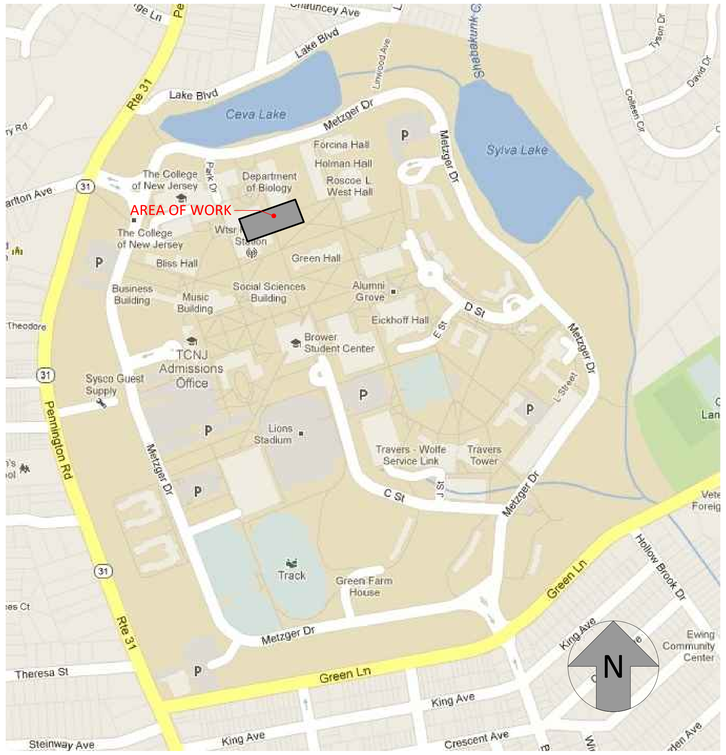
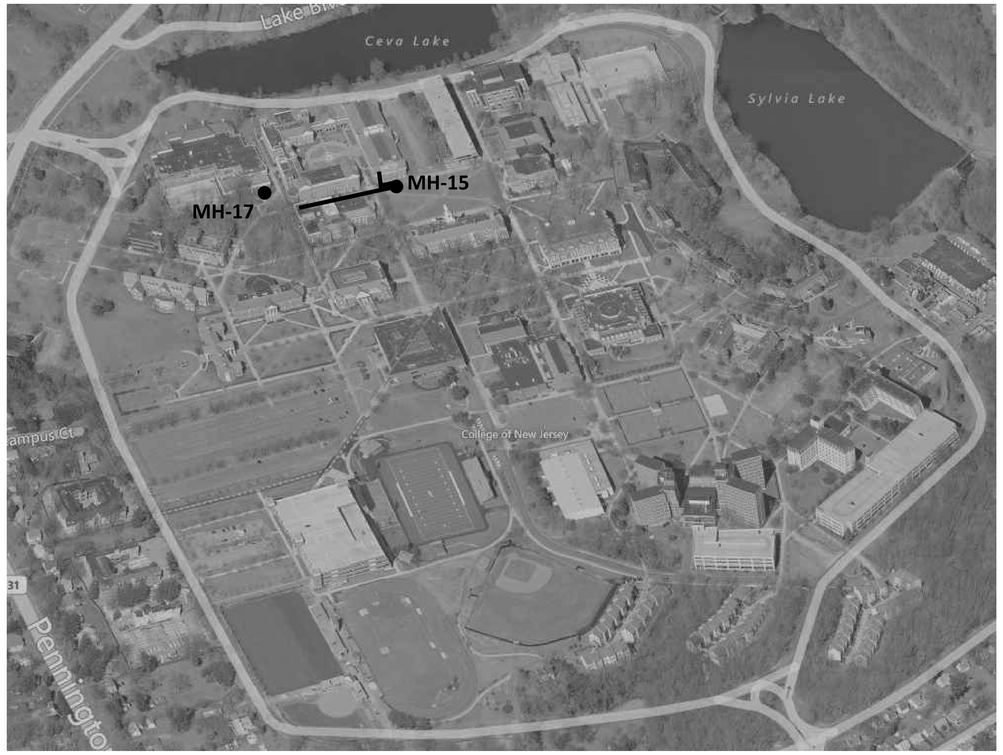
# THE COLLEGE OF NEW JERSEY
# STEAM PIPING & IT CONDUIT REPLACEMENT
# MH-15 TO MH-17
# MH-15 TO BIOLOGY BUILDING

2000 PENNINGTON ROAD
EWING, NJ 08618




SITE LOCATION




AERIAL IMAGE

| ID | Drawing Title | Issues / Revisions: Issued For Schematic Design 2/16/2021 | Issued For CD Review 3/17/2021 | Issued For Bid 4/15/2021 |
|---|---|---|---|---|
| **GENERAL INFORMATION FOR ALL TRADES** | | | | |
| G00 | Cover Sheet | X | X | X |
| G01 | General Information Sheet | X | X | X |
| G02 | Soil Erosion, Sediment Control And Utilities Plan | X | X | X |
| G03 | Soil Storage and Protection Information | | X | X |
| G04 | Soil Erosion Control Plan - Notes And Details | X | X | X |
| | | | | |
| **MECHANICAL PLANS** | | | | |
| M01 | Site Plan - Piping Overview | X | X | X |
| M02 | Piping Plan (Manhole 15 To Manhole 17) | X | X | X |
| M03 | Building Overview Plan | | X | X |
| M04 | Piping Details - 1 | X | X | X |
| M05 | Piping Details - 2 | X | X | X |
| | | | | |
| **ELECTRICAL PLANS** | | | | |
| E01 | Site Plan - IT Conduit Overview | X | X | X |
| | | | | |

| ITEM | DATE | ISSUE DESCRIPTION |
|---|---|---|
| | 04/15/21 | ISSUED FOR BID |
| | 03/17/21 | ISSUED FOR CD REVIEW |
| | 02/16/21 | ISSUED FOR SCHEMATIC REVIEW |


dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: Dan Rehberg
DLB Project ID: 47220 Phone: 732-318-0314


project: THE COLLEGE OF NEW JERSEY
STEAM PIPING & IT CONDUIT REPLACEMENT
2000 PENNINGTON ROAD, EWING, NJ 08618
TCNJ PROJECT NUMBER: IX243

title: COVER SHEET

| scale | drawn by | checked by | date | filename |
|---|---|---|---|---|
| NTS | JV | DR | 2/16/2021 | 47220G00 |

dwg. no. G00

30x42

## INTRODUCTION

Project Mission Statement

To Implement The Steam Piping Replacements On Time And With Minimal Disruption To TCNJ Personnel And The Events Scheduled At Each Facility. The Work Should Be Performed In A Safe Manner While Meeting All TCNJ Requirements. Upon Completion, All Upgrades Will Function Properly And Efficiently As Designed.

Project Description

1. The Project Consists Of The Replacement Of Existing High Pressure Steam, Pumped Condensate, And High Pressure Condensate Piping, IT Conduits, And Associated Accessories On The TCNJ Campus. Upgrades Will Be Made To Increase Functionality And Reliability Of The Systems.

Scope

The Following Is A Brief Scope Of The Work For This Project (Not Intended To Be All Inclusive);

1. Systems To Remain Intact:
   - Manhole 15
   - Manhole 17
   - Existing Underground Site Utilities Not Included In This Project (Electric, Chilled Water, Storm, Domestic Water)

2. Systems To Be Replaced, Modified, And / Or Extended:
   - High Pressure Steam, Pumped Condensate, And High Pressure Condensate Piping Between MH-15 To Biology Building And Between MH-15 Up To MH-17
   - IT Conduits Between MH-18, MH-18A, And Science Complex
   - Temporary Steam Piping To Be Installed And Active For Armstrong Hall And Science Complex During Construction
   - Remove Temporary Condensate Discharge Systems In Armstrong Hall And Science Complex
   - Restore Sidewalks And Landscaping To Original Condition

Objectives

1. To Finish Project With All Aspects Complete And No Or Minimal Change Orders.
2. The Work Must Be Scheduled & Adjusted As Needed To Accommodate The Operation Of Each Building Connected To The Steam System While Keeping Down Time To A Minimum.
3. Complete The Project As Fast As Possible While Maintaining Quality And Minimizing Disruption.
4. Provide Systems That Are Easy To Use & Maintain While Minimizing Operating Costs. Maximize Standardization & Consistency Among All The Facilities.

## DESIGN CRITERIA

General

1. Entire Installation Shall Comply With All Local And State Codes And Other Authorities Having Jurisdiction. College Shall Secure And Pay For All Required Permits. Contractor Shall Schedule All Inspections Required For His Work.

Applicable Codes And References

1. International Building Code, 2018 Edition.
2. International Mechanical Code, 2018 Edition.
3. ASHRAE 90.1 Energy Standards.
4. ASHRAE Handbooks - American Society Of Heating, Refrigerating And Air Conditioning Engineers, Inc.
5. New Jersey Administrative Code and Rehabilitation Subcode.

## SPECIAL SAFETY CONDITIONS

The Following Is A Brief List Of Special Conditions And Considerations For This Project:

1) Include A Protected Path Through The Octagon While Construction Is Performed.

2) Provide At Least 2 Days Advance Notice Of Any Road Closures To Campus Police And OSES So That Proper Emergency Services Can Be Notified Of Building Access Changes.

3) A Portion Of This Work Will Be Occurring In The Path Of An Emergency Egress Route From Multiple Buildings. During All Phases Of The Project A Protected Emergency Egress Route Must Be Maintained From Each Affected Emergency Egress Route, Allowing Retreat From The Building. Approval Of The Division Of Community Affairs Is Required To Close Or Re-Direct Emergency Egress Route.

4) Coordinate And Schedule Work To Limit Impacting Emergency Exit Routes During Times The Building Is Used Most Frequently, Such As During The Semesters.

5) All Work Shall Be Conducted In A Manner Compliant With Local, State, And Federal Regulations And Codes. This Includes, But Is Not Limited To, The Use Of Proper Cave-In Protection Methods.

6) The Contractor Shall Limit And Contain Materials, Equipment, Debris, Etc. Within The Work Areas, And Identify Entrances To Work Areas, And The Requirements (i.e. PPE, Etc.) To Enter Such Spaces.

7) During Any Full Or Partial Lane Closures, For Any Duration, The Contractor Or Its Subcontractor(s) Shall Provide Proper Traffic Control Measures.

8) Contractor May Encounter Subsurface Abandoned Asbestos Piping. If Subsurface Asbestos Is Encountered And Cannot Be Avoided The Contractor Shall Notify The TCNJ Project Manager. Any Such Abatement Work Must Be Performed By TCNJ OSES.

## BASIS OF DESIGN

A. All High Pressure Steam, Pumped Condensate, And High Pressure Condensate Piping Between Manhole 15 and 17 Is To Be Replaced With New. Existing Piping Shall Be Removed And Disposed Of By Contractor.

B. Both Manholes Are To Remain And Piping In MH-15 Shall Be Connected To The New Steam Distribution Piping. Any Damage That Occurs During Construction Shall Be Repaired.

C. Construction Shall Be Phased So Campus Steam System Is Not Offline Except During Approved Shut Down Period. Shutdown Shall Be Coordinated With College And Scheduled A Minimum Of Two Weeks In Advance Of Proposed Work.

D. The Proposed Routing Includes The Minimum Amount Of Interference With The Existing Trees As Possible. Any Deviations Made By The Contractor Will Have To Be Reviewed By A Certified Arborist (Provided By Contractor) And Approved By The College Before The Work Is Performed.

E. Any Trees That Are Removed Or Damaged During The Course Of Construction Shall Be Replaced With (2) Trees Approved By The College With A Minimum Caliper Of 5".

F. All Landscaped Areas Disturbed By The Contractor Shall Be Regraded To Match Existing And Reseeded With A Mixture Approved By The Mercer County Soils Conservation District. The Recommended Application Is 70% Turf Type Tall Fescue, 20% Perennial Type Grass And 10% Kentucky Bluegrass At A Rate Of 200 Pounds Per Acre.

G. 6" Temporary Stainless Steel Braided Steam Piping Shall Be Provided To The Science Complex And Armstrong Hall. Building Systems Shall Be Made Operational Using Temporary Piping Before Existing Underground Systems Are Shut Down. Temporary Piping Shall Be Turned Over To College At End Of Project. Contractor To Provide Four (4) Commerical Grade Dehumidifiers For Use In Armstrong Hall And The Science Complex During Periods When The Steam System Is Offline.

H. A $75,000 Allowance Shall Be Included In All Bids For Unforeseen Underground Conditions And For Additional Work To Provide A Complete Workable System.

## BACKGROUND ON CERTAIN DECISIONS

General

A. The Existing Underground Piping Shall Be Completely Removed And Disposed Of By Contractor To Allow Installation Of The New Piping.

B. All New Underground Piping Shall Be Pre-Insulated Piping System Type With An Interior Carrier Pipe Surrounded By Aerogel Insulation And A Secondary Pipe. Acceptable Manufacturers Include Perma-Pipe, Rovanco, And Thermacor Or Equivalent. The Manufacturer Of The Pre-Insulated Piping System Shall Be Fully Responsible For The Piping Stress Analysis And Shall Include The Required Expansion Loops And Anchor Point Locations.

C. The Existing Site Utilities Plan Was Used To Show Potential Piping Conflicts Along The Proposed Piping Pathway. Existing Utilities Locations Shall Be Coordinated With New Construction. Contractor Shall Provide Underground Radar Mapping Services of the Area Prior To Excavation. Updated Site Plan Shall Be Provided To TCNJ And Written Approval Provided By TCNJ Construction Manager Prior To Start Of Excavation.

D. Existing Sidewalks Shall Be Removed As Noted To Allow Removal Of Existing Piping And Installation Of New. Installation Of New Sidewalks Shall Follow TCNJ Requirements Based On Details and Specifications.

E. Contractor Shall Order Straight Lengths Of Underground Piping Immediately Upon Contract Award. Shop Drawing Shall Follow With Vendor Calculations And Details On Fittings And Transitions.

## SOIL EROSION AND SEDIMENT CONTROL NOTES

Soil And Erosion Control Shall Comply With The Requirements Of The Mercer County Soil Conservation District With The Following Additional Requirements:

1. The Contractor Shall Only Excavate That Portion Of The Trench That The Contractor Can Install The Pipe, Backfill The Trench And Stabilize In A Day.
2. Where A Portion Of The Trench Is Required To Remain Open. Erosion And Sediment Control Devises (Silt Fence And Silt Sack For Inlets As Indicated In The Details On Drawing G03) Shall Be Installed Along Level Sections Of The Project.
3. The Contractor Shall Not Commence Excavation During Periods Of Expected Poor Weather Conditions.
4. Mud And Sediment Shall Be Washed Off Of The Construction Equipment While On Site To Prevent Migration Of Sediment From The Site.
5. Stabilization Of The Backfilled Trench Shall Conform To The Requirements Of The Mercer County Soil's Requirements For Permanent Vegetative Cover For Soil Stabilization.

## CATHODIC PROTECTION

Provide Passive Cathodic Protection System As Part Of New Piping Installation. Test Port Shall Be Installed Near Biology Building. Final Location Shall Be Confirmed In Field With TCNJ.

1. Contractor Shall Test Soils To Determine Potential Values And Resistivity Prior To Piping Installation.
2. Provide Ground Level Test Station With Terminal Box Installed In Precast Concrete Valve Box With Cast Iron Lid. See Detail M05-08 For Additional Information

## KEY PARTICIPANTS & THEIR ROLES

Project Manager

The College of New Jersey
Ewing, NJ 08628-0718
Mumtaz Makhdomi

MEP

DLB Associates Consulting Engineers, PC - NJ
265 Industrial Way West
Eatontown, NJ 07724
Phone: (732) 318-0314
Dan Rehberg: drehberg@dlbassociates.com

## DOCUMENT ORGANIZATION

Drawings Organization

1. General Sheets
2. Mechanical (M Series)
3. Electrical (E Series)

G###
Unique ID
Drawing Series
Drawing Trade
G: General
M: Mechanical

Drawing Sequence

Drawings Start With The General Information Sheet, The Planviews, Followed By All Other Pertinent Information. Where Effective, Supplemental Information Is Included Directly On The Planviews.

Specifications

A Book Specification Is Provided With These Drawings.

Miscellaneous

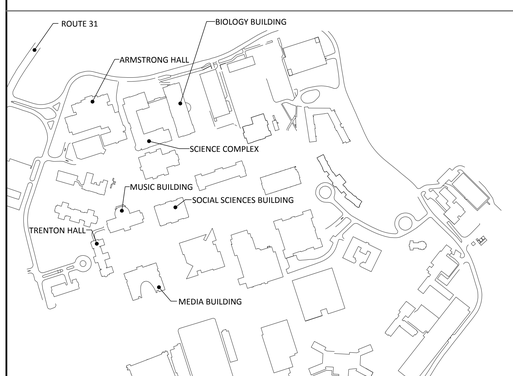
1. The Term 'Sheet' Or 'Drawing' Is Used Interchangeably.
2. Printing Of The Plans Is Often Reduced, So A Graphic Scale Is Provided On Each Sheet.
3. For Items That Are Plans, Details, And Other Graphic Items, Titles Are At The Bottom Of The Item Described. For Items That Are Predominately Text Such As Schedules, Titles Are At The Top Of The Item Described.
4. Shading Of An Area Often Is Used To Emphasize An Area To The Reader. Some Of The Possible Purposes Of This Emphasis Can Be:
   A. Identify Major Pieces Of Equipment.
   B. Defining A Topics Boundary Without Conflicting With Other Linework.
   C. Help To Emphasize The Existence Of A Part Plan Of The Area.
   D. Differentiate Line Work In Congested Areas.

How Notes Are Used

1. General Notes - One Or More In List Form Which Are Not Indicated Specifically On A Plan, Section, Elevation, Or Detail.
2. Notes For This Drawing - General Notes Located Only On The Drawing That Applies.
3. Key Notes - Used In Lieu Of Standard Notes Where They Improve Readability, Key Notes Are Gathered Together And Listed Collectively On The Drawings On Which They Are Located.

Addenda & Revisions

1. Some Addenda And Revisions Are Identified On The Drawings Using A 1. The Number In The Triangle Links To The Revision Block In The Title Block Section.
2. Sometimes The Most Recent Change Is Clouded To Provide Increased Clarity.




**BUILDING LOCATION PLAN**


**MANHOLE PLAN**


**AREA OF WORK PLAN**

| ITEM | DATE | ISSUE DESCRIPTION |
|---|---|---|
| | 04/15/21 | ISSUED FOR BID |
| | 03/17/21 | ISSUED FOR CD REVIEW |
| | 02/16/21 | ISSUED FOR SCHEMATIC REVIEW |

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: Dan Rehberg
DLB Project ID: 47220 Phone: 732-318-0314

project
THE COLLEGE OF NEW JERSEY
STEAM PIPING & IT CONDUIT REPLACEMENT
2000 PENNINGTON ROAD, EWING, NJ 08618
TCNJ PROJECT NUMBER: IX243

title
GENERAL INFORMATION SHEET

| scale | drawn by | checked by | date | filename |
|---|---|---|---|---|
| NTS | JV | DR | 2/16/2021 | 47220G01 |

dwg. no.
G01

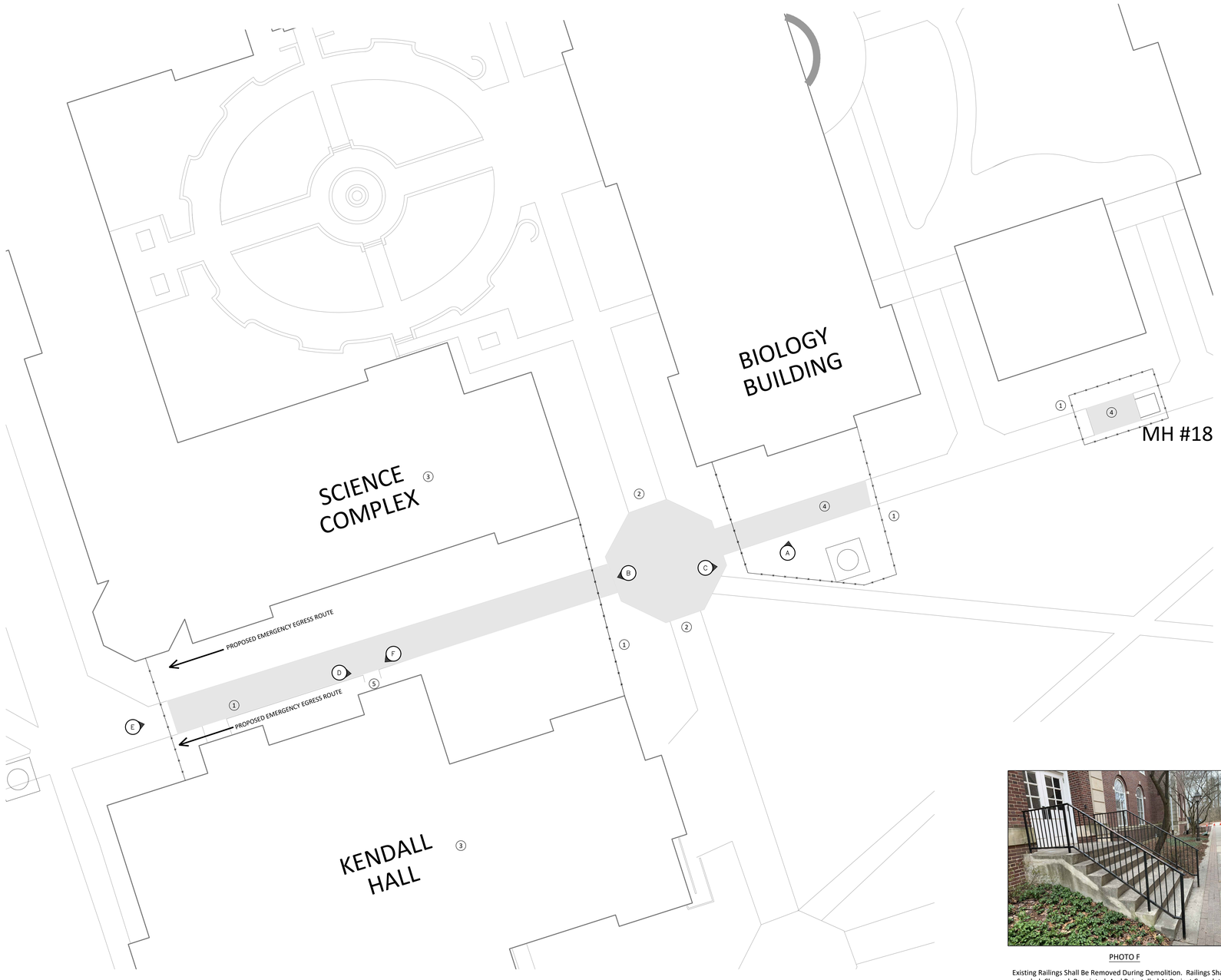





PHOTO F

Existing Railings Shall Be Removed During Demolition. Railings Shall Be Sanded, Cleaned, Repainted, And Reinstalled At Project Completion.

PHOTO A

Piping into Biology Building To Be Replaced

PHOTO B

Path Towards Arnstrong Hall

PHOTO C

Path Towards MH-15

PHOTO D

Existing Railing To Removed During Demolition. Railing To Be Reinstalled At Project Completion, Sanded, Repainted, And Concrete Stairs Repaired.

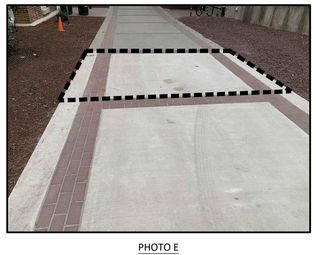


PHOTO E

One Section Of New Sidewalk To Be Removed To Allow Connection Of Temporary Piping To Piping Extension From MH-17.

**KEY NOTES (SYMBOLS ①, ②, ETC.)**

1. Provide Construction Fencing Around All Work Areas. Provide Signage Noting "Sidewalk Closed For Construction".
2. Maintain Clear Pathway At All Times With Steel Plates Using Non-Slip Materials And Railings.
3. Temporary Bridges With Railing And Anti-Slip Measures Shall Be Installed At Egress Exits From The Science Complex And Kendall Hall
4. Existing Sidewalks And Octagon Shall Be Removed To Allow Steam Piping And IT Conduits To Be Replaced. Sidewalks And Octagon Shall Be Reinstalled Per Details After Piping Installation Is Complete, Pressure Tested, And Soil Has Been Compacted.
5. Exit From North Side Of Kendall Hall Shall Be Closed During Construction And Marked With Directions To Nearest Exit. All Other Exits From Kendall Hall And The Science Complex Shall Be Marked "Emergency Egress Only".

**MERCER COUNTY SOIL EROSION AND SEDIMENT CONTROL NOTES**

1. The Mercer County Soil Conservation District Shall Be Notified 48 Hours Prior To Starting Land Disturbance Activity. Notice May Be Mailed, Faxed Or Emailed To: MCSCD, 590 Hughes Drive, Hamilton Square, NJ 08690
   Phone: 609-586-9603 Fax: 609-586-1117 Email: Pauls1mercer@aol.com
2. If Applicable To This Project, The Owner Should Be Aware Of His Or Her Obligation To File For A NJPDES Construction Activity Stormwater 5G3 Permit (NJG0088323) Via The NJDEP Online Permitting System (www.nj.gov/dep/online) And To Maintain The Associated Best Management Practices And Stormwater Pollution Prevention Plan Self-Inspection Logbook Onsite At All Times. This Permit Must Be Filed Prior To The Start Of Soil Disturbance. The Online Application Process Will Require Entry Of An SCD Certification Code, Which Is Provided By The Soil Conservation District Upon Certification Of The Soil Erosion And Sediment Control Plan.
3. The Mercer County Soil Conservation District Shall Be Notified Of Any Changes In Ownership.
4. Any Changes To The Certified Soil Erosion And Sediment Control Plan, Including An Increase In The Limit Of Disturbance, Will Require The Submission Of Revised Soil Erosion And Sediment Control Plans To The District For Recertification. The Revised Plans Must Meet All Current State Soil Erosion & Sediment Control Standards.
5. A Copy Of The Certified Soil Erosion And Sediment Control Plan Shall Be Maintained On Site At All Times.
6. All Soil Erosion And Sediment Control Practices Shall Be Installed Prior To Any Major Soil Disturbances, Or In Their Proper Sequence As Outlined Within The Sequence Of Construction On The Certified Soil Erosion And Sediment Control Plan, And Maintained Until Permanent Protection Is Established.
7. All Work Shall Be Done In Accordance With The Current Standards For Soil Erosion And Sediment Control In NJ. If Language Contained Within Any Other Permit For This Project Is More Restrictive Than (But Not Contradictory To) What Is Contained Within These Notes Or On The Certified Soil Erosion And Sediment Control Plan, Then The More Restrictive Permit Requirements Shall Be Followed.
8. The Standard For Stabilized Construction Access Requires The Installation Of A 1½" To 2½" Clean Stone Tracking Pad At All Construction Driveways Immediately After Initial Site Disturbance, Whether Identified On The Certified Plan Or Not. The Width Shall Span The Full Width Of Egress, And Length Shall Be 50 Ft. Or More, Depending On Site Conditions And As Required By The Standard. This Shall Include Individual Lot Access Points Within Residential Subdivisions. If The Egress Is To A County Road, Then A 20 Ft. Long Paved Transition Shall Be Provided Between The Edge Of Pavement And The Stone Access Pad.
9. A Sub-Base Course Will Be Applied Immediately Following Rough Grading And Installation Of Improvements In Order To Stabilize Streets, Roads, Driveways And Parking Areas. In Areas Where No Utilities Are Present, The Sub-Base Shall Be Installed Within 15 Days Of Preliminary Grading, Provided That All Other Requirements Related To Detention Basins, Swales And The Sequence Of Construction Have Been Met.
10. Any Disturbed Areas That Will Be Left Exposed More Than 14 Days And Not Subject To Construction Activity Will Immediately Receive Temporary Stabilization. If The Season Prevents Establishment Of A Temporary Vegetative Cover, Or If The Area Is Not Topsoiled, Then The Disturbed Areas Will Be Mulched With Straw, Or Equivalent Material, At A Rate Of Two (2) Tons Per Acre, According To State Standards. Sloped Areas In Excess Of 3H:1V Shall Be Provided With Erosion Control Blankets. Critical Areas Subject To Erosion (I.E. Steep Slopes, Roadway Embankments, Environmentally Sensitive Areas) Will Receive Temporary Stabilization Immediately After Initial Disturbance Or Rough Grading
11. Any Steep Slopes (I.E. Slopes Greater Than 3:1) Receiving Pipeline Or Utility Installation Will Be Backfilled And Stabilized Daily, As The Installation Proceeds.
12. Permanent Vegetation Shall Be Seeded Or Sodded On All Exposed Areas Within Ten (10) Days After Final Grading And Topsoiling. All Agronomic Requirements Contained Within The Standards And On The Certified Plan Shall Be Employed. Mulch With Binder, In Accordance With The Standards, Shall Be Used On All Seeded Areas. Save All Tags And/Or Bags Used For Seed, Lime And Fertilizer, And Provide Them To The District Inspector To Verify That Mixtures And Rates Meet The Standards.
13. At The Time When The Site Preparation For Permanent Vegetative Stabilization Is Going To Be Accomplished, Any Soil That Will Not Provide A Suitable Environment To Support Adequate Vegetative Ground Cover, Shall Be Removed Or Treated In Such A Way That Will Permanently Adjust The Soil Conditions And Render It Suitable For Vegetative Ground Cover. If The Removal Or Treatment Of The Soil Will Not Provide Suitable Conditions, Then Non-Vegetative Means Of Permanent Ground Stabilization Will Have To Be Employed.
14. During The Course Of Construction, Soil Compaction May Occur Within Haul Routes, Staging Areas And Other Project Areas. In Accordance With The Standard For Topsoiling, Compacted Surfaces Should Be Scarified 6" To 12" Immediately Prior To Topsoil Application. This Will Help Ensure A Good Bond Between The Topsoil And Subsoil. This Practice Is Permissible Only Where There Is No Danger To Underground Utilities (Cables, Irrigation Systems, Etc.).
15. Prior To Seeding, Topsoil Shall Be Worked To Prepare A Proper Seedbed. This Shall Include Raking Of The Topsoil And Removal Of Debris And Stones, Along With Other Requirements Of The Standard For Permanent Vegetative Cover For Soil Stabilization.
16. In Accordance With The Standard For Management Of High Acid Producing Soils, Any Soil Having A pH Of 4 Or Less Or Containing Iron Sulfides Shall Be Buried With Limestone In Accordance With The Standard And Be Covered With A Minimum Of 12" Of Soil Having A pH Of 5 Or More Prior To Topsoil Application And Seedbed Preparation. If The Area Is To Receive Tree Or Shrub Plantings, Or Is Located On A Slope, Then The Area Shall Be Covered With A Minimum Of 24" Of Soil Having A Ph Of 5 Or More.
17. Mulching To The Standards Is Required For Obtaining A Conditional Report Of Compliance. Conditional ROC's Are Only Issued When The Season Prohibits Seeding. Permanent Stabilization Must Then Be Completed During The Optimum Seeding Season Immediately Following The Conditional ROC, Or The Completion Of Work In A Given Area.
18. Hydroseeding Is A Two-Step Process. The First Step Includes Seed, Fertilizer, Lime, Etc., Along With Minimal Amounts Of Mulch To Promote Consistency, Good Seed-To-Soil Contact, And Give A Visual Indication Of Coverage. Upon Completion Of The Seeding Operation, Hydromulch Should Be Applied At A Minimum Rate Of 1500 Lbs. Per Acre In Second Step. The Use Of Hydro-Mulch, As Opposed To Straw, Is Limited To Optimum Seeding Dates As Listed In The Standards. The Use Of Hydromulch On Sloped Areas Is Discouraged.
19. The Contractor Is Responsible For Keeping All Adjacent Roads Clean During Life Of The Construction Project. All Sediment Washed, Dropped, Tracked Or Spilled Onto Paved Surfaces Shall Be Immediately Removed.
20. The Developer Shall Be Responsible For Remediating Any Erosion Or Sediment Problems That Arise As A Result Of Ongoing Construction, And For Employing Additional Erosion And Sediment Control Measures At The Request Of The Mercer County Soil Conservation District.
21. Conduit Outlet Protection Must Be Installed At All Required Outfalls Prior To The Drainage System Becoming Operational.
22. All Detention / Retention Basins Must Be Fully Constructed (Inclusive Of All Structural Components And Liners) And Permanently Stabilized Prior To Paving Or Prior To The Addition Of Any Impervious Surfaces. Permanent Stabilization Includes, But May Not Be Limited To: Topsoil, Seed, Straw Mulch And Binders Or Erosion Control Blankets On All Seeding, All Agronomic Requirements As Specified On The Certified Soil Erosion And Sediment Control Plan, Installation Of The Outflow Control Structures And Discharge Storm Drainage Piping, Low Flow Channels, Conduit Outlet Protection, Emergency Spillways, And Lap Ring Protection.
23. The Riding Surface Of All Utility Trenches Within Paved Areas Shall Be 3/4" Clean Stone Or Base Pavement Until Such Time As Final Pavement Has Been Installed. Temporary Soil Riding Surfaces Are Prohibited.
24. All Construction Dewatering (Trenches, Excavations, Etc.) Must Be Done Through An Inlet Or Outlet Filter In Accordance With The Standard For Dewatering Or As Depicted On The Certified Soil Erosion And Sediment Control Plan. Discharge Locations For The Dewatering Operation Must Contain Perennial Vegetation Or Similar Stable Surface.
25. All Swales Or Channels That Will Receive Runoff From Paved Surfaces Must Be Permanently Stabilized Prior To The Installation Of Pavement. If The Season Prohibits The Establishment Of Permanent Stabilization, The Swales Or Channels May Be Temporarily Stabilized In Accordance With The Standards.
26. NJSA 4:24-39 Et Seq. Requires That No Certificate Of Occupancy Or Temporary Certificate Of Occupancy Be Issued By The Municipality Before The Provisions Of The Certified Soil Erosion And Sediment Control Plan Have Been Satisfied. Therefore, All Site Work For Site Plans And All Work Around Individual Lots In Subdivisions Must Be Completed Before The District Issues A Report Of Compliance Or Conditional Report Of Compliance, Which Must Be Forwarded To The Municipality Prior To The Issuance Of A Certificate Of Occupancy Or Temporary Certificate Of Occupancy, Respectively.
27. Stockpiling Shall Not Be Permitted On Paved Driveways Or Within Paved Parking Lots. Stockpile Location On G0003 Is A Vacant Dirt Lot.

**SITE PLAN - PIPING OVERVIEW** Scale: 1"=20'-0" (2' 10' 20' 40') Drawing: **G02** Detail: **01**

| ITEM | DATE | ISSUE DESCRIPTION |
|---|---|---|
| | 04/15/21 | ISSUED FOR BID |
| | 03/17/21 | ISSUED FOR CD REVIEW |
| | 02/16/21 | ISSUED FOR SCHEMATIC REVIEW |


dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: **Dan Rehberg**
DLB Project ID: 47220 Phone: 732-318-0314

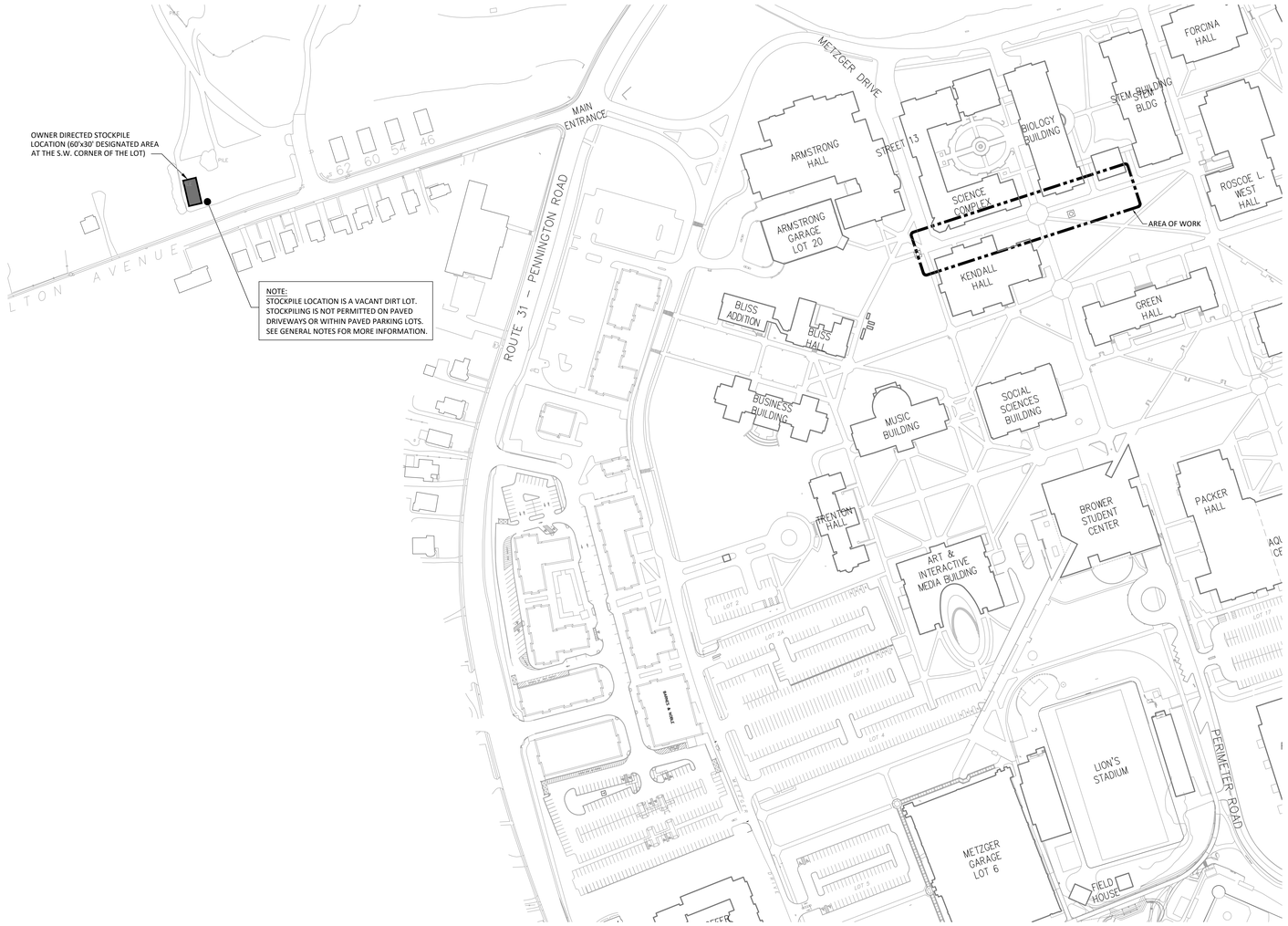

project: THE COLLEGE OF NEW JERSEY
STEAM PIPING & IT CONDUIT REPLACEMENT
2000 PENNINGTON ROAD, EWING, NJ 08618
TCNJ PROJECT NUMBER: IX243

title: SOIL EROSION, SEDIMENT CONTROL AND UTILITIES PLAN

| scale | drawn by | checked by | date | filename |
|---|---|---|---|---|
| NTS | JV | DR | 2/16/2021 | 47220G02 |

dwg. no. G02

30x42



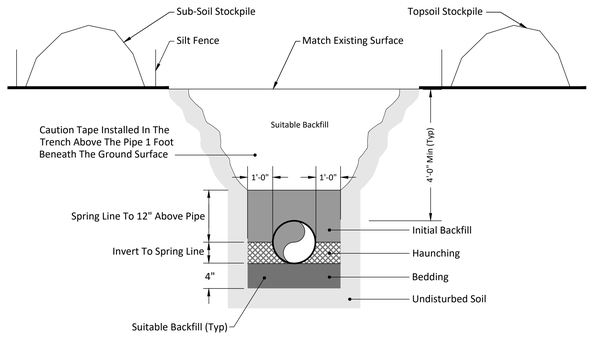

**CONSTRUCTION SEQUENCE**

1. Install Silt Fence Around Piping Pathway And Provide Inlet Protection
2. Notify The Mercer County Soil Conservation District 48 Hours Prior To Any Disturbance
3. Remove Existing Sidewalks Along Piping Path.
4. Excavate Trenches Along Piping Path. Stockpile Topsoil Separately From Sub-Soil
5. Install Temporary Steam Piping In Trench From MH-15 To Armstrong Hall / Science Complex
6. Remove Existing Steam Piping And IT Conduit
7. Install New Underground Steam Piping And IT Conduit
8. Stabilize All Disturbed Areas Immediately After Piping And Conduit Installations
9. Maintain Soil Erosion And Sediment Control Measures
10. Notify The Mercer County Soil Conservation District By Letter Requesting A Compliance Inspection
11. Remove Inlet Protection And Silt Fence After All Disturbed Areas Have Been Stabilized
12. Install Permanent Stabilization At All Areas Affected By Construction

**GENERAL NOTES**

1. Unsuitable Soils Or Soils That Are Not Planned To Be Reused Shall Be Trucked Out And Dispose Of Immediately Upon Excavation. Soils Of This Category Shall NOT Be Stockpiled. Receipt For Proper Disposal Shall Be Provided To TCNJ Upon Removal.
2. Where Practical, Soils Are Permitted To Be Stockpiled Next To The Trench As Shown In The Contract Documents. Soils Can Not Be Stockpiled Next To Trenches That Run Near Trees (Under Tree Drip Line) Or In Heavily Landscaped Areas.
3. Upon Completion Of Excavation And Backfill, All Soils Related To The Work Performed Under This Scope Shall Be Removed From The Carlton Avenue Lot And Disposed Of In An Approved Manner. Provide Receipt Of Disposal To TCNJ For Record.
4. The Carlton Avenue Lot Shall Be Restored To The Condition At The Time Of Bid Upon Completion Of The Project. This Includes Striping Where Damaged By Stockpiling.
5. Prior To Use Of The Carlton Avenue Lot The Contractor Must Inspect And Provide Photo Documentation Of Existing Conditions For Restoration Purposes.
6. Stockpile Is Only Permitted In Area Designated On This Plan. Carlton Avenue Lot Stockpile Shall Not Exceed The Noted 30'x60' Disruption Area At The South East Corner Of The Lot.
7. Filter Fabric Fencing Shall Be Installed On Downstream Side Of All Trenches That Are To Remain Open For More Than One Day. See Detail G04/02 For Further Information.
8. Silt Sack Shall Be Installed On All Drainage Inlets In Close Proximity To Trenches That Are To Remain Open For More Than One Day. See Detail G04/03 For Further Information.
9. All Sediment Dropped, Tracked, Washed Or Spilled Onto Paved Surfaces Shall Be Removed Immediately At The End Of Each Working Day.
10. All Temporary Driving Surfaces Within Roadways / Driveways Shall Be 3/4" Clean Stone Or Base Pavement Until The Road Surfaces Have Been Final Paved. Soil Driving Surfaces Will Not Be Permitted.
11. All Construction Access Shall Be Through Existing Maintenance Roads. Any Access Onto Soil Areas Shall Be Provided With Stabilized Access As Per Detail G04/05.
12. Coordinate With College For Mark Outs Of Existing Underground Utilities.
13. Congested Areas Shall Be Hand Dug By Contractor.

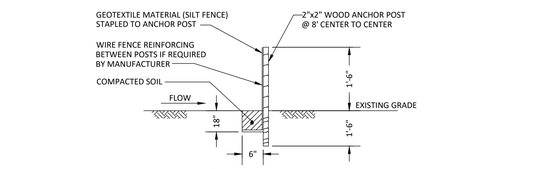
**DOMESTIC WATER SITE PLAN** | Scale: 1/128" = 1' | Drawing: **G03** | Detail: **01**



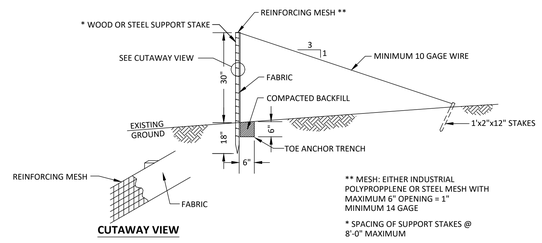

STABLE BEDDING FOUNDATION
(Dry, Suitable Bedding Conditions)

NOTES:
1. Suitable Backfill Shall Consist Of Bank Run Sand And Gravel Or Suitable Excavated Material Free From Organic Or Deleterious Material.
2. Unsuitable Material Encountered Beneath The Structure To Be Removed To A Depth Determined By The Engineer.
3. Suitable Backfill To Be Thoroughly Compacted By Mechanical Tamping (or By Hand Tamping When And Where Directed).
4. Suitable Backfill Shall Be Compacted To 95% Standard Proctor Density.
5. Areas Surrounding Pipe Shall Be Hand Tamped To Fill All Cavities.
6. Excavation And Work In Trenches Shall Comply With OSHA Requirements.
7. The Contractor Must Dewater Prior To Placing The Pipe If Wet Trench Conditions Are Found. The Pipe Must Remain In Dry Conditions Until Backfilled.
8. The Contractor Shall Provide A Mock-Up Showing Excavation, Trenching, Bedding, And Haunching For All Underground Piping Installations.
9. Contractor Is To Cover / Protect All Materials To Be Reused From Rain.

**TRENCH STOCKPILE DETAIL** | Scale: NTS | Drawing: **G03** | Detail: **02**




**18" FILTER FABRIC FENCE**

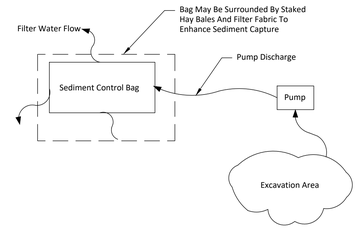



CUTAWAY VIEW

**30" FILTER FABRIC FENCE**

NOTES:
1. Filter Fabric Fence Must Be Installed At Level Grade. Both Ends Of Each Fence Section Must Be Extended At Least 8'-0" Upslope At 45 Degrees To The Main Fence Alignment.
2. Sediment Must Be Removed Where Accumulations Reach Half The Above Ground Height Of The Fence.
3. Any Fence Section Which Has Been Undermined Or Topped Must Be Immediately Replaced With A Rock Filter Outlet.

**FILTER FABRIC DETAIL** | Scale: NTS | Drawing: **G03** | Detail: **03**




NOTES:
1. Bag Must Be Located Away From Receiving Waters And/Or Construction Activities
2. Bags Must Be Disposed Of According To Manufacturer's Instructions. Bags May Not Be Reused.

**SEDIMENT CONTROL BAG FOR DEWATERING** | Scale: NTS | Drawing: **G03** | Detail: **04**

| ITEM | DATE | ISSUE DESCRIPTION |
|---|---|---|
| | 04/15/21 | ISSUED FOR BID |
| | 03/17/21 | ISSUED FOR CD REVIEW |
| | 02/16/21 | ISSUED FOR SCHEMATIC REVIEW |

30x42

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: Dan Rehberg
DLB Project ID: 47220 Phone: 732-318-0314

project
THE COLLEGE OF NEW JERSEY
STEAM PIPING & IT CONDUIT REPLACEMENT
2000 PENNINGTON ROAD, EWING, NJ 08618
TCNJ PROJECT NUMBER: IX243

title
SOIL STORAGE AND PROTECTION INFORMATION

| scale | drawn by | checked by | date | filename |
|---|---|---|---|---|
| NTS | JV | DR | 2/16/2021 | 47220G03 |

dwg. no.
G03

## TOPSOILING

Materials

1. Topsoil Should Be Friable, Loamy, Free Of Debris, Objectionable Weeds And Stones, And Contain No Toxic Substance Or Adverse Chemical Or Physical Condition That May Be Harmful To Plant Growth. Soluble Salts Should Not Be Excessive (Conductivity Less Than 0.5 Millimhos Per Centimeter. More Than 0.5 Millimhos May Dessicate Seedlings And Adversely Impact Growth). Topsoil Must Have An Organic Matter Content No Less Than That Shown In The Table Below.

| TARGET ORGANIC MATTER (TOM) CONTENT BY SOIL TEXTURE | |
|---|---|
| SOIL TEXTURE CLASS | MINIMUM SOIL ORGANIC MATTER (% BY MASS) |
| SANDY AND LOAMY SAND | 2.0 |
| SANDY LOAM | 2.5 |
| LOAM | 4.0 |
| SILT LOAM, ALL CLAY LOAMS, AND CLAY | 5.0 |

Organic Matter Content May Be Raised If Necessary By The Addition And Mixing Of Additives Which Conform To the Following Specifications:

- No Undigested (Raw) Material Greater Than 10% By Volume
- No Trash
- No Rocks Or Stones Larger Than 0.5"
- No Raw Or Fresh Manure (Green Or Otherwise). Compost Must Be Fully Decomposed.
- Quality Of Organic Matter (Compost) Must Be Verified Through Certification From The Supplier In Accordance With NJ DEP Solid Waste Requirements At NJAC 7:26A-4.5(b).

2. Organic Matter Shall Be Blended With Topsoil By Any Of The Following Methods:

- Blending In Bulk Either On Site Or By The Supplier. Supplier Is To Provide Written Verification Of Quality And Amount Of Organic Material Used In Blending Including Final OM Content In Percent By Weight With NJ DEP Requirements.
- Spread As A Second Layer Over Topsoil Which Has Been Previously Placed, And Then Blended With A Disk Harrow, Tractor Mounted Tiller Or Similar Equipment To Uniformly Incorporate Organic Matter (See Item 3 Below To Determine Proper Amount Of Compost To Be Spread Per Acre For Incorporation) Into Topsoil.
- Small Areas May Have Organic Matter Incorporated By Hand Or With A Rotor Tiller.
- Subsequent Compaction Remediation By Ripping May Be Required In Accordance With The Standard For Land Grading (19-1).

3. The Quantity Of Organic Matter To Be Added Shall Be Determined By The Following Formula:

SOM = Existing Organic Matter Fraction (Expressed As A Decimal)
TOM = Target OM Value (From Table, Expressed As A Decimal Fraction)
COM = Compost Organic Matter Fraction
CV = Compost Volume Required (Cubic Yards Per Acre)

CV = 2375 x [(TOM - SOM) / (COM)]

## TOPSOILING (CONTINUED)

4. Topsoil Substitute Is A Soil Material Which May Have Been Amended With Sand, Silt, Clay, Organic Matter, Fertilizer Or Lime And Has The Appearance Of Topsoil. Topsoil Substitutes May Be Utilized On Sites With Insufficient Topsoil For Establishing Permanent Vegetation. All Topsoil Substitute Materials Shall Meet The Requirements Of Topsoil Noted Above. Soil Tests Shall Be Performed To Determine The Components Of Sand, Silt, Clay, Organic Matter, Soluble Salts And pH Level.

5. Topsoil And Organic Matter Criteria For Stabilization In The Pinelands National Reserve Shall Conform To The Requirements Established In The Standard For Permanent Vegetative Stabilization.

Stripping And Stockpiling

1. Field Exploration Should Be Made To Determine Whether Quantity And Or Quality Of Surface Soil Justifies Stripping.
2. Stripping Should Be Confined To The Immediate Construction Area.
3. Where Feasible, Lime May Be Applied Before Stripping At A Rate Determined By Soil Tests To Bring The Soil pH To Approximately 6.5. In Lieu Of Soil Tests, See Lime Rate Guide In Seedbed Preparation For Permanent Vegetative Cover For Soil Stabilization.
4. A 4-6 Inch Stripping Depth Is Common, But May Vary Depending on the Particular Soil.
5. Stockpiles Of Topsoil Should Be Situated So As Not To Obstruct Natural Drainage Or Cause Off-Site Environmental Damage.
6. Stockpiles Should Be Vegetated In Accordance With Standards Previously Described Herein; See Standards For Permanent Or Temporary Vegetative Cover For Soil Stabilization. Weeds Should Not Be Allowed To Grow On Stockpiles.

Site Preparation

1. Grade At The Onset Of The Optimal Seeding Period So As To Minimize The Duration And Area Of Exposure Of Disturbed Soil To Erosion. Immediately Proceed To Establish Vegetative Cover In Accordance With The Specified Seed Mixture. Time Is Of The Essence.
2. Grade As Needed And Feasible To Permit The Use Of Conventional Equipment For Seedbed Preparation, Seeding, Mulch Application And Anchoring, And Maintenance. See The Standard For Land Grading.
3. As Guidance For Ideal Conditions, Subsoil Should Be Tested For Lime Requirement. Limestone, If Needed, Should Be Applied, Should Be Applied To Bring Soil pH Of Approximately 6.5 And Incorporated Into The Soil As Nearly As Practical To A Depth Of 4 Inches.
4. Employ Needed Erosion Control Practices Such As Diversions, Grade Stabilization Structures, Channel Stabilization Measures, Sedimentation Basins, And Waterways.

Applying Topsoil

1. Topsoil Should Be Handled Only When It Is Dry Enough To Work Without Damaging Soil Structure; i.e., Less Than Field Capacity.
2. A Uniform Application To A Depth Of 6 Inches (Unsettled) Is Required. Soils With A pH Of 4.0 Or Less Or Containing Iron Sulfide Shall Be Covered With A Minimum Depth Of 12 Inches Of Topsoil Having A pH Of 5.0 Or More, In Accordance With The Standard For Management Of High Acid Producing Soil.
3. Topsoil Should Be Finish Graded With Low Ground Pressure Equipment Or By Hand When Practical And Feasible To Reduce The Potential For Re-Compacting The Subsoil.

## PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

Topsoil Stripping And Stockpiling

1. Field Exploration Should Be Made To Determine Whether Quantity And / Or Quality Of Surface Soil Justifies Stripping.
2. A 6-Inch Stripping Depth Is Typical, But May Vary Depending On The Particular Soil Structure Or Pre-Existing Use.
3. Stockpiles Should Be Located So As To Not Obstruct Natural Drainage Or Cause Off-Site Environmental Damage, And Shall Be Delineated On The Certified Soil Erosion And Sediment Control Plan And Be Constructed In Accordance With The Topsoil Stockpile Detail.
4. Stockpiles Should Be Temporarily Stabilized According To The Standards.

Site Preparation

1. Install Erosion Control Measures And Facilities Such As Silt Fence, Diversions, Sediment Basins, And Channel Stabilization.
2. Grade As Needed And Feasible To Permit The Use Of Conventional Equipment For Seedbed Preparation, Seeding, Mulch Application, Tacking, And Maintenance. All Grading Shall Be In Accordance With Standard For Land Grading, 19-1.

Seedbed Preparation

1. Topsoil Required:

Minimum Depth: 5" (Unsettled)
pH: 6.0 To 8.0
Organic Matter Content: 2.75% Minimum
Nitrate N2: 50 Pounds Per Acre (50% Water Insoluble)
Phosphorous: 100 Pounds Per Acre
Potassium: 50 Pounds Per Acre

2. The Contractor Should Be Aware Of The Possibility, Depending Upon The Site Conditions, That All Topsoil May Have To Be Provided From An Off-Site Source.
3. Topsoil Should Be Handled Only When Dry Enough To Work Without Damaging Soil Structure.
4. Apply A Uniform 5 Inches (Unsettled) Of Screened Topsoil On All Disturbed Areas. Soils With A pH Of 4.0 Or Less Or Containing Iron Sulfide Shall Be Covered With A Minimum Depth Of 12 Inches Of Soil Having A pH Of 5.0 Or More And The Top 5 Inches Shall Conform To the Topsoil Standard And Shall Be Limed According To The Specifications.
5. If The Topsoil Becomes Compacted, The Surface Must Be Scarified 6" To 12" To Provided Good Seed-To-Soil Bond.
6. Apply Limestone And Fertilizer According To Soil Test Recommendations Such As Those Offered By Rutgers University Cooperative Extension. If Soil Testing Is Not Feasible, Fertilizer (10-20-10) With 50% Water Insoluble Nitrogen Should Be Applied At The Typical Rate Of 500 Pounds Per Acre Or 11 Pounds Per 1,000 Square Feet.
7. Apply Limestone Equivalent To 50% Calcium Plus Magnesium Oxides (Pulverized Dolomitic Limestone Is Preferred For Most Soils South Of The New Brunswick - Trenton Fall Line) As Follows:

| SOIL TEXTURE | TONS / ACRE | LBS / 1000 SQ. FT |
|---|---|---|
| CLAY, CLAY LOAM, HIGH ORGANIC | 3 | 135 |
| SANDY LOAM, LOAM, SILT LOAM | 2 | 90 |
| LOAMY SAND, SAND | 1 | 45 |

8. Work Lime And Fertilizer Into Soil To A Depth Of 4 Inches. The Final Harrowing Or Disc Operation Should Be On The General Contour. Continue Tillage Until A Uniform, Fine Seedbed Is Prepared.
9. Remove From The Surface All Stones 2 Inches Or Larger In Any Dimension, And Other Objectionable Stones Or Debris Such As Wire, Tree Roots, Pieces Of Concrete, Clods, Lumps, Or Other Unsuitable Material.

Seeding

1. Select A Seed Mixture Approved By The Mercer County Soils Conservation District.
2. Apply Seed Uniformly By Hand, Cyclones, Drop Seeder, Drill Cultipacker, Or Hydroseeder. The Latter May Be Justifiable For Large, Steep Areas Where Conventional Applications Are Not Feasible. Hydroseeding Shall Be A Two Step Process: Mulch Shall Not Be Mixed With The Seed; The Seed Must Be Applied First To Assure Proper Seed To Soil Contact. The Hydromulch Is The Sprayed Over The Seeding. For Optimum Results, The Seed Should Be Incorporated Into The Soil To A Depth Of 1/4 To 1/2 Inch Depending Upon Species.
3. After Seeding, The Soil Should Be Packed With A Corrugated Roller. When Performed On The Contour, Rolling Will Minimize Sheet Erosion And Maximize Water Conservation.

Mulching

1. Unrotted Straw, Hay Free Of Seeds, Or Salt Hay Is Required On All Seeding At A Rate Of 1.5 To 2 Tons Per Acre, (70 To 90 Pounds Per 1,000 Square Feet), Except Where A Crimper Is Used Instead Of A Liquid Mulch-Binder, Then The Rate Of Application Is 3 Tons Per Acre.
2. Mulch Anchoring Should Be Accomplished Immediately After Placement To Minimize Loss Due To Wind Or Water. This May Be Done According To The Following Methods:

- Wood-Fiber Or Paper-Fiber Mulch At The Rate Of 1,500 Pounds Per Acre Applied By The Hydroseeder. Use Is Limited To Only The Optimum Seeding Season.
- Synthetic Or Organic Binders
- Peg And Twine, Mulch Netting, And Mechanical Crimping.
- Crimping Requires A Higher Mulch Rate (3 Tons Per Acre)

Note
1. One Bale Of Hay Weighs 40-60 Pounds Depending On How It Was Baled.
2. A 1,500 Tank Of Hydromulch Covers 0.5 Acres.

Temporary Seeding Mixes

1. Mix: Early Spring / Late Summer To Early Fall
- 100% Perennial Ryegrass
- Rate: 100 Pounds Per Acre

2. Mix: Mid-Summer
- 40% Pearl Millet
- 40% Millet (German Or Hungarian)
- 20% Weeping Lovegrass
- Rate: 100 Pounds Per Acre

Permanent Seeding Mixes

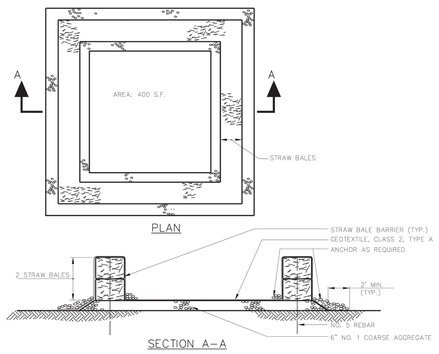
1. Optimum Seeding Dates: March 1 To May 15 And August 15 To October 15
- Application Rate: 200 Pounds Per Acre
- 70% Turf Type Tall Fescue
- 20% Perennial Ryegrass
- 10% Kentucky Bluegrass

## MANAGEMENT OF HIGH ACID PRODUCING SOILS

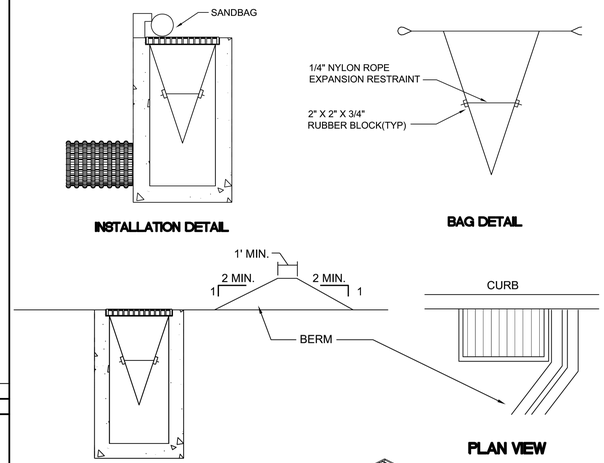
General Requirements

1. Limit The Excavation Area And Exposure Time When High Acid Producing Soils Are Encountered.
2. Topsoil Stripped From The Site Shall Be Stored Separately From Temporarily Stockpiled High Acid-Producing Soils.
3. Stockpiles Of High Acid-Producing Soils Should Be Located On Level Land To Minimize Its Movement, Especially When This Material Has High Clay Content.
4. Temporarily Stockpiled High Acid-Producing Soil Material To Be Stored More Than 48 Hours Should Be Covered With Properly Anchored, Heavy Grade Sheets Of Polyethylene Where Possible. If Not Possible, Stockpiles Should Be Covered With A Minimum Of 3 To 6 Inches Of Wood Chips To Minimize Erosion Of The Stockpile. Silt Fence Shall Be Installed At The Toe Of The Slope To Contain Movement Of The Stockpiled Material. Topsoil Shall Not Be Applied To The Stockpiles To Prevent Topsoil Contamination With High Acid-Producing Soil.
5. High Acid-Producing Soils With A pH Of 4.0 Or Less Or Containing Iron Sulfide (Including Borrow Cuts Or Dredged Sediment) Shall Be Ultimately Placed Or Buried With Limestone Applied At The Rate Of 10 Tons Per Acre (Or 450 Pounds Per 1,000 Square Feet Of Surface Area) And Covered With A Minimum Of 12 Inches Of Settled Soil With A pH Of 5.0 Or More Except As Follows:
- Areas Where Trees Or Shrubs Are To Be Planted Shall Be Covered With A Minimum Of 24 Inches Of Soil With A pH Of 5.0 Or More.
- Disposal Areas Shall Not Be Located Within 24 Inches Of Any Surface Of A Slope Or Bank, Such As Berms, Stream Banks, Ditches, And Others, To Prevent Potential Lateral Leaching Damages.

6. Equipment Used For Movement Of High Acid-Producing Soils Should Be Cleaned At The End Of Each Day To Prevent Spreading Of High Acid-Producing Soil Materials to Other Parts Of The Site, Into Streams Or Stormwater Conveyances, And To Protect Machinery From Accelerated Rusting.
7. Non-Vegetative Erosion Control Practices (Stone Tracking Pads, Strategically Placed Limestone Check Dam, Sediment Barrier, Wood Chips) Should Be Installed To Limit The Movement Of High Acid-Producing Soils From, Around, Or Off The Site.
8. Following Burial Or Removal Of High Acid-Producing Soil, Topsoiling And Seeding Of The Site (See Temporary Vegetative Cover For Soil Stabilization, Permanent Vegetative Cover For Soil Stabilization, And Topsoiling), **Monitoring Must Continue For A Minimum Of 6 Months** To Ensure There Is Adequate Stabilization And That No High Acid-Producing Soil Problems Emerge. If Problems Still Exist, The Affected Area Must Be Treated As Indicated Above To Correct The Problem.



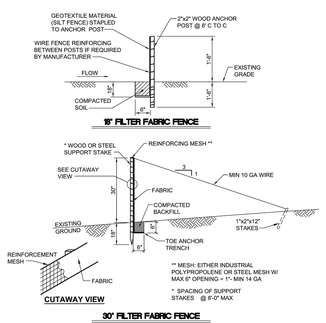

DEWATERING DETAIL | Scale: NTS | Drawing: G04 | Detail: 01




SILK SACK DETAIL | Scale: NTS | Drawing: G04 | Detail: 03

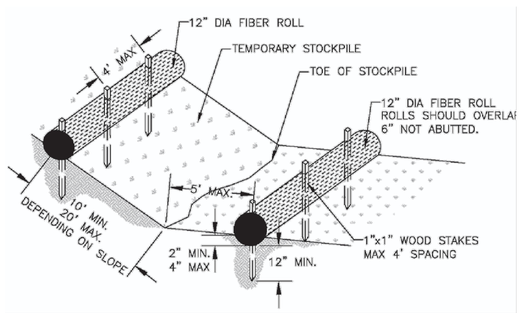



NOTES:
1. Maximum Drainage Area = 1/2 Acre. Inlet Protection Is Not Required For Inlet Tributary To Sediment Basin Or Trap. Berms Are Required For All Installations.
2. Earthen Berm Shall Be Maintained Until Pavement And Roadways Is Stoned. Road Subbase Berm Shall Be Maintained Until Pavement And Roadway Are Paved.
3. Six Inch Minimum Height Asphalt Berm Shall Be Maintained Until Roadway Surface Received Final Coat.



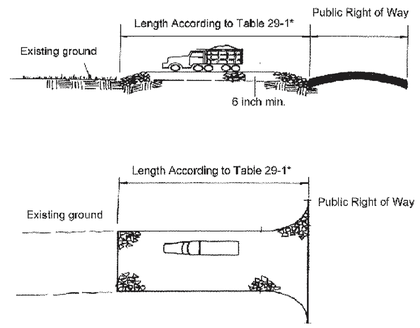

NOTES:
1. Filter Fabric Fence Must Be Installed At Level Grade. Both Ends Of Each Fence Section Must Be Extended At Least 8'-0" Upslope At 45 Degrees To The Main Fence Alignment.
2. Sediment Must Be Removed Where Accumulations Reach Half The Above Ground Height Of The Fence.
3. Any Fence Section Which Has Been Undermined Or Topped Must Be Immediately Replaced With A Rock Filter Outlet.

FILTER FABRIC DETAIL | Scale: NTS | Drawing: G04 | Detail: 02




NOTES:
1. Hay Bales Can Be Used Around Base Of Stockpile In Place Of Fiber Rolls.

STOCKPILE PROTECTION PLAN | Scale: NTS | Drawing: G04 | Detail: 04




* Note: Individual lot access points may require stabilization. Thickness shown is for stone construction entrance only (typ).

| PERCENT SLOPE OF ROADWAY | LENGTH OF STONE REQUIRED | |
|---|---|---|
| | COARSE GRAINED SOILS | FINE GRAINED SOILS |
| 0 TO 2% | 50 FEET | 100 FEET |
| 2 TO 5% | 100 FEET | 200 FEET |
| > 5% | ENTIRE SURFACE STABILIZED WITH FABC BASE COURSE * | |

* As Prescribed By Local Ordinance Or Other Governing Authority.

STABILIZED CONSTRUCTION ACCESS DETAIL | Scale: NTS | Drawing: G04 | Detail: 05

| ITEM | DATE | ISSUE DESCRIPTION |
|---|---|---|
| | 04/15/21 | ISSUED FOR BID |
| | 03/17/21 | ISSUED FOR CD REVIEW |
| | 02/16/21 | ISSUED FOR SCHEMATIC REVIEW |

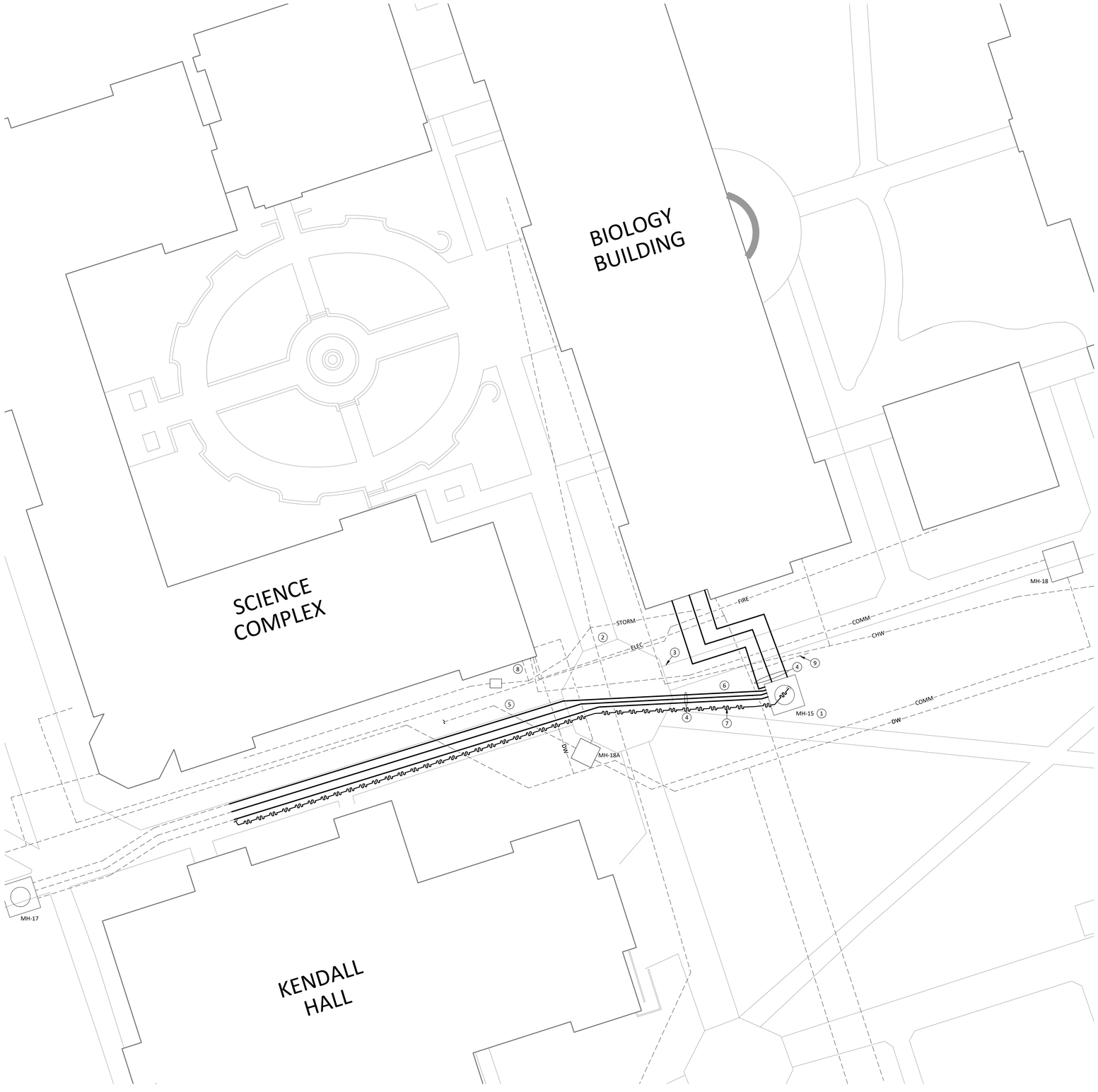
dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: Dan Rehberg
DLB Project ID: 47220 Phone: 732-318-0314

project: THE COLLEGE OF NEW JERSEY
STEAM PIPING & IT CONDUIT REPLACEMENT
2000 PENNINGTON ROAD, EWING, NJ 08618
TCNJ PROJECT NUMBER: IX243

title: SOIL EROSION CONTROL PLAN
NOTES AND DETAILS

| scale | drawn by | checked by | date | filename |
|---|---|---|---|---|
| NTS | JV | DR | 2/16/2021 | 47220G04 |

dwg. no. G04




**KEY NOTES (SYMBOLS 1, 2, ETC.)**

1. Existing Precast Concrete Manhole To Remain.
2. All Pedestrian Walkways That Are Impacted By This Project Shall Be Covered By Bridges That Are As Wide As The Existing Walkway. Foot Traffic From Students And College Staff Shall Not Be Impeded At Any Time During Construction. Restore Existing Concrete Walkway To Match Existing. Bridges Shall Be Capable Of Supporting A Minimum Of 2,200 Pounds. Bridges Shall Meet ADA Requirements With A Minimum 5' x 5' Landing And Do Not Exceed A 1:12 Slope.
3. Remove Sidewalk To Allow Installation Of New Steam Piping. Repair Sidewalk Per Detail M05/05 and 07.
4. Existing Piping Between Manholes 15 And 17 And Manhole 15 To The Biology Building To Be Completely Removed. New Piping (6"HPS, 4"PC, 1-1/2"HPC) Shall Be Installed In New Locations Shown. Coordinate All Shutdowns With College.
5. Existing Trees Along Piping Path Shall Be Protected To The Greatest Extent Possible During Excavation (To Include Hand Digging As Necessary). Any Trees Damaged During Construction Shall Be Replaced By Contractor. Typical.
6. Contractor Shall Provide Trench Boxes In All Open Trenches Prior To Workers Entering Trench.
7. Temporary 6" Steam Piping From MH-15 to Science Building And Armstrong Hall. Piping Shall Be Stainless Steel, Flexible Braided Type (Rated For 125 PSIG And 353F) And Turned Over To TCNJ At The End of The Project. Piping Shall Connect To Capped Valved Connection In MH-15 And New Underground Piping Between Armstrong And Kendall Hall. Shutdown Shall Be Coordinated With TCNJ A Minimum Of Two Weeks In Advance. Temporary Piping Shall Be Routed Through Piping Trench And Secured At 25' Intervals.
8. Concrete Mass On Southeastern Side Of The Science Complex Shall Be Fully Exposed By Contractor For Review By TCNJ.
9. Remove Abandoned Domestic Water Piping.

**GENERAL NOTES**

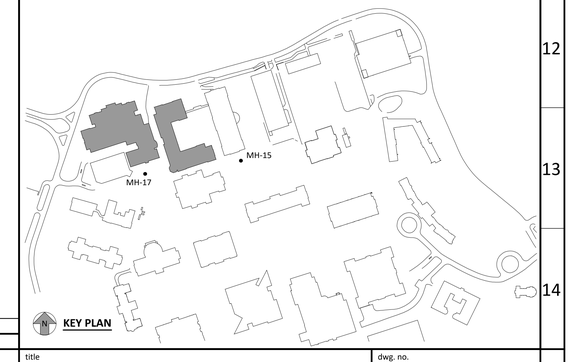
1. Location Of All Existing Underground Utilities Shall Be Marked Out By College Prior To Excavation. Areas Where New Steam Piping Crosses Existing Underground Utilities Shall Be Hand Dug.
2. All Existing Substructures And Utilities Have Been Collected From Files Provided By The College And Are Shown For General Information Only. The Contractor Shall Verify The True And Exact Locations Of The Underground Utilities.
3. The Contractor Shall Provide Protection To Prevent Damage Or Interruption Of Service To Underground Facilities During Excavations Or Trenching.
4. The Contractor Shall Be Responsible For Protecting Existing Thrust Blocks Which Are Restraining Existing Utilities. Existing Thrust Blocks Shall Not Be Undermined.
5. The Contractor Shall Be Responsible For Protecting All Structures, Roads, Pipelines, Trees, Shrubbery, Grass Areas, Etc. During The Progress Of Work. All Cutting Debris And Unused Materials Shall Be Removed From The Site. The Contractor Shall Be Responsible For The Removal And Disposal Of All Excess Excavated Material To An Off-Site Location At No Additional Cost To The Owner.
6. All Trenches Shall Be Backfilled Without Delay. Open Trenches Shall Be Kept To A Minimum And Shall Be Provided With Steel Plate. Upon Backfilling, The Contractor Shall Broom Sweep Streets And Use Appropriate Methods To Control Dust And Hose Down The Pavement To Keep Surfaces Clean.
7. The Contractor Must Provide Adequate Dewatering For All Excavation Where Required.
8. No Stock Piling Of Soils Will Be Allowed Onsite. All Excavated Materials Are To Be Stockpiled At The TCNJ Carlton Avenue Parking Lot With Hay Bales Around Stored Single Single Pile And Tarped To Protect Soils. All Excess Soils Shall be removed By Contracted At Project Completion. Site Is To Be Maintained Professionally And Neatly At All Times, All Sidewalks Located Perpendicular To Trench Must Have A Structurally Sound Bridge Installed To Maintain For Traffic At All Times.
9. A Small Fenced in Compound Will Be Established At The Site For Two Vehicles, Tool Boxes, Toilets And Minor Storage Of Materials. All Pipe Is To Be Stored At The Carlton Avenue Parking Lot Until Needed At The Site. Provide Fenced And Gated Area At Carlton Avenue Parking Lot.
10. Existing Site Lighting Is To Be Active At All Times Along All Walkways Effected By This Work. Any Damage To Existing Site Utilities Shall Be Repaired Immediately By Contractor. Temporary Supports Of All Site Lighting Shall Be Provided If Necessary.
11. Contractor Shall Video And Photo Document Existing Sidewalk Patterns Prior To Demolition And Provide Files To TCNJ.
12. Contractor To Hire The Services Of A Underground Mapping Company, Provide Documentation Of Results, And Receive Written Approval From TCNJ Prior To Starting Demolition.
13. Arborist (Hired By Contractor) To Review All Proposed Excavation With Tree Drip Lines.
14. Existing Underground Utilities To Remain. Coordinate With Installation Of New Piping.
15. Provide Passive Cathodic Protection System As Part Of New Piping Installation. Testing Port With Coupon Shall Be Installed Near Biology Building. Final Location Shall Be Confirmed In Field With TCNJ.

**PARTIAL SYMBOL LIST**

| Identifier | Description |
|---|---|
| | Existing Piping |
| | New Piping |
| | Temporary Piping |
| | Disconnect From Existing |
| | Connect To Existing |
| | Existing Manhole To Remain |

**PARTIAL ABBREVIATION LIST**

| Identifier | Description |
|---|---|
| EL | Elevation |
| HPS | High Pressure Steam |
| HPC | High Pressure Condensate |
| MH | Manhole |
| PC | Pumped Condensate |




KEY PLAN

**SITE PLAN - PIPING OVERVIEW**

Scale: 1"=20'-0"

2' 10' 20' 40'

Drawing: **M01**
Detail: **01**

| ITEM | DATE | ISSUE DESCRIPTION |
|---|---|---|
| | 04/15/21 | ISSUED FOR BID |
| | 03/17/21 | ISSUED FOR CD REVIEW |
| | 02/16/21 | ISSUED FOR SCHEMATIC REVIEW |


**dlb associates**
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724

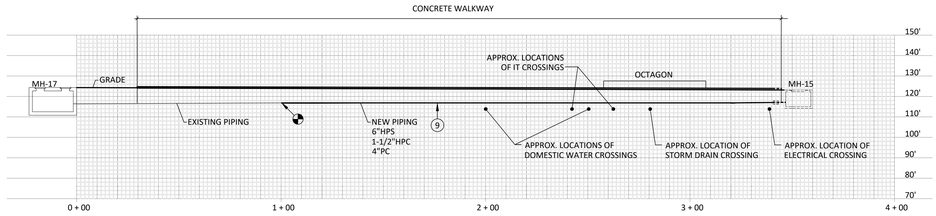
Questions For DLB Call: **Dan Rehberg**
DLB Project ID: 47220 Phone: 732-318-0314


project
THE COLLEGE OF NEW JERSEY
STEAM PIPING & IT CONDUIT REPLACEMENT
2000 PENNINGTON ROAD, EWING, NJ 08618
TCNJ PROJECT NUMBER: IX243

title
SITE PLAN - PIPING OVERVIEW

dwg. no.
M01

| scale | drawn by | checked by | date | filename |
|---|---|---|---|---|
| NTS | JV | DR | 2/16/2021 | 47220M01 |




**SITE PROFILE - MANHOLE 17 TO MANHOLE 15** | Scale: NTS | Drawing: **M02** | Detail: **01**

## KEY NOTES (SYMBOLS 1, 2, ETC.)

1. 1" HPS Drain Gate Valve With Steam Hose Connection..
2. All New And Existing Piping In Manhole 15 To Be Completely Insulated. Insulation Shall Be Aspen Pyrogel XTE With Aluminum Jacket.
3. 3/4" Piping Conduit Vent.
4. 3/4" Piping Conduit Drain With Plug.
5. Existing 8"Ø Manhole Vent.
6. Piping Anchor. Size And Placement Shall Be Coordinated With Piping Vendor Prior To Installation.
7. Install Link-Seal Around All Piping Penetrations In Existing Manhole. Apply Two Coats Of Waterproofing Membrane (Ecoline-R Liquid Applied Membrane By Epro Or Approved Equal) On The Existing Manhole Exterior Wall Extending A Minimum 24" Around The Openings.
8. Existing Manhole To Remain.
9. Remove Existing 6" HPS, 4"PC, And 1-1/2" HPC Piping Between Manhole 15 And 17 To Allow Installation Of New Piping. Remove Abandoned Piping.
10. Temporary 6" Steam Piping Shall Be Connected To Capped And Valved Connection In MH-15 And Routed To Piping Near MH-17 Through Trench. See Drawing M01 For Routing To Science Building And Armstrong Hall. Piping Shall Be Stainless Steel, Flexible Braided Type And Turned Over To TCNJ At The End of The Project.
11. Existing High Pressure Condensate And Pumped Condensate Piping From MH-17 To Be Capped Until Ready For Connection To New Piping.

PHOTO A

Existing Piping To Be Reinsulated.

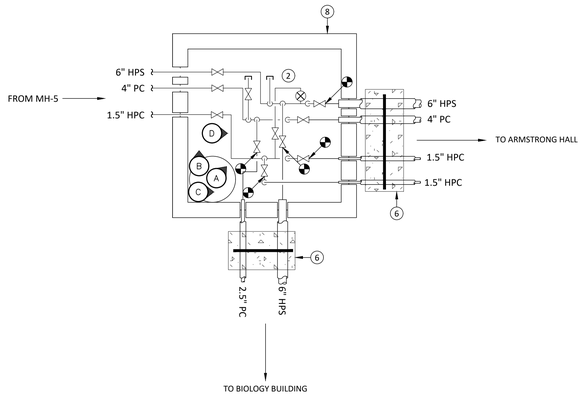



PHOTO B

Existing Piping And Valves To Remain

**PART PLAN - MANHOLE 15 DETAIL** | Scale: 1/4"=1'-0" (1' 2' 4' 8') | Drawing: **M02** | Detail: **02**

PHOTO C

Piping To Biology Building To Be Replaced.

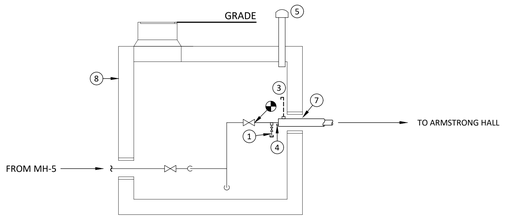
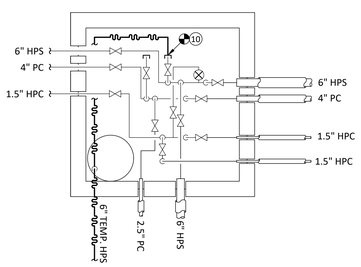


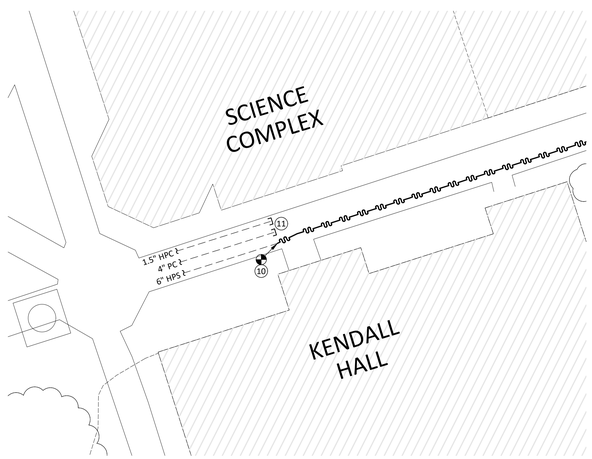

PHOTO D

Piping To Armstrong Hall To Be Replaced.

**PART PLAN - MANHOLE 15 ELEVATION** | Scale: 1/4"=1'-0" (1' 2' 4' 8') | Drawing: **M02** | Detail: **03**




**TEMPORARY PIPING - MH 15** | Scale: 1/4"=1'-0" (1' 2' 4' 8') | Drawing: **M02** | Detail: **04**




**TEMPORARY PIPING CONNECTION** | Scale: 1/4"=1'-0" (1' 2' 4' 8') | Drawing: **M02** | Detail: **05**

## GENERAL NOTES

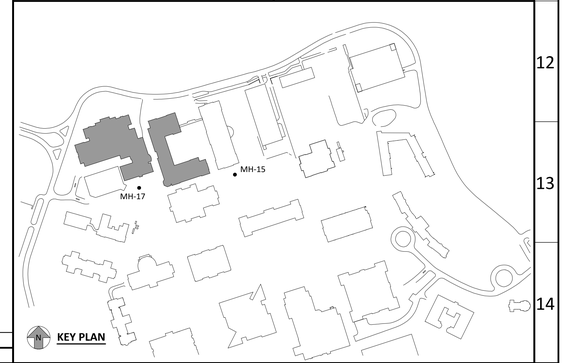
1. Refer To General Notes On Drawing M01.
2. All New And Existing HPS, HPC And PC Piping Inside The Existing Manhole 19 Shall Be Insulated And Provided With Aluminum Metal Jacket.
3. Removal Of Existing Piping Shall Be Terminated At The Point Of Connection Of New Piping As Noted On The Drawing.
4. Locations And Depths Of Existing And New Piping On Site Profile Are Approximate And To Be Coordinated In The Field.
5. All Debris In Manhole MH-15 Shall Be Removed And Interior Cleaned To Piping Manufacturer Specifications.

## PARTIAL SYMBOL LIST

| Identifier | Description |
|---|---|
| | Existing Piping |
| | New Piping |
| | Piping To Be Removed |
| | Disconnect From Existing |
| | Connect To Existing |

## PARTIAL ABBREVIATION LIST

| Identifier | Description |
|---|---|
| HPS | High Pressure Steam |
| HPC | High Pressure Condensate |
| MH | Manhole |
| PC | Pumped Condensate |




| ITEM | DATE | ISSUE DESCRIPTION |
|---|---|---|
| | 04/15/21 | ISSUED FOR BID |
| | 03/17/21 | ISSUED FOR CD REVIEW |
| | 02/16/21 | ISSUED FOR SCHEMATIC REVIEW |

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: Dan Rehberg
DLB Project ID: 47220 Phone: 732-318-0314

project
THE COLLEGE OF NEW JERSEY
STEAM PIPING & IT CONDUIT REPLACEMENT
2000 PENNINGTON ROAD, EWING, NJ 08618
TCNJ PROJECT NUMBER: IX243

title
PIPING PLAN (MANHOLE 15 AND MANHOLE 17)

dwg. no.
M02

| scale | drawn by | checked by | date | filename |
|---|---|---|---|---|
| AS SHOWN | JV | DR | 2/16/2021 | 47220M02 |

PHOTO A

High Pressure Condensate Valve To Be Replaced

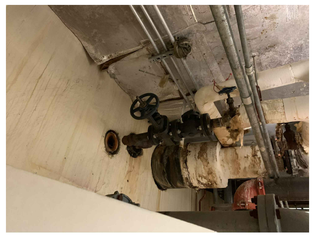
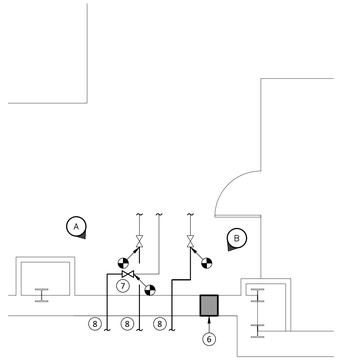


PHOTO B

Piping into Biology Building To Be Replaced. Existing Exterior Wall Opening To Be Patched And Sealed




## INTERIOR PIPING - BIOLOGY BASEMENT

Scale: 1/4"=1'-0" (1' 2' 4' 8')

Drawing: **M03**
Detail: **01**

## KEY NOTES (SYMBOLS 1, 2, ETC.)

1. Temporary Discharge Piping From Condensate Receiver Pumps In Armstrong Hall Mechanical Room Shall Be Removed And Disposed Of. Pump Discharge Shall Be Permanently Reconnected To Existing Piping.
2. Temporary Domestic Water Piping Connection To Condensate Receiver Tank Shall Be Removed And Disposed Of. Tempering Valve Shall Be Turned Over To TCNJ.
3. Disconnect Temporary Hose From Funnel Drain And Reconnect Permanent Piping. Return Hose To TCNJ.
4. Reconnect Unions At Tank In Pit.
5. Temporary Drain Piping In Science Complex Basement Mechanical Room Shall Be Disconnected At Valve. Cap Shall Be Placed On Valve Outlet And Insulated To Match Existing. Piping And Fittings Shall Be Returned To TCNJ.
6. Patch Hole In Building Exterior Wall With Concrete Block And Non-Shrink Grout After Removing Existing Piping. Apply Two Coats Of Waterproofing Membrane (Ecoline-R Liquid Applied Membrane By Epro Or Approved Equal) Extending A Minimum 24" Around The Patch.
7. Replace Existing 1-1/2" High Pressure Condensate Valve In Biology Building Basement.
8. Install Link-Seal Around All Piping Penetrations In Biology Building Exterior Wall. Apply Two Coats Of Waterproofing Membrane (Ecoline-R Liquid Applied Membrane By Epro Or Approved Equal) On The Exterior Wall Extending A Minimum 24" Around The Openings. Drainage Board Shall Be Included On Exterior Side Of Wall Under New Piping.

## GENERAL NOTES

1. Refer To General Notes On Drawing M01.






PHOTO C

Temporary Piping From Condensate Receiver Pump Disharge To Be Removed. Permanent Piping To Be Reconnected.



PHOTO D

Domestic Water Piping To Be Removed. Tempering Valve To Be Turned Over To TCNJ.



PHOTO E

Piping To Be Rerouted To Discharge Into Funnel Drain.

## INTERIOR PIPING - ARMSTRONG FIRST FLOOR

Scale: 1/8"=1'-0" (2' 4' 8' 16')

Drawing: **M03**
Detail: **02**



PHOTO F

Temporary Piping And Fittings To Be Disconnected And Turned Over To TCNJ. Cap To Be Placed On Valve Discharge And Insulated.




## INTERIOR PIPING - SCIENCE BASEMENT

Scale: 1/8"=1'-0" (2' 4' 8' 16')

Drawing: **M03**
Detail: **03**

## PARTIAL SYMBOL LIST

| Identifier | Description |
|---|---|
| ——— | Existing Piping |
| ——— | New Piping |
| -//-//-//- | Piping To Be Removed |
| ■→ | Disconnect From Existing |
| ◔→ | Connect To Existing |

## PARTIAL ABBREVIATION LIST

| Identifier | Description |
|---|---|
| HPS | High Pressure Steam |
| HPC | High Pressure Condensate |
| MH | Manhole |
| PC | Pumped Condensate |




KEY PLAN

| ITEM | DATE | ISSUE DESCRIPTION |
|---|---|---|
| | 04/15/21 | ISSUED FOR BID |
| | 03/17/21 | ISSUED FOR CD REVIEW |
| | 02/16/21 | ISSUED FOR SCHEMATIC REVIEW |

30x42

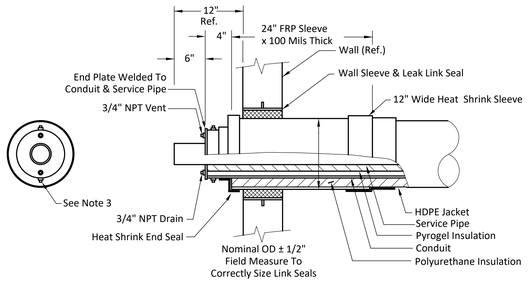

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: **Dan Rehberg**
DLB Project ID: 47220 Phone: 732-318-0314

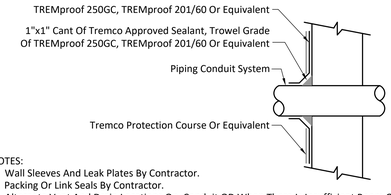

project
THE COLLEGE OF NEW JERSEY
STEAM PIPING & IT CONDUIT REPLACEMENT
2000 PENNINGTON ROAD, EWING, NJ 08618
TCNJ PROJECT NUMBER: IX243

title
BUILDING OVERVIEW PLAN

dwg. no.
M03

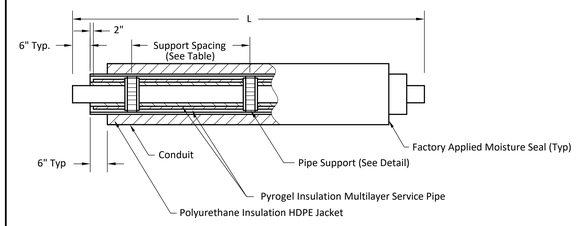
| scale | drawn by | checked by | date | filename |
|---|---|---|---|---|
| AS SHOWN | JV | DR | 2/16/2021 | 47220M03 |




NOTES:
1. Wall Sleeves And Leak Plates By Contractor.
2. Packing Or Link Seals By Contractor.
3. Alternate Vent And Drain Locations On Conduit OD When There Is Insufficient Room On The End Plate.
4. Contractor Shall Follow Waterproofing Manufacturer's Recommendations For Application And Termination Of Products.

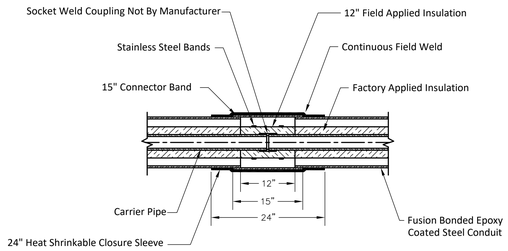
END SEAL, FRP REINFORCED THROUGH WALL DETAIL | Scale: NTS | Drawing: M04 | Detail: 01




| Pipe Size & Materials | Max. Support Spacing |
|---|---|
| ≥ 4" Sch. 40 Steel | 14' |
| ≤ 3" Sch. 40 Steel | 10' |

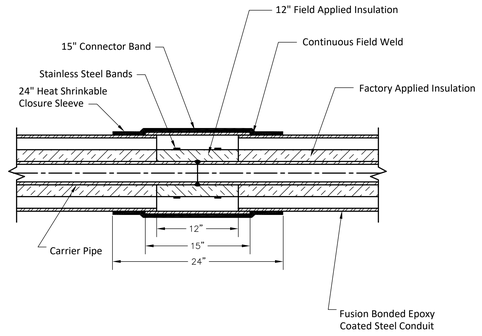
NOTES:
1. For 2" And Smaller Steel Pipe: Square Ends; For 2-1/2" And Larger Steel Pipe: Beveled Ends

STRAIGHT PIPE DETAIL | Scale: NTS | Drawing: M04 | Detail: 02



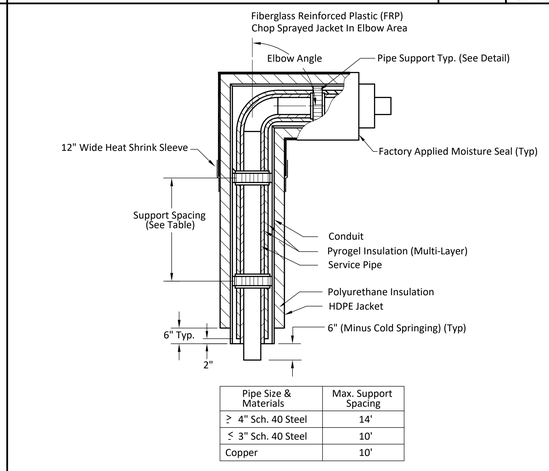

NOTES:
1. For 1-1/2" And Smaller Steel Carrier Pipe.

CONDUIT FIELD JOINT DETAIL | Scale: NTS | Drawing: M04 | Detail: 03




NOTES:
1. For 2" And Larger Steel Carrier Pipe.

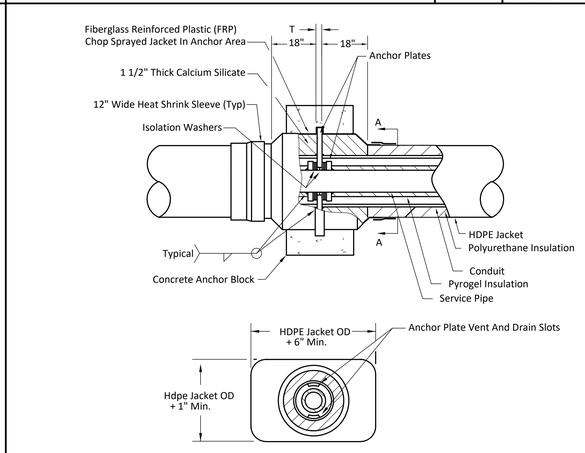
CONDUIT FIELD JOINT DETAIL | Scale: NTS | Drawing: M04 | Detail: 04




| Pipe Size & Materials | Max. Support Spacing |
|---|---|
| ≥ 4" Sch. 40 Steel | 14' |
| ≤ 3" Sch. 40 Steel | 10' |
| Copper | 10' |

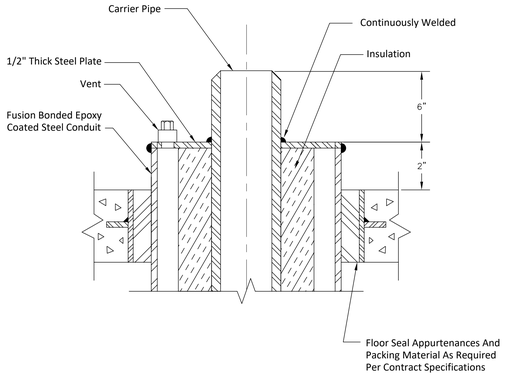
NOTES:
1. For 2" And Smaller Steel Pipe: Square Ends 3000 Lb Socket Weld Fittings; For 2-1/2" And Larger Steel Pipe: Beveled Ends Futtweld Fittings.
2. Pipe Bending In Place Of Welded Elbows May Be Used.

ELBOW & FRP JACKET DETAIL | Scale: NTS | Drawing: M04 | Detail: 05



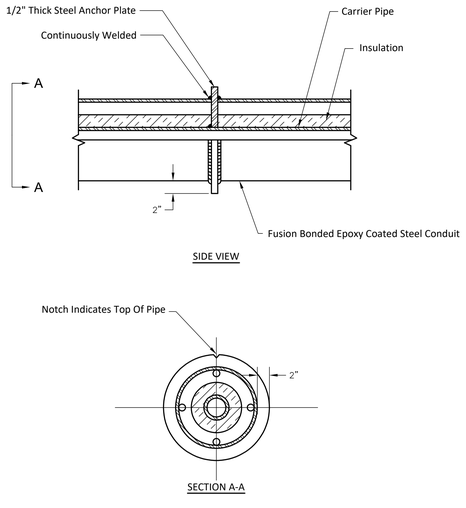

NOTES:
1. T = Anchor Plate Thickness 1/2" For 22" And Smaller Conduit 3/4" For 24" And Larger Conduit * Special Plate Thickness Required For Systems W/ Expansion Joints.
2. For Design Temperature Above 366°F.

ISOLATED ANCHOR, HI-TEMP PE & FRP JACKET DETAIL | Scale: NTS | Drawing: M04 | Detail: 06

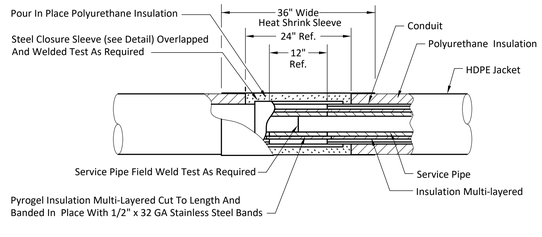


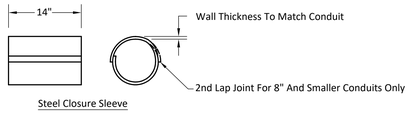

NOTES:
1. All Of The Dimensions Are Taken From End Of Carrier Pipe At Wall Penetrations.

CONDUIT END SEAL DETAIL - VERTICAL FLOW PENETRATION | Scale: NTS | Drawing: M04 | Detail: 07



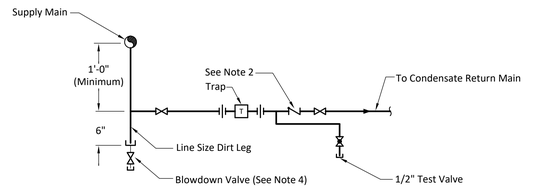

CONDUIT ANCHOR DETAIL | Scale: NTS | Drawing: M04 | Detail: 08




NOTES:
1. Wall Sleeve - 16 Gauge Galvanized Steel. Minimum 18"H x 18"D. Fan Angle Frame - 2.5" x 2.5" x 10" Gauge. Verify All Socketweld Couplings, If Required, Supplied By Installer.
2. Rolled Sleeves Not Available For Conduit Smaller Than 6"
3. Maximum Rolled Sleeve Thickness: 1/4".
4. Store All Chemicals At 60°F To 85°F.

FIELD JOINT, HEAT SHRINK SLEEVE CONDUIT SLEEVE DETAIL | Scale: NTS | Drawing: M04 | Detail: 09




NOTES:
1. Provide Test Valve And Bypass At All Major Equipment.
2. Provide Check Valve When Condensate Main Is Higher Than Trap Outlet.
3. Provide At End Of Main Drips A Minimum 3/4" Steam Trap.
4. Screwed Cap With 1/2" Drain Valve W/ Hose Bibb For Pipe Sizes 2" And Smaller. Welded Cap With 3/4" Drain Valve W/ Hose Bibb For Pipe Sizes 2-1/2" And Larger.

STEAM TRAP ASSEMBLY DETAIL | Scale: NTS | Drawing: M04 | Detail: 10

| ITEM | DATE | ISSUE DESCRIPTION |
|---|---|---|
| | 04/15/21 | ISSUED FOR BID |
| | 03/17/21 | ISSUED FOR CD REVIEW |
| | 02/16/21 | ISSUED FOR SCHEMATIC REVIEW |

30x42

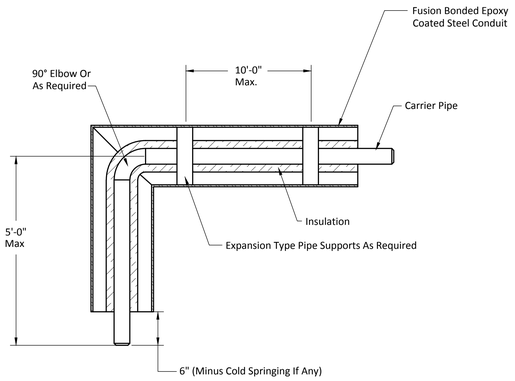
dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: Dan Rehberg
DLB Project ID: 47220 Phone: 732-318-0314

project: THE COLLEGE OF NEW JERSEY
STEAM PIPING & IT CONDUIT REPLACEMENT
2000 PENNINGTON ROAD, EWING, NJ 08618
TCNJ PROJECT NUMBER: IX243

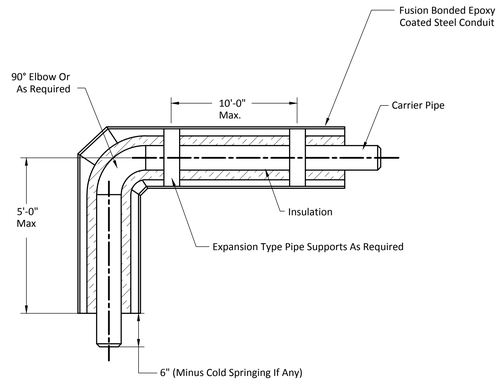
title: PIPING DETAILS - 1

| scale | drawn by | checked by | date | filename |
|---|---|---|---|---|
| NTS | JV | DR | 2/16/2021 | 47220M04 |

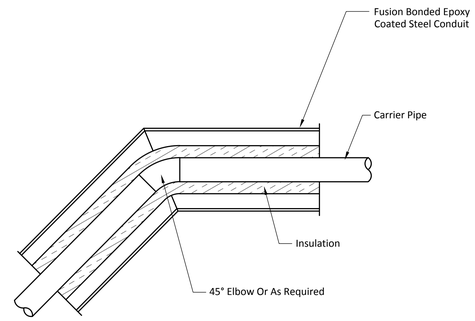
dwg. no. M04



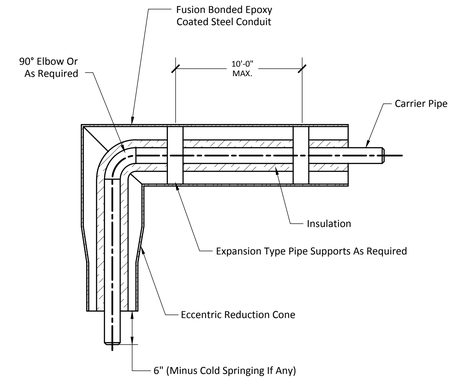

CONDUIT MITERED ELBOW DETAIL | Scale: NTS | Drawing: M05 | Detail: 01



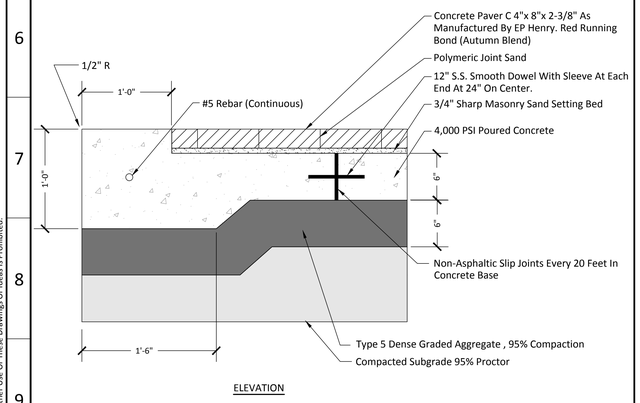

CONDUIT GORED ELBOW DETAIL | Scale: NTS | Drawing: M05 | Detail: 02



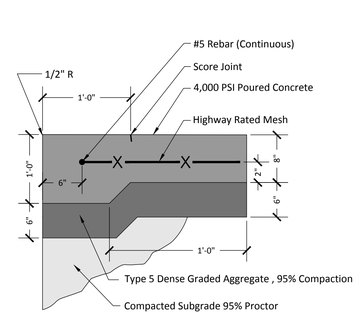

CONDUIT ELBOW DETAIL | Scale: NTS | Drawing: M05 | Detail: 03



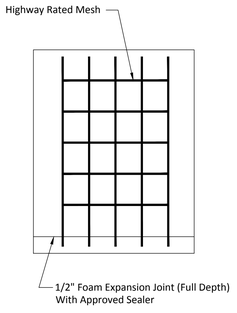

CONDUIT OVERSIZE ELBOW DETAIL | Scale: NTS | Drawing: M05 | Detail: 04




ELEVATION




ELEVATION

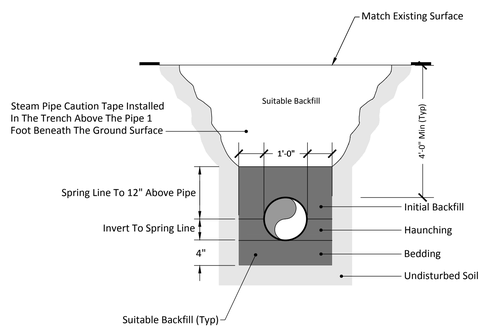



PLAN

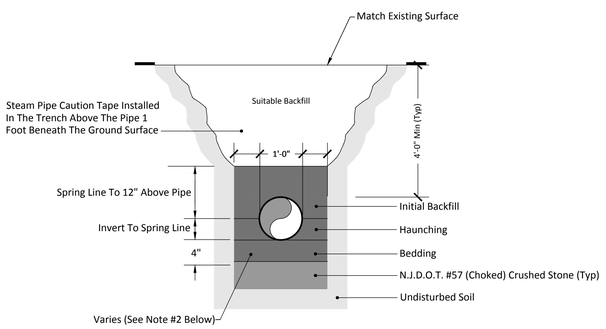
NOTES:
1. Sidewalk Width Match Existing. Replace Length Joint To Joint.
2. Form Outside Edges And Joints With 1/2" Radius Edging Tool.
3. Form Transverse Dummy Joints At 5 Foot Intervals. Approximately 1/8" Wide And At Least 1" Deep.
4. When Butting Into Existing Concrete, Saw Cut Concrete And Use 1/2" Premolded Expansion Filler Full Depth Of Sidewalk.
5. Expansion Joint 20' Max. Spacing. Seal Joints With Approved Caulking Material.
6. Protect Wet / New Concrete From Freezing.
7. Whenever Possible, Sidewalk Surface Should Be Sloped From Back To Front At 1/4" Per Foot To Drain Towards Street.
8. Brick Banding Shall Be Provided In The Same Pattern As Existing. Pavers Shall Be EP Henry Autumn Blend.
9. Use PVC Pipe Embedded At Least 12" Into Previous Concrete Pour With Rebar Throughout To Next Section Of Sidewalk To Be Placed (To Provide Proper Slip Condition At Expansion Joint).
10. Install 1/2" Dowels Embedded 12" Deep Every 16" When Connecting New Concrete To Existing.

SIDEWALK WITH EMBEDDED PAVER REPAIR DETAIL | Scale: NTS | Drawing: **M05** | Detail: **05**

SIDEWALK RESTORATION DETAIL | Scale: NTS | Drawing: M05 | Detail: 06



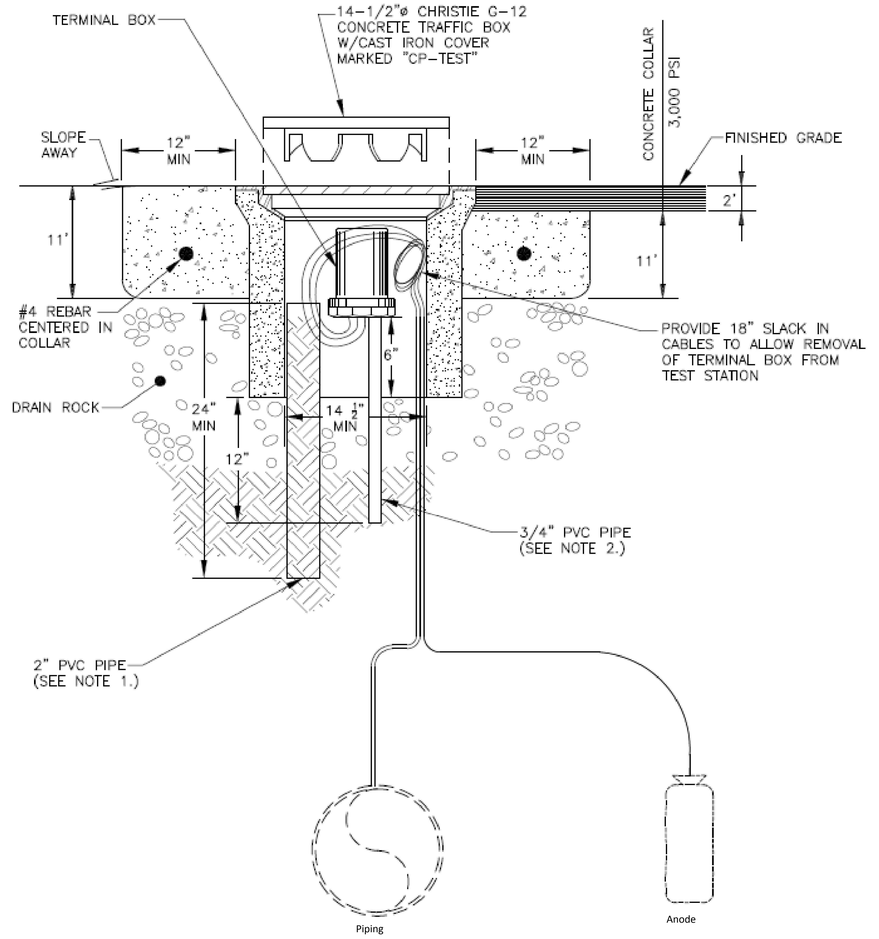

STABLE BEDDING FOUNDATION
(Dry, Suitable Bedding Conditions)




UNSTABLE TRENCH
(Clay, Wet or Unsuitable Bedding Conditions)

NOTES:
1. Suitable Backfill Shall Consist Of Bank Run Sand And Gravel Or Suitable Excavated Material Free From Organic Or Deleterious Material.
2. Unsuitable Material Encountered Beneath The Structure To Be Removed To A Depth Determined By The Engineer.
3. Suitable Backfill To Be Thoroughly Compacted By Mechanical Tamping (or By Hand Tamping When And Where Directed).
4. Suitable Backfill Shall Be Compacted To 95% Standard Proctor Density.
5. Areas Surrounding Pipe Shall Be Hand Tamped To Fill All Cavities.
6. Excavation And All Work Performed In Trenches Shall Comply With OSHA Requirements.
7. The Contractor Must Dewater Prior To Placing The Pipe If Wet Trench Conditions Are Found. The Pipe Must Remain In Dry Conditions Until Backfilled.

TYPICAL PIPE BEDDING/BACKFILL DETAIL | Scale: NTS | Drawing: M05 | Detail: 07




NOTES:
1. INSTALL 2" PVC PIPE IN CLEAN NATIVE SOIL. FILL PIPE WITH CLEAN SOIL, FREE FROM ROCKS & DEBRIS.
2. INSTALL 18" LENGTH OF 3/ 4" PVC PIPE TO ENSURE THAT THE TERMINAL BOX WILL REMAIN IN THE UPRIGHT POSITION. POSITION THE PIPE SO THAT THE TERMINAL BOX WILL BE AS HIGH AS POSSIBLE WITH THE CAST IRON LID STILL CLOSING PROPERLY.

CATHODIC PROTECTION DETAIL | Scale: NTS | Drawing: M05 | Detail: 08

| ITEM | DATE | ISSUE DESCRIPTION | ITEM | DATE | ISSUE DESCRIPTION |
|---|---|---|---|---|---|
| | 04/15/21 | ISSUED FOR BID | | | |
| | 03/17/21 | ISSUED FOR CD REVIEW | | | |
| | 02/16/21 | ISSUED FOR SCHEMATIC REVIEW | | | |

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: Dan Rehberg
DLB Project ID: 47220 Phone: 732-318-0314

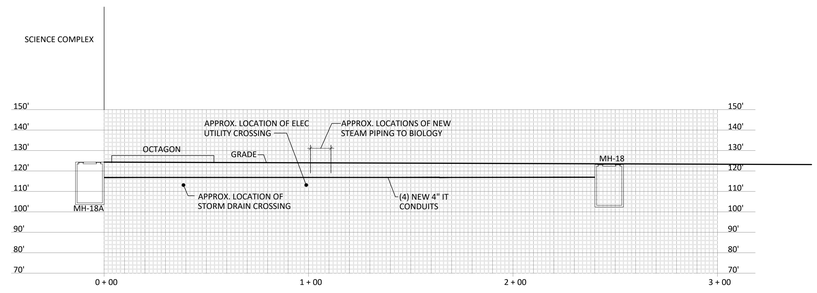
project: THE COLLEGE OF NEW JERSEY
STEAM PIPING & IT CONDUIT REPLACEMENT
2000 PENNINGTON ROAD, EWING, NJ 08618
TCNJ PROJECT NUMBER: IX243

title: PIPING DETAILS - 2

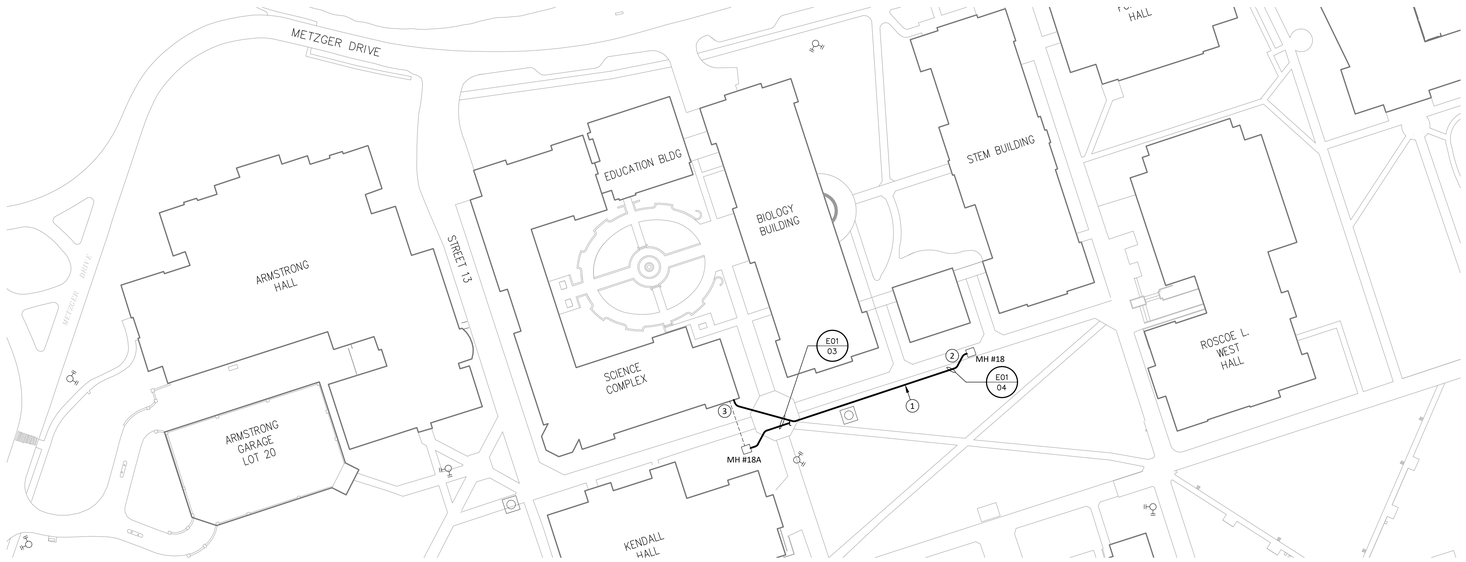
| scale | drawn by | checked by | date | filename |
|---|---|---|---|---|
| NTS | JV | DR | 2/16/2021 | 47220M05 |

dwg. no. M05

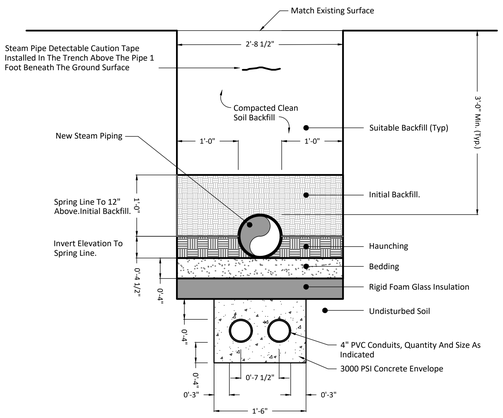
30x42




**SITE PROFILE - MANHOLE 18 TO MANHOLE 18A** | Scale: NTS | Drawing: **E01** | Detail: **01**

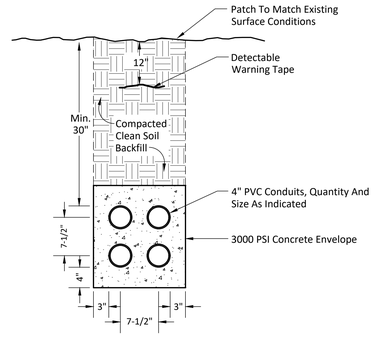



**FIBER CONDUIT ROUTING - MANHOLE TO SCIENCE COMPLEX** | Scale: 1/64"=1'-0" | 16' 32' 64' 128' | Drawing: **E01** | Detail: **02**




NOTES:
1. Stacked Conduit Shall Be Utilized For The Entire Length Until The Conduits Split Under The Octagon. This Area Is Congested And Must Be Coordinated With Existing Walkways And Existing Storm Drains.
2. All Depth Measurements Shall Be Measured From Finished Grade And As Noted In This Detail.
3. Maintain Uniform Spacing Using Conduit Spacers Along The Entire Length (Not Shown For Clarity).
4. Install Detectable Mule Tape In All Empty Conduits. Mule Tapes Shall Extend From Physics Basement IT Equipment Room To STEM 1 South IT Equipment Room. Route Tapes Around Manhole Interior. Label Each Muletape In Accordance With Cable Labeling Requirements.
5. Conduits To Be Proven And Cleaned As Part Of The Installation.Proving Involves Dragging A Proving Mandrell Sized To The Conduit, Through The Conduit To Confirm Each Is Capable Of Being Used To Capacity And Has No Blockages, Gross Deformations, Or Snags.
6. Rigid Foam Glass Insulation Shall Be Provided At All Points Where Steam Piping Crosses IT Conduit Path.

**STACKED TRENCH DETAIL** | Scale: NTS | Drawing: E01 | Detail: 03




NOTES:
1. All Depth Measurements Shall Be Measured From Finished Grade To The Top Of The Top Conduit.
2. Minimum Burial Depth Shall Be 30 Inches Unless Otherwise Noted, Or As Required For Short Distances Based On Site Conditions To Avoid Conflicts.
3. Maintain Uniform Spacing Using Conduit Spacers Along The Entire Length (Not Shown For Clarity).
4. Install Detectable Mule Tape In All Empty Conduits. Mule Tapes Shall Extend From Physics Basement IT Equipment Room To STEM 1 South IT Equipment Room. Route Tapes Around Manhole Interior. Label Each Muletape In Accordance With Cable Labeling Requirements.
5. Conduits To Be Proven And Cleaned As Part Of The Installation.Proving Involves Dragging A Proving Mandrell Sized To The Conduit, Through The Conduit To Confirm Each Is Capable Of Being Used To Capacity And Has No Blockages, Gross Deformations, Or Snags.

**DUCT BANK DETAIL** | Scale: NTS | Drawing: E01 | Detail: 04

**KEY NOTES (SYMBOLS 1, 2, ETC.)**

1. New Conduits Shall Be Schedule 40 PVC Encased In A Concrete Ductbank.
2. Two Sections Of Sidewalk Adjacent To MH-18 Shall Be Removed To Allow Installation Of New Conduits. Sidewalk Shall Be Reinstalled Per Details 05 And 07 On Drawing M05 After Conduit Installation Is Complete.
3. Approximate Location Of Existing Concrete Mass On South East Side Of The Science Complex. Contractor Shall Fully Expose This Area To Allow Review By TCNJ.

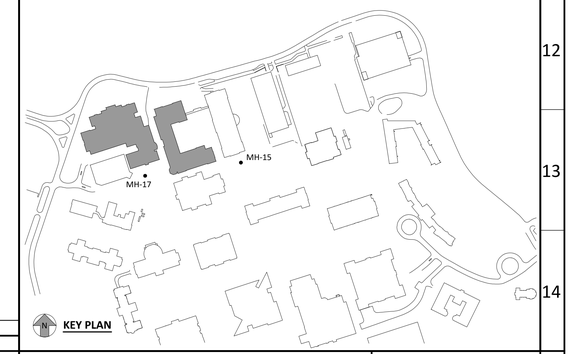
**GENERAL NOTES**

1. All Conduit Sweeps Shall Not Be Less Than 10 Times The Inside Diameter Of The Conduit.
2. Provide Warning Tape Above All Duct Banks.
3. Provide A #6 Ground Wire Along All Underground Conduit Routing. All Grounds Shall Be Tied In At Manhole Locations.
4. All Manhole Locations And Ductbank Routings Shall Be Coordinated With Existing Underground Utilities And Infrastructure.
5. Contractor Shall Obtain A Private Mark Out Of The Area Of Work. Contractor Also To Coordinate With Local Utility Companies And New Jersey One Call (811) As Required By Those Entities To Identify And Mark Out All Buried Infrastructure And Utilities In The Vicinity Of Proposed Conduit Routing Prior To Any Excavation. Hand Digging In Certain Locations Is Highly Recommended.
6. Coordinate Routing Of Underground Duct Banks With Existing Field Conditions. The Conduit Routing Shown Is Diagrammatic. The Final Routing Shall Be Determined Based On Field Conditions After Contractor Completes Markouts Of The Existing Underground Utilities In The Area.
7. Existing IT Conduits Between Science Complex And MH-18 Shall Be Demolished And Disposed Of By Contractor. Existing Sleeves Through Science Complex Exterior Wall Shall Be Removed. Existing Foundation Wall Is 48" Thick.
8. Locations And Depths Of Existing Utilities And New Conduits On Site Profile Are Approximate And To Be Coordinated In The Field.

**PARTIAL SYMBOLS & ABBREVIATIONS**

| Identifier | Description |
|---|---|
| □ | Existing Manhole |
| ---- | Existing Conduit |
| —— | New Conduit |

| Identifier | Description |
|---|---|
| MH | Manhole |
| MH#XX | Manhole Identification Tag |




| ITEM | DATE | ISSUE DESCRIPTION |
|---|---|---|
| | 04/15/21 | ISSUED FOR BID |
| | 03/17/21 | ISSUED FOR CD REVIEW |
| | 02/16/21 | ISSUED FOR SCHEMATIC REVIEW |

30x42

dlb associates
CONSULTING ENGINEERS, P.C.
265 Industrial Way West, Eatontown, N.J. 07724
Questions For DLB Call: Dan Rehberg
DLB Project ID: 47220 Phone: 732-318-0314

project
THE COLLEGE OF NEW JERSEY
STEAM PIPING & IT CONDUIT REPLACEMENT
2000 PENNINGTON ROAD, EWING, NJ 08618
TCNJ PROJECT NUMBER: IX243

title
SITE PLAN - IT CONDUIT OVERVIEW

dwg. no.
E01

| scale | drawn by | checked by | date | filename |
|---|---|---|---|---|
| NTS | JV | DR | 2/16/2021 | 47220 E01 |