

LOCATION MAP
NOT TO SCALE

CONSTRUCTION PLANS FOR THE SYLVAN VALLEY INDUSTRIAL BUILDING 21 WELCOME STREET, BREVARD, NC 28712 CITY OF BREVARD TRANSYLVANIA COUNTY, NORTH CAROLINA

PREPARED FOR:
TRANSYLVANIA COUNTY
101 S. BROAD STREET
BREVARD, NC 28712
T: 828-553-9791
CONTACT: DAVID MCNEILL

SHEET INDEX

SHEET NO.	DESCRIPTION
-	COVER SHEET
C-1	EXISTING CONDITIONS & DEMOLITION PLAN
C-2	SITE PLAN
C-3	GRADING & STORMWATER PLAN
C-4	STORMWATER PROFILES & DETAILS
C-5	UTILITY PLAN
C-6	EROSION CONTROL PHASE 1
C-7	EROSION CONTROL PHASE 2
C-8	OFFSITE GRADING & EROSION CONTROL PLAN
C-9	DETAILS
C-10	DETAILS
L-1	LANDSCAPE PLAN

REVISIONS

REVISION & ISSUE NO.	SHEET NO.	DESCRIPTION	DATE
A - ISSUE 1	ALL	RELEASE FOR PERMITTING & ADVERTISE FOR BID	4/4/2024

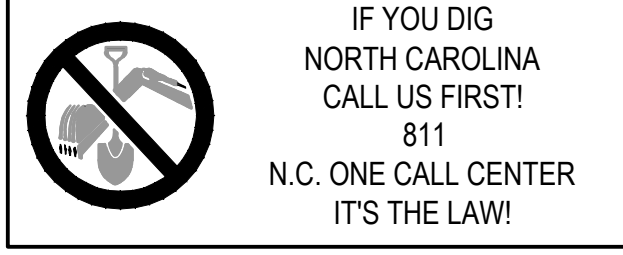
- CONSTRUCTION NOTES:**
- The drawings and specifications are intended to cover a complete project, ready to use, and all items necessary for a complete and workable job shall be furnished and installed. Any discrepancy shall be immediately reported to the owner or his representative.
 - All work shall comply with all applicable local, state, and federal codes. The contractor, at his expense shall obtain all necessary licenses and permits, unless already obtained by the owner.
 - The contractor shall coordinate location and installation of all underground utilities and appurtenances to minimize disturbing curbing, paving and all other utilities.
 - The existing utilities shown are for the contractor's convenience only. There may be other utilities not shown on these drawings. The utilities shown are based on the best available information and surface evidence where available. The engineer assumes no responsibility for the location of the utilities shown. It shall be the contractor's responsibility to verify the locations of all utilities within the limits of work. All damage made to existing utilities by the contractor shall be the sole responsibility of the contractor.
 - Deviations from these plans and specifications without prior consent of the engineer and the municipality may be cause for the work to be unacceptable.
 - All materials shall be new unless used or salvaged materials are authorized by the owner.
 - The contractor shall furnish and maintain all necessary barricades around the work and shall provide protection against water damage and soil erosion.
 - All work shall be performed in a finished and workmanlike manner to the entire satisfaction of the owner, and in accordance with the best-recognized trade practices.
 - The contractor shall provide shoring and shoring for all trench construction in accordance with OSHA guidelines.
 - All pipe lengths shown are to the centerline of the structures unless specifically noted.
 - Pipes (storm and sanitary sewer) shall be laid on smooth, continuous grades with no visible bends at the joints.
 - Bedding requirements specified herein are to be considered as minimum required for relatively dry stable earth conditions. Additional bedding shall be required for rock trenches to provide such additional bedding as required to properly construct work.
 - All storm drainage inlet structures shall have metal ring and cover for access.
 - All angles shown are 90 degrees unless shown otherwise.
 - All grades shown are finished grades. Contractor shall verify dimensions, grades, and existing elevations prior to construction.
 - Concrete curbs shall be constructed in accordance with the details shown on plans. Materials, equipment, methods of construction and workmanship shall conform to state D.O.T. standard specifications.
 - All concrete shall have 3000-PSI compressive strength after 28 days, with a maximum slump of four (4) inches, unless specified otherwise.
 - All exposed concrete shall have a fine hair broomed finish.
 - Parking and driveway base course and asphaltic concrete surface and prime materials, equipment, methods for construction and workmanship shall conform to state D.O.T. standard specifications.
 - Contractor to field verify all storm, sanitary, water and other utilities locations and inverts prior to installation of gully utilities. Notify engineer prior to proceeding with any work if discrepancies found.
 - Contractor shall notify the proper local authorities 24 hours prior to any road being closed for construction, including but not limited to local newspaper, radio station, fire department, county sheriff's department, ambulance service, and county emergency agency. All traffic control shall conform to the requirements of NCDOT.
 - All fence damaged during construction shall be replaced with like materials in a workmanlike manner and in accordance with standard fence construction practices at the contractor's expense.
 - Contractor shall be responsible for any damage to existing roads during construction and shall repair road per requirements of NCDOT. No open cuts of existing roads shall be allowed except where indicated on the drawings or where specific permission is granted by NCDOT.

- SOIL EROSION AND SEDIMENT CONTROL NOTES:**
- Provisions to prevent erosion of the soil from the site shall conform to the requirements of the "North Carolina Sedimentation Pollution Control Act of 1972" as shown herein and stipulated in the "Erosion and Sediment Control Planning and Design Manual". Installation shall be in a manner so as to minimize erosion of the disturbed areas and prevent sediment from leaving the site.
 - The contractor shall incorporate all temporary and permanent erosion control measures into the project at the earliest practicable time during construction. The erosion control measures detailed herein shall be continued until permanent drainage structures have been installed and until grass on planted shoulders and slopes is sufficiently established to be an effective erosion deterrent. The sediment removed from the control structures shall be evenly distributed outside construction limits. Disposed sediment shall be permanently grassed.
 - Temporary and permanent vegetative cover shall be installed in accordance with the requirements of Chapter 6, Section 10 - Temporary Seeding, and Section 11 - Permanent Seeding of the "Planning and Design Manual" as described in note no. 1 above.
 - The contractor shall not restrict the use of silt fences or any other means of erosion control to the locations shown on these plans. Moreover, the contractor should constantly be aware of minimizing soil erosion and use erosion control means accordingly. The contractor shall promptly repair, improve or add erosion control measures as required by the local reviewing agency.
 - Divert all runoff to the erosion control devices shown on the drawings.
 - Provide daily maintenance of erosion control devices to maintain their function at all times.
 - Any disturbed area left exposed for a period greater than fourteen (14) days shall be stabilized with mulch or temporary seeding.
 - All silt fences must be installed immediately following clearing. No grading shall be performed until silt fence installation is complete.
 - Additional sediment control measures may be required based on actual field conditions as per local governing authorities.
 - All erosion control measures shall be checked and maintained daily.
 - Maximum cut and fill slopes shall be two (2) foot horizontal to one (1) foot vertical, unless otherwise noted.
 - Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.
 - The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to, or concurrent with, land-disturbing activities.

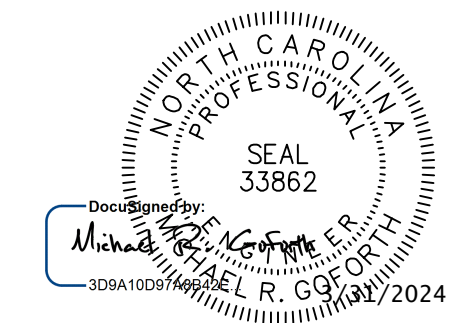
- PROJECT NOTES:**
- OWNER:**
Transylvania Partnership Inc.
147 East Main Street, Suite 301
Brevard, NC 28712
Phone: 828-230-4511
Phone: 828-553-9791
Email: mgcforth@hncpc.net
Contact: Michael R. Goforth, PE
- DEVELOPER:**
Transylvania County
101 S. Broad Street
Brevard, NC 28712
Phone: 828-553-9791
Contact: David McNeill
- ENGINEER:**
High Country Engineering, PC (C-3347)
81 Central Avenue
Asheville, North Carolina 28801
Phone: 828-230-4511
Email: mgcforth@hncpc.net
Contact: Michael R. Goforth, PE
- Property located in the City of Brevard in Transylvania County, North Carolina. Property address is 21 Welcome Street, Brevard, NC 28712.
 - PIN Number(s): 8597-31-5284, 8597-21-1481 (Offsite)
 - Zoning: Special District by City of Brevard.
 - Deed Book: 824 and Page 498.
 - Proposed use is for Industrial Warehouse.
 - Project Coordinates: 35.263438° N, 82.707386° W
 - The receiving water course for this project is Unnamed Tributary To Davidson River. At the confluence, the Davidson River, Stream Index 6-34(21), is a Class B water as classified by NCDEQ.
 - Total tract contains over ±6.94 acres/disturbed area= ±2.40 acres.
 - This project results in a net decrease of ±1.05 acres impervious area (15.1% of the total parcel area) compared to the pre-developed conditions of the site in 2017 prior to the first phase of re-development.
 - Topographical information obtained from survey by Cameron Baker, PLS # L-4920, of Associated Land Surveyors and Planners, PC and dated December 29, 2023.
 - Contour interval is 1 foot.
 - This property is shown on F.I.R.M. panel number 37008697000, dated October 2, 2009 and is located within a special flood hazard zone "X".
 - The location of underground utilities shown is approximate based on surface field evidence and information supplied by utility agencies. The survey makes no certification as to the completeness of the locations shown herein. Appropriate utility companies should be contacted for verification of locations prior to any construction activity.
 - The contractor shall verify the invert elevations of all existing storm and sanitary sewer structures prior to commencement of storm and sanitary sewer construction.
 - Contractor shall notify the engineer and owner/developer of any information found in the field that is different from what is shown on these design plans.

FOUNDATION AND SUBSURFACE IMPROVEMENT REQUIREMENTS:

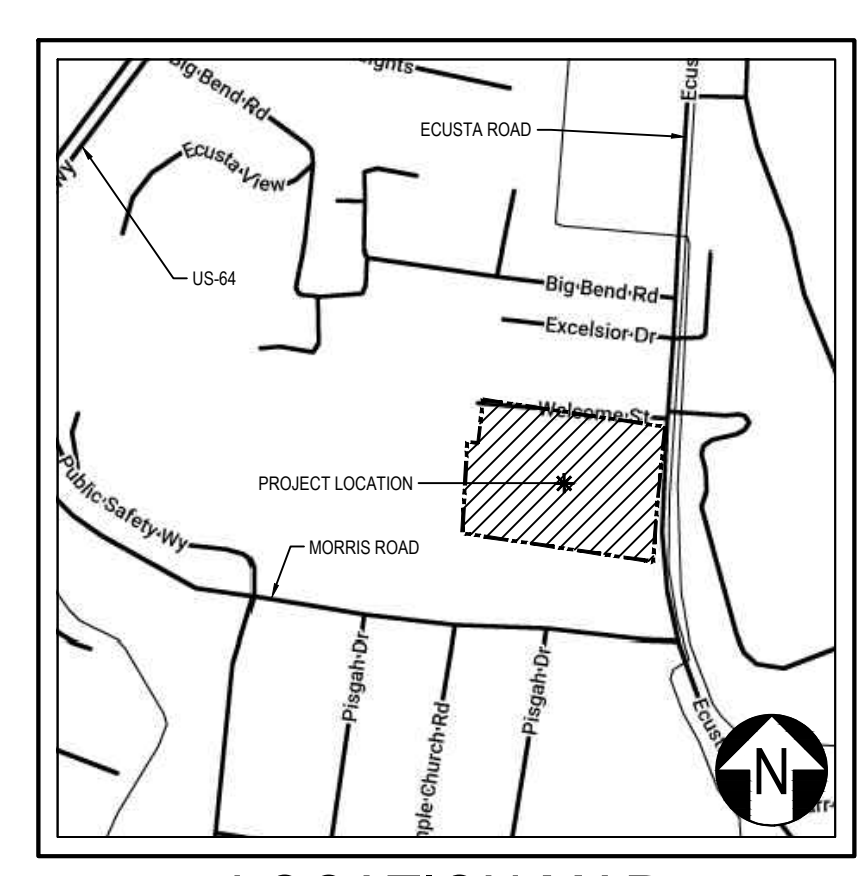
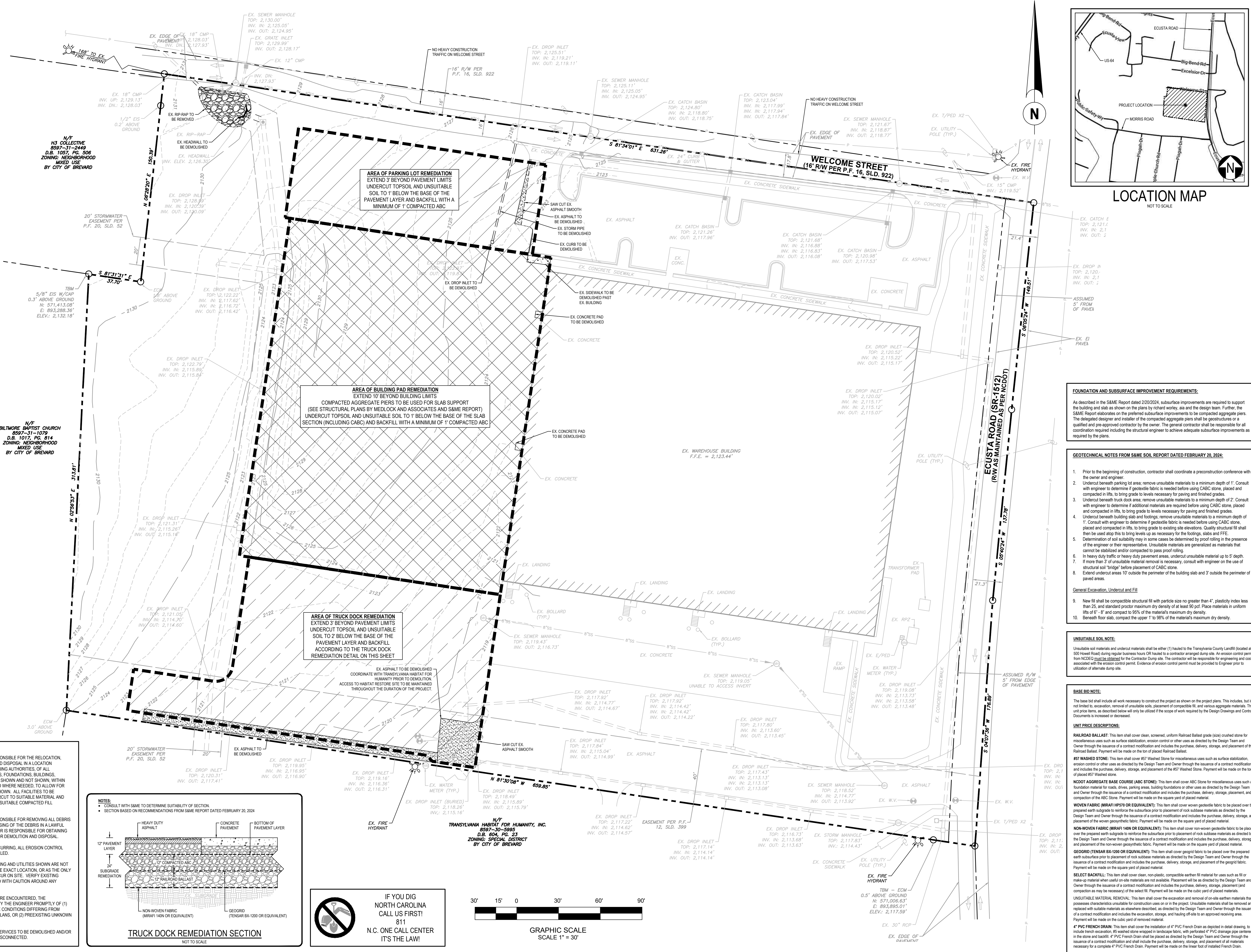
AS DESCRIBED IN THE SAME REPORT DATED 2/20/2024, SUBSURFACE IMPROVEMENTS ARE REQUIRED TO SUPPORT THE BUILDING AND SLAB AS SHOWN ON THE PLANS BY RICHARD WORLEY, AIA AND THE DESIGN TEAM. FURTHER, THE SAME REPORT ELABORATES ON THE PREFERRED SUBSURFACE IMPROVEMENTS TO BE COMPACTED AGGREGATE PIERS. THE DELEGATED DESIGNER AND INSTALLER OF THE COMPACTED AGGREGATE PIERS SHALL BE GEOSTRUCTURES OR A QUALIFIED AND PRE-APPROVED CONTRACTOR BY THE OWNER. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION REQUIRED INCLUDING THE STRUCTURAL ENGINEER TO ACHIEVE ADEQUATE SUBSURFACE IMPROVEMENTS AS REQUIRED BY THE PLANS.



HIGH COUNTRY ENGINEERING, P.C.
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T: 828.230.4511
FIRM NO.: C-3347



CONSTRUCTION PLANS
FOR THE
SYLVAN VALLEY INDUSTRIAL BUILDING
21 WELCOME STREET, BREVARD, NC 28712
CITY OF BREVARD
TRANSYLVANIA COUNTY, NORTH CAROLINA



N/T COLLECTIVE 8597-31-2449 D.B. 1057, PG. 506 ZONING: NEIGHBORHOOD MIXED USE BY CITY OF BREVARD

N/T BILTMORE BAPTIST CHURCH 8597-31-1079 D.B. 1017, PG. 814 ZONING: NEIGHBORHOOD MIXED USE BY CITY OF BREVARD

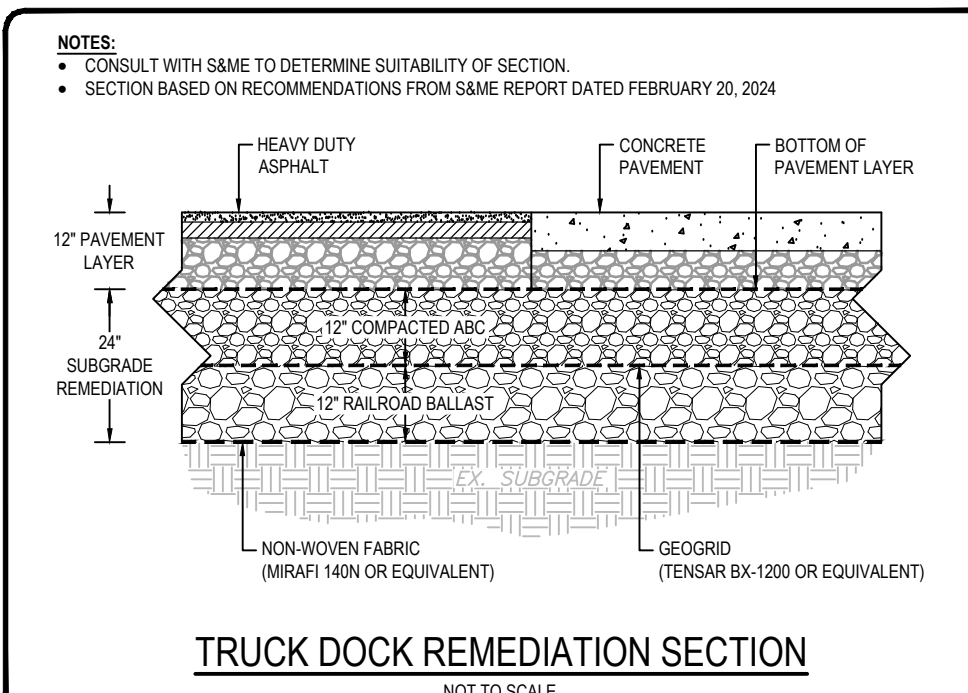
AREA OF PARKING LOT REMEDIATION EXTEND 3' BEYOND PAVEMENT LIMITS UNDERCUT TOPSOIL AND UNSUITABLE SOIL TO 1' BELOW THE BASE OF THE PAVEMENT LAYER AND BACKFILL WITH A MINIMUM OF 1' COMPACTED ABC

AREA OF BUILDING PAD REMEDIATION EXTEND 10' BEYOND BUILDING LIMITS COMPACTED AGGREGATE PIERS TO BE USED FOR SLAB SUPPORT (SEE STRUCTURAL PLANS BY MEDLOCK AND ASSOCIATES AND S&ME REPORT) UNDERCUT TOPSOIL AND UNSUITABLE SOIL TO 1' BELOW THE BASE OF THE SLAB SECTION (INCLUDING CABG) AND BACKFILL WITH A MINIMUM OF 1' COMPACTED ABC

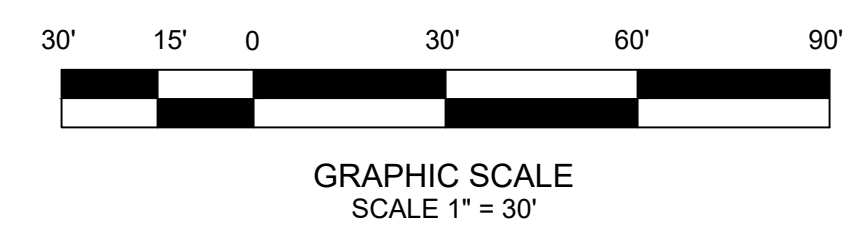
AREA OF TRUCK DOCK REMEDIATION EXTEND 3' BEYOND PAVEMENT LIMITS UNDERCUT TOPSOIL AND UNSUITABLE SOIL TO 2' BELOW THE BASE OF THE PAVEMENT LAYER AND BACKFILL ACCORDING TO THE TRUCK DOCK REMEDIATION DETAIL ON THIS SHEET

EX ASPHALT TO BE DEMOLISHED COORDINATE WITH TRANSYLVANIA HABITAT FOR HUMANITY PRIOR TO DEMOLITION ACCESS TO HABITAT RESTORE SITE TO BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT.

- GENERAL DEMOLITION NOTES: 1. THE CONTRACTOR IS RESPONSIBLE FOR THE RELOCATION, DEMOLITION, REMOVAL, AND DISPOSAL IN A LOCATION APPROVED BY ALL GOVERNING AUTHORITIES... 2. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL DEBRIS FROM THE SITE AND DISPOSING OF THE DEBRIS IN A LAWFUL MANNER... 3. PRIOR TO DEMOLITION OCCURRING, ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED... 4. ALL EXISTING SEWERS, PIPING AND UTILITIES SHOWN ARE NOT TO BE INTERPRETED AS THE EXACT LOCATION, OR AS THE ONLY OBSTACLES THAT MAY OCCUR ON SITE... 5. IF CHANGED CONDITIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PROMPTLY... 6. VERIFY THAT ALL UTILITY SERVICES TO BE DEMOLISHED AND/OR ABANDONED HAVE BEEN DISCONNECTED.



IF YOU DIG NORTH CAROLINA CALL US FIRST! 811 N.C. ONE CALL CENTER IT'S THE LAW!



FOUNDATION AND SUBSURFACE IMPROVEMENT REQUIREMENTS: As described in the S&ME Report dated 2/20/2024, subsurface improvements are required to support the building and slab as shown on the plans by Richard Worley, SEA and the design team. Further, the S&ME Report elaborates on the preferred subsurface improvements to be compacted aggregate piers. The delegated designer and installer of the compacted aggregate piers shall be geotechnical or a qualified and pre-approved contractor by the owner. The general contractor shall be responsible for all coordination required including the structural engineer to achieve adequate subsurface improvements as required by the plans.

- GEOTECHNICAL NOTES FROM S&ME SOIL REPORT DATED FEBRUARY 20, 2024: 1. Prior to the beginning of construction, contractor shall coordinate a preconstruction conference with the owner and engineer. 2. Undercut beneath parking lot area: remove unsuitable materials to a minimum depth of 1'. Consult with engineer to determine if geotextile fabric is needed before using CABG stone, placed and compacted in lifts, to bring grade to levels necessary for paving and finished grades. 3. Undercut beneath building slab area: remove unsuitable materials to a minimum depth of 2'. Consult with engineer to determine if additional materials are required before using CABG stone, placed and compacted in lifts, to bring grade to levels necessary for paving and finished grades. 4. Undercut beneath building slab and footings: remove unsuitable materials to a minimum depth of 1'. Consult with engineer to determine if geotextile fabric is needed before using CABG stone, placed and compacted in lifts, to bring grade to existing site elevations. Quality structural fill shall then be used atop this to bring levels up as necessary for the footings, slabs and FFE. 5. Determination of soil suitability may in some cases be determined by proof rolling in the presence of the engineer or their representative. Unsuitable materials are generalized as materials that cannot be stabilized and/or compacted to pass proof rolling. 6. In heavy duty traffic or heavy duty pavement areas, undercut unsuitable material up to 5' depth. 7. If more than 3' of unsuitable material removal is necessary, consult with engineer on the use of structural soil 'bridges' before placement of CABG stone. 8. Extend undercut areas 10' outside the perimeter of the building slab and 3' outside the perimeter of paved areas. General Excavation, Undercut and Fill 9. New fill shall be compactible structural fill with particle size no greater than 4", plasticity index less than 25, and standard proctor maximum dry density of at least 90 pcf. Place materials in uniform lifts of 6" - 8" and compact to 95% of the material's maximum dry density. 10. Beneath floor slab, compact the upper 1' to 98% of the material's maximum dry density.

UNSATURABLE SOIL NOTE: Unsuitable soil materials and undercut materials shall be either (1) hauled to the Transylvania County Landfill (located at 500 Howell Road) during regular business hours OR hauled to a contractor arranged dump site. An erosion control permit from NCDCE must be obtained for the Contractor Dump site. The contractor will be responsible for engineering and cost associated with the erosion control permit. Evidence of erosion control permit must be provided to Engineer prior to utilization of alternate dump site.

BASE BID NOTE: The base bid shall include all work necessary to construct the project as shown on the project plans. This includes, but is not limited to, excavation, removal of unsuitable soils, and placement of compactible fill, and various aggregate materials. The unit prices items, as described below, will only be utilized if the scope of work required by the Design Drawings and Contract Documents is increased or decreased.

- UNIT PRICE DESCRIPTIONS: RAILROAD BALLAST: This item shall cover clean, screened, uniform Railroad Ballast grade (local crushed stone for miscellaneous uses such as surface stabilization, erosion control or other uses as directed by the Design Team and Owner through the issuance of a contract modification and includes the purchase, delivery, storage, and placement of the Railroad Ballast. Payment will be made on the ton of placed Railroad Ballast. #57 WASHED STONE: This item shall cover #57 Washed Stone for miscellaneous uses such as surface stabilization, erosion control or other uses as directed by the Design Team and Owner through the issuance of a contract modification and includes the purchase, delivery, storage, and placement of the #57 Washed Stone. Payment will be made on the ton of placed #57 Washed Stone. UNDOT AGGREGATE BASE COURSE (ABC STONE): This item shall cover ABC Stone for miscellaneous uses such as foundation material for roads, drives, parking areas, building foundations or other uses as directed by the Design Team and Owner through the issuance of a contract modification and includes the purchase, delivery, storage, and placement of the ABC Stone. Payment will be made on the square yard of placed material. WOVEN FABRIC (MIRAF WFTS OR EQUIVALENT): This item shall cover woven geotextile fabric to be placed on the prepared earth subgrade to reinforce the subsurface prior to placement of rock subbase materials as directed by the Design Team and Owner through the issuance of a contract modification and includes the purchase, delivery, storage, and placement of the woven geotextile fabric. Payment will be made on the square yard of placed material. NON-WOVEN FABRIC (MIRAF 140N OR EQUIVALENT): This item shall cover non-woven geotextile fabric to be placed on the prepared earth subgrade to reinforce the subsurface prior to placement of rock subbase materials as directed by the Design Team and Owner through the issuance of a contract modification and includes the purchase, delivery, storage, and placement of the non-woven geotextile fabric. Payment will be made on the square yard of placed material. GEOTGRID (TENSAR EX-1200 OR EQUIVALENT): This item shall cover geogrid fabric to be placed over the prepared earth subgrade to reinforce the subsurface prior to placement of rock subbase materials as directed by the Design Team and Owner through the issuance of a contract modification and includes the purchase, delivery, storage, and placement of the geogrid fabric. Payment will be made on the square yard of placed material. SELECT BACKFILL: This item shall cover clean, non-plastic, compactible earthfill fill material for uses such as fill or make-up material when useful on-site materials are not available. Placement will be as directed by the Design Team and Owner through the issuance of a contract modification and includes the purchase, delivery, storage, placement (and compaction as may be necessary) of the select fill. Payment will be made on the cubic yard of placed material. UNSUITABLE MATERIAL REMOVAL: This item shall cover the excavation and removal of on-site earth materials that possess characteristics unsuitable for construction uses on or in the project. Unsuitable materials shall be removed and replaced with suitable materials as elsewhere described, as directed by the Design Team and Owner through the issuance of a contract modification and includes the excavation, storage, and hauling off-site to an approved receiving area. Payment will be made on the cubic yard of removed material. #4" PVC FRENCH DRAIN: This item shall cover the installation of 4" PVC French Drain as depicted in detail drawing, to include trench excavation, #5 washed stone wrapped in landscape fabric, with perforated 4" PVC drainage pipe centered in the stone and backfill. #4" PVC French Drain shall be placed as directed by the Design Team and Owner through the issuance of a contract modification and shall include the purchase, delivery, storage, and placement of all materials necessary for a complete #4" PVC French Drain. Payment will be made on the linear foot of installed French Drain.

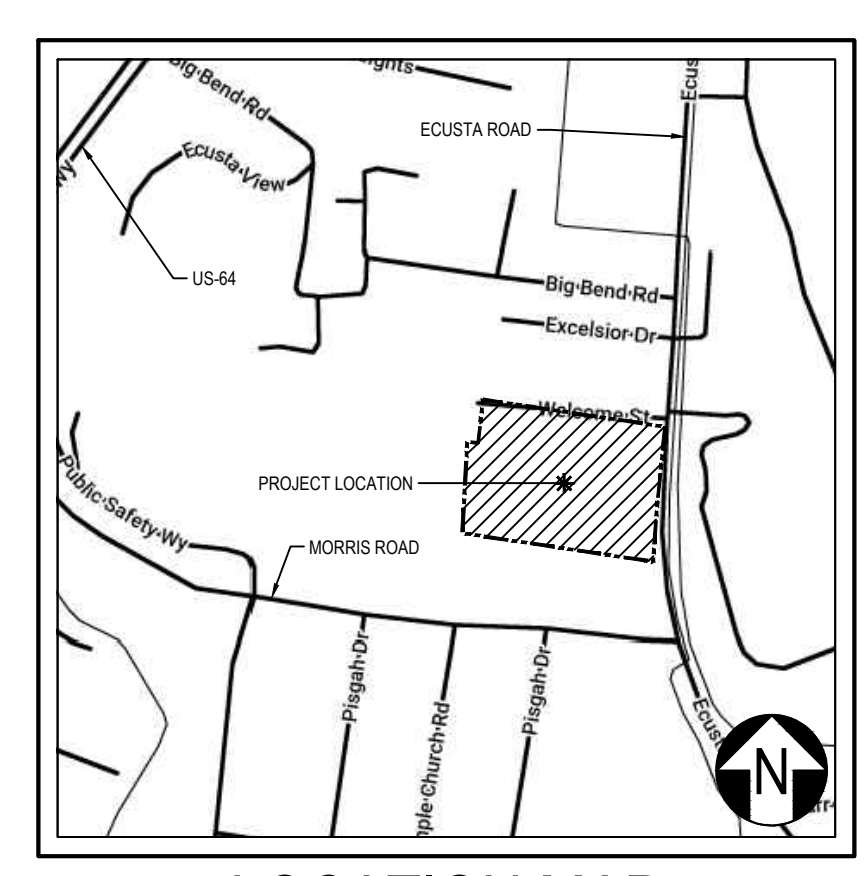
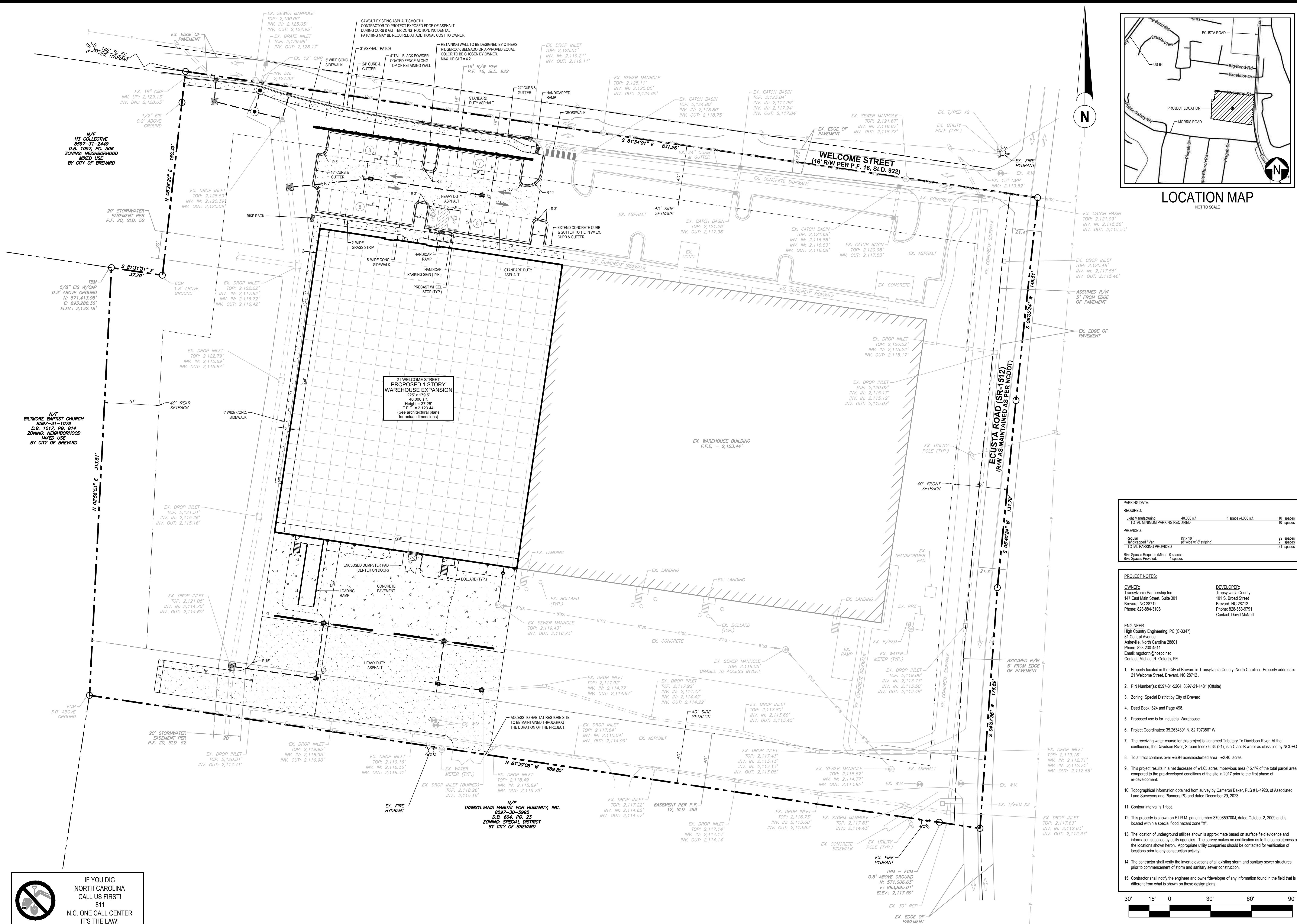
SYLVAN VALLEY INDUSTRIAL BUILDING for TRANSYLVANIA COUNTY City of Brevard Transylvania County, North Carolina

CONSTRUCTION PLANS FOR:	REVISION DESCRIPTION
	Issue 1 - Release for Permitting and Advertise for Bid
DATE	4/10/2024
#	A

HIGH COUNTRY ENGINEERING
91 CENTRAL AVENUE
ASHEVILLE, NORTH CAROLINA 28801
T: 828.230.4511
NC FIRM NO.: C-3347

SEAL 33862
APPROVED FOR THE PROJECT BY: [Signature]
DATE: 4/10/2024

SYLVAN VALLEY INDUSTRIAL BLDG.
SHEET TITLE: EXISTING CONDITIONS & DEMOLITION PLAN
PROJECT NO: WOR003
SHEET NO: C-1
DATE: 4/10/2024
ISSUE NO: A-1



LOCATION MAP
NOT TO SCALE

CONSTRUCTION PLANS FOR:

SYLVAN VALLEY INDUSTRIAL BUILDING

for

TRANSYLVANIA COUNTY

City of Brevard
Transylvania County, North Carolina

N/F
H3 COLLECTIVE
8597-31-2449
D.B. 1057, PG. 406
ZONING: NEIGHBORHOOD
MIXED USE
BY CITY OF BREVARD

N/F
BILTMORE BAPTIST CHURCH
8597-31-1079
D.B. 1017, PG. 814
ZONING: NEIGHBORHOOD
MIXED USE
BY CITY OF BREVARD

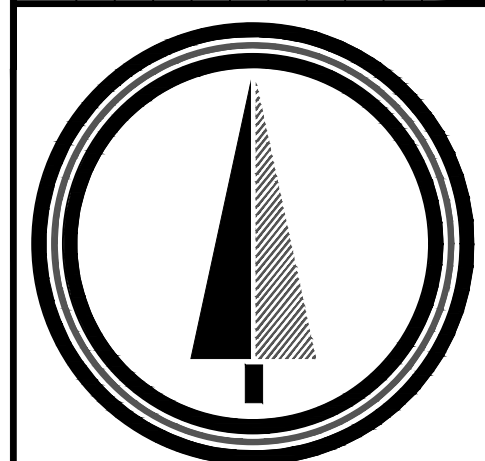
21 WELCOME STREET
PROPOSED 1 STORY
WAREHOUSE EXPANSION
225 x 179.5'
40,000 s.f.
Height = 37.25'
F.F.E. = 2,123.44'
(See architectural plans
for actual dimensions)

EX. WAREHOUSE BUILDING
F.F.E. = 2,123.44'

PARKING DATA:

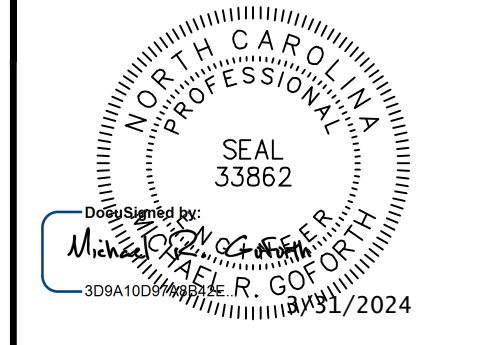
REQUIRED:			
Light Manufacturing	40,000 s.f.	1 space/14,000 s.f.	10 spaces
TOTAL MINIMUM PARKING REQUIRED			10 spaces
PROVIDED:			
Regular	(8' x 18')		29 spaces
Handicapped/Van	(8' wide w/ 8' stalls)		2 spaces
TOTAL PARKING PROVIDED			31 spaces
Bike Spaces Required (Min.)			0 spaces
Bike Spaces Provided			4 spaces

- PROJECT NOTES:**
- OWNER:** Transylvania Partnership Inc.
147 East Main Street, Suite 301
Brevard, NC 28712
Phone: 828-884-3168
- DEVELOPER:** Transylvania County
101 S. Broad Street
Brevard, NC 28712
Phone: 828-533-9791
Contact: David McNeill
- ENGINEER:** High Country Engineering, PC (C-3347)
81 Central Avenue
Asheville, North Carolina 28801
Phone: 828-230-4511
Email: mgoforth@hcepc.net
Contact: Michael R. Goforth, PE
- Property located in the City of Brevard in Transylvania County, North Carolina. Property address is 21 Welcome Street, Brevard, NC 28712.
 - Pin Number(s): 8597-31-6264, 8597-21-1481 (Office)
 - Zoning: Special District by City of Brevard.
 - Deed Book: 824 and Page 498.
 - Proposed use is for Industrial Warehouse.
 - Project Coordinates: 35 283439" N, 82 707386" W
 - The receiving water course for this project is Unnamed Tributary To Davidson River. At the confluence, the Davidson River, Stream Index 6-34-(21), is a Class B water as classified by NCEOE.
 - Total tract contains over 6.94 acres/disturbed area ±2.40 acres.
 - This project results in a net decrease of ±1.05 acres impervious area (15.1% of the total parcel area) compared to the pre-developed conditions of the site in 2017 prior to the first phase of re-development.
 - Topographical information obtained from survey by Cameron Baker, PLS #1-4920, of Associated Land Surveyors and Planners, PC and dated December 29, 2023.
 - Contour interval is 1 foot.
 - This property is shown on F.I.R.M. panel number 3708697001, dated October 2, 2009 and is located within a special flood hazard zone "X".
 - The location of underground utilities shown is approximate based on surface field evidence and information supplied by utility agencies. The survey makes no certification as to the completeness of the locations shown hereon. Appropriate utility companies should be contacted for verification of locations prior to any construction activity.
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81 CENTRAL AVENUE
ASHEVILLE, NORTH CAROLINA 28801
T: 828.230.4511
NC FIRM NO.: C-3347



SYLVAN VALLEY INDUSTRIAL BLDG.

SHEET TITLE:

SITE PLAN

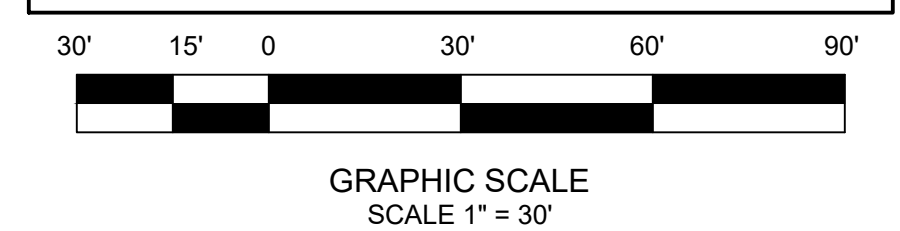
PROJECT NO:
WOR003

DATE:
4/4/2024

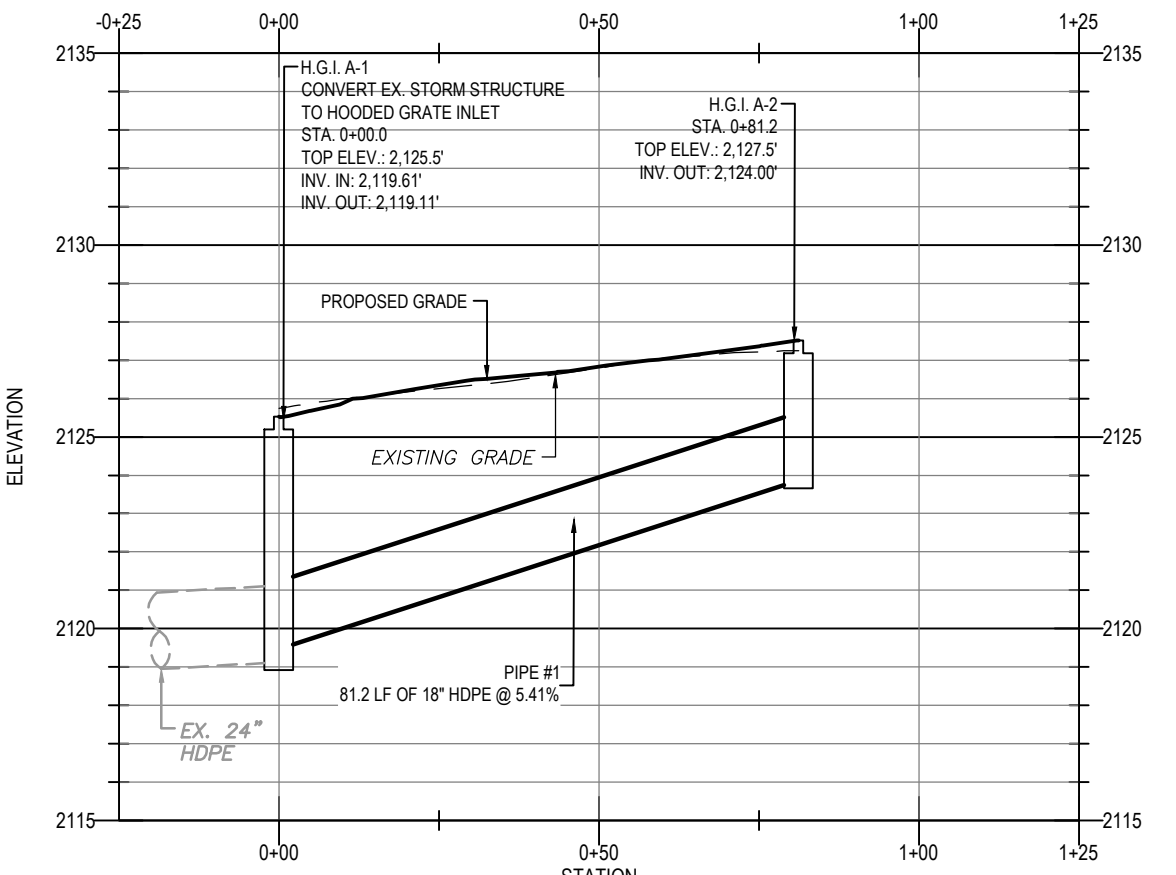
ISSUE NO. A-1

SHEET NO.
C-2

of 11

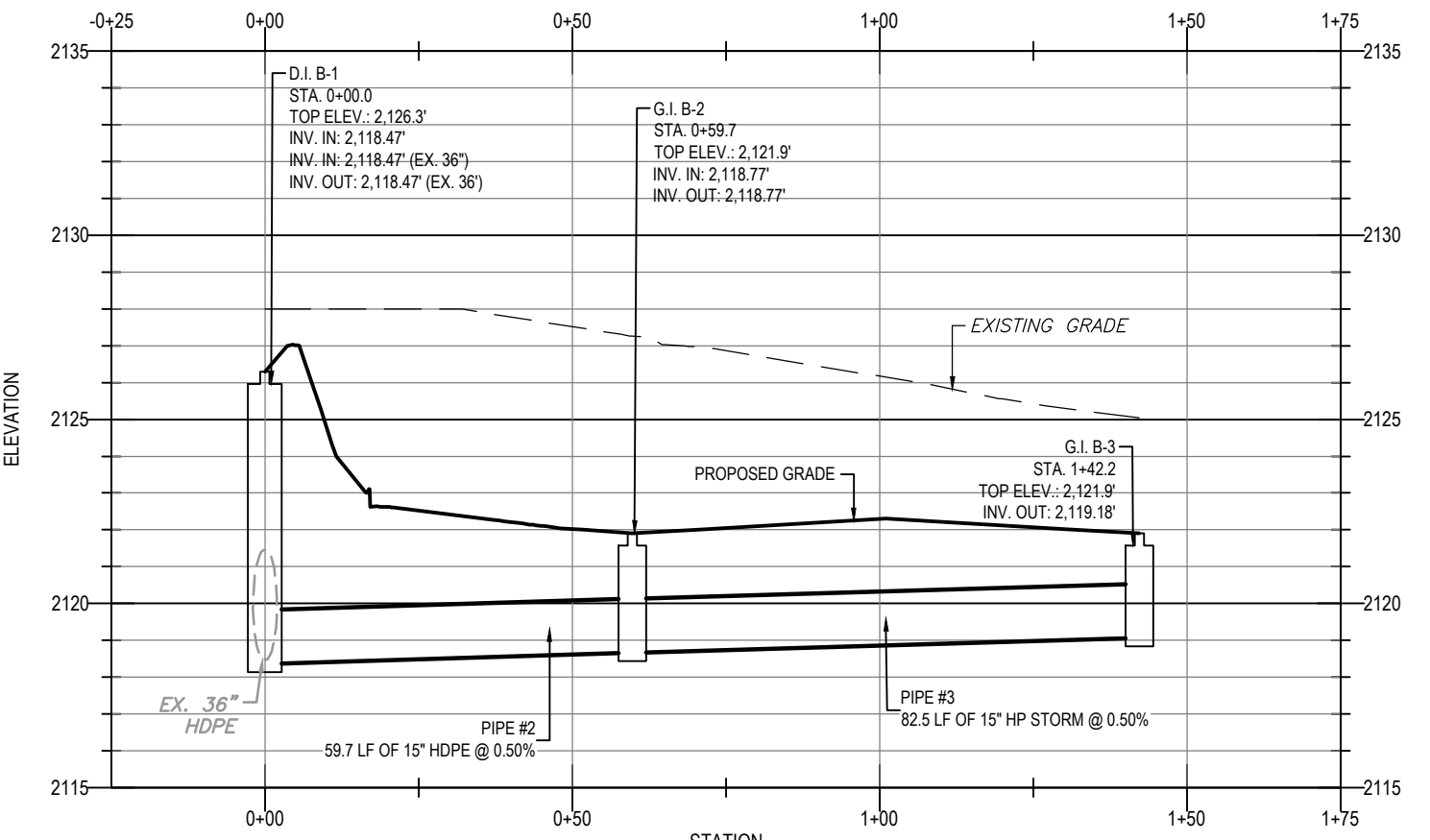


IF YOU DIG
NORTH CAROLINA
CALL US FIRST!
811
N.C. ONE CALL CENTER
IT'S THE LAW!



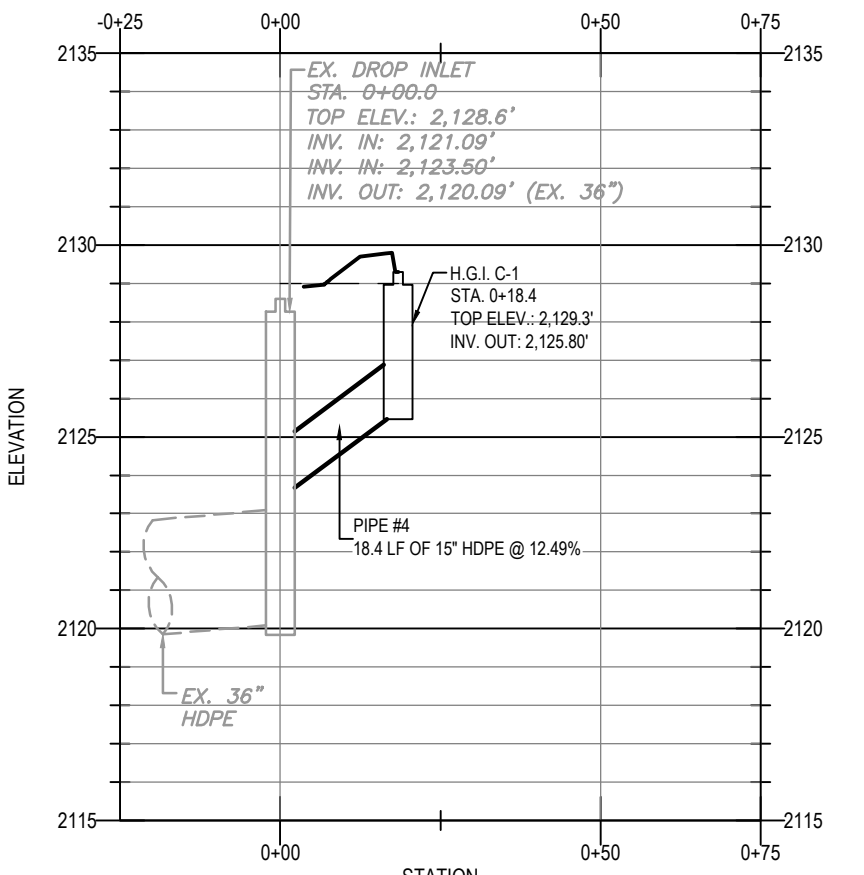
STORM 'A' PROFILE VIEW

H. SCALE: 1"=30'
V. SCALE: 1"=5'



STORM 'B' PROFILE VIEW

H. SCALE: 1"=30'
V. SCALE: 1"=5'



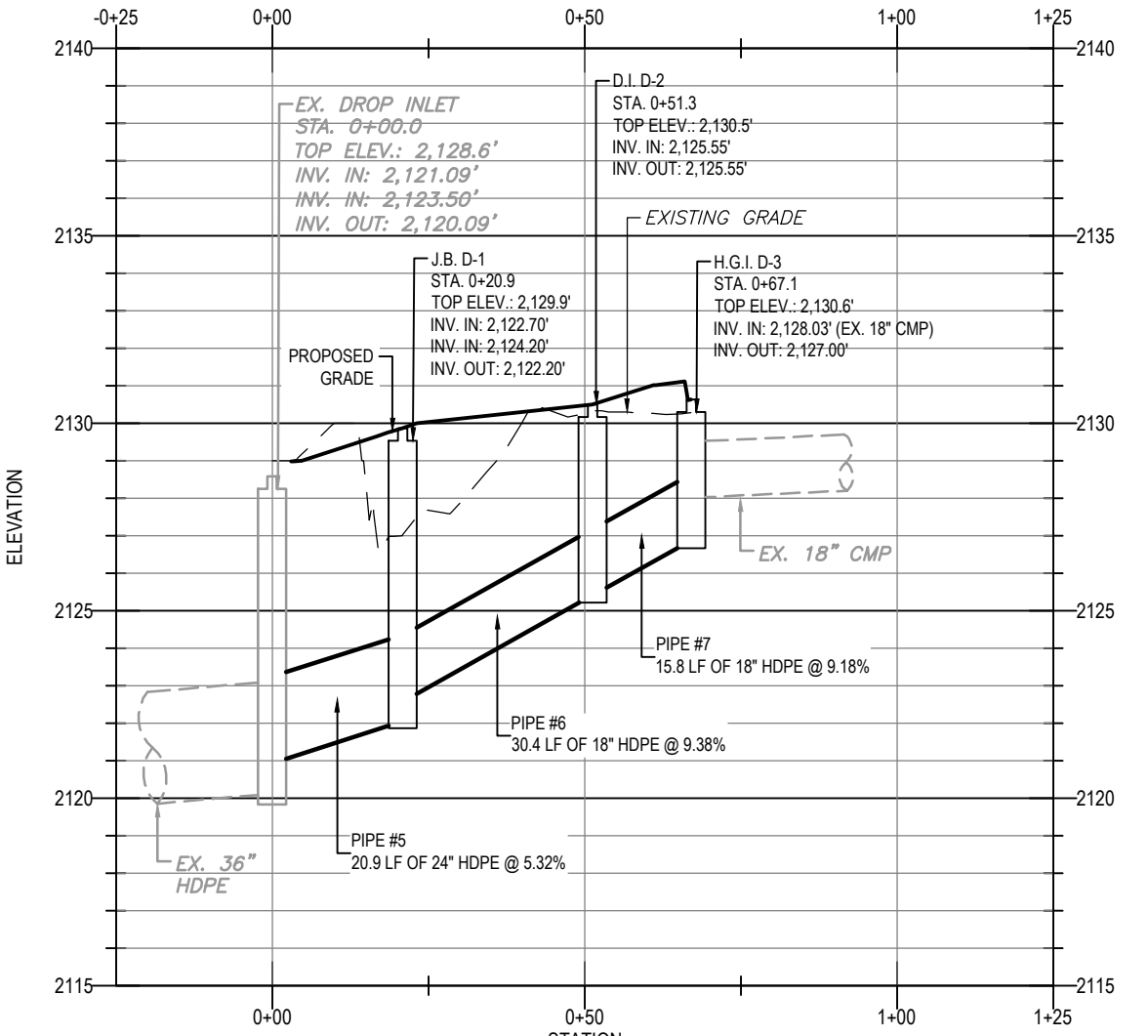
STORM 'C' PROFILE VIEW

H. SCALE: 1"=30'
V. SCALE: 1"=5'

STRUCTURE TABLE with columns TO STRUCTURE, INV. UP (FT), INV. DN (FT)

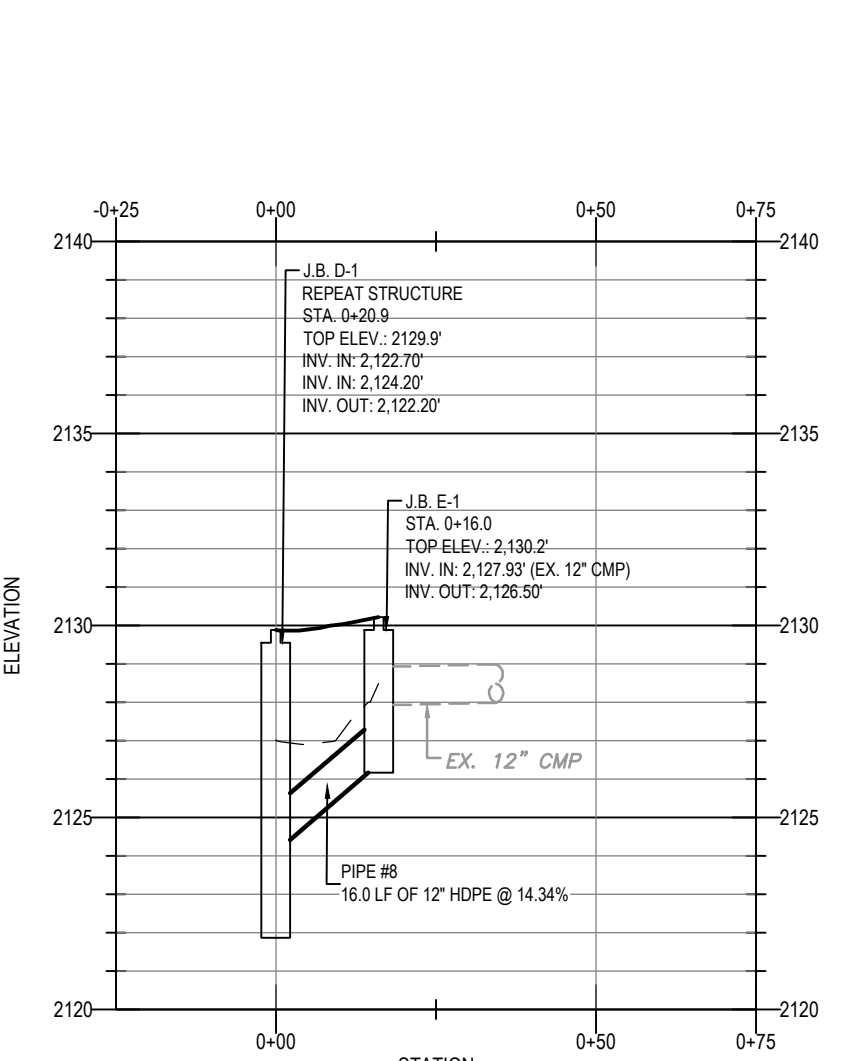
PIPE MATERIAL NOTES: HDPE = DUAL WALL HIGH DENSITY POLY. PIPE; HP STORM = HP STORM DUAL WALL PIPE BY ADS (OR APPROVED EQUAL)

PIPE TABLE with columns PIPE #, FROM STRUCTURE, TO STRUCTURE, DIAMETER, LENGTH (LF), SLOPE (%), MATERIAL, INV. UP (FT), INV. DN (FT)



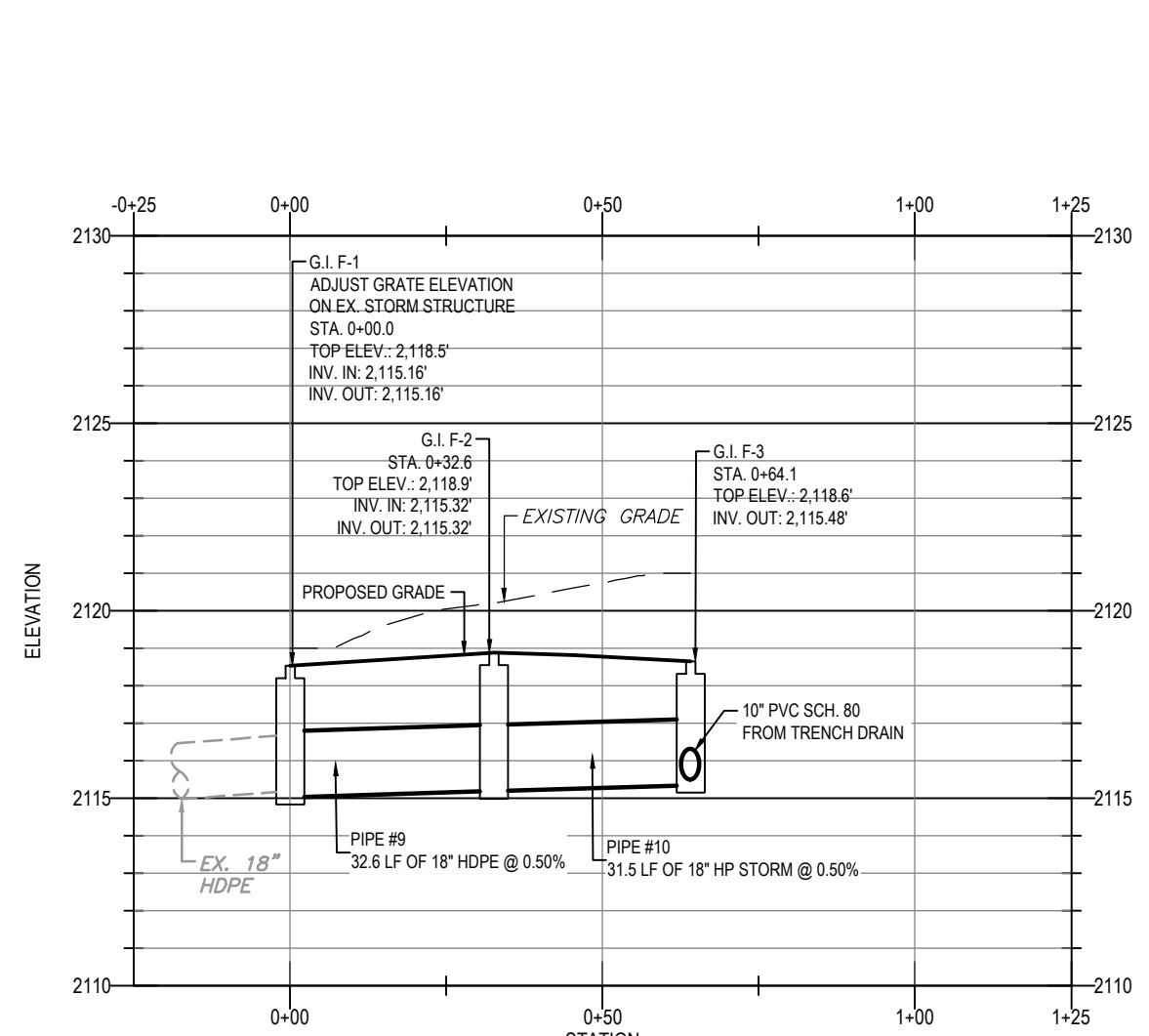
STORM 'D' PROFILE VIEW

H. SCALE: 1"=30'
V. SCALE: 1"=5'



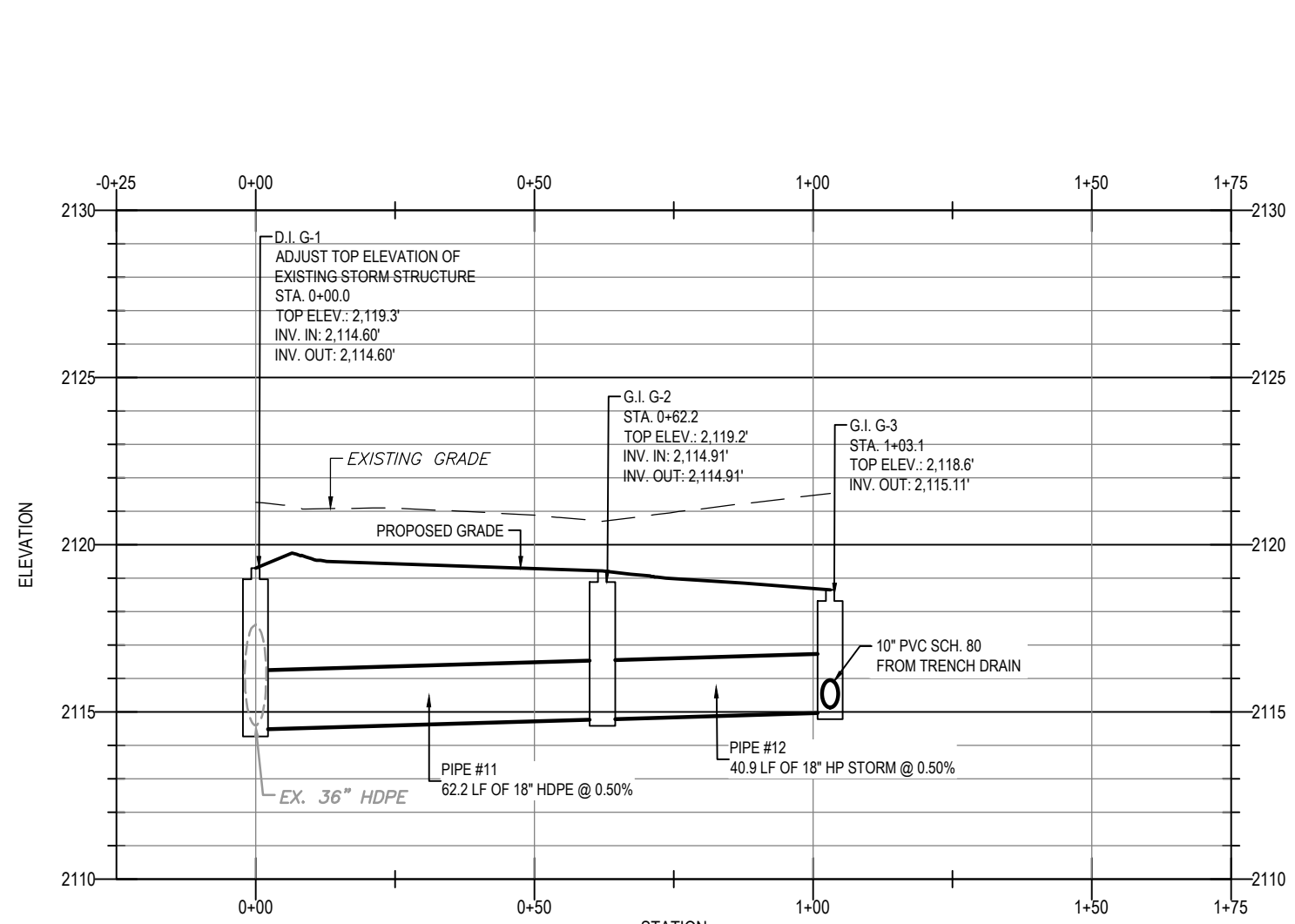
STORM 'E' PROFILE VIEW

H. SCALE: 1"=30'
V. SCALE: 1"=5'



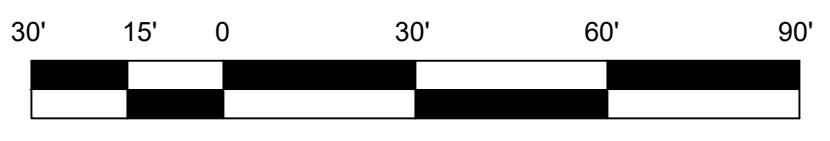
STORM 'F' PROFILE VIEW

H. SCALE: 1"=30'
V. SCALE: 1"=5'

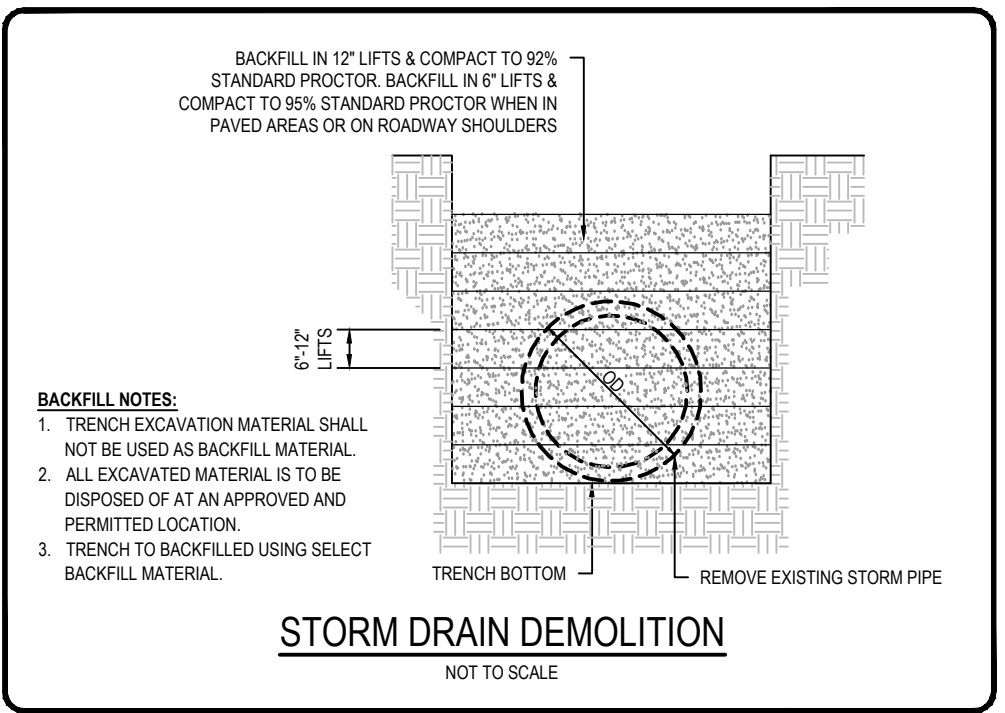


STORM 'G' PROFILE VIEW

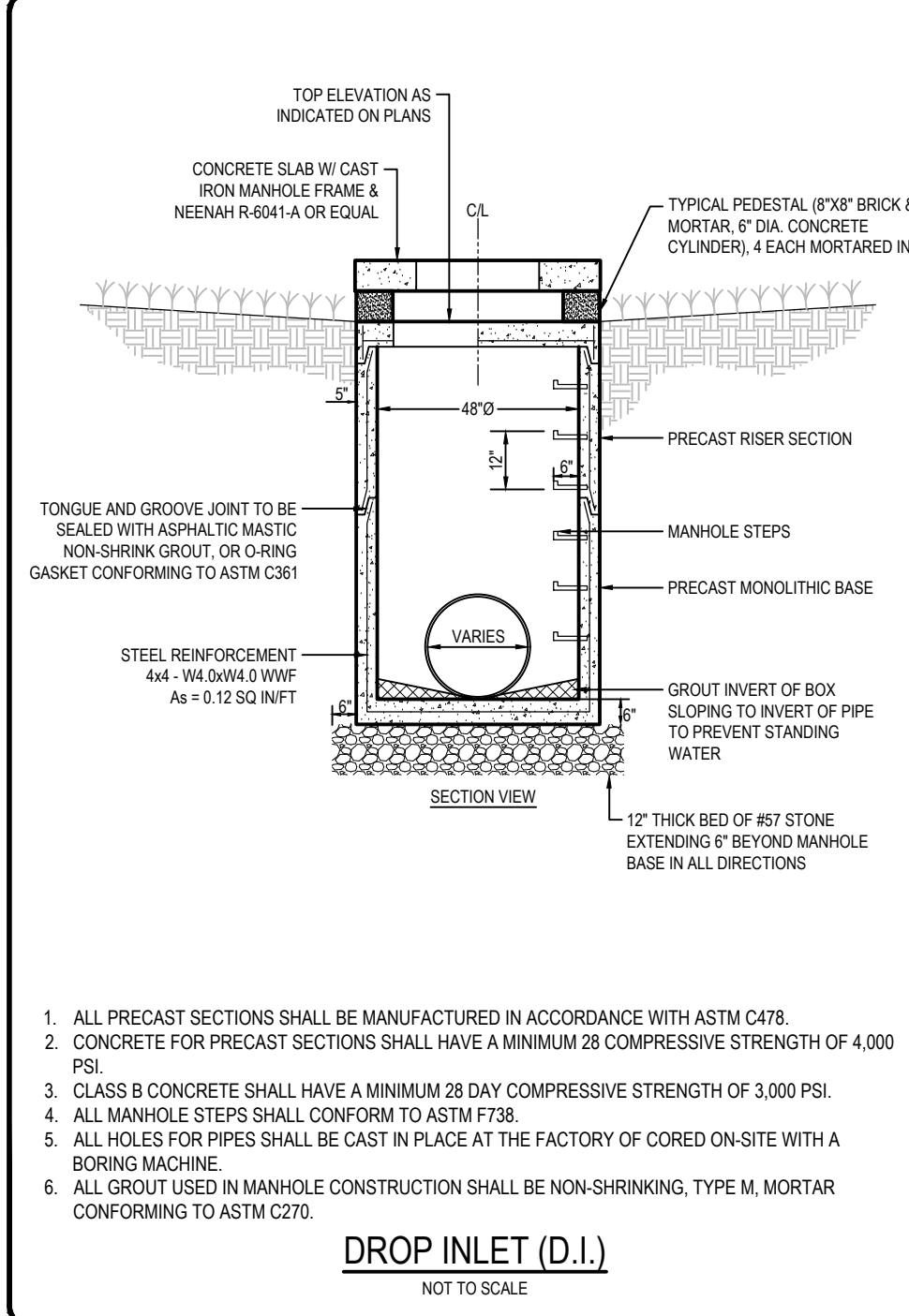
H. SCALE: 1"=30'
V. SCALE: 1"=5'



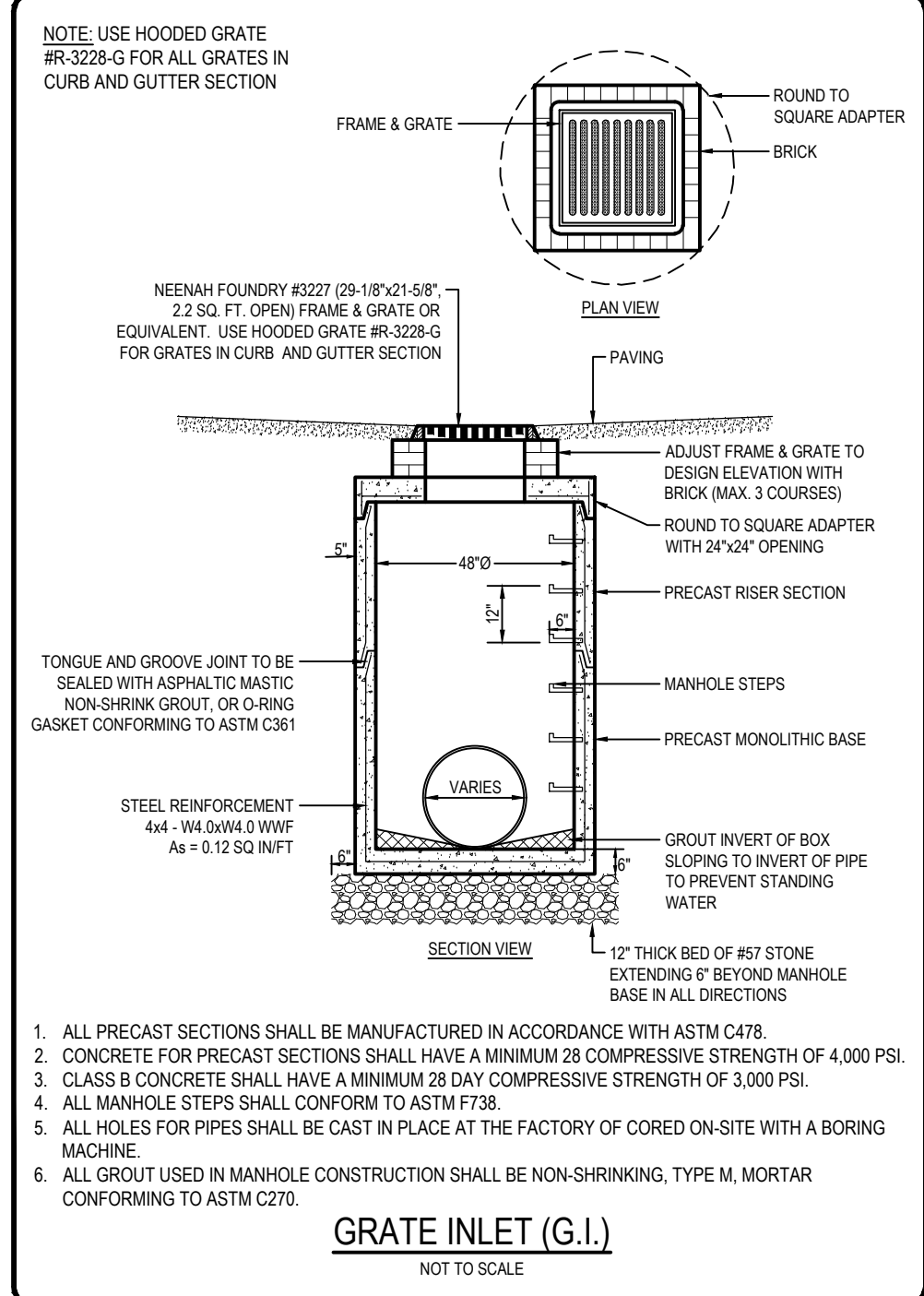
GRAPHIC SCALE SCALE 1" = 30'



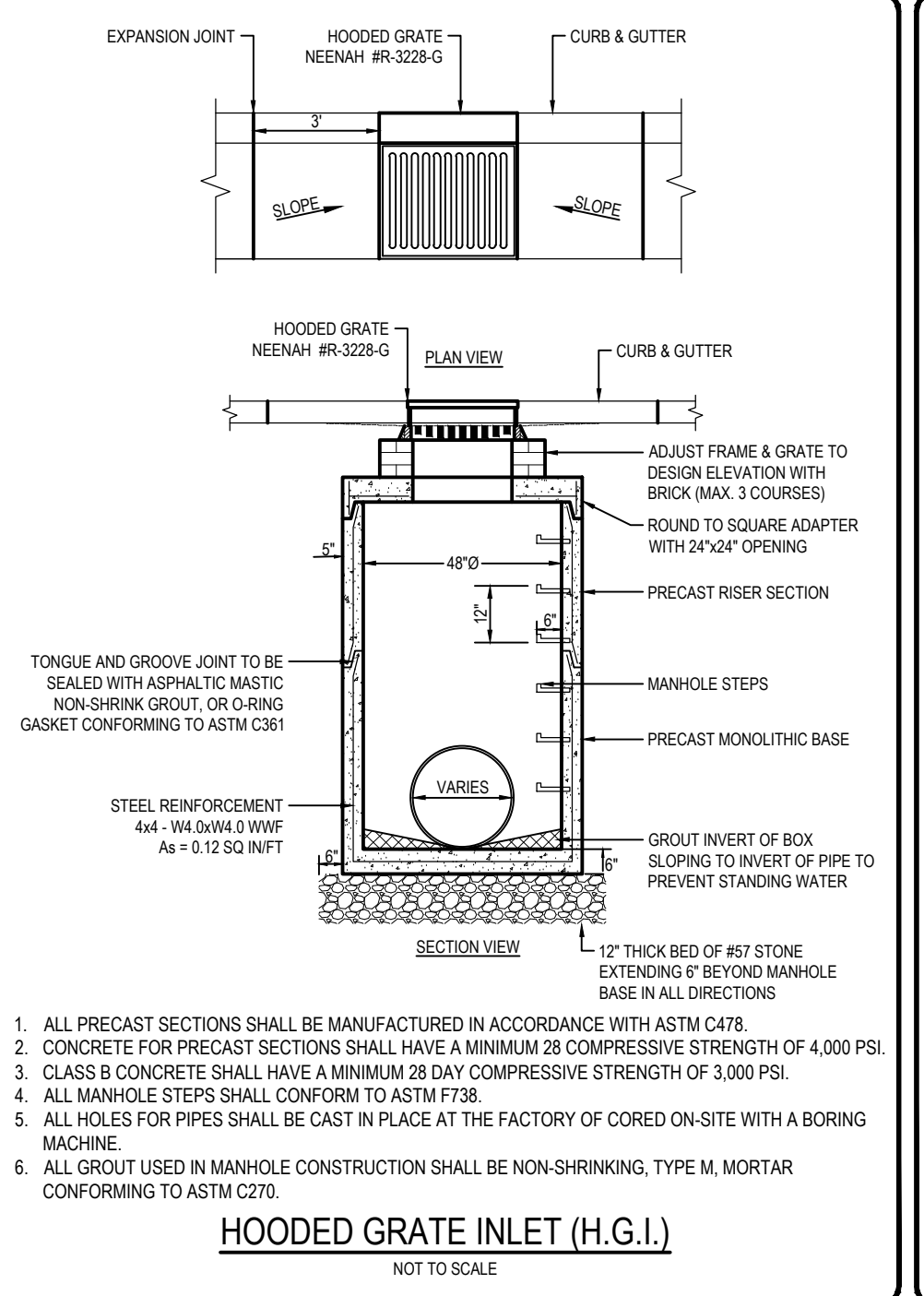
STORM DRAIN DEMOLITION NOT TO SCALE



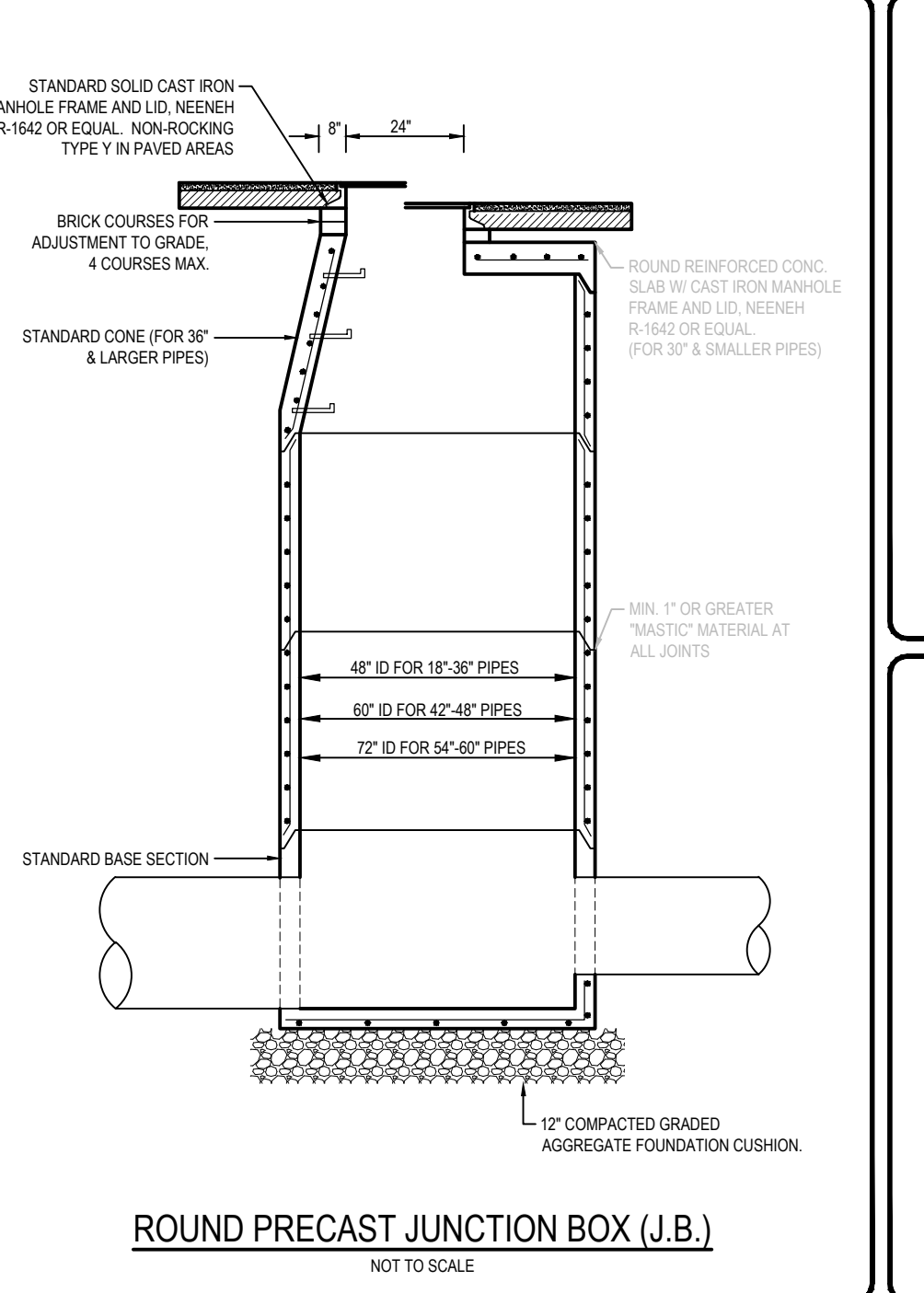
DROP INLET (D.I.) NOT TO SCALE



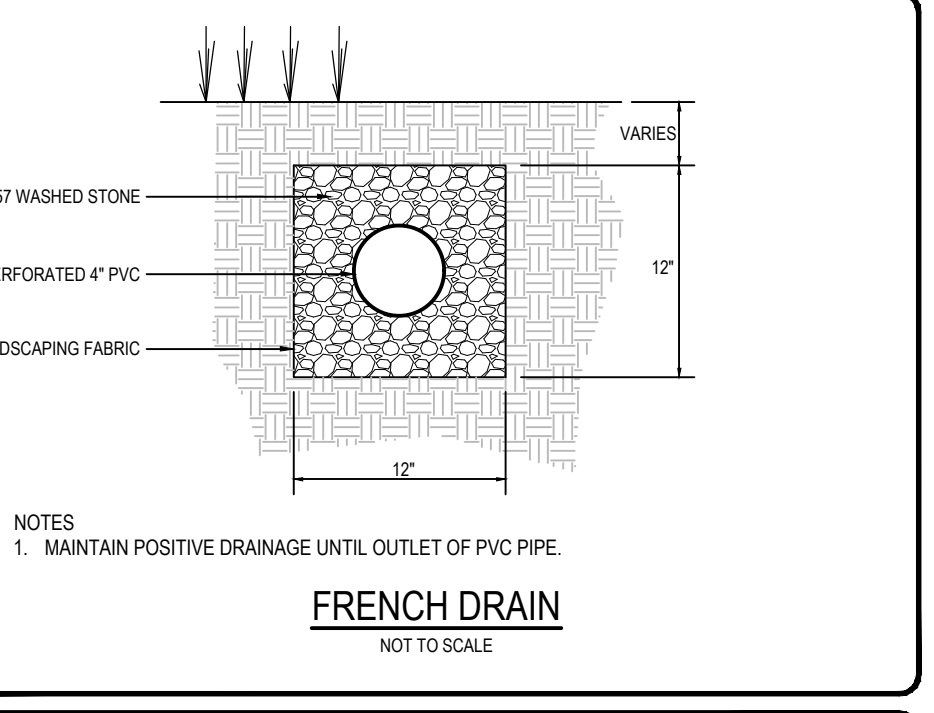
GRATE INLET (G.I.) NOT TO SCALE



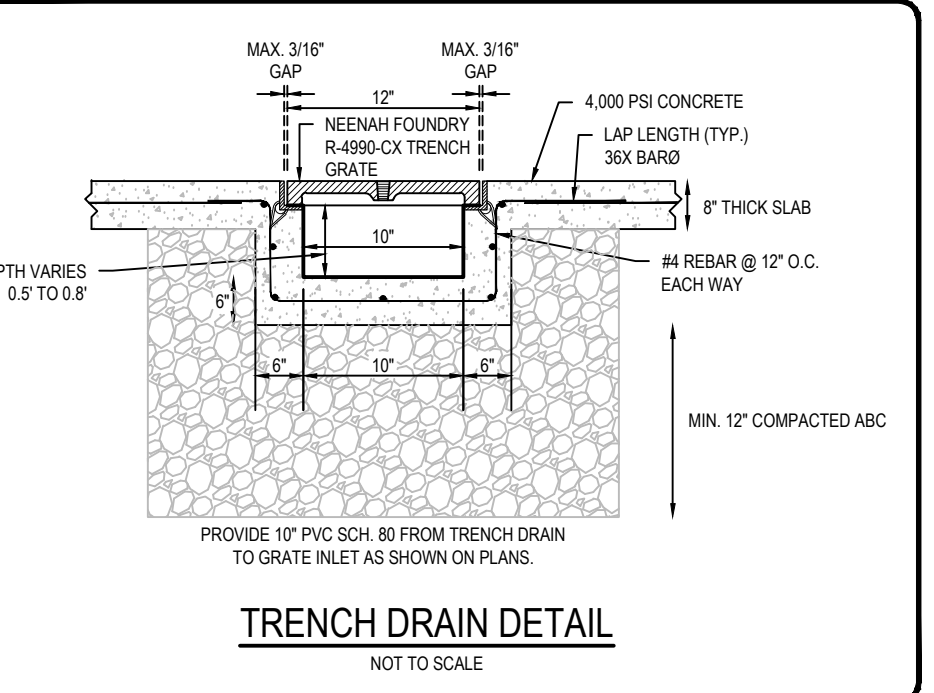
HOODED GRATE INLET (H.G.I.) NOT TO SCALE



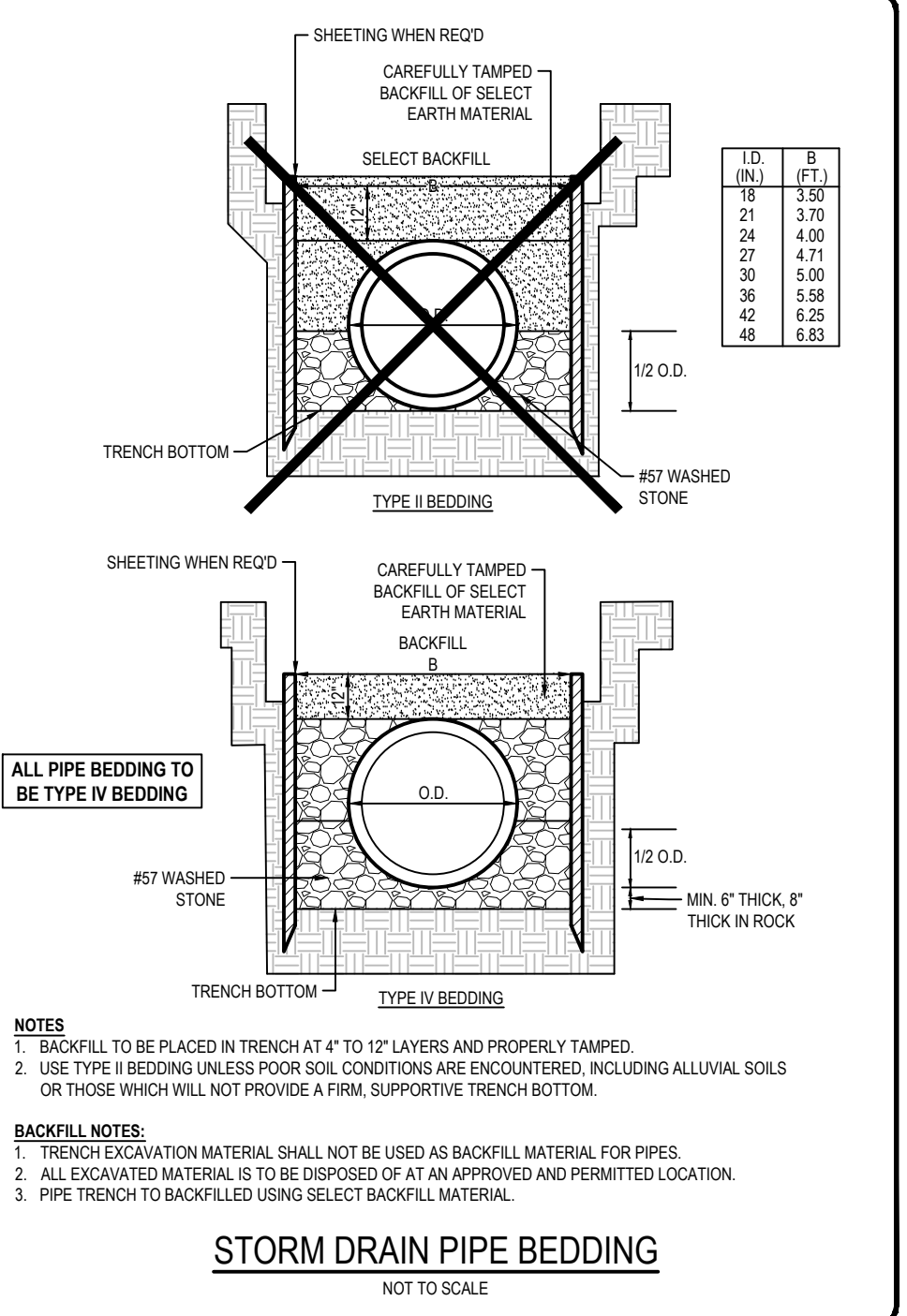
ROUND PRECAST JUNCTION BOX (J.B.) NOT TO SCALE



FRENCH DRAIN NOT TO SCALE



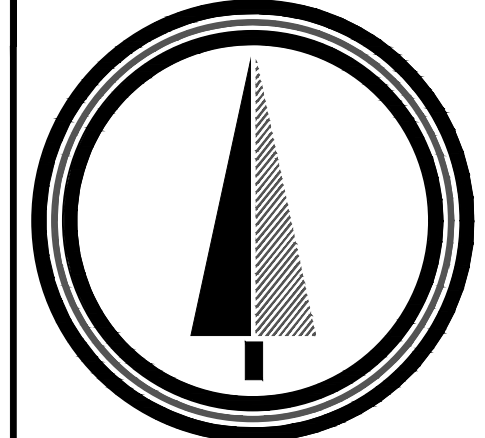
TRENCH DRAIN DETAIL NOT TO SCALE



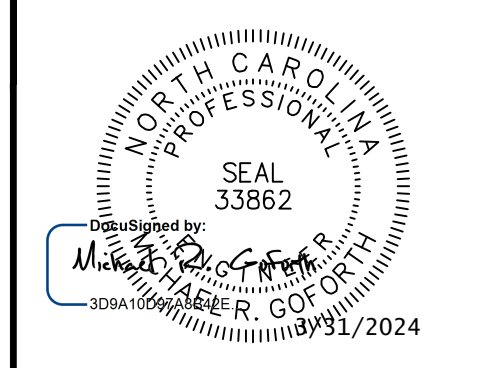
STORM DRAIN PIPE BEDDING NOT TO SCALE

SYLVAN VALLEY INDUSTRIAL BUILDING for TRANSYLVANIA COUNTY

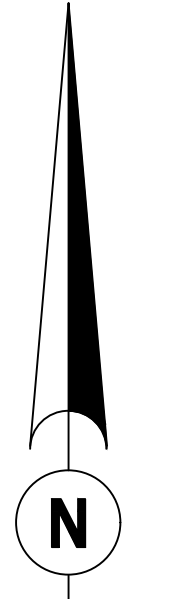
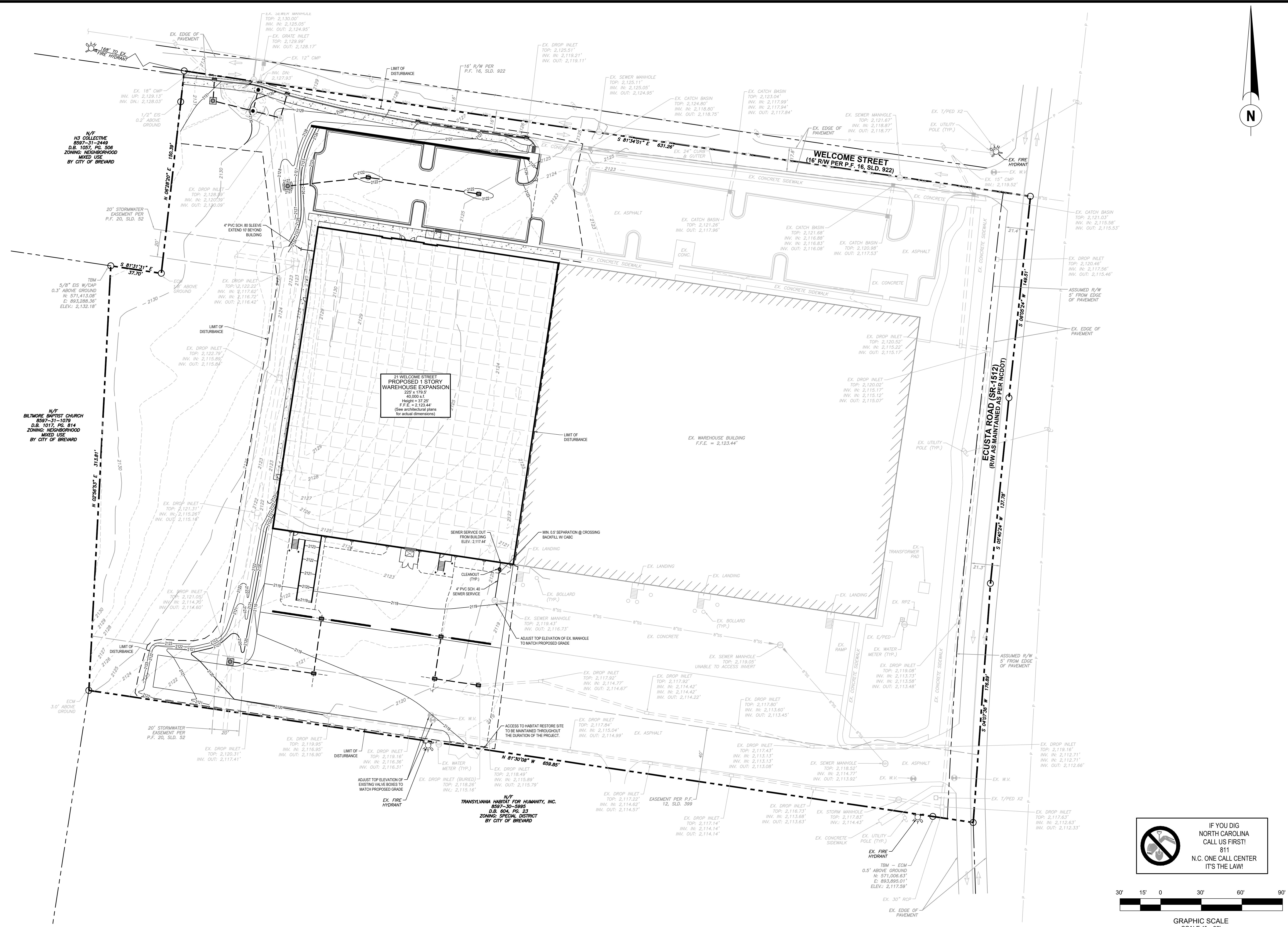
CONSTRUCTION PLANS FOR table with columns DATE, #, and description.



HIGH COUNTRY ENGINEERING, P.C. 81 CENTRAL AVENUE ASHEVILLE, NORTH CAROLINA 28801



SYLVAN VALLEY INDUSTRIAL BLDG. SHEET TITLE: STORMWATER PROFILES & DETAILS PROJECT NO: WOR003 SHEET NO: C-4 DATE: 4/1/2024



CONSTRUCTION PLANS FOR:

SYLVAN VALLEY INDUSTRIAL BUILDING

for

TRANSYLVANIA COUNTY

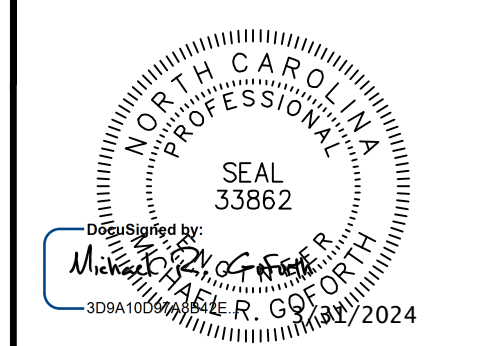
City of Brevard
Transylvania County, North Carolina

REVISION DESCRIPTION	DATE	#
Issue 1 - Release for Permitting and Advertise for Bid	4/10/2024	A



HIGH COUNTRY
ENGINEERING

HIGH COUNTRY ENGINEERING, P.C.
81 CENTRAL AVENUE
ASHEVILLE, NORTH CAROLINA 28801
T: 828.230.4511
NC FIRM NO.: C-3347



SYLVAN VALLEY INDUSTRIAL BLDG.
SHEET TITLE:
UTILITY PLAN

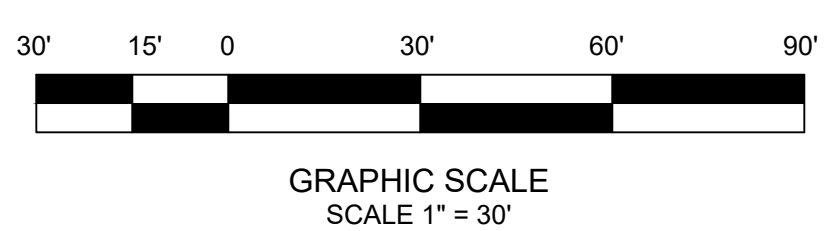
PROJECT NO:
WOR003

DATE:
4/10/2024

SHEET NO:
C-5

of 11

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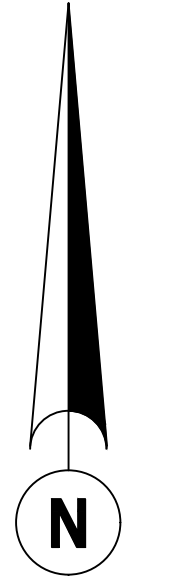
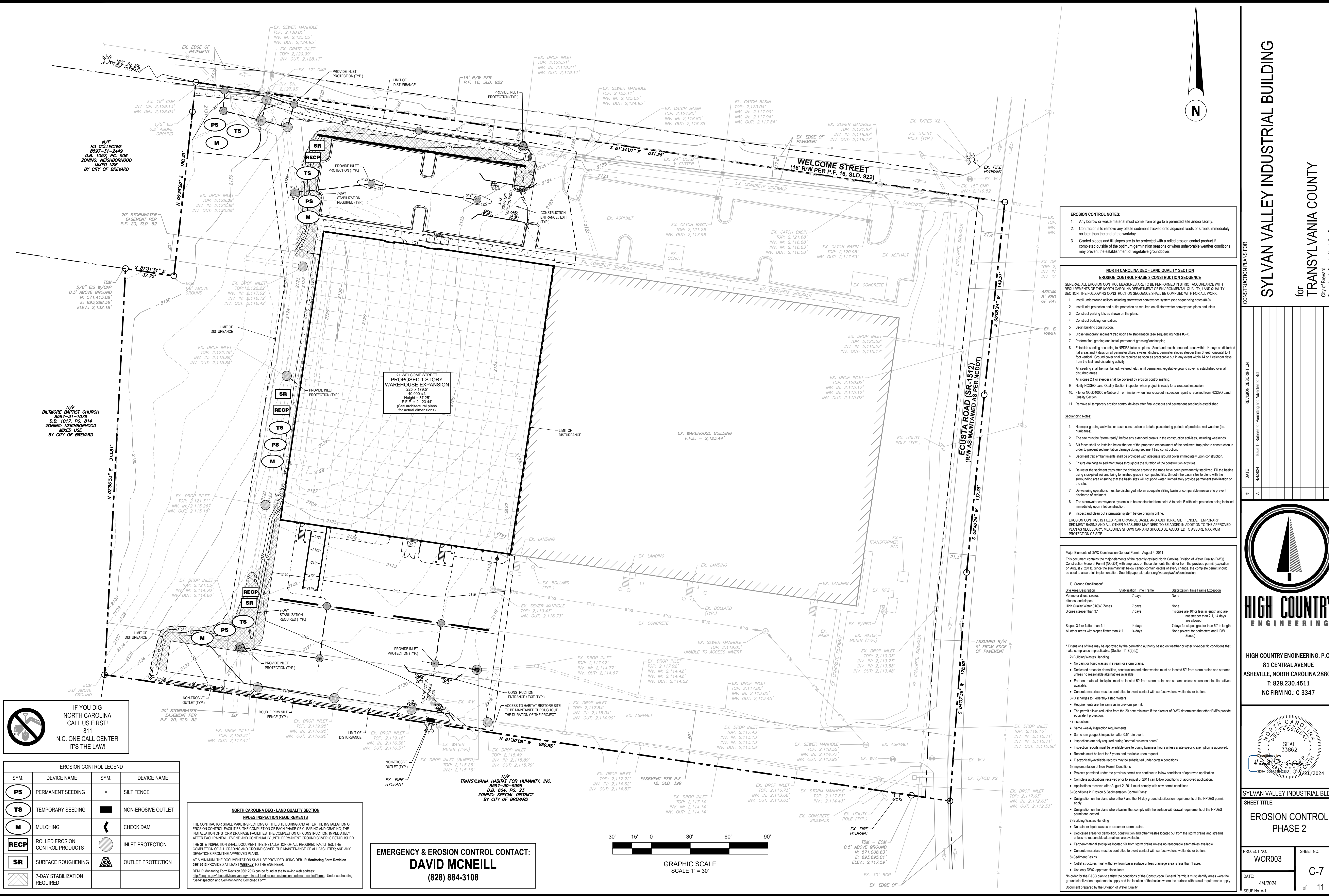


N/F
H3 COLLECTIVE
8597-31-2449
D.B. 1057, PG. 406
ZONING: NEIGHBORHOOD
MIXED USE
BY CITY OF BREVARD

N/F
BILTMORE BAPTIST CHURCH
8597-31-1079
D.B. 1017, PG. 814
ZONING: NEIGHBORHOOD
MIXED USE
BY CITY OF BREVARD

31 WELCOME STREET
PROPOSED 1 STORY
WAREHOUSE EXPANSION
40,000 s.f.
Height = 37.25'
F.F.E. = 2,123.44'
(See architectural plans
for actual dimensions)

N/F
TRANSYLVANIA HABITAT FOR HUMANITY, INC.
8597-30-5995
D.B. 604, PG. 23
ZONING: SPECIAL DISTRICT
BY CITY OF BREVARD



EROSION CONTROL NOTES:

- Any borrow or waste material must come from or go to a permitted site and/or facility.
- Contractor is to remove any off-site sediment tracked onto adjacent roads or streets immediately, no later than the end of the workday.
- Graded slopes and fill slopes are to be protected with a rolled erosion control product if completed outside of the optimum germination seasons or when unfavorable weather conditions may prevent the establishment of vegetative groundcover.

**NORTH CAROLINA DEQ - LAND QUALITY SECTION
EROSION CONTROL PHASE 2 CONSTRUCTION SEQUENCE**

GENERAL: ALL EROSION CONTROL MEASURES ARE TO BE PERFORMED IN STRICT ACCORDANCE WITH REQUIREMENTS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND QUALITY SECTION. THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE COMPLETED WITH FOR ALL WORK:

- Install underground utilities including stormwater conveyance system (see sequencing notes #8-9)
- Install inlet protection and outlet protection as required on all stormwater conveyance pipes and inlets.
- Construct parking lots as shown on the plans.
- Construct building foundation.
- Begin building construction.
- Close temporary sediment trap upon site stabilization (see sequencing notes #6-7).
- Perform final grading and install permanent grassing/landscaping.
- Establish seeding according to NPDES table on plans. Seed and mulch denuded areas within 14 days on disturbed areas and 7 days on all perimeter dikes, swales, ditches, perimeter slopes steeper than 3 feet horizontal to 1 foot vertical. Ground cover shall be required as soon as practicable but in any event within 14 or 7 calendar days from the last land disturbing activity.

All seeding shall be maintained, watered, etc., until permanent vegetative ground cover is established over all disturbed areas.

- All slopes 2:1 or steeper shall be covered by erosion control matting.
- Notify NCEDE Land Quality Section inspector when project is ready for a closure inspection.
- File for NCEDE 10000 e-Notice of Termination when final closure inspection report is received from NCEDE Land Quality Section.
- Remove all temporary erosion control devices after final closure and permanent seeding is established.

Sequencing Notes:

- No major grading activities or basin construction is to take place during periods of predicted wet weather (i.e. hurricanes).
- The site must be "storm ready" before any extended breaks in the construction activities, including weekends.
- Silt fence shall be installed below the toe of the proposed embankment of the sediment trap prior to construction in order to prevent sedimentation damage during sediment trap construction.
- Sediment trap embankments shall be provided with adequate ground cover immediately upon construction.
- Ensure drainage to sediment traps through the duration of the construction activities.
- De-water the sediment traps after the drainage areas to the traps have been permanently stabilized. Fill the basins using stockpiled soil and bring to finished grade in compacted lifts. Smooth the basin sites to blend with the surrounding area ensuring that the basin sites will not pond water. Immediately provide permanent stabilization on the site.
- De-watering operations must be discharged into an adequate stilling basin or comparable measure to prevent discharge of sediment.
- The stormwater conveyance system is to be constructed from point A to point B with inlet protection being installed immediately upon inlet construction.
- Inspect and clean out stormwater system before bringing online.

Major Elements of DWQ Construction General Permit - August 4, 2011
This document contains the major elements of the recently revised North Carolina Division of Water Quality (DWQ) Construction General Permit (CGP) with emphasis on those elements that differ from the previous permit (expiration on August 2, 2011). Since the summary list below cannot contain details of every change, the complete permit should be used to assure full implementation. See: <http://portal.ncdwr.org/web/ncdwr/construct>

Site Area Description	Stabilization Time Frame	Stabilization Time Frame Exception
Perimeter dikes, swales, ditches, and slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not deeper than 2:1, 14 days are allowed
Slopes 3:1 or flatter than 4:1	14 days	7 days for slopes greater than 50' in length
All other areas with slopes flatter than 4:1	14 days	None (except for perimeter and HQW Zones)

- *Extensions of time may be approved by the permitting authority based on weather or other site-specific conditions that make compliance impracticable. (Section 11.80(b))
- 2) Building Wastes Handling
 - No paint or liquid wastes in stream or storm drains.
 - Dedicated areas for demolition, construction and other wastes must be located 50' from storm drains and streams unless no reasonable alternatives available.
 - Earthen material stockpiles must be located 50' from storm drains and streams unless no reasonable alternatives available.
 - Concrete materials must be controlled to avoid contact with surface waters, wetlands, or buffers.
 - Concrete materials must be controlled to avoid contact with surface waters, wetlands, or buffers.
 - Discharges to Federally-listed Waters
 - Requirements are the same as in previous permit.
- 3) Discharges to Federally-listed Waters
 - The permit allows reduction from the 20-acre minimum if the director of DWQ determines that other BMPs provide equivalent protection.
- 4) Inspectors
 - Same weekly inspection requirements.
 - Same rain gauge & inspection after 0.5" rain event.
 - Inspections are only required during "normal business hours".
 - Inspection reports must be available on-site during business hours unless a site-specific exemption is approved.
 - Records must be kept for 3 years and available upon request.
 - Electronically-available records may be substituted under certain conditions.
- 5) Implementation of New Permit Conditions
 - Projects permitted under the previous permit can continue to follow conditions of approved application.
 - Complete applications received prior to August 3, 2011 can follow conditions of approved application.
 - Applications received after August 2, 2011 must comply with new permit conditions.
- 6) Conditions in Erosion & Sedimentation Control Plans
 - Designation on the plans where basins that comply with the surface-withdrawal requirements of the NPDES permit are located.
 - Building Wastes Handling
 - No paint or liquid wastes in stream or storm drains.
 - Dedicated areas for demolition, construction and other wastes located 50' from the storm drains and streams unless no reasonable alternatives are available.
 - Earthen material stockpiles located 50' from storm drains unless no reasonable alternatives available.
 - Concrete materials must be controlled to avoid contact with surface waters, wetlands, or buffers.
 - Sediment Basins
 - Outlet structures must withdraw from basin surface unless drainage area is less than 1 acre.
 - Use only DWQ-approved flocculants.

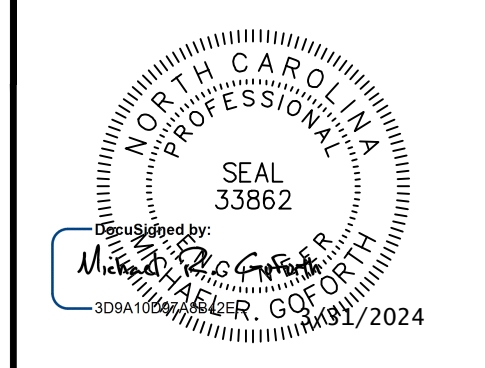
CONSTRUCTION PLANS FOR
SYLVAN VALLEY INDUSTRIAL BUILDING
for
TRANSYLVANIA COUNTY
City of Brevard
Transylvania County, North Carolina

REVISION DESCRIPTION	DATE	BY	APP
Issue 1 - Release for Permitting and Advertise for Bid	4/4/2024	A	



HIGH COUNTRY ENGINEERING

HIGH COUNTRY ENGINEERING, P.C.
81 CENTRAL AVENUE
ASHEVILLE, NORTH CAROLINA 28801
T: 828.230.4511
NC FIRM NO.: C-3347



SYLVAN VALLEY INDUSTRIAL BLDG.
SHEET TITLE:
EROSION CONTROL PHASE 2
PROJECT NO:
WOR003
SHEET NO:
C-7
DATE:
4/4/2024
ISSUE NO. A-1
of 11

N/C
H3 COLLECTIVE
8597-31-2449
D.B. 1051, PG. 906
ZONING: NEIGHBORHOOD
MIXED USE
BY CITY OF BREVARD

N/C
BALTIMORE BAPTIST CHURCH
8597-31-1079
D.B. 1017, PG. 814
ZONING: NEIGHBORHOOD
MIXED USE
BY CITY OF BREVARD

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N.C. ONE CALL CENTER
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EROSION CONTROL LEGEND

SYM.	DEVICE NAME	SYM.	DEVICE NAME
	PERMANENT SEEDING		SILT FENCE
	TEMPORARY SEEDING		NON-EROSIVE OUTLET
	MULCHING		CHECK DAM
	ROLLED EROSION CONTROL PRODUCTS		INLET PROTECTION
	SURFACE ROUGHENING		OUTLET PROTECTION
	7-DAY STABILIZATION REQUIRED		

**NORTH CAROLINA DEQ - LAND QUALITY SECTION
NPDES INSPECTION REQUIREMENTS**

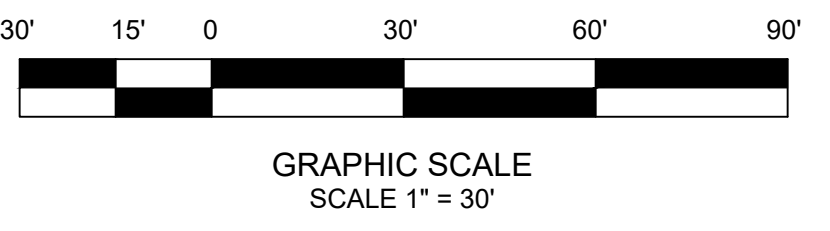
THE CONTRACTOR SHALL MAKE INSPECTIONS OF THE SITE DURING AND AFTER THE INSTALLATION OF EROSION CONTROL FACILITIES, THE COMPLETION OF EACH PHASE OF CLEARING AND GRADING, THE INSTALLATION OF STORM DRAINAGE FACILITIES, THE COMPLETION OF CONSTRUCTION, IMMEDIATELY AFTER EACH RAINFALL EVENT, AND CONTINUALLY UNTIL PERMANENT GROUND COVER IS ESTABLISHED.

THE SITE INSPECTION SHALL DOCUMENT THE INSTALLATION OF ALL REQUIRED FACILITIES, THE COMPLETION OF ALL GRADING AND GROUND COVER, THE MAINTENANCE OF ALL FACILITIES, AND ANY DEVIATIONS FROM THE APPROVED PLANS.

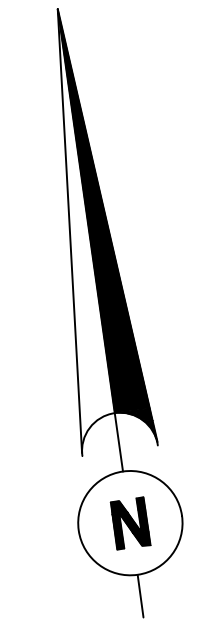
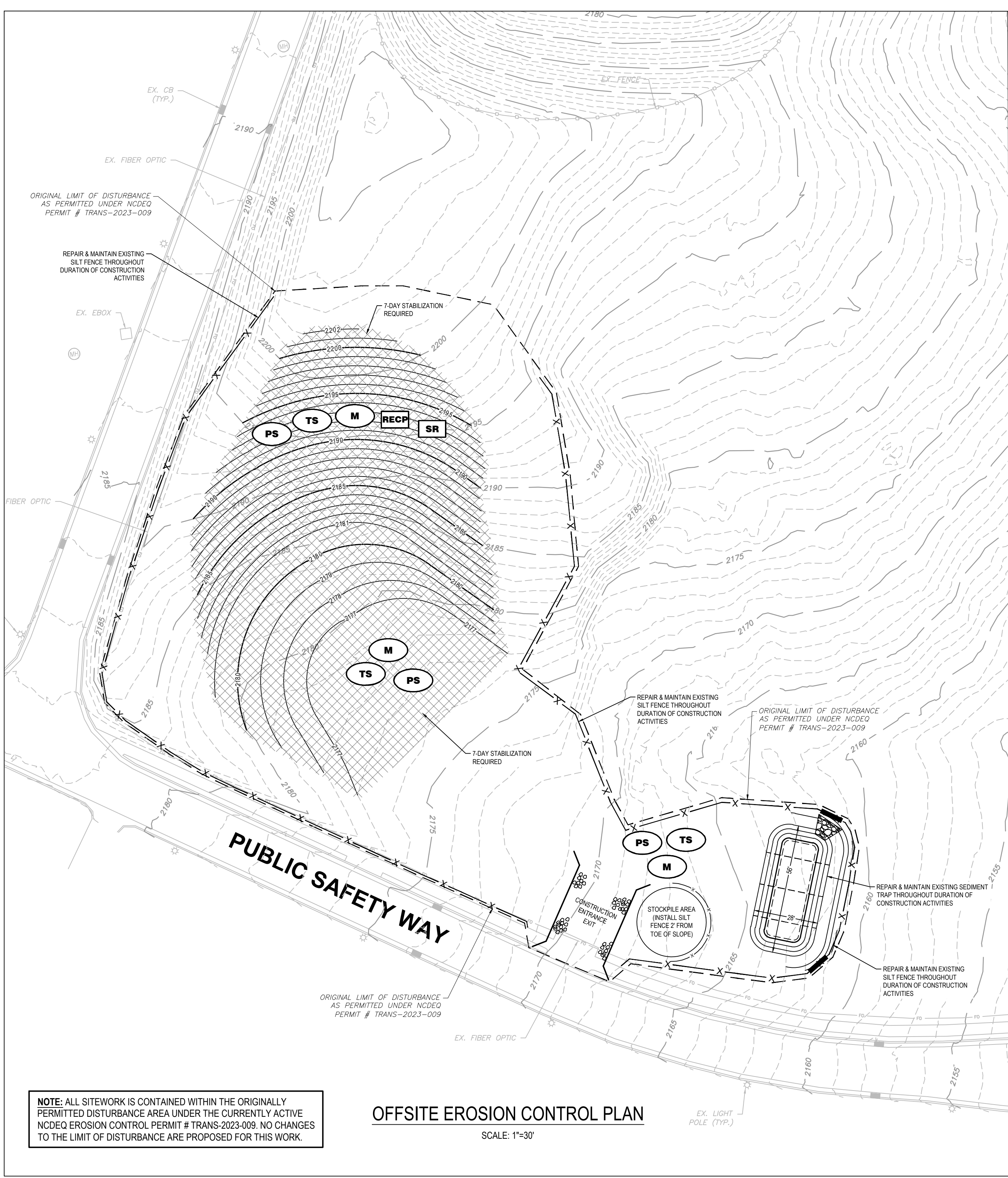
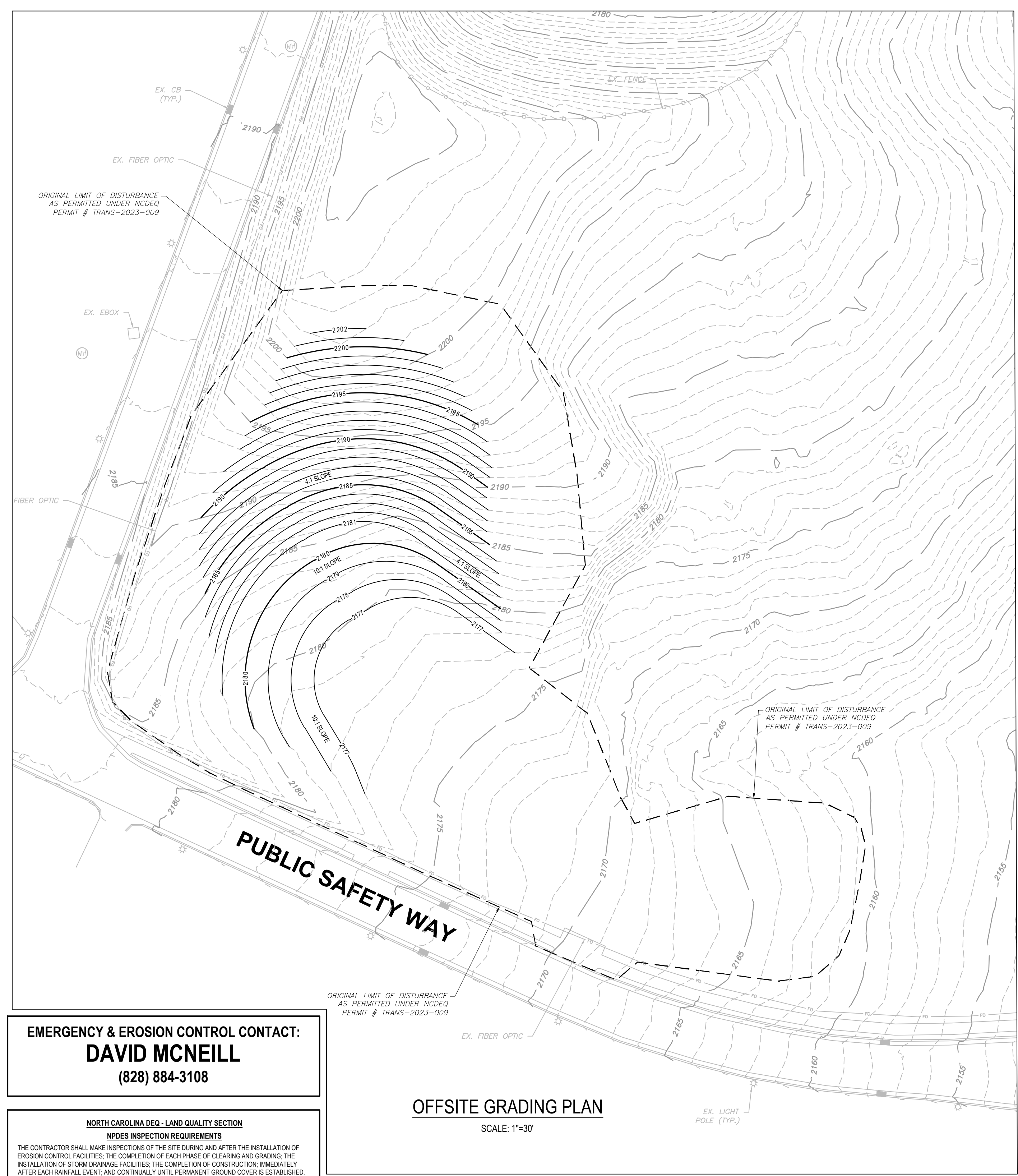
AT A MINIMUM, THE DOCUMENTATION SHALL BE PROVIDED USING DEMLR Monitoring Form Revision #09/2013 PROVIDED AT LEAST WEEKLY TO THE ENGINEER.

DEMRL Monitoring Form Revision 09/2013 can be found at the following web address:
<http://deq.nc.gov/biodiversity/energy-mineral-land-associates/erosion-sediment-control/forms> Under subheading, "Self-inspection and Self-Monitoring Combined Form"

EMERGENCY & EROSION CONTROL CONTACT:
DAVID MCNEILL
(828) 884-3108



N/C
TRANSYLVANIA HABITAT FOR HUMANITY, INC.
8597-30-5995
D.B. 804, PG. 23
ZONING: SPECIAL DISTRICT
BY CITY OF BREVARD

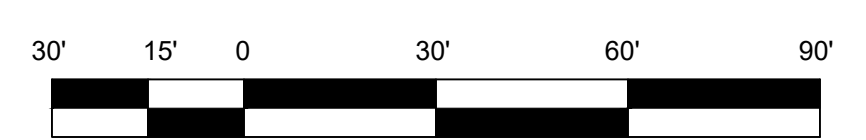


EMERGENCY & EROSION CONTROL CONTACT:
DAVID MCNEILL
 (828) 884-3108

OFFSITE GRADING PLAN
 SCALE: 1"=30'

OFFSITE EROSION CONTROL PLAN
 SCALE: 1"=30'

NOTE: ALL SITING WORK IS CONTAINED WITHIN THE ORIGINALLY PERMITTED DISTURBANCE AREA UNDER THE CURRENTLY ACTIVE NCDEQ EROSION CONTROL PERMIT # TRANS-2023-009. NO CHANGES TO THE LIMIT OF DISTURBANCE ARE PROPOSED FOR THIS WORK.



GRAPHIC SCALE
 SCALE 1" = 30'

NORTH CAROLINA DEQ - LAND QUALITY SECTION
NPDES INSPECTION REQUIREMENTS

THE CONTRACTOR SHALL MAKE INSPECTIONS OF THE SITE DURING AND AFTER THE INSTALLATION OF EROSION CONTROL FACILITIES. THE COMPLETION OF EACH PHASE OF CLEARING AND GRADING, THE INSTALLATION OF STORM DRAINAGE FACILITIES, THE COMPLETION OF CONSTRUCTION, IMMEDIATELY AFTER EACH MAJOR EVENT, AND CONTINUALLY UNTIL PERMANENT GROUND COVER IS ESTABLISHED, THE SITE INSPECTION SHALL DOCUMENT THE INSTALLATION OF ALL REQUIRED FACILITIES, THE COMPLETION OF ALL GRADING AND GROUND COVER, THE MAINTENANCE OF ALL FACILITIES, AND ANY DEVIATIONS FROM THE APPROVED PLANS.

AT A MINIMUM, THE DOCUMENTATION SHALL BE PROVIDED USING DEMLR Monitoring Form Revision 08012013 PROVIDED AT LEAST WEEKLY TO THE ENGINEER.

DEMRL Monitoring Form Revision 08012013 can be found at the following web address:
<http://deq.nc.gov/ncdeq/erosioncontrol/landresources/erosioncontrol/erosioncontrolforms/> Under subheading, "Self-inspection and Self-Monitoring Combined Form"

EROSION CONTROL NOTES:

- Any borrow or waste material must come from or go to a permitted site and/or facility.
- Contractor is to remove any offsite sediment tracked onto adjacent roads or streets immediately, no later than the end of the workday.
- Graded slopes and fill slopes are to be protected with a rolled erosion control product if completed outside of the optimum germination seasons or when unfavorable weather conditions may prevent the establishment of vegetative groundcover.

Major Elements of DWQ Construction General Permit - August 4, 2011

This document contains the major elements of the recently-revised North Carolina Division of Water Quality (DWQ) Construction General Permit (CGP) with emphasis on those elements that differ from the previous permit (expiration on August 2, 2011). Since the summary list below cannot contain details of every change, the complete permit should be used to assure full implementation. See: <http://portal.ncdcr.org/water/whd/whdconstruction>

1) Ground Stabilization*

Site Area Description	Stabilization Time Frame	Stabilization Time Frame Exception
Perimeter dikes, swales, ditches, and slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 15' or less in length and are not steeper than 2:1, 14 days
Slopes 3:1 or flatter than 4:1	14 days	7 days for slopes greater than 50' in length
All other areas with slopes flatter than 4:1	14 days	None (except for perimeters and HQW Zones)

* Extensions of time may be approved by the permitting authority based on weather or other site-specific conditions that make compliance impracticable. (Section 11.B.2)(b))

2) Building Wastes Handling

- No paint or liquid wastes in stream or storm drains.
- Dedicated areas for demolition, construction and other wastes must be located 50' from storm drains and streams unless no reasonable alternatives are available.
- Earth-soil material stockpiles must be located 50' from storm drains and streams unless no reasonable alternatives are available.
- Concrete materials must be controlled to avoid contact with surface waters, wetlands, or buffers.

3) Discharges to Federally-Listed Waters

- Requirements are the same as a previous permit.
- The permit allows reduction from the 20-acre minimum if the director of DWQ determines that other BMPs provide equivalent protection.

4) Inspections

- Same weekly inspection requirements.

- Same rain gauge & inspection after 0.5" rain event.
- Inspections are only required during "normal business hours".
- Inspection reports must be available on-site during business hours unless a site-specific exemption is approved.
- Records must be kept for 3 years and available upon request.
- Electronically available records may be substituted under certain conditions.

5) Implementation of New Permit Conditions

- Projects permitted under the previous permit can continue to follow conditions of approved application.
- Complete applications received prior to August 3, 2011 can follow conditions of approved application.
- Applications received after August 2, 2011 must comply with new permit conditions.
- Conditions in Erosion & Sedimentation Control Plans*
- Designation on the plans where the 7 and the 14-day ground stabilization requirements of the NPDES permit apply.
- Designation on the plans where basins that comply with the surface-withdrawal requirements of the NPDES permit are located.

7) Building Wastes Handling

- No paint or liquid wastes in stream or storm drains.
- Dedicated areas for demolition, construction and other wastes located 50' from the storm drains and streams unless no reasonable alternatives are available.
- Earth-soil material stockpiles located 50' from storm drains unless no reasonable alternatives are available.
- Concrete materials must be controlled to avoid contact with surface waters, wetlands, or buffers.

8) Sediment Basins

- Outlet structures must withdraw from basin surface unless drainage area is less than 1 acre.
- Use only DWQ-approved flocculants.

*In order for the EASC plan to satisfy the conditions of the Construction General Permit, it must identify areas where the ground stabilization requirements apply and the location of the basins where the surface-withdrawal requirements apply.

Document prepared by the Division of Water Quality

NORTH CAROLINA DEQ - LAND QUALITY SECTION
OFFSITE EROSION CONTROL CONSTRUCTION SEQUENCE

GENERAL: ALL EROSION CONTROL MEASURES ARE TO BE PERFORMED IN STRICT ACCORDANCE WITH REQUIREMENTS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND QUALITY SECTION. THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE COMPLIED WITH FOR ALL WORK.

- Install all perimeter erosion control devices and mark any existing surface water buffers prior to ground disturbance.
- Install construction entrances in locations as designated on the plans. (see sequencing notes #3-5).
- Install all sediment traps in areas as designated on the plans. (see sequencing notes #3-5).
- Remove and store topsoil in locations as designated by the plans.
- Perform earthwork, cut/fill and compaction as directed by the plans.
- Establish seeding according to NPDES table on plans. Seed and mulch denuded areas within 14 days on disturbed flat areas and 7 days on all perimeter dikes, swales, ditches, perimeter slopes steeper than 3 feet horizontal to 1 foot vertical. Ground cover shall be required as soon as practicable but in any event within 14 or 7 calendar days from the last land disturbing activity. All seeding shall be maintained, watered, etc., until permanent vegetative ground cover is established over all disturbed areas.
- All slopes 2:1 or steeper shall be covered by erosion control matting.
- Close temporary sediment trap upon site stabilization (see sequencing notes #6-7).
- Perform final grading and install permanent grassing/landscaping.

Sequencing Notes:

- No major grading activities or basin construction is to take place during periods of predicted wet weather (i.e. hurricanes).
- The site must be "storm ready" before any extended breaks in the construction activities, including wetlands.
- Silt fences shall be installed below the toe of the proposed embankment of the sediment trap prior to construction in order to prevent sedimentation damage during sediment trap construction.
- Sediment trap embankments shall be provided with adequate ground cover immediately upon construction.
- Ensure drainage to sediment traps throughout the duration of the construction activities.
- De-water the sediment traps after the drainage areas to the traps have been permanently stabilized. Fill the basins using stockpiled soil and bring to finished grade in compacted lifts. Smooth the basin sites to blend with the surrounding area ensuring that the basin sites will not pond water.
- De-watering operations must be discharged into an adequate siltling basin or comparable measure to prevent discharge of sediment.
- The stormwater conveyance system is to be constructed from point A to point B with inlet protection being installed immediately upon inlet construction.
- Inspect and clean out stormwater system before bringing online.

EROSION CONTROL IS FIELD PERFORMANCE BASED AND ADDITIONAL SILT FENCES, TEMPORARY SEDIMENT BASINS AND ALL OTHER MEASURES MAY NEED TO BE ADDED IN ADDITION TO THE APPROVED PLAN AS NECESSARY. MEASURES SHOWN CAN AND SHOULD BE ADJUSTED TO ASSURE MAXIMUM PROTECTION OF SITE.

EROSION CONTROL LEGEND			
SYM.	DEVICE NAME	SYM.	DEVICE NAME
	PERMANENT SEEDING		SILT FENCE
	TEMPORARY SEEDING		NON-EROSIVE OUTLET
	MULCHING		CHECK DAM
	ROLLED EROSION CONTROL PRODUCTS		INLET PROTECTION
	SURFACE ROUGHENING		OUTLET PROTECTION
	7-DAY STABILIZATION REQUIRED		

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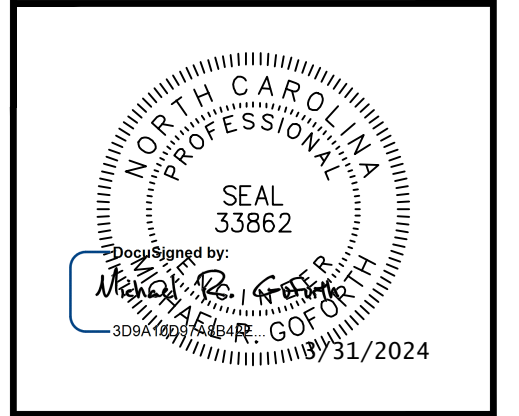
NOTE: FOR FINAL SEEDING OF DISTURBED AREA, FOLLOW ALL SEEDING AND SODDING SPECIFICATIONS AS PROVIDED ON SHEET L-1. CONTRACTOR SHALL IMPORT TOPSOIL AT NO ADDITIONAL COST TO OWNER TO PREPARE ADEQUATE SEEDING BED. SURFACE SHALL BE BLADED SMOOTH AND DRAGGED WITH APPROPRIATE EQUIPMENT SUCH THAT A TYPICAL COMMERCIAL ZERO-TURN MOWER IS CAPABLE OF TRAVERSING AND MOWING THE SURFACE. CONTRACTOR SHALL HYDRO-SEED ALL EXPOSED AREAS WITH FESCUE SEED MIX APPROVED BY OWNER AND ENGINEER.

CONSTRUCTION PLANS FOR:
SYLVAN VALLEY INDUSTRIAL BUILDING
 for
TRANSYLVANIA COUNTY
 City of Brevard
 Transylvania County, North Carolina

#	DATE	REVISION DESCRIPTION
A	4/10/2024	Issue 1 - Release for Permitting and Advise for Bid



HIGH COUNTRY ENGINEERING, P.C.
 81 CENTRAL AVENUE
 ASHEVILLE, NORTH CAROLINA 28801
 T: 828.230.4511
 NC FIRM NO.: C-3347



SYLVAN VALLEY INDUSTRIAL BLDG.
 SHEET TITLE:
OFFSITE GRADING & EROSION CONTROL PLAN

PROJECT NO: **WOR003** SHEET NO: **C-8**
 DATE: **4/10/2024**
 ISSUE No. A-1 of **11**

DEFINITION
ROLLED EROSION CONTROL PRODUCTS (RECP) ARE MANUFACTURED OR FABRICATED INTO ROLLS DESIGNED TO REDUCE SOIL EROSION AND ASSIST IN THE GROWTH, ESTABLISHMENT AND PROTECTION OF VEGETATION.

PURPOSE
EROSION CONTROL MATS AND BLANKETS ARE INTENDED TO PROTECT SOIL AND HOLD SEED AND MULCH IN PLACE ON SLOPES AND IN CHANNELS SO THAT VEGETATION CAN BECOME WELL ESTABLISHED.

INSTALLATION
- INSTALL ACCORDING TO APPROVED PLAN
- GRADE THE SURFACE OF INSTALLATION AREAS SO THAT THE GROUND IS SMOOTH AND CLOSE. REMOVE ALL LARGE ROCKS, STUMPS, ROOTS AND TRASH FROM THE SOIL SURFACE.
- SPREAD SEED BEFORE RECP INSTALLATION.
- INSTALL ON SLOPES AND IN CHANNELS AS SHOWN IN THE ACCOMPANYING DETAIL.
- DRAIN STAPLES SO THAT THE TOP OF THE STAPLE IS FLUSH WITH THE GROUND SURFACE.

MAINTENANCE
- INSPECT RECP AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT REPAIR IMMEDIATELY.
- MAINTAIN GOOD CONTACT WITH THE GROUND SURFACE.
- MONITOR AND REPAIR THE RECP AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.

NOTES
- CHECK SLOTS TO BE CONSTRUCTED PER MANUFACTURER'S SPECIFICATIONS.
- STAKING OR STAPLING LAYOUT PER MANUFACTURER'S SPECIFICATIONS.

RECP

DEFINITION
CONTROLLING RUNOFF AND EROSION ON DISTURBED AREAS BY ESTABLISHING PERENNIAL VEGETATIVE COVER WITH SEED.

PURPOSE
TO REDUCE EROSION AND DECREASE SEDIMENT YIELD FROM DISTURBED AREAS. TO PERMANENTLY STABILIZE SUCH AREAS IN A MANNER THAT IS ECONOMICALLY ADAPTS TO SITE CONDITIONS, AND ALLOWS SELECTION OF THE MOST APPROPRIATE PLANT MATERIALS.

INSTALLATION
- APPLY ACCORDING TO APPROVED PLANS.
- IF POSSIBLE, USE CONVENTIONAL PLANTING METHODS.
- CHECK THE TAG ON THE BAG OF SEED TO VERIFY TYPE AND GERMINATION OF THE SEED TO BE PLANTED AND THE DATE OF THE TEST.
- SCARP, PIT OR TRENCH SEALED OR CRUSTED SOIL.
- FERTILIZE BASED ON SOIL TESTS OR AS SHOWN IN TABLE.
- APPLY AGRICULTURAL LIME AS PRESCRIBED BY SOIL TESTS OR AT A RATE OF 1 TON TO 2 TONS PER ACRE.
- APPLY SEED BY HAND, CYCLONE SEEDER, DRILL OR HYDRO-SEEDER. SEED PLANTED WITH A DRILL SHOULD BE PLANTED 1/2" TO 1" DEEP. RIPPAGE SHOULD BE USED TO SUPPLEMENT RAINFALL, BUT NOT TO THE POINT TO CAUSE EROSION.

MAINTENANCE
- RESEED AREAS WHERE AN ADEQUATE STAND OF TEMPORARY VEGETATION FAILS TO EMERGE OR WHERE A POOR STAND EXISTS.
- APPLY ONE TON OF AGRICULTURAL LIME AS INDICATED BY SOIL TEST OR EVERY 4 TO 6 YEARS.
- MOW BERBERIS AND SAVINA AS DESIRED. MOW SERICIA LESPEDEZA ONLY AFTER FROST TO ENSURE SEEDS ARE MATURE.
- MAINTAIN 6" OR MORE OF TOP GROWTH.

NOTES
- GRADING AND SHAPING REQUIRED WHERE FEASIBLE AND PRACTICAL.
- CRITICAL AREA (DISTURBED LAND THAT IS EITHER HIGHLY ERODIBLE OR HIGHLY EROSION-PRONE, TYPICALLY ADJACENT TO NATURAL AREAS, LESS FORMAL, AND HAVING LOWER MAINTENANCE REQUIREMENTS THAN GRASSED LAWN AREAS).
- SEEDING PREPARATION: NOT REQUIRED WHERE HYDRAULIC SEEDING AND FERTILIZING EQUIPMENT IS TO BE USED WITH CONVENTIONAL SEEDING.
- SLOPE (SEED BED)
3:1 OR FLATTER 4" - 6" DEPTH
3:1 TO 2:1 1" - 4" DEPTH
2:1 OR STEEPER: HAND TOOLED TRENCHES (6" - 8" APART)
- FOR INDIVIDUAL PLANTS PREPARE SOIL BY EXCAVATING SOIL, OPENING FURROWS, OR DIBBLE PLANTING.
- NO TILL SEEDING, WITH APPROPRIATE EQUIPMENT, IS PERMISSIBLE INTO ANNUAL COVER CROPS IF THE PLANTING IS DONE AFTER THE COVER CROP HAS MATURED OR IF THE TEMPORARY COVER STAND IS SPARSE ENOUGH TO ALLOW ADEQUATE GROWTH OF THE PERMANENT SPECIES.
- TAKE SOIL SAMPLES FROM SEVERAL AREAS FOR EFFICIENT CHEMICAL APPLICATION AND OPTIMUM PLANT HEALTH.
- MULCH IS REQUIRED ON ALL SLOPES STEEPER THAN 3 PERCENT, IN THE BOTTOM OF SLOPWAYS, ON ROADBANKS, AND WHEN SEEDING IS DONE TOO LATE IN THE FALL OR WINTER FOR GERMINATION TO BE EXPECTED BEFORE SPRING. REFER TO MULCHING DETAIL FOR EXACT SPECIFICATIONS.
- SOIL RETENTION BLANKETS, EROSION CONTROL NETTING, OTHER MANUFACTURE MATERIALS OR BLOCK SOOD MAY BE REQUIRED IN ADDITION TO MULCH ON UNSTABLE SOILS AND CONCENTRATED FLOW AREAS.
- ANCHOR STRAW OR HAY MULCH IMMEDIATELY AFTER APPLICATION WITH ONE OF THE FOLLOWING METHODS:
- SPRAY WITH EMULSIFIED ASPHALT
- PRESS INTO THE SOIL WITH A ROLLER, PACKER DISK, ETC.
- APPLY SYNTHETIC TACKLERS OR BINDERS
- ADD RYE OR WHEAT SEED TO FALL AND WINTER PLANTINGS
- INSTALL "T" WIRE NETTING
- WOOD CELLULOSE AND WOOD FIBER MULCH IS SELF-ANCHORING.

PS

NON-NATIVE SPECIES

COMMON NAME	BROADCAST SEEDING RATES (lb/acre)	MOUNTAINS	PIEDMONT	SUNSHADE TOLERANT
KY 31 TALL FESCUE	100 lbs	8/15-5/1	9/1-4/15	SUN/MOD SHADE
BLUE GRASS	15 lbs	8/15-5/1	NOT RECOMMENDED	SUN
HARD FESCUE	15 lbs	8/1-6/1	NOT RECOMMENDED	SHADE

NATIVE SPECIES

COMMON NAME	SEEDING RATES*	MOUNTAINS	PIEDMONT	SUNSHADE TOLERANT	
SWITCHGRASS	3.5 lb	12/1-4/15	NOT RECOMMENDED	SUN	
INDIAN GRASS	7.0 lb	12/1-4/15	12/1-4/1	SUN	
DEERTONGUE	6.0 lb	5/1-4/15	5/1-4/1	SUN & SHADE	
BIG BLUESTEM	7.0 lb	12/1-4/15	12/1-4/1	SUN	
LITTLE BLUESTEM	7.0 lb	12/1-4/15	NOT RECOMMENDED	SUN	
SWEET WOODEED	2.5 lb	12/1-4/15	12/1-4/1	SUN & MOD. SHADE	
RICE CUTGRASS	6.0 lb	12/1-4/15	12/1-4/1	SUN	
SOFT RUSH	2.5 lb	12/1-5/15	12/1-5/1	9/1-11/1	SUN
SHALLOW SEDGE	2.5 lb	12/1-5/15	12/1-5/1	9/1-11/1	SUN
FULL SEDGE	2.5 lb	12/1-5/15	12/1-5/1	9/1-11/1	SUN

TEMPORARY SEEDING SCHEDULE

DATE RANGE	SEEDING MIXTURE	RATE (lb/ACRE)
FEB. 1 - MAY 15	RYE (GRAIN)	120
	ANNUAL LESPEDEZA	50
MAY 15 - AUG. 15	GERMAN MILLET	40
AUG. 15 - DEC. 31	RYE (GRAIN)	120

NOTES
- *WHEN MIXED WITH 3 OTHER VARIETIES. SEE NC DEQ TABLE 6.11-F FOR ALL SEEDING RATES.
- *USE MANUFACTURERS RECOMMENDED FERTILIZATION/LIMESTONE RATES OR FROM A SOIL TEST.

TEMPORARY SEEDING

DEFINITION
PLANTING HARD-GROWING, ANNUAL GRASSES OR SMALL GRAINS TO PROVIDE INITIAL, TEMPORARY COVER FOR EROSION CONTROL ON DISTURBED AREAS.

PURPOSE
TO TEMPORARILY STABILIZE DENuded AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 21 CALENDAR DAYS.

INSTALLATION
- INSTALL ALL EROSION CONTROL MEASURES PRIOR TO APPLYING TEMPORARY VEGETATION.
- GRADING AND SHAPING ARE NOT REQUIRED IF SOILS CAN BE PLANTED WITH A HYDROSEEDER OR HAND SEEDER.
- SEEDING PREPARATION IS NOT REQUIRED IF SOIL IS LOOSE AND NOT SEALED.
- WHEN THE SOIL IS SEALED, IT SHOULD BE FITTED, TRENCHED OR SCARIFIED TO PROVIDE A PLACE FOR SEED TO LODGE AND GERMINATE.
- APPLY AGRICULTURAL LIME AT RATES RECOMMENDED BY SOILS REPORT OR A MINIMUM OF 1500 LBS/ACRE.
- APPLY LOW FERTILITY SOILS BY ADDING AND MIXING INTO SOIL PRIOR TO PLANTING AT THE RATE OF 500-700 POUNDS PER ACRE OF 10-10-10 FERTILIZER OR EQUIVALENT.
- IT IS RECOMMENDED THAT YOU CHECK THE TAG ON THE BAG OF SEED TO VERIFY TYPE AND GERMINATION OF THE SEED TO BE PLANTED.
- APPLY SEED BY HAND, CYCLONE SEEDER, DRILL OR HYDRO-SEEDER. SEED PLANTED WITH A DRILL SHOULD BE PLANTED 1/2" TO 1" DEEP.

MAINTENANCE
- RESEED AREAS WHERE SEEDLING ESTABLISHMENT IS POOR, OR WHERE EROSION OCCURS, AS SOON AS POSSIBLE. DO NOT MOW AND PROTECT FROM TRAFFIC AS MUCH AS POSSIBLE.

NOTES
- SEEDING DATES MAY BE ALTERED TO FIT TEMPERATURE VARIATIONS AND LOCAL CONDITIONS.
- ANNUAL SITE CONDITIONS MAY REQUIRE HEAVIER SEEDING RATES.
- SEEDING FOR JANUARY AND FEBRUARY FOLLOW NC DENUDATION RECOMMENDATIONS.
- USE 2 TONS OF HAY OR STRAW PER ACRE (IF NECESSARY).

TEMPORARY SEEDING

DEFINITION
ROUGHENING A BARE SOIL SURFACE WITH HORIZONTAL GROOVES ACROSS THE SLOPE, OR TRACKING WITH CONSTRUCTION EQUIPMENT.

PURPOSE
TO ADD THE ESTABLISHMENT OF VEGETATIVE COVER FROM SEED TO REDUCE RUNOFF VELOCITY AND INCREASE INFILTRATION.

INSTALLATION
- INSTALL ACCORDING TO APPROVED PLAN.
- INSTALL ALL OTHER BMPs FIRST.
- ROUGHEN ALL SLOPES STEEPER THAN 3:1.

MAINTENANCE
- PERIODICALLY CHECK THE SEEDED SLOPES FOR RILLS AND WASHES.
- FULL THESE AREAS SLIGHTLY ABOVE THE ORIGINAL GRADE, THEN RESEED AND MULCH AS SOON AS POSSIBLE.

SR

DEFINITION
A TEMPORARY PROTECTIVE BLANKET OF STRAW OR OTHER PLANT RESIDUE, GRAVEL, OR SYNTHETIC MATERIAL TO THE SOIL SURFACE FOR A PERIOD OF 30-60 DAYS OR LONGER WHEN SEEDING IS NOT PRACTICAL.

PURPOSE
- REDUCE RUNOFF, EROSION, AND SEDIMENTATION. FOSTER THE GROWTH OF VEGETATION, CONSERVE MOISTURE, INSULATE THE SOIL, SUPPRESS WEED GROWTH.
- REDUCE LOOSE COMPACTED SOIL TO A DEPTH OF THREE (3) INCHES.
- APPLY STRAW OR HAY UNIFORMLY BY HAND ANCHOR BY PRESSING INTO SOIL OR USE NETTING.
- MULCH ON SLOPES GREATER THAN 3% SHOULD BE ANCHORED WITH EMULSIFIED ASPHALT (GRADE A5 OR S5-1) OR OTHER SUITABLE TACKLER.
- WOOD WASTE ON SLOPES FLATTER THAN 3:1 DO NOT NEED ANCHORING.

MAINTENANCE
- INSPECT AFTER HEAVY RAINS FOR EROSION AND DISLOADED MULCH.
- ADD MULCH AS NEEDED TO MAINTAIN THE SUGGESTED DEPTH.
- IF ORIGINAL MULCH IS TO BE LEFT AND INCORPORATED INTO THE SOIL, APPLY 20 TO 30 POUNDS OF NITROGEN IN ADDITION TO THE FERTILIZER REQUIRED FOR VEGETATION.

M

DEFINITION
AN OUTLET WITHIN THE SILT FENCE PERIMETER WHERE OUTLET STORM FLOW MUST BE STABILIZED AGAINST EROSION.

PURPOSE
TO DETAIN AND PROVIDE A CONTROLLED RELEASE AREA FOR SEDIMENT LADEN WATER RUNOFF.

INSTALLATION
- PLACE STABILIZED OUTLET EVERY 200' OF SILT FENCE.
- SET FABRIC HEIGHT AT 1 FOOT MAXIMUM BETWEEN SUPPORT POSTS SPACED NO MORE THAN 4 FEET APART. INSTALL A HORIZONTAL BRACE BETWEEN THE SUPPORT POSTS TO SERVE AS AN OVERFLOW WEIR AND TO SUPPORT TOP OF FABRIC.
- PROVIDE A RIP-RAP OUTLET APRON ACCORDING TO DETAIL.
- EXCAVATE FOUNDATION FOR THE SPLASH PAD A MINIMUM OF 3 FEET WIDE, 1 FOOT DEEP, AND 5 FEET LONG ON LEVEL GRADE. THE FINISHED SURFACE OF THE RIP-RAP SHOULD BLEND WITH THE SURROUNDING AREA, ALLOWING NO OVERALL AREA AROUND THE PAD MUST BE STABLE.

MAINTENANCE
- INSPECT BARRIERS AT THE END OF EACH WORKING DAY, OR AFTER EACH RAIN, AND REPAIR OR CLEAN AS NECESSARY.
- REMOVE SEDIMENT FROM BARRIER WHEN TWO-THIRDS FULL.
- DISPOSE OF SEDIMENT SO THAT IT WILL NOT ENTER THE BARRIER AGAIN AND STABILIZE IT WITH VEGETATION.
- REPLACE FILTER FABRIC WHEN DETERIORATED.
- DESIGN LIFE OF A SYNTHETIC SILT FENCE IS APPROXIMATELY 6 MONTHS.
- MAINTAIN UNTIL THE PROJECT IS VEGETATED OR OTHERWISE STABILIZED.
- REMOVE BARRIERS AND ACCUMULATED SEDIMENT AND STABILIZE THE EXPOSED AREA WHEN THE PROJECT IS STABILIZED.

NON-EROSIVE OUTLET

DEFINITION
A TEMPORARY SEDIMENT BARRIER PLACED AROUND A STORM DRAIN DROP INLET.

PURPOSE
TO PREVENT SEDIMENT FROM ENTERING THE STORM DRAINAGE SYSTEM.

INSTALLATION
- INSTALL ACCORDING TO APPROVED PLAN.
- DO NOT INSTALL WHERE VEHICULAR TRAFFIC WILL BE AFFECTED.
- INSTALL AT OR AROUND ALL STORM DRAIN DROP INLETS THAT RECEIVE RUNOFF FROM DISTURBED AREAS.
- CONSTRUCT ON NATURAL GROUND SURFACE, EXCAVATED SURFACE, OR ON MACHINE COMPACTED FILL.

MAINTENANCE
- INSPECT, CLEAR, AND/OR REPAIR TRAP AT THE END OF EACH WORKING DAY.
- DO NOT REMOVE INLET PROTECTION AND WASH SEDIMENT INTO THE STORM DRAIN.
- REMOVE SEDIMENT FROM TRAP AND STABILIZE IT WITH VEGETATION.
- REMOVE ALL MATERIALS AND ANY UNSTABLE SOIL ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN ADEQUATELY STABILIZED.
- APPROPRIATELY STABILIZE ALL BARE AREAS AROUND INLET.

INLET PROTECTION

DEFINITION
A RIDGE OF COMPACTED SOIL, CONSTRUCTED ABOVE, ACROSS, OR BELOW A SLOPE.

PURPOSE
- REDUCE SLOPE LENGTHS.
- INTERCEPT AND DIVERT STORM RUNOFF TO A STABLE OUTLET AT A NON-EROSIVE VELOCITY.

INSTALLATION
- INSTALL ACCORDING TO APPROVED PLAN.
- REMOVE TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL.
- COMPACT ALL FILLS.
- CHANNEL CROSS-SECTION SHOULD BE TRAPEZOIDAL, OR PARABOLIC IN SHAPE.
- SIDE SLOPES SHOULD BE 3:1 OR FLATTER.
- EXCAVATE NARROW, DEEP CHANNELS ON STEEP SLOPES AND BROAD, SHALLOW CHANNELS ON GENTLE SLOPES.
- ADEQUATE OUTLET MUST BE PRESENT.
- STABILIZE CHANNEL AND OUTLET WITH VEGETATION (MULCH REQUIRED FOR ALL SEEDED OR SPRIGGED CHANNELS).
- RIP-RAP, OR PAVEMENT.
- DISPOSE OF AND/OR STABILIZE ALL UNNEEDED EXCAVATION MATERIAL.

MAINTENANCE
- INSPECT FREQUENTLY AND AFTER EACH RAINFALL AND MAKE NECESSARY REPAIRS.

GRASSED SWALE

DEFINITION
A SMALL TEMPORARY STONE DAM CONSTRUCTED ACROSS A DRAINAGE WAY.

PURPOSE
REDUCE EROSION IN A DRAINAGE CHANNEL BY REDUCING THE VELOCITY OF FLOW.

INSTALLATION
- INSTALL ACCORDING TO APPROVED PLAN.
- KEEP THE CENTER STONE SECTION AT LEAST 9" BELOW NATURAL GROUND LEVEL.
- EXTEND STONE TO AT LEAST 1.5 FEET BEYOND THE DITCH BANK.
- SET SPACING BETWEEN DAMS TO ASSURE THAT THE TOP OF THE LOWER DAM IS THE SAME AS THE TOE ELEVATION OF THE UPPER DAM.
- PROTECT THE CHANNEL AFTER THE LOWEST CHECK DAM FROM HEAVY FLOW THAT COULD CAUSE EROSION.
- MAKE SURE THAT THE CHANNEL REACH ABOVE THE MOST UPSTREAM DAM IS STABLE.

MAINTENANCE
- INSPECT WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT AND REPAIR IMMEDIATELY.
- REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED.

CHECK DAM

DEFINITION
A GRAVELED AREA OR PAD LOCATED AT POINTS WHERE VEHICLES ENTER AND LEAVE A CONSTRUCTION SITE.

PURPOSE
TO PROVIDE A BUFFER AREA WHERE VEHICLES CAN DROP THEIR MUD AND SEDIMENT TO AVOID TRANSPORTING ONTO PUBLIC ROADS.

INSTALLATION
- INSTALL ACCORDING TO APPROVED PLAN.
- MINIMUM PAD THICKNESS OF 6 INCHES.
- MINIMUM PAD WIDTH OF 20 FEET.
- MINIMUM PAD LENGTH OF 50 FEET.
- EXCAVATE FOOTPRINT A MINIMUM OF 3 INCHES.
- ROUTE RUNOFF TO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
- INSTALL #200 ROAD STABILIZATION FABRIC AS A BASE UNDER STONE.

MAINTENANCE
- PERIODICALLY DRESS WITH 1.5" TO 3.5" STONE.
- MAINTAIN IN A CONDITION THAT WILL PREVENT TRACKING OF MUD ONTO PUBLIC ROADWAYS.
- IMMEDIATELY REMOVE MUD OR DEBRIS TRACKED OR SPILLED ONTO ROADWAYS.

CONSTRUCTION EXIT

DEFINITION
POROUS BARRIERS INSTALLED INSIDE A TEMPORARY SEDIMENT TRAP, SKIMMER BASIN, OR SEDIMENT BASIN TO REDUCE VELOCITY AND TURBULENCE OF WATER.

PURPOSE
TO IMPROVE THE RATE OF SEDIMENT RETENTION BY DISTRIBUTING THE FLOW AND REDUCING TURBULENCE.

INSTALLATION
- GRADE THE BASIN SO THAT THE BOTTOM IS LEVEL IN EVERY DIRECTION.
- INSTALL POSTS ACROSS THE WIDTH OF THE SEDIMENT TRAP.
- STEEL POSTS SHOULD BE DRIVEN TO A DEPTH OF 24". SPACED A MAXIMUM OF 4 FEET APART, AND INSTALLED UP THE SIDES OF THE BASIN AS WELL AS THE TOP OF THE FABRIC SHOULD BE 8" HIGHER THAN THE INLET OF THE SPILLWAY.
- TOPS OF BAFFLES SHOULD BE 2" LOWER THAN THE TOP OF THE BERMS.
- INSTALL AT LEAST 3 ROWS OF BAFFLES BETWEEN THE INLET AND OUTLET DISCHARGE POINT. BASINS LESS THAN 20 FEET IN LENGTH MAY USE 2 BAFFLES.
- ADD A SUPPORT WIRE OR ROPE ABOVE THE TOP OF THE BAFFLE TO PREVENT SAGGING.
- WRAP A POROUS MATERIAL, LIKE JUST BACKED CORN MATERIAL, OVER THE TOP WIRE. THE FABRIC SHOULD HAVE FIVE TO TEN PERCENT OPENINGS IN THE WEAVE. ATTACH FABRIC TO THE ROPE AND STEEL POSTS WITH ZIP TIES, WIRE, OR STAPLES.
- THE BOTTOM AND SIDES OF THE FABRIC SHOULD BE ANCHORED IN A TRENCH OR PINNED WITH 8 INCH EROSION CONTROL MATTING STAPLES.
- DO NOT SPLICE THE FABRIC BUT USE A CONTINUOUS PIECE ACROSS THE BASIN.

MAINTENANCE
- INSPECT BAFFLES AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT AND REPAIR IMMEDIATELY.
- MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR, OR BECOME INEFFECTIVE, REPLACE PROMPTLY.

BAFFLES

DEFINITION
A SMALL, TEMPORARY PONDING BASIN FORMED BY AN EMBANKMENT OR EXCAVATION TO CAPTURE SEDIMENT.

PURPOSE
TO DETAIN SEDIMENT, LAKE AND TRAP THE SEDIMENT TO PROTECT RECEIVING STREAMS, LAKES, DRAINAGE SYSTEM, AND PROTECT ADJACENT PROPERTY.

INSTALLATION
- CLEAR, GRUB, AND STRIP THE AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MAT.
- REMOVE ALL SURFACE SOIL CONTAINING HIGH AMOUNTS OF ORGANIC MATTER, AND STOOPLE OR DISPOSE OF IT PROPERLY. HALL ALL OBJECTIONABLE MATERIAL TO THE DESIGNATED DISPOSAL AREA.
- ENSURE FILL MATERIAL FOR THE EMBANKMENT IS FREE OF ROOTS, ORGANIC MATTER, OR OTHER OBJECTIONABLE MATERIAL. PLACE THE FILL IN LIFTS NOT TO EXCEED 9 INCHES, AND MACHINE COMPACT. OVERLAP THE EMBANKMENT 6 INCHES TO ALLOW FOR SETTLEMENT.
- CONSTRUCT THE OUTLET SECTION IN THE EMBANKMENT. PROTECT THE CONNECTION BETWEEN THE RIPRAP AND THE SOIL FROM PIPING BY USING FILTER FABRIC OR A KEYWAY CUTOFF TRENCH BETWEEN THE RIPRAP STRUCTURE AND SOIL.
- CLEAR THE POND AREA BELOW THE ELEVATION OF THE CREST OF THE SPILLWAY TO FACILITATE SEDIMENT CLEANOUT.
- ALL CUT AND FILL SLOPES SHOULD BE 2:1 OR FLATTER.
- ENSURE THAT THE DRAINAGE SECTION OF THE EMBANKMENT HAS A MINIMUM BOTTOM WIDE OF 3' AND MAXIMUM SIDE SLOPES OF 1:1 THAT EXTEND TO THE BOTTOM OF THE SPILLWAY SECTION.
- CONSTRUCT THE MINIMUM FINISHED STONE SPILLWAY BOTTOM WIDTH. KEEP THE THICKNESS OF THE SIDES OF THE SPILLWAY OUTLET STRUCTURE AT A MINIMUM OF 21 INCHES. THE WEIR MUST BE LEVEL AND CONSTRUCTED TO GRADE TO ASSURE DESIGN CAPACITY.
- MATERIAL USED IN THE STONE SECTION SHOULD BE WELL-GRADED MIXTURE OF STONE WITH A 50 SIZE OF 9 INCHES AND A MAXIMUM STONE SIZE OF 14 INCHES. THE STONE SHOULD BE HARD, ANGULAR, AND HIGHLY WEATHER-RESISTANT.
- DISCHARGE INLET WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION.
- ENSURE THAT THE STONE SPILLWAY OUTLET SECTION EXTENDS DOWNSTREAM PAST THE TOE OF THE EMBANKMENT UNTIL STABLE CONDITIONS ARE REACHED. KEEP THE EDGES OF THE STONE OUTLET SECTION FLUSH WITH THE SURROUNDING GROUND.
- DIRECT EMERGENCY BYPASS TO NATURAL, STABLE AREAS.
- STABILIZE THE EMBANKMENT AND ALL DISTURBED AREAS ABOVE THE SEDIMENT POOL AND DOWNSTREAM FROM THE TRAP IMMEDIATELY AFTER CONSTRUCTION.
- SHOW THE DISTANCE FROM THE TOP OF THE SPILLWAY TO THE SEDIMENT CLEANOUT LEVEL (1/2 THE DESIGN DEPTH).

MAINTENANCE
- INSPECT TEMPORARY SEDIMENT TRAPS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT AND REPAIR IMMEDIATELY.
- REMOVE SEDIMENT AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH.
- CHECK THE STRUCTURE FOR DAMAGE FOR EROSION OR PIPING.
- ANY RIPRAP DISPLACE FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY.
- AFTER ALL SEDIMENT PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND STABILIZE PROPERLY.

TEMPORARY SEDIMENT TRAP

SPILLWAY DESIGN

DRAINAGE AREA (AC)	MIN. WEIR LENGTH (FT)
1	4.0
2	6.0
3	8.0
4	10.0
5	12.0

TEMPORARY SEDIMENT TRAP DESIGN DATA

TRAP ID	TOTAL AREA (AC)	RUNOFF COEFF.	10-YEAR INTENSITY (IN/H)	10-YEAR PEAK RUNOFF (CFS)	10-YEAR PEAK RUNOFF REQUIRED (SF)	VOLUME REQUIRED (CU YD)	VOLUME PROVIDED (CU YD)	APPROXIMATE DIMENSIONS (DWN)
A	1.46	0.30	7.44	327	1,421	1,856	5,269	8' X 32' X 6'

NOTE: ALL RUNOFF CALCULATIONS WERE PERFORMED USING THE RATIONAL METHOD FOR THE 10-YEAR STORM.

SYLVAN VALLEY INDUSTRIAL BUILDING

for **TRANSYLVANIA COUNTY**
City of Brevard
Transylvania County, North Carolina

CONSTRUCTION PLANS FOR:

REVISION DESCRIPTION

#	DATE	DESCRIPTION
1	4/10/2024	Issue 1 - Release for Permitting and Advertise for Bid

HIGH COUNTRY ENGINEERING

81 CENTRAL AVENUE
ASHEVILLE, NORTH CAROLINA 28801
T: 828.230.4511
NC FIRM NO.: C-3347

SEAL 33862
MAY 12 2024
M. J. JAMES
REGISTERED PROFESSIONAL ENGINEER
NO. 35044
EXPIRES 09/31/2024

SYLVAN VALLEY INDUSTRIAL BLDG.

SHEET TITLE: **DETAILS**

PROJECT NO: **WOR003**

DATE: 4/10/2024

SHEET NO: **C-9**

of 11

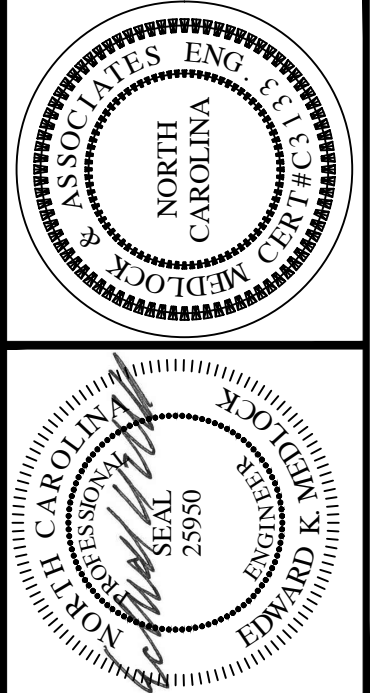
**SYLVAN VALLEY INDUSTRIAL PARK
(PHASE 2)
BREVARD, NC**

APPROX. ELEVATION = +2123.44'

DRAWING INDEX
PAGE DESCRIPTION

S0.1	STRUCTURAL NOTES, DRAWING INDEX	S1.1	FOUNDATION PLAN
S0.2	TYPICAL FOUNDATION SECTIONS & DETAILS	S1.2	ROOF FRAMING PLAN
S0.3	TYPICAL FOUNDATION DETAILS & GUARDRAIL DETAILS	S2.1	FOUNDATION SECTIONS & DETAILS
S0.4	TYPICAL ROOF FRAMING SECTIONS & DETAILS	S3.1	FRAMING SECTIONS & DETAILS

04-04-24



CONSTRUCTION SET

STRUCTURAL NOTES

A. GENERAL

- THE PROVIDED DRAWINGS ARE LIMITED TO THE ITEMS SPECIFIED HEREIN. NO OPINION IS OFFERED, AND NONE SHOULD BE INFERRED REGARDING OTHER ASPECTS OF THIS STRUCTURE, OR THE STRUCTURES TAKEN AS A WHOLE. ANY ASSOCIATED REMEDIES EXPRESSED OR REFERENCED ARE EXCLUSIVE TO THE ITEMS SPECIFIED HEREIN. NO WARRANTY IS EXPRESSED OR IMPLIED.
- THE DRAWINGS CONTAINED HEREIN, IN-WHOLE OR IN-PART, REMAIN THE PROPERTY OF MEDLOCK & ASSOCIATES ENGINEERING, P.A. THE DRAWINGS MAY NOT BE USED, TRANSFERRED OR REPRODUCED FOR ANY PROJECT OTHER THAN THAT SPECIFIED WITHIN THE DRAWINGS WITHOUT WRITTEN CONSENT FROM MEDLOCK & ASSOCIATES ENGINEERING, P.A.
- ALL WORK SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE INTERNATIONAL BUILDING CODE, AS ADOPTED AND SUPPLEMENTED BY LOCAL REGULATIONS.
- PROTECTION AND SAFETY:** THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL COMPLY WITH THE PROTECTION AND SAFETY REQUIREMENTS OF THE STATE OF NORTH CAROLINA STATE BUILDING CODE, FEDERAL LAWS AND ALL LOCAL REGULATIONS. THE ENGINEER OR HIS EMPLOYEES ARE NOT RESPONSIBLE FOR SAFETY AND PROTECTION PROCEDURES ON THIS PROJECT.
- THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, LEVELS AND SITE CONDITIONS PRIOR TO START OF CONSTRUCTION. THEY SHALL REPORT ANY ERRORS, DISCREPANCIES OR INCONSISTENCIES TO THE ARCHITECT / ENGINEER (A/E) PRIOR TO COMMENCING WORK. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL LAYOUT THEIR WORK FROM ESTABLISHED REFERENCE POINTS AND SHALL BE RESPONSIBLE FOR ALL MEASUREMENTS AND ELEVATIONS IN CONNECTION WITH THEIR WORK.
- IN THE EVENT ANY OMISSIONS OR ERRORS APPEAR IN THE DRAWINGS, SPECIFICATIONS OR OTHER DOCUMENTS, THE GENERAL CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER IN WRITING OF SUCH ERRORS OR OMISSIONS PRIOR TO PROCEEDING WITH WORK WHICH MAY BE IN QUESTION. IF THE GENERAL CONTRACTOR OR ANY SUBCONTRACTORS FAIL TO GIVE SUCH NOTICE, HE SHALL BE HELD RESPONSIBLE FOR THE RESULTS OF ANY SUCH ERRORS OR OMISSIONS AND THE COST OF RECTIFYING THE SAME.
- NO CHANGES TO THE INFORMATION SHOWN ON THE DRAWINGS OR SUBSTITUTIONS OF MATERIALS SHALL BE MADE WITHOUT THE SPECIFIC WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.
- DESIGN INFORMATION SHOWN ON THE DRAWINGS PROVIDE OVERALL DIMENSIONAL PARAMETERS AND DESCRIBE ELEMENTS TO BE CONSTRUCTED AND ARE IN-PART DIAGRAMMATIC. THE DRAWINGS ARE NOT INTENDED TO BE SCALED FOR ROUGH-IN MEASUREMENTS OR TO SERVE AS SHOP DRAWINGS OR PORTIONS THEREOF.
- PRE-ENGINEERED WOOD MEMBERS SUCH AS TRUSSES OR SIMILAR BUILDING ELEMENTS SHALL BE DESIGNED BY THE MANUFACTURER UNLESS OTHERWISE NOTED ON THE PLANS. ALL LOADING AND DEFLECTION CRITERIA SHALL BE COORDINATED WITH THE OWNER OR ARCHITECT DIRECTLY FOR APPROVAL.
- ALL INFORMATION REGARDING PRE-ENGINEERED BUILDING COMPONENTS (EG: MANUF. TRUSS LAYOUT AND LOADING) SHALL BE PROVIDED TO ENGINEER OF RECORD FOR COORDINATION AND LOAD VERIFICATION PRIOR TO CONSTRUCTION.
- NO SHOP DRAWINGS SHALL BE SUBMITTED FOR ARCHITECTURAL / STRUCTURAL ENGINEER REVIEW UNTIL AFTER THEY HAVE BEEN REVIEWED AND NOTED FOR CONSTRUCTION METHOD, DIMENSIONING AND OTHER TRADE REQUIREMENTS BY THE CONTRACTOR AND STAMPED WITH THE CONTRACTOR'S APPROVAL SEAL. THE STRUCTURAL ENGINEER ASSUMES NO RESPONSIBILITY FOR DIMENSIONS, QUANTITIES, ERRORS OR OMISSIONS AS A RESULT OF CHECKING AND REVIEWING ANY SHOP DRAWINGS. ANY ERRORS OR OMISSIONS SHALL BE RECTIFIED BY THE CONTRACTOR, IRRESPECTIVE OF RECEIPT, CHECKING OR REVIEW OF DRAWINGS BY STRUCTURAL ENGINEER REGARDLESS IF WORK IS DONE IN ACCORDANCE WITH SUCH DRAWINGS.
- THE REVIEW OF ALL STRUCTURAL SUBMITTALS BY THE STRUCTURAL ENGINEER OF RECORD SHALL BE TO INSURE THE INTENT HAS BEEN UNDERSTOOD AND THAT THE SPECIFIED CRITERIA HAVE BEEN USED. A COPY OF ALL STRUCTURAL SUBMITTALS WILL BE RETAINED FOR RECORD KEEPING PURPOSES ONLY. WHERE CRITICAL DIMENSIONS CANNOT BE DETERMINED FROM THE PLANS OR WHERE NEW WORK ADJOINS EXISTING CONSTRUCTION, OR WHERE ONE MATERIAL ADJOINS AN IN-PLACE MATERIAL, THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS AS REQUIRED TO COMPLETE SHOP DRAWINGS AND INSTALLATION. REPORT ANY DISCREPANCIES EXCEEDING 3% BETWEEN FIELD MEASURED DIMENSIONS AND SCALED DRAWING DIMENSIONS TO ARCHITECT BEFORE PROCEEDING WITH THE WORK.
- ARCHITECT AND CONTRACTOR SHALL COORDINATE DOOR AND WINDOW OPENINGS AND INTERIOR AND EXTERIOR FINISHES.
- DEMOLITION SHALL INCLUDE REMOVAL, TRANSPORT AND DISPOSAL OF ALL WASTE MATERIAL RELATED TO THE CONSTRUCTION OF THE PROJECT TO AN APPROVED FACILITY.

B. DESIGN LOADS

- LIVE LOADS :**
- SLAB-ON-GRADE..... 500 PSF (HEAVY INDUSTRIAL)
 - ROOF..... 20 PSF
- DEAD LOADS :**
- ROOF..... 15 PSF
- SNOW LOADS:**
- GROUND..... 20 PSF
- WIND LOADS:**
- ULTIMATE WIND SPEED 115 MPH

- ALL STRUCTURAL ELEMENTS DESIGNED TO SUSTAIN SPECIFIED DEAD AND LIVE LOADS IN COMBINATION SO AS TO PRODUCE THE MOST CRITICAL CONDITIONS.
- PRE-ENGINEERED SYSTEMS AND COMPONENTS SHALL BE DESIGNED BASED ON THE MINIMUM LOAD REQUIREMENT PER ASCE-7 AND THE ABOVE BASIC LOAD PARAMETERS.
- WHERE CONFLICTS OCCUR BETWEEN NOTES OR DRAWINGS, THE CONTRACTOR SHALL NOT PROCEED WITH THE AFFECTED WORK UNTIL THE STRUCTURAL ENGINEER ISSUES A CLARIFICATION.
- THE STRUCTURAL CONTRACT DRAWINGS SHALL NOT BE USED AS TEMPLATES FOR SHOP DRAWINGS UNLESS EXPLICIT APPROVAL IS PROVIDED BY THE STRUCTURAL ENGINEER IN ADVANCE OF ANY SUBMITTALS. SUBMITTALS RECEIVED THAT HAVE USED THE DRAWINGS WITHOUT APPROVAL WILL BE REJECTED WITHOUT REVIEW.

C. FOOTINGS / FOUNDATIONS

- FOUNDATION DESIGN IS BASED ON A PRESUMPTIVE ALLOWABLE SOIL BEARING PRESSURE OF 3,000 PSF.
- PRIOR TO CONSTRUCTION, SUB GRADE CONDITIONS USED AS DESIGN PARAMETERS SHALL BE TESTED AND EVALUATED BY A GEOTECHNICAL ENGINEER LICENSED IN NORTH CAROLINA. ALLOW STRUCTURAL ENGINEER TO REVIEW GEOTECHNICAL REPORT PRIOR TO CONSTRUCTION.
- FOUNDATION CONDITIONS DIFFERENT TO DESIGN PARAMETERS OR TO THE GEOTECHNICAL REPORT SHALL BE REPORTED TO THE STRUCTURAL AND GEOTECHNICAL ENGINEER BEFORE FURTHER CONSTRUCTION IS ATTEMPTED.
- THE DESIGN EXCLUDES GLOBAL STABILITY OR ANY OTHER GROUND CONDITIONS. COMPETENT, GLOBAL STABILITY, OR ANY OTHER SUB GRADE CONDITIONS SHALL BE DETERMINED BY A GEOTECHNICAL ENGINEER LICENSED IN NORTH CAROLINA.
- FOUNDATIONS AND SLABS-ON-GRADE FOR THE STRUCTURE ARE TO BE SUPPORTED ON RAMMED AGGREGATE PIERS (RAPs) DESIGNED AND INSTALLED BY GEOSTRUCTURES OF PURCELLVILLE, VA. FOUNDATIONS ARE TO BE DESIGNED FOR ALLOWABLE SOIL BEARING PRESSURE OF 3,000 PSF, FOLLOWING INSTALLATION OR RAPs.
- IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO ENGAGE THE SERVICES OF THE STRUCTURAL ENGINEER OF RECORD TO CONDUCT SPECIAL INSPECTIONS DURING CONSTRUCTION OF SITE RETAINING WALLS WITHIN THE CITY OF ASHEVILLE AND BUNCOMBE COUNTY AS REQUIRED BY LOCAL ORDINANCE.
- THE BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE A MINIMUM OF 24" BELOW FINISHED GRADE, UNLESS OTHERWISE NOTED.
- ALL FOOTINGS SHALL BEAR ON UNDISTURBED NATIVE SOIL OR ENGINEERED FILL PER GEOTECHNICAL ENGINEER SPECIFICATIONS.
- THE GENERAL CONTRACTOR SHALL USE THE STRUCTURAL DRAWINGS TOGETHER WITH THE ARCHITECTURAL, CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS TO LOCATE FOOTING STEPS, DEPRESSED SLABS, SLOPES, DRAINS, OUTLETS, RECESSES, OPENINGS, BOLT SETTINGS, SLEEVES, DIMENSIONS, ETC. ANY POTENTIAL CONFLICTS SHALL BE REPORTED IN WRITING TO THE ARCHITECT / ENGINEER (A/E) BEFORE PROCEEDING WITH THE WORK.
- CRAWL SPACE ACCESS DIMENSIONS AND LOCATIONS PER NC BUILDING CODE UNLESS OTHERWISE NOTED OR SHOWN. NUMBER OF CRAWL SPACE VENTS AND LOCATION PER NC BUILDING CODE. PROVIDE MIN. (1)-#4 HORIZ. BAR ABOVE AND BELOW ALL OPENINGS IN FOUNDATION WALLS GREATER THAN 24" WIDE UNLESS OTHERWISE NOTED OR SHOWN. EXTEND HORIZ. REINF. 24" MIN. PAST OPENING. ENSURE SINGLE VERT. BAR (MATCH SIZE WITH VERT. WALL REINF. PER PLANS) EACH SIDE ADJACENT TO OPENING.
- PRIOR TO BACKFILLING, ALL RETAINING WALLS, EXCEPT THOSE DESIGNATED AS CANTILEVERS, SHALL BE SHORED UNTIL RESTRAINING FLOOR FRAMING IS IN PLACE AND CONCRETE HAS CURED FOR A MINIMUM OF 14 DAYS.

D. CONCRETE AND REINFORCING STEEL

- WORK SHALL CONFORM TO THE LATEST EDITIONS OF ACI SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301) AND BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318). CONCRETE SHALL HAVE THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH (f'c) AT 28 DAYS:

FOOTINGS.....	3000 PSI
INTERIOR SLAB ON GRADE.....	3000 PSI
EXTERIOR SLABS AND WALKS.....	4500 PSI
FOUNDATION WALLS.....	3000 PSI
- ALL EXTERIOR CONCRETE SHALL CONTAIN ENTRAINED AIR IN ACCORDANCE WITH ACI 318, TABLE 4.4.1.
- CONCRETE REINFORCEMENT BARS SHALL CONFORM TO ASTM A615, GRADE 60. REINFORCEMENT DESIGNATED AS CONTINUOUS SHALL LAP 57 BAR DIAMETER UNLESS NOTED OTHERWISE
- WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A 1064, LATEST REVISION.
- SUPPORT REINFORCING MATERIAL ON SUITABLE CHAIRS OR CEMENTITIOUS BLOCKS SO AS NOT TO DISPLACE DURING PLACEMENT OF CONCRETE.
- PROVIDE 3" MINIMUM CONCRETE COVER TO REINFORCEMENT WHEN CONCRETE IS PLACED AGAINST EARTH, 1 1/2" MINIMUM COVER ELSEWHERE UNLESS OTHERWISE NOTED.
- CONCRETE SHALL BE CURED FOR 7 DAYS OR CURED BY USING AN APPROVED MEMBRANE CURING COMPOUND.
- THE CONTRACTOR SHALL VERIFY IN THE FIELD THE TYPE AND LOCATION OF ALL EMBEDDED ITEMS INCLUDING ANCHOR BOLTS, PIPES, SLEEVES, CONDUIT, ETC., PRIOR TO PLACING CONCRETE.
- REINFORCEMENT NOT FULLY ENCASED BY CONCRETE SHALL BE EPOXY COATED.

E. STRUCTURAL STEEL

- STEEL WORK SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, NINTH EDITION.
- STRUCTURAL STEEL- DESIGN PER CURRENT EDITION A.I.S.C. AS FOLLOWS

ROLLED SHAPES.....	ASTM A-992
PLATES, ANGLES, AND BARS.....	ASTM A-36
TUBES.....	ASTM A-500 GR. B
ANCHOR BOLTS (A.B.S.).....	ASTM F-1554, GRADE 36

 USE ONLY WHERE SPECIFICALLY CALLED FOR.

F. SHOP DRAWINGS AND SUBMITTALS

- SIGNED AND SEALED SHOP DRAWINGS MUST BE SUBMITTED FOR ENGINEER'S REVIEW FOR THE FOLLOWING:

STEEL BAR JOIST AND ROOF DECKING	STRUCTURAL INSULATED PRECAST PANELS
STRUCTURAL STEEL	FOOTING REINFORCEMENT
- SHOP DRAWINGS MUST BE SUBMITTED FOR ENGINEER'S REVIEW FOR THE FOLLOWING:

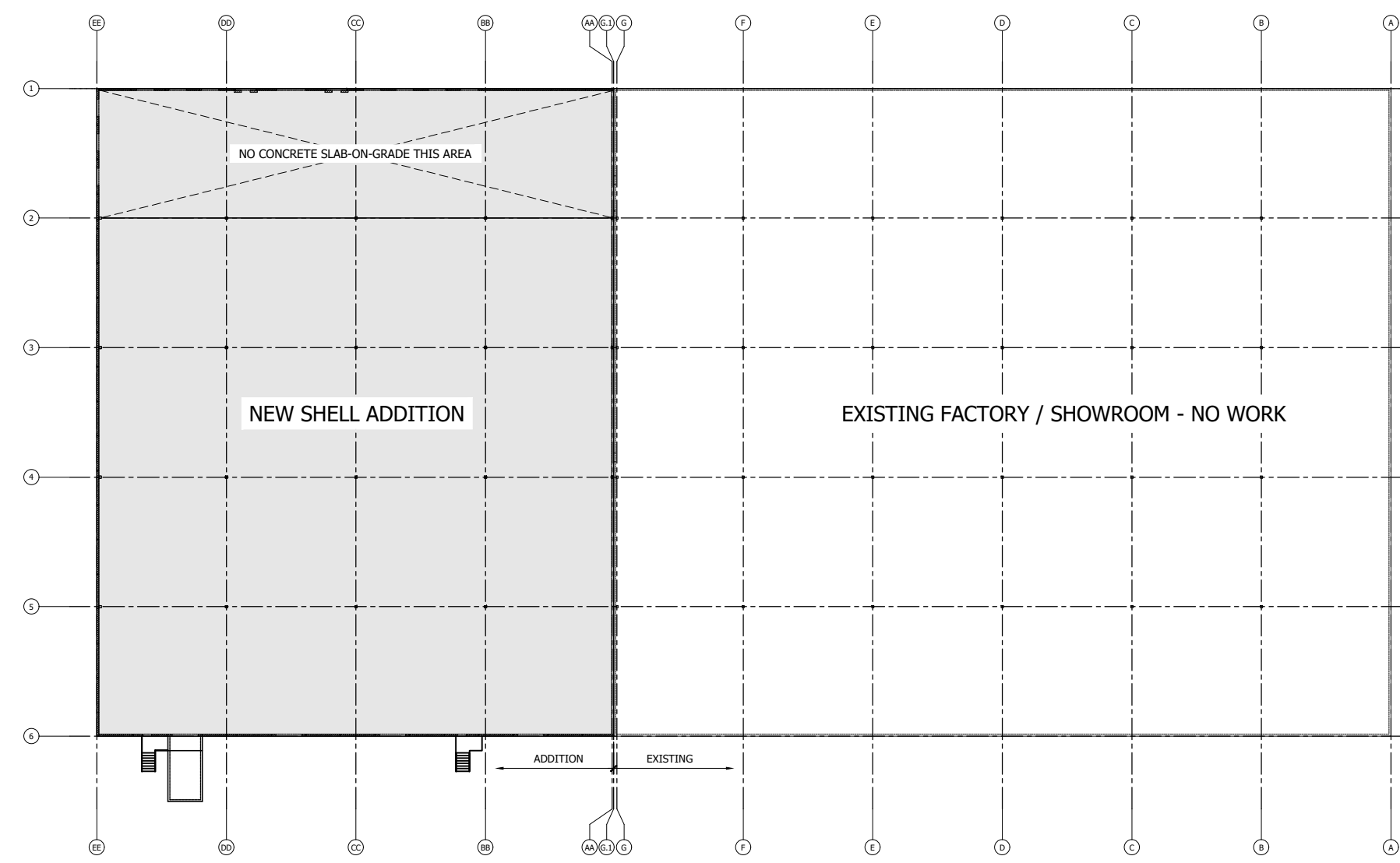
STEEL BAR JOIST AND ROOF DECKING	STRUCTURAL INSULATED PRECAST PANELS
STRUCTURAL STEEL	FOOTING REINFORCEMENT
- SHOP DRAWING SUBMITTALS WILL BE REVIEWED FOR GENERAL CONFORMANCE WITH THE INFORMATION ON THE CONSTRUCTION DOCUMENTS. THE GENERAL CONTRACTOR SHALL REVIEW AND APPROVE THE SHOP DRAWINGS PRIOR TO THEIR SUBMITTAL TO THE ARCHITECT (ANY SHOP DRAWING SUBMITTALS THAT HAVE NOT BEEN STAMPED AS REVIEWED BY THE CONTRACTOR SHALL BE RETURNED WITHOUT REVIEW). REQUESTED CHANGES TO THE CONTRACT DOCUMENTS SHALL BE COMMUNICATED IN WRITING PRIOR TO SUBMITTING THE SHOP DRAWINGS AND CLOUDED ON THE SHOP DRAWINGS.
- COMPLETE SHOP DRAWINGS FOR CONSTRUCTION OF ANY BUILDING COMPONENT NOT DESIGNED BY THE ENGINEER OF RECORD AND NOT SPECIFIED ON THE CONSTRUCTION DOCUMENTS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT AND SHALL BE AVAILABLE AT THE JOB SITE DURING TIMES OF INSPECTION.
- SOME STRUCTURAL SYSTEMS ARE DEFINED AS VENDOR-DESIGNED COMPONENTS PER THE STRUCTURAL DOCUMENTS. THESE ELEMENTS OF THE DESIGN ARE DEFERRED SUBMITTAL COMPONENTS AND HAVE NOT BEEN PERMITTED UNDER THE BASE BUILDING APPLICATION. VENDOR DESIGNED COMPONENT SHOP DRAWINGS SHALL BE APPROVED BY THE COMPONENT DESIGNER ENGINEER PRIOR TO CURSORY REVIEW BY THE ENGINEER OF RECORD FOR LOADS IMPOSED ON THE BASE STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. SHOP DRAWINGS SHALL INDICATE MAGNITUDE AND DIRECTION OF ALL LOADS IMPOSED ON BASE STRUCTURE. THE CONTRACTOR SHALL SUBMIT THE STAMPED COMPONENT SYSTEM DOCUMENTS TO THE BUILDING OFFICIAL FOR APPROVAL.
- BAR JOIST SHOP DRAWINGS SHALL INCLUDE MISCELLANEOUS ANGLES AND CONNECTIONS TO STRUCTURAL INSULATED PRECAST PANELS TO TRANSFER SHEAR LOADS

G. MISCELLANEOUS ITEMS

- EPOXY FOR THE SETTING OF DOWELS OR ANCHOR BOLTS SHALL BE SIMPSON SET EPOXY ADHESIVE, AS MANUFACTURED BY SIMPSON STRONG TIE OR AN APPROVED EQUIVALENT. INSTALLATION OF THE DOWELS/ ANCHOR BOLTS SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- GROUT FOR SETTING BEARING SURFACES SHALL BE NON-SHRINK
- WALLS RETAINING EARTH, OTHER THAN WALLS DESIGNED AS CANTILEVERS, SHALL BE ADEQUATELY BRACED UNTIL CONCRETE FOR THE SUPPORTING SLABS HAS BEEN PLACED AND SUFFICIENTLY CURED.
- UNLESS SPECIFICALLY SHOWN OR NOTED ON THE DRAWINGS, NO STRUCTURAL MEMBER SHALL BE CUT, NOTCHED, BORED, OR OTHERWISE WEAKENED WITHOUT THE PERMISSION OF THE STRUCTURAL ENGINEER

TYPICAL ABBREVIATIONS

A.B.	ANCHOR BOLT	ELEV.	ELEVATION	P.C.	PRECAST OR PILE CAP
ADD'L	ADDITIONAL	EXIST.	EXISTING	PL.	PLATE
ARCH'L	ARCHITECTURAL	E.W.	EACH WAY	PREFAB.	PREFABRICATED
BM.	BEAM	F.F.	FINISHED FLOOR	P.T.	PRESSURE TREATED
B.P.	BASE PLATE	FIN.	FINISH(ED)	REF.	REFERENCE
BRG.	BEARING	F.L.	FLOOR	REINF.	REINFORCEMENT
BSMT.	BASEMENT	FND.	FOUNDATION	SECT.	SECTION
BTM.	BOTTOM	FTG.	FOOTING	SIM.	SIMILAR
BTR.	BETTER	GALV.	GALVANIZED	STD.	STANDARD
CMU	CAST IN PLACE	H.C.	HOLLOW CORE	STL.	STEEL
C.I.P.	CONTROL OR CONSTRUCTION JOINT	H.D.G.	HOT DIP GALVANIZED	STRUC.	STRUCTURAL
CLR.	CLEAR	H.S.	HEADED STUD	SQ.	SQUARE
COL.	CONCRETE MASONRY UNIT	HSS	HOLLOW STRUCTURAL SECTION	T.O.S.	TOP OF SLAB / TOP OF STEEL
COMP.	COMPOSITE	COLLUM	COLLUM	T.O.W.	TOP OF WALL
CONC.	CONCRETE	JST.	JOIST	TRANS.	TRANSVERSE
CONST.	CONSTRUCTION	JT.	JOINT	TYP.	TYPICAL
CONT.	CONTINUOUS	LT.	LIGHT	U.O.N.	UNLESS OTHERWISE NOTED
COORD.	COORDINATE	MAS.	MASONRY	V.I.F.	VERIFY IN FIELD
DET.	DETAIL	MAX.	MAXIMUM	VERT.	VERTICAL
DIA.	DIAMETER	MECH.	MECHANICAL	WF	WIDE FLANGE
DWG	DRAWING	MANUF.	MANUFACTURER	WOLM.	WOLMANIZED
E.B.	EXPANSION BOLT	MIN.	MINIMUM	WT.	WEIGHT
E.O.S.	EDGE OF SLAB	NOM.	NOMINAL	W.W.F.	WELDED WIRE FABRIC
E.O.W.	EDGE OF WALL	N.T.S.	NOT TO SCALE		
EQ.	EQUAL	O.H.	OPPOSITE HAND		
		O.C.	ON CENTER		



1 OVERALL PLAN
S0.1

Reviewed: EKM AS NOTED 04/04/2024
Scale: PLY
Drawn: EKM
Checked: EKM

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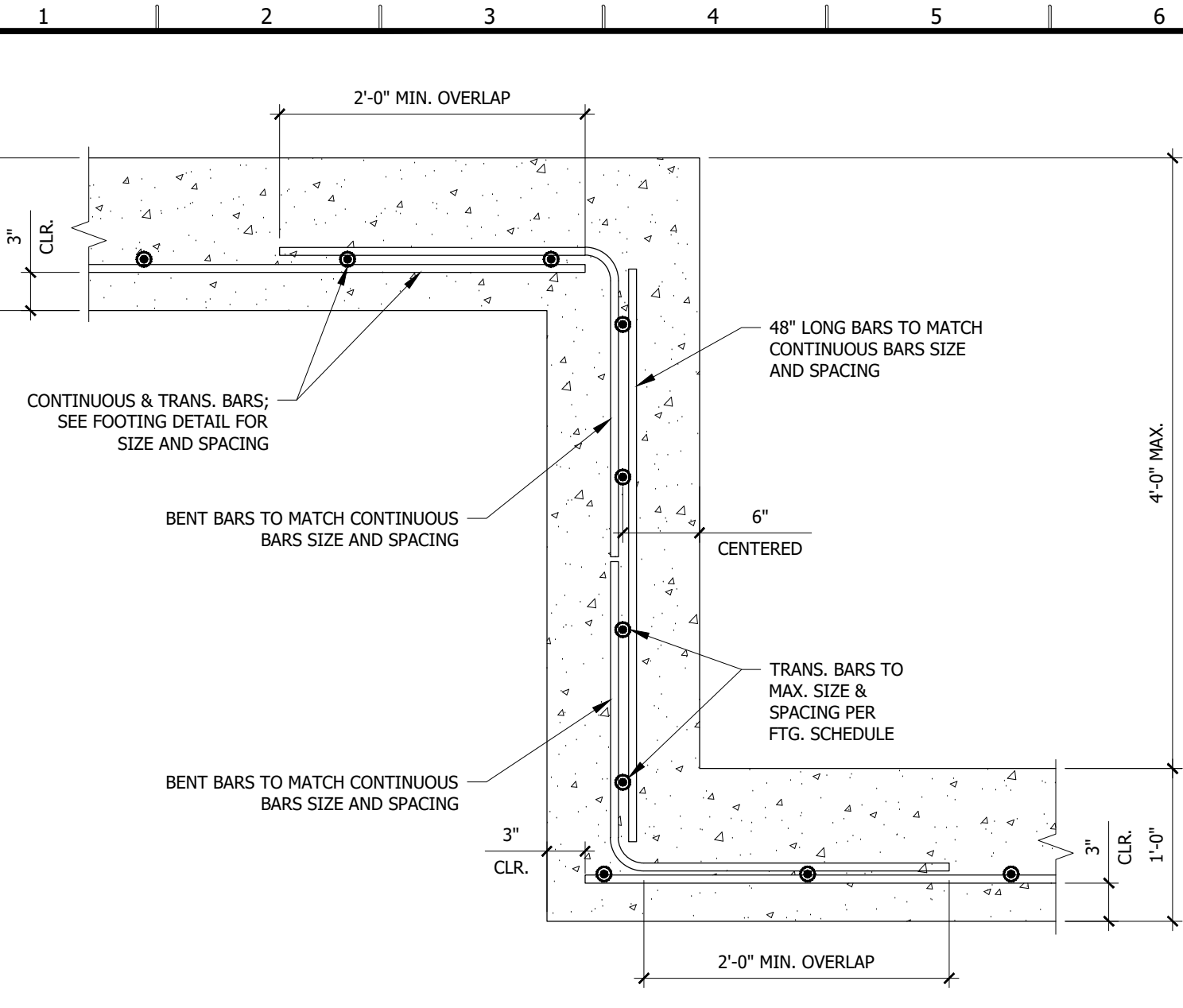
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Project No: **871623**

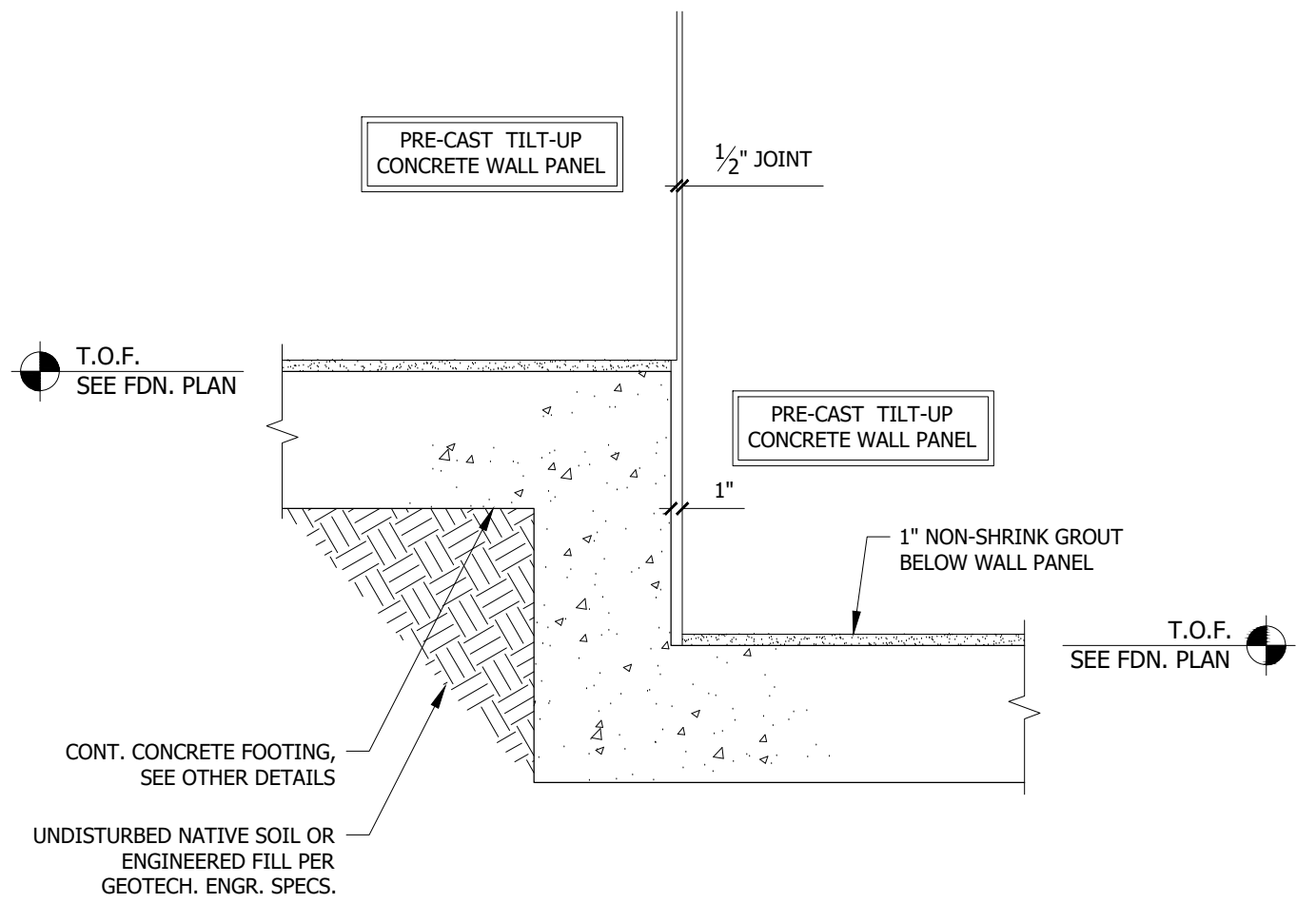
S0.1
1 OF 8

Drawing Title: **TYPICAL FOUNDATION DETAILS**

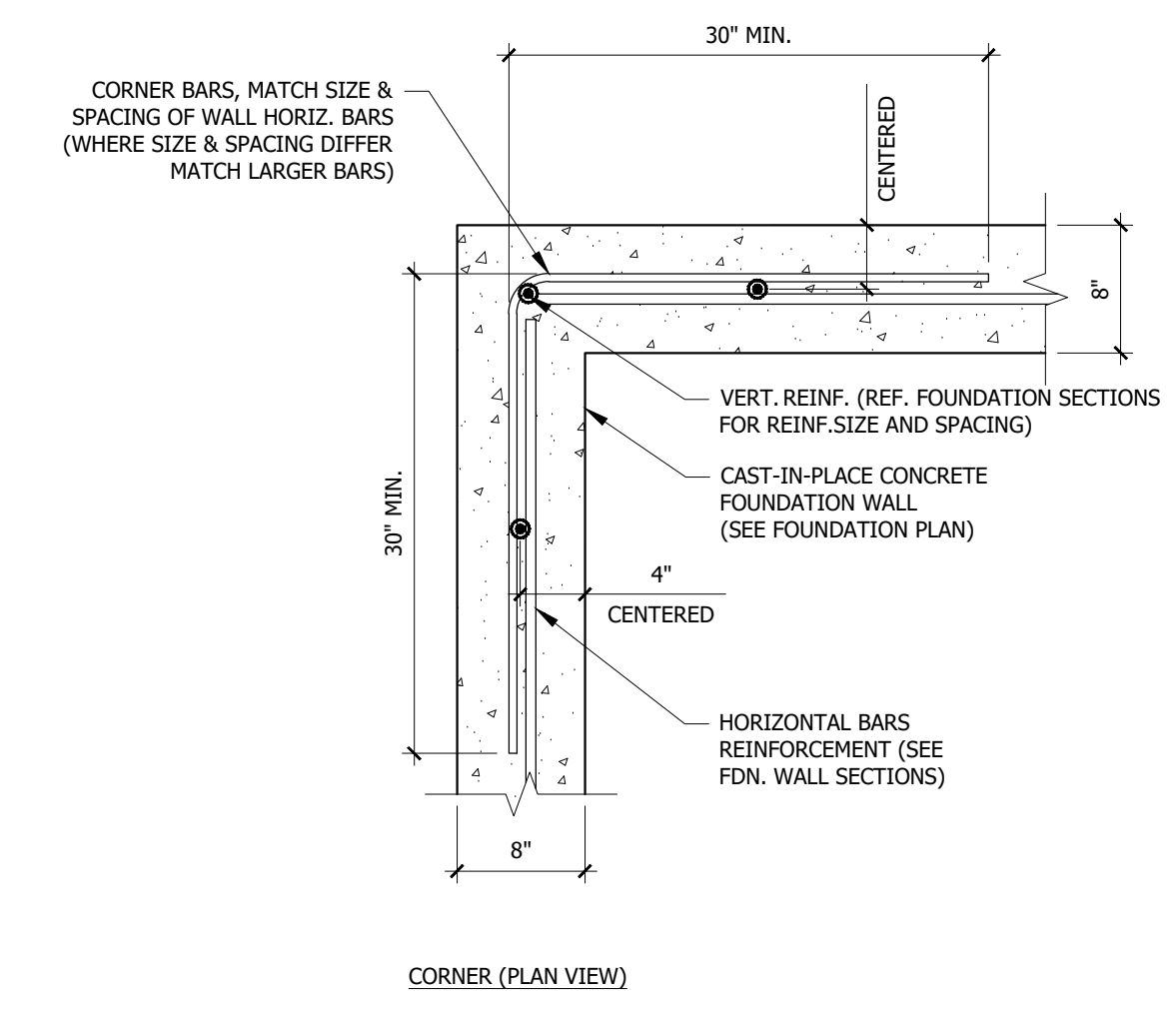
SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2)
NORTH CAROLINA
BREVARD



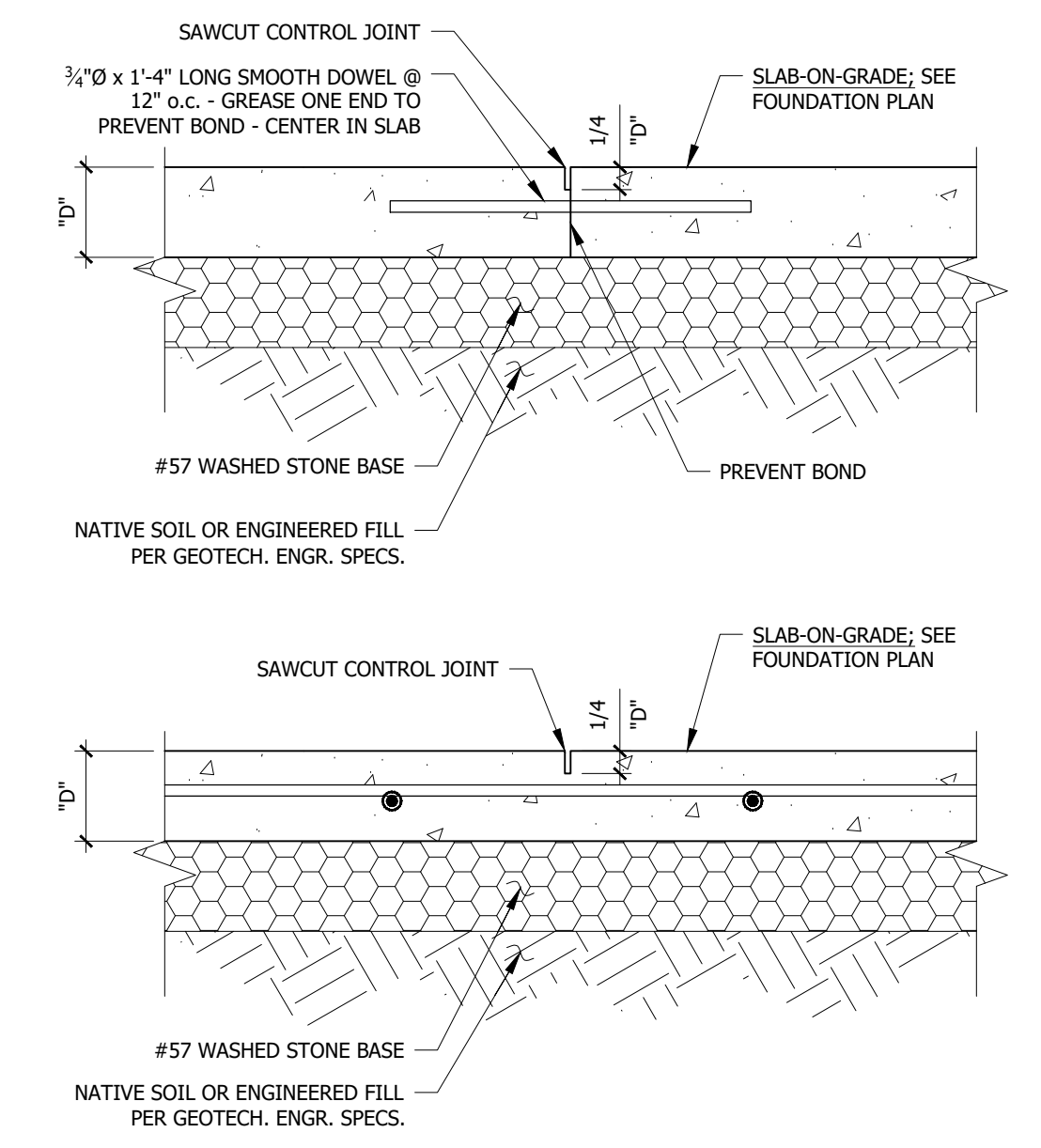
1 FOOTING STEP DETAIL (TYP.)
S0.2 SCALE: 1"=1'-0"



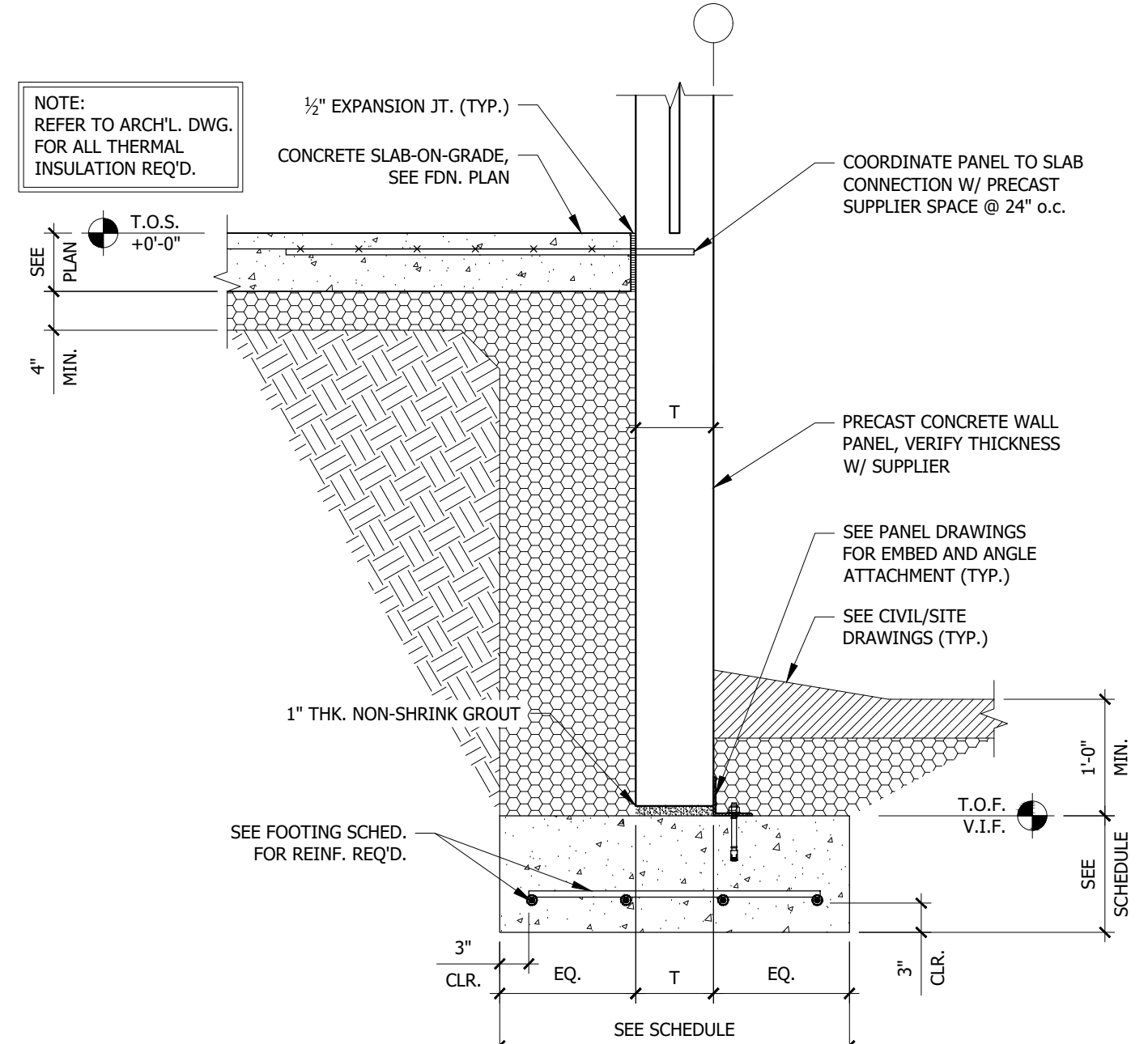
2 ELEVATION FOOTING STEP (TYP.)
S0.2 SCALE: 3/4"=1'-0"



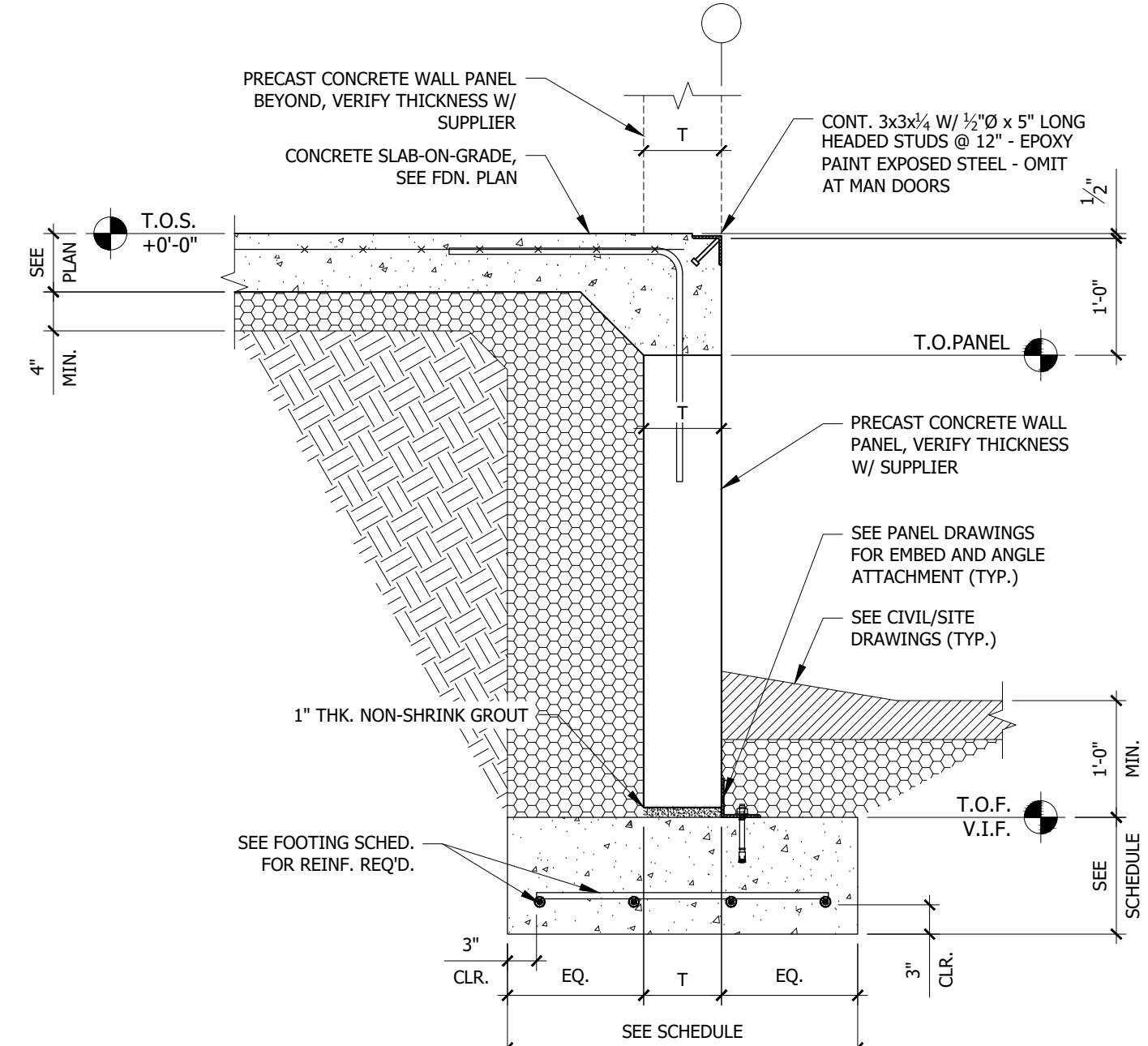
3 8" CIP WALL CORNER REINF. DETAIL (TYP.)
S0.2 SCALE: 1"=1'-0"



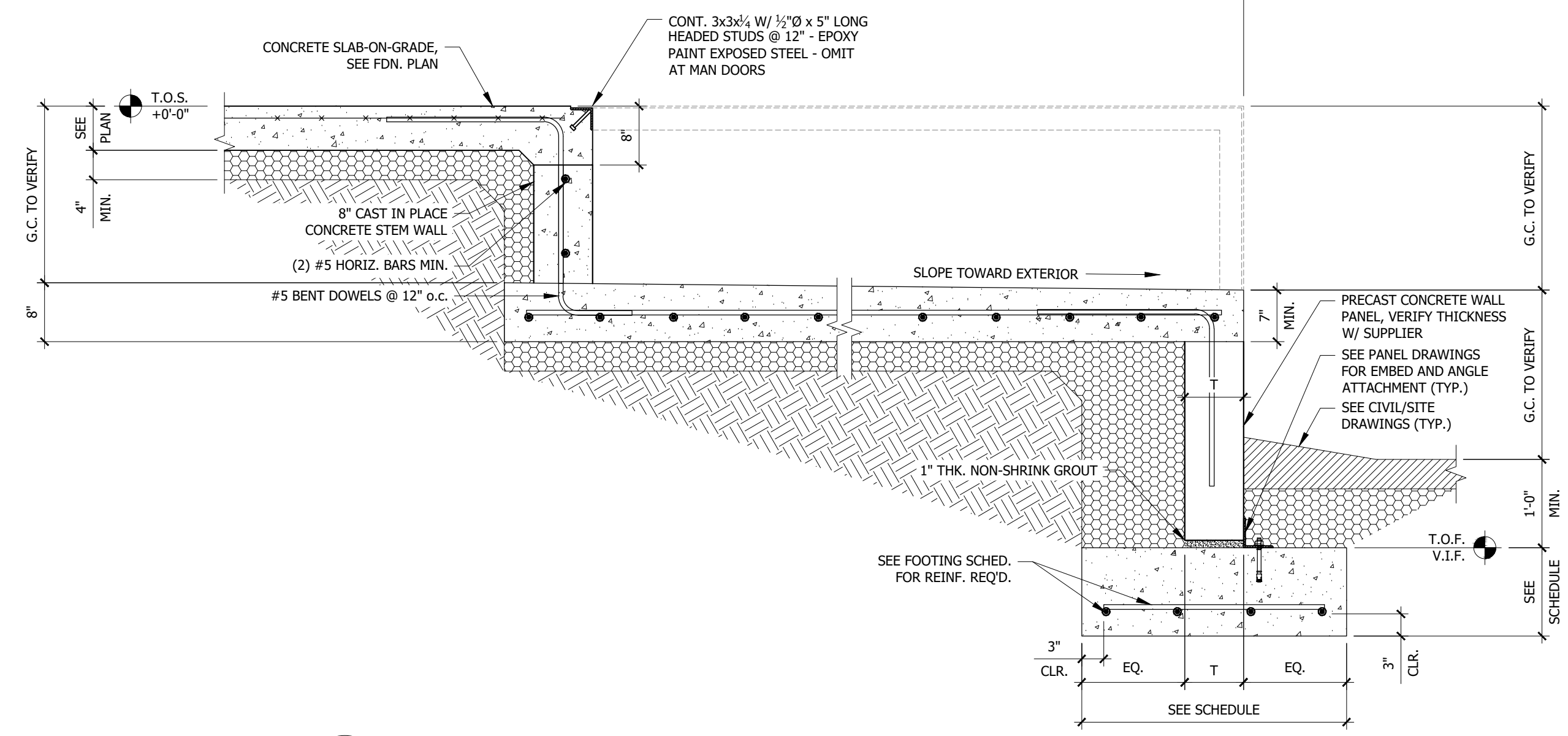
4 CONTROL / CONST. JOINT DETAIL (TYP.)
S0.2 SCALE: 1-1/2"=1'-0"



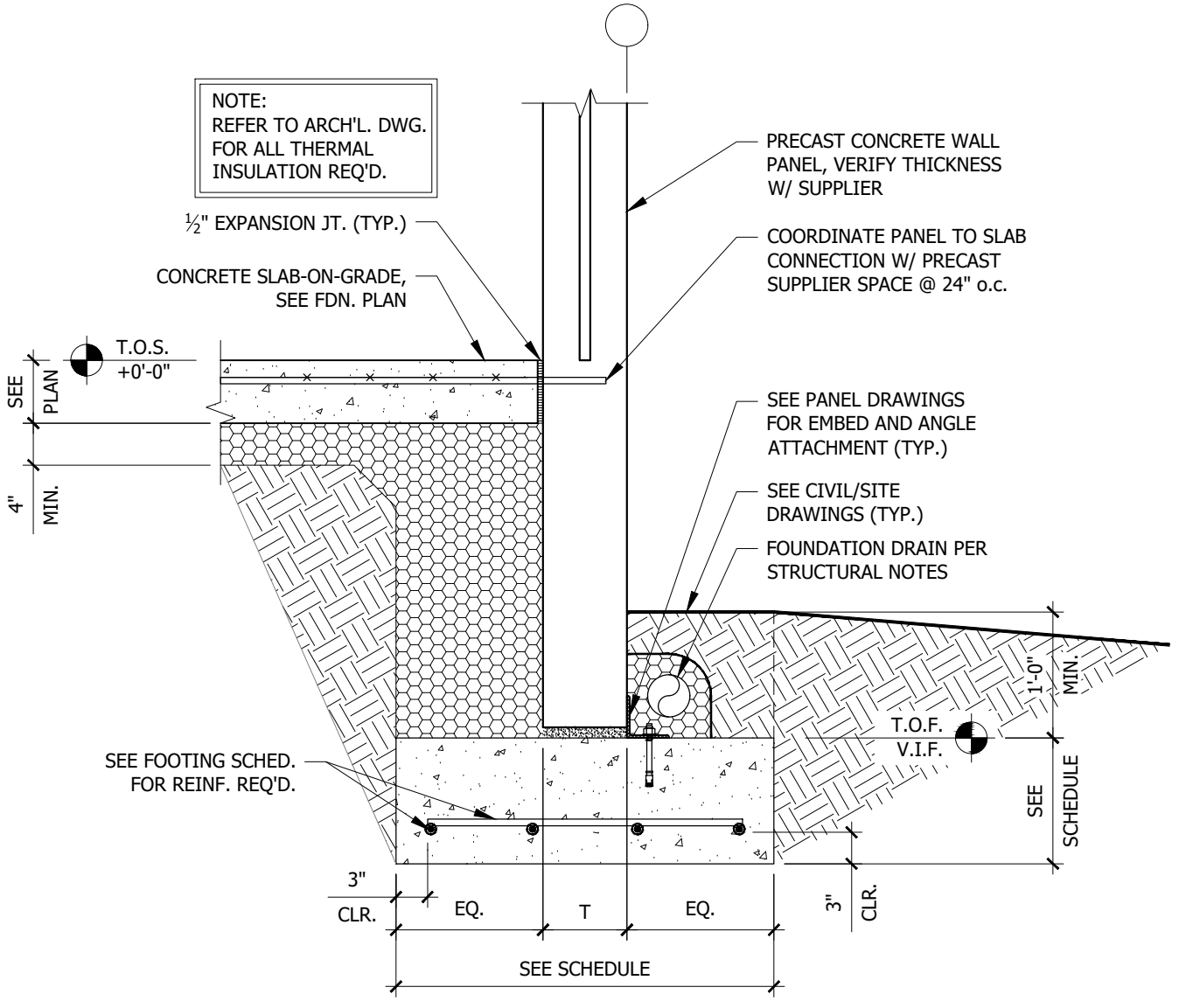
5 SECTION AT DOCK WALL (TYP.)
S0.2 SCALE: 3/4"=1'-0"



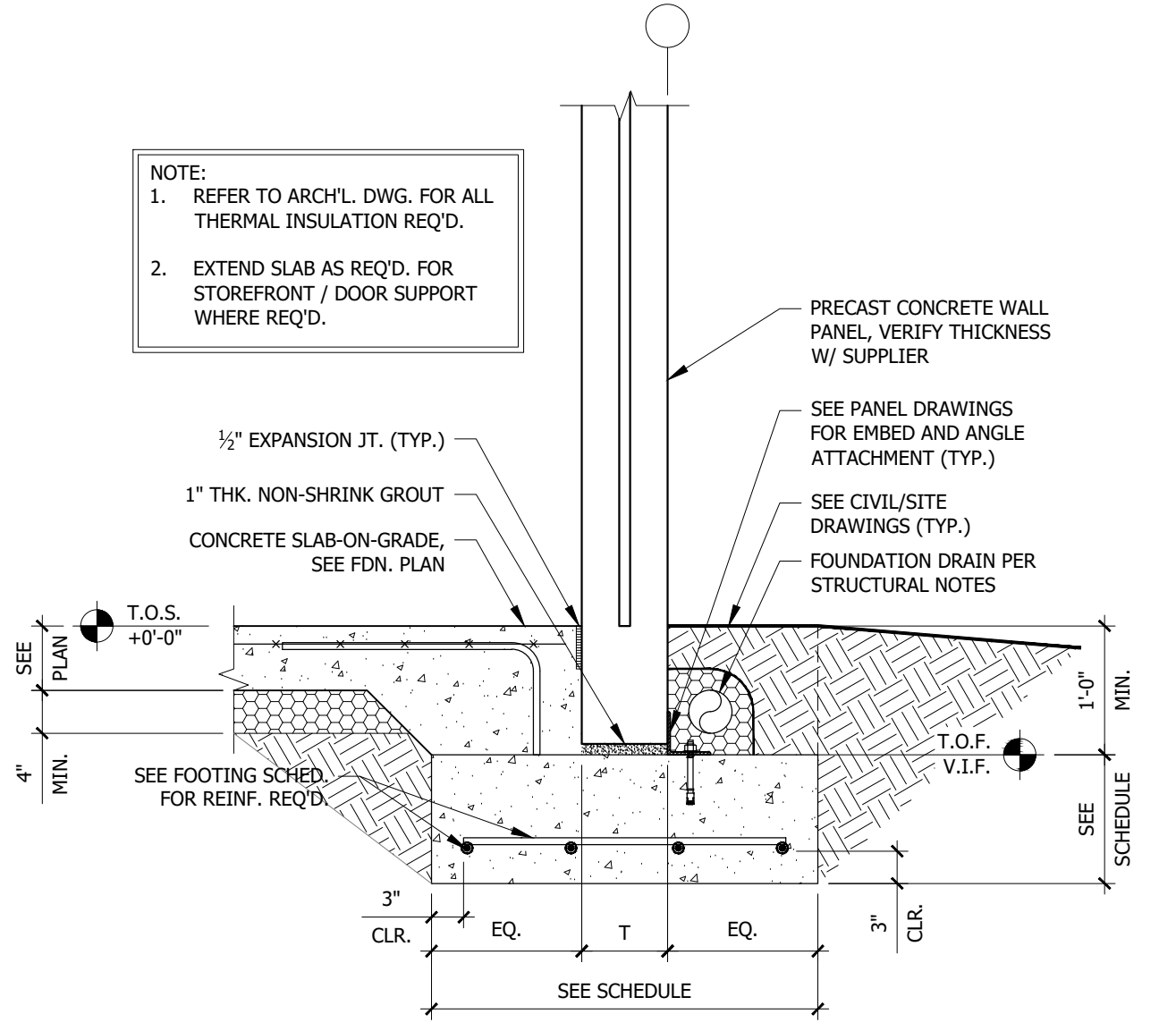
6 SECTION AT DOCK WALL (TYP.)
S0.2 SCALE: 3/4"=1'-0"



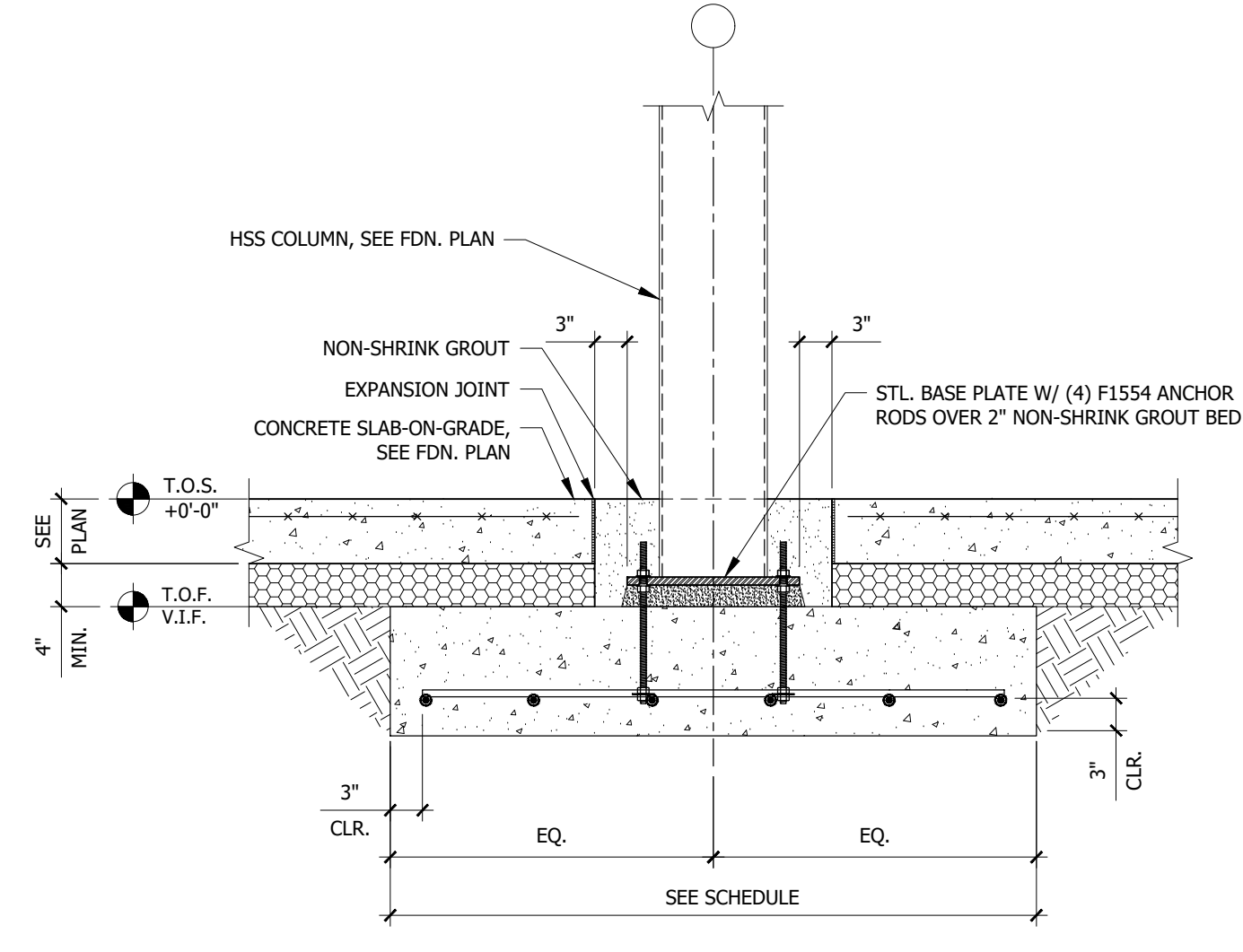
7 SECTION AT DOCK LEVELER (TYP.)
S0.2 SCALE: 3/4"=1'-0"



8 EXTERIOR WALL FOOTING SECTION (TYP.)
S0.2 SCALE: 3/4"=1'-0"



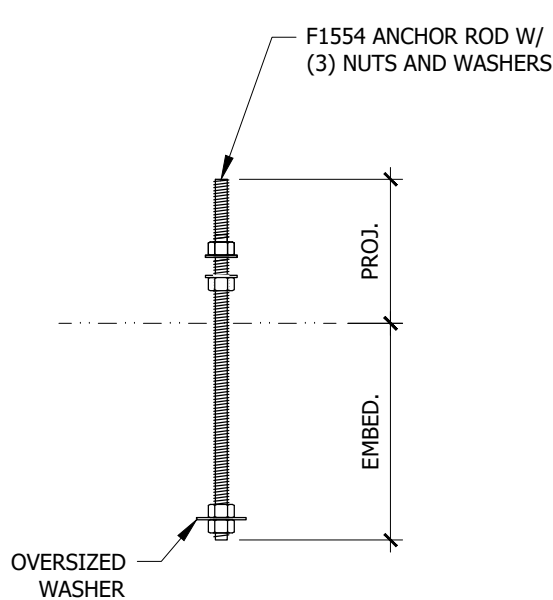
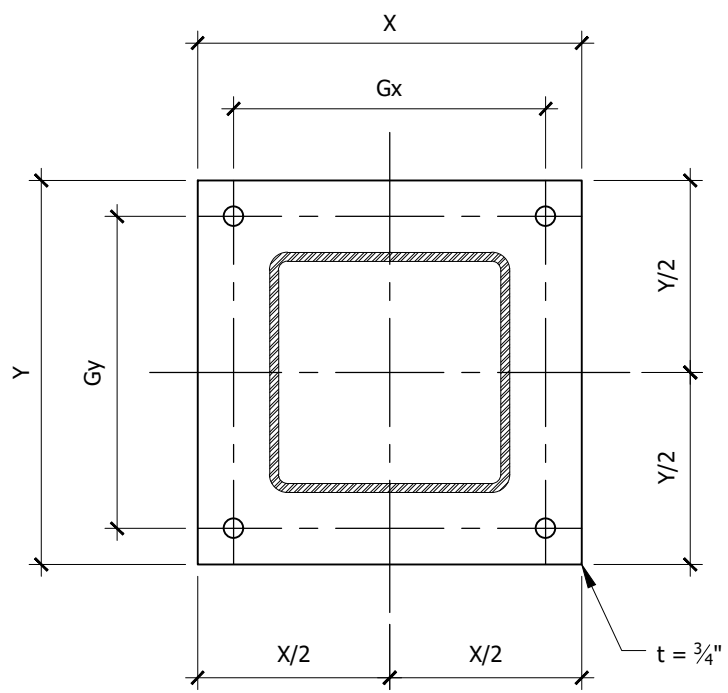
9 TURNDOWN SLAB AT OPENING (TYP.)
S0.2 SCALE: 3/4"=1'-0"



10 COL. FOOTING DETAIL (TYP.)
S0.2 SCALE: 3/4"=1'-0"

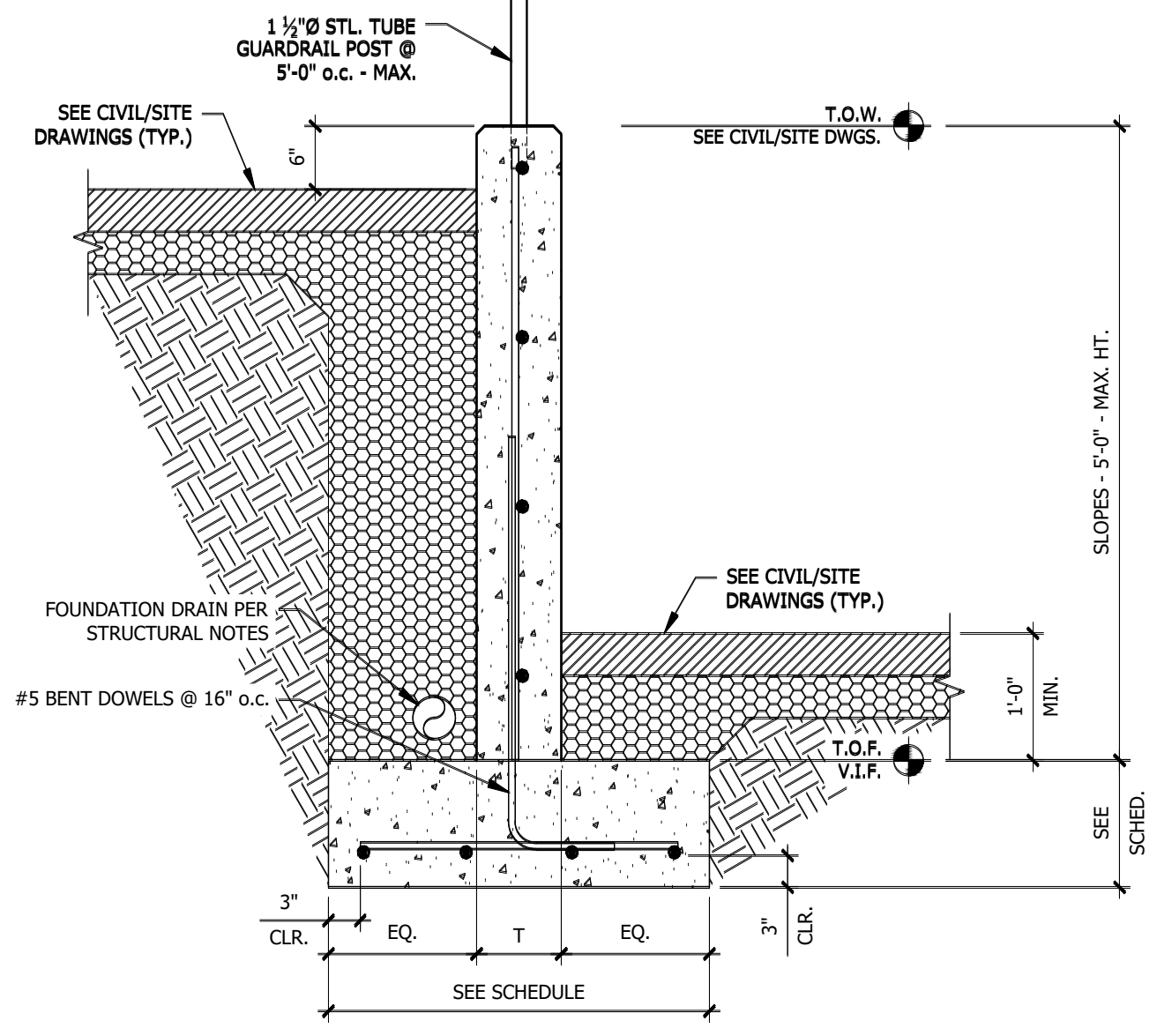
04-04-24

		<p>REVISIONS/SUBMISSIONS</p>
<p>PROJECT No: 871623</p>		<p>Date: --/--</p>
<p>PROJECT: SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2)</p>		<p>No. 1</p>
<p>LOCATION: NORTH CAROLINA</p>		<p>DESIGNED BY: EKM</p>
<p>DRAWING TITLE: TYPICAL FOUNDATION SECTIONS & DETAILS</p>		<p>CHECKED BY: PLY</p>
<p>DRAWING No: S0.2</p>		<p>SCALE: AS NOTED</p>
<p>DATE: 2 OF 8</p>		<p>DATE: 04/04/2024</p>
<p>PROJECT ADDRESS: 53 Asheland Avenue, Suite 101, Asheville, NC 28801</p>		<p>DESIGNED BY: EKM</p>
<p>PHONE: (828) 232-4448</p>		<p>DRAWN BY: PLY</p>
<p>FAX: (828) 232-5224</p>		<p>CHECKED BY: EKM</p>
<p>NC Cert. # C-3133</p>		<p>CONSTRUCTION ASSISTANCE</p>

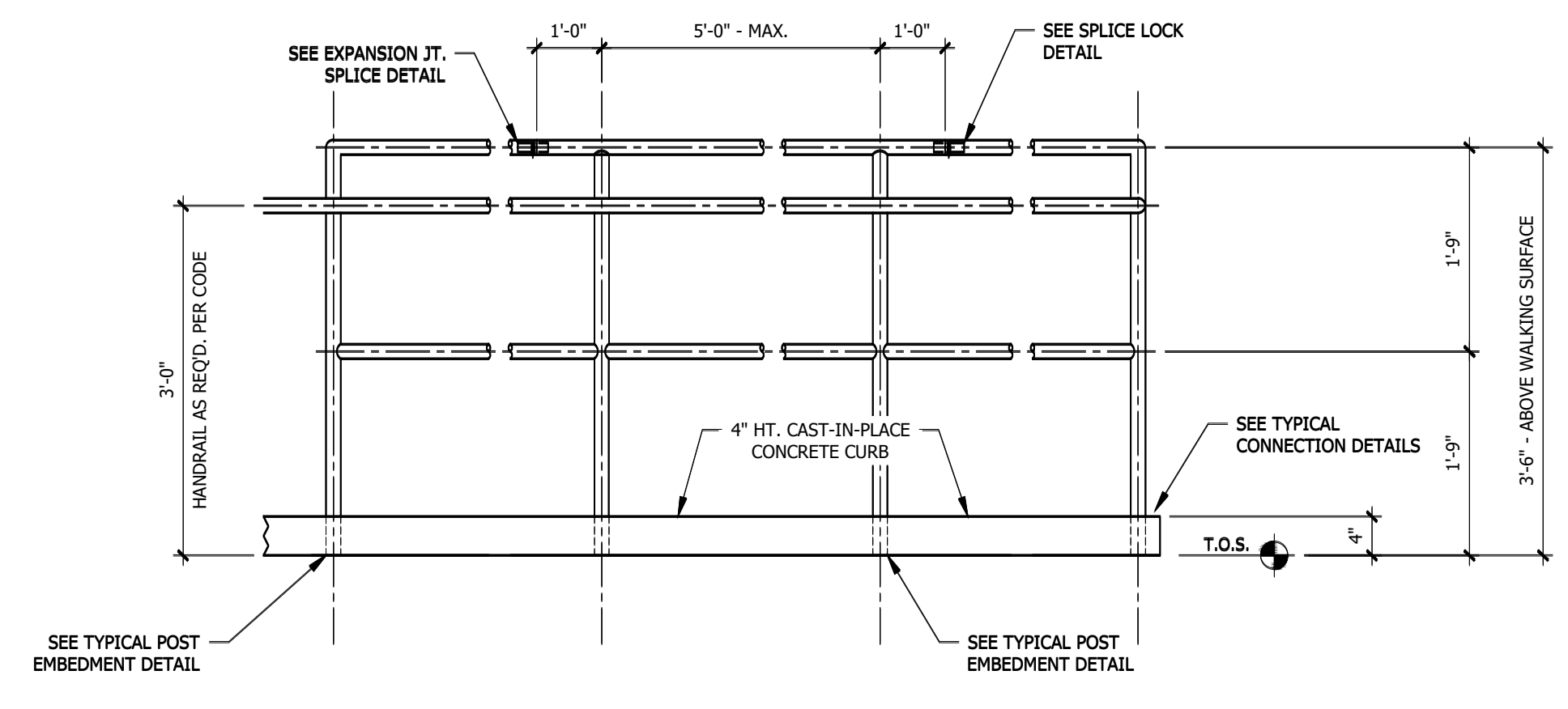


COLUMN	MEMBER SIZE		GAGE		ANCHOR ROD			GROUT		
	THICK.	X	Y	Gx	Gy	DIA.	PROJ.		EMBED.	GRADE
HSS 10x10x3/4	3/4"	16"	16"	13"	13"	3/4"	6"	9"	36 KSI	2"

1 COL. BASE PL. & ANCH. ROD SCHED.
SCALE: 1-1/2"=1'-0"

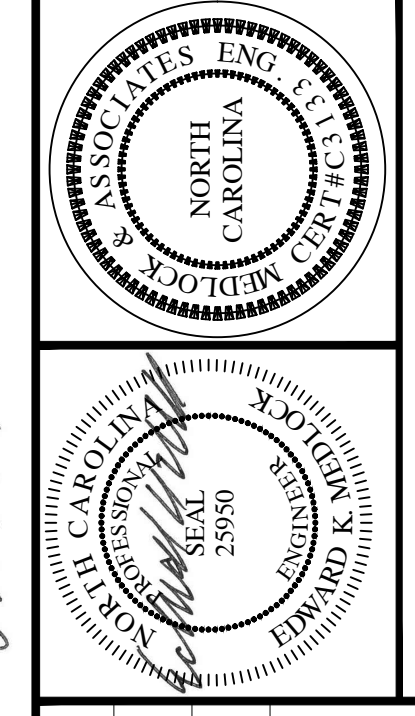


2 CONCRETE SITE WALL (TYP.)
SCALE: 3/4"=1'-0"



3 GUARDRAIL ELEVATION (TYP.)
SCALE: 3/4"=1'-0"

No.	REVISIONS/SUBMISSIONS	Date



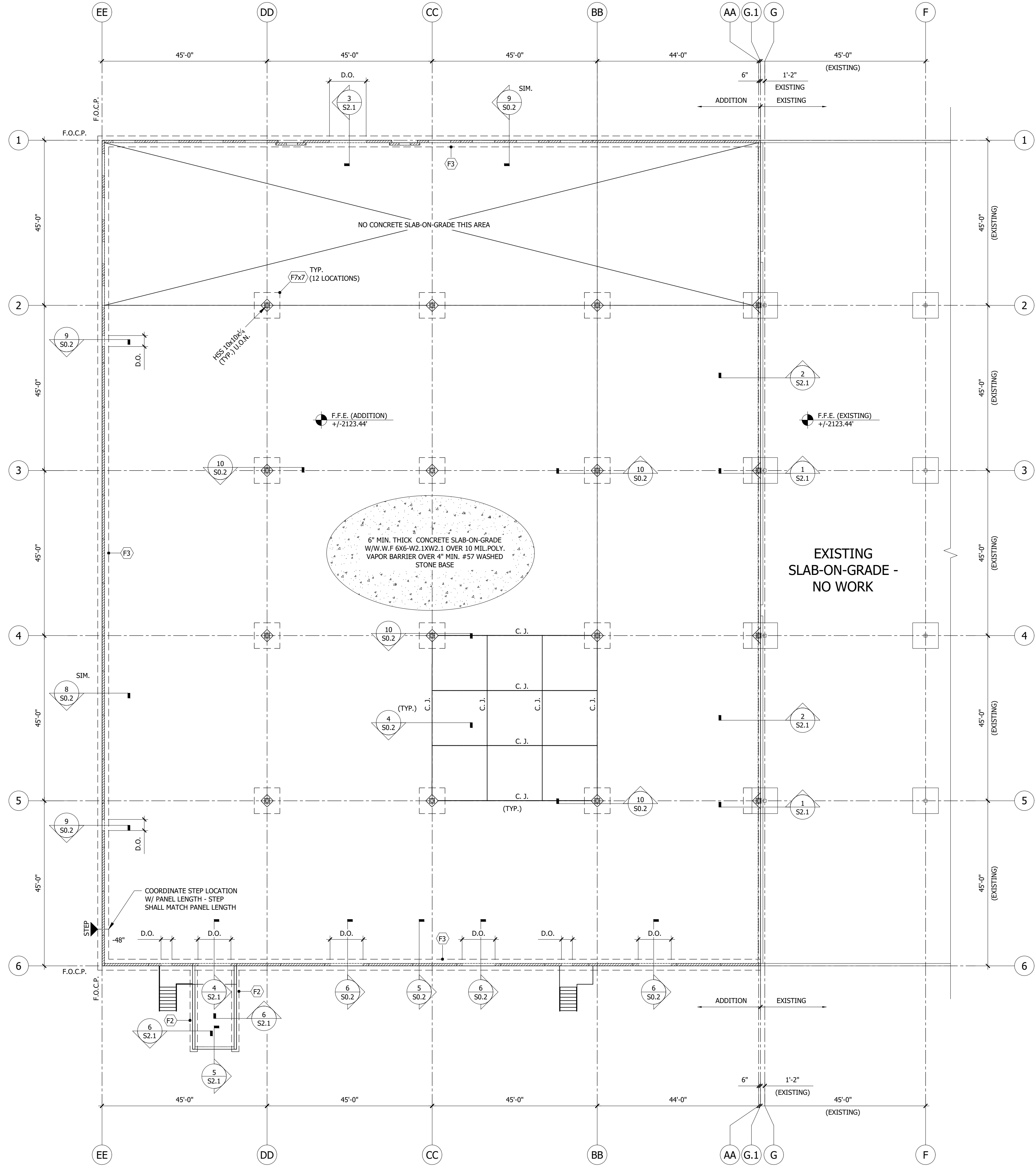
CONSTRUCTION SET

Reviewed: EKM AS NOTED 04/04/2024
 Scale: AS NOTED
 Date: 04/04/2024
 Designated: EKM
 Drawn: PLY
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 NC Cert. # C-3133



Project No: 871623
 Drawing Title: TYPICAL FOUNDATION SECTIONS & DETAILS
 3 OF 8
 SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2)
 NORTH CAROLINA
 BREVARD

04-04-24



- PLAN NOTES:
- VERIFY ALL T.O.F. ELEVATIONS IN THE FIELD.
 - ALL DIMENSIONS ARE TAKEN FROM FACE OF CONCRETE PANEL, EDGE OF SLAB-ON-GRADE OR TO CENTERLINE OF PIER/COLUMN. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR VERIFYING & COORDINATING ALL DIMENSIONS W/ ARCH'L DRAWINGS & DETAILS. NOTIFY THE ENGINEER OF RECORD OF ANY DISCREPANCIES OR INCONSISTENCIES. WORK SHALL NOT CONTINUE UNTIL ENGINEER HAS ISSUED A CLARIFICATION.
 - "CJ" DENOTES CONTROL JOINT, PROVIDE SAWCUT CONTROL JOINTS IN CONCRETE SLAB-ON-GRADE AS REQ'D. OR SHOWN. SPACE JOINTS (IN FEET) 2-3 TIMES THE SLAB THICKNESS (IN INCHES). LOCATE JOINTS TO AVOID RE-ENTRANT CORNERS.
 - SEE DETAIL ON SHEET S0.2.
 - STEP DENOTES STEP FOOTING, SEE TYPICAL FOOTING STEP DETAIL ON SHEET S0.2. STEP FOOTINGS W/ GRADE AS REQUIRED, LOCATIONS AND ELEVATIONS SHOWN ARE APPROXIMATE. THE GENERAL CONTRACTOR IS TO FIELD VERIFY FOOTING STEP LOCATIONS WITH FINAL STAMPED AND SEALED CIVIL GRADING DRAWINGS AND CONCRETE PANEL MANUFACTURERS SHOP DRAWINGS.
 - SEE DETAILS ON SHEET S0.2 FOR CORNER REQUIREMENTS FOR CAST-IN-PLACE CONCRETE WALLS.
 - SEE DETAILS ON SHEET S0.3 FOR REFERENCED COLUMN BASEPLATES.

Schedule of Special Inspection Services
Rammed Aggregate Piers & Stone Columns

Inspection Task	Task Req'd	Freq	Reference for Criteria Standard	Agent
1. Verify that the pier installation program and soil parameters are in accordance with the approved soils report and the construction documents.	☑	C	1705.1.1	
2. During installation, verify the aggregate properties, type and number of lifts of aggregate, pier size, installed depth, top elevation and applied ram energy.	☑	P	1705.1.1	
3. Review the modulus load testing, uplift pull-out testing, bottom or crowd stabilization tests and dynamic cone penetration test results from production pier elements and verify that all comply with the design specifications.	☑	C	1705.1.1	

2018 APPENDIX B: STRUCTURAL DESIGN

DESIGN LOADS:

IMPORTANCE FACTORS: SNOW (I_s) 1.0
 SEISMIC (I_e) 1.0

LIVE LOADS: ROOF 20 psf
 MEZZANINE N/A psf
 FLOOR 250 psf

GROUND SNOW LOAD: 15 PSF

WIND LOAD: ULTIMATE WIND SPEED 106 MPH (ASCE-7)
 EXPOSURE CATEGORY C

SEISMIC DESIGN CATEGORY: A B C D

PROVIDE THE FOLLOWING SEISMIC DESIGN PARAMETERS:
 RISK CATEGORY (TABLE 1604.5) I II III IV
 SPECTRAL RESPONSE ACCELERATION S_s 0.38 %G S_1 0.1 %G
 SITE CLASSIFICATION (ASCE 7) A B C D E F

DATA SOURCE: FIELD TEST PRESUMPTIVE HISTORICAL DATA

BASIC STRUCTURAL SYSTEM (CHECK ONE)
 BEARING WALL DUAL W/SPECIAL MOMENT FRAME
 BUILDING FRAME DUAL W/INTERMEDIATE R/C OR SPECIAL STEEL
 MOMENT FRAME INVERTED PENDULUM
 SIMPLIFIED EQUIVALENT LATERAL FORCE DYNAMIC

ANALYSIS PROCEDURE:
 ARCHITECTURAL, MECHANICAL, COMPONENTS ANCHORED? YES NO

LATERAL DESIGN CONTROL: EARTHQUAKE WIND

SOIL BEARING CAPACITIES:
 FIELD TEST (PROVIDE COPY OF TEST REPORT) 3,000 psf (W/ GEOPIERS)
 PRESUMPTIVE BEARING CAPACITY 3,000 psf
 PILE SIZE, TYPE, AND CAPACITY AGGREGATE PIERS

DESIGNATION	FTG. DIMENSION	REINF. SCHEDULE	REMARKS
(F2)	2'-0" WIDE CONT. X 12" THICK	TRANS: #5 BARS @ 24" O.C. LONG: (3)-#5 BARS CONT.	
(F3)	3'-0" WIDE CONT. X 12" THICK	TRANS: #5 BARS @ 24" O.C. LONG: (4)-#5 BARS CONT.	
(F7x7)	7'-0" SQ. X 12" THICK	(7)-#5 BARS E.W.	

REVISIONS/SUBMISSIONS

No.	Date

04-04-24

AS NOTED
 04/04/2024

DESIGNED BY: EKM
 DRAWN BY: PLY
 CHECKED BY: EKM

53 Ashland Avenue,
 Suite 101
 Asheville, NC 28801
 Phone#: (828) 232-4448
 Fax#: (828) 232-5224
 NC Cert. # C-3133

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CONSTRUCTION SET

SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2)

NORTH CAROLINA

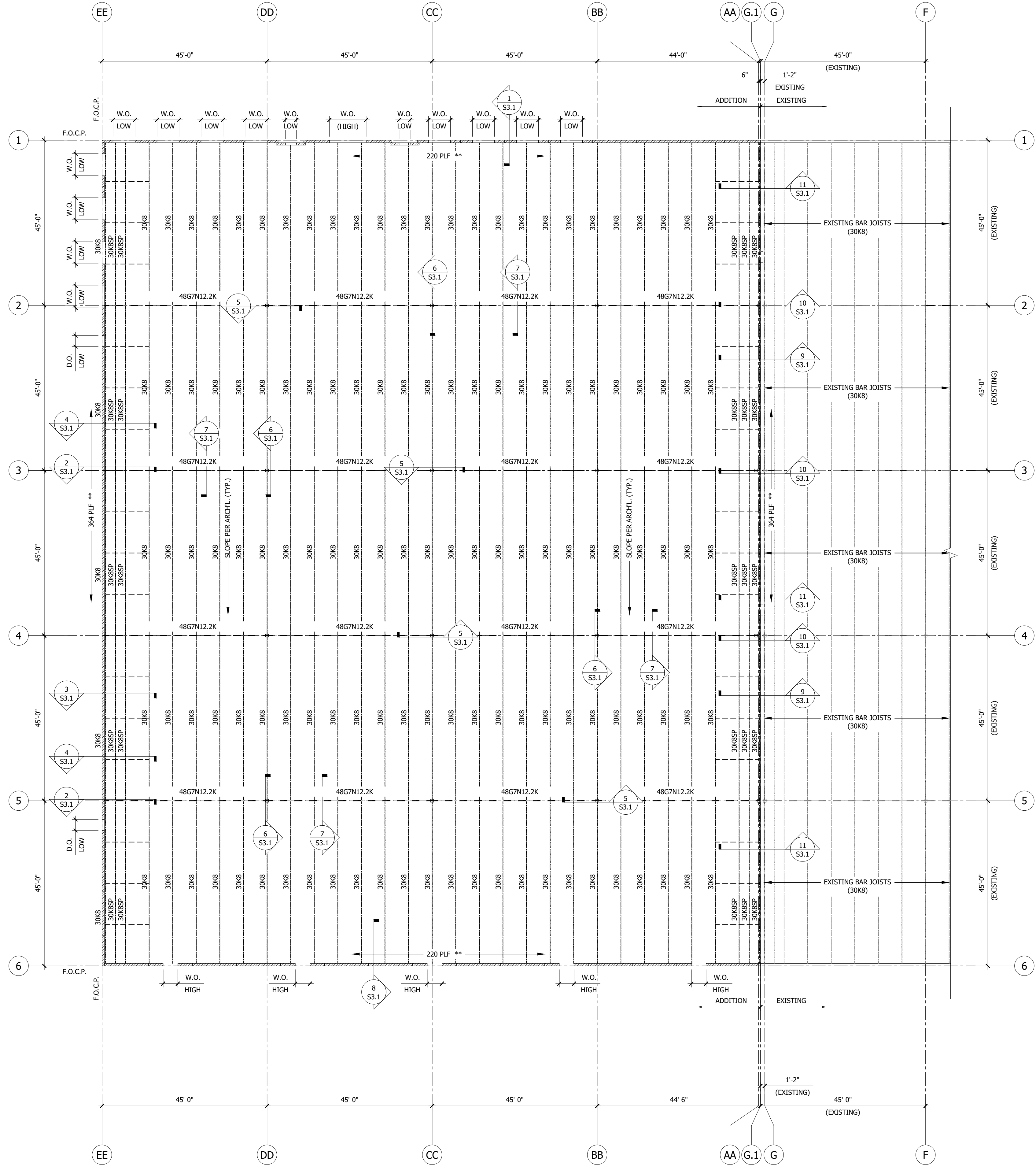
BREVARD

Project No: 871623

S1.1
 5 OF 8

Drawing Title: FOUNDATION PLAN

1 FOUNDATION PLAN
 S1.1 SCALE: 1/16"=1'-0"

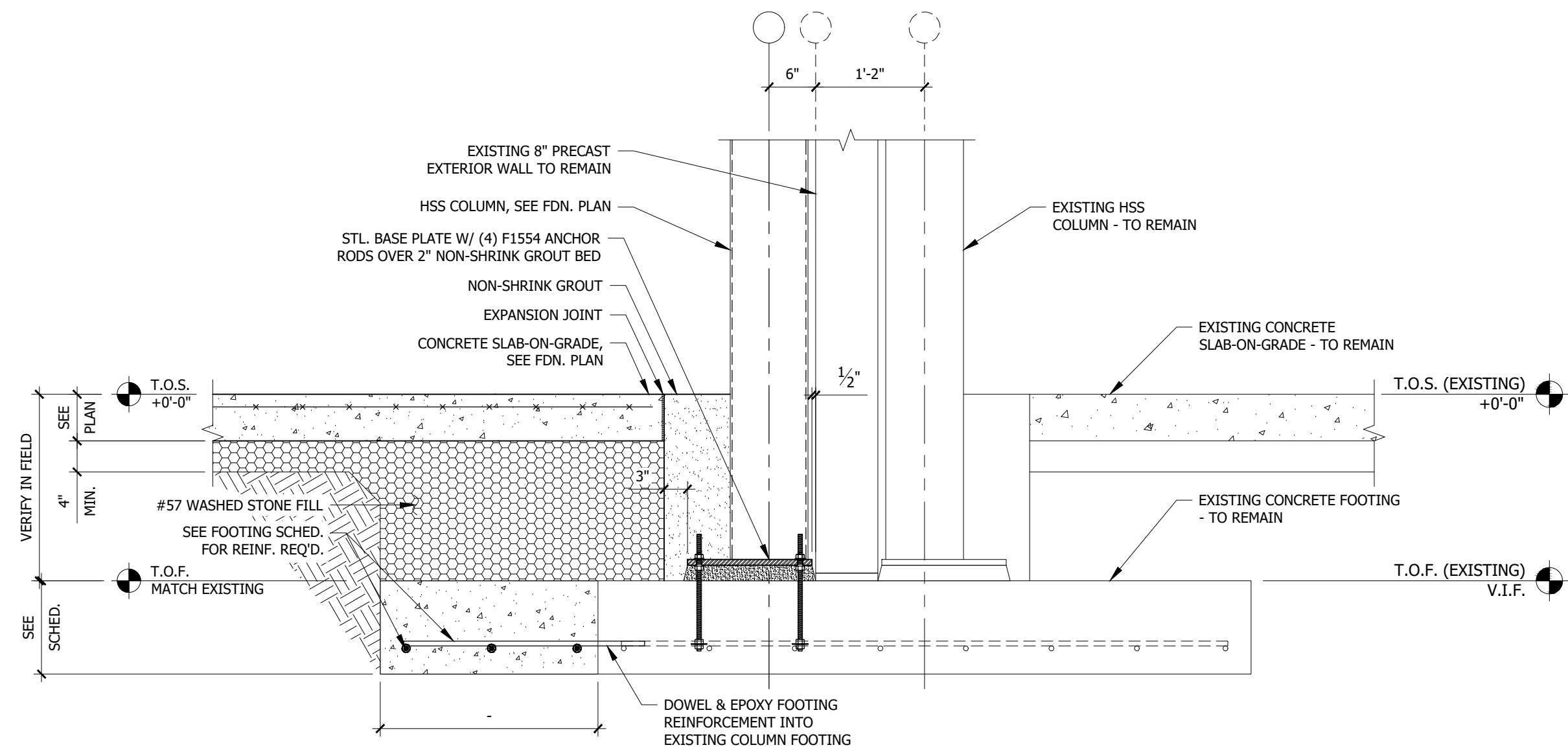


NOTES:
 ** DENOTES ANTICIPATED LATERAL LOAD TO BE TRANSFERRED INTO PRECAST CONCRETE WALL PANELS.

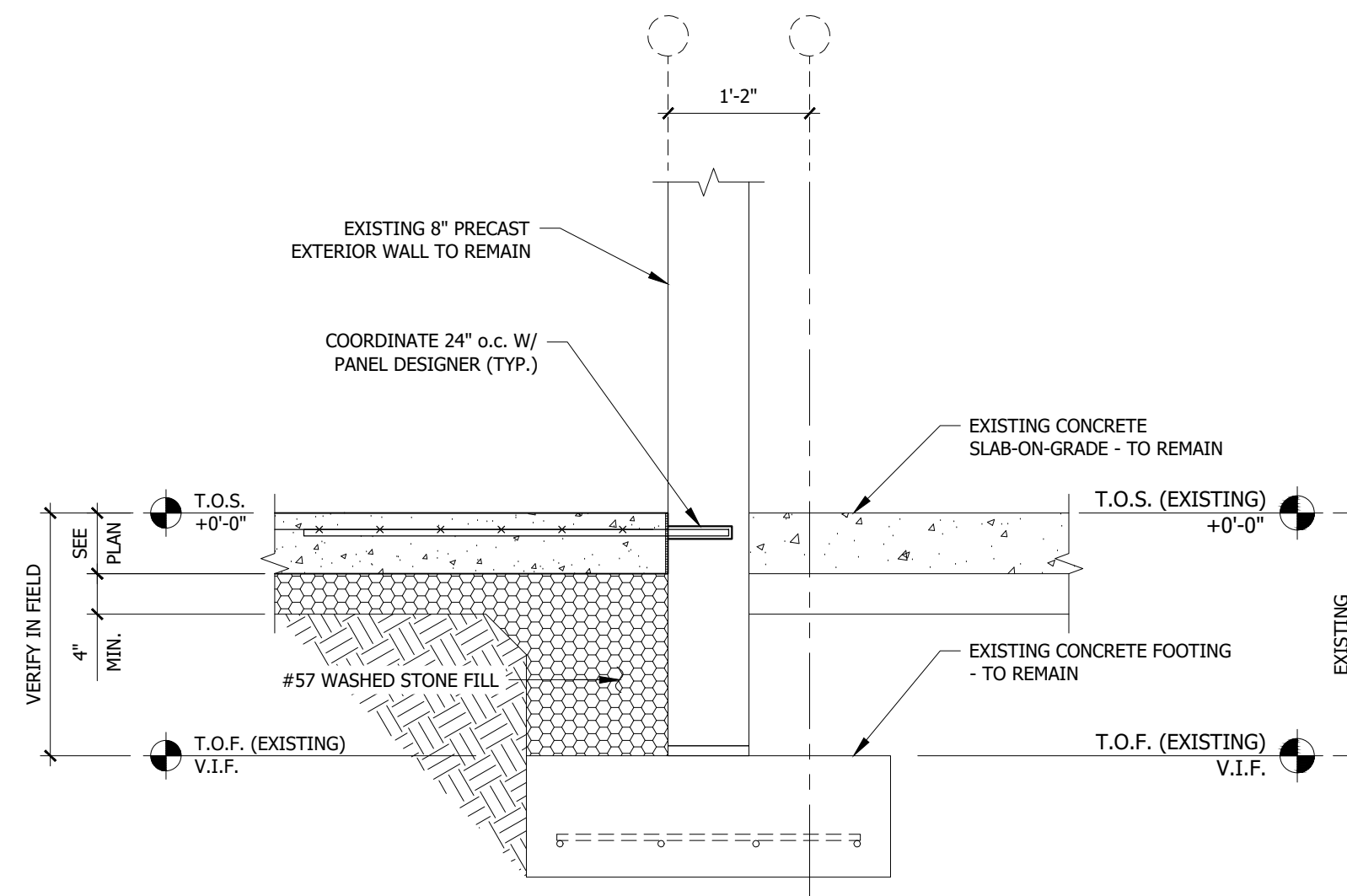
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S1.2 ROOF FRAMING PLAN
 SCALE: 1/16" = 1'-0"

04-04-24

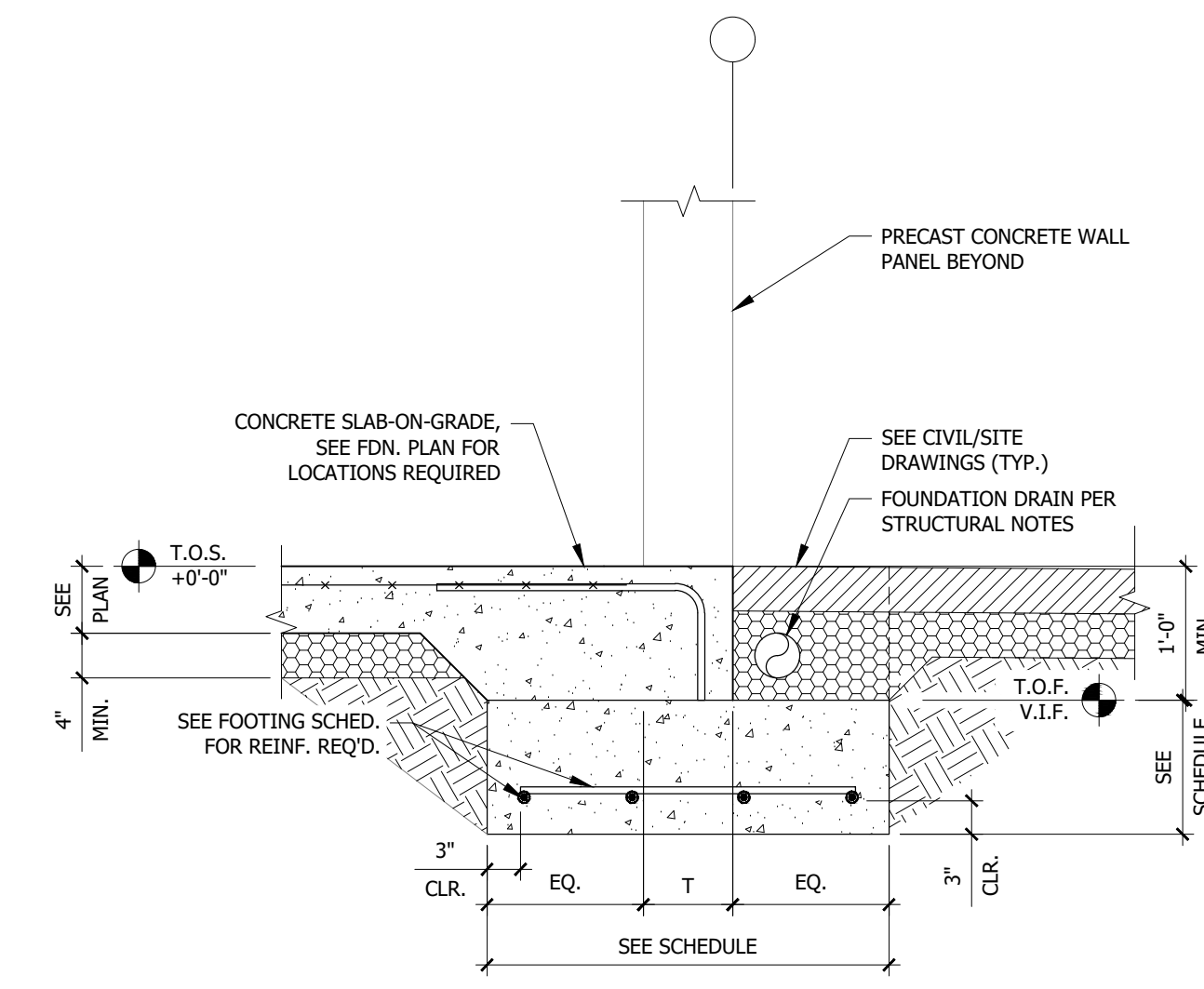
REVISIONS/SUBMISSIONS No. _____ Date --/--	
CONSTRUCTION SET	
Project No: 871623	Drawing Title: ROOF FRAMING PLAN
Drawing No: S1.2 6 OF 8	Project Name: SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2) Location: NORTH CAROLINA BREVARD
Designer: EKM Drawn: PLY Checked: EKM Scale: AS NOTED Date: 04/04/2024	
Medlock & Associates Engineering, P.A. 53 Asheville Avenue, Suite 101 Asheville, NC 28801 Phone#: (828) 232-4448 Fax#: (828) 232-5224 NC Cert. # C-3133	
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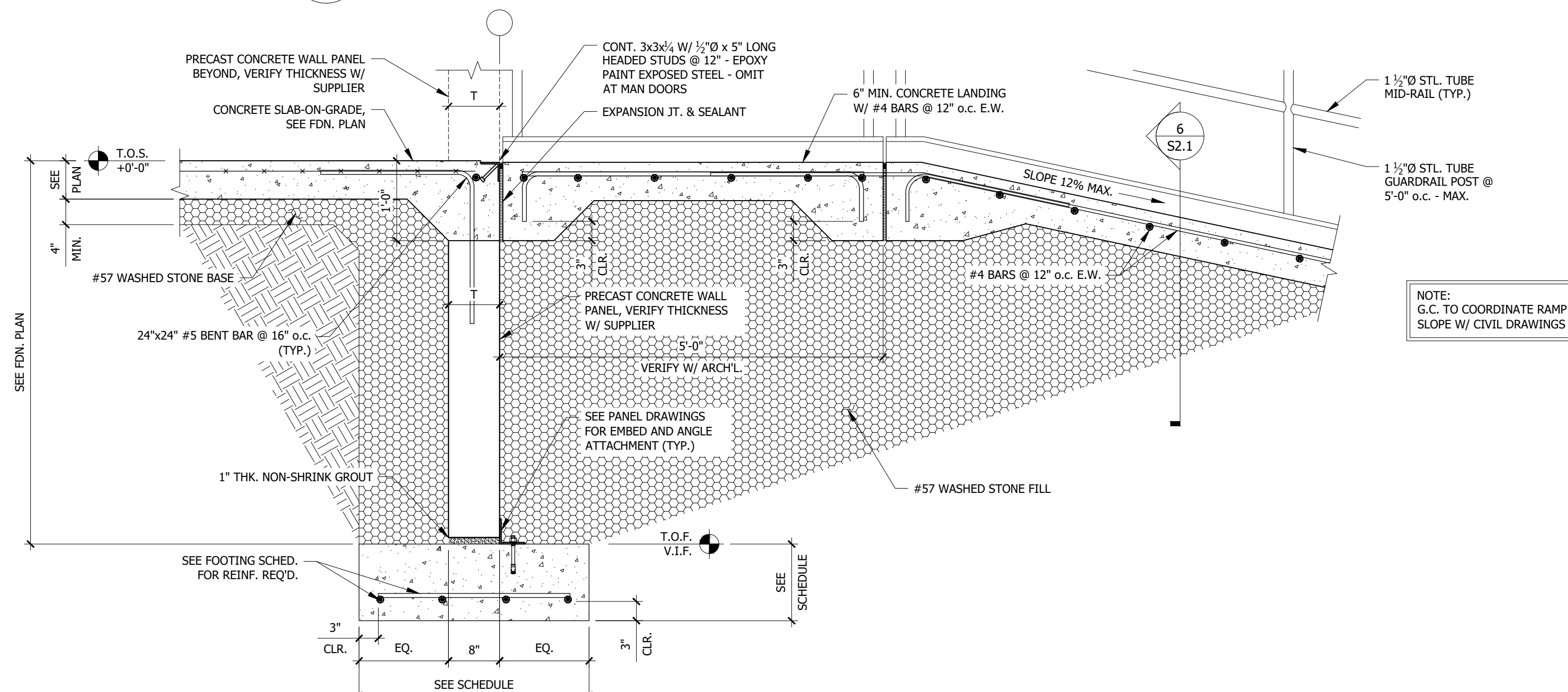
1 COLUMN FOOTING DETAIL AT EXISTING WALL
S2.1 SCALE: 3/4"=1'-0"



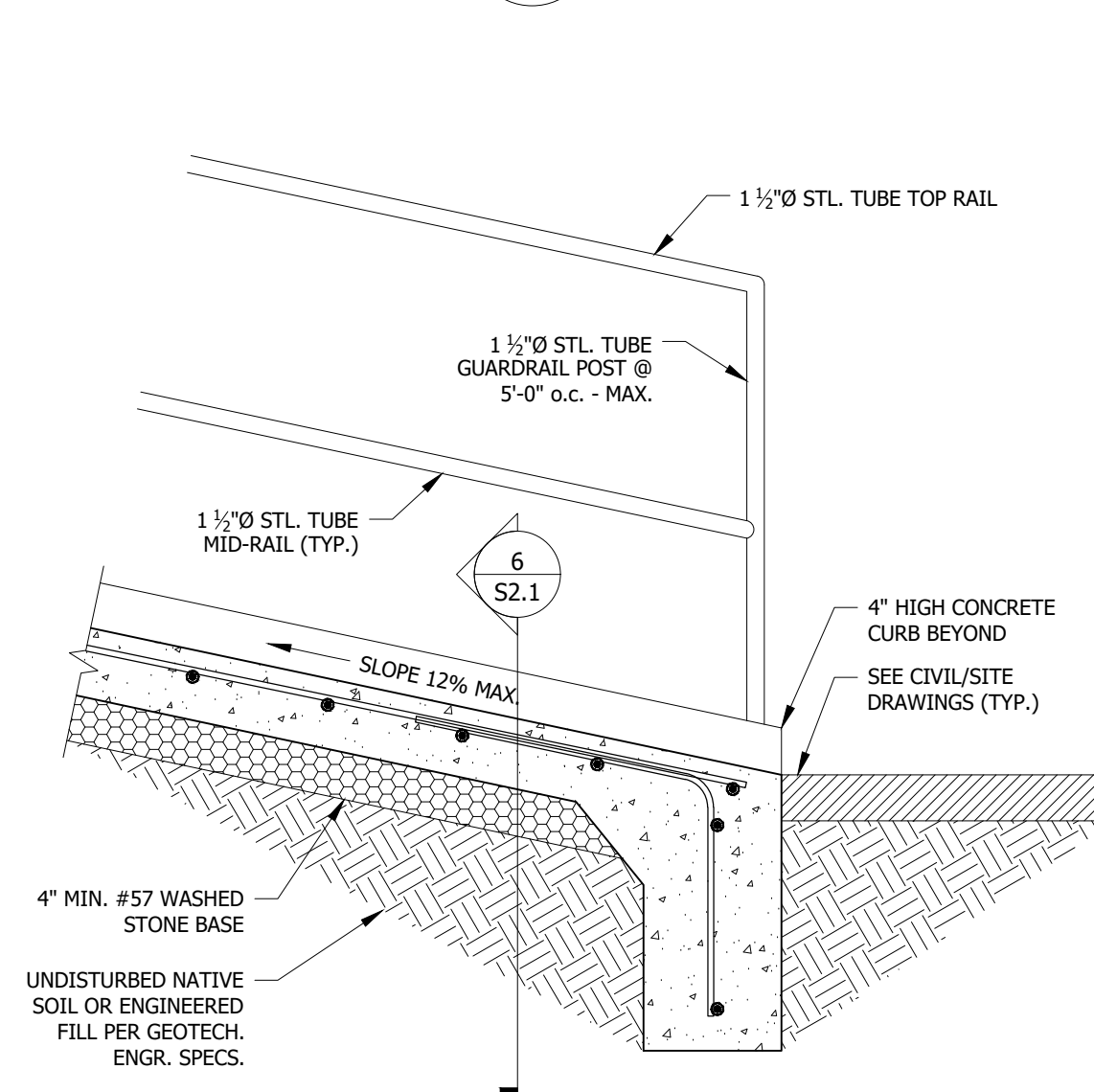
2 EDGE OF SLAB DETAIL AT EXISTING WALL
S2.1 SCALE: 3/4"=1'-0"



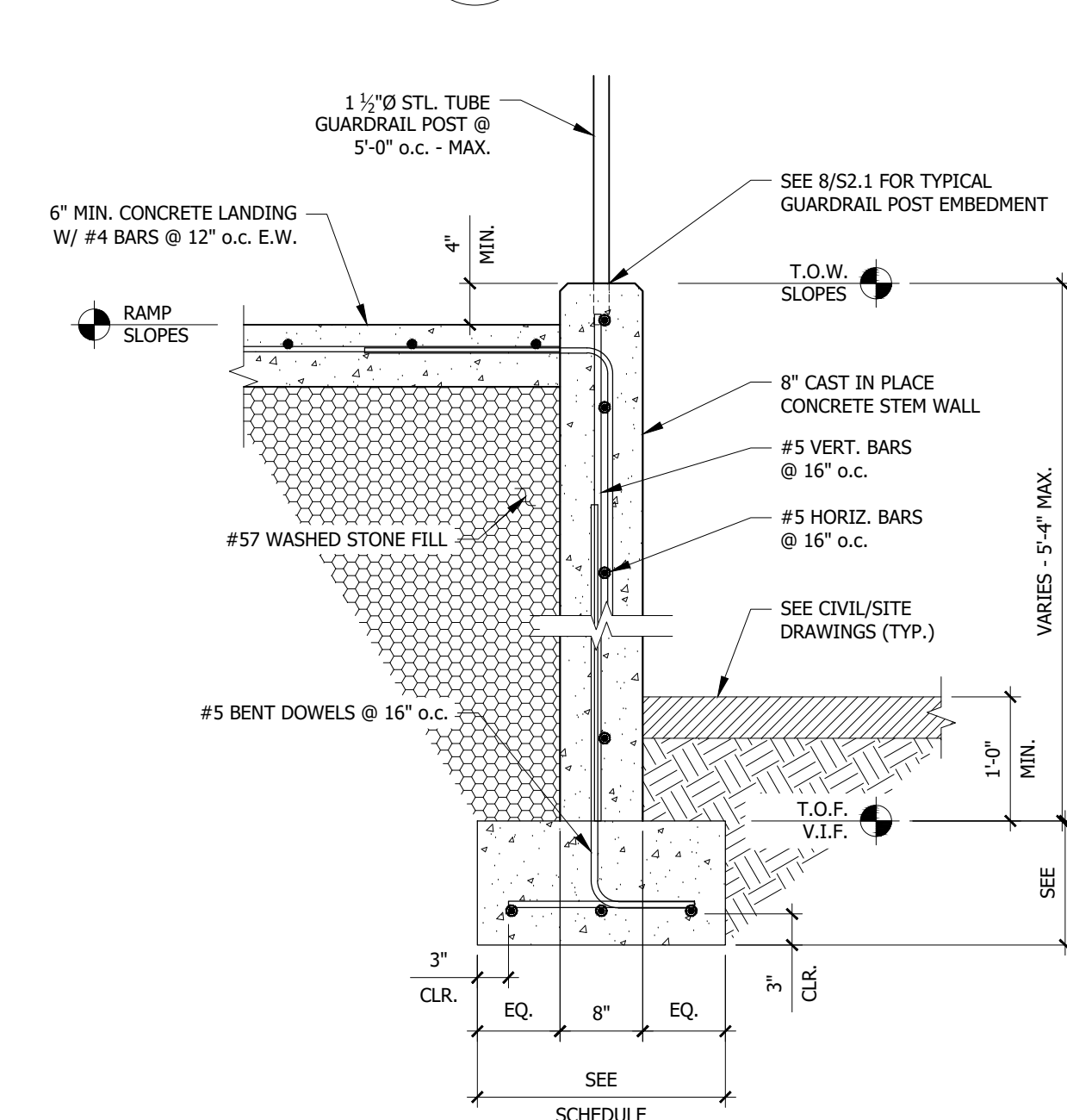
3 EXTERIOR WALL FOOTING SECTION
S2.1 SCALE: 3/4"=1'-0"



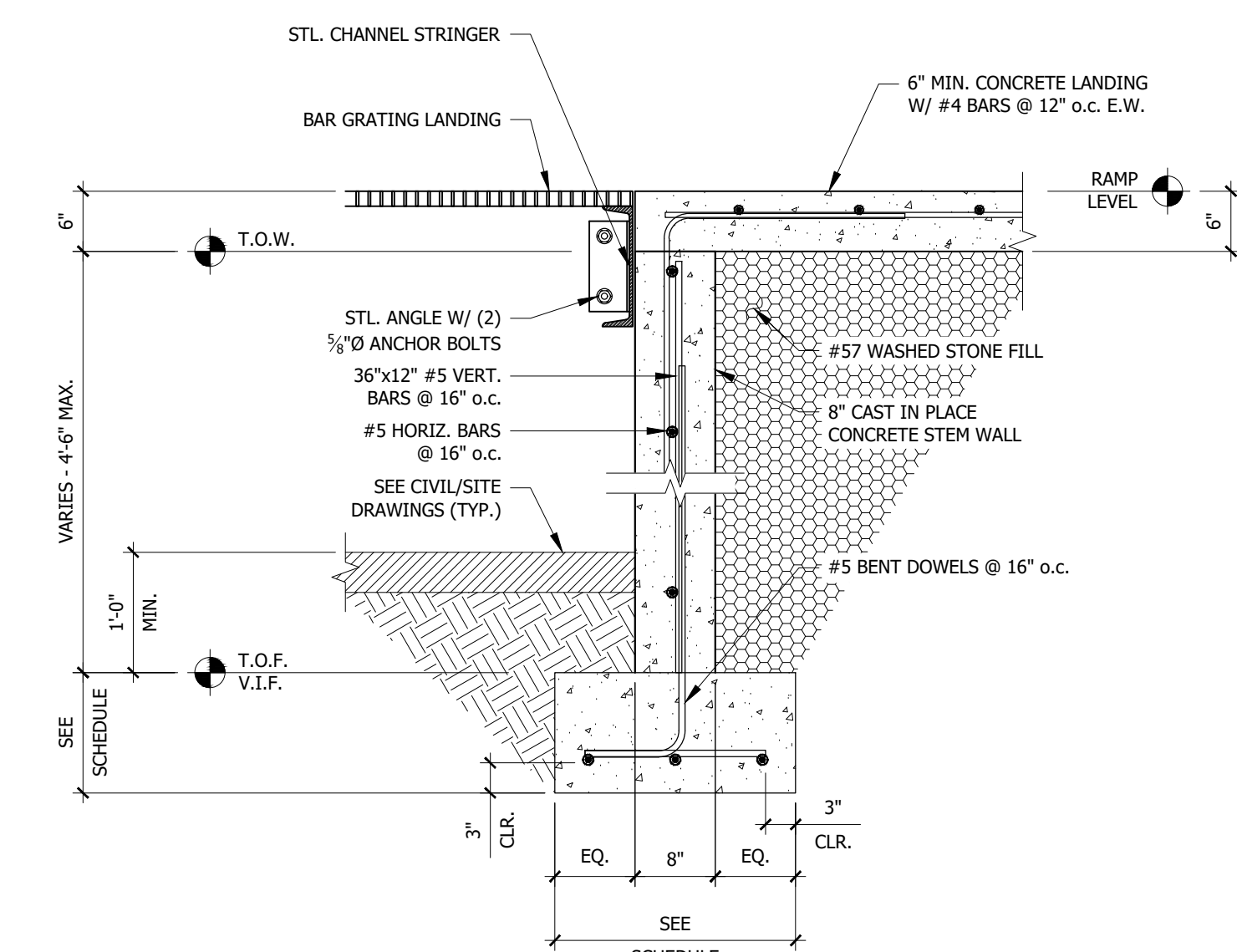
4 SECTION AT RAMP
S2.1 SCALE: 3/4"=1'-0"



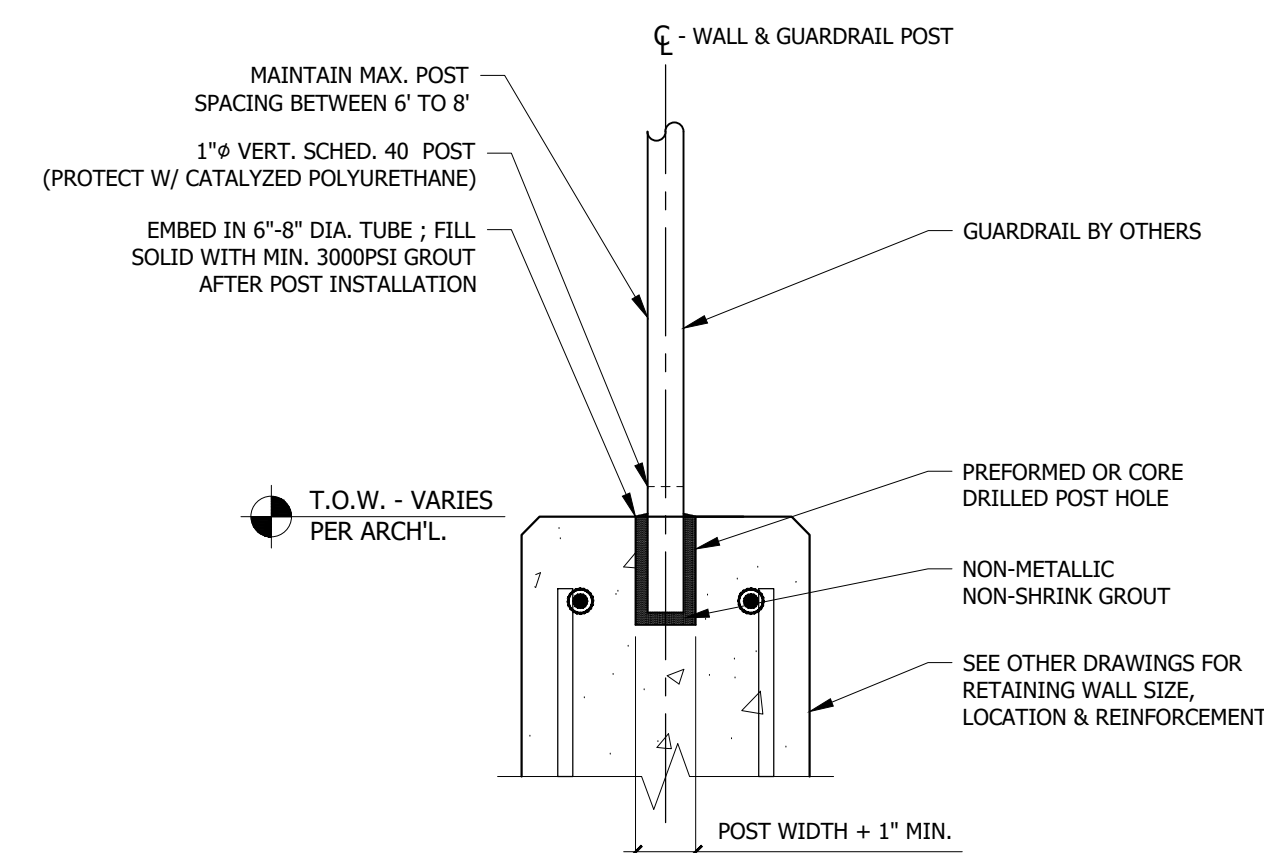
5 SECTION AT RAMP
S2.1 SCALE: 3/4"=1'-0"



6 SECTION AT RAMP
S2.1 SCALE: 3/4"=1'-0"

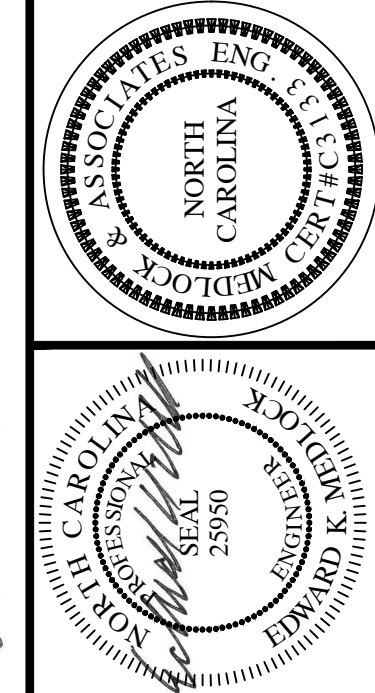


7 SECTION AT LANDING
S2.1 SCALE: 3/4"=1'-0"



8 GUARDRAIL POST EMBEDMENT DETAIL (TYP.)
S2.1 SCALE: 1-1/2"=1'-0"

04-04-24



CONSTRUCTION SET

Reviewed: EKM	AS NOTED	Date: 04/04/2024
Drawn: PLY		
Checked: EKM		

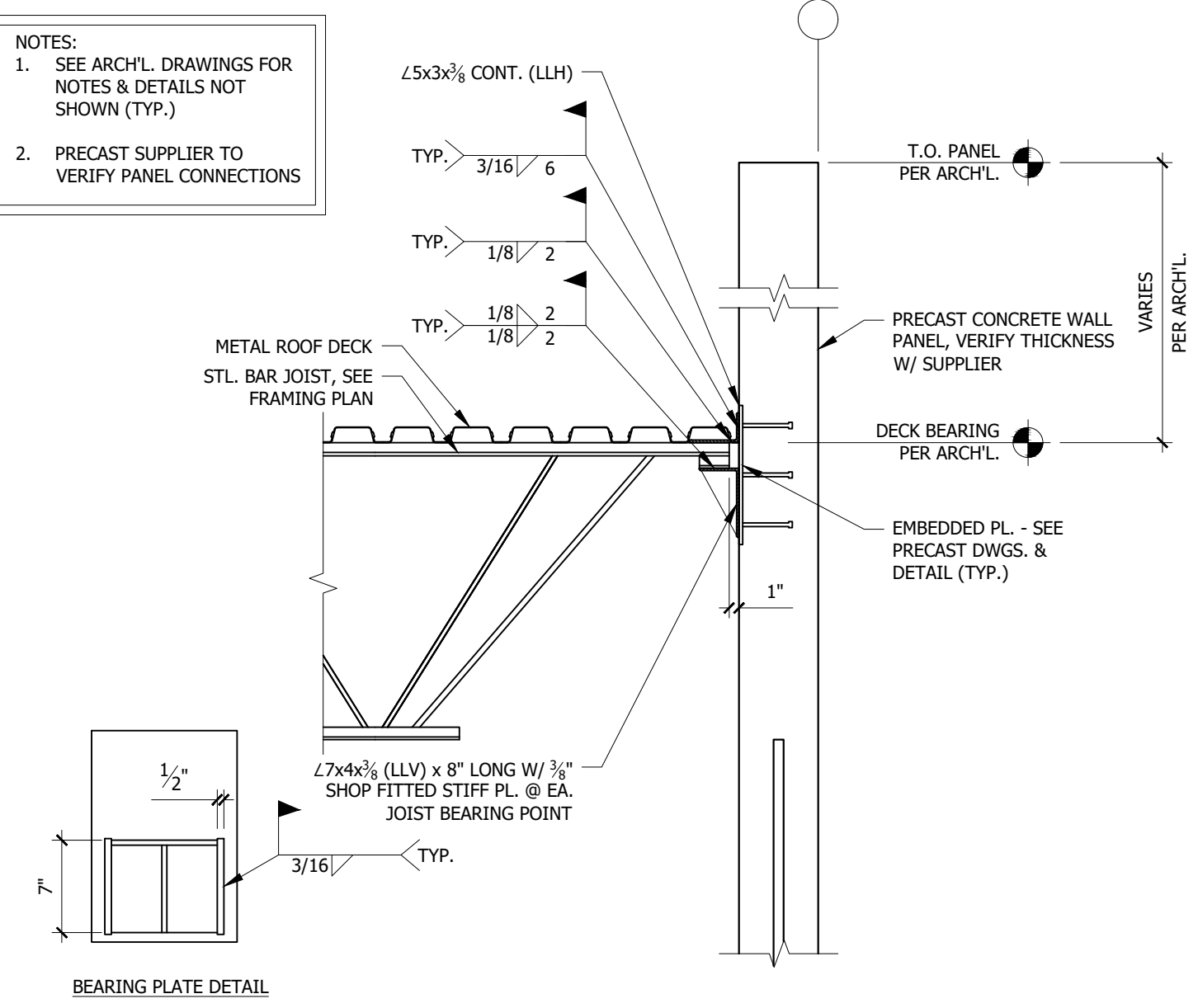
53 Asheland Avenue,
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Asheville, NC 28801
Phone #: (828) 232-4448
Fax #: (828) 232-5224
NC Cert. # C-3133

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ENGINEERING, P.A.

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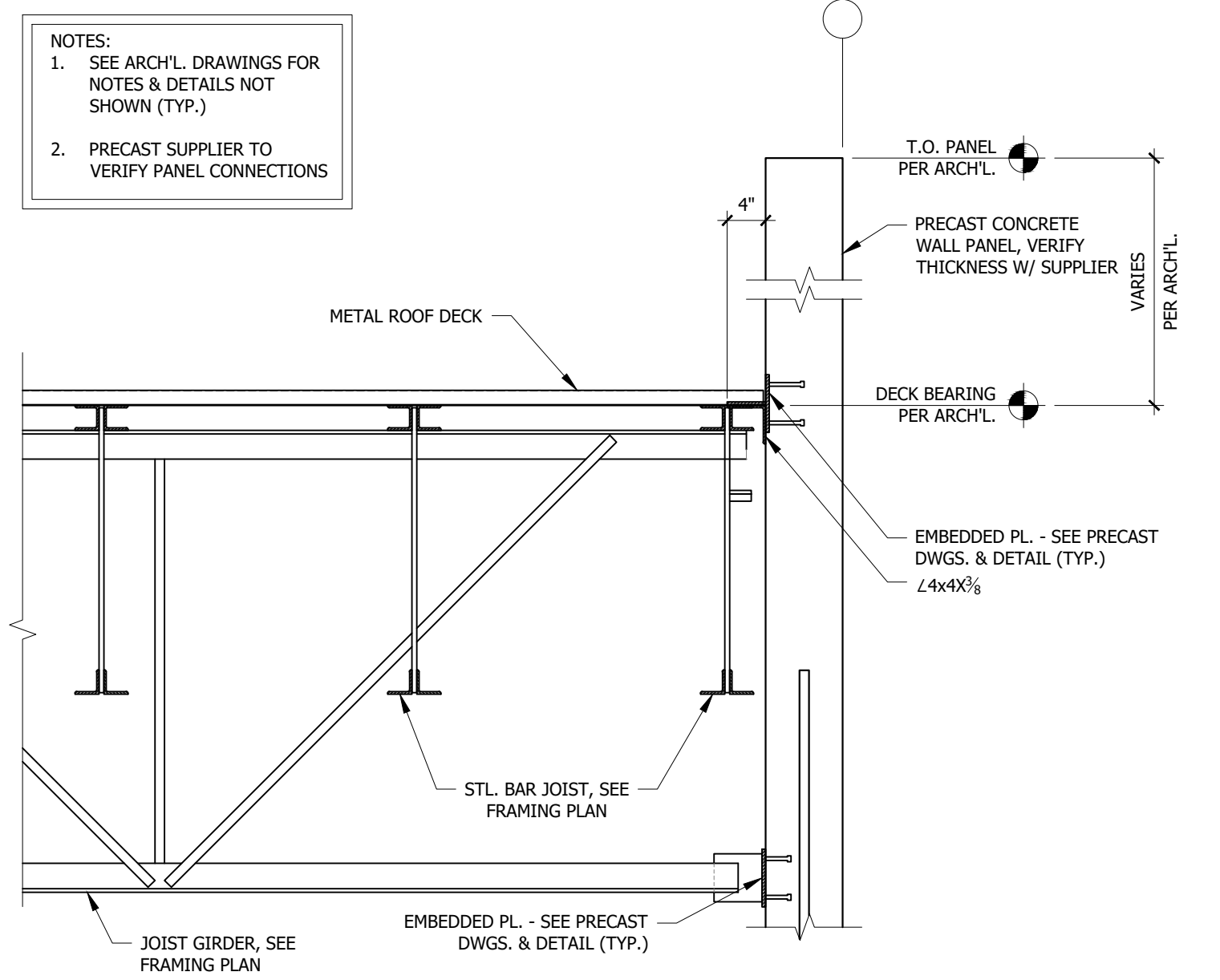
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S2.1 OF	
SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2)	
NORTH CAROLINA	
BREVARD	

NOTES:
1. SEE ARCH'L. DRAWINGS FOR NOTES & DETAILS NOT SHOWN (TYP.)
2. PRECAST SUPPLIER TO VERIFY PANEL CONNECTIONS

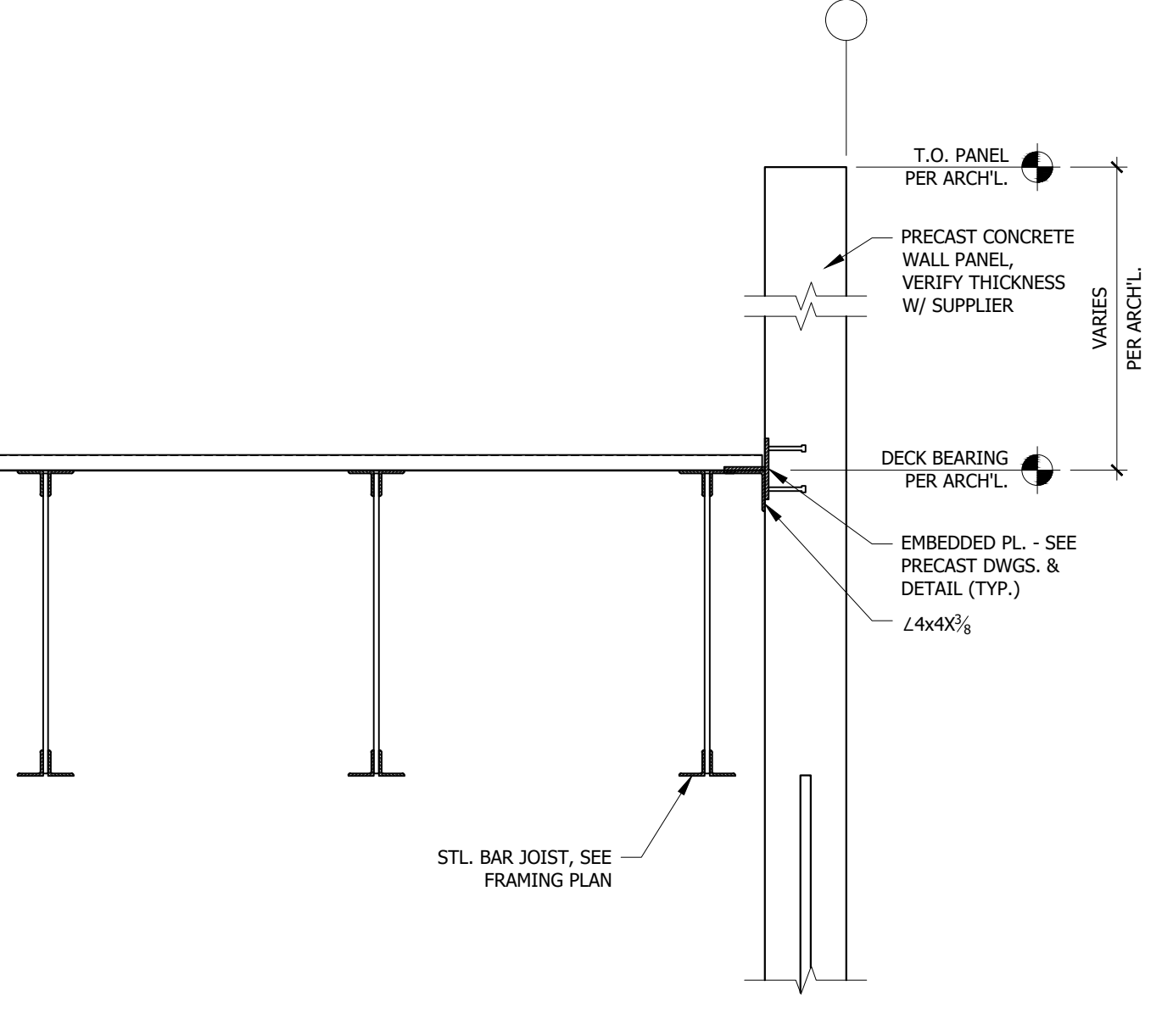


1 JOIST BEARING AT WALL
S3.1 N.T.S.

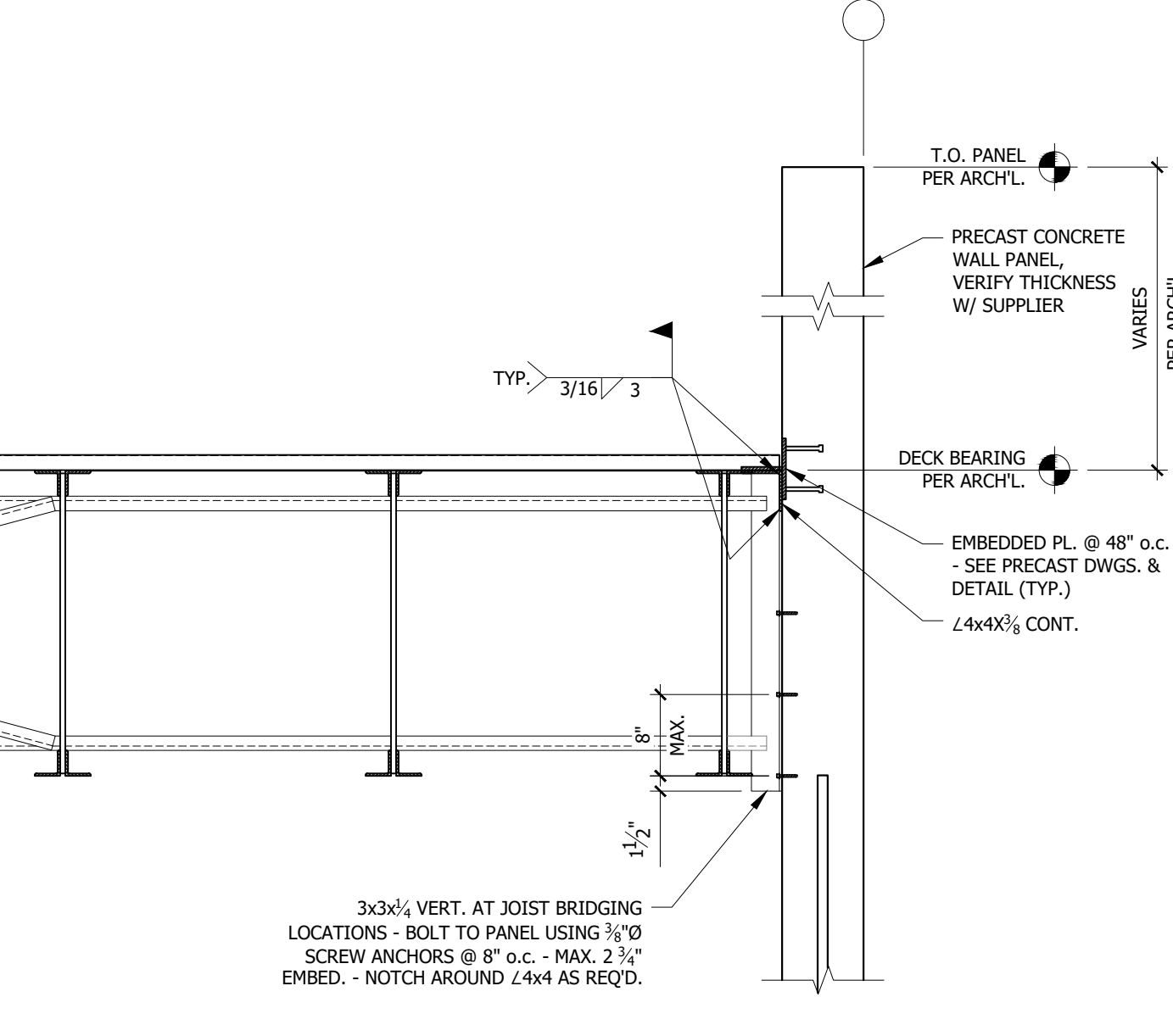
NOTES:
1. SEE ARCH'L. DRAWINGS FOR NOTES & DETAILS NOT SHOWN (TYP.)
2. PRECAST SUPPLIER TO VERIFY PANEL CONNECTIONS



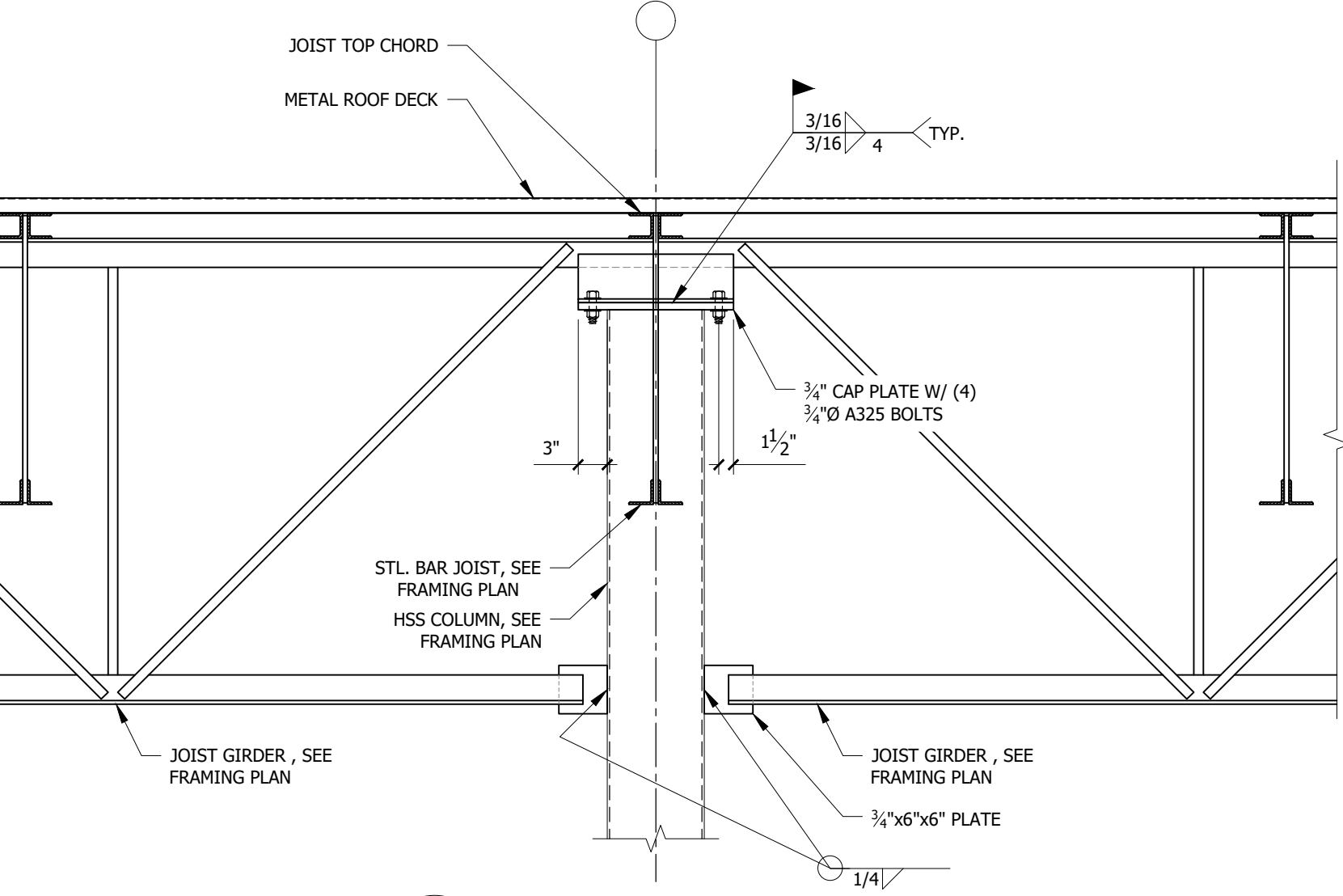
2 JOIST GIRDER BEARING AT EXTERIOR WALL
S3.1 N.T.S.



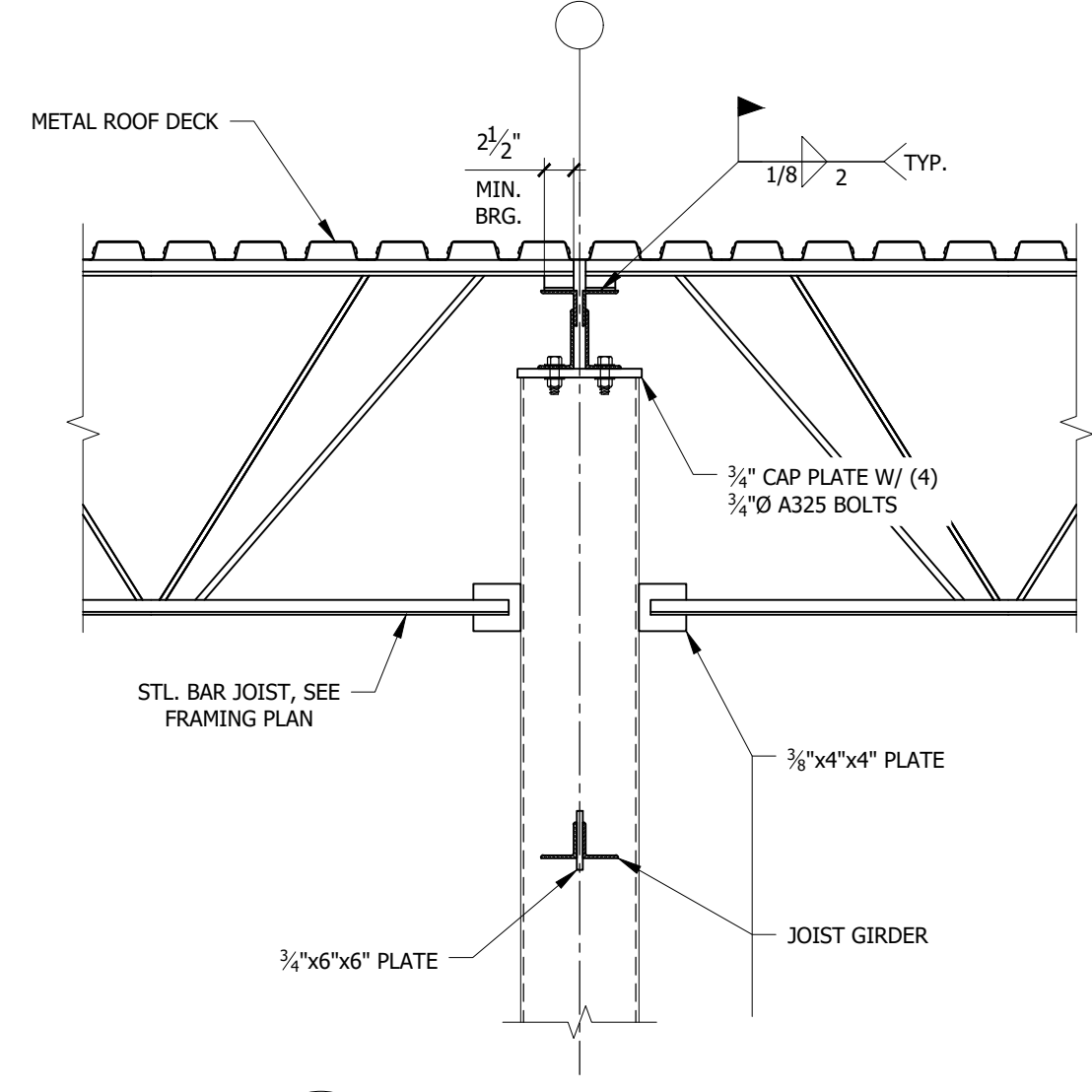
3 JOIST AT EXTERIOR WALL
S3.1 SCALE: 3/4"=1'-0"



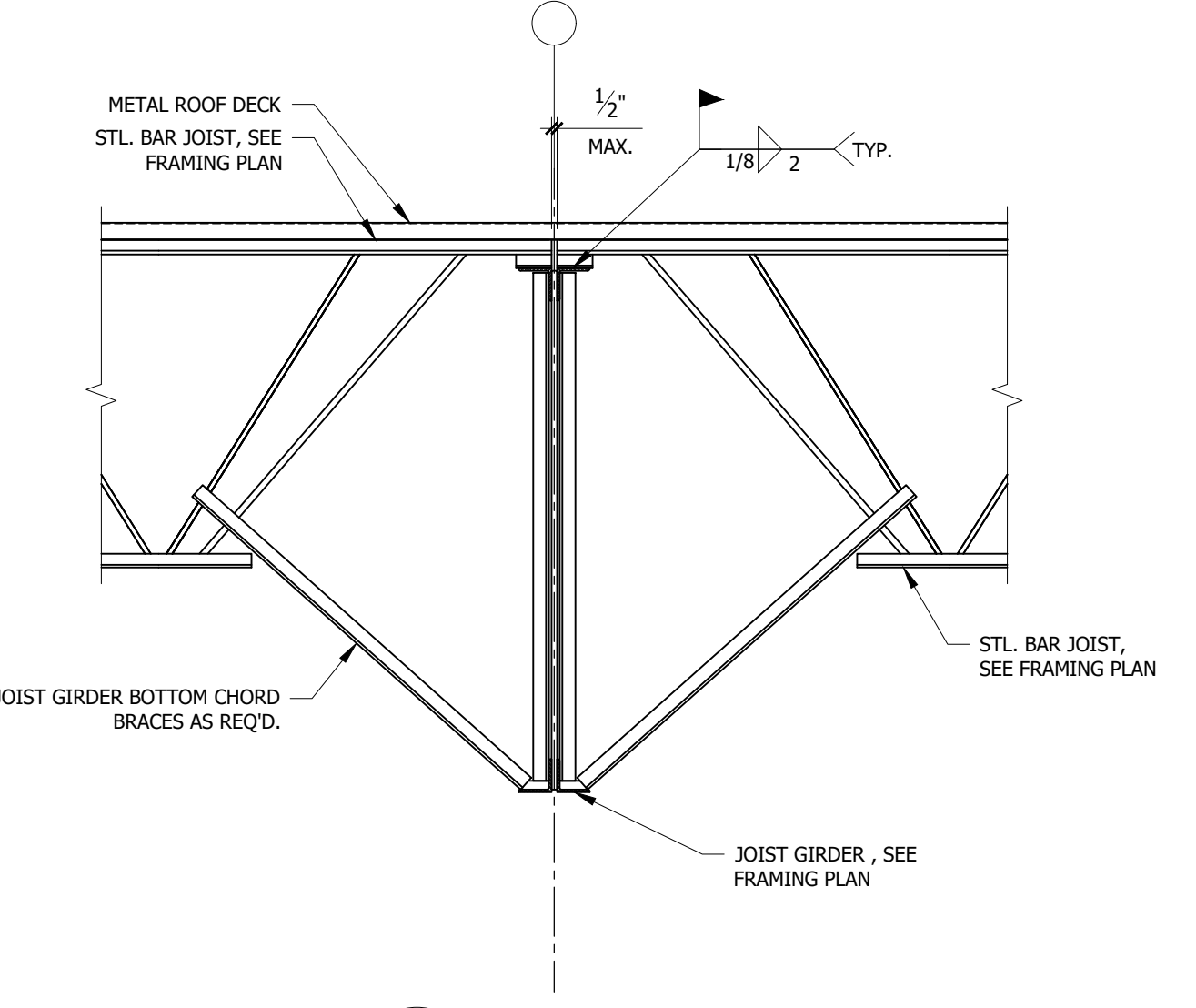
4 JOIST BRIDGING AT EXT. WALL
S3.1 SCALE: 3/4"=1'-0"



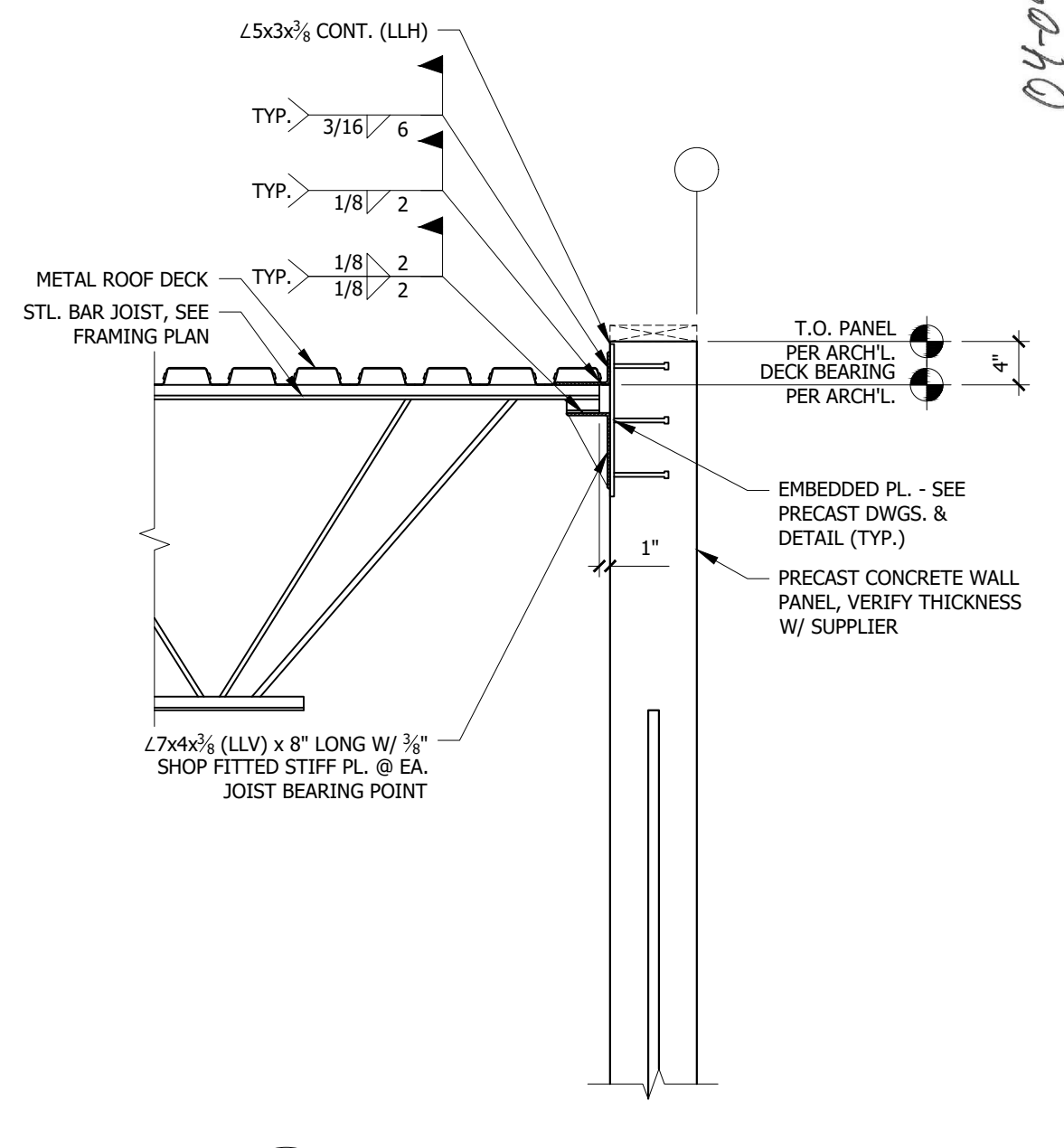
5 JOIST GIRDER BEARING AT COLUMN
S3.1 SCALE: 3/4"=1'-0"



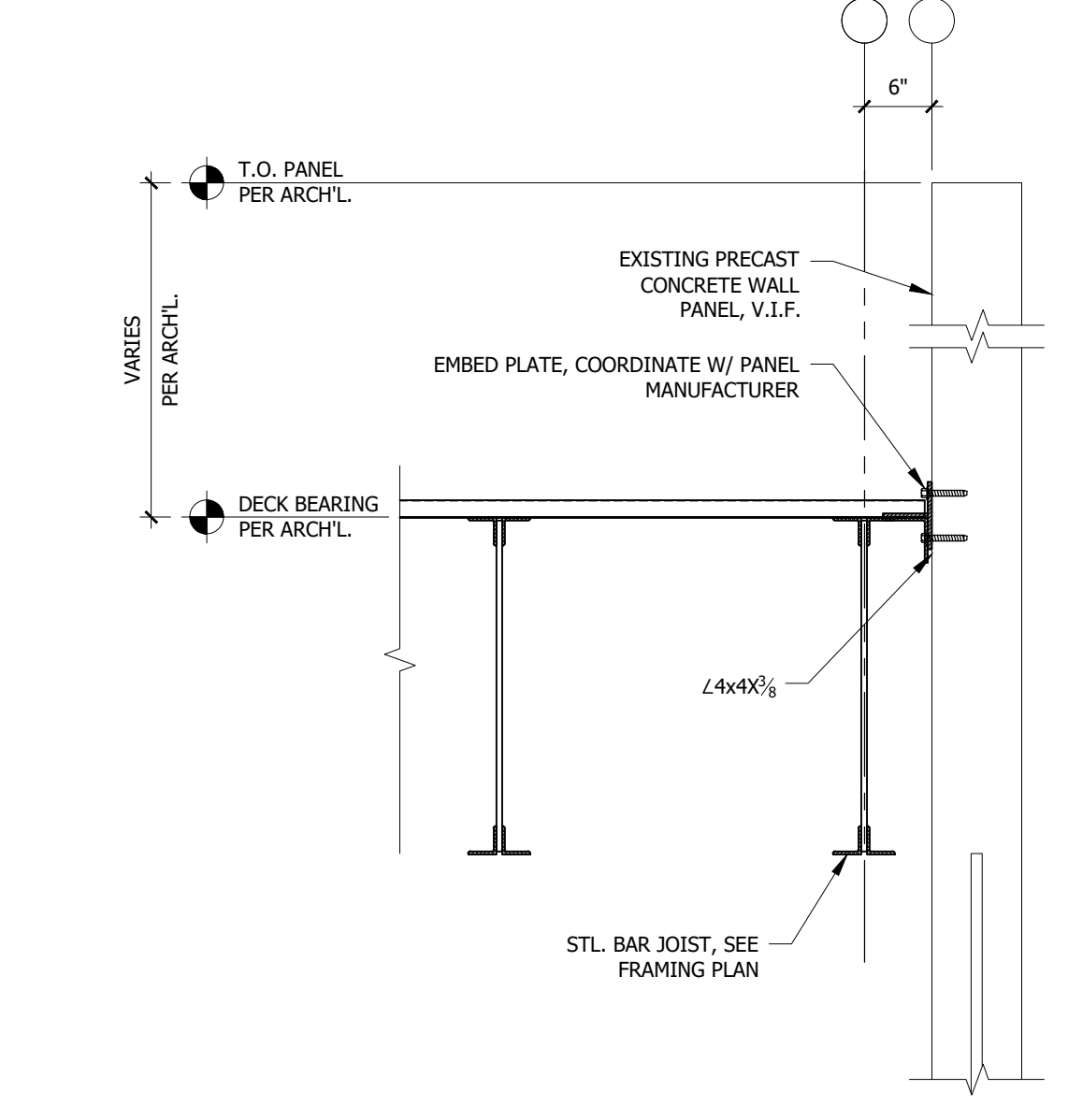
6 JOIST BEARING ON JOIST GIRDER
S3.1 SCALE: 3/4"=1'-0"



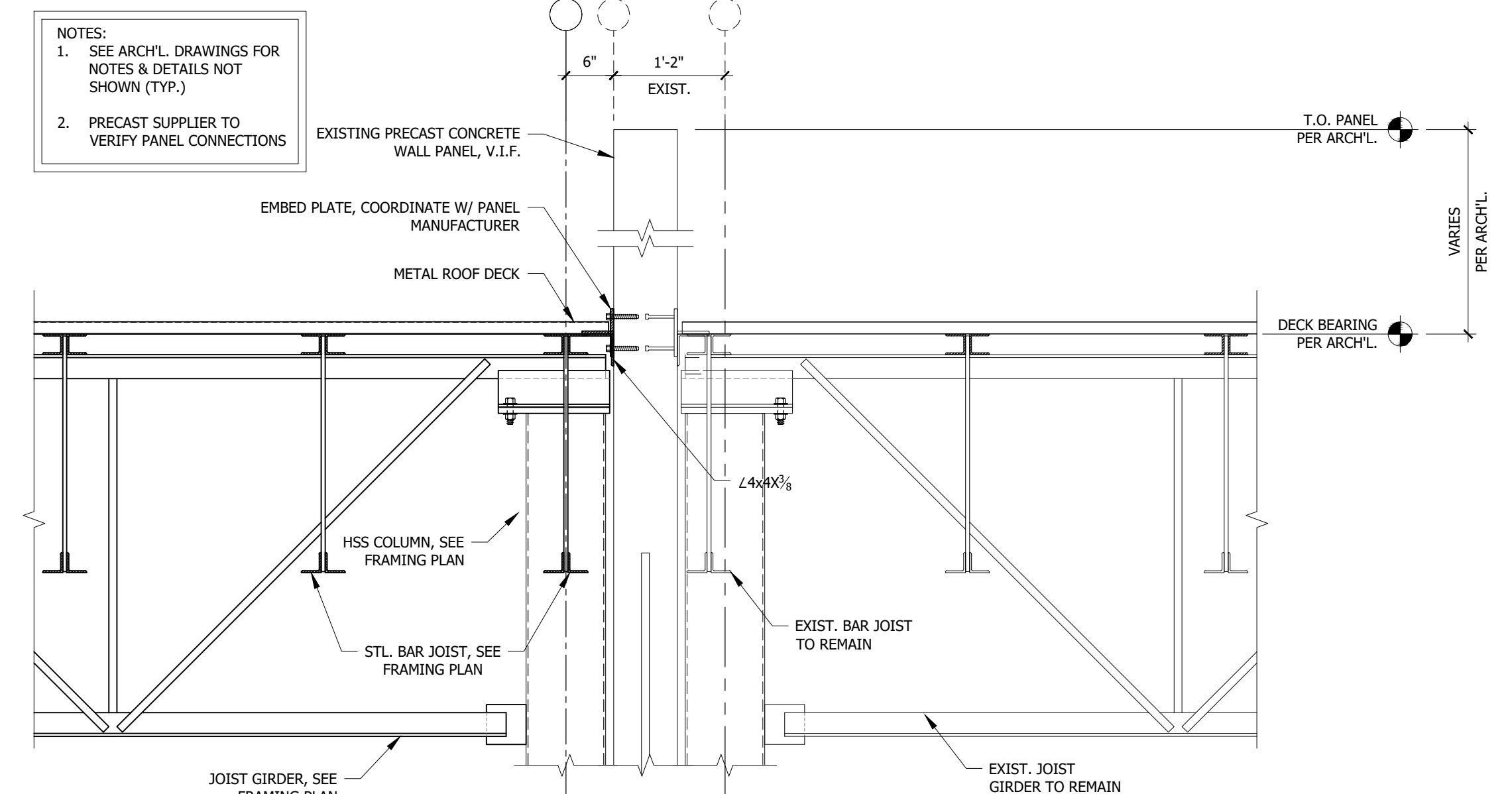
7 JOIST BEARING ON JOIST GIRDER
S3.1 SCALE: 3/4"=1'-0"



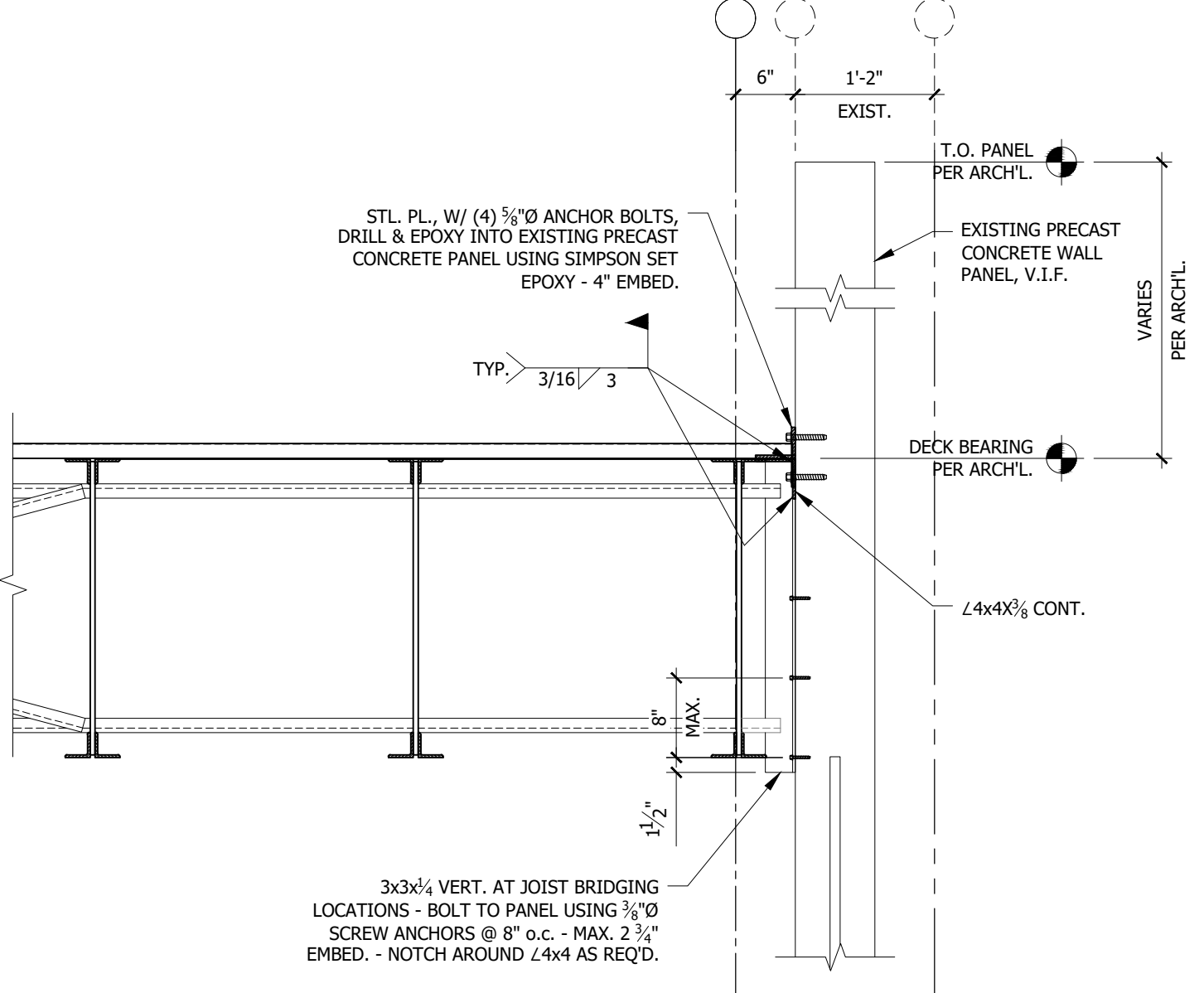
8 JOIST BEARING AT WALL
S3.1 SCALE: 3/4"=1'-0"



9 JOIST AT EXIST. EXTERIOR WALL
S3.1 SCALE: 3/4"=1'-0"

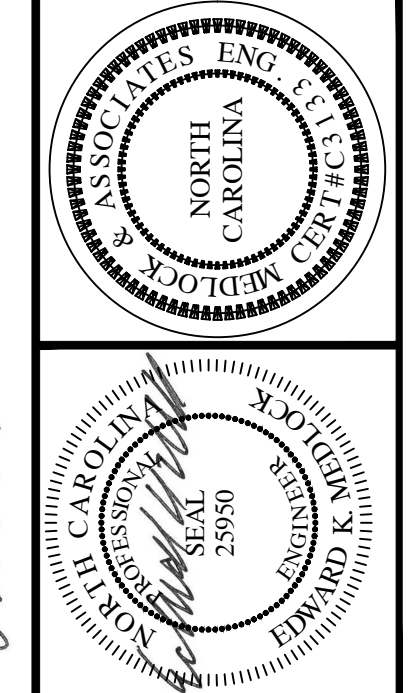


10 JOIST GIRDER BEARING AT EXIST. EXTERIOR WALL
S3.1 N.T.S.



11 JOIST BRIDGING AT EXIST. EXT. WALL
S3.1 SCALE: 3/4"=1'-0"

04-04-24



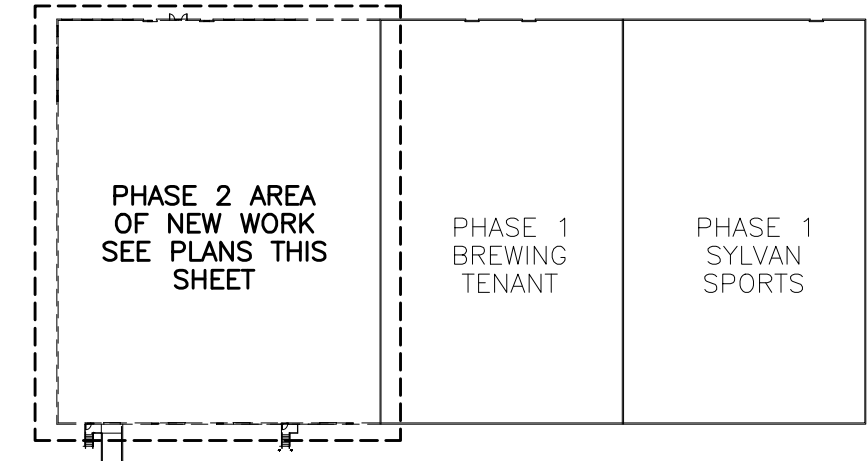
CONSTRUCTION SET

Reviewed: EKM AS NOTED Date: 04/04/2024
Designed: EKM PLY Drawn: EKM
53 Asheland Avenue, Suite 101, Asheville, NC 28801
Phone#: (828) 232-4448 Fax#: (828) 232-5224
NC Cert. # C-3133

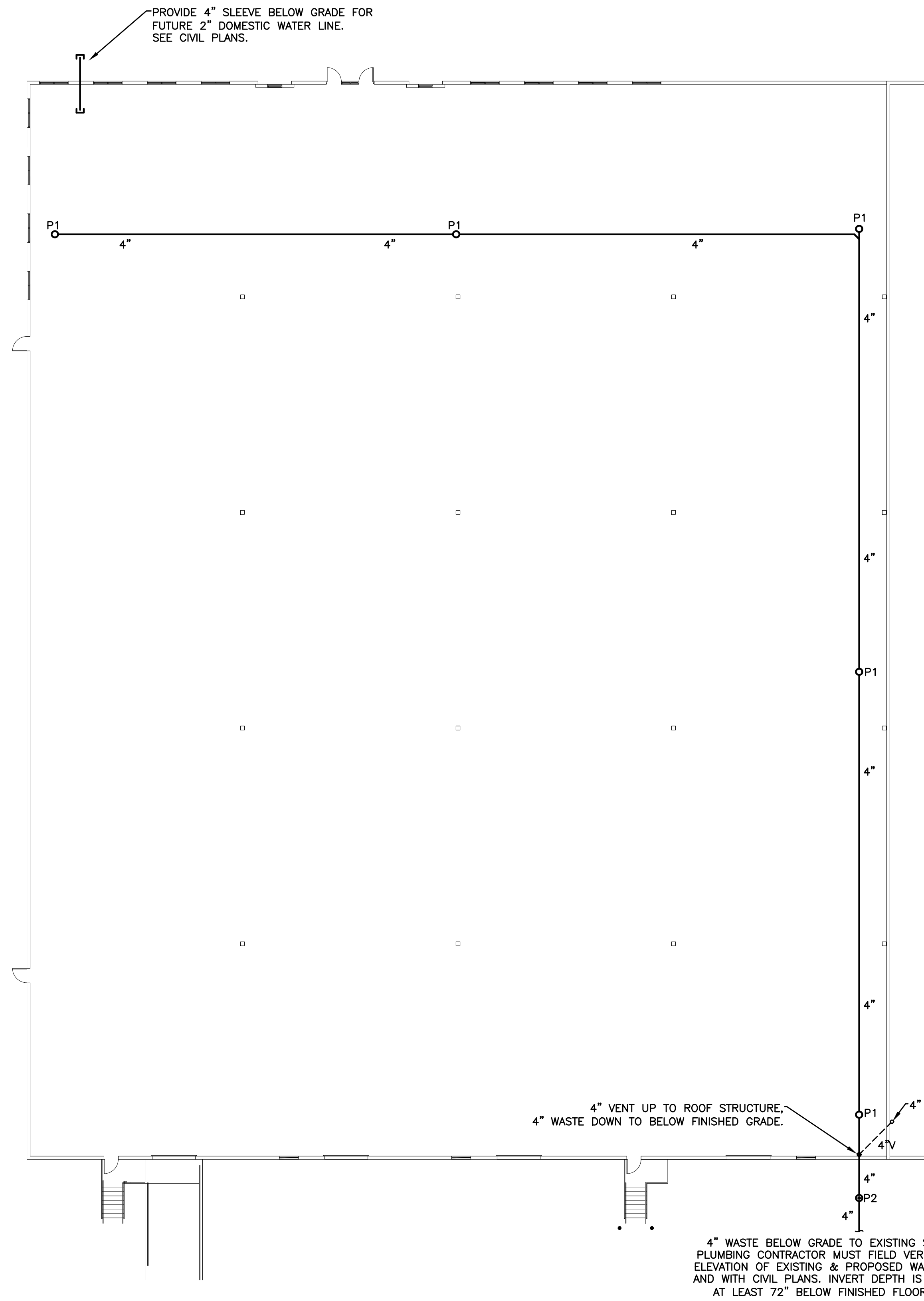


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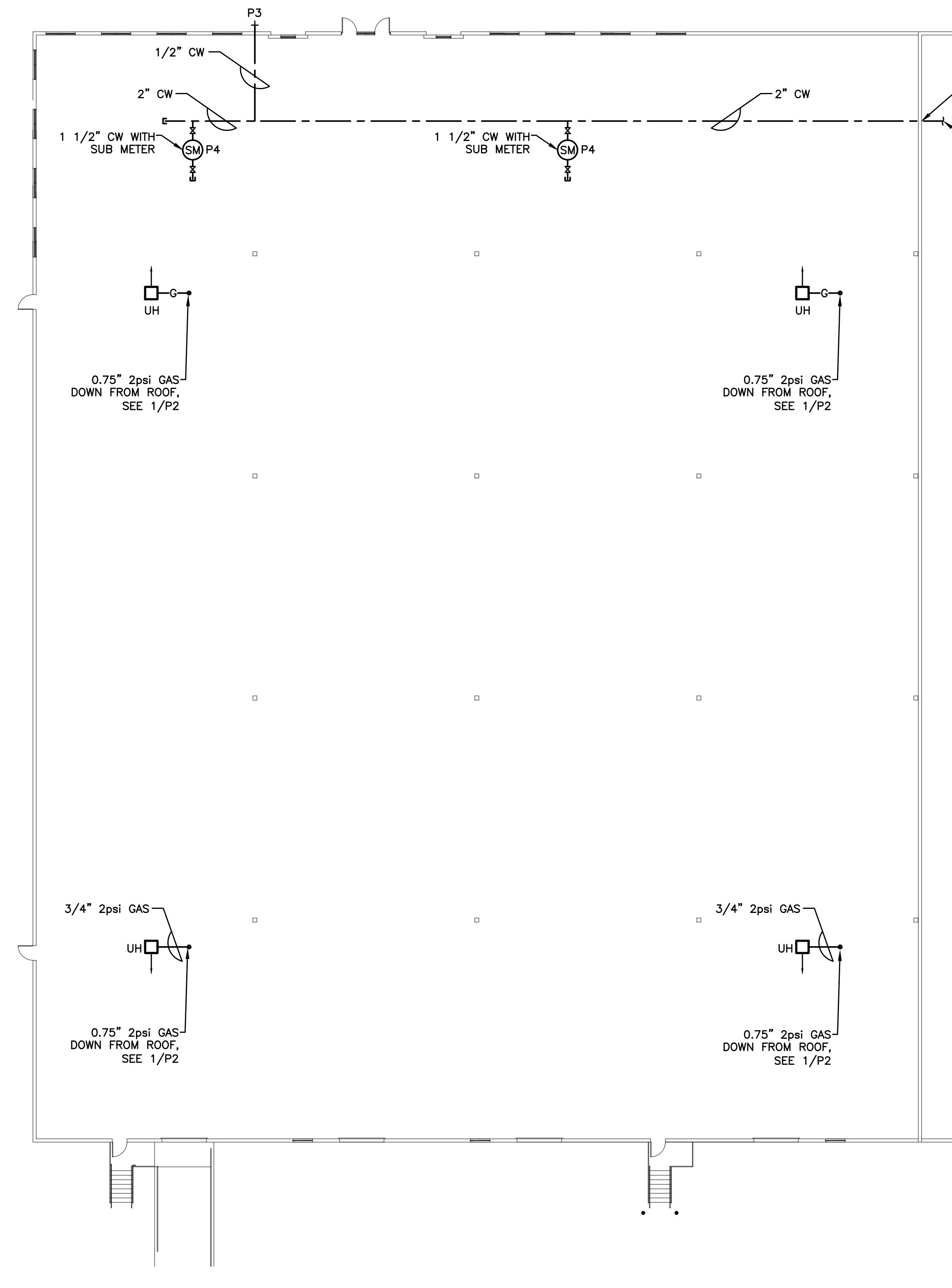
Project No: 871623
S3.1 OF
Drawing Title: ROOF FRAMING SECTIONS & DETAILS
SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2)
NORTH CAROLINA
BREVARD



BUILDING KEY PLAN
NOT TO SCALE



1 FLOOR PLAN - PLUMBING DWV
P1 SCALE: 1/16" = 1'-0"



2 FLOOR PLAN - PLUMBING SUPPLY
P1 SCALE: 1/16" = 1'-0"

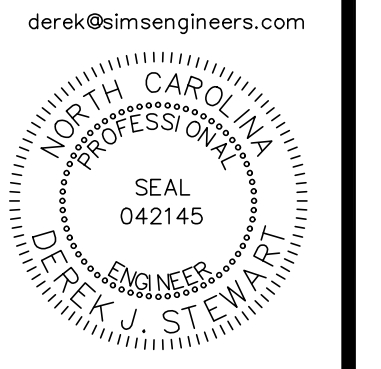


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NC FIRM LICENSE #C-4284

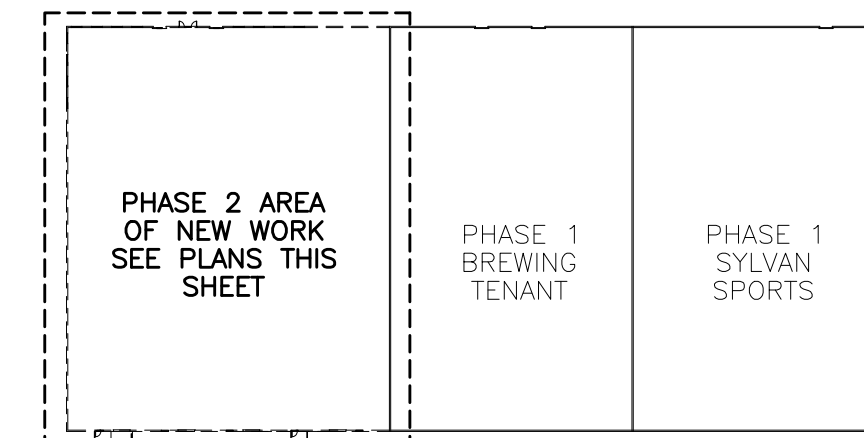
RICHARD L. WORLEY
ARCHITECT A.I.A.
4078 HAYWOOD ROAD - MILLS RIVER, NORTH CAROLINA 28759

AN ADDITION TO
THE TRANSYLVANIA COUNTY ECONOMIC ALLIANCE
SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2)
BREVARD, NORTH CAROLINA

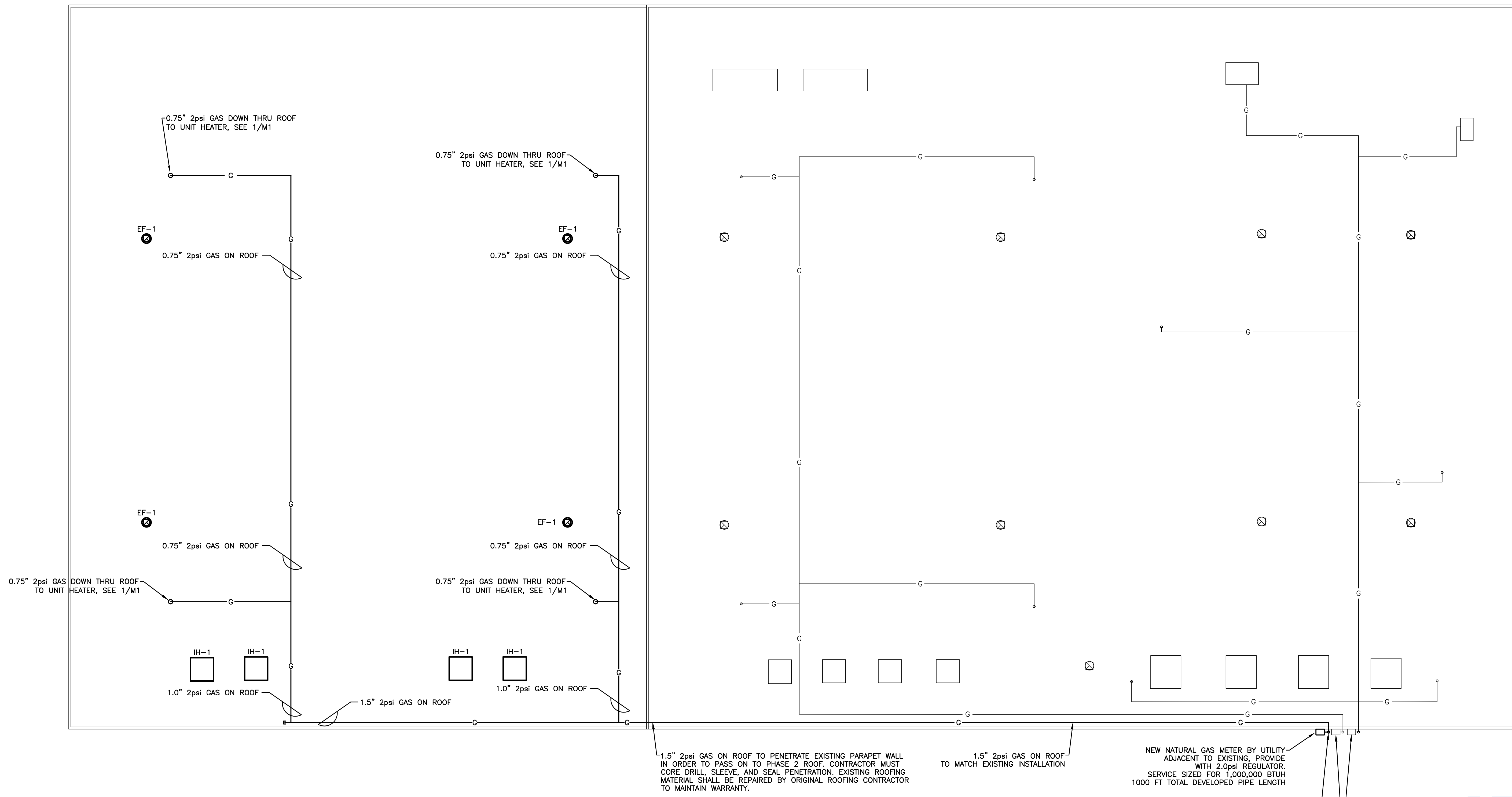


DATE APR 04 2023

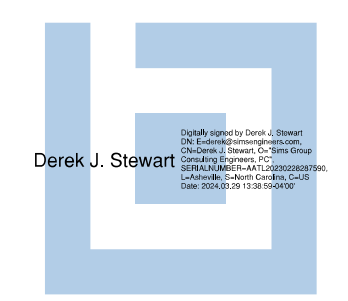
SHEET **P1**



BUILDING KEY PLAN
NOT TO SCALE



1 ROOF PLAN - NATURAL GAS
SCALE: 1/16" = 1'-0"



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RICHARD L. WORLEY
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4078 HAYWOOD ROAD - MILLS RIVER, NORTH CAROLINA 28759

AN ADDITION TO
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BREVARD, NORTH CAROLINA

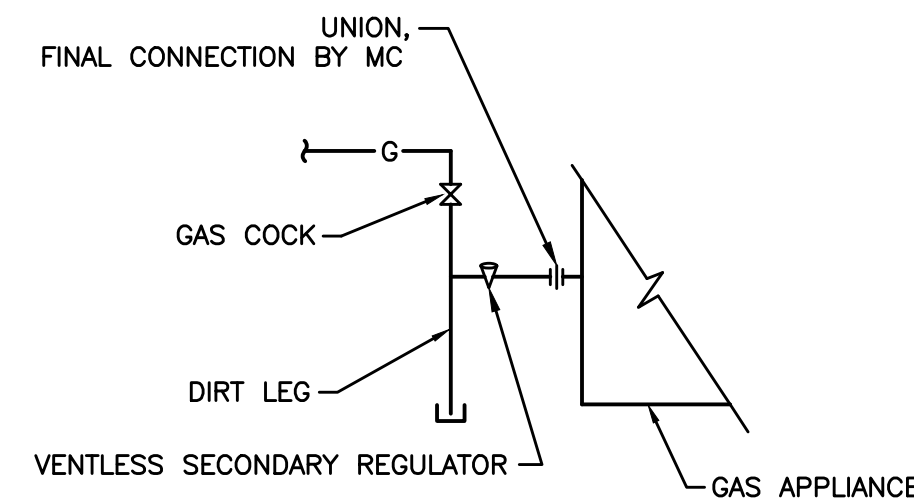


DATE APR 04 2023

SHEET **P2**

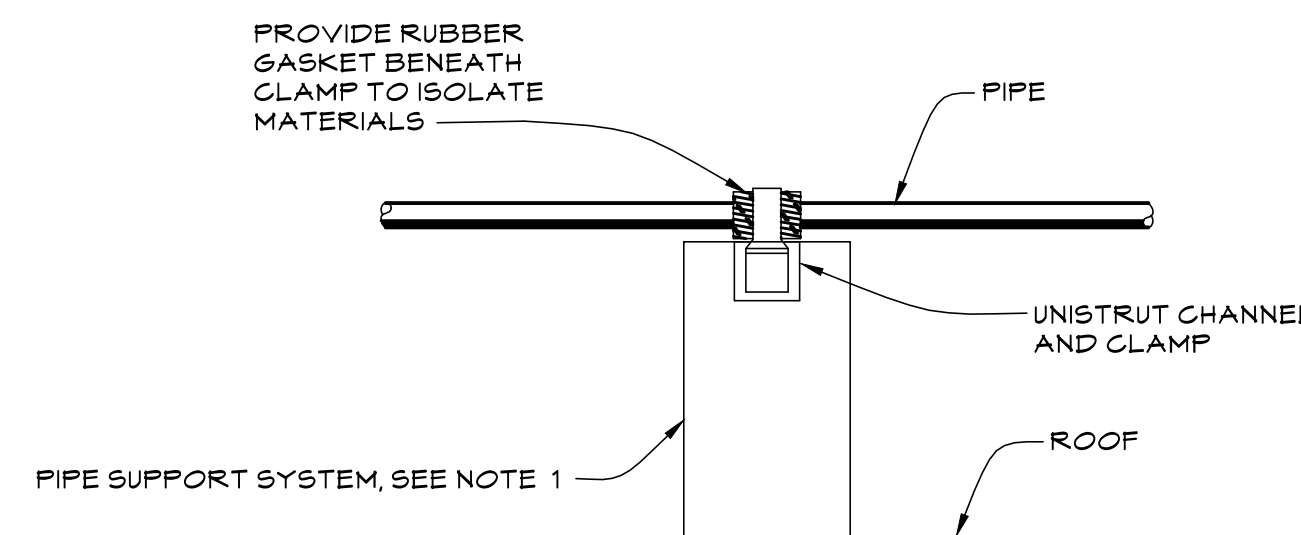
ITEM NO.	ITEM	CONNECTION SIZE				DESCRIPTION
		WASTE	VENT	HOT	COLD	
P1	FLOOR CLEAN OUT					SIZE TO EQUAL LINE, CI COVER OUTSIDE, NONSKID COVER SERVICE AREAS, CARPET FLANGE WITH CARPET WADE 6000
P2	YARD CLEAN OUT					SIZE TO EQUAL LINE, CI COVER, INSTALL FLUSH TO GRADE, PROVIDE WITH 18x18x6 CONCRETE COLLAR WADE 6000
P3	FREEZE PROOF HOSE BIB				3/4"	DUAL CHECK BACKFLOW PREVENTER, VACUUM BREAKER, LOOSE TEE KEY, CHROME FINISH WOODFORD MODEL #67
P4	SUB METER				1 1/2"	TENANT SUB METER TO MATCH EXISTING SUBMETERS INSTALLED IN PHASE 1, COORDINATE LOCATION WITH OWNER. BASIS OF DESIGN: NEPTUNE MODEL T-10 W/REMOTE READER

- NOTE:
- P-TRAPS SHALL BE 1 1/4x1 1/2" SEMI CAST WITH 17 GAGE WASTE TO WALL.
 - COORDINATE FAUCETS AND FIXTURE HOLES.
 - MOUNT URINALS AT HANDICAPPED HEIGHT.
 - IF HANDICAP LAVATORY PIPING IS NOT ENCLOSED, PROVIDE DRAIN INSULATION KIT: TRUEFLO HANDI LAV GUARD.
 - PROVIDE OFF-SET DRAINS FOR HANDI-CAP LAVATORIES.
 - CONTROLS FOR HANDICAP FLUSH VALVE SHALL BE ON WIDE SIDE OF TOILET AREAS.



NOTE: THIS DETAIL APPLIES TO ALL GAS-FIRED ITEMS.

1 GAS PIPING CONNECTION DETAIL
P3 NOT TO SCALE



2 PIPE ON ROOF SUPPORT DETAIL
P3 NOT TO SCALE

- NOTES:
- BASIS OF DESIGN FOR ROOF SUPPORT SHALL BE "E-Z SLEEPER" SYSTEM BY PIPE-EASE INC TO MATCH EXISTING INSTALLATION

PLUMBING LEGEND	
MARK	DESCRIPTION
	DOMESTIC COLD WATER PIPING SHALL BE COPPER.
---	ABOVE GRADE -- RIGID TYPE "L" INSULATE W/1" FIBERGLASS PIPE INSULATION INSIDE BUILDING ENVELOPE.
---	UNDER SLAB AND BELOW GRADE -- ANNEALED TYPE "K" MINIMAL JOINTS UNDER SLAB. IF JOINTS UNDER SLAB REQUIRED, BRAZE JOINTS.
---	UPONOR BRAND OR EQUAL PEX PIPING AND FITTINGS ARE AN ACCEPTABLE ALTERNATE TO COPPER
---	120' HOT WATER, SAME AS ABOVE
---	HOT WATER RETURN, SAME AS ABOVE
---	SOIL PIPING IN NON-PLENUM RATED INSTALLATIONS SHALL BE SOLID CORE SCHEDULE 40 PVC. FOAM CORE PVC IS NOT ACCEPTABLE
---	SOIL PIPING IN RETURN AIR PLENUM RATED INSTALLATIONS SHALL BE NO-HUB SERVICE WEIGHT CAST IRON
---	VENT PIPING IN NON-PLENUM RATED INSTALLATIONS SHALL BE SOLID CORE SCHEDULE 40 PVC. FOAM CORE PVC IS AN ACCEPTABLE ALTERNATE.
---	VENT PIPING IN RETURN AIR PLENUM RATED INSTALLATIONS SHALL BE NO-HUB SERVICE WEIGHT CAST IRON
⌵	CUTOUT VALVE, GATE OR BALL, BRONZE, SIZE TO EQUAL PIPE, APPROVED FOR POTABLE WATER SYSTEMS
⌵	GATE OR BALL VALVE, BRONZE, SIZE TO EQUAL PIPE APPROVED FOR POTABLE WATER SYSTEMS
⌵	CHECK VALVE SAME AS ABOVE
VTR	VENT THROUGH ROOF, EXTEND 6" ABOVE ROOF, PENETRATE BEHIND ROOF PEAK OR PARAPET, PAINT TO MATCH ROOF, COORDINATE FLASHING WITH ROOF. MAINTAIN 10' CLEARANCE FROM HVAC MAKE-UP AIR INTAKES
G	FUEL GAS PIPING: 2.0 OR 0.5 PSI DELIVERY PRESSURE INSTALL PER N.C. GAS CODE SCHEDULE 40 BLACK STEEL. EXPOSED PIPING SHALL BE IDENTIFIED BY A YELLOW LABEL MARKED "GAS" IN BLACK LETTERS. THE MARKING SHALL BE SPACED AT INTERVALS NOT EXCEEDING 5 FEET. ALL PIPING AND TUBING SYSTEMS, GREATER THAN 0.5 POUNDS PER SQUARE INCH SERVICE PRESSURE, SHALL BE IDENTIFIED BY A YELLOW LABEL WITH BLACK LETTERS INDICATING THE PIPING SYSTEM PRESSURE. THE SYSTEM SHALL BE MARKED AT THE BEGINNING, ALL ENDS AND AT INTERVALS NOT EXCEEDING 5 FEET ALONG ITS EXPOSED LENGTH.

AN ADDITION TO
THE TRANSYLVANIA COUNTY ECONOMIC ALLIANCE
SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2)

BREVARD, NORTH CAROLINA

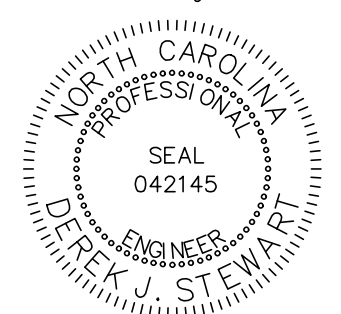
RICHARD L. WORLEY
ARCHITECT A.I.A.
4078 HAYWOOD ROAD - MILLS RIVER, NORTH CAROLINA 28759



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derek@simsengineers.com



DATE APR 04 2023

SHEET **P3**

SECTION 15010P
BASIC PLUMBING REQUIREMENTS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Basic Plumbing Requirements specifically applicable to Division 15 Sections, in addition to Division 1 – General Requirements.

1.2 SCOPE OF WORK

- A. Provide controls, valves, piping, plumbing fixtures, taps, water heater flues and other required materials to produce complete and operating plumbing system as shown on drawing.
B. Provide controls, valves, piping, taps and other required materials to produce complete and operating fuel gas system as shown on drawing.
C. Provide demolition of all Plumbing and Fuel Gas fixtures and materials made obsolete by this project and remove from site. Owner retains salvage rights.
D. Obtain all permits, pay all fees and request inspection from authority having jurisdiction.
E. All work and materials shall be guaranteed for one year from date of substantial completion.
F. Provide for water service during construction. The Owner will be responsible for bill.

1.3 WORK SEQUENCE

- A. Coordinate construction and utility outages (if any) with Owner, Engineer, all other trades and utility companies.
B. Visit site before submitting bid to confirm existing conditions. Notify Engineer of discrepancies in the Contract Documents and existing conditions.
C. Please E-Mail questions and or comments to derek@simsengineers.com or fax (828-251-1933) in lieu of telephone calls.

1.4 SUBMITTALS

- A. Submit under provisions of Contract Documents.
B. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal. Identify items with marks to match those shown on drawings.
C. Mark dimensions and values in units to match those specified.
D. Architect will approve all colors.
E. All submittals shall have the General Contractor's stamp, with approval signature.
F. Highlight deviations from specified materials.
G. Shop Drawings: 6 sets, including 3 for maintenance manuals.
H. Product Data: 6 sets, including 3 sets for maintenance manuals. Data shall include the following, but not limited to:
1. Pressure Reducing Valves
2. Insulation
3. Plumbing Fixtures
4. Floor Drains, Cleanouts, Accessories
5. Valves
I. Certifications: 3 copies
J. Test Reports: 3 copies
K. Warranties (Guarantees): 6 copies, including 3 for maintenance manuals.
L. Maintenance Manuals: 3 complete sets with individual sets of this data bound in 10 1/2 x 11 1/2 loose-leaf 3-ring binders, 1/2", 2", or 3" ring size, with rigid permanent vinyl covered back and front. Separators with index tabs and loose-leaf sheet protectors shall be provided. One set shall have all sheets individually encased in clear, plastic document protectors.

1.5 REGULATORY REQUIREMENTS

- A. Conform to applicable State and Local Building Codes.
B. Fire Protection: Conform to NFPA.
C. Electrical: National Electric Code.
D. Life Safety Code: NFPA 101.
E. All Codes shall be the most recent edition.
F. The Contractor shall install all materials per the State and Local Building Code. Any work that does not comply shall be made to comply at the Contractor's expense.
G. All equipment shall be UL approved for purpose specified.
H. Install all materials and equipment per manufacturer's instructions.

1.6 PROJECT/SITE CONDITIONS

- A. Install Work in locations shown on Drawings, unless prevented by Project conditions.
B. Prepare record drawings showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Architect/Engineer before proceeding. Submit all changes on Record Documents as a requirement of project close out.
C. Refer to Architectural drawings for dimensions, locations, cabinets, etc. Do not scale Plumbing Drawings.
D. Conceal all piping except where the Architect/Engineer grants specific permission.
E. Arrange mechanical work in a neat, well organized manner with piping and similar services running parallel with primary lines of the building construction.
F. Locate operating and control equipment properly to provide easy access, and arrange entire mechanical work with adequate access for operation and maintenance.
G. Give right-of-way to piping which must slope for drainage.
H. Advise other trades of openings required in their work for the subsequent move-in of large units of mechanical work (equipment).
I. Coordination Drawings: For locations where several elements of mechanical (or combined mechanical and electrical) work must be sequenced and positioned with precision in order to fit into the available space, prepare coordination drawings (shop drawings) showing the actual dimensions (at accurate scale) required for the installation. Prepare and submit coordination drawings prior to purchase-fabrication-installation of any of the elements involved in the coordination.

1.7 SUBSTITUTIONS

All products listed are to establish design and quality standards, not to limit submittals. Substitutions may be accepted if approved as equivalent. Contact Engineer prior to bid with any questions. All substitutions must be submitted within 10 days after bid or supply as specified. Highlight substitution deviations from materials specified. Cost incurred to the project to install substituted materials shall be the responsibility of the Contractor requesting the substitution.

- 1.8 Provide Valve Directory indicating number, size, manufacturer, location, function, and normal position. Valve tag numbers shall be as specified.

1.9 Plumbing Equipment: Show the following information for all plumbing equipment:

- Nameplate designation
Manufacturer's nameplate data
Location of equipment
Area served
Complete parts drawing and list
Manufacturer's operating instructions
Manufacturer's maintenance instructions
Manufacturer's repair manuals

- Manufacturer's installation instructions
Nearest supplier for parts and replacements with telephone number
Nearest service organization for equipment with telephone number

1.10 Control Data:

- Provide control diagrams and wiring diagrams where applicable. Description of control systems.
Catalog data, maintenance and calibration instruction for all components.
Control supplier and address
Control installer and address

- 1.11 Maintenance Instruction: A typewritten form of instructions for maintenance of the systems in itemized form and with time schedule for maintenance work, shall be furnished. The instructions shall list each item of mechanical equipment requiring inspection, lubrication or service and describe the performance of such maintenance. The list shall include the type of bearings for each piece of equipment, the type of and frequency of lubrication required. The operating personnel shall be instructed in the care of the system in accordance with the typewritten instructions.

2. PART 2 DESCRIPTION OF WORK

2.1 GENERAL DESCRIPTION OF WORK

- A. Coordinate work with other trades.
B. Plumbing Contractor shall provide all fuel gas, water, soil and vent piping.
C. Fire stop all penetrations through rated assemblies. See Architectural sheets for locations of rated assemblies.
D. Provide all valves, fixtures, pipes, pumps, insulation, etc. and other required material.
E. All major pieces of material shall be produced by the same manufacturer.
F. Plumbing Contractor shall provide all penetrations, etc. and patching required to install plumbing work.
G. Provide stops for each fixture. Exposed stops and supplies shall be chrome plated.
H. Coordinate all required starters, disconnects, switches with Electrical Contractor for installation. Coordinate electrical requirements for equipment supplied with Electrical Contractor prior to ordering equipment.
I. Provide warning tape in trench with buried pipe. Locate tape 6" below finish grade directly above pipe.
J. Provide fuel gas piping to equipment as required with gas approved shut offs at each equipment item.

2.2 PIPING:

- A. Cold water service line to 5' from building: "K" copper, annealed. Tubing shall be approved for potable service. 3/6" below grade. Provide warning tape 6" below grade above tubing.
B. Cold water and hot water. From 5' from building and distribution: Copper, annealed "K" below grade and under slab. Minimal joints under slab. Rigid "L" above grade. Insulate piping above grade with 1" pre-formed fiberglass pipe insulation. Provide pre-formed PVC fitting covers. Solder shall be lead free. Braze joints below grade and under slab.
C. Soil Piping: Schedule 40 PVC except bell and spigot, cast iron under vehicular traffic areas and burial depths less than 24".
D. Vent Piping: Schedule 40 PVC. Coordinate vent termination locations with Owner prior to starting work. Paint to match building.
E. Fuel gas piping: Schedule 40 black steel. Coat and wrap piping installed below grade.
F. Support piping with threaded rods and hangers, channel trapeze, channel and clamps, or some other approved method from the building structure.

2.3 FIXTURES

- A. See fixture schedule on drawing.

2.4 WIRING

All control wiring (120V and less) to be complete to all motorized equipment, and control devices listed in this specification and shown on the mechanical drawings, shall be done under Division 15. The Contractor shall refer to Electrical plans and specifications to determine the source of electrical energy for the various control circuits. All wiring shall be in conduit, shall conform with Division 16 of these specifications, all local codes, the National Electrical Code, and shall be installed by an approved licensed electrician. Wiring diagrams indicating wire sizes and conduit runs for all electrical work that is required to be installed under this contract shall be submitted to the Engineer for prior approval before work is begun. Upon completion of the work, the wiring diagrams shall be revised to incorporate any additions or corrections and two copies of the "as installed" diagrams shall be furnished to the Owner and one to the Engineer on reproducible sepia paper.

Wiring shown on electrical plans is for plumbing equipment scheduled. Any equipment provided by the Contractor that differs from that scheduled in electrical characteristics that requires additional voltage, electrical design and/or electrical cost changes shall be the responsibility of this Contractor. Any cost incurred for additional electrical design and/or electrical changes due to any equipment other than equipment scheduled, shall be the responsibility of this Contractor.

In general interlock wiring between pieces of plumbing equipment shall be done under Division 15P (Example: Power exhaust fan interlock with water heater).

- 2.5 FOUNDATIONS: All concrete foundations anchor forms, or pads indicated on the drawings that may be required for the installation of equipment specified under this contract, shall be furnished and installed. Provide anchor bolts for the equipment foundations/pads. Equipment to receive pads are pumps, boiler and air cooled chiller.

- 2.6 MISCELLANEOUS STEEL SUPPORTS: All supporting steel grillage, steel angles, channels, pipe or structural steel stands, and anchoring devices that may be required to adequately and rigidly support either piping, insulation, or equipment installed under this contract, shall be provided and installed.

- 2.7 CHASES AND OPENINGS: Lay out all chases and openings, required for the execution of this work well in advance of the structural work. Provide thimbles in walls and partitions. Thimbles shall be standard weight galvanized steel pipe.

2.8 PLUMBING SYSTEM IDENTIFICATION:

- A. Piping System: All piping installed under this division of the specifications shall be identified as follows:
B. Painting: Piping in mechanical rooms to be painted. Refer to "Painting Plumbing Work."
C. Method of Marking: Colored stencil letter that designate the material being handled, shall be applied at not more than 15 foot intervals on straight pipe runs, adjacent to valves and where pipe passes through walls and floors. Piping shall be marked at all the equipment connections. All piping shall be identified.
D. Identification: Lettering shall be stenciled in block letters, size as scheduled below. Letters on covered (insulated) pipe shall be stenciled on covering. On uncovered pipe, painted bands shall be wide enough (See Table 1) to accommodate required letters. Letters shall be positioned so that it can be easily read by a man standing on the floor. Lettering on parallel groups of lines shall be neatly lined up. Surfaces of piping or insulation finished in dark colored shall be lettered in white; and that finished in light colors shall be lettered in black.

All lines also shall be marked with arrows indicating the direction of flow.

TABLE 1

Outside Diameter of Pipe or Converting (Inches) Letter Size	Size of Letter (Inches)
1/2 to 1-1/4	1/2
1-1/2 to 2	3/4
2-1/2 to 8	1-1/4

All dimensions are given in inches.

2.9 VALVE IDENTIFICATION

- A. Tags: Polished brass with 1/4" high stamp-engraved lettering, different shapes for each generic piping service.
B. Application: Tag every valve and control device in each plumbing-work piping system; exclude check valves, valves within equipment units, and valves in fan coil units.
C. Valve Schedule: Prepare and submit valve tag schedules (in duplicate), listing each tagged valve by location, service, and tag description. Install each page of one copy of the valve schedule in glazed frames, and mount where directed.

2.10 EQUIPMENT

- A. Signs: Provide engraved plastic-laminate signs at locations of major equipment units and primary control devices. Provide text of sufficient clarity and lettering of sufficient size to convey adequate information at each location, and mount permanently in an appropriate and effective location. Comply with recognized industry standards for color and design.
B. Selection: Refer to instances where either a plastic-laminate sign or plasticized tag might be appropriate to the Engineer for resolution.

2.11 ACCESSIBILITY:

- A. No valves, controls, unions, etc., shall be placed in any pipe line at a location that will be inaccessible after the system is completed.
B. Any controls, valves and piping controls, expansion joints, or other apparatus which must be located in an inaccessible location shall be provided with suitable access doors (fitted in a framed hole) which will permit proper operation and servicing of the apparatus. Access doors aforementioned includes access doors in walls, ceilings, and, where required, a combination of above. Access doors to be piano hinged.
C. Floor drains and floor sinks shall not be installed under equipment. They must be visible and easily accessible. Place them straddling the front edge of equipment. They are a tripping hazard if they are placed too far into the room. Do not install dumpster pad drain under dumpster.

2.12 EXCAVATING FOR PLUMBING WORK

- A. General: The work of this article is defined to include whatever excavating and backfilling (but excluding insulating backfill) is necessary to install the plumbing work. Coordinate the work with other excavating and backfilling in the same area, including dewatering, floor protection provisions, and other temporary facilities. Coordinate the work with other work in the same area, including other underground services, landscape development, paving, and floor slabs on grade. Coordinate with weather conditions and provide temporary facilities needed for protection and proper performance of excavating and backfilling.
B. General Standards: Except as otherwise indicated, comply with the applicable provisions of the Division 2 sections, for plumbing work excavating and backfilling. Refer instances of uncertain applicability to the Engineer for resolution before proceeding.
C. Rock Excavation shall be defined as the removal of a formation that cannot be excavated without systematic drilling and blasting or without the use of pneumatic tools. All rock excavation/removal shall be performed by the General Contractor. The Plumbing, Mechanical, and Electrical subcontractors shall lay out their work and perform all normal or earth excavation. Should these subcontractors encounter rock (bulk or trench), it shall be removed by the General Contractor using allowable funds. The General Contractor shall be responsible for providing fill material for backfill of rock excavations. Rock may be used for structural fill provided it is broken down by the excavation and compaction equipment into particles with a maximum dimension of 6". Otherwise, it must be removed from the site and legally disposed of. Placement of rock in the fill or removal from the site shall be done by the General Contractor at no additional cost to the Owner.
D. Piping Support: Support pipe 4" and smaller directly on undisturbed soil. Support pipe 6" and larger, on compacted and shaped sub-base material of depth shown but not less than 6" deep. Compact previously disturbed and unsatisfactory subsoil to provide adequate, uniform support for plumbing work; or excavate and replace with stable sub-base material or lean concrete.
E. Water Bearing Pipe: Except as otherwise specifically indicated, place exterior underground water bearing pipe (including drainage lines) a minimum of 36" below grade (measured to top of pipe).
F. Sequencing: Delay backfill and encasement of piping until testing of piping system has been completed.

2.13 PAINTING PLUMBING WORK

- A. General: All piping in the mechanical rooms (3) to be painted in the colors as scheduled hereinafter. Refer to Contract Documents for type of paint to be used. All other piping in building requires no painting other than the sizing of the insulation jackets. Contractor to provide color stenciling of piping for identification; touching up paint that is chipped or scratched from mechanical equipment supplied; and 2 coats of black rust preventative on all exposed support metal and hangers mounted outdoors and in mechanical rooms.
B. Color Coding Schemes (Unless violates OSHA Standards)
Domestic Water, Cold: Kelly or Safety Green with White arrows and letters.
Domestic Water, Hot: Safety Green with Red arrows and letters.
Fuel Gas: Safety yellow with red arrows and letters.
C. Cleaning, Testing, Adjustments and Inspections shall be accomplished in accordance with the following instructions and requirements. Provide temporary fill and drainage lines, wherever required, and connect them to the piping systems for these procedures and, finally, upon completion disconnect and remove these temporary lines.
D. Flaring and Oiling: All piping systems shall be thoroughly cleaned of grease, iron cuttings, welding slag, loose scale and other refuse. Should any pipe, valves, traps, strainers, and other specialties, and equipment be stopped up by refuse, disconnect, clean and reconnect such pipe, equipment and material. All strainer baskets shall be removed, cleaned and replaced.

Exterior surfaces of piping, materials, or equipment that is to be painted or insulated shall be cleaned to remove lint, grease and oil.

2.14 TESTS

Provide written test results to the Engineer. Provide one week notice prior to all tests.

- A. Soil Lines and Waste & Vent Stacks. After the lines and various connections are in place, all openings, including vents, shall be carefully closed and the whole system filled with water to ten feet of head and test for 6 hours. Any pipe, fitting or joint showing defect shall be immediately removed and replaced and the test repeated.
B. Domestic Water Lines. After lines are in place and before concealing, all water lines shall be subjected to a hydrostatic pressure of 150 lbs. for a period of at least 6 hours.
C. Fuel gas piping. After lines are in place and before concealing, all fuel gas lines shall be subjected to a pressure of 15 lbs. for a period of at least 6 hours or as required by Code or fuel gas utility.
D. Adjustments shall be coordinated with cleaning and testing to assure equipment performance as specified.

Water and electricity will be furnished by the Owner for the final operating tests.

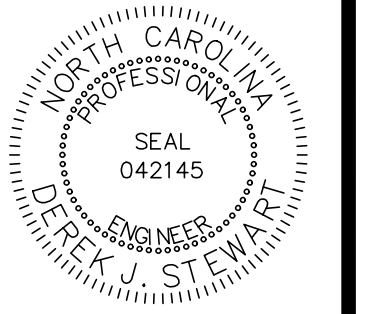
All unfired pressure vessels furnished under this division shall be constructed, inspected and stamped in accordance with applicable sections of the ASME Codes. Data shall include inspector's National Board registration number.

3. PART 3 PLUMBING WORK CLOSEOUT

- 3.1 General: Refer to the Division 1 sections for general closeout requirements. Maintain a daily log of operational data on plumbing equipment and systems through the closeout period; record hours of operation, assigned personnel, fuel consumption and similar information; submit copy to Owner.
3.2 Record Drawings: For plumbing work, give special attention to the complete and accurate recording of underground piping, other concealed and non-accessible work, branching arrangement and valve locations (including valve numbers that match those numbers shown on the valve schedule) for piping systems, locations of control system sensors and other control devices, and work of change orders where not shown accurately by contract documents. Submit to Engineer at end of project one set of reproducible sepias that show all recorded changes in the mechanical work.
3.3 Operating Instructions: Conduct a walk-through instruction seminar for the Owner's personnel to be involved in the continued operation and maintenance of plumbing equipment and systems. Explain the identification system, operation diagrams, emergency and alarm provisions, sequencing requirements, seasonal provisions, security, safety, efficiency, and similar features of the systems.
3.4 Training: Contractor to provide training on all major equipment, controls, etc., as part of the contract.
3.5 Turn-Over of Operations: At the time of substantial completion, turn over the prime responsibility for operation of the plumbing equipment and systems to the Owner's operating personnel. However, until the time of final acceptance, provide one full-time employee, who is completely familiar with the work, to consult with and continue training with the Owner's personnel.

END OF SECTION

derek@simsengineers.com

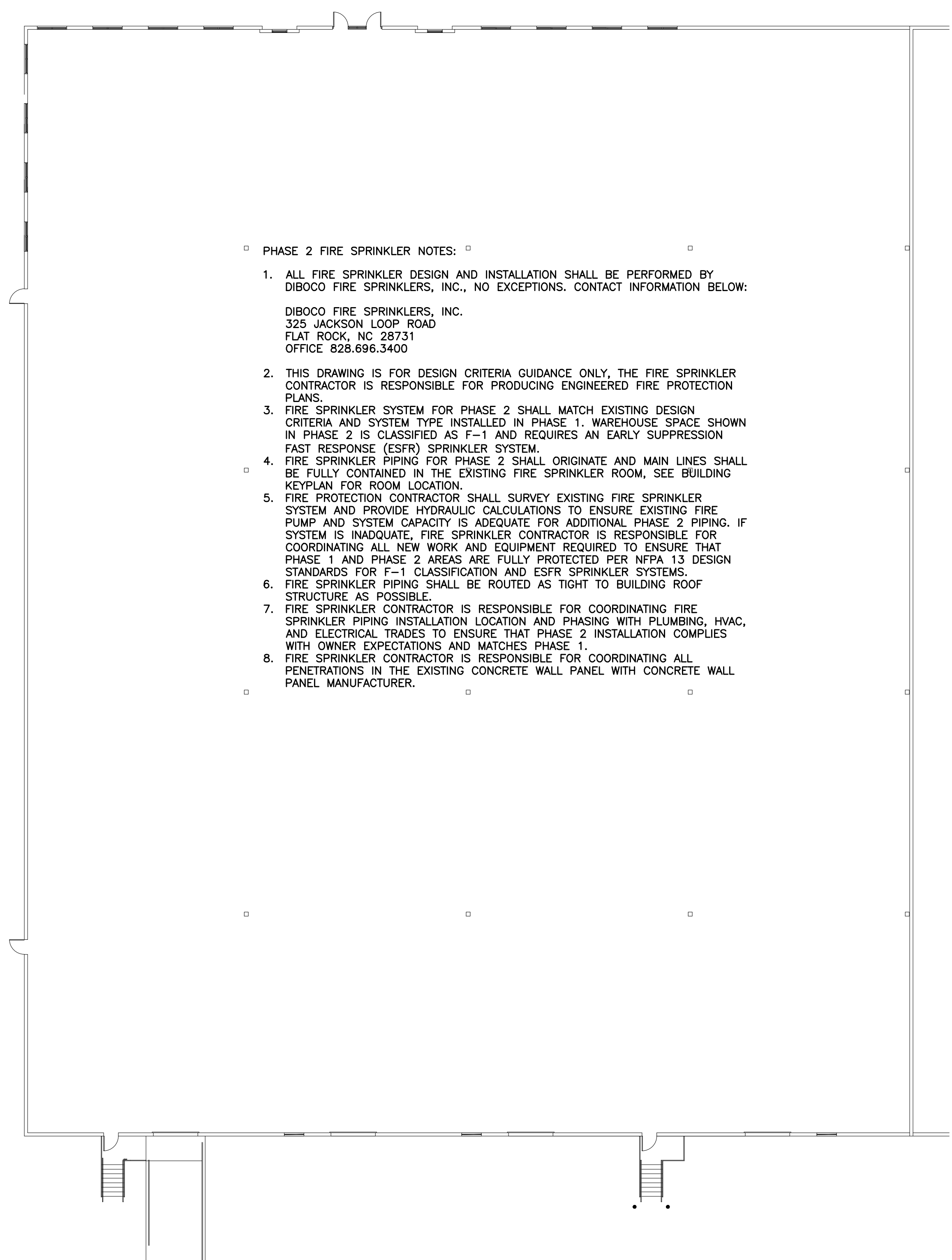


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SHEET P4

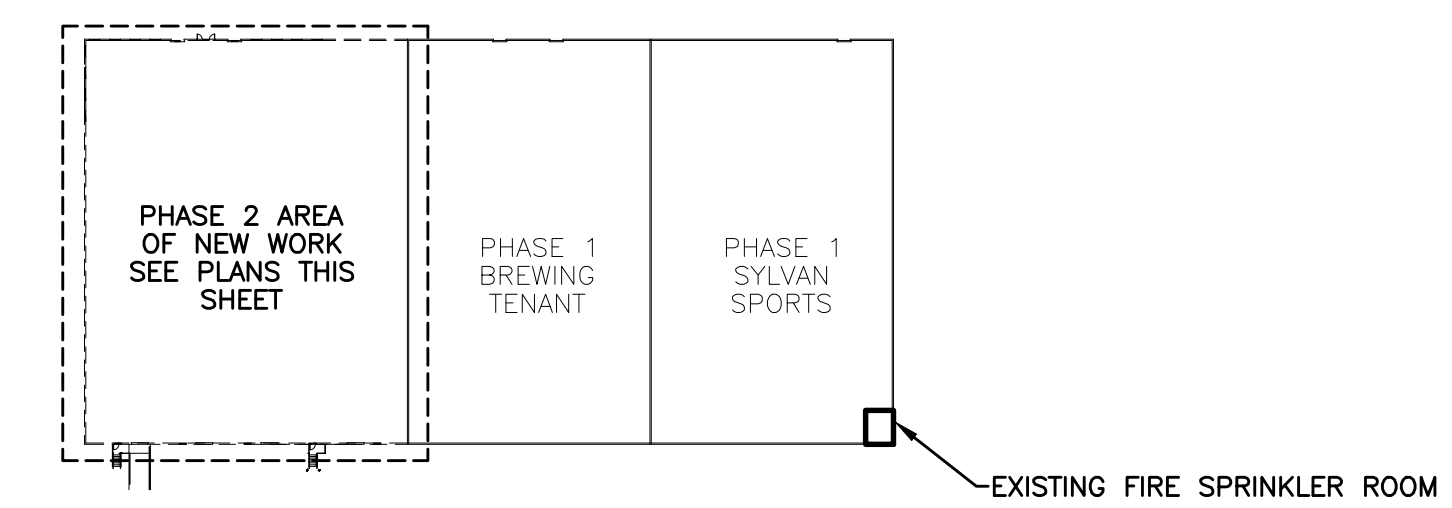


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- PHASE 2 FIRE SPRINKLER NOTES: □
1. ALL FIRE SPRINKLER DESIGN AND INSTALLATION SHALL BE PERFORMED BY DIBOCO FIRE SPRINKLERS, INC., NO EXCEPTIONS. CONTACT INFORMATION BELOW:
 DIBOCO FIRE SPRINKLERS, INC.
 325 JACKSON LOOP ROAD
 FLAT ROCK, NC 28731
 OFFICE 828.696.3400
 2. THIS DRAWING IS FOR DESIGN CRITERIA GUIDANCE ONLY. THE FIRE SPRINKLER CONTRACTOR IS RESPONSIBLE FOR PRODUCING ENGINEERED FIRE PROTECTION PLANS.
 3. FIRE SPRINKLER SYSTEM FOR PHASE 2 SHALL MATCH EXISTING DESIGN CRITERIA AND SYSTEM TYPE INSTALLED IN PHASE 1. WAREHOUSE SPACE SHOWN IN PHASE 2 IS CLASSIFIED AS F-1 AND REQUIRES AN EARLY SUPPRESSION FAST RESPONSE (ESFR) SPRINKLER SYSTEM.
 4. FIRE SPRINKLER PIPING FOR PHASE 2 SHALL ORIGINATE AND MAIN LINES SHALL BE FULLY CONTAINED IN THE EXISTING FIRE SPRINKLER ROOM, SEE BUILDING KEYPLAN FOR ROOM LOCATION.
 5. FIRE PROTECTION CONTRACTOR SHALL SURVEY EXISTING FIRE SPRINKLER SYSTEM AND PROVIDE HYDRAULIC CALCULATIONS TO ENSURE EXISTING FIRE PUMP AND SYSTEM CAPACITY IS ADEQUATE FOR ADDITIONAL PHASE 2 PIPING. IF SYSTEM IS INADQUATE, FIRE SPRINKLER CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL NEW WORK AND EQUIPMENT REQUIRED TO ENSURE THAT PHASE 1 AND PHASE 2 AREAS ARE FULLY PROTECTED PER NFPA 13 DESIGN STANDARDS FOR F-1 CLASSIFICATION AND ESFR SPRINKLER SYSTEMS.
 6. FIRE SPRINKLER PIPING SHALL BE ROUTED AS TIGHT TO BUILDING ROOF STRUCTURE AS POSSIBLE.
 7. FIRE SPRINKLER CONTRACTOR IS RESPONSIBLE FOR COORDINATING FIRE SPRINKLER PIPING INSTALLATION LOCATION AND PHASING WITH PLUMBING, HVAC, AND ELECTRICAL TRADES TO ENSURE THAT PHASE 2 INSTALLATION COMPLIES WITH OWNER EXPECTATIONS AND MATCHES PHASE 1.
 8. FIRE SPRINKLER CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL PENETRATIONS IN THE EXISTING CONCRETE WALL PANEL WITH CONCRETE WALL PANEL MANUFACTURER.

1 FLOOR PLAN - FIRE PROTECTION
 FP1 SCALE: 1/16" = 1'-0"



BUILDING KEY PLAN
 NOT TO SCALE

Derek J. Stewart
Professional Engineer
 License No. 042145
 State of North Carolina

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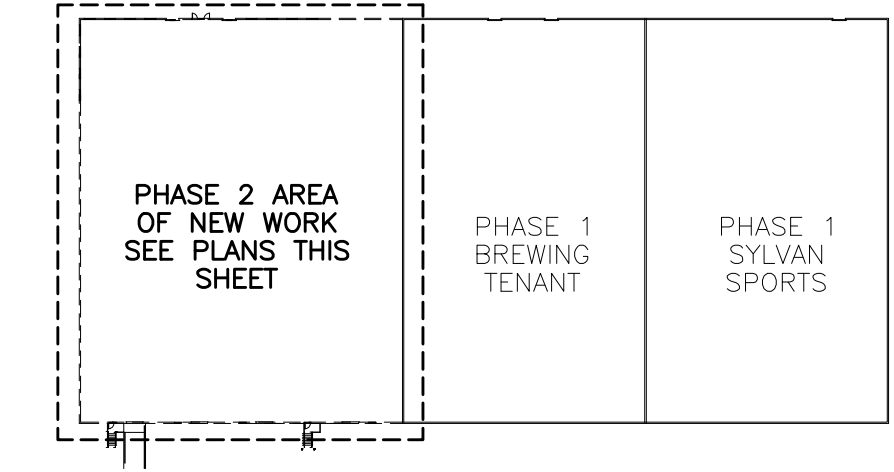
RICHARD L. WORLEY
ARCHITECT A.I.A.
 4078 HAYWOOD ROAD - MILLS RIVER, NORTH CAROLINA 28759

AN ADDITION TO
 THE TRANSYLVANIA COUNTY ECONOMIC ALLIANCE
SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2)
 BREVARD, NORTH CAROLINA

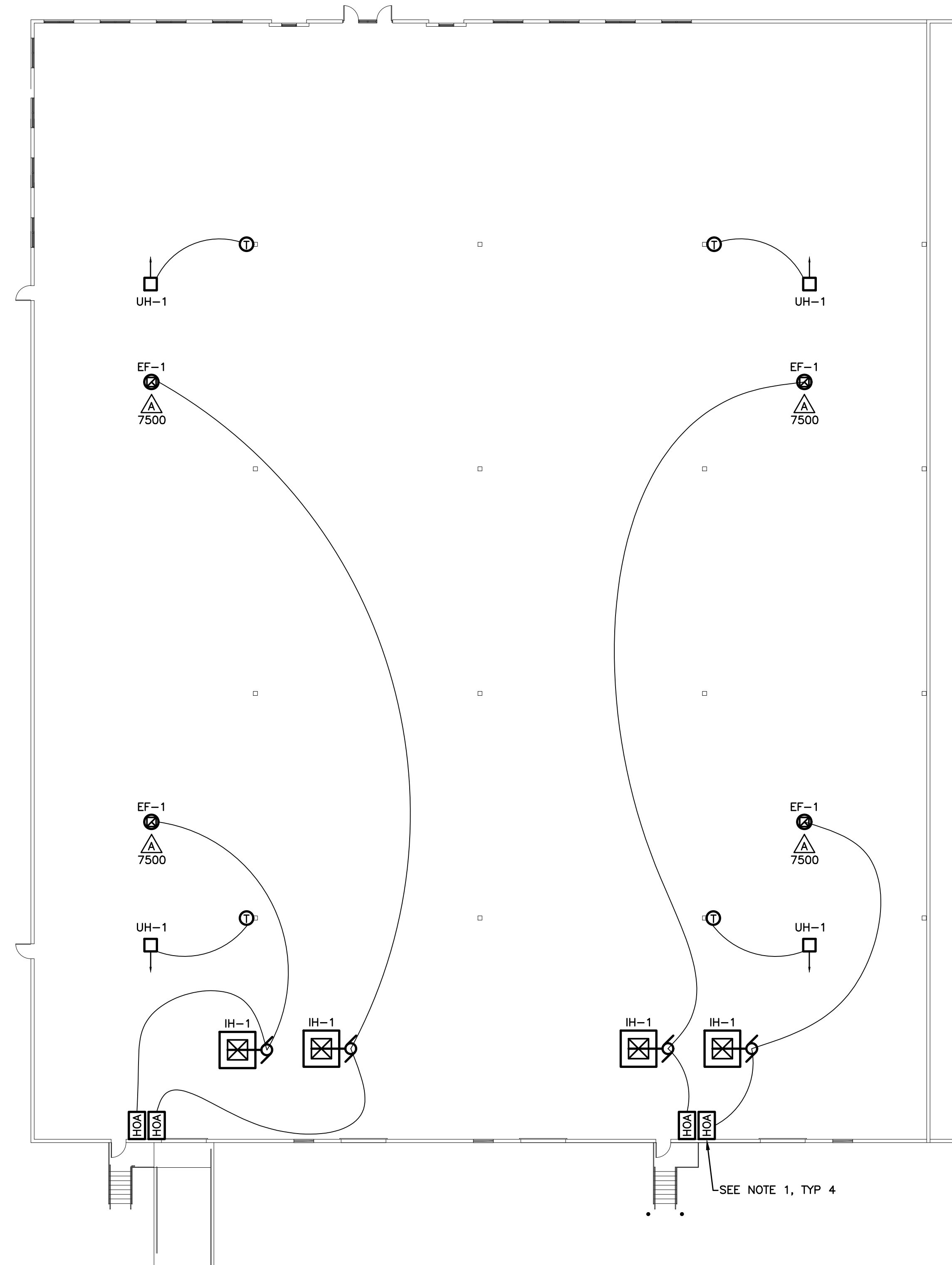
derek@simsengineers.com

DATE APR 04 2023

SHEET FP1

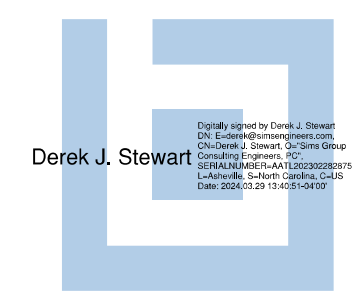


BUILDING KEY PLAN
NOT TO SCALE



1 FLOOR PLAN - HVAC
M1 SCALE: 1/16" = 1'-0"

NOTES:
1. WALL MOUNTED HAND/OFF/AUTO SWITCH WITH COMBINATION MOTOR STARTED & DISCONNECT, 480V/3Ø. SWITCH SHALL HAVE AN AUXILIARY CONTACT & RELAY AND BE INSTALLED ON WALL NO HIGHER THAN 60" AFF BY MECHANICAL CONTRACTOR. WIRING IS BY ELECTRICAL CONTRACTOR.



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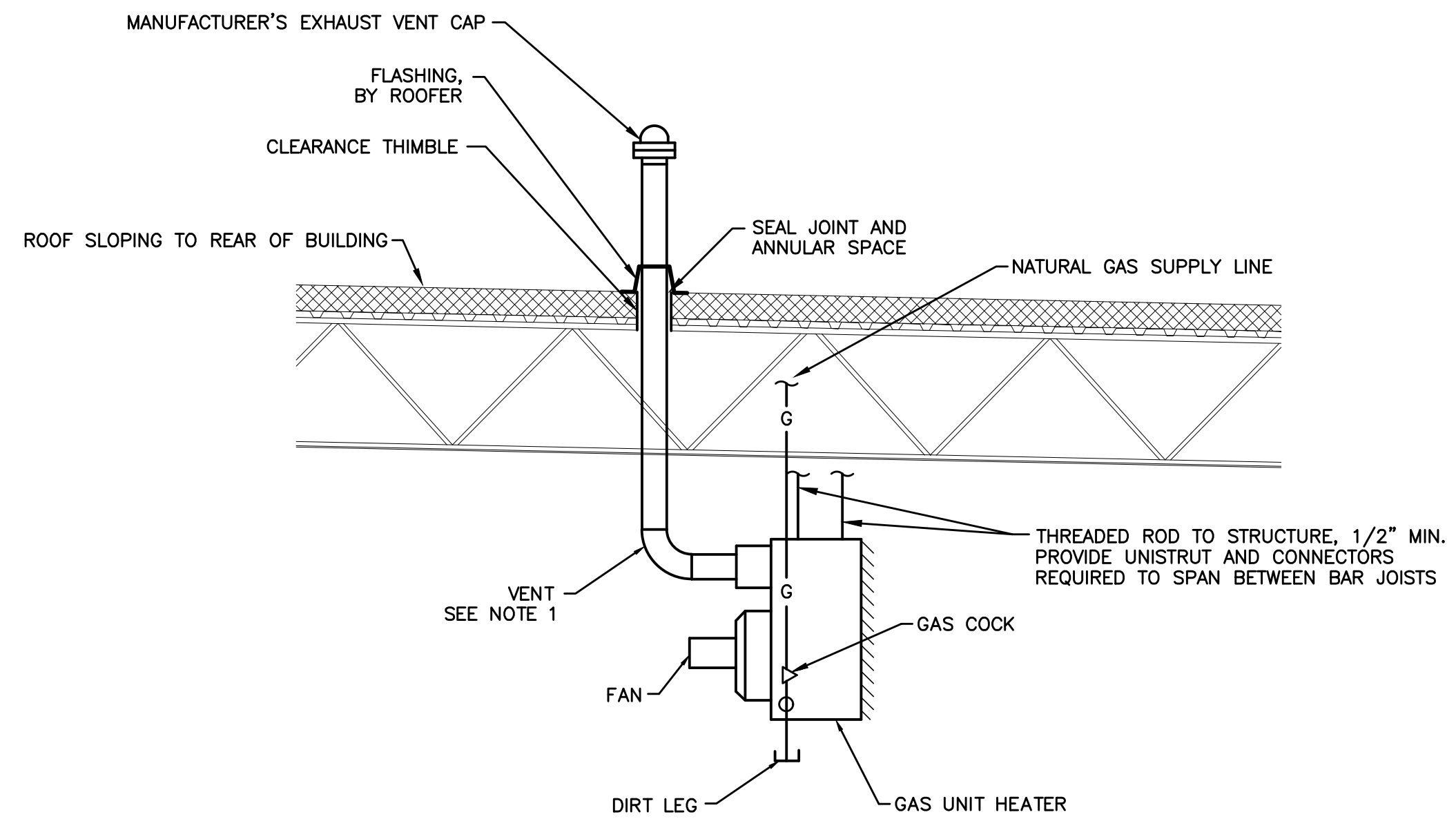
AN ADDITION TO
THE TRANSYLVANIA COUNTY ECONOMIC ALLIANCE
SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2)
BREVARD, NORTH CAROLINA

RICHARD L. WORLEY
ARCHITECT A.I.A.
4078 HAYWOOD ROAD - MILLS RIVER, NORTH CAROLINA 28759



DATE APR 04 2023

SHEET **M1**



1 UNIT HEATER DETAIL
M201 NOT TO SCALE

- NOTE:
1. PROVIDE MANUFACTURER'S VENT KIT.
2. SEE ARCHITECTURAL ROOFING DETAIL #7, SHEET A13

RETURN REGISTER SCHEDULE		
MARK	THROAT	DESCRIPTION
A	-	HARDWARE CLOTH COVERED OPENING OF DUCT

EXHAUST FAN SCHEDULE							
MARK	TYPE	CFM	ESP	RPM	HP	VOLTS	DESCRIPTION
EF-1	ROOF	7500	0.25	868	2	480/3	GREENHECK #GB-240-20

- NOTE:
1. PROVIDE FACTORY ROOF CURB. SEE ARCHITECTURAL ROOFING DETAIL #5 ON SHEET A13.

INTAKE HOOD SCHEDULE				
MARK	CFM	THROAT	SIZE	DESCRIPTION
IH-1	7500	44X56	77X96	GREENHECK FGI

- NOTE:
1. IH-1 MUST BE PROVIDED WITH A NORMALLY CLOSED MOTOR OPERATED DAMPER.
2. IH-1 DAMPER MUST BE INTERLOCKED WITH EF-1 SUCH THAT DAMPER IS OPEN WHILE EF-1 IS IN OPERATION.
3. PROVIDE FACTORY ROOF CURB. SEE ARCHITECTURAL ROOFING DETAIL #5 ON SHEET A13.

UNIT HEATER SCHEDULE			
MARK	QTY.	BTUH INPUT	DESCRIPTION
UH-1	4	175,000	REZNOR MODEL PDP 175

- NOTE:
1. THERMOSTATS FOR GAS FIRED HEATERS TO BE PURCHASED FROM GAS FIRED HEATER MANUFACTURER. APPROVE FINAL LOCATION WITH OWNER BEFORE INSTALLATION

HVAC LEGEND	
MARK	DESCRIPTION
⊠ 350	DIFFUSER, ⊠ DENOTES TYPE (SEE SCHEDULE) "350" DENOTES CFM, MAY USE FIVE FEET OF FLEX DUCT TO CONNECT TO TRUNK
⊠ 350	RETURN REGISTER, ⊠ DENOTES TYPE (SEE SCHEDULE), "350" DENOTES CFM
⊠ 75 8x8	EXHAUST REGISTER, "75" DENOTES CFM. 8x8 DENOTES FACE AREA.
Ⓣ ₁	THERMOSTAT, PROGRAMABLE FOR 5-1-1 DAY WEEKS, NIGHT SET BACK, AUTO HEAT TO COOL, "1" DENOTES UNIT CONTROLLED, PROVIDE THERMOSTAT FOR EACH HVAC SYSTEM, COORDINATE LOCATION WITH ARCHITECT.
12x6	RECTANGULAR DUCTWORK, GALVANIZED; "12" DENOTES WIDTH, "6" DENOTES DEPTH. DIMENSIONS SHOWN ARE FREE AND CLEAR.
12ø	DUCTWORK, ROUND, GALVANIZED
	DUCT TEE, BEND, ELBOW, RADIUS NOT LESS 1.5 C/L WIDTH OR PROVIDE RECTANGULAR ELBOWS WITH AIR FOIL TURNING VANES.
	SPLITTER DAMPER
⊠ EF-1	EXHAUST FAN, "1" DENOTES NUMBER (SEE SCHEDULE), COORDINATE CURB INSTALLATION WITH ROOF INSTALLATION
	SIDE TAKE OFF WITH VOLUME CONTROL DAMPER TYPICAL ALL TAKE OFFS.

**2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)**

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: 11°F
summer dry bulb: 85°F

Interior design conditions
winter dry bulb: 70°F
summer dry bulb: 75°F
relative humidity: 50%

Building heating load: - BTUH

Building cooling load: - TONS

Mechanical Spacing Conditioning System
Unitary
description of unit: } SEE HVAC SCHEDULE, SHEET M2
heating efficiency:
cooling efficiency:
size category of unit:
Boiler N/A
Size category, if oversized, state reason.:
Chiller N/A
Size category, if oversized, state reason.:

List equipment efficiencies: SEE HVAC SCHEDULE, SHEET M2

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SECTION 15010H
BASIC HVAC REQUIREMENTS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Basic HVAC Requirements specifically applicable to Division 15 Sections, in addition to Division 1 – General Requirements.

1.2 SCOPE OF WORK

- A. Provide central HVAC equipment including, but not limited to, gas fired furnaces and A/C units, controls, thermostats, ventilators, piping, ducting, air distribution equipment, etc., and other required materials to produce complete and operating HVAC system as shown on drawing.
B. Obtain all permits, pay all fees and request inspection from authority having jurisdiction.
C. Provide demolition of all Mechanical materials made obsolete by this project and remove from site. Owner retains salvage rights.
D. All work and materials shall be guaranteed for one year from date of substantial completion.

1.3 WORK SEQUENCE

- A. Coordinate construction and utility outages (if any) with Owner, Engineer, all other trades and utility companies.
B. Visit site before submitting bid to confirm existing conditions. Notify Engineer in writing of discrepancies in Contract Documents and existing conditions.
C. Please E-Mail questions and or comments to derek@simsengineers.com or fax (828-251-1933) in lieu of telephone calls.

1.4 SUBMITTALS

- A. Submit under provisions of Contract Documents.
B. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal. Identify items with marks to match those shown on drawings.
C. Mark dimensions and values in units to match those specified.
D. Architect shall approve all colors.
E. All submittals shall have the General Contractor's stamp, with approval signature.
F. Highlight deviations from specified materials.
G. Shop Drawings: 6 sets, including 3 for maintenance manuals.
H. Product Data: 6 sets, including 3 sets for maintenance manuals. Data shall include the following, but not limited to:
1. Gas fired furnaces and A/C units
2. Insulation
3. Air Distribution Equipment
4. Exhaust Fans
5. Valves
6. Controls
I. Certifications: 3 copies
J. Test Reports: 3 copies
K. Warranties (Guarantees): 6 copies, including 3 for maintenance manuals.
L. Maintenance Manuals: 3 complete sets with individual sets each of this data bound in 10 1/2" x 11 1/2" loose-leaf 3-ring binders, 1 1/2", 2", or 3" ring size, with rigid permanent vinyl covered back and front. Separators with index tabs and loose-leaf sheet protectors shall be provided. One set shall have all sheets individually encased in clear, plastic document protectors.

1.5 REGULATORY REQUIREMENTS

- A. Conform to applicable State and Local Building Codes.
B. Fire Protection: Conform to NFPA.
C. Electrical: National Electric Code.
D. Life Safety Code, NFPA 101.
E. All Codes shall be the most recent edition.
F. The Contractor shall install all materials per the State and Local Building Code. Any work that does not comply shall be made to comply at the Contractor's expense.
G. All equipment shall be UL approved for purpose specified.
H. Install all materials and equipment per manufacturer's instructions.

1.6 PROJECT/SITE CONDITIONS

- A. Install Work in locations shown on Drawings, unless prevented by Project conditions.
B. Prepare record drawings showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Architect/Engineer before proceeding. Submit all changes on Record Documents as a requirement of project close out.
C. Refer to Architectural drawings for dimensions, locations, cabinets, etc. Do not scale HVAC Drawings.
D. Conceal all duct, piping, etc. except where the Architect/Engineer grants specific permission.
E. Arrange HVAC work in a neat, well organized manner with piping and similar services running parallel with primary lines of the building construction.
F. Locate operating and control equipment properly to provide easy access, and arrange entire mechanical work with adequate access for operation and maintenance.
G. Give right-of-way to piping which must slope for drainage.
H. Advise other trades of openings required in their work for the subsequent move-in of large units of mechanical work (equipment).
I. Coordination Drawings: For locations where several elements of mechanical (or combined mechanical and electrical) work must be sequenced and positioned with precision in order to fit into the available space, prepare coordination drawings (shop drawings) showing the actual dimensions (at accurate scale) required for the installation. Prepare and submit coordination drawings prior to purchase-fabrication-installation of any of the elements involved in the coordination.

1.7 SUBSTITUTIONS

All products listed are to establish design and quality standards, not to limit submittals. Substitutions may be accepted if approved as equivalent. Contact Engineer prior to bid with any questions. All substitutions must be submitted within 10 days after bid or supply as specified. Highlight substitution deviations from materials specified. Cost incurred to modify project to install substituted materials shall be the responsibility of the Contractor requesting the substitution.

- 1.8 Provide Valve Directory indicating number, size, manufacturer, location, function, and normal position. Valve tag numbers shall be as specified.

1.9 Mechanical Equipment: Show the following information for all mechanical equipment:

- Nameplate designation
Manufacturer's nameplate data
Location of equipment
Area served
Complete parts drawing and list
Manufacturer's operating instructions
Manufacturer's maintenance instructions
Manufacturer's repair manuals
Manufacturer's installation instructions
Nearest supplier for parts and replacements with telephone number
Nearest service organization for equipment with telephone number

1.10 Control Data:

- Control diagrams and wiring diagrams where applicable. Description of control systems.
Catalog data, maintenance and calibration instruction for all components.
Control supplier and address
Control installer and address

- 1.11 Maintenance Instruction: A typewritten form of instructions for maintenance of the systems in itemized form and with time schedule for maintenance work, shall be furnished. The instructions shall list each item of mechanical equipment requiring inspection, lubrication or service and describe the performance of such maintenance. The list shall include the type of bearings for each piece of equipment, the type and frequency of lubrication required. The operating personnel shall be instructed in the core of the system in accordance with the typewritten instructions.

2. PART 2 DESCRIPTION OF WORK

2.1 GENERAL DESCRIPTION OF WORK

- A. Coordinate work with other trades.
B. Fire stop all penetrations through rated assemblies. See Architectural sheets for locations of rated assemblies.
C. All major pieces of material shall be produced by the same manufacturer. Provide Lamcore labels.
D. HVAC Contractor shall provide all penetrations, etc. and patching required to install HVAC work.
E. Coordinate all required line voltage starters, disconnects, switches with Electrical Contractor for installation. Coordinate electrical requirements for equipment supplied with Electrical Contractor equipment.
F. Provide low voltage controls and control transformers.

2.2 DUCTWORK:

A. GALVANIZED STEEL LOW PRESSURE DUCT CONSTRUCTION

STL U.S. STD GAGE	DUCT DIMENSIONS IN INCHES	CONSTRUCTION TRANSVERSE JOINTS
24	UP THRU 12	S SLIP, DRIVE SLIP
	13 THRU 18	S SLIP, DRIVE SLIP
	19 THRU 30	BAR SLIP, DRIVE SLIP
22	31 THRU 42	POCKET LOCK ON 4" CENTERS, MECHANICAL BOLTED GASKETED, 20 GAGE
	43 THRU 54	MECHANICAL, GASKETED, 20 GAGE BOLTED
20	55 THRU 60	MECHANICAL BOLTED, GASKETED 18 GAGE JOINT ON 4" CENTERS 1 1/2 x 1 1/2 x 1/8 ANGELS 2 FEET FROM JOINT

- Longitudinal joints may be either Pittsburghed or snap locked.
- Where round duct is indicated it shall be minimum 26 gage and otherwise conform to schedule for low pressure duct.
- Branch take offs shall be throated with the area of the throat being 1.5 times the area of the branch. Takeoff shall incorporate single blade damper constructed of hemmed 24 gage steel with at least 2 galvanized strap hinges, connected to 1/4" control rod operating through a nylon bearing.
- Suspension of duct shall consist of 24 gage galvanized strap for duct through 18". For duct 19" through 30" use 1/4" rod and 1 1/2" x 1 1/4" x 1/4" galvanized angle on 4" centers, for duct through 60" use 3/8" rod and 2" x 2" x 1/8" galvanized angle on 3" centers.
- Contractor shall confirm duct routing with engineer prior to fabrication and field installation.

B. GALVANIZED STEEL MEDIUM PRESSURE DUCT CONSTRUCTION

- Medium pressure duct, 2" - 5" WG, or that duct in a VAV system between fan and terminal box shall be constructed of steel at least 2 U.S. gages heavier than specified for low pressure duct.
- Test duct for leakage by applying a static pressure of at least 7" WG once the duct has been assembled but before terminals or fans are connected.

C. INSULATION

- Wrap all ductwork with 'R' value 5.0 (minimum) duct wrap.
- For ductwork routed in attics or non-conditioned space, provide duct wrap with total 'R' value of 8.0 (minimum) duct wrap.

2.3 CONDENSATE PIPING:

Schedule 40 PVC

2.4 REFRIGERANT PIPING:

Copper, approved for use by unit manufacturers. Insulate suction line with ArmoFlex. Seal and point insulation exposed to weather. Secure 5 feet on center.

2.5 WIRING

All control wiring (120V and less) to be complete to all motorized equipment, and control devices listed in this specification and shown on the mechanical drawings, shall be done under Division 15. The Contractor shall refer to Electrical plans and specifications to determine the source of electrical energy for the various control circuits. All wiring shall be in conduit, shall conform with Division 16 of these specifications, all local codes, the National Electrical Code, and shall be installed by an approved licensed electrician. Wiring diagrams indicating wire sizes and conduit runs for all electrical work that is required to be installed under this contract shall be submitted to the Engineer for prior approval before work is begun. Upon completion of the work, the wiring diagrams shall be revised to incorporate any additions or corrections and two copies of the "as installed" diagrams shall be furnished to the Owner and one to the Engineer on reproducible sepia paper.

Wiring shown on electrical plans is for mechanical equipment scheduled. Any equipment provided by the Contractor that differs from that scheduled in electrical characteristics that requires additional voltage, electrical design and/or electrical cost changes shall be the responsibility of this Contractor. Any cost incurred for additional electrical design and/or electrical changes due to any equipment other than equipment scheduled, shall be the responsibility of this Contractor.

In general interlock wiring between pieces of mechanical equipment shall be done under Division 15M (Example: Exhaust fan interlock with air handling unit).

- 2.6 FOUNDATIONS: All concrete foundations anchor forms, or pads indicated on the drawings that may be necessary and required for the installation of equipment specified under this contract, shall be furnished and installed. Provide anchor bolts for the equipment foundations/pads. Equipment to receive pads are pumps, boiler and air cooled chiller.

- 2.7 MISCELLANEOUS STEEL SUPPORTS: All supporting steel grillage, steel angles, channels, pipe or structural steel stands, and anchoring devices that may be required to adequately and rigidly support either piping, insulation, or equipment installed under this contract, shall be provided and installed.

- 2.8 CHASES AND OPENINGS: Lay out all chases and openings, required for the execution of this work well in advance of the structural work. Provide thimbles in walls and partitions. Thimbles shall be standard weight galvanized steel pipe.

2.9 HVAC SYSTEM IDENTIFICATION:

- A. Piping System: All piping installed under this division of the specifications shall be identified as follows:
B. Painting: Piping in mechanical rooms to be painted. Refer to "Painting Mechanical Work."
C. Method of Marking: Colored stencil letter that designate the material being handled, shall be applied at not more than 15 foot intervals on straight pipe runs, adjacent to valves and where pipe passes through walls and floors. Piping shall be marked at all the equipment connections. All piping shall be identified.
D. Identification: Lettering shall be stenciled in block letters, size as scheduled below. Letters on covered (insulated) pipe shall be stenciled on covering. On uncovered pipe, painted bands shall be wide enough (See Table 1) to accommodate required letters. Letters shall be positioned so that it can be easily read by a man standing on the floor. Lettering on parallel groups of lines shall be neatly lined up. Surfaces of piping or insulation finished in dark colored shall be lettered in white; and that finished in light colors shall be lettered in black.

All lines also shall be marked with arrows indicating the direction of flow.

TABLE 1

Outside Diameter of Pipe or Converting (Inches)	Letter Size	Size of Letter (Inches)
1/2 to 1-1/4		1/2
1-1/2 to 2		3/4
2-1/2 to 8		1-1/4

All dimensions are given in inches.

2.10 VALVE IDENTIFICATION

- A. Tags: Polished brass with 1/4" high stamp-engraved lettering, different shapes for each generic piping service.
B. Application: Tag every valve and control device in each mechanical-work piping system; exclude check valves, valves within equipment units, and valves in fan coil units.
C. Valve Schedule: Prepare and submit valve tag schedules (in duplicate), listing each tagged valve by location, service, and tag description. Install each page of one copy of the valve schedule in glazed frames, and mount where directed.

2.11 EQUIPMENT

- A. Signs: Provide engraved plastic-laminate signs at locations of major equipment units and primary control devices. Provide text of sufficient clarity and lettering of sufficient size to convey adequate information at each location, and mount permanently in an appropriate and effective location. Comply with recognized industry standards for color and design.
B. Selection: Refer to instances where either a plastic-laminate sign or plasticized tag might be appropriate to the Engineer for resolution.

2.12 ACCESSIBILITY:

- A. No valves, controls, unions, etc., shall be placed in any pipe line at a location that will be inaccessible after the system is completed.
B. Any dampers, controls, valves and piping controls, expansion joints, or other apparatus which must be located in an inaccessible location shall be provided with suitable access doors (fitted with a frame) which will permit proper operation and servicing of the apparatus. Access doors aforementioned include access doors in walls, ceilings, ductwork, and, where required, a combination of above. Access doors to be piano hinged.

2.13 EXCAVATING FOR MECHANICAL WORK

- A. General: The work of this article is defined to include whatever excavating and backfilling (but excluding insulating backfill) is necessary to install the mechanical work. Coordinate the work with other excavating and backfilling in the same area, including dewatering, floor protection provisions, and other temporary facilities. Coordinate the work with other work in the same area, including other underground services, landscape development, paving, and floor slabs on grade. Coordinate with weather conditions and provide temporary facilities needed for protection and proper performance of excavating and backfilling.
B. General Standards: Except as otherwise indicated, comply with the applicable provisions of the Division 2 sections, for mechanical work excavating and backfilling. Refer instances of uncertain applicability to the Engineer for resolution before proceeding.
C. Rock Excavation shall be defined as the removal of a formation that cannot be excavated without systematic drilling and blasting or without the use of pneumatic tools. All rock excavation/removal shall be performed by the General Contractor. The Plumbing, Mechanical, and Electrical subcontractors shall lay out their work and perform all normal or earth excavation. Should these subcontractors encounter rock (bulk or trench), it shall be removed by the General Contractor using allowable funds. The General Contractor shall be responsible for providing fill material for backfill of rock excavations. Rock may be used for structural fill provided it is broken down by the excavation and compaction equipment into particles with a maximum dimension of 6". Otherwise, it must be removed from the site and legally disposed of. Placement of rock in the fill or removal from the site shall be done by the General Contractor at no additional cost to the Owner.
D. Piping Support: Support pipe 4" and smaller directly on undisturbed soil. Support pipe 6" and larger, on compacted and shaped sub-base material of depth shown but not less than 6" deep. Compact previously disturbed and unsatisfactory subsoil to provide adequate, uniform support for mechanical work; or excavate and replace with stable sub-base material or lean concrete.
E. Sequencing: Delay backfill and encasement of piping until testing of piping system has been completed.

2.14 PAINTING HVAC WORK

- A. General: All piping in the mechanical rooms (3) to be painted in the colors as scheduled hereinafter. Refer to Contract Documents for type of paint to be used. All other piping in building requires no painting other than the sizing of the insulation jackets. Contractor to provide color stenciling of piping for identification; touching up paint that is chipped or scratched from mechanical equipment supplied; and 2 coats of black rust preventative on all exposed support metal and hangers mounted outdoors and in mechanical rooms.
B. Cleaning: Exterior surfaces of piping, materials, or equipment that is to be painted or insulated shall be cleaned to remove lint, grease and oil.

Ductwork, coils, fans and casing shall be cleaned on the inside before fans and filters are operated. After the equipment has been used for any purpose such as adjusting, testing, or temporary ventilation, filters shall be cleaned or replaced, as necessary, and supply, exhaust and return ducts shall be cleaned. All coils are to be combed to remove lint.

All components of the mechanical systems shall be cleaned on outside of dust, trash, paint and masonry droppings, and left in first class condition. Belt drives shall be adjusted for proper tension and sleeves aligned. All motor and equipment bearings shall be lubricated as recommended by the individual manufacturer and oil reservoir shall be left full.

2.15 TESTS

- A. Provide written test results to the Engineer. Provide one week notice prior to all tests.
B. Adjustments shall be coordinated with cleaning and testing to assure equipment performance as specified.

The entire temperature control system shall be adjusted and placed in operation by the manufacturer. Readjustments necessary to accomplish the specified results during the first year of operation shall be made without cost to the Owner.

Air duct systems shall be adjusted and balanced so that air quantities are regulated to deliver or remove the required cfm at each supply, return and exhaust terminal as specified or shown on the drawings. Distribution from air terminals shall be free from drafts, and uniform over the face of each air terminal.

Adjustments shall be made so that splitters and volume adjusters close to air terminals will have the least pressure drop consistent with volume requirements. Additional pressure drop required for balancing of shorter runs shall be obtained by adjustment of the dampers at branch duct take-offs. Adjusting fan drives shall be used for making final adjustments of total air quantities. Provide all labor and/or replacement and furnishing of extra sheaves of different sizes to accomplish the scheduled specified quantities.

Direct reading velocity meters may be used for comparative adjustment of individual air terminals, but air quantities in trunk ducts shall be measured by means of pitot tube traverses. Factory fabricated plugged or capped openings for pitot tubes shall be provided as required.

Settings of dampers, splitters, and other volume adjusting devices shall be permanently marked so that they can be restored if disturbed at any time.

- C. Record all fan static pressures, equipment rpm's and ammeter readings at each motor. General: Capacities of air handling unit, fans, and other related equipment shall be determined by operating tests of not less than eight hours duration, after stable conditions have been established.

Tabulate the final readings and analysis, and deliver four typewritten copies of the completed reports to the Engineers. The Contractor shall advise the Engineers in writing not less than 10 days in advance of when final testing and balancing will begin.

All labor and technical personnel, instruments and appliances for balancing and tests shall be furnished. If gauges, thermometers, etc., which are to be left permanently installed are used for tests, they shall not be installed until just prior to the tests to avoid possible changes in calibration.

Water and electricity will be furnished by the Owner for the final operating tests.

All unfired pressure vessels furnished under this division shall be constructed, inspected and stamped in accordance with applicable sections of the ASME Codes. Data shall include inspector's National Board registration number.

3. PART 3 HVAC WORK CLOSEOUT

- 3.1 General: Refer to the Division 1 sections for general closeout requirements. Maintain a daily log of operational data on mechanical equipment and systems through the closeout period; record hours of operation, assigned personnel, fuel consumption and similar information; submit copy to Owner.

- 3.2 Record Drawings: For HVAC work, give special attention to the complete and accurate recording of underground piping, ductwork, other concealed and non-accessible work, branching arrangement and valve location for piping systems, locations of dampers and coils in duct systems, locations of control system sensors and other control devices, and work of change orders where not shown accurately by contract documents. Submit to Engineer at end of project one set of reproducible sepia that show all recorded changes in the mechanical work.

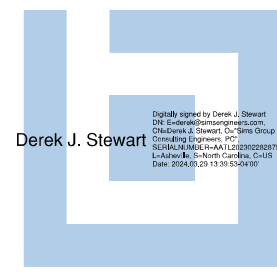
- 3.3 Closeout Equipment/Systems Operations: Sequence operations properly so that work of project will not be damaged or endangered. Coordinate with seasonal requirements. Operation each item of equipment and each system in a test run of appropriate duration (with the Engineer present, and with the Owner's operating personnel present), to demonstrate sustained, satisfactory performance. Adjust and correct operations as required for proper performance. Clean and lubricate each system, and replace dirty filters, excessively worn parts and similar expendable items of the work.

- 3.4 Operating Instructions: Conduct a day walk-through instruction seminar for the Owner's personnel to be involved in the continued operation and maintenance of mechanical equipment and systems. Explain the identification, operation diagrams, emergency and alarm provisions, sequencing requirements, seasonal provisions, security, safety, efficiency, and similar features of the systems.

- 3.5 Training: Contractor to provide training on all major equipment, controls, etc., as part of the contract.

- 3.6 Turn-Over of Operations: At the time of substantial completion, turn over the prime responsibility for operation of the mechanical equipment and systems to the Owner's operating personnel. However, until the time of final acceptance, provide one full-time employee, who is completely familiar with the work, to consult with and continue training with the Owner's personnel.

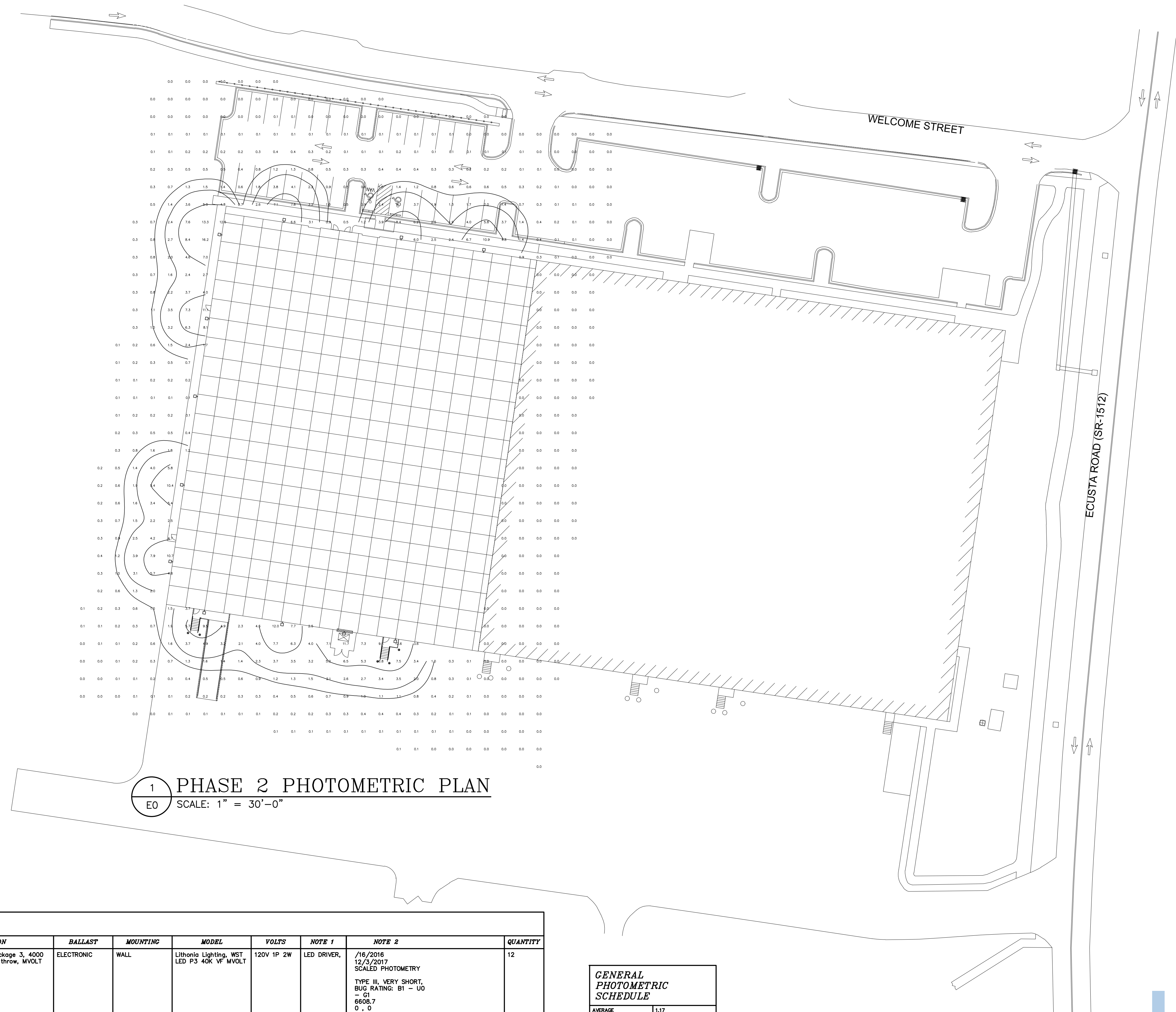
END OF SECTION



CONSULTING ENGINEERS, PC
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www.simgroupconsultingengineers.com
N.C. FIRM LICENSE #C-4284

DATE APR 04 2023
SHEET M3

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LUMINAIRE SCHEDULE										
CALLOUT	SYMBOL	LAMP	DESCRIPTION	BALLAST	MOUNTING	MODEL	VOLTS	NOTE 1	NOTE 2	QUANTITY
A	□	(1) 50W LED,	WST LED, Performance package 3, 4000 K, visual comfort forward throw, MVOLT	ELECTRONIC	WALL	Lithonia Lighting, WST LED P3 40K VF MVOLT	120V 1P 2W	LED DRIVER,	/16/2016 12/3/2017 SCALED PHOTOMETRY TYPE III, VERY SHORT, BUG RATING: B1 - U0 - G1 6608.7 LED 0.63, 1, 0 0, 0, 0 WALL MOUNT WST-LED 06730558-de67-480c-ee26-23c17e6140c7 NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED. 1696 120.1 VOLTS, 11.7 WATTS, 0.987 AMPS AMBIENT: 25.0	12

GENERAL PHOTOMETRIC SCHEDULE	
AVERAGE FOOT-CANDELES	1.17
MAXIMUM FOOT-CANDELES	16.2
MINIMUM FOOT-CANDELES	0.0
MINIMUM TO MAXIMUM FC RATIO	0.00
MAXIMUM TO MINIMUM FC RATIO	16.18 / 0.00
AVERAGE TO MINIMUM FC RATIO	1.17 / 0.00



sims group

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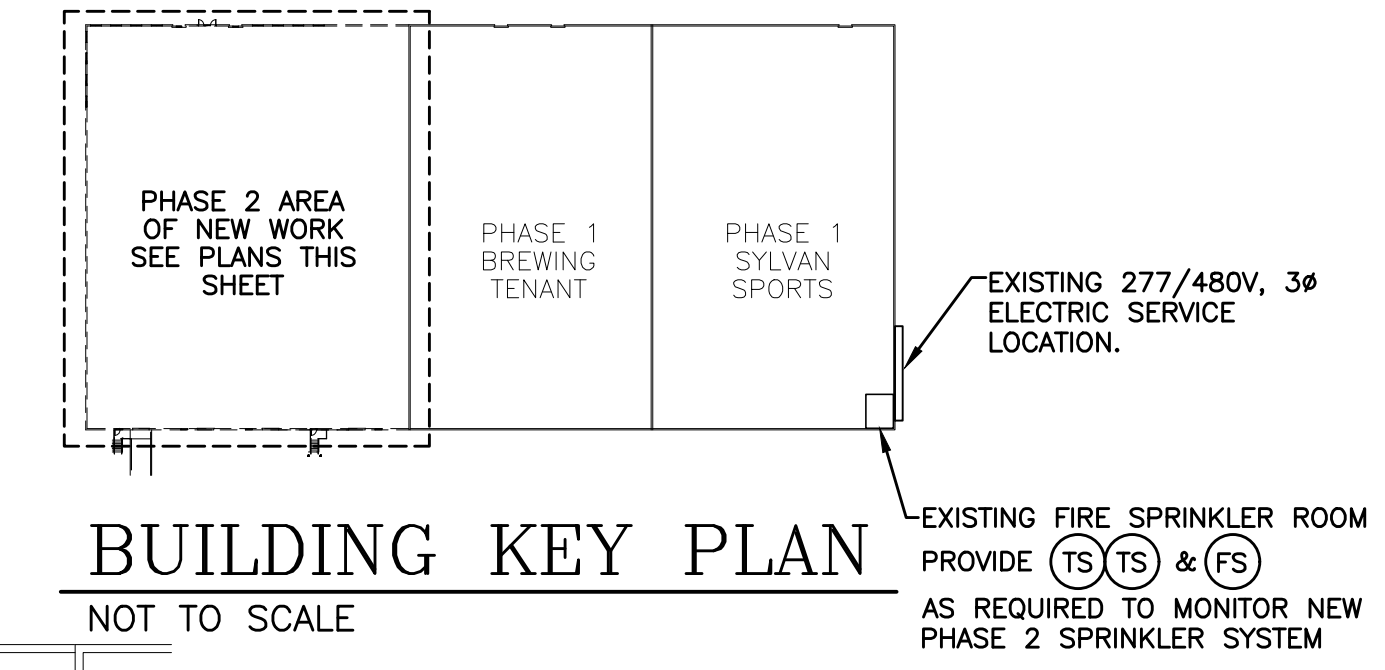
RICHARD L. WORLEY
ARCHITECT A.I.A.
 4078 HAYWOOD ROAD - MILLS RIVER, NORTH CAROLINA 28759

AN ADDITION TO
 THE TRANSYLVANIA COUNTY ECONOMIC ALLIANCE
SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2)
 BREVARD, NORTH CAROLINA



DATE APR 04 2023

SHEET **EO**

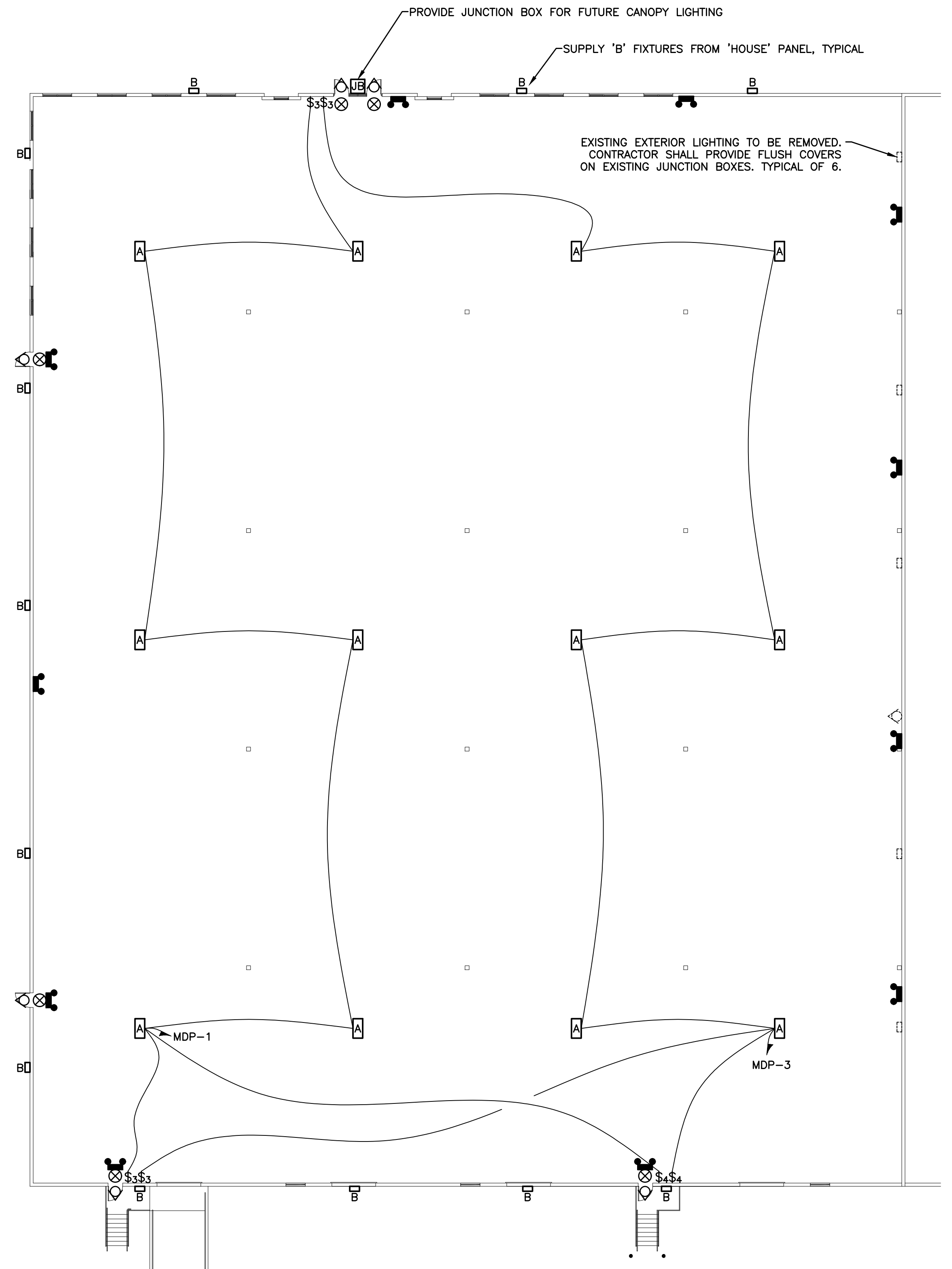


FIRE ALARM LEGEND	
MARK	DESCRIPTION
◇	REMOTE ANNUNCIATOR
AV	AUDIO/VISUAL INDICATOR, WALL MT, 87dBA, 15/75/110 cd SYNCHRONIZED
F	PULL STATION
⊙	FIRE SPRINKLER TAMPER SWITCH, COORDINATE WITH FIRE SPRINKLER CONTRACTOR. SEE BUILDING KEY PLAN ABOVE.
⊙	FIRE SPRINKLER FLOW SWITCH, COORDINATE WITH FIRE SPRINKLER CONTRACTOR. SEE BUILDING KEY PLAN ABOVE.

- NOTES:
- ALL NEW FIRE ALARM DEVICE INSTALLATION SHALL BE PERFORMED BY INFINITY SYSTEMS, NO EXCEPTIONS. CONTACT INFORMATION BELOW:
 INFINITY SYSTEMS.
 16 S TURKEY CREEK RD
 LEICESTER, NC 28748
 OFFICE 828.683.1420
 infinitysystems@charter.net
 - FIRE ALARM SYSTEM FOR PHASE 2 SHALL EXPAND UPON EXISTING FIRE ALARM SYSTEM INSTALLED IN PHASE 1 AND ALL DEVICES SHALL MATCH ORIGINAL FIRE ALARM SYSTEM MANUFACTURER: GAMEWELL-FCI BY HONEYWELL.
 - THE FIRE ALARM CONTROL PANEL SERVING PHASE 2 IS EXISTING AND LOCATED IN THE EXISTING FIRE SPRINKLER ROOM. SEE BUILDING KEYPLAN FOR ROOM LOCATION.
 - FIRE ALARM SYSTEM CONTRACTOR SHALL SURVEY THE EXISTING FIRE ALARM SYSTEM TO ENSURE THE EXISTING SYSTEM IS ADEQUATE FOR ADDITIONAL PHASE 2 DEVICES.
 - FIRE ALARM SYSTEM CONDUIT & WIRING SHALL BE ROUTED AS TIGHT TO BUILDING ROOF STRUCTURE AS POSSIBLE.
 - ELECTRICAL/FIRE ALARM SYSTEM CONTRACTOR IS RESPONSIBLE FOR COORDINATING CONDUIT INSTALLATION LOCATION AND PHASING WITH PLUMBING, HVAC, AND ELECTRICAL TRADES TO ENSURE THAT PHASE 2 INSTALLATION COMPLIES WITH OWNER EXPECTATIONS AND MATCHES PHASE 1.
 - ELECTRICAL/FIRE ALARM SYSTEM CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL PENETRATIONS IN THE EXISTING CONCRETE WALL PANEL WITH CONCRETE WALL PANEL MANUFACTURER.

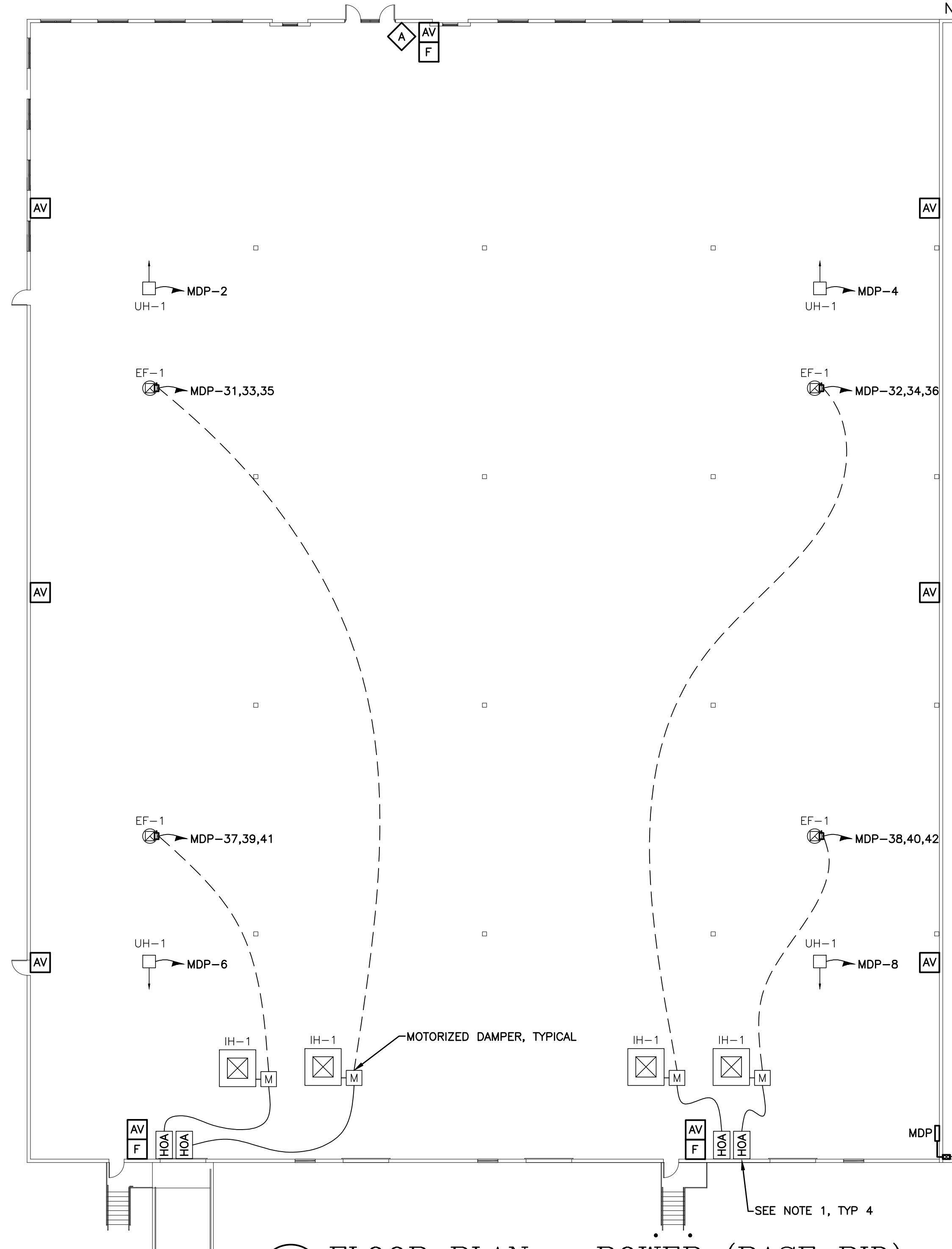


EXISTING 3.0" PARALLEL SERVICE FEEDER CONDUITS LOCATED IN PHASE 1 BREWING TENANT COOLER FLOOR AS SHOWN. CONDUIT HAVE BEEN CUT FLUSH TO FLOOR SLAB (SEE IMAGE ABOVE FOR EXISTING CONDITIONS). SLAB WILL NEED TO BE CHIPPED AWAY TO ALLOW CONDUITS TO BE EXTENDED INTO A JUNCTION BOX AND THRU WALL TO FEED PROPOSED PANEL MDP LOCATED IN PHASE 2. CONTRACTOR MUST COORDINATE PENETRATION LOCATION THRU EXISTING CONCRETE WALL PANEL WITH CONCRETE WALL PANEL MANUFACTURER.



1 FLOOR PLAN - LIGHTING
 E1 SCALE: 1/16" = 1'-0"

- LIGHTING NOTES:
- EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE SUPPLIED BY HOT LEG, NOT SWITCH LEG. INTERIOR: SUPPLY FROM CIRCUIT THAT SUPPLIES NORMAL LIGHTING TO THE SAME SPACE. EXTERIOR: SUPPLY FROM NEAREST INTERIOR LIGHTING CIRCUIT U.O.N.
 - EXTERIOR EMERGENCY FIXTURES: CAULK AROUND EDGES OF BACKPLATE.
 - WALL-MOUNTED EMERGENCY LIGHTS MOUNTED 8'-0" AFF U.O.N.
 - UNLESS OTHERWISE NOTED FOR 120-VOLT, 20-AMP CKTS: #10 AWG SHALL BE USED FOR CKTS LONGER THAN 75 FEET. #12 AWG SHALL BE USED FOR CKTS SHORTER THAN 75 FEET.



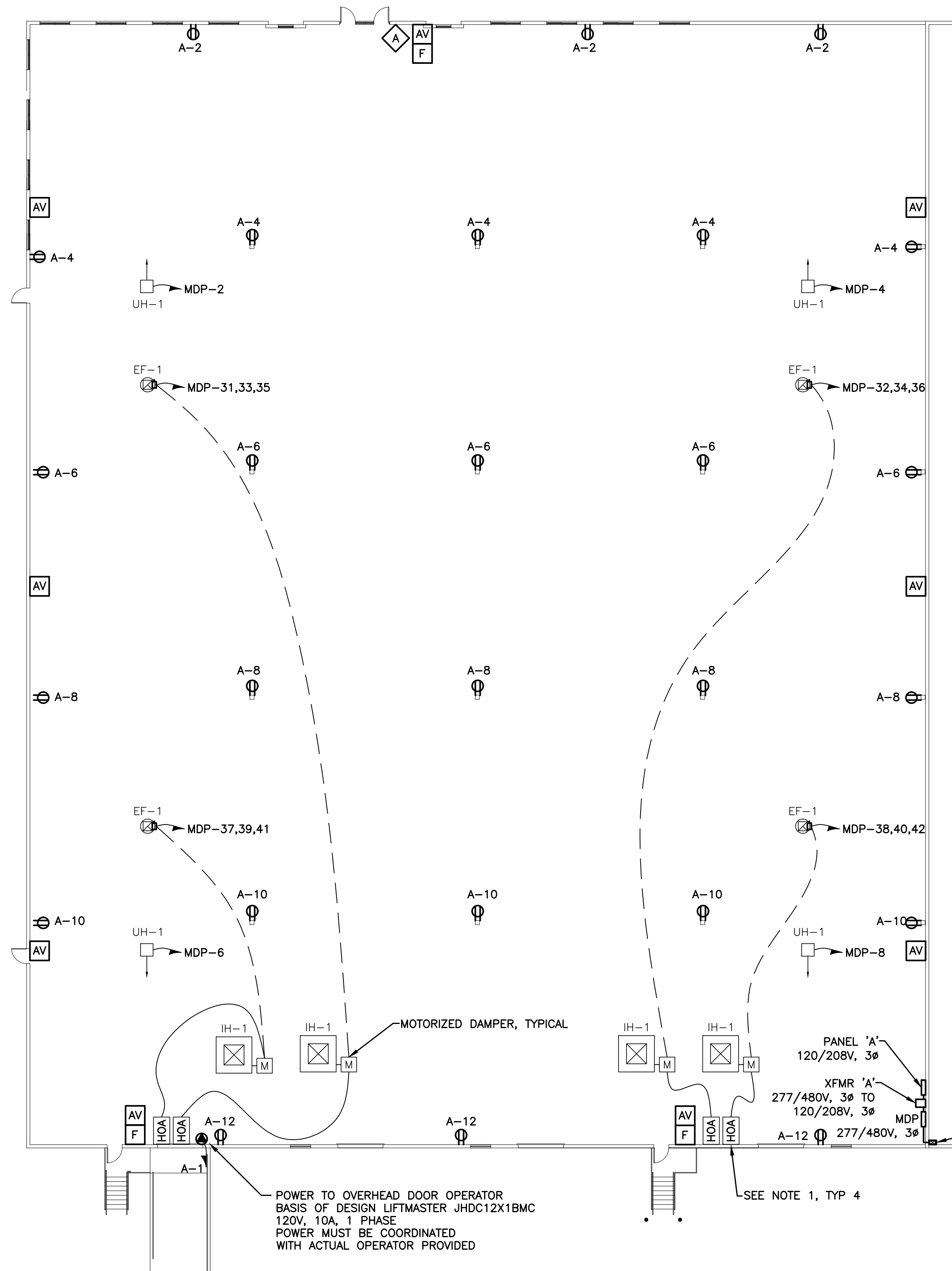
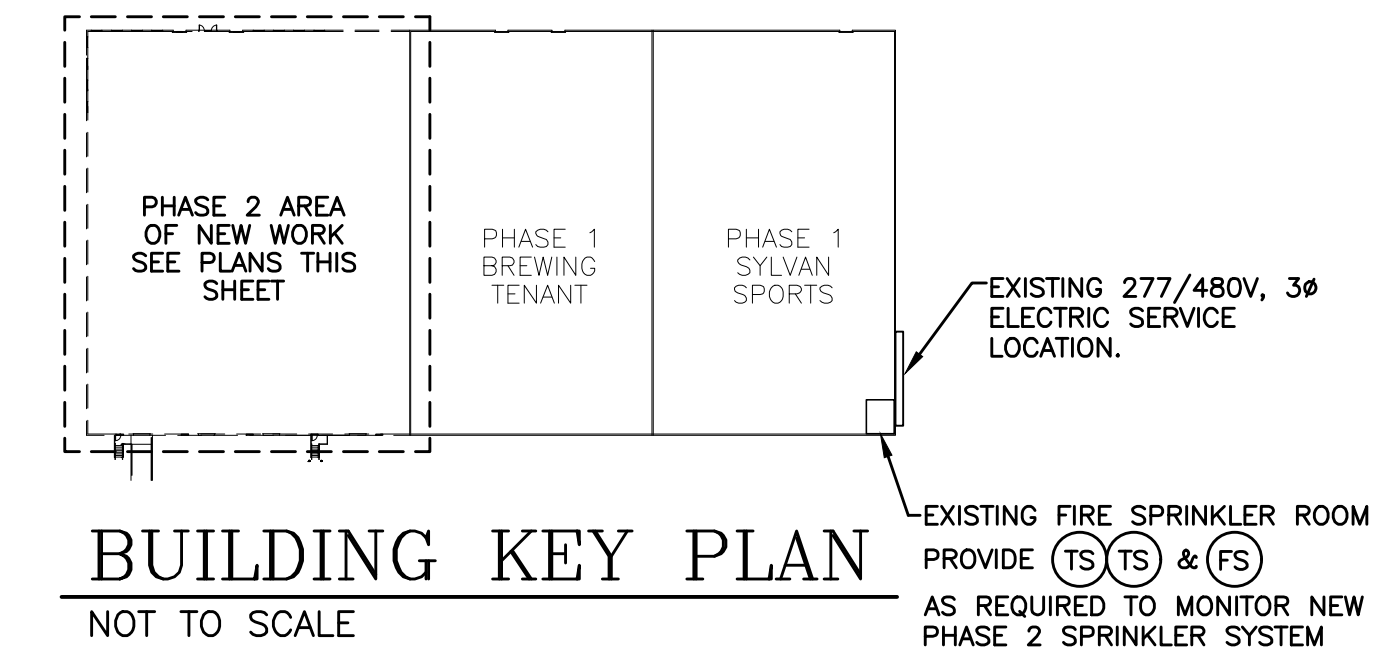
2 FLOOR PLAN - POWER (BASE BID)
 E1 SCALE: 1/16" = 1'-0"

- POWER NOTES:
- WALL MOUNTED HAND/OFF/AUTO SWITCH WITH COMBINATION MOTOR STARTED & DISCONNECT, 480V/3ø. SWITCH SHALL HAVE AN AUXILIARY CONTACT & RELAY AND BE INSTALLED ON WALL NO HIGHER THAN 60" AFF BY MECHANICAL CONTRACTOR. WIRING IS BY ELECTRICAL CONTRACTOR.
 - TYPE MC CABLE WITH COPPER CONDUCTORS AND GREEN GROUND MAY BE USED FOR CONCEALED BRANCH CIRCUITS. REDHEAD BUSHINGS SHALL BE PROVIDED AT EACH TERMINATION.
 - ALL CIRCUITS SHALL HAVE EQUIPMENT GROUNDING CONDUCTORS.
 - METALLIC WATER PIPING AND GAS PIPING SHALL BE BONDED TO THE GROUNDING ELECTRODE SYSTEM (SEE NEC SECTION 250.104).
 - EMT CONNECTORS AND COUPLINGS SHALL BE STEEL COMPRESSION TYPE.
 - UNLESS OTHERWISE NOTED FOR 20-AMP CKTS: #10 AWG SHALL BE USED FOR CKTS LONGER THAN 75 FEET. #12 AWG SHALL BE USED FOR CKTS SHORTER THAN 75 FEET.
 - CONDUCTOR SIZES SMALLER THAN #8 AWG SHALL BE SOLID.
 - PROVIDE AND INSTALL CONDUIT FOR HVAC CONTROL WIRING AS REQUIRED. SEE HVAC PLAN FOR T-STATS.
 - FIRESTOP ALL PENETRATIONS THROUGH RATED ASSEMBLIES. SEE ARCHITECTURAL DRAWINGS.
 - LOCATIONS FOR FIRE ALARM DEVICES ARE SCHEMATIC ONLY. INSTALLATION SHALL BE IAW SECTIONS 17.7.3.2 AND 17.6.3 OF NFPA 72. MOUNTING HEIGHT TO BOTTOM OF AUDIO/VISUAL DEVICES IS 6"-8" AFF.

FIRE ALARM LEGEND	
MARK	DESCRIPTION
	REMOTE ANNUNCIATOR
	AUDIO/VISUAL INDICATOR, WALL MT, 87dBA, 15/75/110 cd SYNCHRONIZED
	PULL STATION
	FIRE SPRINKLER TAMPER SWITCH, COORDINATE WITH FIRE SPRINKLER CONTRACTOR. SEE BUILDING KEY PLAN ABOVE.
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- ELECTRICAL/FIRE ALARM SYSTEM CONTRACTOR IS RESPONSIBLE FOR COORDINATING CONDUIT INSTALLATION LOCATION AND PHASING WITH PLUMBING, HVAC, AND ELECTRICAL TRADES TO ENSURE THAT PHASE 2 INSTALLATION COMPLIES WITH OWNER EXPECTATIONS AND MATCHES PHASE 1.
- ELECTRICAL/FIRE ALARM SYSTEM CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL PENETRATIONS IN THE EXISTING CONCRETE WALL PANEL WITH CONCRETE WALL PANEL MANUFACTURER.



EXISTING 3.0" PARALLEL SERVICE FEEDER CONDUITS LOCATED IN PHASE 1 BREWING TENANT COOLER FLOOR AS SHOWN. CONDUIT HAVE BEEN CUT FLUSH TO FLOOR SLAB (SEE IMAGE ABOVE FOR EXISTING CONDITIONS). SLAB WILL NEED TO BE CHIPPED AWAY TO ALLOW CONDUITS TO BE EXTENDED INTO A JUNCTION BOX AND THRU WALL TO FEED PROPOSED PANEL MDP LOCATED IN PHASE 2. CONTRACTOR MUST COORDINATE PENETRATION LOCATION THRU EXISTING CONCRETE WALL PANEL WITH CONCRETE WALL PANEL MANUFACTURER.

1 FLOOR PLAN - POWER (ALTERNATE #1)
E2 SCALE: 1/16" = 1'-0"

- NOTES:
- WALL MOUNTED HAND/OFF/AUTO SWITCH WITH COMBINATION MOTOR STARTED & DISCONNECT, 480V/3Ø. SWITCH SHALL HAVE AN AUXILIARY CONTACT & RELAY AND BE INSTALLED ON WALL NO HIGHER THAN 60" AFF BY MECHANICAL CONTRACTOR. WIRING IS BY ELECTRICAL CONTRACTOR.



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AN ADDITION TO
THE TRANSYLVANIA COUNTY ECONOMIC ALLIANCE
SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2)
BREVARD, NORTH CAROLINA



DATE APR 04 2023

SHEET **E2**

PANEL SCHEDULE														
PANEL DESIGNATION: MDP		LOCATION: SEE PLAN												
VOLTAGE RATING: 480V/277		BUS RATING: 400 AMPS		MCB (400A)		PHASE: 3		NO. OF WIRES: 4		NEMA 1 ENCLOSURE SURFACE MOUNT				
TYPE: PRL4a		INTERRUPTING RATING: 65,000 AMPS RMS FULLY RATED		SPECIAL FEATURES:				OTHER REOTS: 1. COPPER BUS, 2. BOLT-ON C/B.						
CIRC. NO.	LOAD	CB	PHASE A VA	PHASE B VA	PHASE C VA	CB	LOAD	CIRC. NO.	LOAD	CB	PHASE A VA	PHASE B VA	PHASE C VA	CB
1	LIGHTING	20A				20A		UH-1	2					
3	LIGHTING	20A				20A		UH-1	4					
5	EGRESS LIGHTING	20A				20A		UH-1	6					
7	PREPARED SPACE					20A		UH-1	8					
9	PREPARED SPACE							PREPARED SPACE	10					
11	PREPARED SPACE							PREPARED SPACE	12					
13	PREPARED SPACE							PREPARED SPACE	14					
15	PREPARED SPACE							PREPARED SPACE	16					
17	PREPARED SPACE							PREPARED SPACE	18					
19	PREPARED SPACE							PREPARED SPACE	20					
21	PREPARED SPACE							PREPARED SPACE	22					
23	PREPARED SPACE							PREPARED SPACE	24					
25	PREPARED SPACE							PREPARED SPACE	26					
27	PREPARED SPACE							PREPARED SPACE	28					
29	PREPARED SPACE							PREPARED SPACE	30					
31	EF-1							EF-1	32					
33									34					
35									36					
37	EF-1							EF-1	38					
39									40					
41									42					
TOTAL CONNECTED LOAD -- VA -- AMP														

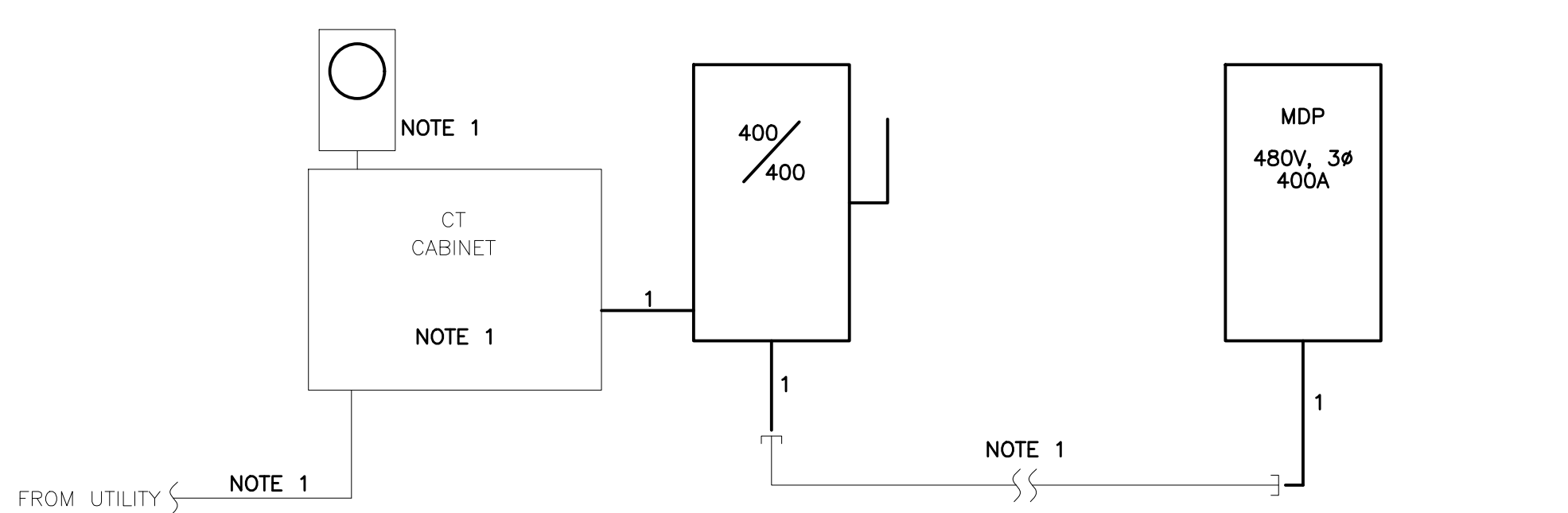
PANEL SCHEDULE (ALTERNATE #1)														
PANEL DESIGNATION: A		LOCATION: SEE PLAN												
VOLTAGE RATING: 208Y/120		BUS RATING: 200 AMPS		MLO		PHASE: 3		NO. OF WIRES: 4		NEMA 1 ENCLOSURE SURFACE MOUNT				
TYPE: PRL1a		INTERRUPTING RATING: 22,000 AMPS RMS FULLY RATED		SPECIAL FEATURES: ** F = FACP CIRCUIT BREAKER. PAINT HANDLE RED AND PERMANENTLY LABEL WITH THE FOLLOWING WORDS: "FIRE ALARM CIRCUIT". HANDLE SHALL BE EQUIPPED WITH A LOCKING ATTACHMENT KEEPING IT IN THE "ON" POSITION.				OTHER REOTS: 1. COPPER BUS, 2. BOLT-ON C/B.						
CIRC. NO.	LOAD	CB	PHASE A VA	PHASE B VA	PHASE C VA	CB	LOAD	CIRC. NO.	LOAD	CB	PHASE A VA	PHASE B VA	PHASE C VA	CB
1	OVERHEAD DOOR OPERATOR	20A	1200			20A	RECEPTACLES	2						
3	SPARE	20A				20A	RECEPTACLES	4						
5	SPARE	20A				20A	RECEPTACLES	6						
7	SPARE	20A	1000			20A	RECEPTACLES	8						
9	SPARE	20A				20A	RECEPTACLES	10						
11	SPARE	20A				20A	RECEPTACLES	12						
13	PREPARED SPACE						PREPARED SPACE	14						
15	PREPARED SPACE						PREPARED SPACE	16						
17	PREPARED SPACE						PREPARED SPACE	18						
19	PREPARED SPACE						PREPARED SPACE	20						
21	PREPARED SPACE						PREPARED SPACE	22						
23	PREPARED SPACE						PREPARED SPACE	24						
25	PREPARED SPACE						PREPARED SPACE	26						
27	PREPARED SPACE						PREPARED SPACE	28						
29	PREPARED SPACE						PREPARED SPACE	30						
31	PREPARED SPACE						PREPARED SPACE	32						
33	PREPARED SPACE						PREPARED SPACE	34						
35	PREPARED SPACE						PREPARED SPACE	36						
37	PREPARED SPACE						PREPARED SPACE	38						
39	PREPARED SPACE						PREPARED SPACE	40						
41	PREPARED SPACE						PREPARED SPACE	42						
TOTAL CONNECTED LOAD 3200 2000 2000 7200 VA 20 AMP														

LIGHTING FIXTURE SCHEDULE					
MARK	VOLT-AMPS PER FIXTURE	DESCRIPTION	CODE	COLOR TEMP (K)	*CRI
⊕	-	EMERGENCY LIGHT, LED, EXTERIOR	LED	N/A	N/A
⊗	-	MULE # MAKO-LED-ACEM-BK	LED	N/A	N/A
⊗	-	EXIT SIGN	LED	N/A	N/A
⊗	-	MULE # MD-A-U-R-BA	LED	N/A	N/A
⊕	-	EMERGENCY LIGHT, LED, WALL MOUNT, DAMP LABEL	LED	4000	85
A	241	NICAD BATTERY, SELF-DIAGNOSTIC LITHONIA # ELM4L 4" LED HIGH-BAY	LED	4000	85
B	60	ORACLE # CB6-LED-30000L-DIM10-MVOLT-W-40K-85-VHCH LED WALL PACK, ADJUSTABLE MOUNT AT 15'-0" AFF LEDALUX # LXT2-WPFX-60-U-4K-BZ-PCB	LED	-	-

NOTES:
1. COLOR/FINISH OPTIONS SHALL BE SELECTED BY ARCHITECT.
2. SEE ARCHITECT'S REFLECTED CEILING PLAN FOR PRECISE FIXTURE LOCATIONS.
*CRI = COLOR RENDERING INDEX

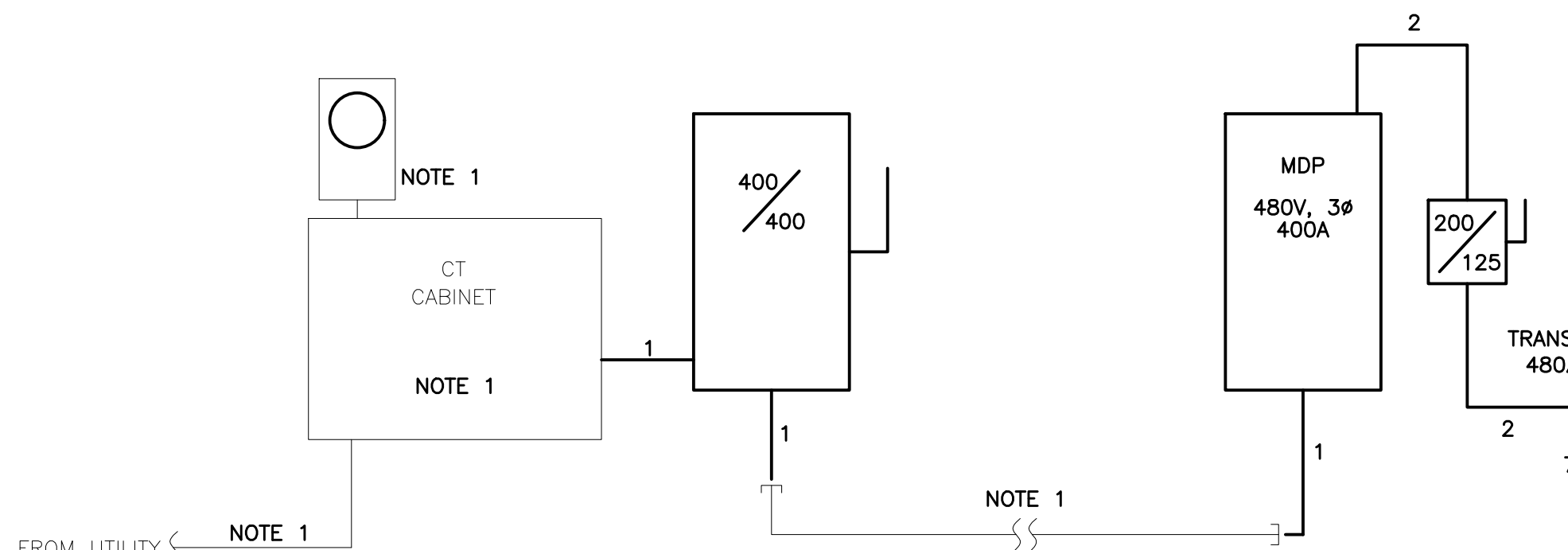
CONDUCTOR/CONDUIT SCHEDULE			
MARK	INSULATION	CONDUCTORS	CONDUIT
1	-	4-#4/0, #2 G IN EACH C	TWO 3.0"
2	-	4-#3/0, #6 G	2.5"
3	-	-	-

NOTES:
1. SOME CONDUCTOR SIZES MAY EXCEED NEC MINIMUM. LARGER SIZES ARE SPECIFIED EITHER TO REDUCE VOLTAGE DROP OR TO LOWER CONDUCTOR OPERATING TEMPERATURE. SEE NEC SECTION 90.1B AND 90.1C.
2. CONDUCTORS SHALL BE COPPER.
3. CONDUIT IS OVERSIZED TO MATCH EXISTING. FIELD VERIFY.



1 POWER RISER DIAGRAM - BASE BID
NOT TO SCALE

NOTES:
1. SERVICE CONDUCTORS, CT CABINET, METER BASE, AND UNDER SLAB CONDUITS ARE EXISTING.
2. PROVIDE NEW DISCONNECT, MDP PANEL, AND CONDUCTORS AS SHOWN.
3. XX/YY = SWITCH RATING/FUSE RATING.
4. NEW MDP SHALL UTILIZE EXISTING BUILDING GROUNDING AND BONDING SYSTEM THAT ORIGINATES AT PHASE 1 SERVICE LOCATION, PHASE 2 BUILDING STEEL SHALL ADDED TO THE EXISTING GROUNDING AND BONDING SYSTEM UNLESS AHJ ALLOWS FOR A NEW STANDALONE SYSTEM.




2 POWER RISER DIAGRAM - ALTERNATE 1
NOT TO SCALE

NOTES:
1. SERVICE CONDUCTORS, CT CABINET, METER BASE, AND UNDER SLAB CONDUITS ARE EXISTING.
2. PROVIDE NEW DISCONNECT, MDP PANEL, AND CONDUCTORS AS SHOWN.
3. XX/YY = SWITCH RATING/FUSE RATING.
4. NEW MDP SHALL UTILIZE EXISTING BUILDING GROUNDING AND BONDING SYSTEM THAT ORIGINATES AT PHASE 1 SERVICE LOCATION, PHASE 2 BUILDING STEEL SHALL ADDED TO THE EXISTING GROUNDING AND BONDING SYSTEM UNLESS AHJ ALLOWS FOR A NEW STANDALONE SYSTEM.

ELECTRICAL LEGEND	
SYMBOL	DESCRIPTION
⊕	SINGLE POLE TOGGLE SWITCH, BRASS TERMINAL SCREWS, 20 A PASS & SEYMOUR COMMERCIAL GRADE (SEE NOTE 3)
⊕3	3-WAY, 20A TOGGLE SWITCH, BRASS TERMINAL SCREWS, PASS & SEYMOUR COMMERCIAL GRADE (SEE NOTE 3)
⊕D	LED DIMMER, 0-10V
⊕D3	3-WAY, LED DIMMER, 0-10V
⊕	PASS & SEYMOUR COMMERCIAL GRADE (SEE NOTE 3)
⊕	OCCUPANCY SENSOR, PIR, WALL MOUNT, 800 WATT, LINE VOLTAGE WATTSTOPPER COMMERCIAL GRADE (SEE NOTE 3)
⊕	OCCUPANCY SENSOR WITH 0-10V DIMMER, WALL MOUNT, 800 WATT, LINE VOLTAGE WATTSTOPPER COMMERCIAL GRADE (SEE NOTE 3)
⊕	OCCUPANCY SENSOR, DUAL TECHNOLOGY, WALL MOUNT, 800 WATT, LINE VOLTAGE WATTSTOPPER COMMERCIAL GRADE (SEE NOTE 3)
⊕	OCCUPANCY SENSOR, DUAL TECHNOLOGY, CEILING MOUNT, 800 WATT, LINE VOLTAGE WATTSTOPPER COMMERCIAL GRADE (SEE NOTE 3)
⊕	TIMECLOCK USED FOR LIGHTING CONTROL SEE DETAIL ON LIGHTING PLAN SHEET
⊕	OUTLET BOX WITH 20A TOGGLE SWITCH AS DISCONNECT MEANS
⊕	HEAVY DUTY SAFETY SWITCH, FUSIBLE, 240 V, EQUIPMENT GROUND, NEMA 3R IF OUTSIDE, CLASS R REJECTION KIT, FUSE WITH BUSS #FRN-R
⊕	DUPLEX RECEPTACLE, 20 AMP, BRASS STRAP AND BRASS SCREWS PASS & SEYMOUR COMMERCIAL GRADE
⊕	TWO DUPLEX RECEPTACLES IN 4x4 BOX PASS & SEYMOUR COMMERCIAL GRADE
⊕	DUPLEX RECEPTACLE, GROUND FAULT CIRCUIT INTERRUPTING, 20 AMP, AUTO SELF TEST PASS & SEYMOUR COMMERCIAL GRADE
⊕	DUPLEX RECEPTACLE, 20-AMP, GFCI, WEATHER RESISTANT, WITH WP-IN-USE ALUMINUM COVER PASS & SEYMOUR COMMERCIAL GRADE
⊕	EQUIPMENT HARD-WIRED OR SPECIAL PURPOSE RECEPTACLE FIELD VERIFY TO MATCH EQUIPMENT
⊕	JUNCTION BOX OR FLUSH MOUNTED BLANK OUTLET BOX EC SHALL VERIFY SIZE OF BOX NEEDED
⊕	TELEPHONE TERMINAL BOARD SEE DETAIL THIS SHEET
⊕	DATA/COMM OUTLET. INSTALL BOX AND 0.75" CONDUIT WITH PULL CORD TO ACCESSIBLE AREA OR TO TTB AS REQUIRED. TERMINATE CONDUIT WITH BUSHING IF STUBBED OUT ABOVE CEILING OR BELOW FLOOR. BOX AND CONDUIT BY EC. JACKS, PLATE, AND CABLE BY OWNER'S TELEPHONE CONTRACTOR.
⊕	RECESSED FLOOR BOX: 1 DUPLEX RECEPTACLE, 1 DATA/COMM BRACKET, 0.75" CONDUIT TO TTB FOR DATA/COMM, DATA/COMM PLATES, JACKS AND CABLE SHALL BE PROVIDED BY OWNER'S COMMUNICATIONS CONTRACTOR. FINISHES SELECTED BY OWNER. PASS & SEYMOUR/WIREMOLD COMMERCIAL GRADE
⊕	TELEVISION OUTLET LOCATION. PROVIDE DUPLEX RECEPTACLE AND DATA/COMM OUTLET AS LISTED IN THIS SCHEDULE. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH OWNER.
⊕	EXHAUST FAN, SWITCH WITH LIGHTS U.O.N. SUPPLIED AND INSTALLED BY MC CONNECTED BY EC

NOTES:
1. THIS LEGEND REPRESENTS A STANDARD EQUIPMENT LIST. SOME DEVICES LISTED ABOVE MAY NOT APPLY TO THIS PROJECT.
2. FINISHES FOR DEVICES AND WALLPLATES SHALL BE SELECTED BY ARCHITECT U.O.N.
3. EC SHALL VERIFY THAT LIGHTING CONTROL DEVICES ARE COMPATIBLE WITH THE FIXTURES BEING CONTROLLED.


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AN ADDITION TO
THE TRANSYLVANIA COUNTY ECONOMIC ALLIANCE
SYLVAN VALLEY INDUSTRIAL PARK (PHASE 2)
BREVARD, NORTH CAROLINA
derek@simsengineers.com

DATE APR 04 2023
SHEET **E3**

SECTION 16010

BASIC ELECTRICAL REQUIREMENTS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

A. Basic Electrical Requirements specifically applicable to Division 16 in addition to Division 1 – General Requirements.

1.2 SCOPE OF WORK

- A. Provide electric meter, electric service, power distribution equipment, conductors, luminaires, wiring devices, fire alarm system, and other required materials and labor to produce a complete and operating electrical system. Coordinate service with utility and advise owner of service application procedure. Provide conductors and conduit for all equipment in project. Provide conduit with pull cords for HVAC control circuits.
- B. Obtain all permits, pay all fees, and request inspection from authority having jurisdiction.
- C. All work and materials shall be guaranteed for one year from date of substantial completion.
- D. Provide temporary power during construction.

1.3 WORK SEQUENCE

- A. Coordinate construction and utility outages (if any) with Owner, all other trades, and utility companies. After-hours work may be required to interrupt service.
- B. Notify Engineer of discrepancies in the Contract Documents.
- C. E-Mail questions or comments to derek@simsengineers.com or fax (828-251-1933) in lieu of telephone calls.

1.4 REGULATORY REQUIREMENTS

- A. Conform to applicable State and Local Building Codes.
- B. Fire Alarm: NFPA 72.
- C. Electrical: NFPA 70.
- D. Life Safety Code, NFPA 101.
- E. The Contractor shall install all materials in accordance with State and Local Building Code. Any work that does not comply shall be made to comply at the contractor's expense.
- F. All equipment shall be UL or ETL listed for purpose specified.

1.5 PROJECT/SITE CONDITIONS

- A. Install Work in locations shown on Drawings, unless prevented by Project conditions.
- B. Prepare record drawings showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Architect/Engineer before proceeding. Submit all changes on Record Documents as a requirement of Project Closeout.
- C. Refer to Architectural Drawings for dimensions, locations, cabinets, etc. Do not scale Electrical Drawings.
- D. Conceal all materials except where the Architect grants specific permission to do otherwise.
- E. Arrange electrical work in a neat, well organized manner. Conduit shall run parallel with primary lines of the building construction.
- F. Locate operating and control equipment with adequate access for operation and maintenance.
- G. Give right-of-way to piping which must slope for drainage.
- H. Advise other trades of openings required in their work for the subsequent move-in of large electrical equipment.
- I. Coordination Drawings: For locations where several elements of electrical (or combined mechanical and electrical) work must be sequenced and positioned with precision in order to fit into the available space, prepare coordination drawings showing the actual dimensions required for the installation.

1.6 SUBSTITUTIONS:

The purpose of specifying equipment by catalog number is to establish quality standards, not necessarily to limit submittals. Substitutions may be accepted if approved as equivalent. Contact engineer prior to bid with any questions. If substitutes are not submitted within 14 days after the bid is accepted, then the equipment shall be provided as specified. Contractor submitting substitutions shall be responsible for any additional cost resulting from the substitution.

1.7 EXCAVATING FOR ELECTRICAL WORK

- A. General: The work of this article is defined to include whatever excavating and backfilling is necessary to install the electrical work. The contractor shall coordinate the work with other excavating and backfilling in the same area, including dewatering, floor protection provisions, and other temporary facilities. Coordinate the work with other work in the same area, including other underground services, landscape development, paving, and floor slabs on grade. Coordinate with weather conditions and provide temporary facilities needed for protection and proper performance of excavating and backfilling.
- B. General Standards: Except as otherwise indicated, comply with the applicable provisions of the Division 2 sections, for plumbing work excavating and backfilling. Refer instances of uncertain applicability to the Engineer for resolution before proceeding.
- C. Rock Excavation shall be defined as the removal of a formation that cannot be excavated without systematic drilling and blasting or without the use of pneumatic tools. All rock excavation/removal shall be performed by the General Contractor. The Electrical subcontractor shall lay out his work and perform all normal excavation. If rock is encountered, it shall be removed by the General Contractor. The General Contractor shall be responsible for providing backfill material.
- D. Sequencing: Delay backfill and encasement of conduit until testing of conductors has been completed.

2. PART 2 GENERAL DESCRIPTION OF WORK

2.1 Coordinate work with other Trades.

2.2 General:

- A. Provide all luminaires, wiring devices, conductors, switches, disconnects, fuses, fire alarm system, and other required materials. Coordinate electrical requirements for equipment supplied by other trades prior to ordering electrical materials.
- B. Provide U.L. listed Fire-Stop penetrations through rated assemblies. See Architectural life safety plans to locate rated assemblies.
- C. Identify major equipment with engraved Lamacoid labels.
- D. Provide typed panelboard directories.
- E. Gang mount switches. Provide continuous switchplate.
- F. Electrical Contractor shall provide all penetrations and patching required to install electrical work.
- G. Support all luminaires, materials, and equipment from building structure.
- H. Install all materials and equipment in accordance with manufacturer's instructions.
- I. Telephone service shall meet the requirements of and be coordinated with Utility.
- J. Electrical service shall meet the requirements of and be coordinated with Utility.
- K. Panelboards shall have copper bus unless otherwise noted.
- L. Electrical circuits shall not share neutrals unless otherwise noted.

2.3 Design Requirements vs. Code Minimum Requirements.

- A. Some of the design requirements stated for this project exceed the minimum requirements of the NEC. These decisions are usually made in order to:
1. Increase reliability of the system.
 2. Increase service life of system components.
 3. Enhance system safety beyond the minimum requirements of the NEC.
- B. Design requirements that may exceed NEC minimum are most often associated with the following:
1. Insulation type.
 2. Conductor size.
 3. Conduit type.
 4. Conduit couplings.
 5. Size of equipment grounding conductor. See NEC section 250.4A5.

3. PART 3 CONDUCTORS & CONDUIT

3.1 Conductors:

- A. Unless otherwise noted on plans:
1. Conductors above grade shall be THWN-2 copper.
 2. Conductors underground or under slab shall be XHHW copper.
- B. All conductors shall be in conduit or other approved raceway.
- C. Provide EGC (equipment grounding conductor) with all circuits. Some EGCs are sized larger than the NEC minimum. This is done in order to reduce the probability of EGCs being damaged during ground faults.
- D. Conductors smaller than #8 AWG shall be solid.
- E. Approved manufacturers. (No other manufacturer's products are permitted.)
ENCORE WIRE
SOUTHWIRE
AFC
GENERAL CABLE
OKONITE
CERROWIRE
- F. Line-voltage conductors shall not be smaller than #12 AWG.
- G. Branch circuits longer than 75 feet shall be wired with conductors #10 AWG or larger.

3.2 Conduit and Raceway:

- A. Above grade: EMT with compression-type steel couplings and connectors.
- B. Below grade: Schedule 40 PVC with Schedule 80 PVC risers.
- C. Raceway Seal: Where a raceway enters a building or structure from an underground distribution system, it shall be sealed in accordance with NEC 300.5(G). Spare or unused raceways shall also be sealed. Sealant shall be American Polywater FST or equivalent.
- D. Conduit shall be trade size 3/4" minimum unless otherwise noted. Exceptions: control wiring, 120V receptacles, and switches may use trade size 1/2" if sized per NEC.
- E. Type MC Cable with copper conductors and green ground may be used for concealed branch circuits. Redhead bushings shall be provided at each termination.
- F. Support conduit from building structure with threaded rods and hangers, trapeze hangers, channel and clamps, or other approved method.

4. PART 4 DOCUMENTS AND SUBMITTALS

4.1 SUBMITTALS

- A. Submit under provisions of Contract Documents.
- B. Identify items with marks to match those shown on drawings.
- C. Architect shall approve all colors.
- D. All submittals shall have the Contractor's stamp with approval signature.
- E. Highlight deviations from specified materials.
- F. Product Data: 6 sets, including 3 sets for maintenance manuals. Data shall include the following:
Luminaires
Wiring Devices
Panelboards
Safety Switches
Surge Protective Devices (SPDs)
Fire Alarm System
- G. Test Reports (if required): 3 copies
- H. Warranties: 6 copies, including 3 for maintenance manuals.
- I. Maintenance Manuals: 3 complete sets in loose-leaf 3-ring binders, with rigid permanent vinyl covered back and front. Separators with index tabs shall be provided. One set shall have all sheets individually encased in clear, plastic document protectors.

4.2 CONTROL DATA: Provide control diagrams and wiring diagrams where applicable; include description of control systems, catalog data, and calibration instructions for all components. Provide name and address of Controls manufacturer and installer.

4.3 MAINTENANCE INSTRUCTION: Typewritten instructions for maintenance of the systems in itemized form and with time schedule shall be furnished. The instructions shall list each item of equipment requiring inspection, lubrication, or other service. The operating personnel shall be instructed regarding each maintenance procedure.

5. PART 5 ELECTRICAL WORK CLOSEOUT

- 5.1 General: Refer to the Division 1 sections for general closeout requirements. Maintain a daily log of operational data on electrical equipment and systems through the closeout period; record hours of operation, assigned personnel, fuel consumption, etc. Submit copy to Owner.
- 5.2 Record Drawings: Give special attention to the complete and accurate recording of underground circuits, and other concealed or non-accessible work. Record change orders where not shown accurately by contract documents. Submit to Architect/Engineer at end of project one set of reproducible sepias that show all changes in the electrical work.

5.3 Closeout Equipment/Systems Operations: Contractor shall demonstrate sustained, satisfactory performance of all equipment and systems in a test run of appropriate duration. The Owner's operating personnel shall be present. Adjust or correct equipment as required for proper performance. Clean equipment and luminaires.

5.4 Operating Instructions: Conduct a walk-through instruction seminar for the Owner's personnel. Explain the identification system, operation diagrams, emergency and alarm provisions, and sequencing requirements. Also explain requirements related to: seasonal provisions, security, safety, and efficiency.

5.5 Training: Contractor shall provide training on all major equipment, controls, etc, as part of the contract.

5.6 Turn-Over of Operations: At the time of substantial completion, turn over the prime responsibility for operation of the electrical equipment and systems to the Owner's operating personnel. However, until the time of final acceptance, provide one electrician, who is completely familiar with the work, to consult with and continue training the Owner's personnel.

END OF SECTION

