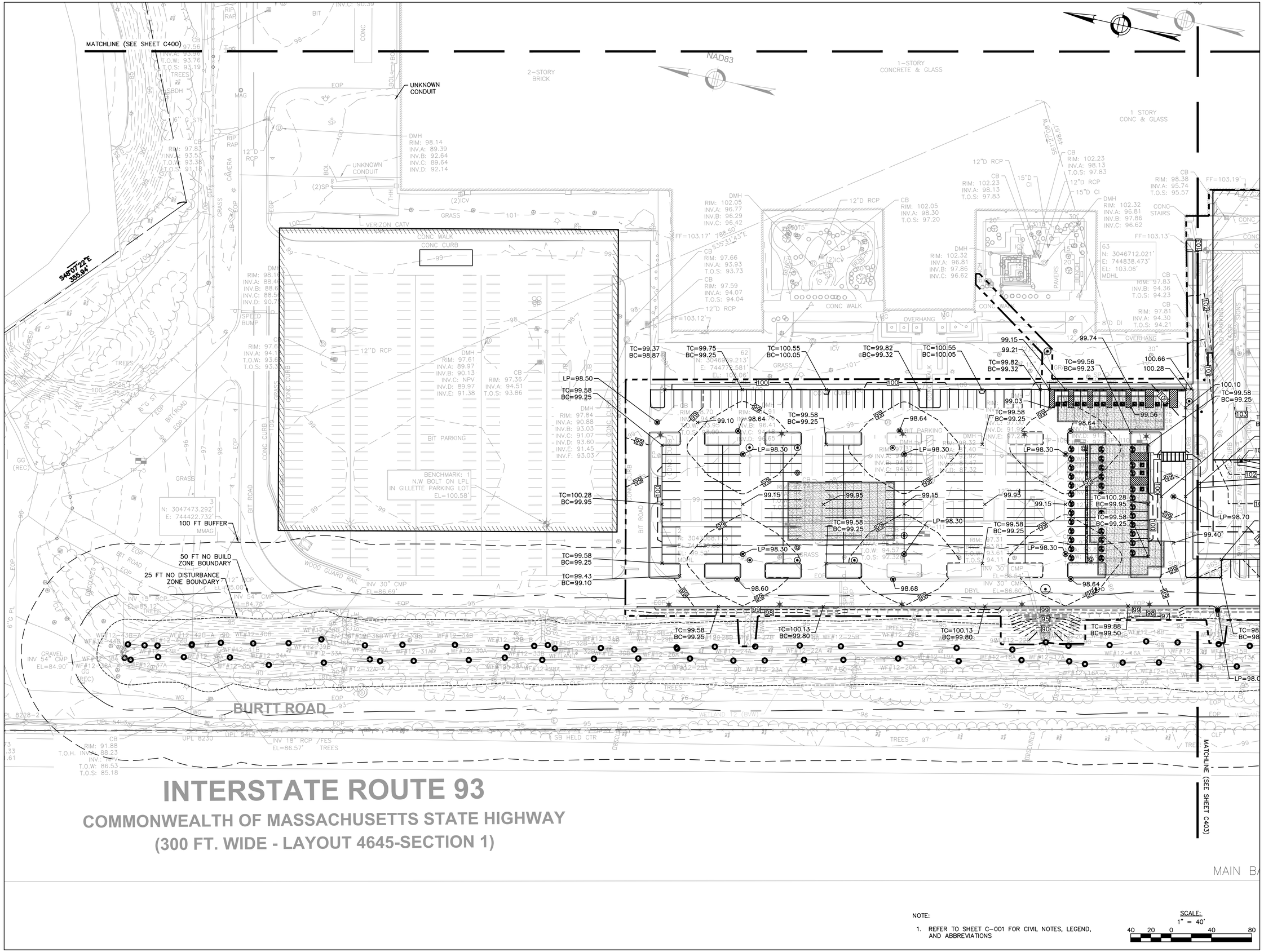
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:

CIVIL GRADING PLAN

Drawing No.:

C-401




NOTE:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND, AND ABBREVIATIONS

SCALE: 1" = 40'

40 20 0 40 80

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

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ANDOVER, MA 01810

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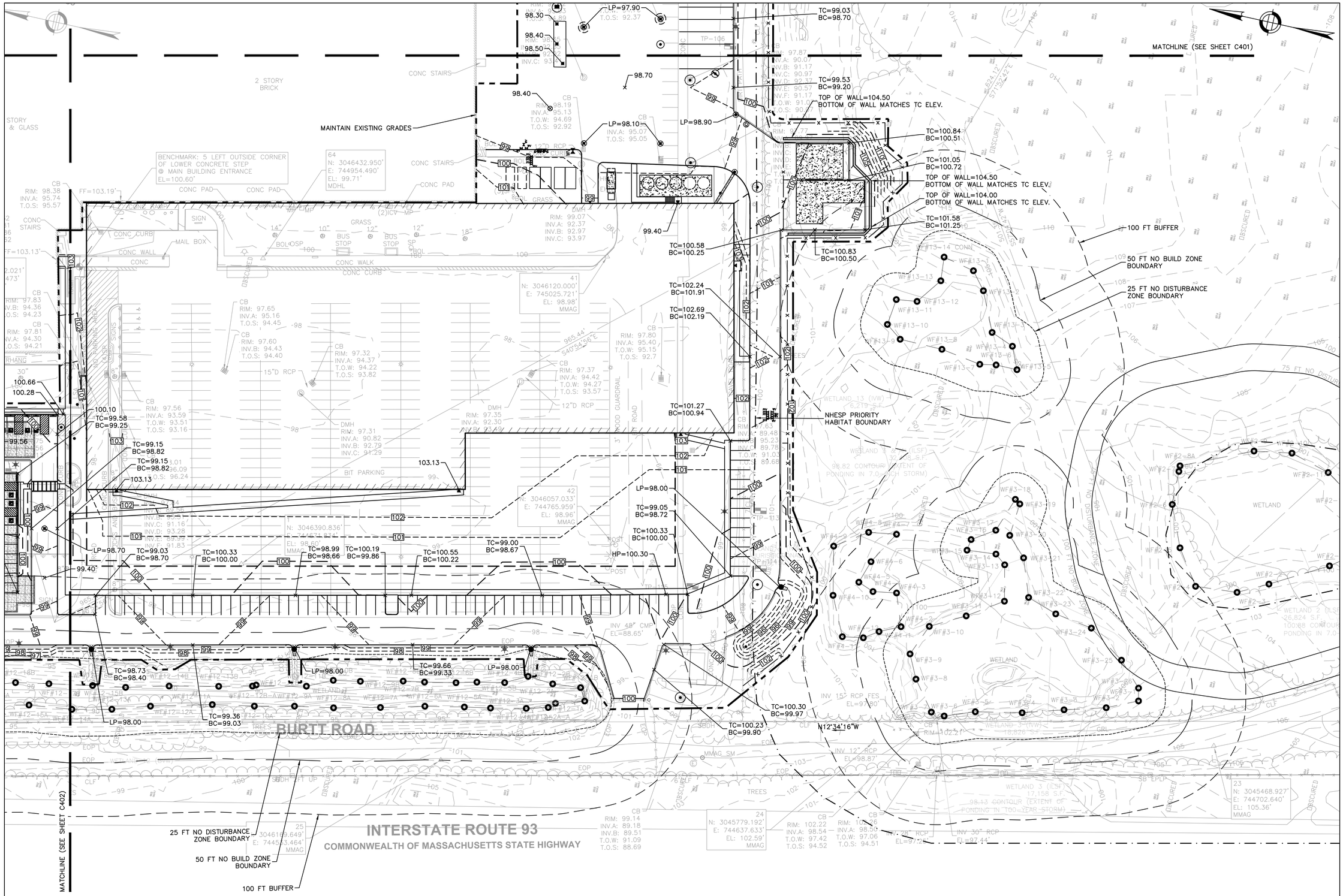
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:

CIVIL GRADING PLAN

Drawing No.:

C-402




NOTE:

1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND, AND ABBREVIATIONS

SCALE: 1" = 40'

40 20 0 40 80

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

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16 APRIL 2024

Key Plan:

Stamp:

DEBORAH L. COLBERT CIVIL No. 37073 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

| No. | Date | Revision |
|---|---|---|

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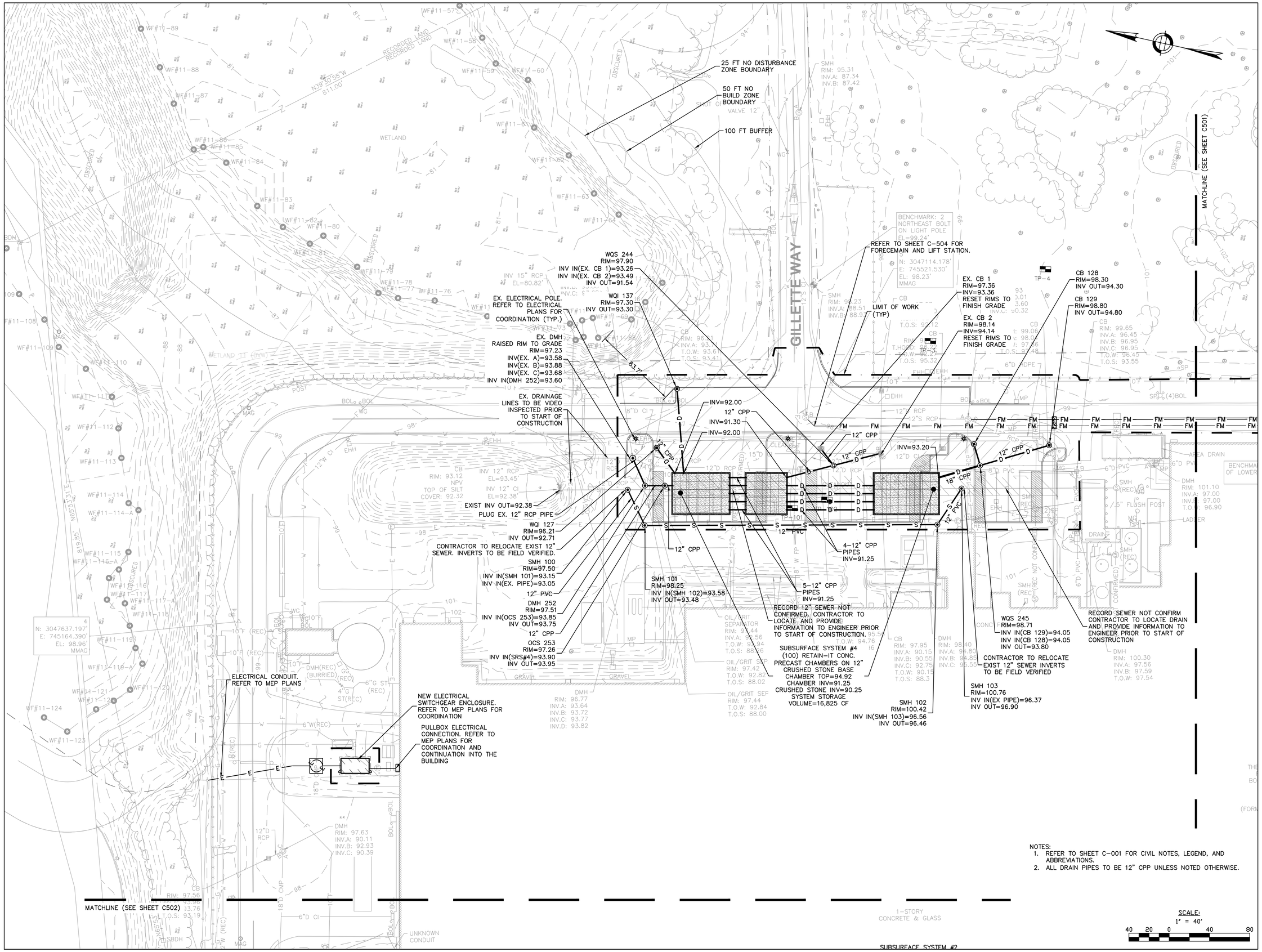
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:

CIVIL GRADING PLAN

Drawing No.:

C-403




NOTES:
1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND, AND ABBREVIATIONS.
2. ALL DRAIN PIPES TO BE 12" CPP UNLESS NOTED OTHERWISE.

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

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| No. | Date | Revision |
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| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:

SITE UTILITY PLAN

Drawing No.:

C-500

MATCHLINE (SEE SHEET C500)

REFER TO SHEET C-504 FOR FORECEMAIN AND LIFT STATION.

NHESP PRIORITY HABITAT BOUNDARY

EX. CB
RAISED RIM TO GRADE
RIM=99.00

CB 126
RIM=98.40
INV OUT=95.40

DMH 238(5'ø)
RIM=99.00
INV IN(CB 125)=95.15
INV IN(CB 126)=95.15
INV OUT=95.05

INV 12" CPP=94.89
TOP OF EX. 6" CI=92.72
TOP OF EX. 15" RCP=93.37

CONVERT EX. CB
TO NEW DMH
DMH 240(6'ø)
RIM=99.31
INV(EX. A)=91.42
INV(EX. B)=91.87
INV(EX. C)=92.22
INV(EX. D)=95.03
INV(EX. E)=91.82
INV(EX. F)=92.12

MAINTAIN
EX. 18" RCP

ELECTRICAL POLE &
HANDHOLE. REFER TO
ELECTRICAL PLANS FOR
COORDINATION (TYP.)

DMH 239
RIM=99.82
INV IN(DMH 238)=94.55
INV OUT=94.45

INV 12" CPP=94.40
TOP OF 18" RCP=92.69

DMH 242
RIM=100.15
INV IN(DMH 239)=94.25
INV OUT=94.00

CONVERT EX. CB
TO NEW DMH
DMH 241(6'ø)
RIM=98.52

MAINTAIN
EX. 30" RCP
INV=93.50

WQI 124
RIM=97.90
INV OUT=94.30

INV 12" CPP=94.24
TOP OF 30" RCP=93.20

INV=94.13

INV 12" CPP=93.75
TOP OF 24" RCP=93.13

INV=93.50

CONVERT EX. CB
TO NEW DMH
DMH 249(6'ø)
RIM=98.48
INV(EX. A)=90.90
IINV(EX. C)=92.37
INV(EX. D)=91.10
INV(EX. E)=91.20
INV(EX. F)=91.40

PLUG EX.
6" CI PIPE

WQI 132
RIM=97.90
INV OUT=94.51

INV 15" CPP=94.10
TOP OF 30" RCP=93.25

SUBSURFACE SYSTEM #3
(156) RETAIN-IT CONC.
PRECAST CHAMBERS ON 12"
CRUSHED STONE BASE
CHAMBER TOP=96.67
CHAMBER INV=93.00
CRUSHED STONE INV=92.00
SYSTEM STORAGE
VOLUME=29,308 CF

INV=94.00

INV=94.06

INV=93.50

INV 12" CPP=94.21
TOP OF 36" RCP=93.19

DMH 251(6'ø)
RIM=98.13
INV IN(WQI 135)=94.50
INV IN(WQI 136)=94.50
INV OUT=94.40

OCS 234(6'ø)
RIM=99.90
INV IN(URS#4)=93.00
INV OUT=93.00

100 FT BUFFER

50 FT NO BUILD ZONE BOUNDARY

25 FT NO DISTURBANCE ZONE BOUNDARY

CB 125
RIM=98.40
INV OUT=95.65

MAINTAIN
EX. 12" RCP

MAINTAIN
EX. 6" CI

MAINTAIN
EX. 15" RCP

CONVERT EX. CB
TO NEW DMH
DMH 247
RIM=100.12
INV(EX. A)=90.86
INV(EX. B)=91.11
INV(EX. C)=92.37
INV(EX. D)=91.11

MAINTAIN
EX. 15" RCP

CONVERT EX. CB
TO NEW DMH
DMH 248
RIM=98.75
INV(EX. A)=92.39
INV(EX. C)=92.37

MAINTAIN
EX. 18" RCP

PLUG EX. 12"
RCP PIPE

MAINTAIN
EX. 18" RCP

MAINTAIN
EX. 6" CI

CONVERT EX. CATCH BASIN TO
DMH AND SET TO GRADE

WQI 130
RIM=97.90
INV OUT=94.90

MAINTAIN
EX. 18" RCP

RAISE EX. DMH
TO GRADE (TYP.)

PLUG EX. 15"
RCP PIPE

PLUG EX. 12"
RCP PIPE

WQI 131
RIM=97.90
INV OUT=94.72

DMH 250(8'ø)
RIM=98.70
INV IN(WQI 133)=94.32
INV IN(WQI 131)=94.32
INV IN(WQI 132)=94.32
INV IN(WQI 134)=94.32
INV OUT=94.22

WQI 133
RIM=97.90
INV OUT=94.75

WQI 134
RIM=97.90
INV OUT=94.55

RAISE EX. DMH TO
GRADE (TYP.)

PLUG EX. 12"
RCP PIPE

WQI 135
RIM=98.10

PLUG EX.
6" CI PIPE

PLUG EX. 12"
CI PIPE

PLUG EX.
6" CI PIPE

MAINTAIN
EX. 24" RCP

15" CPP

12" CPP

18" CPP

48" CPP

15"D RCP

18"D RCP

12"D RCP

6"D CI

15"D CI

12"D CI

TP-103

TP-104

TP-106

BENCHMARK: 3 RIGHT OUTSIDE CORNER OF LOWER CONCRETE STEP @ DOOR 18 EL=99.58'

BENCHMARK: 4 RIGHT OUTSI
OF LOWER CONCRETE STEP
@ WA

AREA DRAIN

DMH
RIM: 101.10
INV.A: 97.00
INV.B: 97.00
T.O.S: 96.90

LADDER

CONC PAD W/2'X4
CONC COLUM

1" CONC COLUMN

SP

WG
(REC)

CB
(REC)

DMH
RIM: 98.91
INV.A: 91.85
INV.B: 92.3

CONNECT TO EX.
10" FP LINE W/
10" TAPPING VALVE

REFER TO INSET A
BELOW FOR PIPES
LAYOUT

NOT CONFIRM
O LOCATE DRAIN
NFORMATION TO
R TO START OF

THE GILLETTE COMPANY
PARCEL ID 185-2
BOOK 1093 PAGE 363
L.C.C. 32180
30 BURTT ROAD
(PARCEL 4)
(FORMER RAILROAD PARCEL)

MATCHLINE (SEE SHEET C503)

NOTES:
1. REFER TO SHEET C-001 FOR CIVIL NOTES, LEGEND, AND ABBREVIATIONS.
2. ALL DRAIN PIPES TO BE 12" CPP UNLESS NOTED OTHERWISE.

SCALE:
1" = 40'
40 20 0 40 80

Project:
P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

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16 APRIL 2024

Key Plan:

Stamp:

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DEBORAH L. COLBERT
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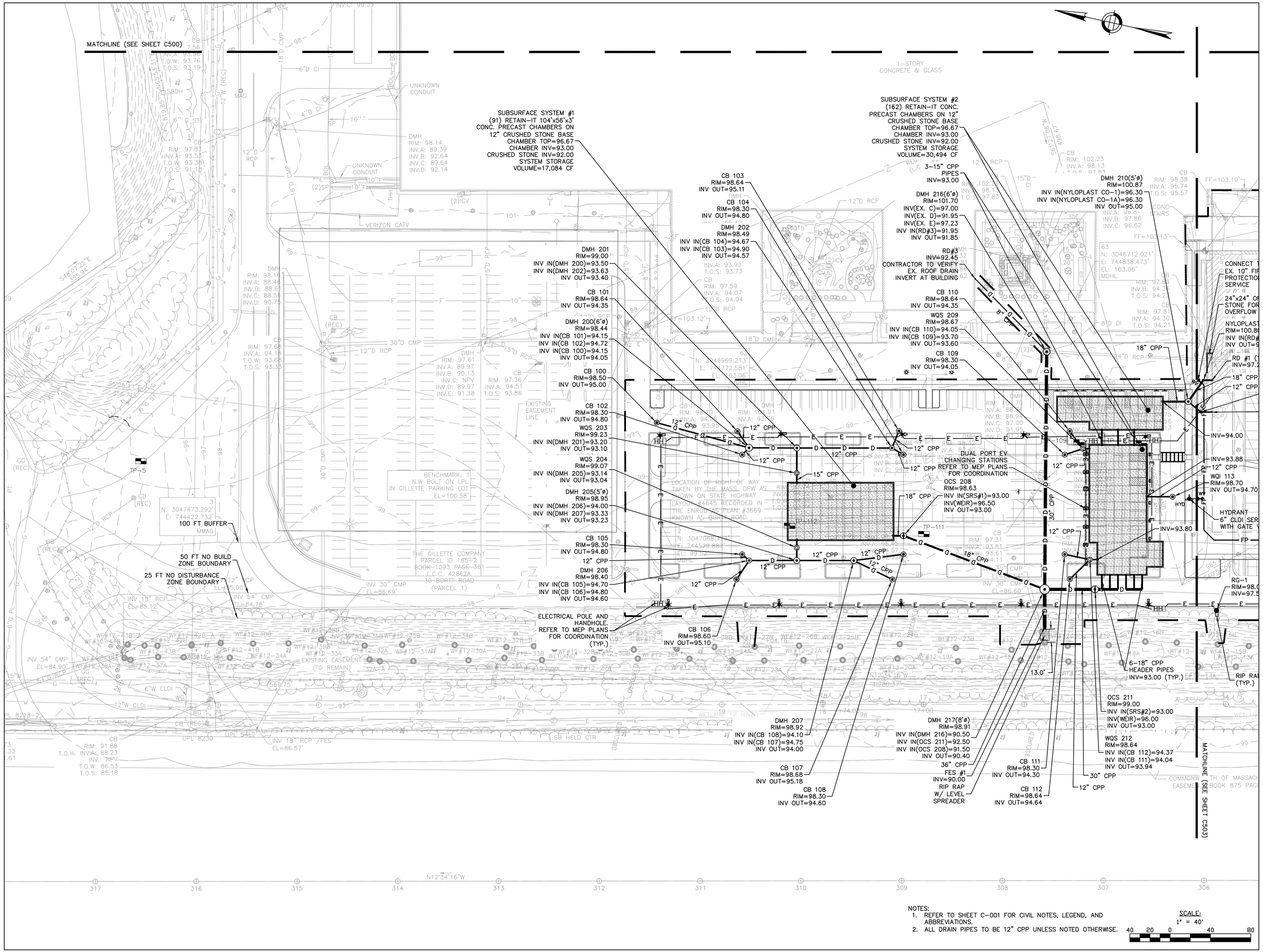
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:
SITE UTILITY PLAN

Drawing No.:
C-501

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2. ALL DRAIN PIPES TO BE 12" CPP UNLESS NOTED OTHERWISE.

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40 20 0 40 80

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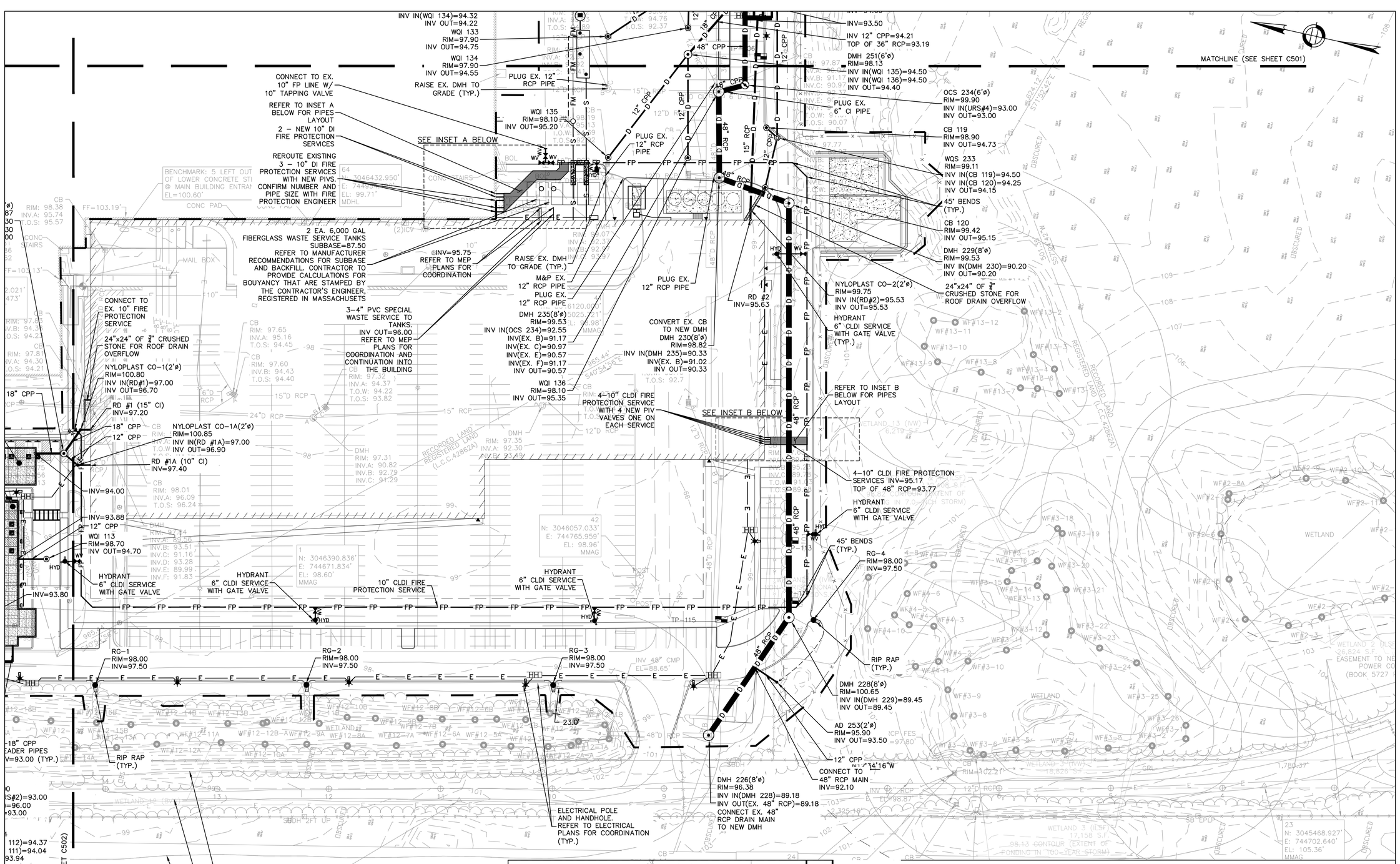
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:
SITE UTILITY PLAN

Drawing No.:
C-502




NOTES:
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2. ALL DRAIN PIPES TO BE 12" CPP UNLESS NOTED OTHERWISE.

SCALE:
1" = 40'
40 20 0 40 80

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| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:
SITE UTILITY PLAN

Drawing No.:
C-503

INV IN(EX SMH)=90.11

CONCRETE ENCASED AT FIRE PROTECTION CROSSING (TYP.)

EX SMH
CORE TEE FM INLET AT
ELEV. 93.00

4" SDR21 FORCEMAIN

1.5" SDR21 FORCEMAIN

LIMIT OF WORK (TYP.)

CLEANOUT (TYP.)

EXISTING TANKS TO BE REMOVED

BENCHMARK: 3 RIGHT OUTSIDE CORNER OF LOWER CONCRETE STEP @ DOOR 18
EL=99.58'

CONCRETE ENCASED AT FIRE PROTECTION CROSSING (TYP.)

MAINTAIN 10' SEPARATION FROM FIRE PROTECTION LINE (TYP.)

MULTIPLE CROSSINGS (AT LEAST 12) OVER OR UNDER EXISTING UTILITIES REQUIRED. INVERTS OF EXISTING UTILITIES ARE REQUIRED. FORCEMAIN PROFILE ELEVATIONS TO BE DETERMINED IN DESIGN. THERE MAY NEED TO BE RELIEF VALVE STRUCTURES SITUATED AT HIGH AND/OR LOW POINTS.

BENCHMARK: 4 RIGHT OUTSIDE CORNER OF LOWER CONCRETE STEP @ WAREHOUSE 2
EL=99.41'

4" SDR21 FORCEMAIN

1.5" SDR21 FORCEMAIN

6' DIA. VALVE CHAMBER
INV IN=94.60
INV OUT=94.60

8' DIA. PUMP CHAMBER
INV IN=93.60
INV OUT=94.60

22,000 GALLON SEPTIC TANK
INV IN=94.00
INV OUT=93.75
TOP OF TANK=95.58
BOTTOM OF TANK=86.08

SEWER LIFT STATION WITH
E1 GRINDER PUMP WH482/WR482
WITH CONCRETE COLLAR
INV=94.25

CONCRETE ENCASED AT FIRE PROTECTION CROSSING

4" CI VENT TO BUILDING

8" SCH40 PVC

6" SCH40 PVC

CONCRETE ENCASEMENT AT UTILITY CROSSING AND WITHIN 10' OF FIRE PROTECTION SERVICES (TYP.)

BENCHMARK: 5 LEFT OUTSIDE CORNER OF LOWER CONCRETE STEP @ MAIN BUILDING ENTRANCE
EL=100.60'

SANITARY SEWER BUILDING SERVICE
2,200 GPD ±
INV=96.00

INDUSTRIAL BUILDING SERVICE
14,100 GPD ±
INV=96.00

SCALE:
1" = 40'
40 20 0 40 80

NAD83

NAD83

NAD83

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

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| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:

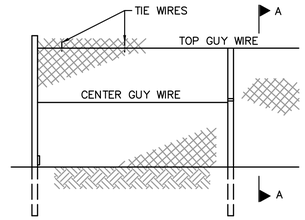
SANITARY SEWER LIFT STATION

Drawing No.:

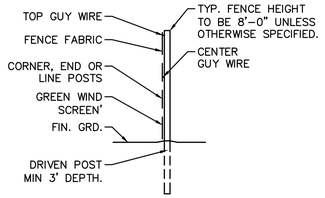
C-504

## EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS" PREPARED BY DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF RESOURCE PROTECTION, AND THE CURRENT NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES.
2. MEANS OF EROSION AND SEDIMENT PROTECTION AS NOTED ON THE DRAWINGS INDICATE MINIMUM RECOMMENDED PROVISIONS. THE CONTRACTOR IS RESPONSIBLE FOR FINAL SELECTION AND PLACEMENT OF EROSION AND SEDIMENTATION CONTROLS BASED ON ACTUAL SITE CONDITIONS AND CONSTRUCTION CONDITIONS. ADDITIONAL MEANS OF PROTECTION SHALL BE PROVIDED BY THE CONTRACTOR AS REQUIRED FOR CONTINUED OR UNFORESEEN EROSION PROBLEMS, OR AS DIRECTED BY CONTROLLING MUNICIPAL AUTHORITIES, AT NO ADDITIONAL EXPENSE TO THE OWNER.
3. AN EROSION CONTROL BARRIER SHALL BE INSTALLED ALONG THE EDGE OF PROPOSED DEVELOPMENT AS INDICATED IN THE PLAN PRIOR TO COMMENCEMENT OF DEMOLITION OR CONSTRUCTION OPERATIONS.
4. SEDIMENT CONTROL MEASURES SHALL BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF AND DURING ALL PHASES OF CONSTRUCTION AND BE CONSTRUCTED PRIOR TO AND IMMEDIATELY AFTER ANY GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIAL ON THE SITE.
5. AFTER ANY SIGNIFICANT RAINFALL (GREATER THAN 0.25 INCHES OF RAINFALL WITHIN 24 HOURS), SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED FOR INTEGRITY. ANY DAMAGE SHALL BE CORRECTED IMMEDIATELY.
6. PERIODIC INSPECTION AND MAINTENANCE OF ALL SEDIMENT CONTROL STRUCTURES SHALL BE PROVIDED TO ENSURE THAT THE INTENDED PURPOSE IS ACCOMPLISHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SEDIMENT LEAVING THE LIMIT OF WORK. SEDIMENT CONTROL MEASURES SHALL BE IN WORKING CONDITION AT THE END OF EACH WORKING DAY.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING SEDIMENT FROM ENTERING ANY STORM DRAINAGE SYSTEM AND FROM BEING CONVEYED TO ANY WETLAND RESOURCE AREA, PUBLIC WAYS, ABUTTING PROPERTY, OR OUTSIDE OF THE PROJECT LIMITS.
8. THE CONTRACTOR SHALL PROTECT ALL DRAINAGE SWALES AND GROUND SURFACES WITHIN THE LIMIT OF WORK FROM EROSIVE CONDITIONS. STRAW BALE, CRUSHED STONE OR EQUIVALENT CHECK DAMS ARE TO BE PROVIDED AT A MAXIMUM OF TWO HUNDRED (200) FOOT SPACING, OR LESS AS SITE-SPECIFIC CONDITIONS WARRANT, WITHIN ALL DRAINAGE SWALES AND DITCHES AND AT UPSTREAM SIDES OF ALL DRAINAGE INLETS.
9. ALL STOCK PILES SHALL BE PROTECTED AND LOCATED A MINIMUM OF 100' FROM EXISTING WETLAND RESOURCE AREAS & WITHIN THE LIMIT OF WORK.
10. ANY SEDIMENT TRACKED ONTO PAVED AREAS SHALL BE SWEPT AT THE END OF EACH WORKING DAY.
11. ALL SEDIMENT RETAINED BY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE LEGALLY DISPOSED OF OFFSITE.
12. TEMPORARY DIVERSION DITCHES, PERMANENT DITCHES, CHANNELS, EMBANKMENTS, AND ANY DENUDED SURFACE THAT WILL BE EXPOSED FOR A PERIOD OF 14 CALENDAR DAYS OR MORE SHALL BE CONSIDERED CRITICAL VEGETATION AREAS. THESE AREAS SHALL BE STABILIZED/PROTECTED WITH APPROPRIATE EROSION CONTROL MATTING OR OTHER EROSION CONTROL METHODS.
13. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS AS DIRECTED BY THE PERMITTING AUTHORITY OR OWNER.
14. THE CONTRACTOR SHALL USE TEMPORARY SEEDING, MULCHING, OR OTHER APPROVED STABILIZATION MEASURES TO PROTECT EXPOSED AREAS DURING PROLONGED CONSTRUCTION OR OTHER LAND DISTURBANCE. STOCKPILES THAT WILL BE EXPOSED FOR LONGER THAN 14 DAYS SHALL BE STABILIZED.
15. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL EROSION AND SEDIMENT CONTROLS AT THE COMPLETION OF SITE CONSTRUCTION, BUT ONLY WHEN DIRECTED BY THE TOWN OF ANDOVER CONSERVATION AGENT. STABILIZE OR SEED BARE AREAS LEFT AFTER EROSION CONTROL REMOVAL.
16. PROVIDE PERIMETER PROTECTION BARRIER 'B' OF SILT FENCE WITH DOUBLE ROW OF SILTATION WATTLES (SEE DETAILS SHEET) ALONG THE FULL SOUTH AND WEST SIDES OF THE SITE ADJACENT TO THE LIMIT OF WORK.
17. ALL EXISTING AND PROPOSED CATCH BASINS AND DRAINAGE INLETS SHALL HAVE SILTATION SACKS INSTALLED FOR PROTECTION AND BE MAINTAINED PER REQUIREMENTS.
18. PROVIDE STABILIZED CONSTRUCTION ENTRANCE AT THE SITE ENTRANCES INCLUDING THE SOUTHWEST CONSTRUCTION ENTRANCE OFF OF BURTT ROAD AND THE EASTERN ENTRANCE ON THE LOADING DOCK SIDE OF THE BUILDING.
19. PROVIDE AT LEAST 1 WHEEL WASH STATION AT THE EXIT FROM THE SITE.




ELEVATION



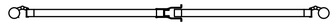

SECTION A-A

CONSTRUCTION FENCE AND GATE NOTES

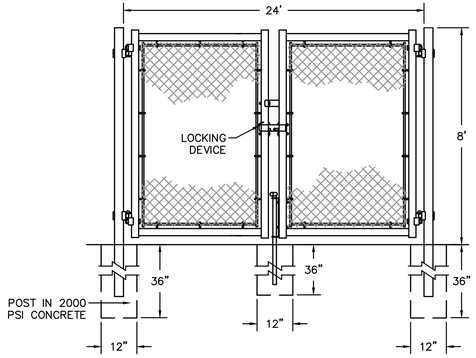
1. FABRIC SHALL BE 0.148" WIRE, WOVEN INTO APPROXIMATELY 2" DIAMOND MESH.
2. THE FENCE FABRIC SHALL BE ZINC COATED STEEL OR ALUMINUM COATED STEEL.
3. FENCE POSTS SHALL RECEIVE THE SAME COATING AND TREATMENT AS THE FENCE FABRIC (DESCRIBED ABOVE).
4. THE CONTRACTOR SHALL ADD A GREEN WIND SCREEN
5. LINE POSTS SHALL BE 2½" O.D. END OR CORNER POSTS SHALL BE 3" O.D.
6. THE CONTRACTOR IS RESPONSIBLE FOR SURFACE RESTORATION ONCE THE FENCE IS REMOVED.
7. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE TEMPORARY CONSTRUCTION FENCE AT THE CONCLUSION OF THE PROJECT.

## CHAIN LINK CONSTRUCTION FENCE

NOT TO SCALE



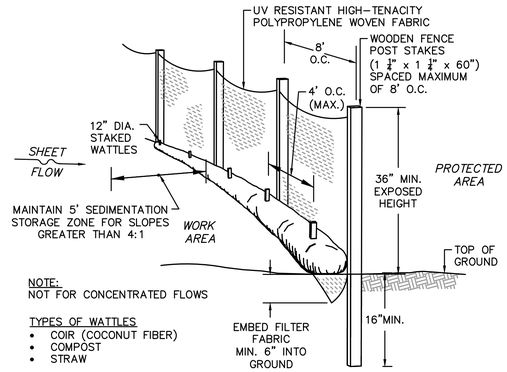
GATE PLAN



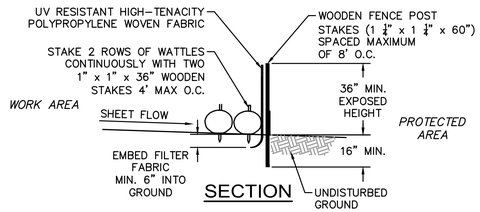

DOUBLE GATE ELEVATION

## 24' WIDE DOUBLE GATE

NOT TO SCALE



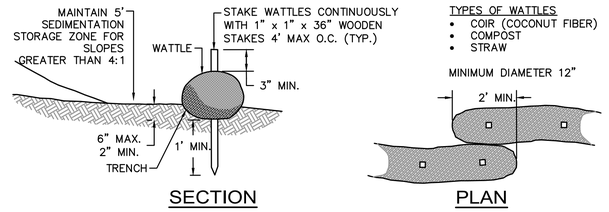

PERSPECTIVE VIEW




SECTION

## PERIMETER PROTECTION BARRIER
## SILT FENCE DETAIL WITH DOUBLE WATTLES

NOT TO SCALE

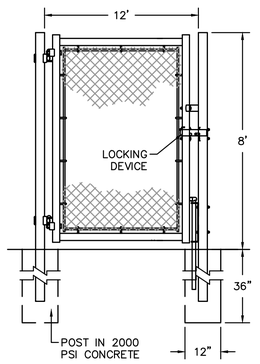



SECTION PLAN

## WATTLES - SLOPE PROTECTION FOR SLOPES LESS THAN 10:1

NOT TO SCALE

GATE PLAN




SINGLE GATE ELEVATION

## 12' WIDE EMERGENCY GATE

NOT TO SCALE

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

PERMTTING SET

NOT FOR CONSTRUCTION

16 APRIL 2024

Key Plan:

Stamp:

COMMONWEALTH OF MASSACHUSETTS
DEBORAH L. COLBERT
CIVIL
No. 37073
REGISTERED PROFESSIONAL ENGINEER

| No. | Date | Revision |
|---|---|---|
| | | |

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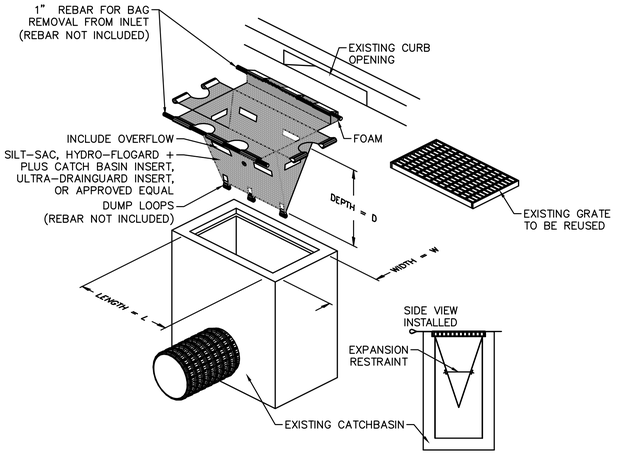
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | NTS |

Drawing Title:
CIVIL DETAILS I

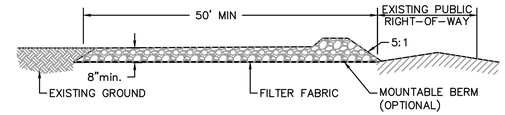
Drawing No.:
C-600



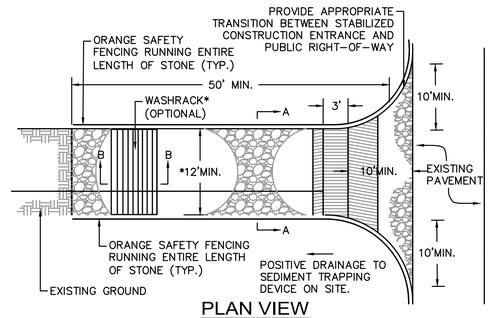

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS SHEET, OVERLAND OR CONCENTRATED FLOWS (NOT GREATER THAN 1 CFS). THE METHOD CAN DRAIN FLAT AREA TO STEEP SLOPES. INLET CAPACITY WILL BE DECREASED WITH THIS METHOD AND THE CONTRACTOR SHALL EXPECT PONDING DURING HIGH FLOW EVENTS.

## INLET PROTECTION
## CATCH BASIN W/ SILTATION SACK

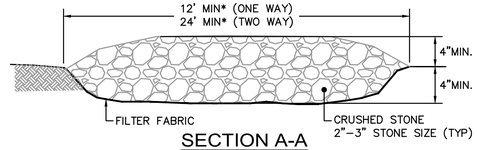
NOT TO SCALE



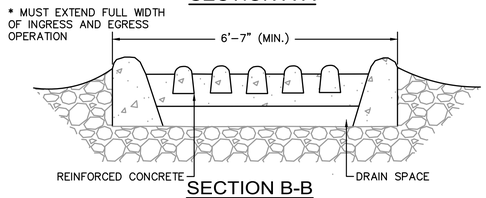

## SIDE ELEVATION



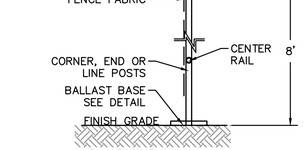

## PLAN VIEW




## SECTION A-A



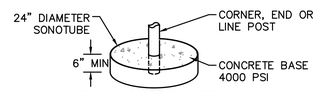

## SECTION B-B




## ELEVATION




## SECTION A-A




## BALLAST BASE

NOTES

1. END, GATE AND CORNER POSTS SHALL BE BRACED TO ADJACENT LINE POSTS. (MORE THAN 30° CHANGE IN DIRECTION CONSTITUTES A CORNER)
2. FABRIC SHALL BE 0.148" GAUGE MIN. WIRE, WOVEN INTO APPROXIMATELY 2" DIAMOND MESH.
3. ZINC-COATED STEEL FABRIC BASE METAL SHALL BE COATED WITH PRIME WESTERN SPELTER OR EQUAL.
4. ALUMINUM COATED STEEL FABRIC BASE METAL SHALL BE COATED WITH ALUMINUM ALLOY.
5. LINE POSTS SHALL BE 2½" O.D. END OR CORNER POSTS SHALL BE 3" O.D.
6. THE CONTRACTOR IS RESPONSIBLE FOR SURFACE RESTORATION ONCE THE FENCE IS REMOVED.
7. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE TEMPORARY CONSTRUCTION FENCE AT THE CONCLUSION OF THE PROJECT.

## TEMPORARY CONSTRUCTION
## CHAIN LINK FENCE WITH BALLAST BASE

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

CONSTRUCTION SPECIFICATIONS

LENGTH – GREATER THAN OR EQUAL TO 50 FEET

WIDTH – TWELVE FOOT MINIMUM (ONE WAY), TWENTY FOUR FOOT MINIMUM (TWO WAY), BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.

SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM SHALL BE PERMITTED.

THICKNESS – 8"

MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED.

## STABILIZED CONSTRUCTION ENTRANCE

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

PERMTTING SET

NOT FOR CONSTRUCTION

16 APRIL 2024

Key Plan:

Stamp:

COMMONWEALTH OF MASSACHUSETTS
DEBORAH L. COLBERT
CIVIL
No. 37073
REGISTERED
PROFESSIONAL ENGINEER

| No. | Date | Revision |
|---|---|---|
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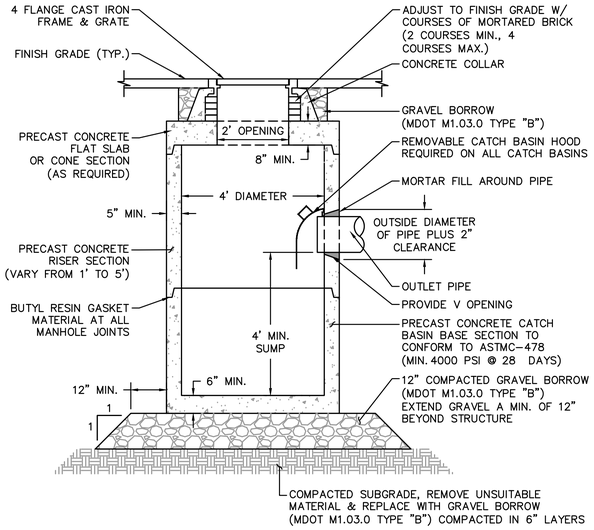
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | NTS |

Drawing Title:

CIVIL DETAILS II

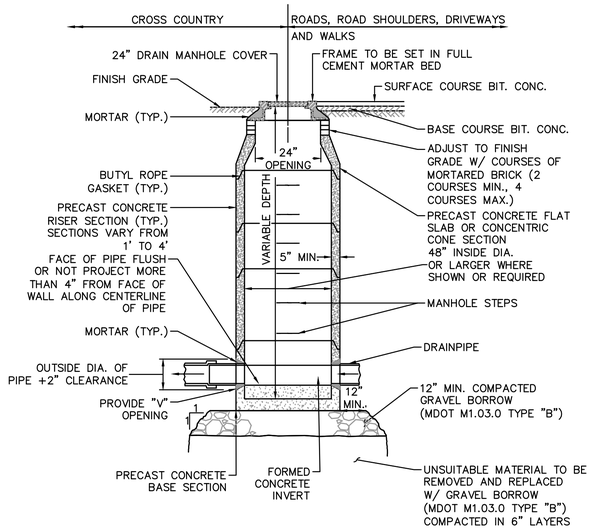
Drawing No.:

C-601



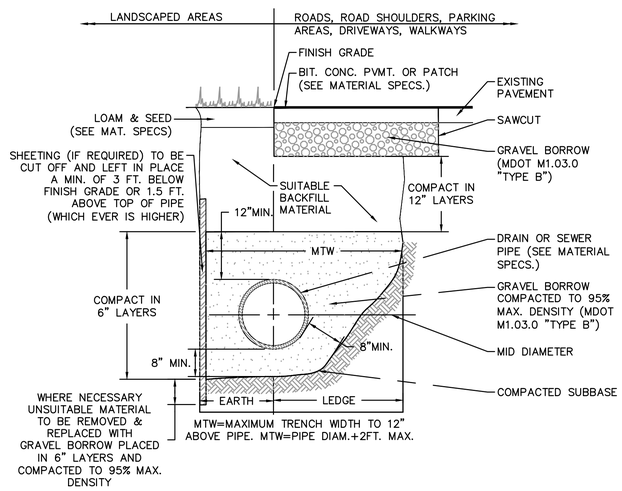

## TYPICAL CATCH BASIN DETAIL

NOT TO SCALE



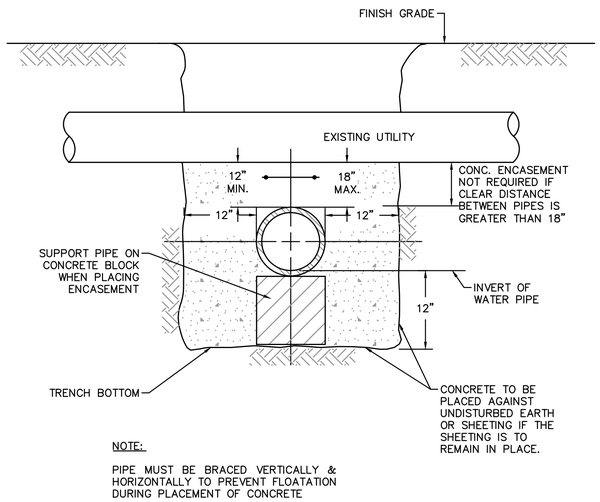

## TYPICAL DRAIN MANHOLE DETAIL

NOT TO SCALE




## STANDARD TRENCH DETAIL FOR UTILITY PIPE

NOT TO SCALE



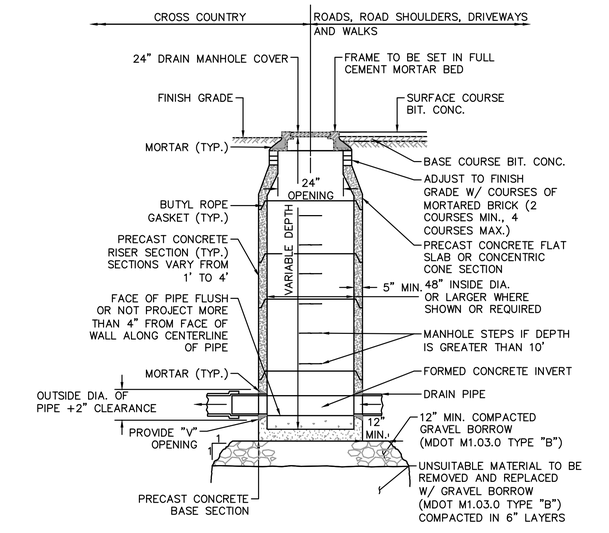

## CONCRETE ENCASEMENT DETAIL AT UTILITY CROSSINGS

NOT TO SCALE



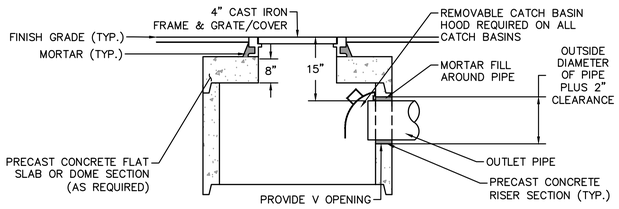

## SHALLOW CATCH BASIN DETAIL

NOT TO SCALE



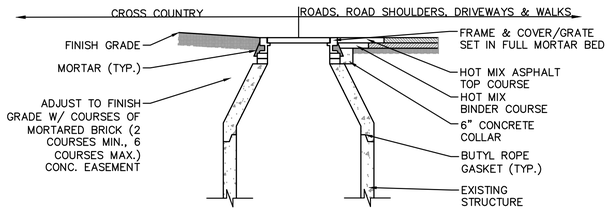

## TYPICAL SHALLOW DRAIN MANHOLE DETAIL

NOT TO SCALE




## SHALLOW CATCH STRUCTURE

NOT TO SCALE




## RIM SETTING DETAIL

NOT TO SCALE

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

PERMTTING SET

NOT FOR CONSTRUCTION

16 APRIL 2024

Key Plan:

Stamp:

COMMONWEALTH OF MASSACHUSETTS
DEBORAH L. COLBERT
CIVIL
No. 37073
REGISTERED PROFESSIONAL ENGINEER

| No. | Date | Revision |
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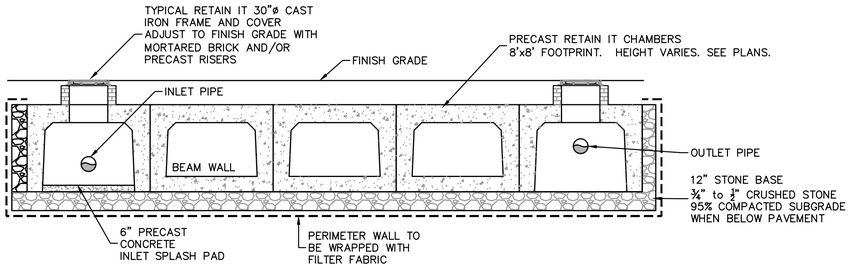
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | NTS |

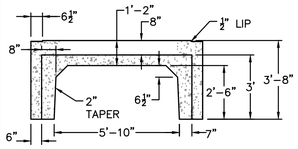
Drawing Title:
CIVIL DETAILS III

Drawing No.:
C-602



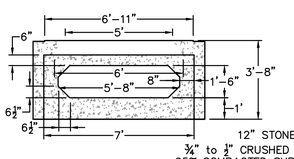

## RETAIN IT UNDERGROUND INFILTRATION SYSTEM DETAIL

NOT TO SCALE

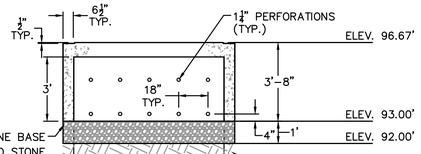



OPEN

*VOLUME CAPACITY
VOLUME = 17,084 CF



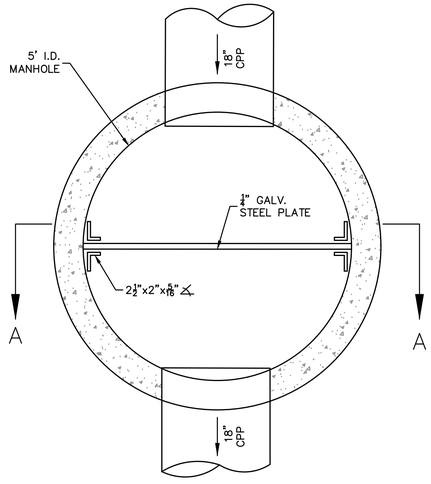

WINDOW



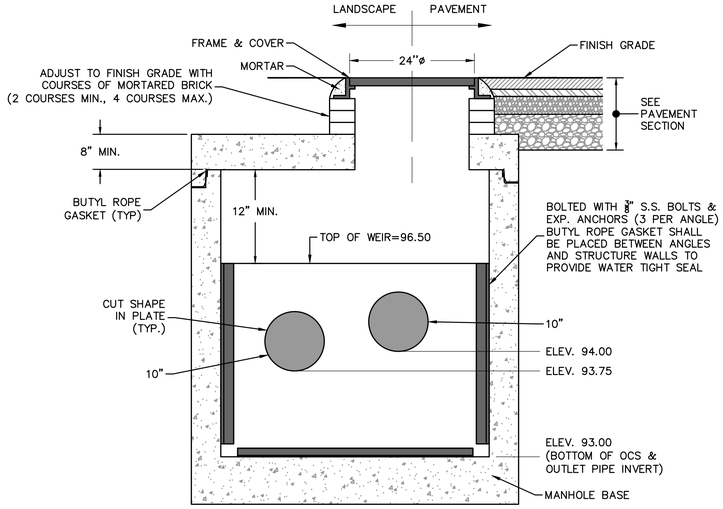

PERFORATED WALL

## SUBSURFACE SYSTEM #1

NOT TO SCALE




PLAN




SECTION A-A

## OUTLET CONTROL STRUCTURE - OCS 208 (SUBSURFACE SYSTEM #1)

NOT TO SCALE




OPEN

*VOLUME CAPACITY
VOLUME = 30,494 CF




WINDOW




PERFORATED WALL

## SUBSURFACE SYSTEM #2

NOT TO SCALE



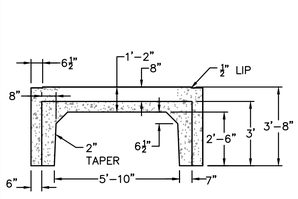

PLAN




SECTION A-A

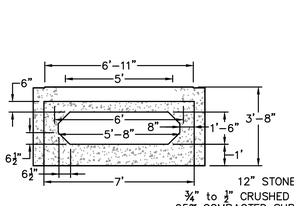
## OUTLET CONTROL STRUCTURE - OCS 211 (SUBSURFACE SYSTEM #2)

NOT TO SCALE

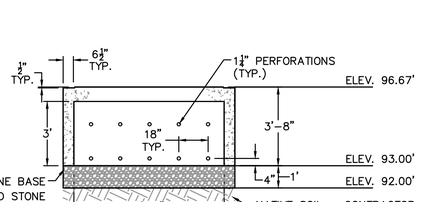



OPEN

*VOLUME CAPACITY
VOLUME = 29,308 CF



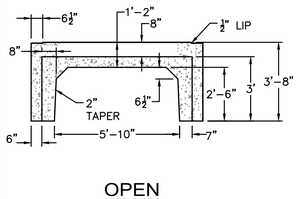

WINDOW




PERFORATED WALL

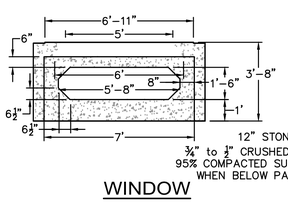
## SUBSURFACE SYSTEM #3

NOT TO SCALE

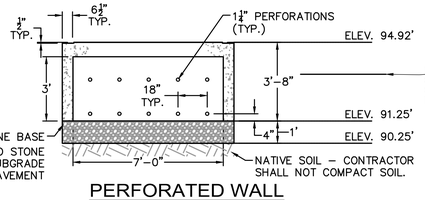



OPEN

*VOLUME CAPACITY
VOLUME = 16,825 CF




WINDOW




PERFORATED WALL

## SUBSURFACE SYSTEM #4

NOT TO SCALE

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

PERMTTING SET

NOT FOR CONSTRUCTION

16 APRIL 2024

Key Plan:

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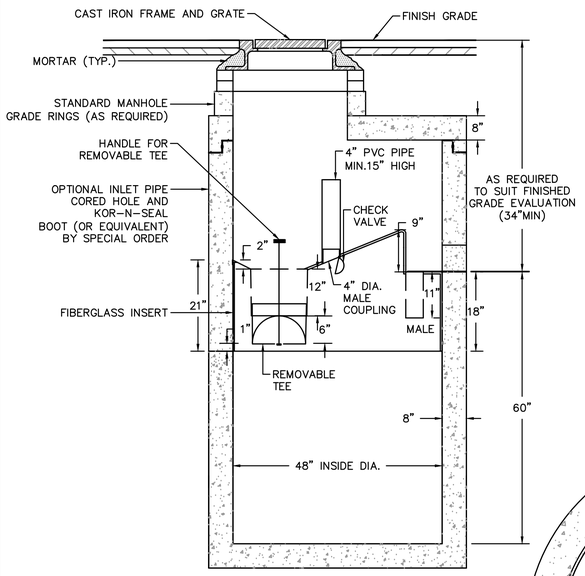
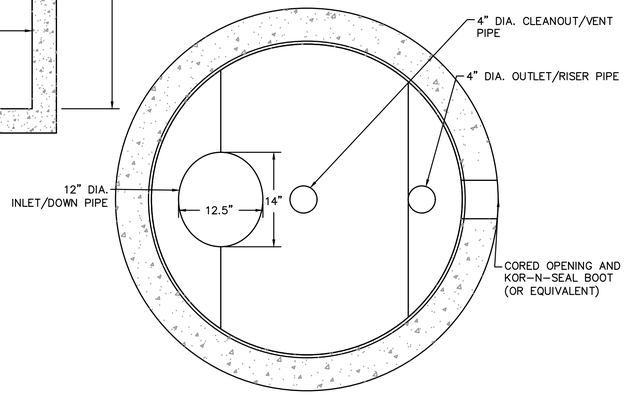
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | NTS |

Drawing Title:
CIVIL DETAILS IV

Drawing No.:
C-603



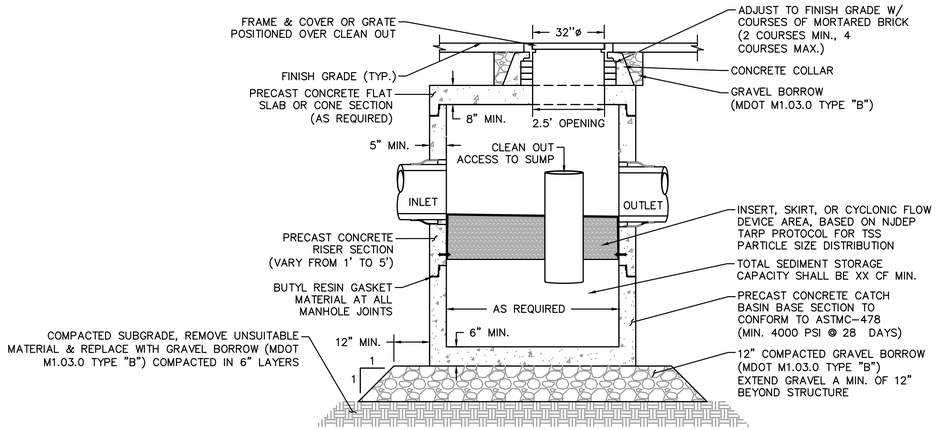

ELEVATION




PLAN VIEW

STORMCEPTOR CATCH BASIN DETAIL

NOT TO SCALE

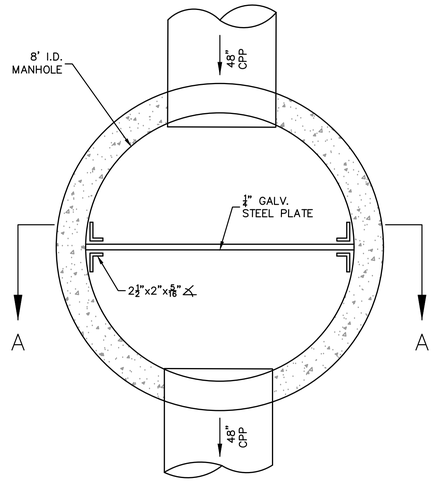



NOTE :

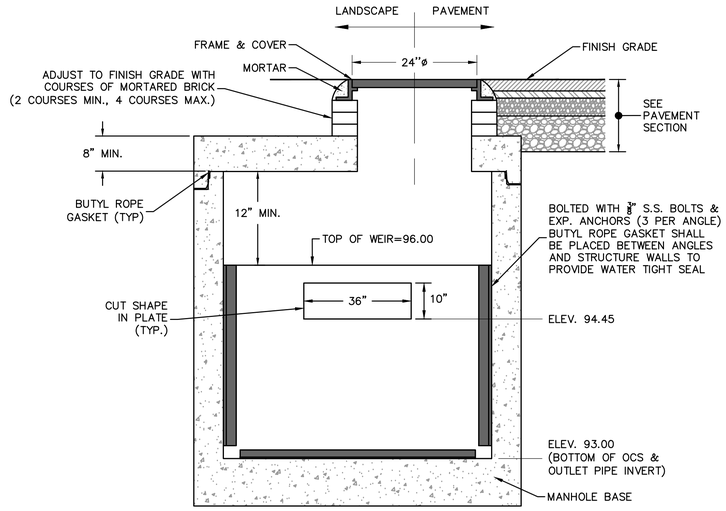
1. THE USE OF FLEXIBLE CONNECTIONS IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.
2. THE COVER SHOULD BE POSITIONED OVER THE OUTLET DROP PIPE AND THE OIL CLEANOUT PIPE.
3. STRUCTURE DESIGNED FOR H20 LOADING

WATER QUALITY STRUCTURE DETAIL

NOT TO SCALE




PLAN




SECTION A-A

OUTLET CONTROL STRUCTURE - OCS 234 (SUBSURFACE SYSTEM #3)

NOT TO SCALE




PLAN




SECTION A-A

OUTLET CONTROL STRUCTURE - OCS 253 (SUBSURFACE SYSTEM #4)

NOT TO SCALE

| STRUCTURE NAME | MINIMUM WQF | PEAK FLOW RATE* | MINIMUM SEDIMENT STORAGE CAPACITY |
|---|---|---|---|
| WQS 203 | 1.11 CFS | 5.23 CFS | 21 CF |
| WQS 204 | 0.81 CFS | 3.38 CFS | 20 CF |
| WQS 209 | 0.70 CFS | 3.67 CFS | 20 CF |
| WQS 212 | 0.42 CFS | 2.02 CFS | 20 CF |
| WQS 233 | 0.21 CFS | 2.17 CFS | 20 CF |
| WQS 244 | 0.37 CFS | 2.10 CFS | 20 CF |
| WQS 245 | 0.57 CFS | 12.79 CFS | 20 CF |
| WQI 113 | 0.11 CFS | 0.65 CFS | 21 CF |
| WQI 124 | 0.51 CFS | 3.72 CFS | 20 CF |
| WQI 127 | 0.35 CFS | 1.84 CFS | 20 CF |
| WQI 130 | 0.57 CFS | 2.93 CFS | 20 CF |
| WQI 131 | 0.36 CFS | 1.70 CFS | 20 CF |
| WQI 132 | 0.26 CFS | 1.89 CFS | 20 CF |
| WQI 133 | 0.40 CFS | 1.91 CFS | 20 CF |
| WQI 134 | 0.30 CFS | 2.02 CFS | 20 CF |
| WQI 135 | 0.41 CFS | 1.95 CFS | 20 CF |
| WQI-136 | 0.52 CFS | 2.61 CFS | 20 CF |
| WQI-137 | 0.37 CFS | 2.29 CFS | 20 CF |

* PEAK FLOW RATE BASED ON RATIONAL ANALYSIS FOR A 25-YEAR STORM EVENT. STRUCTURE SHALL BE ABLE TO PASS PEAK FLOW RATE WITHOUTCAUSING A BACKWATER CONDITION.

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

PERMTTING SET

NOT FOR CONSTRUCTION

16 APRIL 2024

Key Plan:

Stamp:

COMMONWEALTH OF MASSACHUSETTS
DEBORAH L. COLBERT
CIVIL
No. 37073
REGISTERED PROFESSIONAL ENGINEER

| No. | Date | Revision |
|---|---|---|

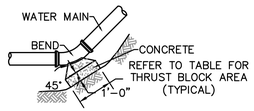
| | |
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | NTS |

Drawing Title:

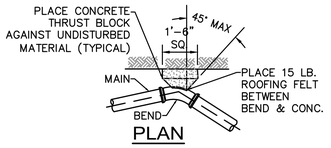
CIVIL DETAILS V

Drawing No.:

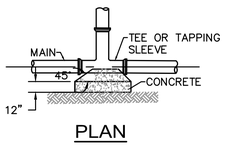
C-604




PLAN




PLAN




PLAN

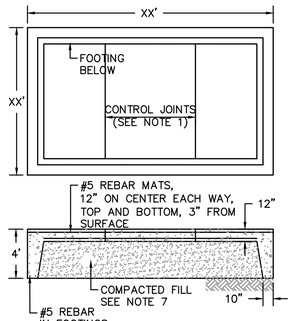
NOTES:
1. THRUST BLOCKS TO BE USED ON ALL PRESSURE PIPES AT HORIZONTAL AND VERTICAL BENDS GREATER OR EQUAL TO 45°, TEES AND DEAD ENDS.
2. FOR FITTINGS WITH LESS THAN 45° DEFLECTION USE BEARING AREAS FOR 45° BEND.
3. BEARING AREAS BASED ON HORIZONTAL PASSIVE SOIL PRESSURE OF 2000 PSF AND A MINIMUM INTERNAL WATER PRESSURE OF 175 PSIG. JOINTS SHALL NOT BE ENCASED IN CONCRETE, BEARING AREAS MAY BE DISREGARDED FOR TRENCHES IN ROCK WHERE THE TOP OF THE ROCK FACE IS AT OR ABOVE THE CROWN OF THE PIPE. HOWEVER, CONCRETE BACKING SHALL BE PLACED BETWEEN THE PIPE AND ROCK FACE.

TABLE OF BEARING AREAS IN SQUARE FEET AGAINST UNDISTURBED MATERIAL FOR FITTING. *

| SIZE OF MAIN (INCHES) | 90° BEND (S.F.) | 45° BEND (S.F.) | DEAD END (S.F.) |
|---|---|---|---|
| 4 | 2.3 | 1.3 | 1.6 |
| 6 | 4.7 | 2.5 | 3.3 |
| 8 | 8.0 | 4.5 | 6.0 |
| 12 | 17.0 | 9.5 | 12.0 |

## THRUST BLOCK DETAILS

NOT TO SCALE

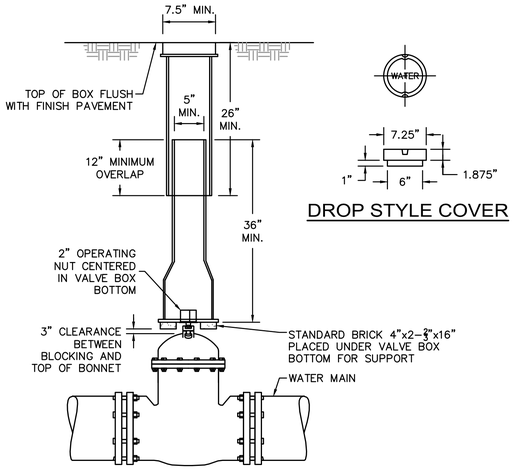



NOTES:
1. CONTROL JOINTS: 8' O.C. CUT 24 HRS. AFTER FINISH – 1.5"
2. 5000 PSI CONCRETE @ 28 DAYS.
3. 12" CONCRETE PAD ON COMPACTED FILL, MONOLITHIC POUR.
4. SEE GENERATOR SUBMITTALS FOR CONDUIT STUB UP DETAILS.
5. PAD SHALL BE INSTALLED FLUSH GROUND SURFACE.
6. FOOTING TO BE SET ON UNDISTURBED SOIL.
7. COMPACTED FILL TO BE PLACED & COMPACTED IN 6" LIFTS, COMPACTED TO 95% COMPACTION.

*SEE STRUCTURAL PLANS FOR MORE DETAIL

## CONCRETE PAD WITH FOOTING DETAIL

NOT TO SCALE




## BOTTOM DETAIL

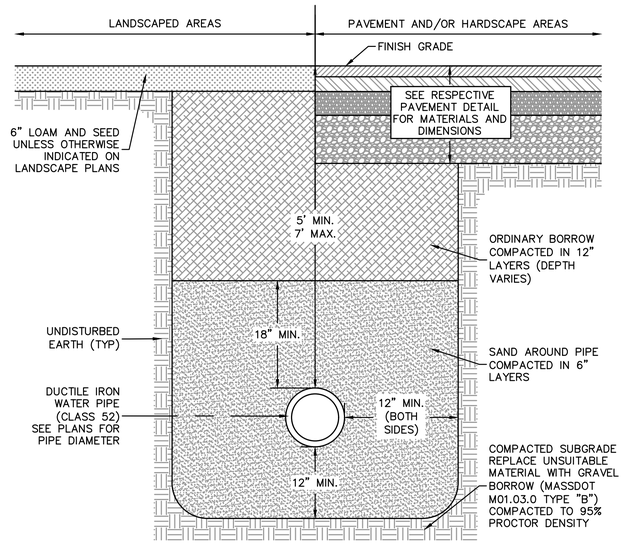



## DROP STYLE COVER

NOTES:
1. ALL WATER MAINS SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
2. COVER MUST BE MARKED "WATER".

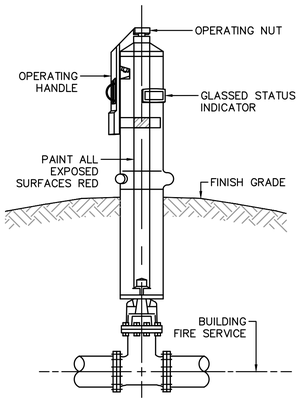
## GATE VALVE BOX DETAIL

NOT TO SCALE



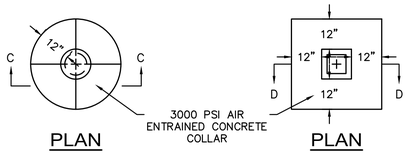

## WATER TRENCH DETAIL

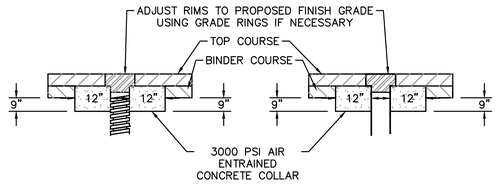
NOT TO SCALE




## POST INDICATOR VALVE DETAIL

NOT TO SCALE



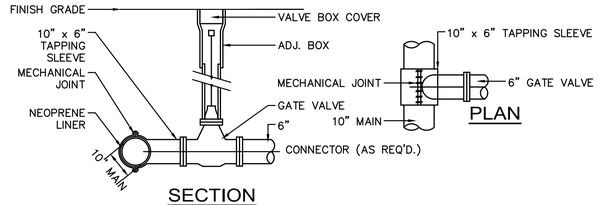

SECTION C-C ROUND

SECTION D-D SQUARE

NOTE:
ALL GATE BOX RIMS TO BE RAISED TO FINISH GRADE AFTER BINDER COURSE OR LEVELING COURSE PVMT HAS BEEN PLACED.

## WATER GATE BOX DETAIL

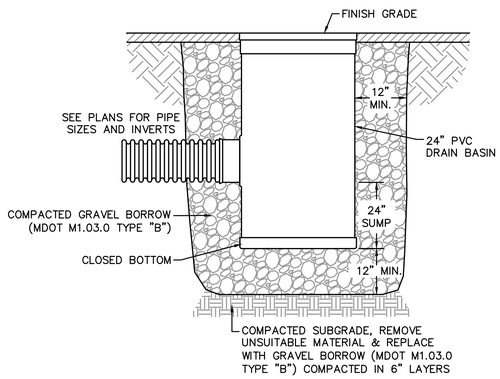
NOT TO SCALE




SECTION

## TAPPING SLEEVE, VALVE & BOX DETAIL

NOT TO SCALE




## SECTION VIEW

NOTES:
1. FRAME AND GRATE SHALL BE DUCTILE IRON CONFORMING TO ASTM A536 GRADE 70–50–05.
2. 24" AREA DRAINS SHALL BE NYLOPLAST MODEL 2824 AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC., OR APPROVED EQUAL.
3. AREA DRAINS SHALL BE CUSTOM MANUFACTURED ACCORDING TO THE PLANS AND DETAIL.
4. CASTINGS SHALL BE FURNISHED WITH A BLACK PAINT.
5. SEE PLANS FOR LAYOUT AND ELEVATIONS OF DRAIN PIPES TO AREA DRAINS.

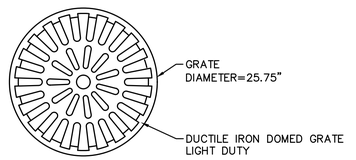
## 24" AREA DRAIN DETAIL

NOT TO SCALE

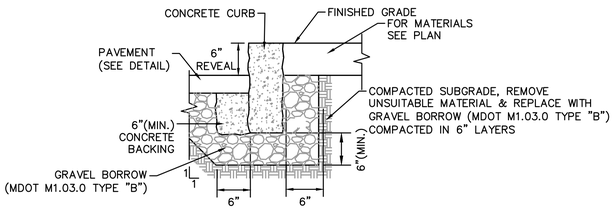



## TYPICAL CLEANOUT DETAIL

NOT TO SCALE




## DOMED GRATE




## VERTICAL CONCRETE CURB SETTING DETAIL

NOT TO SCALE

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

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Key Plan:

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DEBORAH L. COLBERT
CIVIL
No. 37073
REGISTERED
PROFESSIONAL ENGINEER

| No. | Date | Revision |
|---|---|---|
| | | |

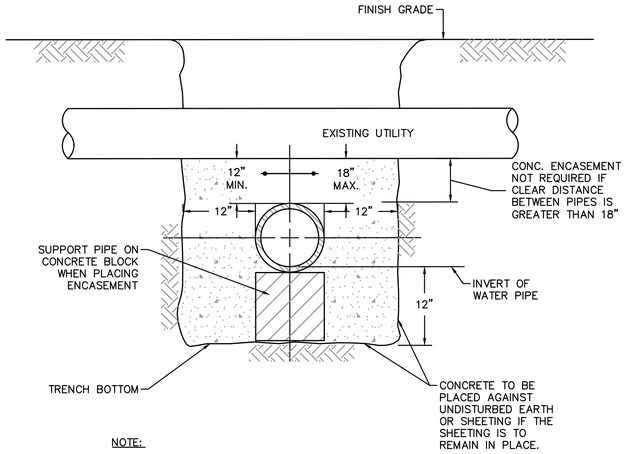
| | |
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | NTS |

Drawing Title:

CIVIL DETAILS VI

Drawing No.:

C-605

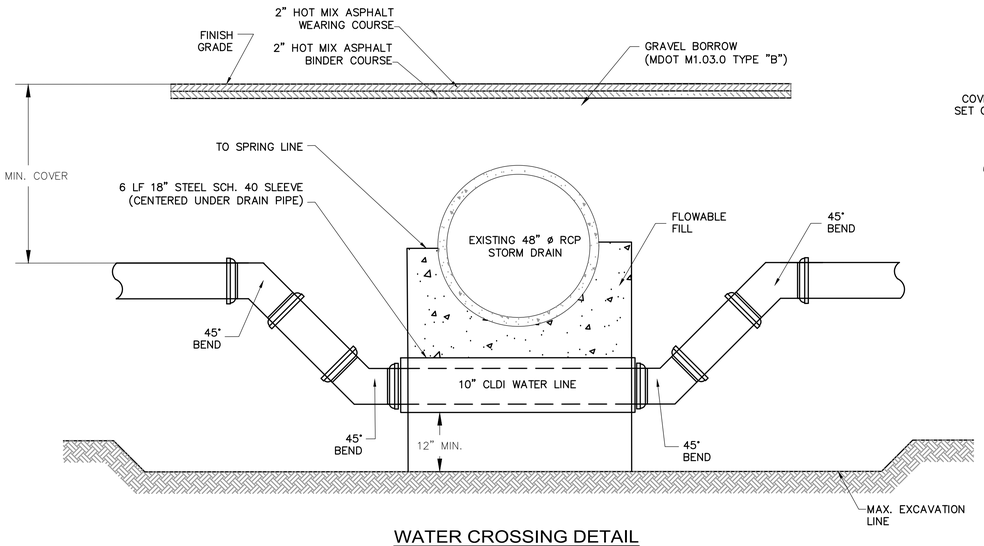



NOTE:

PIPE MUST BE BRACED VERTICALLY & HORIZONTALLY TO PREVENT FLOATATION DURING PLACEMENT OF CONCRETE

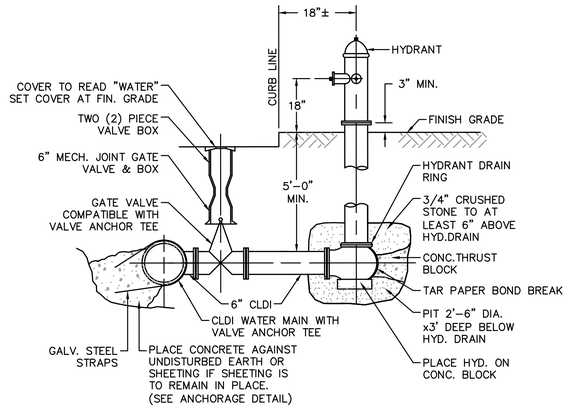
## CONCRETE ENCASEMENT DETAIL AT UTILITY CROSSINGS

NOT TO SCALE




## WATER CROSSING DETAIL

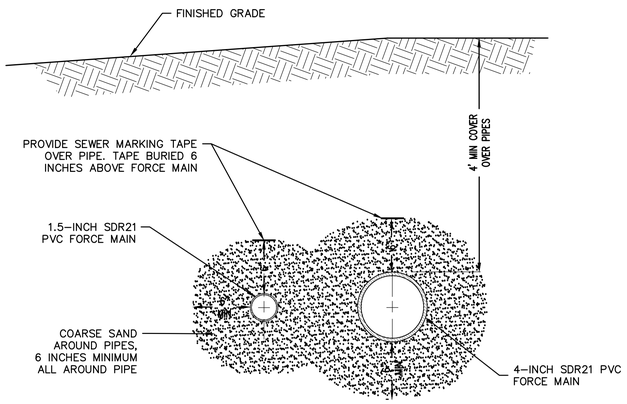
NOT TO SCALE




NOTE: ALL JOINTS ON HYDRANT BRANCH TO BE RESTRAINED JOINTS

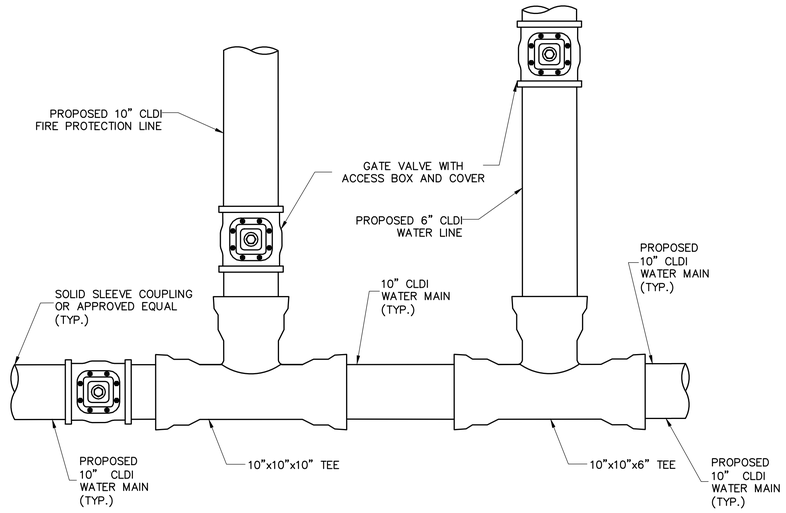
## FIRE HYDRANT DETAIL

NOT TO SCALE




## NEW FORCE MAIN DETAIL

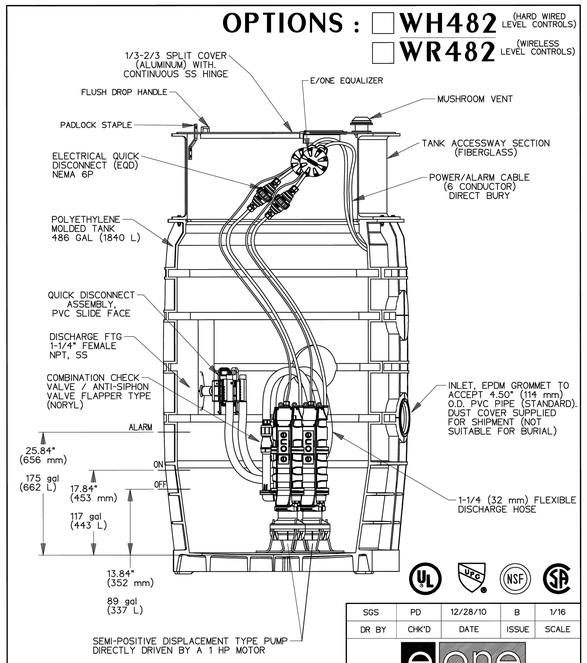
NOT TO SCALE




NOTES:
1. ALL WORK MUST BE PERFORMED BY A LICENSED AND BONDED CONTRACTOR.
2. THIS PROCEDURE MAY INVOLVE A MAIN LINE SHUT DOWN THAT THE CONTRACTOR WILL COORDINATE WITH THE BUZZARDS BAY WATER DISTRICT (BBWD)
3. ALL WORK MUST BE INSPECTED BY A BBWD INSPECTOR OR DESIGNEE PRIOR TO BACKFILLING.

## DOMESTIC/FIRE WATER PIPE CONNECTIONS TO PROPOSED 10" WATER MAIN DETAIL

NOT TO SCALE




CONCRETE BALLAST MAY BE REQUIRED SEE INSTALLATION INSTRUCTIONS FOR DETAILS

NOTE: DIMENSIONS ARE FOR REFERENCE ONLY

| SGS | PD | 12/28/10 | B | 1/16 |
|---|---|---|---|---|
| DR BY | CHK'D | DATE | ISSUE | SCALE |

SEWER SYSTEMS

MODEL WH482 / WR482 DETAIL SHEET

NA0211P02

## E1 GRINDER PUMP MODEL WH482/WR482

NOT TO SCALE

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

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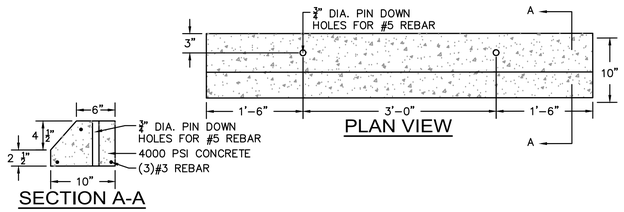
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | NTS |

Drawing Title:

CIVIL DETAILS VII

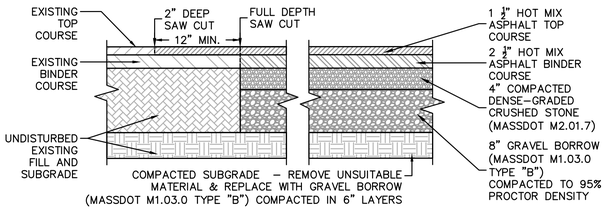
Drawing No.:

C-606



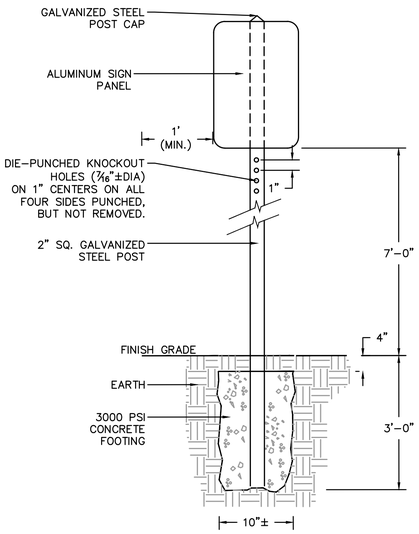

## CONCRETE WHEEL STOP DETAIL

NOT TO SCALE



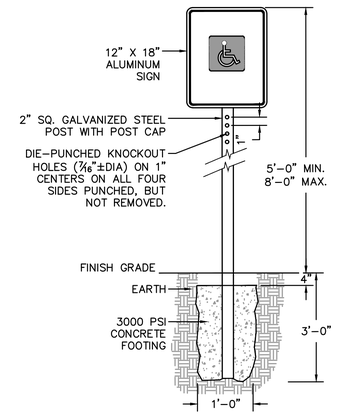

## HOT MIX ASPHALT PAVING (TWO COURSES) DETAIL

NOT TO SCALE



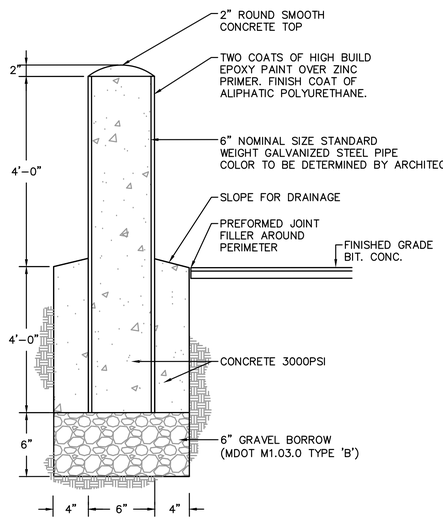

## SIGN POST SETTING DETAIL

NOT TO SCALE
(SIGN PANEL UNDER 10 SF IN AREA)



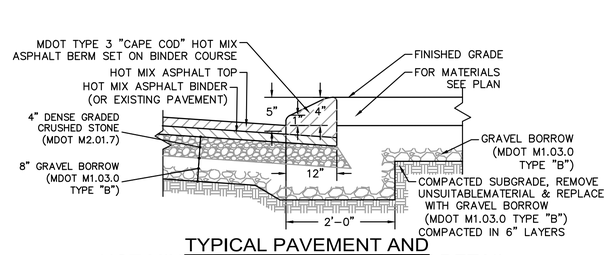

## ACCESSIBLE PARKING SIGNAGE DETAIL

NOT TO SCALE



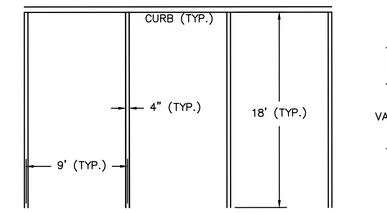

## 6" BOLLARD DETAIL

NOT TO SCALE




## TYPICAL PAVEMENT AND HOT MIX ASPHALT BERM SECTION DETAIL

NOT TO SCALE

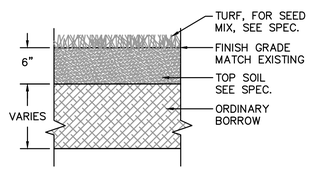



NOTE:

STRIPING SHALL BE INSTALLED PER SPECIFICATIONS

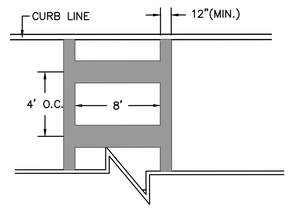
## TYPICAL PARKING STRIPING DETAIL

NOT TO SCALE



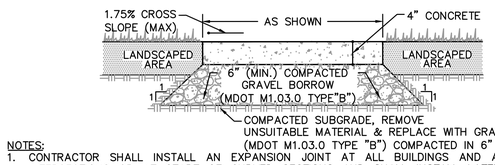

## LOAM AND SEED DETAIL

NOT TO SCALE




## CROSSWALK DETAIL

NOT TO SCALE

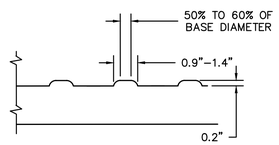



NOTES:

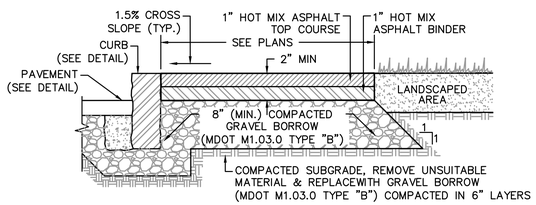
1. CONTRACTOR SHALL INSTALL AN EXPANSION JOINT AT ALL BUILDINGS AND ALL SIDEWALK INTERSECTIONS OR AT START OF CURVED SECTIONS AND SHALL INSTALL LATERAL CONTROL JOINTS AS REQUIRED (8'-0" MAX. SPACING). SLOPE SIDEWALK AS SHOWN ON PLANS OR ROADWAY SECTIONS (MINIMUM SLOPE = 1% )
2. CONCRETE SHALL BE 4000 PSI.

## CONCRETE WALKWAY DETAIL

NOT TO SCALE




## SECTION A-A

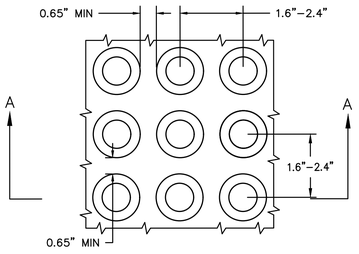



## HOT MIX ASPHALT SIDEWALK DETAIL

NOT TO SCALE

NOTES:

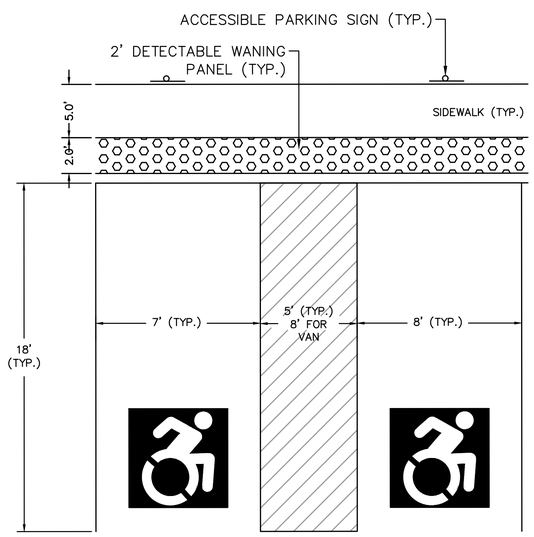
1. DETECTABLE WARNING PANELS SHALL BE PERMANENTLY APPLIED TO THE RAMP.
2. DETECTABLE WARNING PANELS SHALL CONTRAST VISUALLY WITH THE ADJACENT WALKWAY SURFACES PER THE FOLLOWING COLOR SCHEDULE:
   - PALE YELLOW ON CEMENT CONCRETE PEDESTRIAN RAMPS
3. DETECTABLE WARNING PANELS SHALL BE AS MANUFACTURED BY ADA SOLUTIONS, INC. OF NORTH BILLERICA, MA OR AN APPROVED EQUAL.
4. DETECTABLE WARNING PANELS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.




## DETECTABLE WARNING PANEL

## DETECTABLE WARNING PANEL FOR PEDESTRIAN RAMPS DETAIL

NOT TO SCALE




## ACCESSIBLE PARKING DETAIL

NOT TO SCALE

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

PERMTTING SET

NOT FOR CONSTRUCTION

16 APRIL 2024

Key Plan:

Stamp:

COMMONWEALTH OF MASSACHUSETTS
DEBORAH L. COLBERT
CIVIL
No. 37073
REGISTERED PROFESSIONAL ENGINEER

| No. | Date | Revision |
|---|---|---|
| | | |

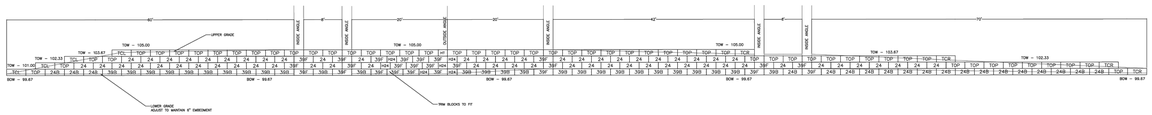
| | |
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | NTS |

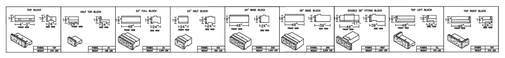
Drawing Title:

CIVIL DETAILS VIII

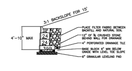
Drawing No.:

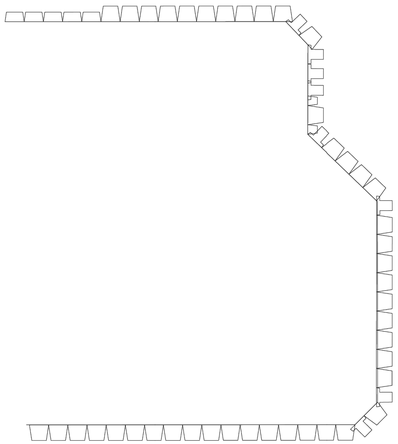
C-607

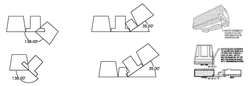



| QTY | DESCRIPTION |
|---|---|
| 54 | TOP BLOCK |
| 1 | HALF TOP BLOCK |
| 83 | 24" FULL BLOCK |
| 13 | 12" HALF BLOCK |
| 27 | 36" BASE BLOCK |
| 25 | 36" FITTING |
| 3 | 24" HALF BLOCK |
| 4 | TCL BLOCK |
| 4 | TCR BLOCK |






REGIN RETAINING WALL NOTES:

1. WALL CONSTRUCTION SHALL FULLY COMPLY WITH REGIN WALL SYSTEMS SPECIFICATIONS AND INSTALLATION GUIDELINES.
2. UNDERDRAINS SHALL BE PERFORATED GEOTEXTILE WRAPPED, 4" DIAMETER, AND SHALL MEET THE REQUIREMENTS OF AASHTO M252 AND/OR ASTM F949. UNDERDRAINS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. DRAINS NOT SPECIFIED TO TIE INTO THE SITE DRAINAGE SHALL DRAIN TO DAYLIGHT.
3. RETAINED SOIL SHALL BE DETERMINED TO MEET OR EXCEED THE REQUIREMENTS BELOW IN THE ABSENCE OF A GEOTECHNICAL ENGINEERING STUDY. SOILS NOT MEETING THESE REQUIREMENTS SHALL BE EXCAVATED AND REPLACED WITH ACCEPTABLE SOILS.
4. LEVELING PAD SHALL BE 3/4 CRUSHED STONE WITH NO MORE THAN 5% PASSING A #200 SIEVE.
5. SELECT BACKFILL SHALL BE FREE-DRAINING, WELL GRADED SAND/GRAVEL AND SHALL MEET OR EXCEED THE REQUIREMENTS BELOW. WIDTH 1'-6"ON OR APPROVED EQUAL FILTER FABRIC SHALL BE PLACED BETWEEN ALL INTERFACES OF DRAINAGE MATERIAL AND VIRGIN AND/OR SILTY MATERIALS. EXPOSED DRAINAGE STONE SHALL BE PROTECTED FROM FINE SOIL MIGRATION THROUGHOUT CONSTRUCTION.
6. ALL BACKFILL AND FOUNDATION SOIL SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR (ASTM D698) ONLY HAND-OPERATED COMPACTION EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET OF THE BACK OF THE WALL BLOCKS. BACKFILL AND COMPACT THE FILL SIMULTANEOUSLY ALONG THE WALL AS THE WALL IS INSTALLED. TYPICAL BACKFILL IN UNIFORM LIFTS NOT EXCEEDING 8 INCHES. COMPACTION TESTS SHALL BE TAKEN AS THE WALL IS INSTALLED. CONTRACTOR SHALL ENSURE THAT FOUNDATION SOIL IS CAPABLE OF SUPPORTING THE WALL.
7. THE FOLLOWING SOIL PROPERTIES WERE USED IN THE DESIGN:

| SOIL WEIGHT (PCF) | FRICTION ANGLE (DEG) |
|---|---|
| RETAINED SOIL 120 | 30 |
| FOUNDATION SOIL 120 | 30 |
| LEVELING PAD 120 | 40 |

8. ENSURE THAT THE FIRST COURSE OF WALL UNITS IS IN FULL CONTACT WITH FOUNDATION. INSTALL NEXT COURSE OF UNITS SUCH THAT THE VERTICAL GAPS ARE STAGGERED BETWEEN ADJACENT COURSES. GAPS SHALL BE FILLED WITH FREE-DRAINING GRAVEL PRIOR TO PLACEMENT OF NEXT COURSE.
9. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT EXCAVATIONS ARE STABLE AND MEET OSHA REQUIREMENTS.
10. PROPOSED LAYOUT MUST BE FIELD VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION. DESIGN BASED ON APPROXIMATE FIELD MEASUREMENTS FOR ESTIMATING PURPOSES.

CONTRACTOR INITIALS:_____

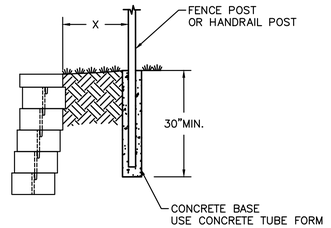
SHEA CONCRETE PRODUCTS
800-696-7432 (SHEA)
www.sheaconcrete.com
773 Salem Street, P.O. Box 320, Wilmington, MA 01887
87 Haverhill Road, P.O. Box 807, Amesbury, MA 01913
160 Old Turnpike Road, Nottingham, NH 03290

PRINCIPIO – 30 BURTT RD ANDOVER MA
PRELIMINARY DESIGN NOT FOR CONSTRUCTION
L.C. 2/29/2024 NPCA

## SHEA CONCRETE WALL DESIGN DETAIL

NOT TO SCALE

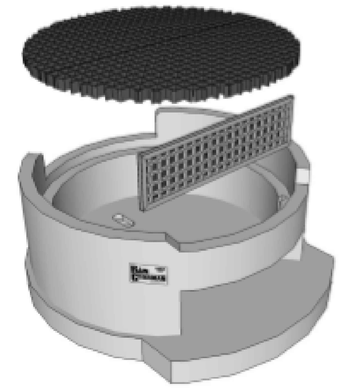
DISTANCE X TO BE DETERMINED BY ENGINEER BASED ON SOIL AND LOADING CONDITIONS




## POST DETAIL

## TYPICAL HANDRAIL AND/OR FENCE POST

NOT TO SCALE

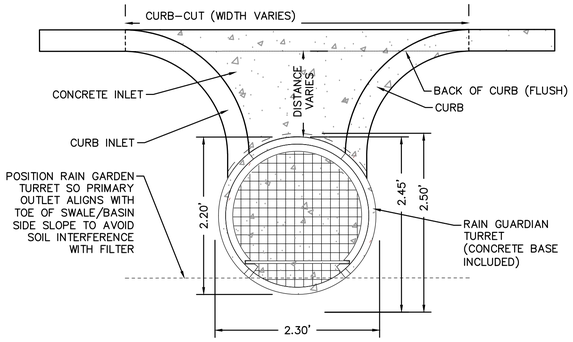


NOTE: IMAGE FOR INFORMATION ONLY, SEE INSTALLATION REQUIREMENTS

## RAIN GUARDIAN RAIN TURRET

NOT TO SCALE

RAIN GUARDIAN TURRET PLAN VIEW
U.S. PATENT 8,501,016




NOTES: INSTALL PER MANUFACTURERS SPECIFICATIONS AND REQUIREMENTS

## INLET TO SWALE

NOT TO SCALE

## New England Erosion Control/Restoration Mix for Dry Sites

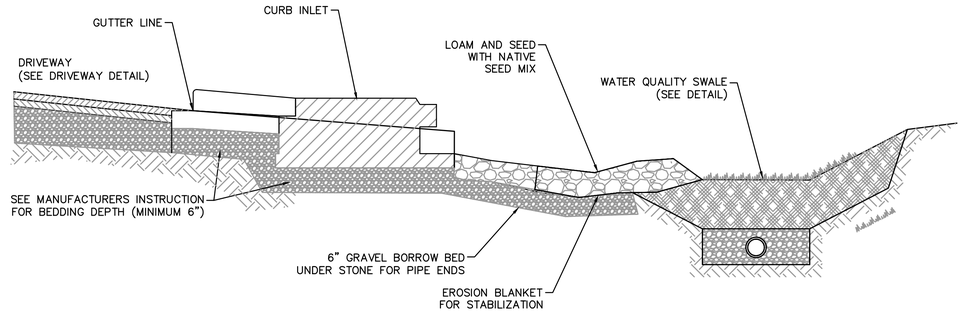
| Botanical Name | Common Name | Indicator |
|---|---|---|
| *Elymus canadensis* | Canada Wild Rye | FACU+ |
| *Festuca rubra* | Red Fescue | FACU |
| *Lolium multiflorum* | Annual Ryegrass | |
| *Lolium perenne* | Perrenial Ryegrass | |
| *Schizachyrium scoparium* | Little Bluestem | FACU |
| *Panicum virgatum* | Switch Grass | FAC |
| *Sorghastrum nutans* | Indian Grass | UPL |

PRICE PER LB. $18.00 MIN. QUANITY 5 LBS. **TOTAL:** $90.00 APPLY: 35 LBS/ACRE :1250 sq ft/lb

The New England Erosion Control/Restoration Mix For Dry Sites provides an appropriate selection of native and naturalized grasses to ensure that dry and recently disturbed sites will be quickly revegetated and the soil surface stabilized. It is an appropriate seed mix for road cuts, pipelines, steeper slopes, and areas requiring quick cover during the ecological restoration process. The mix may be applied by hydro-seeding, by mechanical spreader, or on small sites it can be spread by hand. Lightly rake, or roll to ensure proper soil-seed contact. Best results are obtained with a Spring or late Summer seeding. Late Spring through Mid-Summer seeding will benefit from a light mulching of weed-free straw to conserve moisture. If conditions are drier than usual, watering will be required. Fertilization is not required unless the soils are particularly infertile. Preparation of a clean weed free seed bed is necessary for optimal results.

## SEED MIX DETAIL

NOT TO SCALE




## TYPICAL INLET (RAIN TURRET) TO WATER QUALITY SWALE SECTION

NOT TO SCALE

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

Nitsch Engineering

PERMTTING SET

NOT FOR CONSTRUCTION

16 APRIL 2024

Key Plan:

Stamp:

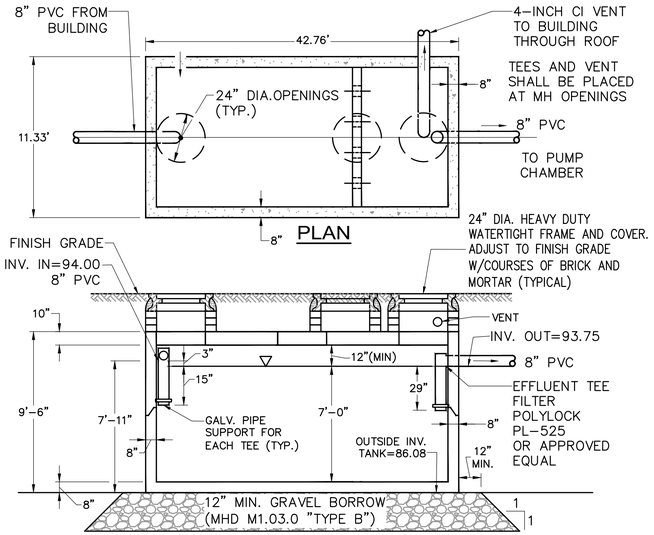
COMMONWEALTH OF MASSACHUSETTS
DEBORAH L COLBERT
CIVIL
No. 37073
REGISTERED PROFESSIONAL ENGINEER

| No. | Date | Revision |
|---|---|---|

| | |
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | NTS |

Drawing Title:
CIVIL DETAILS IX

Drawing No.:
C-608

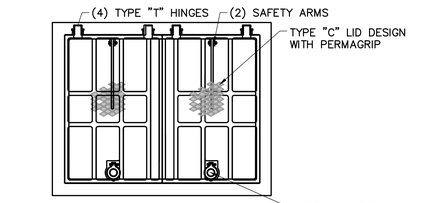



SPECIFICATIONS:

1. CONCRETE MINIMUM STRENGTH – 5,000 PSI @ 28 DAYS
2. STEEL REINFORCEMENT – ASTM A615 GR. 60, A185 OR A497 – 1" MIN. COVER
3. DESIGN LOADING – AASHTO HS20-44 – EARTH COVER 1 TO 8 FEET
4. CONSTRUCTION JOINT – SEALED WITH 1" DIA. BUTYL RUBBER OR EQUIVALENT AND ¾" DIA. BOLTS
5. CONTRACTOR SHALL PROVIDE BUOYANCY CALCULATIONS STAMPED BY A MASSACHUSETTS PROFESSIONAL ENGINEER FOR ALL CONCRETE TANKS FOR ENABLING GRADES AND FINAL FINISHED GRADES.
6. TANK SHALL BE VENTED IN ACCORDANCE WITH 310CMR 15.224
7. APPROXIMATE TOTAL WEIGHT OF TANK IS 165,353 LBS (MIN)
8. USE TANK RISERS TO PROVIDE 9" MIN TO 3' MAX COVER OVER THE TOP OF THE TANKS
9. CONTRACTOR TO PERFORM A VACUUM TEST OF THE TANK IN THE PRESENCE OF ACTON BOARD OF HEALTH AGENT. THERE SHALL BE NO DROP IN PRESSURE DURING THE VACUUM TEST. THE CONTRACTOR SHALL PERFORM A WATER TIGHT TEST FOR A MINIMUM OF 24-HOURS PRIOR TO OPERATION OF THE SYSTEM. THE ANDOVER SEWER DEPARTMENT WILL APPROVE THE RESULTS OF THE WATER TIGHT TEST. THERE SHALL BE NO LEAKAGE DURING THE WATER TIGHT TEST.

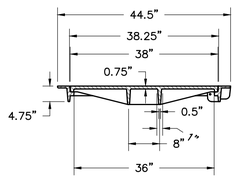
## 22,000 GALLON SEPTIC TANK

NOT TO SCALE




NOTES

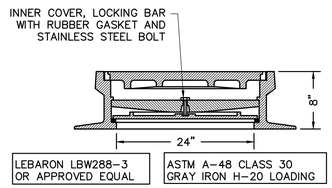
1. HEAVY DUTY HATCH FOR H-20 LOADING.
2. PROVIDE GASKETED AND BOLTED LID FOR HEAVY DUTY ACCESS DOORS.
3. PROVIDE HOLD-OPEN SAFETY BAR.
4. PROVIDE TWO (2) HANDLES.




## SEPTIC PUMP CHAMBER ACCESS HATCH (H-20 LOADING)

NEENAH FOUNDRY R-6663-O1P

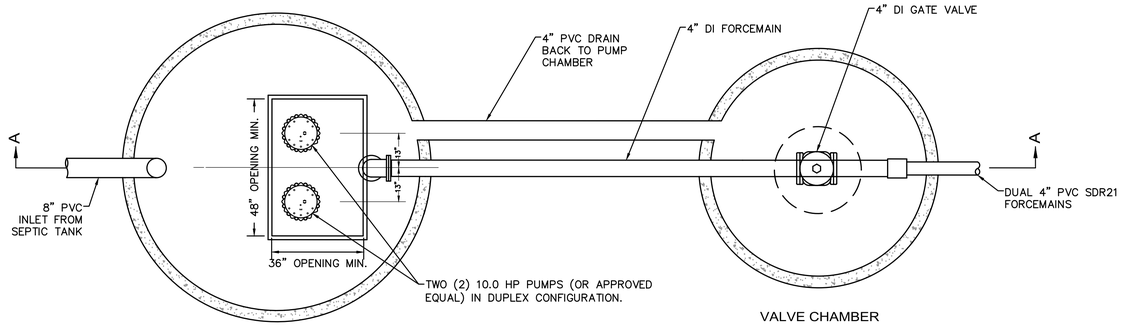
NOT TO SCALE

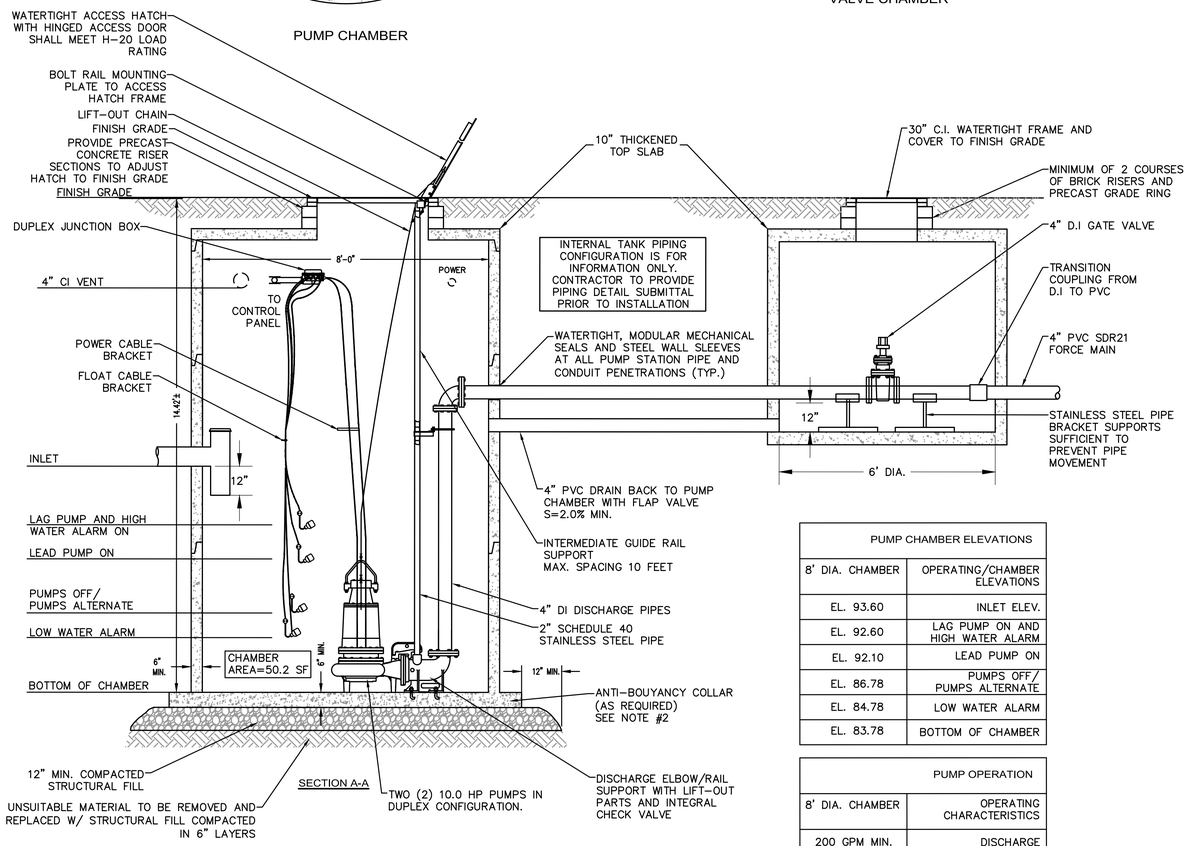



NOTE:
WATERTIGHT COVER TO BE INSTALLED ON ALL SEPTIC SYSTEM STRUCTURES

## WATERTIGHT FRAME AND COVER DETAIL

NOT TO SCALE




| PUMP CHAMBER ELEVATIONS | |
|---|---|
| 8' DIA. CHAMBER | OPERATING/CHAMBER ELEVATIONS |
| EL. 93.60 | INLET ELEV. |
| EL. 92.60 | LAG PUMP ON AND HIGH WATER ALARM |
| EL. 92.10 | LEAD PUMP ON |
| EL. 86.78 | PUMPS OFF/ PUMPS ALTERNATE |
| EL. 84.78 | LOW WATER ALARM |
| EL. 83.78 | BOTTOM OF CHAMBER |

| PUMP OPERATION | |
|---|---|
| 8' DIA. CHAMBER | OPERATING CHARACTERISTICS |
| 200 GPM MIN. | DISCHARGE |
| XX | TOTAL DYNAMIC HEAD |

NOTES:

1. DESIGN LOADING – AASHTO HS-20-44 / CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS.
2. THE CONTRACTOR SHALL SUBMIT BUOYANCY CALCULATIONS FOR SEWER PUMP STATION STRUCTURES. IF REQUIRED BASED ON THE CALCULATIONS, THE STRUCTURE(S) SHALL BE CONSTRUCTED TO PREVENT UPLIFT. ALL BUOYANCY CALCULATIONS AND SEWER PUMP STATION STRUCTURE DESIGNS SHALL BE PREPARED AND STAMPED BY A PROFESSIONAL CIVIL ENGINEER LICENSED IN THE STATE OF MASSACHUSETTS.
3. CONSTRUCTION OF PUMP CHAMBER CONFORMS WITH DEP TITLE 5 REGS, 310 CMR, SECTION 15.226.
4. ALL REINFORCEMENT PER ASTM C1227-93.
5. JOINTS SEALED WITH BUTYL RESIN.
6. INLET AND OUTLET PIPE CONNECTIONS SHALL BE MADE USING STEEL WALL SLEEVES AND WATERTIGHT MODULAR, MECHANICAL SEALS CONSISTING OF RUBBER LINKS.
7. PROVIDE RISER AND FRAME WITH COVERS SET TO FINISH GRADE. THE TOP OF THE TANKS SHALL NOT BE EXPOSED AT FINISH GRADE.
8. ALL INTERNAL PIPING FOR THE PUMP SYSTEM TO BE SCHEDULE FLANGED DUCTILE IRON WITH MINIMUM CLASS 53 THICKNESS.
9. CONTRACTOR SHALL SUPPLY ALL NECESSARY FITTINGS TO TRANSITION FROM DUCTILE IRON PIPING TO PVC PIPING. ALL PIPE CONNECTIONS SHALL BE MADE USING MODULAR MECHANICAL SEALS AND STEEL WALL SLEEVES.
10. THE PUMP STATION SHALL RECEIVE TWO HEAVY COATS OF BITUMINOUS DAMPPROOFING ON THE OUTSIDE SURFACES OF THE STRUCTURES.
11. RESILIENT WEDGE GATE VALVES SHALL BE FLANGED, DUCTILE IRON BODY, RESILIENT SEALED TYPE.
12. THRUST BLOCKS SHALL BE USED AT ALL EXTERNAL FORCE MAIN BENDS AND FITTINGS AS INDICATED IN THE SPECIFICATIONS. IN THE EVENT THAT THE USE OF THRUST BLOCKS IS NOT PRACTICAL, THE CONTRACTOR SHALL PROVIDE AN ALTERNATE METHOD OF JOINT RESTRAINT, AT NO ADDITIONAL COST, AS APPROVED AND/OR AS DIRECTED BY THE ENGINEER.
13. ALL HARDWARE IN PUMP STATION TO BE STAINLESS STEEL WITH LIFTING CABLE.
14. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS FOR ALL PUMP CHAMBER STRUCTURES AND INTERNAL EQUIPMENT, PIPES, AND FITTINGS DEMONSTRATING THAT THE CORRESPONDING COMPLETE AND FUNCTIONAL SYSTEM IS CONSTRUCTIBLE AS SHOWN.
15. THE HIGH WATER LEVEL ALARM SHALL BE POWERED BY A CIRCUIT SEPARATE FROM THE CIRCUIT TO THE PUMPS.
16. PUMPS, ALARMS AND OTHER EQUIPMENT SHALL BE INSPECTED QUARTERLY.

## 8' DIA PUMP CHAMBER DETAIL

NOT TO SCALE

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

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Nitsch Engineering

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16 APRIL 2024

Key Plan:

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DEBORAH L. COLBERT
CIVIL
No. 37073
REGISTERED PROFESSIONAL ENGINEER

| No. | Date | Revision |
|---|---|---|
| | | |

| | |
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | NTS |

Drawing Title:

CIVIL DETAILS X

Drawing No.:

C-609

## TEST PIT LOG — TP-101

| | | | |
|---|---|---|---|
| **Project** | Project Principio | **PG.** | 1 **OF** 1 |
| **City/Town** | Andover, MA | **Location** | N 745392 |
| **Client** | Fennick McCredie Architecture | | E 3047122 |
| **Contractor** | Northern Drill Service, Inc. | **Ground El.** | 99 ft |
| **Equipment/Reach** | Kubota KX080-4 | **Datum** | NAVD88 |
| **Operator** | J. Raymond **GEI Rep** R. Oulal | **GEI Proj. No.** | 2300951 |
| **Weather** | 40's F, Overcast | **Date** | 5/4/2023 |

| Depth | Sample No. and Type | Sample Depth (ft) | Soil Description |
|---|---|---|---|
| 1 | | | (0-9"): Top soil, black/dark brown. |
| 2 | G1 | 1 - 2.5 ft | SILTY SAND (SM); 79.5% fine to coarse sand, 12.6% nonplastic to low plasticity fines, 7.9% fine to coarse gravel, tan. [FILL] [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 3 | G2 | 3 - 4 ft | Thin rusting color soil seam on the east face of excavation at 2.2 ft. Not Indicative seasonal high groundwater. Likely perched surface infiltration. |
| 4 | | | SILTY SAND (SM); 63.9% mostly fine sand, 35.3% nonplastic fines, 0.8% fine gravel, gray. [FILL] [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 5 | | | |
| 6 | G3 | 6 - 6.5 ft | WIDELY GRADED GRAVEL WITH SAND (SW); ~60% fine to coarse gravel, ~40% medium to coarse sand, gray. Some cobbles present. |
| 7 | | | Bottom of test pit at 6.5 ft. |
| 8 | | | Test pit dry at completion. |
| 9 | | | Test pit backfilled with excavated soil cuttings in lifts and tamped with excavator bucket. |
| 10 | | | |

**Notes:**
1. Terminated test pit because of collapsing soils and close proximity to utilities.

**Pit Dimensions (ft)**
Length 12
Width 3
Depth 6.5

## TEST PIT LOG — TP-102

| | | | |
|---|---|---|---|
| **Project** | Project Principio | **PG.** | 1 **OF** 1 |
| **City/Town** | Andover, MA | **Location** | N 745407 |
| **Client** | Fennick McCredie Architecture | | E 3047089 |
| **Contractor** | Northern Drill Service, Inc. | **Ground El.** | 99 ft |
| **Equipment/Reach** | Kubota KX080-4 | **Datum** | NAVD88 |
| **Operator** | J. Raymond **GEI Rep** R. Oulal | **GEI Proj. No.** | 2300951 |
| **Weather** | 40's F, Overcast | **Date** | 5/4/2023 |

| Depth | Sample No. and Type | Sample Depth (ft) | Soil Description |
|---|---|---|---|
| 1 | | | (0-8"): Top soil, black/dark brown. |
| 2 | G1 | 1 - 2 ft | NARROWLY GRADED SAND WITH SILT (SP-SM); 75.1% fine to coarse sand, 14.4% fine to coarse gravel, 10.5% nonplastic to low plasticity fines, tan. Some cobbles. [FILL][GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | G2 | 6 - 7 ft | NARROWLY GRADED GRAVEL WITH SAND (GP); 52.2% fine to coarse sand, 46.3% fine to coarse sand, 1.5% nonplastic to low plasticity fines, gray. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 8 | | | Bottom of test pit at 7.0 ft. |
| 9 | | | Test pit dry at completion. |
| 10 | | | Test pit backfilled with excavated soil cuttings in lifts and tamped with excavator bucket. |

**Notes:**
1. Terminated test pit because of collapsing soils and close proximity to utilities.

**Pit Dimensions (ft)**
Length 12
Width 3
Depth 7

## TEST PIT LOG — TP-103

| | | | |
|---|---|---|---|
| **Project** | Project Principio | **PG.** | 1 **OF** 1 |
| **City/Town** | Andover, MA | **Location** | N 745565 |
| **Client** | Fennick McCredie Architecture | | E 3046243 |
| **Contractor** | Northern Drill Service, Inc. | **Ground El.** | 99 ft |
| **Equipment/Reach** | Kubota KX080-4 | **Datum** | NAVD88 |
| **Operator** | J. Raymond **GEI Rep** R. Oulal | **GEI Proj. No.** | 2300951 |
| **Weather** | 40's F, Overcast | **Date** | 5/4/2023 |

| Depth | Sample No. and Type | Sample Depth (ft) | Soil Description |
|---|---|---|---|
| 1 | | | (0-1'): Top soil, black/dark brown. |
| 2 | G1 | 1 - 2.5 ft | WIDELY GRADED SAND WITH GRAVEL (SW); ~60% fine to coarse sand, ~40% fine to coarse gravel, tan. [FILL] |
| 3 | | | |
| 4 | | | |
| 5 | G2 | 5 - 5.5 ft | SILT (ML); 93.1% nonplastic to low plasticity fines, 6.9% mostly fine sand, bluish gray and some tan, moist. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 6 | | | |
| 7 | | | |
| 8 | G3 | 7.5 - 8.5 ft | Rust color staining at 7.5 feet. Likely indicative of seasonal high groundwater. |
| 9 | | | NARROWLY GRADED SAND (SP); 98.8% fine to coarse sand, 6.2% nonplastic to low plasticity fines, tan with some orange, wet. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 10 | | | |
| 11 | | | Bottom of test pit at 10.5 ft. |
| | | | Water entering testpit at a depth of about 9 feet. |
| | | | Test pit backfilled with excavated soil cuttings in lifts and tamped with excavator |

**Notes:**

**Pit Dimensions (ft)**
Length 14
Width 3
Depth 10.5

## TEST PIT LOG — TP-104

| | | | |
|---|---|---|---|
| **Project** | Project Principio | **PG.** | 1 **OF** 1 |
| **City/Town** | Andover, MA | **Location** | N 745530 |
| **Client** | Fennick McCredie Architecture | | E 3046231 |
| **Contractor** | Northern Drill Service, Inc. | **Ground El.** | 99 ft |
| **Equipment/Reach** | Kubota KX080-4 | **Datum** | NAVD88 |
| **Operator** | J. Raymond **GEI Rep** R. Oulal | **GEI Proj. No.** | 2300951 |
| **Weather** | 40's F, Overcast | **Date** | 5/4/2023 |

| Depth | Sample No. and Type | Sample Depth (ft) | Soil Description |
|---|---|---|---|
| 1 | G1 | 0 - 1 | (0-2"): Top soil, black/dark brown. |
| | | | WIDELY GRADED GRAVEL WITH SAND (GW); ~55% fine to coarse gravel, ~45% fine to coarse sand, brown. Some cobbles present. 1" thick concrete obstruction at 1.5 ft. |
| 2 | G2 | 1.5 - 2 | WIDELY GRADED SAND (SW); ~95% fine to medium sand, ~5% nonplastic fines, tan, moist. |
| 3 | | | |
| 4 | G3 | 3 - 4 | SILT (ML); 96.5% nonplastic to low plasticity fines, 3.5% mostly fine sand, bluish gray with some tan, wet. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 5 | | | |
| 6 | | | |
| 7 | G4 | 6 - 6.5 | Rust color staining at 6 ft. Likely indicative of seasonal high groundwater |
| 8 | G5 | 7 - 8 | |
| 9 | | | Water seeping into test pit at 9 ft. |
| 10 | | | Bottom of test pit at 9 ft. |
| | | | Test pit backfilled with excavated soil cuttings in lifts and tamped with excavator |

**Notes:**

**Pit Dimensions (ft)**
Length 3
Width 23
Depth 9

## TEST PIT LOG — TP-105

| | | | |
|---|---|---|---|
| **Project** | Project Principio | **PG.** | 1 **OF** 1 |
| **City/Town** | Andover, MA | **Location** | N 745345 |
| **Client** | Fennick McCredie Architecture | | E 3046061 |
| **Contractor** | Northern Drill Service, Inc. | **Ground El.** | 98 ft |
| **Equipment/Reach** | Kubota KX080-4 | **Datum** | NAVD88 |
| **Operator** | J. Raymond **GEI Rep** R. Oulal | **GEI Proj. No.** | 2300951 |
| **Weather** | 40's F, Overcast | **Date** | 5/4/2023 |

| Depth | Sample No. and Type | Sample Depth (ft) | Soil Description |
|---|---|---|---|
| 1 | G1 | 0 - 1 | WIDELY GRADED GRAVEL WITH SAND (SW); ~70% fine to coarse gravel, ~30% fine to coarse sand, brown. 1-1' boulder, topsoil and grass present. [FILL] |
| 2 | | | |
| 3 | G2 | 3 - 4 | NARROWLY GRADED SAND WITH SILT (SP-SM); 89.9% fine to medium sand, ~10.1% nonplastic fines, tan, moist. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | G3 | 7 - 8 | SILT WITH SAND (ML); 78.9% nonplastic to low plasticity fines, 21.1% mostly fine sand, bluish gray, wet. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 8 | | | |
| 9 | | | Bottom of test pit at 8 ft. |
| 10 | | | Test pit backfilled with excavated soil cuttings in lifts and tamped with excavator bucket. |
| 11 | | | Soil is wet below 7 feet. |

**Notes:**

**Pit Dimensions (ft)**
Length 9
Width 3
Depth 8

## TEST PIT LOG — TP-106

| | | | |
|---|---|---|---|
| **Project** | Project Principio | **PG.** | 1 **OF** 1 |
| **City/Town** | Andover, MA | **Location** | N 745530 |
| **Client** | Fennick McCredie Architecture | | E 3046231 |
| **Contractor** | Northern Drill Service, Inc. | **Ground El.** | 99 ft |
| **Equipment/Reach** | Kubota KX080-4 | **Datum** | NAVD88 |
| **Operator** | J. Raymond **GEI Rep** R. Oulal | **GEI Proj. No.** | 2300951 |
| **Weather** | 40's F, Overcast | **Date** | 5/4/2023 |

| Depth | Sample No. and Type | Sample Depth (ft) | Soil Description |
|---|---|---|---|
| 1 | | | WIDELY GRADED GRAVEL WITH SAND (SW); ~70% fine to coarse gravel, ~30% fine to coarse sand, brown. [FILL] |
| 2 | | | |
| 3 | G1 | 3 - 4 | SILTY SAND (SM); 84.4% mostly fine sand, 15.6% nonplastic fines, tan, moist. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 4 | | | |
| 5 | | | |
| 6 | | | Water entering test pit at a depth of 6 ft. |
| 7 | G2 | 6 - 8 | SANDY SILT (ML); 66.9% nonplastic to low plasticity fines, 32.2% fine sand, bluish gray, moist. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 8 | | | Rust color staining at 7.5'. |
| 9 | | | |
| 10 | | | Bottom of test pit at 9.5 ft. |
| | | | Test pit backfilled with excavated soil cuttings in lifts and tamped with excavator bucket. |

**Notes:**

**Pit Dimensions (ft)**
Length 9
Width 3
Depth 9.5

Project:
P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

PERMTTING SET

NOT FOR CONSTRUCTION

16 APRIL 2024

Key Plan:

Stamp:

COMMONWEALTH OF MASSACHUSETTS
DEBORAH L. COLBERT
CIVIL
No. 37073
REGISTERED PROFESSIONAL ENGINEER

| No. | Date | Revision |
|---|---|---|
| | | |

Job No.: 15363
Drawn By: BJB/OFY/LMC
Checked By: DLC
Date: 04/16/2024
Scale: NTS

Drawing Title:
TEST PIT LOGS I

Drawing No.:
C-610

## TEST PIT LOG — TP-109

| | | | |
|---|---|---|---|
| **Project** | Project Principio | **PG.** | 1 OF 1 |
| **City/Town** | Andover, MA | **Location** | N 744697 |
| **Client** | Fennick McCredie Architecture | | E 3046675 |
| **Contractor** | Northern Drill Service, Inc. | **Ground El.** | 98 ft |
| **Equipment/Reach** | Kubota KX080-4 | **Datum** | NAVD88 |
| **Operator** | J. Raymond **GEI Rep** R. Oulal | **GEI Proj. No.** | 2300951 |
| **Weather** | 50's F, Overcast | **Date** | 5/5/2023 |

| Depth | Sample No. and Type | Sample Depth (ft) | Soil Description |
|---|---|---|---|
| 1 | | | (0 - 0.2'): Asphalt |
| 2 | G1 | 0.2 - 2 | WIDELY GRADED GRAVEL WITH SAND (GW); ~70% fine to coarse gravel, ~30% fine to coarse sand, brown. Some bricks and debris present. |
| 3 | G2 | 2.5 - 2.8 | SILTY SAND (SM); 55.5% Fine to coarse sand, 42.4% nonplastic to low plasticity fines, 2.1% fine gravel, tan, moist. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED]. Rust color staining at 2.5. Not indicative of seasonal high groundwater. Likely surface infiltration moving through a coarse sand and gravel seam. |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | SANDY SILT (ML); 68.3% nonplastic to plasticity fines, 31.7% mostly fine sand, tan, moist. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 8 | | | |
| 9 | G3 | 8.5 - 8.7 | |
| 10 | | | Bottom of test pit at 9.5 ft.<br>Test pit backfilled with excavated soil cuttings in lifts and tamped with excavator bucket up to 3 ft. From 3 ft to 0.2 ft below ground surface the test pit was backfilled with 1 ft thick lifts and compacted multiple time with Wacker Nueson VP 1340 compactor. The test pit was topped with hot mix.<br>Test pit dry at completion. |
| 11 | | | |

**Notes:**

**Pit Dimensions (ft)**

| | |
|---|---|
| Length | 9 |
| Width | 3 |
| Depth | 9.5 |

GEI Consultants

## TEST PIT LOG — TP-110

| | | | |
|---|---|---|---|
| **Project** | Project Principio | **PG.** | 1 OF 1 |
| **City/Town** | Andover, MA | **Location** | N 744709 |
| **Client** | Fennick McCredie Architecture | | E 3046616 |
| **Contractor** | Northern Drill Service, Inc. | **Ground El.** | 98 ft |
| **Equipment/Reach** | Kubota KX080-4 | **Datum** | NAVD88 |
| **Operator** | J. Raymond **GEI Rep** R. Oulal | **GEI Proj. No.** | 2300951 |
| **Weather** | 50's F, Overcast | **Date** | 5/5/2023 |

| Depth | Sample No. and Type | Sample Depth (ft) | Soil Description |
|---|---|---|---|
| 1 | | | (0-0.25'): Asphalt. |
| 2 | G1 | 1 - 1.5 | NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); 55.5% fine to coarse sand, 34.4% fine to coarse gravel, 10.1% nonplastic to low plasticity fines, brown. Bricks and debris present. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 3 | | | |
| 4 | | | |
| 5 | | | SANDY SILT (ML); 70.7% nonplastic to low plasticity, 29.3% mostly fine sand, light tan. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 6 | | | |
| 7 | G2 | 6.5 - 7 | |
| 8 | | | |
| 9 | | | |
| 10 | | | Bottom of test pit at 9 ft.<br>Test pit backfilled with excavated soil cuttings in lifts and tamped with excavator bucket up to 3 ft. From 3 ft to 0.2 ft below ground surface the test pit was backfilled with 1 ft thick lifts and compacted multiple time with Wacker Nueson VP 1340 compactor. The test pit was topped with hot mix.<br>Test pit dry at completion. |
| 11 | | | |

**Notes:**

**Pit Dimensions (ft)**

| | |
|---|---|
| Length | 9 |
| Width | 3 |
| Depth | 9 |

GEI Consultants

## TEST PIT LOG — TP-111

| | | | |
|---|---|---|---|
| **Project** | Project Principio | **PG.** | 1 OF 1 |
| **City/Town** | Andover, MA | **Location** | N 744574 |
| **Client** | Fennick McCredie Architecture | | E 3046806 |
| **Contractor** | Northern Drill Service, Inc. | **Ground El.** | 99 ft |
| **Equipment/Reach** | Kubota KX080-4 | **Datum** | NAVD88 |
| **Operator** | J. Raymond **GEI Rep** R. Oulal | **GEI Proj. No.** | 2300951 |
| **Weather** | 40's F, Overcast | **Date** | 5/4/2023 |

| Depth | Sample No. and Type | Sample Depth (ft) | Soil Description |
|---|---|---|---|
| 1 | G1 | 0 - 0.8 | (0-0.8'): Top soil, black/dark brown. |
| 2 | | | NARROWLY GRADED SAND WITH SILT(SP-SM); 87.9% fine to coarse sand, 8.6% nonplastic fines, 3.5% fine to coarse gravel, tan, moist. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 3 | | | |
| 4 | G2 | 3 - 4 ft | Rust color staining at 4 ft. Not indicative of seasonal high groundwater Likely caused by surface infiltration perched at intersection of fill and previous topsoil layer. |
| 5 | | | |
| 6 | G3 | 5.5 - 6 | Top soil; possibly top of previous ground surface. |
| 7 | | | |
| 8 | | | SANDY SILT (ML); 53.8% nonplastic fines, 46.2% mostly fines sand, tan and gray, moist. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 9 | | | |
| 10 | G4 | 10 - 10.5 | |
| 11 | | | Bottom of test pit at 10.5 ft.<br>Test pit dry at completion.<br>Test pit backfilled with excavated soil cuttings in lifts and tamped with excavator bucket. |

**Notes:**

**Pit Dimensions (ft)**

| | |
|---|---|
| Length | 10 |
| Width | 3 |
| Depth | 10.5 |

GEI Consultants

## TEST PIT LOG — TP-112

| | | | |
|---|---|---|---|
| **Project** | Project Principio | **PG.** | 1 OF 1 |
| **City/Town** | Andover, MA | **Location** | N 744553 |
| **Client** | Fennick McCredie Architecture | | E 3046938 |
| **Contractor** | Northern Drill Service, Inc. | **Ground El.** | 99 ft |
| **Equipment/Reach** | Kubota KX080-4 | **Datum** | NAVD88 |
| **Operator** | J. Raymond **GEI Rep** R. Oulal | **GEI Proj. No.** | 2300951 |
| **Weather** | 40's F, Overcast | **Date** | 5/4/2023 |

| Depth | Sample No. and Type | Sample Depth (ft) | Soil Description |
|---|---|---|---|
| 1 | | | (0-0.8'): Top soil, black/dark brown. |
| 2 | G1 | 1 - 1.8 | WIDELY GRADED SAND WITH GRAVEL (SW); ~70% fine to coarse sand, ~25% fine to coarse gravel, ~5% nonplastic fines, gray, moist. |
| 3 | | | Trace of rust color staining at 2 ft. Not indicative of seasonal high groundwater. Likely caused by surface infiltration perched at the interface of the granular fill and the natural soil. |
| 4 | | | |
| 5 | | | SILTY SAND (SM); 63.8% fine to coarse sand, 36.1% nonplastic to low plasticity fines, 0.1% fine gravel, gray and tan, moist. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 6 | G2 | 5.5 - 6 | |
| 7 | | | Top soil; possibly top of old ground. |
| 8 | | | |
| 9 | | | SILTY SAND (SM); 55.2% mostly fine sand, 44.8% nonplastic fines, gray and tan, moist. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 10 | G3 | 9.8 - 10 | |
| 11 | | | Bottom of test pit at 10.5 ft.<br>Test pit dry at completion.<br>Test pit backfilled with excavated soil cuttings in lifts and tamped with excavator bucket. |

**Notes:**

**Pit Dimensions (ft)**

| | |
|---|---|
| Length | 10 |
| Width | 3 |
| Depth | 10.5 |

GEI Consultants

## TEST PIT LOG — TP-113

| | | | |
|---|---|---|---|
| **Project** | Project Principio | **PG.** | 1 OF 1 |
| **City/Town** | Andover, MA | **Location** | N 3,045,927 |
| **Client** | Fennick McCredie Architecture | | E 744,825 |
| **Contractor** | Northern Drill Service, Inc. | **Ground El.** | 100 ft |
| **Equipment/Reach** | Kubota KX080-4 | **Datum** | NAVD88 |
| **Operator** | J. Raymond **GEI Rep** R. Oulal | **GEI Proj. No.** | 2300951 |
| **Weather** | 50's F, Overcast | **Date** | 5/3/2023 |

| Depth | Sample No. and Type | Sample Depth (ft) | Soil Description |
|---|---|---|---|
| 1 | | | (0-0.5'): Top soil, black/dark brown. |
| 2 | | | Roots present from 0 to 2 ft. |
| 3 | | | Rust color staining at 2.5 ft.<br>Water seeping into excavation at 3 ft. |
| 4 | | | |
| 5 | | | |
| 6 | | | SILTY SAND (SM); 55% mostly fine sand, 45% nonplastic to low plasticity sand, tan and gray, wet. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 7 | | | |
| 8 | G1 | 7.5 - 8.5 | |
| 9 | | | |
| 10 | | | |
| 11 | | | Bottom of test pit at 10 ft.<br>Test pit backfilled with excavated soil cuttings in lifts and tamped with excavator |

**Notes:**

**Pit Dimensions (ft)**

| | |
|---|---|
| Length | 14 |
| Width | 6 |
| Depth | 10 |

GEI Consultants

## TEST PIT LOG — TP-114

| | | | |
|---|---|---|---|
| **Project** | Project Principio | **PG.** | 1 OF 1 |
| **City/Town** | Andover, MA | **Location** | N 7744773 |
| **Client** | Fennick McCredie Architecture | | E 3045915 |
| **Contractor** | Northern Drill Service, Inc. | **Ground El.** | 100 ft |
| **Equipment/Reach** | Kubota KX080-4 | **Datum** | NAVD88 |
| **Operator** | J. Raymond **GEI Rep** R. Oulal | **GEI Proj. No.** | 2300951 |
| **Weather** | 50's F, Overcast | **Date** | 5/3/2023 |

| Depth | Sample No. and Type | Sample Depth (ft) | Soil Description |
|---|---|---|---|
| 1 | | | (0-1'): Top soil, black/dark brown. |
| 2 | | | |
| 3 | | | |
| 4 | G1 | 3 - 3.5 | Rust color staining likely indicative of seasonal high groundwater at 3.5 ft. |
| 5 | | | |
| 6 | | | SILT WITH SAND (ML); 71.5% nonplastic to low plastic fines, 28.5% mostly fine sand, bluish gray with some rust color staining from 3.5 to 11 ft. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 7 | | | |
| 8 | | | Water seeping into test pit at 8 ft. |
| 9 | | | |
| 10 | | | |
| 11 | | | Bottom of test pit at 11 ft.<br>Test pit backfilled with excavated soil cuttings in lifts and tamped with excavator |

**Notes:**

**Pit Dimensions (ft)**

| | |
|---|---|
| Length | 8 |
| Width | 4 |
| Depth | 11 |

GEI Consultants

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

PERMTTING SET

NOT FOR CONSTRUCTION

16 APRIL 2024

Key Plan:

Stamp:

COMMONWEALTH OF MASSACHUSETTS
DEBORAH L. COLBERT
CIVIL
No. 37073
REGISTERED PROFESSIONAL ENGINEER

| No. | Date | Revision |
|---|---|---|
| | | |

| | |
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | NTS |

Drawing Title:

TEST PIT LOGS II

Drawing No.:

C-611

## TEST PIT LOG

## TP-115

| | | | |
|---|---|---|---|
| **Project** | Project Principio | **PG.** | 1 **OF** 1 |
| **City/Town** | Andover, MA | **Location** | N 744743 |
| **Client** | Fennick McCredie Architecture | | E 3045974 |
| **Contractor** | Northern Drill Service, Inc. | **Ground El.** | 99 ft |
| **Equipment/Reach** | Kubota KX080-4 | **Datum** | NAVD88 |
| **Operator** | J. Raymond **GEI Rep** R. Oulal | **GEI Proj. No.** | 2300951 |
| **Weather** | 40's F, Overcast/ Light rain | **Date** | 5/4/2023 |

| Depth | Sample No. and Type | Sample Depth (ft) | Soil Description |
|---|---|---|---|
| 1 | G1 | 0 - 2 | SILTY SAND (SM); 72.4% fine to coarse sand, 22.9% nonplastic to low plasticity fines, 4.7% fine to coarse gravel, brown. [GRAIN SIZE DISTRIBUTION AND HYDROMETER TEST PERFORMED] |
| 2 | | | |
| 3 | | | |
| 4 | | | WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, ~10% fine to coarse gravel. ~10% nonplastic fines, tan, moist. |
| 5 | G2 | 4 - 6 | Water seeping into test pit at 4.5 ft. |
| 6 | | | |
| 7 | G3 | 6 - 7 | WIDELY GRADED SAND WITH SILT(SW); ~85% fine to coarse sand, ~10% fine to medium gravel, ~5% nonplastic fines, brown. Bluish gray silty sand at 7 ft. |
| 8 | | | Bottom of test pit at 7 ft. Test pit backfilled with excavated soil cuttings in lifts and tamped with excavator bucket. |
| 9 | | | |
| 10 | | | |

**Notes**:

**Pit Dimensions (ft)**

| | |
|---|---|
| **Length** | 12 |
| **Width** | 4 |
| **Depth** | 7 |

GEI Consultants

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA 01810

PERMTTING SET

NOT FOR CONSTRUCTION

16 APRIL 2024

Key Plan:

Stamp:

COMMONWEALTH OF MASSACHUSETTS
DEBORAH L. COLBERT
CIVIL
No. 37073
REGISTERED PROFESSIONAL ENGINEER

| No. | Date | Revision |
|---|---|---|
| | | |
| | | |
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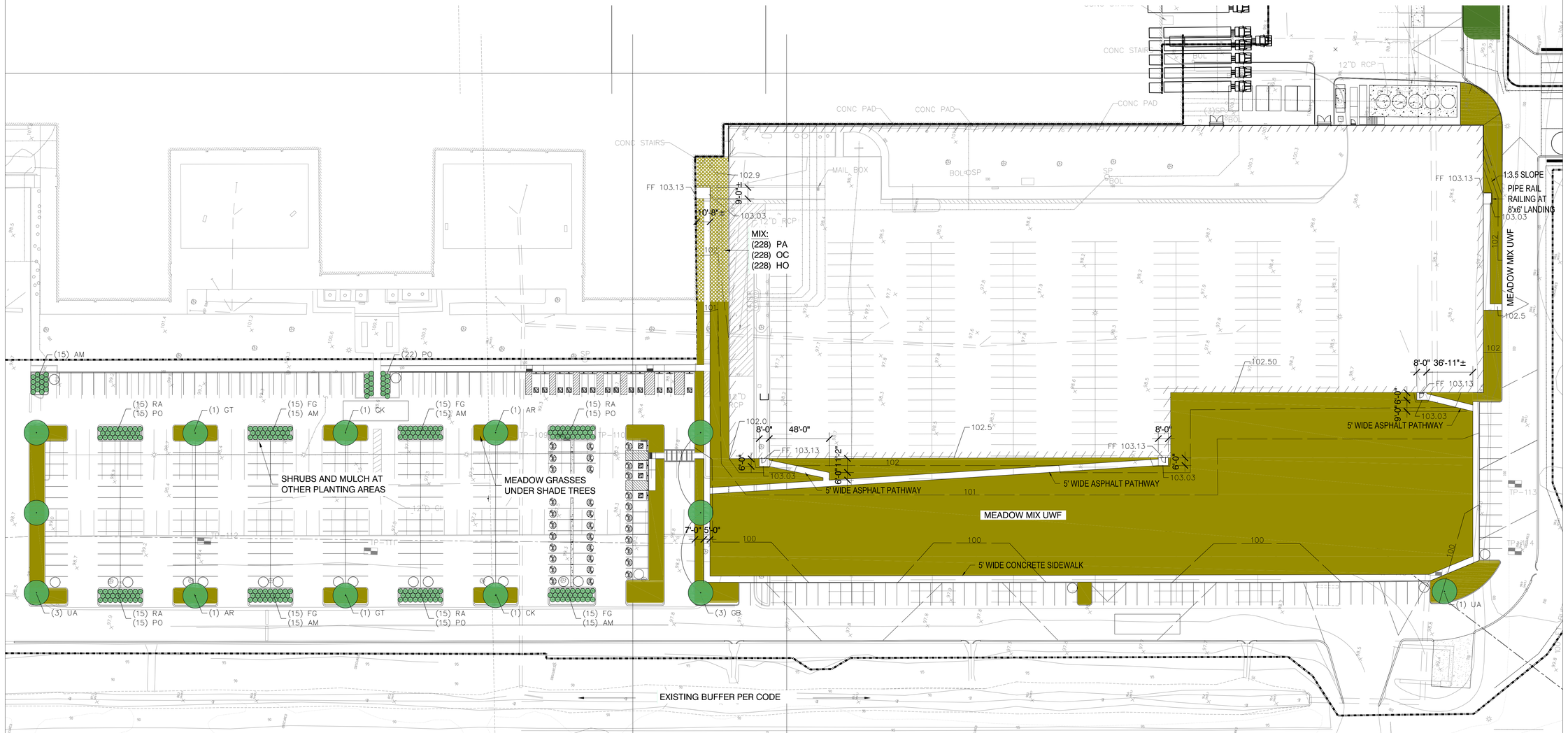
| | |
|---|---|
| Job No.: | 15363 |
| Drawn By: | BJB/OFY/LMC |
| Checked By: | DLC |
| Date: | 04/16/2024 |
| Scale: | NTS |

Drawing Title:

TEST PIT LOGS III

Drawing No.:

C-612




## PLANT SCHEDULE

| | KEY | BOTANICAL NAME | COMMON NAME | SIZE | QTY | NOTES |
|---|---|---|---|---|---|---|
| TREES | | | | (CALIPER) | | |
| | GB | *Ginko biloba "Autumn Gold"* | Maidenhair Tree | 2.5-3" | 3 | Single Stem |
| | UA | *Ulmus American "Princeton"* | Princeton American Elm | 2.5-3" | 4 | Single Stem |
| | AR | *Acer rubrum "October Glory"* | October Glory Red Maple | 2.5-3" | 2 | Single Stem |
| | GT | *Gleditsia triacanthos inermis "Suncole"* | Sunburst Honey Locust | 2.5-3" | 2 | Single Stem |
| | CK | *Cladrastis kentukea* | Yellowwood | 2.5-3" | 2 | Single Stem |
| SHRUBS | | | | (CONTAINER) | | |
| | PO | *Physocarpus opulifolius "Donna May"* | Little Devil Ninebark | 2 GAL | 82 | SPACE 4FT O.C. |
| | AM | *Aronia melanocarpe "Autumn Magic"* | Autumn Magic Chokeberry | 2 GAL | 75 | SPACE 4FT O.C. |
| | FG | *Fothergilla gardentii* | Dwarf Fothergilla | 2 GAL | 60 | SPACE 4FT O.C. |
| | RA | *Rhus aromatica Gro-Low* | Gro-Low Fragrant Sumac | 2 GAL | 60 | SPACE 4FT O.C. |
| FERNS / GROUND COVER MIX | | | | | | |
| | OC | *Osmonda cinnamomea* | Cinnamon Fern | 1 GAL | 228 | SPACE 2FT O.C. |
| | PA | *Polystichum acrostichiodes* | Christmas Fern | 1 GAL | 228 | SPACE 2FT O.C. |
| | HO | *Hosta "Blue Angel"* | Blue-Angel Hosta | 1 GAL | 228 | SPACE 2FT O.C. |
| SEED MIXES | | | | | | |
| | UWF | Native Upland Wildlife Forage & Cover Meadow Mix - ERNMX-123 | | | 77,900SF | 20 lbs/acre W/ 30 lbs./acre Cover Crop |
| | LAWN | PEARL'S PREMIUM | | | 34,900SF | 10 lbs. per 1000 SF |

Project:

# P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA
01810

landworks studio

PERMITTING SET
NOT FOR CONSTRUCTION
16 APRIL 2024

Stamp:

| No. | Date | Revision |
|---|---|---|

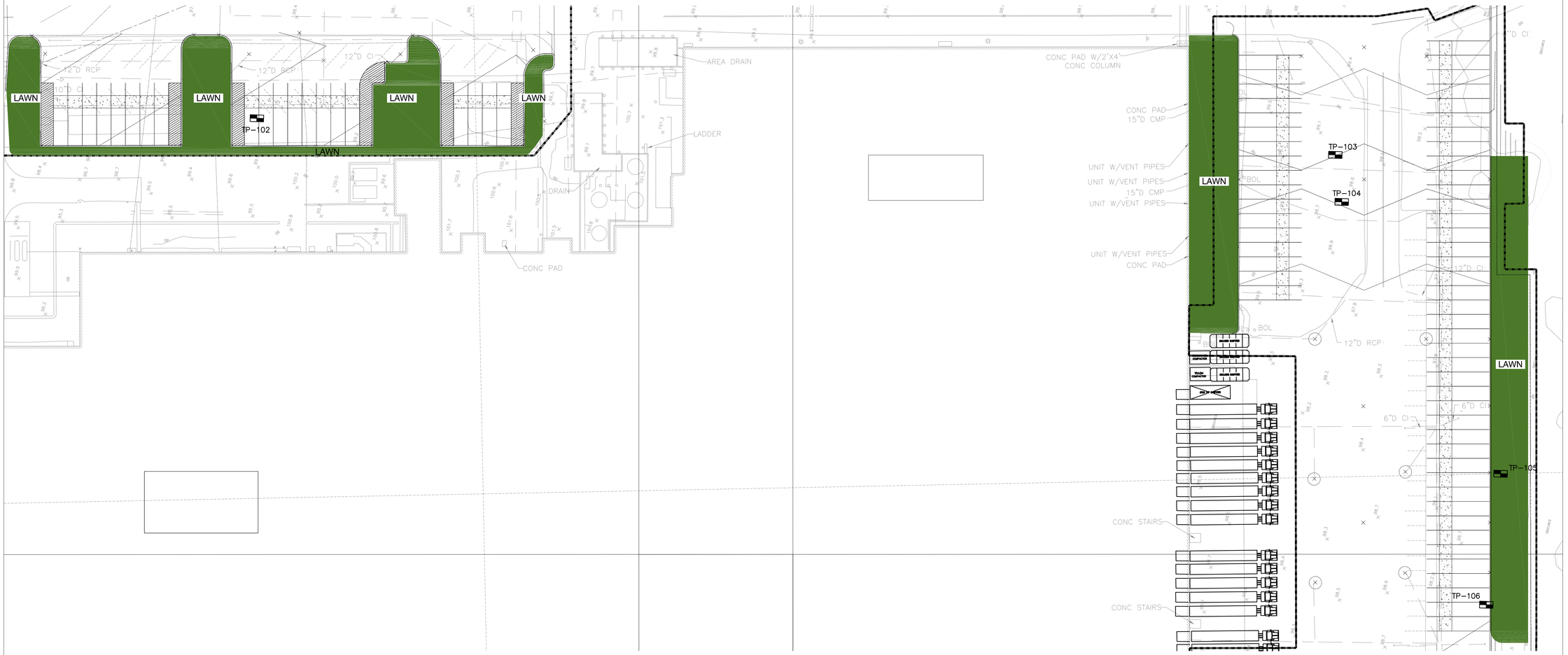
| | |
|---|---|
| Job No.: | PRINCIPIO |
| Drawn By: | SW |
| Checked By: | CM |
| Date: | 04/16/2024 |
| Scale: | 1" = 40'-0" |

Drawing Title:

LANDSCAPE PLAN - WEST

Drawing No.:

L-101




SEE DRAWING L-101 FOR CONTINUATION

## PLANT SCHEDULE

| SEED MIXES | | | | |
|---|---|---|---|---|
| | LAWN | PEARL'S PREMIUM | 34,900SF | 10 lbs. per 1000 SF |

Project:

# P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA
01810

landworks studio

PERMITTING SET
NOT FOR CONSTRUCTION
16 APRIL 2024

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| No. | Date | Revision |
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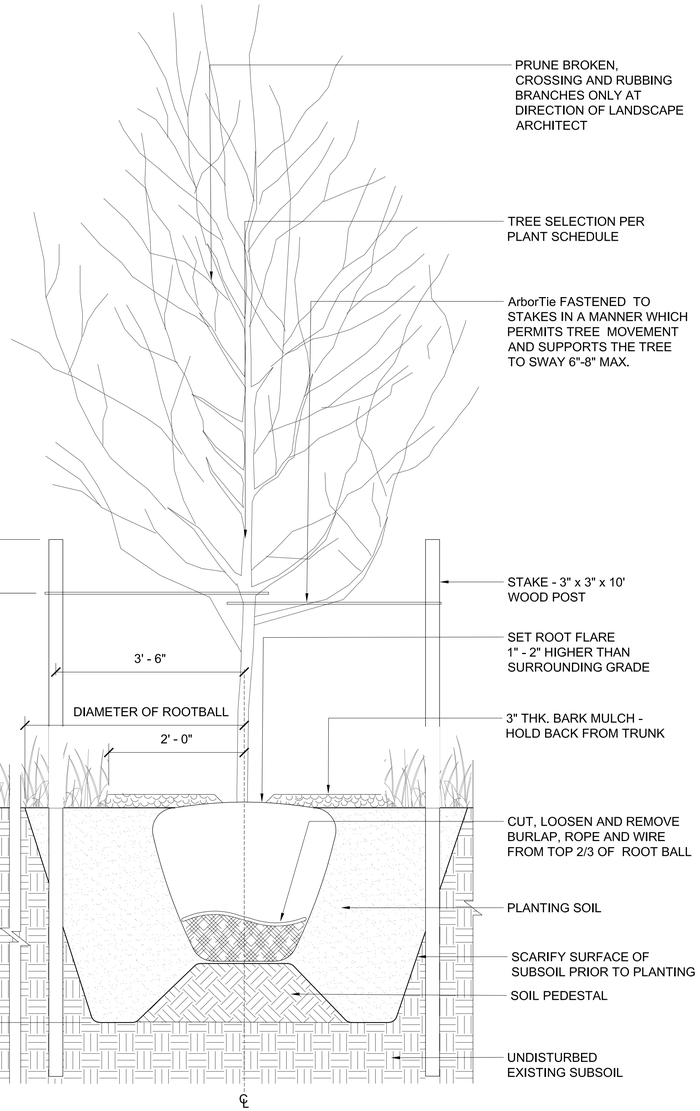
| Job No.: | PRINCIPIO |
| Drawn By: | SW |
| Checked By: | CM |
| Date: | 04/16/2024 |
| Scale: | 1" = 40'-0" |

Drawing Title:

LANDSCAPE PLAN - EAST

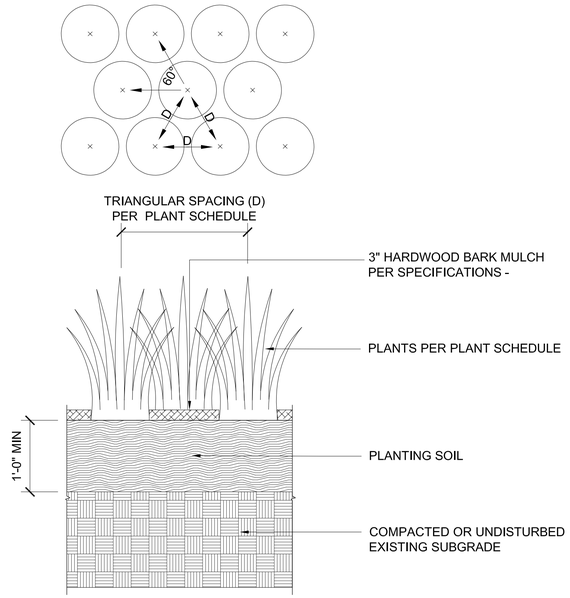
Drawing No.:

L-102



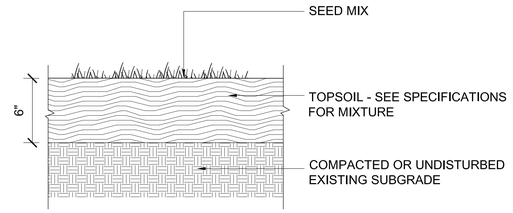

1 TREE PLANTING DETAIL

SCALE: 3/4"=1'-0"



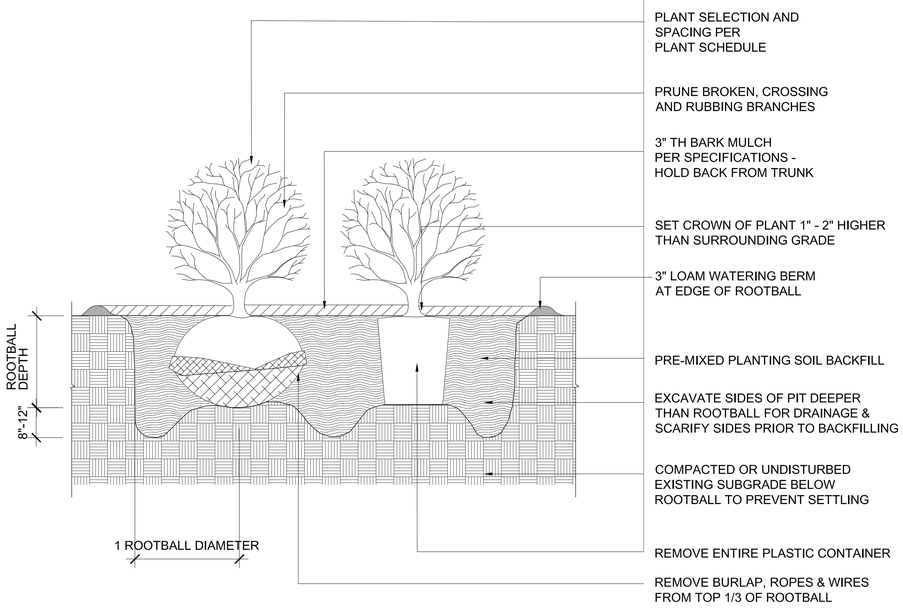

2 GROUNDCOVER PLANTING DETAIL

SCALE: 1/2"=1'-0"




3 SEED PLANTING DETAIL

SCALE: 1"=1'-0"




4 SHRUB PLANTING DETAIL

SCALE: 1/2"=1'-0"

Project:

# P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
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01810

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| Job No.: | PRINCIPIO |
| Drawn By: | SW |
| Checked By: | CM |
| Date: | 04/16/2024 |
| Scale: | AS NOTED |

Drawing Title:

LANDSCAPE DETAILS

Drawing No.:

L-201

## LIGHTING FIXTURES

(REFER TO LIGHT FIXTURE SCHEDULE FOR ADDITIONAL INFORMATION)

- POLE MOUNTED SITE LIGHTING FIXTURE
- POLE MOUNTED SITE LIGHTING FIXTURE, DOUBLE HEAD
- EXISTING SITE LIGHTING FIXTURE
- WALL MOUNTED LIGHT FIXTURE.
- CEILING MOUNTED ILLUMINATED EXIT SIGN, ARROWS AS INDICATED ON DRAWINGS, COORDINATE MOUNTING HEIGHTS WITH ARCHITECTURAL DRAWINGS.
- WALL MOUNTED ILLUMINATED EXIT SIGN CONNECTED TO LIFE SAFETY OR STANDBY.

## MISCELLANEOUS

- HH — HAND HOLE BY HUBBELL QUAZITE BOX PART # PC1118BDG18 COVER PART # PC1118CG17
- MH — ELECTRIC MANHOLE
- EMERGENCY POWER OFF BUTTON
- E — INDCATES CONCRETE ENCASED ELECTRICAL DUCTBANK
- CT12 — CABLE TRAY, "12" INDICATES WIDTH
- J — THERMAL CABLES FOR SNOW MELT, EQUAL TO PENTAIR MODEL # GM-2XT PROVIDE FINAL CONNECTIONS, CONTROLS, AND ACCESSORIES AS REQUIRED BY MANUFACTURER.
- MI — INDICATES MI CABLE
- x/y — DUPLEX RECEPTACLE "x" INDICATES CIRCUIT NUMBER, "y" INDICATES ONE OF THE FOLLOWING: E = WIRED TO EMERGENCY PANEL, S = WIRED TO EMERGENCY PANEL,
- DUPLEX RECEPTACLE WITH INTEGRAL GROUND FAULT INTERRUPTER

## POWER DISTRIBUTION EQUIPMENT

- DISTRIBUTION PANEL
- PANELBOARD, SURFACE MOUNTED
- PANELBOARD, FLUSH MOUNTED
- BUILDING MANAGEMENT SYSTEM LIGHTING CONTROL RELAY PANEL AND ASSOCIATED INPUT AND DATA CONTROLS WIRING PROVIDED BY ATC CONTRACTOR. BRANCH CIRCUIT CONDUCTOR WIRING BY ELECTRICAL CONTRACTOR.
- (J) — JUNCTION BOX, SIZED PER NEC
- (Z) — MOTOR, "Z" INDICATES HORSEPOWER
- MAGNETIC MOTOR STARTER
- SP/M — MANUAL MOTOR STARTER WITH THERMAL OVERLOAD. "P" INDICATES PILOT LIGHT
- 6P — NON-FUSED DISCONNECT SWITCH, SIZE AS REQUIRED. "6P" INDICATES 6 POLE
- FUSED DISCONNECT SWITCH, SIZE OF SWITCH AND FUSE AS REQUIRED
- COMBINATION MAGNETIC STARTER AND FUSED DISCONNECT SWITCH. SIZE OF STARTER, SWITCH AND FUSE AS REQUIRED
- T — DRY-TYPE DISTRIBUTION TRANSFORMER.

## RACEWAYS AND WIRING

NP-2-6-1(1,3) — HOME RUN TO PANELBOARD. "NP-2-6-1" INDICATES PANEL, "(1,3)" INDICATES CIRCUIT NUMBERS. ALL CIRCUITS 20A-1P UNLESS NOTED OTHERWISE. NUMBER OF SLASH MARKS INDICATE NUMBER OF #12 AWG CONDUCTORS IN MINIMUM 3/4" DIAMETER CONDUIT. NO SLASH MARKS INDICATE 2#12 & 1#12G IN MINIMUM 3/4" DIAMETER CONDUIT UNLESS NOTED OTHERWISE.

NOTES:

1. GREEN GROUND CONDUCTOR NOT INDICATED BUT SHALL BE INCLUDED
2. IN EACH RACEWAY, SIZE SHALL BE #12 AWG UNLESS NOTED OTHERWISE. HOME RUNS TO POWER PANELS SHALL HAVE A MAXIMUM OF THREE (3) PHASE CONDUCTORS PLUS THREE (3) NEUTRALS AND GROUND CONDUCTORS IN EACH CONDUIT.
3. ALL BRANCH CIRCUITS SHALL HAVE INDIVIDUAL NEUTRALS.

## ANNOTATION SYMBOLS

- XX.01 — SHEET KEYNOTE "XX - REPRESENTS DISCIPLINE SPECIFICATION DIVISION "01' - REPRESENTS KEY NOTE NUMBER
- X/Z — SECTION REFERENCE SECTION 'X' ON DRAWING 'Z'
- X/Z — DETAIL REFERENCE DETAIL 'X' ON DRAWING 'Z'

## ABBREVIATIONS

| | |
|---|---|
| A | AMPERES |
| AAP | AREA ALARM PANEL, BY OTHERS |
| AC | ALTERNATING CURRENT |
| AD | AUTOMATIC DOOR OPENER |
| AF | AMPERE FRAME (CIRCUIT BREAKER RATING) |
| AFF | ABOVE FINISHED FLOOR |
| AFG | ABOVE FINISHED GRADE |
| AH | AMPERE-HOUR METER |
| AIC | AMPERE INTERRUPTING CAPACITY |
| AL | ALUMINUM |
| AM | AMMETER |
| ARCH | ARCHITECT |
| AT | AMPERE TRIP (CIRCUIT BREAKER RATING) |
| ATC | AUTOMATIC TEMPERATURE CONTROL |
| ATS | AUTOMATIC TRANSFER SWITCH |
| AWG | AMERICAN WIRE GUAGE |
| BIO | BIOLOGY |
| BLDG | BUILDING |
| BMS | BUILDING MANAGEMENT SYSTEM |
| BSC | BIOSAFETY CABINET |
| C | CONDUIT |
| CAT | CATALOG |
| CENT. | CENTRIFUGE |
| CIR | CIRCUIT |
| COF | COFFEE MAKER |
| COL | COLUMN |
| COM | COMMUNICATION |
| COPY | COPY MACHINE |
| CP | CONTROL PANEL |
| CPT | CONTROL POWER TRANSFORMER |
| CR | CARD READER |
| CT | CURRENT TRANSFORMER |
| CU | COPPER |
| C.B. | CIRCUIT BREAKER |
| C.T. | CURRENT TRANSFORMER |
| Δ | DELTA |
| DC | DIRECT CURRENT |
| DH | DOOR HOLD |
| DM | DISPLAY MONITOR |
| DSC | DISCONNECT SWITCH |
| DW | DISHWASHER |
| DWG | DRAWING |
| E | WIRED ON EMERGENCY CIRCUIT |
| EC | EMPTY CONDUIT |
| EM | EMERGENCY |
| ENL | EXISTING IN NEW LOCATION |
| ETD | EXISTING TO BE DEMOLISHED AND REMOVED |
| ETR | EXISTING TO REMAIN |
| ETRL | EXISTING TO BE REMOVED AND REUSED/RELOCATED |
| EWC | ELECTRIC WATER COOLER |
| EXP | EXPLOSION PROOF |
| F | FLUSH |
| FAX | FAX MACHINE |
| FCU | FAN COIL UNIT |
| FE | FREQUENCY METER |
| FT | FEET |
| FRZ | FREEZER |
| FU | FUSE |
| FVNR | FULL VOLT NON-REVERSING |
| F.A. | FIRE ALARM |
| G | GROUND |
| GC | GENERAL CONTRACTOR |
| GD | GROUND DETECTOR |
| GEN | GENERATOR |
| GFI | GROUND FAULT CIRCUIT INTERRUPTER |
| GWB | GYPSUM WALL BOARD |
| HMI | HUMAN MACHINE INTERFACE |
| HV | HIGH VOLTAGE |
| HVAC | HEATING, VENTILATION, AIR CONDITIONING |
| HZ | HERTZ |
| I | INDICATING |
| ICE | ICE MACHINE |
| IG | ISOLATED GROUND |
| INC | INCUBATOR |
| IP | INSTRUMENT PANEL |
| IT | CURRENT TRANSDUCER |
| JB | JUNCTION BOX |
| KCMIL | ONE THOUSAND CIRCULAR MILS |
| KH | KNEE HOLE |
| KVA | KILOVOLT-AMPERES |
| KVAR | KILOVOLT-AMPERES REACTIVE |
| KW | KILOWATTS |
| LVL | LEVEL |
| LP | LIGHTING PANEL |
| LS | LIFE SAFETY |
| LTG | LIGHTING |
| LV | LOW VOLTAGE |
| M | MONITOR |
| MBS | MANUAL BYPASS SWITCH |
| MCB | MAIN CIRCUIT BREAKER |
| MCP | MOTOR CONTROL PANEL |
| MCC | MOTOR CONTROL CENTER |
| MGAP | MEDICAL GAS PANEL, BY OTHERS |
| MIC | MICROWAVE |
| MISC | MISCELLANEOUS |
| MLO | MAIN LUGS ONLY |
| MTR | MOTOR |
| MV | MEDIUM VOLTAGE |
| NC | NORMALLY CLOSED |
| NEC | NATIONAL ELECTRICAL CODE |
| NFPA | NATIONAL FIRE PROTECTION ASSOCIATION |
| NL | NIGHT LIGHT |
| NO | NORMALLY OPEN |
| NTS | NOT TO SCALE |
| OHM | OHMMETER |
| OP | OIL PRESSURE |
| P | POLE |
| PDP | POWER DISTRIBUTION PANEL |
| PDU | POWER DISTRIBUTION UNIT |
| PE | PHOTOCELL |
| PF | POWER FACTOR METER |
| PI | POSITION INDICATOR |
| PNL | PANEL |
| PNLBD | PANELBOARD |
| PP | POWER POLE |
| PRN | PRINTER |
| PSD | PHASE SHIFTING DEVICE |
| PTZ | PAN TILT ZOOM |
| PVC | POLYVINYL CHLORIDE |
| PWR | POWER |
| PYX | PYXIS |
| P.T. | POTENTIAL TRANSFORMER |
| Ø | PHASE |
| R | RECESSED |
| RD | RECORDING DEMAND METER |
| REC | RECEPTACLE(S) |
| RECEPT | RECEPTACLE PANEL |
| REF | REFRIGERATOR |
| RPM | REVOLUTION PER MINUTE |
| RTD | RESISTANCE TEMPERATURE DETECTOR, INDICATOR OR RELAY |
| S | SURFACE |
| SCC | SYSTEM CONTROL CABINET |
| SCR | SHORT CIRCUIT INTERRUPTING RATING |
| SGR | SWITCHGEAR |
| SHT | SHEET |
| SP | SPARE |
| SPEC | SPECIFICATION |
| SRG | SIGNAL REFERENCE GRID |
| SUB | UNIT SUBSTATION |
| SW | SWITCH |
| SWBD | SWITCHBOARD |
| T | TEMPERATURE METER |
| TC | TIMECLOCK |
| TCP | TEMPERATURE CONTROL PANEL |
| TEL | TELEPHONE |
| TVSS | TRANSIENT VOLTAGE SUPPRESSION SYSTEM |
| TYP | TYPICAL |
| UC | UNDER COUNTER |
| UCR | UNDERCOUNTER REFRIGERATOR |
| UG | UNDERGROUND |
| ULP | UPS LIGHTING PANEL |
| UNO | UNLESS NOTED OTHERWISE |
| UPS | UNINTERRUPTIBLE POWER SUPPLY |
| URP | UPS RECEPTACLE PANEL |
| V | VOLT |
| VA | VOLT AMPS, VOLT-AMMETER |
| VARM | VARMETER |
| VAR/VAR | VAR TRANSDUCER |
| VD | VOLTAGE DROP |
| VDER | VOICE DATA EQUIPMENT ROOM |
| VFD | VARIABLE FREQUENCY DRIVE |
| VH | VARHOUR METER |
| VS | VOLTMETER SWITCH |
| V/V | VOLTAGE TRANSDUCER |
| W | WATT |
| WH | WATTHOUR METER |
| WHD | WATTHOUR METER WITH DEMAND ATTACHMENT |
| WM | WATTMETER |
| WP | WEATHER PROOF |
| WRM | WARMING CABINET |
| WVS | WATT-VAR SELECTOR SWITCH |
| W-V | WATT-VAR INDICATING METER |
| W/W | WATT TRANSDUCER |
| XFMR | TRANSFORMER |
| XP | EXPLOSION PROOF |
| Y | WYE |

## SCOPE OF WORK MATRIX

1.1 SCOPE OF WORK ASSIGNMENT (AMONG SPECIFICATION DIVISIONS)

A. Specification Divisions 21, 22, 23, 25, 26, 27 and 28 Contractors Scope of Work shall be implemented in accordance with the following Table of Specification Division assignments.

B. The Specification Division assignments are indicated in the table herein by Division numbers as listed below:
1. 21 = Division 21 Fire Suppression (Fire Protection)
2. 22 = Division 22 Plumbing
3. 23 = Division 23 HVAC
4. 25 = Division 25 Integrated Automation (BAS)
5. 26 = Division 26 Electrical
6. 27 = Division 27 Communications
7. 28 = Division 28 Electronic Safety and Security (Fire Alarm)
8. 28S = Division 28 (Security)

C. Definitions Applicable to the following Table:
1. Field Power Wiring: All job-site wiring required to convey energizing power to installed devices, regardless of voltage.
2. Field Control Wiring: All job-tie wiring required to convey signals, inclusive of binary and analog control input/output signals as well as device interlock signals to the listed device from any other field device.

| DEVICE | FURNISHED BY | INSTALLED BY | FIELD POWER WIRING | FIELD CONTROL WIRING | FIRE ALARM WIRING |
|---|---|---|---|---|---|
| HVAC EQUIPMENT | 23 | 23 | 26 | 25 | N/A |
| PLUMBING EQUIPMENT | 22 | 22 | 26 | 22 | N/A |
| FIRE PROTECTION EQUIPMENT | 21 | 21 | 26 | 25 | 28 |
| FIRE PROTECTION SPECIAL HAZARDS SYSTEM DETECTION | 21 | 21 | 26 | 21 | 28 |
| POWER DISCONNECTS AND MAGNETIC MOTOR STARTERS - FIELD INSTALLED | 26 | 26 | 26 | 25 | 28 & 25 |
| HVAC VARIABLE FREQUENCY DRIVES - FIELD INSTALLED | 23 | 26 | 26 | 25 | N/A |
| PANELBOARD BRANCH CIRCUIT BREAKERS AND WIRING TO DISTRIBUTED JUNCTION BOXES FOR DIV 25 POWER | 26 | 26 | 26 | N/A | N/A |
| POWER FOR DIV 25 PANELS AND DEVICES FROM DISTRIBUTED JUNCTION BOXES | 25 | 25 | 25 | 25 | N/A |
| IN-DUCT SMOKE DETECTORS | 28 | 23 | 28 | N/A | 28 |
| SMOKE ISOLATION DAMPERS IN OR AT AHU AND FANS (INCLUDING ACTUATORS) | 23 | 23 | 25 | 25 | N/A |
| DUCT MOUNTEDSMOKE DAMPERS (INCLUDING FSDs) | 23 | 23 | 26 | 28 | 28 |
| DUCT MOUNTED SMOKE DAMPER END SWITCHES | 23 | 23 | 26 | 28 | N/A |
| FIRE DAMPERS | 23 | 23 | 23 | N/A | N/A |
| AIR FLOW CONTROL TERMINAL (INCLUDING AIRFLOW SENSOR) | 23 | 23 | 25 | 25 | N/A |
| AIR FLOW CONTROL TERMINAL CONTROLLER WITH DAMPER ACTUATOR AND FLOW TRANSDUCER | 25 | 23 | 25 | 25 | N/A |
| HEATING OR COOLING COIL CONTROL VALVE | 25 | 23 | 25 | 25 | N/A |
| SUPPLY/EXH AND HOOD AIR VALVES, ACTUATORS AND CONTROLLERS | 25 | 23 | 25 | 25 | N/A |
| EXHAUST CONTROLS AT FUME HOOD | 25 | 25 | 25 | 25 | N/A |
| IN-DUCT AUTOMATIC DAMPER AND ACTUATOR | 25 | 23 | 25 | 25 | N/A |
| AUTOMATIC CONTROL DAMPER WITHIN AHU | 23 | 23 | N/A | N/A | N/A |
| ACTUATOR FOR AUTOMATIC DAMPER WITHIN AHU | 25 | 25 | 25 | 25 | N/A |
| HVAC ENERGY AND FLOW METERS | 25 | 23 | 25 | 25 | N/A |
| IN-DUCT AIRFLOW MEASURING AND CONTROL STATIONS | 25 | 23 | 25 | 25 | N/A |
| FAN PIEZO-RING AIRFLOW SENSOR ARRAY | 23 | 23 | N/A | N/A | N/A |
| FAN PIEZO-RING AIRFLOW PRESSURE TRANSDUCER | 25 | 25 | 25 | 25 | N/A |
| AIR COMPRESSOR SERVING DIV 23 EQUIPMENT | 23 | 23 | 26 | 25 | N/A |
| FUEL OIL STORAGE AND TRANSFER SYSTEM W/ INTEGRAL CONTROLS | 23 | 23 | 26 | 25 | 28 |
| HVAC CONTROL VALVES IN PIPING | 25 | 23 | 25 | 25 | N/A |
| STEAM AND ATOMIZING HUMIDIFIERS | 23 | 23 | 26 | 25 | N/A |
| PLUMBING FLOW METERS | 22 | 22 | 26 | 22 | N/A |
| ELECTRICAL ENERGY METERS | 26 | 26 | 26 | 26 (1) | N/A |
| FIRE ALARM CONTROL PANEL | 28 | 28 | 26 | 28 | 28 |
| COMBUSTION AIR AND VENT SERVING DOMESTIC WATER HEATER | 22 | 22 | N/A | N/A | N/A |
| COMBUSTION AIR AND VENT SERVING HVAC BOILER | 22 | 22 | N/A | N/A | N/A |
| ENGINE EXHAUST PIPING | 23 | 23 | N/A | N/A | N/A |
| ENGINE EXHAUST SILENCER AND ENGINE FLEX CONNECTOR | 26 | 23 | N/A | N/A | N/A |
| UV LIGHT IN AHU OR DUCTWORK | 23 | 23 | 26 | 25 (2) | N/A |
| FUEL-GAS PRV SERVING HVAC APPLIANCE | 23 | 22 | N/A | N/A | N/A |
| KITCHEN CO DETECTION | 22 | 22 | 26 | 22 | 28 |
| KITCHEN FUEL VALVE W/ SHUTDOWN BY DIV 28 | 22 | 22 | 26 | 26 | 28 (5) |
| KITCHEN FAN W/ SHUTDOWN BY DIV 28 | 23 | 23 | 26 | 25 | 28 |
| PLUMBING HEAT TRACE | 22 | 26 | 26 | 22 | N/A |
| HVAC HEAT TRACE | 23 | 26 | 26 | 25 (3) | N/A |
| FIRE PROTECTION PIPING HEAT TRACE | 21 | 26 | 26 | 21 | 28 (4) |
| COOLING TOWER WATER LEVEL PROBES AND VIBRATION CUTOUT SWITCH | 23 | 23 | 25 | 25 | N/A |

Numbers in quotation marks () in table indicate Note numbers

Note 1: IF DIV 25 NEEDS ADDITIONAL CONNECTION TO METERS FOR INPUT POINT OR COMMUNICATION CABLING, THAT SCOPE SHALL BE BY DIV 25.
Note 2: DIV 25 TO INTERLOCK ACCESS DOOR SWITCHES TO SHUTDOWN UV LIGHTS WHEN ACCESS DOORS ARE OPENED.
Note 3: MONITORING AND ALARMING ONLY
Note 4: MONITOR, ALARM AND REPORTING
Note 5: WHERE FA SUPERVISION/OVERRIDE IS REQUIRED, DIV 28/25 WIRING INTERFACE OCCURS AT FA CONTROL/MONITOR MODULES ADJACENT TO MOTOR CONTROLLER -- SEE DRAWINGS.
Note 6: IN THE STATE OF MASSACHUSETTS, THIS SHALL BE PROVIDED BY DIVISION 22.

Project:

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Fennick McCredie Architecture

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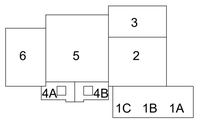
16 APRIL 2024

Key Plan:

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04-08-2024

| No. | Date | Revision |
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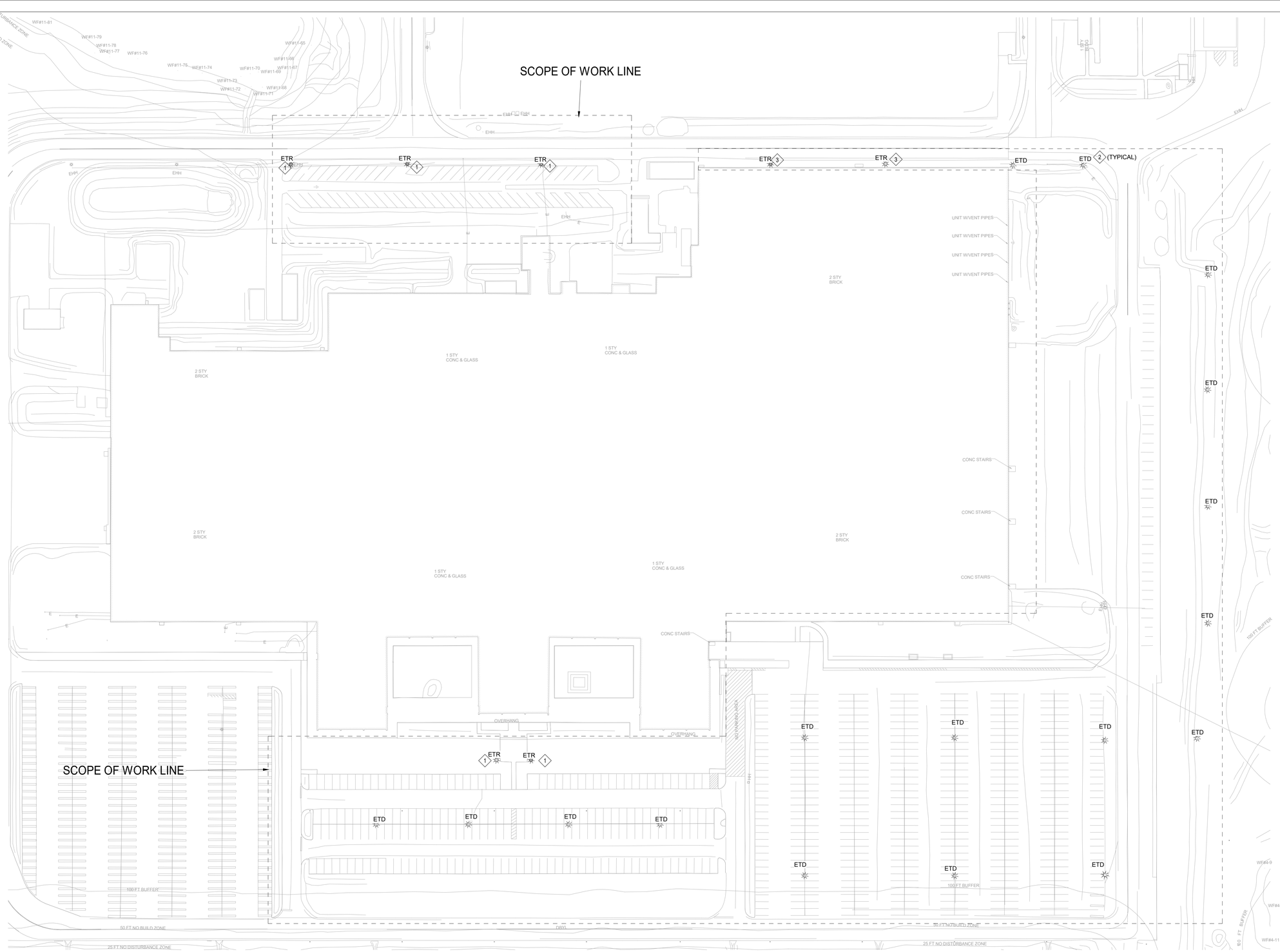
| Job No.: | PRINCIPIO |
| Drawn By: | DLB |
| Checked By: | PC |
| Date: | 04/16/24 |
| Scale: | 1/8" = 1'-0" |

Drawing Title:
ELECTRICAL LEGEND

Drawing No.:
E0.00




1 ELECTRICAL DEMO SITE PLAN
1" = 60'-0"

## GENERAL NOTES:

1. EXISTING FIXTURE AND ASSOCIATED WIRING TO REMAIN. ALL CIRCUITS, CONDUITS AND FEEDERS PASSING THROUGH AND SERVING UNDISTURBED AREAS SHALL MAINTAIN AND RESTORED IF INTERRUPTED BY REMOVALS.
2. EXISTING FIXTURE AND ASSOCIATED WIRING SHALL BE DISCONNECTED AND REMOVED COMPLETE BACK TO SOURCE.
3. EXISTING FIXTURE TO REMAIN. ASSOCIATED WIRING SHALL BE DISCONNECTED AND REMOVED COMPLETE BACK TO SOURCE.

## DEMOLITION NOTES:

1. ALL UNDERGROUND UTILITIES INDICATED FOR REFERENCE ONLY. REFER TO CIVIL DRAWINGS FOR INFORMATION AND SITE CONDITIONS. COORDINATE WITH EXISTING UTILITIES.
2. ALL UNDERGROUND INSTALLATION SHALL BE SURVEYED, DOCUMENTS AND PHOTOGRAPHED PRIOR TO BACKFILL. SET UP RECORD AS-BUILT DRAWINGS SHALL BE PROVIDED TO OWNER. RECORD DRAWINGS SHALL INCLUDE MANHOLE PHOTOS AND BUTTERFLY DIAGRAMS OF MANHOLE WALLS AND DUCTBANKS.
3. ELECTRICAL CONTRACTOR SHALL COORDINATE ANY ROAD CLOSURE AND SCHEDULING WITH SKANSKA AND P&G.
4. INVENTORY ELECTRICAL ITEMS THAT ARE REMOVED AND PROVIDE A LIST TO THE OWNER FOR THEIR SELECTION OF ITEMS TO BE RETAINED. ALL ITEMS REJECTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF IN ACCORDANCE WITH THE SPECIFICATIONS.
5. ALL EXISTING ELECTRICAL EQUIPMENT THAT IS TO BE RELOCATED AND REUSED SHALL BE STORED IN A SAFE MANNER UNTIL THE TIME IT IS TO BE REINSTALLED. ANY DAMAGE INCURRED TO EQUIPMENT SHALL BE RECTIFIED BY ELECTRICAL CONTRACTOR. EXISTING ELECTRICAL EQUIPMENT TO BE REUSED SHALL BE CLEANED AND RESTORED BEFORE PLACING BACK IN SERVICE.
6. THE CONTRACTOR SHALL REMOVE ALL WIRING/CABLING NO LONGER IN USE FROM EXISTING RACEWAYS/CONDUITS TO IT'S SOURCE OF ORIGIN. SURFACE MOUNTED RACEWAYS/CONDUITS NO LONGER IN USE SHALL BE REMOVED. RACEWAYS/CONDUITS NO LONGER IN USE THAT ARE EMBEDDED IN FLOOR SLABS SHALL BE CUT OFF, CAPPED, AND SEALED FLUSH WITH SLAB LEVEL.
7. REFER TO SPECIFICATIONS FOR DETAILS.

ft
0 1 2 4 8 16

Project:

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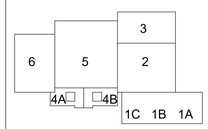


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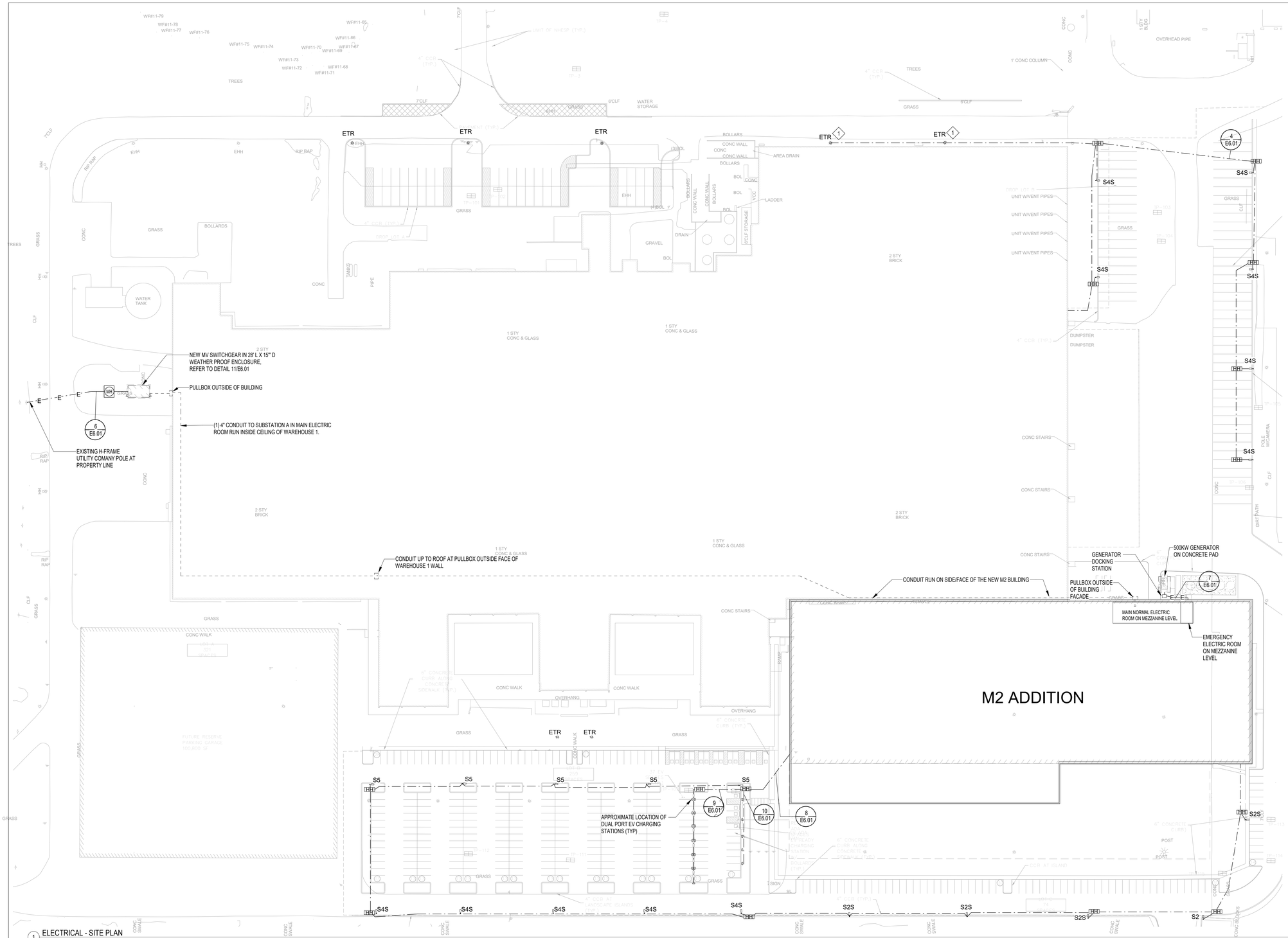
| Drawn By: | DLB |
| Checked By: | PC |
| Date: | 04/16/24 |
| Scale: | 1" = 60'-0" |

Drawing Title:
ELECTRICAL SITE DEMO PLAN

Drawing No.:
ED.01




1 ELECTRICAL - SITE PLAN
1" = 60'-0"

## KEY NOTES

1 EXISTING FIXTURES TO BE RE-FED FROM NEW SITE LIGHTING CIRCUIT. FIELD VERIFY LOCATION OF EXISTING CONDUIT FEEDING EXISTING FIXTURES AND REPLACE IN KIND IF NECESSARY FOR EXCAVATION.

## SITE NOTES

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. REFER TO DRAWING E6.01 FOR SITE AND DUCTBANK DETAILS.
3. CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND EXISTING CONDITIONS. ALL WORK SHALL BE IN ACCORDANCE WITH THE MASSACHUSETTS STATE ELECTRICAL CODE 12.00 CMR, LOCAL CODES AND CITY INSPECTIONAL SERVICES.
4. REFER TO THE CIVIL DRAWINGS FOR LEGEND AND LOCATION OF ALL UNDERGROUND UTILITIES.
5. THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL ELECTRICAL MATERIALS FOR THE UTILITY COMPANY PRIMARY DUCT AND MANHOLE SYSTEM INCLUDING CUSTOMER MANHOLES AND CONCRETE ENCASED DUCTBANK WITHIN 2 FEET OF PROPERTY TO BUILDING SWITCHGEAR. ALL MATERIALS AND DETAILS OF INSTALLATION SHALL MEET UTILITY COMPANY STANDARDS AND REQUIREMENTS. COORDINATE DIRECTLY WITH UTILITY COMPANY. EXCAVATION, BACKFILL, COMPACTION AND BACKFILL MATERIALS FOR UTILITIES SHALL BE FURNISHED AND INSTALLED AND BE IN ACCORDANCE WITH THE REQUIREMENTS FOR CIVIL UTILITIES.
6. LOCATION OF DUCTBANK, HAND HOLES AND MANHOLES SHALL BE ADJUSTED BY THE CONTRACTOR TO AVOID EXISTING AND PROPOSED UTILITIES. SUBMIT SHOP DRAWINGS LOCATING ALL DUCTBANKS INCLUDING ELEVATIONS THROUGH FOUNDATION WALLS.
7. ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A NYLON PULL ROPE.
8. DEPTH OF DUCTBANK SHALL BE 36" MINIMUM BELOW FINISHED GRADE EXCEPT WHERE RISING TO ENTER EQUIPMENT. COORDINATE ACTUAL DEPTH TO AVOID EXISTING OR PROPOSED UTILITIES.
9. DUCTBANKS SHALL BE SLOPED TO DRAIN TOWARD MANHOLES.
10. PROVIDE YELLOW WARNING TAPE WITH WIRE TRACER ABOVE TOP OF DUCTBANK.
11. ALL BRANCH CIRCUIT POWER WIRING SERVING EXTERIOR LIGHTING SHALL BE #10 AWG U.N.O., INCLUDING GROUND WIRE.
12. SITE LIGHTING CIRCUITRY SHALL BE INSTALLED 36" BELOW FINISHED GRADE. ALL CONDUITS AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE TO NFPA 70 (NEC).
13. ALL BREAKERS SERVING SITE LIGHTING SHALL BE GFI BREAKERS.
14. ALL JUNCTION BOXES SHALL BE WEATHERPROOF TYPE TO SERVE LANDSCAPE LIGHTING/POWER. FINAL LOCATION OF JUNCTION BOXES SHALL BE IN ACCORDANCE WITH LANDSCAPE PLANS.
15. REFER TO LANDSCAPE PLANS FOR COORDINATION OF LIGHTING FIXTURE AND DRIVER LOCATIONS.
16. COORDINATE LIGHTING FIXTURE TRIMS WITH ARCHITECT PRIOR TO INSTALLATION.
17. ALL UNDERGROUND SITE LIGHTING CIRCUITS SHALL BE #8 AWG IN 1-1/2" PVC CONDUIT.

ft
0 1 2 4 8 16

Project:

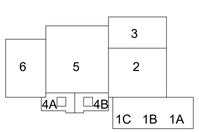
P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA, 01810

Fennick McCredie Architecture

PERMITTING SET
NOT FOR CONSTRUCTION
16 APRIL 2024

Key Plan:




Stamp:

04-08-2024

| No. | Date | Revision |
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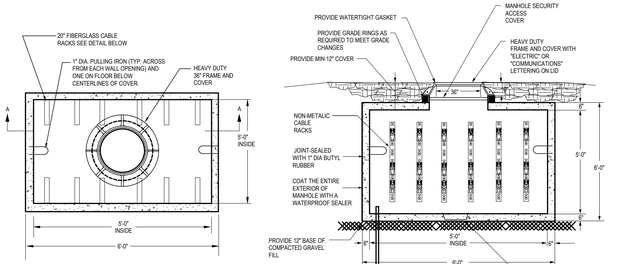
|---|---|
| Job No.: | PRINCIPIO |
| Drawn By: | DLB |
| Checked By: | PC |
| Date: | 04/16/24 |
| Scale: | 1" = 60'-0" |

Drawing Title:
ELECTRICAL SITE PLAN

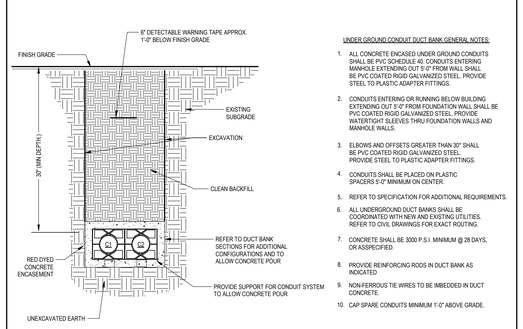
Drawing No.:
E0.01




**UNDER GROUND CONDUIT DUCT BANK GENERAL NOTES:**

1. ALL UNDER GROUND CONDUITS SHALL BE PVC SCHEDULE 40. CONDUITS ENTERING MANHOLE EXTENDING OUT 5'-0" FROM WALL SHALL BE PVC COATED RIGID GALVANIZED STEEL. PROVIDE STEEL TO PLASTIC ADAPTER FITTINGS.
2. CONDUITS ENTERING OR RUNNING BELOW BUILDING EXTENDING OUT 5'-0" FROM FOUNDATION WALL SHALL BE PVC COATED RIGID GALVANIZED STEEL. PROVIDE WATERTIGHT SLEEVES THRU FOUNDATION WALLS AND MANHOLE WALLS.
3. ELBOWS AND OFFSETS GREATER THAN 30° SHALL BE PVC COATED RIGID GALVANIZED STEEL. PROVIDE STEEL TO PLASTIC ADAPTER FITTINGS.
4. CONDUITS SHALL BE PLACED ON PLASTIC SPACERS 5'-0" ON CENTER.
5. UNDER GROUND DUCT BANK SHALL BE SET A MINIMUM DEPTH OF 24" BELOW GRADE.
6. REFER TO SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
7. ALL UNDERGROUND DUCT BANKS SHALL BE COORDINATED WITH NEW AND EXISTING UTILITIES. REFER TO CIBIL DRAWINGS FOR EXACT ROUTING.
8. CONCRETE SHALL BE 3000 P.S.I. @ 28 DAYS, OR AS SPECIFIED.
9. PROVIDE REINFORCING RODS IN DUCT BANK AS INDICATED
10. NON-FERROUS TIE WIRES TO BE IMBEDDED IN DUCT CONCRETE.

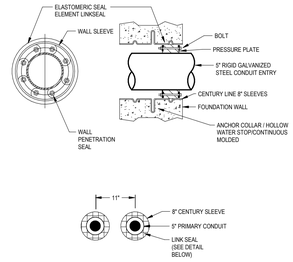
1 5'x5' PRE-CAST ELECTRIC MANHOLE — NTS



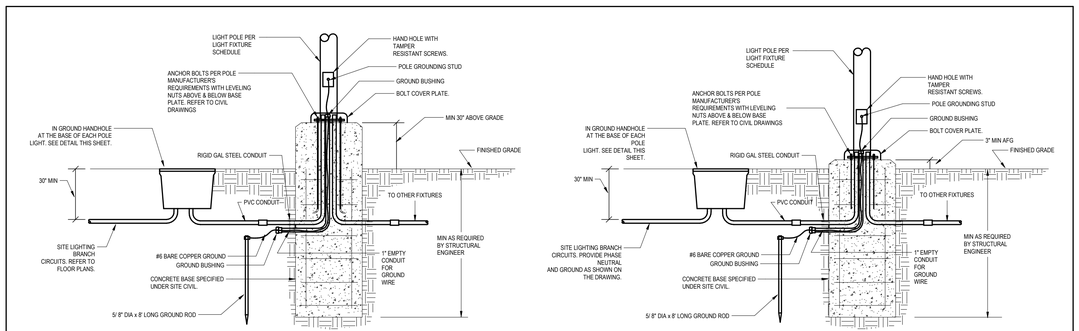

**UNDER GROUND CONDUIT DUCT BANK GENERAL NOTES:**

1. ALL CONCRETE ENCASED UNDER GROUND CONDUITS SHALL BE PVC SCHEDULE 40. CONDUITS ENTERING MANHOLE EXTENDING OUT 5'-0" FROM WALL SHALL BE PVC COATED RIGID GALVANIZED STEEL. PROVIDE STEEL TO PLASTIC ADAPTER FITTINGS.
2. CONDUITS ENTERING OR RUNNING BELOW BUILDING EXTENDING OUT 5'-0" FROM FOUNDATION WALL SHALL BE PVC COATED RIGID GALVANIZED STEEL. PROVIDE WATERTIGHT SLEEVES THRU FOUNDATION WALLS AND MANHOLE WALLS.
3. ELBOWS AND OFFSETS GREATER THAN 30° SHALL BE PVC COATED RIGID GALVANIZED STEEL. PROVIDE STEEL TO PLASTIC ADAPTER FITTINGS.
4. CONDUITS SHALL BE PLACED ON PLASTIC SPACERS 5'-0" MINIMUM ON CENTER.
5. REFER TO SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
6. ALL UNDERGROUND DUCT BANKS SHALL BE COORDINATED WITH NEW AND EXISTING UTILITIES. REFER TO CIVIL DRAWINGS FOR EXACT ROUTING.
7. CONCRETE SHALL BE 3000 P.S.I. MINIMUM @ 28 DAYS, OR ASSPECIFIED.
8. PROVIDE REINFORCING RODS IN DUCT BANK AS INDICATED
9. NON-FERROUS TIE WIRES TO BE IMBEDDED IN DUCT CONCRETE.
10. CAP SPARE CONDUITS MINIMUM 1'-0" ABOVE GRADE.

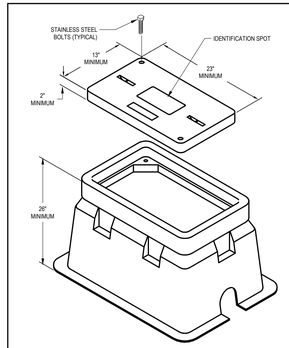
2 TYPICAL DUCT BANK TRENCH DETAIL — NTS




3 CONDUIT FOUNDATION WALL PENETRATION DETAIL — NTS



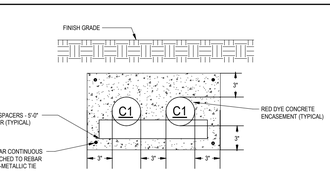

4 POLE MOUNTED LIGHT — NTS




**SPECIFICATIONS:**

1. CONCRETE: POLYMER CONCRETE HAS A DESIGN STRENGTH OF 20,000 P.S.I
2. STEEL REINFORCEMENT: WELDED WIREMESH (WWM).
3. COVER: ASTM C-857, 5 TON GROSS VEHICLE WEIGHT (GVW) AND 10 TON GROSS VEHICLE WEIGHT (GVW).

5 PRECAST SITE HANDHOLE TYPE "HH" — NTS

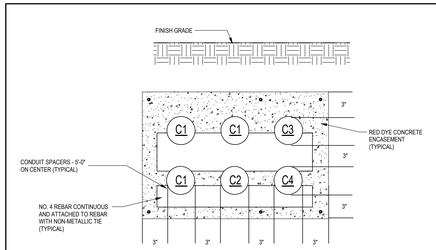



2-WAY DUCT BANK

1. 5" PVC CONDUIT FOR ELECTRIC
2. 5" PVC CONDUIT FOR SPARE

NOTES:
1. UTILIZE GRC LONG RADIUS SWEEPS WHEN TURNING ABOVEGRADE. CAP SPARE CONDUIT MINIMUM 1'-0" ABOVE GRADE.
2. PROVIDE 10' OF GRC CONDUIT FOR VERTICAL RISER AT POLE.
3. PROVIDE 5/8"x10' GROUND ROD AT POLE BASE.

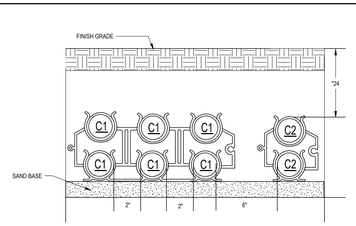
6 MV DUCTBANK SECTION "A-A" — NTS




6-WAY DUCT BANK

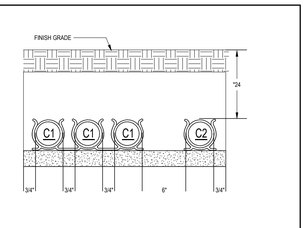
- C1 4" PVC CONDUIT FOR ELECTRIC
- C2 2" PVC CONDUIT FOR LOAD CENTER
- C3 1 1/4" PVC CONDUIT FOR CONTROL WIRING
- C4 1" PVC CONDUIT FOR START WIRES

7 GENERATOR DUCTBANK SECTION "B-B" — NTS



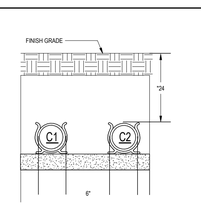

- C1 2" PVC CONDUIT FOR ELECTRIC - EACH CONDUIT WILL CARRY POWER FOR (6) EV CHARGERS (MAX)
- C2 2" PVC CONDUIT FOR DATA

8 EV CHARGING DIRECT BURIAL SECTION "C-C" — NTS



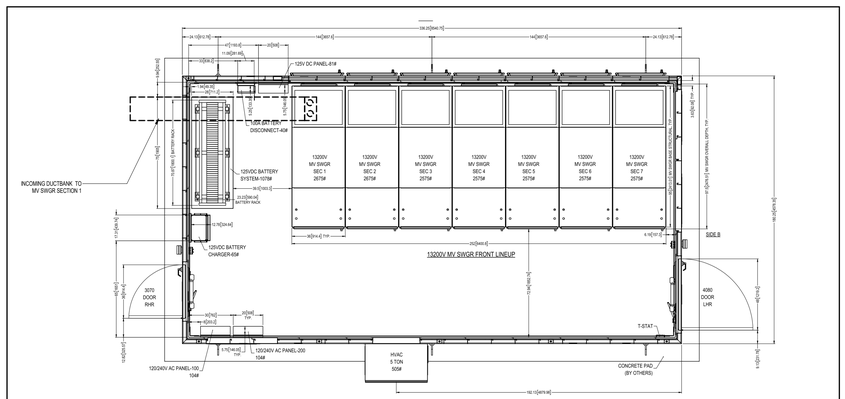

- C1 2" PVC CONDUIT FOR ELECTRIC - EACH CONDUIT WILL CARRY POWER FOR (6) EV CHARGERS (MAX)
- C2 2" PVC CONDUIT FOR DATA

9 EV CHARGING DIRECT BURIAL SECTION "D-D" — NTS




- C1 2" PVC CONDUIT FOR ELECTRIC - EACH CONDUIT WILL CARRY POWER FOR (6) EV CHARGERS (MAX)
- C2 2" PVC CONDUIT FOR DATA

10 EV CHARGING DIRECT BURIAL SECTION "E-E" — NTS




11 MV E HOUSE ENCLOSURE DETAIL — NTS

Project:

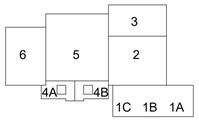
P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA, 01810

Fennick McCredie Architecture

PERMITTING SET
NOT FOR CONSTRUCTION
16 APRIL 2024

Key Plan:

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04-08-2024

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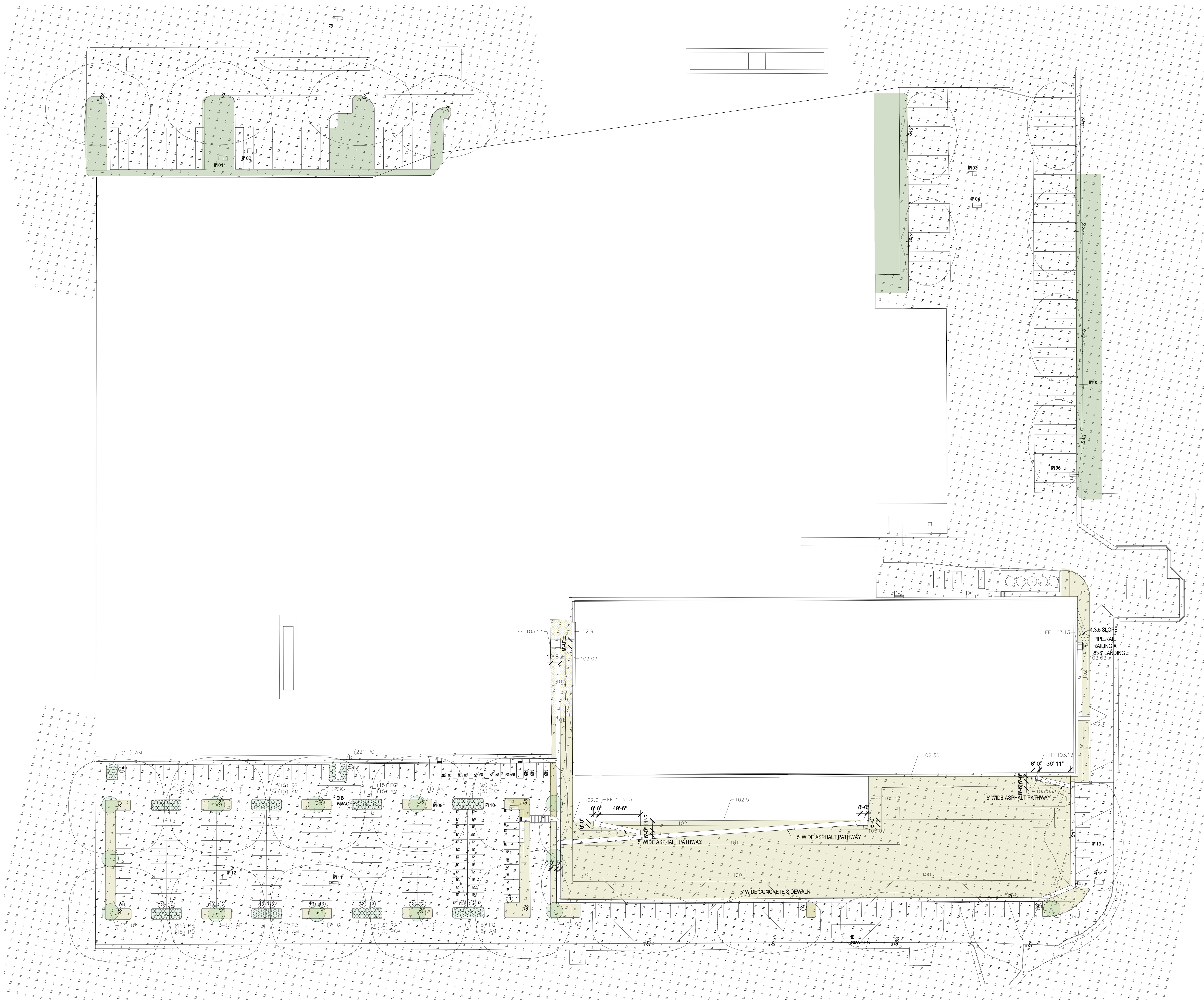
| Job No.: | PRINCIPIO |
| Drawn By: | Author |
| Checked By: | Checker |
| Date: | 04/16/24 |
| Scale: | |

Drawing Title:
ELECTRICAL SITE DETAILS

Drawing No.:
E0.02




JOB NAME: PRINCIPIO PARKING LOT EXPANSION
APEX LIGHTING SOLUTIONS
WORKPLANE/CALC PLANE: AT FINISH GRADE
MOUNTING HEIGHT: SEE LUMINAIRE SCHEDULE
APPS: LED
SALES: CM
SPECIFIER: SULLIVAN & MCLAUGHLIN

Luminaire Schedule

| Qty | Label | Arrangement | Lumens | Input Watts | LLF | BUG Rating | Description |
|---|---|---|---|---|---|---|---|
| 4 | EX | Single | 21006 | 147.87 | 0.900 | B3-U0-G3 | EXISTING LEDAREA1000051335-LG-AR-50/80/100/150W-5K-YY-BZ / MOUNTED TO 35FT POLE |
| 2 | S3 | Single | 19102 | 111.5 | 0.900 | B3-U0-G3 | GARDCO OPF-M-A10-730-T3M-AR1-UNV-BZ / MOUNTED TO SSS-CB-5-7-35-D1-DT5-BZ |
| 3 | S3S | Single | 15009 | 111.5 | 0.900 | B2-U0-G3 | GARDCO OPF-M-A10-730-T3M-AR1-UNV-BZ-OPF-M-HIS-2 / MOUNTED TO SSS-CB-5-7-35-D1-DT5-BZ |
| 6 | S4S | Single | 12348 | 111.5 | 0.900 | B1-U0-G3 | GARDCO OPF-M-A10-730-T4W-AR1-UNV-BZ-OPF-M-HIS-2 / MOUNTED TO SSS-CB-5-7-35-D1-DT5-BZ |
| 10 | S5 | Single | 19954 | 111.5 | 0.900 | B4-U0-G2 | GARDCO OPF-M-A10-730-T5M-AR1-UNV-BZ / MOUNTED TO SSS-CB-5-7-25-D1-DT5-BZ |

Calculation Summary

| Label | Grid Height | Avg | Max | Min | Avg/Min | Max/Min |
|---|---|---|---|---|---|---|
| PARKING & DRIVE LANES | 0 | 1.01 | 3.2 | 0.1 | 10.10 | 32.00 |
| SITE | 0 | 0.35 | 3.7 | 0.0 | N.A. | N.A. |
| PARKING LOT | | 1.20 | 2.7 | 0.5 | 2.40 | 5.40 |
| TRUCK PARKING | | 0.91 | 1.6 | 0.3 | 3.03 | 5.33 |

GENERAL DISCLAIMER:

Calculations have been performed according to IES standards and good practice Some differences between measured values and calculated results may occur due to tolerances in calculation methods, testing procedures, component performance, measurement techniques and field conditions such as voltage and temperature variations. Input data used to generate the attached calculations such as room dimensions, reflectances, furniture and architectural elements significantly affect the lighting calculations. If the real environment conditions do not match the input data, differences will occur between measured values and calculated values.

* LLF Determined Using Current Published Lamp Data

NOTE TO REVIEWER:

Total Light Loss Factor (LLF) applied at time of design is determined by applying the Lamp Lumen Depreciation (LLD) from current lamp manufacturer's catalog, a Luminaire Dirt Depreciation Factor (LDD) based on IES recommended values and a Ballast Factor (BF) from current ballast specification sheets. Application of an incorrect Light Loss Factor (LLF) will result in forecasts of performance that will not accurately depict actual results.

For proper comparison of photometric layouts, it is essential that you insist all designers use correct Light Loss Factors.

APEX LIGHTING SOLUTIONS

20-30 BEAVER ROAD, WETHERSFIELD, CT 06109
TELEPHONE 860.632.8766 / WWW.APEXLTG.COM

PROJECT TITLE:
PRINCIPIO
PARKING LOT EXPANSION

DRAWING TITLE:
SITE LIGHTING
PHOTOMETRIC CALCULATION
MIXED MOUNTING HEIGHTS

SCALE : 1/8"=1'-0"
DATE: 4/11/24
DRAWN BY: LED
SHEET:
SL-1D

FILE NAME: 2024-04-01 SL-1D PRINCIPIO PARKING LOT EXPANSION - LOWER MOUNTING HEIGHT - LED.dwg

NOTE: ELECTRICAL PLANS SHOWN FOR PERMITTING PURPOSES ONLY.

Project:

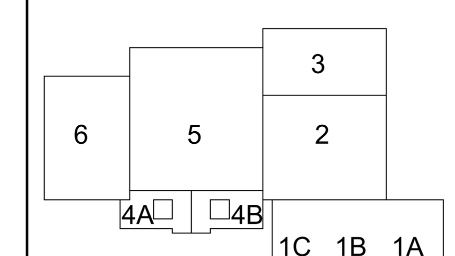
# P&G ANDOVER MANUFACTURERING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA, 01810

Fennick McCredie Architecture

PERMITTING SET
NOT FOR CONSTRUCTION
16 APRIL 2024

Key Plan:




Stamp:

COMMONWEALTH OF MASSACHUSETTS
PREDRAG CIRIC
ELECTRICAL
No. 47082
REGISTERED
PROFESSIONAL ENGINEER

04-11-2024

| No. | Date | Revision |
|---|---|---|
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|---|---|
| Job No.: | PRINCIPIO |
| Drawn By: | DLB |
| Checked By: | PC |
| Date: | 04/16/24 |
| Scale: | NTS |

Drawing Title:
PHOTOMETRIC PLAN

Drawing No.:
E-104

GARDCO by signify

Site and Area

OptiForm

OPF-M Medium

PRINCIPIO
PARKING LOT EXPANSION
TYPE S4S

Cat.No:
Type:
Lamps: Qty:
Notes:

**Gardco OptiForm site and area luminaires** are available in three sizes: small, medium and large. Featuring the latest in LED technology, OptiForm achieves up to 192 lumens per watt. Eleven optical distributions are available, suitable for a range of outdoor lighting applications. OptForm features a unique mounting system with a two-piece housing for hassle-free installation. Mounting options include a standard arm, mast arm, and wall mount bracket. Service Tag is a standard feature with every OptiForm luminaire, providing maintenance or upgrade assistance throughout the life of the product.

## Ordering guide

**example:** OPF-M-A08-840-T4M-AR1-240-BL50-L3-BZ

| Luminaire | Configuration (nom. lumens) | Color Temperature | Distribution | | Mounting | Voltage |
|---|---|---|---|---|---|---|
| OPF-M | A15 | 830 | T4W | | AR1[1,9] | UNV |
| OPF-M OptiForm Medium Area Light | A08 13,500 lumens<br>A09 17,000 lumens<br>A10 20,000 lumens<br>A11 23,000 lumens<br>A12 26,000 lumens<br>A13 30,000 lumens<br>A14 32,000 lumens<br>A15 34,000 lumens | 827 80CRI 2700K<br>830 80CRI 3000K<br>840 80CRI 4500K<br>727 70CRI 2700K<br>730 70CRI 3000K<br>740 70CRI 4000K<br>750 70CRI 5000K | AFR Autofront row<br>T2M Type 2 medium<br>T3M Type 3 medium<br>T4M Type 4 medium<br>T4W Type 4 wide<br>T5M Type 5 medium<br>T5N Type 5 narrow<br>T5W Type 5 wide | LCL LED corner optic left<br>LCL LED corner optic right<br>BLC Back light control<br>2RL Type 2 rotated left 90°<br>2RR Type 2 rotated right 270°<br>3RL Type 3 rotated left 90°<br>3RR Type 3 rotated right 270°<br>4RL Type 4 rotated left 90°<br>4RR Type 4 rotated right 270° | AR1[1,9] Arm mount (standard)<br>MAS[1] Mast arm<br>WAL Wall mount<br>MOS[2] Mounting ordered separately | 120 120V<br>208 208V<br>240 240V<br>277 277V<br>347 347V<br>480 480V<br>UNV 120-277V<br>HVU 347-480V |

| Dimming Controls | Sensing | Options (electrical, mechanical, etc) | Finish |
|---|---|---|---|
| **The following options include 0–10V Driver** | | None Surge protector 10kV/10kA standard | **Standard textured finish** |
| none 0-10V dimming driver | L3 PIR sensor, #3 lens (Required if BL50 is selected) | SP2 Surge protector 20kV/10kA (option) | BK Black |
| DLEA[1] Dimming leads externally accessible (controls by others) | | FS1[1] Single fuse (120, 277, or 347VAC) | WH White |
| FAWS[1,4] Field adjustable wattage selector | | FS2[1] Double fuse (208, 240, or 480V) | BZ Bronze |
| BL50[1,5,6] Bi-level with motion sensor | | PCR[1,10] Photocontrol button connected to 0-10V driver | DG Dark Gray |
| **The following options include SR/DALI Driver** | | TR5 8-pin twist lock receptacle connected to 0-10V driver | MG Medium Gray |
| SRDR[1,4] SR driver connected to Zhaga socket (D4i) | | TR7 7-pin twist lock receptacle connected to D4i compliant driver | **Customer specified** |
| OMSR[1,6] Outdoor multi-sensor | | TLP[11] 7-pin twist lock receptacle connected to D4i compliant driver w/ 3-pin Photocell | SC Special optional color or RAL, consult factory |
| **DynaDimmer: Automatic Profile Dimming** | | | SC Special color (must supply color chip, requires factory quote) |
| CS50[1] Security 50% dimming, 7 hours | | | |
| CM50[1] Median 50% dimming, 8 hours | | | |
| CS30[1] Security 30% dimming, 7 hours | | | |
| CM30[1] Median 30% dimming, 8 hours | | | |

1. Extended lead time applies. Consult factory for details.
2. Mounts to a square pole with knockout for 4-5" OD round pole.
3. Mounts to a 2-3/8" x 5" tenon.
4. Must be ordered with mounting accessory. Photocell option (TR7) must be selected with mounting accessory.
5. Not available with other dimming control options (manually exclusive).
6. Not available with motion sensor (physical restriction).
7. Must be specified with a motion sensor lens (L2 or L3).
8. Not available with PCB, TR5.
9. Must be specified with a motion sensor LW, LB, HW, HB.
10. Not available in 347, 480, or HVU.
11. Must specify input voltage.
12. Not available with TR7, TLP.
13. OPF-RMB accessory recommended for retrofit applications



# OPF-M OptiForm medium

## Site & area luminaire

### Shielding Accessories (order separately)

| | |
|---|---|
| OPF-M-HSS-2 | Internal house side shield, Type 2 & 3, qty 2 |
| OPF-M-HSS-T4-2 | Internal house side shield, Type 4 only, qty 2 |

### Luminaire Accessories (order separately)

**Pole Mount Fusing**

| | |
|---|---|
| FP1[1] | Pole mount single fuse (120V, 277V, or 347V) |
| FP2[1] | Pole mount double fuse (208V, 240V, or 480V) |
| FP3[1] | Pole mount double fuse canadian double pull (208V, 240V, or 480V) |

**Photocell Accessories**

| | |
|---|---|
| P400S | Shorting cap |

### Mountings (boxed and shipped separately)

Must choose MOS mounting ordered separately for mounting option on luminare. (F) Must specify finish

**Standard Arm**

| | |
|---|---|
| OPF-AR1-(F)[1,9] | Standard arm mount |
| OPF-AR1-TR7-(F)[1,9] | Standard arm mount with 7-pin (TR7) receptacle |

**Wall Mount**

| | |
|---|---|
| OPF-WAL-(F) | Wall mount bracket |
| OPF-WAL-TR7-(F) | Wall mount with 7-pin (TR7) receptacle |

**Mast Arm**

| | |
|---|---|
| OPF-MAR-(F)[1] | Mast arm mount |
| OPF-MAR-TR7-(F)[1] | Mast arm mount with 7-pin (TR7) receptacle |

### Retrofit Mounting

| | |
|---|---|
| OPF-RMB | Retrofit Mounting Bolster Plate for attaching OptiForm to existing poles. Recommended for retrofit applications. |

### Pole Top Fitters

(F) Must specify finish

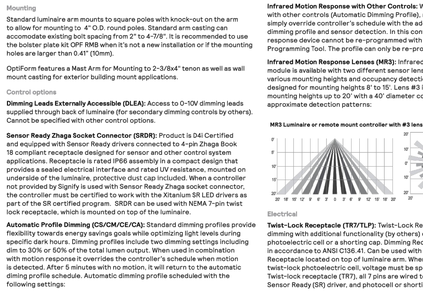
**PTF2 - Pole top fitter fits 2 3/8 - 2 1/2" OD x 4" depth tenon**

| | |
|---|---|
| PTF2-1-90-(F) | 1 luminaire at 90° |
| PTF2-2-90-(F) | 2 luminaires at 90° |
| PTF2-3-90-(F) | 3 luminaires at 90° |
| PTF2-4-90-(F) | 4 luminaires at 90° |
| PTF2-2-180-(F) | 2 luminaires at 180° |
| PTF2-3-120-(F) | 3 luminaires at 120° |

**PTF3 - Pole top fitter fits 3-3 1/2" OD x 6" depth tenon**

| | |
|---|---|
| PTF3-1-90-(F) | 1 luminaire at 90° |
| PTF3-2-90-(F) | 2 luminaires at 90° |
| PTF3-3-90-(F) | 3 luminaires at 90° |
| PTF3-4-90-(F) | 4 luminaires at 90° |
| PTF3-2-180-(F) | 2 luminaires at 180° |
| PTF3-3-120-(F) | 3 luminaires at 120° |

### Optical Distributions






# OPF-M OptiForm medium

## Site & area luminaire

### OPF-M Lumen values

**3000K, 70CRI**

| Ordering Code | Color Temp | Average System Wattage (W) | Type 2M Lumen Output | Type 2M BUG Rating | Type 2M Efficacy (LPW) | Type 3M Lumen Output | Type 3M BUG Rating | Type 3M Efficacy (LPW) | Type 4M Lumen Output | Type 4M BUG Rating | Type 4M Efficacy (LPW) | Type 5M Lumen Output | Type 5M BUG Rating | Type 5M Efficacy (LPW) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OPF-M-A08-730-x | 3000 | 74 | 12994 | B3-U0-G3 | 175 | 12890 | B3-U0-G3 | 173 | 13064 | B2-U0-G2 | 176 | 13465 | B4-U0-G2 | 181 |
| OPF-M-A09-730-x | 3000 | 93 | 16158 | B3-U0-G3 | 174 | 16029 | B3-U0-G3 | 173 | 16245 | B2-U0-G3 | 175 | 16744 | B4-U0-G2 | 180 |
| OPF-M-A10-730-x | 3000 | 112 | 19256 | B3-U0-G3 | 173 | 19102 | B3-U0-G3 | 171 | 19359 | B2-U0-G3 | 174 | 19954 | B4-U0-G2 | 179 |
| OPF-M-A11-730-x | 3000 | 131 | 22348 | B3-U0-G3 | 171 | 22169 | B3-U0-G3 | 169 | 22468 | B3-U0-G3 | 172 | 23158 | B4-U0-G2 | 177 |
| OPF-M-A12-730-x | 3000 | 150 | 25049 | B3-U0-G3 | 167 | 24849 | B3-U0-G3 | 165 | 25183 | B3-U0-G4 | 168 | 25957 | B5-U0-G3 | 173 |
| OPF-M-A13-730-x | 3000 | 176 | 28766 | B3-U0-G3 | 163 | 28536 | B3-U0-G4 | 162 | 28920 | B3-U0-G4 | 164 | 29809 | B5-U0-G3 | 169 |
| OPF-M-A14-730-x | 3000 | 190 | 30449 | B4-U0-G4 | 161 | 30206 | B3-U0-G4 | 159 | 30612 | B3-U0-G4 | 161 | 31553 | B5-U0-G3 | 166 |
| OPF-M-A15-730-x | 3000 | 202 | 31896 | B4-U0-G4 | 158 | 31641 | B3-U0-G4 | 157 | 32067 | B3-U0-G4 | 159 | 33052 | B5-U0-G3 | 164 |

**3000K, 70CRI (cont'd)**

| Ordering Code | Color Temp | Average System Wattage (W) | AFR Lumen Output | AFR BUG Rating | AFR Efficacy (LPW) | Type 4W Lumen Output | Type 4W BUG Rating | Type 4W Efficacy (LPW) | Type 5N Lumen Output | Type 5N BUG Rating | Type 5N Efficacy (LPW) | Type 5W Lumen Output | Type 5W BUG Rating | Type 5W Efficacy (LPW) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OPF-M-A08-730-x | 3000 | 74 | 13458 | B3-U0-G3 | 181 | 12438 | B2-U0-G3 | 167 | 13370 | B4-U0-G2 | 180 | 12873 | B4-U0-G2 | 173 |
| OPF-M-A09-730-x | 3000 | 93 | 16736 | B3-U0-G3 | 180 | 15467 | B2-U0-G3 | 167 | 16626 | B4-U0-G2 | 179 | 16008 | B4-U0-G3 | 172 |
| OPF-M-A10-730-x | 3000 | 112 | 19944 | B3-U0-G3 | 179 | 18432 | B3-U0-G3 | 165 | 19813 | B4-U0-G2 | 178 | 19077 | B4-U0-G3 | 171 |
| OPF-M-A11-730-x | 3000 | 131 | 23146 | B3-U0-G3 | 177 | 21392 | B3-U0-G4 | 163 | 22995 | B4-U0-G2 | 176 | 22140 | B5-U0-G3 | 169 |
| OPF-M-A12-730-x | 3000 | 150 | 25944 | B3-U0-G3 | 173 | 23978 | B3-U0-G4 | 160 | 25775 | B4-U0-G2 | 172 | 24816 | B5-U0-G3 | 165 |
| OPF-M-A13-730-x | 3000 | 176 | 29794 | B4-U0-G4 | 169 | 27536 | B3-U0-G4 | 156 | 29599 | B5-U0-G3 | 168 | 28499 | B5-U0-G3 | 162 |
| OPF-M-A14-730-x | 3000 | 190 | 31537 | B4-U0-G4 | 166 | 29147 | B3-U0-G4 | 154 | 31331 | B5-U0-G3 | 165 | 30166 | B5-U0-G4 | 159 |
| OPF-M-A15-730-x | 3000 | 202 | 33035 | B4-U0-G4 | 164 | 30532 | B3-U0-G4 | 151 | 32820 | B5-U0-G3 | 163 | 31600 | B5-U0-G4 | 157 |

**4000K, 70CRI**

| Ordering Code | Color Temp | Average System Wattage (W) | Type 2M Lumen Output | Type 2M BUG Rating | Type 2M Efficacy (LPW) | Type 3M Lumen Output | Type 3M BUG Rating | Type 3M Efficacy (LPW) | Type 4M Lumen Output | Type 4M BUG Rating | Type 4M Efficacy (LPW) | Type 5M Lumen Output | Type 5M BUG Rating | Type 5M Efficacy (LPW) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OPF-M-A08-740-x | 4000 | 74 | 13738 | B3-U0-G3 | 185 | 13628 | B3-U0-G3 | 183 | 13811 | B2-U0-G2 | 186 | 14236 | B4-U0-G2 | 191 |
| OPF-M-A09-740-x | 4000 | 93 | 17083 | B3-U0-G3 | 184 | 16947 | B3-U0-G3 | 183 | 17175 | B2-U0-G3 | 185 | 17703 | B4-U0-G2 | 191 |
| OPF-M-A10-740-x | 4000 | 112 | 20357 | B3-U0-G3 | 183 | 20195 | B3-U0-G3 | 181 | 20467 | B3-U0-G3 | 184 | 21096 | B4-U0-G2 | 189 |
| OPF-M-A11-740-x | 4000 | 131 | 23626 | B3-U0-G3 | 180 | 23438 | B3-U0-G3 | 179 | 23753 | B3-U0-G3 | 181 | 24483 | B4-U0-G2 | 187 |
| OPF-M-A12-740-x | 4000 | 150 | 26482 | B3-U0-G3 | 176 | 26271 | B3-U0-G3 | 175 | 26625 | B3-U0-G4 | 177 | 27443 | B5-U0-G3 | 183 |
| OPF-M-A13-740-x | 4000 | 176 | 30412 | B3-U0-G3 | 173 | 30169 | B3-U0-G4 | 171 | 30575 | B3-U0-G4 | 173 | 31515 | B5-U0-G3 | 179 |
| OPF-M-A14-740-x | 4000 | 190 | 32191 | B4-U0-G4 | 170 | 31934 | B3-U0-G4 | 168 | 32364 | B3-U0-G4 | 171 | 33359 | B5-U0-G3 | 176 |
| OPF-M-A15-740-x | 4000 | 202 | 33721 | B4-U0-G4 | 167 | 33452 | B4-U0-G4 | 166 | 33902 | B3-U0-G4 | 168 | 34944 | B5-U0-G3 | 173 |

**4000K, 70CRI (cont'd)**

| Ordering Code | Color Temp | Average System Wattage (W) | AFR Lumen Output | AFR BUG Rating | AFR Efficacy (LPW) | Type 4W Lumen Output | Type 4W BUG Rating | Type 4W Efficacy (LPW) | Type 5N Lumen Output | Type 5N BUG Rating | Type 5N Efficacy (LPW) | Type 5W Lumen Output | Type 5W BUG Rating | Type 5W Efficacy (LPW) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OPF-M-A08-740-x | 4000 | 74 | 14228 | B3-U0-G3 | 191 | 13150 | B2-U0-G3 | 177 | 14136 | B4-U0-G2 | 190 | 13610 | B4-U0-G2 | 183 |
| OPF-M-A09-740-x | 4000 | 93 | 17693 | B3-U0-G3 | 191 | 16352 | B2-U0-G3 | 176 | 17578 | B4-U0-G2 | 189 | 16924 | B4-U0-G3 | 182 |
| OPF-M-A10-740-x | 4000 | 112 | 21085 | B3-U0-G3 | 189 | 19487 | B3-U0-G3 | 175 | 20947 | B4-U0-G2 | 188 | 20169 | B5-U0-G3 | 181 |
| OPF-M-A11-740-x | 4000 | 131 | 24471 | B3-U0-G3 | 187 | 22616 | B3-U0-G3 | 173 | 24311 | B4-U0-G2 | 186 | 23407 | B5-U0-G3 | 179 |
| OPF-M-A12-740-x | 4000 | 150 | 27429 | B3-U0-G3 | 183 | 25350 | B3-U0-G4 | 169 | 27250 | B4-U0-G2 | 181 | 26237 | B5-U0-G3 | 175 |
| OPF-M-A13-740-x | 4000 | 176 | 31499 | B4-U0-G4 | 179 | 29111 | B3-U0-G4 | 165 | 31293 | B5-U0-G3 | 177 | 30130 | B5-U0-G3 | 171 |
| OPF-M-A14-740-x | 4000 | 190 | 33342 | B4-U0-G4 | 176 | 30815 | B3-U0-G4 | 163 | 33124 | B5-U0-G3 | 175 | 31892 | B5-U0-G4 | 168 |
| OPF-M-A15-740-x | 4000 | 202 | 34926 | B4-U0-G4 | 173 | 32279 | B3-U0-G5 | 160 | 34698 | B5-U0-G3 | 172 | 33408 | B5-U0-G4 | 166 |



# OPF-M OptiForm medium

## Site & area luminaire

### OPF-M Lumen values (cont'd)

**5000K, 70CRI**

| Ordering Code | Color Temp | Average System Wattage (W) | Type 2M Lumen Output | Type 2M BUG Rating | Type 2M Efficacy (LPW) | Type 3M Lumen Output | Type 3M BUG Rating | Type 3M Efficacy (LPW) | Type 4M Lumen Output | Type 4M BUG Rating | Type 4M Efficacy (LPW) | Type 5M Lumen Output | Type 5M BUG Rating | Type 5M Efficacy (LPW) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OPF-M-A08-750-x | 5000 | 74 | 13738 | B3-U0-G3 | 185 | 13628 | B3-U0-G3 | 183 | 13811 | B2-U0-G2 | 186 | 14236 | B4-U0-G2 | 191 |
| OPF-M-A09-750-x | 5000 | 93 | 17083 | B3-U0-G3 | 184 | 16947 | B3-U0-G3 | 183 | 17175 | B2-U0-G3 | 185 | 17703 | B4-U0-G2 | 191 |
| OPF-M-A10-750-x | 5000 | 112 | 20357 | B3-U0-G3 | 183 | 20195 | B3-U0-G3 | 181 | 20467 | B3-U0-G3 | 184 | 21096 | B4-U0-G2 | 189 |
| OPF-M-A11-750-x | 5000 | 131 | 23626 | B3-U0-G3 | 180 | 23438 | B3-U0-G3 | 179 | 23753 | B3-U0-G3 | 181 | 24483 | B4-U0-G2 | 187 |
| OPF-M-A12-750-x | 5000 | 150 | 26482 | B3-U0-G3 | 176 | 26271 | B3-U0-G3 | 175 | 26625 | B3-U0-G4 | 177 | 27443 | B5-U0-G3 | 183 |
| OPF-M-A13-750-x | 5000 | 176 | 30412 | B3-U0-G3 | 173 | 30169 | B3-U0-G4 | 171 | 30575 | B3-U0-G4 | 173 | 31515 | B5-U0-G3 | 179 |
| OPF-M-A14-750-x | 5000 | 190 | 32191 | B4-U0-G4 | 170 | 31934 | B3-U0-G4 | 168 | 32364 | B3-U0-G4 | 171 | 33359 | B5-U0-G3 | 176 |
| OPF-M-A15-750-x | 5000 | 202 | 33721 | B4-U0-G4 | 167 | 33452 | B4-U0-G4 | 166 | 33902 | B3-U0-G4 | 168 | 34944 | B5-U0-G3 | 173 |

**5000K, 70CRI (cont'd)**

| Ordering Code | Color Temp | Average System Wattage (W) | AFR Lumen Output | AFR BUG Rating | AFR Efficacy (LPW) | Type 4W Lumen Output | Type 4W BUG Rating | Type 4W Efficacy (LPW) | Type 5N Lumen Output | Type 5N BUG Rating | Type 5N Efficacy (LPW) | Type 5W Lumen Output | Type 5W BUG Rating | Type 5W Efficacy (LPW) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OPF-M-A08-750-x | 5000 | 74 | 14228 | B3-U0-G3 | 191 | 13150 | B2-U0-G3 | 177 | 14136 | B4-U0-G2 | 190 | 13610 | B4-U0-G2 | 183 |
| OPF-M-A09-750-x | 5000 | 93 | 17693 | B3-U0-G3 | 191 | 16352 | B2-U0-G3 | 176 | 17578 | B4-U0-G2 | 189 | 16924 | B4-U0-G3 | 182 |
| OPF-M-A10-750-x | 5000 | 112 | 21085 | B3-U0-G3 | 189 | 19487 | B3-U0-G3 | 175 | 20947 | B4-U0-G2 | 188 | 20169 | B5-U0-G3 | 181 |
| OPF-M-A11-750-x | 5000 | 131 | 24471 | B3-U0-G3 | 187 | 22616 | B3-U0-G3 | 173 | 24311 | B4-U0-G2 | 186 | 23407 | B5-U0-G3 | 179 |
| OPF-M-A12-750-x | 5000 | 150 | 27429 | B3-U0-G3 | 183 | 25350 | B3-U0-G4 | 169 | 27250 | B4-U0-G2 | 181 | 26237 | B5-U0-G3 | 175 |
| OPF-M-A13-750-x | 5000 | 176 | 31499 | B4-U0-G4 | 179 | 29111 | B3-U0-G4 | 165 | 31293 | B5-U0-G3 | 177 | 30130 | B5-U0-G3 | 171 |
| OPF-M-A14-750-x | 5000 | 190 | 33342 | B4-U0-G4 | 176 | 30815 | B3-U0-G4 | 163 | 33124 | B5-U0-G3 | 175 | 31892 | B5-U0-G4 | 168 |
| OPF-M-A15-750-x | 5000 | 202 | 34926 | B4-U0-G4 | 173 | 32279 | B3-U0-G5 | 160 | 34698 | B5-U0-G3 | 172 | 33408 | B5-U0-G4 | 166 |

### Predicted Lumen Depreciation Data

Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions. L70 is the predicted time when LED performance depreciates to 70% of initial lumen output. Calculated per IESNA TM21-11. Published L70 hours limited to 6 times actual LED test hours

| Ambient Temp °C | Calculated L70 Hours | L70 per TM-21 | Lumen Maintenance % at 60,000 hrs |
|---|---|---|---|
| 25°C | >100,000 hours | >102,000 hours | 96% |

### Dimensions

**Standard Drill Pattern**

**Drill Template #5**




**Standard Arm Mounting Hole Pattern**

# OPF-M OptiForm medium

## Site & area luminaire

### Dimensions

**OptiForm Standard Arm**

**Weight:** 13 lb (5.9 kg)
**EPA:** 0.15 ft² (0.014 m²)




**OptiForm Mast Arm**

**Weight:** 14.6 lb (6.6 kg)




**OptiForm Wall Mount**

**Weight:** 13.5lb (6.1 kg)






# OPF-M OptiForm medium

## Site & area luminaire

### Specifications

**Housing**

Housing and door constructed of low copper die cast Aluminum alloy (A360) with detachable arms for quick mounting. Heatsink is integral to the housing providing passive cooling of LEDs to maintain long LED life. Luminaire housing rated to IP65, LED Modules rated IP66, tested in accordance to Section 9 of IEC 60598-1

**Vibration resistance**

OptiForm is tested and rated to standards set forth in ANSI C136.31-2018 Level 2 for Bridge and Overpass applications.

**Light engine**

Light engine comprises of a module of 40-LED aluminum metal clad board fully sealed with optics: Medium = 2 Modules with 80 LEDs, Large = 4 modules with 160 LEDs. Module is RoHS compliant. Color temperature as per ANSI/NEMA bin 2700 Kelvin nominal (2725 ±145K), 3000 Kelvin nominal (3045K +/- 175K) or 4000 Kelvin nominal (3985K +/- 275K), CRI 70 Min. 75 Typical. Other CCT/CRI also available, consult factory. LED light engine is rated IP66 in accordance to Section 9 of IEC 60598-1.

**Energy saving benefits**

System efficacy up to 191 lms/W with significant energy savings over Pulse Start Metal Halide luminaires. Optional control options provide added energy savings during unoccupied periods.

**Optical systems**

Type 2M, 3M, 4M, 4W, 5, 5M, 5W, AFR, LCL, LCR, and BLC distributions available. Internal reflaid option mounts to LED optics and is available with Type 2M, 3M, and 4M distributions, including a dedicated BLC and L/R Corner optics to provide the best backlight control possible for stringent requirements around property lines. Types 2M, 3M and 4M when specified and used as rotated, are factory set only. Performance tested per LM-79 and TM-15 (IESNA) certifying its photometric performance. Luminaire designed with 0% uplight (UO per IESNA TM-15).

**Mounting**

Standard luminaire arm mounts to square poles with knock-out on the arm to allow for mounting to 4" O.D. round poles. Standard arm casting can accomodate existing bolt spacing from 2" to 4-7/8". It is recommended to use the bolster plate kit OPF RMB when it's not a new installation or if the mounting holes are larger than 0.41" (10mm).

OptiForm features a Mast Arm for Mounting to 2-3/8x4" tenon as well as wall mount casting for exterior building mount applications.

**Control options**

**Dimming Leads Externally Accessible (DLEA):** Access to 0-10V dimming leads supplied through back of luminaire (for secondary dimming controls by others). Cannot be specified with other control options.

**Sensor Ready Zhaga Socket Connector (SRDR):** Product is D4i Certified and equipped with Sensor Ready drivers connected to 4-pin Zhaga Book 18 compliant receptacle designed for sensor and other control system applications. Receptacle is rated IP66 assembly in a compact design that provides a sealed electrical interface and rated UV resistance, mounted on underside of the luminaire, protective dust cap included. When a controller not provided by Signify is used with Sensor Ready Zhaga socket connector, the controller must be certified to work with the Xitanium SR LED drivers as part of the SR certified program. SRDR can be used with NEMA 7-pin twist lock receptacle, which is mounted on top of the luminaire.

**Automatic Profile Dimming (CS/CM/CE/CA):** Standard dimming profiles provide flexibility towards energy savings goals while optimizing light levels during specific dark hours. Dimming profiles include two dimming settings including dim to 30% or 50% of the total lumen output. When used in combination with motion response it overrides the controller's schedule when motion is detected. After 5 minutes with no motion, it will return to the automatic dimming profile schedule. Automatic dimming profile scheduled with the following settings:



# OPF-M OptiForm medium

## Site & area luminaire

- **CS50/CS30:** Security for 7 hours night duration (Ex., 11 PM – 6 AM)
- **CM50/CM30:** Median for 8 hours night duration (Ex., 10 PM – 6 AM)

All above profiles are calculated from mid point of the night. Dimming is set for 6 hours after the mid point and 1 or 2 hours before depending of the duration of dimming. Cannot be used with other dimming control options

**Field Adjustable Wattage Selector (FAWS):** Luminaire equipped with the ability to manually adjust the wattage in the field to reduce total luminaire lumen output and light levels. Comes pre-set to the highest position lumen output selected. Use chart below to estimate reduction in lumen output desired. Cannot be used with other control options or motion response.

| FAWS Position | Percent of Typical Lumen Output | FAWS Position | Percent of Typical Lumen Output |
|---|---|---|---|
| 1 | 25% | 6 | 80% |
| 2 | 50% | 7 | 85% |
| 3 | 55% | 8 | 90% |
| 4 | 65% | 9 | 95% |
| 5 | 75% | 10 | 100% |

**Note:** Typical value accuracy +/- 5%

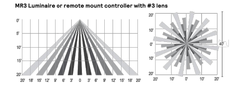
**Motion response options**

**Bi-Level Infrared Motion Response (BL50):** Motion Response module is mounted integral to luminaire factory pre-programmed to 50% dimming when not ordered with other control options. BL50 is set/operates in the following fashion: The motion sensor is set to a constant 50%. When motion is detected by the PIR sensor, the luminaire returns to full power/light output. Dimming on low is factory set to 50% with 5 minutes default in "full power" prior to dimming back to low. When no motion is detected for 5 minutes, the motion response system reduces the wattage by 50%, to 50% of the normal constant wattage reducing the light level. Other dimming settings can be provided if different dimming levels are required (contact Technical Support for details).

**Infrared Motion Response with Other Controls:** When used in combination with other controls (Automatic Dimming Profile), motion response device will simply override controller's schedule with the added benefits of a combined dimming profile and sensor detection. In this configuration, the motion response device cannot be re-programmed with FSIR-100 Wireless Remote Programming Tool. The profile can only be re-programmed via the controller.

**Infrared Motion Response Lenses (MR3):** Infrared Motion Response Integral module is available with two different sensor lens types to accommodate various mounting heights and occupancy detection ranges. Lens #2 is designed for mounting heights 8' to 15'. Lens #3 is designed for higher mounting heights up to 20' with a 40' diameter coverage area. See charts for approximate detection patterns:

**MR3 Luminaire or remote mount controller with #3 lens**




**Electrical**

**Twist-Lock Receptacle (TR7/TLP):** Twist-Lock Receptacle with 7 pins enabling dimming with additional functionality (by others) can be used with a twist-lock photoelectric cell or a shorting cap. Dimming Receptacle Type D-24 (7-pin) in accordance to ANSI C136.41. Can be used with third-party control system. Receptacle located on top of luminaire arm. When specifying receptacle with twist-lock photoelectric cell, voltage must be specified. When ordering 7-pin Twist-lock receptacle (TR7), all 7 pins are wired to respective pins with the Sensor Ready (SR) driver, and photocell or shorting cap is not included. When ordering a twist-lock receptacle with a photocell (TLP), the receptacle used is a 7-pin receptacle, with pins 6 and 7 connected to SR DALI driver. 0-10V dimming leads (pins 4 and 5) are connected if not ordered with any other dimming option.

**Twist-Lock Receptacle (TR5/TR7):** Twist Lock Receptacle with 5 pins enabling dimming or with 7 pins with additional functionality (by others) can be used with a twistlock photoelectric cell or a shorting cap. Dimming Receptacle Type B (5-pin) and Type D-24 (7-pin) in accordance to ANSI C136.41. Can be used with third-party control system. Receptacle located on top of luminaire housing. When specifying receptacle with twistlock photoelectric cell, voltage must be specified. When ordering 7-pin Twist-lock receptacle (TR7), all 7 pins are wired to respective pins with the Sensor Ready (SR) driver, and photocell or shorting cap is not included. When ordering a twist-lock receptacle with a photocell (TLP), the receptacle used is a 7-pin receptacle, with pins 6 and 7 connected to SR DALI driver. 0-10V dimming leads (pins 4 and 5) are connected if not ordered with any other dimming option.

**Driver:** Driver efficiency (>90% standard). 120-480V available (restrictions apply). Open/short circuit protection. All drivers are a 0-10V dimming to 10% power standard, except when using Sensor Ready (SR) drivers, which uses DALI protocol (options CS50/CM50/CS30/CM30, SRDR, and TR7). Drivers are RoHS and FCC Title 47 CFR Part 15 compliant.

**Button Photocontrol (PCB):** Button style design for internal luminaires mounting applications. The photocontrol is constructed of a high impact UV stabilized polycarbonate housing. Rated voltage of 120V or 208-277V with a load rating of 1000 VA. The photocell will turn on with 1-4Fc of ambient light.

**Surge protection (SP1/SP2):** Surge protection device tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with DOE MSSLC Model Specification for LED Roadway Luminaires Appendix D Electrical Immunity High test level 10kV/10kA. 20kV / 10kA surge protection device that provides extra protection beyond the SP1 10kV/10kA level.



# OPF-M OptiForm medium

## Site & area luminaire

### Specifications (cont'd)

ordering a twist-lock receptacle with a photocell (TLP), the receptacle used is a 7-pin receptacle, with pins 6 and 7 connected to SR DALI driver. 0-10V dimming leads (pins 4 and 5) are connected if not ordered with any other dimming option.

**Twist-Lock Receptacle (TR5/TR7):** Twist Lock Receptacle with 5 pins enabling dimming or with 7 pins with additional functionality (by others) can be used with a twistlock photoelectric cell or a shorting cap. Dimming Receptacle Type B (5-pin) and Type D-24 (7-pin) in accordance to ANSI C136.41. Can be used with third-party control system. Receptacle located on top of luminaire housing. When specifying receptacle with twistlock photoelectric cell, voltage must be specified. When ordering 7-pin Twist-lock receptacle (TR7), all 7 pins are wired to respective pins with the Sensor Ready (SR) driver, and photocell or shorting cap is not included. When ordering a twist-lock receptacle with a photocell (TLP), the receptacle used is a 7-pin receptacle, with pins 6 and 7 connected to SR DALI driver. 0-10V dimming leads (pins 4 and 5) are connected if not ordered with any other dimming option.

**Driver:** Driver efficiency (>90% standard). 120-480V available (restrictions apply). Open/short circuit protection. All drivers are a 0-10V dimming to 10% power standard, except when using Sensor Ready (SR) drivers, which uses DALI protocol (options CS50/CM50/CS30/CM30, SRDR, and TR7). Drivers are RoHS and FCC Title 47 CFR Part 15 compliant.

**Button Photocontrol (PCB):** Button style design for internal luminaires mounting applications. The photocontrol is constructed of a high impact UV stabilized polycarbonate housing. Rated voltage of 120V or 208-277V with a load rating of 1000 VA. The photocell will turn on with 1-4Fc of ambient light.

**Surge protection (SP1/SP2):** Surge protection device tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground,

**Listings**

UL/cUL wet location listed to the UL 1598 standard, suitable for use in ambient temperatures from -40° to 40°C (-40° to 104°F). All Optiform configurations are qualified under Design Lights Consortium Premium classification. Consult DLC Qualified Products list to confirm your specific luminaire selection is approved. CCTs 3000K and warmer are Dark Sky Compliant.

**Finish**

Each standard color luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) textured polyester powdercoat finish. Standard colors include bronze (BZ), black (BK), white (WH), dark gray (DGY), and medium gray (MGY). Consult Factory for specs on optional, custom colors, and marine grade paint.

**Service Tag**

Each individual luminaire is uniquely identifiable, thanks to the Service tag application. With a simple scan of a QR code, placed on the inside of the mast door, you gain instant access to the luminaire configuration, making installation and maintenance operations faster and easier, no matter what stage of the luminaire's lifetime. Just download the APP and register your product right away. For more details visit: signify.com

**Warranty**

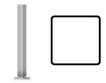
OptiForm luminaires feature a 

GARDCO by Signify

Poles & Brackets

Site and Area Poles

Straight Square Steel



PRINCIPIO
PARKING LOT EXPANSION
TYPE POLE

Type:

Lamps: Qty:

Notes:

The **Gardco SSS Straight Square Steel** pole consists of a one-piece high tensile carbon steel tube welded and secured to the carbon steel base plate providing excellent strength and integrity. The poles are finished with an electrostatically applied, thermally cured polyester powdercoat. All poles include base cover, hand hole, ground lug and top cap. Anchor bolts are ordered as a separate accessory.

**Ordering Guide** **example:** SSS-CB-4-11-12-D1-DT1-BK-FES

| Family | Base | Pole Shaft Size (in.) | Pole Gauge/ Wall Thickness | Height (ft.)[1] | Drilling/Tenon Configuration[2] | Drilling Template[3] | Finish | Options[4] |
|---|---|---|---|---|---|---|---|---|
| SSS | CB | 6 | 7 | 35 | D1 | DTX | XX | |

**Family:** SSS

**Base:** CB Carbon Steel Base w/ Base Cover

**Pole Shaft Size (in.):** 4, 5, 6

**Pole Gauge/ Wall Thickness:**
- 4: 11 ga./ 0.120"
- 5: 11 ga./ 0.120", 7 ga./ 0.180"
- 6: 7 ga./ 0.180"

**Height (ft.):**
- 4: 10, 12, 14, 15, 16, 18, 20, 25, 30
- 5: 20, 25, 30
- 6: 30, 35, 40

**Drilling/Tenon Configuration[2]**

Drilling

| | |
|---|---|
| D1 | 1 Way |
| D1@180 | 1 Way @ 180 |
| D2 | 2 Way @ 180 |
| D2@90 | 2 Way @ 90 |
| D3 | 3 Way @ 90 |
| D4 | 4 Way @ 90 |

Tenons

| | |
|---|---|
| T2D4L | 2-3/8" OD x 4" length |
| T2D6L | 2-3/8" OD x 6" length |
| T3D5L | 3" OD x 5" length |
| T4D6L | 4" OD x 6" length |
| No Drilling/No Tenon | |
| P | Plain Top |

**Drilling Template[3]**

| | |
|---|---|
| DT1 | Drill Template 1 |
| DT2 | Drill Template 2 |
| DT3 | Drill Template 3 |
| DT4 | Drill Template 4 |
| DT5 | Drill Template 5 |
| DT6 | Drill Template 6 |
| DTX | Custom Template |

See drill template chart for details.

**Finish**

| | |
|---|---|
| BK | Black |
| BZ | Bronze |
| WH | White |
| DG | Dark Grey |
| MG | Medium Grey |
| GY3 | Light Grey, Smooth |
| SSDGY | SolarForm Dark Grey (RAL 7011) |
| GV | Galvanized (No Paint) |
| FP/GV | Finished Textured Paint-over Galvanized (Specify, ex: MG/GV) |
| OC | Optional Color Paint (ex: RAL7024) |
| SC | Special/ Custom Color (Specify, must supply color chip) |

**Options[4]**

| | |
|---|---|
| FES | Festoon Outlet |
| VDA | Vibration Dampener |
| AHH | Additional Hand Hole |
| DR | Duplex Receptacle |
| VPA | Vandalproof Screws |
| GFI | DR with GFI (120V only) |
| BAC[5] | Buy American Compliant |
| CL1/2 | Coupling 1/2" |
| CL3/4 | Coupling 3/4" |
| CL1 | Coupling 1" |
| CL1-1/4 | Coupling 1-1/4" |
| CL1-1/2 | Coupling 1-1/2" |
| NL1/2 | Nipple 1/2" |
| NL3/4 | Nipple 3/4" |
| NL1 | Nipple 1" |
| NL1-1/4 | Nipple 1-1/4" |
| NL1-1/2 | Nipple 1-1/2" |

For FES, AHH, DR, GFI, CL1,* and NL1* options, indicate height in inches above base and orientation to hand hole (ex: D1@180). See page 2 and 3 for details.

1. See Drilling Configurations on Page 3.
2. See Luminaire Drilling Templates on Page 3
3. Not all options available with all configurations. Consult factory for more details
4. Options listed with white text will be shipped with the Legacy Design Hardware.
5. Pole heights can be cut to length. Specify as a whole number in ft. (ex. 11, 13) or to the inch with the following nomenclature (ex. SSS-CB-4-11-13FT 6IN-01..)
6. Failure to properly select the "BAC" suffix could result in you receiving product that is not BAA compliant product with no recourse for an RMA or refund. This BAC designation hereunder does not address (1) the applicability of, or availability of a waiver under, the Trade Agreements Act, or (2) the "Buy America" domestic content requirements imposed on states, localities, and other non-federal entities as a condition of receiving funds administered by the Department of Transportation or other federal agencies.
7. Consult Signify to confirm whether specific accessories are BAA-compliant.

**Accessories[7]**

| Service | Pole Size | 12NC | Description (Diameter x Length x Hook) |
|---|---|---|---|
| **Anchor Bolts + Templates** | | | |
| For shipment with the pole (order 1 per pole) | 4" Poles | 912401597397 | AB 3/4x24x3-G DEC w/ 8.5 BC ABT |
| | 5" Poles | 912401613107 | AB 1x33x3-G DEC w/ 11 BC ABT |
| | 6" Poles | 912401597401 | AB 1x33x3-G DEC w/ 12 BC ABT |
| For Pre-Ship service (order 1 per pole) | 4" Poles | 912401597405 | AB 3/4x24x3-G DEC w/ 8.5 BC ABT-RS |
| | 5" Poles | 912401613106 | AB 1x33x3-G DEC w/ 11 BC ABT-RS |
| | 6" Poles | 912401597408 | AB 1x33x3-G DEC w/ 12 BC ABT-RS |

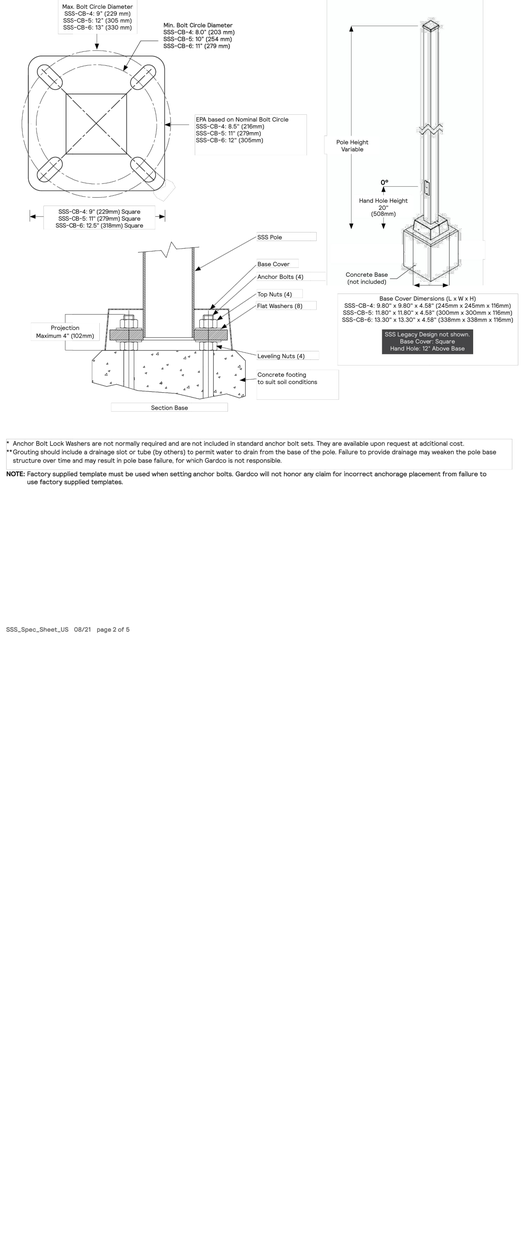
| Part No. | Description |
|---|---|
| **RLAR-1A-SQ4+ -(finish)** | Cast Aluminum mounting arm, 15" long with DT6 drill pattern. (order 1 per luminaire). For use with Lumec Roadway luminaires. Specify finish to match pole. |

RLAR



## Poles Straight Square Steel

**Dimensions**




Base Cover Dimensions (L x W x H)
SSS-CB-4: 9.80" x 9.80" x 4.58" (245mm x 245mm x 116mm)
SSS-CB-5: 11.80" x 11.80" x 4.58" (300mm x 300mm x 116mm)
SSS-CB-6: 13.30" x 13.30" x 4.58" (338mm x 338mm x 116mm)

SSS Legacy Design not shown. Base Cover: Square Hand Hole: 12" Above Base

* Anchor Bolt Lock Washers are not normally required and are not included in standard anchor bolt sets. They are available upon request at additional cost.
**Grouting should include a drainage slot or tube (by others) to permit water to drain from the base of the pole. Failure to provide drainage may weaken the pole base structure over time and may result in pole base failure, for which Gardco is not responsible.

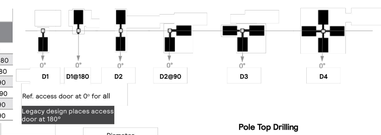
**NOTE:** Factory supplied template must be used when setting anchor bolts. Gardco will not honor any claim for incorrect anchorage placement from failure to use factory supplied templates.



## Poles Straight Square Steel

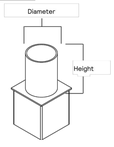
**Drilling Configuration**

| Code | Description |
|---|---|
| D1 | Single Luminaire |
| D1@180 | Single Luminaire @ 180 |
| D2 | Two Luminaires @ 180 |
| D2@90 | Two Luminaires @ 90 |
| D3 | Three Luminaires @ 90 |
| D4 | Four Luminaires @ 90 |
| D4 | Four Luminaires @ 90 |

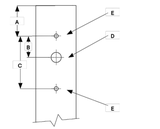



**Tenon Dimensions**

| Tenon | Diameter | Height |
|---|---|---|
| T2D4L | 2.375" (60mm) | 4" (102mm) |
| T2D6L | 2.375" (60mm) | 6" (152mm) |
| T3D5L | 3" (76mm) | 5" (127mm) |
| T4D6L | 4" (102mm) | 6" (152mm) |




**Pole Top Drilling**




**Luminaire Drill Pattern**

| Code | Description | Luminaires | Pole Drilling A To Pole Top | B | C Full Extent | D Wireway Hole | E Bolt Hole |
|---|---|---|---|---|---|---|---|
| DT1 | Drill Template 1 | Gardco SlenderForm Round SFRA | 2.25" (57mm) | 1.5" (38.1mm) | 3" (76mm) | 0.875" (22.2mm) | 0.40" (10.2mm) |
| DT2 | Drill Template 2 | Gardco SlenderForm Square - SFA Gardco Gullwing - GL13, GL18 Gardco Form Ten - EH14L, EH19L, CAL17, CAL22, MAL17, MAL22 | 2.25" (57mm) | 2.17" (55mm) | 3.84" (98mm) | 0.875" (22.2mm) | 0.39" (9.9mm) |
| DT3 | Drill Template 3 | Gardco PowerForm PFAS | 2.25" (57mm) | 1.75" (44mm) | 3.84" (98mm) | 0.875" (22.2mm) | 0.41" (10.4mm) |
| DT4 | Drill Template 4 | **Gen1** Stonco/Keene AL150-G1, AL200-G1 | 2.5" (64mm) | 1.7" (43mm) | 3.5" (89mm) | 0.875" (22.2mm) | 0.41" (10.4mm) |
| DT5 | Drill Template 5 | Gardco EcoForm Gen2 - ECF-S, ECF-L, Gardco PureForm Gen2 - P15, P20, P26, P34 | 3" (76mm) | 1" (25mm) | 3" (76mm) | 1" (25mm) | 0.41" (10.4mm) |
| DT6 | Drill Template 6 | Hole pattern drilled for the following: **Gen2** Stonco/Keene AL70-G2 and AL150-G2, or to attach RLAR bracket accessory, suitable for use with: Lumec Capella CPLM, CPLS Lumec RoadStar GPLM, GPLS Lumec RoadFocus RFS, RFM, RFL Lumec RoadView RVM, RVS Lumec MiniView SVS Lumec StreetView SVM | 2.5" (64mm) | 1" (25mm) | 2" (50mm) | 0.875" (22mm) | 0.5" (12.7mm) |

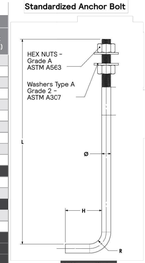


## Poles Straight Square Steel

**Pole Data**

| Product Catalog Number | Pole Specs Height (ft.) | Pole Diameter (in.) | Wall Thickness (in.) | Pole Weight (lbs.) | Anchor Bolt Data Bolt Circle (in.) | Anchor Bolt Spec (in.) | Anchor Bolt Max Proj. (in.) |
|---|---|---|---|---|---|---|---|
| SSS-CB-4-11-10 | 10 | 4 | 0.12 | 63 | 8.5 (+/- 0.5) | 3/4 x 24 x 3 | 4 |
| SSS-CB-4-11-12 | 12 | 4 | 0.12 | 76 | 8.5 (+/- 0.5) | 3/4 x 24 x 3 | 4 |
| SSS-CB-4-11-14 | 14 | 4 | 0.12 | 88 | 8.5 (+/- 0.5) | 3/4 x 24 x 3 | 4 |
| SSS-CB-4-11-15 | 15 | 4 | 0.12 | 94 | 8.5 (+/- 0.5) | 3/4 x 24 x 3 | 4 |
| SSS-CB-4-11-16 | 16 | 4 | 0.12 | 101 | 8.5 (+/- 0.5) | 3/4 x 24 x 3 | 4 |
| SSS-CB-4-11-18 | 18 | 4 | 0.12 | 113 | 8.5 (+/- 0.5) | 3/4 x 24 x 3 | 4 |
| SSS-CB-4-11-20 | 20 | 4 | 0.12 | 126 | 8.5 (+/- 0.5) | 3/4 x 24 x 3 | 4 |
| SSS-CB-4-11-25 | 25 | 4 | 0.12 | 157 | 8.5 (+/- 0.5) | 3/4 x 24 x 3 | 4 |
| SSS-CB-4-7-20 | 20 | 4 | 0.18 | 185 | 8.5 (+/- 0.5) | 3/4 x 24 x 3 | 4 |
| SSS-CB-4-7-25 | 25 | 4 | 0.18 | 232 | 8.5 (+/- 0.5) | 3/4 x 24 x 3 | 4 |
| SSS-CB-4-7-30 | 30 | 4 | 0.18 | 278 | 8.5 (+/- 0.5) | 3/4 x 24 x 3 | 4 |
| SSS-CB-5-11-20 | 20 | 5 | 0.12 | 158 | 11 (+/- 1) | 1 x 33 x 3 | 4 |
| SSS-CB-5-11-25 | 25 | 5 | 0.12 | 197 | 11 (+/- 1) | 1 x 33 x 3 | 4 |
| SSS-CB-5-11-30 | 30 | 5 | 0.12 | 237 | 11 (+/- 1) | 1 x 33 x 3 | 4 |
| SSS-CB-5-7-20 | 20 | 5 | 0.18 | 234 | 11 (+/- 1) | 1 x 33 x 3 | 4 |
| SSS-CB-5-7-25 | 25 | 5 | 0.18 | 292 | 11 (+/- 1) | 1 x 33 x 3 | 4 |
| SSS-CB-5-7-30 | 30 | 5 | 0.18 | 350 | 11 (+/- 1) | 1 x 33 x 3 | 4 |
| SSS-CB-5-7-35 | 35 | 5 | 0.18 | 409 | 11 (+/- 1) | 1 x 33 x 3 | 4 |
| SSS-CB-6-7-30 | 30 | 6 | 0.18 | 423 | 12 (+/- 1) | 1 x 33 x 3 | 4 |
| SSS-CB-6-7-35 | 35 | 6 | 0.18 | 493 | 12 (+/- 1) | 1 x 33 x 3 | 4 |
| SSS-CB-6-7-40 | 40 | 6 | 0.18 | 564 | 12 (+/- 1) | 1 x 33 x 3 | 4 |

**Standardized Anchor Bolt**




**Pole Data (cont.)**

| Product Catalog Number | AASHTO 2001 - EPA ft² 80 MPH | 90 MPH | 100 MPH | 110 MPH | 120 MPH | 130 MPH | 140 MPH | 150 MPH |
|---|---|---|---|---|---|---|---|---|
| SSS-CB-4-11-10 | 30.00 | 26.82 | 21.25 | 17.13 | 13.99 | 11.55 | 9.62 | 8.07 |
| SSS-CB-4-11-12 | 28.31 | 21.72 | 17.04 | 13.55 | 10.88 | 8.83 | 7.19 | 5.88 |
| SSS-CB-4-11-14 | 23.54 | 17.83 | 13.77 | 10.77 | 8.48 | 6.69 | 5.26 | 4.15 |
| SSS-CB-4-11-15 | 21.53 | 16.22 | 12.41 | 9.57 | 7.43 | 5.76 | 4.44 | 3.36 |
| SSS-CB-4-11-16 | 19.70 | 14.69 | 11.12 | 8.48 | 6.47 | 4.91 | 3.65 | 2.66 |
| SSS-CB-4-11-18 | 16.19 | 11.82 | 8.72 | 6.43 | 4.67 | 3.30 | 2.21 | 1.33 |
| SSS-CB-4-11-20 | 13.29 | 9.46 | 6.72 | 4.67 | 3.13 | 1.92 | N/A | N/A |
| SSS-CB-4-11-25 | 7.78 | 4.86 | 2.78 | 1.22 | N/A | N/A | N/A | N/A |
| SSS-CB-4-7-20 | 22.23 | 16.63 | 12.62 | 9.65 | 7.40 | 5.65 | 4.26 | 3.15 |
| SSS-CB-4-7-25 | 14.87 | 10.59 | 7.54 | 5.28 | 3.56 | 2.23 | 1.16 | N/A |
| SSS-CB-4-7-30 | 6.70 | 4.40 | 2.60 | 1.20 | N/A | N/A | N/A | N/A |
| SSS-CB-5-11-20 | 22.64 | 16.51 | 12.13 | 8.89 | 6.43 | 4.51 | 2.99 | 1.76 |
| SSS-CB-5-11-25 | 14.32 | 9.62 | 6.25 | 3.79 | 1.90 | N/A | N/A | N/A |
| SSS-CB-5-11-30 | 6.70 | 2.00 | N/A | N/A | N/A | N/A | N/A | N/A |
| SSS-CB-5-7-20 | 30.00 | 27.78 | 21.37 | 16.63 | 13.01 | 10.21 | 7.97 | 6.17 |
| SSS-CB-5-7-25 | 25.42 | 18.54 | 13.62 | 9.97 | 7.19 | 5.05 | 3.34 | 1.98 |
| SSS-CB-5-7-30 | 10.70 | 6.70 | 3.90 | 2.00 | N/A | N/A | N/A | N/A |
| SSS-CB-5-7-35 | 5.90 | 2.50 | N/A | N/A | N/A | N/A | N/A | N/A |
| SSS-CB-6-7-30 | 19.00 | 13.20 | 9.00 | 5.60 | 3.30 | N/A | N/A | N/A |
| SSS-CB-6-7-35 | 12.40 | 7.60 | 4.20 | N/A | N/A | N/A | N/A | N/A |
| SSS-CB-6-7-40 | 7.20 | 3.00 | N/A | N/A | N/A | N/A | N/A | N/A |

1. **Warning:** Additional wind loading, in terms of EPA, from banners, cameras, floodlights and other accessories attached to the pole, must be added to the luminaire(s) EPA before selecting the pole with the appropriate wind load capability. Specifying BAA or BAC compliant poles may result in different EPA ratings.
2. Factory supplied template must be used when setting anchor bolts. Gardco will not honor any claim for incorrect anchorage placement resulting from failure to use factory supplied templates. Exact length of anchor bolts may vary.
3. EPA ratings are based on the listed, optimal midpoint of the bolt circle. The bolt circle has limited variability but the EPA rating will change.

**NOTE:** Above EPA (Effective Projected Area) rating is in accordance with AASHTO 2001, with a 50 pound load (22.7 kg) placed at 1 foot (305mm) above its center.



## Poles Straight Square Steel

**Specifications**

**Pole shaft**
The pole shaft is fabricated from a single piece of 11 ga (0.1196") or 7 ga (0.180") high tensile carbon steel. The formed steel plate is longitudinally welded providing minimum yield strength of 50 ksi. Shaft includes factory installed copper ground lug, 10-7 copper wire, and ground lug screw.

**Anchor Base**
The pole anchor base is fabricated from 44W structural quality carbon steel with a minimum yield strength of 44 ksi. The base plate is circumferentially welded on both top and bottom.

**Anchor Bolts**
Anchor bolts are fabricated from a commercial quality hot rolled carbon steel bar that meets or exceeds a minimum guaranteed yield strength of 55 ksi. Bolts have an "L" bend on one end and threaded on the opposite end. Anchor bolts are fully galvanized in accordance with ASTM A-153.6 C1.C. Four (4) properly sized bolts, each furnished with two (2) regular hex nuts and two (2) flat washers, are provided per pole (priced and ordered separately), unless otherwise specified. Conforms to AASHTO M 314 90 and ASTM F1554.

**Base Cover**
A two-piece painted square aluminum base cover that completely conceals the entire base plate and anchorage. Base cover is provided standard.

**Hand hole**
The hand hole has a nominal rectangular 2"x4.5" inside opening in the pole shaft. Included is an aluminum cover plate, EPDM gasket, and captive attachment screws. The hand hole is located 20" above the base and 0° clockwise with respect to the luminaire arm when viewed from the top of the pole for one arm. For two arms the hand hole is located directly under one arm. Legacy design includes an easy to install, self-contained Swing Latch hand hole cover assembly. U.S. Patent Swing Latch cover is fabricated from durable polycarbonate/ABS blend plastic. All pole assemblies are provided with a 2.50" x 5.00" rectangular hand hole.

**Pole Top Cap**
Each pole assembly is provided with a removable aluminum pole top cap painted to match the specified pole and attached with two pressure screws. Legacy design is provided with a removable plastic top push cap. Finish is Black.

**Finish**
Poles are available with Gardco's standard textured color finishes - Black, White, Bronze, Dark Grey, Medium Grey, and Lumec GY3 for a match with roadway luminaire finishes. Optional Galvanized finish and custom colors also available.

**General Pole Information**

**Design**
EPA specs conform to AASHTO 2001 standard. The poles as charted are designed to withstand dead loads and predicted dynamic loads developed by variable wind pressure with an additional 2.5 gust factor under the following conditions: The charted weights include luminaire(s) and/or mounting bracket(s). Poles installed in areas of known abnormal conditions may require special consideration. For example: coastal areas, airports and areas of special winds. Poles are designed for ground mounted applications. Poles mounted on structures (such as buildings and bridges) may also necessitate special consideration requiring Gardco's recommendation. Height correction factors and drag coefficients are applied to the entire structure. An appropriate safety factor is maintained based on the minimum yield strength of the material incorporated in the pole.

**Warning**
This design information is intended as a general guideline only. The customer is solely responsible for proper selection of pole, luminaire, accessory and foundation under the given site conditions and intended usage. The addition of any items to the pole, in addition to the luminaire, will dramatically impact the EPA load on that pole. It is strongly recommended that a qualified professional be consulted to analyze the loads given the user's specific needs to ensure proper selection of the pole, luminaire, accessories, and foundation. Gardco assumes no responsibility for such proper analysis or product selections. Failure to ensure proper site analysis, pole selection, loads and installation can result in pole failure, leading to serious injury or property damage.

**Warranty**
Gardco Steel poles are covered by a 3-year structural and finish warranty. Legacy designs are covered by a 1-year warranty. For more information visit **signify.com/warranties**

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Signify North America Corporation
200 Franklin Square Drive,
Somerset, NJ 08873
Telephone 855-486-2216

Signify Canada Ltd.
281 Hillmount Road,
Markham, ON, Canada L6C 2S3
Telephone 800-668-9008

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www.gardcolighting.com



Project:

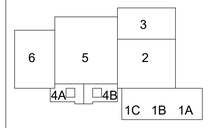
P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA, 01810

Fennick McCredie Architecture

PERMITTING SET
NOT FOR CONSTRUCTION
16 APRIL 2024

Key Plan:




Stamp:

04-11-2024

| No. | Date | Revision |
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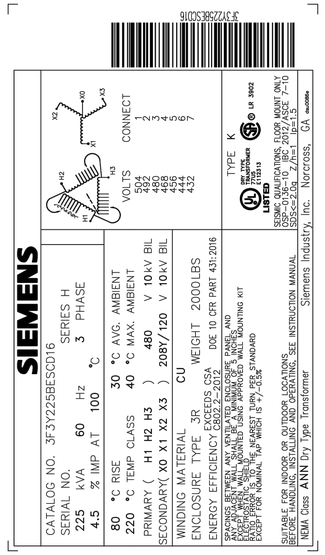
| Job No.: | PRINCIPIO |
| Drawn By: | Author |
| Checked By: | Checker |
| Date: | 04/16/24 |
| Scale: | |

Drawing Title:
ELECTRICAL DETAILS II

Drawing No.:
E-106

NOTE: ELECTRICAL DETAILS SHOWN FOR PERMITTING PURPOSES ONLY.




Siemens Industry, Inc.

| REVISION | DATE | BY | | DATE | BY |
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| | | | DRAWN | 17/05/04 | RM |
| | | | CHEK'D | | |
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CUSTOMER

ORDER NO. | DWG. NO. 3F3Y225BESCD16 SH 1 OF 3

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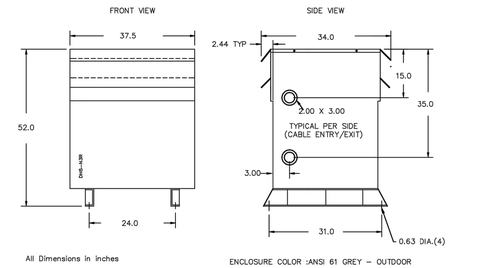


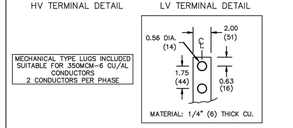


CUSTOMER NOTES:
- HV TERMINATED AT TOP FRONT
- LV TERMINATED AT BOTTOM FRONT

Siemens Industry, Inc.

| REVISION | DATE | BY | | DATE | BY |
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| | | | DRAWN | 17/05/04 | RM |
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CUSTOMER

ORDER NO. | DWG. NO. 3F3Y225BESCD16 SH 2 OF 3

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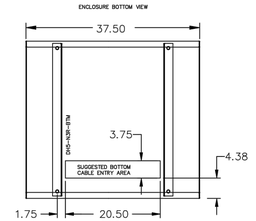


NOTE:
WHEN BOTTOM CABLE ENTRY IS OPTED, THE SPACE USED FOR CONDUITS IN THE FRONT OF THE TRANSFORMER SHOULD NOT OBSTRUCT MORE THAN 50% OF THE FRONT AIR INTAKE AREA DEFINED BETWEEN THE BOTTOM PLATE AND THE SUPPORTING LEGS.
SEE MANUAL FOR ADDITIONAL INFORMATION

Siemens Industry, Inc.

| REVISION | DATE | BY | | DATE | BY |
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| | | | DRAWN | 17/05/04 | RM |
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CUSTOMER

ORDER NO. | DWG. NO. 3F3Y225BESCD16 SH 3 OF 3

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## WATERSHED FREE-STAND, TYPE 4X

### INDUSTRY STANDARDS

UL 508A Listed; Type 4, 4X, 12; File Number E61997
cUL Listed per CSA C22.2 No 94; Type 4, 4X, 12; File Number E61997

NSF 169
NEMA/EEMAC Type 4, 4X, 12
IEC 60529, IP66

### APPLICATION

nVent HOFFMAN WaterShed stainless steel free-stand enclosure, with its unique design and Type 4X rating, is a perfect fit for mounting electrical or high-tech electronic equipment in a variety of indoor and outdoor settings. Its unique features are specifically designed for use in sanitary washdown production environments like food, beverage, or pharmaceutical processing. However, these same features also are useful in petrochemical plants, pulp and paper facilities and wastewater treatment plants.

### SPECIFICATIONS

- Manufactured from 12 gauge Type 304 stainless steel
- Seams continuously welded and ground smooth
- Smooth Type 304 stainless steel lift-off bullet-style hinges
- Hinges are shielded by cover edges
- Hinged side of cover has provisions to allow direct flushing of hinge area
- 20-degree sloped top facilitates runoff of water and cleaning solutions and prohibits the placement of objects on the top of the enclosure
- 97-degree door opening
- Door edges are sloped 20 degrees at top and bottom edges to facilitate runoff
- Slanted flange trough collar prohibits pooling of fluids along the top edge of the enclosure opening
- Three-point latching operated by POWERGLIDE Type 316L padlocking stainless steel handles
- Seamless foam-in-place one-piece gasket provides oil-tight and dust-tight seal against contaminants
- Bonding provision on doors; grounding studs on body
- Accessory mounting channel provided in enclosure top
- Panel studs fit optional NEMA style panels
- Mounting holes in bottom of enclosure for direct mounting or for optional sanitary legs and stainless steel floor stands
- Furnished hardware kit consists of panel mounting nuts, grounding hardware and hole seals for mounting holes

### FINISH

Stainless steel enclosures are unpainted. External surfaces have a #4 brushed finish. Optional mild steel panels are painted white. Optional conductive panels are available.

### ACCESSORIES

Industrial Corrosion Inhibitors
PANELITE Enclosure Lights
Panels for Type 3R, 4, 4X, 12 and 13 Enclosures

**BULLETIN: WS2**

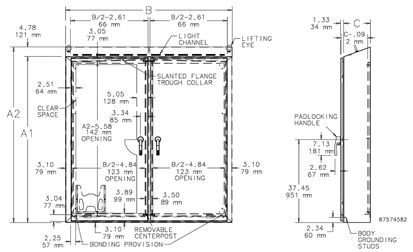
Standard Product

| Catalog Number | A x B x C in. /mm | A1 in. /mm | A2 in. /mm | B in. /mm | C in. /mm | Panel | Conductive Panel |
|---|---|---|---|---|---|---|---|
| WS625112SS | 62.00 x 51.00 x 12.00<br>1575 x 1295 x 305 | 62.81<br>1595 | 67.20<br>1700 | 51.09<br>1298 | 12.12<br>308 | A60P48S | A60P48G |
| WS625118SS | 62.00 x 51.00 x 18.00<br>1575 x 1295 x 457 | 62.81<br>1595 | 69.38<br>1700 | 51.09<br>1298 | 18.12<br>460 | A60P48 | A60P48G |
| WS626312SS | 62.00 x 63.00 x 12.00<br>1575 x 1600 x 305 | 62.81<br>1595 | 67.20<br>1700 | 63.09<br>1602 | 12.12<br>308 | A60P60 | A60P60G |
| WS626318SS | 62.00 x 63.00 x 18.00<br>1575 x 1600 x 457 | 62.81<br>1595 | 69.38<br>1700 | 63.09<br>1602 | 18.12<br>460 | A60P60 | A60P60G |
| WS746312SS | 74.00 x 63.00 x 12.00<br>1880 x 1600 x 305 | 74.81<br>1900 | 79.20<br>2012 | 63.09<br>1602 | 12.12<br>308 | A72P60 | A72P60G |
| WS746318SS | 74.00 x 63.00 x 18.00<br>1880 x 1600 x 457 | 74.81<br>1900 | 81.38<br>2067 | 63.09<br>1602 | 18.12<br>460 | A72P60 | A72P60G |
| WS747512SS | 74.00 x 75.00 x 12.00<br>1880 x 1905 x 305 | 74.81<br>1900 | 79.20<br>2012 | 75.09<br>1907 | 12.12<br>308 | A72P72 | A72P72G |
| WS747518SS | 74.00 x 75.00 x 18.00<br>1880 x 1905 x 457 | 74.81<br>1900 | 81.38<br>2067 | 75.09<br>1907 | 18.12<br>460 | A72P72 | A72P72G |
| WS747524SS | 74.00 x 75.00 x 24.00<br>1880 x 1905 x 610 | 74.81<br>1900 | 83.57<br>2123 | 75.09<br>1907 | 24.12<br>613 | A72P72 | A72P72G |

A x B x C are nominal dimensions.
Purchase panels separately.





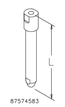



## SANITARY LEG KITS

Sanitary Leg Kits provide space between the enclosure and the floor for better washdown accessibility. Available with fixed or independently adjustable legs. Adjustable leg shown. Four legs per kit. Maintains NEMA Type 4X rating when properly installed on a Hoffman Type 4X enclosure.

**BULLETIN: WSY**

| Catalog Number | Description | L (in.) | L (mm) |
|---|---|---|---|
| WSASLKSS | Adjustable Sanitary Leg Kit | 11.50-12.50 | 292-318 |
| WSFSLKSS | Fixed Sanitary Leg Kit | 12.00 | 305 |

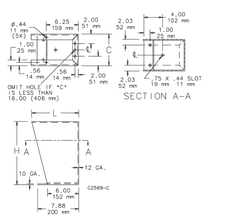



## FLOOR STAND KIT, STAINLESS STEEL

Use to raise free-stand enclosure. To install, drill holes in the bottom of the enclosure and bolt the floor stands to the enclosure. Each kit includes two stands. Type 304 stainless steel. Maintains UL/cUL Type 4X rating when properly installed on a Hoffman Type 4X enclosure.

**BULLETIN: A4SY**

| Catalog Number | H (in.) | H (mm) | C (in.) | C (mm) | L (in.) | L (mm) |
|---|---|---|---|---|---|---|
| AFK0612SS | 6.00 | 152 | 12.06 | 306 | 9.09 | 231 |
| AFK0618SS | 6.00 | 152 | 18.06 | 459 | 9.09 | 231 |
| AFK0624SS | 6.00 | 152 | 24.06 | 611 | 9.09 | 231 |
| AFK1212SS | 12.00 | 305 | 12.06 | 306 | 9.09 | 231 |
| AFK1218SS | 12.00 | 305 | 18.06 | 459 | 9.09 | 231 |
| AFK1224SS | 12.00 | 305 | 24.06 | 611 | 9.09 | 231 |
| AFK1812SS | 18.00 | 457 | 12.06 | 306 | 9.09 | 231 |
| AFK1818SS | 18.00 | 457 | 18.06 | 459 | 9.09 | 231 |
| AFK1824SS | 18.00 | 457 | 24.06 | 611 | 9.09 | 231 |
| AFK2412SS | 24.00 | 610 | 12.06 | 306 | 9.09 | 231 |
| AFK2418SS | 24.00 | 610 | 18.06 | 459 | 9.09 | 231 |
| AFK2424SS | 24.00 | 610 | 24.06 | 611 | 9.09 | 231 |






NOTE: ELECTRICAL DETAILS SHOWN FOR PERMITTING PURPOSES ONLY.

Project:

P&G ANDOVER MANUFACTURING CENTER ENHANCEMENT PROJECT

30 BURTT ROAD
ANDOVER, MA, 01810

Fennick McCredie Architecture

PERMITTING SET
NOT FOR CONSTRUCTION
16 APRIL 2024

Key Plan:

Stamp:

04-11-2024

| No. | Date | Revision |
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| Job No.: | PRINCIPIO |
| Drawn By: | Author |
| Checked By: | Checker |
| Date: | 04/16/24 |
| Scale: | |

Drawing Title:
ELECTRICAL DETAILS III

Drawing No.:
E-107