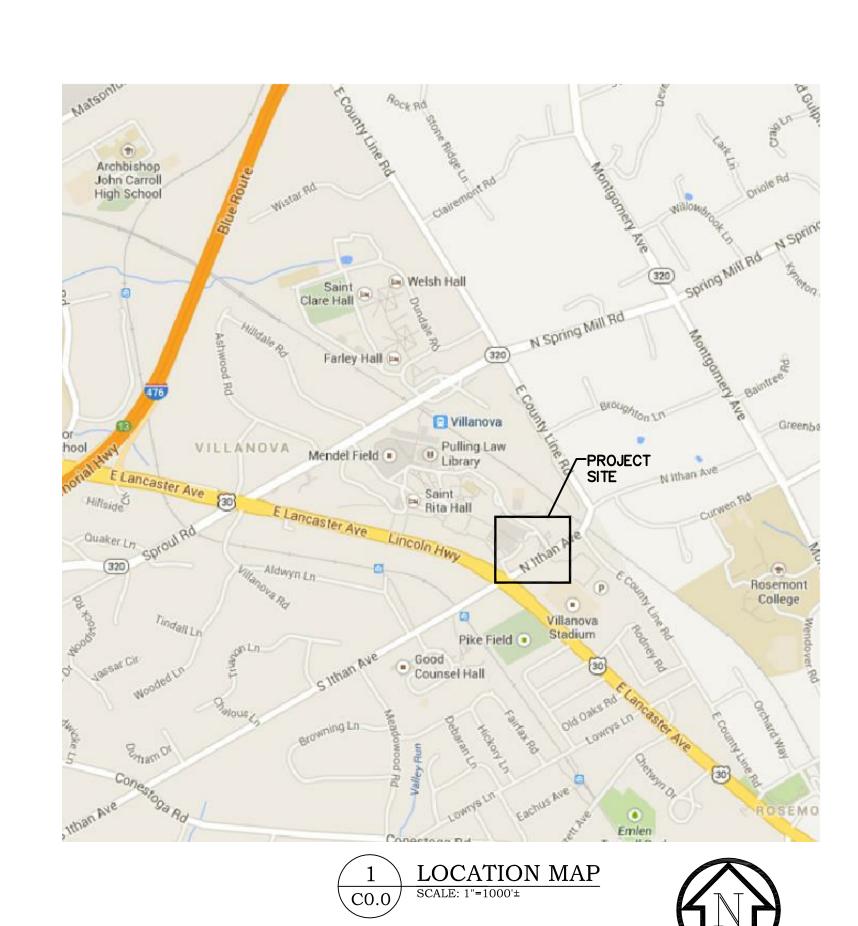
VILLANOVA UNIVERSITY

BARTLEY EXCHANGE + ENTRANCE PLAZA

PRELIM./FINAL LAND DEVELOPMENT SUBMISSION

800 EAST LANCASTER AVENUE VILLANOVA, PENNSYLVANIA 19085 RADNOR TOWNSHIP, DELAWARE COUNTY



Scale: 1" = 1000 ft

CIVIL	DRAWING SCHEDULE	ISSUE	FOR PRELIM./FINAL						
DRAWING NUMBER	DRAWING TITLE	DATE	11/04/15						
C0.0	COVER SHEET		•						
C0.1	OVERALL CAMPUS PLAN		•						
C1.1	EXISTING CONDITIONS & DEMOLITION PLAN								
C1.2	EXISTING UTILITIES DEMOLITION PLAN								
C1.3	SOIL EROSION CONTROL PLAN								
C2.1	SITE DEVELOPMENT PLAN								
C2.2	SITE UTILITIES PLAN		•						
C2.3	SITE LIGHTING PLAN								
C3.0	SOIL EROSION CONTROL NOTES AND GENERAL NOTES								
C3.1	SOIL EROSION CONTROL SECTIONS AND DETAILS		•						
C3.2	SITE SECTIONS AND DETAILS		•						
C3.3	SITE UTILITIES SECTIONS AND DETAILS		•						
L1.1	LANDSCAPING PLANS		•						
				_			1		

WAIVERS REQUESTED THE FOLLOWING WAIVERS ARE BEING REQUESTED BY THE APPLICANT: . SECTION 245-22.A.2.C OF THE STORMWATER ORDINANCE REGARDING GROUNDWATER RECHARGE REQUIREMENTS. THE APPLICANT REQUESTS THAT THE REQUIREMENT TO INFILTRATE RUNOFF FROM THE IMPERVIOUS AREAS BE WAIVED SINCE THE INFILTRATION RATE AT THE SITE HAS BEEN TESTED AND FOUND TO BE ZERO. 2. SECTION 245-25.B OF THE STORMWATER ORDINANCE REGARDING PEAK RATE CONTROL STANDARDS. THE APPLICANT REQUESTS THAT THE REQUIREMENT TO REDUCE THE PEAK RATE OF THE PROPOSED CONDITION 2-YEAR AND 5-YEAR STORMS TO THE PRESENT CONDITION 1-YEAR AND 2-YEAR STORMS BE WAIVED. SINCE THE PROJECT AREA IS SO SMALL, THE PROPOSED CONDITION 2-YEAR STORM IS 0.44 CFS AND THE PRESENT CONDITION 1-YEAR STORM IS 0.39 CFS. THE PROPOSED CONDITION 5-YEAR STORM IS 0.61 CFS AND THE PRESENT CONDITION 2-YEAR STORM IS 0.57 CFS. ALL OTHER DESIGN STORMS MEET THE PEAK RATE CONTROL

3. SECTION 255-12.A OF THE SALDO CODE REGARDING LAND DEVELOPMENT SUBMISSION PROCEDURES. THE APPLICANT REQUESTS THAT THE REQUIREMENT TO OBTAIN SEPARATE PRELIMINARY AND FINAL LAND DEVELOPMENT APPROVALS BE WAIVED SINCE THIS PROPOSED PROJECT IS A MINOR LAND DEVELOPMENT PROJECT. 4. SECTION 255-20.B.5 OF THE SALDO CODE REGARDING TRANSPORTATION IMPACT STUDIES. THE APPLICANT REQUESTS THAT THE REQUIREMENT TO PROVIDE A TRANSPORTATION IMPACT STUDY BE WAIVED SINCE NEITHER THE STUDENT NOR STAFF POPULATIONS WILL INCREASE AS A RESULT OF THIS PROJECT.

PROPERTY NOTES: 1. SITE OWNER: VILLANOVA UNIVERSITY

2. SITE ADDRESS: 800 EAST LANCASTER AVENUE VILLANOVA, PA 19085

3. CONTACT INFORMATION: LEO KOB, PROJECT MANAGER

(610) 519-4156 4. SITE TAX MAP INFORMATION: PORTION OF TAX MAP #36-24-033 PORTION OF PARCEL #36-04-02400-10 Commonwealth of Pennsylvania County of _____

On this, the ____ day of ____ me, the undersigned office, personally appeared sworn according to law, deposes and says that he is the owner or equitable owner of the property shown on this plan, that the land development plan thereof was made at his direction and that he acknowledges the same to be his act and plan and desires the same to be recorded as such according to law. Witness my hand and seal the day and date above written.

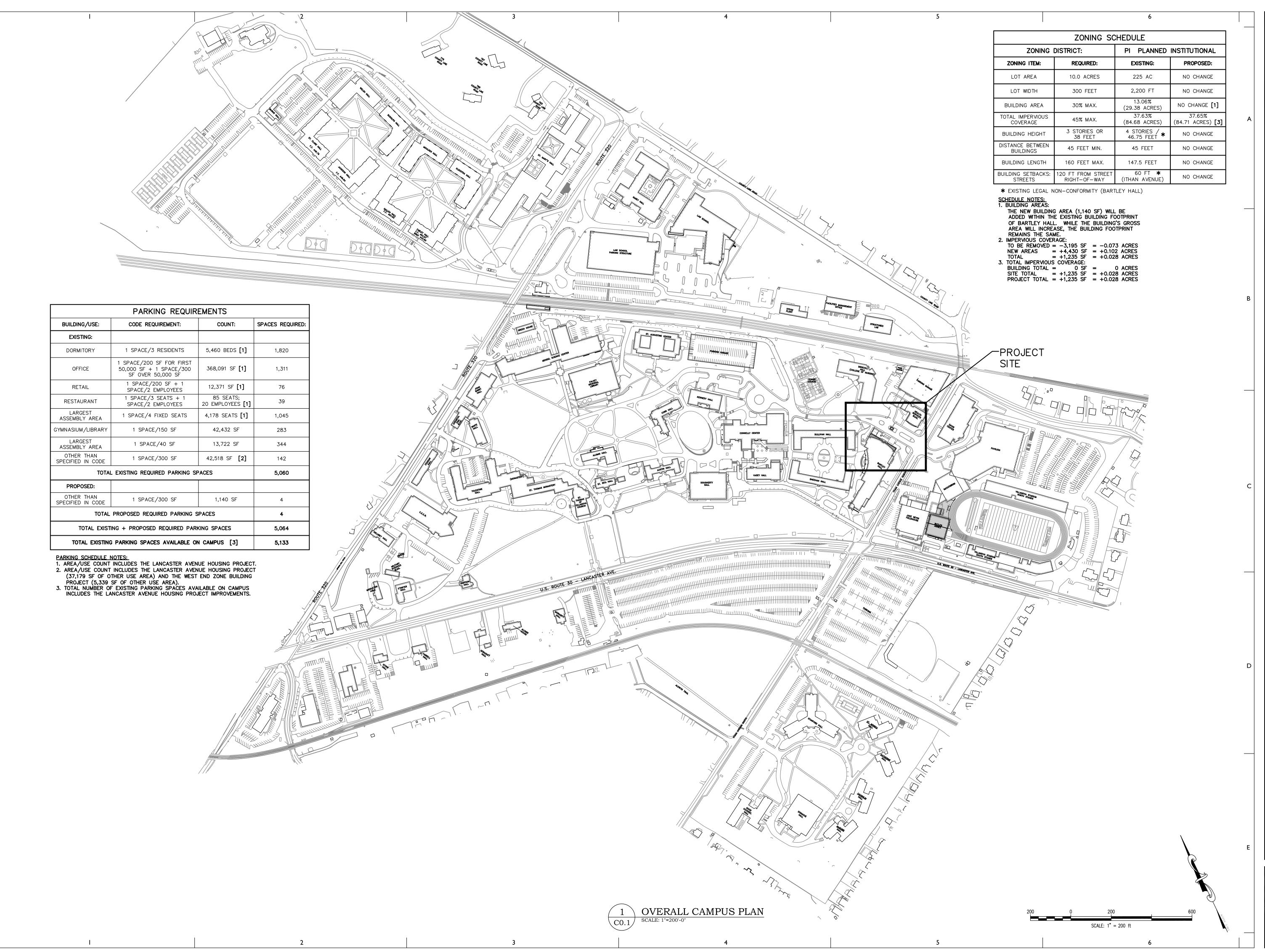
(Signature of Individual)

Notary Public or other Officer My Commission expires _____



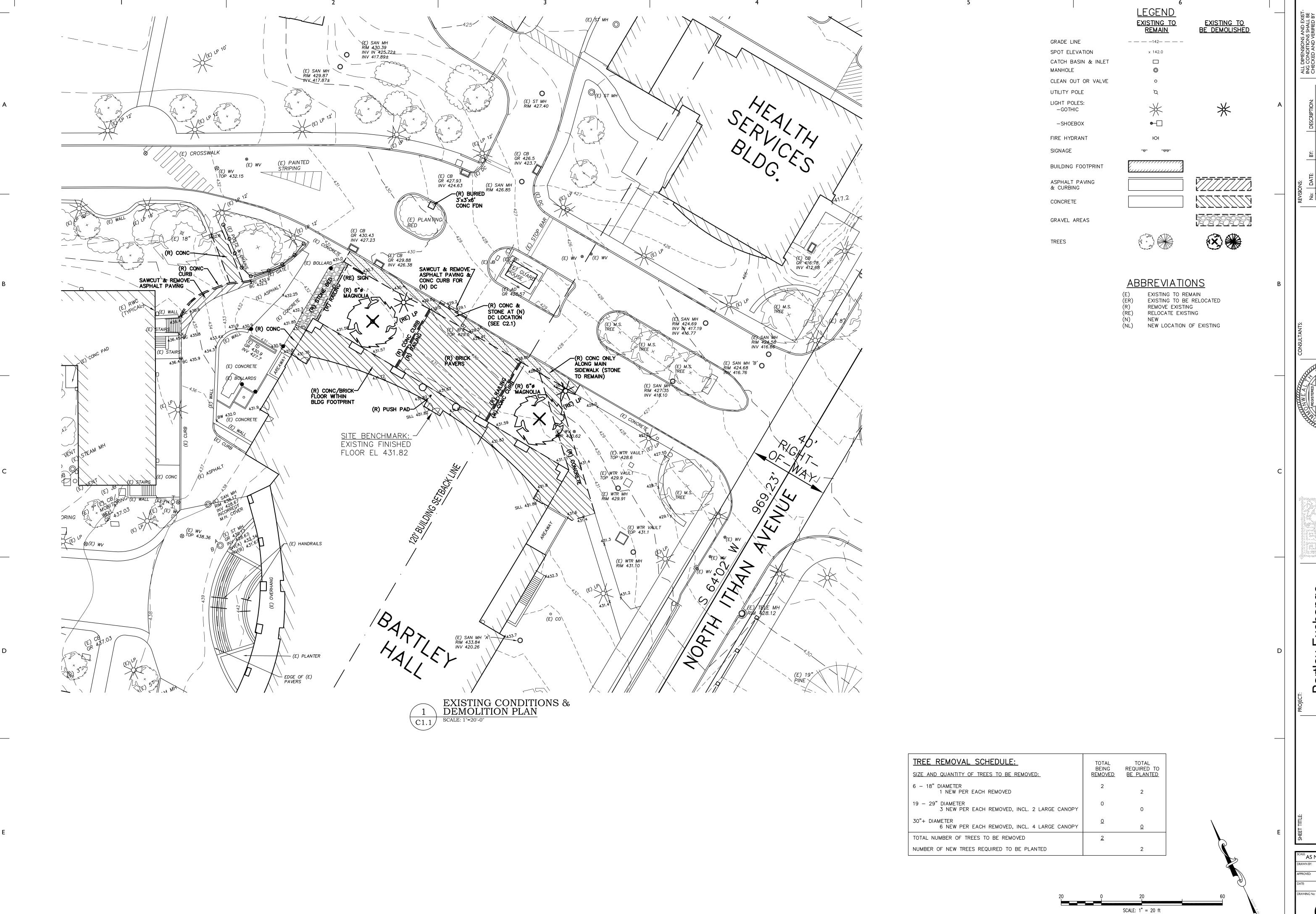


AS NOTED KRM 11/04/15



AS NOTED KRM 11/04/15

C0.1



CICADA BOAND (ARCHITECTURE/PLANNING, BING. ENGISSOLOCUST ST.STE 702.PHILA.PA WOOZ 27 T. 215.247.1433 www.cicadaarchitecture.com

Sartley Exchange

Entrance Plaza

Villanova University

EXISTING CONDITIONS & DEMOLITION PLAN

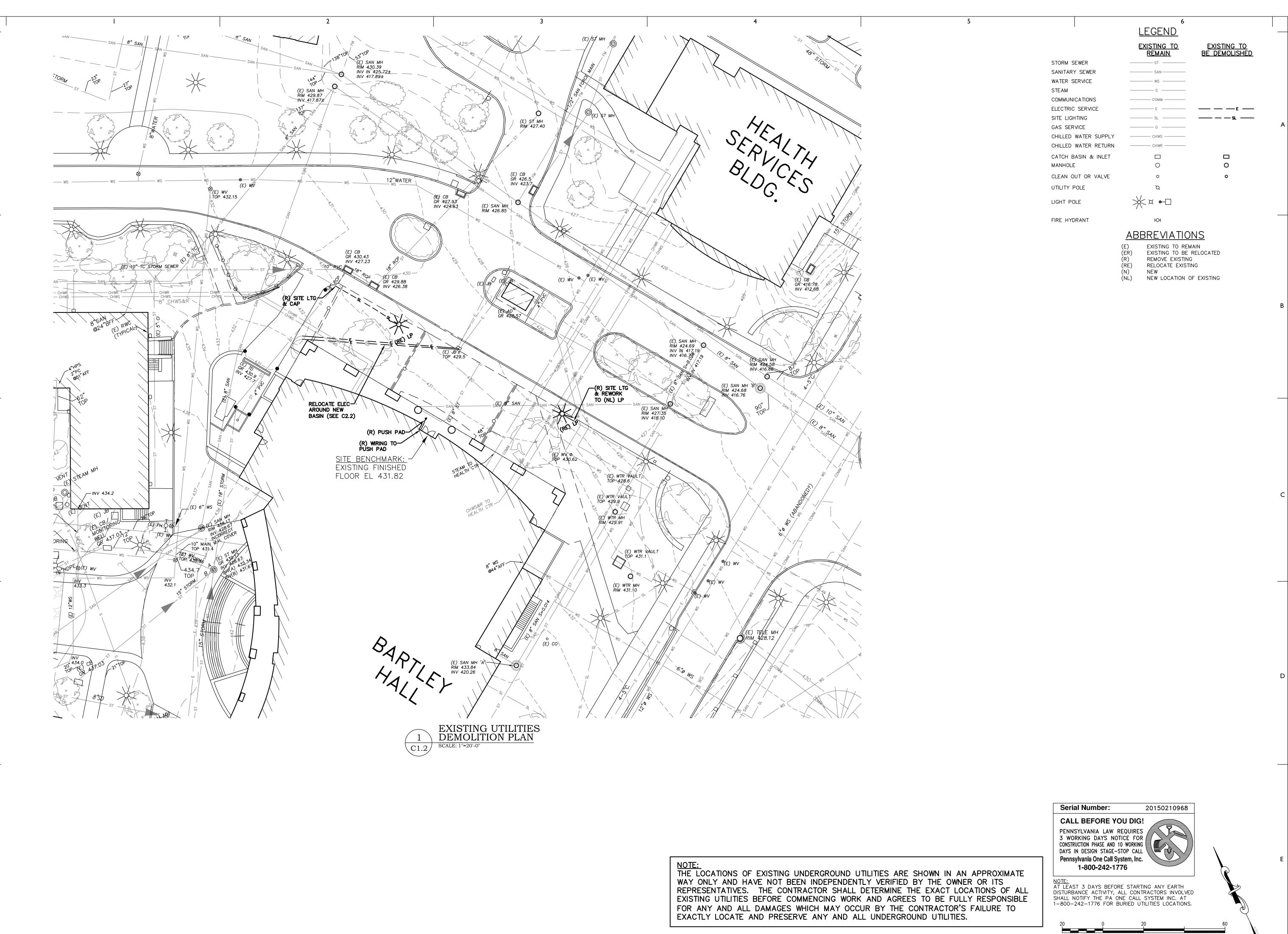
SCALE: AS NOTED

DRAWN BY:
BJD

APPROVED:
KRM

DATE:
11/04/15

C1.1
SHEET 3 OF 13



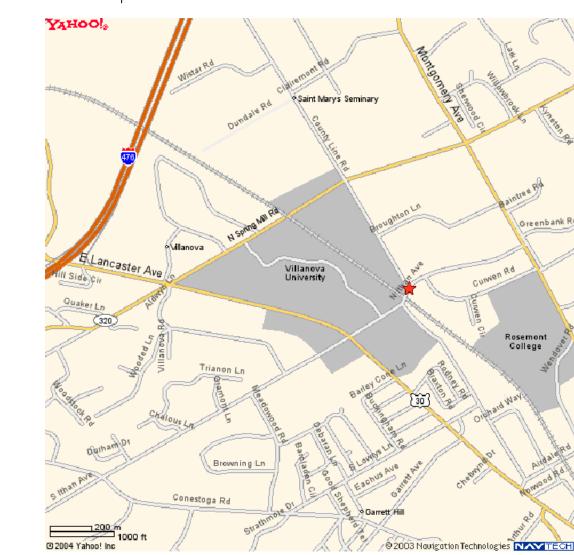
Bartley Exchange + Entrance Plaza Villanova University

EXISTING UTILITIES DEMOLITION PLAN

AS NOTED KRM 11/04/15

SCALE: 1" = 20 ft

C1.2 SHEET 4 OF 13







SOIL DATA:

Me - MADE LAND, SCHIST AND GNEISS MATERIALS:
SLOPE RANGE: 0 TO 8%
DEPTH TO BEDROCK: 40" - 72"
DEPTH TO SEASONAL WATER TABLE: 60"
PERMEABILITY: MODERATE
HYDROLOGIC SOIL GROUP: C

SOIL LIMITATIONS:

MADE LAND:
SOMEWHAT LIMITED FOR SHALLOW EXCAVATIONS
REASONS: DEPTH TO SATURATED ZONE

SOIL LIMITATION RESOLUTIONS:

RESOLUTIONS:

DEPTH TO SATURATION ZONE — WHILE NO WATER WAS ENCOUNTERED IN A TEST HOLE DUG TO 6 FEET DEEP, PUMPS ARE TO BE UTILIZED AS NEEDED TO REMOVE EXCESS WATER FROM EXCAVATION AREAS. PUMPS ARE TO DISCHARGE TO EXISTING VEGETATED AREAS. SEE DETAIL ON C3.1.

Serial Number:

20150210968

CALL BEFORE YOU DIG! PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE-STOP CALL Pennsylvania One Call System, Inc. 1-800-242-1776

NOTE:
AT LEAST 3 DAYS BEFORE STARTING ANY EARTH
DISTURBANCE ACTIVITY, ALL CONTRACTORS INVOLVED
SHALL NOTIFY THE PA ONE CALL SYSTEM INC. AT
1-800-242-1776 FOR BURIED UTILITIES LOCATIONS.

WATERSHED NOTE:
THE PROJECT IS LOCATED IN THE
MILL CREEK WATERSHED, WHICH HAS
A CHAPTER 93 RECEIVING WATER
CLASSIFICATION OF TSF/MF.

TEMP. CONSTRUCTION LEGEND

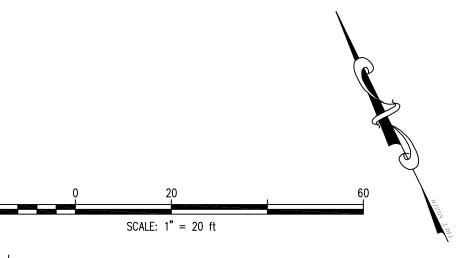
LIMIT OF DISTURBANCE BOUNDARY LINE (9,175 SF / 0.21 ACRES TOTAL) AREAS TO RECEIVE CURLEX BLANKETS (SEE DETAIL 4/C3.1)

TEMPORARY SILT SOCK (SEE DETAIL 6/C3.1) TEMPORARY TREE PROTECTION FENCE (SEE DETAIL 5/C3.1) TEMPORARY CONSTRUCTION FENCE TO BE 6'-0" HIGH CHAIN LINK FENCE (MOUNTED ON REMOVABLE PRECAST CONCRETE BASE -UNLESS NOTED OTHERWISE) TEMPORARY INLET PROTECTION (SEE DETAILS



NOTE:
ANY OFF-SITE WASTE AREA MUST HAVE AN E&S PLAN
REVIEWED AND APPROVED BY THE LOCAL COUNTY
CONSERVATION DISTRICT PRIOR TO BEING ACTIVATED.

3&7/C3.1)

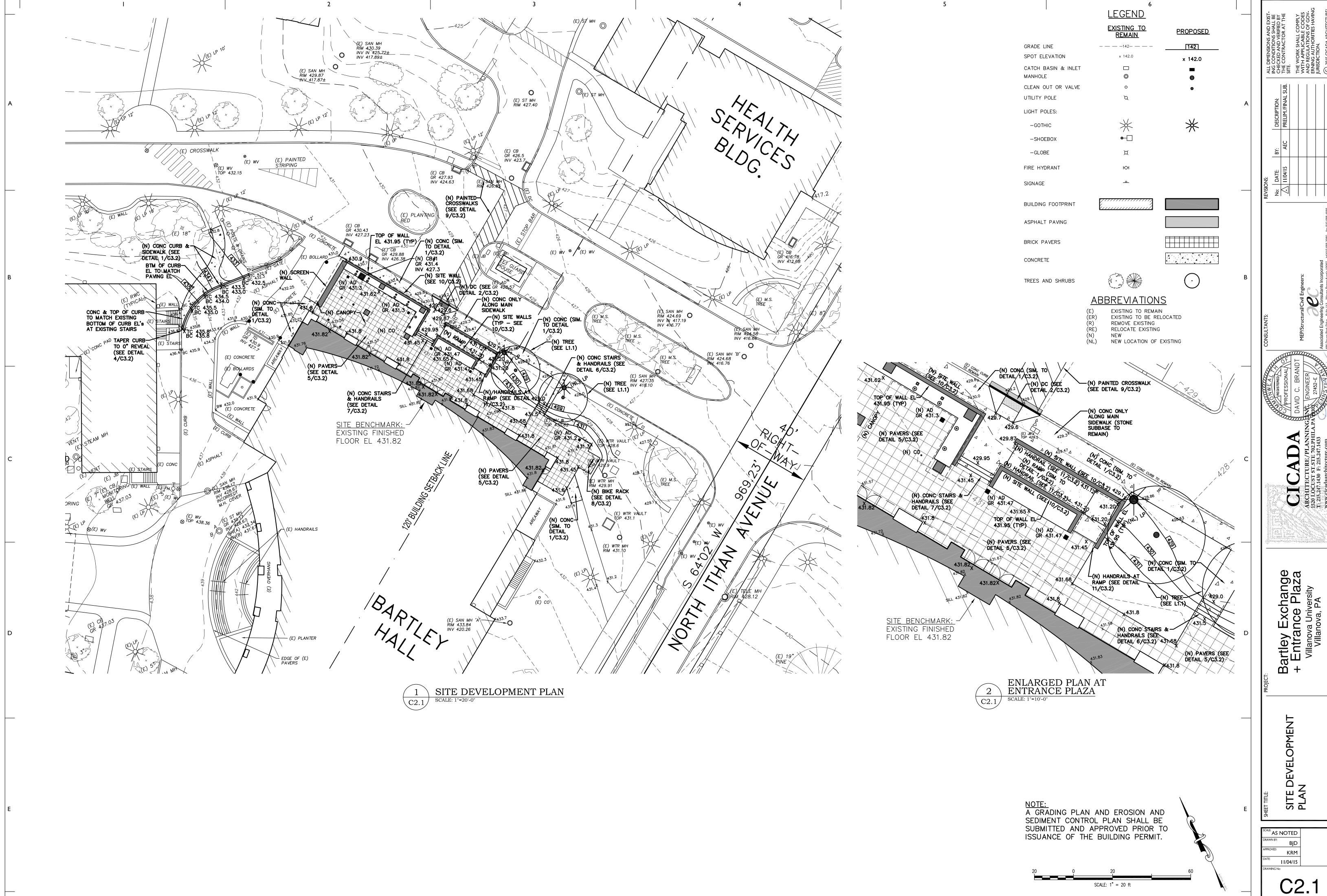


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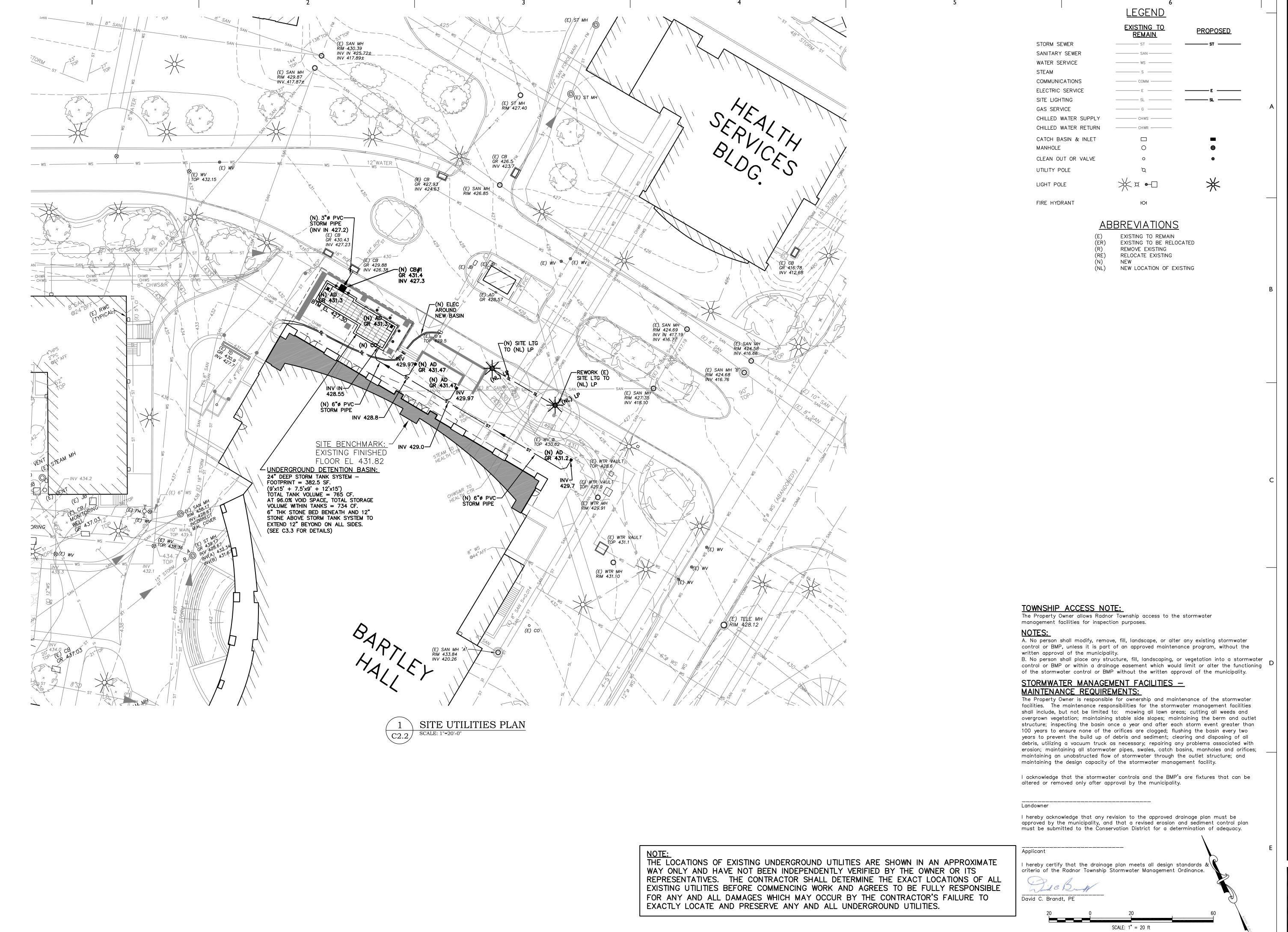
SOIL EROSION CONTROL PLAN

ALE: AS NOTED KRM 11/04/15

> **UI.**3 SHEET 5 OF 13



SHEET 6 OF 13



DESCRIPTION:
ING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.

THE WORK SHALL COMPLY WITH APPLICABLE CODES AND REGULATIONS OF GOVERNING AUTHORITIES HAVING JURISDICTION.

REVISIONS:

No. DATE: BY: DESCRIPTION:

A. II/04/15 AEC PRELIM./FINAI

ANNING THE STAFF

CICADDA ARCHITECTURE/PLANNIN 1520 LOCUST ST. STE 702. PHILA. T:: 215.247.1430 F: 215.247.1433 www.cicadaarchitecture.com

Bartley Exchange + Entrance Plaza Villanova University Villanova, PA

TE UTILITIES PLAN

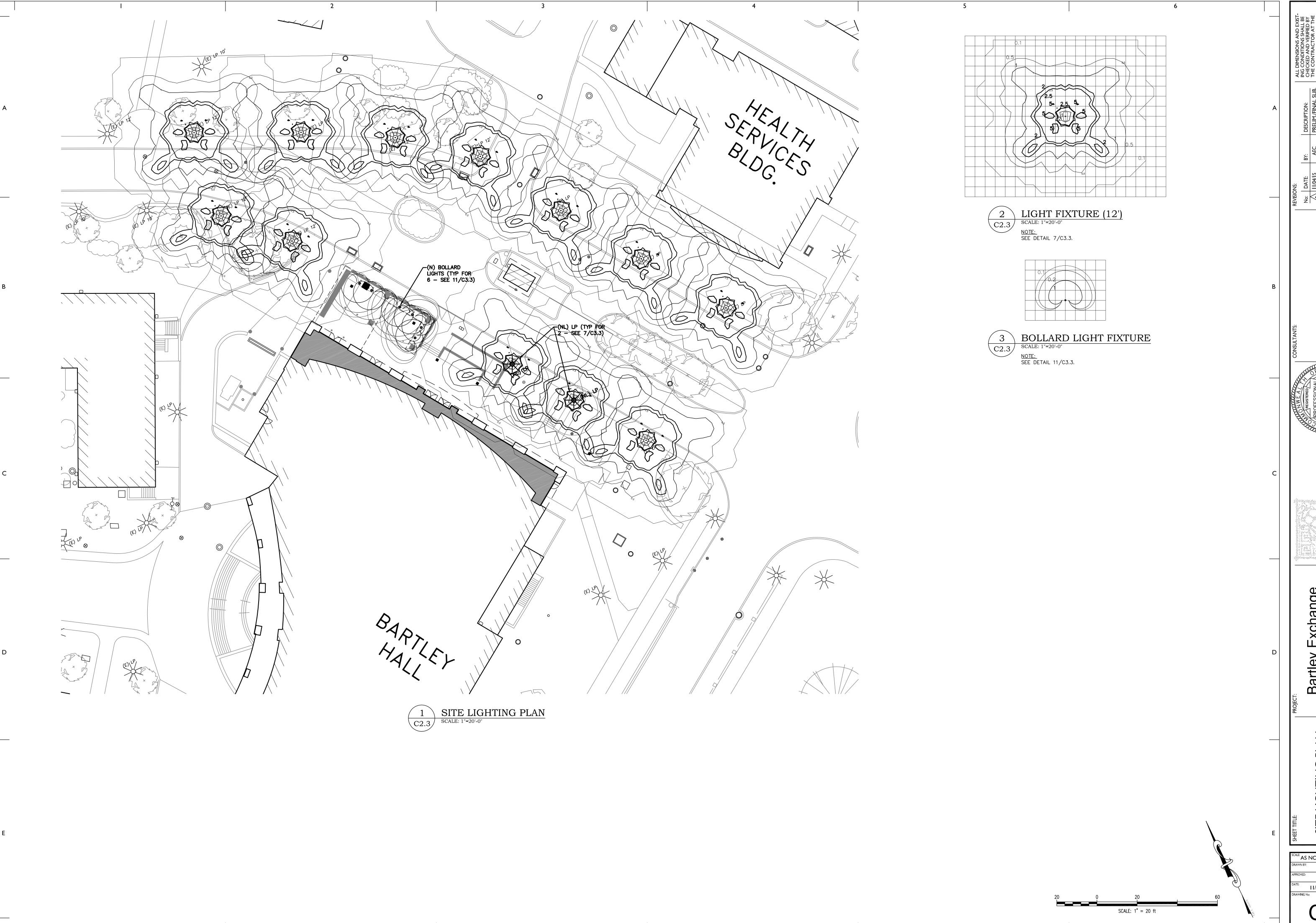
SCALE: AS NOTED

DRAWN BY:
BJD

APPROVED:
KRM

DATE:
11/04/15

C2.2
SHEET 7 OF 13



C2.3
SHEET 8 OF 13

Temporary seeding shall be per PENNDOT form 408, Section 804(B). 2. The operator shall assure that the approved erosion and sediment control plan is properly and completely implemented.

3. Until the site achieves final stabilization, the operator shall assure that the best management practices are implemented, operated and maintained properly and completely. Maintenance shall include inspections of all best management practice facilities. The operator shall maintain and make available to the Conservation District complete, written inspection logs of all those inspections. All maintenance work, including cleaning, repair, replacement, regrading and restabilization shall be performed immediately.

4. Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate best management practices to eliminate potential for accelerated erosion and/or sediment pollution.

5. Before initiating any revisions to the approved erosion and sediment control plan or revisions to other plans which may affect the effectiveness of the approved E&S control plan, the operator must receive approval of the revisions from the local Conservation District.

6. The operator shall assure that an erosion and sediment control plan has been prepared, approved by the local Conservation District and is being implemented and maintained for all soil and/or rock spoil and borrow areas. regardless of their locations.

7. All pumping of sediment—laden water shall be through a sediment control BMP, such as a pumped water filter bag discharging over non-disturbed areas. 8. The operator is advised to become thoroughly familiar with the provisions of the Appendix 64, Erosion Control Rules and Regulations, Title 25, Part 1, Department of Environmental Protection, Subpart C, Protection of Natural Resources, Article III, Water Resources, Chapter 102, Erosion Control. 9. A copy of the approved erosion and sediment control plan must be available at the project site at all times.

10. The E&S control plan mapping must display a PA ONE CALL SYSTEM INCORPORATED symbol including the site identification number. 11. Erosion and sediment BMP's must be constructed, stabilized and functional before site disturbance begins within the tributary areas of those BMP's. 12. After final site stabilization has been achieved, temporary erosion and sediment BMP controls must be removed. Areas disturbed during removal of

the BMP's must be stabilized immediately. 13. At least 7 days before starting any earth disturbance activities, the operator shall invite all contractors involved in those activiites, the landowner, all appropriate municipal officials, the erosion and sedimentation control plan preparer, and a representative of the local Conservation District to an on-site meeting. Also, at least 3 days before starting any earth disturbance activities, all contractors involved in those activities shall notify the Pennsylvania One Call System, Incorporated at 1—800—242—1776 for buried

utilities locations. 14. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE. 15. Immediately after earth disturbance activities cease, the operator shall

stabilize any areas disturbed by the activities. During non—germinating periods, mulch must be applied at the specified rates. Disturbed areas which are not at finished grade and which will be redisturbed within 1 year must be stabilized in accordance with the permanent vegetative stabilization specifications. 16. An area shall be considered to have achieved final stabilization when it has a minimum uniform 70% perennial vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding and other movements. OTHER BMP's:

17. Sediment must be removed from storm water inlet protection after each runoff event.

TEMPORARY STABILIZATION & PERMANENT STABILIZATION: 18. Hay or straw mulch must be applied at 3.0 tons per acre.

19. Provide "Curlex Blankets" as manufactured by American Excelsior Co., or approved equal, on all slopes 3:1 and steeper. 20. Straw mulch shall be applied in long strands, not chopped or finely broken. 21. Until the site is stabilized, all erosion and sediment control BMP's must be Clean Fill is defined as: Uncontaminated, non-water soluble,

maintained properly. Maintenance must include inspections of all erosion and sediment control BMP's after each runoff event and on a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching and renetting must be performed immediately. If erosion and sediment control BMP's fail to perform as expected, replacement BMP's, or modifications of those installed will be

22. Sediment removed from BMP's shall be disposed of in landscaped areas outside of steep slopes, wetlands, floodplains or drainage swales and immediately stabilized, or placed in topsoil stockpiles.

23. The operator shall remove from the site, recycle or dispose of all building materials and waste in accordance with PADEP's Solid Waste Management Regulations at 25 Pa. Code 260.1 et sea., 271.1 et sea., and 287.1 et sea. The contractor shall not illegally bury, dump or discharge any building material or wastes at the site.

24. The NPDES Boundary is equal to the outer perimeter boundary of the site, and any off—site areas within the limit of disturbance that are the responsibility of the developer to install. (Off-site facilities, such as: utilities and roadway improvements.)

UTILITY LINE TRENCH EXCAVATION

done immediately after the backfilling is complete.

1. Limit advanced clearing and grubbing operations to a distance equal to two times the length of the pipe installation that can be completed in one day. 2. Work crews and equipment for trenching, pipe installation and backfilling D shall be self—contained and separate from clearing, grubbing, site restoration and stabilization operations.

3. All soil excavated from the trench shall be placed on the uphill side of the 4. Limit daily trench excavation to the length of pipe placement and backfilling

that can be completed that same day. 5. Water which accumulates in the open trench shall be completely removed by pumping before pipe placement and/or backfilling begins. Water removed from the trench shall be pumped through a filtration device. 6. On the day following pipe placement and backfilling, the disturbed area shall be graded to final contours and appropriate temporary erosion and sediment pollution control measures/facilities shall be installed. Stabilization shall be

EROSION AND SEDIMENTATION CONTROL CONSTRUCTION NOTES:

1. SILT FENCE: Silt fences shall be installed downslope of all areas to be disturbed before any work begins. Silt fence shall be installed as near as possible to the locations shown on the plan. Installation shall be as follows: a. Silt fencing must be installed parallel to existing contours or constructed level alignments. Both ends of each fence section must be extended at least 8 feet upslope at 45 degrees to the main fence

b. Dig a 6" deep trench along the upslope side of the fence line. c. Install fence posts 18" below the ground surface at 8' maximum intervals on a slight angle toward the anticipated runoff source. d. Stretch and fasten filter fabric to the upslope side of the support stakes. Wherever reinforced fabric fence is installed, the reinforcement mesh shall be fastened to the stakes prior to the fabric. e. At fabric ends, both ends should be wrapped around the support stake and stapled. If the fabric comes already attached to the stakes, the end stakes shall be held together while the fabric is wrapped

around the stakes at least one revolution prior to driving the stakes. f. The bottom of the fence shall be anchored by placing the fabric in the bottom of the trench, and backfilling and compacting the fill material in the trench.

g. Guy wires shall be attached to reinforced silt fence. An acceptable alternative is to stake straw bales on the downslope side of the fence. h. Silt fence shall be inspected weekly and after each runoff event. Needed repairs shall be performed immediately after the inspection. Damaged fences shall be immediately replaced. Rock filter outlets shall be installed where fences have become overstressed due to sediment build up.

Stormwater inlets must be protected until the tributary areas are stabilized. 3. Diversions, channels, sedimentation basins, sediment traps, and stockpiles must be mulched immediately

4. STRUCTURAL AND CONSTRUCTION FILL: In all areas where structural or construction fill is to be placed, "grubbing" shall be carried out prior to placing any fill. All trees, brush and other vegetation within the construction fill areas shall be removed from the site. 5. DUST CONTROL: To control dust generation on—site, the contractor shall

wet construction traffic routes and staging areas. 6. TEMPORARY VEGETATION BY SITE CONTRACTOR: Upon completion of an earth disturbance activity or any stage or phase of an activity, the site shall be immediately seeded, mulched or otherwise protected from accelerated erosion

1. Lime shall be evenly broadcast @ 190 lbs/1,000 sq. ft. (or as per soil test). 2. 10-25-25 Basic Fertilizer shall be evenly broadcast at the rate of

and sedimentation. Temporary seeding shall be as follows:

3. Seed with annual ryegrass at a rate of 1 lb/1,000 sq. ft. If the season prevents the establishment of a temporary vegetative cover, the disturbed areas will be mulched with straw, or equivalent material, at a rate of 140 pounds per 1000 square feet. Mulch should be applied regardless of the

7. EXISTING ROADWAY CLEANING: Contractor shall maintain a clean approach to the site. If the dirt and/or debris builds up on existing asphalt surfaces, the site cont become o'd become o'actor shall professionally clean that surface to the satisfaction of the authority having jurisdiction. 8. Inlet protection sh become oall be applied, as detailed on the plan, to every inlet which has been constructed to the roadway subbase elevation. 9. All stabilized construction entrances shall be installed as near as possible to the location shown on the plan. Prior to final roadway construction, the aggregate shall be removed, and the roadway prepared and installed according

10. Pollutants such as fuels, lubricants, bitumens, raw sewage and other harmful materials shall not be discharged into or near rivers, streams and impoundments or into natural or manmade channels leading thereto.

FILL MATERIAL NOTES:

25 bs/1,000 sq. ft.

If the site will need to import or export material from the site, the responsibility for performing environmental due diligence and determination of clean fill will rest with the General Contractor.

non-decomposable, inert, solid material. The term includes soil, rock, stone, dredged material, used asphalt, and brick, block or concrete from construction and demolition activities that is separate from other waste and is recognizable as such. The term does not include materials placed in or on the waters of the Commonwealth unless otherwise authorized. (The term "used asphalt" does not include milled asphalt or asphalt that has been processed for

Clean Fill affected by a spill or release of a regulated substance: Fill materials affected by a spill or release of a regulated substance still qualifies as clean fill provided the testing reveals that the fill material contains concentrations of regulated substances that are below the residential limits in Tables FP-1a and FP-1b found in the Department's policy "Management of

Any person placing clean fill that has been affected by a spill or release of a regulated substance must use form FP-001 to certify the origin of the fill material and the results of the analytical testing to qualify the material as clean fill. Form FP-001 must be retained by the owner of the property receiving the fill. A copy of Form FP-001 can be found at the end of these

Environmental due diligence: The applicant must perform environmental due diligence to determine if the fill materials associated with the project auglify as clean fill. Environmental due diligence is defined as: Investigative techniques, including, but not limited to, visual property inspections, electronic data base searches, review of property ownership, review of property use history, Sanborn maps, environmental questionnaires, transaction screens, analytical testing, environmental assessments or audits. Analytical testing is not a required part of due diligence unless visual inspection and/or review of the past land use of the property indicates that the fill may have been subjected to a spill or release of regulated substance. If the fill may have been affected by a spill or release of a regulated substance, it must be tested to determine if it qualifies as clean fill. Testing should be performed in accordance with Appendix A of the Department's policy "Management of Fill".

Fill material that does not qualify as clean fill is regulated fill. Regulated fill is waste and must be managed in accordance with the Department's municipal or residual waste regulations based on 25 Pa. Code Chapters 287 Residual Waste Management or 271 Municipal Waste Management, whichever is applicable. These regulations are available on-line at www.pacode.com.

PERMANENT VEGETATION BY CONTRACTOR:

GRADING AND SUB-SOIL PREPARATION

All areas that will receive permanent vegetation, such as, but not limited to, turf and planting beds, shall be prepared in the following manner:

A. Sub soils shall be native material free from any construction debris, stones larger than 3", organic material such as wood or dead plants larger than 2" in diameter. Any additional fill soil material brought onto site must be inspected by owner for suitability. B. Where Sub soils are backfilled or constructed in depths greater than 2 feet,

each 2 foot lift shall be compacted to minimize subsidence. C. Sub grade to be graded to within 6" of contours called for on plan, to provide proper drainage and be free of standing water.

placement of topsoil. E. After approval of subsoil grading, no additional equipment or vehicles may be driven on the area approved, except for equipment used in landscape operations. Any compaction or depressions must be corrected to reestablish proper sub grade as previously approved, prior to installation of topsoil and plant material.

D. Sub soils to be scarified and loosened to relieve surface compaction prior to

TOPSOIL APPLICATION AND TREATMENT:

A. After topsoil (6" minimum thickness) is graded to the proper elevations, the following materials shall be applied and tilled (mixed) into the top 4" of the

1. Lime shall be evenly broadcast @ 190 lbs/1,000 sq. ft. (or as per soil test).

2. Soil Conditioner shall be evenly broadcast @ 50 lbs/1,000

3. 10-25-25 Basic Fertilizer shall be evenly broadcast at the rate of 25 lbs/1,000 sq. ft.

4. Soil Amendment (Axis or Isolite) is evenly mixed into the top 4" of the field surface.

B. After incorporation of the above materials, the topsoil shall be re-firmed by dry-rolling (topsoil moisture content must be near zero percent) with a five (5) ton roller on a dual flotation tired agricultural tractor.

C. The surface grades shall be surveyed and any undulations or irregularities resulting from applications and soil structuring shall be corrected. D. Any stones larger than 2 inches in any dimension, shall be removed from the top 3" utilizing a mechanical rock picker.

E. Final grading shall be accomplished utilizing an automatic draft sensing hydraulic land plane attached to a flotation tired agricultural tractor. F. Cultivate and restructure the topsoil to a depth of 3-4". Grade tolerance shall be held to 1/4" per foot.

G. Cultivate and till the soil to a depth of 4-6" (depth may be limited by subsurface conditions). H. Re-grade, re-firm and rake the soil surface. This is a smoothing and leveling operation to establish the final crown contours and elevations.

I. Final stone pick the surface of any stones larger than 1" in any dimension.

SEEDING AND MULCHING:

A. Only Flotation Tire Equipment will be permitted after final grade approval. B. Drill seeding shall be accomplished by utilizing a 4' wide seeder constructed with 16 rows of steel slicers spaced 3" or less on center and capable of placing seed 1/4" into the surface at a rate of 8 lbs. per 1000 square feet. C. Seed shall be Villanova Mixture Lot No. L20M-4-FSVSM-2, as supplied by Fisher and Son Co., Inc.: 237 King Street, Malvern, PA 19355 D. Mulching — The Contractor shall mulch all newly seeded areas with salt hay, at the rate of 140 pounds per 1,000 square feet in accordance with DEP specifications. E. Provide manufacturer's fabric and straw combination to all seeded areas on

MAINTENANCE:

A. Seeded lawn maintenance shall be for not less than 60 days after substantial completion

a. If seeded in fall and not given full 60 days of maintenance, or if not considered acceptable at that time, continue maintenance the following spring until acceptable lawn is established.

banks 3 to 1 or steeper and where potential erosion may take place.

B. Maintain lawns by watering, fertilizing, weeding, mowing, trimming and other operations such as rolling, regrading and replanting, as required, to establish a smooth, acceptable lawn; free of eroded or bare areas. C. When seeding is completed, including maintenance, Owner will make an inspection to determine acceptability.

D. When it becomes necessary, the Owner shall inform the Contractor of unsatisfactory conditions of erosion and sediment devices, at such time the Contractor shall improve the conditions of said devices to meet with the approval of the Owner.

E. Should unforeseen erosive conditions develop during construction the Contractor shall take action to remedy such conditions and to prevent damage to adjacent properties as a result of increased runoff and/or sediment displacement. F. Seeded areas that have been washed away shall be filled and graded as necessary and then reseeded. This procedure shall be repeated after each storm or until no more signs of erosion are evident.

GENERAL NOTES

GENERAL ITEMS:

1. The CAD documents produced for this project are not to be used for survey datum. 2. Horizontal and vertical controls shall be taken from the dimensional plans. 3. Any dimensions not shown on the drawings can be scaled.

EXISTING CONDITIONS AND DEMOLITION:

1. All dimensions and existing conditions are to be field-verified before the commencement of any work. Any discrepancies shall be reported to the Engineer

immediately, prior to proceeding. 2. The Contractor shall take all necessary precautions to insure the safety of all excavations. The Contractor shall construct and maintain all shoring, bracing and supports as required to preserve stability and prevent movement, settlement or collapse of construction to remain, and to prevent the unexpected or uncontrolled

movement or collapse of construction being demolished. 3. The Contractor shall assume all responsibility at the site, concerning safety of the workmen and the personnel of the Owner. At no time shall any non-construction worker be allowed free access to the site

4. All demolition work shall be performed in strict accordance with the Project Specifications. All items to be reused or salvaged, shall be handled with care so as not to be damaged during the operation. 5. If items are handed over by The Owner to the Contractor for reinstallation, then those items should be thoroughly inspected and not accepted by the Contractor unless they are in usable condition. Damaged items should be pointed out to the

Representative of The Owner and documented in writing. 6. All project specifications should be read and adhered to, concerning manufacturers and their requirements for installation on the project. 7. Temporary construction requirements for the County Soil Conservation District are extremely important to follow closely. A Representative from the Soil Conservation District may visit the project without warning and stop the progression of the project, until items are corrected.

8. The locations of existing underground utilities are shown in an approximate way only and have not been independently verified by the Owner or its Representative. The Contractor shall determine the exact locations of all existing utilities before commencing work and agrees to be fully responsible for any and all damages, which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.

9. The Contractor is responsible for the repair or replacement of any existing improvements damaged by him or his subcontractors during the construction of the

10. Obtain proper authorization from the Owner in writing 48 hours prior to any and all shutdowns of existing utilities. 11. Remove waste material, including unsatisfactory soil, trash and debris, and legally dispose of it off Owner's property as per local authorities having jurisdiction.

CUT AND FILL:

CONSTRUCTION SEQUENCE:

SEQUENCE OF CONSTRUCTION:

5. Install the new building expansion.

Infiltration Trench Construction.

temporary control measures.

relocated.

1. The contractor must visit the site and verify all existing conditions, prior to commencing any construction operation. Any discrepancies between the conditions and the documents must be reported to the Engineer for resolution, prior to the commencement of construction.

2. Topsoil is to be stripped from all areas requiring a cut and fill operation. The topsoil will be stockpiled by the Site Contractor and reused for areas under the landscape requirements. Additional topsoil shall be imported as per Specifications for 3. All trees, roots, large rocks and construction debris must be removed from all fill

4. All fill is to be compacted in eight to twelve inch (8" to 12") lifts, to ninety-five percent (95%) at optimum moisture content under paving areas and ninety percent (90%) at optimum moisture content under grass surfaces. 5. All fill operations shall be in accordance with the specifications and under strict guidance of the geotechnical—testing agent.

6. All disturbed surfaces not receiving impervious cover shall be prepared and seeded according to the specifications.

A. All earth disturbance activities shall proceed in accordance with the following

sequence. Each stage shall be completed before any following stage is initiated.

Clearing and grubbing shall be limited only to those areas described in each stage.

B. At least 7 days before starting any earth disturbance activities, the Contractor

C. Township engineer shall be notified 48 hours prior to the start of earthmoving

1. Install erosion control measures as shown on the 'Soil Erosion Control Plan' Sheet C1.3. The erosion control measures shall include: the temporary inlet protection, the

2. Remove the existing brick pavers, railings, concrete sidewalks, stone area, and two

trees in front of Bartley Hall and remove the concrete sidewalk and curb, and asphalt

paving at the Sullivan Hall project area. Remove and store the two light poles to be

3. Regrade and install the new concrete sidewalk, curbing and asphalt paving at the

Sullivan Hall project area. Stabilize the disturbed areas beyond the sidewalk and curb.

4. Reroute the existing electric service out of the proposed underground basin area.

8. Perform final grading and install permanent vegetation throughout the site. Install

9. Once the site is stabilized to 70% uniform coverage of permanent vegetation and

throughout the site. Stabilize all areas that are disturbed due to the removal of the

the building has been completed, remove the remaining temporary control measures

6. Excavate for and install the underground detention system and backfill. See

additional notes below for information regarding Underground Detention Basin and

all appropriate municipal officials, and a representative of the Delaware County

activities and prior to the installation of the underground detention basin.

Conservation District to an on-site pre-construction meeting.

temporary silt sock, and temporary construction fence.

7. Install the new site improvements in front of Bartley Hall.

erosion control blankets where shown on the plan.

shall invite all subcontractors involved in those activites, the Owner, the Civil Engineer,

GENERAL NOTES (CONTINUED)

FOUNDATIONS, CONCRETE AND REINFORCING STEEL:

1. All concrete shall be four thousand (4,000) psi at twenty—eight (28) days with an air content of five percent (5%) \pm one percent (1%). 2. All reinforcing steel shall meet the requirements of ASTM A-615. Grade 60. epoxy

3. All concrete shall be reinforced and placed in accordance with the building requirements for reinforced concrete, as adapted by ACI 318 and Local Codes. 4. All concrete work shall conform to ACI 301 Standard Specification for Reinforced

5. All concrete reinforcing steel shall be detailed and placed in strict accordance with the latest ACI Building Code.

6. All details, reinforcement and accessories shall be fabricated and provided in accordance with the manual of Standard Practice for Detailing Reinforced Concrete. 7. All bars shall be lapped with a minimum of thirty—six (36) bar diameter at splices, unless noted otherwise on the Drawings. Welded-wire fabric sheets shall be lapped eight—inch (8") minimum, unless noted otherwise on the Drawings. 8. Welded—wiré fabric shall meet the requirements of ASTM A-818.

9. Before placing concrete, the Mechanical and Electrical Subcontractors shall provide location and sizes of all openings, sleeves, anchors and any other requirements by 10. All precast concrete shall be constructed from a minimum of five thousand (5,000)

psi air-entrained concrete. 11. All precast concrete catch basin inlets, manholes, hand holes and walls shall be submitted for approval and shall meet all PENNDOT Specifications for HS20 loading. 12. All exposed horizontal concrete walking surfaces shall receive broom finish as per Specifications.

PIPING REQUIREMENTS:

1. All corrugated polyethylene pipe to be as manufactured by Advanced Drainage

Systems, Inc., or approved equal. All corrugated polyethylene tubing and fittings shall meet ASTM F405. 3. All 12"ø and 15"ø corrugated polyethylene tubing to be ASTM F667.

4. All corrugated polyethylene drainage tubing to be AASHTO M252. 5. All eight—inch (8") diameter and larger CPP gravity pipe, shall be smooth interior and fittings shall meet ASTM Standard D 3350 and AASHTO M 294 Type S

Requirement. 6. All six-inch (6") diameter and smaller CPP gravity pipe shall be corrugated interior and shall be supplied and installed in strict accordance with the manufacturer's recommendations. All joints shall be made of watertight, non-corrosive materials as recommended by the manufacturer.

All ductile iron pipes shall meet the classification of AWWA C151, Thickness Class 56. The lining for the ductile iron pipe shall meet the classification of AWWA C 104, Cement Mortar, Seal-Coated.

8. All PVC piping shall schedule 40. All fittings shall meet the classification of ASTM F 679. Type 1. Bell and Sprigot, for elastomeric gasket joints. 9. All asphalt coated corrugated metal pipe shall be galvanized and shall have a minimum gage of 14. 10. All galvanized sheets used for pipe fabrication shall meet ASTM A444-81. 11. All corrugated metal pipe and pipe arches shall be galvanized and are to be a

minimum of 12 gage $(2 2/3" \times 1/2" \text{ corrugations})$. 12. All pipe to be backfilled a minimum of 6" all around with sand or screenings unless noted otherwise.

ASPHALT PAVING:

1. All asphalt paving shall be plant mixed and hot—laid, in accordance with ASTM D 3515, in strict accordance with all PENNDOT requirements. 2. All installation requirements shall be in accordance with the Project Specification. 3. All lane markings shall be in accordance with AASHTO M 248, Type N or F.

4. All parking areas are to have a 3" wide, PADOT approved, painted white parking

5. At all high points and low points in asphalt paving and concrete curbing, provide aradual, rounded transition between opposing grades. 6. All proposed concrete curb radii shall be 5 feet minimum.

UNDERGROUND DETENTION BASIN/SUBSURFACE INFILTRATION CONSTRUCTION NOTES:

1. Due to the nature of construction sites, subsurface infiltration should be installed toward the end of the construction period, if possible. 2. Install and maintain adequate erosion and sediment control measures during

3. The existing subgrade under the bed should NOT be compacted or subject to

excessive construction equipment traffic prior to geotextile and stone bed

4. Where erosion of subgrade has caused accumulation of fine materials and/or surface ponding, this material should be removed with light equipment and the underlying soils scarified to a minimum depth of 6 inches with a York rake (or equivalent) and light tractor. All fine grading should be done by hand. All bed bottoms should be at level grade.

5. Install upstream and downstream control structures, cleanouts, perforated piping, and all other necessary stormwater structures. 6. Geotextile and bed aggregate should be placed immediately after approval of subgrade preparation and installation of structures. Geotextile should be placed in accordance with manufacturer's standards and recommendations. Adjacent strips of geotextile should overlap a minimum of 16 inches. It should also be secured at least 4 feet outside of bed in order to prevent any runoff or sediment from entering the storage bed. This edge strip should remain in place until all bare soils contigous to beds are stabilized and vegetated. As the site is fully stabilized, excess geotextile along bed edges can be cut back to the edge of the

. Clean—washed, uniformly graded aggregate should be placed in maximum 8 inch lifts. Prior to installation, the stone shall be checked by the design or site engineer. Each layer should be lightly compacted, with construction equipment kept off the bed bottom as much as possible. 8. In the event that sediment has entered the detention basin, the sediment

shall be cleaned from the fabric, stone, bed, etc. If the amount of sediment that has entered the infiltration bed prohibits the in place cleaning of the fabric, stone or bed, then the fabric and stone shall be replaced. 9. If unfavorable conditions (such as, but not limited to, groundwater and/or bedrock, etc.) are encountered during the excavation for the pipes, then the Engineer is to be contacted immediately prior to proceeding with the excavation.

10. Approved soil media should be placed over infiltration bed in maximum 6 inch 11. Seed and stabilize topsoil. 12. Do not remove inlet protection or other erosion and sediment control

measures until site is fully stabilized. Critical Stages of Underground Detention Basin Construction: — When basin bottom is excavated to proper depth

— When geotextile is being folded and secured over the basin

- When stone and modules are being placed into basin

SEE C3.1 FOR EROSION & SEDIMENTATION CONTROL DETAILS.

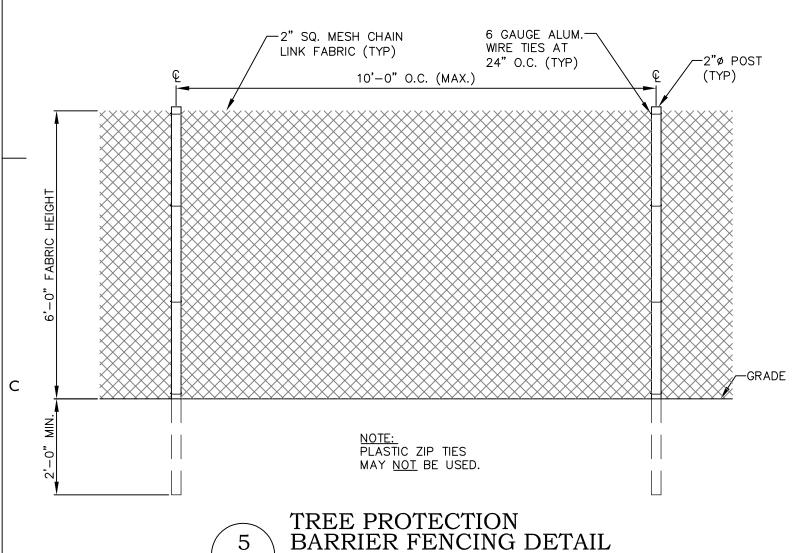
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Sartley Exchange
Entrance Plaza
Villanova University
Villanova, PA

* AS NOTED BID KRM 11/04/15

> C3.0SHEET 9 OF 13



(LOCATION SHOWN THUS - ON PLAN)

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

C3.1

NOTES:

1. PROTECTION BARRIERS SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE WORK AT THE SITE.

2. ADDITIONAL WARNING SIGNS SHOULD ALSO BE PLACED ON THE FENCING AND IN

WORK AT THE SITE.

2. ADDITIONAL WARNING SIGNS SHOULD ALSO BE PLACED ON THE FENCING AND IN APPROPRIATE AREAS NEAR THE WORK ZONE.

3. TREE PROTECTION FENCE SHALL BE INSPECTED BY THE OWNER OR CONTRACTOR AT THE END OF EVERY DAY FOR THE DURATION OF THE PROJECT. THE FENCE SHALL BE REPAIRED WHERE NECESSARY.

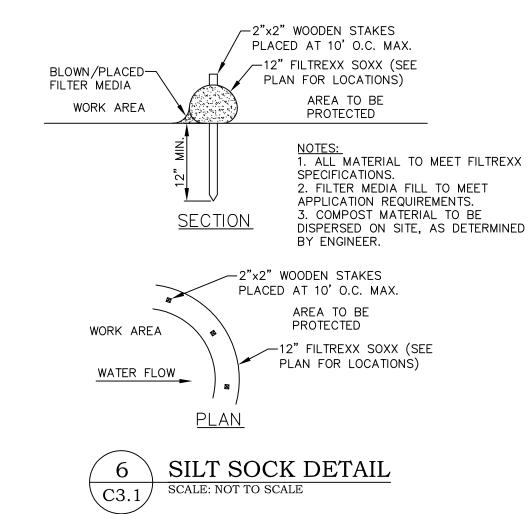
SILT FENCE (OR SILT SOCK)

TOPSOIL

TYPICAL SOIL STOCKPILE CROSS SECTION SCALE: NOT TO SCALE

REDISTRIBUTED ON THE SITE.

1. SILT FENCE OR SILT SOCK MUST COMPLETELY ENCIRCLE STOCKPILES.
2. TOPSOIL SHALL NOT BE REMOVED FROM THE DEVELOPMENT SITE OR USED AS FILL.
3. TOPSOIL SHALL BE REMOVED FROM THE AREAS OF CONSTRUCTION AND STORED SEPARATELY.
4. THE TOPSOIL SHALL BE STABILIZED TO MINIMIZE EROSION DURING STORAGE.
5. UPON COMPLETION OF CONSTRUCTION, THE TOPSOIL SHALL BE UNIFORMLY



SILT SOCK NOTES:

of or up slope of the original sock.

1. The Silt Sock is to be laid on top of the ground along the down—slope areas and along side—slope areas as required to prevent or reduce erosion.

2. The Silt Sock can either be lapped or butted at the ends to create a

continuous line of defense.

3. Socks placed on earthen slopes should be anchored with stakes driven through the center of the sock at intervals recommended by the manufacturer. Where socks are placed on paved surfaces, heavy concrete blocks should be used immediately down slope of the socks to help hold the sock in place.

4. Traffic shall not be permitted to cross Silt Sock. If the Silt Sock is deformed due to being driven over or dragged, then it is to be re—contoured by hand if applicable. If not, the silt sock shall be repaired (see repair notes below).

5. If the Silt Sock rolls due to hydraulic force, then it is to be repositioned and

6. If the Silt Sock loses ground contact, then fill in the depressions and back—grout with chips from damaged section.
7. If sediment accumulates to half of the sock height, then remove the sediment by hand. It may be necessary to install a second row of sock positioned on top

8. If holes, rips or tears develop in the sock, then small holes or narrow rips shorter than 12 inches may be stitched closed using plastic zip ties. Tears longer than 12 inches require the sock to be replaced. Repairs or replacement shall occur within 24 hours of inspection.

9. If a pinch or localized diameter reduction of more than half of the original diameter develops in the sock, then a new section of sock is to be installed upslope of the damaged section.

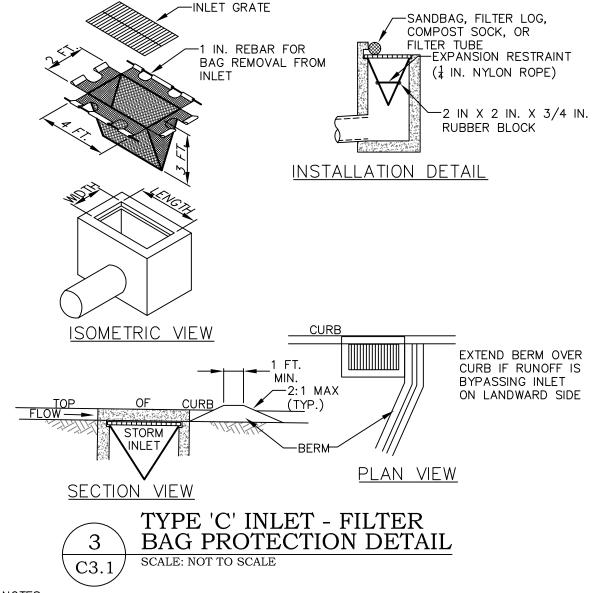
10. Silt Socks shall be inspected weekly and after each runoff event.

11. Biodegradable filter socks shall be replaced after 6 months; photodegradable socks after 1 year. Polypropylene socks shall be replaced according to the manufacturer's recommendations.

nanutacturer's recommendations.
12. Silt Socks shall be removed upon stabilization of the area tributary to the

sock.

13. LOCATION SHOWN THUS — — ON PLAN C1.3.



NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

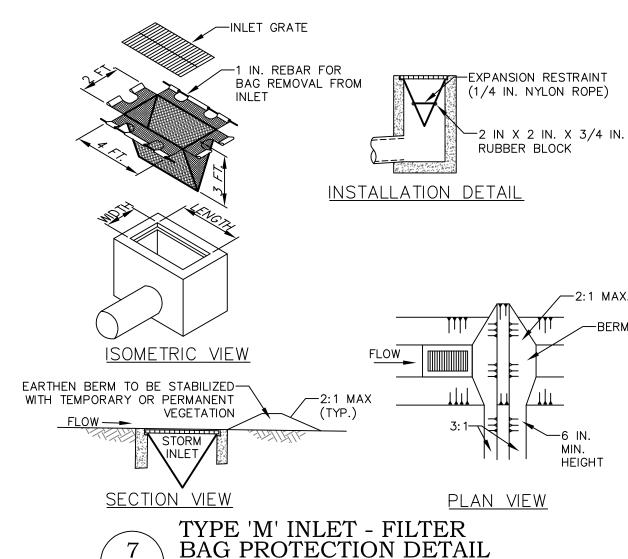
INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

ROLLED EARTHEN BERM SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. SIX INCH MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT.

AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS, A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE OF ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.



NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

C3.1/

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR

SCALE: NOT TO SCALE

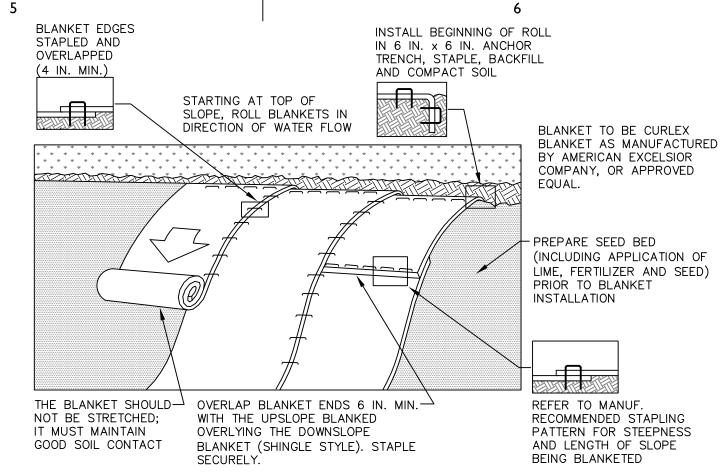
TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

ROLLED EARTHEN BERM IN ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM IN CHANNEL SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR REMAIN PERMANENTLY.

AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.



EROSION CONTROL BLANKET INSTALLATION DETAIL

C3.1 SCALE: NOT TO SCALE

NOTES:

SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.

PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

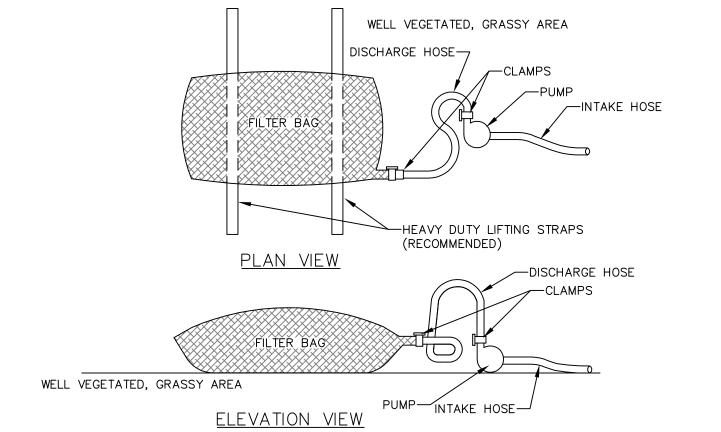
SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

LOCATION SHOWN THUS ON PLAN C1.3



PUMPED WATER FILTER BAG DETAIL

C3.1 SCALE: NOT TO SCALE

NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEPPNESS.

NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

NOTE:
SEE C3.0 FOR EROSION &
SEDIMENTATION CONTROL NOTES,
CONSTRUCTION SEQUENCE AND
PROJECT GENERAL NOTES.

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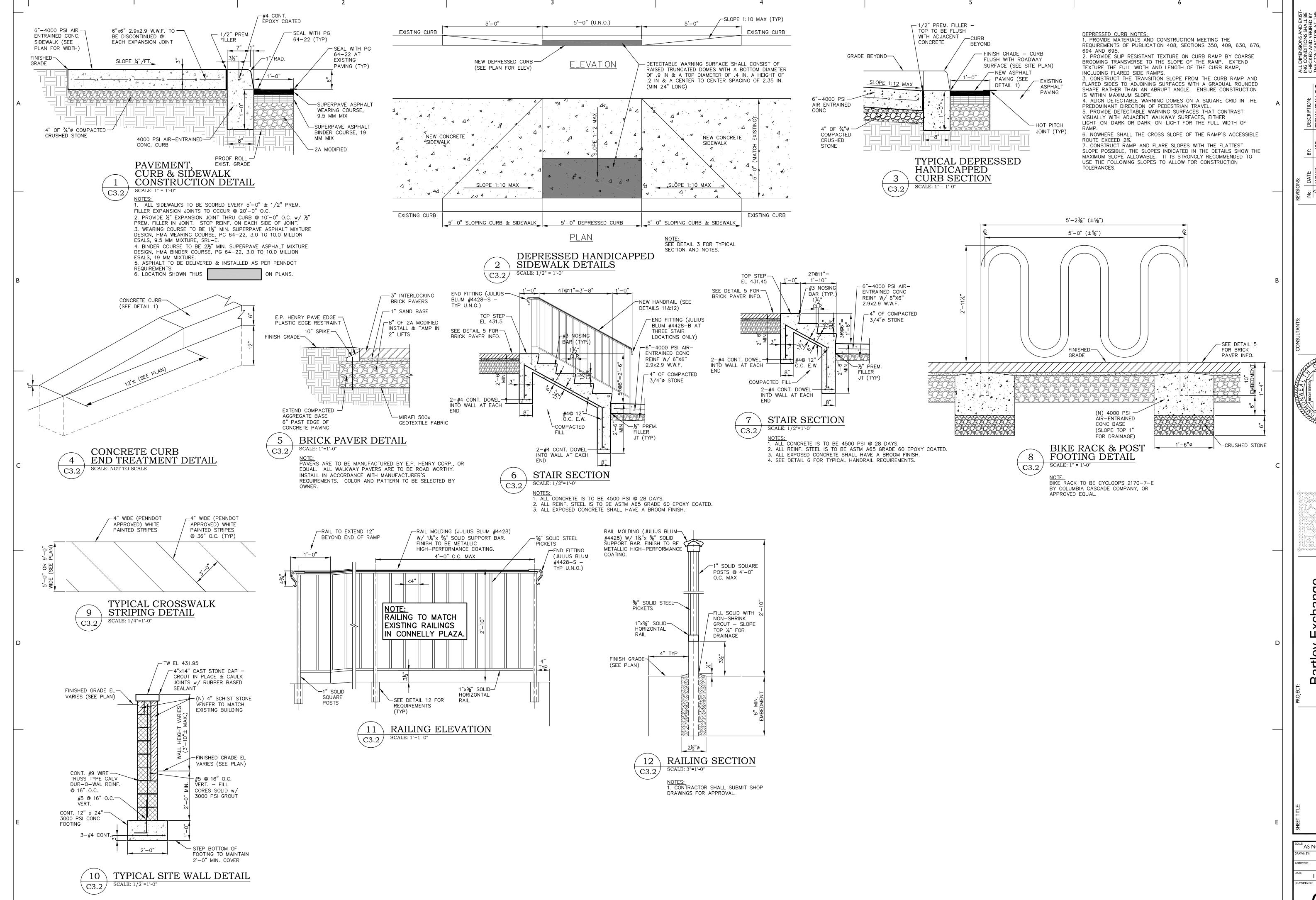
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Bartley Exchange
+ Entrance Plaza
Villanova University

SOIL EROSION CONTROL SECTIONS AND DETAILS

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BJD
APPROVED:
KRM
DATE:
11/04/15
DRAWING No:

C3.1
SHEET 10 OF 13

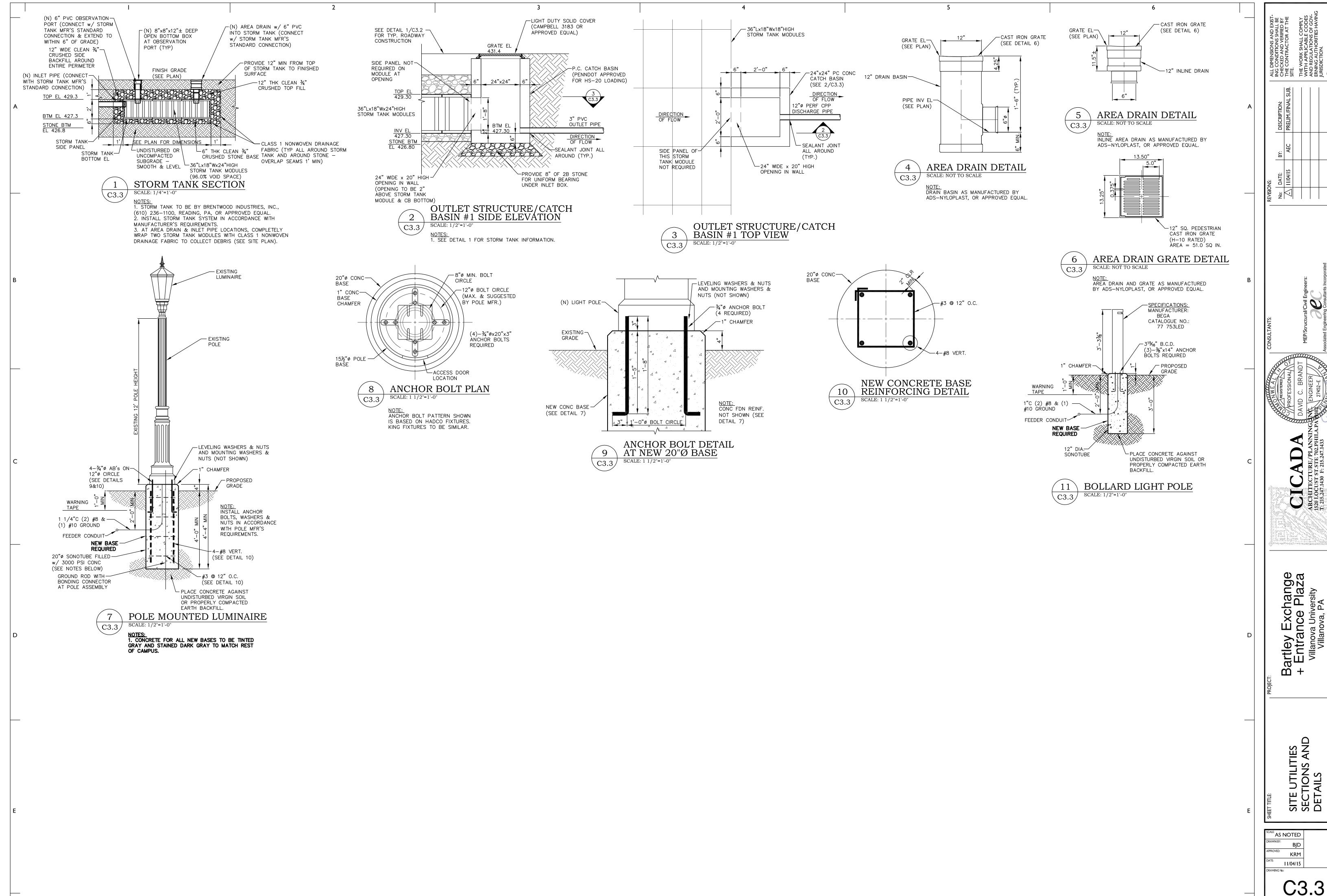


Sartley Exchange
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Villanova University

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* AS NOTED BJD KRM 11/04/15

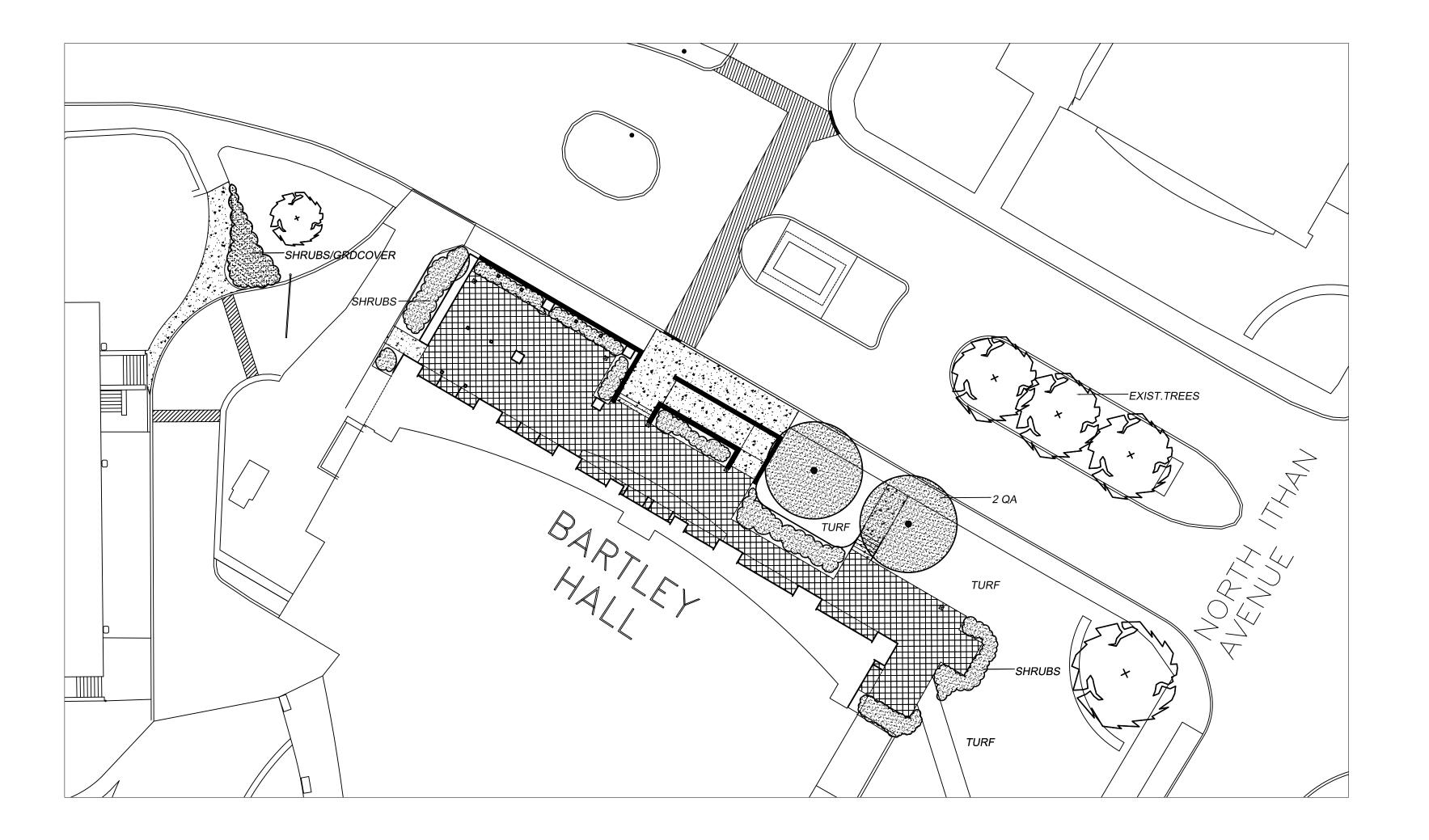
C3.2 SHEET 11 OF 13



SITE UTILITIES SECTIONS AND DETAILS

AS NOTED BJD KRM 11/04/15

C3.3 SHEET 12 OF 13



Tree Removals

6-23"cal 2 trees

Township Planting Requirements

TREE REPLACEMENT
1 tree/6-18"cal.tree removal

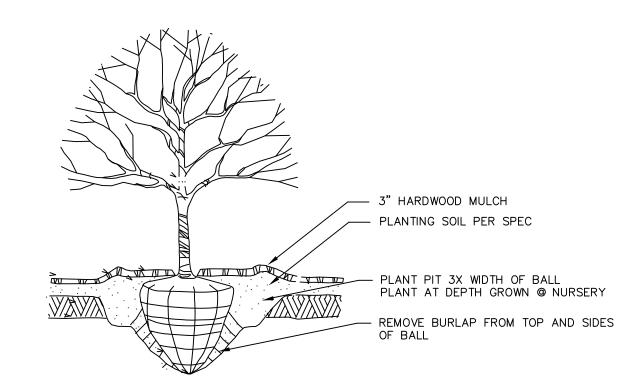
2 TOTAL (2)

Sawtooth Oak

Deciduous Canopy

Quercus acutissima

QA 2½-3"cal. 2



TREE PLANTING DETAIL

Planting Soil

Soil for all on-grade planting shall be composed of three parts topsoil and one part processed compost or equal organic matter. It shall be mixed dry to a uniform texture without lumps and containing no stones, sticks, roots, or other foreign material. Fertilizer and other soil amendments shall be applied and incorporated, at amounts and rates determined by the topsoil analysis. Planting Soil shall have a pH range from 6 to 7, which will be confirmed by an analysis of the soil mix by an accredited soils laboratory, provided at the Contractor's cost. In all planting areas, planting soil shall be placed so that bed surface will be at finished grade when mixture has settled to normal compaction.

Topsoil stripped and stockpiled on the site may be used providing that it meets the requirements specified herein. The Contractor shall be responsible for removing from the stockpiled topsoil any of the deleterious admixtures as listed herein. Topsoil provided by the Contractor from off the site areas shall be obtained from naturally well drained areas and installed by the Contractor at no additions to the contract

Topsoil shall consist of natural friable loam soil capable of sustaining normal plant growth. It shall be of uniform quality, free from brush, weeds, hard clods, stiff clay, sods, stone, stumps, roots etc. larger than ½" in diameter, toxic substances and any material or substance harmful to plant growth or that would be a hindrance to planting and maintenance operations. Topsoil shall be without admixture of subsoil, refuse, or any foreign material.

Topsoil shall contain not less the 6% organic matter and not more than 10% organic matter determined by loss of ignition of moisture-free samples dried in accordance with the current method of the Association of Official Agricultural Chemists.

Plants

All plants shall be the kind and size indicated on the plant list and shall be true to name. Grading of all plants shall be in accordance with the code of standards as stated in the current issue of the AmericanStandard for Nursery Stock published by the American Association of Nurseryman. All plants shall have been nursery grown with the same USDA hardiness zone as the project site. All plants shall be sound,healthy, vigorous nursery stock with a normal habit of growth, shall have been subjected to nursery root and top spraying, transplanting, etc., and shall have been inspected and approved for sale, transportingand transplanting by all governmental agencies authorized to administer such control. All plants shall be subject to inspection and approval by the Landscape Architect throughout the contract period. Plants shall be true to measurement specified except that plants larger than specified may be used if approved by the Landscape Architect and at no addition to the Contract Price.

Substitutions of plants will not be permitted unless reviewed and approved by the Landscape Architect prior

Substitutions of plants will not be permitted unless reviewed and approved by the Landscape Architect prio to commencement of the work.

<u>Planting</u>

Excavation of Plant Pits: All plant pit excavation shall be according to the following requirements:

1.Trees with a ball of earth less than four feet in diameter shall be planted in a pit three times as wide as the diameter of the root ball and equal to the depth of the ball. At the conclusion of planting, the root flare shall be visible at finished grade.

2.In no case shall the distance from the ball to the side of the pit be less than twelve inches. The minimum depth of pits for shrubs shall be equal to the depth of the container or rootball.

Burlap, plastic, twine and metal cages shall be removed prior to planting.

Trees shall be staked only in areas of steep slopes (>5:1), hight wind, or as directed by Landscape

Architect.

All planting areas shall be covered to a uniform loose depth of 3" with finely shredded hardwood bark mulch, unless otherwise indicated.

ROJECT:

Bartley Exchange

Expansion & Renovation

Villanova University

I"=20'

ROVED: TE: | 11/04/2015 WING No:

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