

PROPOSED PARKING EXPANSION

LONZA BIOLOGICS

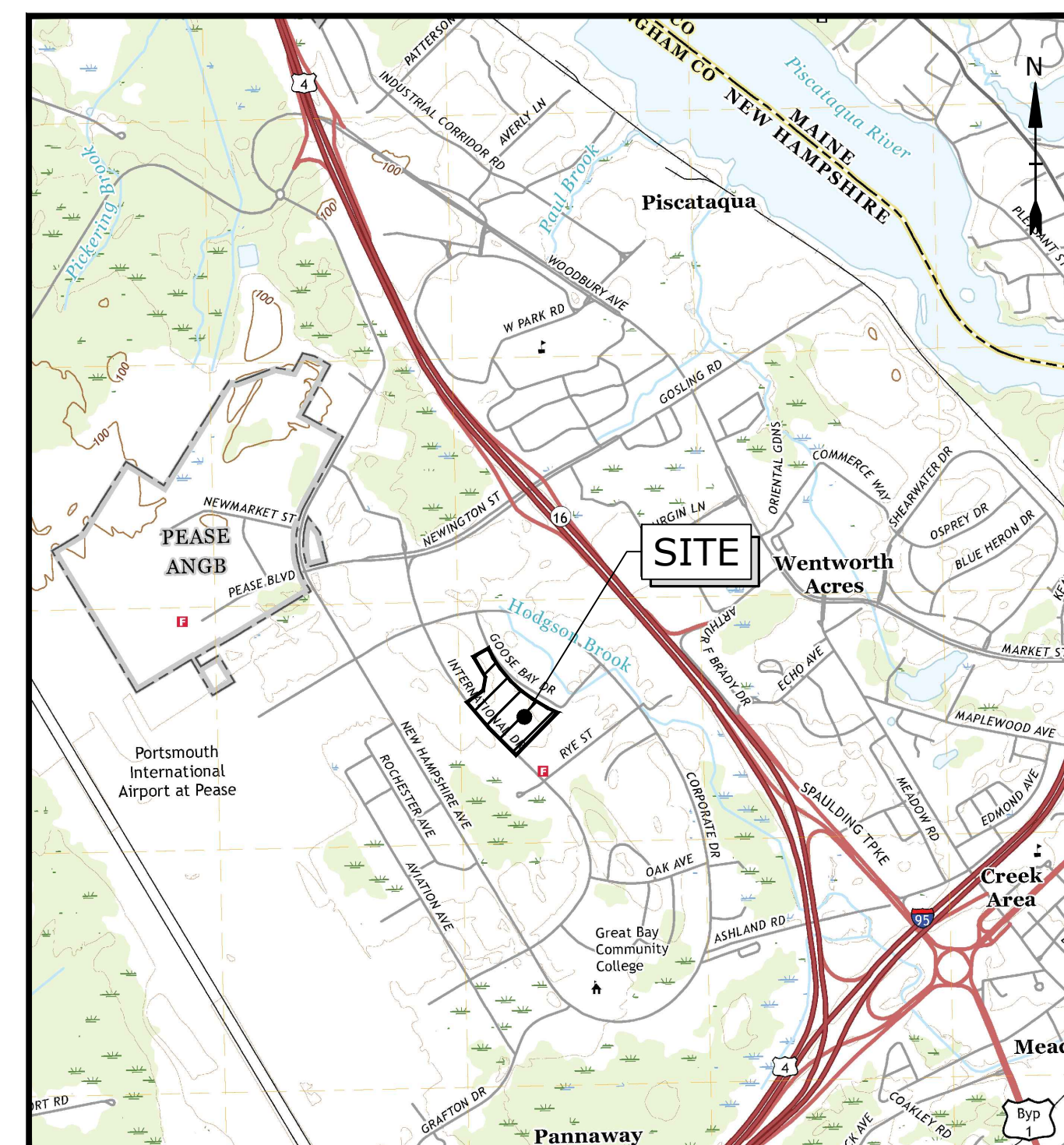
101 INTERNATIONAL DRIVE

PORTSMOUTH, NEW HAMPSHIRE

DECEMBER 23, 2019

LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	12/23/2019
C-101	OVERALL EXISTING CONDITIONS AND DEMOLITION NOTES	12/23/2019
C-101.1	EXISTING CONDITIONS AND DEMOLITION PLAN	12/23/2019
C-102	OVERALL SITE PLAN AND GENERAL NOTES	12/23/2019
C-102.1	SITE PLAN	12/23/2019
C-103	GRADING, DRAINAGE, EROSION CONTROL, AND UTILITIES PLAN	12/23/2019
C-501	EROSION CONTROL NOTES AND DETAILS SHEET	12/23/2019
C-502	DETAILS SHEET	12/23/2019
C-503	DETAILS SHEET	12/23/2019
C-504	DETAILS SHEET	12/23/2019

LIST OF PERMITS		
LOCAL	STATUS	DATE
SITE PLAN REVIEW PERMIT		



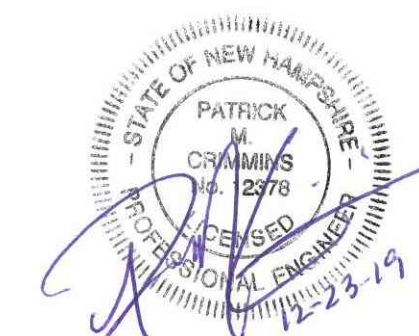
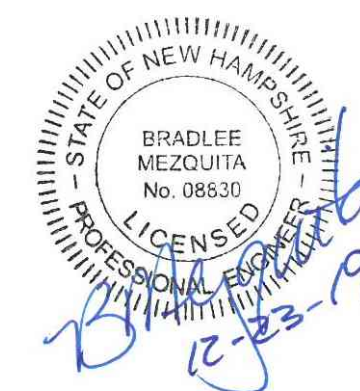
LOCATION MAP
SCALE: 1" = 2,000'

LESSOR: PEASE DEVELOPMENT AUTHORITY
55 INTERNATIONAL DRIVE
PORTSMOUTH, NEW HAMPSHIRE 03801

OWNER: LONZA BIOLOGICS
101 INTERNATIONAL DRIVE
PORTSMOUTH, NH 03801

CIVIL ENGINEER: **Tighe&Bond**
Engineers | Environmental Specialists
177 CORPORATE DRIVE
PORTSMOUTH, NEW HAMPSHIRE 03801

SURVEYOR: DOUCET SURVEY, INC.
102 KENT PLACE
NEWMARKET, NEW HAMPSHIRE 03857



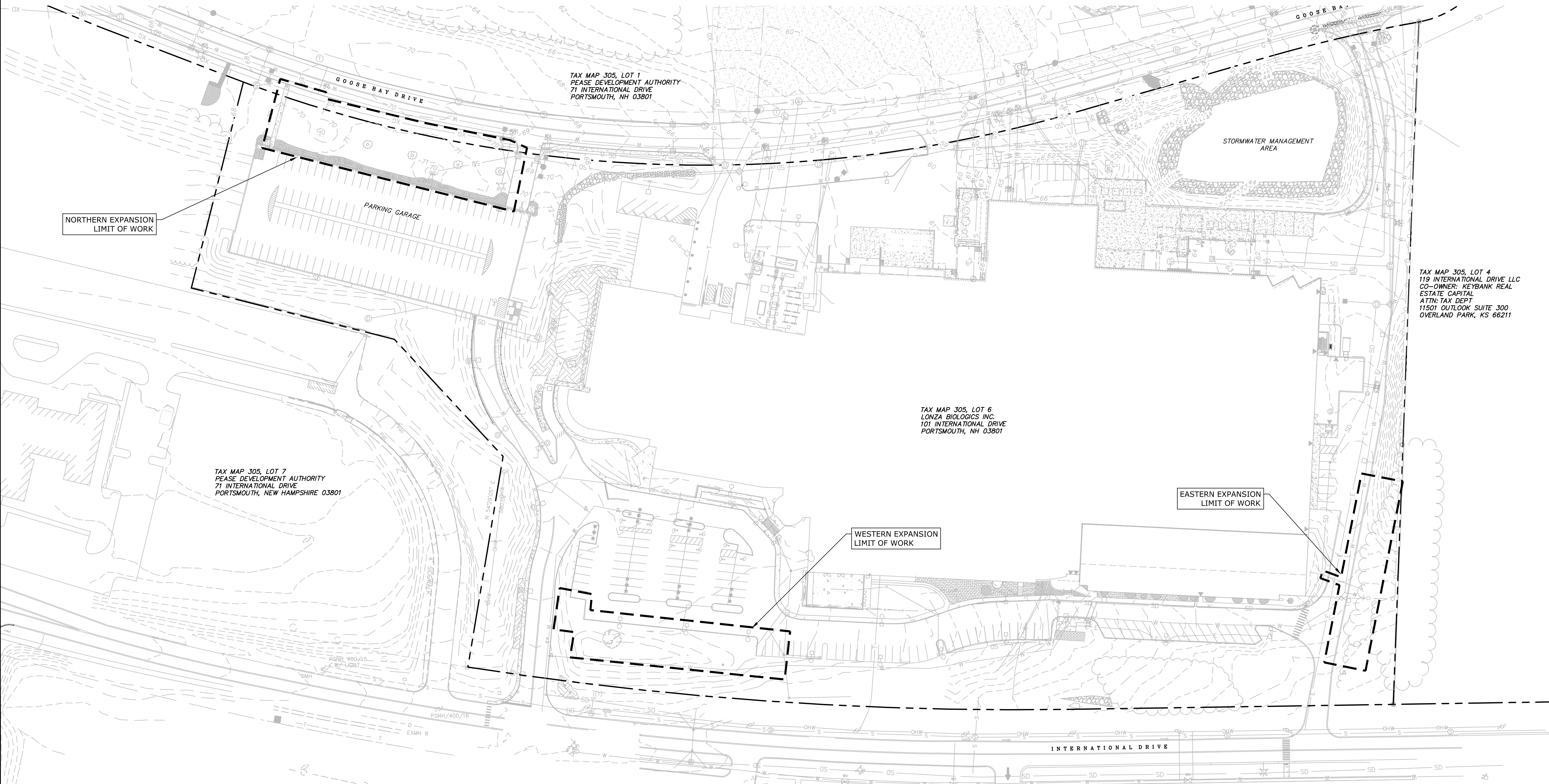
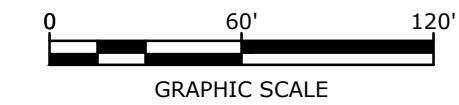
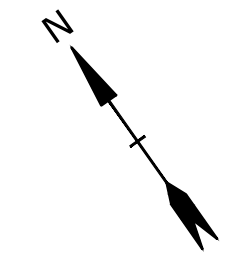
DEMOLITION NOTES:

1. THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
2. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
3. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.
4. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
5. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
6. SAW CUT AND REMOVE PAVEMENT ONE (1) FOOT OFF PROPOSED EDGE OF PAVEMENT OR EXISTING CURB LINE IN ALL AREAS WHERE PAVEMENT TO BE REMOVED ABUTS EXISTING PAVEMENT OR CONCRETE TO REMAIN.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
8. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.
10. UTILITIES SHALL BE TERMINATED AT THE MAIN LINE PER UTILITY COMPANY STANDARDS. THE CONTRACTOR SHALL REMOVE ALL ABANDONED UTILITIES LOCATED WITHIN THE LIMITS OF WORK.
11. CONTRACTOR SHALL VERIFY ORIGIN OF ALL DRAINS AND UTILITIES PRIOR TO REMOVAL/TERMINATION TO DETERMINE IF DRAINS OR UTILITY IS ACTIVE, AND SERVICES ANY ON OR OFF-SITE STRUCTURE TO REMAIN. THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY SUCH UTILITY FOUND AND SHALL MAINTAIN THESE UTILITIES UNTIL PERMANENT SOLUTION IS IN PLACE.
12. PAVEMENT REMOVAL LIMITS ARE SHOWN FOR CONTRACTOR'S CONVENIENCE. ADDITIONAL PAVEMENT REMOVAL MAY BE REQUIRED DEPENDING ON THE CONTRACTOR'S OPERATION. CONTRACTOR TO VERIFY FULL LIMITS OF PAVEMENT REMOVAL PRIOR TO BID.

13. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE PADS, UTILITIES AND PAVEMENT WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: CONCRETE, PAVEMENT, CURBS, UNDER GROUND PIPING, AND POLES.
14. COORDINATE ALL WORK WITHIN THE PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
15. CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED SURVEYOR TO REPLACE DISTURBED MONUMENTS.
16. PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS/CURB INLETS WITHIN CONSTRUCTION LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
17. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
18. THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFETY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.
19. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL UTILITIES TO BE REMOVED AND PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.

LEGEND

	PROPERTY LINE		CATCHBASIN
	CHAIN-LINK FENCE		DRAIN MANHOLE
	STORM DRAIN		SEWER MANHOLE
	SANITARY SEWER		HYDRANT
	WATER		WATER VALVE
	APPROXIMATE IRRIGATION		IRRIGATION CONTROL VALVE
	TELEPHONE LINE		ELECTRIC MANHOLE
	GAS		UTILITY POLE
	UNDERGROUND ELECTRIC		LIGHT POLE
	OVERHEAD UTILITY		MONUMENT
	MAJOR CONTOUR		TREES/SHRUBS
	MINOR CONTOUR		
	CONCRETE		
	RIP RAP		
	GRAVEL		
	LANDSCAPING		



Parking Expansion

Lonza Biologics

Portsmouth, NH

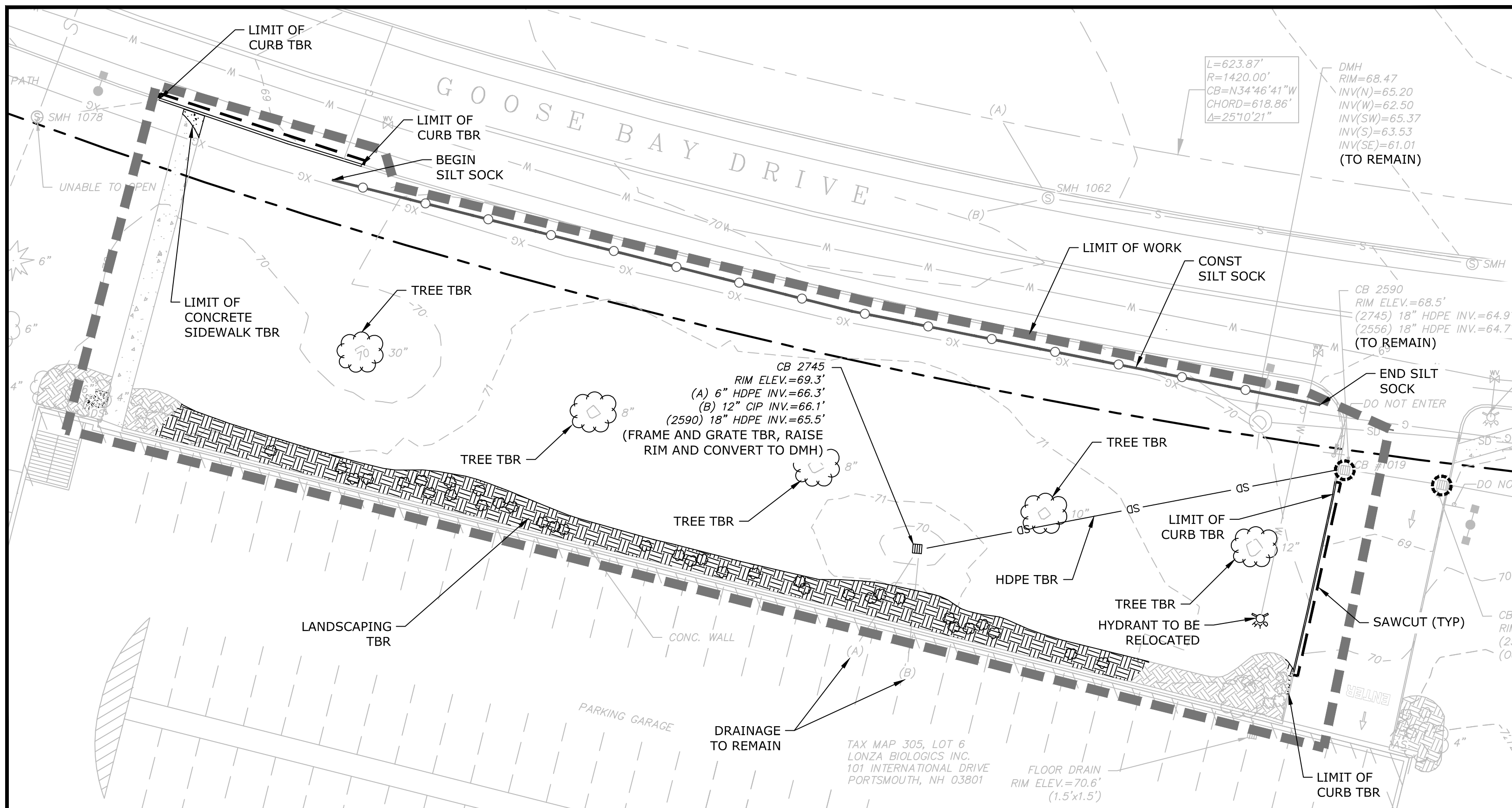
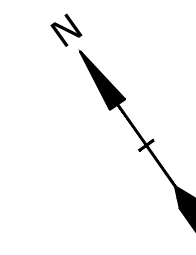
MARK	DATE	DESCRIPTION
A	12/23/2019	TAC Submission

PROJECT NO:	L-0700-019
DATE:	November 13, 2019
FILE:	L-0700-019-C-DSGN.DWG
DRAWN BY:	BKC
CHECKED:	NAH/PMC
APPROVED:	BLM

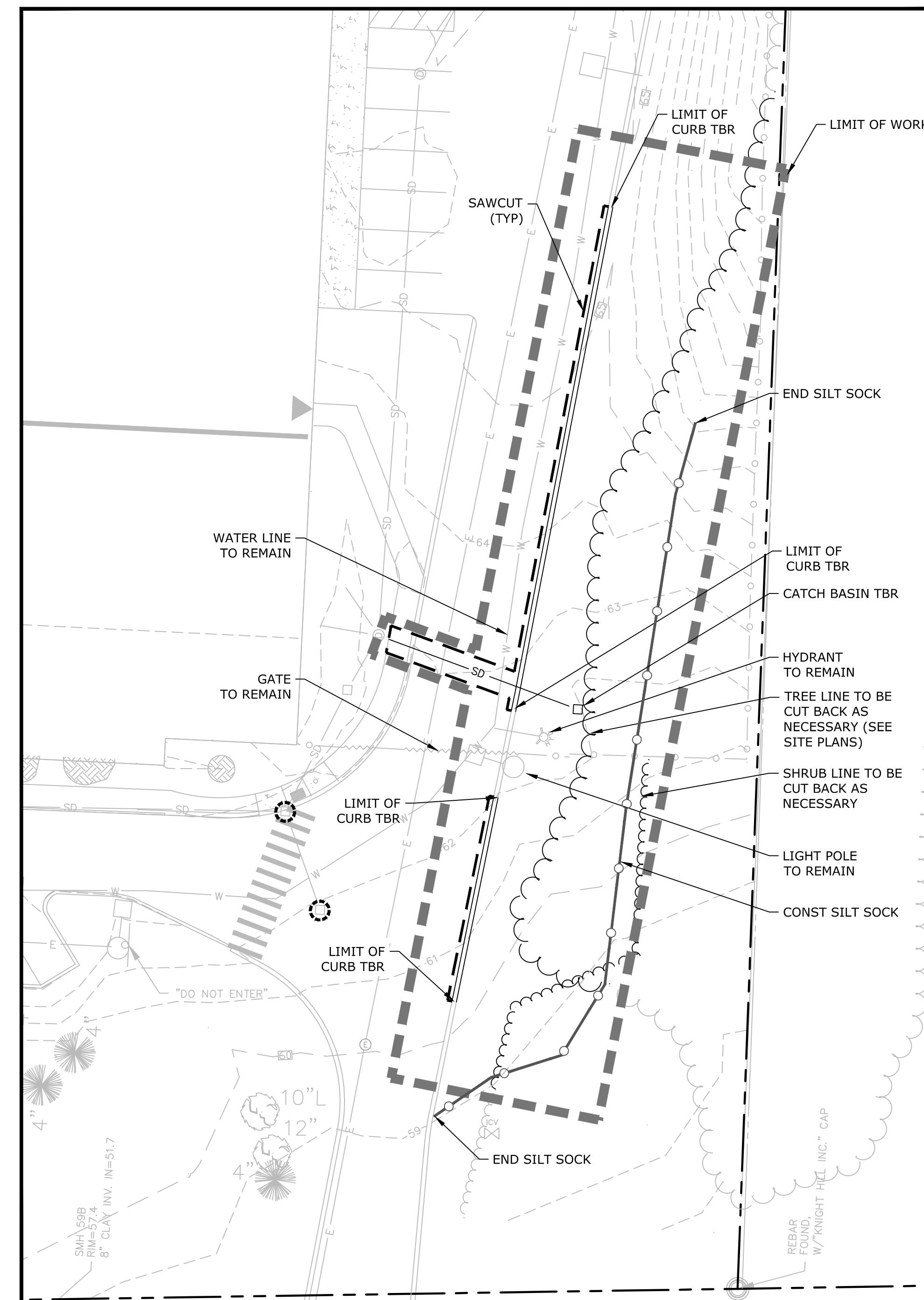
OVERALL EXISTING CONDITIONS AND DEMOLITION NOTES

SCALE: AS SHOWN

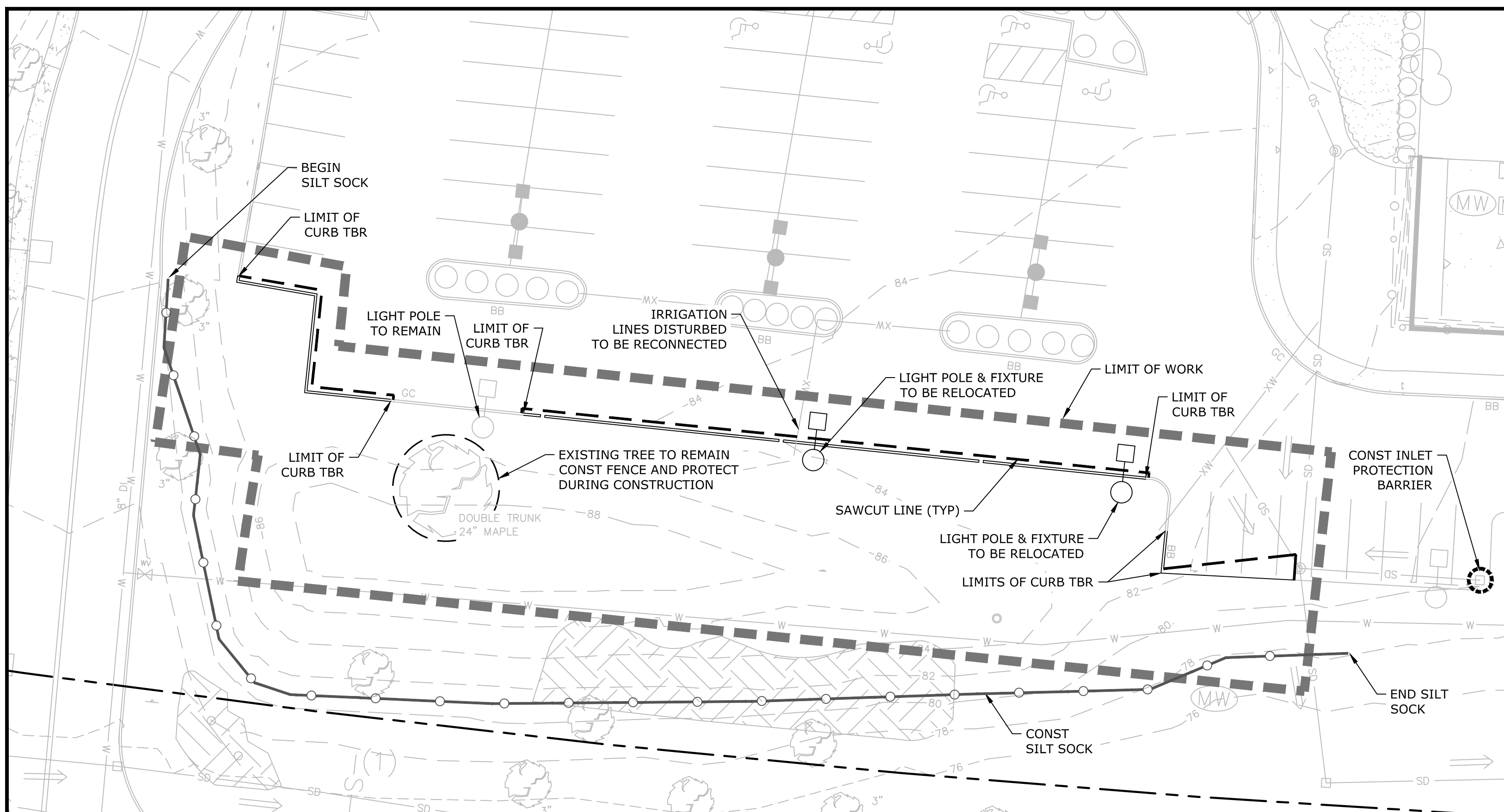
Last Saved: 12/23/2019 10:06am By: MAHansen
 Plotted On: Dec 23, 2019 10:07am
 Tighe & Bond 2111 LUDLOW
 Parking Expansion Drawings Figures AutoCAD Sheet L-0700-019-C-DSGN.dwg
 Figure 1: L-0700-019-C-DSGN.dwg
 Figure 2: L-0700-019-C-DSGN.dwg
 Figure 3: L-0700-019-C-DSGN.dwg
 Figure 4: L-0700-019-C-DSGN.dwg
 Figure 5: L-0700-019-C-DSGN.dwg
 Figure 6: L-0700-019-C-DSGN.dwg
 Figure 7: L-0700-019-C-DSGN.dwg
 Figure 8: L-0700-019-C-DSGN.dwg
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 Figure 264: L-0700-019-C-DSGN.dwg
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 Figure 270: L-0700-019-C-DSGN.dwg
 Figure 271: L-0700-019-C-DSGN.dwg
 Figure 272: L-0700-019-C-DSGN.dwg
 Figure 273: L-0700-019-C-DSGN.dwg
 Figure 274: L-0700-019-C-DSGN.dwg
 Figure 275: L-0700-019-C-DSGN.dwg
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 Figure 280: L-0700-019-C-DSGN.dwg
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 Figure 282: L-0700-019-C-DSGN.dwg
 Figure 283: L-0700-019-C-DSGN.dwg
 Figure 284: L-0700-019-C-DSGN.dwg
 Figure 285: L-0700-019-C-DSGN.dwg
 Figure 286: L-0700-019-C-DSGN.dwg
 Figure 287: L-0700-019-C-DSGN.dwg
 Figure 288: L-0700-019-C-DSGN.dwg
 Figure 289: L-0700-019-C-DSGN.dwg
 Figure 290: L-0700-019-C-DSGN.dwg
 Figure 291: L-0700-019-C-DSGN.dwg
 Figure 292: L-0700-019-C-DSGN.dwg
 Figure 293: L-0700-019-C-DSGN.dwg
 Figure 294: L-0700-019-C-DSGN.dwg
 Figure 295: L-0700-019-C-DSGN.dwg
 Figure 296: L-0700-019-C-DSGN.dwg
 Figure 297: L-0700-019-C-DSGN.dwg
 Figure 298: L-0700-019-C-DSGN.dwg
 Figure 299: L-0700-019-C-DSGN.dwg
 Figure 300: L-0700-019-C-DSGN.dwg
 Figure 301: L-0700-019-C-DSGN.dwg
 Figure 302: L-0700-019-C-DSGN.dwg
 Figure 303: L-0700-019-C-DSGN.dwg
 Figure 304: L-0700-019-C-DSGN.dwg
 Figure 305: L-0700-019-C-DSGN.dwg
 Figure 306: L-0700-019-C-DSGN.dwg
 Figure 307: L-0700-019-C-DSGN.dwg
 Figure 308: L-0700-019-C-DSGN.dwg
 Figure 309: L-0700-019-C-DSGN.dwg
 Figure 310: L-0700-019-C-DSGN.dwg
 Figure 311: L-0700-019-C-DSGN.dwg
 Figure 312: L-0700-019-C-DSGN.dwg
 Figure 313: L-0700-019-C-DSGN.dwg
 Figure 314: L-0700-019-C-DSGN.dwg
 Figure 315: L-0700-019-C-DSGN.dwg
 Figure 316: L-0700-019-C-DSGN.dwg
 Figure 317: L-0700-019-C-DSGN.dwg
 Figure 318: L-0700-019-C-DSGN.dwg
 Figure 319: L-0700-019-C-DSGN.dwg
 Figure 320: L-0700-019-C-DSGN.dwg
 Figure 321: L-0700-019-C-DSGN.dwg
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 Figure 340



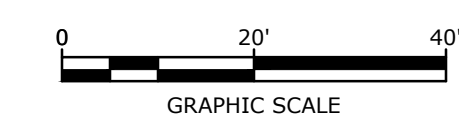
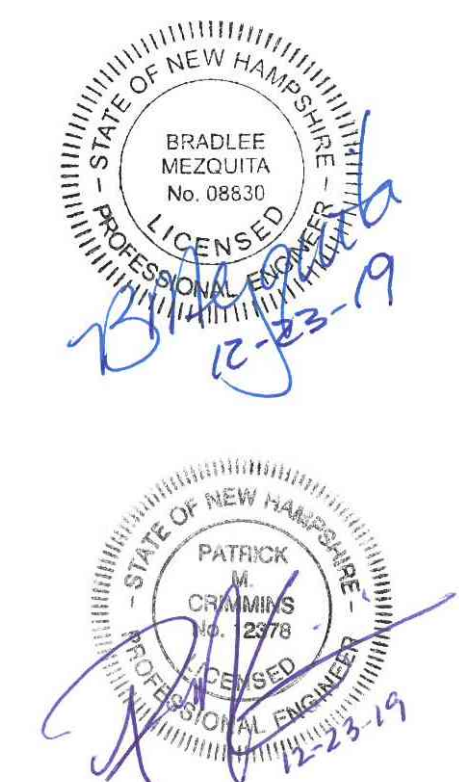
NORTHERN PARKING EXPANSION
SCALE: 1"=20'



EASTERN PARKING EXPANSION
SCALE: 1"=20'



WESTERN PARKING EXPANSION
SCALE: 1"=20'



Parking Expansion

Lonza Biologics

Portsmouth, NH

MARK	DATE	DESCRIPTION
A	12/23/2019	TAC Submission

PROJECT NO: L-0700-019
DATE: November 13, 2019
FILE: L-0700-019-C-DSGN.DWG
DRAWN BY: BKC
CHECKED: NAH/PMC
APPROVED: BLM

EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: AS SHOWN

C-101.1

SITE DATA BLOCK
 LESSOR: PEASE DEVELOPMENT AUTHORITY
 55 INTERNATIONAL DRIVE
 PORTSMOUTH NH, 03801
 APPLICANT: LONZA BIOLOGICS, INC.
 101 INTERNATIONAL DRIVE
 PORTSMOUTH NH, 03801
 LOCATION: 101 INTERNATIONAL DRIVE
 PORTSMOUTH NH, 03801
 MAP 305 LOT 6
 ZONING DISTRICT: AIRPORT BUSINESS AND COMMERCIAL ZONE (ABC)
 PROPOSED USES: OFFICE/MANUFACTURING/RESEARCH AND DEVELOPMENT

AREA, YARD, AND HEIGHT REQUIREMENTS

	REQUIRED/ALLOWED	PROPOSED/PROVIDED
MINIMUM LOT AREA	5 ACRES	17.1 ACRES
MINIMUM LOT FRONTAGE	200 FEET	1038 FEET
MINIMUM FRONT YARD	70 FEET	118± FEET
MINIMUM SIDE YARD	30 FEET	30± FEET (EXISTING)
MINIMUM REAR YARD	50 FEET	50± FEET (EXISTING)
MAXIMUM BUILDING HEIGHT	FAA CRITERIA	86 FEET
MINIMUM OPEN SPACE	25% OF LOT AREA	34.2%

MINIMUM PARKING REQUIREMENTS
 REQUIRED PARKING = 2 SPACES PER 3 EMPLOYEES ON LARGEST SHIFT PLUS ONE SPACE PER COMPANY OWNED VEHICLE

PARKING SUMMARY
 LARGEST SHIFT = 740 EMPLOYEES
 COMPANY OWNED VEHICLE = 1
 PARKING SPACES REQUIRED = 1 + (2/3) X (740) = 493 SPACES
 PARKING SPACES PROVIDED = 581 SPACES
 HANDICAP ACCESSIBLE SPACES PROVIDED = 11 SPACES

- SITE NOTES:**
1. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
 2. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
 3. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
 4. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAY WITH THE CITY OF PORTSMOUTH.
 5. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
 6. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
 7. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
 8. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
 9. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.

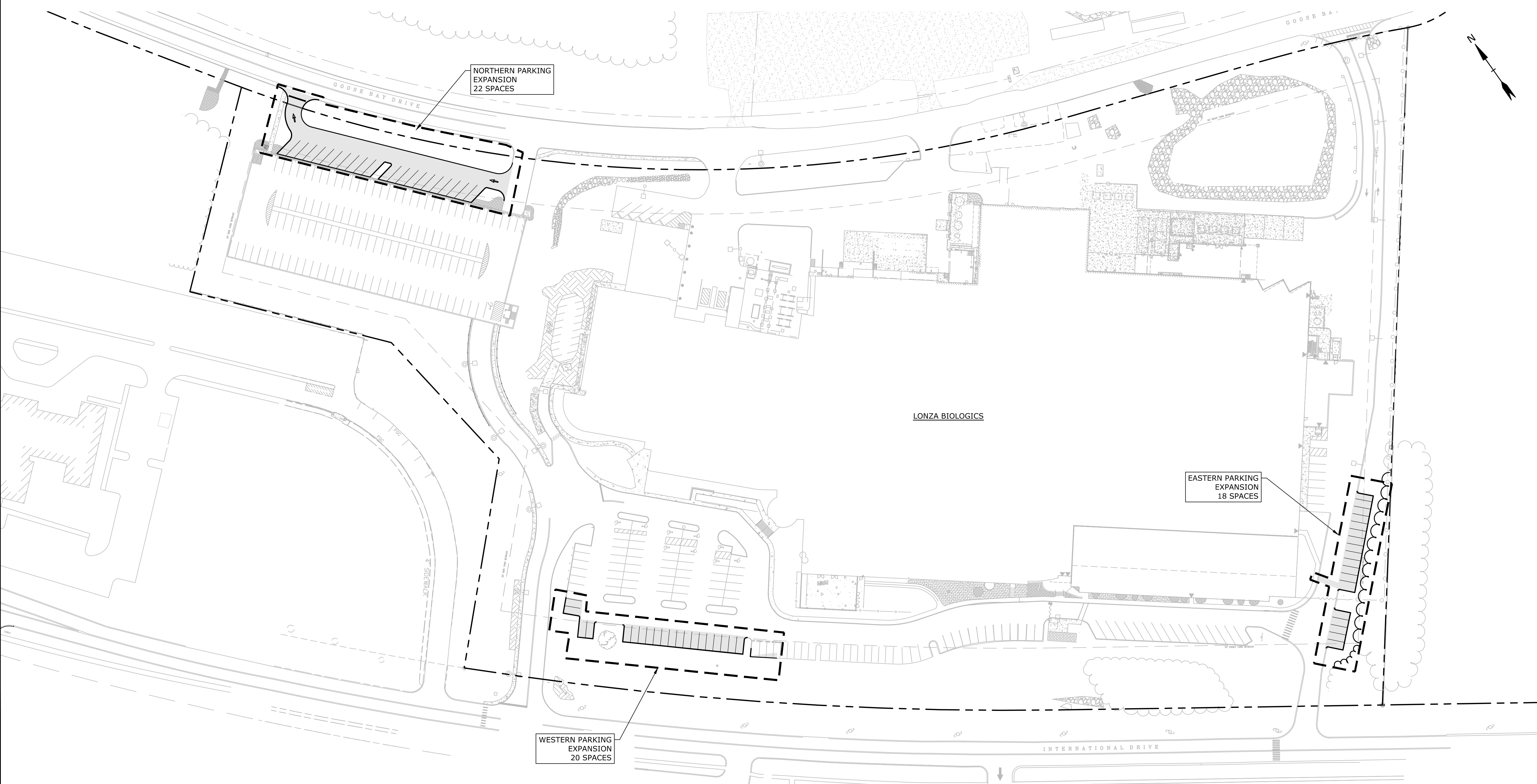
- GRADING AND DRAINAGE NOTES:**
1. COMPACTION REQUIREMENTS:
 BELOW PAVED OR CONCRETE AREAS 95%
 TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL 95%
 BELOW LOAM AND SEED AREAS 90%
 * ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.
 2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL).
 3. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
 4. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
 5. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS AND DRAIN LINES, WITHIN THE LIMIT OF WORK, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
 6. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
 7. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
 8. ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
 9. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
 10. SEE EXISTING CONDITIONS PLAN FOR BENCH MARK INFORMATION.

- UTILITY NOTES:**
1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
 2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
 • WATER - CITY OF PORTSMOUTH
 3. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
 4. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
 5. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
 6. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
 7. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.
 8. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
 9. THE CONTRACTOR SHALL CONTACT "DIG-SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL HAVE THE "DIG-SAFE" NUMBER ON SITE AT ALL TIMES.
 10. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCHES FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.
 11. HYDRANTS, GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.

STATE OF NEW HAMPSHIRE
 BRADLEE MEZOUJIA
 No. 08830
 LICENSED PROFESSIONAL ENGINEER
 12-23-19

STATE OF NEW HAMPSHIRE
 PATRICK CRAMMIS
 No. 2970
 LICENSED PROFESSIONAL ENGINEER
 12-23-19

0 60' 120'
 GRAPHIC SCALE



Parking Expansion

Lonza Biologics

Portsmouth, NH

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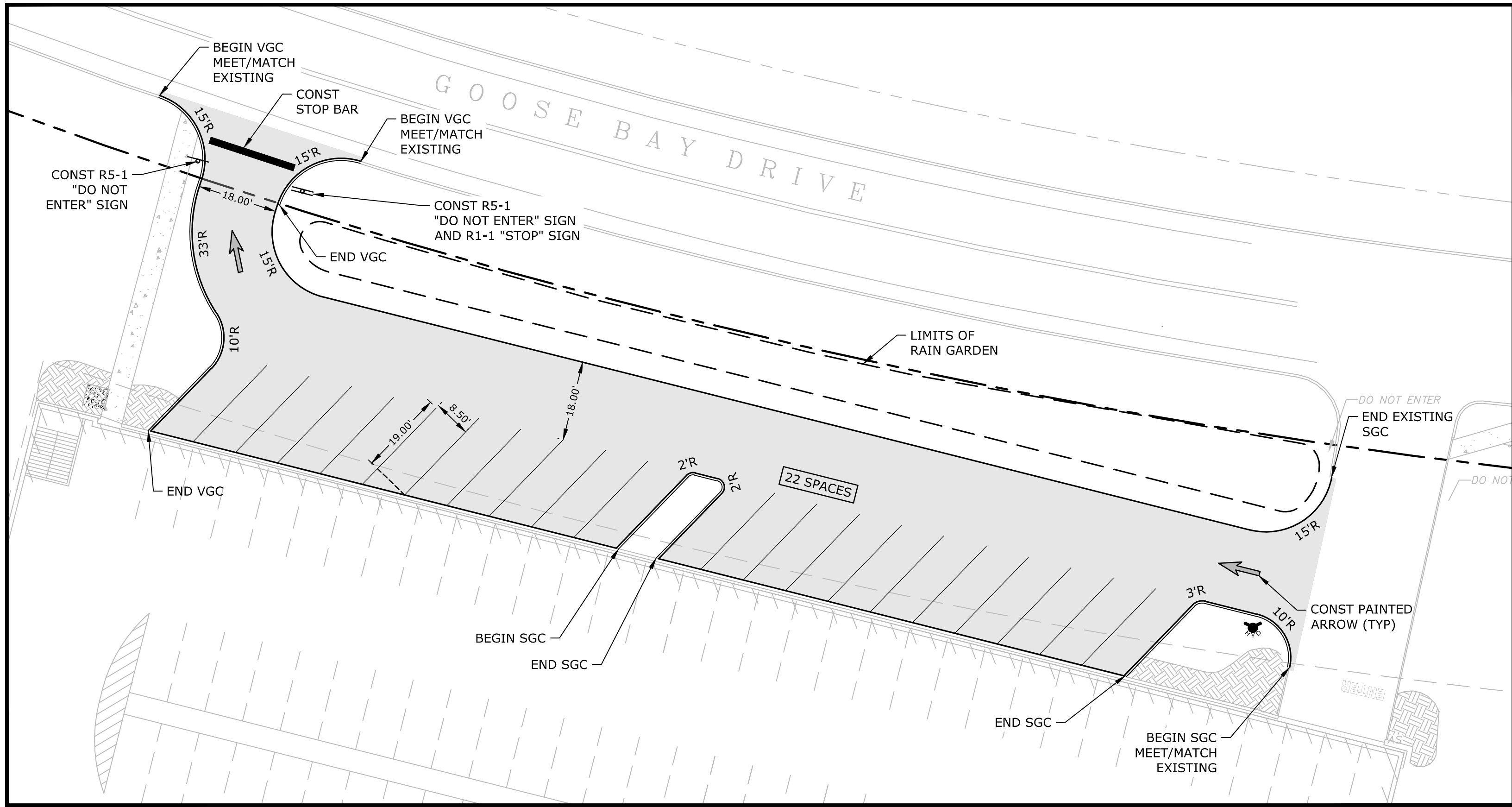
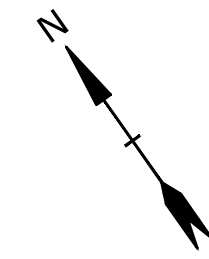
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 DATE: November 13, 2019
 FILE: L-0700-019-C-DSGN.DWG
 DRAWN BY: BKC
 CHECKED: NAH/PMC
 APPROVED: BLM

OVERALL SITE PLAN AND GENERAL NOTES

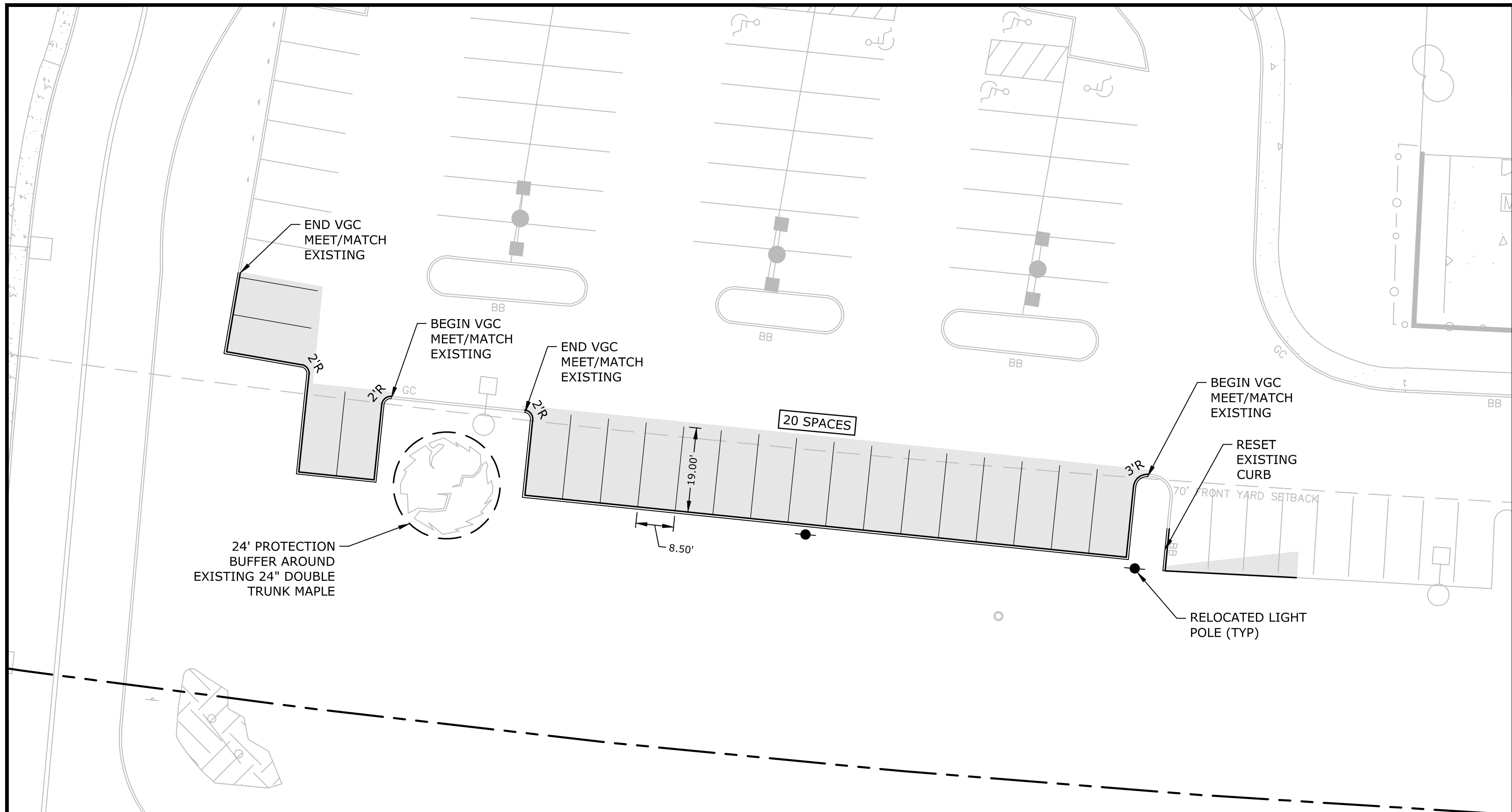
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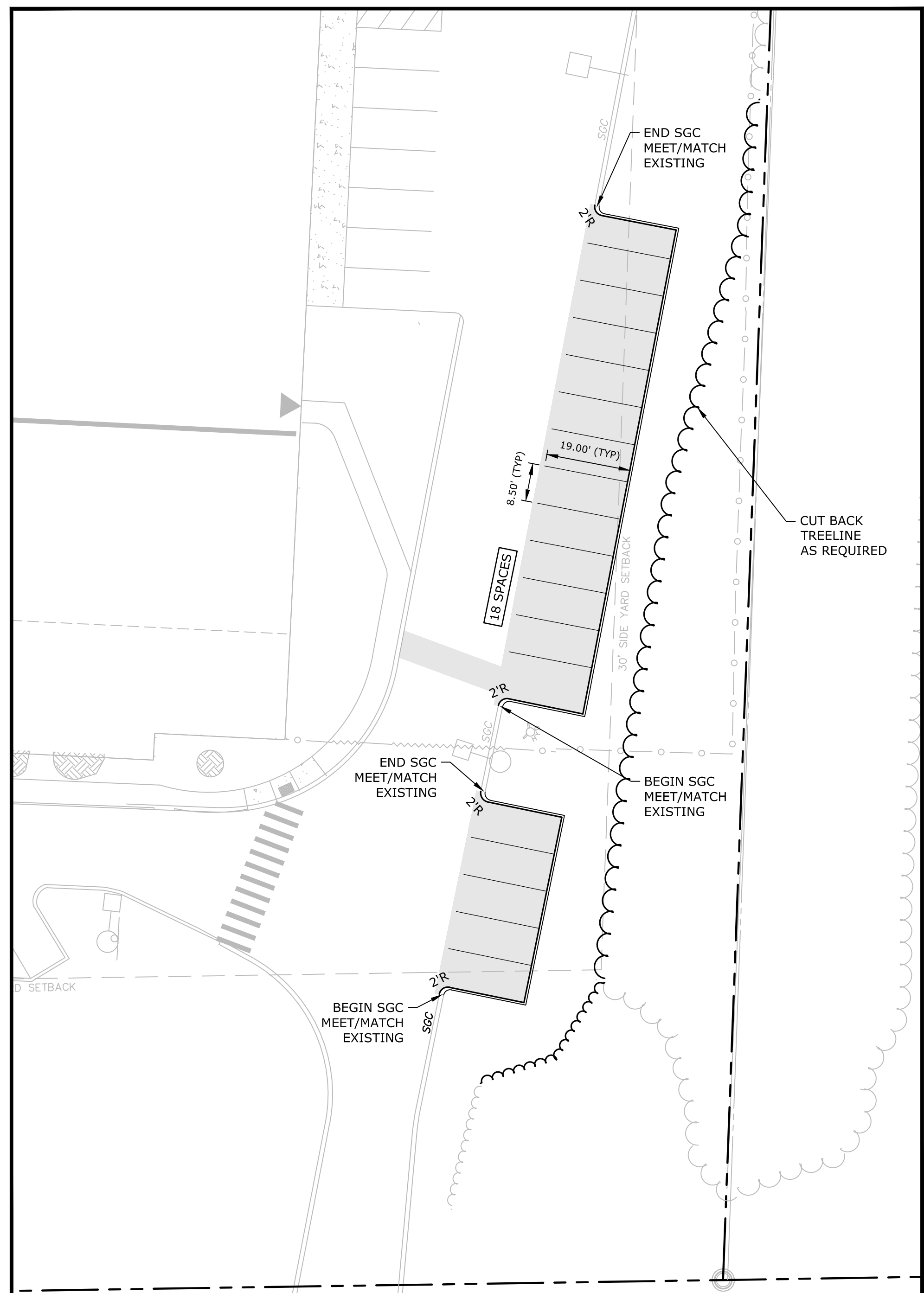
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NORTHERN PARKING EXPANSION
SCALE: 1"=20'

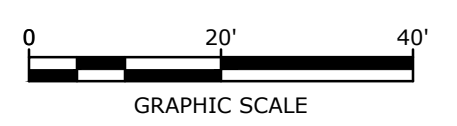
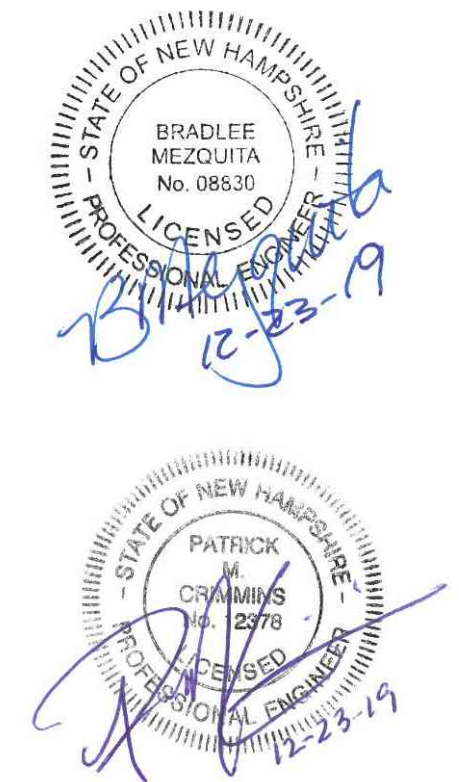


WESTERN PARKING EXPANSION
SCALE: 1"=20'



EASTERN PARKING EXPANSION
SCALE: 1"=20'

- LEGEND**
- PROPERTY LINE
 - PROPOSED EDGE OF PAVEMENT
 - PROPOSED TREE LINE
 - PROPOSED SHRUB LINE
 - PROPOSED PAVEMENT SECTION
 - PROPOSED LIGHT POLE (RELOCATED)
 - TYP TYPICAL
 - SGC SLOPED GRANITE CURB
 - VGC VERTICAL GRANITE CURB
 - CONST CONSTRUCT



Parking Expansion

Lonza Biologics

Portsmouth, NH

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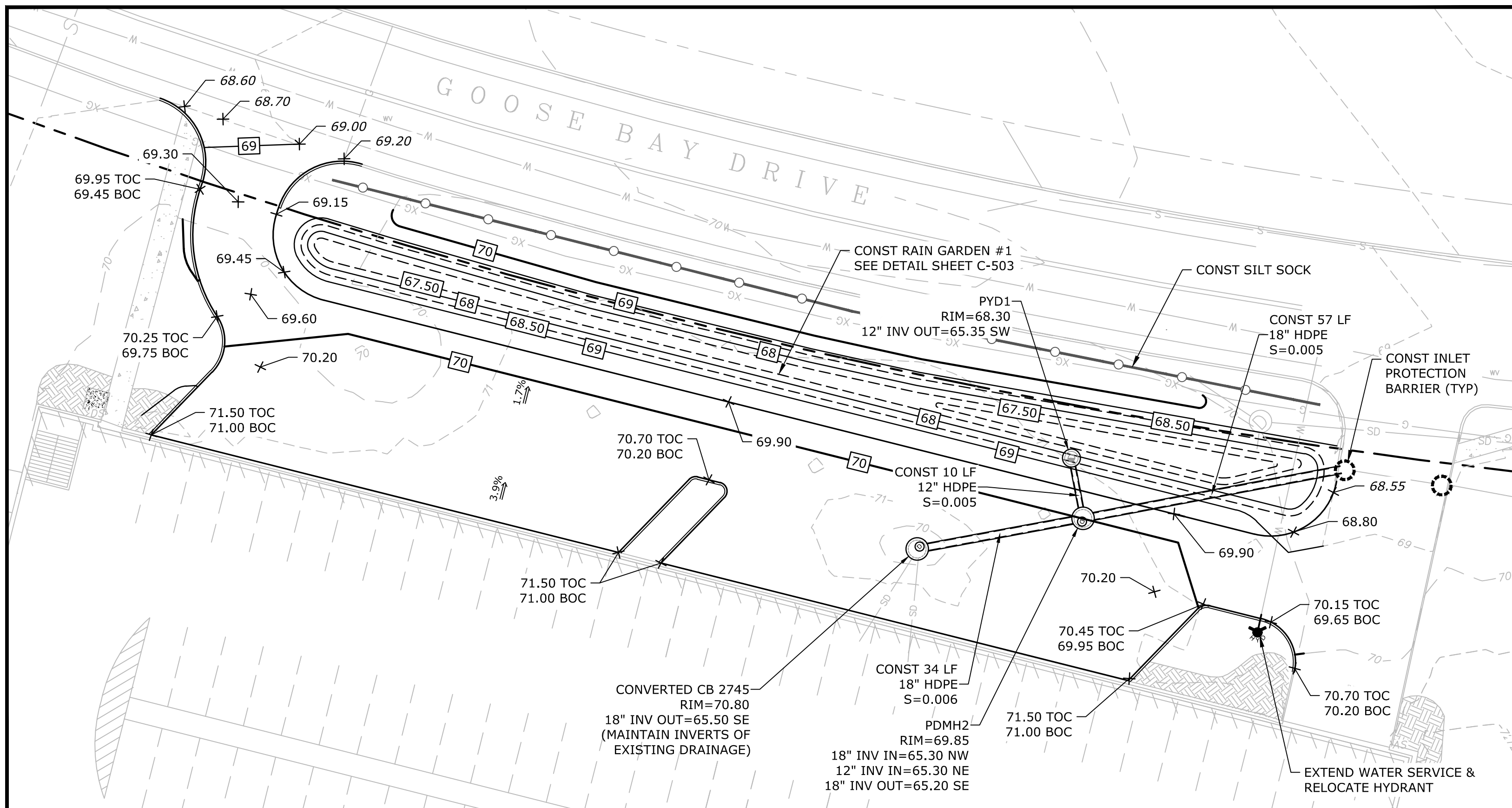
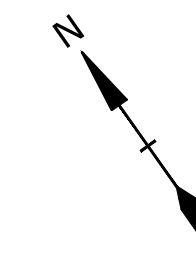
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DATE: November 13, 2019
FILE: L-0700-019-C-DSGN.DWG
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CHECKED: NAH/PMC
APPROVED: BLM

SITE PLAN

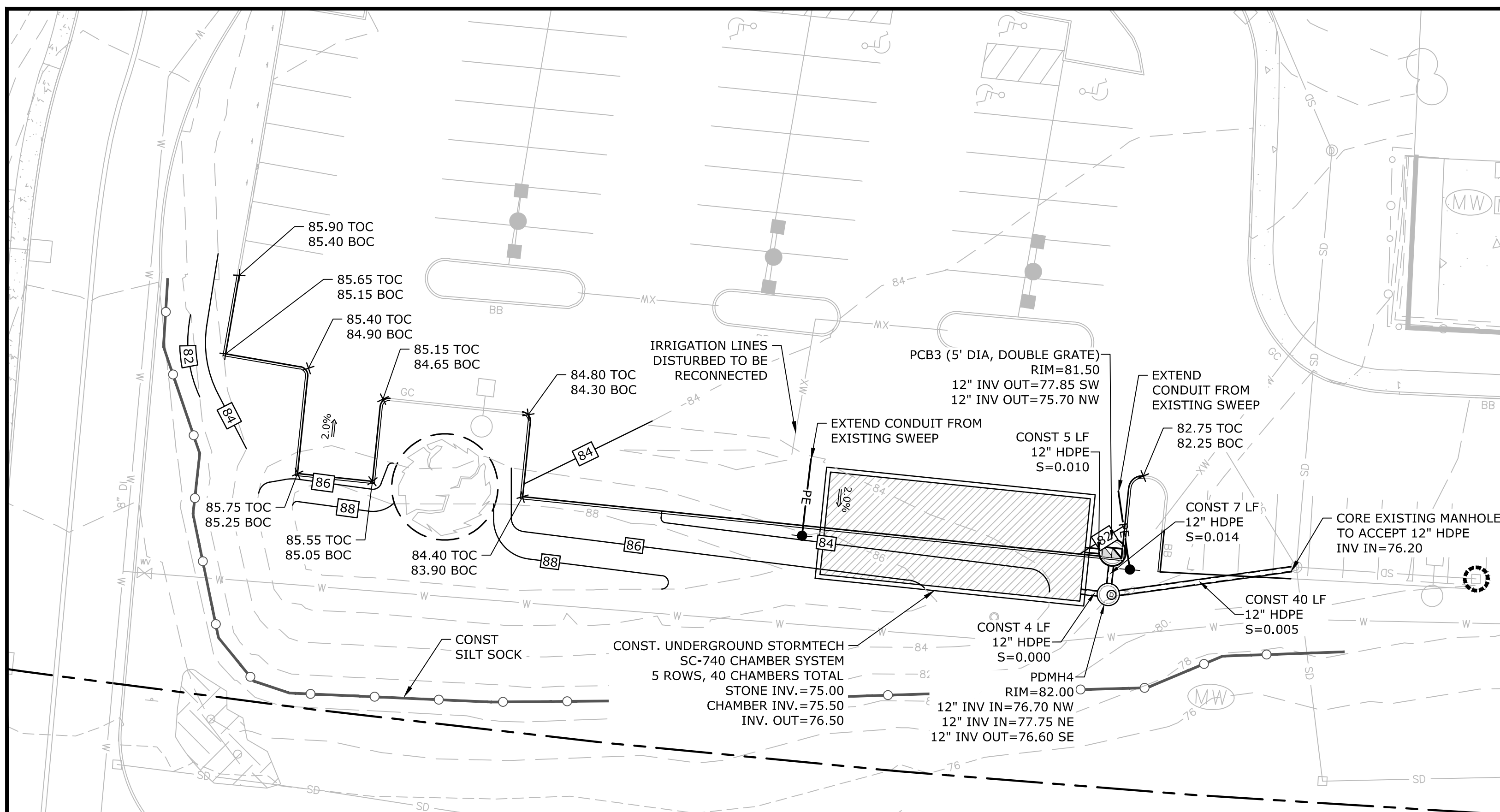
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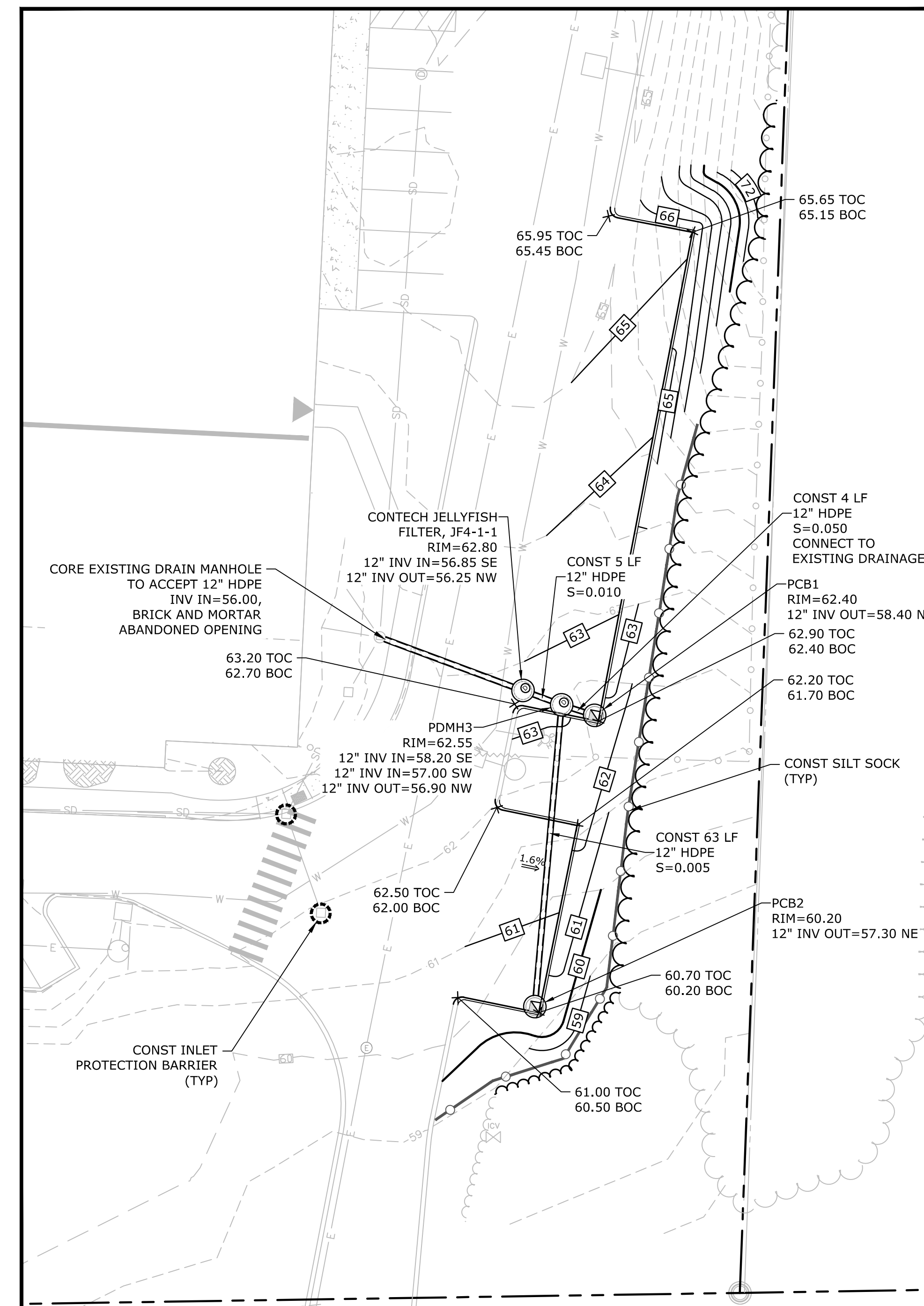
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NORTHERN PARKING EXPANSION
SCALE: 1"=20'



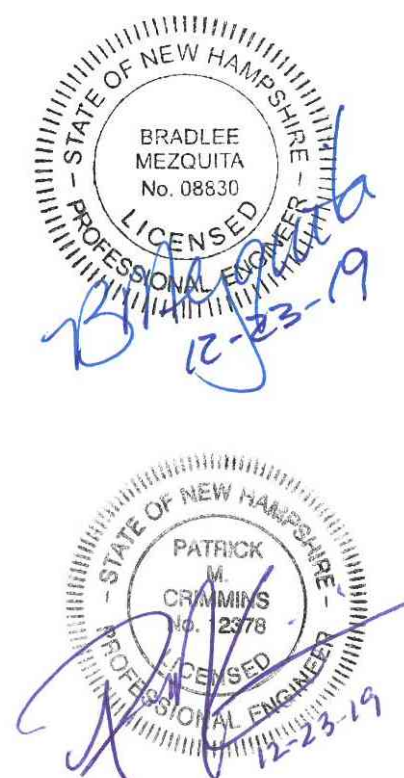
WESTERN PARKING EXPANSION
SCALE: 1"=20'



EASTERN PARKING EXPANSION
SCALE: 1"=20'

LEGEND

	EXISTING WATER		EXISTING CATCH BASIN
	EXISTING STORM DRAIN		EXISTING SEWER MANHOLE
	EXISTING GAS		EXISTING ELECTRIC MANHOLE
	APPROXIMATE EXISTING GAS		EXISTING WATER VALVE
	EXISTING UNDERGROUND ELECTRIC		EXISTING HYDRANT
	EXISTING SEWER		TYPICAL CATCH BASIN
	PROPOSED MAJOR CONTOUR LINE		TYPICAL CATCH BASIN INVERT
	PROPOSED MINOR CONTOUR LINE		DRAIN MANHOLE
	PROPOSED DRAIN LINE (TYP)		CONSTRUCT DRAIN MANHOLE
	PROPOSED SILT SOCK		CONSTRUCT TOP OF CURB
	INLET PROTECTION SILT SACK		CONSTRUCT BOTTOM OF CURB
	PROPOSED DRAIN MANHOLE		
	PROPOSED CATCH BASIN		
	PROPOSED DOUBLE GRATE CATCH BASIN		
	EXISTING DRAIN MANHOLE		



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GRADING, DRAINAGE, EROSION CONTROL, AND UTILITIES PLAN

SCALE: AS SHOWN

Last Saved: 12/23/2019 9:57am By: WAHansen
 Plotted On: Dec 23, 2019 9:57am
 Tighe & Bond 251 Main Street Portsmouth, NH 03801
 Figures AutoCAD Sheet: L-0700-019-C-DSGN.dwg
 Parking Expansion Drawings Figures AutoCAD Sheet: L-0700-019-C-DSGN.dwg

GENERAL PROJECT INFORMATION

PROJECT LESSOR: PEASE DEVELOPMENT AUTHORITY
55 INTERNATIONAL DRIVE
PORTSMOUTH, NH 03801
PROJECT APPLICANT: LONZA BIOLOGICS
101 INTERNATIONAL DRIVE
PORTSMOUTH, NH 03801
PROJECT ADDRESS: 101 INTERNATIONAL DRIVE
PORTSMOUTH, NH 03801
PROJECT LATITUDE: 43°-04'-59.0"N
PROJECT LONGITUDE: 71°-48'-09.7"W

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES THE EXPANSION OF EXISTING PARKING FACILITIES AT LONZA BIOLOGICS, AS WELL AS DRAINAGE IMPROVEMENTS TO SUPPORT SOME OF THE ADDITIONAL IMPERVIOUS SURFACES.

DISTURBED AREA

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 0.96 ACRES.

SOIL CHARACTERISTICS

BASED ON THE HIGH INTENSITY SOIL SURVEY PREPARED BY GOVE ENVIRONMENTAL SERVICES, INC. IN DECEMBER 2015, THE SITE SOILS VARY FROM WELL DRAINED TO VERY POORLY DRAINED.

NAME OF RECEIVING WATERS

STORM WATER RUNOFF WILL ULTIMATELY DISCHARGE INTO HODGSON BROOK.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

- 1. CUT AND CLEAR TREES.
- 2. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
 - NEW CONSTRUCTION
 - CONTROL OF DUST
 - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS
 - CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
- 3. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPS PRIOR TO DIRECTING RUNOFF TO THEM.
- 4. CLEAR AND DISPOSE OF DEBRIS.
- 5. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
- 6. GRADE AND GRAVEL ROADWAYS AND PARKING AREAS - ALL ROADS AND PARKING AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- 7. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- 8. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED.
- 9. SEDIMENT TRAPS AND/OR BASINS SHALL BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.
- 10. FINISH PAVING ALL ROADWAYS AND PARKING LOTS.
- 11. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
- 12. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
- 13. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

SPECIAL CONSTRUCTION NOTES:

- 1. THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE.
- 2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

EROSION CONTROL NOTES:

- 1. ALL EROSION CONTROL MEASURES AND PRACTICES SHALL CONFORM TO THE "NEW HAMPSHIRE STORMWATER MANUAL VOLUME 3: EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" PREPARED BY THE NHDES.
- 2. PRIOR TO ANY WORK OR SOIL DISTURBANCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EROSION CONTROL MEASURES AS REQUIRED IN THE PROJECT MANUAL.
- 3. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL BARRIERS, INCLUDING HAY BALES, SILT FENCES, MULCH BERMS, SILT SACKS AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
- 4. SILT SACK INLET PROTECTION SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE DURATION OF THE PROJECT.
- 5. PERIMETER CONTROLS INCLUDING SILT FENCES, MULCH BERM, SILT SOCK, AND/OR HAY BALE BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL NON-PAVED AREAS HAVE BEEN STABILIZED.
- 6. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
- 7. ALL DISTURBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEIVE 6" LOAM, SEED AND FERTILIZER.
- 8. INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKLY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
- 9. CONSTRUCT EROSION CONTROL BLANKETS ON ALL SLOPES STEEPER THAN 3:1.

STABILIZATION:

- 1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
 - A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
 - B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
 - C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
 - D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.;
 - E. IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.
- 2. WINTER STABILIZATION PRACTICES:
 - A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS;
 - B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
 - C. AFTER NOVEMBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;
- 3. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
 - A. TEMPORARY SEEDING;

- B. MULCHING.
- 4. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
- 5. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
- 6. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY NOVEMBER 15.

DUST CONTROL:

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD.
- 2. DUST CONTROL METHODS SHALL INCLUDE, BUT BE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
- 3. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ADJUTING AREAS.

STOCKPILES:

- 1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
- 2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
- 3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
- 4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

OFF SITE VEHICLE TRACKING:

- 1. THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES.

VEGETATION:

- 1. TEMPORARY GRASS COVER:
 - A. SEEDBED PREPARATION:
 - a. APPLY FERTILIZER AT THE RATE OF 600 POUNDS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF THREE (3) TONS PER ACRE;
 - B. SEEDING:
 - a. UTILIZE ANNUAL RYE GRASS AT A RATE OF 40 LBS/ACRE;
 - b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED;
 - c. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDROSEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING;
 - C. MAINTENANCE:
 - a. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).
- 2. VEGETATIVE PRACTICE:
 - A. FOR PERMANENT MEASURES AND PLANTINGS:
 - a. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF THREE (3) TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 6.5;
 - b. FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 800 POUNDS PER ACRE OF 10-20-20 FERTILIZER;
 - c. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4-1/2 POUNDS AND 5-1/2 POUNDS PER INCH OF WIDTH;
 - d. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH;
 - e. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AS INDICATED ABOVE;
 - f. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDDED, AND ALL NOXIOUS WEEDS REMOVED;
 - g. THE CONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED;
 - h. A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE APPLIED AT THE INDICATED RATE:

SEED MIX	APPLICATION RATE
CREeping RED FESCUE	20 LBS/ACRE
TALL FESCUE	20 LBS/ACRE
REDTOP	2 LBS/ACRE

IN NO CASE SHALL THE WEED CONTENT EXCEED ONE (1) PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. SEEDING SHALL BE DONE NO LATER THAN SEPTEMBER 15. IN NO CASE SHALL SEEDING TAKE PLACE OVER SNOW.
 - B. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL):
 - A. FOLLOW PERMANENT MEASURES SLOPE, LIME, FERTILIZER AND GRADING REQUIREMENTS. APPLY SEED MIXTURE AT TWICE THE INDICATED RATE. APPLY MULCH AS INDICATED FOR PERMANENT MEASURES.

CONCRETE WASHOUT AREA:

- 1. THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
 - A. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FACILITY;
 - B. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
 - C. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
 - D. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON-STORMWATER DISCHARGES:

- 1. FIRE-FIGHTING ACTIVITIES;
- 2. FIRE HYDRANT FLUSHING;
- 3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
- 4. WATER USED TO CONTROL DUST;
- 5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
- 6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
- 7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
- 8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
- 9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
- 10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;

- 11. UNCONTAMINATED EXCAVATION DEWATERING;
- 12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL:

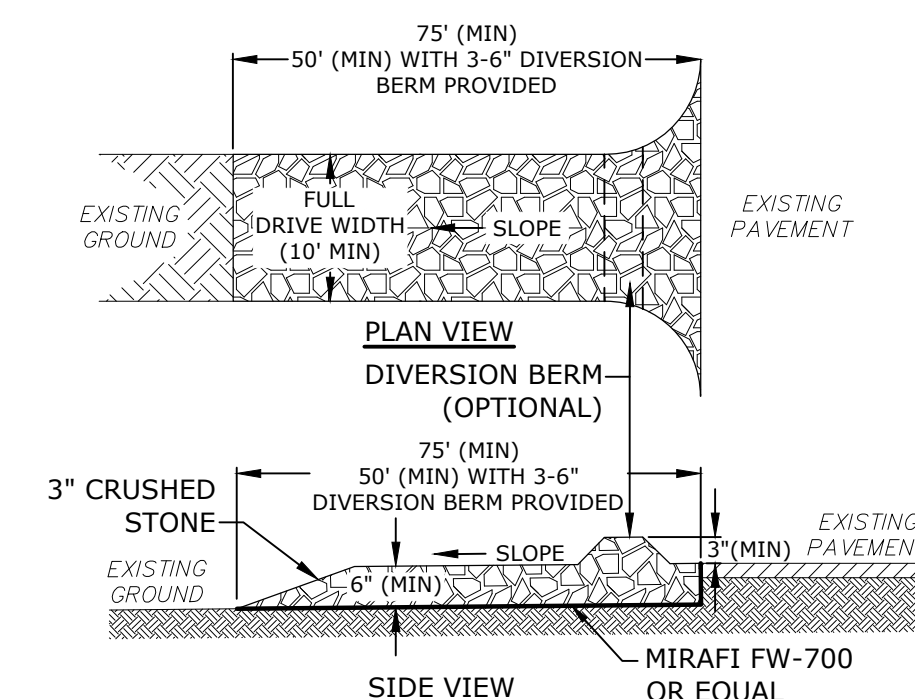
- 1. WASTE MATERIAL:
 - A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
 - B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
 - C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
- 2. HAZARDOUS WASTE:
 - A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
 - B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
- 3. SANITARY WASTE:
 - A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION:

- 1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW.
- 2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
 - A. GOOD HOUSEKEEPING - THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
 - a. ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE;
 - b. ALL MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE;
 - c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED;
 - d. THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS;
 - e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
 - f. WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
 - B. HAZARDOUS PRODUCTS - THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
 - g. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
 - h. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION;
 - i. SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
 - C. PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
 - a. PETROLEUM PRODUCTS:
 - ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE;
 - PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
 - b. FERTILIZERS:
 - FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS;
 - ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER;
 - STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
 - c. PAINTS:
 - ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE;
 - EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
 - EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
 - D. SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
 - a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES;
 - b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE;
 - c. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY;
 - d. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
 - e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED;
 - f. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
 - E. VEHICLE FUELING AND MAINTENANCE PRACTICE:
 - a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPMENT/VEHICAL FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
 - b. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY;
 - c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
 - d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA;
 - e. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE;
 - f. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FLUID.

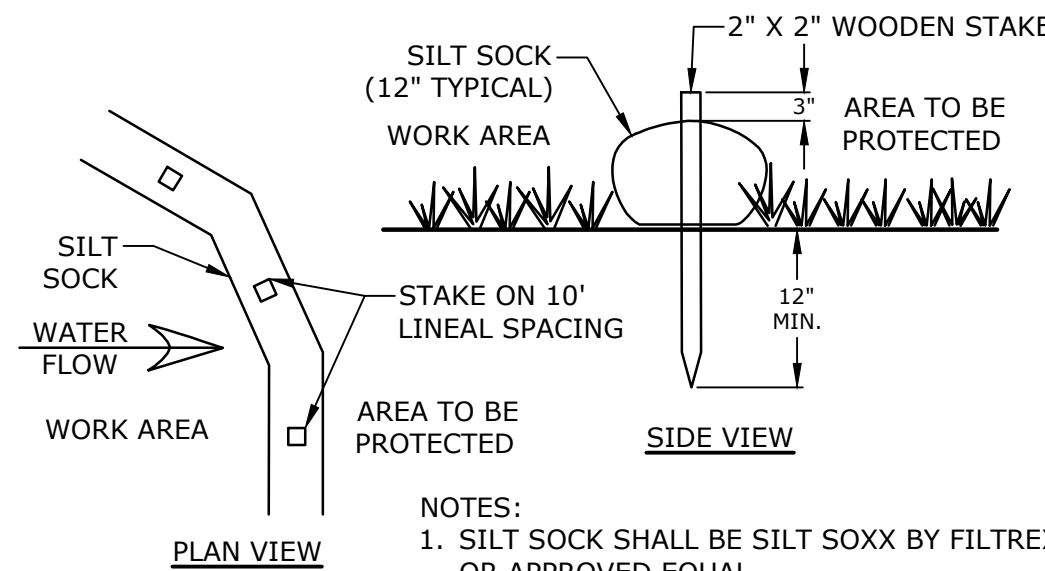
EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES

- THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
 - 1. OBSERVATIONS OF THE PROJECT SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
 - 2. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
 - 3. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
 - 4. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.



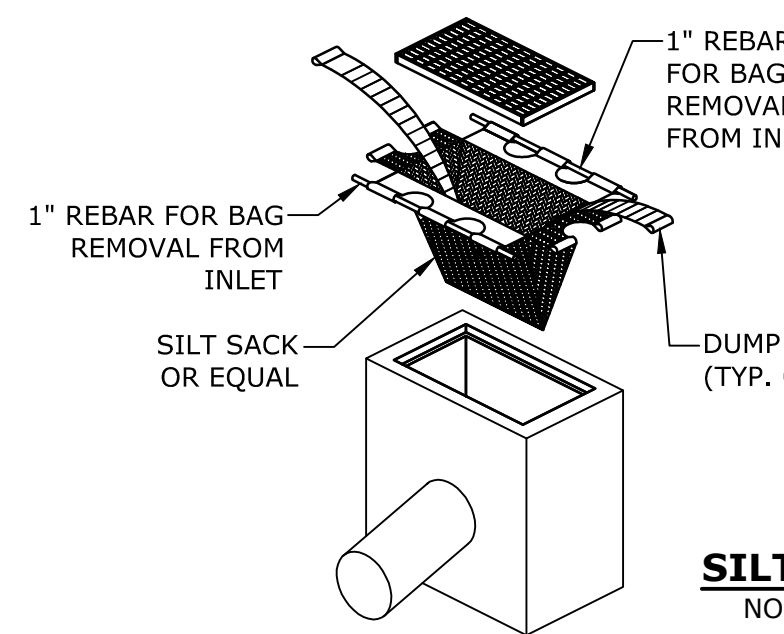
NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO RUNOFF DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS

STABILIZED CONSTRUCTION ENTRANCE
NO SCALE

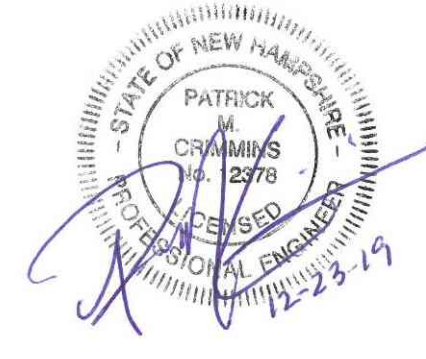


NOTES:
1. SILT SOCK SHALL BE SILT SOXX BY FILTREXX OR APPROVED EQUAL
2. INSTALL SILT SOCK IN ACCORDANCE WITH...

SILT SOCK
NO SCALE



SILT SACK
NO SCALE



Parking Expansion

Lonza Biologics

Portsmouth, NH

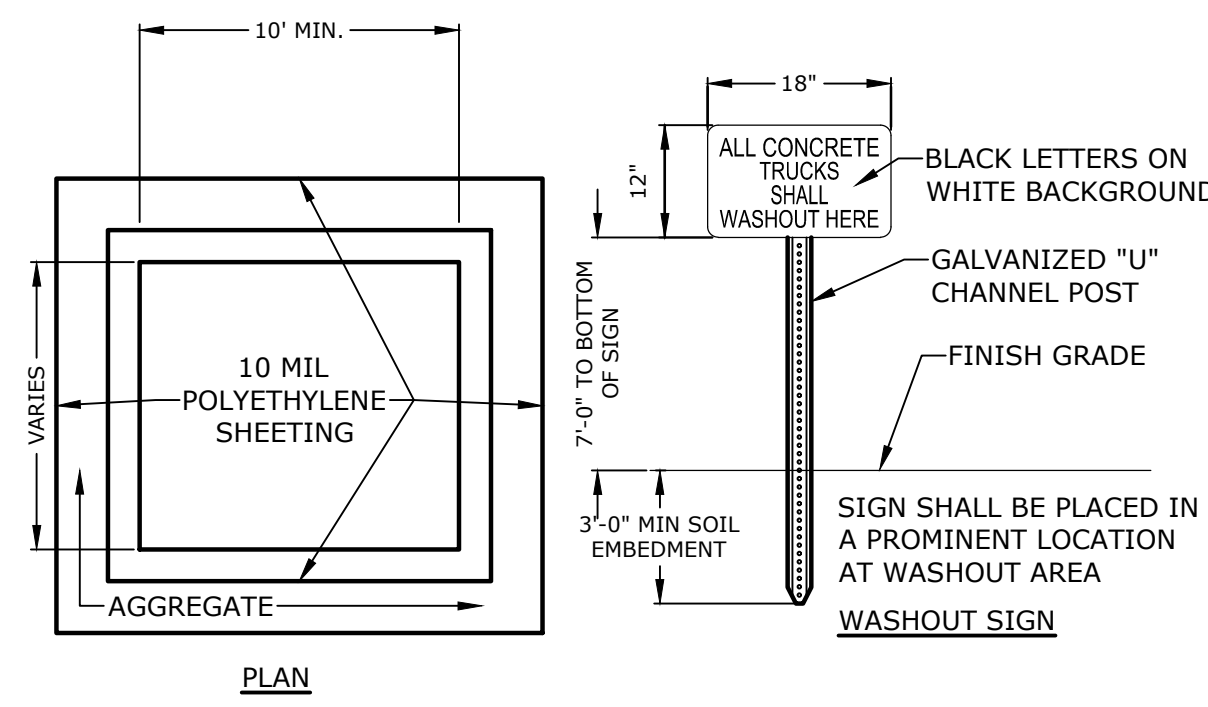
MARK	DATE	DESCRIPTION
A	12/23/2019	TAC Submission

PROJECT NO:	L-0700-019
DATE:	November 13, 2019
FILE:	L-0700-019 - C-DTLS.DWG
DRAWN BY:	BKC
CHECKED:	NAH/PMC
APPROVED:	BLM

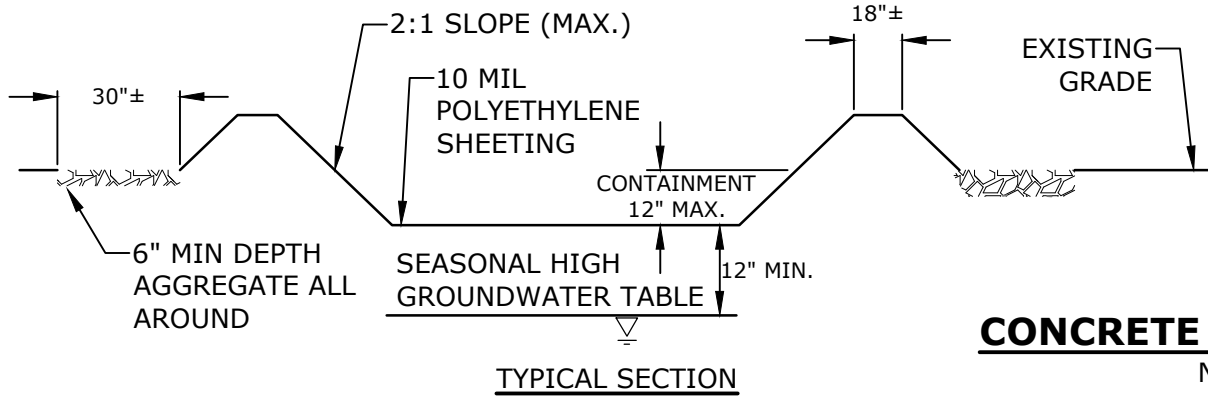
EROSION CONTROL NOTES & DETAILS SHEET

SCALE: AS SHOWN

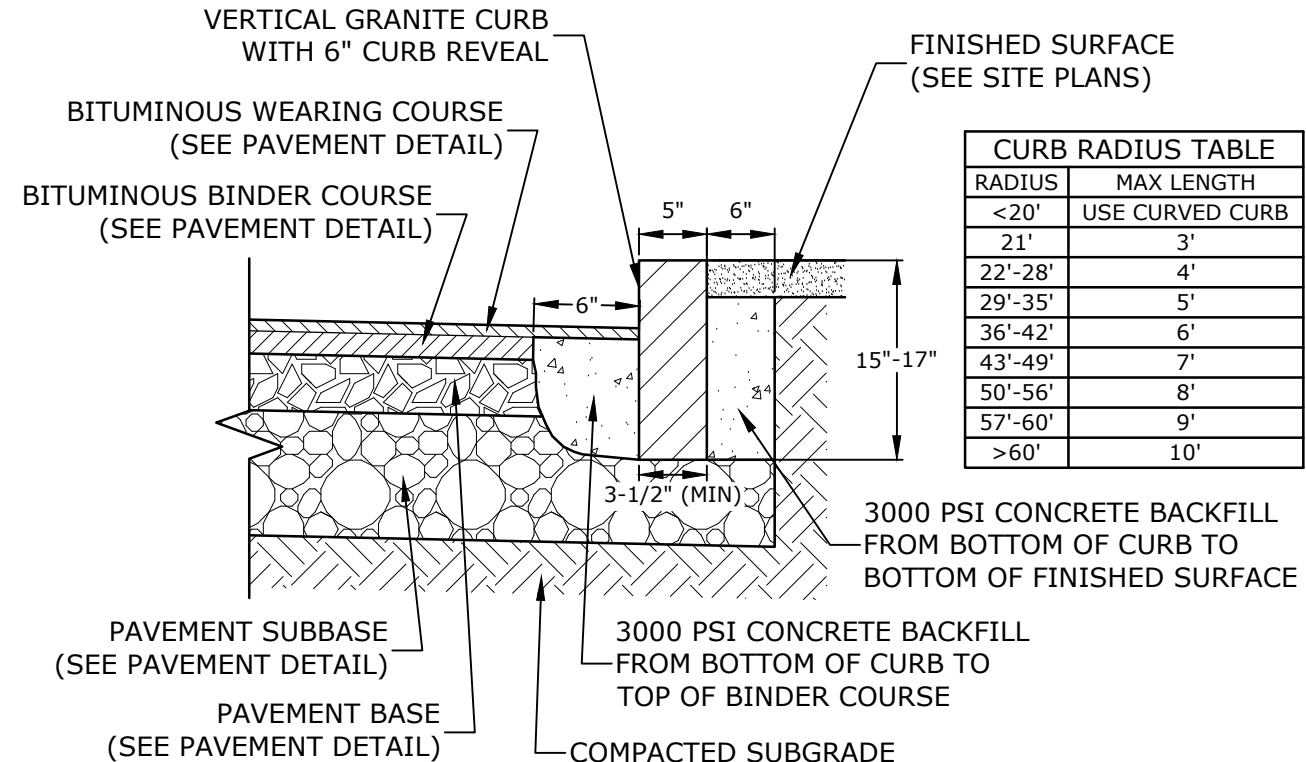
Last Saved: 11/27/2019 9:58am By: Mahaneni
Plotted On: Dec 23, 2019 9:58am By: Tighe & Bond
Figure: E:\Projects\2019\019-09-58am Lonza Biologics Expansion was 1576F019 - Parking Expansion\Drawings - Figures\AutoCAD\Sheet1 - 0700-019 - C-DTLS.dwg



- NOTES:**
1. CONTAINMENT MUST BE STRUCTURALLY SOUND AND LEAK FREE AND CONTAIN ALL LIQUID WASTES.
 2. CONTAINMENT DEVICES MUST BE OF SUFFICIENT QUANTITY OR VOLUME TO COMPLETELY CONTAIN THE LIQUID WASTES GENERATED.
 3. WASHOUT MUST BE CLEANED OR NEW FACILITIES CONSTRUCTED AND READY TO USE ONCE WASHOUT IS 75% FULL.
 4. WASHOUT AREA(S) SHALL BE INSTALLED IN A LOCATION EASILY ACCESSIBLE BY CONCRETE TRUCKS.
 5. ONE OR MORE AREAS MAY BE INSTALLED ON THE CONSTRUCTION SITE AND MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
 6. AT LEAST WEEKLY REMOVE ACCUMULATION OF SAND AND AGGREGATE AND DISPOSE OF PROPERLY.



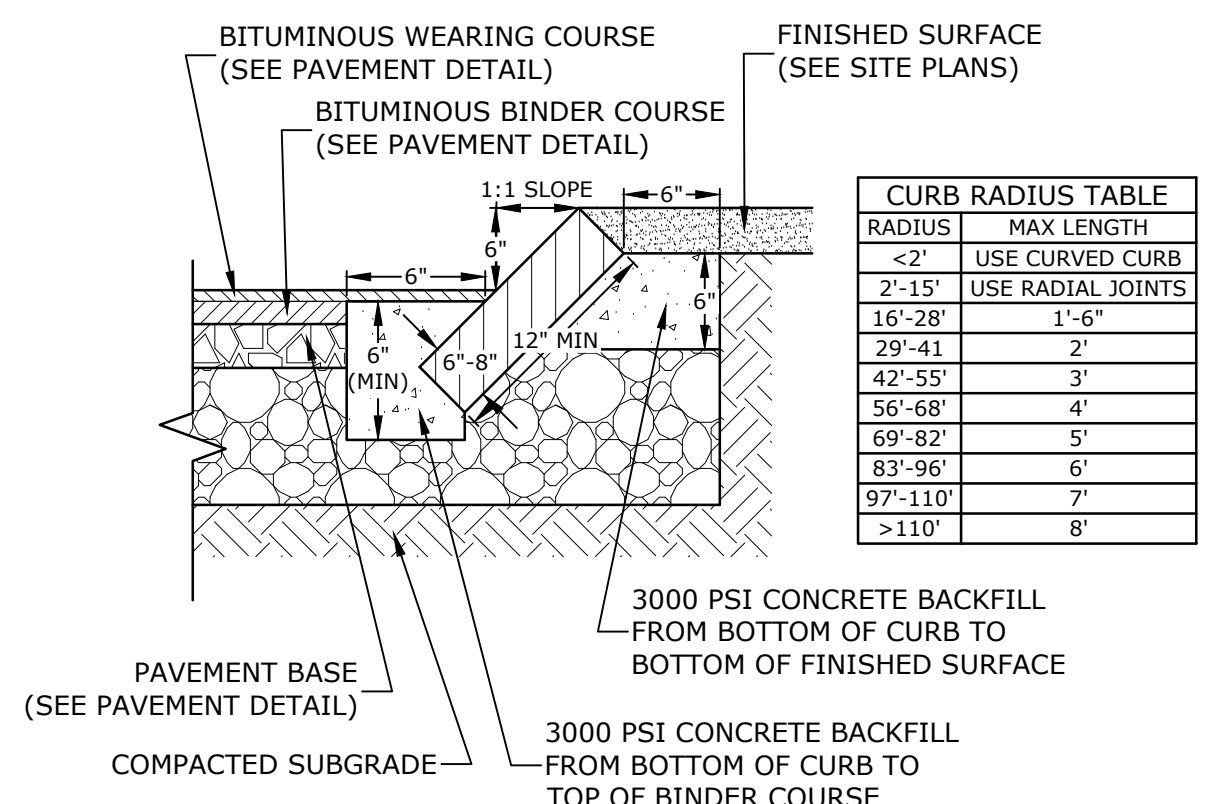
CONCRETE WASHOUT AREA
NO SCALE



RADIUS	MAX LENGTH
<20'	USE CURVED CURB
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
>60'	10'

- NOTES:**
1. SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
 2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
 3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
 4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
 5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
 6. ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
 7. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

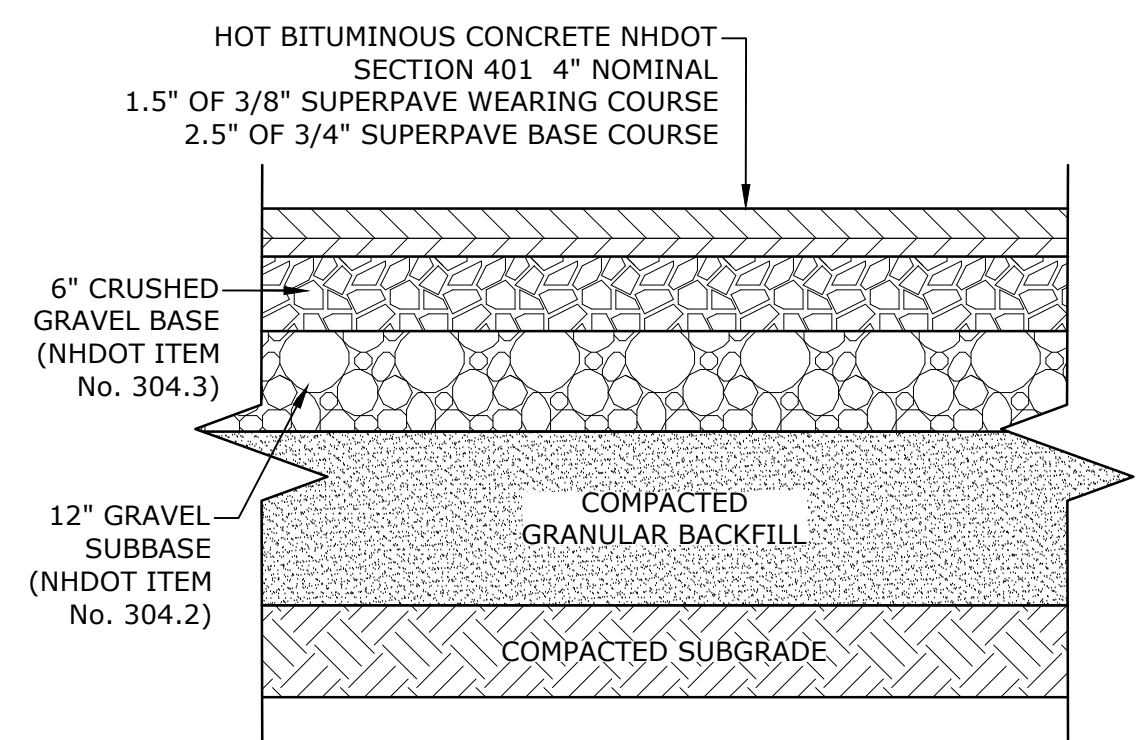
VERTICAL GRANITE CURB
NO SCALE



RADIUS	MAX LENGTH
<2'	USE CURVED CURB
2'-15'	USE RADIAL JOINTS
16'-28'	1'-6"
29'-41'	2'
42'-55'	3'
56'-68'	4'
69'-82'	5'
83'-96'	6'
97'-110'	7'
>110'	8'

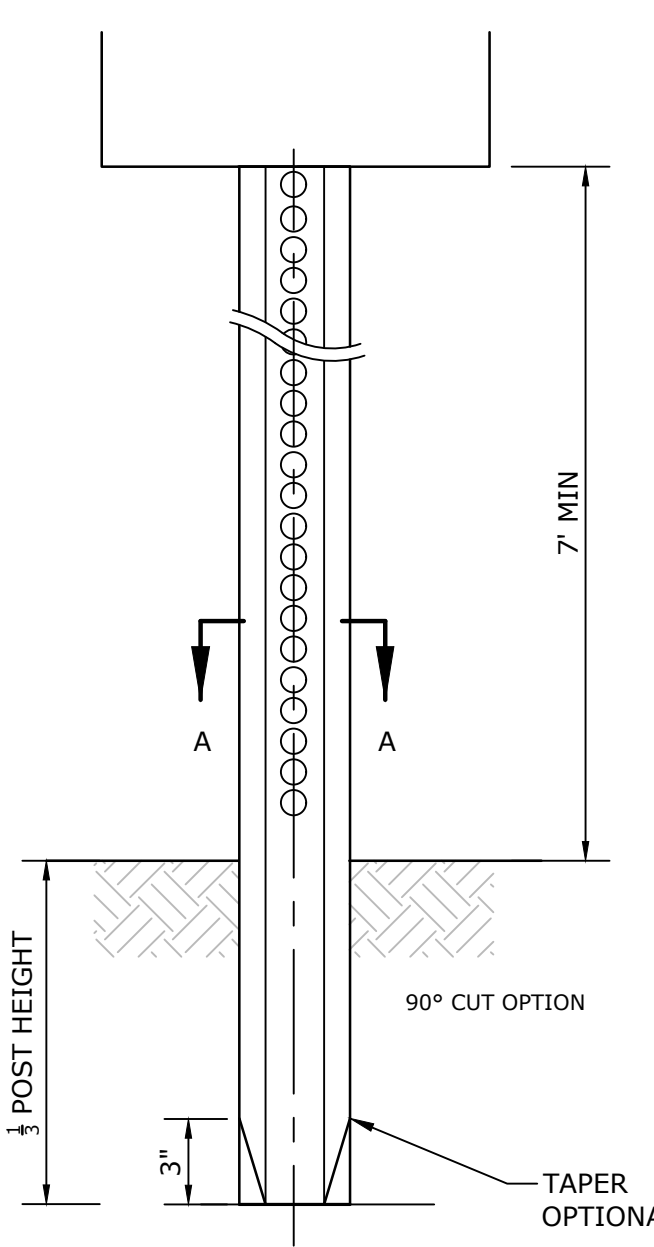
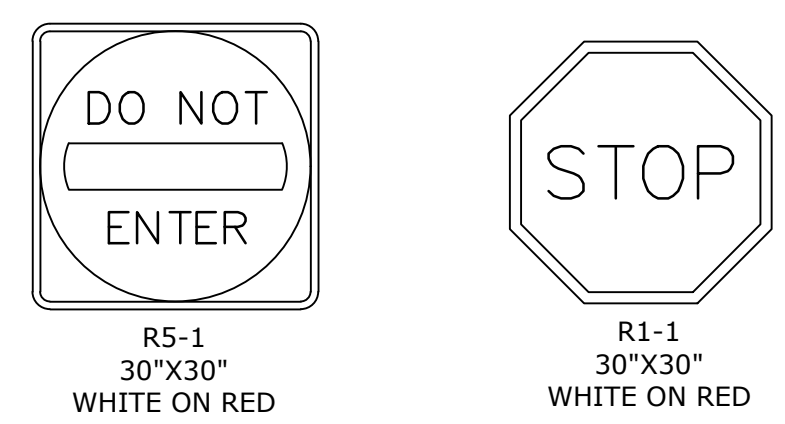
- NOTES:**
1. SEE SITE PLAN(S) FOR LIMITS OF SLOPED GRANITE CURB (SGC).
 2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
 3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
 4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
 5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
 6. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

SLOPED GRANITE CURB
NO SCALE



- NOTES:**
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
 2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
 3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.

STANDARD DUTY PAVEMENT SECTION
NO SCALE



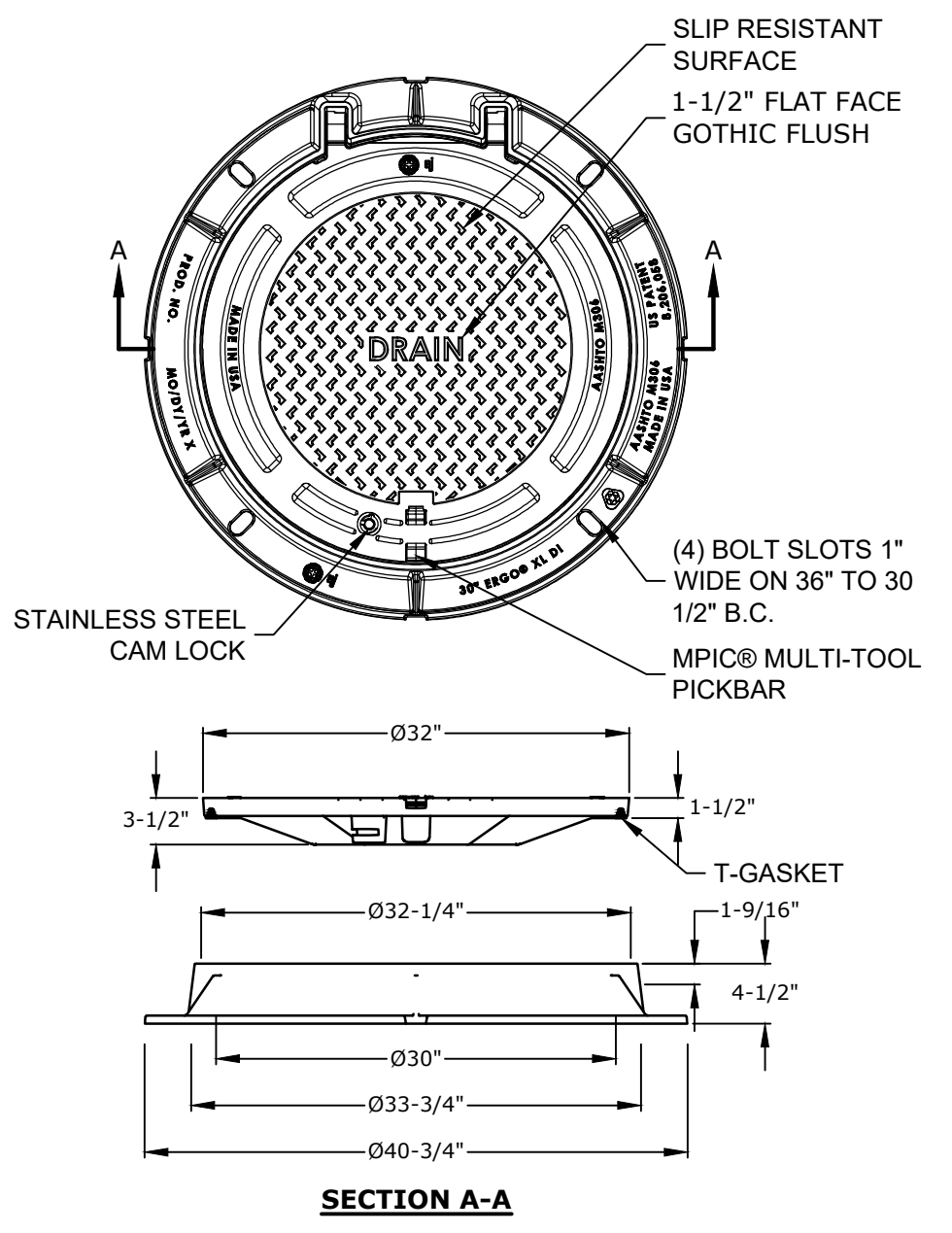
WT.	A	B	C
3 LBS	1 1/8" OR 1 1/16"	1 3/8" OR 1 1/4"	3 3/4"
4 LBS	1 5/8"	1 3/4"	3 3/4"

- NOTES:**
1. SIGN POST TO COMPLY WITH ALL ASPECTS OF NHDOT SECTION 615.
 2. LENGTH: AS REQUIRED
 3. WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
 4. HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
 5. STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070 - 1080)
 6. FINISH: SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

- NOTES:**
1. STEEL FOR POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499-81 GRADE 60 AND TO THE CHEMICAL REQUIREMENTS OF ASTM A1-76 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT OF 91 LBS. OR GREATER PER LINEAR YARD.
 2. AFTER FABRICATION, ALL STEEL POSTS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A 123.
 3. ALL SIGN POSTS SHALL HAVE "BREAKAWAY" FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS-1985." THE "BREAKAWAY" FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CARRY THE SIGNS SHOWN IN THE PLANS AT 60 MPH WIND LOADINGS. INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
 4. TYPE A POSTS - 3 LB/FT TYPE B POSTS - 4 LB/FT.
 5. ALL SIGNS TO BE CONSTRUCTED PER THE LATEST EDITION OF THE FHWA STANDARD HIGHWAY SIGNS MANUAL AND INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
 6. MEET REQUIREMENTS OF SECTION 615 SIGNS OF NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2010 EDITION, AS AMENDED.

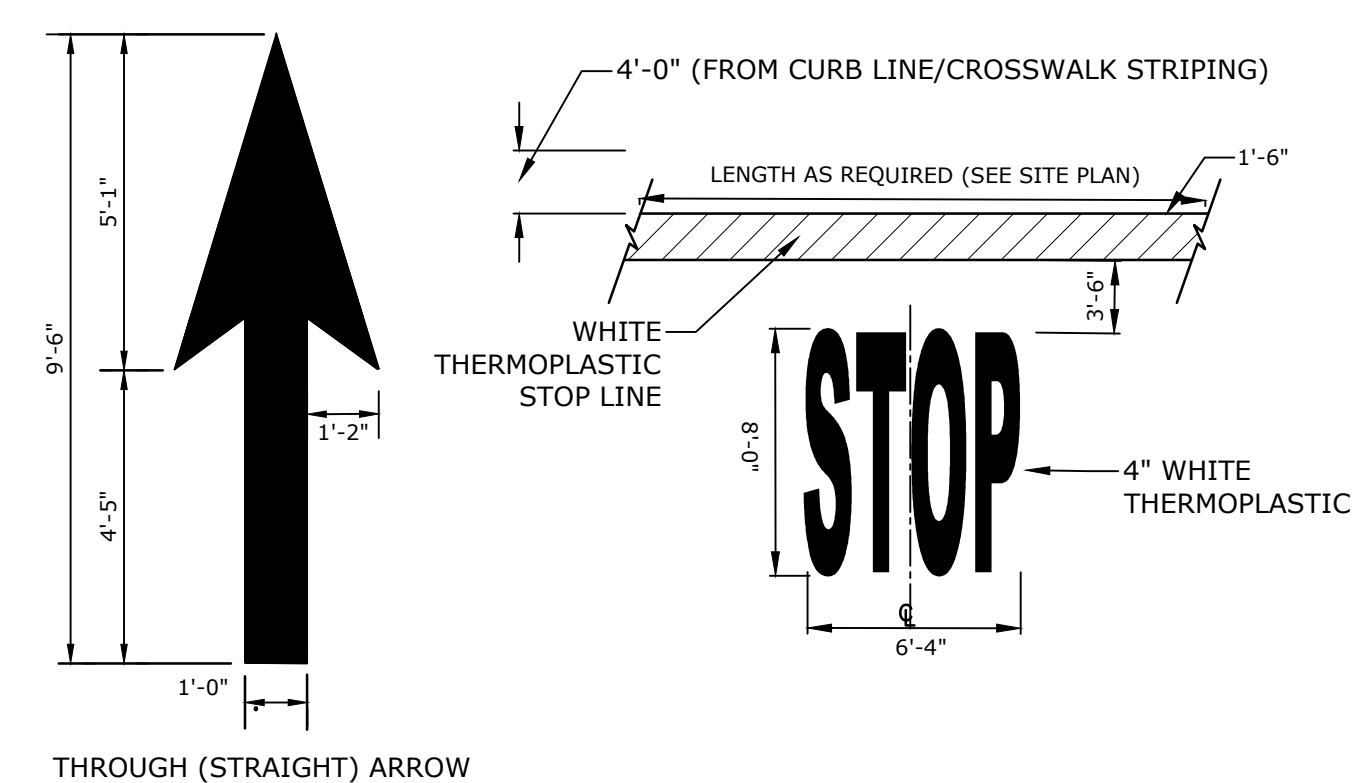
* IN LEDGE DRILL & GROUT TO A MIN OF 2'

SIGN POST
NO SCALE



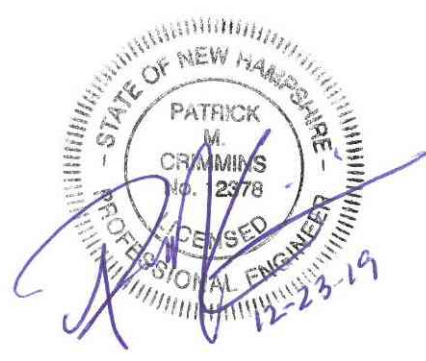
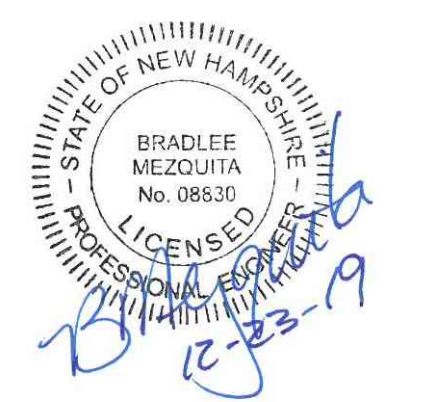
- NOTES:**
1. MANHOLE FRAME AND COVER SHALL BE 32" HINGED ERGO XL BY EJ CO.
 2. ALL DIMENSIONS ARE NOMINAL.
 3. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
 - A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
 - B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
 - C. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
 4. LABEL TYPE OF MANHOLE WITH 3" HIGH LETTERS IN HE CENTER OF THE COVER.

DRAIN MANHOLE FRAME & COVER
NO SCALE



- NOTE:**
1. PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS AS SHOWN ON SITE PLAN.
 2. STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

STOP BAR AND LEGEND
NO SCALE



Parking Expansion

Lonza Biologics

Portsmouth, NH

MARK	DATE	DESCRIPTION
A	12/23/2019	TAC Submission

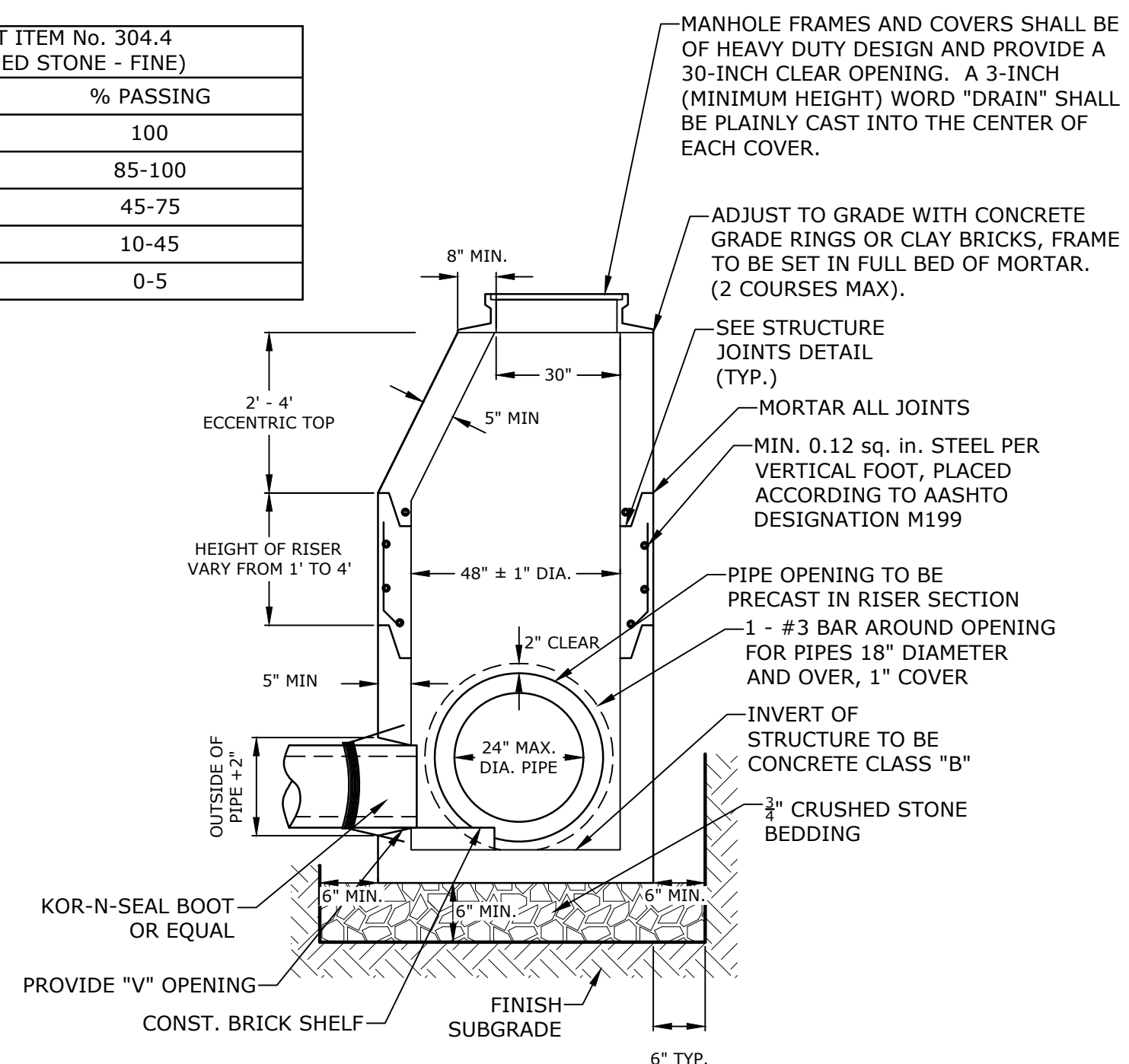
PROJECT NO:	L-0700-019
DATE:	November 13, 2019
FILE:	L-0700-019_C-DTLS.DWG
DRAWN BY:	BKC
CHECKED:	NAH/PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-502

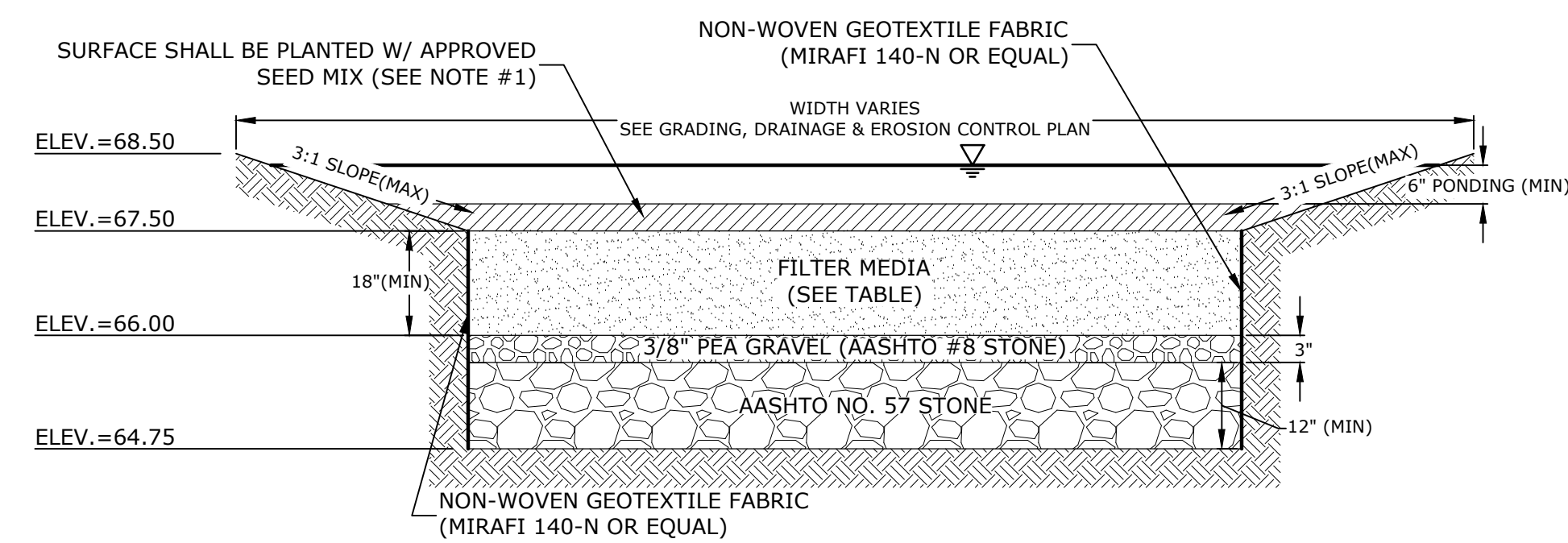
NHDOT ITEM No. 304.4 (CRUSHED STONE - FINE)	
SIEVE SIZE	% PASSING
2"	100
1-1/2"	85-100
3/4"	45-75
#4	10-45
#200	0-5



- NOTES:
- ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
 - CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
 - THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
 - THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
 - CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
 - THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
 - PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
 - OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
 - PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
 - ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZONTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.

4' DIAMETER DRAIN MANHOLE

NO SCALE



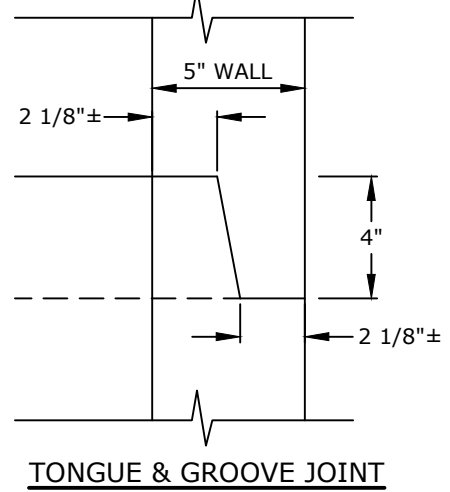
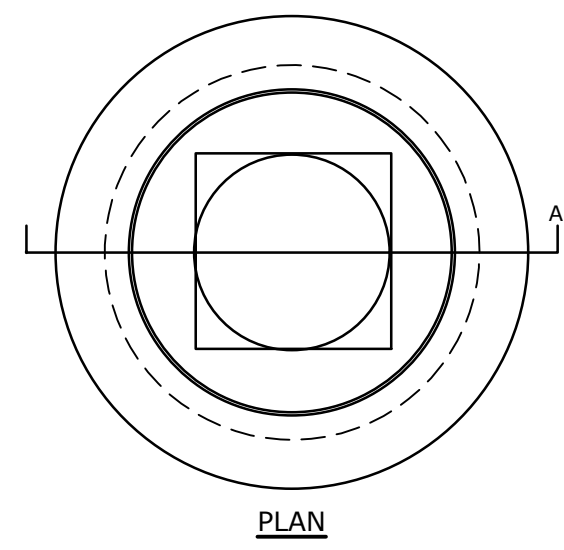
FILTER MEDIA COMPOSITION:			
COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	SIEVE NO.	GRADATION OF MATERIAL PERCENT PASSING
ASTM C-33 CONCRETE SAND	50-55	SEE NOTE #5	
LOAMY SAND TOPSOIL	20-30	200	15-25
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH	20-30	200	5 MAX

- NOTES:
- SEED MIX SHALL CONSIST OF:
 - 50% NEW ENGLAND PLANTS -- NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS & MOIST SITES
 - 50% NEW ENGLAND PLANTS -- NEW ENGLAND CONSERVATION WILDLIFE MIX
 - RAIN GARDENS SHALL NOT BE PLACED INTO SERVICE UNTIL THE PRACTICE HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
 - DO NOT TRAFFIC EXPOSED SOIL SURFACES WITH CONSTRUCTION EQUIPMENT. CONTRACTOR SHALL KEEP ALL EXCAVATION EQUIPMENT OUTSIDE OF THE LIMIT OF THE RAIN GARDEN.
 - SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR LOCATIONS, LAYOUTS, AND ELEVATIONS.
 - THE SAND PORTION OF THE FILTER MEDIA SHALL MEET THE FOLLOWING GRADATION (ASTM C-33):

SIEVE SIZE	PERCENT PASSING	AASHTO #8 STONE (#8 to 3/8")	AASHTO #57 STONE (#4 to 1")
3/8"	100		
#4	95-100	SIEVE SIZE	% PASSING
#8	80-100	1/2"	100
#16	50-85	3/8"	85-100
#30	25-60	#4	10-30
#50	5-30	#8	0-10
#100	0-10	#16	0-5
		#8	0-5

RAIN GARDEN #1

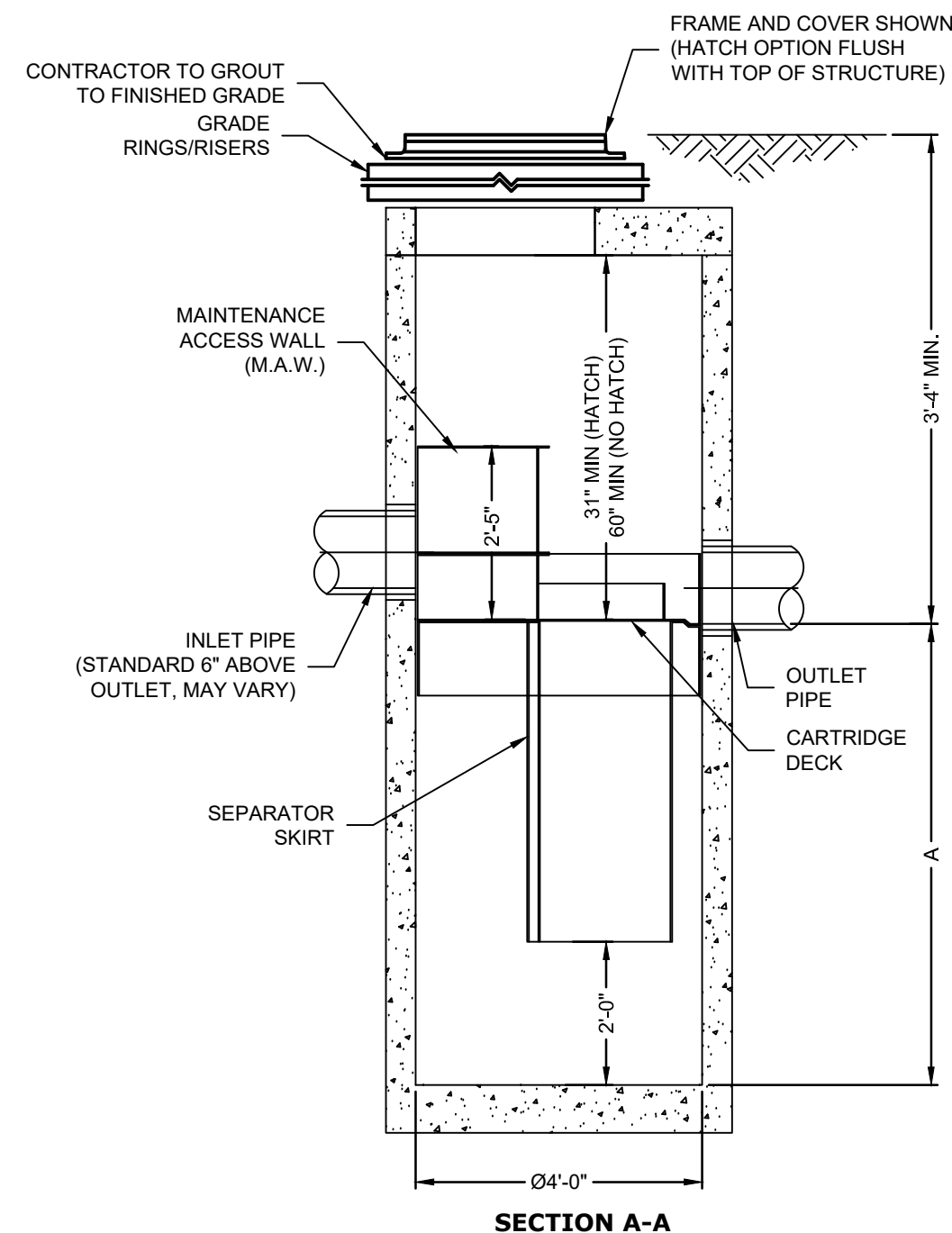
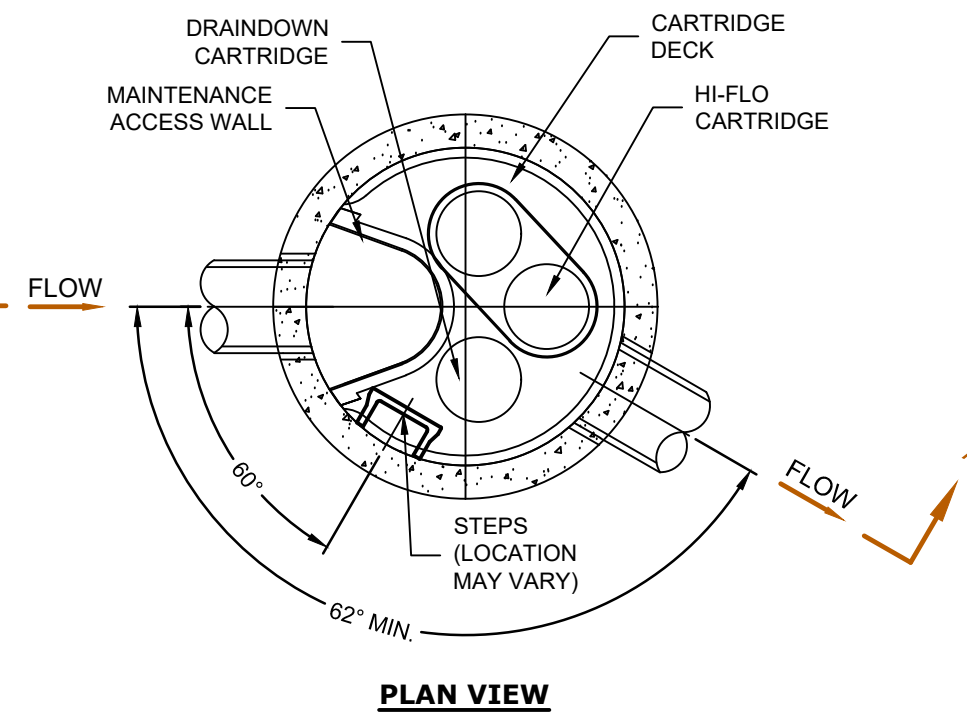
NO SCALE



- NOTES:
- ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
 - CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF WALL.
 - THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
 - RISERS OF 1', 2', 3', & 4' CAN BE USED TO REACH DESIRED DEPTH.
 - THE STRUCTURES SHALL BE DESIGN FOR H20 LOADING.
 - THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.

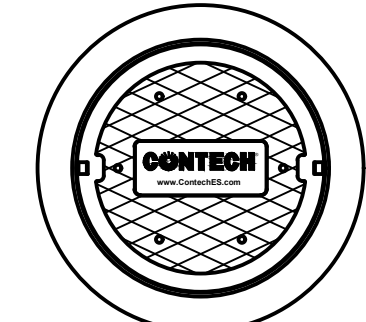
DEEP SUMP CATCHBASIN WITH OIL SEPARATOR

NO SCALE



JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN. Ø48" MANHOLE JELLYFISH PEAK TREATMENT CAPACITY IS 0.45 CFS. IF THE SITE CONDITIONS EXCEED 0.45 CFS AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION	
CARTRIDGE DEPTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-5"
FLOW RATE HIGH-FLO / DRAINDOWN (cfs) (per cart)	0.18 / 0.09
MAX. CARTS HIGH-FLO / DRAINDOWN	2 / 1



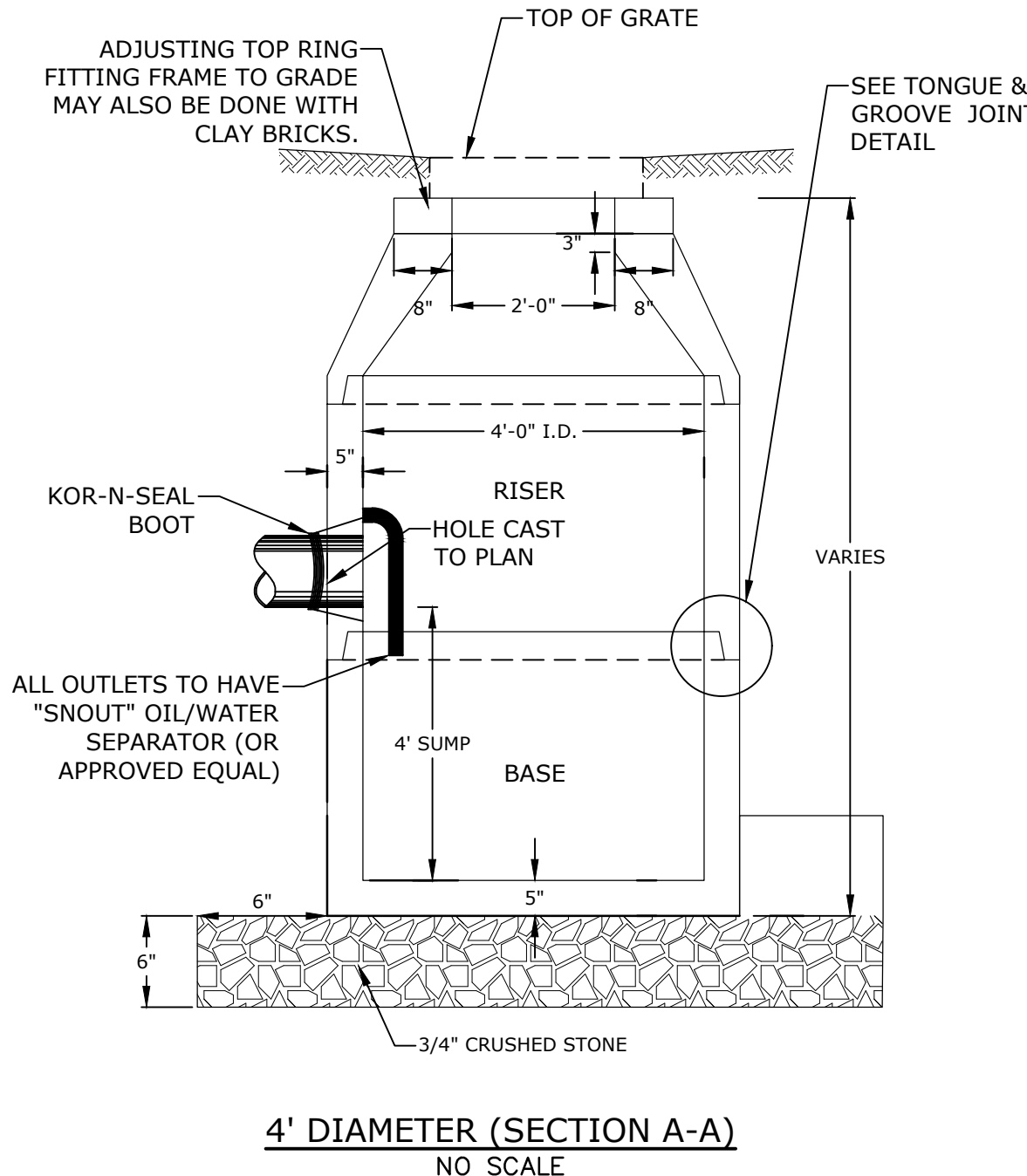
FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

- GENERAL NOTES:
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
 - FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
 - JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
 - STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
 - STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.
 - NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

- INSTALLATION NOTES
- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
 - CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
 - CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
 - CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF
 - CARTRIDGE INSTALLATION BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (866) 740-3318.

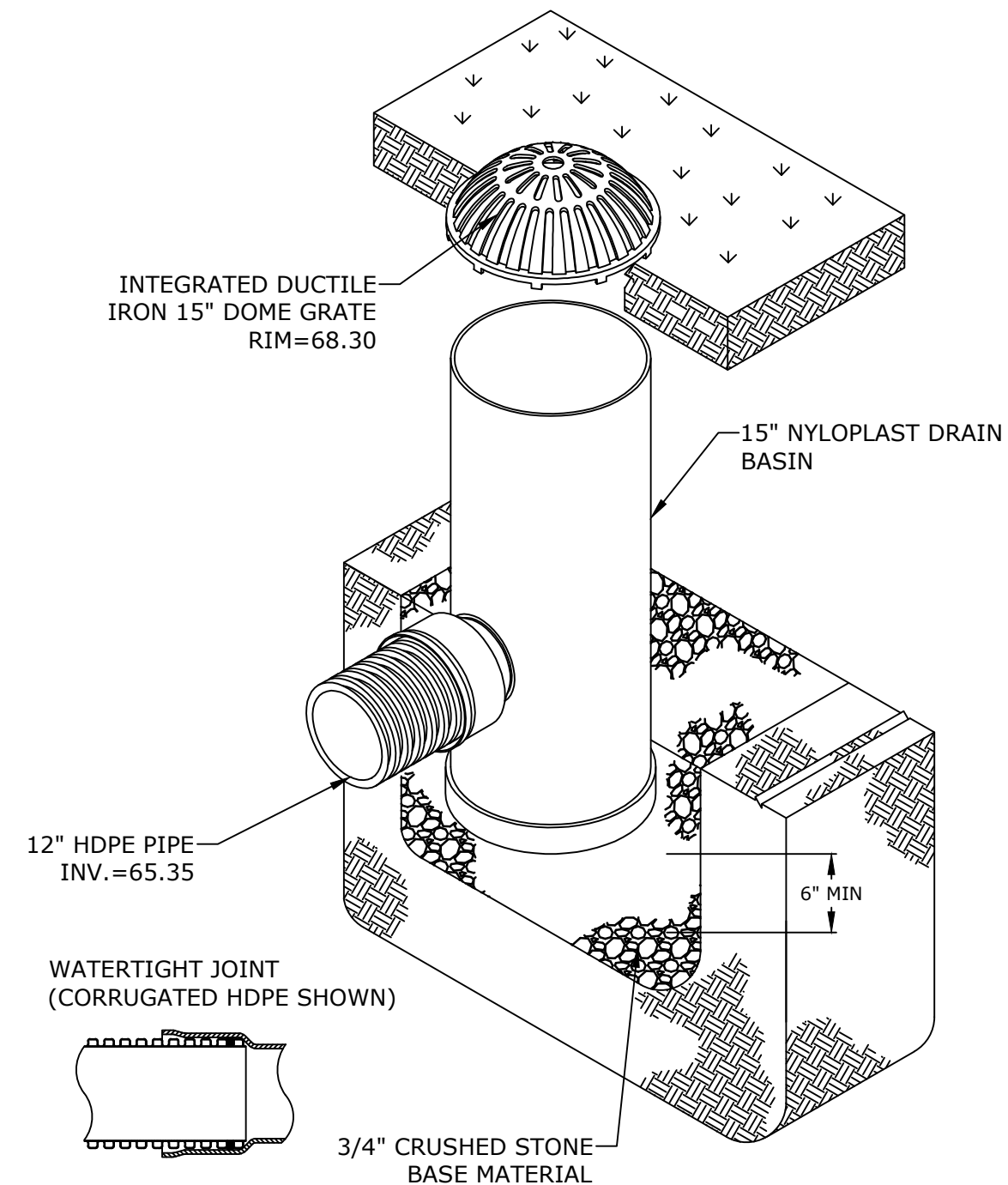
CONTECH JELLYFISH JF4-1-1

NO SCALE



4' DIAMETER (SECTION A-A)

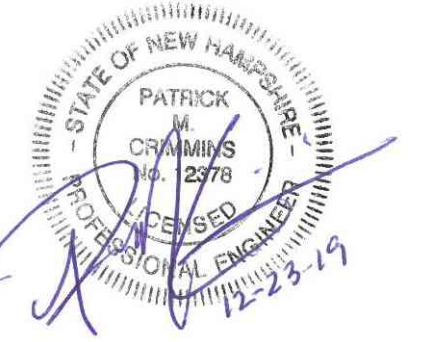
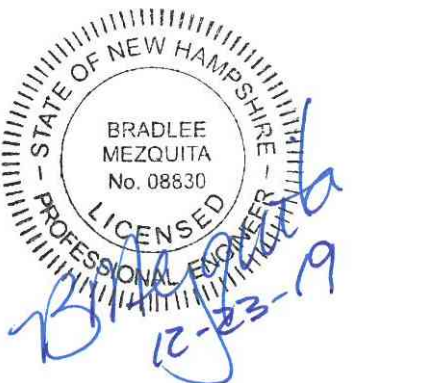
NO SCALE



- NOTES:
- GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
 - SEE GRADING, DRAINAGE, AND EROSION CONTROL PLAN FOR LOCATIONS.

YARD DRAIN #1

NO SCALE



Parking Expansion

Lonza Biologics

Portsmouth, NH

MARK	DATE	DESCRIPTION
A	12/23/2019	TAC Submission

PROJECT NO:	L-0700-019
DATE:	November 13, 2019
FILE:	L-0700-019 - C-DTLS.DWG
DRAWN BY:	BKC
CHECKED:	NAH/PMC
APPROVED:	BLM

DETAILS SHEET

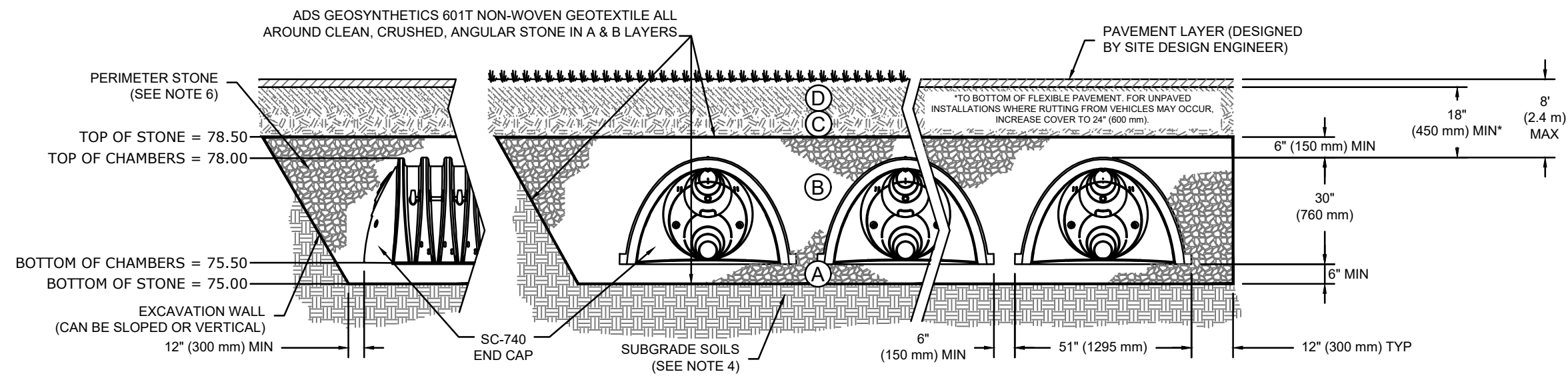
SCALE: AS SHOWN

C-503

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 ¹ A-1, A-2.4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{1,2}

- PLEASE NOTE:
- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
 - STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERSAGES WITH A VIBRATORY COMPACTOR.
 - WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:

- SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
- PLACE MINIMUM 12.5' OF ADS GEOSYNTHETICS 315WTK WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS.

INSPECTION & MAINTENANCE

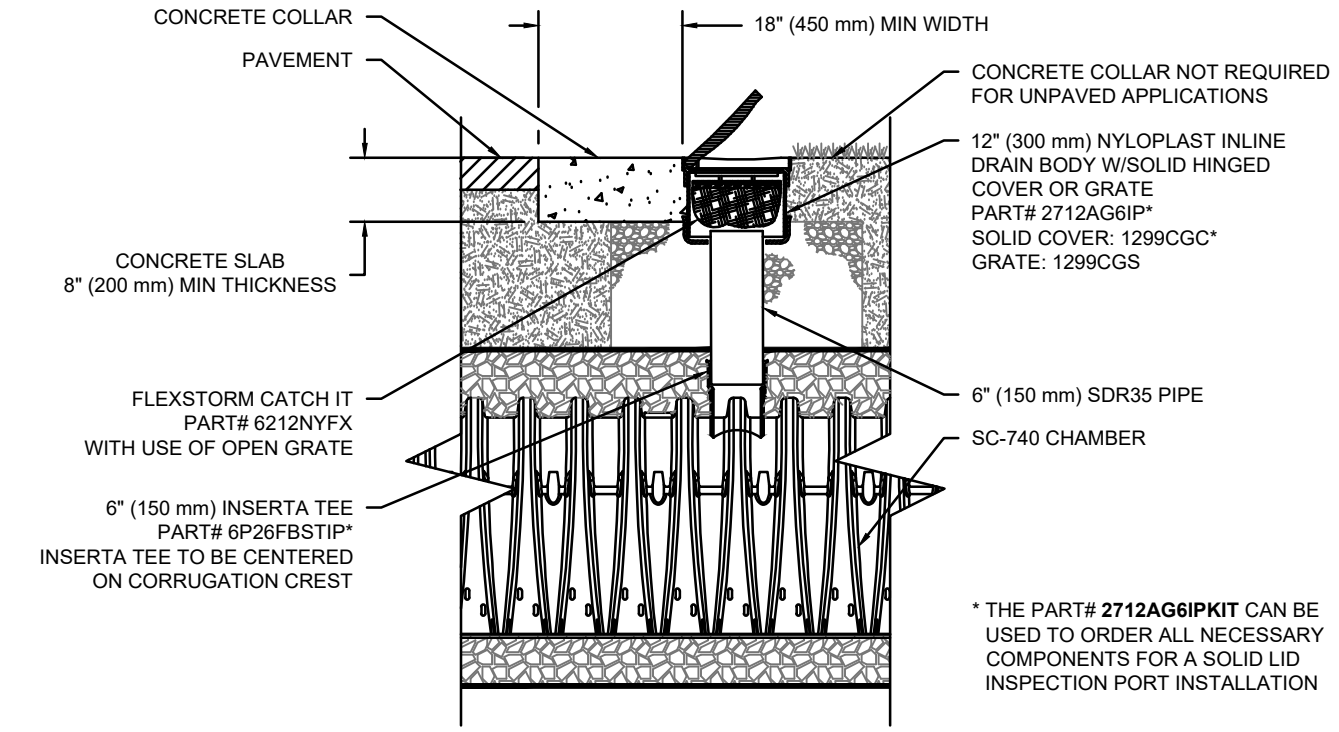
- STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
- REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
 - REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
 - USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
 - LOWER A CAMERA INTO ISOLATOR ROW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

NOTES

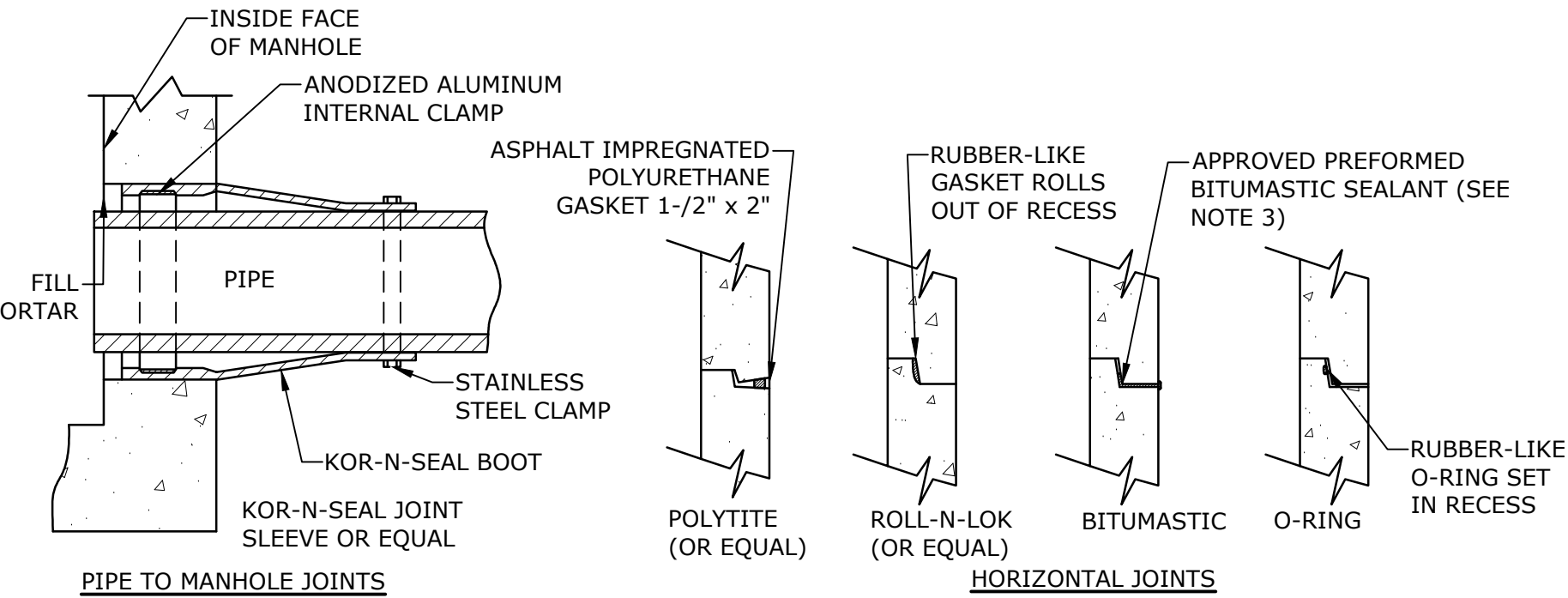
- INSPECT EVERY 8 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-740, SC-310, OR APPROVED EQUAL.
- CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN POLYPROPYLENE OR POLYETHYLENE RESINS. ^J
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL MEET ASTM F2922 (POLYETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". ^J
- CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
 - A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.
 - A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 OR ASTM F2922 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
 - STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

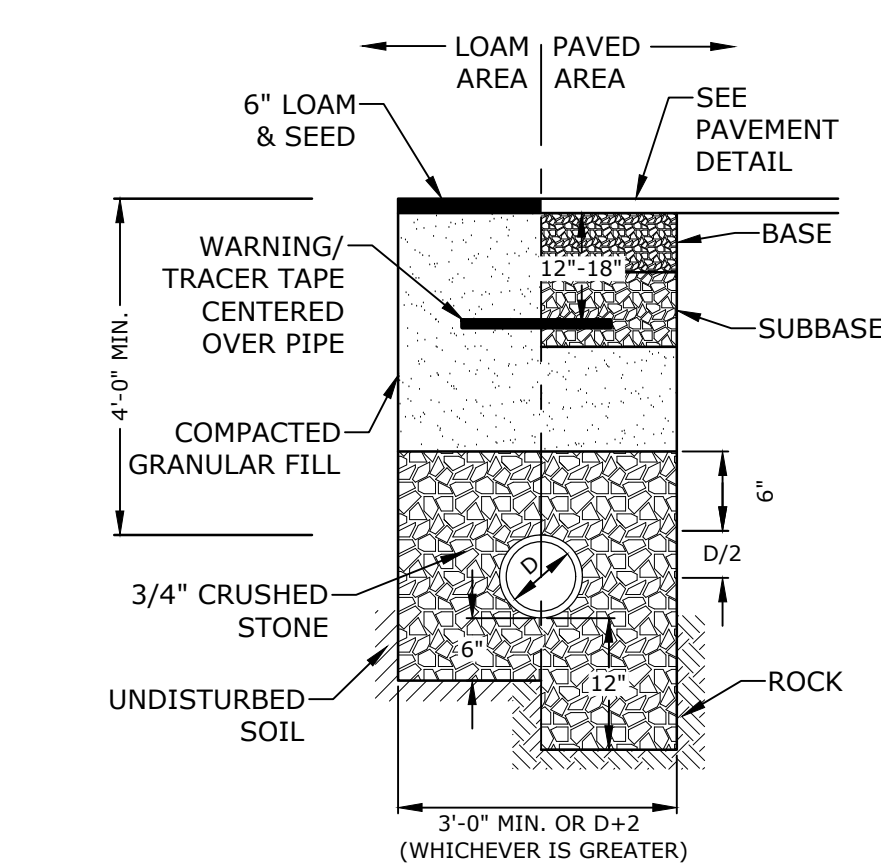


SC-740 6" INSPECTION PORT DETAIL
NTS



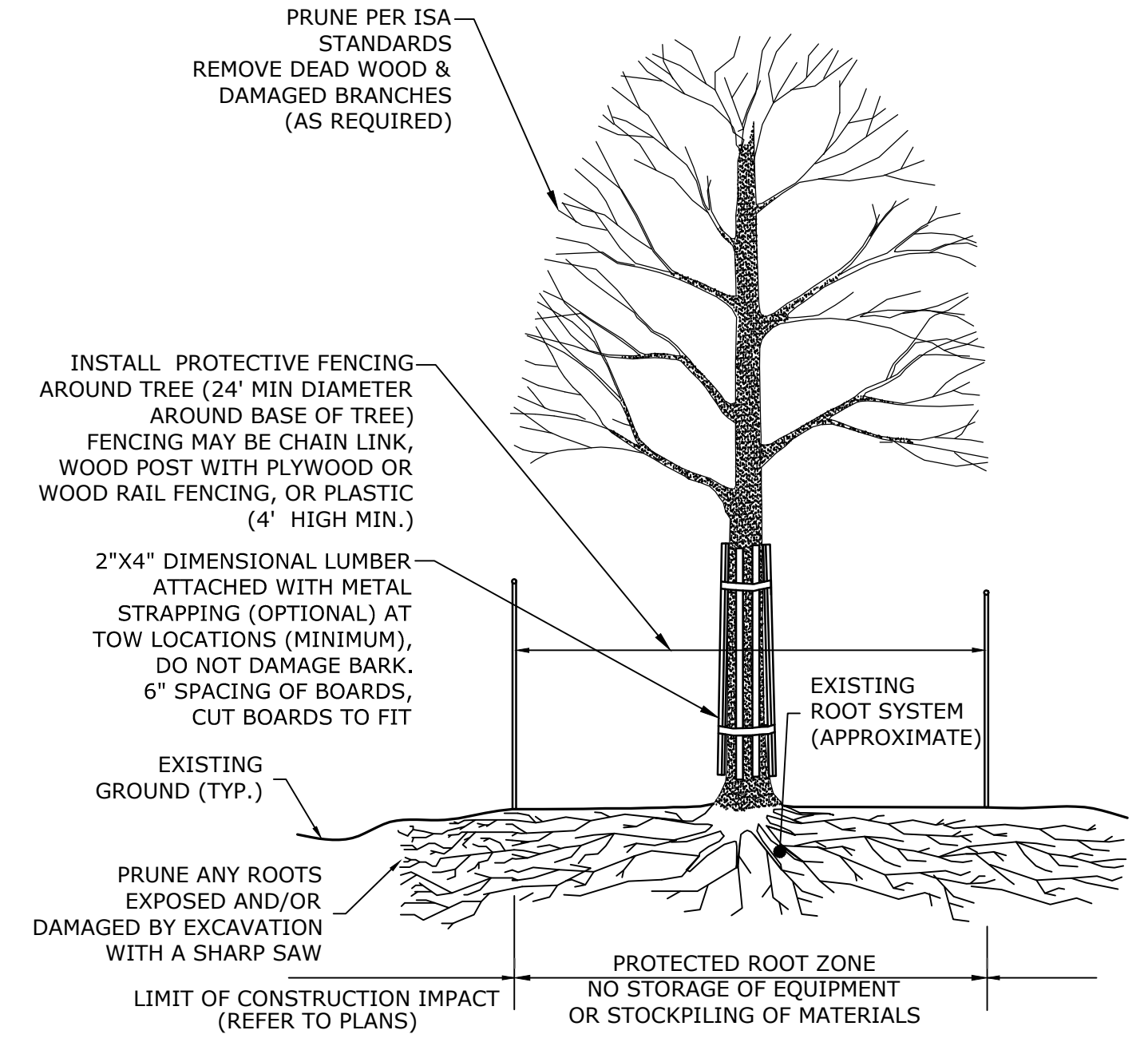
- NOTES:
- HORIZONTAL JOINTS BETWEEN THE SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE PER CITY OF PORTSMOUTH DPW STANDARD AND SHALL BE SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW ELASTOMERIC OR MASTIC-LIKE GASKET.
 - PIPE TO MANHOLE JOINTS SHALL BE PER CITY OF PORTSMOUTH STANDARD.
 - FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY.
 - ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

MANHOLE JOINTS
NO SCALE

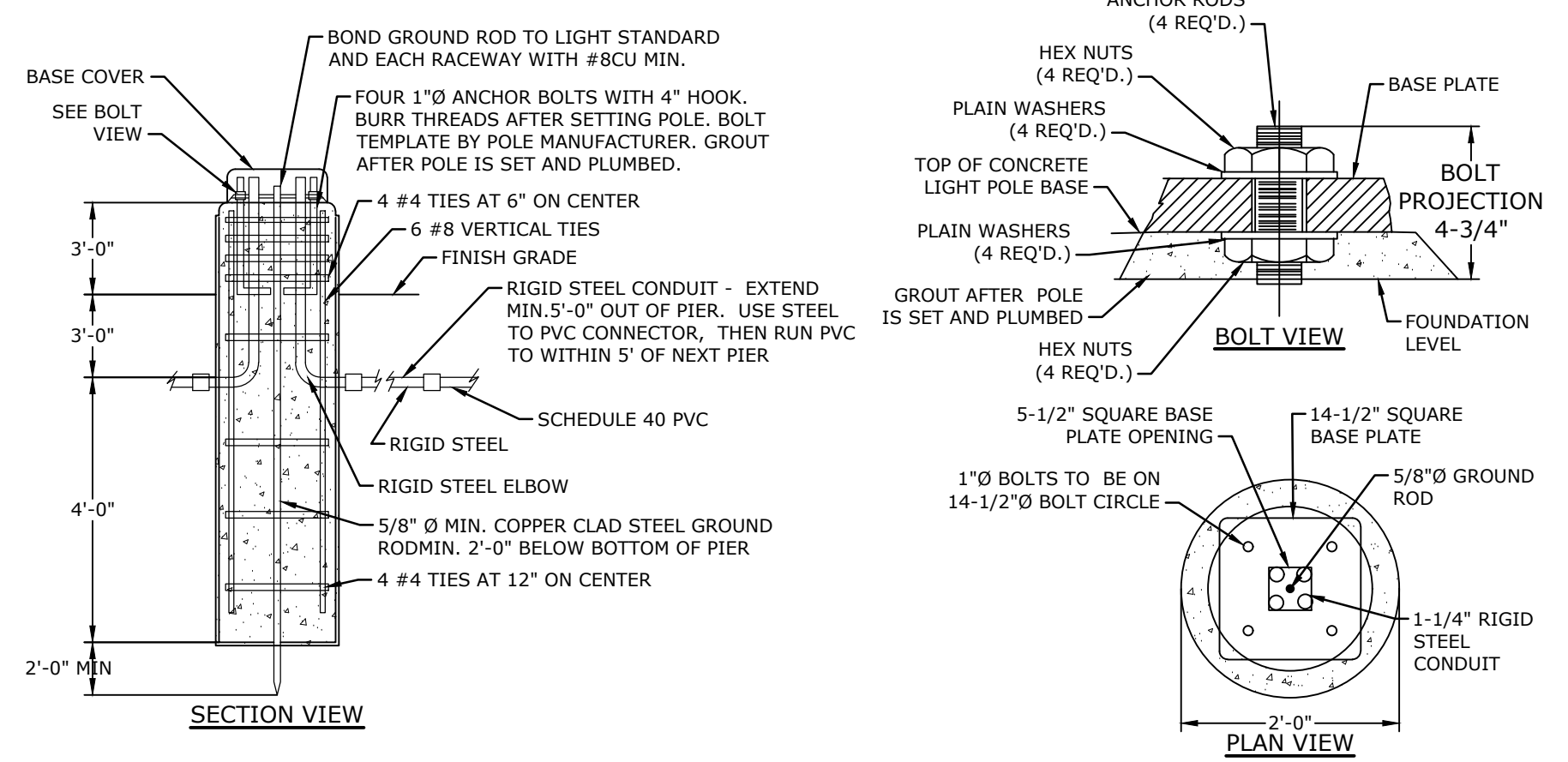


- NOTE:
- CRUSHED STONE BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 6" ABOVE TOP OF PIPE.
 - ALL UTILITIES SHALL BE INSTALLED PER THE INDIVIDUAL UTILITY COMPANY STANDARDS. COORDINATE ALL INSTALLATIONS WITH INDIVIDUAL UTILITY COMPANIES AND THE CITY OF PORTSMOUTH.

STORM DRAIN TRENCH
NO SCALE



TREE PROTECTION FOR EXISTING TREE
NO SCALE



- NOTES:
- PAINT BASE SAFETY YELLOW (UNLESS PROTECTED BY CURBED ISLAND).
 - CONCRETE TO BE CLASS A, 4000 PSI, AIR ENTRAINED STEEL TO BE 60 KSI
 - REFER TO ELECTRICAL PLANS FOR WIRING DETAILS.
 - LIGHT POLE BASE DETAIL FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL, TO INCLUDE PERFORMANCE SPECIFICATIONS, CALCULATIONS AND NH LICENSED STRUCTURAL ENGINEER'S STAMP FOR LIGHT POLE FOUNDATION.

TYPICAL LIGHT POLE BASE
NO SCALE



Parking Expansion

Lonza Biologics

Portsmouth, NH

MARK	DATE	DESCRIPTION
A	12/23/2019	TAC Submission

PROJECT NO: L-0700-019
DATE: November 13, 2019
FILE: L-0700-019_C-DTLS.DWG
DRAWN BY: BKC
CHECKED: NAH/PMC
APPROVED: BLM

DETAILS SHEET

SCALE: AS SHOWN

C-504



Application for Site Review

For PDA Use Only			
Date Submitted: _____	Municipal Review: _____	Fee: _____	
Application Complete: _____	Date Forwarded: _____	Paid: _____	Check #: _____

Applicant Information

Applicant: Lonza Biologics, Inc.	Agent: Tighe & Bond, Inc.
Address: 101 International Drive Portsmouth, NH 03801	Address: 177 Corporate Drive Portsmouth, NH 03801
Business Phone: 603-334-6100	Business Phone: 603-433-8818
Mobile Phone: _____	Mobile Phone: _____
Fax: _____	Fax: _____

Site Information


Portsmouth Tax Map: 305	Lot #: 0006	Zone: Airport, Business, Commercial
Site Address / Location : 101 International Drive, Portsmouth, NH 03801		
Site Address / Location :		Area of On-site Wetlands:

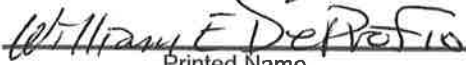
Activity Information

Change of Use: Yes [] No [X]	Existing Use: <u>Office/Research/Manufacturing</u>
	Proposed Use: <u>Office/Research/Manufacturing</u>
Description of Project:	<u>The proposed project consists of the construction of 60 additional parking spaces to support the existing facilities operations. The spaces are in three separate areas throughout the property. The northern expansion area will be treated with a proposed raingarden, and the western and eastern expansion areas will connect to the existing drainage system.</u>
<i>All above information shall be shown on a site plan submitted with this application. Provide 3 full size hard copies and one PDF copy of all application materials as well as one half-size set of drawings to PDA. Applicant shall supply additional copies as may be required by applicable municipality. Refer to Chapter 400 of PDA land Use Controls for additional information.</i>	

Certification

I hereby certify under the penalties of perjury that the foregoing information and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I hereby apply for Site Review and acknowledge I will comply with all regulations and any conditions established by the Review Committee(s) and PDA Board in the development and construction of this project.


23 Dec 19
 Signature of Applicant Date


 Printed Name

L-0700-019
December 23, 2019

Ms. Juliet Walker, Planning Director
City of Portsmouth Planning Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801

**Re: Lanza Biologics – Proposed Parking Expansion
Site Plan Review Application**

Dear Juliet:

On behalf of Lanza Biologics, we are pleased to submit the following information to support a request to the Planning Board for a recommendation for approval to the Pease Development Authority (PDA) for Site Plan Review for a proposed parking expansion at Lanza's existing facility that is located at 101 International Drive:

- Ten (10) copies of the PDA Application for Site Review dated December 23, 2019;
- Ten (10) copies of the Owner Authorization dated December 23, 2019;
- Four (4) full size & six (6) half size copies of the Site Plan Set dated December 23, 2019;
- Ten (10) copies of the Drainage Analysis Memorandum dated December 23, 2019;
- One (1) application fee calculation forms for the Site Review Permit;
- One (1) Site Review Application Fee check in the amount of \$1,450.00;
- One (1) CD containing digital copies of the above listed materials

The proposed project is located at 101 International Drive which is identified as Map 305 Lot 6 on the City of Portsmouth Tax Maps. The proposed project includes parking expansions at three (3) different locations on site. The work at each location, referenced as the Northern, Eastern, and Western Expansions, can be summarized as follows:

- Northern Expansion: twenty-two (22) proposed parking spaces with drainage improvements and driveway access, including a rain garden to collect and treat runoff.
- Eastern Expansion: eighteen (18) proposed parking spaces along the existing access road and drainage improvements including deep sump catch basins with oil separator hoods which discharge to a Contech Jellyfish stormwater filtration unit that will provide treatment before tying into the existing stormwater management system.
- Western Expansion: twenty (20) proposed parking spaces built out from the existing lot, relocation of two (2) light poles, and drainage improvements including a deep sump catch basin with oil separator hood tied to an underground infiltration system.

On December 19, 2019, the PDA Board granted conceptual approval for these improvements. We respectfully request to be placed on the Technical Advisory Committee (TAC) meeting agenda for January 7, 2020. If you have any questions or need any additional information, please contact Patrick Crimmins by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com.



Sincerely,
TIGHE & BOND, INC.

Handwritten signature of Patrick M. Crimmins in blue ink.

Patrick M. Crimmins, PE
Senior Project Manager

Handwritten signature of Neil A. Hansen in blue ink.

Neil A. Hansen, PE
Project Engineer

Cc: Lonza Biologics (via email)
Pease Development Authority (via email)

Drainage Analysis

TO: City of Portsmouth Technical Advisory Committee (TAC)
FROM: Neil A. Hansen, PE
 Patrick M. Crimmins, PE
COPY: Lonza Biologics
DATE: December 23, 2019

1.0 Project Description

The proposed project is located at 101 International Drive which is identified as Map 305 Lot 6 on the City of Portsmouth Tax Maps. The proposed project includes parking expansions at three (3) different locations on site. The work at each location, referenced as the Northern, Eastern, and Western Expansions, can be summarized as follows:

- Northern Expansion: twenty-two (22) proposed parking spaces with drainage improvements and driveway access, including a rain garden to collect and treat runoff.
- Eastern Expansion: eighteen (18) proposed parking spaces along the existing access road and drainage improvements including deep sump catch basins with oil separator hoods which discharge to a Contech Jellyfish stormwater filtration unit that will provide treatment before tying into the existing stormwater management system.
- Western Expansion: twenty (20) proposed parking spaces built out from the existing lot, relocation of two (2) light poles, and drainage improvements including a deep sump catch basin with oil separator hood tied to an underground infiltration system.

The proposed project will be adding 15,348 SF of impervious area to the existing 13.75-acre watershed. The existing watershed is 67.70% impervious. The additional impervious surfaces will account for a 2.6% increase. Runoff from the proposed surfaces will be directed to stormwater treatment systems prior to entering the existing on-site drainage system. A rain garden is proposed to treat runoff from the additional impervious area of the northern parking expansion. Runoff from the eastern and western parking expansions are proposed to be treated by Contech Jellyfish Filter filtration systems.

2.0 Drainage Analysis

The stormwater management systems for each of the proposed expansions have been designed to provide stormwater treatment for the additional impervious area, as well as an equivalent amount of existing untreated impervious area as required by the Pease Development Authority (PDA) (Table 2.0).

Proposed Impervious Area	15,348 sf
Impervious Required to be Treated (2x Proposed)	30,696 sf
Proposed Treated Impervious Area	37,266 sf

The sub-watershed areas that direct runoff to the proposed stormwater management systems were analyzed to determine the respective Water Quality Volume (WQV) or Water Quality Flow (WQF) required to size each of the systems. The full site was also analyzed for the pre- and post-development peak runoff rates for the 2-year, 10-year, 25-year and 50-year storm events.

2.1 Peak Rate Comparisons

The following table summarizes and compares the pre- and post-development peak runoff rates for the 2-year, 10-year, 25-year and 50-year storm events at each point of analysis. Point of Analysis 1 (PA1) is located along Goose Bay Drive and Point of Analysis 2 (PA2) is located along International Drive.

Point of Analysis	Pre/ Post 2-Year Storm (cfs)	Pre/ Post 10-Year Storm (cfs)	Pre/ Post 25-Year Storm (cfs)	Pre/ Post 50-Year Storm (cfs)
PA1	3.04/ 2.99	7.89/ 7.79	14.62/ 14.50	24.10/ 24.06
PA2	6.04/ 4.58	13.37/ 11.99	19.62/ 18.24	25.67/ 23.94

2.2 Stormwater Treatment

The stormwater management system has been designed to provide stormwater treatment to meet NHDES AoT Regulations as required by the Pease Development Authority. Stormwater treatment for each development area is detailed Sections 2.2.1 through 2.2.3.

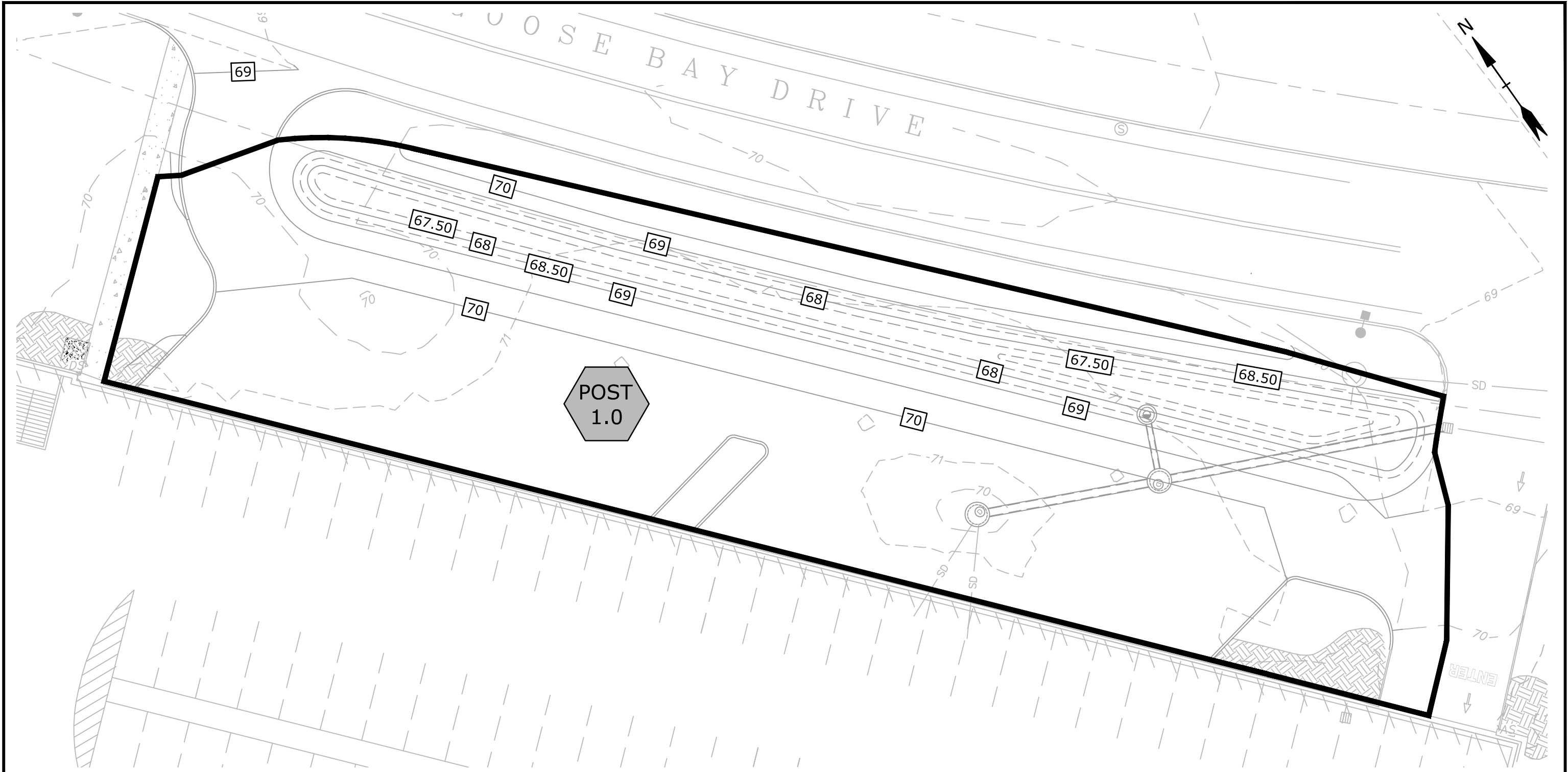
2.2.1 Northern Expansion

Runoff generated from the proposed impervious area within the northern expansion area will be treated by a proposed rain garden. The rain garden has been sized in order to treat the Water Quality Volume (WQV), as referenced in Table 2.2.1. The subcatchment area and rain garden footprint within this expansion can be referenced in Figure 2.1.

Table 2.2.1 - Treatment Area Proposed Rain Garden Water Quality Volume Calculations		
VARIABLE	DESCRIPTION	VALUE
P	1 Inch of Rainfall	1 inch
A	Total Area Draining to Design Structure	0.39 AC
A _i	Impervious Area Draining to Design Structure	0.22 AC
I	% Impervious Area Draining to Design Structures	57%
R _v	Runoff Coefficient, $R_v = 0.05 + (0.9 \cdot I)$	0.56
WQV	Water Quality Volume, $WQV = P \cdot A \cdot R_v$	789 CF
V	Volume of Storage¹	1,416 CF

¹Storage above the filter media but below the overflow invert, as well as filter media void space

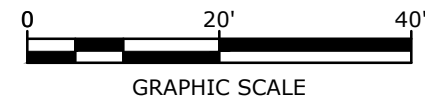
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LEGEND

 POST-DEVELOPMENT WATERSHED BOUNDARY

 POST-DEVELOPMENT WATERSHED AREA



LONZA BIOLOGICS PORTSMOUTH, NH	
PROPOSED NORTHERN PARKING EXPANSION	
WATERSHED PLAN	
DATE: 12/23/2019	Tighe & Bond Engineers Environmental Specialists
SCALE: AS SHOWN	
FIGURE 2.1	

2.2.2 Western Expansion

Runoff generated from both the proposed and existing impervious areas within the Western Expansion will be captured in a new deep sump catch basin with oil separator hood which will be tied to an underground infiltration system to provide stormwater treatment and to mitigate additional flows generated by the new pavement. The underground Stormtech chamber system has been sized to treat the Water Quality Volume (WQV), as referenced in Table 2.2.2. The subcatchment area for this expansion can be referenced in Figure 2.2.

Table 2.2.2 - Treatment Area Proposed Underground Chamber System Water Quality Volume Calculations		
VARIABLE	DESCRIPTION	VALUE
P	1 Inch of Rainfall	1 inch
A	Total Area Draining to Design Structure	0.60 AC
A _i	Impervious Area Draining to Design Structure	0.49 AC
I	% Impervious Area Draining to Design Structures	82%
R _v	Runoff Coefficient, $R_v = 0.05 + (0.9 \cdot I)$	0.79
WQV	Water Quality Volume, $WQV = P \cdot A \cdot R_v$	1,710 CF
V	Volume of Storage¹	1,742 CF

2.2.3 Eastern Expansion

Runoff generated from both proposed and existing impervious areas within the Eastern Expansion will be treated by a Contech Jellyfish Filter filtration system. The Jellyfish Filter was sized to treat the Water Quality Flow (WQF), as shown in Table 2.2.3. The Jellyfish Filter Design Summary prepared by Contech Engineered Solutions is also provided. The subcatchment area for this expansion can be referenced in Figure 2.3.

Table 2.2.3 - Treatment Area Proposed Filtration System Water Quality Flow Calculations		
VARIABLE	DESCRIPTION	VALUE
P	1 Inch of Rainfall	1 inch
A	Total Area Draining to Design Structure	0.16 AC
Ai	Impervious Area Draining to Design Structure	0.13 AC
I	% Impervious Area Draining to Design Structures	84%
Rv	Runoff Coefficient, $R_v = 0.05 + (0.9 \cdot I)$	0.80
WQV	Water Quality Volume, $WQV = P \cdot A \cdot R_v$	467 cf
Tc	Time of Concentration (min.)	5.0
q _u	Unit Peak Discharge (cfs/mi ² /in)	700
WQF	Total Treatment Flow, $WQF = WQV \cdot q_u$	0.141 cfs



Project Name:	Lonza Biologics	Date:	11/25/19
Site Designation:	Eastern Parking Expansion	Designer:	DRA
County or Independent City:	Portsmouth		
State:	NH		

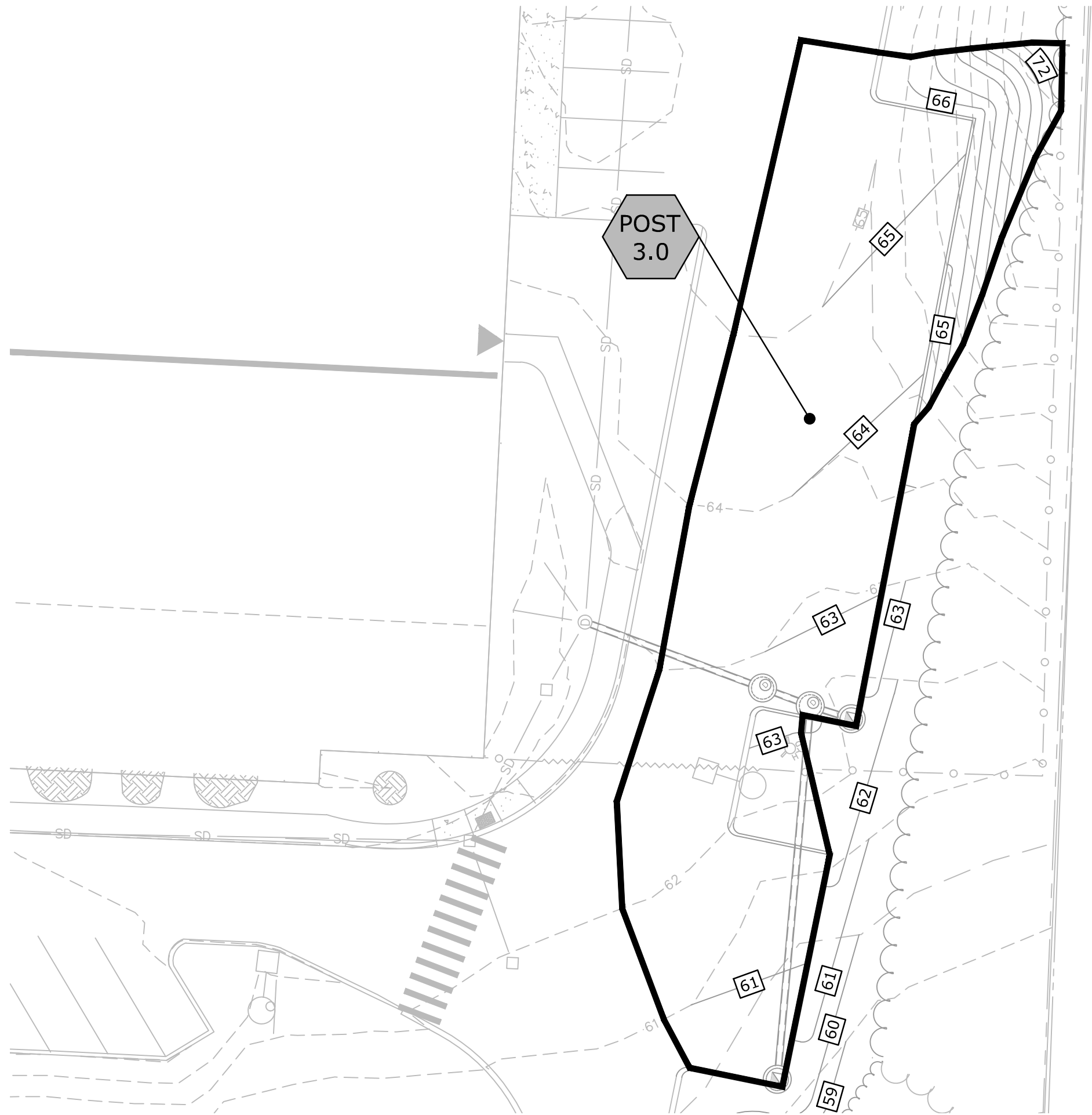
Flow Based Data:

Water Quality Flow (cfs)	0.14
Total Drainage Area, A (ac)	0.16
Post Development Impervious Area, A _i (ac)	0.13
Pervious Area, A _p (ac)	0.03
Impervious Runoff Coefficient, R _v	0.95
Pervious Runoff Coefficient, R _v	0.25
% Impervious	81%
Runoff Coefficient, R _c	0.82



Flow Based Filter Sizing:

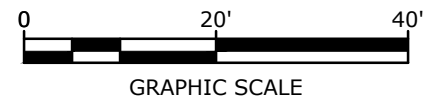
Filter Type	Jellyfish
Structure Type	Manhole
Cartridge Length	54"
# Hi-Flo Cartridges Required	1
# Draindown Cartridges Required	1
Recommended Model	JF4-1-1
Maximum Water Quality Flow	0.27 cfs

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LEGEND

-  POST-DEVELOPMENT WATERSHED BOUNDARY
-  POST-DEVELOPMENT WATERSHED AREA



LONZA BIOLOGICS PORTSMOUTH, NH	
PROPOSED EASTERN PARKING EXPANSION	
WATERSHED PLAN	
DATE: 12/23/2019	Tighe&Bond Engineers Environmental Specialists
SCALE: AS SHOWN	
FIGURE 2.3	

3.0 Conclusion

The proposed project will result in a reduction in post-development peak runoff rates from the pre-development condition. The impervious areas resulting from the proposed project and an equivalent amount of existing impervious area will be treated as required by the Pease Development Authority. The proposed raingarden, underground infiltration system and stormwater filtration system will treat the surface runoff from the three expansion areas prior to discharging to the existing on-site stormwater system.

Site Plan Review Application Fee

Project: 101 International Drive

Map/Lot: 305/6

Applicant: Lonza Biologics, Inc.

All development

Base fee \$500

\$500.00

Plus \$5.00 per \$1,000 of site costs

Site costs

\$100,000

+ **\$500.00**

Plus \$10.00 per 1,000 S.F. of site development area

Site development area

45,000 S.F.

+ **\$450.00**

Fee

\$1,450.00

Maximum fee: \$15,000.00

Fee received by: _____

Date: _____

Note: Initial application fee may be based on the applicant's estimates of site costs and site development area. Following site plan approval, the application fee will be recalculated based on the approved site plan and site engineer's corresponding site cost estimate as approved by the Department of Public Works, and any additional fee shall be paid prior to the issuance of a building permit.