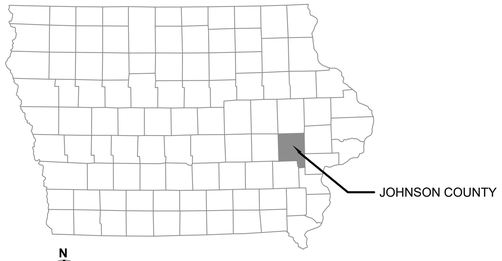


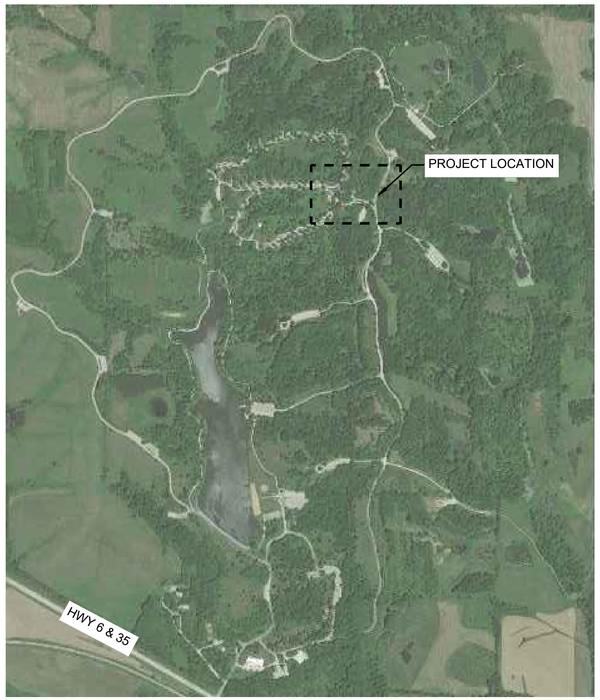
IOWA LOCATION MAP
NOT TO SCALE

F.W. KENT PARK
CAMPGROUND SITE AND UTILITY IMPROVEMENTS

JOHNSON COUNTY CONSERVATION BOARD

2048 HIGHWAY 6 NW OXFORD, IOWA 52322

JOHNSON COUNTY



SHEET INDEX

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2015, PLUS GENERAL SUPPLEMENTAL SPECIFICATIONS; AND APPLICABLE SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, AND SPECIAL PROVISIONS, SHALL APPLY TO THE CONSTRUCTION OF THIS PROJECT.

CERTIFICATIONS

CIVIL ENGINEER

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

04/26/2022
Signature Date

Printed or typed name **Barrett Hubbard**
License Number **23274**
My license renewal date is **12/31/2023**

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:

ALL "A" SHEETS	ALL "EC" SHEETS	M1.01, M1.04
ALL "B" SHEETS	ALL "F" SHEETS	M1.05, R1.01
ALL "C" SHEETS	ALL "G" SHEETS	ALL "S" SHEETS
ALL "D" SHEETS	ALL "K" SHEETS	ALL "U" SHEETS

LANDSCAPE ARCHITECT

I HEREBY CERTIFY THAT THE PORTION OF THIS TECHNICAL SUBMISSION DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND RESPONSIBLE CHARGE. I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF IOWA.

Emily Naylor
Printed or typed name
04/26/2022
Signature Date

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:
ALL "T" SHEETS

License Expires **6/30/2022**

CIVIL ENGINEER

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04/26/2022
Signature Date

Printed or typed name **James A. Carroll**
License Number **11328**
My license renewal date is **12/31/2023**

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:
ALL "MS" SHEETS EXCEPT MS1.09

STRUCTURAL ENGINEER

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

04/26/2022
Signature Date

Printed or typed name **Benjamin E. Lyon**
License Number **21138**
My license renewal date is **12/31/2023**

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:
ALL "V" SHEETS

ELECTRICAL ENGINEER

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

04/26/2022
Signature Date

Printed or typed name **Matthew K. Gordon**
License Number **19216**
My license renewal date is **12/31/2022**

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:
M1.02, M1.03, MS1.09, R1.02, R1.03, Z1.01, Z1.02, Z1.03

ARCHITECT

I HEREBY CERTIFY THAT THE PORTION OF THIS TECHNICAL SUBMISSION DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND RESPONSIBLE CHARGE. I AM A DULY REGISTERED ARCHITECT UNDER THE LAWS OF THE STATE OF IOWA.

Richard C. Cleaveland
Printed or typed name
04/26/2022
Signature Date

Registration Expires Date Issued

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:
ALL "W" SHEETS

ELECTRICAL ENGINEER

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

04/26/2022
Signature Date

Printed or typed name **Lon Bromolson**
License Number **P25784**
My license renewal date is **12/31/2023**

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:
Z1.04, Z1.05, Z1.06

MECHANICAL ENGINEER

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

04/26/2022
Signature Date

Printed or typed name **Travis L. Sprenger**
License Number **24039**
My license renewal date is **12/31/2022**

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:
ALL "X" SHEETS
ALL "Y" SHEETS

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130 EAST 3RD ST. DES MOINES, IOWA (515)251-7260
118 EAST COLLEGE ST. IOWA CITY, IOWA (319)248-4600

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319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
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GENERAL NOTES

1. UTILITY NOTE:
   A. THE LOCATIONS OF UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS PLOTTED ON THIS DRAWING ARE APPROXIMATE ONLY AND WERE OBTAINED FROM RECORDS MADE AVAILABLE TO SHIVE-HATTERY, INC. THERE MAY BE OTHER EXISTING UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS NOT KNOWN TO SHIVE-HATTERY, INC. AND NOT SHOWN ON THIS DRAWING. THE VERIFICATION OF EXISTENCE OF, AND THE DETERMINATION OF THE EXACT LOCATION OF, UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR(S).
2. NOTIFY UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN CONSTRUCTION LIMITS OF THE SCHEDULE PRIOR TO EACH STAGE OF CONSTRUCTION.
3. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AT CRITICAL LOCATIONS TO VERIFY EXACT HORIZONTAL AND VERTICAL LOCATION.
4. IOWA CODE 480, UNDERGROUND FACILITIES INFORMATION, REQUIRES VERBAL NOTICE TO IOWA ONE-CALL 1-800-292-8989, NOT LESS THAN 48 HOURS BEFORE EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS.
5. NOTIFY THE APPROPRIATE GOVERNING AUTHORITY 48 - 72 HOURS PRIOR TO BEGINNING CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY. JOHNSON COUNTY CONSERVATION SHALL BE THE PUBLIC AGENCY RESPONSIBLE FOR INSPECTION DURING CONSTRUCTION OF THE PUBLIC PORTIONS OF THE PROJECT.
6. THE MEANS OF THE WORK AND THE SAFETY OF THE CONTRACTOR'S EMPLOYEES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
7. NO WORK SHALL BE PERFORMED BEYOND THE PROJECT LIMITS WITHOUT PRIOR AUTHORIZATION FROM THE OWNER'S REPRESENTATIVE.
8. A PRE-CONSTRUCTION MEETING SHALL BE HELD FOLLOWING ISSUANCE OF THE NOTICE TO PROCEED BUT PRIOR TO COMMENCING WORK.
9. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH IOWA DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
10. PROVIDE TRAFFIC AND PEDESTRIAN CONTROL MEASURES (SIGNS, BARRICADES, FLAGGERS, ETC.) IN COMPLIANCE WITH PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) LATEST EDITION.
11. PROTECT EXISTING UTILITIES DURING CONSTRUCTION.
12. MAINTAIN POSITIVE DRAINAGE ON THE SITE THROUGHOUT THE PROJECT DURATION.
13. ADJUST ALL VALVES, MANHOLES, CASTINGS, GAS VENTS, ETC., TO MATCH THE NEW SURFACE. ADJUSTMENT SHALL BE COORDINATED WITH THE UTILITY COMPANIES AND THE COST FOR ALL ADJUSTMENTS SHALL BE INCIDENTAL TO THE CONSTRUCTION. AT NO ADDITIONAL COST TO THE OWNER, REPAIR ANY DAMAGE TO SAID STRUCTURES AND APPURTENANCES THAT OCCUR DURING CONSTRUCTION.
14. CONTRACTOR SHALL REFER TO BUILDING PLANS FOR BUILDING DIMENSIONS, STOOP SIZES AND LOCATIONS, AND BUILDING UTILITY ENTRANCE LOCATIONS AND ELEVATIONS.
15. SITE CLEAN-UP SHALL BE PERFORMED ON A DAILY BASIS. SIDEWALKS, PARKING LOTS, ROADWAYS, ETC. SHALL BE KEPT CLEAN AT ALL TIMES.
16. ALL OPEN EXCAVATIONS SHALL BE PROTECTED.
17. REPLACE ANY PROPERTY MONUMENTS REMOVED OR DESTROYED BY CONSTRUCTION. MONUMENTS SHALL BE SET BY A LAND SURVEYOR REGISTERED TO PRACTICE IN THE STATE OF IOWA.
18. CONSTRUCTION ACTIVITIES ARE TO BE LIMITED TO THE EXISTING RIGHT-OF-WAY AND TEMPORARY CONSTRUCTION EASEMENTS. IF ADDITIONAL AREAS ARE NEEDED FOR STAGING, STORAGE, ETC., IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN WRITTEN PERMISSION FROM THE PROPERTY OWNER(S). COPIES OF THE AGREEMENTS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE PRIOR TO THE USE OF PROPERTY.
19. CONTROL DUST SPREADING FROM ALL WORK AND STAGING AREAS.
20. ANY WORK REQUIRED TO COMPLETE THE SCOPE OF THIS PROJECT BUT NOT SET FORTH AS A SPECIFIC BID ITEM, SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THE COMPLETION OF THIS WORK.
21. REPAIR OR REPLACE EXISTING FACILITIES (CURBS, PAVEMENT, UTILITIES, ETC.) TO REMAIN, AT NO ADDITIONAL EXPENSE TO THE OWNER.
22. IT IS INTENDED THAT ALL COSTS OF MATERIALS, EQUIPMENT, TOOLS, LABOR AND INCIDENTALS BE PAID FOR UNDER THE ITEMS LISTED ON THE BIDDER'S PROPOSAL. BEFORE SUBMITTING A BID ON THIS PROJECT, THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS, SPECIFICATIONS, SPECIAL PROVISIONS AND THE JOB SITE. IF ANY DISCREPANCIES OR DELETIONS OCCUR IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL REPORT SAME TO SHIVE-HATTERY, INC. IN WRITING AND OBTAIN WRITTEN CLARIFICATION AND/OR INSTRUCTIONS ON HOW TO PROCEED.
23. WORK WHICH DOES NOT CONFORM TO THE REQUIREMENTS OF THE CONTRACT WILL BE CONSIDERED UNACCEPTABLE. UNACCEPTABLE WORK, WHETHER THE RESULT OF POOR WORKMANSHIP, USE OF DEFECTIVE MATERIALS, DAMAGE THROUGH CARELESSNESS OR ANY OTHER CAUSE, FOUND TO EXIST PRIOR TO THE FINAL ACCEPTANCE OF THE WORK, SHALL BE REMOVED AND REPLACED IN AN ACCEPTABLE MANNER, AS REQUIRED BY SHIVE-HATTERY, INC. AT THE CONTRACTOR'S EXPENSE. WORK DONE CONTRARY TO THE INSTRUCTIONS OF SHIVE-HATTERY, INC., WORK DONE BEYOND THE LINES SHOWN ON THE PLANS OR ANY EXTRA WORK DONE WITHOUT AUTHORITY WILL NOT BE PAID FOR.
24. THE CONTRACTOR SHALL PROTECT ALL TREES SHOWN TO BE SAVED ON THE PLANS. CONTRACTOR SHALL ERECT FENCING AROUND TREE AT THE DRIP LINE, UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR PARK OR TRAVEL WITH ANY VEHICLE UNDER THE TREE DRIP LINE.

LEGEND — EXISTING GENERAL SITE

PLAN MARK	DESCRIPTION
	EXISTING STRUCTURE
	BOLLARD
	SHRUB
	DECIDUOUS TREE
	CONIFEROUS TREE
	SINGLE POLE SIGN
	DOUBLE POLE SIGN
	TREE LINE
621	MINOR CONTOUR
620	MAJOR CONTOUR

LEGEND — UTILITY LINES

EXISTING LINE TYPE	DESCRIPTION	PROPOSED LINE TYPE
OE	ELECTRIC - OVERHEAD	OE
E	ELECTRIC - UNDERGROUND	E
G	GAS MAIN	G
W	WATER MAIN	W
	SANITARY SEWER	
	STORM SEWER	
T	TELEPHONE - UNDERGROUND	T
FO	FIBER OPTICS	FO
HV	HIGH VOLTAGE ELECTRICAL	HV
LV	LOW VOLTAGE ELECTRICAL	LV

LEGEND — UTILITIES

PLAN MARK	DESCRIPTION
W	WATER IRRIGATION VALVE
	UTILITY POLE W/TRANSFORMER
	SIREN POLE
	WATER SHUTOFF VALVE
	GUY ANCHOR
	FIRE HYDRANT
	FLARED END SECTION
	VALVE
	STOP BOX
C	CABLE TV PEDESTAL
	CLEANOUT
J	JUNCTION BOX
MH	MANHOLE
D	STORM MANHOLE
E	ELECTRICAL MANHOLE
MH S	SANITARY MANHOLE
T	TELEPHONE MANHOLE
T	TELEPHONE PEDESTAL
V	VAULT BOX
HH	HANDHOLE
S	SIGNAL BOX
G	GAS METER
E	ELECTRIC METER
W	WATER METER
	CURB INLET
	INTAKE - CIRCLE
	INTAKE - RECTANGLE
	INTAKE - SQUARE

LEGEND — RIGHT-OF-WAY

PLAN MARK	DESCRIPTION
ROW	PROPOSED RIGHT-OF-WAY
ROW	EXISTING RIGHT-OF-WAY
	EXISTING PROPERTY LINE
	EXISTING EASEMENT
	TEMPORARY EASMENT
	PROPOSED EASEMENT

LEGEND — GENERAL SITE GRADING / EROSION CONTROL

PLAN MARK	DESCRIPTION
2%	SLOPE ARROW
	FLOW ARROW
	SILT FENCE
	INLET PROTECTION
	COMPOST SOCK
	GRADING LIMITS

LEGEND — SURVEY

PLAN MARK	DESCRIPTION
BM	BENCH MARK
	BOUND
	IRON ROD - FOUND
	IRON ROD - SET
	MONUMENT FOUND
	MONUMENT SET
	X CUT FOUND
	X CUT SET
	RIGHT OF WAY MARKER
	DRILL HOLE
	STATION MARKER
	SOIL BORING
	PROPERTY CORNER
736.45 13 TOP	SURVEY POINT ELEVATION

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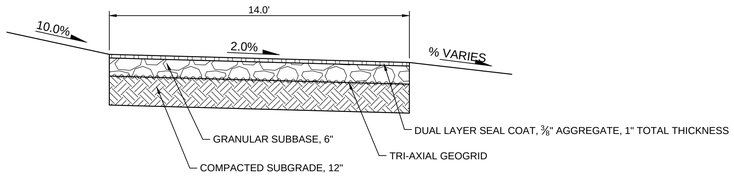
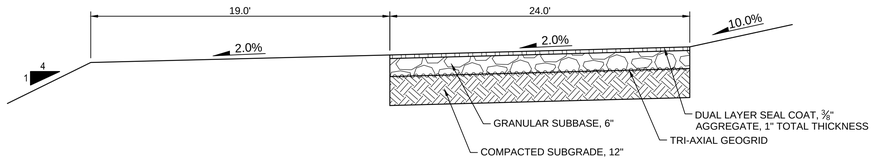
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: GENERAL NOTES | SHEET NO.: A1.01



1 TYPICAL ROADWAY SECTION - LOOP ALIGNMENT
NO SCALE



2 TYPICAL ROADWAY SECTION - MAIN ENTRANCE ALIGNMENT
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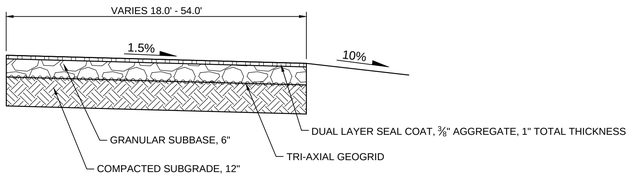

3 TYPICAL ROADWAY SECTION - PARKING ALIGNMENT
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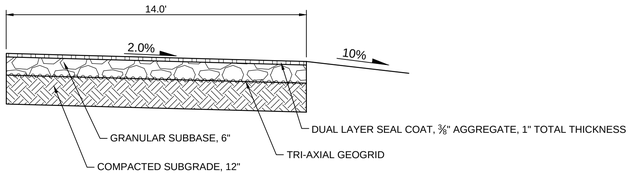

4 TYPICAL ROADWAY SECTION - CAMPING ENTRANCE ALIGNMENT
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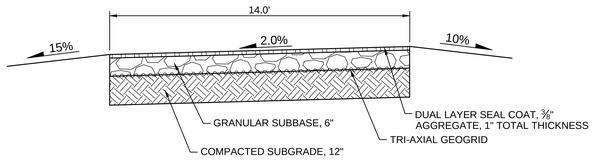

5 TYPICAL ROADWAY SECTION - CAMP CIRCULATORY ALIGNMENT
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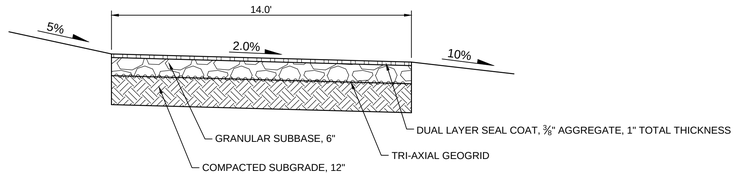

6 TYPICAL ROADWAY SECTION - CAMPING EXIT ALIGNMENT
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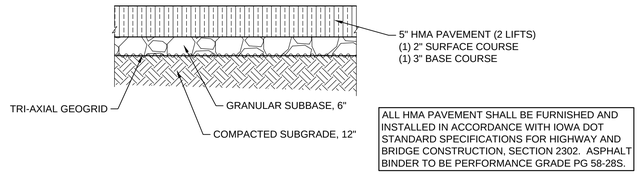

ALL HMA PAVEMENT SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH IOWA DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SECTION 2302. ASPHALT BINDER TO BE PERFORMANCE GRADE PG 58-28S.

7 ASPHALT ALTERNATE SECTION
NO SCALE

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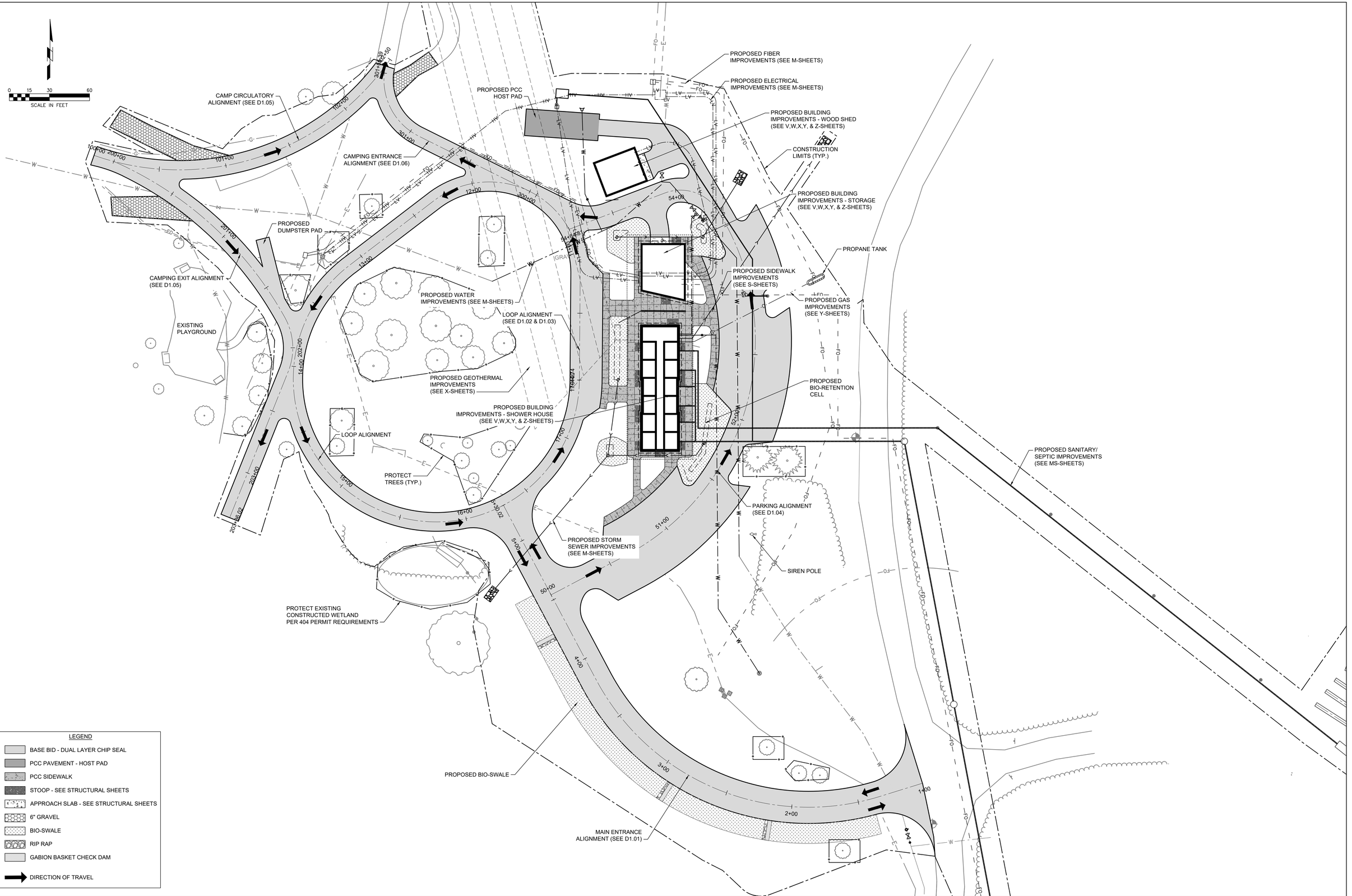

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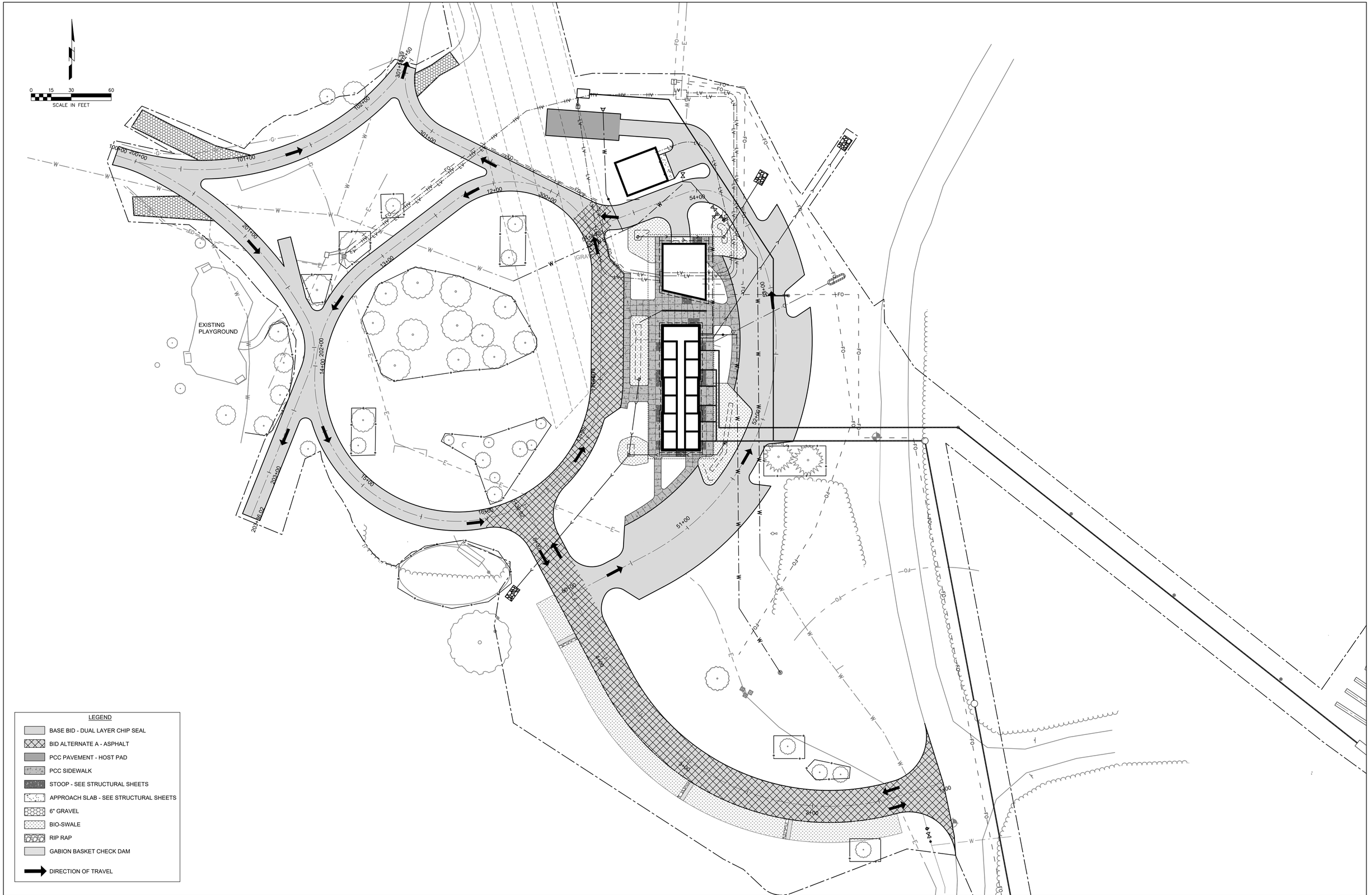
JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217340

ISSUE FOR CONSTRUCTION 04/26/2022

SHEET NAME: OVERALL SITE PLAN - BASE BID

SHEET NO.: C1.01



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JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217340

ISSUE FOR CONSTRUCTION 04/26/2022

SHEET NAME: OVERALL SITE PLAN - BID ALT. A

SHEET NO.: C1.02

0 15 30 60
SCALE IN FEET

EXISTING PLAYGROUND

LEGEND

- BID ALTERNATE B - ASPHALT
- PCC PAVEMENT - HOST PAD
- PCC SIDEWALK
- STOOP - SEE STRUCTURAL SHEETS
- APPROACH SLAB - SEE STRUCTURAL SHEETS
- 6" GRAVEL
- BIO-SWALE
- RIP RAP
- GABION BASKET CHECK DAM
- DIRECTION OF TRAVEL

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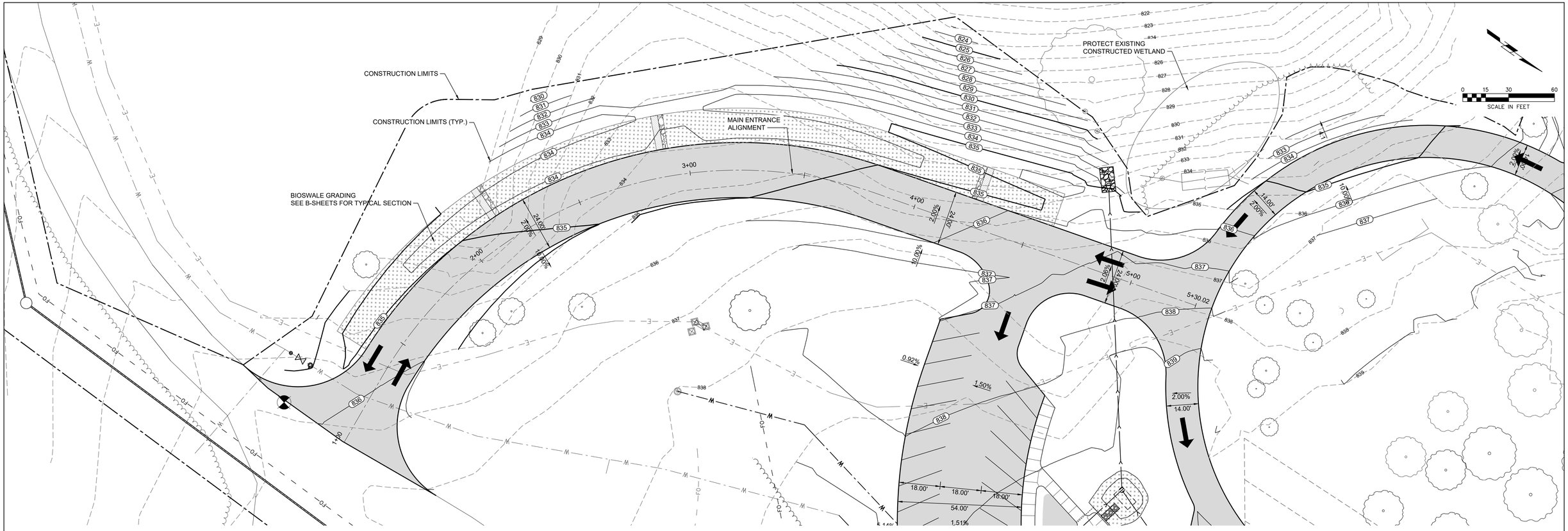
JOHNSON COUNTY CONSERVATION BOARD

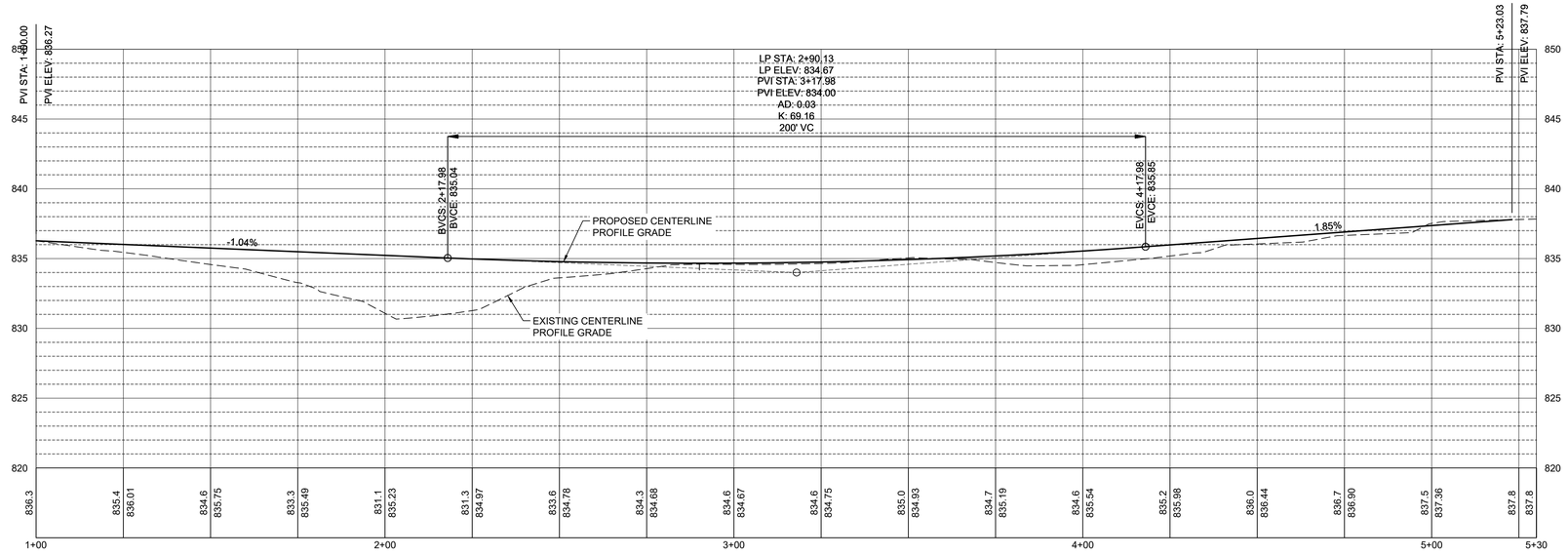
PROJECT NO.: 4217340

ISSUE FOR CONSTRUCTION 04/26/2022

SHEET NAME: OVERALL SITE PLAN - BID ALT. B

SHEET NO.: C1.03





GENERAL NOTES:

1. CONTRACTOR TO PROVIDE A BID FOR ACC PAVEMENT ALTERNATIVE IN THE AREA DELINEATED ON THE PLANS.

LEGEND

6" GRANULAR SUBBASE & 2 - ½" COURSES OF BITUMINOUS SEAL COAT (7" TOTAL)

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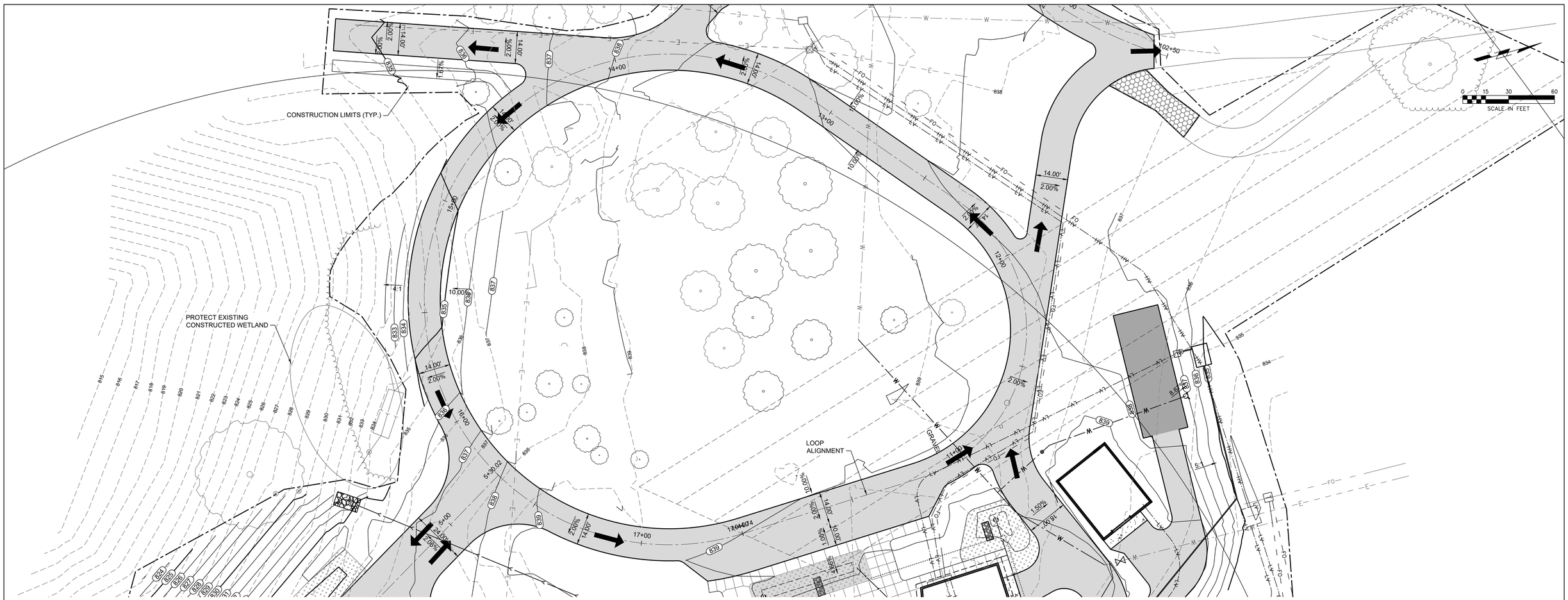
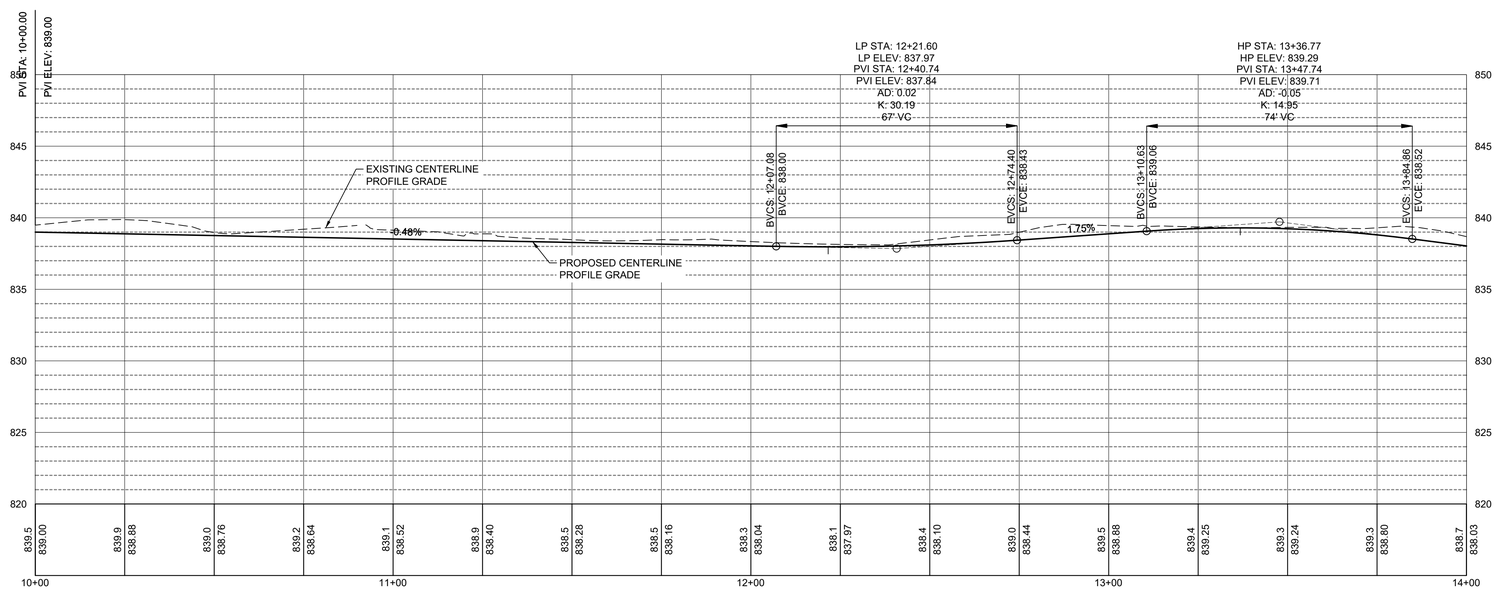
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: MAINLINE PLAN & PROFILE | SHEET NO.: D1.01





LEGEND

6" GRANULAR SUBBASE & 2 - ½" COURSES OF BITUMINOUS SEAL COAT (7" TOTAL)

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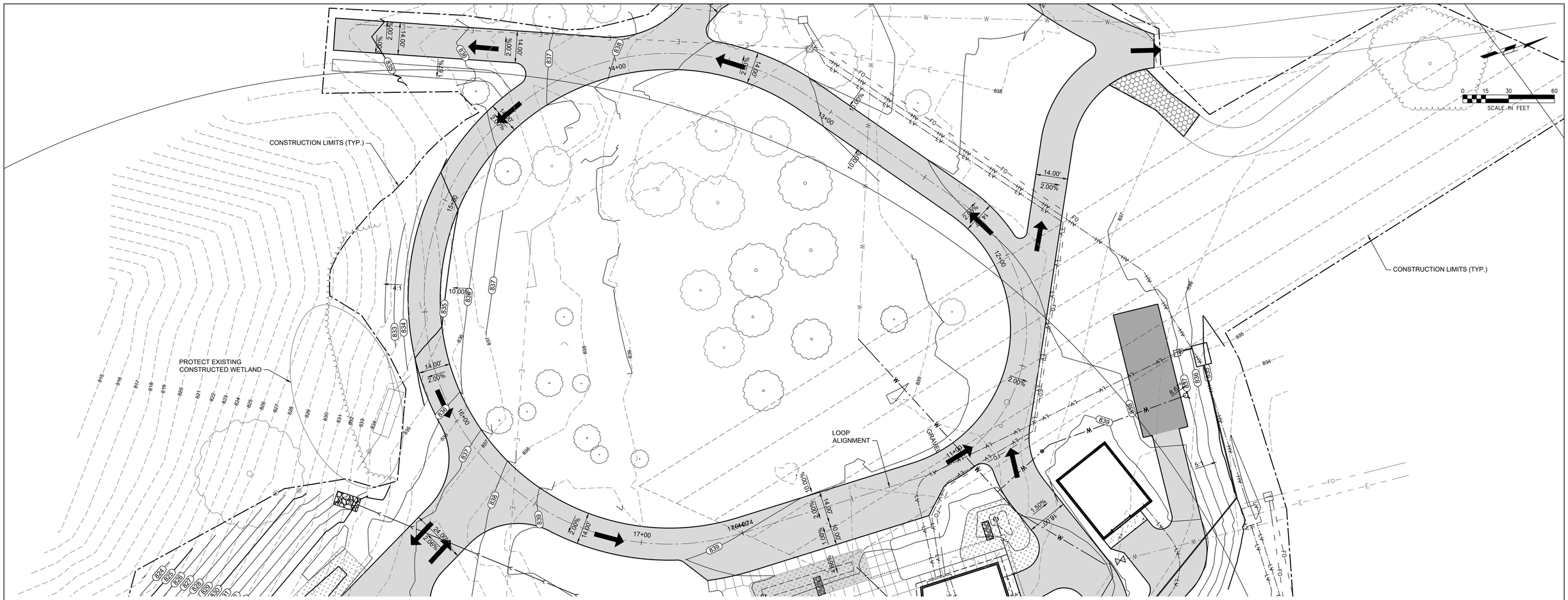
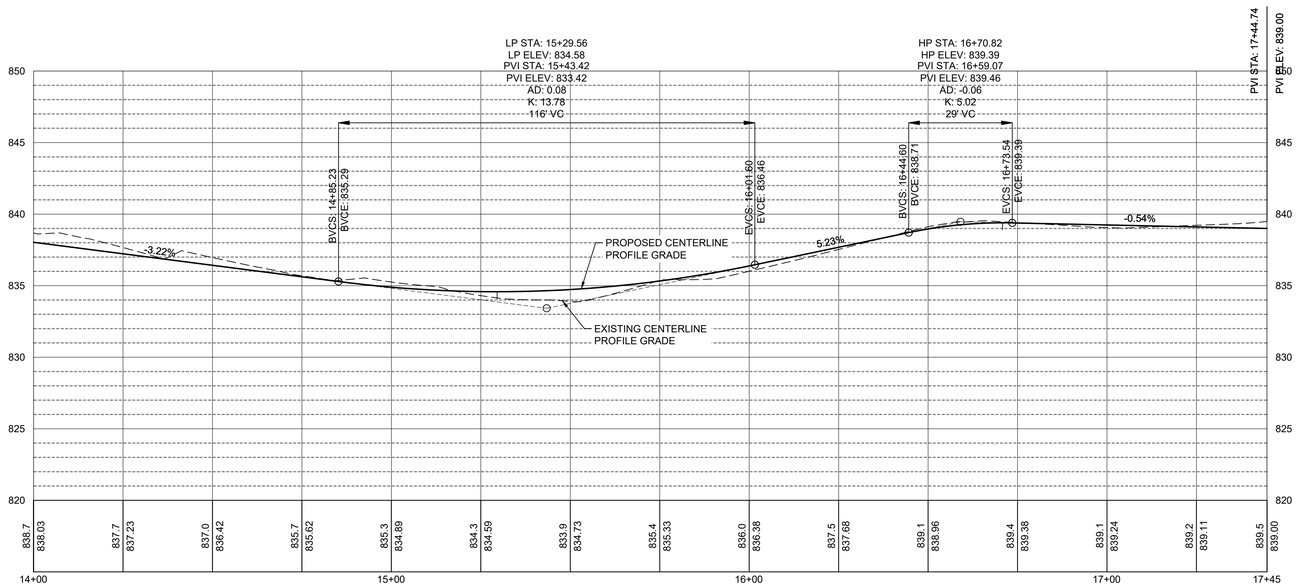
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: MAINLINE PLAN & PROFILE | SHEET NO.: D1.02





LEGEND

6" GRANULAR SUBBASE & 2 - ½" COURSES OF BITUMINOUS SEAL COAT (7" TOTAL)

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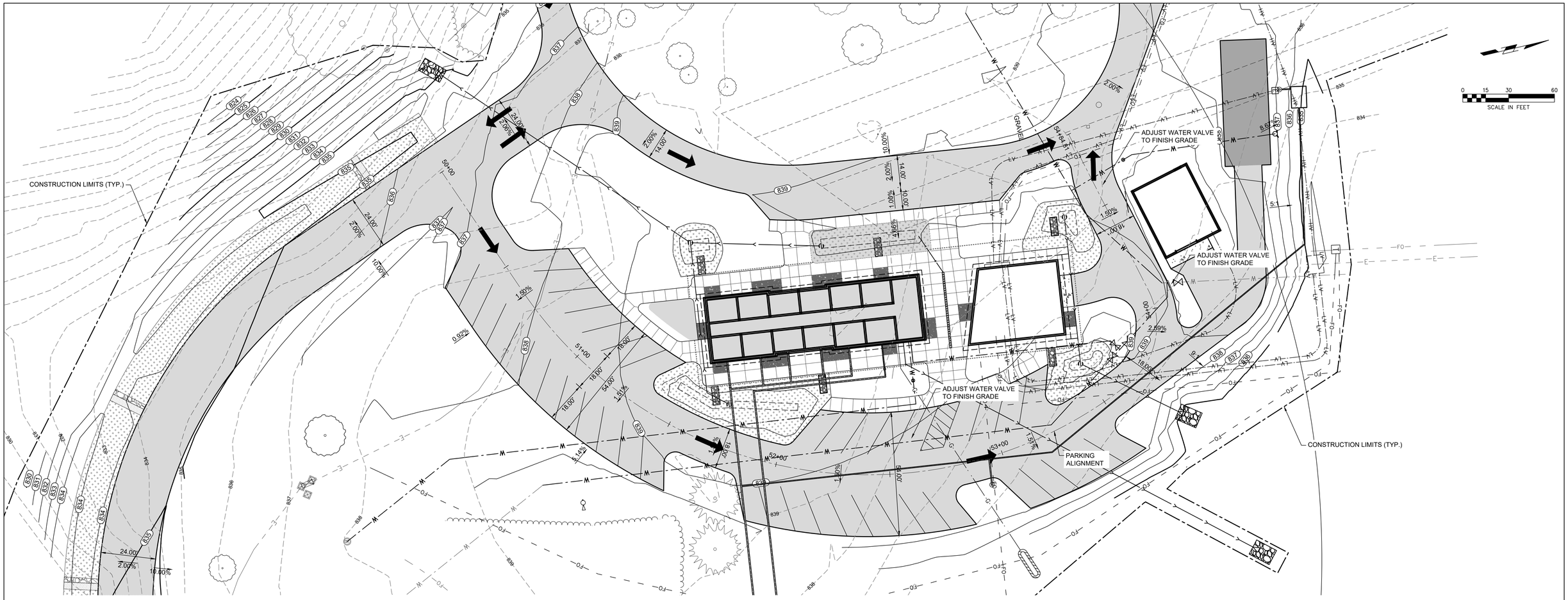
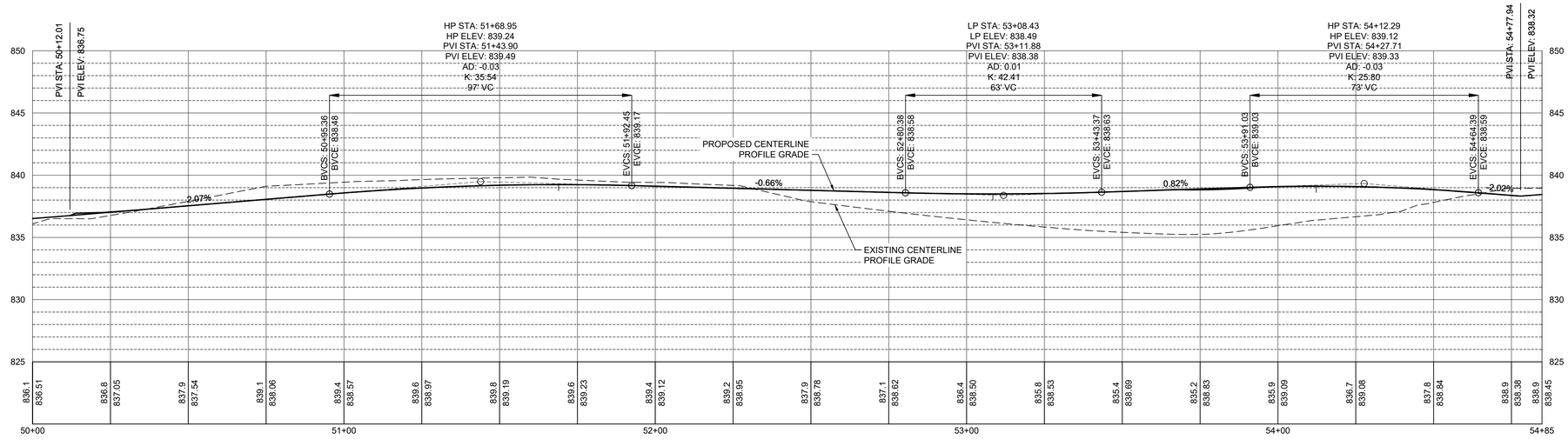
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: MAINLINE PLAN & PROFILE | SHEET NO.: D1.03





LEGEND

6" GRANULAR SUBBASE & 2 - ½" COURSES OF BITUMINOUS SEAL COAT (7" TOTAL)

SHIVEHATTERY
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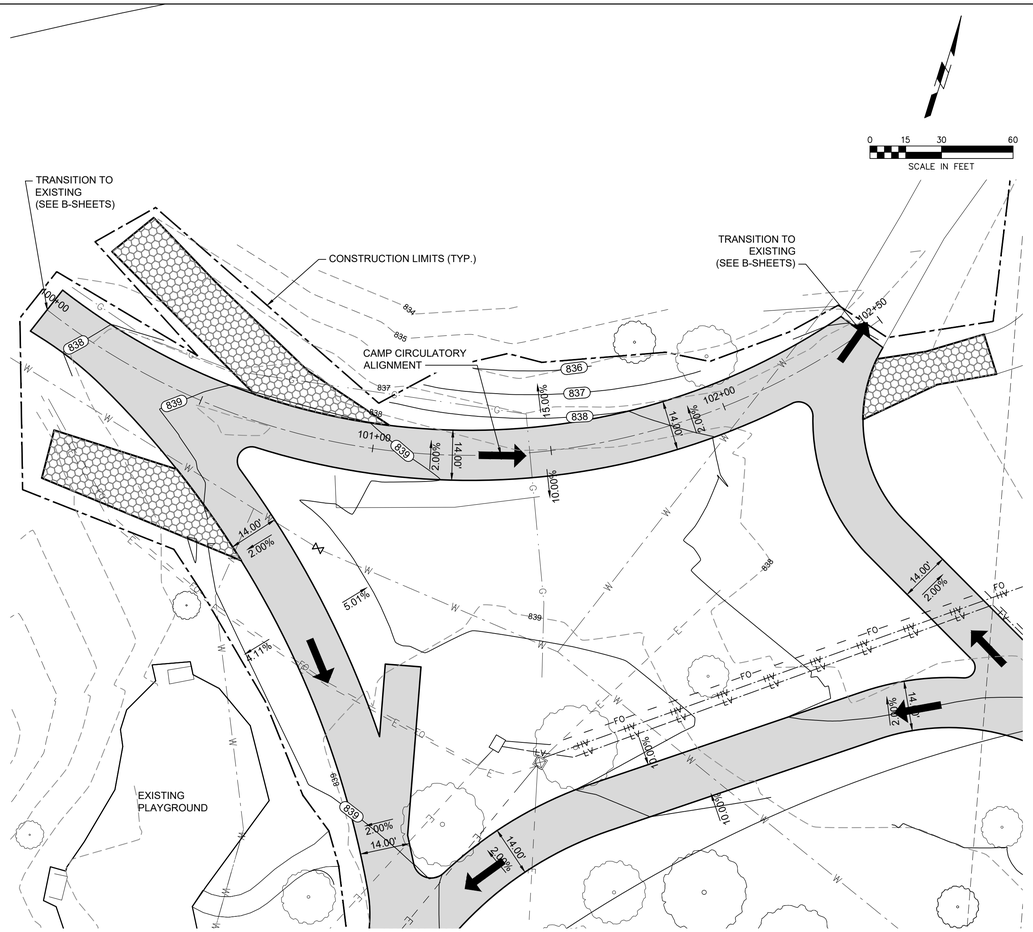
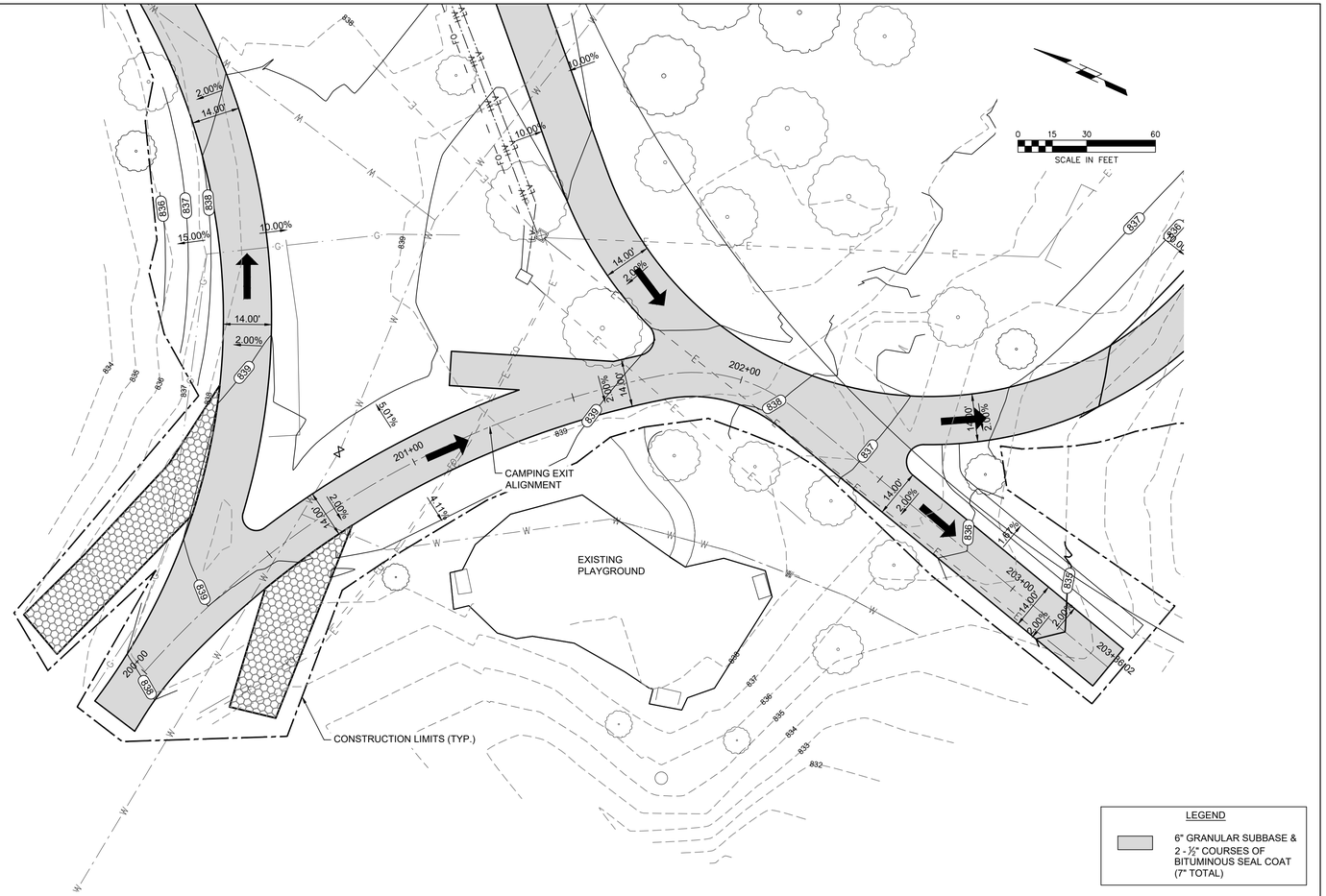
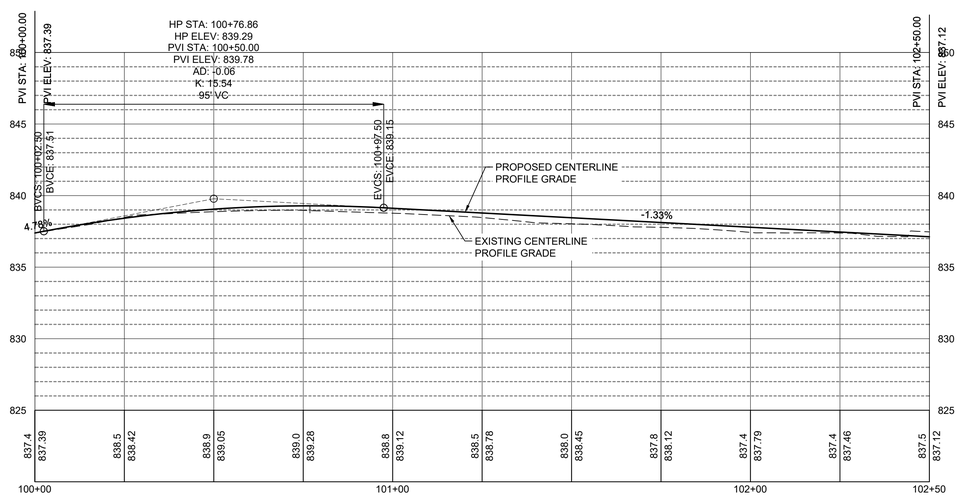
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: MAINLINE PLAN & PROFILE | SHEET NO.: D1.04

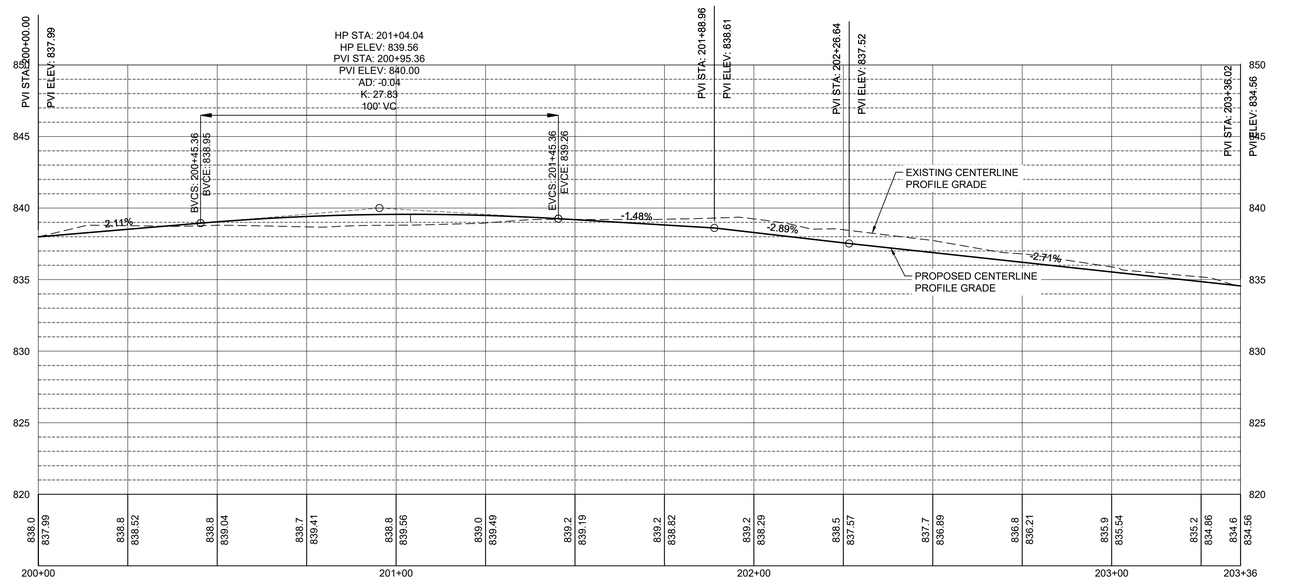


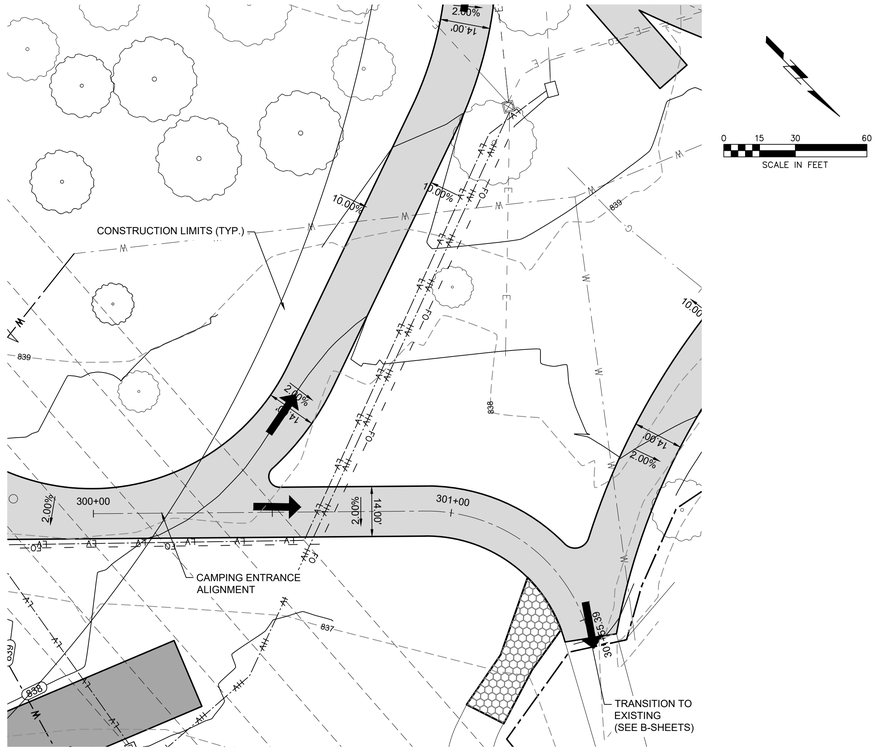


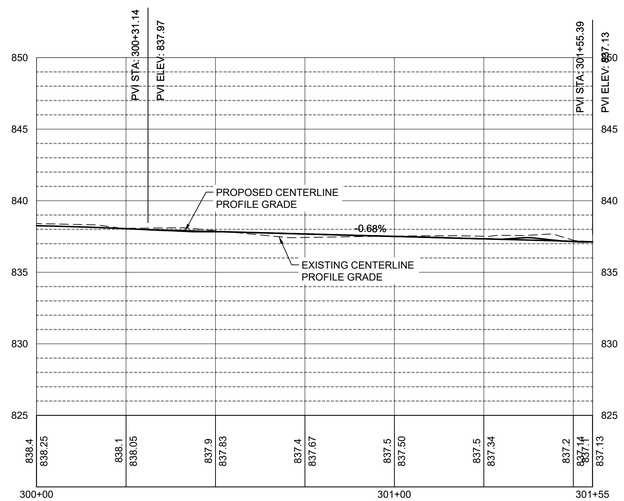
LEGEND

6" GRANULAR SUBBASE & 2 - ½" COURSES OF BITUMINOUS SEAL COAT (7" TOTAL)









LEGEND

6" GRANULAR SUBBASE & 2 - ½" COURSES OF BITUMINOUS SEAL COAT (7" TOTAL)

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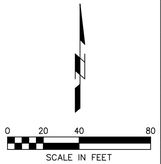
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: MAINLINE PLAN & PROFILE | SHEET NO.: D1.06



THE CONTRACTOR IS THE CO-APPLICANT FOR THE NPDES PERMIT AND IS REQUIRED TO DO ALL REQUIRED RECORD KEEPING. ALL RECORDS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE AS THEY ARE PRODUCED.

SITE INFORMATION
TOTAL DISTURBED AREA: 8.69 AC

THE SEDIMENT CONTROLS IDENTIFIED ON THIS DRAWING MUST BE INSTALLED PRIOR TO SOIL-DISTURBING ACTIVITIES AND ARE TO REMAIN THROUGHOUT CONSTRUCTION. THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO, PERIMETER CONTROLS, STABILIZED CONSTRUCTION ENTRANCES, INTAKE PROTECTION, AREAS OF CONCENTRATED FLOW AND STOCKPILE PROTECTION.

SEED TYPE	PLANTING DATES
PERMANENT SEEDING	MARCH 1 - MAY 31 AUGUST 10 - SEPTEMBER 30
TEMPORARY SEEDING	JUNE 1 - AUGUST 9

NOTE:
1) ALL DISTURBED AREAS SHALL RECEIVE HYDROSEEDING
2) ALL SLOPES THAT EXCEED 25% SHALL SODDING

LEGEND

- PROJECT SITE/DISTURBED AREA
- INLET PROTECTION
- SILT FENCE SUDAS 9040.119 OR FILTER SOCKS SUDAS 9040.102 SHALL HAVE 'J' HOOKS AT MINIMUM 50' INCREMENTS
- STABILIZED CONSTRUCTION ENTRANCE/ EXIT SEE SUDAS 9040.120
- CONTRACTOR STAGING AREA FOR PORTABLE RESTROOM FACILITIES, TEMPORARY FUEL TANKS, WASTE CONTAINERS AND OTHER HAZARDOUS CHEMICALS. RELOCATE AS REQUIRED FOR CONSTRUCTION.
- TEMPORARY TOPSOIL STOCKPILE
- AMERICAN EXCELSIOR COMPANY CURLEX NETFREE TEMPORARY ROLLED EROSION CONTROL PRODUCT AREA = 1,955 SY
- CONCRETE, PAINT, AND GROUT WASHOUT AREA PER SUDAS SECT 11.050. CONTRACTOR TO HAUL OFF WASTE MATERIAL. SUGGESTED LOCATION. RELOCATE AS REQUIRED FOR CONSTRUCTION.
- SPILL KIT TO BE INSTALLED AND RELOCATED AS REQUIRED FOR CONSTRUCTION
- PORTABLE RESTROOM FACILITY LOCATION
- MB SWPPP DOCUMENT LOCATION
- 11.5% EXISTING GRADE
- DIRECTION OF DRAINAGE

APPROXIMATE LOCATION OF EXISTING TOPSOIL STOCKPILE. CONTRACTOR TO USE THIS STOCKPILE LOCATION DURING CONSTRUCTION. WRAP STOCKPILE WITH 8" FILTER SOCK, TYP.

PROPOSED HOST PAD

PROPOSED WOOD SHED

PROPOSED STORAGE SHED

PROPOSED SHOWER HOUSE

CONTRACTOR TO DETERMINE PREFERRED LOCATION DURING EACH PHASE OF CONSTRUCTION, TYP. AFTER CONSTRUCTION, CONTRACTOR TO CLEAN THE SITE AND REMOVE ALL FOREIGN MATERIAL FROM THE SITE THAT IS NOT SPECIFIED TO REMAIN.

STORE SWPPP DOCUMENTS IN MAILBOX NEAR EDGE OF CONSTRUCTION OR WITHIN CONSTRUCTION TRAILER

INSTALL STABILIZED CONSTRUCTION ENTRANCE PER SUDAS DETAIL 9040.120

INSTALL 12" COMPOST SOCK

INSTALL SILT FENCE PER SUDAS DETAIL 9040.119

SHEET EC1.01 INSERT 2 (CONT.)

SHEET EC1.01 INSERT 1 (CONT.)

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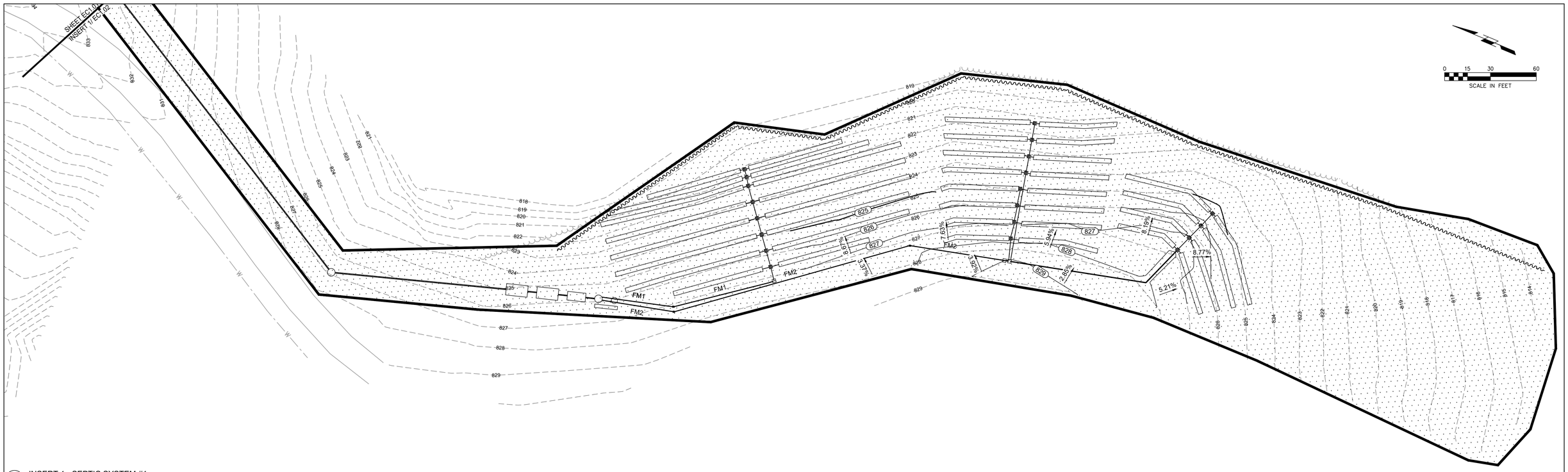
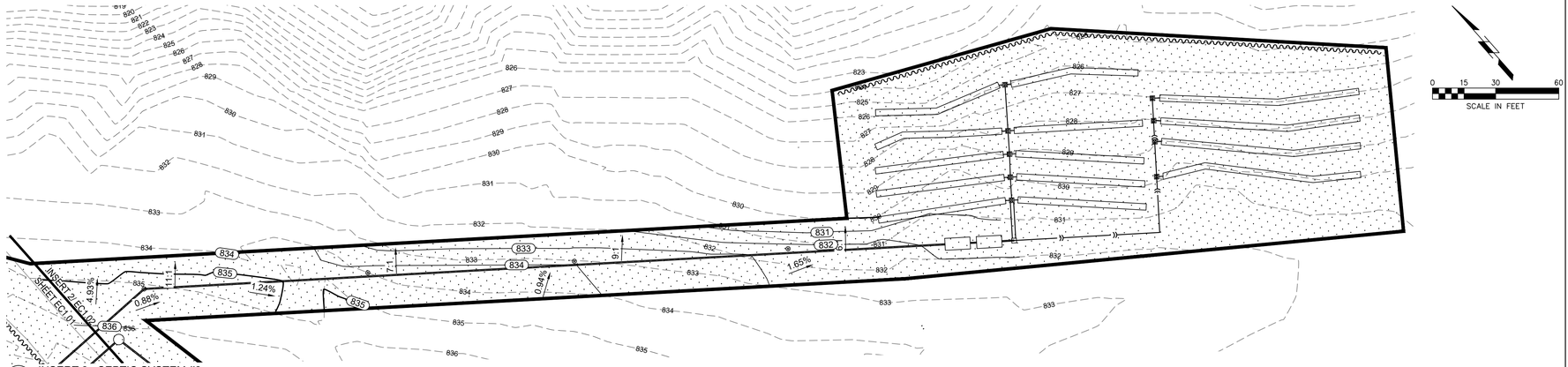
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: STORMWATER POLLUTION PREVENTION PLAN | SHEET NO.: EC1.01



1 INSERT 1 - SEPTIC SYSTEM #1
1" = 30'

LEGEND

- PROJECT SITE/DISTURBED AREA
- INLET PROTECTION
- SILT FENCE SUDAS 9040.119 OR FILTER SOCKS SUDAS 9040.102 SHALL HAVE 'J' HOOKS AT MINIMUM 50' INCREMENTS
- STABILIZED CONSTRUCTION ENTRANCE/ EXIT SEE SUDAS 9040.120
- CONTRACTOR STAGING AREA FOR PORTABLE RESTROOM FACILITIES, TEMPORARY FUEL TANKS, WASTE CONTAINERS AND OTHER HAZARDOUS CHEMICALS. RELOCATE AS REQUIRED FOR CONSTRUCTION.
- TEMPORARY TOPSOIL STOCKPILE
- AMERICAN EXCELSIOR COMPANY CURLEX NETFREE TEMPORARY ROLLED EROSION CONTROL PRODUCT
- CONCRETE, PAINT, AND GROUT WASHOUT AREA PER SUDAS SECT 11,050. CONTRACTOR TO HAUL OFF WASTE MATERIAL. SUGGESTED LOCATION. RELOCATE AS REQUIRED FOR CONSTRUCTION.
- SPILL KIT TO BE INSTALLED AND RELOCATED AS REQUIRED FOR CONSTRUCTION
- PORTABLE RESTROOM FACILITY LOCATION
- SWPPP DOCUMENT LOCATION
- 11.5% EXISTING GRADE
- DIRECTION OF DRAINAGE



2 INSERT 2 - SEPTIC SYSTEM #2
1" = 30'

STORMWATER POLLUTION PREVENTION NOTES

1. EROSION/ SEDIMENTATION CONTROL MEASURES SHOULD BE INSTALLED BEFORE EARTH DISTURBING ACTIVITIES BEGIN AND ARE REQUIRED REGARDLESS OF THE TIME OF YEAR. THIS PLAN AND ITS ASSOCIATED REQUIREMENTS FOR THE PERMIT MUST BE IMPLEMENTED DURING WINTER MONTHS AS WELL.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTROL EROSION/SEDIMENTATION ON THE SITE AT ALL TIMES. THE CONTROL MEASURES SHOWN ON THE PLAN ARE A MINIMUM. THE CONTRACTOR SHALL PROVIDE ADDITIONAL EROSION/SEDIMENTATION CONTROL MEASURES AS NECESSARY TO FULFILL THIS REQUIREMENT. CONTRACTOR IS REQUIRED TO MAINTAIN SWPPP DOCUMENTATION.
3. THE CONTRACTOR IS REQUIRED TO USE STABILIZATION CONTROLS FOR AREAS THAT WILL NOT BE REDISTURBED FOR 14 DAYS OR MORE. STABILIZATION MEASURES WILL BE IMPLEMENTED IMMEDIATELY AFTER CONSTRUCTION ACTIVITY HAS CEASED IN THAT AREA. STABILIZATION MEASURES ARE REQUIRED TO PREVENT BOTH SEDIMENTATION AND EROSION. THE CONTRACTOR IS STRONGLY ENCOURAGED TO PROVIDE STABILIZATION CONTROLS FOR ALL DISTURBED AREAS ON SITE REGARDLESS OF THE TIME PERIOD BEFORE THEY WILL BE DISTURBED AGAIN. THE CONTRACTOR SHALL SEED DISTURBED AREAS AS SOON AS WORK IS COMPLETED AS INDICATED ON THE PLANS AND PROJECT MANUAL.
4. THE CONTRACTOR SHALL USE CONTROL MEASURES AS REQUIRED TO KEEP SOILS FROM LEAVING THE SITE.
5. CONTRACTOR SHALL IMPLEMENT SITE SPECIFIC BEST MANAGEMENT PRACTICES (BMPS) AS SHOWN AND REQUIRED BY THE SWPPP/SESC. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED BY THE CONTRACTOR AS DICTATED BY SITE CONDITIONS OR THE PROJECT GOVERNING AUTHORITIES AT NO ADDITIONAL COST TO THE OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
6. IF AFTER REPEATED FAILURE ON THE PART OF THE CONTRACTOR TO PROPERLY CONTROL SOIL EROSION, SEDIMENT AND/OR POLLUTION FROM THE PROJECT SITE, THE GOVERNING AUTHORITIES RESERVE THE RIGHT TO EFFECT NECESSARY CORRECTIVE MEASURES AND CHARGE ANY COSTS TO THE CONTRACTOR.
7. ALL BMPS AND CONTROLS SHALL CONFORM TO THE APPLICABLE FEDERAL, STATE, OR LOCAL REQUIREMENTS, STANDARDS, AND SPECIFICATIONS OR MANUAL OF PRACTICE.
8. ALL BMPS AND CONTROLS INSTALLED ON GREEN INFRASTRUCTURE SHALL REMAIN UNTIL STABILIZATION IS APPROVED BY THE OWNER.
9. IN THE EVENT THAT SOILS LEAVE THE SITE, CLEANUP OF ALL SURROUNDING ROADS, DRIVES, AND PARKING LOTS SHALL BE PERFORMED ON A DAILY BASIS AT A MINIMUM AND UPON REQUEST BY OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST. PAVEMENT IS TO BE SCRAPED OF DEBRIS AND MUD AND BROOMED CLEAN. MUD TRACKS ARE TO BE REMOVED AS THEY ARE CREATED.
10. IF DURING CONSTRUCTION OPERATIONS ANY LOOSE MATERIALS ARE DEPOSITED IN THE FLOW LINE OF GUTTERS, DRAINAGE STRUCTURES, OR DITCHES SUCH THAT THE NATURAL FLOW LINE OF WATER IS OBSTRUCTED, THIS LOOSE MATERIAL SHALL BE REMOVED.
11. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY EXISTING STORM DRAINAGE SYSTEMS BY THE USE OF INLET PROTECTION OR OTHER APPROVED FUNCTIONAL METHODS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING SEDIMENT RESULTING FROM CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT.
12. CONSTRUCTION ACCESS POINTS TO THE SITE SHALL BE PROTECTED IN SUCH A WAY AS TO PREVENT TRACKING OF MUD OR SOIL ONTO PUBLIC THOROUGHFARES. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
13. MAINTAIN SILT FENCING AT ALL TIMES IN AN UPRIGHT POSITION. CLEAN SILT FROM FENCING ON A REGULAR BASIS AS PER THE STANDARD SPECIFICATIONS. SILT FENCES MUST BE CLEANED OUT WHEN THEY ARE 50% FULL.
14. CONTRACTOR TO LOCATE/ RELOCATE SILT FENCING/ FILTER SOCKS AS NECESSARY THROUGHOUT THE PROJECT TO CONTROL EROSION/SEDIMENTATION. SILT FENCE INSTALLATION IS TO FOLLOW SUDAS 9040.119. FILTER SOCK INSTALLATION IS TO FOLLOW SUDAS 9040.102.
15. REMOVE ALL TEMPORARY EROSION/SEDIMENTATION CONTROLS NOT CALLED OUT TO REMAIN AFTER SITE HAS BEEN STABILIZED AND APPROVED BY THE OWNER'S REPRESENTATIVE. OWNER WILL REMOVE SILT FENCE AFTER SITE HAS STABILIZED.
16. CONTRACTOR TO USE EXTREME CAUTION WHILE INSTALLING SILT FENCE OR OTHER EROSION CONTROL DEVICES SO AS NOT TO DAMAGE UNDERGROUND UTILITIES.
17. EROSION CONTROL BLANKETS SHALL BE USED IN AREAS OF 4:1 SLOPE OR STEEPER AND ANY AREAS STABILIZED IN THE FALL FOR OVERWINTERING. OWNER WILL FURNISH AND INSTALL ALL EROSION CONTROL BLANKET AND SEEDING AFTER THE SITE IS FINAL GRADED AND SEEDED. OWNER WILL SEED ALL COVER CROPS AND PERMANENT VEGETATION.
18. SANITARY WASTE DISPOSAL: PORTABLE REST ROOM FACILITIES ARE ANTICIPATED TO BE PLACED ON-SITE. IN THE EVENT THAT PORTABLE REST ROOM FACILITIES ARE USED ON-SITE, THE CONTRACTOR IS REQUIRED TO INSTALL AN EROSION CONTROL DEVICE AROUND THE FACILITY TO MINIMIZE THE RADIUS OF THE AFFECTED ZONE IN THE EVENT OF A SPILL. WASTES SHALL BE COLLECTED AND DISPOSED OF IN COMPLETE COMPLIANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. PORTABLE RESTROOM FACILITIES MUST NOT BE LOCATED NEAR DRAINAGE WAYS AND SHALL BE STAKED INTO THE GROUND.
19. IDENTIFICATION OF ALLOWABLE NON-STORMWATER DISCHARGES: DURING CONSTRUCTION, WHICH INCLUDES WATER FLUSHED FROM WATER LINES, PAVEMENT AND EQUIPMENT WASHING, AND GROUNDWATER (DEWATERING), SHOULD BE FILTERED WITH APPROPRIATE METHODS AND DIRECTED AWAY FROM DRAINAGE WAY.
20. POLLUTION AND SPILL PREVENTION PLANNING: POTENTIALLY HAZARDOUS MATERIALS ON THE CONSTRUCTION SITE INCLUDE FUEL, LUBRICANTS, CURING COMPOUNDS, FERTILIZERS, GREASE AND CLEANING SOLVENTS. ALL REASONABLE PRECAUTIONS WILL BE TAKEN TO PREVENT SPILLS. ANY SPILLED MATERIAL WILL IMMEDIATELY BE DIRECTED AWAY FROM STORM WATER INTAKES, DETENTION BASINS, OR DRAINAGE WAYS. SPILLED MATERIALS WILL BE CLEANED AND, IF NECESSARY, SOIL REMEDIATION PRACTICES WILL BE USED, A RECORD OF SPILLS WILL BE MAINTAINED BY THE MAIN CONTRACTOR.
21. CONCRETE, PAINT AND GROUT WASHOUT AREA: THE WASHOUT AREA SHOULD BE AN APPROVED CONCRETE WASHOUT CONTAINER, COLLECTION BAG, OR WASHOUT BOX PER SUDAS 11,050. PROTECT WITH AN EROSION CONTROL DEVICE (IF USING FILTER SOCKS, STACK TWO (2) TALL). CONTRACTOR TO HAUL OFF ALL WASTE MATERIAL. ALL LOCATIONS OF CONCRETE, PAINT AND GROUT WASHOUT AREAS MUST BE PROVIDED BY THE CONTRACTOR AND IDENTIFIED ON THE PLAN (RELOCATE AS REQUIRED FOR CONSTRUCTION). THE CONTRACTOR IS REQUIRED TO INSTALL A SIGN THAT DESIGNATES THE WASHOUT AREA.
22. SPILL KIT: A SPILL KIT IS REQUIRED TO BE ON-SITE AND LOCATION NOTED ON THE STORMWATER POLLUTION PREVENTION PLAN. THE SPILL KIT SHOULD BE DESIGNED TO DEAL WITH ANY HAZARDOUS MATERIALS ON-SITE.
23. DUST CONTROL: THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL MEASURES WHERE DUST IS GENERATED. FREQUENT WATERING OF THE SITE, SPRINKLED, VEGETATIVE COVER, MULCH, WINDBREAKS, TILLAGE, STONE AND SPRAY-ON CHEMICAL SOIL TREATMENTS (PALLIATIVES) ARE POSSIBLE DUST CONTROL MEASURES. IF THE DUST CONTROL IS NOT ACCEPTABLE IT SHALL BE CHANGED AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
24. STOCKPILED MATERIALS: CONTRACTOR TO IDENTIFY ALL LOCATIONS OF STOCKPILED MATERIALS ON THE STORMWATER POLLUTION PREVENTION PLAN. CONTRACTOR SHALL PROVIDE ALL EROSION/SEDIMENTATION CONTROLS AS REQUIRED TO CONTAIN MATERIALS ON-SITE. AT A MINIMUM, THE CONTRACTOR IS REQUIRED TO PROVIDE SILT FENCE/FILTER SOCKS AROUND STOCKPILED SOILS BEFORE STOCKPILE IS RE-SPREAD. IF STOCKPILE SOILS WILL REMAIN INACTIVE FOR 14 DAYS OR MORE, THEY SHALL BE SEEDED OR TARPED BY THE CONTRACTOR.
25. THE CONTRACTOR SHALL AMEND THE SWPPP WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION OR MAINTENANCE OF A STORMWATER BMP.

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JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217340

ISSUE FOR CONSTRUCTION 04/26/2022

SHEET NAME: STORMWATER POLLUTION PREVENTION PLAN

SHEET NO.: EC1.02

NORTH

0 10 20 40

SCALE IN FEET

MATCH EG 824.53

MATCH EG 824.16

MATCH EG 827.10

MATCH EG 825.82

MATCH EG 824.16

MATCH EG 824.22

MATCH EG 824.10

21+79.88

FG 827.71

FG 829.08

FG 829.02

FG 829.04

26+00

25+00

FG 828.16

FG 828.14

SAN9 22+00

23+00

FM1

FM2

24+00

MATCH EG 827.19

MATCH EG 827.74

MATCH EG 827.86

MATCH EG 829.10

MATCH EG 829.14

MATCH EG 829.11

MATCH EG 828.24

MATCH EG 827.49

MATCH EG 826.51

7.95%

6.17%

7.63%

5.94%

8.19%

7.48%

1.41%

3.92%

3.31%

0.66%

0.37%

0.75%

2.65%

0.54%

FO

SEALCOAT

W

NORTH

0 10 20 40

SCALE IN FEET

EXISTING GRADES FOR SEPTIC SYSTEM 2 ARE BASED ON LIDAR. CONTRACTOR TO VERIFY EXISTING AND PROPOSED GRADES IN THE FIELD. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE.

MATCH EG APPROX. 834.64

FG APPROX. 835.79

FG APPROX. 835.54

MATCH EG APPROX. 834.07

MATCH EG APPROX. 832.16

FG APPROX. 832.49

FG APPROX. 834.01

35+00

FG APPROX. 833.29

36+00

FG APPROX. 832.36

37+00

33+00

34+00

FG APPROX. 834.82

MATCH EG APPROX. 834.09

MATCH EG APPROX. 833.37

MATCH EG APPROX. 832.56

MATCH EG APPROX. 832.44

MATCH EG APPROX. 832.17

MATCH EG APPROX. 831.64

MATCH EG APPROX. 834.84

MATCH EG APPROX. 835.62

MATCH EG APPROX. 835.83

32+00

15+00

13+00

14+00

4:1

1.24%

0.10%

0.84%

0.50%

1.17%

1.67%

6.33%

2.20%

SEALCOAT

FO

W

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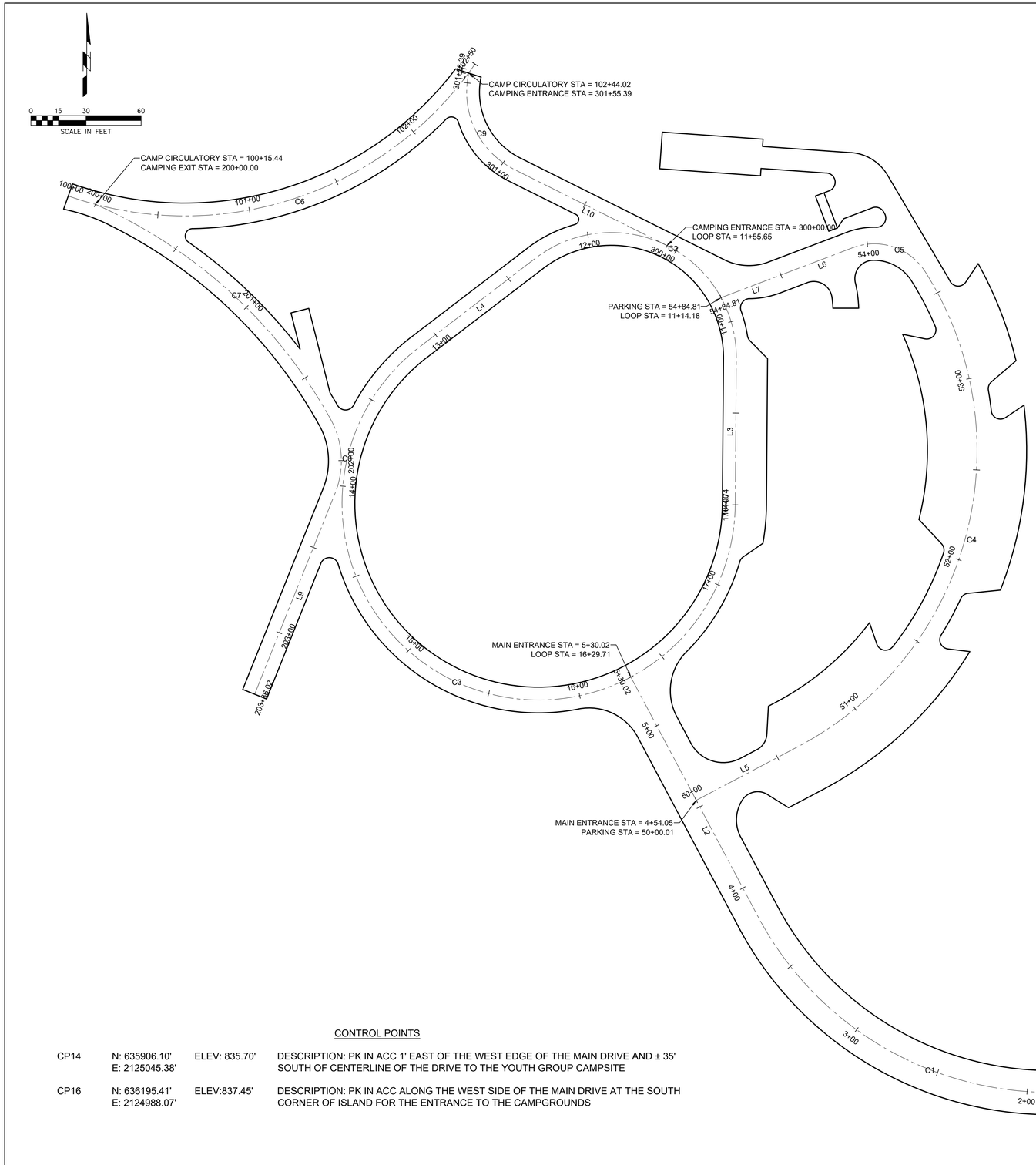
JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217340

ISSUE FOR CONSTRUCTION 04/26/2022

SHEET NAME: GRADING

SHEET NO.: F1.01



MAIN ENTRANCE ALIGNMENT						
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT
L1	33.30'		S72° 45' 37.89"W		N = 635936.63 E = 2125037.93	N = 635926.76 E = 2125006.13
C1	249.03'	180.00'	N67° 36' 15.81"W	79° 16' 12.60"	N = 635926.76 E = 2125006.13	N = 636014.25 E = 2124793.81
L2	147.69'		N27° 58' 09.50"W		N = 636014.25 E = 2124793.81	N = 636144.69 E = 2124724.54

LOOP ALIGNMENT						
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT
L3	79.74'		N00° 26' 20.18"E		N = 636238.37 E = 2124781.36	N = 636318.11 E = 2124781.97
C2	151.76'	68.00'	N63° 29' 52.53"W	127° 52' 25.42"	N = 636318.11 E = 2124781.97	N = 636372.63 E = 2124672.64
L4	79.74'		S52° 33' 54.76"W		N = 636372.63 E = 2124672.64	N = 636324.16 E = 2124609.32
C3	433.50'	107.00'	S63° 29' 52.53"E	232° 07' 34.58"	N = 636324.16 E = 2124609.32	N = 636238.37 E = 2124781.36

PARKING ALIGNMENT						
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT
L5	63.06'		N62° 10' 35.52"E		N = 636077.59 E = 2124760.16	N = 636107.02 E = 2124815.93
C4	299.94'	182.00'	N14° 57' 53.39"E	94° 25' 24.26"	N = 636107.02 E = 2124815.93	N = 636365.09 E = 2124884.91
C5	45.23'	33.00'	N71° 30' 50.55"W	78° 32' 03.62"	N = 636365.09 E = 2124884.91	N = 636378.34 E = 2124845.29
L8	157.66'		N81° 22' 29.10"E		N = 637443.83 E = 2125081.85	N = 637467.48 E = 2125237.73
L6	37.53'		S69° 13' 07.65"W		N = 636378.34 E = 2124845.29	N = 636365.02 E = 2124810.21
L7	39.06'		S69° 13' 07.65"W		N = 636365.02 E = 2124810.21	N = 636351.16 E = 2124773.69

CAMP CIRCULATORY ALIGNMENT						
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT
C6	250.00'	192.00'	N72° 01' 37.64"E	74° 36' 13.97"	N = 636406.47 E = 2124418.37	N = 636478.28 E = 2124639.73

CAMPING ENTRANCE ALIGNMENT						
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT
L10	92.81'		N63° 30' 31.86"W		N = 636379.50 E = 2124744.29	N = 636420.90 E = 2124661.22
C9	60.85'	47.00'	N26° 25' 11.79"W	74° 10' 40.13"	N = 636420.90 E = 2124661.22	N = 636471.66 E = 2124636.00
L11	1.73'		N10° 40' 08.28"E		N = 636471.66 E = 2124636.00	N = 636473.36 E = 2124636.32

CAMPING EXIT ALIGNMENT						
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT
C7	176.44'	271.00'	S47° 35' 53.26"E	37° 18' 09.90"	N = 636401.95 E = 2124433.13	N = 636285.06 E = 2124561.13
C8	41.64'	47.00'	S03° 33' 58.34"E	50° 45' 39.93"	N = 636285.06 E = 2124561.13	N = 636244.85 E = 2124563.63
L9	117.94'		S21° 48' 51.63"W		N = 636244.85 E = 2124563.63	N = 636135.36 E = 2124519.80

CONTROL POINTS

CP14	N: 635906.10' E: 2125045.38'	ELEV: 835.70'	DESCRIPTION: PK IN ACC 1' EAST OF THE WEST EDGE OF THE MAIN DRIVE AND ± 35' SOUTH OF CENTERLINE OF THE DRIVE TO THE YOUTH GROUP CAMPSITE
CP16	N: 636195.41' E: 2124988.07'	ELEV:837.45'	DESCRIPTION: PK IN ACC ALONG THE WEST SIDE OF THE MAIN DRIVE AT THE SOUTH CORNER OF ISLAND FOR THE ENTRANCE TO THE CAMPGROUNDS

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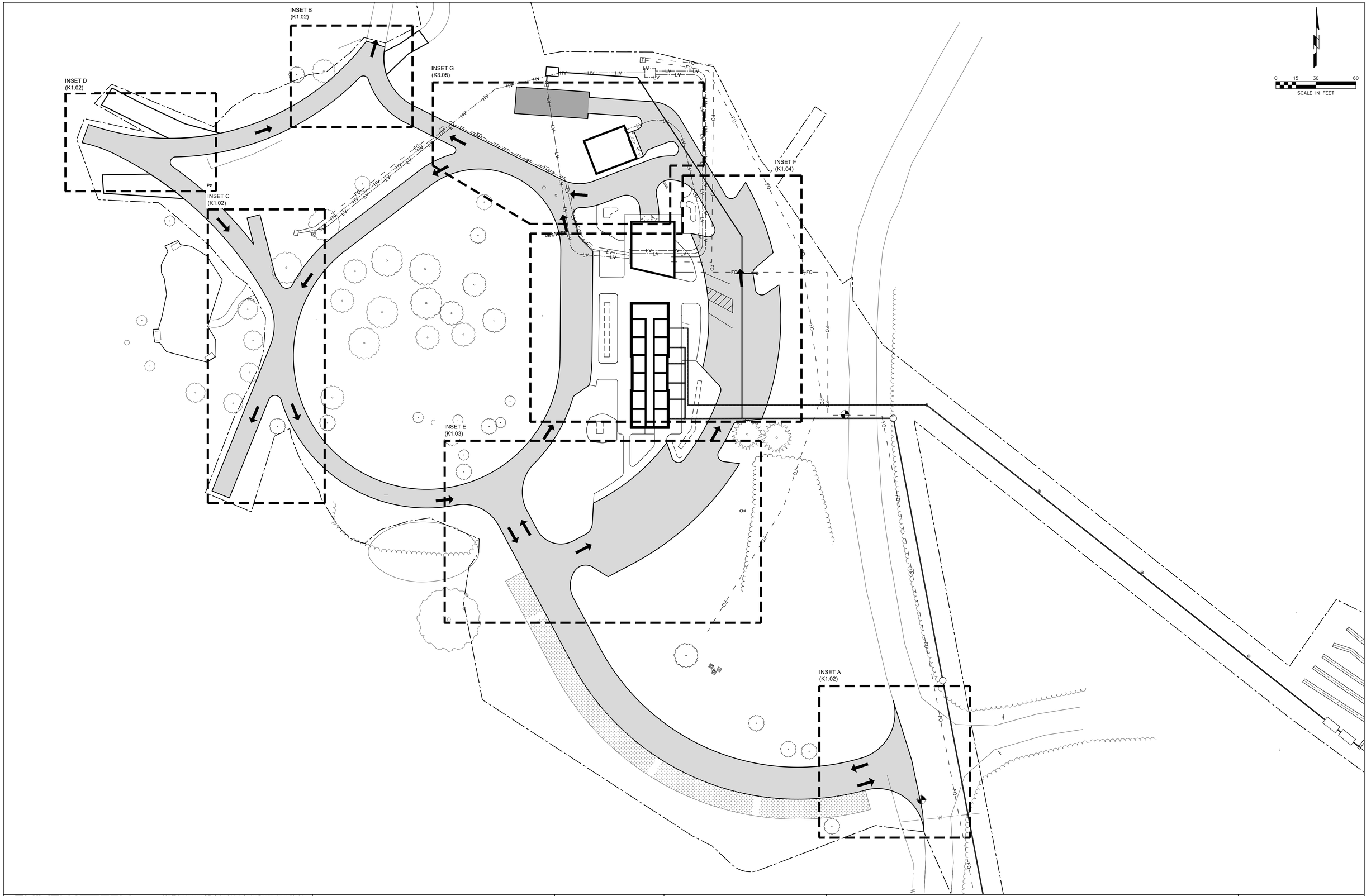
JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217340

ISSUE FOR CONSTRUCTION 04/26/2022

SHEET NAME: PHASING PLAN

SHEET NO.: J1.01



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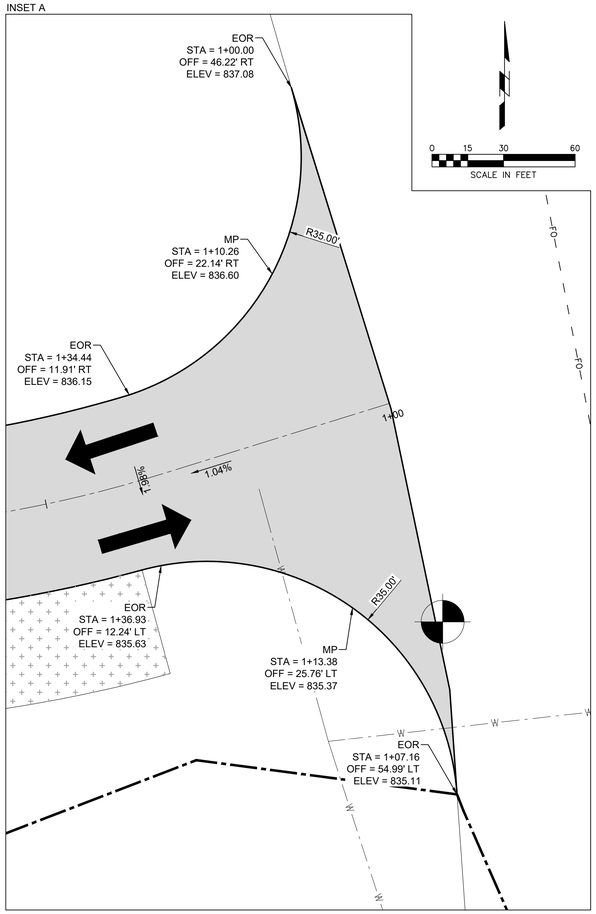
INSET A



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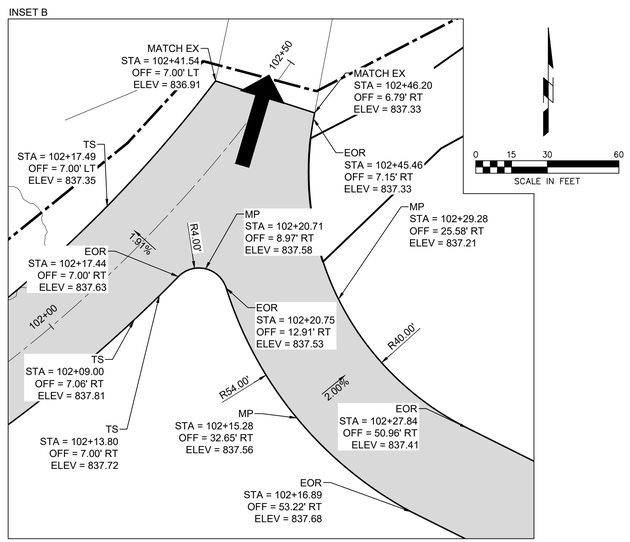

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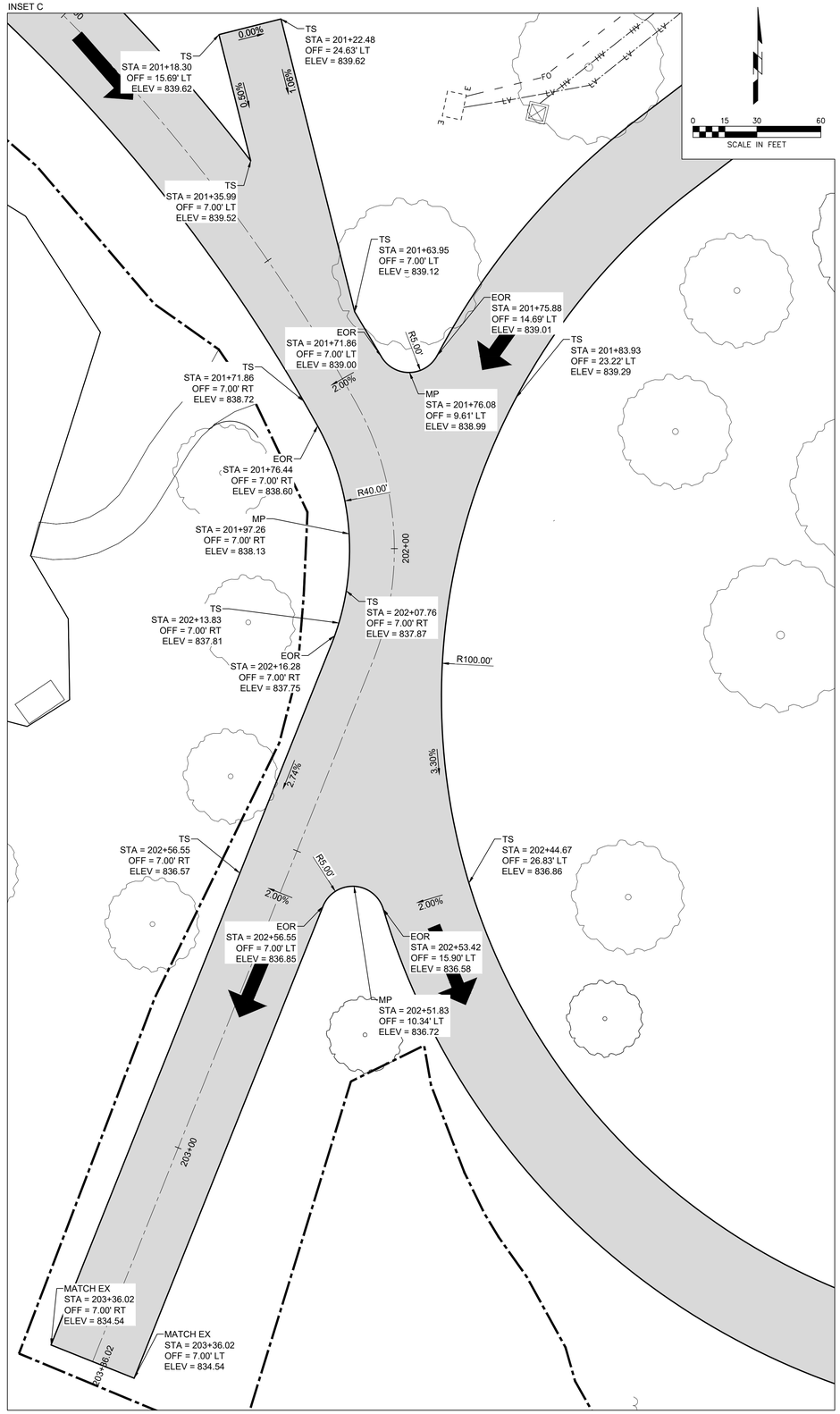

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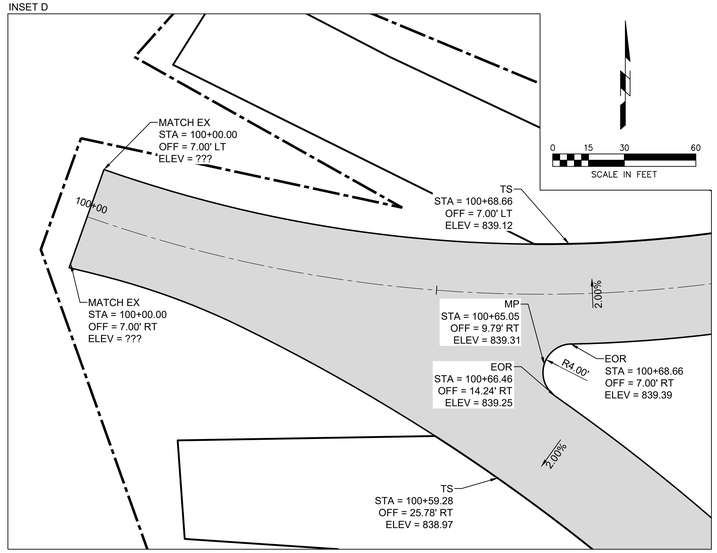

LEGEND

EOR	=	END OF RADIUS
MP	=	MIDPOINT
TS	=	TOP OF SEAL COAT

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JOHNSON COUNTY CONSERVATION BOARD

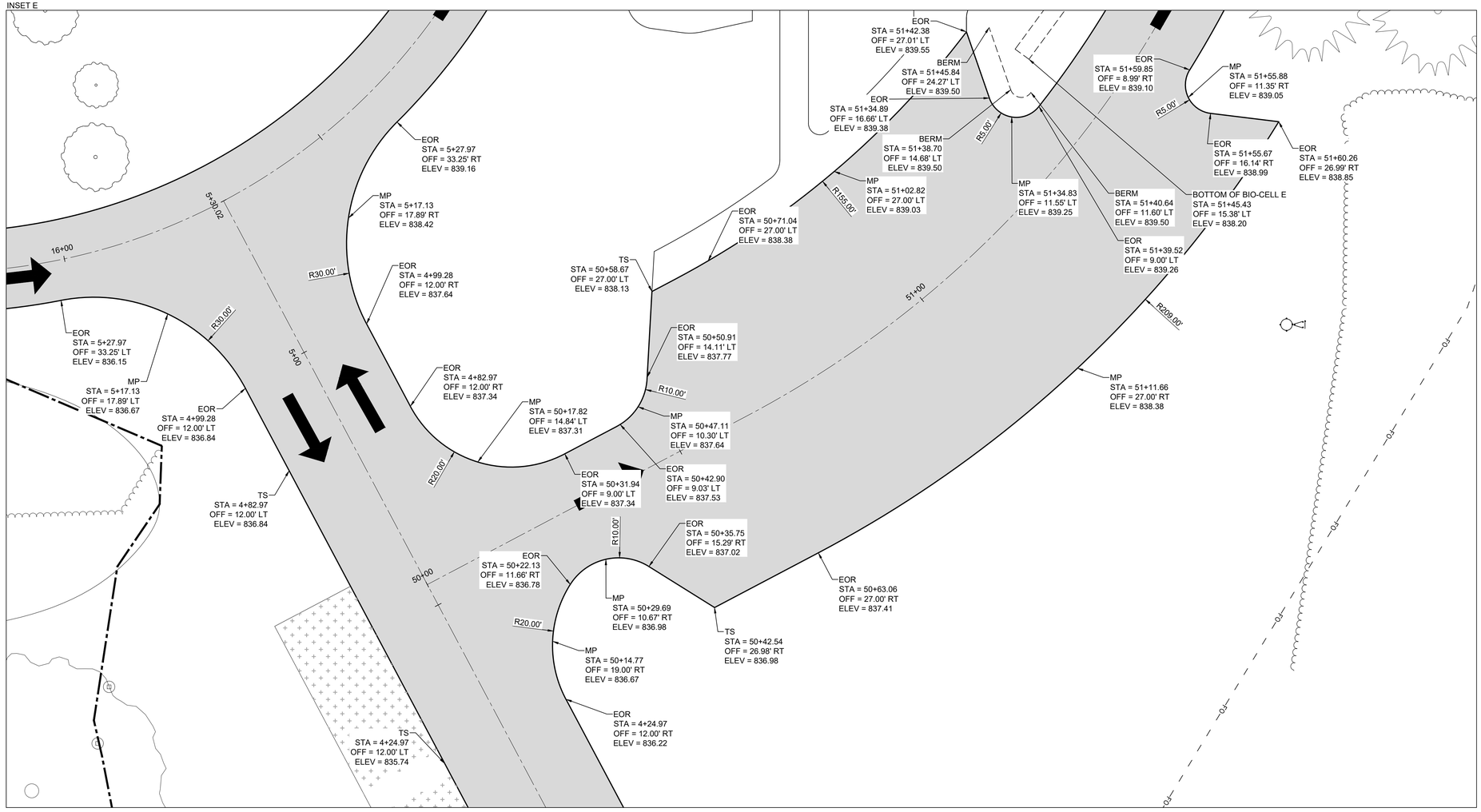
PROJECT NO.: 4217340

ISSUE FOR CONSTRUCTION 04/26/2022

SHEET NAME: INTERSECTION & PAVEMENT DETAILS

SHEET NO.: K1.02

INSET E



LEGEND		
EOR	=	END OF RADIUS
MP	=	MIDPOINT
TS	=	TOP OF SEAL COAT

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INSET F

N

0 15 30 60
SCALE IN FEET

GRAVEL

54+84.81

BOTTOM OF BIO-CELL A
STA = 11+00.61
OFF = 39.64' RT
ELEV = 838.50

BOTTOM OF BIO-CELL D
STA = 10+95.43
OFF = 91.04' RT
ELEV = 837.50

EOR
STA = 10+90.98
OFF = 7.00' RT
ELEV = 838.42

BIO-CELL EDGE
STA = 10+94.94
OFF = 22.12' RT
ELEV = 839.35

BIO-CELL EDGE
STA = 10+91.36
OFF = 23.85' RT
ELEV = 839.38

BIO-CELL EDGE
STA = 10+84.76
OFF = 40.75' RT
ELEV = 839.72

EOR
STA = 10+88.38
OFF = 7.99' RT
ELEV = 838.51

MP
STA = 10+89.60
OFF = 7.25' RT
ELEV = 838.45

TS
STA = 10+79.74
OFF = 17.00' RT
ELEV = 838.61

TS
STA = 10+79.74
OFF = 7.00' RT
ELEV = 838.48

EOR
STA = 53+53.06
OFF = 27.00' RT
ELEV = 838.32

EOR
STA = 53+52.10
OFF = 9.00' RT
ELEV = 838.57

EOR
STA = 53+48.02
OFF = 16.35' RT
ELEV = 838.45

MP
STA = 53+48.08
OFF = 11.45' RT
ELEV = 838.50

R5.00'

MP
STA = 53+28.61
OFF = 27.00' RT
ELEV = 838.13

R209.00'

EOR
STA = 53+33.68
OFF = 9.00' LT
ELEV = 838.70

MP
STA = 53+28.95
OFF = 11.61' LT
ELEV = 838.71

R5.00'

EOR
STA = 53+37.07
OFF = 27.00' LT
ELEV = 839.65

EOR
STA = 53+28.72
OFF = 16.08' LT
ELEV = 838.88

EOR
STA = 53+03.49
OFF = 27.00' RT
ELEV = 838.09

EOR
STA = 52+95.96
OFF = 11.50' RT
ELEV = 838.34

TS
STA = 53+00.43
OFF = 27.00' LT
ELEV = 838.90

R5.00'

EOR
STA = 52+91.92
OFF = 9.00' RT
ELEV = 838.39

TS
STA = 52+88.21
OFF = 27.00' LT
ELEV = 838.94

TS
STA = 52+87.22
OFF = 9.00' LT
ELEV = 838.68

MP
STA = 52+94.27
OFF = 9.67' RT
ELEV = 838.37

EOR
STA = 52+82.09
OFF = 27.00' RT
ELEV = 838.17

EOR
STA = 52+81.13
OFF = 9.00' RT
ELEV = 838.44

R5.00'

BOTTOM OF BIO-CELL B
STA = 10+41.45
OFF = 26.19' RT
ELEV = 838.70

ADA STALL LOCATIONS. ALL PARKING STALL STRIPING TO BE BY OWNER.

0.90%

1.34%

TS
STA = 52+75.22
OFF = 9.00' LT
ELEV = 838.75

BOTTOM OF BIO-CELL B
STA = 10+41.43
OFF = 30.19' RT
ELEV = 838.70

MP
STA = 52+76.54
OFF = 27.00' LT
ELEV = 839.01

R155.00'

EOR
STA = 52+77.06
OFF = 16.35' RT
ELEV = 838.36

MP
STA = 52+77.11
OFF = 11.45' RT
ELEV = 838.43

TS
STA = 52+64.57
OFF = 27.00' LT
ELEV = 839.09

1.04%

1.28%

TS
STA = 52+64.51
OFF = 9.00' LT
ELEV = 838.82

TS
STA = 52+52.35
OFF = 9.00' LT
ELEV = 838.90

R209.00'

MP
STA = 52+37.48
OFF = 27.00' RT
ELEV = 838.46

EOR
STA = 13+11.24
OFF = 17.00' LT
ELEV = 838.96

17+94.74

TS
STA = 13+11.24
OFF = 7.00' LT
ELEV = 838.86

BOTTOM OF BIO-CELL B
STA = 10+00.41
OFF = 30.01' RT
ELEV = 838.29

MP
STA = 17+35.74
OFF = 17.00' RT
ELEV = 839.01

BOTTOM OF BIO-CELL B
STA = 10+00.43
OFF = 26.01' RT
ELEV = 838.29

EOR
STA = 52+16.01
OFF = 27.00' LT
ELEV = 839.41

BOTTOM OF BIO-CELL E
STA = 17+35.97
OFF = 97.14' RT
ELEV = 838.20

EOR
STA = 52+05.52
OFF = 11.58' LT
ELEV = 839.25

MP
STA = 52+03.52
OFF = 9.69' LT
ELEV = 839.24

52+00

EOR
STA = 17+26.73
OFF = 16.94' RT
ELEV = 839.06

MP
STA = 17+16.86
OFF = 7.30' RT
ELEV = 839.02

EOR
STA = 17+18.22
OFF = 8.15' RT
ELEV = 839.03

EOR
STA = 17+15.30
OFF = 7.00' RT
ELEV = 839.02

EOR
STA = 52+00.81
OFF = 9.00' LT
ELEV = 839.24

BOTTOM OF BIO-CELL C
STA = 17+07.45
OFF = 34.15' RT
ELEV = 838.40

17+00

STA = 17+04.48
OFF = 23.78' RT
ELEV = 839.40

STA = 17+10.80
OFF = 43.51' RT
ELEV = 839.64

STA = 16+95.75
OFF = 28.29' RT
ELEV = 839.40

EOR
STA = 51+85.36
OFF = 11.50' RT
ELEV = 839.03

MP
STA = 51+83.66
OFF = 9.67' RT
ELEV = 839.07

R5.00'

EOR
STA = 51+92.88
OFF = 27.00' RT
ELEV = 838.76

EOR
STA = 51+81.31
OFF = 9.00' RT
ELEV = 839.09

EXISTING PARK ROAD

LEGEND

EOR	=	END OF RADIUS
MP	=	MIDPOINT
TS	=	TOP OF SEAL COAT

INSET G

N

0 15 30 60
SCALE IN FEET

TS
STA = 11+71.97
OFF = 57.71' RT
ELEV = 837.48

TS
STA = 11+45.78
OFF = 76.66' RT
ELEV = 837.76

TS
STA = 11+44.79
OFF = 73.24' RT
ELEV = 837.78

TS
STA = 11+70.03
OFF = 38.01' RT
ELEV = 837.58

TS
STA = 11+41.52
OFF = 63.18' RT
ELEV = 837.84

TS
STA = 11+40.32
OFF = 59.90' RT
ELEV = 837.86

0.50%
0.50%
0.50%
0.50%
3.00%
1.00%

EOR
STA = 54+00.82
OFF = 50.29' RT
ELEV = 839.21

MP
STA = 53+96.74
OFF = 45.94' RT
ELEV = 839.09

EOR
STA = 54+07.73
OFF = 43.04' RT
ELEV = 838.91

MP
STA = 54+06.38
OFF = 37.53' RT
ELEV = 839.15

EOR
STA = 54+09.17
OFF = 33.49' RT
ELEV = 839.32

EOR
STA = 53+92.88
OFF = 37.75' RT
ELEV = 839.06

EOR
STA = 53+97.29
OFF = 19.34' RT
ELEV = 839.13

MP
STA = 53+94.73
OFF = 19.66' RT
ELEV = 839.10

EOR
STA = 53+92.94
OFF = 17.69' RT
ELEV = 839.07

EOR
STA = 53+92.53
OFF = 16.85' RT
ELEV = 839.07

MP
STA = 53+92.11
OFF = 11.80' RT
ELEV = 839.02

EOR
STA = 53+95.33
OFF = 9.00' RT
ELEV = 838.99

EOR
STA = 53+97.44
OFF = 9.00' LT
ELEV = 839.28

MP
STA = 53+80.22
OFF = 9.00' LT
ELEV = 839.11

EOR
STA = 53+59.33
OFF = 9.00' RT
ELEV = 838.63

R5.00'
R25.00'
R5.00'
R5.00'
R42.00'
R30.00'
R48.00'
R10.00'
R24.00'
R68.00'
R10.00'
R54.00'
R191.00'

BUILDING CORNER
STA = 54+17.21
OFF = 39.99' RT
FF = 839.40
GRADE = 838.90

TS
STA = 54+12.21
OFF = 33.49' RT
ELEV = 839.35

TS
STA = 54+17.21
OFF = 33.49' RT
ELEV = 839.40

BUILDING CORNER
STA = 54+50.21
OFF = 39.99' RT
FF = 839.40
GRADE = 838.90

STRUCTURAL
APPROACH SLAB
(SEE STRUCTURAL
DETAILS)

TS
STA = 54+07.55
OFF = 16.50' RT
ELEV = 839.29

TS
STA = 54+12.21
OFF = 12.99' RT
ELEV = 839.35

TS
STA = 54+17.21
OFF = 12.99' RT
ELEV = 839.40

EOR
STA = 54+08.23
OFF = 9.00' RT
ELEV = 838.98

MP
STA = 54+01.78
OFF = 9.00' RT
ELEV = 838.97

EOR
STA = 54+53.80
OFF = 9.00' RT
ELEV = 838.64

MP
STA = 54+65.83
OFF = 11.52' RT
ELEV = 838.52

BUILDING CORNER
STA = 54+50.21
OFF = 12.99' RT
FF = 839.40
GRADE = 838.90

EOR
STA = 54+75.84
OFF = 18.64' RT
ELEV = 838.41

EOR
STA = 54+53.80
OFF = 9.00' LT
ELEV = 838.91

EOR
STA = 54+70.47
OFF = 6.01' LT
ELEV = 838.56

MP
STA = 54+30.30
OFF = 12.73' LT
ELEV = 839.34

EOR
STA = 54+13.65
OFF = 18.44' LT
ELEV = 839.53

MP
STA = 54+09.01
OFF = 11.25' LT
ELEV = 838.95

EOR
STA = 53+63.00
OFF = 9.00' LT
ELEV = 838.95

MP
STA = 54+14.90
OFF = 25.27' LT
ELEV = 839.63

EOR
STA = 54+38.09
OFF = 9.00' LT
ELEV = 839.12

EOR
STA = 54+28.32
OFF = 21.14' LT
ELEV = 839.57

MP
STA = 54+75.03
OFF = 6.57' LT
ELEV = 838.44

MP
STA = 54+62.27
OFF = 8.25' LT
ELEV = 838.87

EOR
STA = 54+77.21
OFF = 10.61' LT
ELEV = 838.36

MP
STA = 54+29.05
OFF = 24.08' LT
ELEV = 839.65

EOR
STA = 54+16.85
OFF = 31.94' LT
ELEV = 839.73

TS
STA = 10+91.17
OFF = 68.34' RT
ELEV = 839.80

TS
STA = 10+92.41
OFF = 54.54' RT
ELEV = 839.80

EOR
STA = 54+29.95
OFF = 26.97' LT
ELEV = 839.73

STRUCTURAL
APPROACH SLAB
(SEE STRUCTURAL
DETAILS)

EOR
STA = 12+03.72
OFF = 12.26' RT
ELEV = 837.97

MP
STA = 12+02.95
OFF = 8.98' RT
ELEV = 837.50

EOR
STA = 12+05.42
OFF = 7.00' RT
ELEV = 837.87

12+00
300+00
54+84.81

GRAVEL

LEGEND

EOR	=	END OF RADIUS
MP	=	MIDPOINT
TS	=	TOP OF SEAL COAT

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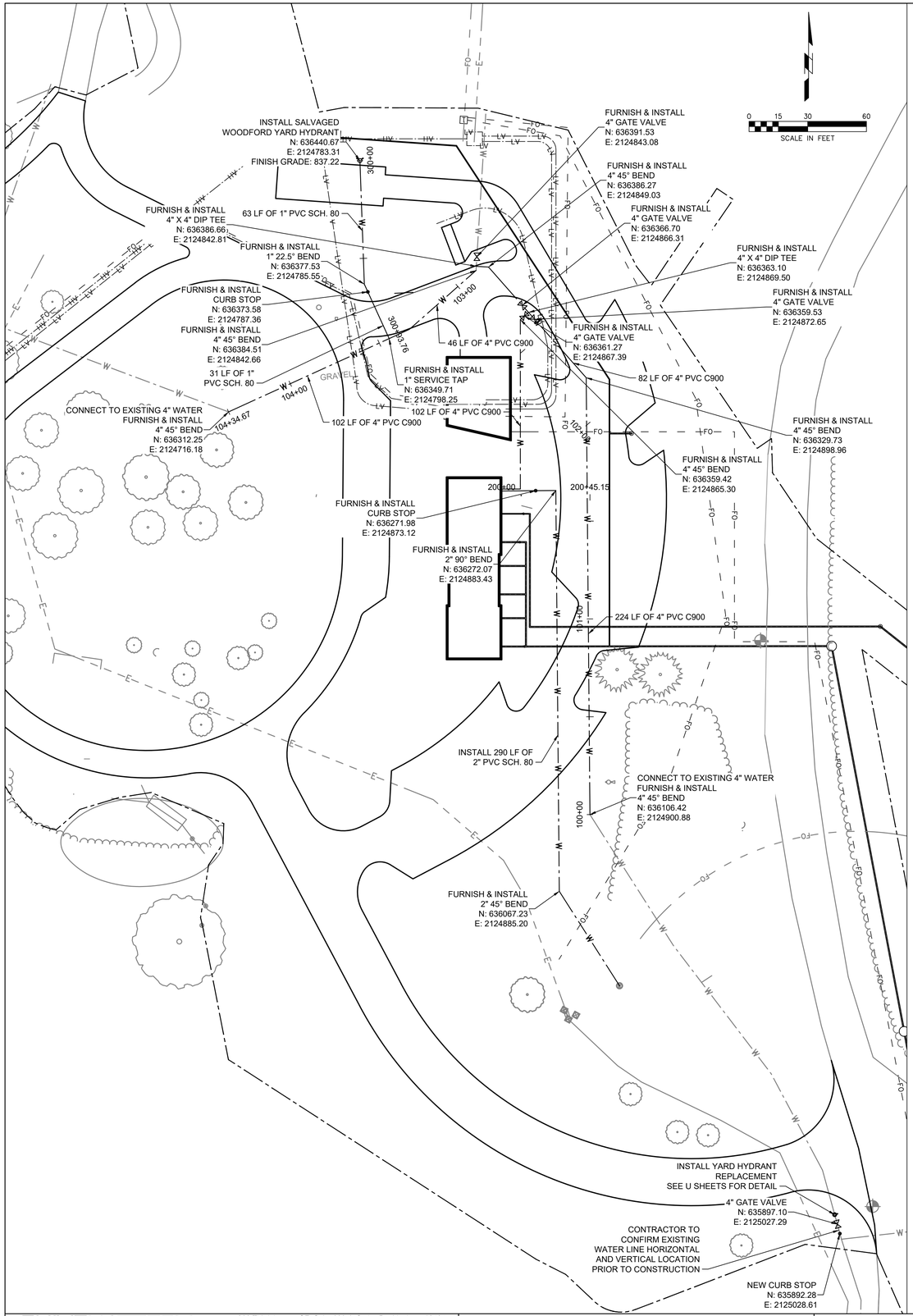
JOHNSON COUNTY CONSERVATION BOARD

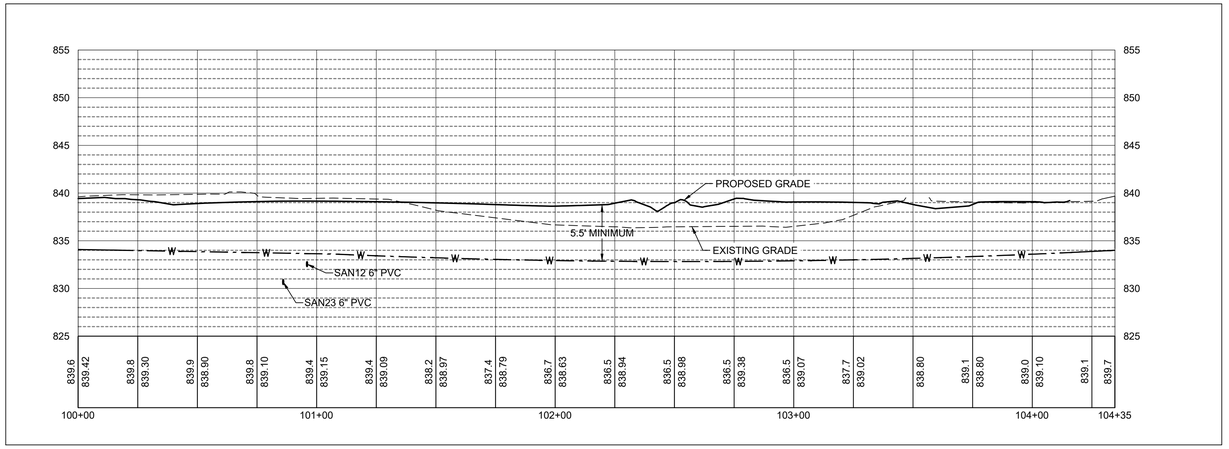
PROJECT NO.: 4217340

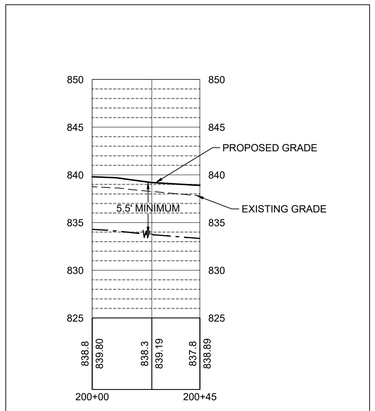
ISSUE FOR CONSTRUCTION 04/26/2022

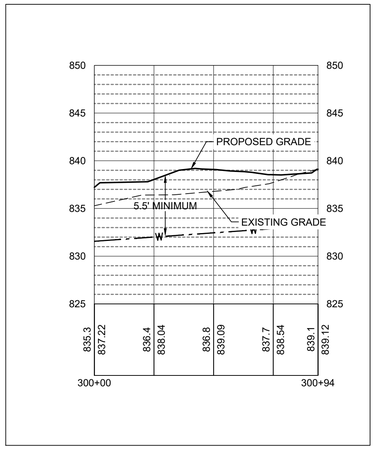
SHEET NAME: INTERSECTION & PAVEMENT DETAILS

SHEET NO.: K1.05









WATER NOTES

1. ALL UNDERGROUND FITTINGS SHALL BE POLY-WRAPPED.
2. LEAD JOINTS ARE NOT PERMITTED.
3. MINIMUM HYDRANTS DEPTH OF BURY FOR WATER MAIN SHALL BE 5.5 FEET BELOW FINISHED GRADE. GATE VALVES AND CURB STOPS SHALL BE CONSTRUCTED TO MAINTAIN 5.5' TO 6' MAX. DEPTH UNLESS OTHERWISE NOTED.
4. INSTALL SINGLE THHN-12 GA. TRACER WIRE WITH WATER PIPING (TAPE TO PIPE). TRACER WIRE TO BE EXTENDED IN CONDUIT TO 1'-0" ABOVE GROUND SURFACE AT FIRE HYDRANTS AND SHALL BE CONNECTED TO A 6'-0" X 1/2"Ø GROUND ROD AT CONNECTION TO MAIN AND AT DEAD ENDS. TRACER WIRE TO EXTEND UP INTO BUILDING AT SERVICE CONNECTIONS.
5. ALL WATER MAIN, FILLINGS, VALVES, AND HYDRANTS SHALL BE INSTALLED WITH 8 MIL. POLYETHYLENE ENCASEMENT PER AWWA C105.
6. WATER MAIN TRENCHES AND WATER SERVICE UNDER EXISTING OR PROPOSED STREETS SHALL BE BACKFILLED WITH GRANULAR BACKFILL UP TO THE SURFACING SUBGRADE ELEVATION.
7. CONTRACTOR SHALL PERFORM HYDROSTATIC TEST, DISINFECTION, AND BACTERIOLOGICAL TESTS ON COMPLETED WATER MAIN ACCORDING TO SUDA STANDARD SPECIFICATIONS PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
8. SEPARATION BETWEEN WATER AND SEWER LINES SHALL BE A MINIMUM OF 10 FEET WHEN RUNNING PARALLEL. AT CROSSINGS, A MINIMUM OF 1.5 FEET SHALL BE MAINTAINED WITH A FULL 20-FOOT SECTION OF GASKETED PIPE CENTERED ABOVE OR BELOW THE WATER MAIN.
9. BASIS OF PAYMENT FOR ALL WATER MAINS AND FORCE MAINS SHALL BE BY THE LINEAL FOOT ALONG THE INSTALLED PIPELINE. ALL OPERATIONS, FITTINGS AND BEDDING SHALL BE INCIDENTAL TO THE IN-PLACE PIPE, UNLESS SPECIFICALLY EXCEPTED.
10. THE CONTRACTOR WILL MAINTAIN A RECORD DRAWING SET WITH WITNESS DIMENSIONS TO ALL SERVICE LINES, VALVES, EXISTING WATER LINES, ETC. THESE DRAWINGS WILL BE SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.
11. ALL WATER MAIN TRENCHES WILL RECEIVE CAUTION TAPE 2'- 0" BELOW FINAL GRADE. THE 2" WIDE BLUE TAPE WILL READ "CAUTION - PIPELINE BURIED BELOW".
12. ALL VALVES SHALL BE PLACED IN A CONCRETE POURED TO SPRING LINE OF PIPE WITH A SIZE OF 8" X 16" RESTING ON A SUITABLY COMPACTED SUBGRADE. VALVES SHALL BE SET PLUMB AND LEVEL WITH VALVE BOXES COVERS ADJUSTED TO FINISHED GRADE.
13. ALL THRUST BLOCK JOINT RESTRAINTS WILL BE READY MIXED 3000 PSI PORTLAND CEMENT CONCRETE PLACED BETWEEN VALVE, BEND, ETC. AND UNDISTURBED EARTH. ALL APPURTENANCES SHALL BE COVERED WITH HEAVY DUTY POLYETHYLENE FILM PRIOR TO PCC PLACEMENT. NO BLOCKS, TIMBERS OR OTHER DEVICES WILL BE ALLOWED. CONSULT ENGINEER FOR NUMBER OF CUBIC YARDS OF PCC REQUIRED AT EACH LOCATION.

TESTING

A. GENERAL

1. ENGINEER OR OWNER'S REPRESENTATIVE WILL OBSERVE ALL TESTS AND SAMPLINGS.
2. THE CONTRACTOR WILL SUPPLY ALL PERSONNEL AND EQUIPMENT NECESSARY FOR ALL TESTING.
3. CONTACT ENGINEER FOR SPECIFICS OF ANY TEST OR PROCEDURE.

B. BACTERIOLOGICAL

1. TEST SHALL BE IN ACCORDANCE WITH AWWA C651.
2. SAMPLING TAPS SHALL BE A CORPORATION COCK WITH COPPER TUBE GOOSENECK OR AS SHOWN IN AWWA 651 (FIGURE 1).
3. UPON SUCCESSFUL COMPLETION OF TEST, ENTIRE LINE SHALL BE FLUSHED UNTIL CHLORINE LEVELS REACH NORMAL EXISTING LEVELS.

C. PRESSURE

1. WATER PRESSURE TEST AT 1.5 TIMES AREA OPERATING PRESSURE HELD FOR 1 HOUR.

D. LEAKAGE

1. AS WITH PRESSURE TEST AND HELD FOR 2 HOURS (CONCURRENTLY). AMOUNT OF WATER ADDED TO MAINTAIN PRESSURE LEVEL FACTORED INTO FORMULA TO DETERMINE ALLOWABLE LEAKAGE AMOUNT. SEE ENGINEER FOR ADDITIONAL INFORMATION, IF REQUIRED.

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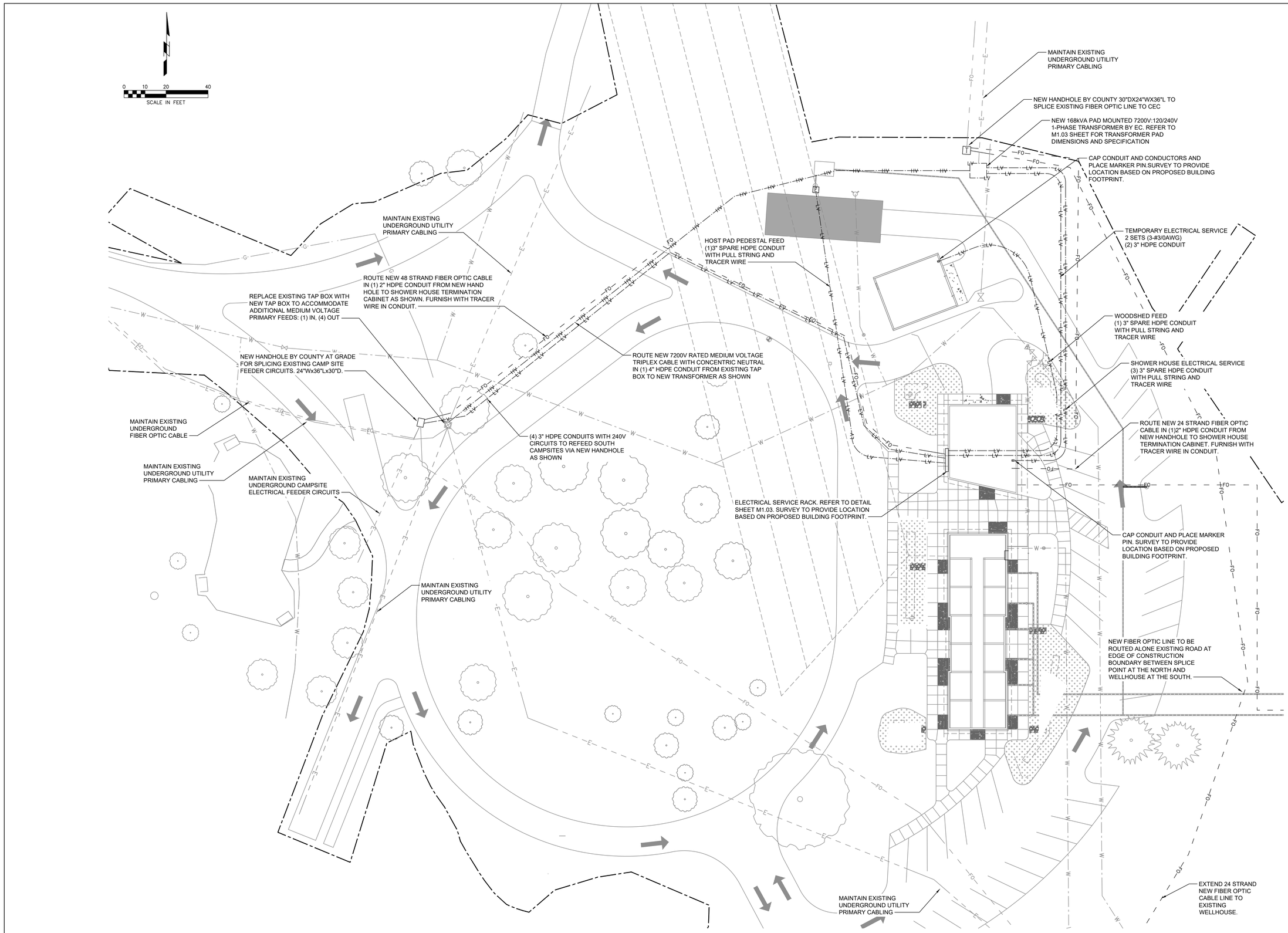

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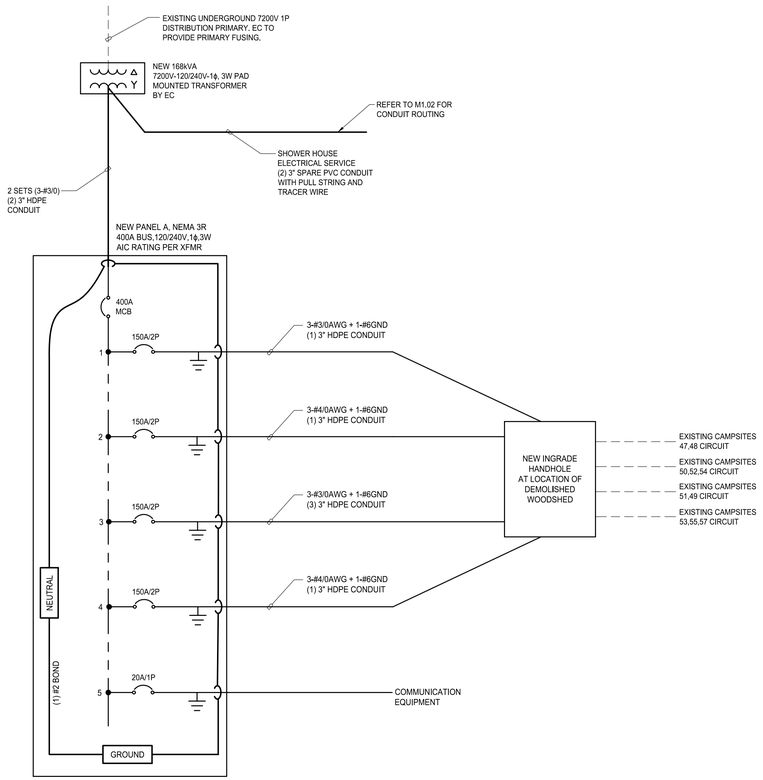
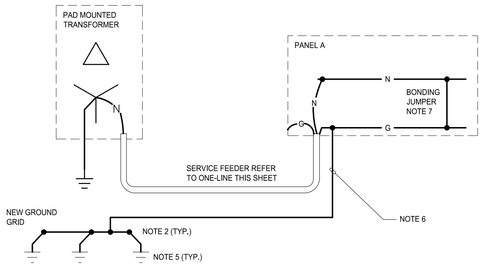
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: SITE ELECTRICAL PLAN | SHEET NO.: M1.02



1 ONE-LINE DIAGRAM
SCALE: NONE

NOTES

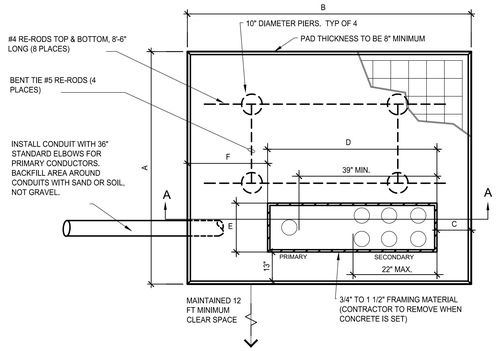
1. ALL MEDIUM VOLTAGE CABLING IN THE PARK IS OWNED BY JOHNSON COUNTY CONSERVATION. ANY BURIED MEDIUM VOLTAGE CABLE MUST BE HANDLED BY LICENSED CONTRACTOR CERTIFIED TO WORK AT DISTRIBUTION VOLTAGE. THIS INCLUDES UNDERGROUND SPLICING, ABOVE GRADE TAP BOXES, SETTING OF TRANSFORMERS AND ANY OTHER WORK NECESSARY TO COMPLETE THIS PROJECT.
2. NEW NEMA 3R PANEL MOUNTED TO RACK TO FEED EXISTING CAMPSITE CIRCUITS VIA NEW HANDHOLE IN LOCATION AS SHOWN ON SHEET M1.02. REFER TO ELECTRICAL RACK DETAIL THIS SHEET FOR MOUNTING INFORMATION.



GROUNDING SYSTEM NOTES:

1. CONDUITS SHALL BE SECURED TO PANELBOARDS AND JUNCTION BOXES WITH LOCKING WEDGES OR LOCK NUTS, PROVIDE EXPANSION COUPLING.
2. BURIED OR INACCESSIBLE GROUND CONNECTIONS MAY BE EXOTHERMIC WELD.
3. NOT USED
4. NOTE USED
5. GROUND RODS SHALL BE 3/4"X10' COPPER CLAD STEEL DRIVER MIN. 24" BELOW FINISH GRADE.
6. SIZE GROUNDING ELECTRODE AND EQUIPMENT GROUNDING CONDUCTORS PER NEC ARTICLE 250.
7. PROVIDE BONDING JUMPER SIZE PER NEC 250.66

2 TYPICAL GROUNDING SYSTEM DETAIL
SCALE: NONE

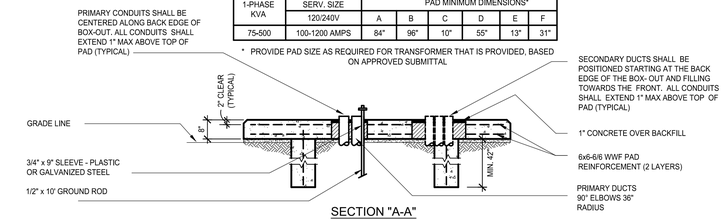


NOTES:

1. THE CONTRACTOR SHALL INSTALL A CONCRETE TRANSFORMER PAD FOR THE UNDERGROUND SERVICE SINGLE PHASE TRANSFORMER.
2. A CLEAR SPACE OF 10' SHALL BE MAINTAINED IN FRONT OF THE TRANSFORMER TO PROVIDE WORKING SPACE FOR HOT-STICK OPERATION OF THE TRANSFORMER.
3. ADDITIONAL TRANSFORMER PAD FOUNDATION WALL SHALL BE USED FOR LOCATIONS HAVING POOR SOIL CONDITIONS OR A LARGE NUMBER OF SECONDARY CABLES.
4. VERIFY EXACT SIZE OF TRANSFORMER WITH APPROVED SUBMITTAL PRIOR TO ANY PAD WORK.
5. ALL CONDUITS SHALL ENTER THROUGH THE WINDOW OPENING PROVIDED IN THE PAD FOUNDATION. THESE CONDUITS SHALL BE CUT OFF SO THE TOP OF THE CONDUIT IS FLUSH WITH THE SURFACE OF THE CONCRETE PAD.
6. ALL METALLIC CONDUITS SHALL BE FITTED WITH AN INSULATING BUSHING.
7. CONCRETE MIX SHALL HAVE A MINIMUM STRENGTH OF 4000 LB/SQ. IN. AFTER 28 DAYS.
8. THE TOP OF PAD SHALL BE LEVEL AND ALL EDGES AND CORNERS ROUNDED OFF.
9. THE PAD SHALL BE REINFORCED WITH #4 WIRE, 4'x 4" WELDED MESH OR EQUIVALENT MATERIALS WITH ADDITIONAL 3/8 REINFORCING RODS AROUND THE CABLE OPENING. THE MESH SHALL NOT BE LESS THAN 1" FROM THE EDGES AND OPENING, AND 3" BELOW THE SURFACE. IF THE #4 WIRE, 4"x 4" MESH IS NOT AVAILABLE, 2 LAYERS OF #10 WIRE, 6"x 6" MESH, HORIZONTALLY STAGGERED, MAY BE SUBSTITUTED FOR THE #4 WIRE.

PAD DIMENSION SCHEDULE								
1-PHASE KVA	SERV. SIZE	PAD MINIMUM DIMENSIONS*					
	120/240V	A	B	C	D	E	F
75-500	100-1200 AMPS	84"	96"	10"	55"	13"	31"

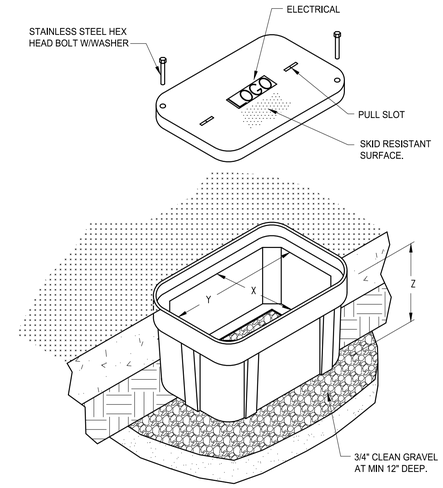
* PROVIDE PAD SIZE AS REQUIRED FOR TRANSFORMER THAT IS PROVIDED, BASED ON APPROVED SUBMITTAL



SECTION "A-A"

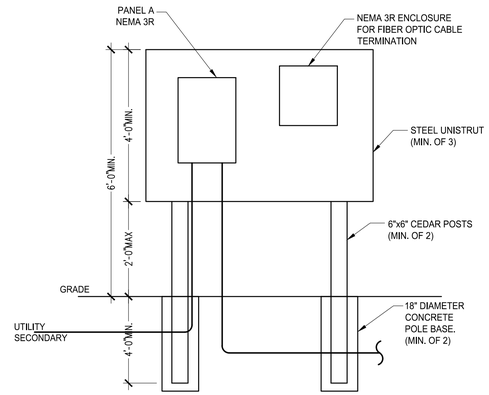
ACCEPTABLE OPTION TO OBTAIN AND INSTALL A SINGLE PHASE TRANSFORMER BOX FROM THE LOCAL REC UTILITY IN PLACE OF POUR-IN-PLACE TRANSFORMER PAD.

3 TYPICAL TRANSFORMER PAD DETAIL (FOR BIDDING PURPOSES)
SCALE: NONE



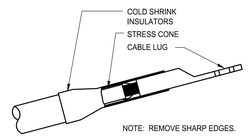
NOTES:
1. SWEEP CONDUITS UP THROUGH PEA GRAVEL AND OPEN BOTTOM OF HANDHOLE.
2. PULLBOX DIMENSIONS SHALL BE DETERMINED BY EC TO MEET NEC 314 FILL PERCENTAGES.

4 TYPICAL HANDHOLE DETAIL
SCALE: NONE



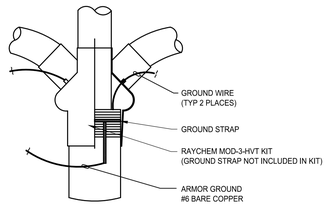
NOTES:
1. EC SHALL DESIGN THE STRUCTURE BASED ON LAYOUT FOR EQUIPMENT SUPPLIED. INCLUDING BUT NOT LIMITED TO THE WIDTH AND NUMBER OF POSTS.
2. NOT ALL REQUIRED CONDUITS SHOWN
3. FASTEN UNISTRUT TO POSTS WITH GALVANIZED HARDWARE

5 ELECTRICAL SERVICE RACK DETAIL
SCALE: NONE



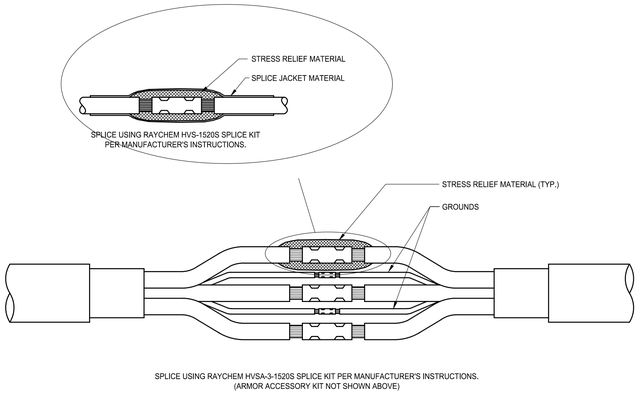
NOTE: REMOVE SHARP EDGES.

6 TYPICAL CABLE LUG TERMINATION
SCALE: NONE

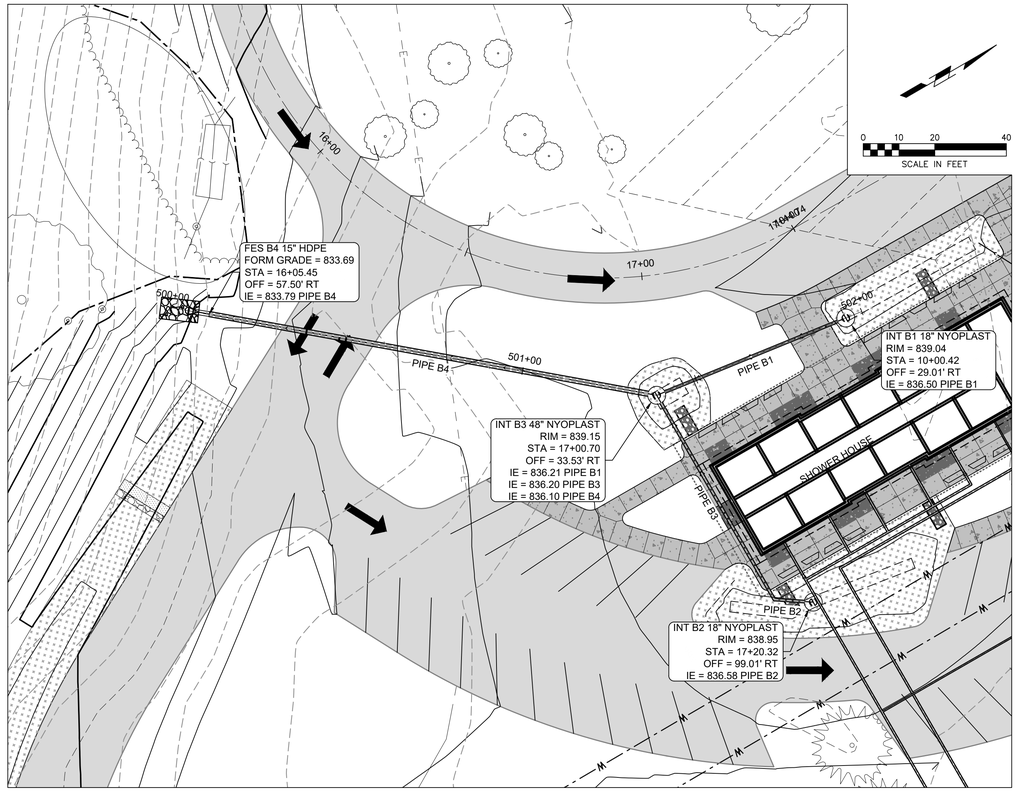


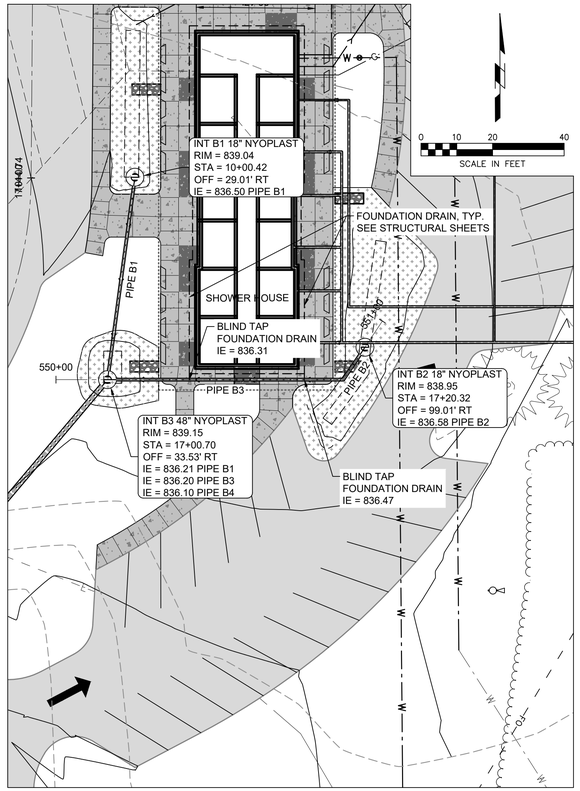
NOTE: REMOVE SHARP EDGES.

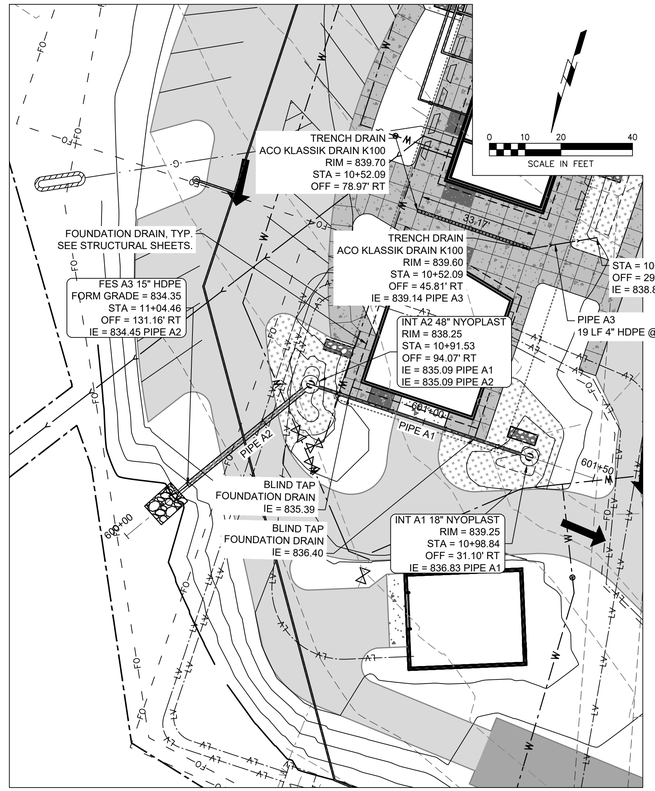
7 15KV MULTICONDUCTOR ARMORED CABLE BREAKOUT
SCALE: NONE

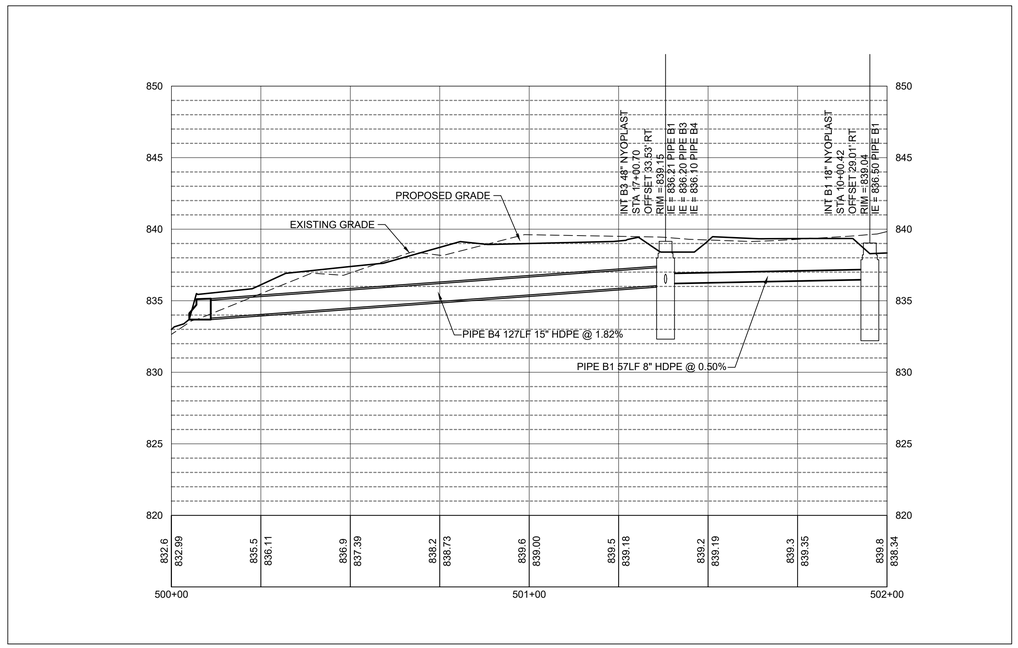


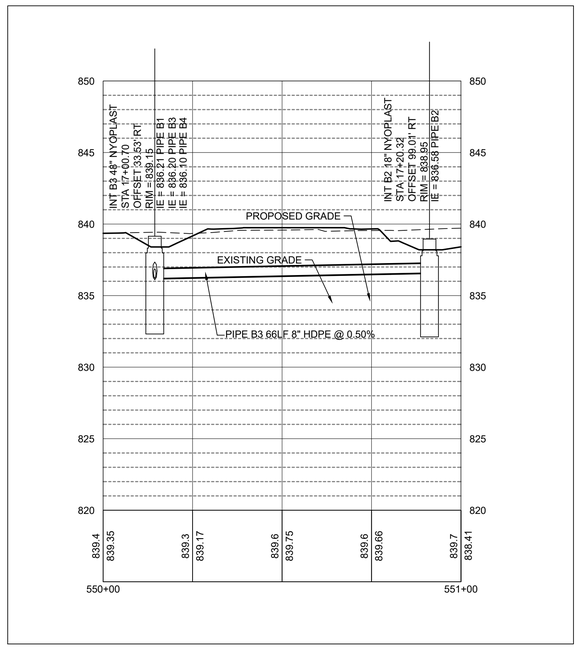
8 TYPICAL 3Ø, ARMORED 15KV CABLE SPLICE DETAIL
SCALE: NONE

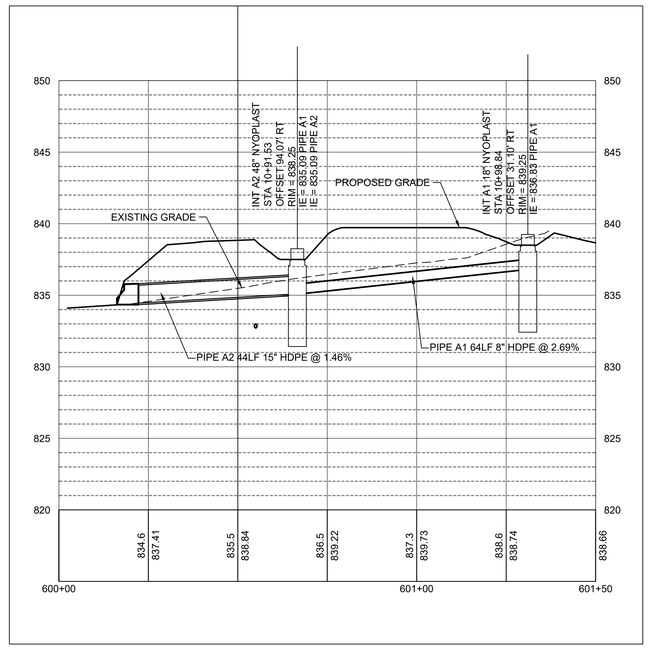












NOTE: SEE U-SHEETS FOR INTAKE DETAILS

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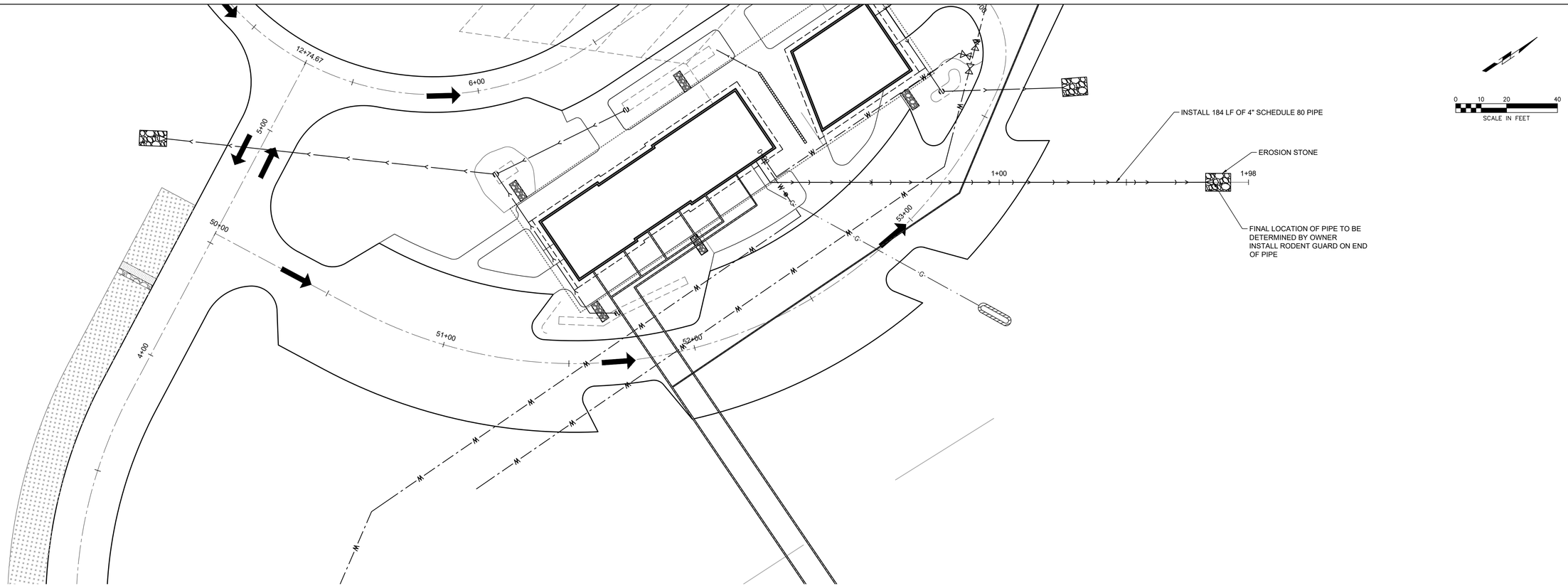
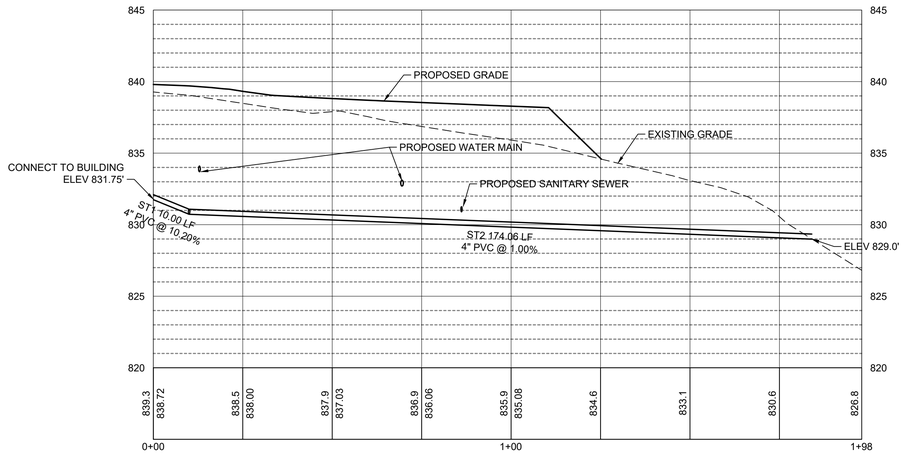
JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217340	ISSUE FOR CONSTRUCTION 04/26/2022	SHEET NAME: SITE UTILITIES - STORM SEWER	SHEET NO.: M1.04





NOTE: SEE U-SHEETS FOR INTAKE DETAILS

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JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: SITE UTILITIES - DRAIN LINE | SHEET NO.: M1.05

GENERAL INFORMATION

1. CONSTRUCTION NOT SPECIFICALLY DETAILED OR SPECIFIED WITHIN THE PLANS OR IN THE PROJECT SPECIFICATIONS SHALL CONFORM TO THE IOWA DEPARTMENT OF NATURAL RESOURCES AND THE FEDERAL ENVIRONMENTAL PROTECTION AGENCY SANITARY SEWERAGE SPECIFICATIONS.
2. IOWA CODE 480, UNDERGROUND FACILITIES INFORMATION, REQUIRES VERBAL NOTICE TO IOWA ONE-CALL 1-800-292-8989, NOT LESS THAN 48 HOURS BEFORE EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS
3. NOTIFY KENT PARK A MINIMUM OF 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
4. THE CONTRACTOR SHALL PROVIDE TRAFFIC AND PEDESTRIAN CONTROL MEASURES (SIGNS, BARRICADES, FLAGGERS, ETC.) THROUGH OUT ALL CONSTRUCTION.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN EXISTING FIELD CONDITIONS BEFORE BIDDING ON THIS PROJECT, ORDERING MATERIALS, AND BEGINNING CONSTRUCTION.
6. CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITIES REGARDING RELOCATION, ADJUSTMENT OR TEMPORARY SUPPORT OF THEIR FACILITIES.
7. MAINTAIN POSITIVE DRAINAGE ON THE SITE THROUGHOUT THE PROJECT DURATION.
8. SITE CLEAN-UP SHALL BE PERFORMED ON A DAILY BASIS. SIDEWALKS, PARKING LOTS, ROADWAYS, ETC. SHALL BE KEPT CLEAN AT ALL TIMES. CONTROL DUST SPREADING FROM ALL WORK AND STAGING AREAS.
9. ALL OPEN EXCAVATIONS SHALL BE PROTECTED AS PER REGULATORY REQUIREMENTS.
10. KEEP ADJACENT PUBLIC STREETS FREE FROM SOIL AND DEBRIS GENERATED BY THE PROJECT.
11. PROTECT EXISTING UTILITIES DURING CONSTRUCTION.
12. PROTECT ALL EXISTING FEATURES (INCLUDING BUT NOT LIMITED TO WALLS, TREES, LANDSCAPING, DRIVEWAYS, SIDEWALKS, CURBS, PAVEMENT, UTILITIES, ETC.) NOT SPECIFICALLY NOTED FOR REMOVAL. FEATURES NOT DESIGNATED FOR REMOVAL THAT ARE DAMAGED OR REMOVED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
13. THE MEANS AND METHODS OF THE WORK AND THE SAFETY OF THE CONTRACTOR'S EMPLOYEES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
14. NO WORK SHALL BE PERFORMED BEYOND THE PROJECT LIMITS WITHOUT PRIOR AUTHORIZATION FROM THE OWNER'S REPRESENTATIVE.
15. THE LOCATIONS OF UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS PLOTTED ON THIS DRAWING ARE APPROXIMATE ONLY AND WERE OBTAINED FROM RECORDS MADE AVAILABLE TO SHIVE-HATTERY, INC. THERE MAY BE OTHER EXISTING UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS NOT KNOWN TO SHIVE-HATTERY, INC. AND NOT SHOWN ON THIS DRAWING. THE VERIFICATION, EXISTENCE, AND THE DETERMINATION OF THE EXACT LOCATION OF UTILITY MAINS, STRUCTURES, AND SERVICE CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE COMPLETED PRIOR TO ANY CONSTRUCTION.
16. NOTIFY UTILITY COMPANIES WITH FACILITIES SHOWN ON THE PLANS OR KNOWN TO BE WITHIN CONSTRUCTION LIMITS OF THE SCHEDULE PRIOR TO EACH STAGE OF CONSTRUCTION. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AT CRITICAL LOCATIONS TO VERIFY EXACT HORIZONTAL AND VERTICAL LOCATION.
17. A PRE-CONSTRUCTION MEETING SHALL BE HELD FOLLOWING ISSUANCE OF THE NOTICE TO PROCEED BUT PRIOR TO COMMENCING WORK.
18. ANY WORK REQUIRED TO COMPLETE THE SCOPE OF THIS PROJECT BUT NOT SET FORTH AS A SPECIFIC BID ITEM, SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THE COMPLETION OF THIS WORK.
19. IT IS INTENDED THAT ALL COSTS OF MATERIALS, EQUIPMENT, TOOLS, LABOR AND INCIDENTALS BE PAID FOR UNDER THE ITEMS LISTED ON THE BIDDERS PROPOSAL., THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS, SPECIFICATIONS, SPECIAL PROVISIONS AND THE JOB SITE. IF ANY DISCREPANCIES OR DELETIONS OCCUR IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL REPORT TO SHIVE-HATTERY, INC. IN WRITING AND OBTAIN WRITTEN CLARIFICATION AND/OR INSTRUCTIONS ON HOW TO PROCEED.
20. FOR ITEMS SPECIFIED WITH AN "APPROVED EQUIVALENT" OR "APPROVED EQUAL", THE APPROVAL SHALL BE BY THE ENGINEER.
21. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL GRADING AND SEEDING ACTIVITIES. ENSURE AREA TO BE SEEDED IS RELATIVELY SMOOTH. SOW SEED ONLY AT TIMES OF THE YEAR WHEN TEMPERATURE, MOISTURE, AND CLIMATIC CONDITIONS WILL PROMOTE GERMINATION AND PLANT GROWTH.

SANITARY SEWERAGE INFORMATION

1. FORCE MAIN MATERIAL SHALL BE PVC 2"-SDR 21 OR STRONGER.
2. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ANY EXISTING UTILITIES WHERE SANITARY SEWERAGE WILL BE CROSSING PRIOR TO ANY CONSTRUCTION.

SPECIFICATIONS

1. MANHOLES SHALL CONFORM TO APPLICABLE SECTIONS OF SUDAS DIVISION 6, SECTION 6010 (MATERIAL AND INSTALLATION) AND SECTION 6030 (TESTING).
2. SEPTIC TANKS AND HOLDING TANKS SHALL MEET DEPARTMENT OF NATURAL RESOURCES (DNR) 567 CHAPTER 69.
3. DRAIN FIELD MATERIAL AND INSTALLATION SHALL MEET DNR CHAPTER 69: 69.9(3) AND 69.9(4).

PUMP TANK, PUMP AND CONTROL NOTES:

1. PUMP TANK SHALL BE A CONCRETE 2,500 GALLON DOUBLE COMPARTMENT SEPTIC TANK MEETING CHAPTER 69 REQUIREMENTS. THE DIVIDING WALL SHALL HAVE A 6 INCH DIAMETER OR SQUARE HOLE IN THE CENTER WALL 12 INCHES ABOVE THE BOTTOM OF THE TANK.

2. THE RISERS SHALL BE 2 (TWO) CONCRETE STORM SEWER PIPE 20 - 24 INCHES IN DIAMETER WITH IRON BOLT DOWN LID AND FRAME. RISERS SHALL BE ONE PIECE WITH WATER TIGHT SEAL AT TANK LID.

3. PUMPS SHALL BE TWO (2) CLARUS MODEL 5035-0022 (25 FOOT CORD). LOOPS OF WIRE CORD SHALL BE HANGING INSIDE RISER TO ALLOW PUMPS TO BE REMOVED WITHOUT DISCONNECTING CORD OR WIRES. A J-BOX MAY BE USED INSIDE RISER FOR WIRE CONNECTIONS.

4. PUMP VAULT SHALL BE A ZOELLER STEP DUPLEX PUMP FILTER AND PUMP CHAMBER. VAULT SHALL REST/SIT ON TANK BOTTOM. LENGTH OF VAULT TO MATCH SELECTED TANK DEPTH. THE VAULT INLET SHALL BE CUT AT 24 INCHES ABOVE TANK BOTTOM.

5. DISCHARGE ASSEMBLY SHALL BE RIDGE DISCHARGE ASSEMBLY FOR DUPLEX PUMPS 2 INCH SCH 40 PVC WITH 3 FOOT COLD WEATHER EXTENSION KIT WITH DUAL DISCHARGE PIPES. THE DISCONNECT COUPLING SHALL BE WITHIN 12 INCHES OF THE LID FOR REMOVAL.

6. FLOAT TREE SHALL BE FOR 3 FLOATS (OFF-ON-ALARM). ADDITIONAL FLOAT CORD SHALL BE LOOPED INSIDE RISER FOR REMOVAL OF FLOATS WITHOUT DISCONNECTING ANY CORDS/WIRES.

7. A 3/16 INCH DIAMETER WEEP HOLE SHALL BE DRILLED INTO PUMP RISER PIPES THAT SPRAYS WATER DOWN INTO VAULT. THE WEEP HOLE SHALL BE A 6 TO 12 INCHES BELOW THE BOTTOM OF THE TANK LID.

8. THE OUTLET PIPE FROM THE PUMPS SHALL BE 42 INCHES MINIMUM BELOW RISER LID.

9. FLOAT SETTINGS:
   - 9.1. OFF - SET AT 2 INCHES ABOVE INLET HOLE
   - 9.2. ON - SET AT 10 INCHES ABOVE "OFF"
   - 9.3. ALARM - SET AT 6 INCHES ABOVE "ON"

10. USE CONDUIT FOR CABLES FROM RISER TO CONTROL PANEL.

LATERAL FIELD INSTALLATION

1. THE SEPTIC TANK AND LATERAL FIELD INSTALLER MUST HAVE A CERTIFIED INSTALLER OF ONSITE WASTEWATER TREATMENT SYSTEMS (CIOWTS) CREDENTIAL.

2. CONTRACTOR REQUIRED TO HAVE ON SITE MEETING WITH OWNER AND ENGINEER REPRESENTATIVES PRIOR TO START OF CONSTRUCTION. THE LATERAL FIELDS SHOWN ARE SCHEMATIC IN NATURE. CONTRACTOR TO COORDINATE WITH OWNER AND ENGINEER TO DETERMINE FINAL LATERAL FIELD LAYOUT TO MEET TOTAL REQUIRED LATERAL LENGTH.

3. ONLY INSTALL THE LATERALS WHEN THE SOIL MOISTURE IS SATISFACTORY. THE SATISFACTORY MOISTURE SHALL BE CHECKED 2 - 3 INCHES BELOW THE BOTTOM OF THE TRENCH. TAKE A SAMPLE OF THE SOIL AT THIS DEPTH AND WORK THE SOIL TO MAKE THE SOIL A UNIFORM SAMPLE. ROLL INTO A SMALL BALL ABOUT THE SIZE OF A MARBLE. TRY TO ROLL THE BALL INTO A SMALL PENCIL SHAPE WIRE ABOUT 3/16 INCH IN DIAMETER. IF THE WIRE CAN BE FORMED AND NOT CRUMBLE APART THE SOIL IS TOO WET AND THE LATERAL TRENCHES MUST NOT BE EXCAVATED AT THIS TIME. IF THE WIRE CRUMBLES APART BEFORE REACHING 3/16 INCH THE SOIL IS OKAY TO EXCAVATE THE TRENCHES.

4. NEVER INSTALL THE LATERALS WHEN THERE IS FROST IN THE GROUND.

SANITARY SEWER INFORMATION

PIPE NUMBER	PIPE SIZE	FROM	TO	SLOPE	LENGTH
SAN 1	4" PVC	CLEANOUT	SEPTIC TANK 1	-2.00%	4.00'
SAN 2	4" PVC	SEPTIC TANK 1	BEND 1-2	-1.00%	59.55'
SAN 3	4" PVC	BEND 1-2	BEND 1-3	-0.87%	142.78'
SAN 4	4" PVC	BEND 1-3	WYE 1-5	-0.90%	136.42'
SAN 5	6" PVC	WYE 1-5	SANMH5	-1.00%	113.54'
SAN 6	6" PVC	SAN MH5	SAN MH4	-1.00%	200.38'
SAN 7	6" PVC	SAN MH4	SAN MH3	-1.00%	201.07'
SAN 8	6" PVC	SAN MH3	SAN MH2	-1.00%	255.32'
SAN 9	6" PVC	SAN MH2	SEPTIC TANK	-1.30%	114.96'
SAN 10	4" PVC	SHOWER HOUSE	BEND 2-1	-1.00%	14.42'
SAN 11	6" PVC	BEND 2-1	BEND 2-2	-2.27%	57.82'
SAN 12	6" PVC	BEND 2-2	SAN CO 2-1	-0.80%	179.19'
SAN 13	6" PVC	SAN CO 2-1	SEPTIC TANK 2	-0.80%	381.10'
SAN 14	4" PVC	SHOWER HOUSE	BEND 1-1	-3.77%	12.42'
SAN 15	6" PVC	BEND 1-1	WYE 1-1	-1.00%	12.17'
SAN 16	6" PVC	WYE 1-1	WYE 1-2	-1.00%	14.50'
SAN 17	6" PVC	WYE 1-2	WYE 1-3	-1.00%	12.17'
SAN 18	6" PVC	WYE 1-3	WYE 1-4	-1.00%	14.50'
SAN 19	4" PVC	SHOWER HOUSE	WYE 1-1	-4.42%	13.33'
SAN 20	4" PVC	SHOWER HOUSE	WYE 1-2	-5.55%	13.33'
SAN 21	4" PVC	SHOWER HOUSE	WYE 1-3	-6.93%	12.42'
SAN 22	4" PVC	SHOWER HOUSE	WYE 1-4	-8.33%	12.00'
SAN 23	6" PVC	WYE 1-4	WYE 1-5	-7.86%	42.70'
SAN 24	4" PVC	FM 2	SAN25	-1.00%	89.74'
SAN 25	4" PVC	SAN24	DRAINAGE FIELD	-1.00%	28.80'
FM 1	1-1/2" PVC	PUMP	D-BOX	BACK TO PUMP	112.00'
FM 2	1-1/2" PVC	PUMP	D-BOX	BACK TO PUMP	272.00'

*MINMUM 42" BURY DEPTH, SLOPE BACK TO PUMP TANK.

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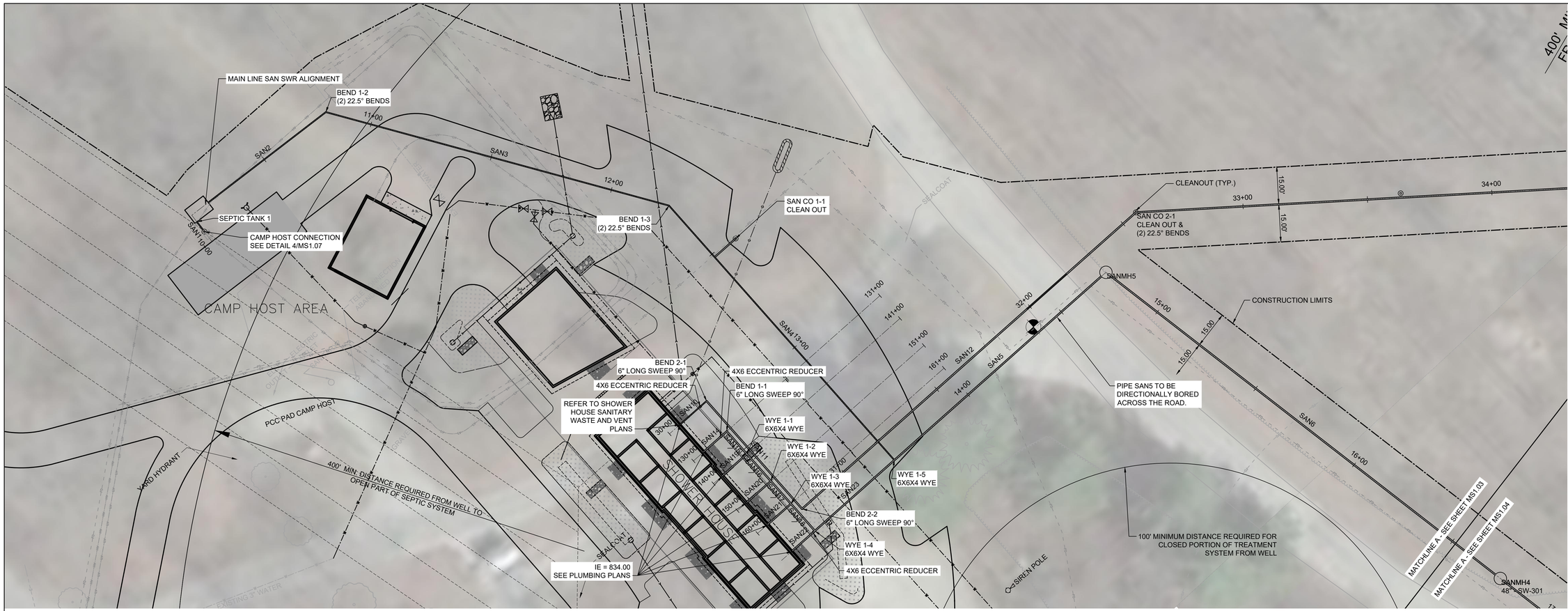
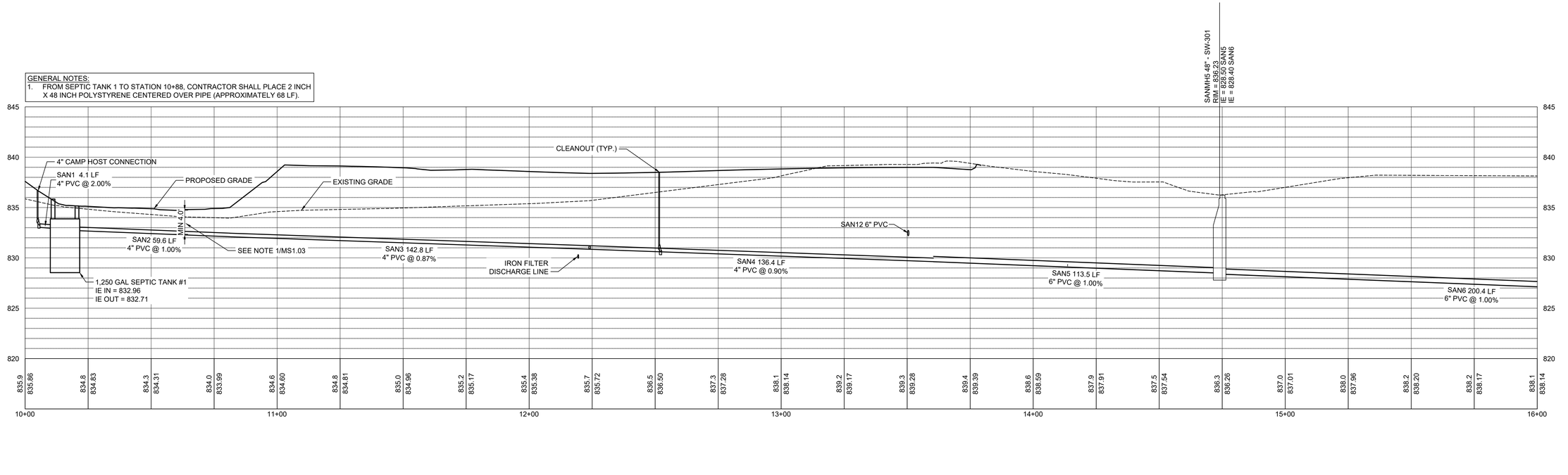


GENERAL NOTES:
1. FROM SEPTIC TANK 1 TO STATION 10+88, CONTRACTOR SHALL PLACE 2 INCH X 48 INCH POLYSTYRENE CENTERED OVER PIPE (APPROXIMATELY 68 LF).



VERTICAL SCALE
0 2.5 5 10
SCALE IN FEET

HORIZONTAL SCALE
0 10 20 40
SCALE IN FEET

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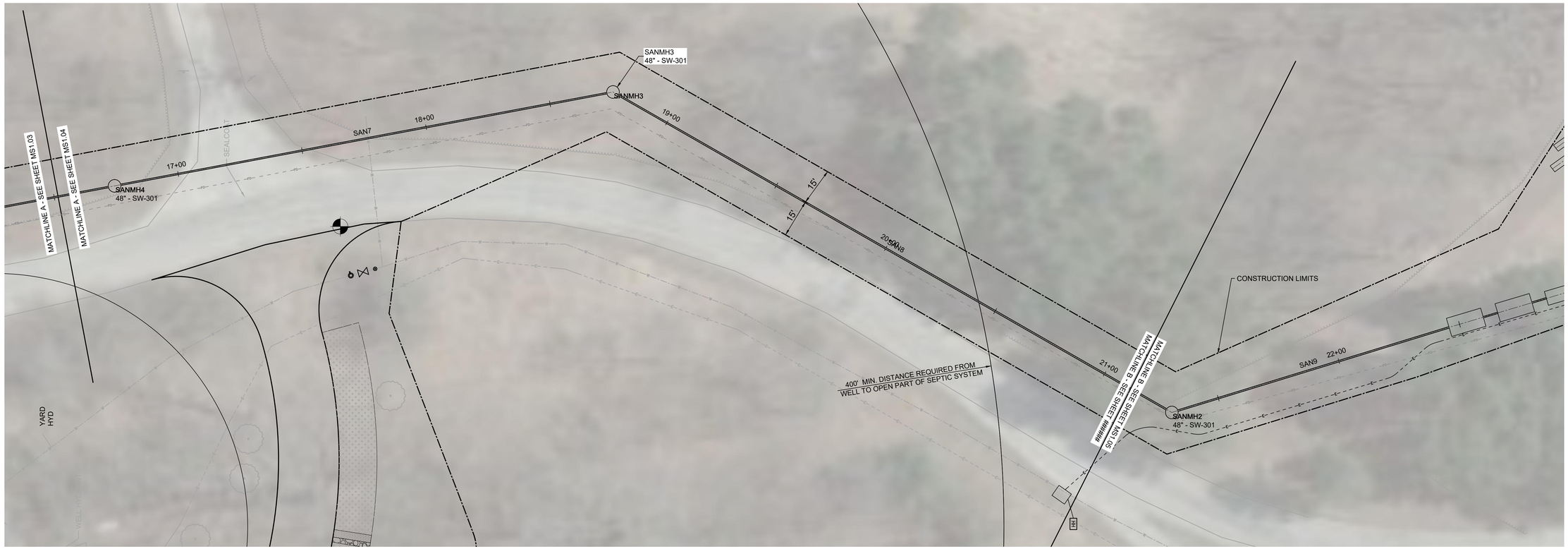
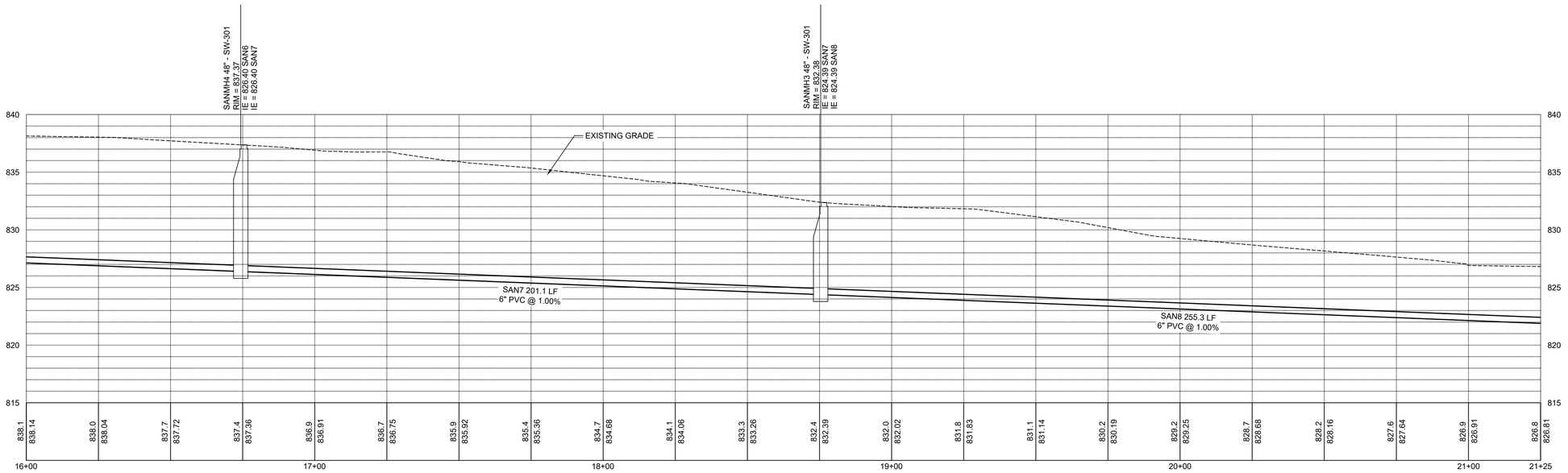
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: SEPTIC SYSTEM 1, STA 10+00 TO STA 16+00 | SHEET NO.: MS1.03





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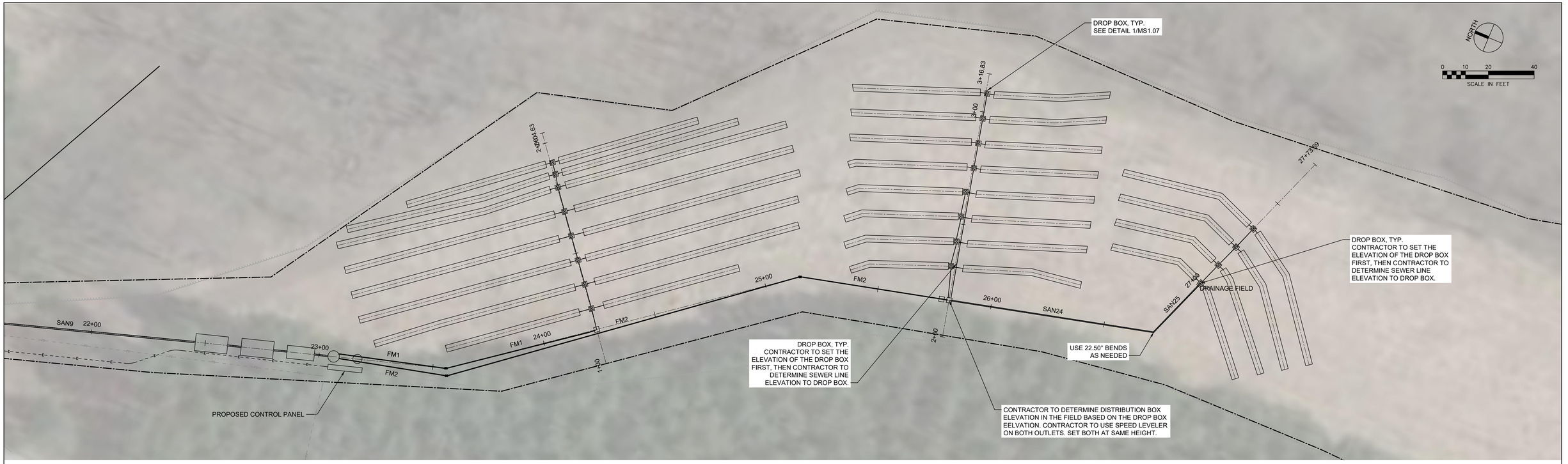
JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217340

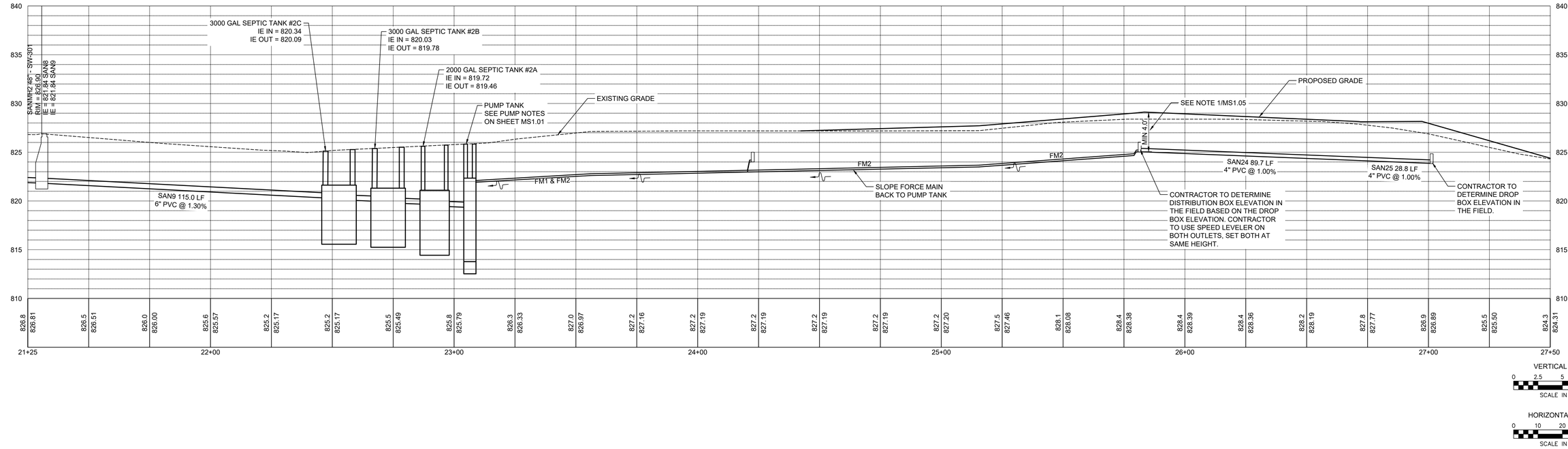
ISSUE FOR CONSTRUCTION 04/26/2022

SHEET NAME: SEPTIC SYSTEM 1, STA 16+00 TO 21+25

SHEET NO.: MS1.04



GENERAL NOTES:
1. WHERE THERE IS LESS THAN 4 FEET OF SOIL COVER OVER PIPE, CONTRACTOR TO PLACE FILL ON TOP OF EXISTING GROUND OVER TOP OF PIPE TO BRING COVER TO 4 FOOT MINIMUM. CONTRACTOR TO FEATHER SOIL DOWN FROM CENTER OF PIPE TO TREE LINE ON EACH SIDE. REFER TO F SHEETS FOR GRADING DETAILS. GRADING NOTES ON SHEET A1.01 APPLIES. AREA FROM APPROXIMATELY STATION 24+43 - 27+50 IS ANTICIPATED TO NEED FILL TO MEET MINIMUM COVER REQUIREMENT.



VERTICAL SCALE
0 2.5 5 10
SCALE IN FEET

HORIZONTAL SCALE
0 10 20 40
SCALE IN FEET

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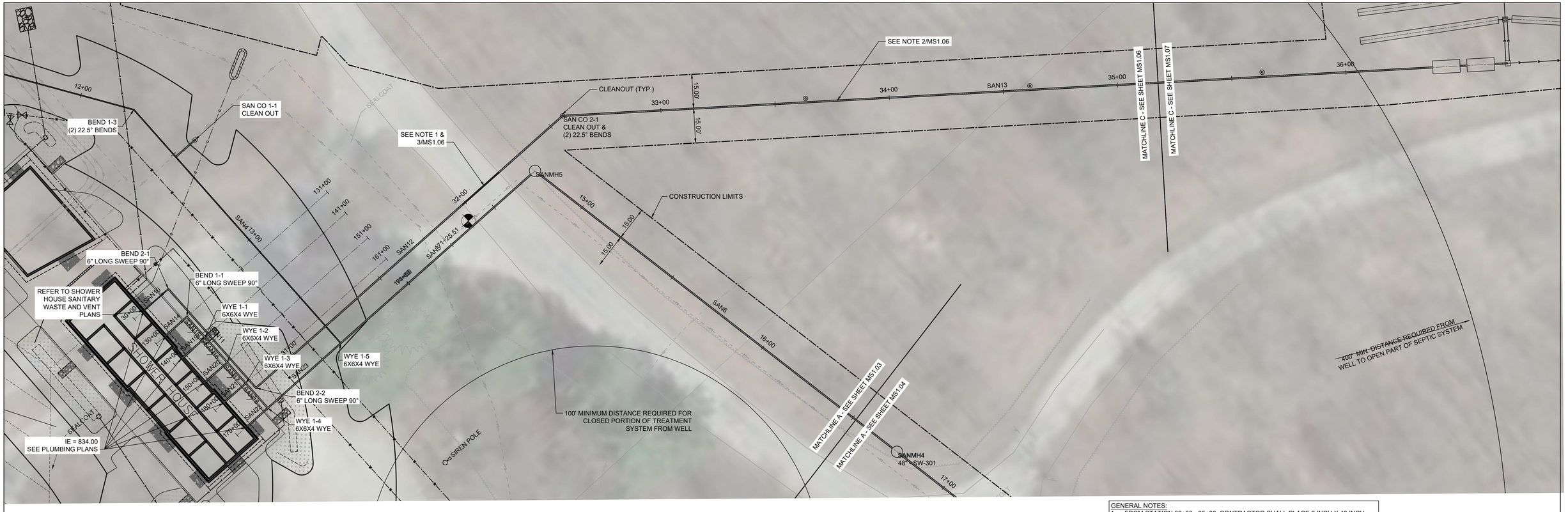
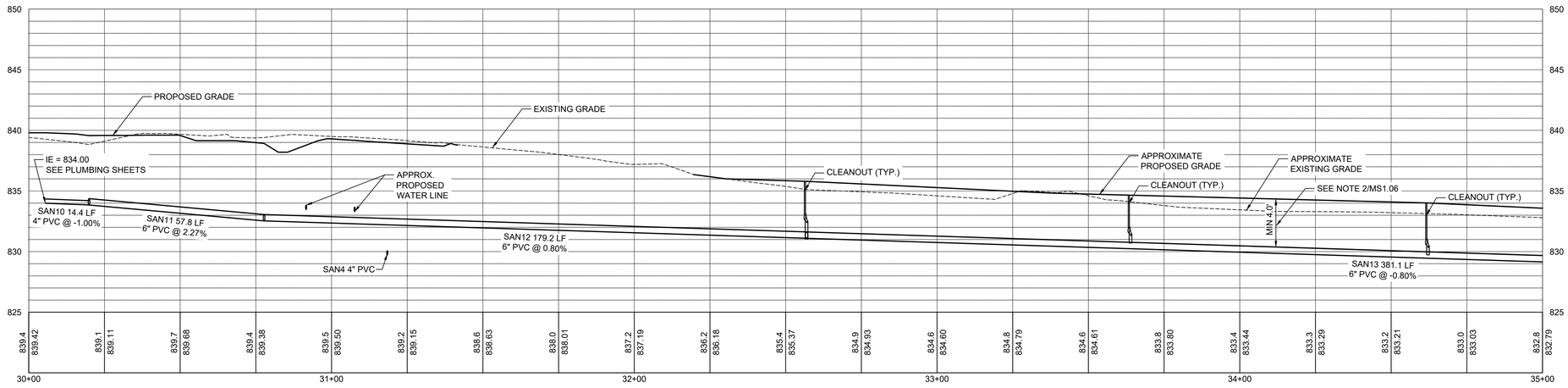


GENERAL NOTES:

1. FROM STATION 32+00 - 35+00, CONTRACTOR SHALL PLACE 2 INCH X 48 INCH POLYSTYRENE CENTERED OVER PIPE (APPROXIMATELY 300 LF).
2. WHERE THERE IS LESS THAN 4 FEET OF SOIL COVER OVER PIPE, CONTRACTOR TO PLACE FILL ON TOP OF EXISTING GROUND OVER TOP OF PIPE TO BRING COVER TO 4 FOOT MINIMUM. CONTRACTOR TO FEATHER SOIL DOWN FROM CENTER OF PIPE TO TREE LINE ON EACH SIDE. REFER TO F SHEETS FOR GRADING DETAILS. GRADING NOTES ON SHEET A1.01 APPLIES. AREA FROM APPROXIMATELY STATION 32+20 - 35+00 IS ANTICIPATED TO NEED FILL TO MEET MINIMUM COVER REQUIREMENT.
3. CONTRACTOR TO REMOVE AND REPLACE APPROXIMATELY 25 SY OF ASPHALT PARK ROAD AND SUBBASE TO INSTALL PIPE SAN 12. MATCH EXISTING SUBBASE AND PAVEMENT SECTIONS. CONTRACTOR TO PROVIDE OWNER MINIMUM 7 BUSINESS DAYS NOTICE PRIOR TO CLOSING THE PARK ROAD FOR PIPE SAN 12 INSTALLATION. CONTRACTOR TO COORDINATE WITH OWNER ON CLOSURE OF THE ROAD AND LENGTH OF CLOSURE PRIOR TO CONSTRUCTION.

NORTH

HORIZONTAL SCALE
0 10 20 40
SCALE IN FEET



VERTICAL SCALE
0 2.5 5 10
SCALE IN FEET

HORIZONTAL SCALE
0 10 20 40
SCALE IN FEET

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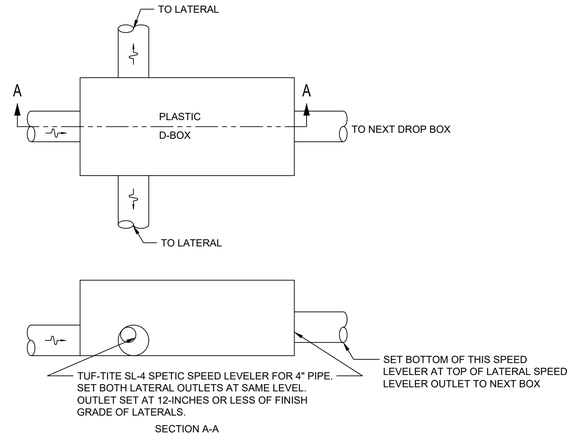
JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217340

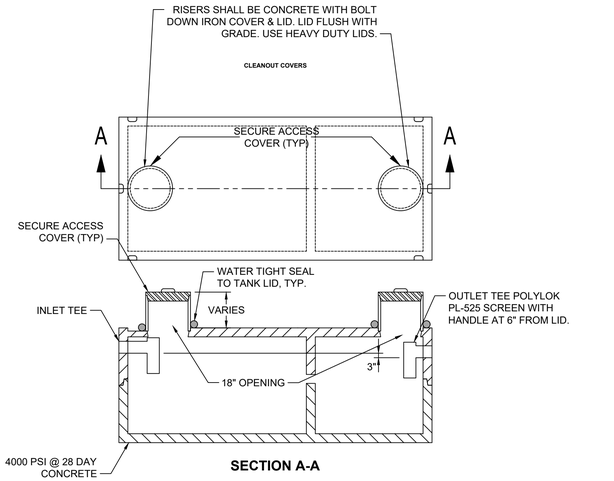
ISSUE FOR CONSTRUCTION 04/26/2022

SHEET NAME: SEPTIC SYSTEM 2, STA 30+00 TO 35+00

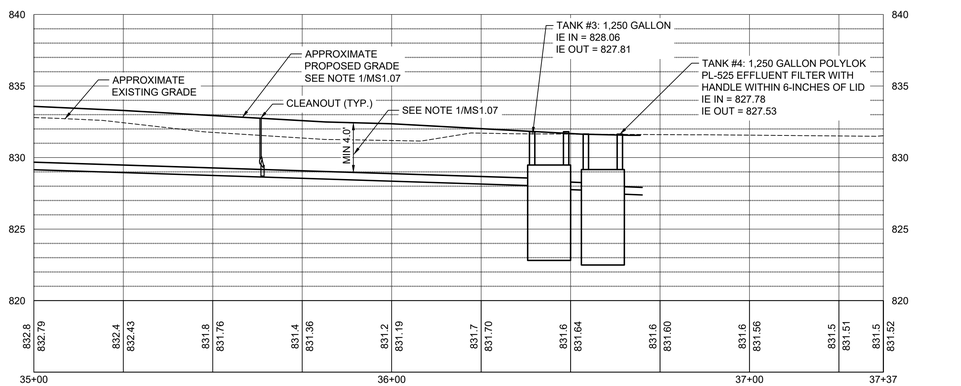
SHEET NO.: MS1.06



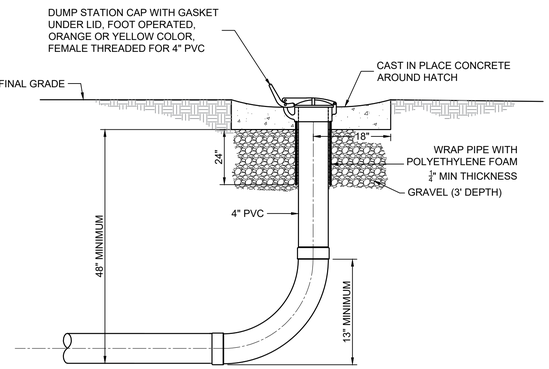
1 DROP BOX DETAIL
N.T.S.



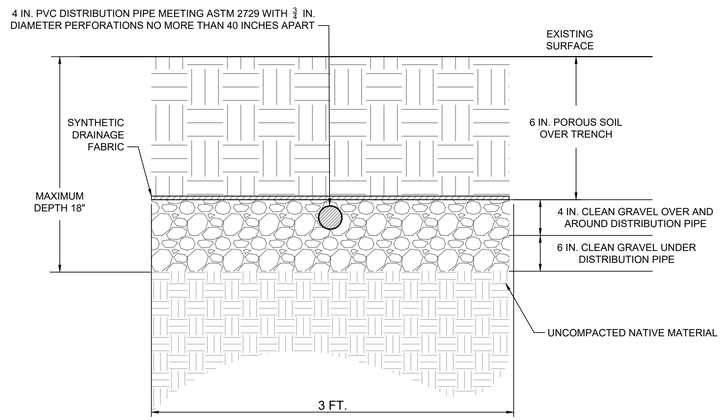
2 CONCRETE SEPTIC TANKS (TANK SIZE VARIES)
N.T.S.



GENERAL NOTES:
1. WHERE THERE IS LESS THAN 4 FEET OF SOIL COVER OVER PIPE, CONTRACTOR TO PLACE FILL ON TOP OF EXISTING GROUND OVER TOP OF PIPE TO BRING COVER TO 4 FOOT MINIMUM. CONTRACTOR TO FEATHER SOIL DOWN FROM CENTER OF PIPE TO TREE LINE ON EACH SIDE. REFER TO F SHEETS FOR GRADING DETAILS. GRADING NOTES ON SHEET A1.01 APPLIES. AREA FROM APPROXIMATELY STATION 35+00 - 36+53 IS ANTICIPATED TO NEED FILL TO MEET MINIMUM COVER REQUIREMENT.
2. TANKS #3 AND #4 SHALL BE 1,250 GALLON PLASTIC TANK AND SHALL BE ROTH, INFILTRATOR OR COON TANK. BACKFILL WITH CRUSHED ROCK OR CRUSHED CONCRETE MINIMUM 12" UP ALL SIDES WITH 12" UNDER TANK. USE HEAVY DUTY SCREW DOWN LIDS PLACED FLUSH WITH FINAL GRADE.



4 CAMPSITE SEWER DROP
NOT TO SCALE



3 SOIL ABSORPTION TRENCH DETAIL
NOT TO SCALE

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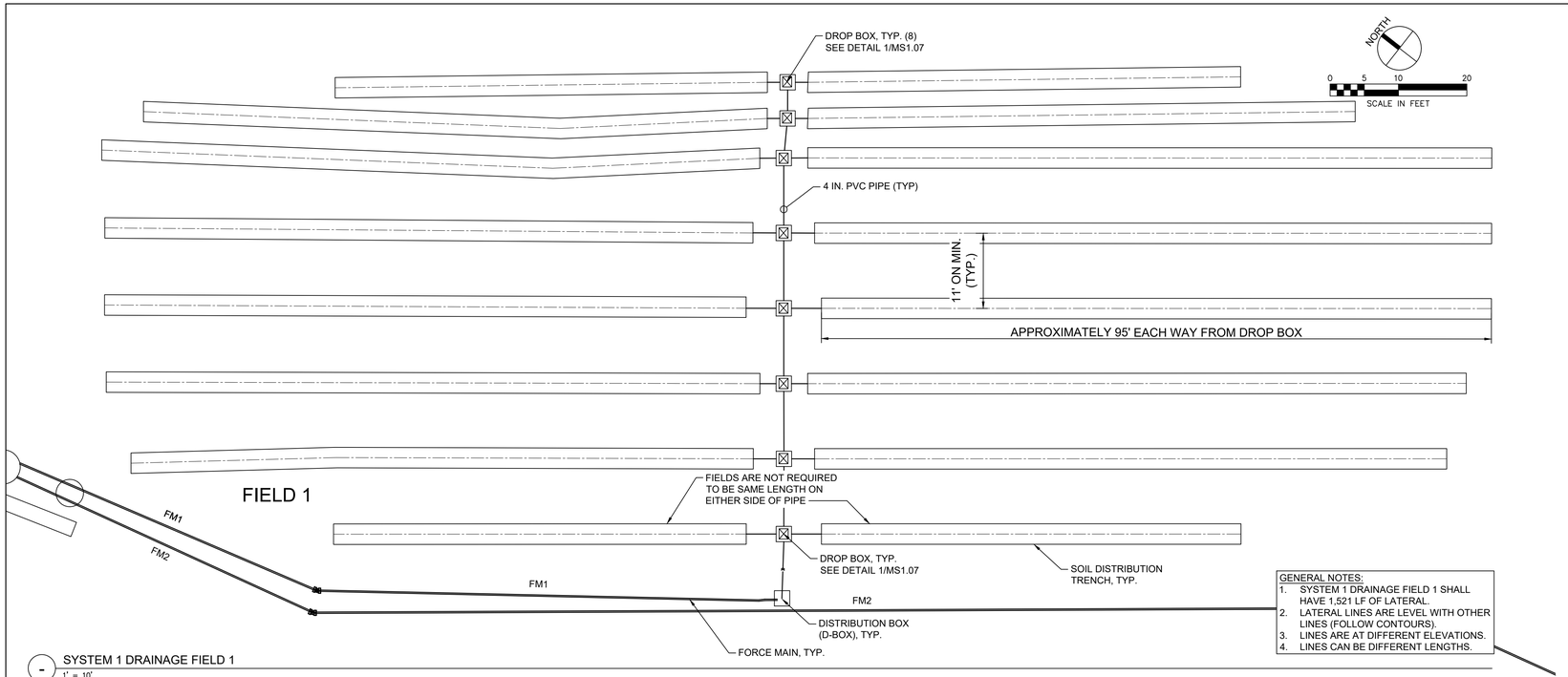
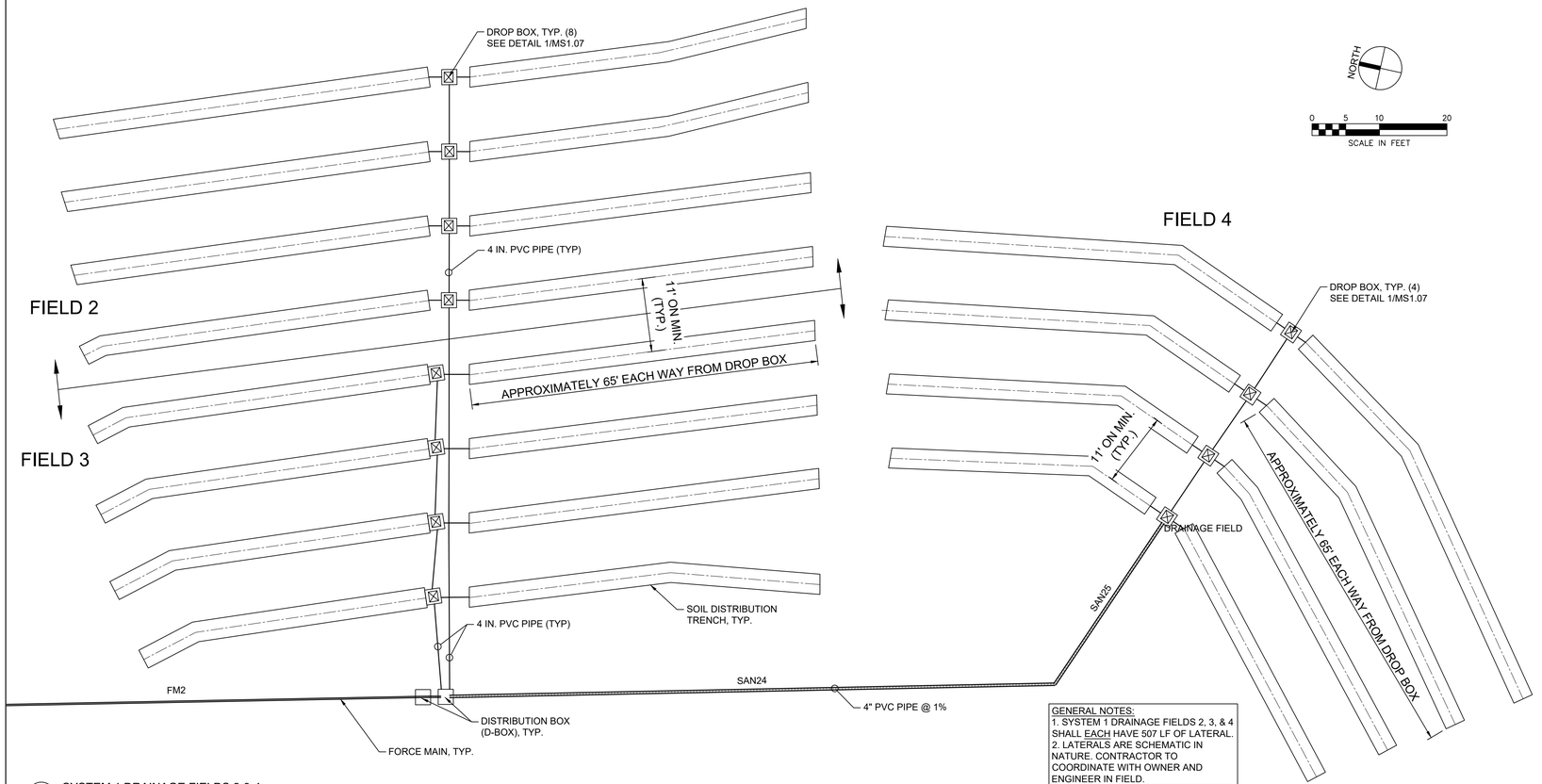
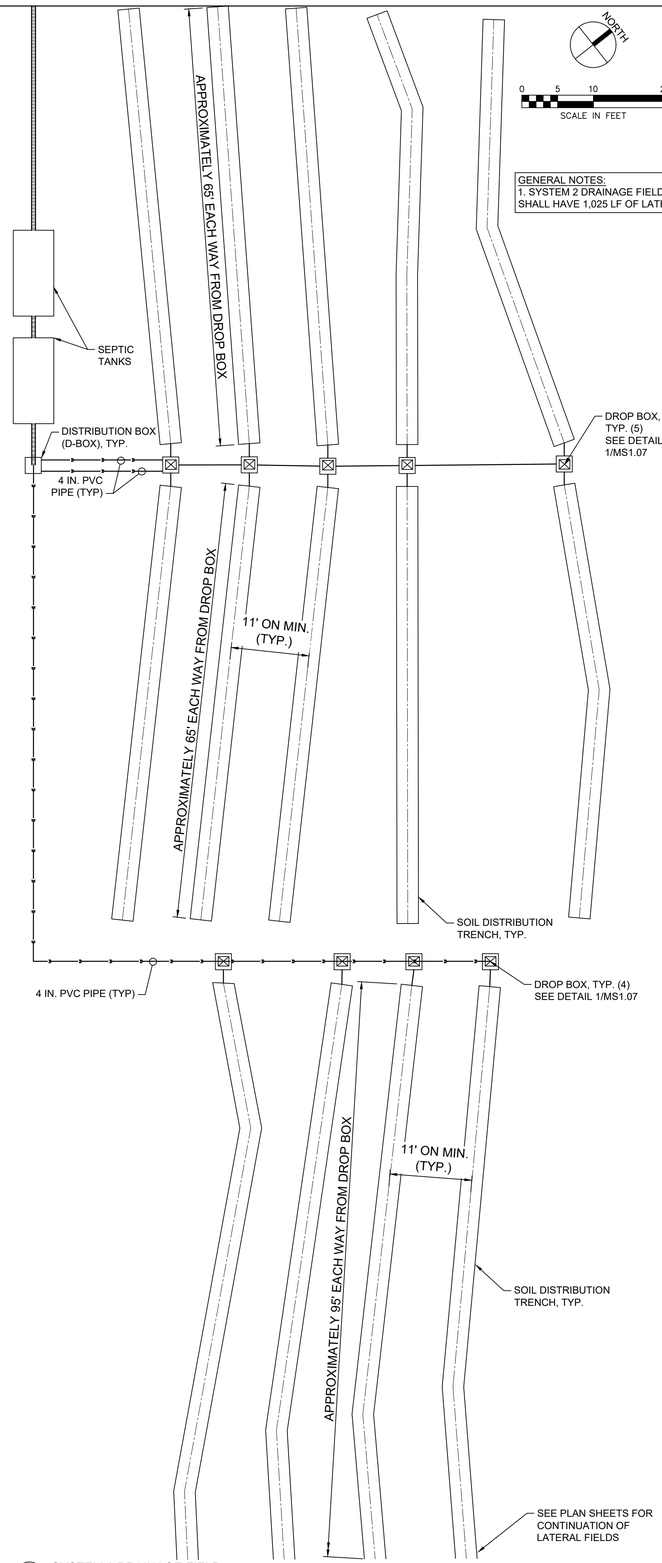


SYSTEM 1 DRAINAGE FIELD 1
1" = 10'



SYSTEM 1 DRAINAGE FIELDS 2-3-4
1" = 10'



SYSTEM 2 DRAINAGE FIELD
1" = 10'

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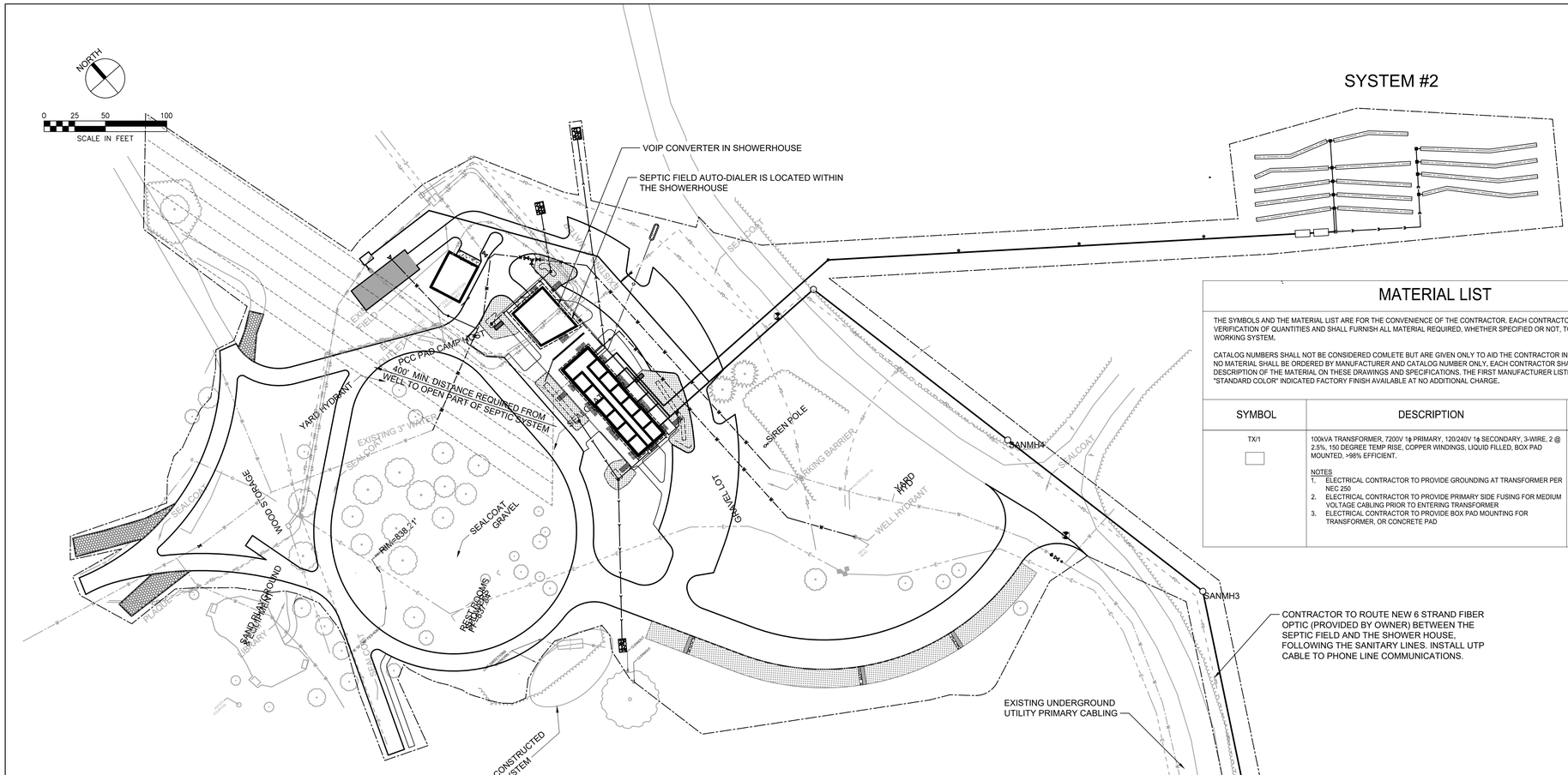
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: SEPTIC SYSTEM FIELD DETAILS | SHEET NO.: MS1.08



MATERIAL LIST

THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF QUANTITIES AND SHALL FURNISH ALL MATERIAL REQUIRED, WHETHER SPECIFIED OR NOT, TO PRODUCE A SATISFACTORY WORKING SYSTEM.

CATALOG NUMBERS SHALL NOT BE CONSIDERED COMLETE BUT ARE GIVEN ONLY TO AID THE CONTRACTOR IN THE SEARCH FOR MATERIAL. NO MATERIAL SHALL BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. EACH CONTRACTOR SHALL FIRST READ THE COMPLETE DESCRIPTION OF THE MATERIAL ON THESE DRAWINGS AND SPECIFICATIONS. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN. "STANDARD COLOR" INDICATED FACTORY FINISH AVAILABLE AT NO ADDITIONAL CHARGE.

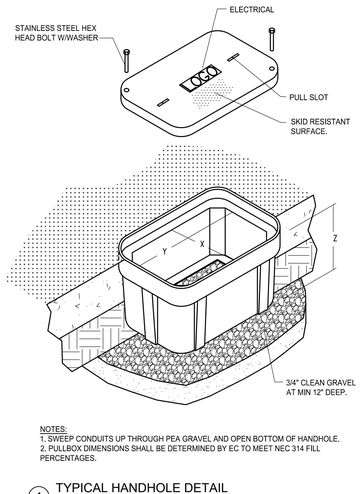
SYMBOL	DESCRIPTION	APPROVED MANUFACTURER
TX/1	100kVA TRANSFORMER, 7200V 1ϕ PRIMARY, 120/240V 1ϕ SECONDARY, 3-WIRE, 2 @ 2.5%, 150 DEGREE TEMP RISE, COPPER WINDINGS, LIQUID FILLED, BOX PAD MOUNTED, >98% EFFICIENT. NOTES 1. ELECTRICAL CONTRACTOR TO PROVIDE GROUNDING AT TRANSFORMER PER NEC 250 2. ELECTRICAL CONTRACTOR TO PROVIDE PRIMARY SIDE FUSING FOR MEDIUM VOLTAGE CABLING PRIOR TO ENTERING TRANSFORMER 3. ELECTRICAL CONTRACTOR TO PROVIDE BOX PAD MOUNTING FOR TRANSFORMER, OR CONCRETE PAD	SQUARE D CLASS 7432 EATON

GENERAL ELECTRICAL NOTES:

1. "TX/1" INDICATES KEY NOTE USED TO DESCRIBE ADDITIONAL INFORMATION OF WORK REQUIRED IN DIAMOND SYMBOL, SPECIFIC TO THE SHEET IT IS SHOWN ON.
2. ALL ELECTRICAL CONDUCTORS SHALL BE COPPER.
3. ABBREVIATION KEY:
   - AFF ABOVE FINISH FLOOR
   - C. CONDUIT
   - EC ELECTRICAL CONTRACTOR
   - GC GENERAL CONTRACTOR
   - MC MECHANICAL CONTRACTOR
   - NIC NOT IN CONTRACT
   - NL NIGHT LIGHT
   - TYP TYPICAL
   - UG UNDERGROUND
   - "#' MOUNTING HEIGHT FROM FINISHED FLOOR TO CENTERLINE
4. LINE TYPE KEY:
   - ———— NEW WORK BY ELECTRICAL CONTRACTOR (DARK SOLD LINE)
   - – – –E– – – NEW WORK UNDERGROUND BY THIS CONTRACTOR (DARK LONG DASHED LINE)
   - ———— NEW WORK BY OTHERS AND/OR EXISTING TO REMAIN (LIGHT SOLID LINE)
5. ALL PANELBOARDS SHALL BE COMPLETE WITH TYPED CIRCUIT DIRECTORY CARD IDENTIFYING LOAD SERVED AND ASSOCIATED AREA OR ROOM LOCATED.

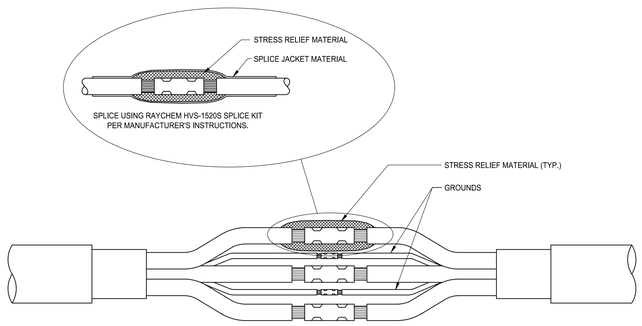
GENERAL CONSTRUCTION NOTES:

1. WIRING SHALL BE #12 MINIMUM UNLESS NOTED OTHERWISE.
2. CONDUIT SHALL BE 3/4" MINIMUM UNLESS NOTED OTHERWISE.
3. ALL WORK SHALL CONFORM TO OR EXCEED THE MINIMUM REQUIREMENTS OF THE MOST RECENTLY ADOPTED VERSION OF THE NATIONAL ELECTRICAL CODE (NEC).
4. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETELY INSTALL ALL ELECTRICAL WORK.
5. NO ENERGIZED CONDUCTORS SHALL BE EXPOSED AT ANYTIME EXCEPT WHEN THE IMMEDIATE AREA IS UNDER THE SUPERVISION OF A QUALIFIED ELECTRICIAN.
6. ALL MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE NEW, COMPLETE WITH MANUFACTURER'S GUARANTEE OR WARRANTY AND SHALL BE LISTED BY UNDERWRITERS LABORATORIES (UL) INC.
7. ALL WORK SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.
8. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND FITTING NECESSARY TO PROPERLY INSTALL HIS WORK. HE SHALL COORDINATE WITH OTHER TRADES TO MINIMIZE THE DAMAGE AND AMOUNT OF PATCHING REQUIRED. ALL UNDUE OR UNTIMELY MUTILATION, MARRING, OR SOILING OF FINISHED
9. SURFACES SHALL BE REPAIRED BY THE PROPER TRADES AND PAID FOR BY THIS CONTRACTOR.
10. CONTRACTOR SHALL KEEP HIS WORK AREA CLEAN OF ALL DEBRIS AND SHALL KEEP MATERIALS IN AREAS DESIGNATED BY THE OWNER.
11. NOT USED
12. CONDUCTORS USED THROUGHOUT THIS PROJECT SHALL BE COPPER. ALL CONDUCTORS SHALL HAVE 600 VOLT INSULATION (THW, THHN, THWN OR XHHW), SUITABLE FOR THE LOCATION PER NEC. ALL CONDUCTORS #8 OR LARGER SHALL BE STRANDED. ALL WIRING SHALL BE IN APPROVED RACEWAYS.
13. SPLICES AND CONNECTIONS TO CONDUCTORS LARGER THAN #8 SHALL BE BY MEANS OF COMPRESSION TYPE. ALL CONDUCTORS #8 AND SMALLER THAT ARE TO BE PIGTAIL SPLICED SHALL BE JOINED WITH WIRE NUTS.
14. PROVIDE PULL, JUNCTION AND OUTLET BOXES IN ACCORDANCE WITH THE NEC. ALL BOXES SHALL BE GALVANIZED SHEET STEEL, FASTEN BOXES RIGIDLY TO STRUCTURAL SURFACES. PROVIDE ELECTRICAL GROUNDING CONNECTIONS FOR INSTALLED BOXES.
15. THE ELECTRICAL SYSTEM GROUND SHALL BE AS SHOWN BUT IN NO CASE SHALL IT BE LESS THAN THE REQUIREMENTS OF THE NEC. THE ELECTRICAL GROUND SHALL CONSIST OF THE EQUIPMENT GROUND. GROUND SHALL BE MADE TO ALL METAL, NON-CURRENT CARRYING PARTS OF THE ELECTRICAL EQUIPMENT. GROUNDING CONDUCTORS, GREEN INSULATION, SHALL BE RUN IN THE SAME CONDUIT AS THE CURRENT CARRYING CONDUCTORS WITHOUT EXCEPTION.



NOTES:
1. SWEEP CONDUITS UP THROUGH PEA GRAVEL AND OPEN BOTTOM OF HANDHOLE.
2. PULLBOX DIMENSIONS SHALL BE DETERMINED BY EC TO MEET NEC 314 FILL PERCENTAGES.

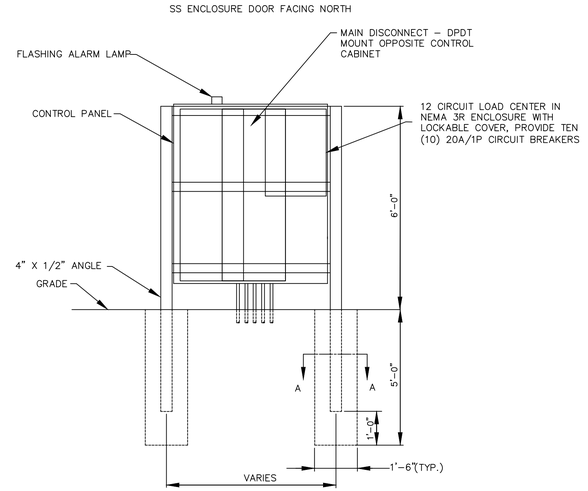
1 TYPICAL HANDHOLE DETAIL
SCALE: NONE



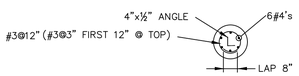
2 TYPICAL 3Ø, ARMORED 15KV CABLE SPLICE DETAIL
SCALE: NONE

CODED NOTES:

1. PROVIDE CONNECTION TO SITE DISTRIBUTION POWER SYSTEM.
2. PROVIDE 200A CAM-lok RECPTS FOR CONNECTION OF PORTABLE GENERATOR. COORDINATE WITH OWNER FOR ACTUAL RECEPTACLE REQUIREMENTS.
3. INTERFACE EQUIPMENT FOR SENSORS TO BE FURNISHED BY OTHERS. PROVIDE CONTROL CONNECTIONS AS RECOMMENDED BY THE SUPPLIER.
4. SEE WET WELL PLAN FOR FLOAT ELEVATIONS
5. PROVIDE GROUNDING AND BONDING AT MAIN DISCONNECT PER NEC ARTICLE 250.



NORTH



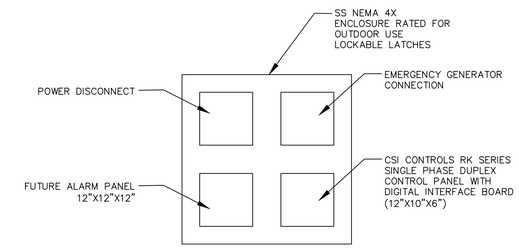
SECTION A-A

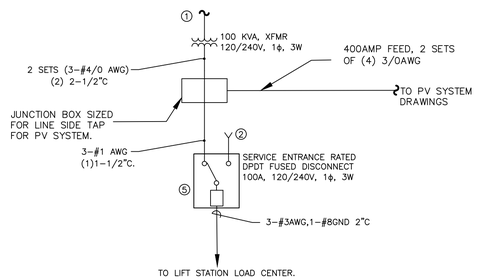
NOTES:

1. COORDINATE EXACT MOUNTING CONFIGURATION, FRAME HEIGHT AND WIDTH WITH COMPONENT SHOP DRAWINGS. PROVIDE SHOP DRAWINGS FOR APPROVAL OF FINAL ARRANGEMENT BY THE ENGINEER.
2. FASTENING HARDWARE SHALL BE 304 STAINLESS STEEL BOLTS AND STEEL ANGLE IRON AS REQUIRED. ALL ANGLE IRON SHALL BE PRIMED, AND PAINTED WITH GRAY ZINC CHROMATE RUST-RESISTING PAINT.

CONTROL PANEL NORTH & SOUTH ELEVATIONS

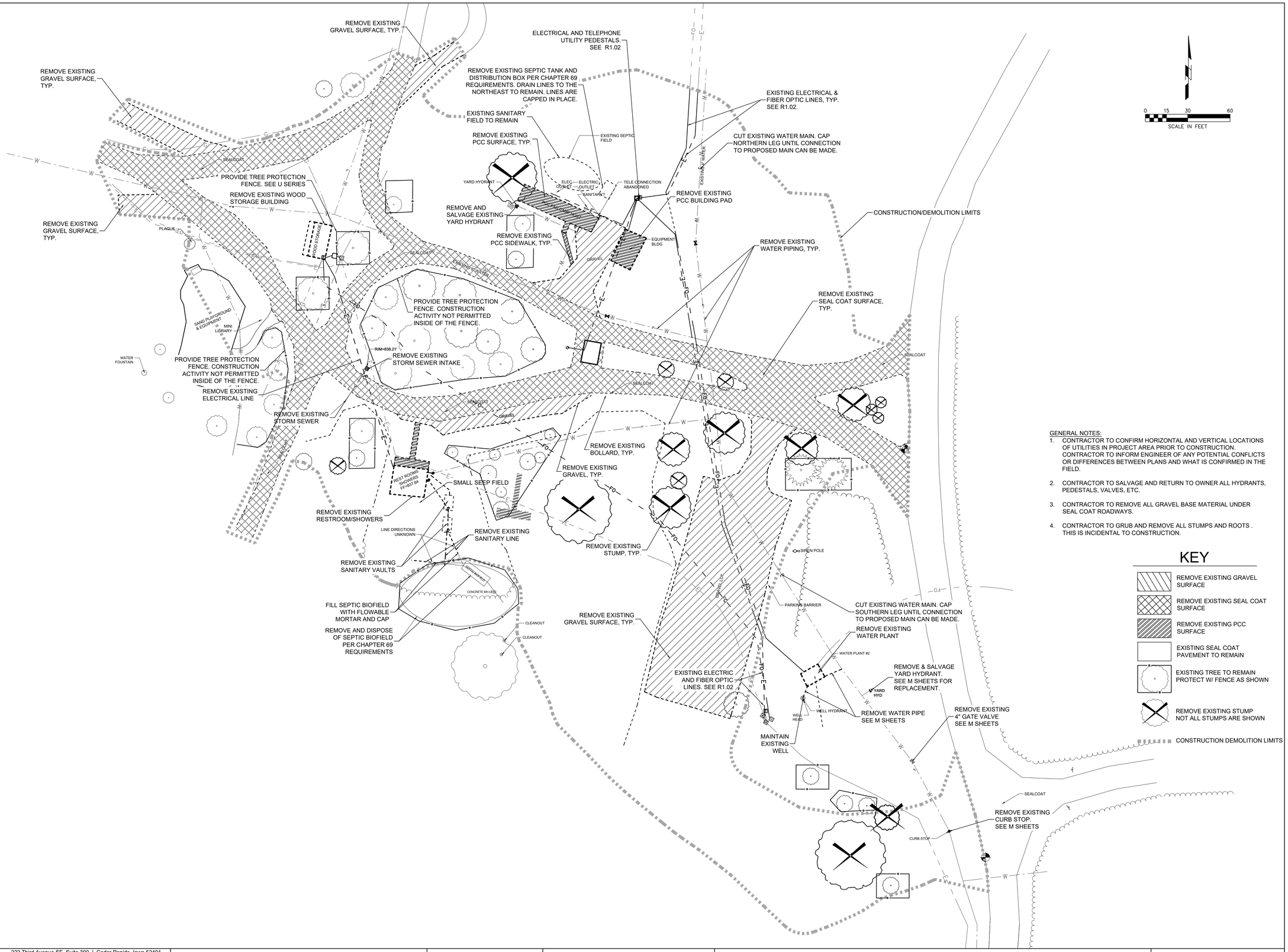
SCALE: 1/8"= 1'-0"





ONE LINE DIAGRAM

SCALE: NOT TO SCALE



GENERAL NOTES:

1. CONTRACTOR TO CONFIRM HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES IN PROJECT AREA PRIOR TO CONSTRUCTION. CONTRACTOR TO INFORM ENGINEER OF ANY POTENTIAL CONFLICTS OR DIFFERENCES BETWEEN PLANS AND WHAT IS CONFIRMED IN THE FIELD.
2. CONTRACTOR TO SALVAGE AND RETURN TO OWNER ALL HYDRANTS, PEDESTALS, VALVES, ETC.
3. CONTRACTOR TO REMOVE ALL GRAVEL BASE MATERIAL UNDER SEAL COAT ROADWAYS.
4. CONTRACTOR TO GRUB AND REMOVE ALL STUMPS AND ROOTS . THIS IS INCIDENTAL TO CONSTRUCTION.

KEY

- REMOVE EXISTING GRAVEL SURFACE
- REMOVE EXISTING SEAL COAT SURFACE
- REMOVE EXISTING PCC SURFACE
- EXISTING SEAL COAT PAVEMENT TO REMAIN
- EXISTING TREE TO REMAIN PROTECT W/ FENCE AS SHOWN
- REMOVE EXISTING STUMP NOT ALL STUMPS ARE SHOWN
- CONSTRUCTION DEMOLITION LIMITS

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JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: REMOVALS | SHEET NO.: R1.01

MAINTAIN EXISTING UNDERGROUND UTILITY PRIMARY CABLING

MAINTAIN AND PROTECT EXISTING FIBER OPTIC CABLING

MAINTAIN AND PROTECT EXISTING UNDERGROUND ELECTRICAL

APPROXIMATE LOCATION TO SEVER THE EXISTING FIBER OPTIC LINE, EXPOSE AND PREPARE FOR RELOCATION TO NEW SHOWERHOUSE, REFER TO SHEET M1.02 FOR RELOCATION OF EXISTING FIBER OPTIC LINE.

DEMOLISH EXISTING UNDERGROUND ELECTRICAL

0 10 20 40
SCALE IN FEET

MAINTAIN EXISTING UNDERGROUND FIBER OPTIC CABLE

1 R1.03

EQUIPMENT BLDG

DEMOLISH EXISTING TRANSFORMER AND MAINTAIN EXISTING COMMUNICATION PEDESTAL UNTIL NEW FEED PROVIDED. REFER TO SHEET M1.02 FOR NEW COMMUNICATION CABLING WORK. TURN OVER EXISTING WORKING TRANSFORMERS TO COUNTY.

MAINTAIN EXISTING UNDERGROUND UTILITY PRIMARY CABLING

MAINTAIN EXISTING UNDERGROUND CAMPSITE ELECTRICAL FEEDER CIRCUITS

DEMOLISH EXISTING UNDERGROUND ELECTRICAL

DEMOLISH ALL KIOSK ELECTRICAL

DEMOLISH EXISTING UNDERGROUND ELECTRICAL

COMPLETELY REMOVE EXISTING UNDERGROUND FIBER OPTIC CABLE. REFER TO SHEET M1.02 FOR NEW COMMUNICATION CABLING WORK

DEMOLISH EXISTING UNDERGROUND ELECTRICAL

DEMOLISH ALL BUILDING ELECTRICAL

MAINTAIN EXISTING UNDERGROUND UTILITY PRIMARY CABLING

COMPLETELY REMOVE EXISTING UNDERGROUND FIBER OPTIC CABLE 6 STRAND EXISTING

LP TANK

MAINTAIN EXISTING UNDERGROUND FIBER OPTIC CABLE

MAINTAIN EXISTING UNDERGROUND UTILITY PRIMARY CABLING

FIBER OPTIC LINE TO WELLHOUSE

PROVIDE AND INSTALL A HANDHOLE FOR COMMUNICATIONS EXTENSION

YARD

MAINTAIN ALL EXISTING ELECTRICAL AND COMPLETELY REMOVE EXISTING COMMUNICATION TAP CABINETS AND PEDESTALS

1 ENLARGED ELECTRICAL SITE DEMOLITION PLAN - WOOD SHED

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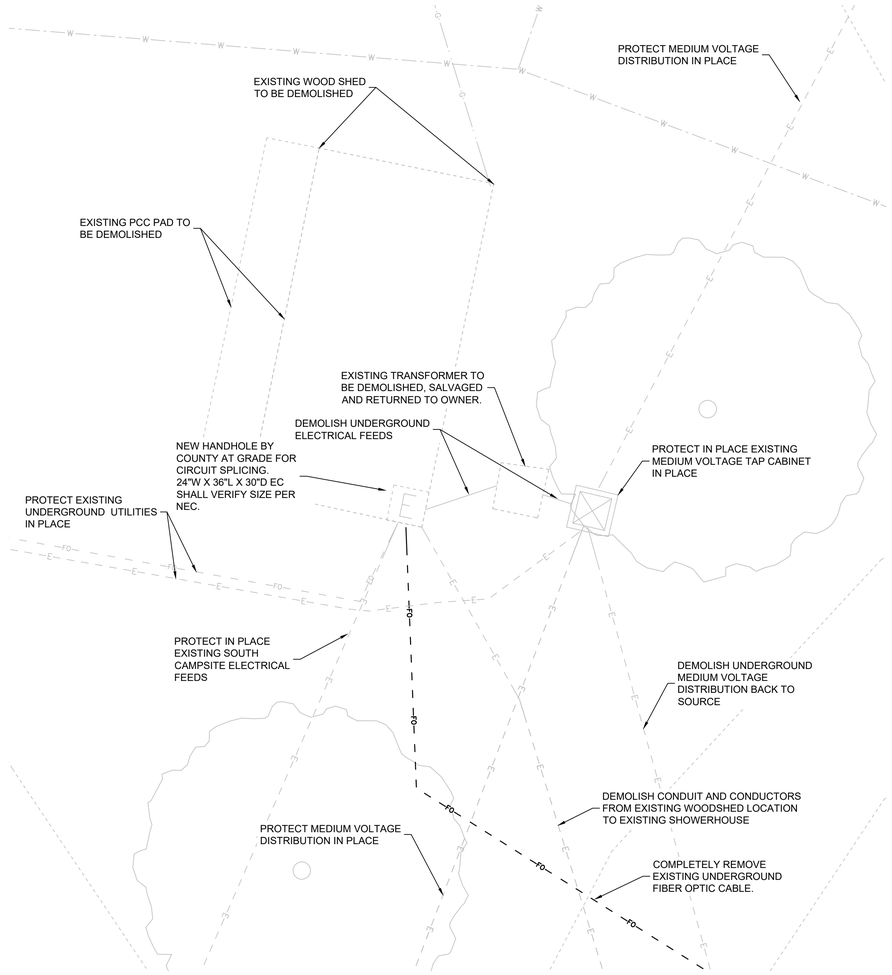

2 ENLARGED ELECTRICAL SITE DEMOLITION PLAN - WOOD SHED

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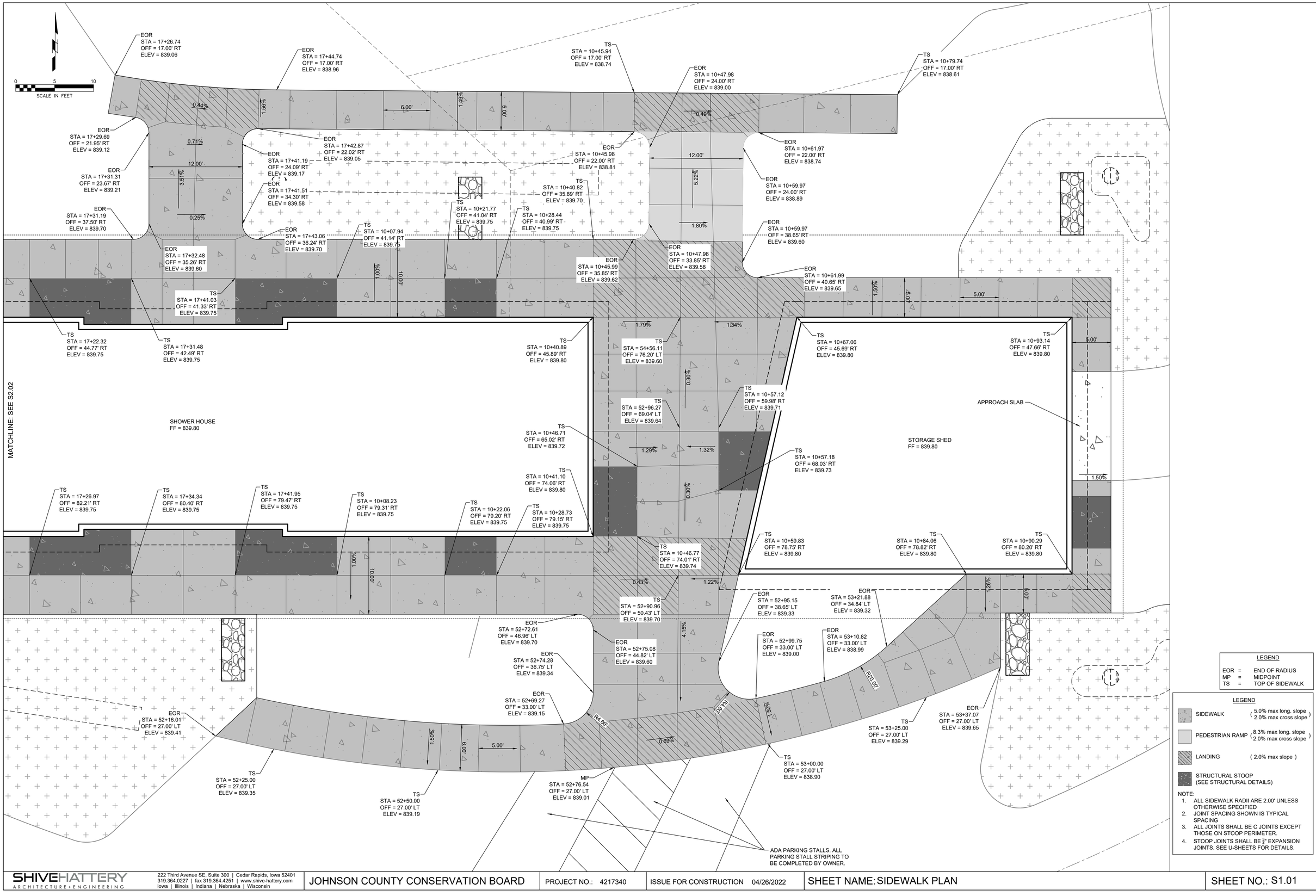

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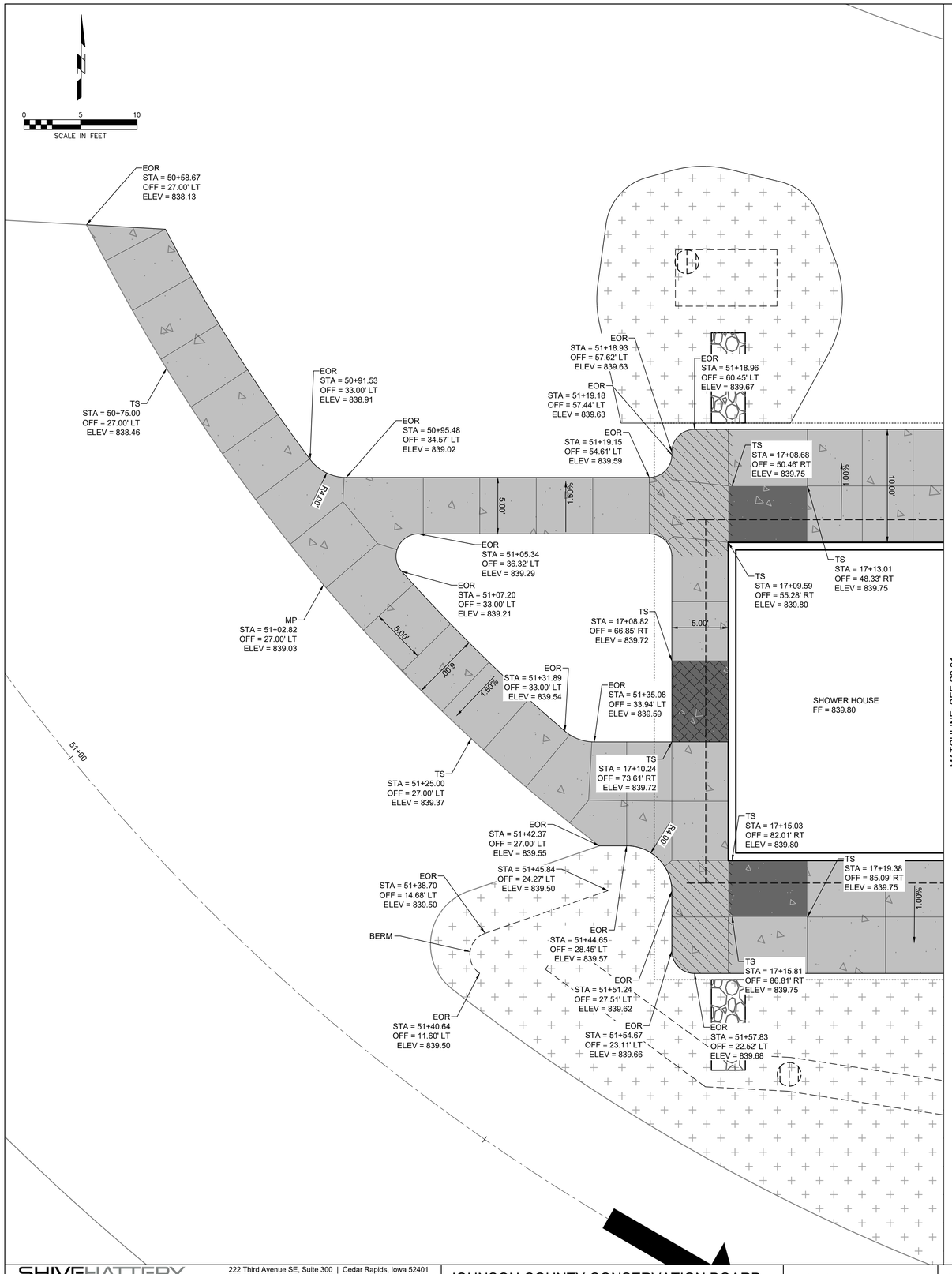
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: SIDEWALK PLAN | SHEET NO.: S1.01



LEGEND

EOR	=	END OF RADIUS
MP	=	MIDPOINT
TS	=	TOP OF SIDEWALK

LEGEND

SIDEWALK	(5.0% max long. slope, 2.0% max cross slope)
PEDESTRIAN RAMP	(8.3% max long. slope, 2.0% max cross slope)
LANDING	(2.0% max slope)
STRUCTURAL STOOP (SEE STRUCTURAL DETAILS)	

NOTE:

1. ALL SIDEWALK RADII ARE 2.00' UNLESS OTHERWISE SPECIFIED
2. JOINT SPACING SHOWN IS TYPICAL SPACING
3. ALL JOINTS SHALL BE C JOINTS EXCEPT THOSE ON STOOP PERIMETER.
4. STOOP JOINTS SHALL BE ¾" EXPANSION JOINTS. SEE U-SHEETS FOR DETAILS.

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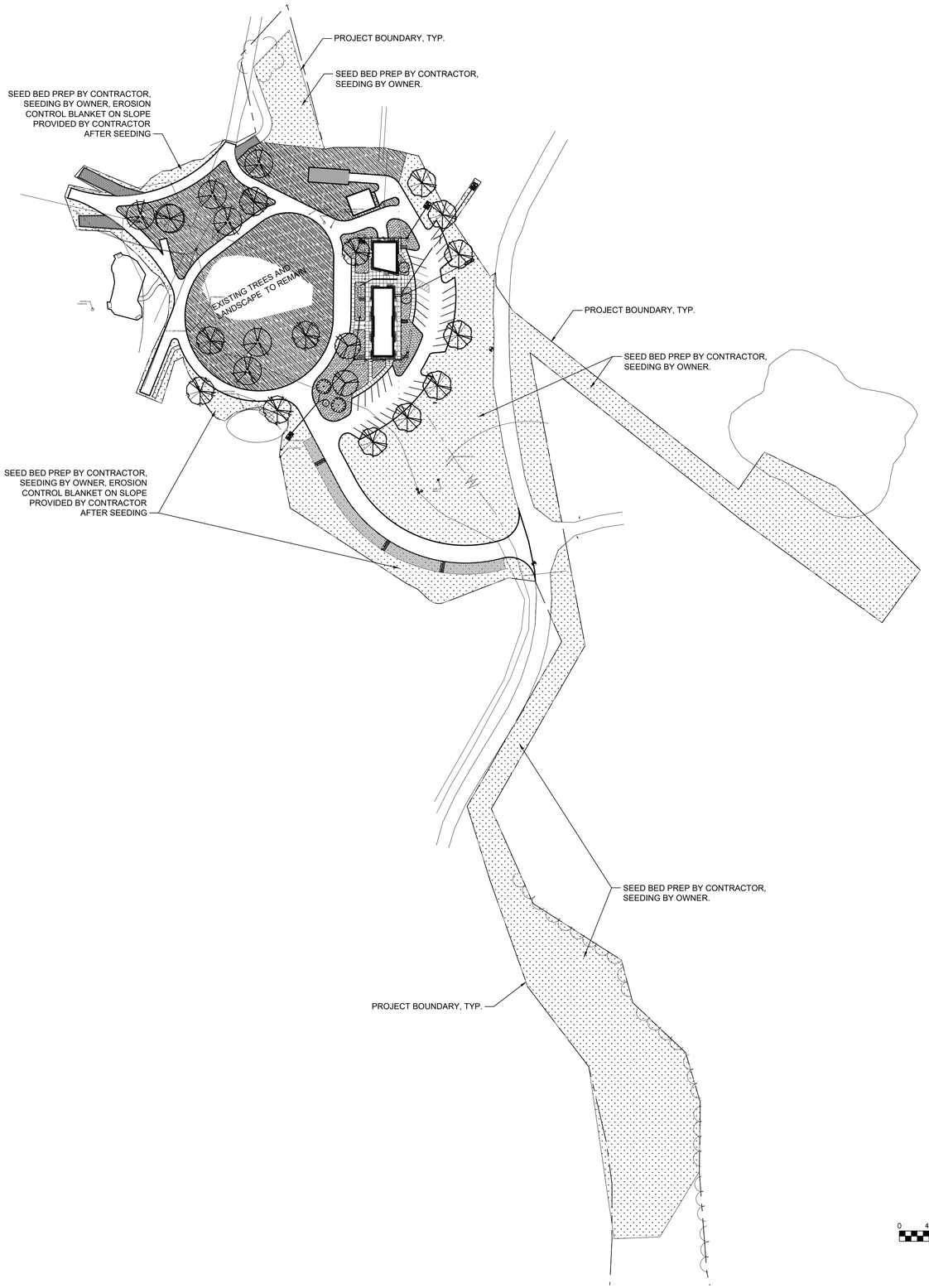
JOHNSON COUNTY CONSERVATION BOARD

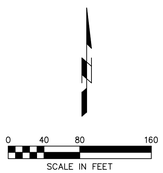
PROJECT NO.: 4217340

ISSUE FOR CONSTRUCTION 04/26/2022

SHEET NAME: SIDEWALK PLAN

SHEET NO.: S1.02





NATIVE GRASSES - OWNER PROVIDED AND SEEDED

GRASSES
30% VIRGINIA WILD RYE
30% SILKY WILD RYE
20% SIDE OATS GRAMMA
10% LITTLE BLUESTEM
10% ROUGH DROPSEED

ATHLETIC TURF MIX - OWNER APPROVAL REQUIRED CONTRACTOR PROVIDED

BIO-SWALE

SOD
CONTRACTOR PROVIDED

HIGH TRAFFIC AREAS SUN OR SHADE LAWN MIX
1. 40% BOREAL CREEPING RED FESCUE
2. 30% PIROUETTE II PERENNIAL RYEGRASS
3. 20% BRIDGEPORT CHEWINGS FESCUE
4. 10% BARRISTER KENTUCKY BLUEGRASS

BIO-CELL

Butterfly Milkweed
Cardinal Flower
Whorled Milkweed
New England Aster
White Indigo
Pale Purple Coneflower
Culvers Root
Great Blue Lobelia
Prairie Blazingstar
Narrowleaf Mountain Mint
Sweet Black-eyed Susan
Blue Vervain
Sideoats Gramma
Columbine (native ecotype)

CONTRACTOR PROVIDED
1,934 PLANTS TOTAL. EVEN DISTRIBUTION OF SPECIES, NO SUBSTITUTIONS WITHOUT PRIOR APPROVAL.
ALL NATIVE ECOTYPES, 1 PLANT FOR EVERY 2 SF.
SUBMIT SHOP DRAWINGS OF PLANTING PLAN - OWNER WILL PROVIDE INPUT EVENLY INCREASE NUMBERS OF SPECIES PER EXPANDED BIOCELL SQUARE FOOTAGE.

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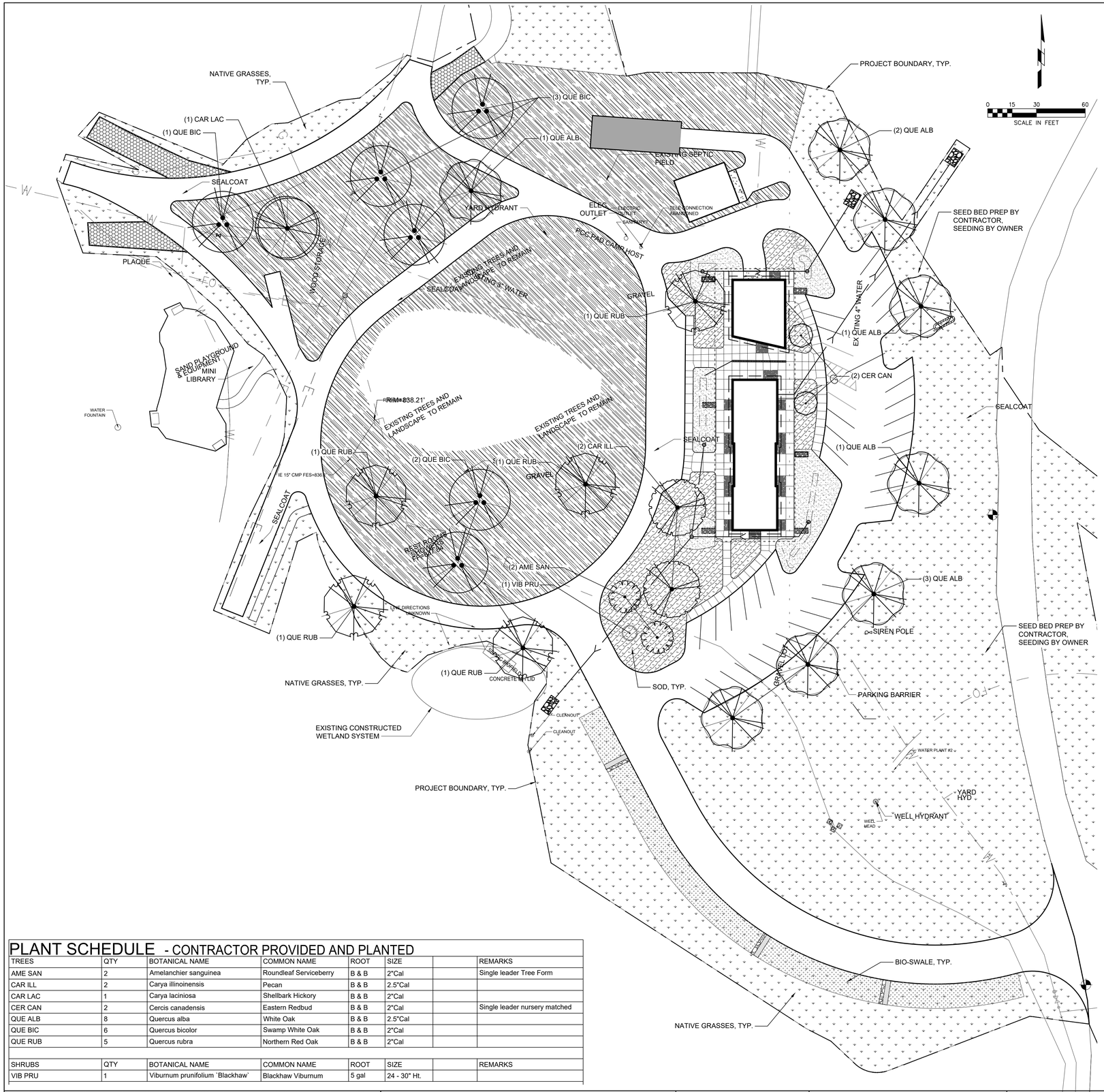
JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217340

ISSUE FOR CONSTRUCTION 04/26/2022

SHEET NAME: OVERALL LANDSCAPE PLAN

SHEET NO.: T1.00



PLANTING NOTES

1. ALL WORK FOR LANDSCAPE LAWNS, TREES, SHRUBS, PERENNIALS AND OTHER PLANTINGS SHALL COMPLY WITH SECTIONS 2601, 2610 AND 4170 OF THE IOWA DOT "SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2012." THE LANDSCAPE ARCHITECT CAN PROVIDE THIS DOCUMENT TO THE LANDSCAPE CONTRACTOR AT THE PRECONSTRUCTION MEETING. THE FOLLOWING ARE EXCEPTIONS AND ADDITIONS TO THESE SPECIFICATIONS:

   a. FOR 2610 NO PLANT MATERIAL SHALL BE SUBSTITUTED WITHOUT THE AUTHORIZATIONS OF THE LANDSCAPE ARCHITECT

   b. FOR 2610.03 A 1 HANDLING AND TEMPORARY STORAGE, ADD THE FOLLOWING SENTENCE:

   ALL PLANT MATERIALS SHALL BE PLANTED WITHIN 72 HOURS TO ARRIVAL ONSITE. PROVIDE TEMPORARY ONSITE WATERING AND MULCHING AS DIRECTED WITHIN AND AFTER THIS PERIOD.

   c. FOR 2610.03 A HANDLING AND TEMPORARY STORAGE, ADD NOTE 3. TO READ AS FOLLOWS:

   3. UTILIZE AN ANTI-DESICANT FOR TREES TRANSPORTED A DISTANCE OF GREATER THAN 100 MILES OR FOR A TRIP LASTING LONGER THAN 3 HOURS.

   d. FOR 2610.03 B LOCATION OF PLANTINGS, PREFACE NOTE 1 TO READ AS FOLLOWS:

   NOTIFY ENGINEER A MINIMUM OF 48 HOURS IN ADVANCE.

   e. DELETE 2610.03 SUBPARAGRAPH D "WRAPPING"

   f. FOR 2610.03 E PLANTING, SUBPARAGRAPH 2A, CHANGE NOTE TO READ AS FOLLOWS:

   BACKFILL MATERIAL FOR PLANTINGS FROM SOIL SHALL BE COMPRISED OF PEAT IN A RATIO OF 1 PART PEAT TO 4 PARTS SOIL (BY VOLUME) SALVAGED FROM THE EXCAVATION OF THE PLANTING WELL. ENSURE BACKFILL MATERIAL HAS A UNIFORM APPEARANCE AND IS LOOSE, FRIABLE, AND FREE OF HARD CLODS AND ROCK 2 INCHES (50 MM) IN DIAMETER OR LARGER.

   FOR 2610.03 I PLANT ESTABLISHMENT PERIOD AND REPLACEMENT, THE ESTABLISHMENT PERIOD IS 1 CALENDAR YEAR FROM SUBSTANTIAL COMPLETION OF LANDSCAPE SCOPE.

2. CONTRACTOR SHALL VERIFY THE LOCATION AND PROTECT ALL UTILITIES AND STRUCTURES PRIOR TO PLANT INSTALLATION, DAMAGE TO UTILITIES AND STRUCTURES SHALL BE IMMEDIATELY REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE OWNER.
3. FIELD ADJUSTMENTS OF PROPOSED PLANT LOCATIONS MAY BE REQUIRED TO MINIMIZE POTENTIAL INTERFERENCE WITH EXISTING UTILITIES, TO MINIMIZE HAZARDS TO PLANT GROWTH AND TO IMPROVE MAINTENANCE CONDITIONS. PLANT LOCATIONS SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO PLANT MATERIAL INSTALLATION.
4. ALL PLANT MATERIAL SHALL AT LEAST MEET MINIMUM REQUIREMENTS SHOWN IN THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANZI Z60.1 - LATEST EDITION). PLANTS SHALL BE FRESHLY DUG OR WELL-ESTABLISHED IN CONTAINER AS APPLICABLE; NOT ROOT-BOUND IN THE CONTAINER.
5. NO PLANT MATERIAL SHALL BE SUBSTITUTED WITHOUT THE AUTHORIZATION OF LANDSCAPE ARCHITECT.
6. PLANT QUANTITIES ARE FOR CONTRACTOR'S CONVENIENCE. DRAWINGS SHALL PREVAIL WHERE CONFLICT OCCURS.
7. WOOD MULCH SHALL BE 3" DEEP, COMPOSED OF CEDAR OR CYPRESS WOOD OF UNIFORM COLOR AND LONG FIBROUS NATURE (2-4 INCHES IN LENGTH). DO NOT USE WALNUT. APPLY PRE-EMERGENCE HERBICIDE OVER THE TOP OF ALL WOOD MULCH AREAS.
8. MULCH ALL TREES AND SHRUBS LOCATED OUTSIDE OF DESIGNATED MULCH BEDS WITH A MINIMUM 3" DEPTH CIRCULAR (3-FOOT DIAMETER FOR SHRUBS AND 6-FOOT DIAMETER FOR TREES) OF WOOD MULCH. MULCHING SHALL BE LIMITED TO PLANTING BEDS AS DESIGNATE ON PLANS OR IN THE IMMEDIATE 3' -6' DIAMETER AT THE BASE OF THE PLANT. MULCH PLANTING WELL.
9. SEED ALL DISTURBED AREAS (OUT TO PROPERTY LINE AND IN RIGHT-OF-WAY AS REQUIRED) OUTSIDE PLANTING BEDS AND PAVEMENT AREAS WITH PERMANENT SEED MIXTURE FOR URBAN AREAS PER IDOT SPECIFICATIONS SECTION 2601.03B.4) OR APPROVED EQUIVALENT. FOLLOW IDOT AND SEED SUPPLIER'S RECOMMENDATIONS ON SOIL PREPARATION, SEEDING, APPLICATION RATE, MULCHING, WATERING, AND MAINTENANCE.
10. LANDSCAPE CONTRACTOR SHALL MAINTAIN PLANTING BEDS, PLANT MATERIAL, AND NEW TURF AREAS UNTIL SUBSTANTIAL COMPLETION. WEEDING, WATERING, MOWING, AND REPLACEMENT OF DEAD/DYING PLANTS ARE INCLUDED IN THIS MAINTENANCE.
11. LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF INITIAL ACCEPTANCE.
12. ALL GUY WIRES, STAKES AND TRUNK WRAP SHALL BE REMOVED FROM TREES AFTER A PERIOD OF 1 YEAR BY THE CONTRACTOR.
13. ALL EXISTING GROUNDCOVER SHALL RECEIVE HERBICIDE PRIOR TO INSTALLATION IF OTHER PLANT MATERIAL/ GROUND COVER THEN WHAT IS SHOWN IS EXISTING
14. TURF ESTABLISHMENT PERIOD AND REPLACEMENT IS 1 CALENDAR YEAR FROM SUBSTANTIAL COMPLETION OF LANDSCAPE SCOPE.
15. LANDSCAPE CONTRACTOR SHALL MAINTAIN TURF AREAS UNTIL SUBSTANTIAL COMPLETION. WEEDING, WATERING, MOWING AND REPLACEMENT OF DEAD/DYING TURF IS INCLUDED IN THIS MAINTENANCE.
16. LANDSCAPE CONTRACTOR SHALL GUARANTEE TURF FOR A PERIOD OF ONE YEAR FROM DATE OF INITIAL COMPLETION.
17. ALL SEPTIC SYSTEM AND TRENCHES OUTSIDE OF THIS PLAN VIEW WILL BE DONE BY CONTRACTOR. OWNER WILL SEED.

GENERAL LANDSCAPE NOTES

1. LANDSCAPE CONTRACTOR SHALL REVIEW ROUGH GRADING AND EROSION CONTROL MEASURES WITH GENERAL CONTRACTOR AND GRADING CONTRACTOR PRIOR TO COMMENCING LANDSCAPE WORK. GRADING CONTRACTOR SHALL CORRECT DEFICIENCIES IN ROUGH GRADING AND EROSION CONTROL TO A CONDITION ACCEPTABLE TO THE LANDSCAPE CONTRACTOR AND GENERAL CONTRACTOR. COMMENCEMENT OF WORK BY LANDSCAPE CONTRACTOR IMPLIES ACCEPTANCE OF GRADING CONDITIONS AND EROSION CONTROL MEASURES, AND RESPONSIBILITY FOR CONTROL AND REPAIR OF SUBSEQUENT DEFICIENCIES.
2. LANDSCAPE CONTRACTOR IS REQUIRED TO MAINTAIN POSITIVE DRAINAGE ON THE SITE FOLLOWING ACCEPTANCE OF GRADING CONDITIONS. REFER TO GRADING PLAN FOR CONTOURS AND SPOT ELEVATIONS.
3. LANDSCAPE CONTRACTOR SHALL BRING TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE ANY CONFLICTS BETWEEN GRADING DESIGN AND ANY ON-SITE UTILITIES. WORK SHALL NOT COMMENCE UNTIL ISSUE IS RESOLVED AND DOCUMENTED IN WRITING BY OWNER'S REPRESENTATIVE.
4. SITE CLEAN-UP SHALL BE PERFORMED ON A DAILY BASIS. SIDEWALKS, PARKING LOTS, ROADWAYS, ETC. SHALL BE KEPT CLEAN AT ALL TIMES.
5. EXCESS AND WASTE MATERIALS SHALL BE DISPOSED OFF-SITE IN ACCORDANCE WITH APPLICABLE GOVERNMENTAL REGULATIONS.
6. ALL OPEN EXCAVATIONS SHALL BE PROTECTED WITH SAFETY FENCE, BARRIERS, OR BARRICADES IN ACCORDANCE WITH OSHA.
7. MAINTENANCE OF PLANTING ADJACENT TO PUBLIC RIGHT-OF-WAY, INCLUDING SHRUBS, SHALL BE THE RESPONSIBILITY OF THE OWNER.
8. ALL TREES SHALL BE SINGLE STEM
9. ALL TREES SHALL HAVE STRAIGHT, MAIN LEADING TRUNK AND SHALL BE FREE OF DISEASES.
10. TREE PROTECTION FENCING SHALL BE PLACED EQUAL TO THE DRIPLINE EDGE DURING CONSTRUCTION. ALLOW NO CONSTRUCTION EQUIPMENT OR STORAGE WITHIN THE DRIPLINE DURING CONSTRUCTION.

NATIVE GRASSES AND BIO-SWALE -

OWNER PROVIDED SEED AND OWNER INSTALLED, CONTRACTOR SHALL PROVIDE SEEDBED PREPARATION, AND EROSION CONTROL BLANKET AFTER SEEDING

SOD
CONTRACTOR PROVIDED AND INSTALLED

MATCH OR SIMILAR TO ATHLETIC TURF MIX: SOD

BIO-CELL - CONTRACTOR PROVIDED AND CONTRACTOR INSTALLED

- Butterfly Milkweed
- Cardinal Flower
- Whorled Milkweed
- New England Aster
- White Indigo
- Pale Purple Coneflower
- Culvers Root
- Great Blue Lobelia
- Prairie Blazingstar
- Narrowleaf Mountain Mint
- Sweet Black-eyed Susan
- Blue Vervain
- Sideoats Gramma
- Columbine (native ecotype)

CONTRACTOR PROVIDED 1,934 PLANTS TOTAL. EVEN DISTRIBUTION OF SPECIES, NO SUBSTITUTIONS WITHOUT PRIOR APPROVAL. ALL NATIVE ECOTYPES, 1 PLANT FOR EVERY 2SF. SUBMIT SHOP DRAWINGS OF PLANTING PLAN - OWNER WILL PROVIDE INPUT. EVENLY INCREASE NUMBERS OF SPECIES PER EXPANDED BIOCELL SQUARE FOOTAGE.

ATHLETIC TURF MIX - SEED
CONTRACTOR PROVIDED AND INSTALLED

HIGH TRAFFIC AREAS SUN OR SHADE LAWN MIX
1. 40% BOREAL CREEPING RED FESCUE
2. 30% PIROUETTE II PERENNIAL RYEGRASS
3. 20% BRIDGEPORT CHEWINGS FESCUE
4. 10% BARRISTER KENTUCKY BLUEGRASS

PLANT SCHEDULE - CONTRACTOR PROVIDED AND PLANTED

TREES	QTY	BOTANICAL NAME	COMMON NAME	ROOT	SIZE		REMARKS
AME SAN	2	Amelanchier sanguinea	Roundleaf Serviceberry	B & B	2"Cal		Single leader Tree Form
CAR ILL	2	Carya illinoinensis	Pecan	B & B	2.5"Cal		
CAR LAC	1	Carya laciniosa	Shellbark Hickory	B & B	2"Cal		
CER CAN	2	Cercis canadensis	Eastern Redbud	B & B	2"Cal		Single leader nursery matched
QUE ALB	8	Quercus alba	White Oak	B & B	2.5"Cal		
QUE BIC	6	Quercus bicolor	Swamp White Oak	B & B	2"Cal		
QUE RUB	5	Quercus rubra	Northern Red Oak	B & B	2"Cal		
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	ROOT	SIZE		REMARKS
VIB PRU	1	Viburnum prunifolium `Blackhaw`	Blackhaw Viburnum	5 gal	24 - 30" Ht.		

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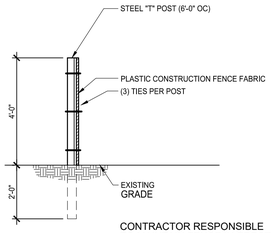
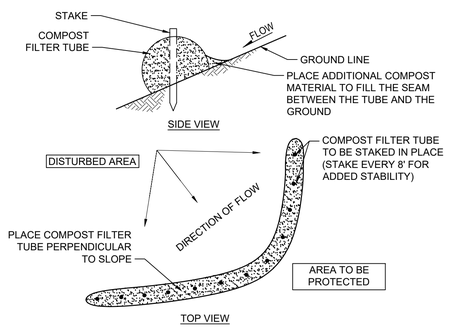
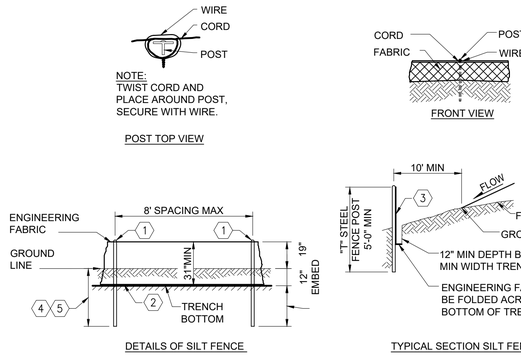


CONTRACTOR RESPONSIBLE TO MAINTAIN FENCE IN ERECT POSITION THROUGH DURATION OF PROJECT.

1 CONSTRUCTION FENCE DETAIL
NOT TO SCALE



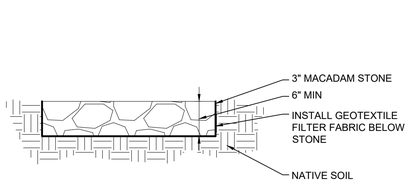
2 COMPOST FILTER SOCK DETAIL
NOT TO SCALE



GENERAL NOTES:

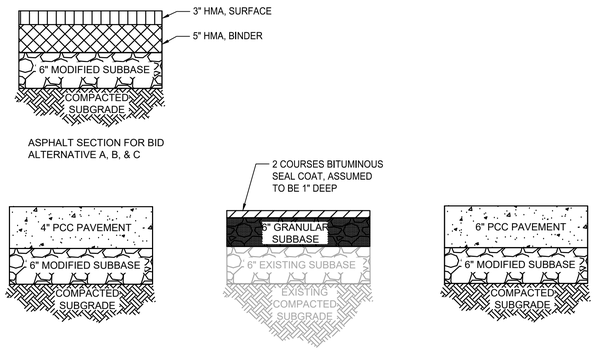
1. SECURE TOP OF ENGINEERING FABRIC TO STEEL POST.
2. ENGINEERING FABRIC TO BE FOLDED ACROSS BOTTOM OF TRENCH.
3. ENGINEERING FABRIC SHALL HAVE A MINIMUM 36" WIDTH.
4. FOR MACHINE INSTALLATION, POSTS SHALL BE EMBEDDED 28" BELOW GROUND LINE. ALL COMPACTION SHALL BE ACCOMPLISHED BY DRIVING OVER EACH SIDE OF SILT FENCE 2-4 TIMES WITH DEVICE EXERTING 60PSI OR GREATER.
5. FOR TRENCH INSTALLATION, POSTS SHALL BE EMBEDDED 28" BELOW THE TRENCH BOTTOM. ALL COMPACTION SHALL BE ACCOMPLISHED WITH A MECHANICAL OR PNEUMATIC TAMPER.

3 SILT FENCE DETAIL
NOT TO SCALE

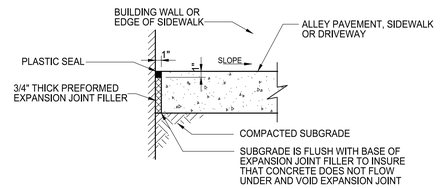


STABILIZED CONSTRUCTION ENTRANCE/ CONTRACTOR STAGING AND LAYDOWN AREA

4
NOT TO SCALE

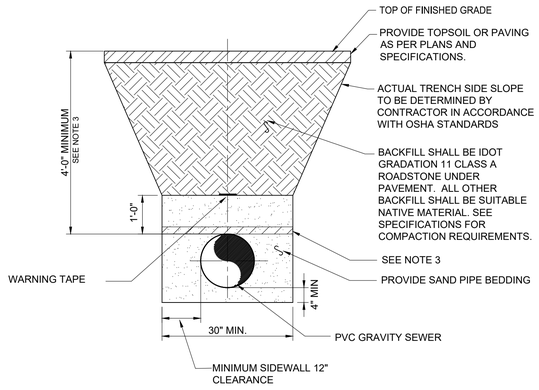


5 TYPICAL PAVEMENT SECTIONS
NO SCALE



6 3/4" EXPANSION JOINT BETWEEN BUILDING AND PAVEMENT
NOT TO SCOALE

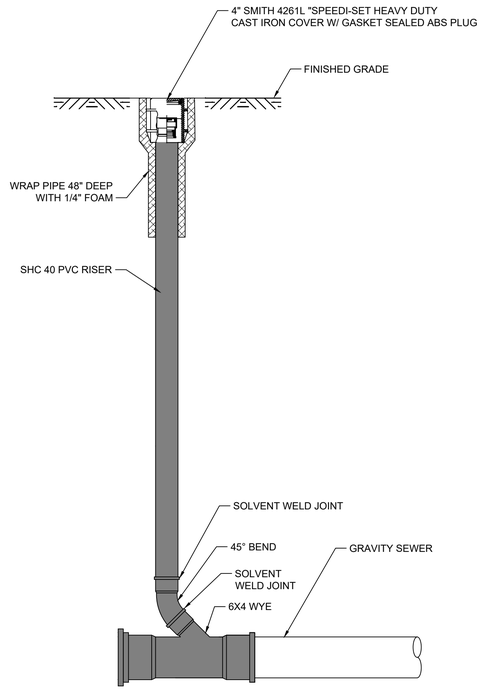
02751-C-05



NOTE:

1. PIPING DIAMETER AS CALLED OUT ON PLANS. PIPING SHALL BE NORTH AMERICAN SPECIALTY PRODUCTS CERTA-FLO GREENLINE SDR 21 OR EQUAL.
2. GRAVITY SEWER MAINS SHALL BE SEPARATED FROM WATER MAINS BY A HORIZONTAL DISTANCE OF AT LEAST 10 FEET UNLESS:
   1) THE TOP OF A SEWER MAIN IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN, AND,
   2) THE SEWER IS PLACED IN A SEPARATE TRENCH OR IN THE SAME TRENCH ON A BENCH OF UNDISTURBED EARTH AT A MINIMUM HORIZONTAL SEPARATION OF 3 FEET FROM THE WATER MAIN.
3. IF LESS THAN 48" OF COVER OVER PIPE, PLACE 2" THICK X 48" WIDE CENTERED OVER PIPE OF POLYSTYRENE.

1 TYPICAL GRAVITY SEWER PIPE EMBEDMENT AND INSTALLATION DETAIL
NOT TO SCALE



2 CLEANOUT DETAIL
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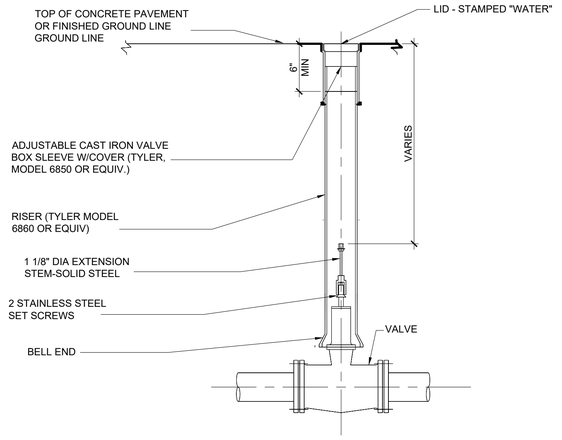

3 VALVE BOX
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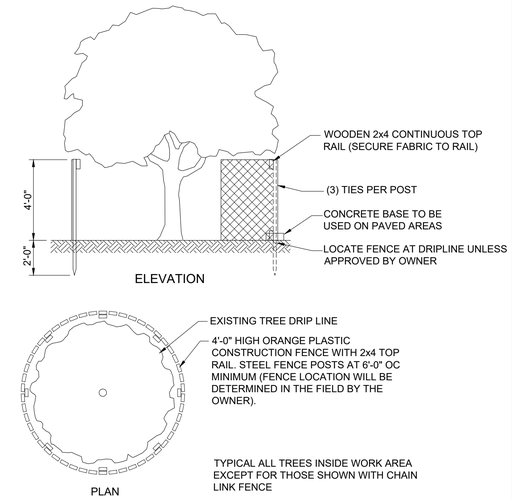
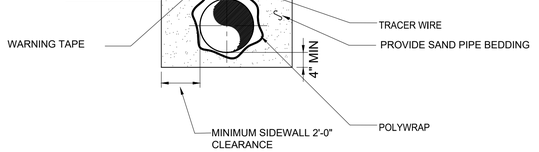
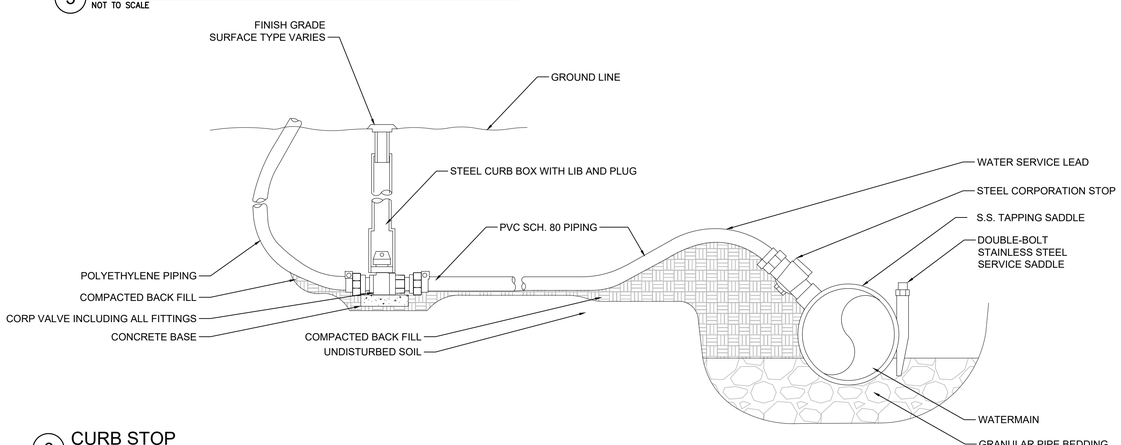


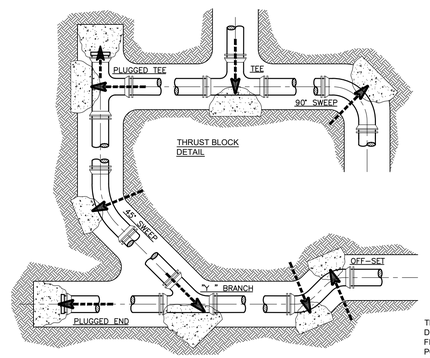
4 TREE PROTECTION FENCE LAYOUT
NOT TO SCALE



5 TYPICAL WATER PIPE EMBEDMENT AND INSTALLATION DETAIL
NOT TO SCALE



6 CURB STOP
NOT TO SCALE



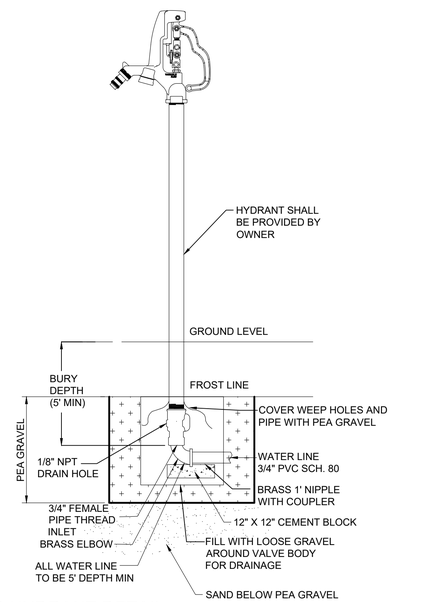
THRUST BLOCKS ARE REQUIRED AT PIPING DIRECTION CHANGES, AT DEAD ENDS, AND AT FIRE HYDRANTS. THRUST BLOCKS SHALL BE POURED-IN-PLACE CONCRETE 2,000 P.S.I. MINIMUM STRENGTH, A MINIMUM OF 18 INCHES THICK, AND SHALL BE CAST AGAINST A SOLID, UNDISTURBED EDGE OF TRENCH FOR BEARING. NO BOLTS, JOINTS OR DRAIN HOLES SHALL COME INTO CONTACT WITH THE CONCRETE THRUST BLOCK AND THE PIPE SHALL BE WRAPPED WITH A PLASTIC SHEET AT THE CONCRETE BEARING SURFACES. THE MINIMUM THICKNESS OF ANY THRUST BLOCK SHALL BE 18 INCHES.

SIZE INCHES	TEE OR DEAD END	90° BEND	45° BEND	22.5° BEND	11.25° BEND
4"	1.4	1.9	1.0	1.0	1.0
6"	2.8	4.0	2.1	1.1	1.0
8"	4.8	6.8	3.7	1.9	1.0
10"	7.3	10.3	5.6	2.8	1.4
12"	10.3	14.5	7.9	4.0	2.0
16"	17.8	25.2	13.6	7.0	3.5
20"	27.5	38.9	21.0	10.7	5.4
24"	39.2	55.5	30.0	15.3	7.7
30"	60.3	85.3	46.2	23.5	11.8
36"	86.4	122.2	66.1	33.7	16.9
42"	116.6	165.0	89.3	45.5	22.9
48"	152.0	215.0	116.3	59.3	29.8
54"	192.1	271.6	147.0	74.9	37.6

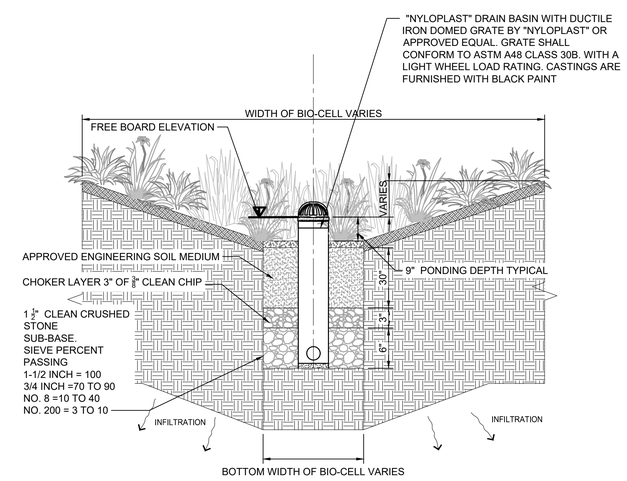
THE ABOVE AREAS ARE BASED UPON A SOIL BEARING CAPACITY OF 2000 PSF OF UNDISTURBED SOIL. IF ACTUAL SOIL BEARING STRENGTH IS LESS THAN 2000 PSF, THE THRUST BEARING AREA SHALL BE INCREASED BASED ON THE ACTUAL SOIL BEARING STRENGTH.

7 THRUST BLOCK BEARING AREA (in sq ft)
NOT TO SCALE

02510-F-01



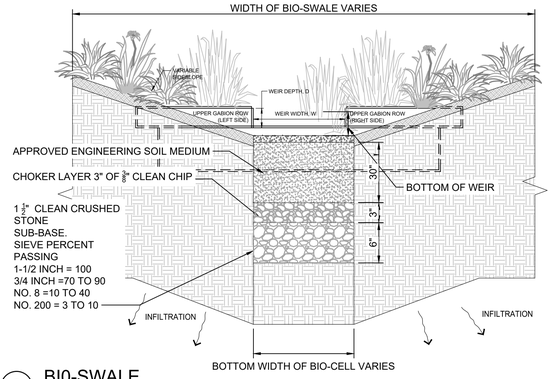
8 YARD HYDRANT DETAIL
NOT TO SCALE



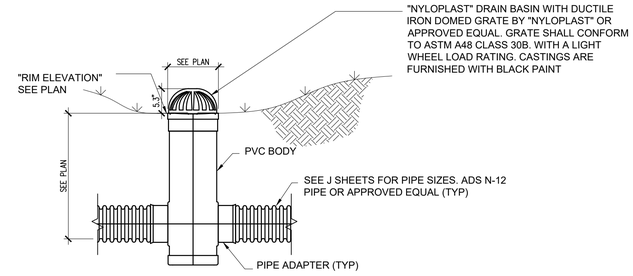
1 BI0-RETENTION CELL
NOT TO SCALE

COMPOST MEDIUM NOTES:

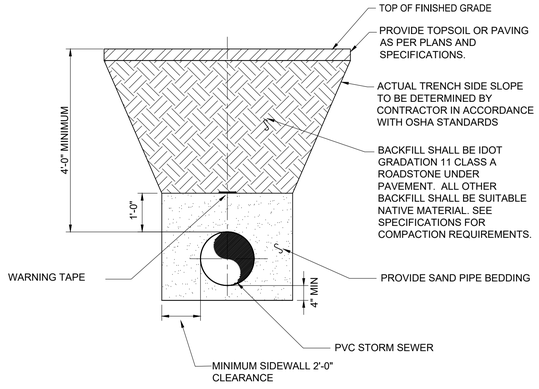
1. THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.
2. COMPOST MEDIUM SHALL BE WELL MIXED ON SITE AND SHALL CONSIST OF:
   A. 60% CONSTRUCTION SAND
   B. 30% ORGANIC COMPOST
   C. 10% QUALITY TOPSOIL W/ LESS THAN 5% MAX. CLAY CONTENT
3. ALL COSTS FOR MATERIALS, DELIVERY TO SITE, AND REQUIRED TEST ANALYSIS TO BE PAID FOR BY THE CONTRACTOR.
4. ENGINEERED COMPOST MEDIUM SHALL BE FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SHALL BE FREE OF NOXIOUS WEEDS.
5. FINAL ENGINEERED COMPOST MEDIUM SHOULD MEET THE THE FOLLOWING CRITERIA:
   A. pH RANGE : 5.2-7.0
   B. ORGANIC MATTER 5-10%
   C. SOLUBLE SALTS NOT TO EXCEED 500 PPM
6. WHEN BACKFILLING THE BIOSWALE CELL, PLACE COMPOST MEDIUM LIFTS IN 12" OR GREATER. DO NOT USE HEAVY EQUIPMENT WITHIN THE CELL. LIGHTWEIGHT EQUIPMENT SHALL BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SANDS.



2 BI0-SWALE
NOT TO SCALE



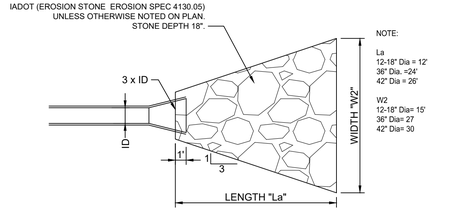
3 NYLOPLAST DRAIN BASIN
NOT TO SCALE



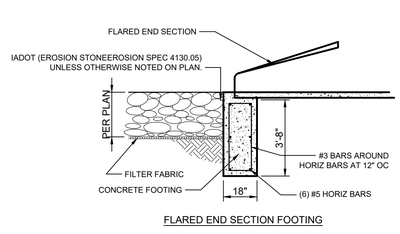
NOTE:

1. PIPING DIAMETER AS CALLED OUT ON PLANS. PIPING SHALL BE NORTH AMERICAN SPECIALTY PRODUCTS CERTA-FLO GREENLINE SDR 21 OR EQUAL.
2. GRAVITY SEWER MAINS SHALL BE SEPARATED FROM WATER MAINS BY A HORIZONTAL DISTANCE OF AT LEAST 10 FEET UNLESS:
   1) THE TOP OF A STORM MAIN IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN, AND,
   2) THE SEWER IS PLACED IN A SEPARATE TRENCH OR IN THE SAME TRENCH ON A BENCH OF UNDISTURBED EARTH AT A MINIMUM HORIZONTAL SEPARATION OF 3 FEET FROM THE WATER MAIN.

4 TYPICAL GRAVITY STORM PIPE EMBEDMENT AND INSTALLATION DETAIL
NOT TO SCALE



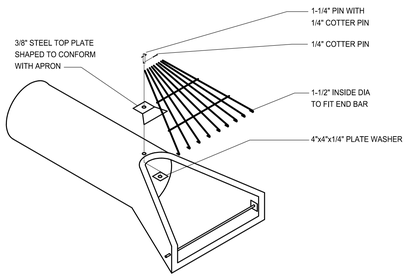
RIP-RAP DETAIL

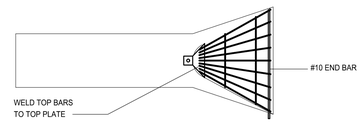


FLARED END SECTION FOOTING

5 RIP RAP AT FLARED END SECTION
NOT TO SCALE

02630-D-01

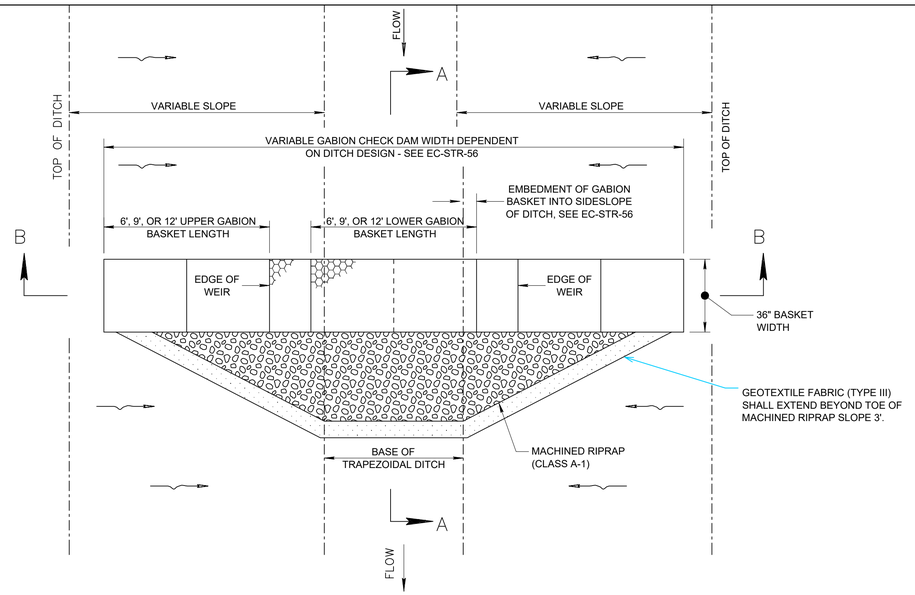




NOTE: ALL FLARED END SECTION SHALL HAVE APRON GUARDS FOR CMP INSTALL PERMANUFACTURES DETAIL

6 FLARED END SECTION APRON GAURD
NOT TO SCALE

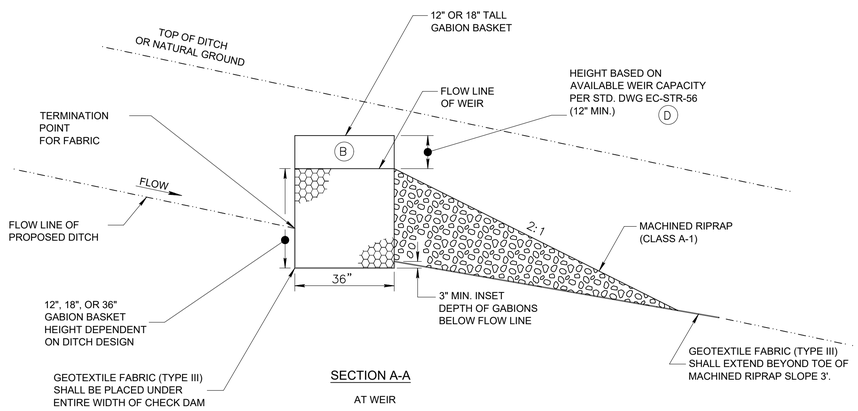
02630-D-01



PLAN VIEW

1 CHECKDAM DETAIL PLAN

NOT TO SCALE



SECTION A-A

AT WEIR

2 CHECK DAM SECTION A-A

NOT TO SCALE

SECTION B-B

3 CHECK DAM SECTION B-B

NOT TO SCALE

GABION CHECK DAM GENERAL NOTES

(A) GABION CHECK DAMS ARE USED FOR VELOCITY REDUCTION AND EROSION PREVENTION IN AREAS WHERE CONCENTRATED FLOWS EXIST. GABION CHECK DAMS ARE NOT TO BE USED FOR SEDIMENT CONTROL AND SHOULD NOT BE CONSIDERED A SEDIMENT TRAPPING DEVICE. GABION CHECK DAMS SHALL NOT BE USED IN STREAMS OR OTHER NATURAL WATER RESOURCES.

(B) HEIGHT OF UPPER GABION SHALL BE OF EQUAL OR LESSER HEIGHT THAN LOWER GABION AND SHALL NOT EXCEED 18".

(C) VERTICAL JOINTS OF GABION BASKETS SHALL BE STAGGERED.

(D) SIZE WEIR TO CONTAIN THE 2-YEAR, 24-HOUR STORM. CONTAIN DESIGN DISCHARGE WITHIN WEIR STRUCTURE WHERE POSSIBLE. FOR SITES WHICH DRAIN TO HIGH-QUALITY OR SEDIMENT-IMPAIRED STREAMS, THE WEIR SHALL BE SIZED TO CONTAIN THE 5-YEAR, 24-HOUR STORM.

(E) DIAPHRAGMS SEPARATE INDIVIDUAL GABION CELLS.

(F) BASKET-TO-BASKET CONNECTIONS SHALL BE AS DIRECTED ON STD. DWG. EC-STR-57 & EC-STR-58.

GABION CHECK DAM GENERAL NOTES

A GABIONS SHALL BE APPLIED AS CHECK DAMS WHERE ALLOWABLE MAXIMUM SHEAR FORCES AND VELOCITIES FOR LOOSE RIP RAP ARE EXCEEDED.

B GABION CHECK DAMS SHALL NOT BE USED IN STREAMS.

C GABION CHECK DAMS ARE TO BE USED, PRIMARILY AS AN EROSION CONTROL MEASURE FOR VELOCITY REDUCTION. THE 2-YEAR PEAK FLOW RATE MUST BE LESS THAN OR EQUAL TO THE WEIR FLOW SHOWN FOR THE SELECTED GABION CHECK DAM CONFIGURATION. AT SITES WHICH DRAIN TO HIGH-QUALITY OR SEDIMENT-IMPAIRED STREAMS, THE 5-YEAR PEAK FLOW RATE MUST BE LESS THAN OR EQUAL TO THE WEIR FLOW SHOWN ON THE TABLE.

D GABION CHECK DAMS SHALL REMAIN IN PLACE AS PERMANENT CHECK DAMS, AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

E THE CENTER OF THE GABION CHECK DAM MUST BE AT LEAST ONE (1) FOOT LOWER THAN THE OUTER EDGES. THIS WILL ELIMINATE THE BASKET-SOIL FAILURE POINT WHERE THE GABION CHECK DAM AND NATURAL GROUND MERGE.

F WIRE MESH GABION ALTERNATES:
1. WELDED MESH - WELDED WIRE MESH WITH A UNIFORM SQUARE OR RECTANGULAR PATTERN AND RESISTANCE WELD AT EACH INTERSECTION. THE WELDED WIRE CONNECTIONS SHALL CONFORM WITH THE REQUIREMENTS OF ASTM A185, INCLUDING WIRE SMALLER THAN W1.2 (0.124 IN.), EXCEPT THAT THE WELDED CONNECTIONS SHALL HAVE A MINIMUM AVERAGE SHEAR STRENGTH OF 70% AND A MINIMUM SHEAR STRENGTH OF 60% OF THE MINIMUM ULTIMATE TENSILE STRENGTH OF THE WIRE. WIRE SHALL BE GALVANIZED AFTER THE FORMING OF THE WELDED MESH.

G WIRE FOR FABRICATION AND ASSEMBLY SHALL BE HOT-DIPPED GALVANIZED. THE WIRE SHALL HAVE A MINIMUM TENSILE STRENGTH OF 60,000 PSI. GALVANIZED STEEL WIRE SHALL CONFORM TO ASTM A641, CLASS 3, SOFT TEMPER.

H TYPE 1, TYPE 2 AND TYPE 3 FASTENERS MUST PROVIDE A MINIMUM STRENGTH OF 1,400 POUNDS PER LINEAR FOOT FOR GABION BASKETS. ALL FASTENERS SHALL MEET ALL OF THE COATING REQUIREMENTS OF THE GABION MANUFACTURER IN ADDITION TO ANY REQUIREMENTS SPECIFIED IN THESE GENERAL NOTES.

I TYPE 4 SPIRAL BINDERS ARE FOR WELDED-MESH GABION BASKETS ONLY AND SHALL BE FORMED FROM WIRE MEETING THE SAME QUALITY AND COATING THICKNESS REQUIREMENTS AS SPECIFIED FOR THE GABION BASKETS.

J FOUNDATION PREPARATION - SURFACE IRREGULARITIES, LOOSE MATERIAL, VEGETATION, AND ALL FOREIGN MATTER SHALL BE REMOVED FROM FOUNDATIONS.

K ASSEMBLY - ROTATE THE GABION PANELS INTO POSITION AND JOIN THE VERTICAL EDGES WITH FASTENERS FOR GABION ASSEMBLY. WHERE LACING WIRE IS USED, WRAP THE WIRE WITH ALTERNATING SINGLE AND DOUBLE HALF-HITCHES AT INTERVALS BETWEEN FOUR (4) TO FIVE (5) INCHES. WHERE RING TYPE ALTERNATE FASTENERS ARE USED FOR BASKET ASSEMBLY, INSTALL THE FASTENERS AT A MAXIMUM SPACING OF 6 INCHES. USE THE SAME FASTENING PROCEDURES TO INSTALL INTERIOR DIAPHRAGMS WHERE THEY ARE REQUIRED. INTERIOR DIAPHRAGMS WILL BE REQUIRED WHEN ANY INSIDE DIMENSION OF A GABION BASKET EXCEEDS 3 FEET.

L PLACEMENT - PLACE THE EMPTY GABIONS ON THE FOUNDATION AND INTERCONNECT THE ADJACENT GABIONS ALONG THE TOP, BOTTOM, AND VERTICAL EDGES USING LACING WIRE. WRAP THE WIRE WITH ALTERNATING SINGLE AND DOUBLE HALF-HITCHES AT INTERVALS BETWEEN FOUR (4) TO SIX (6) INCHES. SPIRAL FASTENERS ARECOMMONLY USED FOR THE ASSEMBLY AND INTERCONNECTION OF WELDED MESH GABIONS.SPIRALS ARE SCREWED DOWN AT THE CONNECTING EDGES, THEN EACH END OF THE SPIRAL ISSECURELY TIED DOWN TO PREVENT UNRAVELING. LACING MAY BE USED AS NEEDED TOSUPPLEMENT THE INTERCONNECTION OF WELDED MESH GABIONS, AND THE CLOSING OF LIDS. FOR GABION LACING DETAILS, SEE EC-STR-57.

GABION CHECK DAM GENERAL NOTES (CONT.)

M UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE VERTICAL JOINTS BETWEEN GABION BASKET UNITS OF ADJACENT LAYERS OR TIERS, ALONG THE LENGTH OF THE CHECK DAM, SHALL BE STAGGERED BY A MINIMUM OF ONE CELL.

N FILLING OPERATION

1. FOR REINFORCEMENT, INTERNAL CONNECTING WIRES SHALL BE PLACED IN EACH UNRESTRAINED GABION CELL 18 INCHES OR GREATER IN HEIGHT, INCLUDING GABION CELLS LEFT TEMPORARILY UNRESTRAINED. TWO INTERNAL CONNECTING WIRES SHALL BE PLACED (TWO ACROSS THE WIDTH AND TWO ACROSS THE LENGTH) CONCURRENTLY WITH ROCK PLACEMENT, AT THE SPECIFIED DEPTH INTERVAL.
2. IN WELDED MESH GABIONS, OPTIONAL CORNER STIFFENERS MAY BE USED IN LIEU OF INTERNAL CONNECTING WIRE REINFORCEMENT. WHEN USED, DIAGONAL STIFFENERS SHALL BE PLACED ACROSS THE CORNERS OF THE GABIONS AT 12 INCHES FROM CORNERS AS DETAILED ON STANDARD DRAWING EC-STR-58. LACING WIRE OR PREFORMED HOOKING WIRE STIFFENERS MAY BE USED.

3. THE GABIONS SHALL BE CAREFULLY FILLED WITH ROCK, BY HAND METHODS, ENSURING ALIGNMENT, AVOIDING BULGES, AND PROVIDING A COMPACT MASS THAT MINIMIZES VOIDS. THE CELLS IN ANY ROW SHALL BE FILLED IN STAGES SO THAT THE DEPTH OF ROCK PLACED IN ANY ONE CELL DOES NOT EXCEED THE DEPTH OF ROCK IN ANY ADJOINING CELL BY MORE THAN 3 INCHES. ALONG THE EXPOSED FACES, THE OUTER LAYER OF STONE SHALL BE CAREFULLY PLACED AND ARRANGED BY HAND TO ENSURE A NEAT, COMPACT PLACEMENT WITH A UNIFORM APPEARANCE.

4. THE LAST LAYER OF ROCK SHALL BE UNIFORMLY LEVELED TO THE TOP EDGES OF THE GABIONS. LIDS SHALL BE STRETCHED TIGHT OVER THE ROCK FILLING USING ONLY APPROVED LID CLOSING TOOLS AS NECESSARY. THE USE OF CROWBARS OR OTHER SINGLE POINT LEVERAGE BARS FOR LID CLOSING IS PROHIBITED, AS THEY MAY DAMAGE THE BASKETS. THE LID SHALL BE STRETCHED UNTIL IT MEETS THE PERIMETER EDGES OF THE FRONT AND END PANELS. THE GABION LID SHALL THEN BE SECURED TO THE SIDES, ENDS, AND DIAPHRAGMS WITH SPIRAL BINDERS, INTERLOCKING WIRE, OVERLAPPING RING FASTENERS, OR LACING WIRE WRAPPED WITH ALTERNATING SINGLE AND DOUBLE HALF-HITCHES IN THE MESH OPENINGS.

O CARE SHOULD BE TAKEN WHEN PLACING ROCK IN GABIONS TO INSURE THAT THE GABION BASKETS WILL NOT BE DAMAGED OR BROKEN.

P ROCK OR STONE SIZE FOR USE IN GABION BASKETS SHALL BE BETWEEN 4 AND 8 INCHES WITH A D OF 6 INCHES (MINIMUM) AND SHALL CONSIST OF LIMESTONE OUTCROPPING OR LIMESTONE QUARRY STONE. THE SPECIFIC GRAVITY OF INDIVIDUAL STONES SHALL BE A MINIMUM OF 2.6. STONES SHALL BE OF A QUALITY THAT WILL NOT DISINTEGRATE WITH EXPOSURE TO WATER OR WEATHERING.

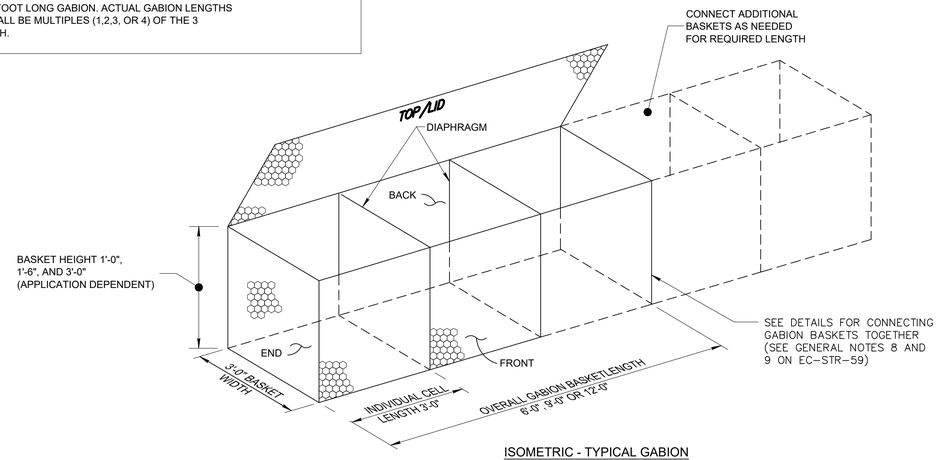
Q GEOTEXTILE FABRIC (TYPE III) SHALL MEET REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GEOTEXTILES AASHTO DESIGNATION M-288, EROSION CONTROL.

R GABION CHECK DAMS SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBERS:

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, EXCAVATION, AND LABOR NECESSARY FOR CONSTRUCTION AND MAINTENANCE OF THE GABION CHECK DAMS.

S SEDIMENT SHALL BE REMOVED FROM BEHIND THE GABION CHECK DAMS WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE DAM

EXAMPLE BELOW SHOWS 3-CELLED, 9 FOOT LONG GABION BASKET WITH ATTACHED 6 FOOT LONG GABION. ACTUAL GABION LENGTHS WILL VARY, BUT SHALL BE MULTIPLES (1,2,3, OR 4) OF THE 3 FOOT BASKET WIDTH.

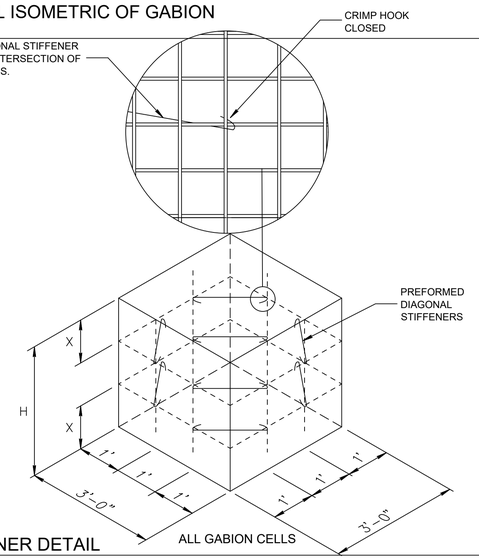


ISOMETRIC - TYPICAL GABION

N.T.S.

1 TYPICAL ISOMETRIC OF GABION

NOT TO SCALE



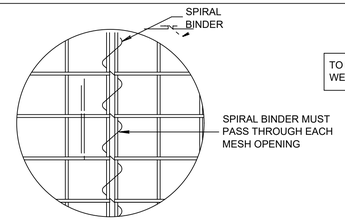
3 STIFFENER DETAIL

NOT TO SCALE

CELL HEIGHT H (FT)	DIAGONAL STIFFENER SPACING, X
3'-0"	1/3H & 2/3H
1'-6"	1/2H
1'-0"	NONE

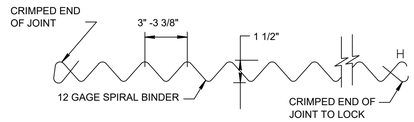
OPTIONAL DIAGONAL CORNER STIFFENERS FOR WELDED WIRE GABION BASKETS

N.T.S.

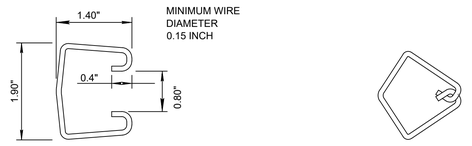


TO BE USED WITH WELDED MESH ONLY

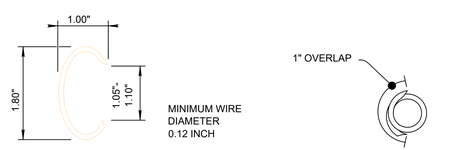
WELDED MESH GABION SPIRAL BINDER LACING DETAIL



TYPE 4 FASTENER SPIRAL BINDER



TYPE 1 FASTENER INTERLOCKING WIRE



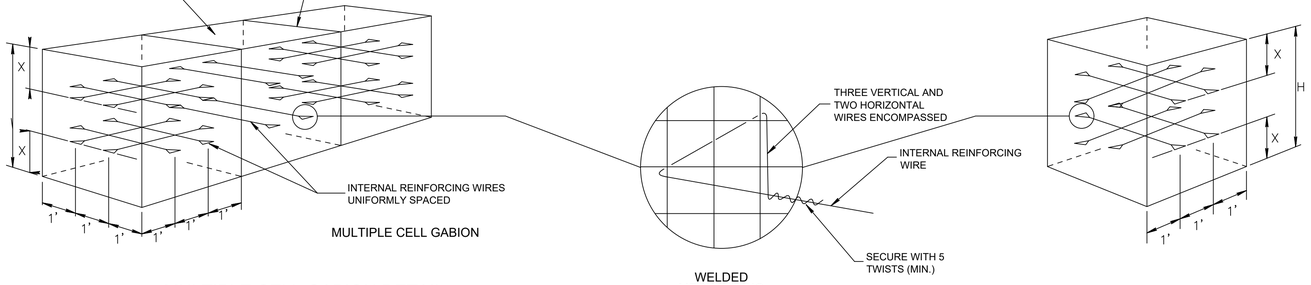
TYPE 2 FASTENER OVERLAPPING RING

NOTE: DIMENSIONS SHOWN ARE NOMINAL

INSTALL TYPE 1 OR TYPE 2 FASTENERS AT EACH MESH OPENING ALONG GABION BASKET EDGE.

2 FASTENER WIRE DETAIL

NOT TO SCALE



4 MULTIPLE CELL GABION DETAIL

NOT TO SCALE

GABION CHECK DAM COMPONENT PROPERTIES *

TYPE OF WIRE	MESH SIZE (INCHES)	U.S WIRE (GAGE)	GALVANIZED ZINC COATING (0Z/S.F.)	TOTAL DIAMETER CORE WIRE (INCHES)
WELDED WIRE MESH	3.00 X 3.00	12	0.8	0.105
SELVEDGE	—	10	0.8	0.130
LACING WIRE	—	13.5	0.8	0.087
INTERNAL REINFORCING WIRE	—	13.5	0.8	0.087
SPIRAL BINDER	—	12	0.8	0.105

* ALL COMPONENTS SHALL BE HOT-DIPPED GALVANIZED STEEL (SEE NOTE 6B REGARDING WELDED MESH GABIONS).

CELL HEIGHT H (FT)	TIE WIRE SPACING, X
3'-0"	1/3H & 2/3H
1'-6"	1/2H
1'-0"	NONE

PLACEMENT OF INTERNAL CONNECTING WIRE REINFORCEMENT

N.T.S.

SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 04/26/2022 | SHEET NAME: DETAILS | SHEET NO.: U1.06

STRUCTURAL GENERAL NOTES

1. ELEVATIONS GIVEN ON THE PLANS ARE TO TOP (UNLESS NOTED OTHERWISE) OF BEAMS, WALLS, ETC. WITH RESPECT TO THE REFERENCE ELEVATION OF THE FINISHED FLOOR. ELEVATIONS FOR LINTELS ARE TO THE BOTTOM OF LINTELS.

2. GOVERNING BUILDING CODE: 2021 INTERNATIONAL BUILDING CODE (IBC).

3. CONTRACTOR TO VERIFY ALL FIELD CONDITIONS AND DIMENSIONS PRIOR TO FABRICATION OR INSTALLATION OF ITEMS.

4. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, SHOP DRAWINGS, AND SPECIFICATIONS.

5. THE COMPLETED LATERAL-FORCE RESISTING SYSTEMS AND DIAPHRAGMS ARE REQUIRED FOR THE STRUCTURE TO RESIST LATERAL LOADS AND PROVIDE STABILITY UNDER GRAVITY LOADS. DURING THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL PROVIDE ALL REQUIRED BRACING DURING CONSTRUCTION TO MAINTAIN THE STABILITY AND SAFETY OF ALL STRUCTURAL ELEMENTS UNTIL THE LATERAL-LOAD RESISTING OR STABILITY-PROVIDING SYSTEM IS COMPLETELY INSTALLED AND THE STRUCTURE IS COMPLETELY TIED TOGETHER.

6. UNLESS OTHERWISE NOTED, DETAILS SHOWN ON ANY DRAWING ARE TO BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.

7. GOVERNING DESIGN CODE IS THE INTERNATIONAL BUILDING CODE 2021 EDITION.

   7.1. RISK CATEGORY: II

   7.2. LIVE LOADS

      7.2.1. ROOF LIVE LOAD: 20 PSF

   7.3. DEAD LOADS

      7.3.1. SHOWER HOUSE TYPICAL ROOF DEAD LOAD: 20 PSF TOP CHORD, 20 PSF BOTTOM CHORD + STRUCTURE WT.+SPECIFIC EQUIP. LOADS
      7.3.1 WOOD SHED TYPICAL ROOF DEAD LOAD: 10 PSF

   7.4. SEISMIC LOAD

      7.4.1. RISK CATEGORY: II
      7.4.2. IMPORTANCE FACTOR: 1.00
      7.4.3. SITE CLASS: "D"
      7.4.4. MAPPED SPECTRAL RESPONSE COEFFICIENTS: Ss=0.072 S1=0.058
      7.4.5. SEISMIC DESIGN CATEGORY: "B"
      7.4.6. SPECTRAL RESPONSE COEFFICIENTS: Sds = 0.077 Sd1 = 0.093
      7.4.7. ANALYSIS PROCEDURE USED (SHOWER HOUSE): EQUIVALENT LATERAL FORCE PROCEDURE
      7.4.8 ANALYSIS PROCEDURE USED (WOOD SHED): DETERMINED BY BUILDING MANUFACTURER
      7.4.9. SEISMIC RESPONSE COEFFICIENT (SHOWER HOUSE): Cs = 0.026
      7.4.10 SEISMIC RESPONSE COEFFICIENT, Cs (WOOD SHED): DETERMINED BY BUILDING MANUFACTURER
      7.4.11 BASIC SEISMIC FORCE-RESISTING SYSTEM (SHOWER HOUSE): ORDINARY PRECAST SHEAR WALLS
      7.4.12 BASIC SEISMIC FORCE-RESISTING SYSTEM (WOOD SHED): DETERMINED BY BUILDING MANUFACTURER
      7.4.13 RESPONSE MODIFICATION FACTOR (SHOWER HOUSE): R = 3.0
      7.4.14 RESPONSE MODIFICATION FACTOR, R (WOOD SHED): DETERMINED BY BUILDING MANUFACTURER

   7.5. WIND PRESSURE ON BUILDING

      7.5.1. BASIC WIND SPEED (3-SECOND GUST): 115 MPH
      7.5.2. RISK CATEGORY: II
      7.5.3. EXPOSURE CLASSIFICATION: B
      7.5.4. INTERNAL PRESSURE COEFFICIENT: ± 0.18

   7.6. SOIL NET ALLOWABLE BEARING CAPACITY: 1500 PSF

   7.7. ROOF SNOW LOADS

      7.7.1. GROUND SNOW LOAD: Pg = 25 PSF
      7.7.2. FLAT-ROOF SNOW LOAD (SHOWER HOUSE): Pf = 20 PSF
      7.7.3. FLAT-ROOF SNOW LOAD (WOOD SHED): Pf = 21 PSF
      7.7.4. SNOW EXPOSURE FACTOR: Ce = 1.0
      7.7.5. SNOW LOAD IMPORTANCE FACTOR: I = 1.0
      7.7.6. THERMAL FACTOR (SHOWER HOUSE): Ct = 1.1
      7.7.7. THERMAL FACTOR (WOOD SHED): Ct = 1.2

   7.8 WOOD SHED: REFER TO SPECIFICATION SECTION 13 3400 ENGINEERED POST FRAME STRUCTURES.

8. CONCRETE

   8.1. CONCRETE SHALL BE 4,500 PSI, STRENGTH ATTAINABLE AFTER 28 DAYS (ASTM C39). SLAB-ON-GRADE CONCRETE SHALL BE 4,000 PSI AT 28 DAYS. SLUMP OF CONCRETE SHALL BE TESTED ON SITE AT TIME OF DELIVERY AND SHALL NOT EXCEED 4". ALL FORMED SURFACES SHALL BE DAMPENED; PLACE CONCRETE IN SUCCESSIVE LIFTS NOT TO EXCEED 48" IN HEIGHT IN WALLS. WHILE PLACING,VIBRATE MIXTURE AND TAMP FORMS TO ENSURE CONSOLIDATION OF MATERIAL IN FORMWORK. SEE SPECIFICATIONS FOR ADDITIONAL MATERIAL AND CURE REQUIREMENTS.

   8.2. CONCRETE FINISH
      8.2.1. SLAB-ON-GRADE: WHERE CONCRETE DENSIFIER IS CALLED OUT ON ARCHITECTURAL DRAWINGS, FINISH CONCRETE SURFACE USING BROOM FINISH. APPLY CONCRETE DENSIFIER/HARDENER TO SURFACE OF FRESH CONCRETE PER MANUFACTURER REQUIREMENTS. DO NOT OVER APPLY PRODUCT. DO NOT ALLOW MATERIAL TO PUDDLE ON THE SURFACE. APPROVED PRODUCT: LIQUI-HARD ULTRA BY W.R. MEADOWS.
      8.2.2. FOR REMAINING SURFACES, REFER TO SPECIFICATIONS.

   8.3. REINFORCING: MILD STEEL REINFORCING MINIMUM YIELD STRENGTH 60 KSI, EPOXY COATED WHERE INDICATED.

   8.4. REINFORCEMENT PROTECTION:

      8.4.1. CONCRETE PLACED AGAINST EARTH: 3"
      8.4.2. CONCRETE PLACED IN FORMS BUT EXPOSED TO WEATHER OR EARTH:

         8.4.2.1. BARS #5 AND SMALLER: 2"
         8.4.2.2. BARS LARGER THAN #5: 2"
         8.4.2.3. STRUCTURAL SLABS (TOP AND BOTTOM): 2"

   8.5. NO SPLICES OF REINFORCEMENT PERMITTED EXCEPT AS DETAILED OR AUTHORIZED BY ENGINEER. MAKE BARS CONTINUOUS AROUND CORNERS. WHERE PERMITTED PROVIDE SPLICES BY CONTACT LAP. WHERE CLASSES ARE NOT CALLED OUT ON DRAWINGS USE CLASS "B" TENSION SPLICE.

   8.6. DETAIL BARS IN ACCORDANCE WITH "ACI DETAILING MANUAL", PUBLICATION SP-66, AND "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318.

   8.7. ROUGHEN ALL CONSTRUCTION JOINTS TO AN AMPLITUDE OF AT LEAST 1/4".

9. METALS

   9.1. STRUCTURAL STEEL: MINIMUM YIELD STRENGTH 50 KSI FOR WIDE FLANGES, 35 KSI FOR PIPE, 50 KSI FOR TUBES, AND 36 KSI ALL ELSE UNLESS NOTED OTHERWISE. REFER TO THE SPECIFICATIONS FOR REQUIREMENTS.

   9.2. USE STANDARD FRAMED BEAM CONNECTIONS FOR WIDE FLANGE AND CHANNEL CONNECTIONS AND SINGLE PLATE SHEAR CONNECTIONS FOR PIPE AND HSS CONNECTIONS MEETING REQUIREMENTS OF AISC "STEEL CONSTRUCTION MANUAL", 15TH EDITION, WITH 3/4" MINIMUM DIAMETER A325 BOLTS (OR WELDED EQUIVALENT) UNLESS OTHERWISE NOTED. MINIMUM OF TWO (2) ROWS OF BOLTS PER CONNECTION. SIZE CONNECTION FOR 3/4 OF TOTAL UNIFORM LOAD CAPACITY OF THE BEAMS.

   9.3. USE E70XX ELECTRODES FOR ALL SHOP AND FIELD WELDS. PROVIDE WELD SIZE IN ACCORDANCE WITH THE AISC SPECIFICATIONS, BUT NOT LESS THAN 3/16" FILLET, CONTINUOUS UNLESS OTHERWISE NOTED.

   9.4. WELDERS: SHOW CURRENT EVIDENCE OF PASSING THE APPROPRIATE A.W.S. CERTIFICATION TESTS.

   9.5. THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT PRIOR APPROVAL OF THE ENGINEER.

   9.6. ALL STRUCTURAL STEEL SHALL BE PRIME PAINTED. SEE ARCHITECTURAL FOR FINISH SCHEDULE.

   9.7. ALL EXTERIOR AND INTERIOR EXPOSED STRUCTURAL STEEL SHALL RECEIVE THE FOLLOWING COATING SYSTEM:
      1. TNEMEC SERIES N69 H.B. EPOXOLINE II (TWO COATS AT 3 MILS.)
      2. TNEMEC SERIES 1075U ENDURA-SHIELD II (ONE COAT AT 3 MILS.)

10. FOUNDATIONS

   10.1. THE GENERAL CONTRACTOR SHALL BE REQUIRED TO READ AND FOLLOW ALL RECOMMENDATIONS IN THE SOILS INVESTIGATION REPORT THAT WAS CONDUCTED BY TEAM SERVICES (SUBMITTED ON JANUARY 27, 2015). TEAM SERVICES PROJECT NUMBER 1-3658.

   10.2. FOUNDATIONS DESIGNED FOR ASSUMED BEARING CAPACITY LISTED ABOVE. SEE SPECIFICATION FOR STRUCTURAL EXCAVATION, BACKFILL, AND SOIL COMPACTION REQUIREMENTS.

   10.3 CONTRACTOR SHALL VERIFY IN-SITU SOIL BEARING CAPACITY AND SHALL NOTIFY ENGINEER OF ANY UNUSUAL SOIL CONDITIONS THAT ARE IN VARIANCE WITH THE ASSUMED BEARING PRESSURE.

11. SEALANTS

   11.1. FLOOR SEALANTS AND CONSTRUCTION JOINT SEALANTS: REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

12. MASONRY

   12.1 MASONRY MATERIALS AND CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF "SPECIFICATION FOR MASONRY STRUCTURES AND RELATED COMMENTARIES" (TMS 602) PUBLISHED BY THE MASONRY SOCIETY, EXCEPT WHERE REQUIREMENTS ARE EXCEEDED BY THESE CONTRACT DOCUMENTS. REFER TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

   12.2. MORTAR AND GROUT

      12.2.1. PORTLAND CEMENT, ASTM C150, TYPE I, WITHOUT AIR ENTRAINMENT, OF NATURAL COLOR.
      12.2.2. USE TYPE III HIGH-EARLY-STRENGTH AS REQUIRED FOR LAYING MASONRY IN COLD WEATHER.
      12.2.3. MASONRY CEMENT, ASTM C91, NON-STAINING, EXCEPT WITH 12% MAXIMUM AIR CONTENT BY VOLUME.
      12.2.4. HYDRATED LIME, ASTM C207, TYPE S.
      12.2.5. AGGREGATES, ASTM C144, EXCEPT FOR JOINTS LESS THAN ¼-INCH USE AGGREGATE GRADED WITH 100% PASSING THE NO. 16 SIEVE.
      12.2.6. MORTAR FOR CONCRETE MASONRY UNITS SHALL BE NATURAL LIGHT GREY, TYPE S CEMENT-LIME MORTAR CONFORMING TO THE PROPORTION SPECIFICATION OF ASTM C270.
      12.2.7. GROUT FOR CONCRETE MASONRY UNIT BOND BEAMS, GROUTED VOIDS/CORES, OR LINTELS:

         12.2.7.1. COMPLY WITH ASTM C476. PROPORTIONS ESTABLISHED BY 28-DAY COMPRESSIVE STRENGTH TESTS IN ACCORDANCE WITH TEST METHOD C1019 THAT OBTAIN THE SPECIFIED COMPRESSIVE STRENGTH. THE MINIMUM 28-DAY COMPRESSIVE STRENGTH OF GROUT SHALL BE NOT LESS THAN 2500 PSI AND F'M (NET AREA COMPRESSIVE STRENGTH OF MASONRY).
         12.2.7.2. USE GROUT OF TYPE INDICATED OR, IF NOT OTHERWISE INDICATED, OF TYPE (FINE OR COARSE) THAT WILL COMPLY WITH TABLE 1.16.1 IN ACI 530.1/ASCE 6/TMS 602 FOR DIMENSIONS OF GROUT SPACES AND POUR HEIGHT.
         12.2.7.3. PROVIDE GROUT WITH A SLUMP OF 8 TO 10 INCHES AS MEASURED ACCORDING TO ASTM C 143/C 143M.

   12.3. CONCRETE MASONRY UNITS

      12.3.1. DEVELOP 2000 PSI ULTIMATE COMPRESSIVE STRENGTH (F'M) IN 28 DAYS.
      12.3.2. CONCRETE MASONRY UNITS SHALL BE MODULAR, NOMINAL SIZED TWO CORE UNITS, WITH WIDTH AND FACE FINISH, PLAIN OR SPLIT FACE BLOCK AS INDICATED IN DRAWINGS (MEETING ASTM C140). UNITS EXPOSED TO THE EXTERIOR SHALL HAVE A WATER REPELLING ADMIXTURE INCORPORATED DURING MANUFACTURE. ALL COURSING SHALL BE LAID IN RUNNING BOND PATTERN.
      12.3.3. CONCRETE BLOCK SHALL BE MANUFACTURER'S STANDARD UNITS WITH NOMINAL FACE DIMENSIONS OF 16" LONG X 8" HIGH (15-5/8" X 7-5/8" ACTUAL), UNLESS OTHERWISE INDICATED. PROVIDE SPECIAL SHAPES FOR LINTELS, CORNERS, JAMBS, SASH, CONTROL JOINTS, HEADERS, BONDING, AND OTHER SPECIAL CONDITIONS.
      12.3.4. PROVIDE BULLNOSE BLOCK FOR EXPOSED OUTSIDE CORNERS AT INTERIOR WALLS.

   12.4. MASONRY JOINT REINFORCEMENT

      12.4.1. GENERAL

         12.4.1.1. ASTM A 951
         12.4.1.2. INTERIOR WALLS: HOT-DIP GALVANIZED, CARBON STEEL
         12.4.1.3. WIRE SIZE FOR SIDE RODS: W1.7 OR 0.148 INCH DIAMETER
         12.4.1.4. WIRE SIZE FOR CROSS RODS: W1.7 OR 0.148-INCH DIAMETER.
         12.4.1.5. PROVIDE IN LENGTHS OF NOT LESS THAN 10 FEET (3 M), WITH PREFABRICATED CORNER AND TEE UNITS.
         12.4.1.6. MASONRY JOINT REINFORCEMENT FOR SINGLE-WYTHE MASONRY: EITHER LADDER OR TRUSS TYPE WITH SINGLE PAIR OF SIDE RODS.

   12.5. MASONRY REINFORCEMENT

      12.5.1. REINFORCE INTERIOR 8" AND 6" MASONRY WALLS WITH HORIZONTAL JOINT REINFORCEMENT AT 16" O.C., UNLESS DETAILED OTHERWISE OR AUTHORIZED BY ENGINEER.
      12.5.2. REINFORCE ALL MASONRY WALLS WITH VERTICAL BARS AS SHOWN ON THE DRAWINGS. REINFORCING BARS: DEFORMED BARS, MINIMUM YIELD STRENGTH 60 KSI, CENTER REINFORCING IN WALLS.
      12.5.3. SPLICES NOT PERMITTED IN REINFORCING BARS EXCEPT AS DETAILED OR AUTHORIZED BY ENGINEER. WHERE PERMITTED, SPLICES MADE BY CONTACT LAPS, A MINIMUM OF 60 BAR DIAMETERS.
      12.5.4. FILL VOIDS AND BLOCK CELLS SOLIDLY WITH GROUT FULL HEIGHT AND 12" EACH SIDE OF BEAM REACTIONS OR OTHER CONCENTRATED LOADS IF NOT OTHERWISE REINFORCED
      12.5.5. UNLESS NOTED OTHERWISE, PROVIDE:

         12.5.5.1. (1) #5 BAR VERTICALLY IN GROUTED CELLS IMMEDIATELY ADJACENT TO ENDS OF WALLS, VERTICAL CONTROL JOINTS, WALL INTERSECTIONS, WALL CORNERS AND EACH SIDE OF WALL OPENINGS.

      12.5.6. ALL MASONRY WALLS SHALL HAVE VERTICAL CONTROL JOINTS AT A MAXIMUM SPACING OF 25 FEET. COORDINATE CONTROL JOINTS WITH LOCATIONS INDICATED ON ARCHITECTURAL DRAWINGS.

   12.6. INSTALLATION

      12.6.1. JOINTS TO BE FINISHED CONCAVE.
      12.6.2. LAY HOLLOW CONCRETE MASONRY UNITS WITH FULL MORTAR COVERAGE ON HORIZONTAL AND VERTICAL FACE SHELLS. FULL MORTAR BED JOINT AT BASE OF WALLS, ON TOP OF FOUNDATIONS WALLS AND FOOTINGS, AND IN ALL COURSES ON PIERS, COLUMNS AND PILASTERS, AND WHERE ADJACENT TO CELLS OR CAVITIES TO BE REINFORCED OR FILLED WITH CONCRETE OR GROUT.
      12.6.3. DOWELS IN FOOTINGS SHALL BE PLACED TO ALIGN WITH CORES CONTAINING REINFORING STEEL. COORDINATE PLACEMENT BEFORE CONSTRUCTION OF FOOTING BEGINS.
      12.6.4 THE CONCRETE MASONRY WALLS WERE DESIGNED TO SPAN VERTICALLY AND BE BRACED BY THE ROOF AND FLOOR FRAMING ELEMENTS OF THE STRUCTURE. DURING CONSTRUCTION THE MASONRY CONTRACTOR SHALL PROVIDE LATERAL BRACING UNTIL THE ROOF STRUCTURE IS INSTALLED AS RECOMMENDED BY TMS 402 AND THE LATEST REVISION OF "STANDARD PRACTICE FOR BRACING MASONRY WALLS UNDER CONSTRUCTION", PREPARED BY THE COUNCIL FOR MASONRY WALL BRACING.

13. WOOD

   13.1 FOR WOOD SHED, REFER TO SPECIFICATION SECTION 13 3400 ENGINEERED POST FRAME STRUCTURES FOR DESIGN AND CONSTRUCTION REQUIREMENTS.

   13.2. FOR WOOD TRUSSES, REFER TO SPECIFICATION SECTION 06 1753 SHOP-FABRICATED WOOD TRUSSES FOR DESIGN AND CONSTRUCTION REQUIREMENTS.

   13.3. ALL METAL TO WOOD OR WOOD TO WOOD CONNECTIONS SHALL BE STANDARD OR AS DETAILED ON THE DRAWINGS. ALL GALVANIZED BOLTS AND LAG SCREW HEADS IN CONTACT WITH WOOD SHALL HAVE PLATES OR WASHERS AS DETAILED OR SPECIFIED. THE MINIMUM SIZE WASHER EQUALS 2" DIAMETER.

   13.4. ALL FRAMING ANCHORS, HURRICANE TIES, AND HANGERS INDICATED ON THE DRAWINGS ARE GALVANIZED "SIMPSON COMPANY" OR EQUAL. UNLESS OTHERWISE DETAILED, ALL BEAMS AND JOISTS SHALL RECEIVE HANGERS WITH A NORMAL LOAD CAPACITY EQUAL TO THE SHEAR CAPACITY OF THE SUPPORTED MEMBER. HANGERS LOCATED IN CONTACT WITH TREATED WOOD OR WET CONDITIONS SHALL BE Z-MAX OR STAINLESS STEEL

   13.5. LAG SCREWS SHALL BE PRE-DRILLED WITH LEAD HOLES AS FOLLOWS:

      13.5.1. THE LEAD HOLE FOR THE SHANK SHALL HAVE THE SAME DIAMETER AS THE SHANK, AND THE SAME DEPTH AS THE LENGTH OF THE UNTREADED SHANK.
      13.5.2. THE LEAD HOLE FOR THE THREADED PORTION SHALL HAVE A DIAMETER EQUAL TO 60% TO 70% OF THE SHANK DIAMETER AND A LENGTH EQUAL TO AT LEAST THE LENGTH OF THE THREADED PORTION.

   13.6. WOOD SCREWS SHALL BE PRE-DRILLED WITH LEAD HOLES. THE PART OF THE HOLE RECEIVING THE SHANK SHALL BE ABOUT 7/8X THE DIAMETER OF THE SHANK AND THAT FOR THE THREADED PORTION SHALL BE ABOUT 7/8X THE DIAMETER OF THE SCREW AT THE ROOT OF THE THREAD.

   13.7. MINIMUM NAILING SHALL BE ACCORDING TO NAILING PATTERN AS INDICATED ON THE DRAWINGS.

   13.8. PREFABRICATED OPEN WEB TRUSSES SHALL BE CASCADE LUMBER OR APPROVED EQUAL. TRUSSES SHALL BE DESIGNED BY THE MANUFACTURER FOR THE SPANS AND CONDITIONS SHOWN ON THE PLANS AND SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED SPECIFICATIONS. ALL NECESSARY BRIDGING, BLOCKING, PRE-NOTCHED PLATES, ETC., SHALL BE DETAILED AND FURNISHED BY THE MANUFACTURER. SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS (COMPLETE WITH STRESS DIAGRAMS) TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION. DESIGN SUBMITTALS SHALL BEAR THE STAMP AND SIGNATURE OF A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF IOWA. PERMANENT AND TEMPORARY BRIDGING SHALL BE INSTALLED IN CONFORMANCE WITH MANUFACTURER'S SPECIFICATIONS.

   13.9. BUILDING INTERIOR AND EXTERIOR WALLS ARE NOT LATERALLY SELF-SUPPORTING. PREFABRICATED OPEN WEB TRUSSES, BRIDGING, BLOCKING, AND CONNECTIONS SHALL BE DESIGNED TO BRACE WALLS FOR CODE PRESCRIBED LOADS AND LOADS INDICATED.

14. PRECAST CONCRETE

   14.1. PRECAST MANUFACTURER SHALL VERIFY WEIGHT OF PRECAST WITH ENGINEER PRIOR TO CONSTRUCTION.

   14.2. PRECAST ELEMENTS SHALL BE DESIGNED BY THE PRECAST MANUFACTURER ACCORDING TO THE APPLICABLE BUILDING CODE FOR GRAVITY AND LATERAL LOADS, INCLUDING BUILDING LOADS LISTED IN THESE NOTES AS WELL AS ANY OTHER ADDITIONAL LOADS INDICATED ON THE PLANS. SEE SPECIFICATIONS FOR DESIGN REQUIREMENTS.

   14.3. ALL EMBED PLATES AND CONNECTIONS SHALL BE STAINLESS STEEL. CONTROL HEAT DURING WELDING OF STAINLESS STEEL TO PREVENT CRACKING OF SURROUNDING CONCRETE. PRECAST CONNECTIONS AND LIFTING INSERTS SHALL BE CONCEALED OR RECESSED AND PATCHED.

   14.4. VERIFY OPENINGS THROUGH FLOORS AND WALLS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PROCESS REQUIREMENTS. CHANGES IN SIZE, LOCATION, OR NUMBER OF OPENINGS SHALL NOT BE PERMITTED WITHOUT WRITTEN APPROVAL BY THE ENGINEER.

15. POST-INSTALLED ANCHORS

   15.1 ADHESIVE ANCHOR SYSTEMS USED IN CONCRETE AND MASONRY SHALL CONSIST OF ASTM A193 B7 RODS WITH HEAVY HEX NUTS AND WASHERS. ADHESIVE SHALL BE A TWO COMPONENT STRUCTURAL ADHESIVE INJECTED IN A DUAL CARTRIDGE DISPENSING SYSTEM THAT PROPERLY MIXES THE COMPONENTS AT THE POINT OF APPLICATION. ANCHORS SHALL BE HOT DIP GALVANIZED UNLESS NOTED OTHERWISE. ADHESIVE ANCHORING SYSTEM LISTED AS BASIS OF DESIGN ARE THE SIZE AND QUANTITY SHOWN IN THE DRAWINGS. ACCEPTABLE ALTERNATE ANCHORS SHALL MATCH THE SIZE, QUANTITY, AND CONFIGURATION WITH THE SAME CAPACITY OF THE BASIS OF DESIGN ANCHORS. PROVIDE ALTERNATE ANCHOR PRODUCT DATA TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL.

   15.2. THE FOLLOWING SUMMARIZES THE ADHESIVE ANCHORS ALLOWED ON THE PROJECT:

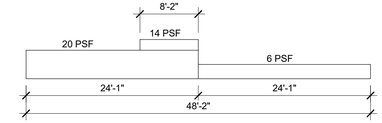
      15.2.1. ANCHORING INTO CRACKED AND UNCRACKED CONCRETE: BASIS OF DESIGN - HILTI HIT-HY 200
         ACCEPTABLE ALTERNATE ANCHORS: DEWALT PURE110+, DEWALT AC200+, RED HEAD C6+
      15.2.2 ANCHORING INTO HOLLOW AND GROUTED CMU: BASIS OF DESIGN - HILTI HIT-HY 270
         ACCEPTABLE ALTERNATE ANCHORS: DEWALT AC100+ GOLD, RED HEAD A7+

   15.3. STAINLESS STEEL ADHESIVE ANCHORS SHALL CONSIST OF THREADED RODS-ASTM A193, GRADE B8, CLASS 2 OR ASTM F593, ALLOY 304, CONDITION CW. USE ASTM F594, ALLOY 304, CONDITION CW HEAVY HEX NUTS AND ASTM A240, ALLOY 304 WASHERS.

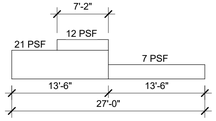
   15.4 ADHESIVE ANCHOR SYSTEMS USED IN HOLLOW MASONRY AND CMU SHALL INCLUDE SCREEN TUBE.

   15.5 INSTALL ANCHOR SYSTEMS IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

   15.6 ALL POST-INSTALLED ANCHORS SHALL HAVE ICC-ES ESR CERTIFICATION DATA SHEETS FOR ALL MATERIALS ANCHORED INTO. SUBMIT ESR DATA SHEETS TO ENGINEER FOR REVIEW AND APPROVAL.



1 **UNBALANCED SNOW LOAD - SHOWER HOUSE**



2 **UNBALANCED SNOW LOAD - WOOD SHED**
1" = 10'-0"

BUILDING ELEVATION TABLE		
BUILDING NAME	ACTUAL ELEVATION	REFERENCE ELEVATION
SHOWER HOUSE	839.80'	100'-0"
WOOD SHED	839.40'	100'-0"

SOILS		SERVICE	EXTENT	AGENT
1.	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN	FIELD INSPECTION	PERIODIC	PE/GE/EIT
2.	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	FIELD INSPECTION	PERIODIC	PE/GE/EIT
3.	PERFORM SIEVE TESTS (ASTM D422 & D1140) AND MODIFIED PROCTOR TESTS (ASTM D1557) OF EACH SOURSE OF FILL MATERIAL	FIELD INSPECTION	PERIODIC	PE/GE/EIT
4.	VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL. TEST DENSITY OF EACH LIFT OR FILL BY NUCLEAR METHODS (ASTM D2922)	FIELD INSPECTION	CONTINUOUS	PE/GE/EIT
5.	PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PREPARED PROPERLY	FIELD INSPECTION	PERIODIC	PE/GE/EIT

CONCRETE CONSTRUCTION		SERVICE	EXTENT	AGENT
1.	INSPECT SIZE, SPACING, COVER, POSITIONING AND GRADE OF REINFORCING STEEL AND PRESTRESSING STEEL. VERIFY THAT REINFORCING BARS ARE FREE OF FORM OIL OR OTHER DELETERIOUS MATERIALS. INSPECT BAR LAPS AND MECHANICAL SPLICES. VERIFY THAT BARS ARE ADEQUATELY TIED AND SUPPORTED OF CHAIRS OR BOLSTERS.	FIELD INSPECTION	PERIODIC	ACI-CCI, ICC-RCSI
2.	REINFORCING STEEL WELDING	FIELD INSPECTION		
	A. VERIFICATION OF WELDABILITY OF STEEL OTHER THAN ASTM A706		PERIODIC	
	B. INSPECT SINGLE PASS FILLET WELDS < 5/16"		PERIODIC	
	C. ALL OTHER WELDS	CONTINUOUS		
3.	INSPECT SIZE, POSITIONING, AND EMBEDMENT OF ANCHOR RODS. INSPECT CONCRETE PLACEMENTS AND CONSOLIDATION AROUND ANCHORS	FIELD INSPECTION	PERIODIC	
4.	INSPECTION OF ANCHORS AND REINFORCING STEEL POST-INSTALLED IN HARDENED CONCRETE: PER RESEARCH REPORTS INCLUDING VERIFICATION OF ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE DIMENSIONS, HOLE CLEANING PROCEDURES, ANCHOR SPACING, EDGE DISTANCES, CONCRETE MINIMUM THICKNESS, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE.	FIELD INSPECTION	CONTINUOUS FOR HORIZONTAL OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. PERIODIC FOR ALL OTHER ACHORS	ACI-CCI, ICC-RCSI
5.	REVIEW CONCRETE BATCH TICKETS AND VERIFY COMPLIANCE WITH APPROVED MIX DESIGN. VERIFY THAT WATER ADDED AT THE SITE DOES NOT EXCEED THAT ALLOWED BY THE MIX DESIGN	FIELD INSPECTION	PERIODIC	ACI-CCI, ICC-RCSI
6.	TEST CONCRETE COMPRESSION STRENGTH (ASTM C31 & C39), SLUMP (ASTM C143), AIR-CONTENT (ASTM C231 OR C173) AND TEMPERATURE (ASTM C1064)	FIELD INSPECTION	CONTINUOUS	ACI-CFTT, ACI-STT
7.	INSPECT PLACEMENT OF CONCRETE AND SHOTCRETE. VERIFY THAT CONCRETE CONVEYANCE AND DEPOSITING AVOIDS SEGREGATION OR CONTAMINATION. VERIFY THAT CONCRETE IS PROPERLY CONSOLIDADTED.	FIELD INSPECTION	CONTINUOUS	ACI-CCI, ICC-RCSI
8.	INSPECTION OF MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	FIELD INSPECTION	PERIODIC	ACI-CCI, ICC-RCSI
9.	INSPECTION OF FORMWORK FOR SHAPE, LINES, LOCATION, AND DIMENSIONS	FIELD INSPECTION	PERIODIC	ACI-CCI, ICC-RCSI
10.	CERTIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLAB.	FIELD TESTING AND REVIEW OF LABORATORY REPORTS	PERIODIC	
11.	PERFORM FLOOR FLATNESS AND/OR LEVELNESS TESTING (ASTM E1155) FOR ALL SLAB-ON-GRADE AND ELEVATED SLAB PER SPECIFICATION.	FIELD INSPECTION	PERIODIC AT ALL BOLTED CONNECTIONS	ACI-CCI, ICC-RCSI

PRECAST CONCRETE CONSTRUCTION		SERVICE	EXTENT	AGENT
1.	REVIEW PLANT OPERATIONS AND QUALITY CONTROL PROCEDURES	PCI CERTIFIED PLANT REQUIRED BY SPECIFICATION	PERIODIC	
2.	ERECTION OF PRECAST CONCRETE MEMBERS			
	A. INSPECT IN ACCORDANCE WITH CONSTRUCTION DOCUMENTS	FIELD INSPECTION	PERIODIC	
	B. PERFORM INSPECTION OF WELDING AND BOLTING IN ACCORANCE WITH STEEL CONSTRUCTION	FIELD INSPECTION	PERIODIC	
3.	VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	REVIEW FIELD TESTING AND LABORATORY REPORTS	PERIODIC	

STEEL CONSTRUCTION		SERVICE	EXTENT	AGENT
1.	FABRICATOR CERTIFICATION	AISC CERTIFIED FABRICATOR REQUIRED BY SPECIFICATION		
2.	MATERIAL VERIFICATION. REVIEW CERTIFIED MILL TEST REPORTS AND IDENTIFICATION MARKINGS ON WIDE-FLANGE SHAPES, HIGH STRENGTH BOLTS, NUTS, AND WELDING ELECTRODES	FIELD INSPECTION	PERIODIC	
3.	EMBEDMENTS: VERIFY DIAMETER, GRADE, TYPE, LENGTH, AND EMBEDMENT. SEE CONCRETE CONSTRUCTION FOR ANCHORS	FIELD INSPECTION	PERIODIC	
4.	VERIFY MEMBER LOCATIONS, BRACES, SITFFENERS, AND APPLICATION OF JOINT DETAILS AT EACH CONNECTION COMPLY WITH CONSTRUCTION DOCUMENTS	FIELD INSPECTION	PERIODIC	
5.	STRUCTURAL STEEL WELDING:			
	A. INSPECTION TASKS PRIOR TO WELDING (OBSERVE OR PERFORM FOR EACH WELDED JOINT OR MEMBER, THE QA TASKS LISTED IN AISC 360, TABLE N5.4-1)	FIELD INSPECTION	PERIODIC AT ALL WELDED JOINTS	
	B. INSPECTION TASKS DURING WELDING (OBSERVE OR PERFORM FOR EACH WELDED JOINT OR MEMBER, THE QA TASKS LISTED IN AISC 360, TABLE N5.4-2)	FIELD INSPECTION	PERIODIC AT ALL WELDED JOINTS	
	C. INSPECTION TASKS AFTER WELDING (OBSERVE OR PERFORM FOR EACH WELDED JOINT OR MEMBER, THE QA TASKS LISTED IN AISC 360, TABLE N5.4-3)	FIELD INSPECTION	PERIODIC AT ALL WELDED JOINTS	
	D. NON-DESTRUCTIVE TESTING (NDT) OF WELDED JOINTS:			
	1) COMPLETE PENETRATION WELDS WHEN REQUIRED BY AISC 360, N5.5b	FIELD ULTRASONIC TESTING - 100%	PERIODIC	
	2) WELDED JOINTS SUBJECT TO FATIGUE WHEN REQUIRED BY AISC 360, APPENDIX 3, TABLE A-3.2	FIELD RADIOGRAPHIC OR ULTRASONIC TESTING	PERIODIC	
	3) FABRICATOR'S NDT REPORTS WHEN FABRICATOR PERFORMS NDT	VERIFY REPORTS	EACH SUBMITTAL	
6.	STRUCTURAL STEEL BOLTING:			
	A. INSPECTION TASKS PRIOR TO BOLTING (OBSERVE OR PERFORM TASKS FOR EACH BOLTED CONNECTION, IN ACCORDANCE WITH QA TASKS LISTED IN AISC 360, TABLE N5.6-1)	FIELD INSPECTION	PERIODIC AT ALL BOLTED CONNECTIONS	
	B. INSPECTION TASKS DURING BOLTING (OBSERVE THE QA TASKS LISTED IN AISC 360, TABLE N5.6-2)	FIELD INSPECTION	PERIODIC AT ALL BOLTED CONNECTIONS	
	1) PRE-TENSIONED AND SLIP-CRITICAL JOINTS			
	a. TURN-OF-NUT WITH MATCHING MARKINGS		CONTINUOUS	
	b. DIRECT TENSION INDICATOR		CONTINUOUS	
	c. TWIST-OFF TYPE TENSION CONTROL BOLT		CONTINUOUS	
	d. TURN-OF-NUT WITHOUT MATCHING MARKINGS		CONTINUOUS	
	e. CALIBRATED WRENCH		CONTINUOUS	
	2) SNUG-TIGHT JOINTS		PERIODIC	
	C. INSPECTION TASKS AFTER BOLTING (PERFORM TASKS FOR EACH BOLTED CONNECTION IN ACCORDANCE WITH QA TASKS LISTED IN AISC 360, TABLE N5.6-3	FIELD INSPECTION	PERIODIC AT ALL BOLTED CONNECTIONS	
7.	INSPECTION OF STEEL ELEMENTS OF COMPOSITE CONSTRUCTION PRIOR TO CONCRETE PLACEMENT: INSPECT SIZE, NUMBER, POSITIONING, AND WELDING OF SHEAR CONNECTORS. INSPECT STUDS FOR FULL 360 DEGREE FLASH. PING TEST ALL SHEAR CONNECTORS WITH A 3 LB HAMMER. BEND TEST ALL QUESTIONABLE STUDS TO 15 DEGREES	FIELD INSPECTION AND TESTING	PERIODIC	
8.	MATERIAL VERIFICATION OF COLD-FORMED STEEL DECK: IDENTIFICATION MARKINGS	FIELD INSPECTION	PERIODIC	
9.	CONNECTION OF COLD-FORMED STEEL DECK TO SUPPORTING STRUCTURE: INSPECT WELDING AND SIDE-LAP FASTENING OF METAL ROOF AND FLOOR DECK IS IN CONFORMANCE WITH APPROVED SUBMITTAL.	FIELD INSPECTION	PERIODIC	
10.	COLD-FORMED STEEL TRUSSES SPANNING 60 FEET OR GREATER: VERIFY TEMPORARY AND PERMANENT RESTRAINT/BRACING ARE INSTALLED IN ACCORDANCE WITH THE APPROVED TRUSS SUBMITTAL PACKAGE	FIELD INSPECTION	PERIODIC	
11.	OPEN WEB STEEL JOIST: INSPECT INSTALLATION, FIELD WELDING, FIELD BOLTING, AND BRIDGING OF JOIST IS IN CONFORMANCE WITH APPROVED SUBMITTAL	FIELD INSPECTION	PERIODIC	

MASONRY CONSTRUCTION LEVEL B QUALITY ASSURANCE	SERVICE	EXTENT	AGENT
1. Verify compliance with approved submittals	Field Inspection	Periodic	
2. Verification of f'm prior to construction	Unit Strength Method	Periodic	
3. Verification of Slump Flow and Visual Stability Index (VSI) of self-consolidating grout as delivered to the project	Field Testing	Continuous	ICC-SMSI
4. Verify proportions of site-mixed mortar, grout and prestressing grout for bonded tendons	Field Inspection	Periodic	ICC-SMSI
5. Verify grade, type, and size of reinforcement and anchor bolts, and prestressing tendons and anchorages	Field Inspection	Periodic	ICC-SMSI
6. Verify construction of mortar joints	Field Inspection	Periodic	ICC-SMSI
7. Verify placement of reinforcement, connectors, and prestressing tendons and anchorages	Field Inspection	Periodic	ICC-SMSI
8. Verify grout space prior to grouting	Field Inspection	Periodic	ICC-SMSI
9. Verify placement of grout and prestressing grout for bonded tendons	Field Inspection	Continuous	ICC-SMSI
10. Verify size and location of structural masonry elements	Field Inspection	Periodic	ICC-SMSI
11. Verify type, size, and location of anchors, including details of anchorage of masonry to structural members, frames, or other construction.	Field Inspection	Periodic	ICC-SMSI
12. Verify welding of reinforcement	Field Inspection	Continuous	ICC-SMSI
13. Verify preparation, construction, and protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F)	Field Inspection	Periodic	ICC-SMSI
14. Verify application and measurement of prestressing force	Field Inspection	Continuous	ICC-SMSI

STATEMENT OF SPECIAL INSPECTIONS

This Statement of Special Inspections is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the Building Code. It includes a schedule of Special Inspection services applicable to the structural components of this project. If applicable, it includes Requirements for Seismic Resistance and/or Requirements for Wind Resistance. This Statement of Special Inspections Encompasses the following disciplines:

[X] Structural [ ] Mechanical / Electrical / Plumbing
[ ] Architectural [ ] Other

The Special Inspection Coordinator shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

Interim reports shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge. A Final Report of Special Inspections documenting completion of all required Special Inspections, testing and corrections of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy. Job site safety and means and methods of construction are solely the responsibility of the Contractor.

QUALIFICATIONS OF INSPECTORS AND TESTING TECHNICIANS

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided if requested.

Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge deems it appropriate that the individual performing a stipulated test or inspection have a specific certification or license as indicated below, such designations shall appear below the Agent on the Schedule.

PE/SE Structural Engineer - A licensed SE or PE specializing in the design of building structure
PE/GE Geotechnical Engineer - A licensed PE specializing in soil mechanics and foundations
EIT Engineer-In-Training - A graduate engineer who has passed the Fundaments of Engineering examination

American Concrete Institute (ACI) Certification
ACI-CFTT Concrete Field Testing Technician - Grade 1
ACI-CCI Concrete Construction Inspector
ACI-LTT Laboratory Testing Technician - Grade 1 & 2
ACI-STT Strength Testing Technician

American Welding Society (AWS) Certification
AWS-CWI Certified Welding Inspector
AWS/AISC-SSI Certified Structural Steel Inspector

American Society of Non-Destructive Testing (ASNT) Inspection
ASNT Non-Destructive Testing Technician - Level II or III

International Code Council (ICC) Certification
ICC-SMSI Structural Masonry Special Inspector
ICC-SFSI Spray-Applied Fireproofing Special Inspector
ICC-RCSI Reinforced Concrete Special Inspector
ICC-SWSI Structural Steel and Welding Special Inspector
ICC-PCSI Prestressed Concrete Special Inspector

National Institute of Certification in Engineering Technologies (NICET)
NICET-CT Concrete Technician - Levels I, II, III, & IV
NICET-ST Soils Technician - Levels I, II, III & IV
NICET-GET Geotechnical Engineering Technician - Level I, II, III & IV

Exterior Design Institute (EDI) Certification
EDI-EIFS EIFS Third Party Inspector

QUALITY ASSURANCE PLAN

Quality Assurance for Seismic Resistance:

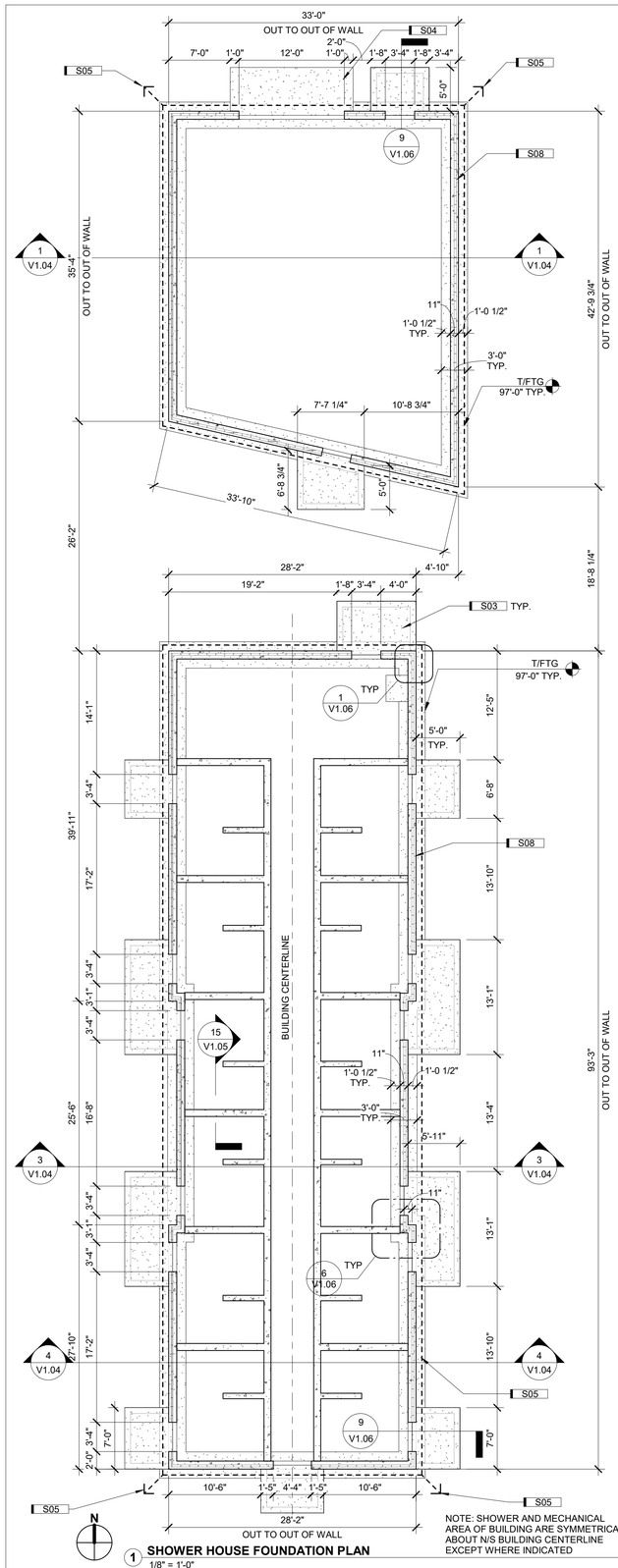
1. Seismic Design Category: B
2. Statement of Special Inspections for Seismic Resistance required (Y/N): N
3. Description of Seismic-Force Resisting System subject to Special Inspection and testing for Seismic Resistance: NA
4. Description of Designated Seismic Systems subject to Special Inspections and testing for Seismic Resistance: NA
5. Description of additional Seismic Systems and components requiring Special Inspections and testing: NA
6. Each Contractor responsible for the construction and fabrication of a system or component described above must submit a Statement of Responsibility.

Quality Assurance Plan for Wind Requirements:

1. Nominal Design Wind Speed, Vasd = 90
2. Wind Exposure Category: C
3. Statement for Special Inspection for Wind Resistance Required (Y/N): N
4. Description of main Wind Force-Resisting System subject to Special Inspection for Wind Resistance: NA
5. Description of Wind Force-Resisting components subject to Special Inspection of Wind Resistance: NA
6. Each Contractor responsible for the construction or fabrication of a system or component described above must submit a Statement of Responsibility.

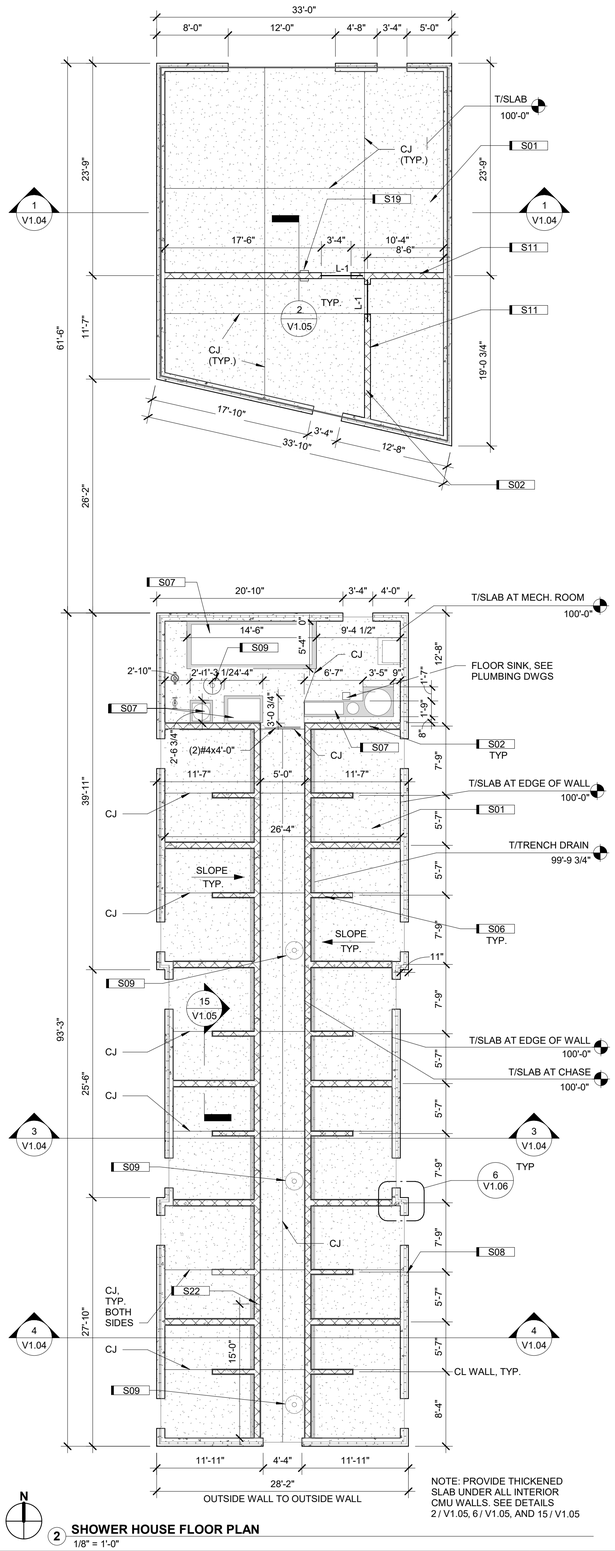
CONTRACTOR'S RESPONSIBILITY REGARDING INSPECTIONS

1. The Contractor is responsible for scheduling a pre-construction meeting (scheduled at least 5 business days before start of construction). Meeting should include all responsible parties (A/E, SI's, Field Inspector). Meeting is for entire project, not phase of work.
2. Pre-construction meeting is to be conducted by the contractor with meeting minutes to be taken and distributed to all members attending. Meeting minutes to include a sign-in sheet for all parties.
3. The contractor is responsible for scheduling inspections and tests. Sufficient notice and lead time must be allowed for the inspection and testing to be performed without impending construction operations.
4. The contractor must cooperate with the inspections and testing agencies. Safe access must be provided to all inspection and test to be performed. This may require the contractor to provide scaffolding, ladders or lifts.
5. When deficiencies are identified, the contractor must take corrective actions to comply with the contract documents or remedy the deficiencies as directed by the registered design professional.
6. The special inspection and quality assurance program does not relieve the contractor of his or her responsibility to perform quality control.
7. The contractor is responsible for testing services that are required for material submittals and that not part of the special inspections program (e.g. aggregate tests, concrete mix designs, testing of controlled fill, materials, etc.).



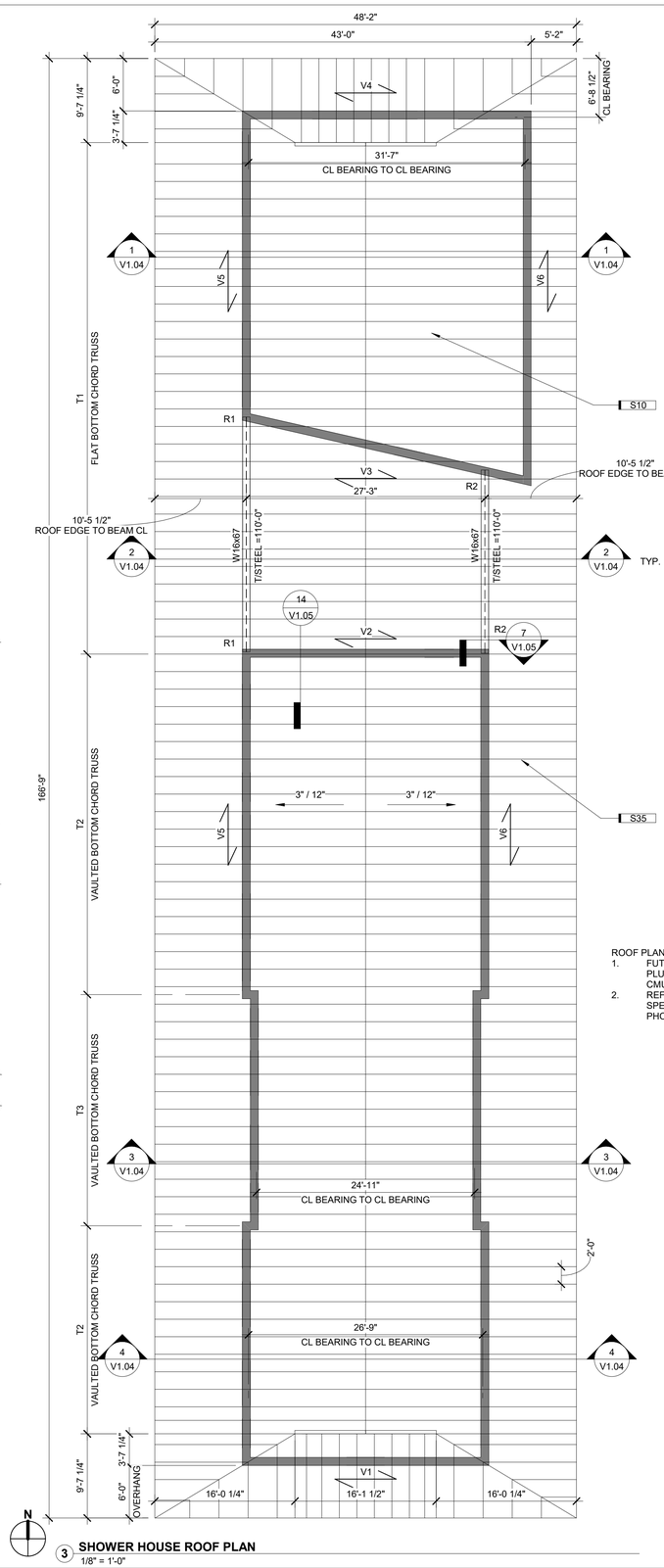
1 SHOWER HOUSE FOUNDATION PLAN
1/8" = 1'-0"

NOTE: SHOWER AND MECHANICAL AREA OF BUILDING ARE SYMMETRICAL ABOUT N/S BUILDING CENTERLINE EXCEPT WHERE INDICATED



2 SHOWER HOUSE FLOOR PLAN
1/8" = 1'-0"

NOTE: PROVIDE THICKENED SLAB UNDER ALL INTERIOR CMU WALLS. SEE DETAILS 2 / V1.05, 6 / V1.05, AND 15 / V1.05



3 SHOWER HOUSE ROOF PLAN
1/8" = 1'-0"

ROOF PLAN NOTES:
1. FUTURE CHLORINE RETENTION PIPES SHOWN ON PLUMBING DRAWINGS SHALL BE SUPPORTED BY CMU WALLS AND NOT BY ROOF STRUCTURE.
2. REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR REQUIREMENTS FOR PHOTOVOLTAIC PANELS ON SHOWER HOUSE ROOF.

STRUCTURAL KEYNOTE LEGEND

S01	5" SLAB ON GRADE, SEE DETAIL 1 / V1.05
S02	8" MASONRY WALL AT SHOWER AREA. REINFORCE #5 AT 32" O.C. PROVIDE THICKENED SLAB AND CONCRETE CURB PER DETAIL 15 / V1.05
S03	5" THICK CONCRETE STOOP, WITH THICKENED SLABS AT EDGES
S04	APPROACH SLAB, SEE DETAIL 8 / V1.06
S05	6" Ø PERFORATED DRAIN PIPE. SEE CIVIL FOR CONNECTION TO OUTLET.
S06	6" MASONRY WING WALL. REINFORCE WITH #5 BARS AT 16" O.C. PROVIDE THICKENED SLAB AND CONCRETE CURB PER DETAIL 15 / V1.05
S07	EQUIPMENT PAD. T/PAD = 100'-4". VERIFY PAD SIZES WITH FINAL EQUIPMENT SIZES. SEE DETAIL 5 / V1.05
S08	11" INSULATED PRECAST CONCRETE PANEL WALL.
S09	6" Ø FLOOR DRAIN. T/DRAIN = 99'-10". SLOPE LOCALLY 2'-0" DIAMETER AROUND.
S10	3/4" THICK APA RATED PLYWOOD, FASTEN TO STRUCTURE WITH 8D NAILS AT 6" O.C. ALONG PERIMETER OF ROOF AND 12" O.C. IN FIELD
S11	THICKENED SLAB UNDER INTERIOR CMU BLOCK WALLS AT STORAGE AREA, SEE DETAIL 2 / V1.05
S19	T/WALL BRACE, SEE DETAIL 3 / V1.05
S22	MASONRY WALL JOINT, RUN REINFORCEMENT CONTINUOUS THROUGH JOINT, TYPICAL AT 15-FEET MAX FROM CORNERS
S35	WOOD ROOF TRUSS AT 2'-0" O.C., USE SIMPSON H1 HOLD DOWN ON EA. END

REACTION TABLE	
R1	16.0 KIPS
R2	13.0 KIPS

SHEAR TABLE FOR WIND SHEAR TRANSFERRED TO PRECAST WALLS FROM ROOF	
V1	0.80 KIPS/FT
V2	0.88 KIPS/FT
V3	0.40 KIPS/FT
V4	0.32 KIPS/FT
V5	0.16 KIPS/FT
V6	0.16 KIPS/FT

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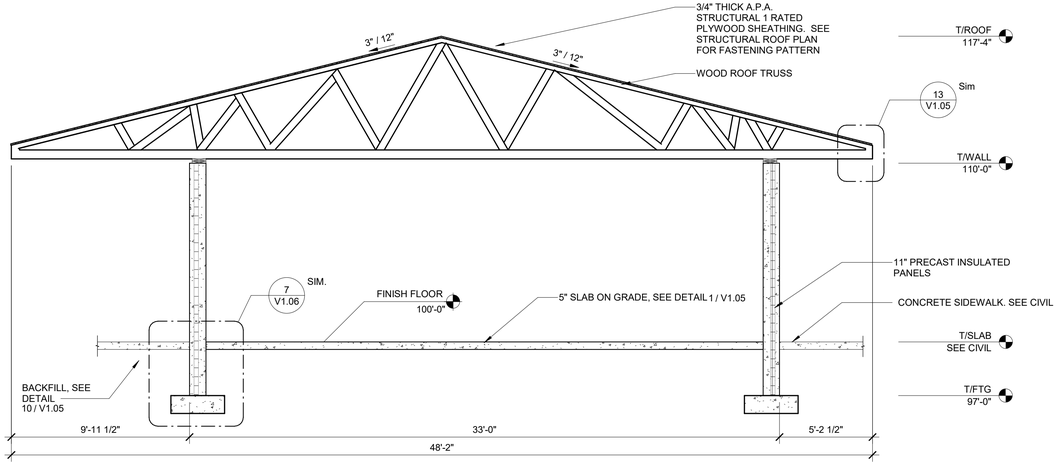
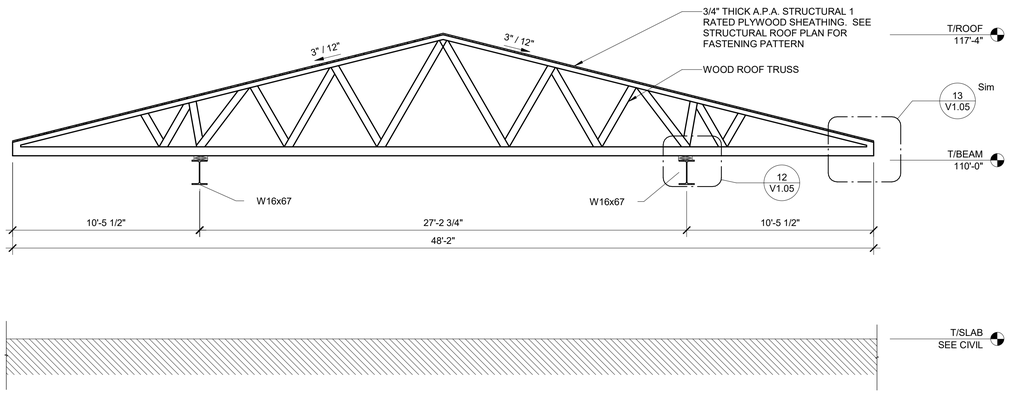
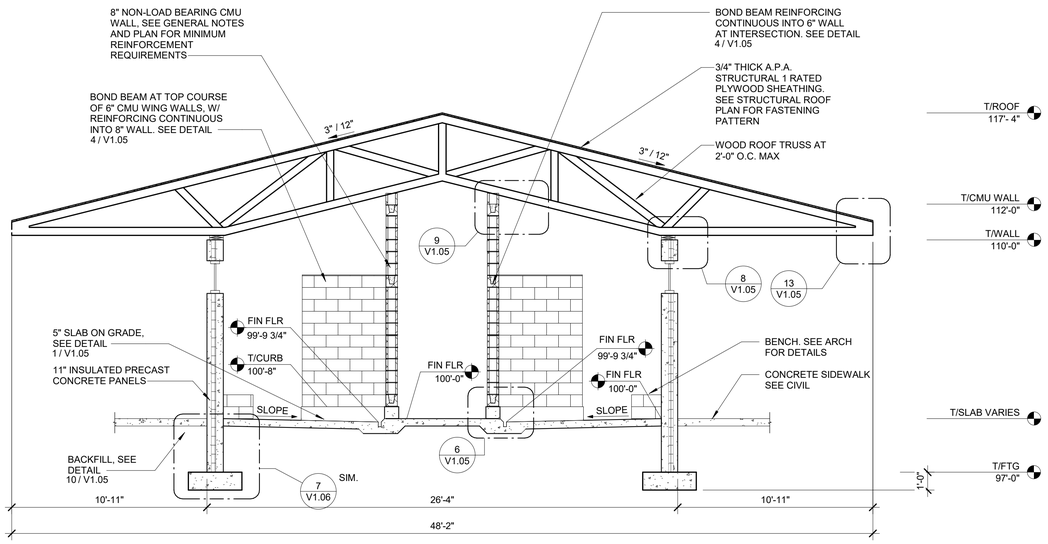
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUED FOR CONSTRUCTION 04/26/2022 | SHEET NAME: SHOWER HOUSE STRUCTURAL PLANS | SHEET NO.: V1.03



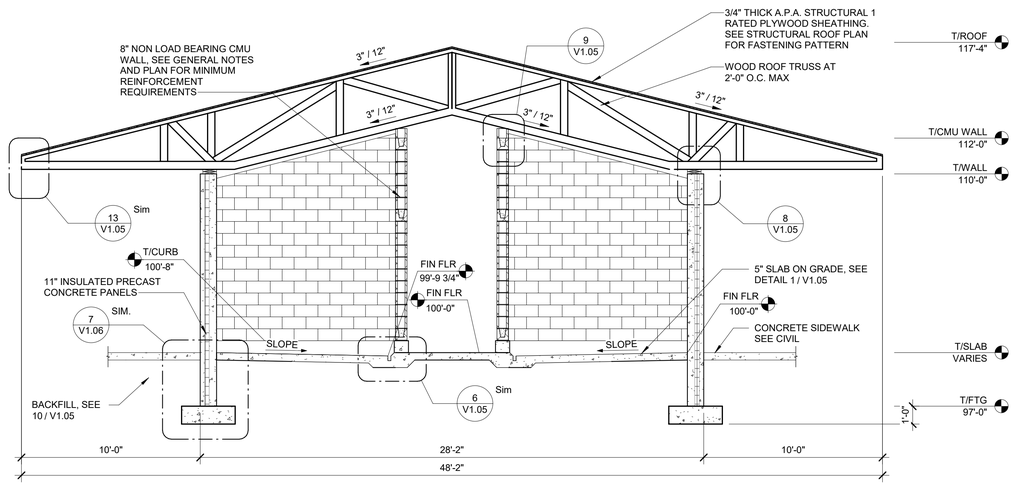
1 **BUILDING SECTION THROUGH STORAGE ROOM**
1/4" = 1'-0"



2 **BUILDING SECTION THROUGH BREEZEWAY**
1/4" = 1'-0"



3 **SHOWER HOUSE BUILDING SECTION**
1/4" = 1'-0"



4 **BUILDING SECTION THROUGH SHOWER AREA**
1/4" = 1'-0"

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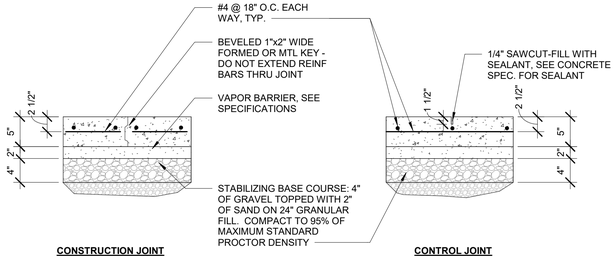
JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217340

ISSUED FOR CONSTRUCTION 04/26/2022

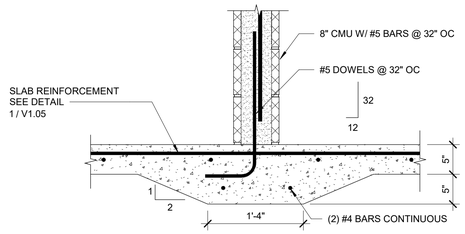
SHEET NAME: SHOWER HOUSE STRUCTURAL SECTIONS

SHEET NO.: V1.04

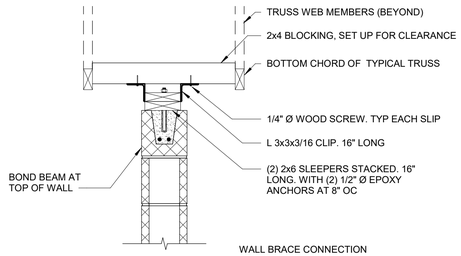


NOTE:
SLAB ON GRADE CONCRETE TO HAVE W/C RATIO OF 0.40 TO 0.45. MINIMUM CEMENTITIOUS MATERIAL OF 600 LB/CY. MAX SLUMP TO BE 4". LOW AND MID RANGE WATER REDUCERS MAY BE SUBMITTED FOR APPROVAL AS POSSIBLE ADMIXTURES TO MEET CONSTRUCTABILITY REQUIREMENTS.

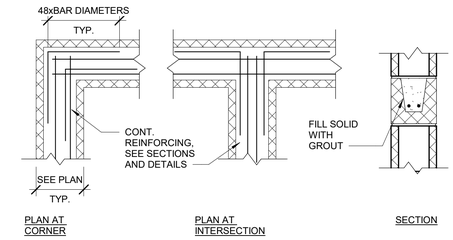
1 SLAB ON GRADE DETAIL
1" = 1'-0"



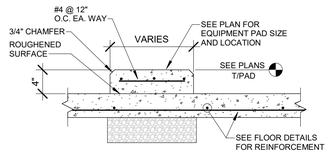
2 THICKENED SLAB DETAIL AT STORAGE
1" = 1'-0"



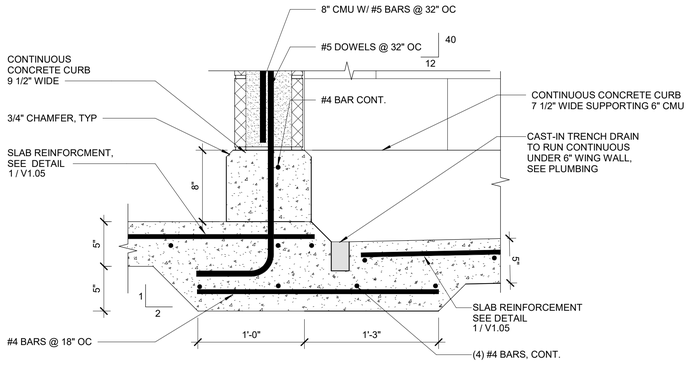
3 WALL BRACE DETAIL
1" = 1'-0"



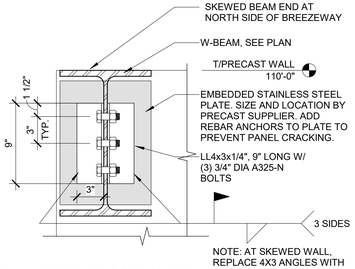
4 TYP. BOND BEAM REINFORCING DETAILS
1" = 1'-0"



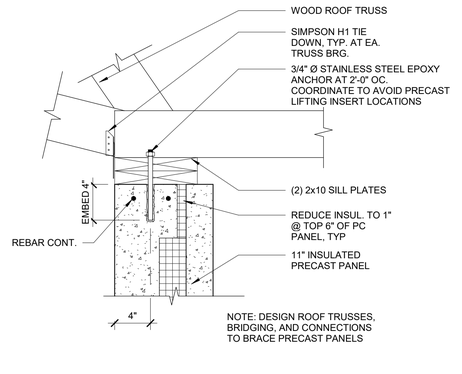
5 EQUIPMENT PAD DETAIL
1" = 1'-0"



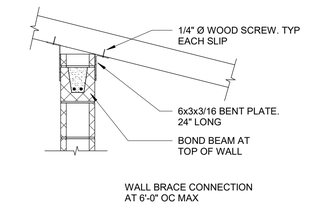
6 SHOWER HOUSE BUILDING CHASE SECTION
1 1/2" = 1'-0"



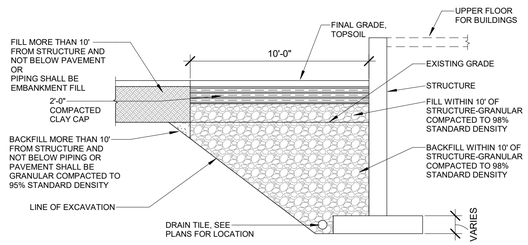
7 BREEZEWAY BEAM CONNECTION
1 1/2" = 1'-0"



8 T/PC WALL BRACE
1 1/2" = 1'-0"

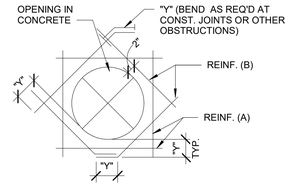


9 T/CMU WALL BRACE DETAIL
3/4" = 1'-0"



NOTE: WALLS SHALL NOT BE BACKFILLED UNTIL CONCRETE HAS ATTAINED SPECIFIED COMPRESSIVE STRENGTH. WALLS SHALL BE BACKFILLED ON BOTH SIDES OF WALL SIMULTANEOUSLY. ANY EXCEPTIONS MUST BE APPROVED IN ADVANCE BY THE ENGINEER

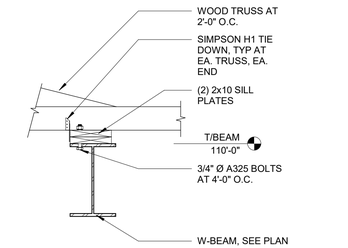
10 FILL AND BACKFILL REQUIREMENTS
1/4" = 1'-0"



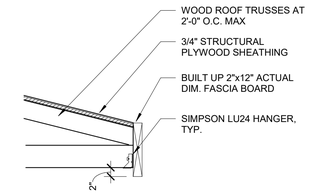
NOTES:

1. MOVE REINF. MAX OF 2" CLEAR OPENING, CUT REMAINING BAR THROUGH OPENING. WHERE REINF. MUST BE CUT, ADD REINF. "A" AT LEAST EQUAL IN AREA TO THAT WHICH IS CUT AND EXTEND BEYOND OPENING DISTANCE "Y".
2. DIAGONAL BARS "B" TO BE PLACED.
   A. AT CENTERLINE OF EACH WALL WHERE ONE LAYER OF REINF. IS PROVIDED.
   B. AT EACH FACE OF WALL WHERE TWO LAYERS OF REINF. ARE PROVIDED.
   C. AT TOP AND BOTTOM OF ALL SLABS.
3. UNLESS OTHERWISE NOTED, SIZES OF REINF. "B" SHALL BE THE SIZE OF THE LARGEST REINF. BAR CUT.
4. Y = CLASS B LAP
5. THIS DETAIL IS TO BE USED WHEN NO OTHER DETAIL IS SPECIFIED.
6. MINIMUM REINF. "A" AND "B" AROUND ANY AND ALL OPENINGS SHALL BE (2) #5 ALL SIDES.

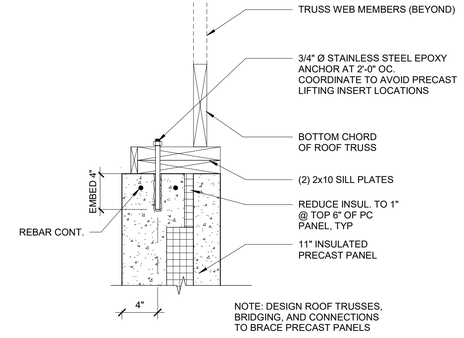
11 REINFORCEMENT AT CONCRETE OPENINGS
3/4" = 1'-0"



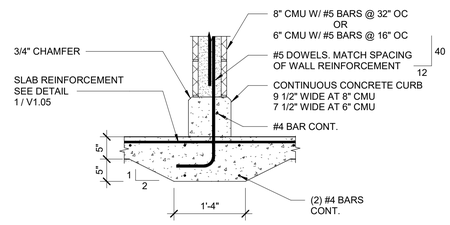
12 TRUSS BEARING DETAIL AT BREEZEWAY
3/4" = 1'-0"



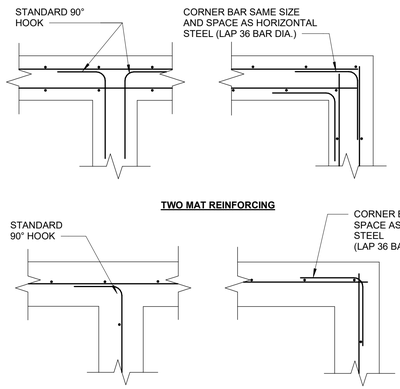
13 ROOF TRUSS END DETAIL
3/4" = 1'-0"



14 T/PC WALL BRACE AT BREEZEWAY
1 1/2" = 1'-0"

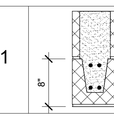


15 THICKENED SLAB AT SHOWER AREA
3/4" = 1'-0"



16 TYP. WALL CORNER

LINTEL SCHEDULE

L-1		BOND BEAM W/ (2) #5 TOP AND BOTTOM

EXTEND REINFORCING 8" BEYOND CLEAR OPENING ON EACH SIDE. MINIMUM BEARING FOR ALL LINTELS SHALL BE 8" EACH SIDE UNLESS OTHERWISE NOTED. CONTINUE VERTICAL WALL REINFORCING AND SPACING ABOVE LINTELS. BOND BEAMS SHALL NOT BE PENETRATED UNLESS APPROVED BY ENGINEER.

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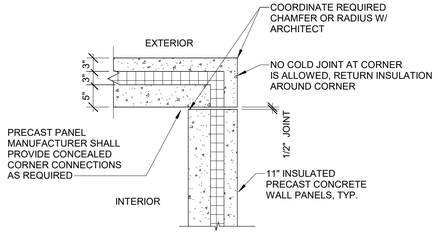
JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217340

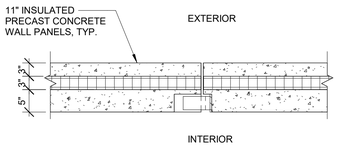
ISSUED FOR CONSTRUCTION 04/26/2022

SHEET NAME: SHOWER HOUSE STRUCTURAL DETAILS

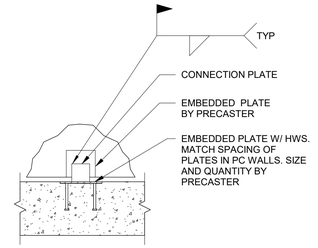
SHEET NO.: V1.05



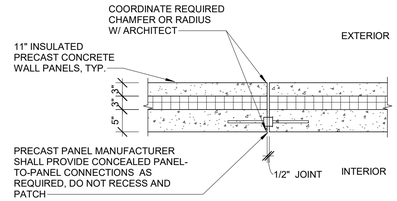
1 PRECAST CORNER DETAIL
3/4" = 1'-0"



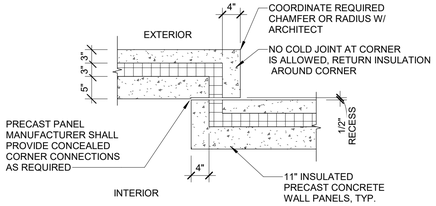
3 PRECAST HEADER PANEL DETAIL
3/4" = 1'-0"



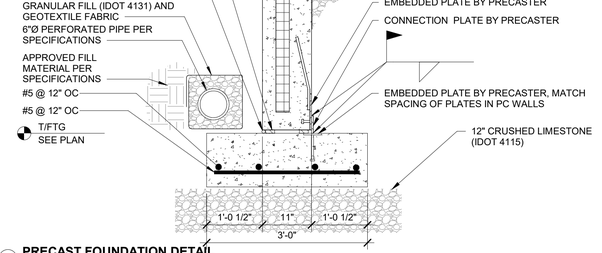
4 PRECAST PANEL CONNECTION
3/4" = 1'-0"



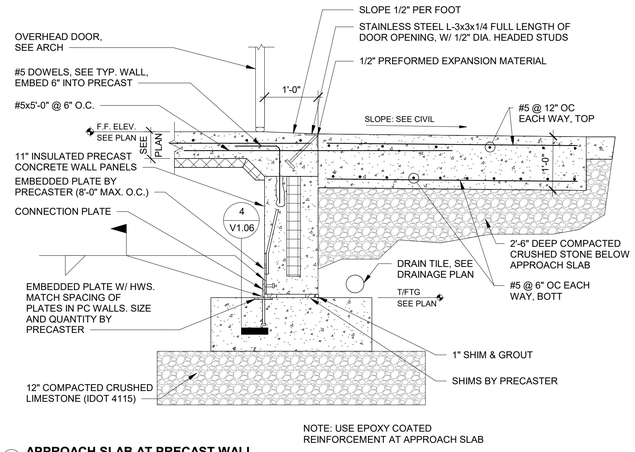
5 PRECAST PANEL JOINT DETAIL
3/4" = 1'-0"



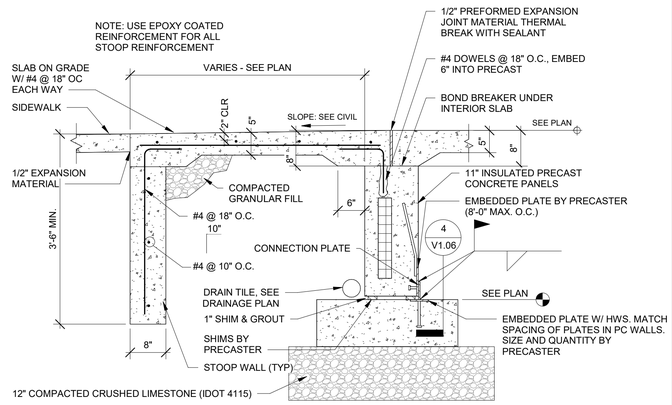
6 STAGGERED WALL DETAIL
3/4" = 1'-0"



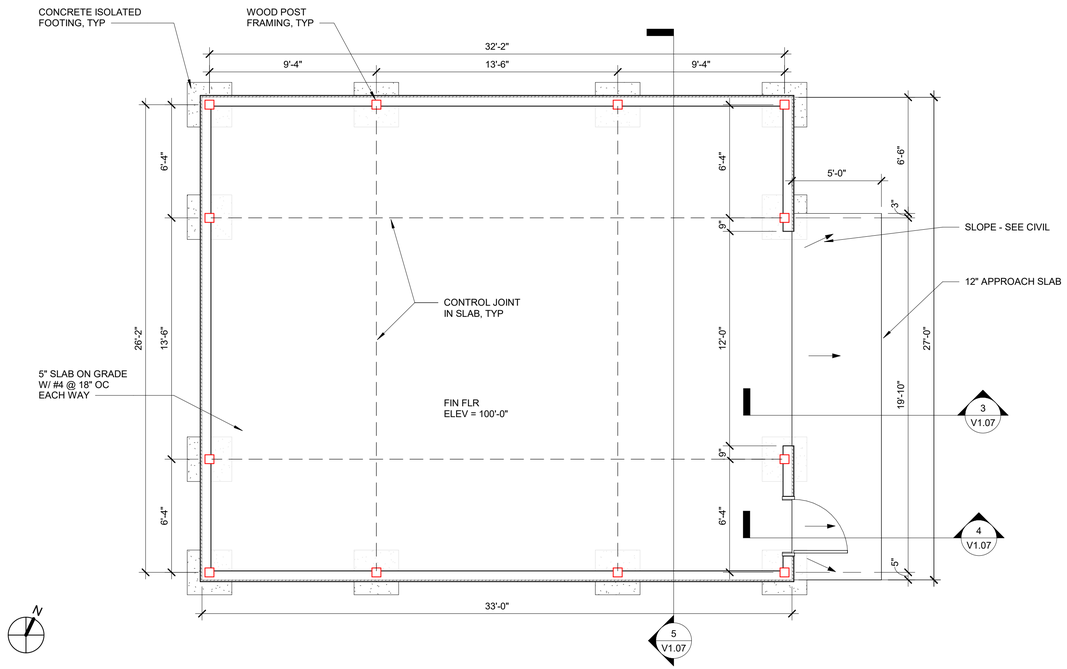
7 PRECAST FOUNDATION DETAIL
3/4" = 1'-0"



8 APPROACH SLAB AT PRECAST WALL
3/4" = 1'-0"

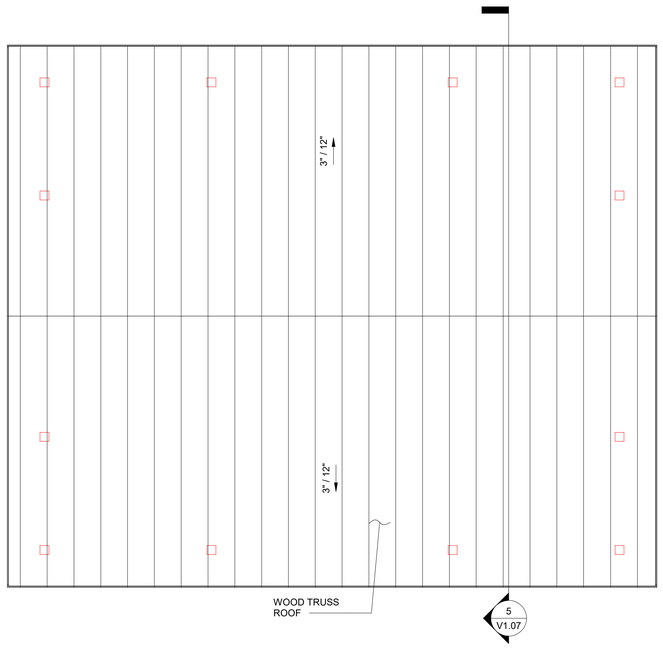


9 TYPICAL STOOP DETAIL AT PRECAST WALL
3/4" = 1'-0"

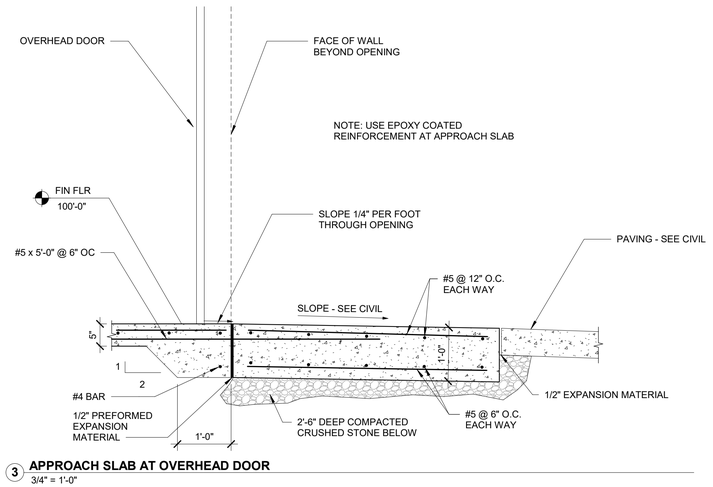


1 WOOD SHED FLOOR PLAN
1/4" = 1'-0"

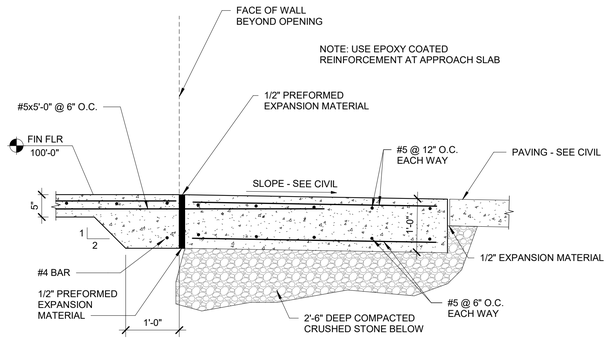
NOTE: REFER TO SPECIFICATIONS SECTION 13 3400 ENGINEERED POST FRAME STRUCTURES.



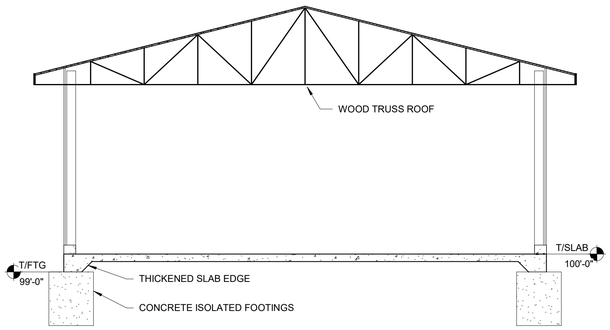
2 WOOD SHED ROOF PLAN
1/4" = 1'-0"



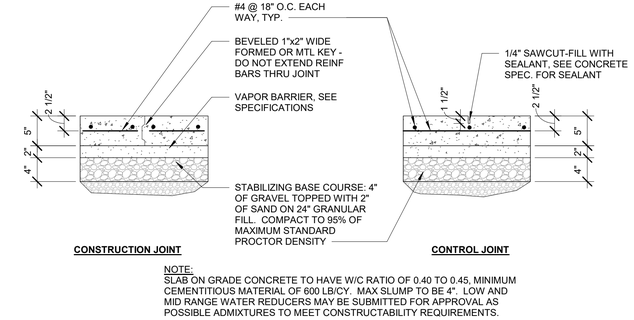
3 APPROACH SLAB AT OVERHEAD DOOR
3/4" = 1'-0"



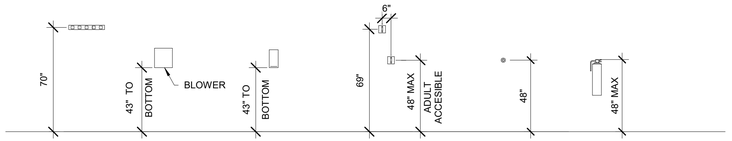
4 APPROACH SLAB AT MAN DOOR
3/4" = 1'-0"



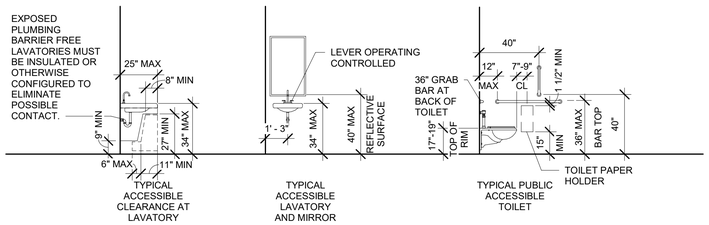
5 SECTION
1/4" = 1'-0"



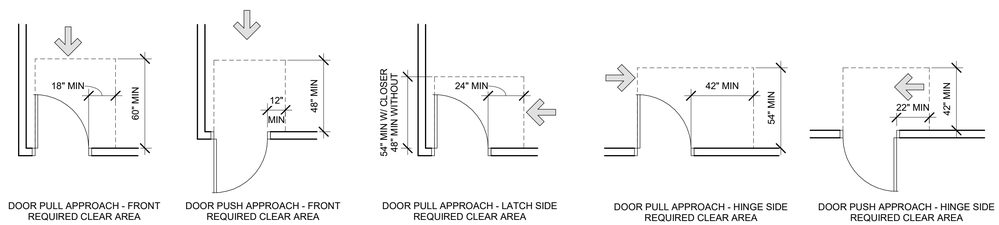
7 SLAB ON GRADE DETAIL
1" = 1'-0"



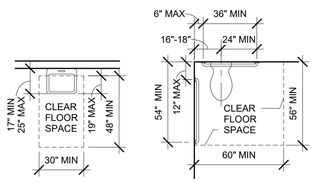
1 ACCESSORY MOUNTING DIAGRAM
1/4" = 1'-0"



3 TYPICAL ACCESSIBILITY ELEVATIONS
1/4" = 1'-0"



4 TYPICAL DOOR CLEAR FLOOR SPACE REQUIREMENTS
1/4" = 1'-0"



5 TYPICAL FIXTURE CLEAR FLOOR SPACE REQUIREMENTS
1/4" = 1'-0"

ARCHITECTURAL LEGEND

- KEYNOTE
- ROOM NAME / XXX — ROOM TAG
- XXXX — DOOR TAG
- x — WINDOW TAG

GENERAL CONSTRUCTION NOTES

1. COORDINATE WORK WITH ALL OTHER TRADES TO ENSURE PROPER SEQUENCING AND INSTALLATION. THIS SHALL INCLUDE ANY VENDORS CONTRACTED DIRECTLY BY OWNER.
2. ALL WORK SHALL BE PERFORMED AND COMPLETED IN COMPLIANCE WITH ALL APPLICABLE BUILDING CODES AND ORDINANCES.
3. ANY AND ALL DISCREPANCIES AND DEFICIENCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.
4. COORDINATE WORK SCHEDULES WITH THE OWNER TO ESTABLISH CONSTRUCTION SEQUENCING.
5. CONTRACTORS AND MATERIAL SUPPLIERS SHALL VERIFY ALL DIMENSIONS AND CONDITIONS WHICH WILL AFFECT THEIR WORK.
6. REMOVE FROM THE SITE ALL DEBRIS AND MATERIALS RESULTING FROM CONSTRUCTION ON A REGULAR BASIS UNLESS NOTED OTHERWISE.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR HOOK-UP OF ANY TEMPORARY HEAT OR LIGHTING REQUIRED IN WORK AREAS.
8. MAINTAIN ONE SET OF DRAWINGS ON SITE FOR THE PURPOSE OF RECORDING CONSTRUCTION REVISIONS. THIS RECORD SET SHALL BE RETURNED TO THE ARCHITECT UPON CONTRACT CLOSEOUT.
9. MAINTAIN ACCESS TO PARK AREAS IN USE OR AS DIRECTED BY OWNER.
10. INSTALL TEMPORARY WEATHER AND SECURITY BARRIERS AT EXTERIOR WALL OPENINGS WHEN WORK IS NOT IN PROGRESS.
11. INTERIOR ELEVATIONS AT ROOMS 2.010 THRU 2.013 ARE SIMILAR TO THOSE INDICATED ON SHEET 2A.03.
12. SLOPE ARROWS ON THE REFLECTED CEILING PLAN POINT TOWARDS THE LOW CEILING SIDE OF THE ROOM.
13. COORDINATE SIZE OF ROUGH OPENING WITH DOOR AND WINDOW REQUIREMENTS.
14. ALL DIMENSIONS ARE NOMINAL. (EXCEPT ACCESIBILITY DIAGRAMS ON THIS SHEET).

CODE REVIEW

CODES
- 2021 INTERNATIONAL BUILDING CODE (IBC)
- 2012 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- 2021 INTERNATIONAL FIRE CODE (IFC)
- 2012 INTERNATIONAL MECHANICAL CODE (IMC)
- 2021 INTERNATIONAL FUEL GAS CODE (IFGC)
- 2021 UNIFORM PLUMBING CODE (UPC)
  - OCCUPANT LOAD FOR DETERMINING MINIMUM PLUMBING FIXTURE QUANTITIES SHALL BE PER THE 2021 INTERNATIONAL BUILDING CODE (IBC) SECTION 1004 AND TABLE 1004.5
- 2020 NATIONAL ELECTRICAL CODE (NEC)

FACILITY DATA

AREA SIZE:

SHOWER ROOMS	1,596 SF
MECHANICAL ROOM	310 SF
CHASE	451 SF
ELECTRICAL/COMMUNICATIONS	136 SF
STORAGE	1,016 SF
TOTAL	3,509 SF

NUMBER OF PROPOSED STORIES:	ONE STORY
FACILITY IS NOT SPRINKLERED.	
CONSTRUCTION TYPE:	V-B
OCCUPANCY CLASSIFICATION:	A-3
ALLOWABLE AREA:	6,000 SF
ALLOWABLE HEIGHT:	ONE STORY, 40'
AREA SEPARATION:	NONSEPARATED OCCUPANCIES (A-3 OCCUPANCY CLASSIFICATION MOST RESTRICTIVE)

OCCUPANT LOAD:

ACCESSORY AREAS (STORAGE, MECHANICAL AND EQUIPMENT ROOMS)

MECHANICAL, CHASE AND ELECTRICAL/COMMUNICATIONS		
1,913 SF	300 SF/OCCUPANT	6 OCCUPANTS

ASSEMBLY WITH FIXED SEATS

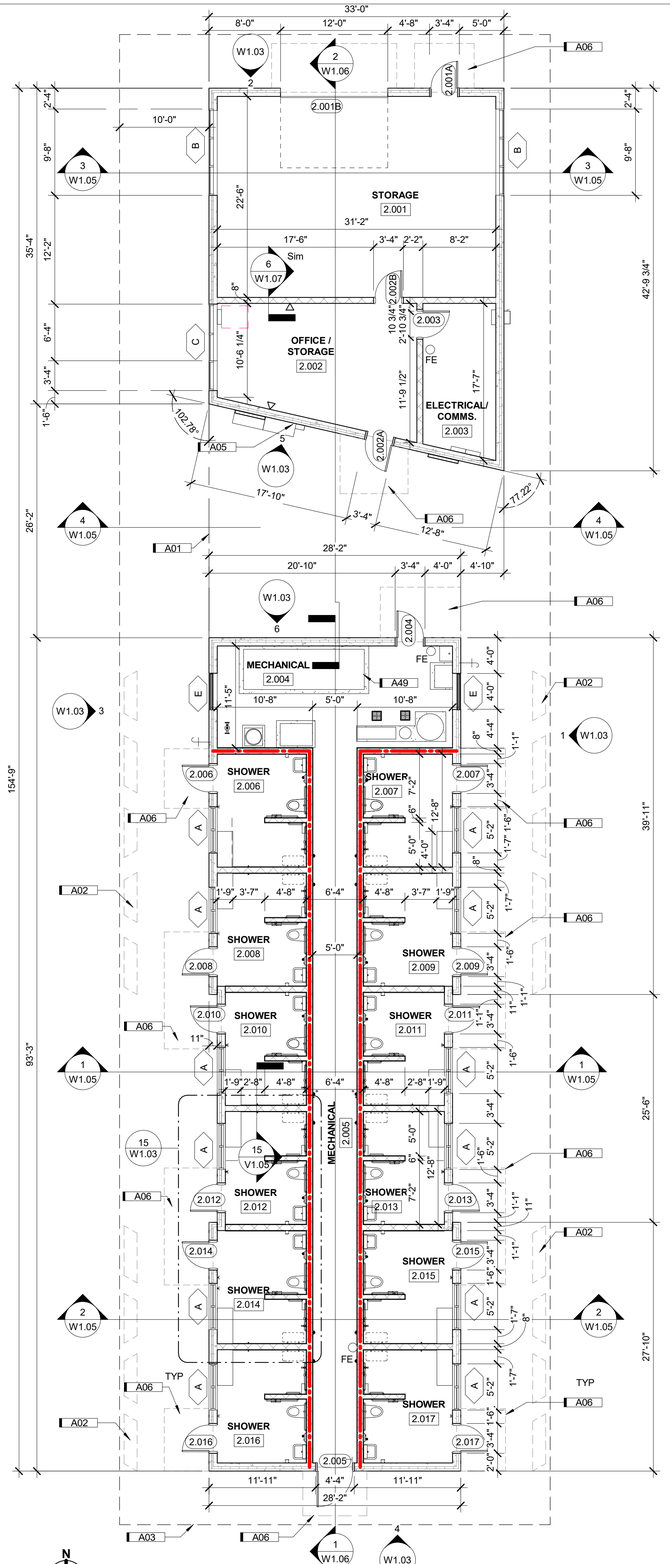
SHOWER ROOMS		
1,596 SF	1 OCCUPANT/SHOWER ROOM	12 OCCUPANTS
	TOTAL OCCUPANT LOAD	18 OCCUPANTS

EXIT ACCESS TRAVEL DISTANCE:	200' MAXIMUM, IBC TABLE 1017.2
COMMON PATH OF TRAVEL:	75' MAXIMUM, IBC TABLE 1006.2.1
DEAD-END CORRIDOR:	20' MAXIMUM, IBC 1020.5
REQUIRED EXITS:	ONE EXIT, IBC TABLE 1006.2.1
REQUIRED EXITS, (MECHANICAL/CHASE):	TWO EXITS, IBC 1006.2.2.1, BOILER EXCEDES 400,000 BTU
EXITS PROVIDED:	16 EXITS
FIRE EXTINGUISHERS:	75' MAXIMUM TRAVEL DISTANCE, 3 PROVIDED
INTERIOR FINISHES:	PER IBC CHAPTER 8
HANDICAP ACCESSIBLE REQUIREMENTS:	YES

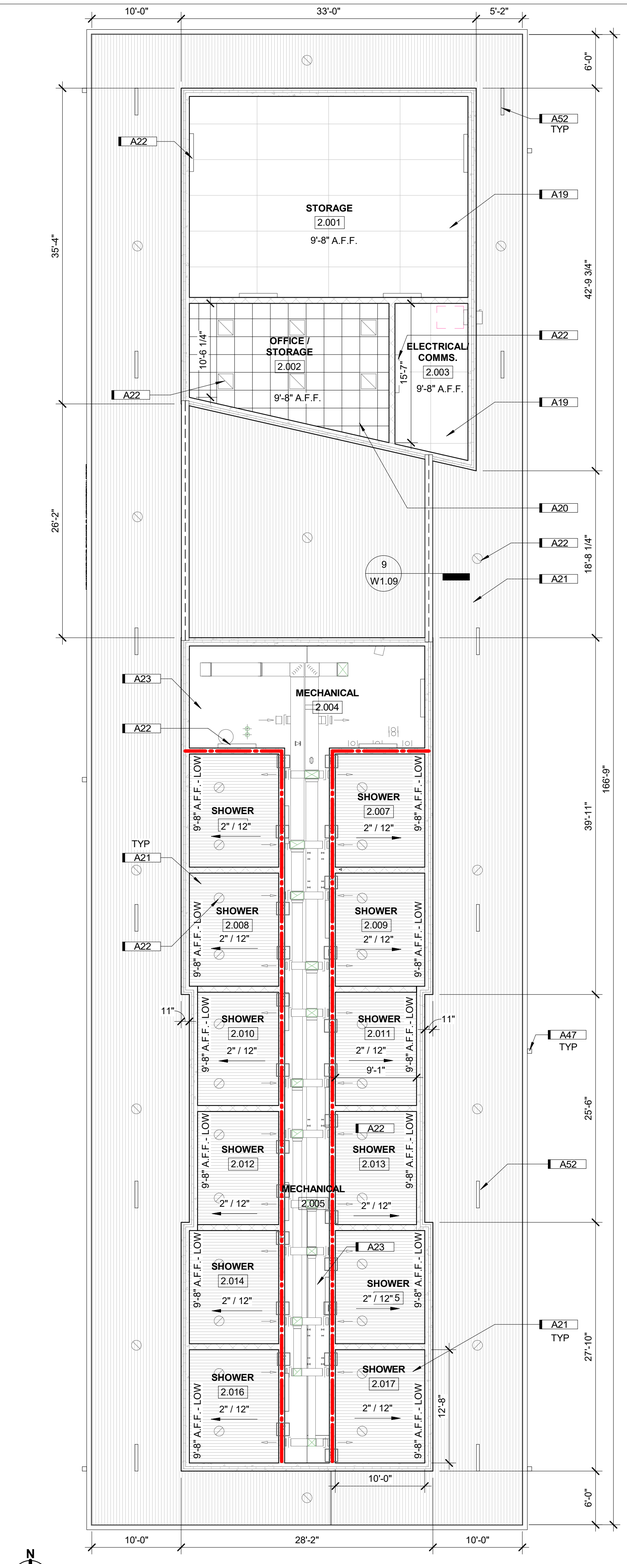
RESTROOM FACILITIES:
QUANTITIES ARE BASED UPON 2021 UPC AMENDMENTS, TABLE 422.1, ASSEMBLY

PLUMBING FIXTURE COUNT							
	MALE				FEMALE		
	W.C.	URINAL	LAV	SHOWERS	W.C.	LAV	SHOWERS
REQUIRED	1	0	1	0	1	1	0
EXISTING	2	0	2	2	2	0	2
NEW(UNISEX)	12	0	12	12	SEE MALE QTY. - RESTROOMS ARE UNISEX		

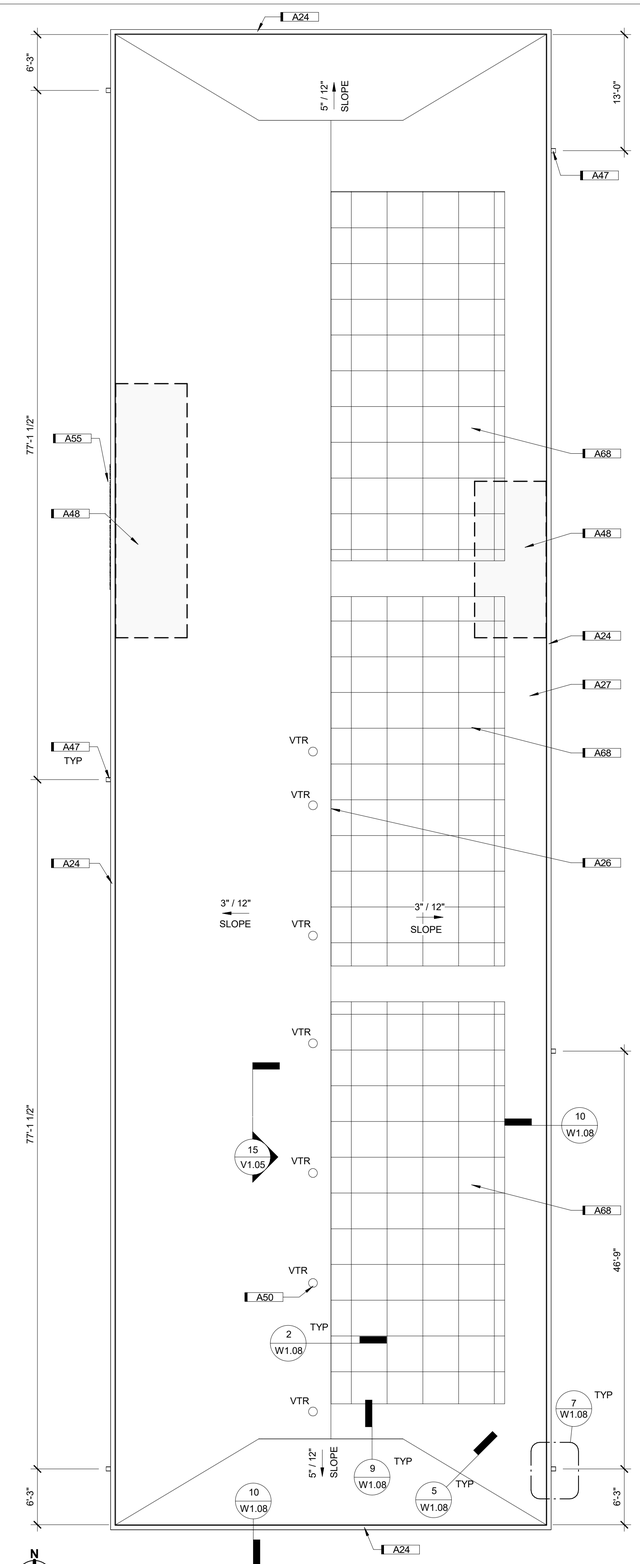
PER 2021 UPC AMENDMENTS: DRINKING FOUNTAINS ARE NOT REQUIRED WHERE THE OCCUPANT LOAD IS 30 OR LESS. URINALS ARE NOT REQUIRED IN UNISEX RESTROOMS.



1 **SHOWER HOUSE FLOOR PLAN**
1/8" = 1'-0"



2 **SHOWER HOUSE REFLECTED CEILING PLAN**
1/8" = 1'-0"



3 **ROOF PLAN**
1/8" = 1'-0"

GENERAL ROOFING NOTES

1. THE GENERAL CONTRACTOR SHALL VERIFY ALL CONDITIONS OF THE BUILDING PRIOR TO INSTALLATION OF THE ROOF.
2. NEW ROOFING CONSISTS OF:

   SHOWER HOUSE
   SIMULATED WOOD SHAKE ROOF SYSTEM
   STAINLESS STEEL FLASHING TRIM
   ICE AND WATER SHIELD (OVER ENTIRE DECK)
   PLYWOOD DECK

   WOOD SHED
   SIMULATED WOOD SHAKE ROOF SYSTEM
   STAINLESS STEEL FLASHING TRIM
   UNDERLAYMENT
   PLYWOOD DECK

   METAL AND SHEET METAL TRIM REFERRED TO IN THE DRAWINGS ARE TO BE STAINLESS STEEL FLASHING TRIM UNLESS NOTED OTHERWISE.
3. REFER TO MANUFACTURER'S STANDARD DETAILS AND RECOMMENDATIONS FOR ANY MISCELLANEOUS DETAILS NOT SHOWN. SUBMIT MANUFACTURER APPROVED ADDITIONAL SHOP DRAWING FOR ANY NON-STANDARD DETAILS NOT SHOWN.
4. ALL ROOFING WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA) ROOFING AND WATERPROOFING MANUAL, FOURTH EDITION. ALL SHEET METAL WORK SHALL BE IN ACCORDANCE WITH THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. (SMACNA ARCHITECTURAL SHEET METAL MANUAL, FIFTH EDITION.)
5. FLASH ALL CURBS, VENTS, AND STACKS AS SHOWN IN PLANS. REFER TO MANUFACTURER'S STANDARD DETAILS AND RECOMMENDATIONS FOR ANY MISCELLANEOUS DETAILS NOT SHOWN IN THE PLANS.
6. CONTRACTOR SHALL VERIFY HEIGHT OF ALL WOOD BLOCKING. CONTRACTOR SHALL FASTEN NEW WOOD BLOCKING AND PLYWOOD ACCORDING TO THE FOLLOWING REQUIREMENTS:

   WOOD TO WOOD CONNECTIONS SHALL BE FASTENED WITH # 12-15x3" WOOD TO WOOD FASTENERS. 2 ROWS STAGGERED 24" OC AND AT 12" OC W/IN 8'-0" OF OUTSIDE CORNERS. FASTENER MUST MEET MINIMUM OF 100# PULL-OUT VALUE. SEE SPECIFICATIONS FOR APPROVED FASTENERS.

   WOOD TO MASONRY CONNECTIONS SHALL BE FASTENED WITH 1/4"x4" WOOD TO MASONRY FASTENERS AT 24" OC MAX AND 12" OC WITHIN 8'-0" OF OUTSIDE CORNERS. SEE SPECIFICATIONS FOR APPROVED FASTENERS.

   WOOD TO STEEL CONNECTIONS SHALL BE FASTENED WITH 1/4" - # 14x4" SELF DRILLING FASTENER AT 4'-0" OC MAX AND AT 2'-0" OC WITHIN 8'-0" OF OUTSIDE CORNERS. SEE SPECIFICATIONS FOR APPROVED FASTENERS.

   WOOD TO PLATE STEEL CONNECTIONS SHALL BE FASTENED WITH 1/2" HOT DIPPED GALVANIZED THRU BOLTS AT 4'-0" OC MAX AND AT 2'-0" OC WITHIN 8'-0" OF OUTSIDE CORNERS. SEE SPECIFICATIONS FOR APPROVED FASTENERS.
7. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO MAINTAIN WATERTIGHT CONDITIONS OF THE ROOF AT ALL TIMES IN AREA OF WORK. ROOF LEAKS OR WET INSULATION CAUSED BY CONTRACTOR'S DEFICIENCIES SHALL BE REPAIRED AT NO COST TO THE OWNER.
8. AT COMPLETION OF PROJECT, BROOM SURFACE OF ROOF CLEAN AND ENSURE REMOVAL OF ALL DEBRIS (CONSTRUCTION OR OTHERWISE).

KEYNOTE LEGEND

A01	ALIGN WEST EXTERIOR WALLS
A02	BENCH - SEE DETAILS
A03	ROOF OVERHANG
A05	CAMPER REGISTRATION DROP BOX
A06	STOOP - SEE STRUCTURAL
A19	PAINTED PLYWOOD
A20	LAY-IN ACOUSTICAL CEILING
A21	PREFINISHED ALUMINUM SLAT SYSTEM
A22	LIGHT FIXTURE - SEE ELECTRICAL
A23	1 HOUR - RATED GYPSUM BOARD ASSEMBLY - SEE UL #P522 WITH ALTERNATE INSULATION PLACEMENT
A24	PREFINISHED METAL GUTTER
A26	VENTED RIDGE CAP, SEE ROOFING DETAILS
A27	SIMULATED WOOD SHAKE ROOF SHINGLES
A47	PREFINISHED METAL SCUPPER
A48	SNOW GUARDS 1'-0" BEYOND BREEZEWAY WALK AREA, BOTH SIDES - SEE DETAIL 8 / W1.08
A49	CONCRETE PAD - SEE STRUCTURAL
A50	VENT THROUGH ROOF, COORDINATE WITH MECHANICAL - SEE ROOFING DETAILS
A52	SOFFIT VENT MANUFACTURER STANDARD SYSTEM
A55	5"H X 3/4"D, 3-DIMENSIONAL LETTERING, (METAL) MOUNTED TO FACE OF SIDING OR TRIM, GARRISON SANS, ALL CAPS
A68	COORDINATE ROOF INSTALLATION WITH SOLAR PANELS - SEE ELECTRICAL

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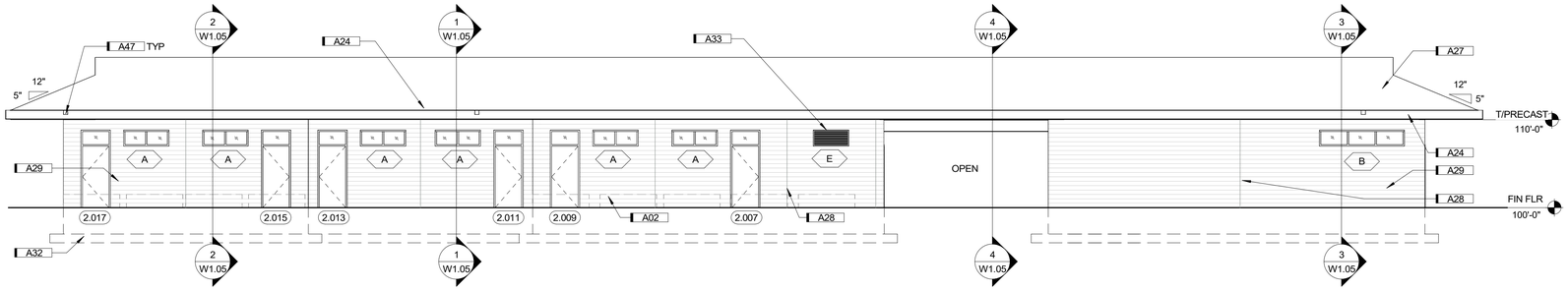
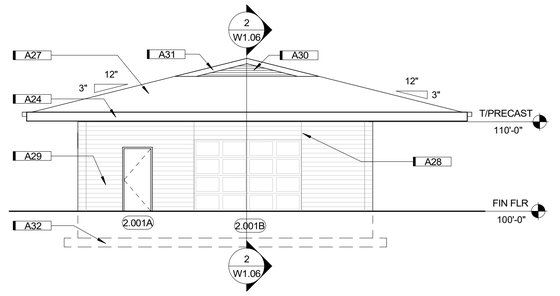
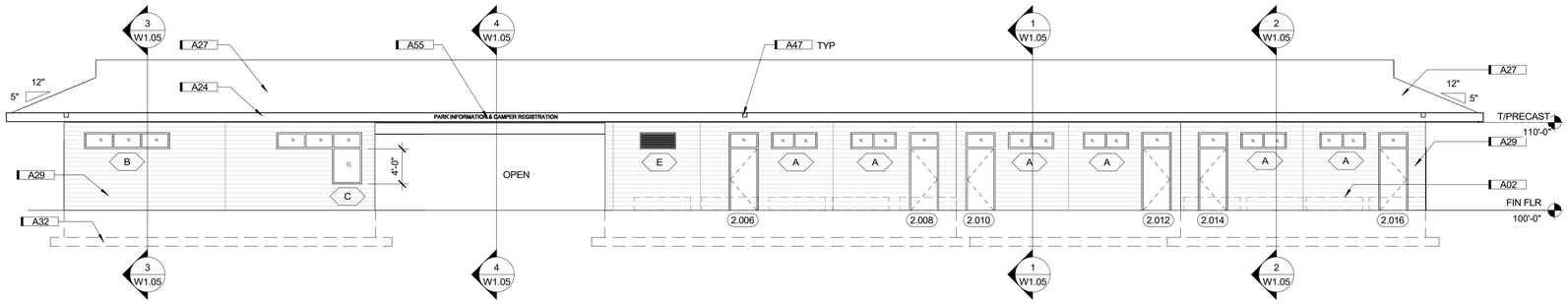
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUED FOR CONSTRUCTION 04/26/2022 | SHEET NAME: SHOWER HOUSE PLANS | SHEET NO.: W1.02



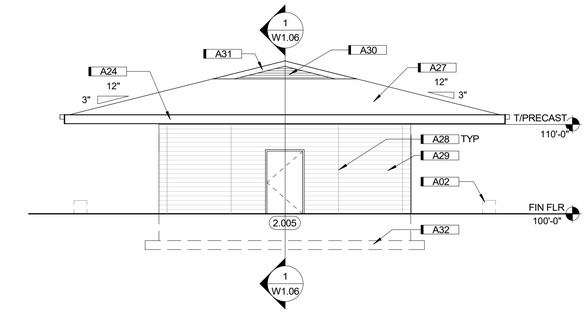
1 SHOWER HOUSE EAST ELEVATION
1/8" = 1'-0"



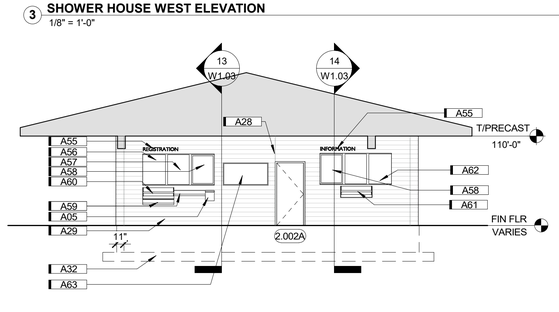
2 SHOWER HOUSE NORTH ELEVATION
1/8" = 1'-0"



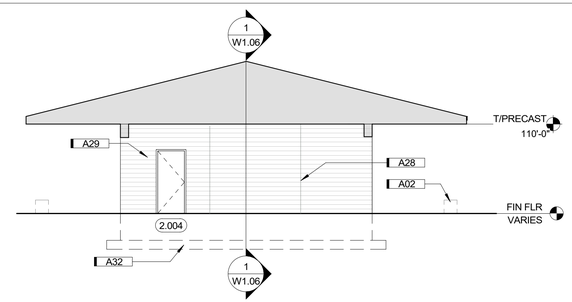
3 SHOWER HOUSE WEST ELEVATION
1/8" = 1'-0"



4 SHOWER HOUSE SOUTH ELEVATION
1/8" = 1'-0"

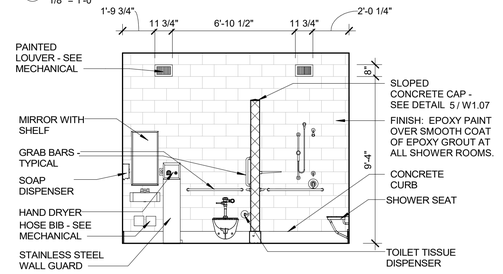


5 BREEZEWAY NORTH ELEVATION
1/8" = 1'-0"

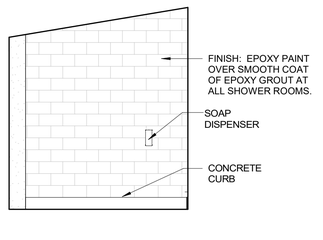


6 BREEZEWAY SOUTH ELEVATION
1/8" = 1'-0"

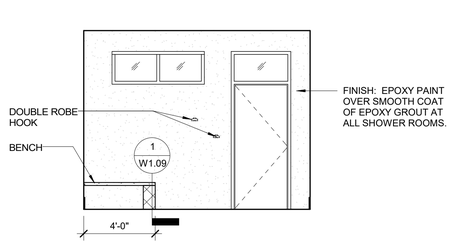
KEYNOTE LEGEND	
A02	BENCH - SEE DETAILS
A05	CAMPER REGISTRATION DROP BOX
A07	LIQUID SOAP DISPENSER - TYPICAL
A08	TOILET TISSUE DISPENSER
A09	18" X 36" MIRROR WITH SHELF - TYPICAL
A10	ELECTRIC AIR HAND DRYER - TYPICAL
A11	14" WIDE, 22 GAGE STAINLESS STEEL WALL GUARD WITH COUNTER SUNK STAINLESS STEEL SCREWS - INSTALL CONTINUOUS SEALANT AT PERIMETER
A12	42" GRAB BAR - TYPICAL
A13	36" GRAB BAR - TYPICAL
A14	18" GRAB BAR - TYPICAL
A15	FOLD-DOWN SHOWER SHELF - TYPICAL
A16	FOLD-DOWN SHOWER SEAT - TYPICAL
A17	TOWEL PIN - TYPICAL
A18	ROBE HOOK - TYPICAL
A24	PREFINISHED METAL GUTTER
A27	SIMULATED WOOD SHAKE ROOF SHINGLES
A28	PRECAST JOINT
A29	ARCHITECTURAL INSULATED PRECAST PANELS
A30	FIBER CEMENT SIDING
A31	PREFINISHED METAL FASCIA
A32	FOOTING AND FOUNDATION - SEE STRUCTURAL
A33	PREFINISHED METAL LOUVER, COORDINATE WITH MECHANICAL
A47	PREFINISHED METAL SCUPPER
A55	5"H X 3/4"D, 3-DIMENSIONAL LETTERING, (METAL) MOUNTED TO FACE OF SIDING OR TRIM, GARRISON SANS, ALL CAPS
A56	30"W X 42" H REGISTRATION INSTRUCTIONS, PRINTED ON VINYL SUBSTRATE, ATTACHED TO .080 ALUMINUM BACKING, MOUNTED TO WALL
A57	30"W X 42" H MAP OF CAMPGROUND, PRINTED ON VINYL SUBSTRATE, ATTACHED TO .080 ALUMINUM BACKING, MOUNTED TO WALL
A58	30"W X 42" H LOCKABLE METAL CABINET, CLEAR LEXAN FRONT
A59	ANGLED WRITING SURFACE, WOOD, PAINTED
A60	RACK FOR REGISTRATION FORMS
A61	NEWSLETTER/BROCHURE RACK, WOOD, PAINTED
A62	30"W X 42" H PARK RULES, REGULATIONS, IMPORTANT INFORMATION, PRINTED ON VINYL SUBSTRATE, ATTACHED TO .080 ALUMINUM BACKING, MOUNTED TO WALL
A63	PARK INFORMATION LED SCREEN (FUTURE)



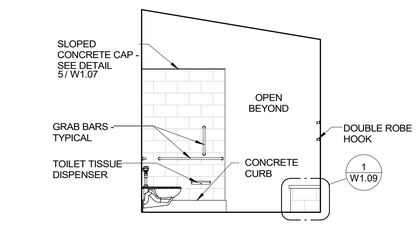
7 TYPICAL SHOWER WET WALL ELEVATION
1/4" = 1'-0"



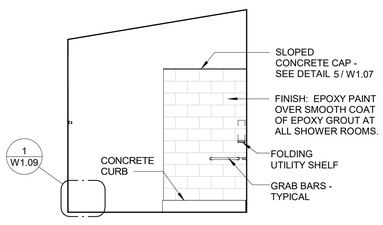
8 TYPICAL TOILET SIDE WALL ELEVATION
1/4" = 1'-0"



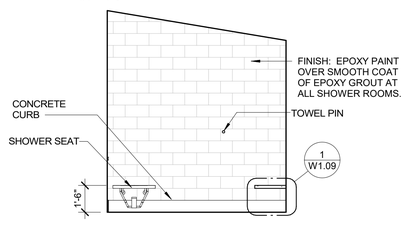
9 TYPICAL SHOWER ENTRANCE ELEVATION
1/4" = 1'-0"



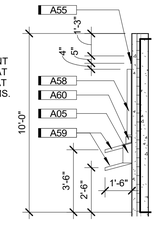
10 TYPICAL SIDE WALL ELEVATION
1/4" = 1'-0"



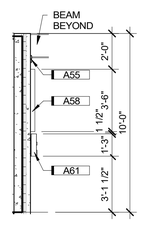
11 TYPICAL SHOWER SIDE WALL ELEVATION
1/4" = 1'-0"



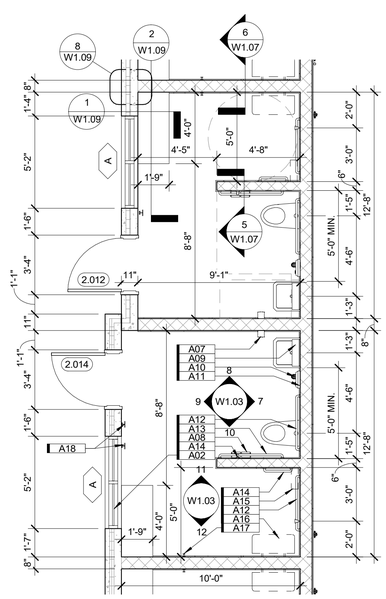
12 TYPICAL SHOWER SIDE WALL ELEVATION
1/4" = 1'-0"



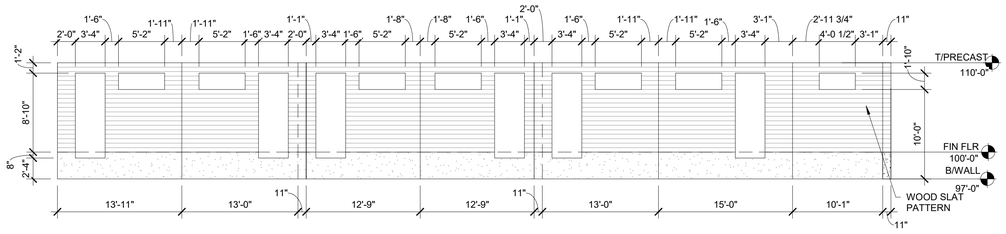
13 REGISTRATION AREA PROFILE
1/4" = 1'-0"



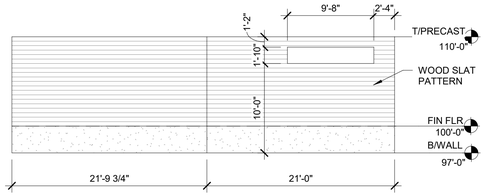
14 INFORMATION AREA PROFILE
1/4" = 1'-0"

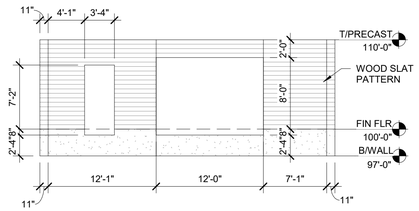


15 ENLARGED SHOWER PLAN
1/4" = 1'-0"

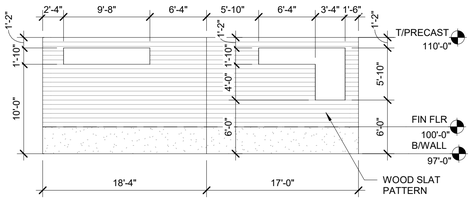


1 PRECAST EAST ELEVATION
1/8" = 1'-0"

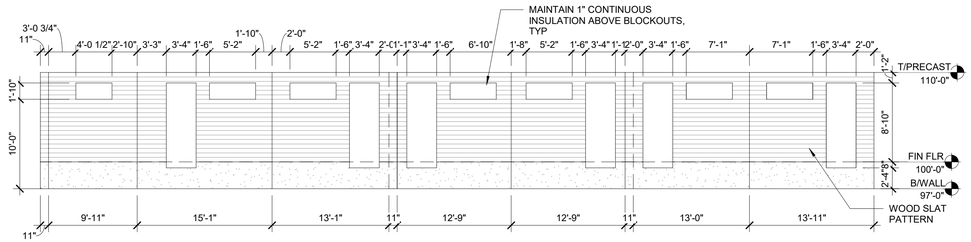


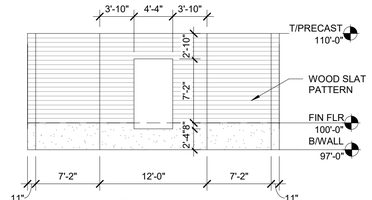


2 PRECAST NORTH ELEVATION
1/8" = 1'-0"



3 PRECAST WEST ELEVATION
1/8" = 1'-0"





4 PRECAST SOUTH ELEVATION
1/8" = 1'-0"

5 BREEZEWAY NORTH PRECAST ELEVATION
1/8" = 1'-0"

6 BREEZEWAY SOUTH PRECAST ELEVATION
1/8" = 1'-0"

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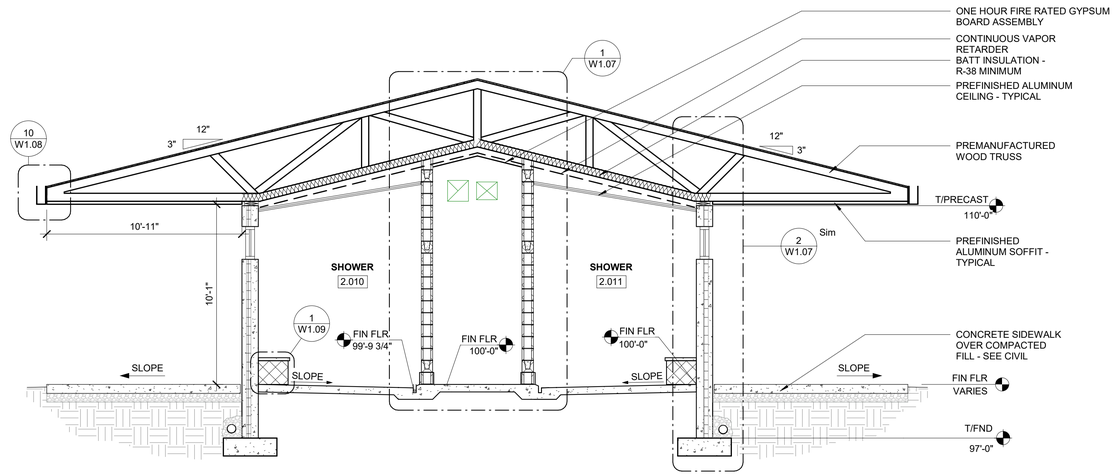
JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217340

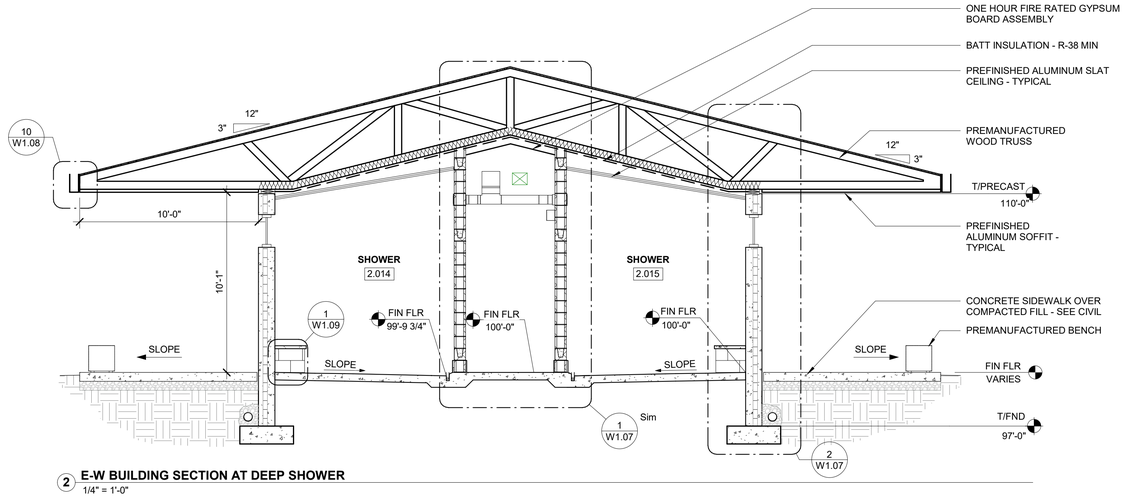
ISSUED FOR CONSTRUCTION 04/26/2022

SHEET NAME: SHOWER HOUSE PRECAST ELEVATIONS

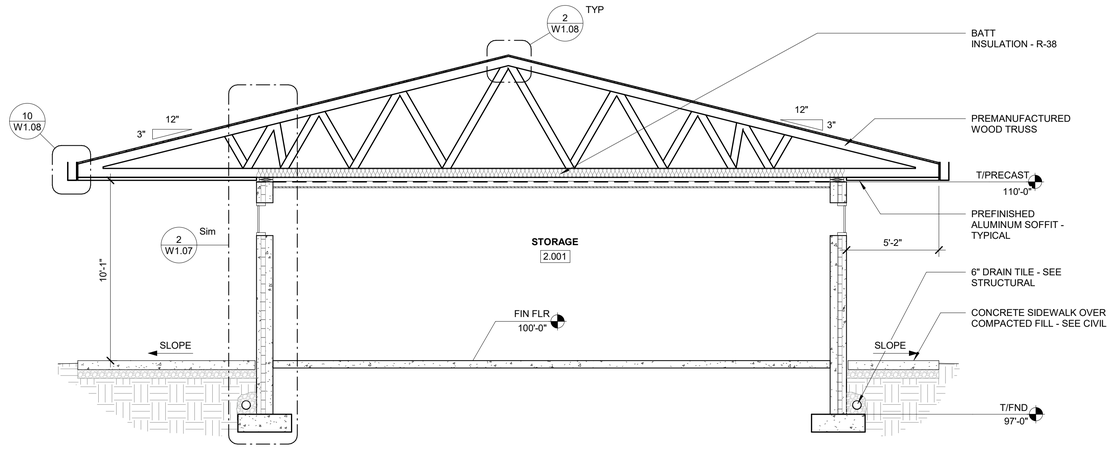
SHEET NO.: W1.04



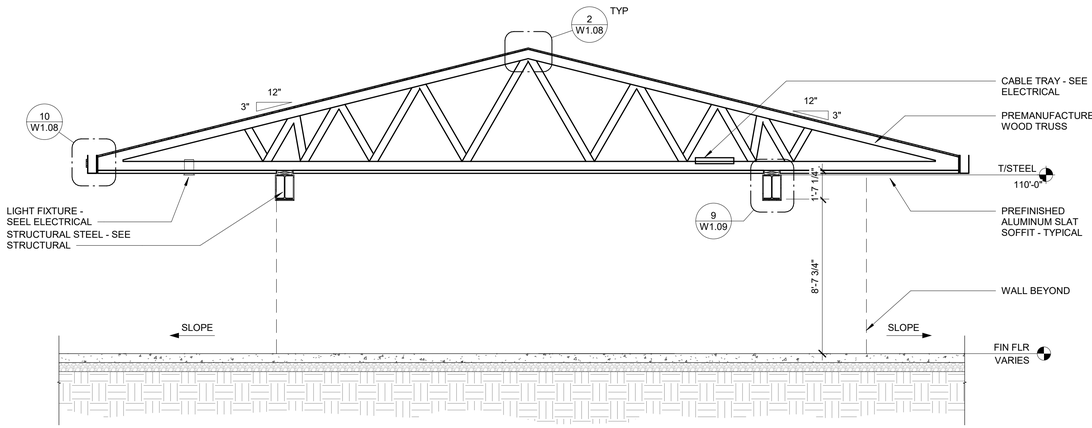
1 **E-W BUILDING SECTION**
1/4" = 1'-0"



2 **E-W BUILDING SECTION AT DEEP SHOWER**
1/4" = 1'-0"



3 **E-W BUILDING SECTION AT STORAGE**
1/4" = 1'-0"



4 **E-W BUILDING SECTION AT BREEZEWAY**
1/4" = 1'-0"

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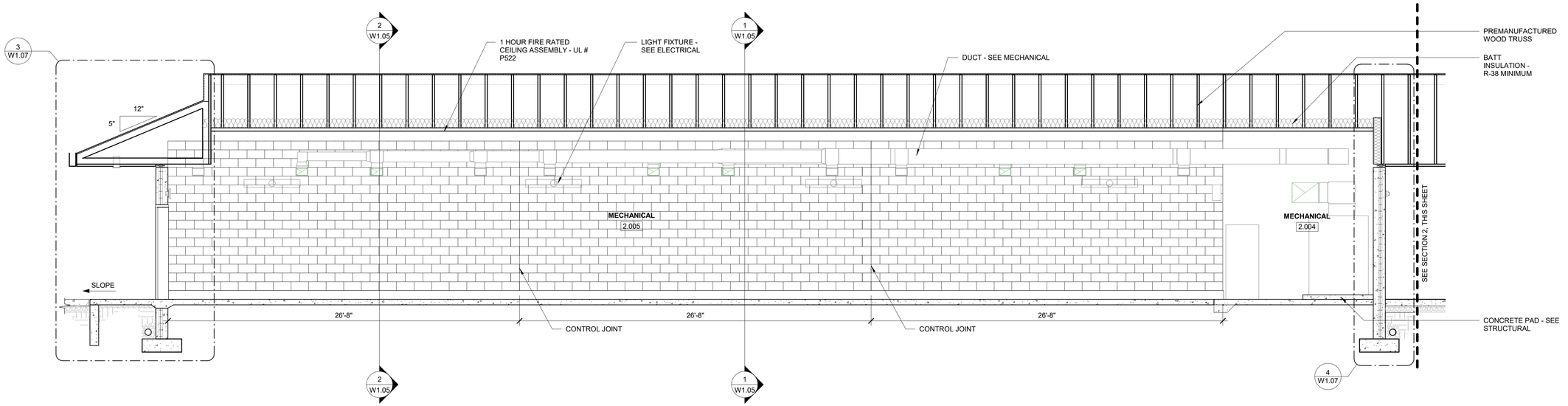
JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217340

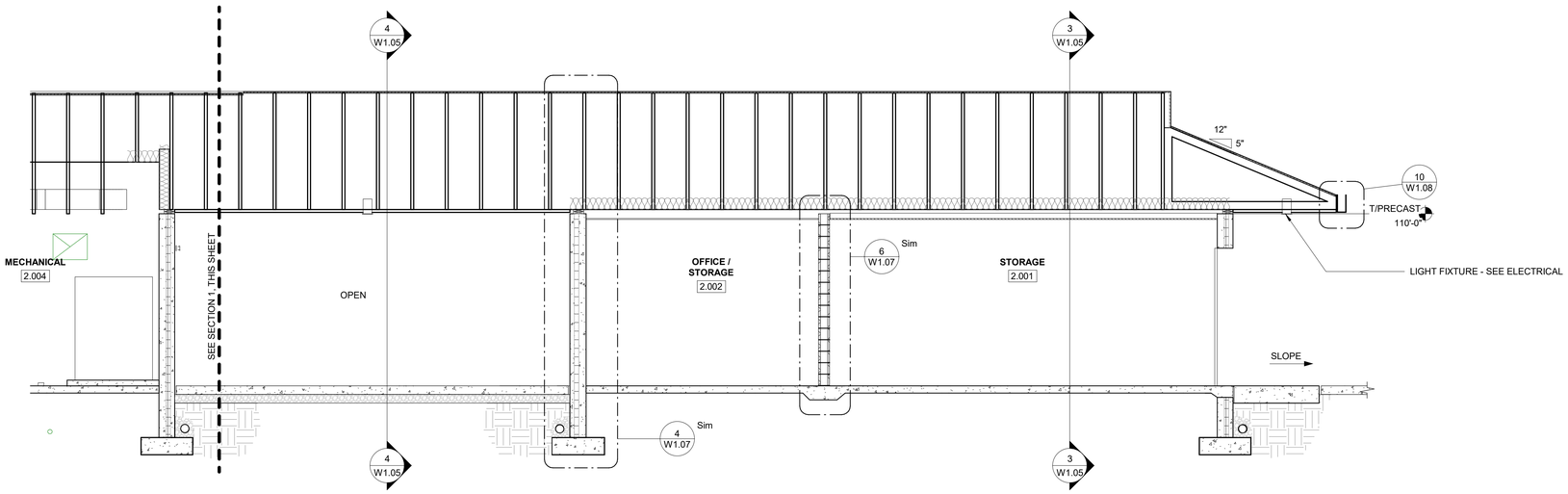
ISSUED FOR CONSTRUCTION 04/26/2022

SHEET NAME: SHOWER HOUSE BUILDING SECTIONS

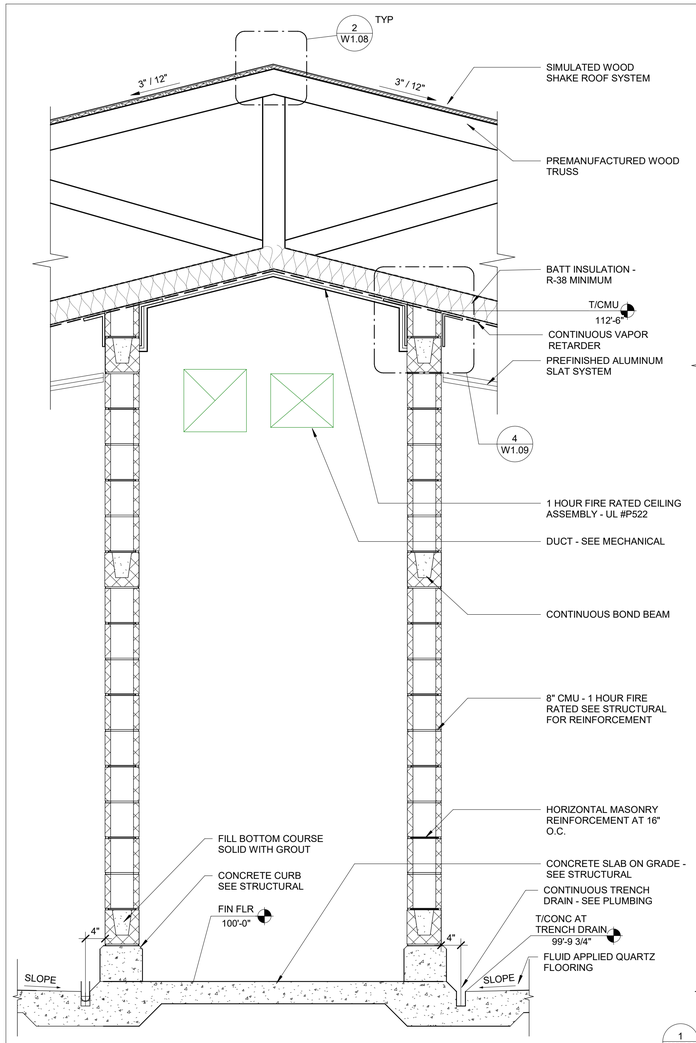
SHEET NO.: W1.05



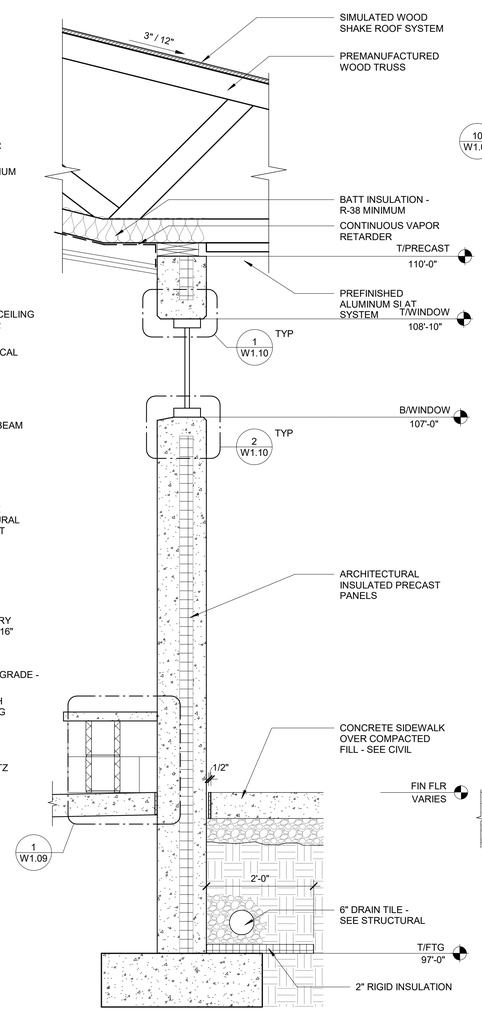
1 N-S BUILDING SECTION -SOUTH
1/4" = 1'-0"



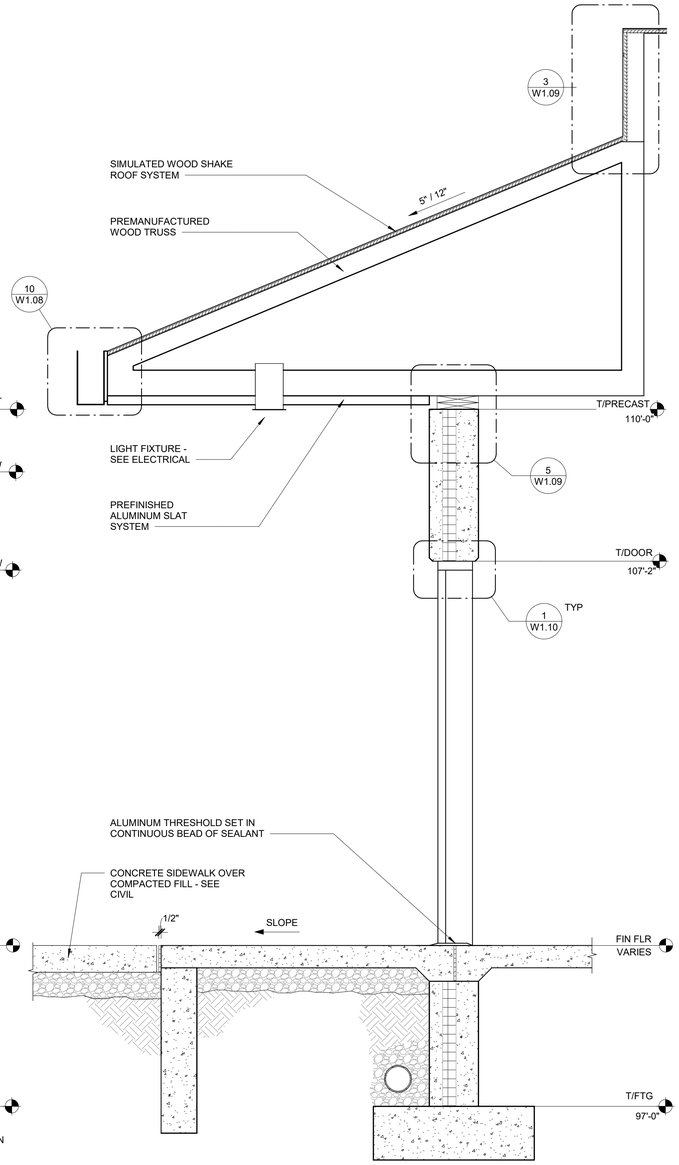
2 N-S BUILDING SECTION - NORTH
1/4" = 1'-0"



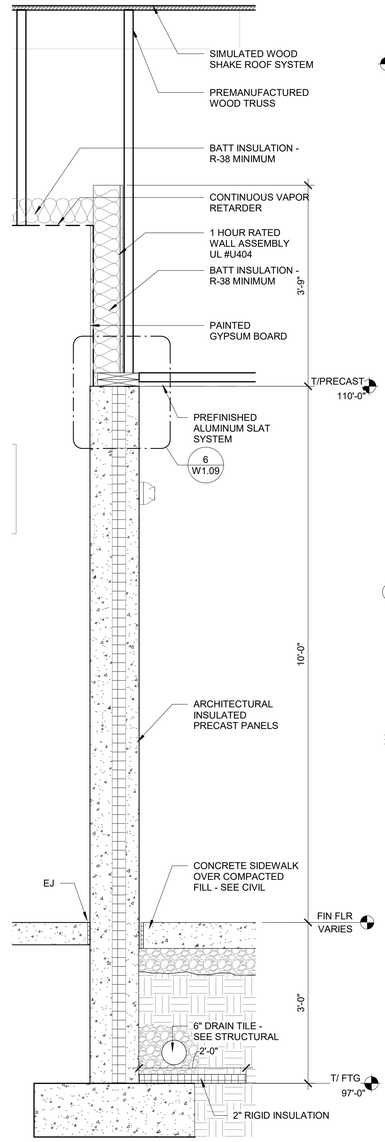
1 MECHANICAL CHASE WALL SECTION
3/4" = 1'-0"



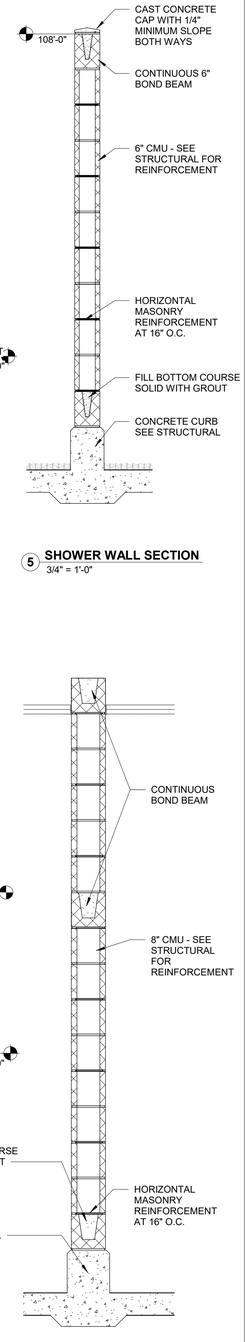
2 PRECAST WALL SECTION - TYPICAL
3/4" = 1'-0"



3 SOUTH PRECAST WALL SECTION AT STOOP
3/4" = 1'-0"



4 BREEZEWAY WALL SECTION
3/4" = 1'-0"



5 SHOWER WALL SECTION
3/4" = 1'-0"

6 WALL SECTION
3/4" = 1'-0"

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JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217340

ISSUED FOR CONSTRUCTION 04/26/2022

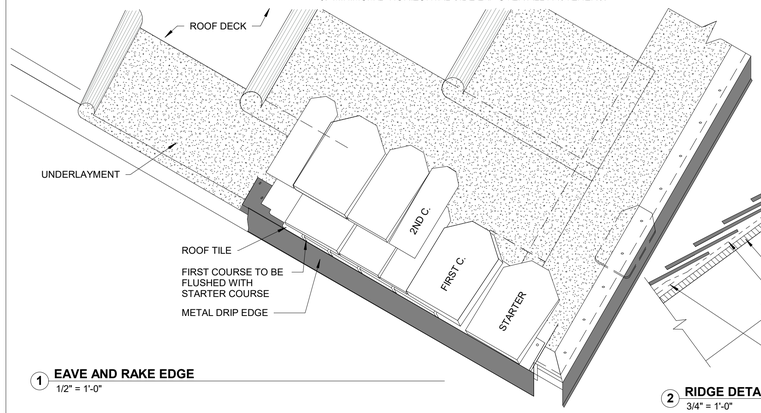
SHEET NAME: SHOWER HOUSE WALL SECTIONS

SHEET NO.: W1.07

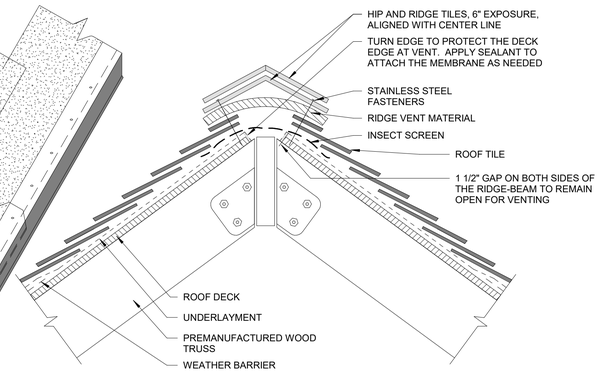
1. A 3/8" MIN. GAP IS REQUIRED BETWEEN ROOF TILES TO ROOF TILES AS WELL AS BETWEEN ROOF TILES TO WALLS MEASURING THE EDGE OF TILE TO VERTICAL FACE OF SHEET METAL FLASHING.

2. PROVIDE 3/4" OVERHANG FOR ROOF TILES AT ALL ROOF EDGES AS SHOWN IN DETAIL 9 / W1.08

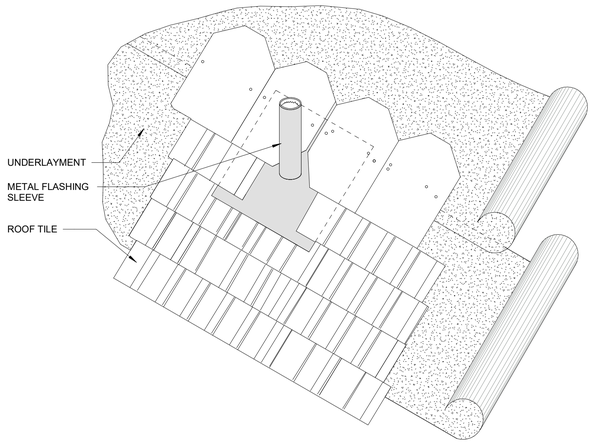
3. MINIMUM 2" HORIZONTAL SIDE LAP OVER ALL FASTENERS.



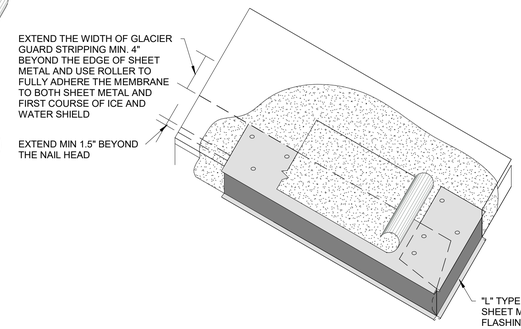
1 EAVE AND RAKE EDGE
1/2" = 1'-0"



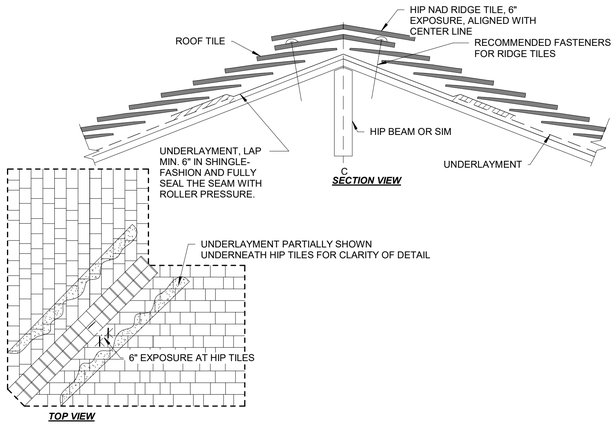
2 RIDGE DETAIL WITH RIDGE VENT
3/4" = 1'-0"



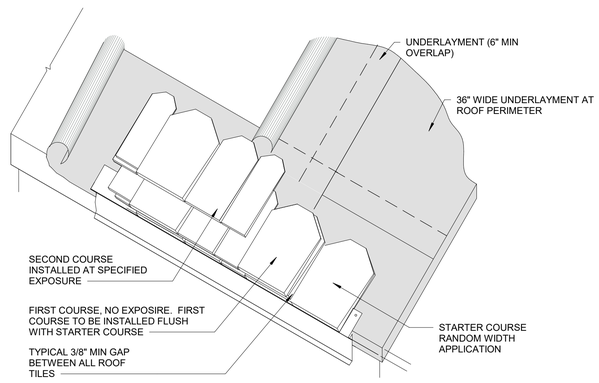
3 VENT FLASHING
3/4" = 1'-0"



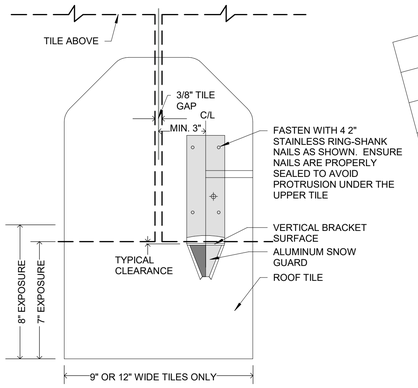
4 UNDERLAYMENT
1" = 1'-0"



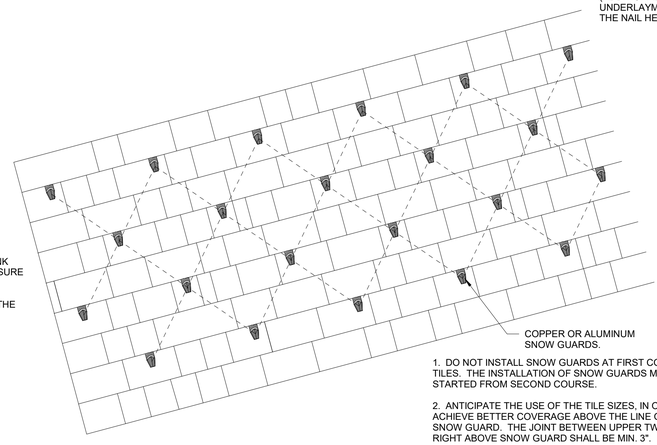
5 HIP DETAIL
3/4" = 1'-0"



6 STARTER COURSE
3/4" = 1'-0"



7 SNOW GUARD LAYOUT
3/4" = 1'-0"



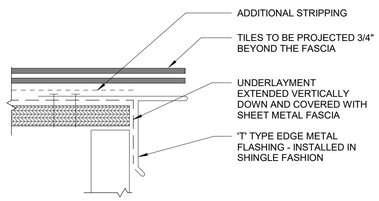
1. DO NOT INSTALL SNOW GUARDS AT FIRST COURSE OF TILES. THE INSTALLATION OF SNOW GUARDS MAY BE STARTED FROM SECOND COURSE.

2. ANTICIPATE THE USE OF THE TILE SIZES, IN ORDER TO ACHIEVE BETTER COVERAGE ABOVE THE LINE OF EACH SNOW GUARD. THE JOINT BETWEEN UPPER TWO TILES RIGHT ABOVE SNOW GUARD SHALL BE MIN. 3".

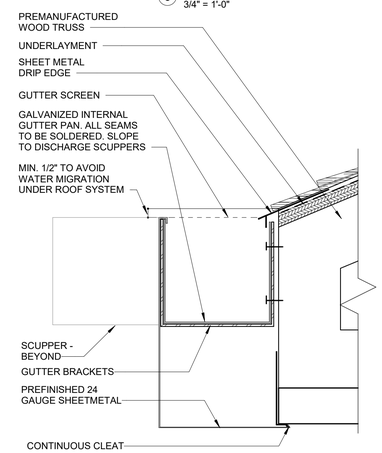
3. THE LENGTH, TYPE AND NAILING PATTERN OF NAILS SHALL BE REVIEWED AND APPROVED BY ARCHITECT.

4. NAILS WITHDRAWAL RESISTANCE SHALL BE VERIFIED PRIOR TO START OF PROJECT AND SHALL BE COORDINATED WITH THE ARCHITECT.

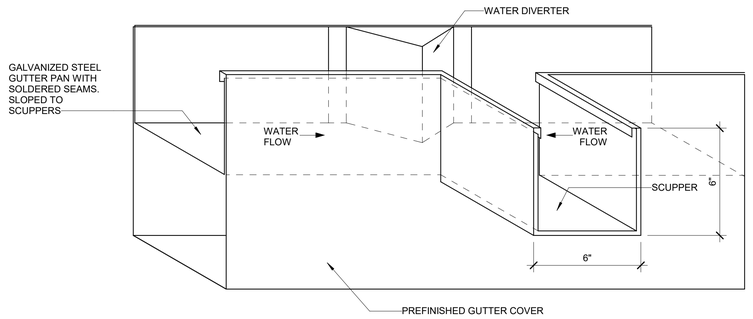
8 SNOW GUARDS
1" = 1'-0"



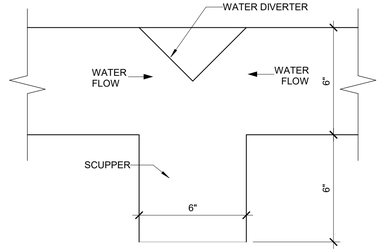
9 RAKE EDGE DETAIL
1 1/2" = 1'-0"

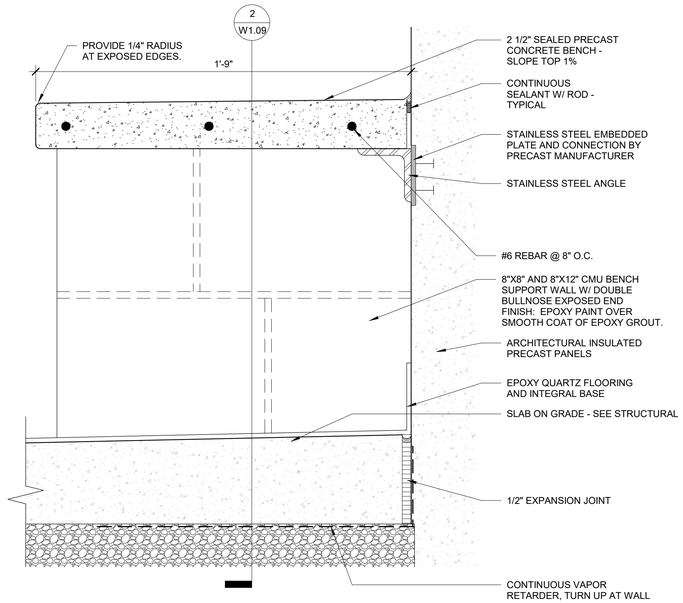


10 GUTTER DETAIL
3" = 1'-0"

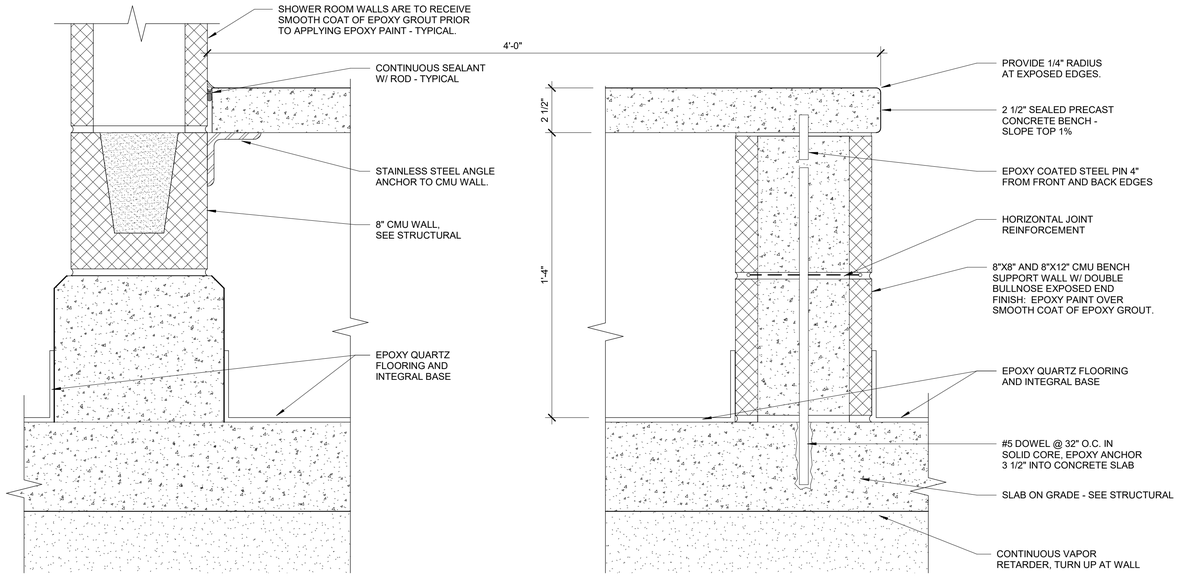


11 SCUPPER DETAIL
3" = 1'-0"

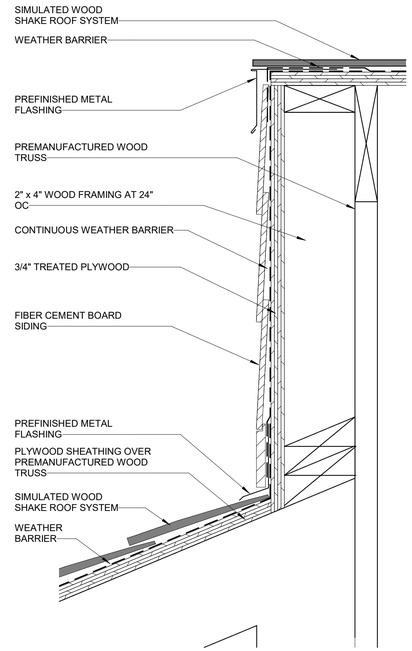




1 BENCH DETAIL
3" = 1'-0"



2 BENCH SECTION
3" = 1'-0"

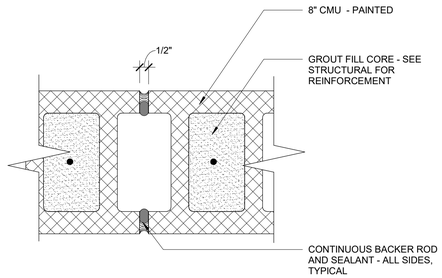


3 ROOF TO WALL DETAIL
3" = 1'-0"

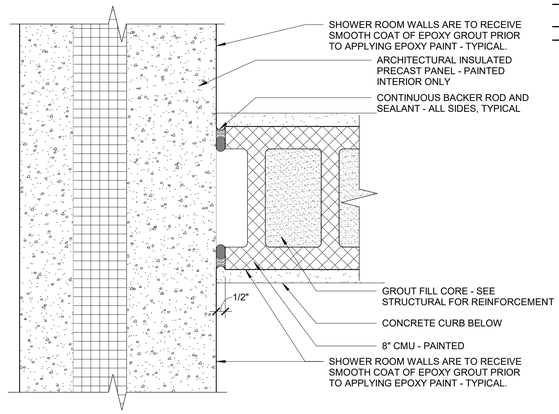
4 WALL DETAIL AT MECHANICAL CHASE
3" = 1'-0"

5 TOP OF PRECAST WALL DETAIL
3" = 1'-0"

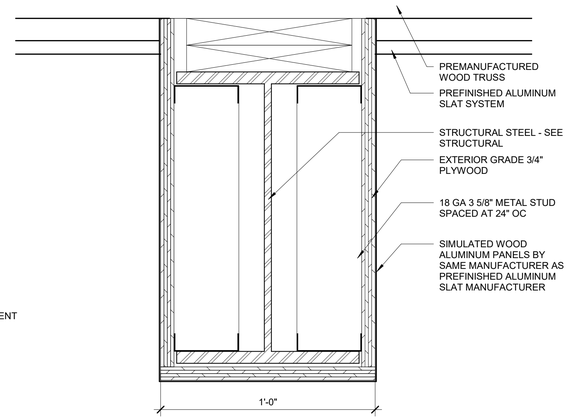
6 TOP OF PRECAST WALL AT BREEZEWAY
3" = 1'-0"



7 TYPICAL CMU CONTROL JOINT
3" = 1'-0"



8 CMU EXPANSION JOINT AT PRECAST PANEL
3" = 1'-0"



9 BEAM WRAP DETAIL
3" = 1'-0"

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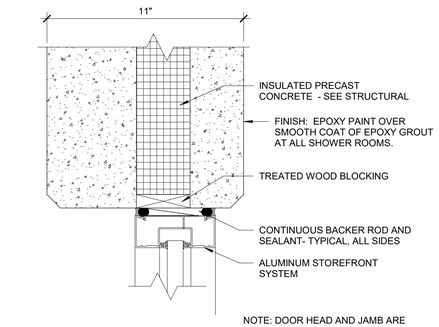
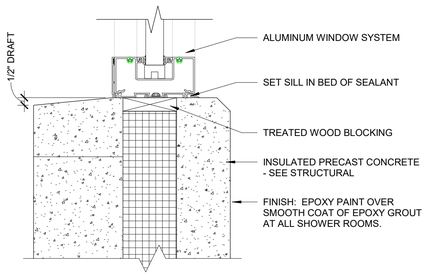
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUED FOR CONSTRUCTION 04/26/2022 | SHEET NAME: SHOWER HOUSE DETAILS | SHEET NO.: W1.09



1 WINDOW HEAD AND JAMB DETAIL - PRECAST
3" = 1'-0"



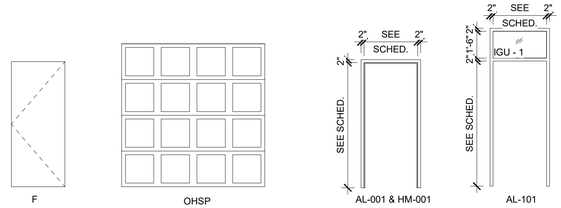
2 WINDOW SILL DETAIL - PRECAST
3" = 1'-0"

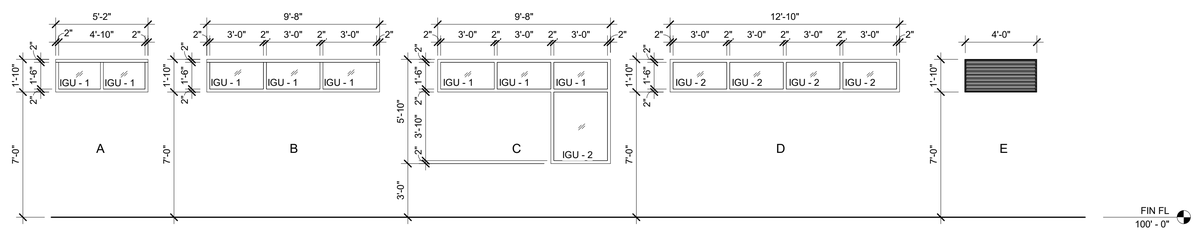
ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLR	BASE	WALLS				CEILINGS		REMARKS
				NORTH	EAST	SOUTH	WEST	MTRL	HEIGHT	
2.001	STORAGE	DNSFR	-	PNT	PNT	PNT	PNT	PLY PNT	9'-8"	
2.002	OFFICE / STORAGE	DNSFR	-	PNT	PNT	PNT	PNT	ACT	9'-8"	
2.003	ELECTRICAL/ COMMS.	DNSFR	-	PNT	PNT	PNT	PNT	PLY PNT	9'-8"	
2.004	MECHANICAL	SLD CONC	-	PNT	PNT	PNT	PNT	GWB PNT	VARIES	
2.005	MECHANICAL	DNSFR	-	-	PNT	PNT	PNT	GWB PNT	VARIES	
2.006	SHOWER	QTZ FLR	QTZ	EPXY PNT	EPXY PNT	EPXY PNT	EPXY PNT	PREFIN ALUM	VARIES	
2.007	SHOWER	QTZ FLR	QTZ	EPXY PNT	EPXY PNT	EPXY PNT	EPXY PNT	PREFIN ALUM	VARIES	
2.008	SHOWER	QTZ FLR	QTZ	EPXY PNT	EPXY PNT	EPXY PNT	EPXY PNT	PREFIN ALUM	VARIES	
2.009	SHOWER	QTZ FLR	QTZ	EPXY PNT	EPXY PNT	EPXY PNT	EPXY PNT	PREFIN ALUM	VARIES	
2.010	SHOWER	QTZ FLR	QTZ	EPXY PNT	EPXY PNT	EPXY PNT	EPXY PNT	PREFIN ALUM	VARIES	
2.011	SHOWER	QTZ FLR	QTZ	EPXY PNT	EPXY PNT	EPXY PNT	EPXY PNT	PREFIN ALUM	VARIES	
2.012	SHOWER	QTZ FLR	QTZ	EPXY PNT	EPXY PNT	EPXY PNT	EPXY PNT	PREFIN ALUM	VARIES	
2.013	SHOWER	QTZ FLR	QTZ	EPXY PNT	EPXY PNT	EPXY PNT	EPXY PNT	PREFIN ALUM	VARIES	
2.014	SHOWER	QTZ FLR	QTZ	EPXY PNT	EPXY PNT	EPXY PNT	EPXY PNT	PREFIN ALUM	VARIES	
2.015	SHOWER	QTZ FLR	QTZ	EPXY PNT	EPXY PNT	EPXY PNT	EPXY PNT	PREFIN ALUM	VARIES	
2.016	SHOWER	QTZ FLR	QTZ	EPXY PNT	EPXY PNT	EPXY PNT	EPXY PNT	PREFIN ALUM	VARIES	
2.017	SHOWER	QTZ FLR	QTZ	EPXY PNT	EPXY PNT	EPXY PNT	EPXY PNT	PREFIN ALUM	VARIES	
2.018	WOOD SHED	DNSFR	-	-	-	-	-	EXPOSED	-	

DOOR AND FRAME SCHEDULE

DOOR NUMBER	DOOR						FRAME			REMARKS
	SWING TYPE	SIZE			LEAF TYPE	LEAF MTRL	MTRL-TYPE	GLAZ	HDWR	
		WD	HT	TK						
2.001A	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-001	-	HW-4	
2.001B	OHS	12'-0"	8'-0"	1 3/4"	OHSP	-	OHS	-	HW-7	
2.002A		3'-0"	7'-0"	1 3/4"	F	FRP	AL-001	-	HW-6	
2.002B	S	3'-0"	7'-0"	1 3/4"	F	HM	HM-001	-	HW-5	
2.003		3'-0"	7'-0"	1 3/4"	F	FRP	AL-001	-	HW-3	
2.004	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-001	-	HW-2	
2.005	S	4'-0"	7'-0"	1 3/4"	F	FRP	AL-001	-	HW-2	
2.006	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-101	IGU - 1	HW-1	
2.007	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-101	IGU - 1	HW-1	
2.008	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-101	IGU - 1	HW-1	
2.009	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-101	IGU - 1	HW-1	
2.010	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-101	IGU - 1	HW-1	
2.011	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-101	IGU - 1	HW-1	
2.012	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-101	IGU - 1	HW-1	
2.013	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-101	IGU - 1	HW-1	
2.014	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-101	IGU - 1	HW-1	
2.015	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-101	IGU - 1	HW-1	
2.016	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-101	IGU - 1	HW-1	
2.017	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-101	IGU - 1	HW-1	
2.018A	S	3'-0"	7'-0"	1 3/4"	F	FRP	AL-001	-	HW-4	
2.018B	OHS	12'-0"	8'-0"	1 3/4"	OHSP	-	OHS	-	HW-7	



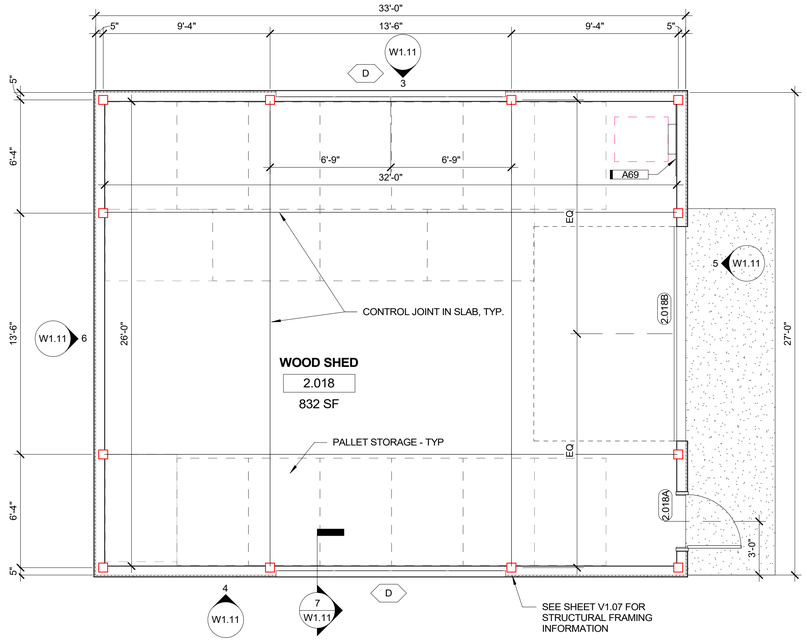


WINDOW AND LOUVER TYPES

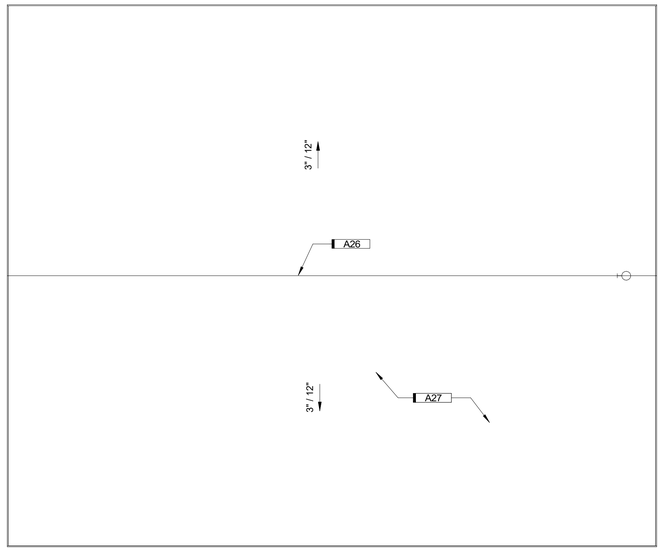
ABBREVIATIONS

ACT	ACOUSTICAL CEILING TILE
AL	ALUMINUM
EPXY PNT	EPOXY PAINT
EXP INSUL	EXPOSED INSULATION
F	FLUSH
FRP	FIBERGLASS REINFORCED PANEL
HM	HOLLOW METAL
IGU - 1	INSULATING GLAZING UNIT WITH ACID ETCHED EXTERIOR PANE
IGU - 2	INSULATING GLAZING UNIT WITH CLEAR EXTERIOR PANE
OHS	OVERHEAD SECTIONAL DOOR TRACK
OHSP	OVERHEAD SECTIONAL PANEL DOOR
PREFIN	PREFINISHED
PREFIN ALUM	PREFINISHED ALUMINUM
PLY PNT	PLYWOOD, PAINT
PNT	PAINT
QTZ FLR	QUARTZ FLOORING
S	SINGLE
DNSFR	CONCRETE WITH DENSIFIER

NOTE:
SHOWER ROOM WALLS ARE TO RECEIVE SMOOTH COAT OF EPOXY GROUT PRIOR TO APPLYING EPOXY PAINT.



1 WOOD SHED FLOOR PLAN
1/4" = 1'-0"



2 ROOF PLAN
1/4" = 1'-0"

GENERAL CONSTRUCTION NOTES- WOOD SHED

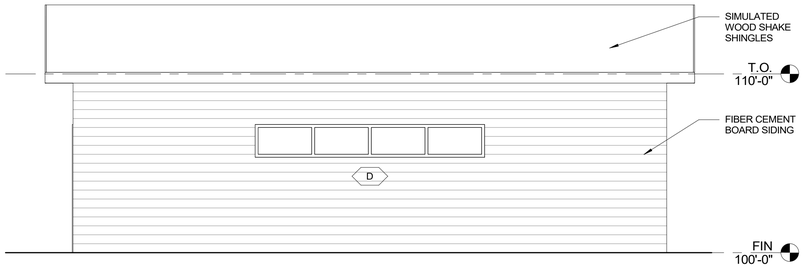
1 COORDINATE WORK WITH ALL OTHER TRADES TO ENSURE PROPER SEQUENCING AND INSTALLATION. THIS SHALL INCLUDE ANY VENDORS CONTRACTED DIRECTLY BY OWNER.
2 ALL WORK SHALL BE PERFORMED AND COMPLETED IN COMPLIANCE WITH ALL APPLICABLE BUILDING CODES AND ORDINANCES.
3 ANY AND ALL DISCREPANCIES AND DEFICIENCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.
4 COORDINATE WORK SCHEDULES WITH THE OWNER TO ESTABLISH CONSTRUCTION SEQUENCING.
5 CONTRACTORS AND MATERIAL SUPPLIERS SHALL VERIFY ALL DIMENSIONS AND CONDITIONS WHICH WILL AFFECT THEIR WORK.
6 REMOVE FROM THE SITE ALL DEBRIS AND MATERIALS RESULTING FROM CONSTRUCTION ON A REGULAR BASIS UNLESS NOTED OTHERWISE.
7 CONTRACTOR SHALL BE RESPONSIBLE FOR HOOK-UP OF ANY TEMPORARY HEAT OR LIGHTING REQUIRED IN WORK AREAS.
8 MAINTAIN ONE SET OF DRAWINGS ON SITE FOR THE PURPOSE OF RECORDING CONSTRUCTION REVISIONS. THIS RECORD SET SHALL BE RETURNED TO THE ARCHITECT UPON CONTRACT CLOSEOUT.
9 MAINTAIN ACCESS TO PARK AREAS IN USE OR AS DIRECTED BY OWNER.
10 INSTALL TEMPORARY WEATHER AND SECURITY BARRIERS AT EXTERIOR WALL OPENINGS WHEN WORK IS NOT IN PROGRESS.
11 INTERIOR ELEVATIONS AT ROOMS 2.010 THRU 2.013 ARE SIMILAR TO THOSE INDICATED ON SHEET 2A.03.
12 SLOPE ARROWS ON THE REFLECTED CEILING PLAN POINT TOWARDS THE LOW CEILING SIDE OF THE ROOM.
13 COORDINATE SIZE OF ROUGH OPENING WITH DOOR AND WINDOW REQUIREMENTS.
14 ALL DIMENSIONS ARE NOMINAL. (EXCEPT ACCESIBILITY DIAGRAMS ON THIS SHEET).

KEYNOTE LEGEND

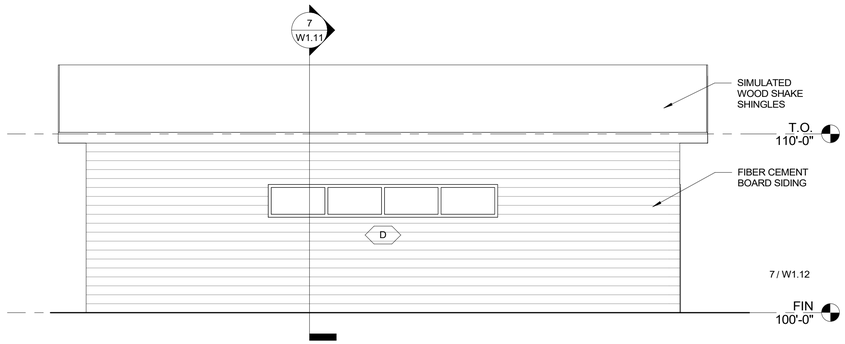
A26	VENTED RIDGE CAP, SEE ROOFING DETAILS
A27	SIMULATED WOOD SHAKE ROOF SHINGLES
A69	3/4" PLYWOOD BACK PANEL TO MOUNT ELECTRICAL PANEL

ARCHITECTURAL LEGEND

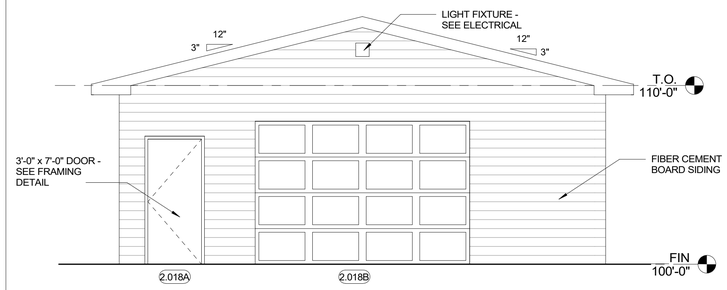
KEYNOTE
ROOM NAME / XXX — ROOM TAG
XXXX — DOOR TAG
x — WINDOW TAG



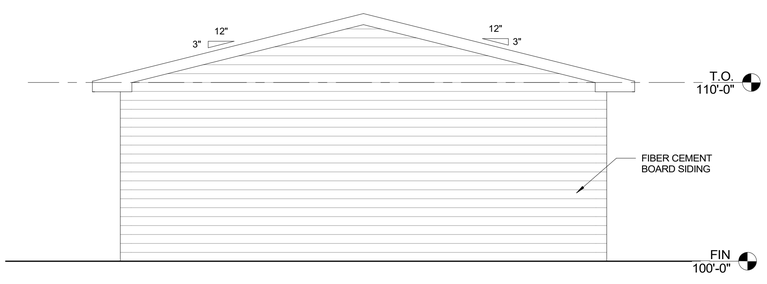
3 NORTH ELEVATION
1/4" = 1'-0"



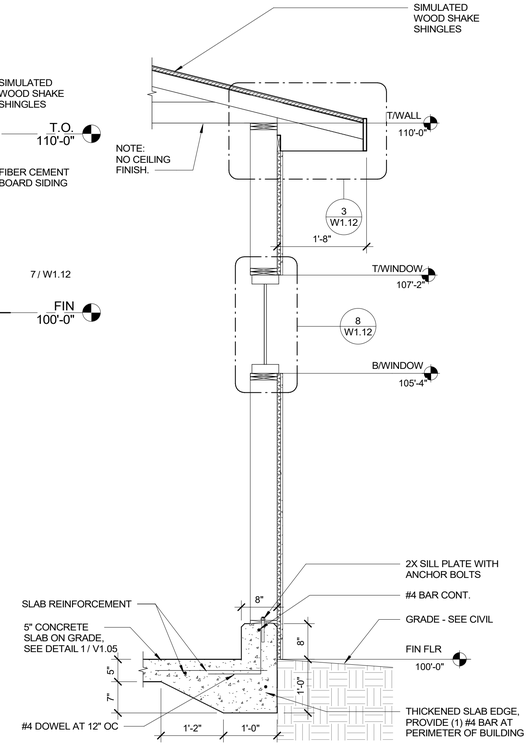
4 SOUTH ELEVATION
1/4" = 1'-0"



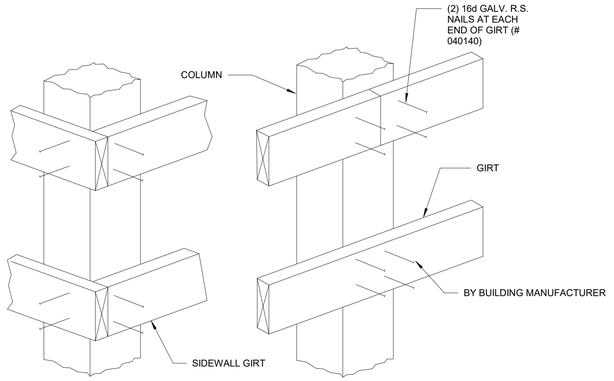
5 EAST ELEVATION
1/4" = 1'-0"



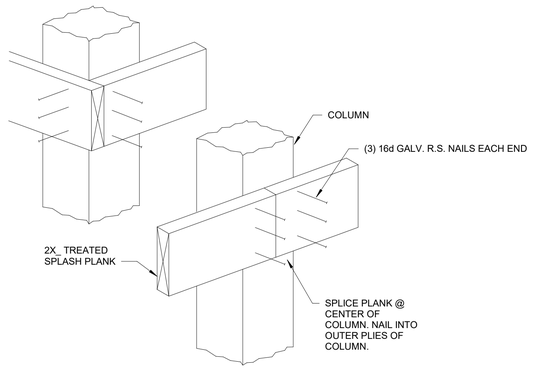
6 WEST ELEVATION
1/4" = 1'-0"



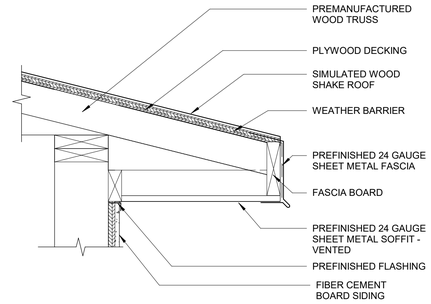
7 WALL SECTION
3/4" = 1'-0"



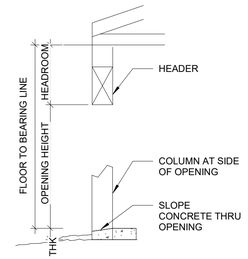
1 BYPASS GIRT DETAIL
1 1/2" = 1'-0"



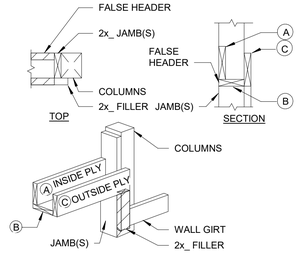
2 BYPASS SPLASH PLANK DETAIL
1 1/2" = 1'-0"



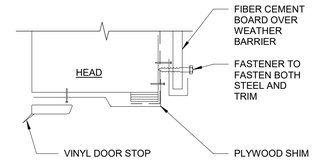
3 ROOF OVERHANG
1 1/2" = 1'-0"



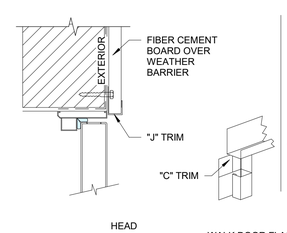
4 OVERHEAD DOOR
3/4" = 1'-0"

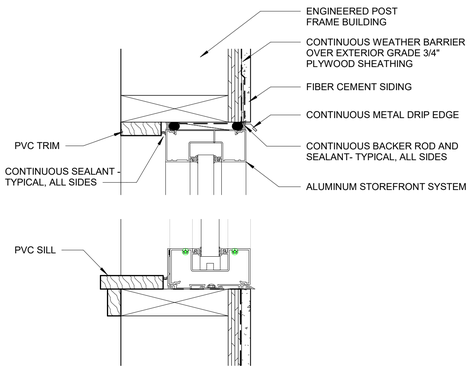


5 OVERHEAD DOOR FRAMING
3/4" = 1'-0"

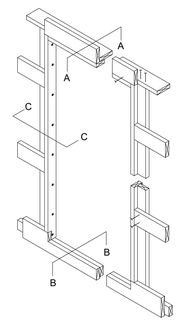


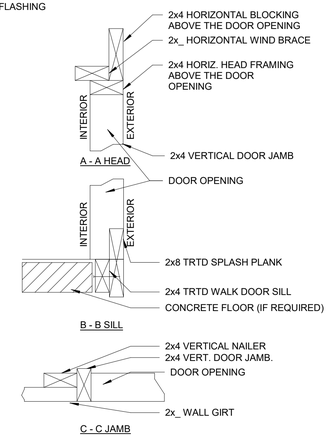
6 OVERHEAD DOOR FLASHING
1 1/2" = 1'-0"





8 WINDOW DETAIL
3" = 1'-0"

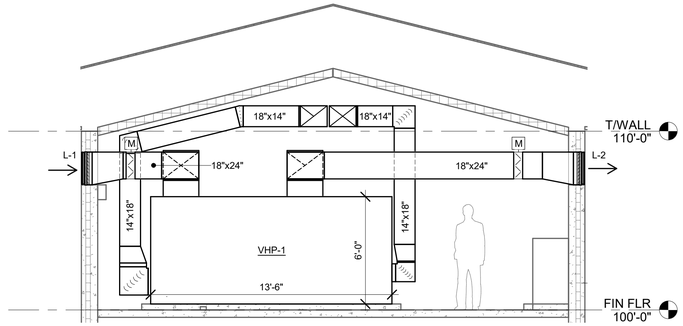




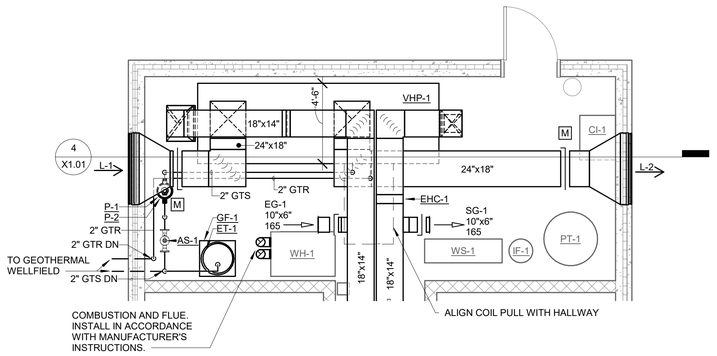
7 WALK DOOR FRAMING DETAIL
1 1/2" = 1'-0"

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

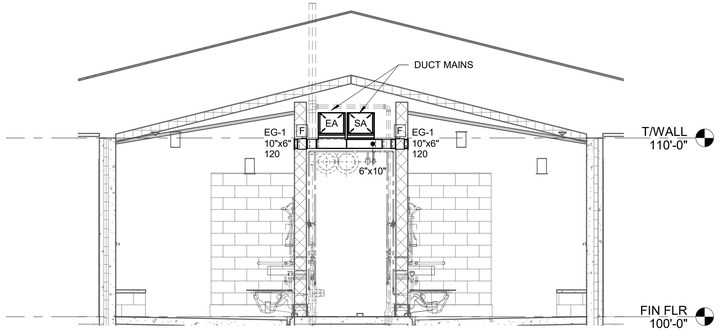
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUED FOR CONSTRUCTION 04/26/2022 | SHEET NAME: WOOD SHED DETAILS | SHEET NO.: W1.12



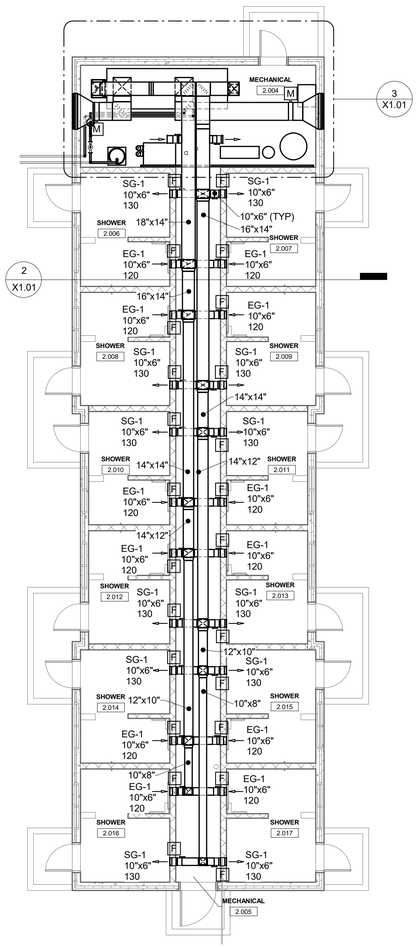
4 UNIT VENTILATOR SECTION
1/4" = 1'-0"



3 ENLARGED MECHANICAL ROOM PLAN
1/4" = 1'-0"

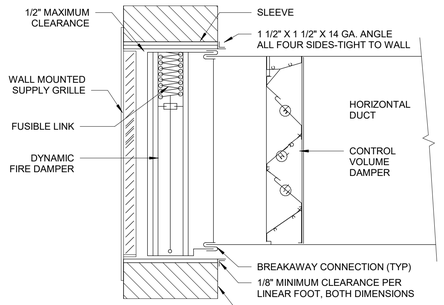


2 CORRIDOR HVAC SECTION
1/4" = 1'-0"



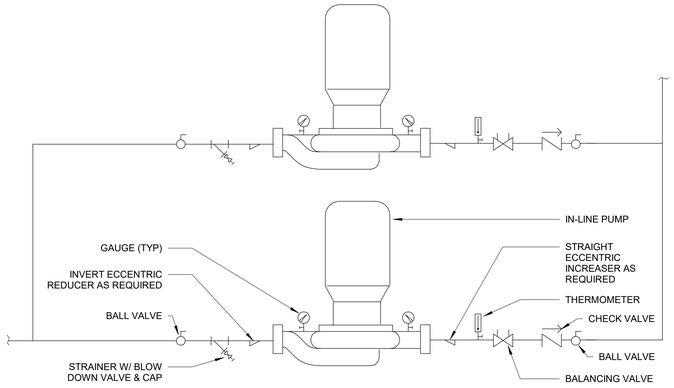
PLAN NORTH
TRUE NORTH

1 SHOWER HOUSE MECHANICAL PLAN
1/8" = 1'-0" 0 12'

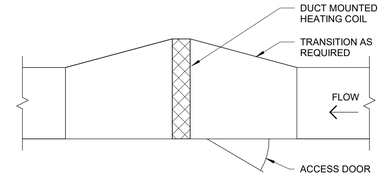


NOTE
PROVIDE THIN-LINE TYPE FIRE DAMPERS WITH MAXIMUM 2" FRAMES TYPE IBDT FOR ALL SIDEWALL GRILLES AND TRANSFER GRILLES MOUNTED IN FIRE WALLS.

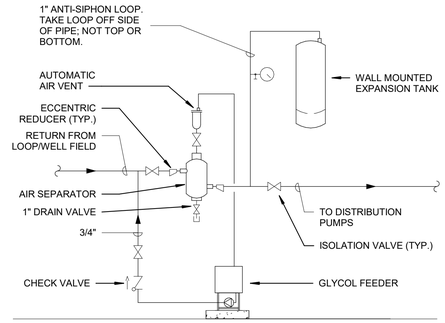
11 TYPICAL SUPPLY GRILLE FIRE AND VOLUME DAMPER DETAIL



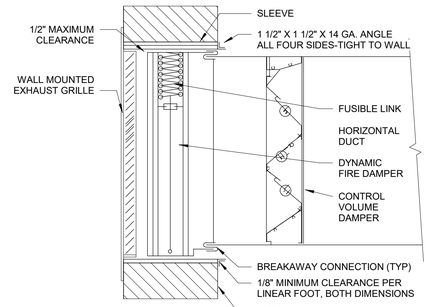
9 PIPING DIAGRAM - IN-LINE PUMP



6 DUCT MOUNTED HEATING COIL DETAIL

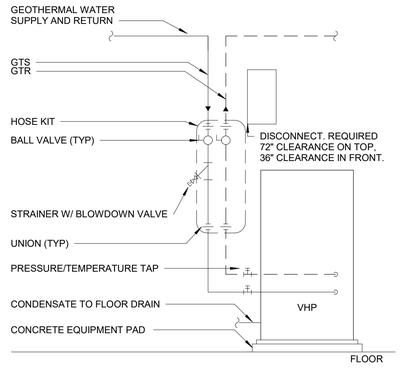


3 AIR SEPARATOR, EXPANSION TANK AND GLYCOL FEEDER DETAIL

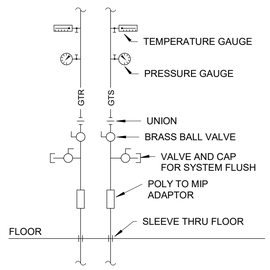


NOTE
PROVIDE THIN-LINE TYPE FIRE DAMPERS WITH MAXIMUM 2" FRAMES TYPE IBDT FOR ALL SIDEWALL GRILLES AND TRANSFER GRILLES MOUNTED IN FIRE WALLS.

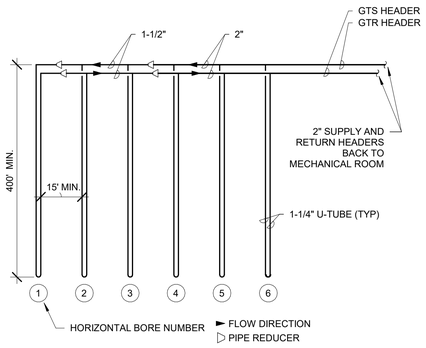
10 TYPICAL EXHAUST GRILLE FIRE DAMPER DETAIL



8 HEAT PUMP PIPING DETAIL



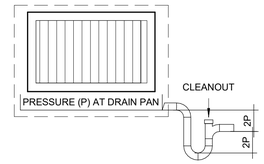
7 GEOTHERMAL LOOP HEADER DETAIL



5 HORIZONTAL LOOP/HEADER LAYOUT

CONDENSATE DRAIN PIPE SCHEDULE

MINIMUM PIPE SIZE	EQUIPMENT CAPACITY	REMARKS
3/4"	UP TO 3 TONS OF REFRIGERATION	
1"	OVER 3 TONS AND UP TO 20 TONS OF REFRIGERATION	
1 1/4"	OVER 20 TONS AND UP TO 90 TONS OF REFRIGERATION	



NOTE:
1. PIPING SHALL BE SLOPED IN THE DIRECTION OF FLOW AT 1/8" PER FOOT MINIMUM.
2. PIPING SHALL BE SUPPORTED INDEPENDENTLY OF THE COILS.
3. DRAIN LINES SHALL BE RUN FULL SIZE (MINIMUM) FROM THE DRAIN PAN CONNECTION. COORDINATE SIZE REQUIREMENTS WITH SCHEDULE ABOVE.
4. "TRAP DEPTH" AND "THE DISTANCE BETWEEN THE TRAP AND TRAP OUTLET" SHALL BE TWICE (MINIMUM) THE STATIC PRESSURE IN THE DRAIN PAN SECTION.

2 DRAIN PAN PIPING DETAIL

HVAC SYMBOLS

SENSOR (TYPE AS NOTED)
H=HUMIDITY
T=TEMPERATURE
P=PRESSURE

FD
DAMPER (TYPE AS NOTED)
BDD, FSD, ETC.

AUTOMATIC DAMPER

MANUAL DAMPER

DUCT BREAKLINES - RECTANGULAR AND CIRCULAR

PIPE BREAKLINES

SIDEWALL GRILLE (SIZE AND TYPE AS NOTED)

SUPPLY DUCTWORK (SECTIONAL VIEW)

EXHAUST DUCTWORK (SECTIONAL VIEW)

DUCT TURNED UP OR TOWARD (SUPPLY SHOWN)

DUCT TURNED DOWN OR AWAY (SUPPLY SHOWN)

SQUARE ELBOW WITH TURNING VANES

CONICAL TAP TAKE-OFF

45° ENTRY TAKE-OFF

DOUBLE SIDED TRANSITION

SINGLE SIDED TRANSITION

VALVES

CALIBRATED BALANCING VALVE

BALL VALVE

CHECK VALVE

GENERIC VALVE. SEE SPECIFICATION FOR TYPE.

SAFETY RELIEF VALVE

FD FLOOR DRAIN - (TYPE AS NOTED)

DEVICES

PRESSURE GAUGE WITH 1/4" STOP

THERMOMETER WITH 1/4" STOP

FITTINGS

DIRECTION OF FLOW

AIR VENT

CONCENTRIC REDUCER

ECCENTRIC REDUCER

FLEXIBLE PIPE CONNECTION

STRAINER

STRAINER WITH DRAIN

UNION

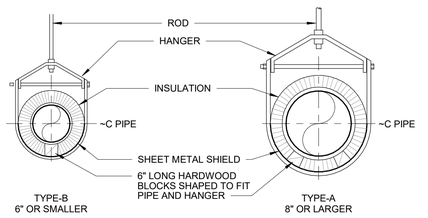
PRESSURE/TEMPERATURE TAP

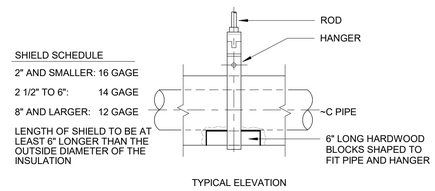
ELBOW TURNED DOWN OR AWAY

ELBOW TURNED UP OR TOWARDS

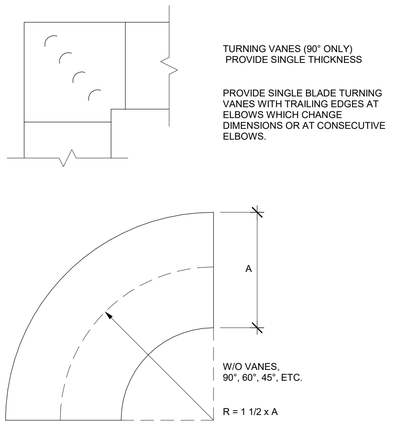
TEE TURNED DOWN OR AWAY

TEE TURNED UP OR TOWARDS





4 INSULATED PIPE HANGER DETAIL



1 ELBOW DETAILS

VENTILATION HEAT PUMP SCHEDULE

REMARKS:
1. WITH SENSIBLE ENERGY RECOVERY PLATE WITH BYPASS DAMPER, WATER COOLED HEAT PUMP, AND HOT GAS REHEAT.
2. ALL MOTORS SHALL BE NEMA PREMIUM EFFICIENT.
3. PROVIDE SINGLE POINT ELECTRICAL CONNECTION AND FACTORY MOUNTED DISCONNECT.
4. INTAKE/EXHAUST W/MOTORIZED DAMPERS & FILTERS, COOLING COIL/FILTERS, DAMPERS SHALL BE LOW LEAKAGE
5.VHP-1 COOLING IS BASED ON 90°F EWT, HEATING IS BASED ON 40°F EWT. 30% GLYCOL.
6. EER AND COP VALUE BASED ON ARI STANDARD CONDITIONS.
7. HEAT PUMP SHALL HAVE MODULATING CAPACITY WITH VFD. FANS SHALL BE VARIABLE SPEED ECM MOTORS.
8. ALL ALUMINUM INTERIOR.

		WATERFLOW		SUPPLY FAN DATA		EXHAUST FAN DATA			HEAT EXCHANGER DATA - COOLING				HEAT PUMP - COOLING				HEAT EXCHANGER DATA - HEATING				HEAT PUMP HEATING			HOT GAS REHEAT		ELECTRICAL INFORMATION					
									EAT		LAT		LAT				EAT		LAT											
PLAN MARK	SUPPLY CFM	GPM	MAX PD	EXTERNAL STATIC PRESSURE	HP	CFM	EXTERNAL STATIC PRESSURE	HP	DB	WB	DB	WB	DB	WB	TOTAL COOLING MBH	SENSIBLE COOLING MBH	EER	DB	WB	DB	WB	LAT DB	TOTAL CAPACITY MBH	COP	MBH	LAT	VOLTS	PHASE	MCA	MOCP	DESIGN BASIS	REMARKS
VHP-1	1600	25 GPM	3.1 ftH2O	1.00 in-wg	1.5	1480	1.00 in-wg	1	95 °F	76 °F	86 °F	74 °F	51 °F	51 °F	117.8	61.0	17.9	-10 °F	-11 °F	50 °F	33 °F	70 °F	43.2	4.53	33.2	70 °F	230 V	1	85 A	125 A	XETEX XHS-24-24-BP-CD-HG-HP	VFD BY MANUF.

ELECTRIC HEATING COIL SCHEDULE

1. PROVIDE WITH BUILT-IN, SNAP-ACTION, DOOR INTERLOCKING DISCONNECT SWITCH WITH MARKED "ON" AND "OFF" POSITIONS.
2. MAXIMUM STATIC PRESSURE DROP SHALL BE 0.10" WC.
3. COORDINATE LEFT OR RIGHT HAND AS REQUIRED FOR TERMINAL BOX CLEARANCE AND ACCESS.
4. INSTALL WITH STRAIGHT DUCT UPSTREAM AND DOWNSTREAM OF HEATER AS REQUIRED BY MANUFACTURER.
5. PROVIDE WITH PROPORTIONAL CONTROL.

							ELECTRICAL DATA					
PLAN MARK	SERVES	CFM	DUCT SIZE	EAT	LAT	KW	FLA	MOCP	VOLTS	PHASE	DESIGN BASIS	REMARKS
EHC-1	VHP-1	1600	18"x14"	51 °F	87 °F	18.0	75 A	100 A	240 V	1	BRASCH	

DIFFUSERS, REGISTERS, AND GRILLES SCHEDULE

MARK	MATERIAL OF CONSTRUCTION	DESCRIPTION	FACTORY FINISH	DESIGN BASIS	REMARKS
EG-1	ALUMINUM	3/4" SPACING 35° DEF	WHITE	TITUS 350FS	
SG-1	ALUMINUM	3/4" SPACING DBL DEF	WHITE	TITUS 300FS	

LOUVER SCHEDULE

1. PROVIDE WITH BIRD SCREEN
2. COLOR TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF COLOR OPTIONS.

MARK	FLOW	HEIGHT	WIDTH	DEPTH	MAX PRESSURE DROP (IN. WG)	DESIGN BASIS
L-1	1600	1'-10"	4'-0"	2"	0.05	INDUSTRIAL LOUVER 258
L-2	1480	1'-10"	4'-0"	2"	0.05	INDUSTRIAL LOUVER 258

MECHANICAL PUMP SCHEDULE

1. WELLFIELD PRESSURE DROP ASSUMED TO BE 25 FEET. CONTRACTOR TO VERIFY PRIOR TO ORDERING PUMP.

					MOTOR DATA					
PLAN MARK	SYSTEM SERVED	TYPE	GPM	HEAD (FT.)	HP	VOLTS	PHASE	RPM	DESIGN BASIS	REMARKS
P-1	GEOTHERMAL	IN-LINE	25 GPM	30.00	0.75	240 V	1	1750	TACO 1915	VFD BY EC
P-2	GEOTHERMAL	IN-LINE	25 GPM	30.00	0.75	240 V	1	1750	TACO 1915	VFD BY EC

AIR/DIRT SEPARATOR

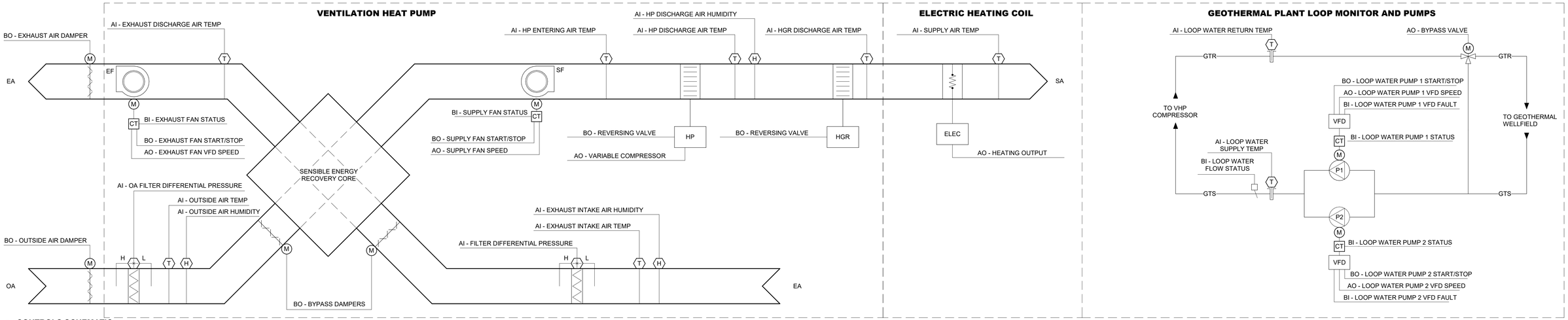
PLAN MARK	SIZE (IN)	CAPACITY (GPM)	MAX PD (FT)	AIR REMOVAL	DESIGN BASIS	REMARKS
AS-1	2"	25	0.4	99%	SPIROTHERM VDN200	REMOVABLE HEAD

MECHANICAL PIPING EXPANSION TANK SCHEDULE

PLAN MARK	SYSTEM SERVED	TYPE	TANK CAPACITY	ACCEPTANCE CAPACITY	DESIGN BASIS	REMARKS
ET-1	GEOTHERMAL	BLADDER	23.0 gal	23.0 gal	TACO CA-90	

GLYCOL FEED SYSTEM SCHEDULE

			CUT IN PRESSURE	CUT OUT	MOTOR DATA					
PLAN MARK	SYSTEM SERVED	CAPACITY	RANGE	PRESSURE RANGE	HP	VOLTS	PHASE	DESIGN BASIS	LOCATION	REMARKS
GF-1	GEOTHERMAL	50 gal	10-45 psi	20-60 psi	0.33	120 V	1	NEPTUNE G-50-1	MECHANICAL ROOM	



11 CONTROLS SCHEMATIC
12" = 1'-0"

VENTILATION HEAT PUMP:

RUN CONDITIONS - CONTINUOUS:
THE UNIT SHALL RUN CONTINUOUSLY BASED ON A USER DEFINED SCHEDULE.

SUPPLY FAN:
THE SUPPLY FAN SHALL RUN CONTINUOUSLY, UNLESS SHUTDOWN ON SAFETIES.
OCCUPIED MODE: FAN SHALL OPERATE AT FULL SCHEDULED AIRFLOW
UNOCCUPIED MODE: FAN SHALL OPERATE AT 30% SCHEDULED AIRFLOW

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.

EXHAUST FAN:
THE EXHAUST FAN SHALL RUN WHENEVER THE SUPPLY FAN RUNS.
OCCUPIED MODE: FAN SHALL OPERATE AT FULL SCHEDULED AIRFLOW
UNOCCUPIED MODE: FAN SHALL OPERATE AT 30% SCHEDULED AIRFLOW

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- EXHAUST FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- EXHAUST FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.

HEATING AND COOLING - VARIABLE COMPRESSOR:
THE CONTROLLER SHALL MODULATE THE COMPRESSOR TO MAINTAIN EXHAUST INTAKE AIR TEMPERATURE SETPOINT. THE COMPRESSOR SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.
- COOLING MODE: 75°F (ADJ.) OCCUPIED / 78°F (ADJ.) UNOCCUPIED RETURN AIR TEMPERATURE
- HEATING MODE: 70°F (ADJ.) OCCUPIED / 67°F (ADJ.) UNOCCUPIED RETURN AIR TEMPERATURE

THE HEATING SHALL BE ENABLED WHENEVER:
- EXHAUST INTAKE AIR TEMPERATURE IS 2°F (ADJ.) LESS THAN SETPOINT
- AND THE FAN STATUS IS ON.
- AND THE REVERSING VALVE IS IN HEAT MODE.

THE COOLING SHALL BE ENABLED WHENEVER:
- EXHAUST INTAKE AIR TEMPERATURE IS 2°F (ADJ.) MORE THAN SETPOINT
- AND THE FAN STATUS IS ON.
- AND THE REVERSING VALVE IS IN COOL MODE.

ON MODE CHANGE, THE COMPRESSOR SHALL BE DISABLED AND REMAIN OFF UNTIL AFTER THE REVERSING VALVE HAS CHANGED POSITION.

DEHUMIDIFICATION:
THE CONTROLLER SHALL MEASURE THE EXHAUST INTAKE AIR HUMIDITY AND OVERRIDE THE COOLING SEQUENCE WHEN THE EXHAUST INTAKE AIR HUMIDITY IS AT OR ABOVE 60% RH (ADJ.). THE FANS SHALL OPERATE AT FULL AIRFLOW WHEN IN DEHUMIDIFICATION MODE. THE HP DISCHARGE AIR TEMPERATURE SHALL BE MAINTAINED AT 51°F (ADJ.) AND THE HOT GAS REHEAT COIL VALVE SHALL MODULATE TO MAINTAIN EXHAUST INTAKE AIR TEMPERATURE SETPOINT. DEHUMIDIFICATION SHALL BE ENABLED WHENEVER THE SUPPLY FAN STATUS IS ON.

HGR DISCHARGE AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE HGR DISCHARGE AIR TEMPERATURE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH SUPPLY AIR TEMP: IF THE HGR DISCHARGE AIR TEMPERATURE IS GREATER THAN 120°F (ADJ.).
- LOW SUPPLY AIR TEMP: IF THE HGR DISCHARGE AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).

OUTSIDE AIR TEMPERATURE:
MONITOR THE OUTSIDE AIR TEMPERATURE.

OUTSIDE AIR HUMIDITY:
MONITOR THE OUTSIDE AIR HUMIDITY.

OUTSIDE AIR FILTER DIFFERENTIAL PRESSURE MONITOR:
THE CONTROLLER SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- FILTER CHANGE REQUIRED: FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

EXHAUST INTAKE AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE EXHAUST INTAKE AIR TEMPERATURE AND USE AS REQUIRED FOR SETPOINT CONTROL

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH EXHAUST INTAKE AIR TEMP: IF THE EXHAUST INTAKE AIR TEMPERATURE IS GREATER THAN 95°F (ADJ.).
- LOW EXHAUST INTAKE AIR TEMP: IF THE EXHAUST INTAKE AIR TEMPERATURE IS LESS THAN 60°F (ADJ.).

EXHAUST INTAKE AIR HUMIDITY:
THE CONTROLLER SHALL MONITOR THE EXHAUST INTAKE AIR HUMIDITY AND USE AS REQUIRED FOR HUMIDITY CONTROL.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH EXHAUST INTAKE AIR HUMIDITY: IF THE EXHAUST INTAKE AIR HUMIDITY IS GREATER THAN 70% (ADJ.).
- LOW EXHAUST INTAKE AIR HUMIDITY: IF THE EXHAUST INTAKE AIR HUMIDITY IS LESS THAN 35% (ADJ.).

EXHAUST AIR FILTER DIFFERENTIAL PRESSURE MONITOR:
THE CONTROLLER SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- FILTER CHANGE REQUIRED: FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

EXHAUST DISCHARGE AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE EXHAUST DISCHARGE AIR TEMPERATURE.

ENERGY RECOVERY ECONOMIZER:
THE SENSIBLE ENERGY RECOVERY CORE BYPASS DAMPERS SHALL OPEN WHEN THE OUTSIDE AIR TEMPERATURE IS LESS THAN THE EXHAUST INTAKE AIR TEMPERATURE BY A USER DEFINABLE AMOUNT (ADJ.) IN COOLING MODE.
THE SENSIBLE ENERGY RECOVERY CORE BYPASS DAMPERS SHALL OPEN WHEN THE OUTSIDE AIR TEMPERATURE IS GREATER THAN THE EXHAUST INTAKE AIR TEMPERATURE BY A USER DEFINABLE AMOUNT (ADJ.) IN HEATING MODE.

OUTSIDE AIR AND EXHAUST AIR DAMPERS:
THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL CLOSE WHEN THE UNIT IS OFF.

FROST CONTROL:
MODULATE THE OUTSIDE AIR BYPASS DAMPER TO MAINTAIN AN EXHAUST DISCHARGE AIR TEMPERATURE AT OR ABOVE 35°F

ELECTRIC HEATING COIL:

THE CONTROLLER SHALL MEASURE THE EXHAUST INTAKE AIR TEMPERATURE AND MODULATE THE HEATING TO MAINTAIN ITS HEATING SETPOINT SHOULD THE COMPRESSORS NOT MEET THE HEATING DEMAND.

THE ELECTRIC DUCT HEATER SHALL BE ENABLED WHENEVER:
- THE HEAT PUMP IS IN HEATING MODE.
- AND THE EXHAUST INTAKE AIR TEMPERATURE IS BELOW HEATING SETPOINT.
- AND THE FAN IS ON.

SUPPLY AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 120°F (ADJ.).
- LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 40°F (ADJ.).

SUPPLEMENTAL HEATING - HIGH SUPPLY AIR TEMPERATURE LIMIT:
THE CONTROLLER SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND, ON RISING TEMPERATURE, LIMIT THE SUPPLEMENTAL HEATING AS FOLLOWS:
- AS THE SUPPLY AIR TEMPERATURE RISES FROM 90°F TO 120°F (ADJ.),THE CONTROLLER SHALL LIMIT THE HEATING OUTPUT FROM 100% TO 0% (ADJ.).

GEOTHERMAL PLANT LOOP MONITOR AND PUMPS

WATER SOURCE HEAT PUMP LOOP MONITOR - RUN CONDITIONS:
THE LOOP MONITOR SHALL RUN WHENEVER:
- THE BUILDING IS IN OCCUPIED MODE.
- THE VENTILATION HEAT PUMP IS CALLING FOR HEATING OR COOLING.

THE FOLLOWING LOOP WATER CONDITIONS SHALL BE MONITORED:
- FLOW STATUS.
- SUPPLY TEMPERATURE.
- RETURN TEMPERATURE.

ALARMS AND A HEAT PUMP SHUTDOWN SIGNAL SHALL BE GENERATED UPON ANY OF THE FOLLOWING LOOP WATER CONDITIONS:
- NO LOOP FLOW.
- HIGH LOOP WATER SUPPLY TEMP SHUTDOWN: IF THE LOOP WATER SUPPLY TEMPERATURE IS GREATER THAN 92°F (ADJ.).
- LOW LOOP WATER SUPPLY TEMP SHUTDOWN: IF THE LOOP WATER SUPPLY TEMPERATURE IS LESS THAN 38°F (ADJ.)

LOOP WATER PUMP LEAD/LAG OPERATION:
THE TWO LOOP WATER PUMPS SHALL OPERATE IN A LEAD/LAG FASHION.
- THE LEAD PUMP SHALL RUN FIRST.
- ON FAILURE OF THE LEAD PUMP, THE LAG PUMP SHALL RUN AND THE LEAD PUMP SHALL TURN OFF.
- ON LOOP WATER RETURN TEMPERATURE BEING ±2°F OUTSIDE OF RANGE, THE LAG PUMP SHALL STAGE ON AND RUN IN UNISON WITH THE LEAD PUMP TO MAINTAIN LOOP WATER RETURN TEMPERATURE SETPOINT.

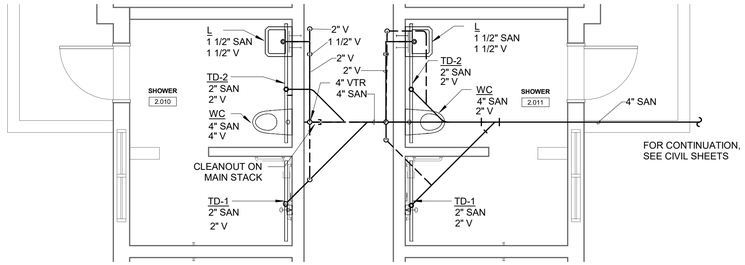
THE DESIGNATED LEAD PUMP SHALL ROTATE UPON ONE OF THE FOLLOWING CONDITIONS (USER SELECTABLE):
- MANUALLY THROUGH A SOFTWARE SWITCH
- IF PUMP RUNTIME (ADJ.) IS EXCEEDED
- DAILY
- WEEKLY
- MONTHLY

ALARMS SHALL BE PROVIDED AS FOLLOWS FOR EACH PUMP:
- LOOP WATER PUMP
  - FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
  - RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
  - RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
  - VFD FAULT.

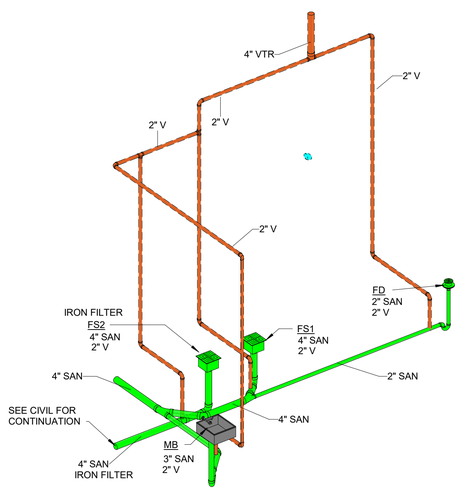
BYPASS VALVE:
A MODULATING 3-WAY, BYPASS CONTROL VALVE (FULL SIZED, BUTTERFLY STYLE), SHALL BE PROVIDED IN THE FULL SIZED LOOP FIELD BYPASS. THE VALVE AND PUMPS WILL BE PROGRAMMED TO OPERATE ACCORDING TO THE FOLLOWING SCHEDULE:

LOOP RETURN TEMPERATURE	VALVE POSITION (% OPEN TO BYPASS (ADJ.))	PUMP SPEED (ADJ)
≤ 40 F	0%	100%
41 TO 50 F	50%	75%
51 TO 70 F	100%	30%
71 TO 79 F	50%	75%
≥ 80 F	0%	100%

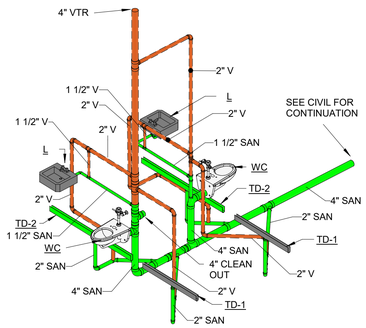
CONTACT MARTY PAUP AT CONTROL SYSTEM SPECIALISTS, LC
(712)299-5861
MPAUP@CSSHVAC.COM
ABB CONTROLS (CYLON AUTOMATRIX)



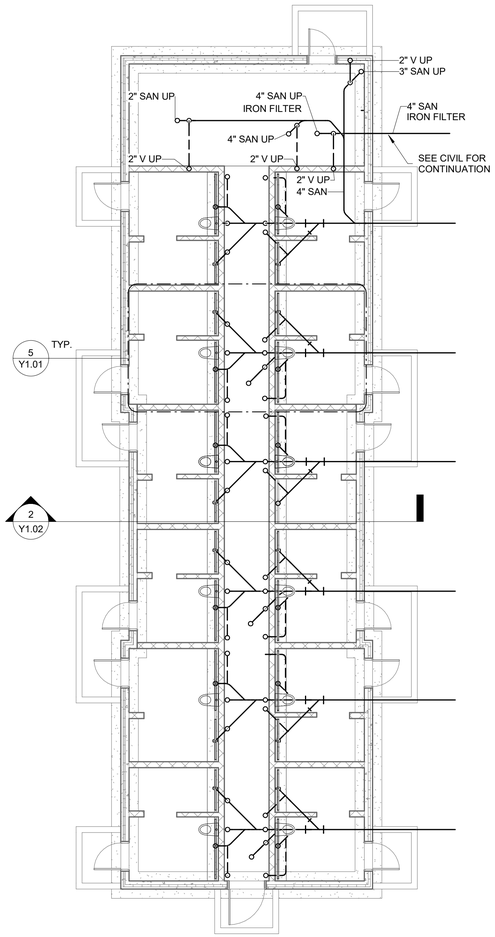
5 TYPICAL RESTROOM LAYOUT
1/4" = 1'-0"



4 MECHANICAL ROOM SANITARY WASTE AND VENT ISOMETRIC

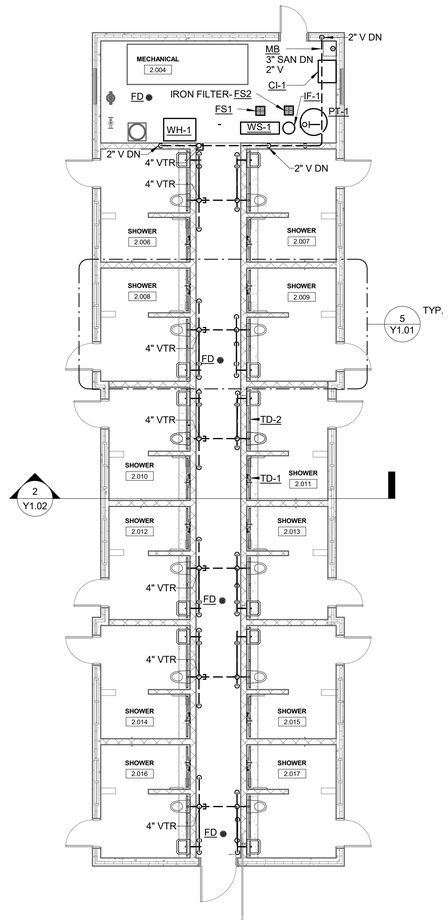


3 TYPICAL RESTROOM SANITARY WASTE AND VENT ISOMETRIC



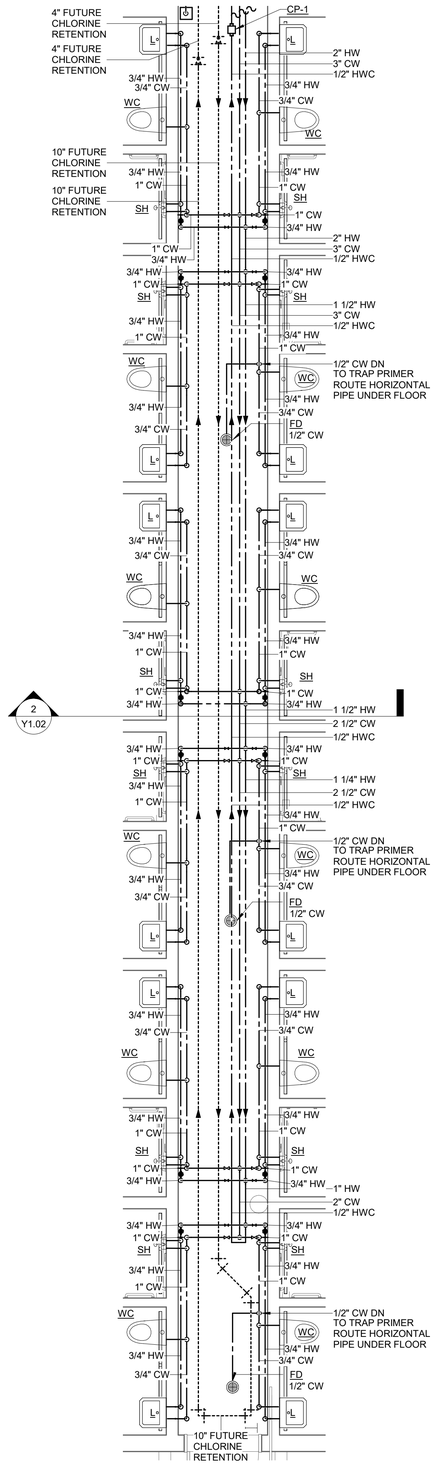
PLAN NORTH
TRUE NORTH

2 SHOWER HOUSE UNDERFLOOR WASTE AND VENT PLAN
1/8" = 1'-0" 0 12'

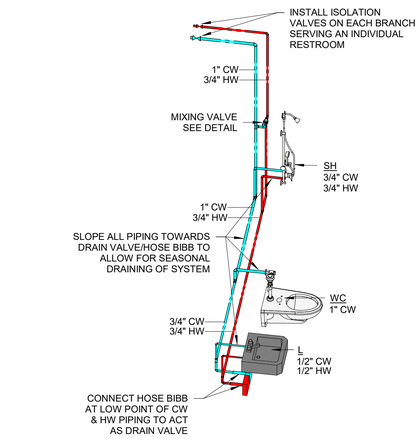


PLAN NORTH
TRUE NORTH

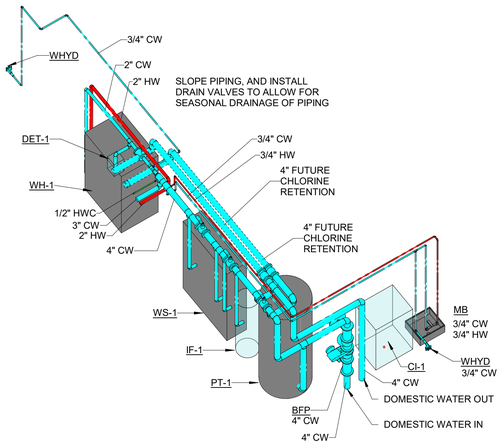
1 SHOWER HOUSE WASTE AND VENT PLAN
1/8" = 1'-0" 0 12'



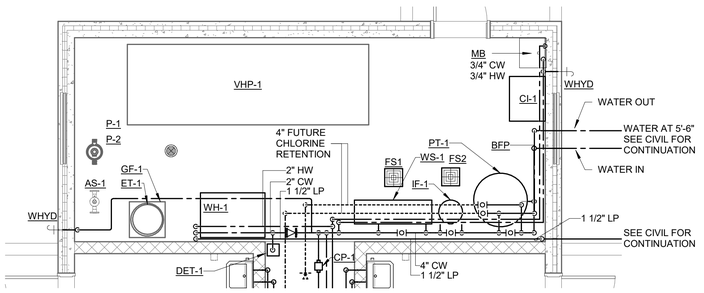
6 ENLARGED DOMESTIC CHASE PLAN
1/4" = 1'-0"



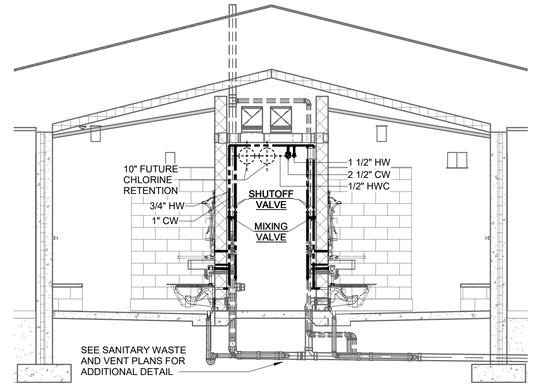
5 TYPICAL RESTROOM DOMESTIC WATER ISOMETRIC



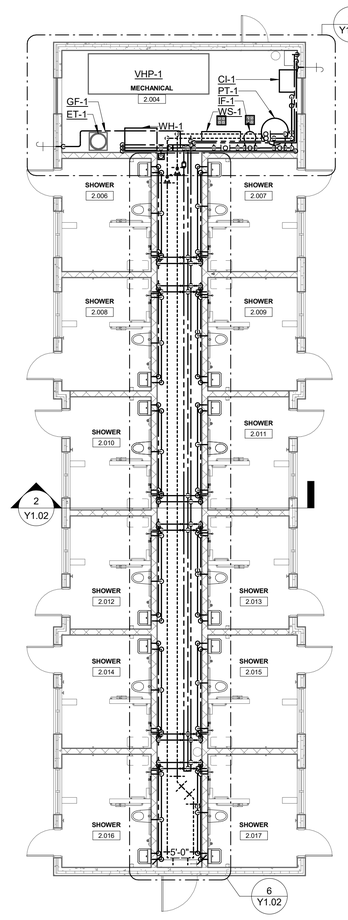
4 MECHANICAL ROOM DOMESTIC WATER ISOMETRIC



3 ENLARGED MECHANICAL ROOM PLUMBING PLAN
1/4" = 1'-0"



2 PLUMBING CHASE SECTION
1/4" = 1'-0"



PLAN NORTH
TRUE NORTH

1 SHOWER HOUSE DOMESTIC WATER PLAN
1/8" = 1'-0" 0 12'

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
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319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUED FOR CONSTRUCTION 04/26/2022 | SHEET NAME: SHOWER HOUSE DOMESTIC WATER PLUMBING PLANS | SHEET NO.: Y1.02

PLUMBING PUMP SCHEDULE

PLAN MARK	SYSTEM SERVED	TYPE	GPM	HEAD (FT.)	SHUTOFF HEAD (FT.)	MOTOR DATA				DESIGN BASIS	REMARKS
						HP	VOLTS	PHASE	RPM		
CP-1	DOMESTIC HOT WATER	IN-LINE	1.1	5.0	8.1	1/40	120 V	1	3250	TACO IL006-BVS	

PROPANE WATER HEATER SCHEDULE

PLAN MARK	SYSTEM WATER			PROPANE		THERMAL EFFICIENCY(%)	AMPS	VOLTS	PHASE	DESIGN BASIS	REMARKS
	GPM (MAX)	IN	OUT	BTU INPUT	PRESSURE (INCH WC)						
WH-1	21.9	55 °F	140 °F	1,000,000	2.5-14	93.2	13 A	120 V	1	INTELLIHEAT IQ1000	PROPANE FIRED

DOMESTIC WATER PRESSURE TANK SCHEDULE

PLAN MARK	SYSTEM SERVED	TYPE	TANK CAPACITY (GAL)	ACCEPTANCE CAPACITY (GAL)	DESIGN BASIS	REMARKS
PT-1	DOMESTIC WATER	DIAPHRAGM	317.0 gal	317.0 gal	AMTROL WX-424	

DOMESTIC HOT WATER EXPANSION TANK SCHEDULE

MARK	SYSTEM SERVED	TYPE	TANK CAPACITY (GAL)	ACCEPTANCE CAPACITY (GAL)	RELIEF VALVE		DESIGN BASIS
					RELIEF AT (PSI)	FILL AT (PSI)	
DET-1	DOMESTIC WATER	IN-LINE DIAPHRAGM	2.0	0.9	75.00	20.00	AMTROL ST-5C-DD

IRON FILTER SCHEDULE

REMARKS:

1. TO PERMIT THE OBSERVATION OF THE DRAIN FLOW, DO NOT MAKE A DIRECT CONNECTION TO THE DRAIN. PROVIDE AN AIR GAP OF AT LEAST FOUR TIMES THE DIAMETER OF THE DRAIN PIPE OR CONFORM TO LOCAL SANITATION CODES.

2. SYSTEM USES FRP TANKS WHICH MUST NOT BE SUBJECTED TO VACUUM. INSTALL SIPHON BREAK ON DRAIN LINE. INSTALL VACUUM BREAKER ON INLET PIPING IF THE SERVICE LINE IS SUBJECT TO A VACUUM.

MARK	FLOW RATES				DRAIN FLOW (GPM)	DESIGN BASIS	REMARKS
	CONTINUOUS		PEAK				
	GPM	WPD (PSI)	GPM	WPD (PSI)			
IF-1	24	8.00	36	13.00	30	CULLIGAN HE DF-21	XXX

WATER SOFTENER SCHEDULE

1. TO PERMIT THE OBSERVATION OF THE DRAIN FLOW, DO NOT MAKE A DIRECT CONNECTION TO THE DRAIN. PROVIDE AN AIR GAP OF AT LEAST FOUR TIMES THE DIAMETER OF THE DRAIN PIPE OR CONFORM TO LOCAL SANITATION CODES.
2. SYSTEM USES FRP TANKS WHICH MUST NOT BE SUBJECTED TO VACUUM. INSTALL SIPHON BREAK ON DRAIN LINE. INSTALL VACUUM BREAKER ON INLET PIPING IF THE SERVICE LINE IS SUBJECT TO A VACUUM.

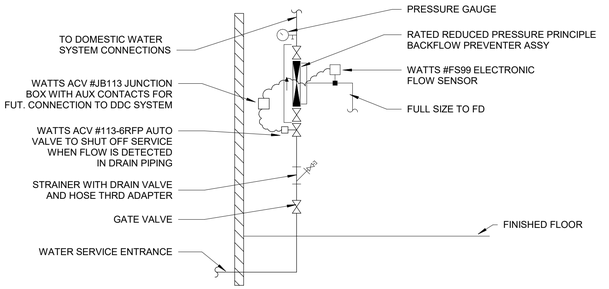
PLAN MARK	UNIT PER TANK				DRAIN FLOW (GPM)	DESIGN BASIS	REMARKS
	MAX. CAPACITY KGR @ SALT DOSAGE	RESIN VOLUME	CONTINUOUS FLOW @ 15 PSI DROP	PEAK FLOW @ 25 PSI DROP			
WS-1	60 @ 30	2.0 ft³	25.1 GPM	31.5 GPM	5.5	CULLIGAN HET-060	

CHLORINE INJECTION SCHEDULE

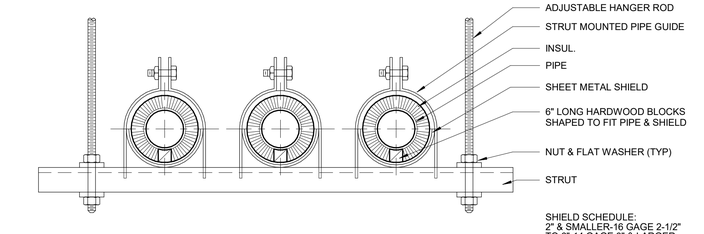
MARK	FLOW RATES				MAX WORKING PRESSURE (PSI)	DESIGN BASIS	REMARKS
	CONTINOUS		PEAK				
	GPM	WPD (FT)	GPM	WPD (FT)			
CI-1	--	--	--	--	--	--	FUTURE EQUIPMENT NOT IN CONTRACT

PLUMBING FIXTURE AND ROUGH-IN SCHEDULE

MARK	DESCRIPTION	FIXTURE ROUGH-IN PIPE SIZE				SPECIFICATION
		CW	HW	WASTE	VENT	
FS1	FLOOR SINK	N/A	N/A	4	2	4" ZURN Z-1901 SERIES, 12"x12"x8" DEEP, CAST IRON, MEMBRANE CLAMP, BOTTOM CAULK OUTLET. PROVIDE WHITE ACID RESISTING ENAMEL GRATE, INTERIOR, AND DOME STRAINER. REMOVE PORTION OF GRATES OR PROVIDE PARTIAL GRATES AS REQUIRED TO ACCOMMODATE FINAL LOCATION OF PIPING DISCHARGING OVER DRAINS. SET TOP FLUSH WITH FINISHED FLOOR. PROVIDE DEEP SEAL P-TRAP
FS2	FLOOR SINK	N/A	N/A	4	2	4" ZURN Z-1901 SERIES, 12"x12"x8" DEEP, CAST IRON, MEMBRANE CLAMP, BOTTOM CAULK OUTLET. PROVIDE WHITE ACID RESISTING ENAMEL GRATE, INTERIOR, AND DOME STRAINER. REMOVE PORTION OF GRATES OR PROVIDE PARTIAL GRATES AS REQUIRED TO ACCOMMODATE FINAL LOCATION OF PIPING DISCHARGING OVER DRAINS. SET TOP 1" ABOVE FINISHED FLOOR. PROVIDE DEEP SEAL P-TRAP
WHYD	WALL HYDRANT	3/4"	N/A	N/A	N/A	WOODFORD MODEL 65, AUTOMATIC DRAINING, FREEZELESS WALL HYDRANT, VACUUM BREAKER, 3/4" HOSE THREAD OUTLET, FITS ONE STANDARD BRICK COURSE, CHROME PLATED, STAINLESS STEEL OPERATING STEM, 3/4" INLET, LENGTH AS REQUIRED TO PLACE STOP VALVE ON WARM SIDE OF EXTERIOR WALL INSULATION. FURNISH LOOSE KEY WITH EACH HYDRANT. MOUNT HORIZONTALLY AT 18" ABOVE FINISHED GRADE. COORDINATE EXACT HEIGHT WITH BRICK COURSING
WC	WALL HUNG ADA WATER CLOSET, MANUAL FLUSHOMETER	1"	N/A	4"	2"	WALL HUNG, FLUSH VALVE, ADA WATER CLOSET (KOHLER K4325-0), 1.28 GPF, WHITE VITREOUS CHINA, WITH CHAIR CARRIER, TOP OF RIM AT 17" AFF. PROVIDE HEAVY DUTY OPEN FRONT SEAT, LESS COVER (BEMIS 1955SSCT). PROVIDE MANUAL 1.28 GPF WATER CLOSET FLUSHOMETER (SLOAN 111-1.28).
L	WALL HUNG ADA LAVATORY	1/2"	1/2"	1 1/2"	1 1/2"	WALL HUNG ADA LAVATORY (KOHLER K2005-0) 3 FAUCET HOLES ON 4" CENTERS. MANUAL FAUCET (DELTA 2529LF-HDF), TRIM PLATE, AND GRID DRAIN. PROVIDE WITH TMV SET TO DELIVER A MIXED HOT WATER TEMPERATURE OF 105°F. PROVIDE WITH OFFSET TAILPEICE, TRAP, ANGLE STOPS AND TRUBRO LAV GUARD 2.
SH	ADA SHOWER WITH HAND WAND AND SELECTOR	1/2"	1/2"	NA	NA	DELTA FAUCET MODEL NO. T13H332, DUAL SHOWER UNIT, PRESSURE BALANCE, SINGLE LEVER MIXING VALVE WITH INTEGRAL STOPS, REQUIRES R10000-UNWS ROUGH-IN VALVE BODY, DIVERTER VALVE, STAINLESS STEEL GRAB BAR WITH HANDSHOWER AND 69" LONG HOSE, 1.5 GPM SHOWERHEAD, ARM AND FLANGE. VALVE SET TO DELIVER A MAXIMUM HOT WATER TEMPERATURE OF 110°F.
MB	MOLDED STONE MOP BASIN	3/4"	3/4"	3"	2"	MOLDED STONE MOP BASIN (FIAT MSB2424) WITH INTEGRAL 3" DRAIN AND GRID. PROVIDE WITH WALL MOUNTED FAUCET WITH MOP HOOK AND WALL BRACE WITH EXPOSED PIPE CONNECTION (CHICAGO FAUCETS 835-RCF). PROVIDE WITH CORNER BUMPERS, STAINLESS STEEL SPLASH GUARDS, AND TOOL CLIPS FOR CORNER INSTALLATION.
BFP	BACKFLOW PREVENTOR	4"	N/A	N/A	N/A	WATTS, 994 SERIES, FULL LINE SIZE, REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER, LIGHTWEIGHT STAINLESS STEEL BODY, STAINLESS STEEL RELIEF VALVE, TWO INDEPENDENTLY OPERATING CHECK VALVES SEPARATED BY A RELIEF VALVE, BALL VALVE TEST COCKS, ASSE STANDARD 1013, CSA B64.5 COMPLIANT. PROVIDE WATTS DRAIN CONNECTION WITH AIR GAP. PROVIDE WATTS FLOOD PROTECTION AUTOMATIC SHUTDOWN VALVE AND CONTROLS.
HB	KEY OPERATED HOSE BIBB	3/4"	N/A	N/A	N/A	WALL MOUNTED HOSE BIBB WITH HALF-TURN LOOSE KEY HANDLE (WOODFORD 40HT), ASSE 1011 34HF VACUUM BREAKER, POLISHED CHROME, ADJUSTABLE WALL FLANGE.
TD-1	2" POLYMER TRENCH DRAIN	N/A	N/A	2"	SEE PLANS	2 1/2" WIDE, 54" LENGTH, HIGH DENSITY POLYETHYLENE TRENCH DRAIN SYSTEM WITH OPTIONAL BOTTOM/SIDE/END OUTLET. PROVIDE WITH REMOVABLE DECORATIVE GRATE (ZURN Z880)
TD-2	2" POLYMER TRENCH DRAIN	N/A	N/A	2"	SEE PLANS	2 1/2" WIDE, 80" LENGTH, HIGH DENSITY POLYETHYLENE TRENCH DRAIN SYSTEM WITH OPTIONAL BOTTOM/SIDE/END OUTLET. PROVIDE WITH REMOVABLE DECORATIVE GRATE (ZURN Z880)
FD	ROUND FLOOR DRAIN	N/A	N/A	2"	SEE PLANS	FLOOR DRAIN, ADJUSTABLE HEIGHT, 8" ROUND STRAINER, CAST IRON BODY AND POLISHED NICKEL BRONZE STRAINER (ZURN Z415B). PROVIDE WITH TRAP PRIMER CONNECTION WHERE SHOWN.



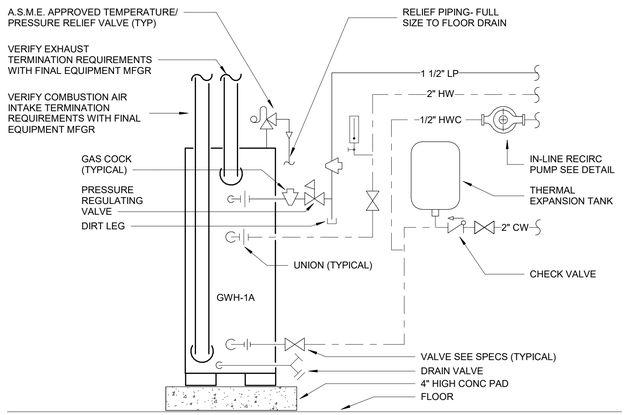
7 DOMESTIC WATER SERVICE ENTRANCE DETAIL
12" = 1'-0"



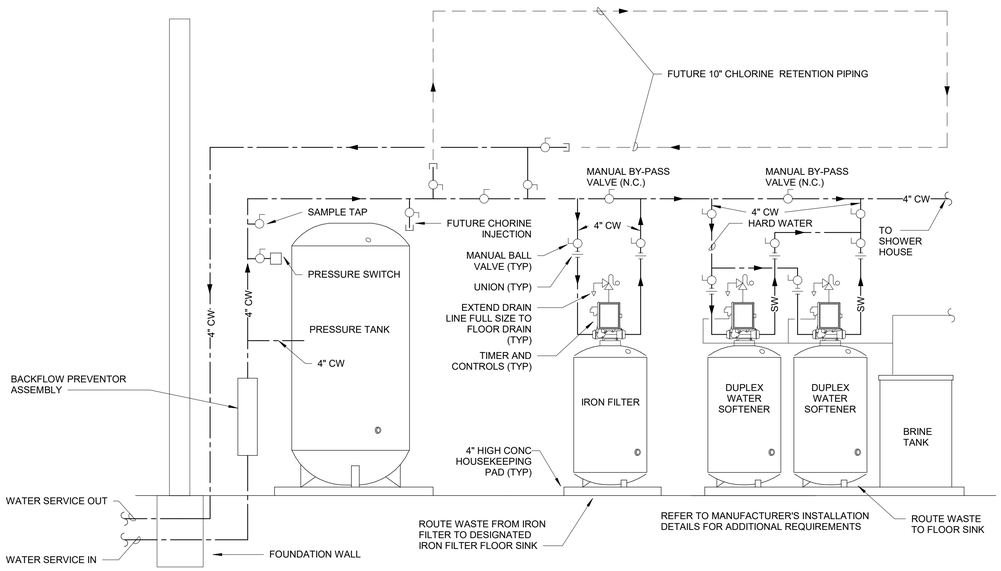
NOTES:
1. SIZE STRUT AND CLAMP TO ADEQUATELY SUPPORT LOAD
2. STRUT SHALL BE EPOXY PAINTED.

SHIELD SCHEDULE:
2" & SMALLER-16 GAGE 2-1/2" TO 6"-14 GAGE 8" & LARGER-12 GAGE LENGTH OF SHIELD TO BE AT LEAST 6" LONGER THAN THE OUTSIDE DIA. OF THE INSULATION

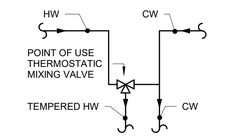
5 TRAPEZE TYPE HANGER DETAIL



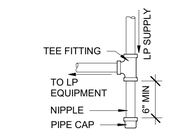
8 INTELLIHOT PROPANE FIRED WATER HEATER DETAIL



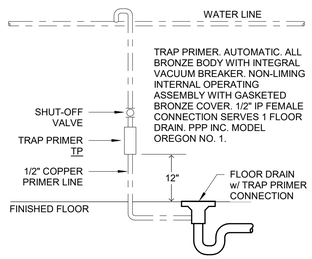
6 WATER FILTRATION PIPING SCHEMATIC



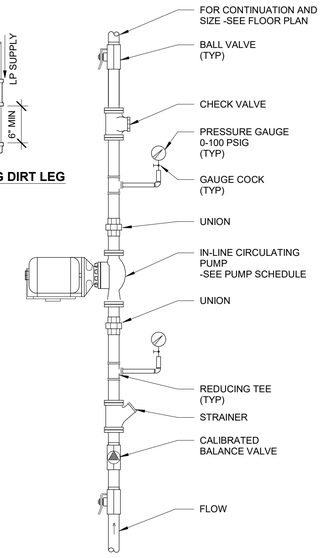
4 MIXING VALVE DETAIL



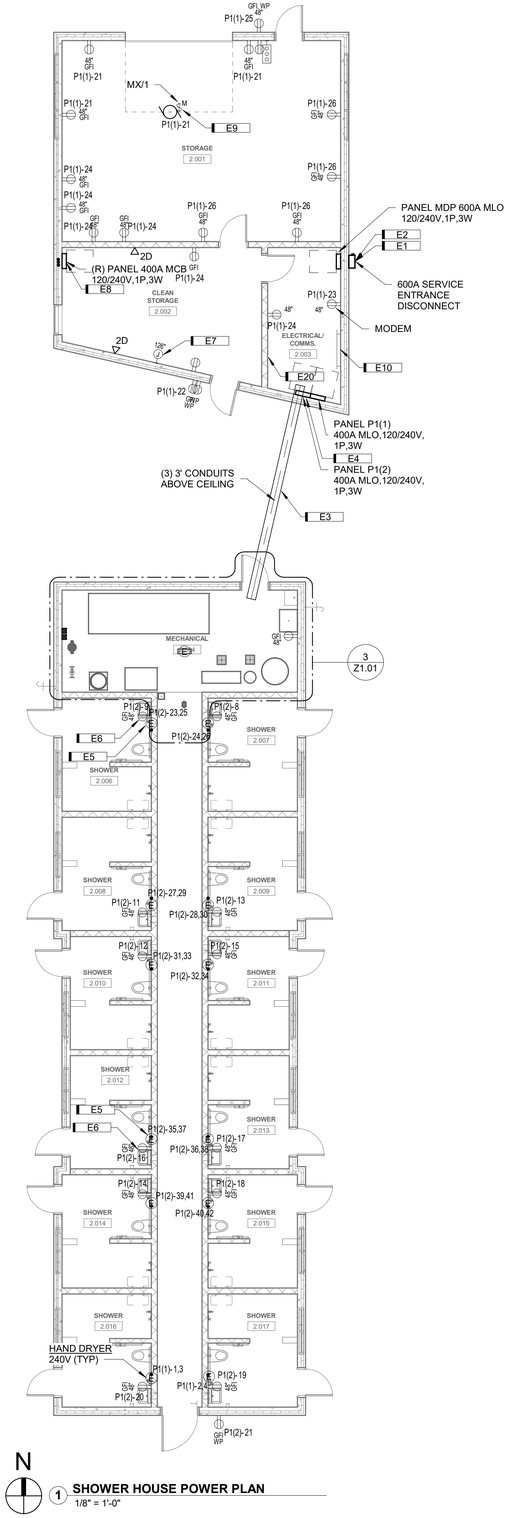
3 PROPANE PIPING DIRT LEG



2 TRAP PRIMER DETAIL
3/16" = 1'-0"



1 CIRCULATING PUMP DETAILS



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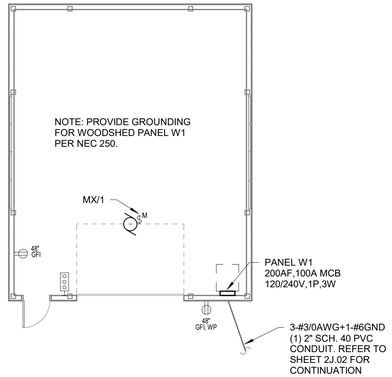
1 SHOWER HOUSE POWER PLAN
1/8" = 1'-0"



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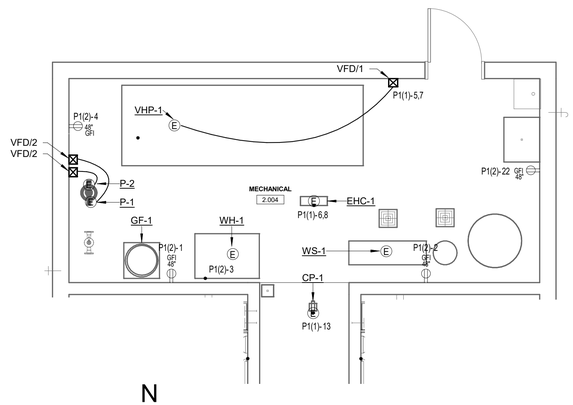
2 WOODSHED POWER PLAN
1/8" = 1'-0"



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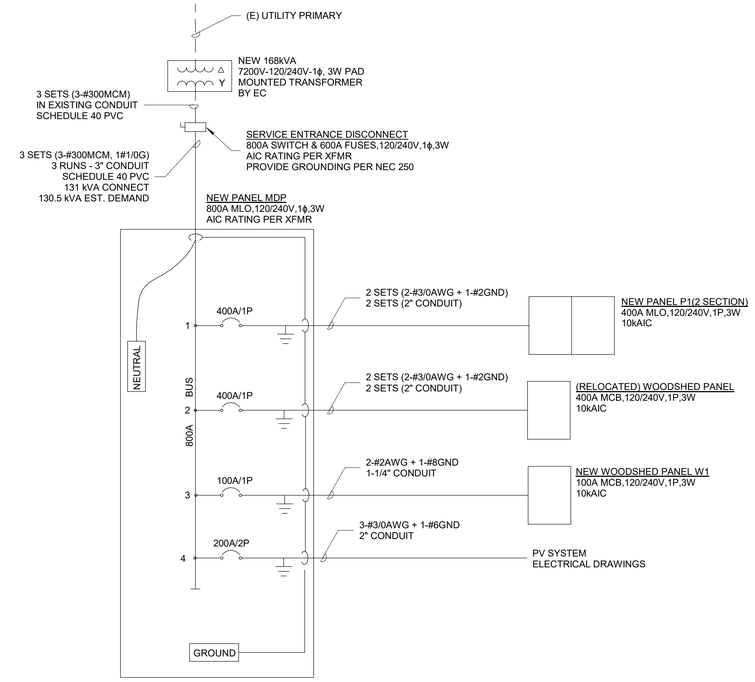
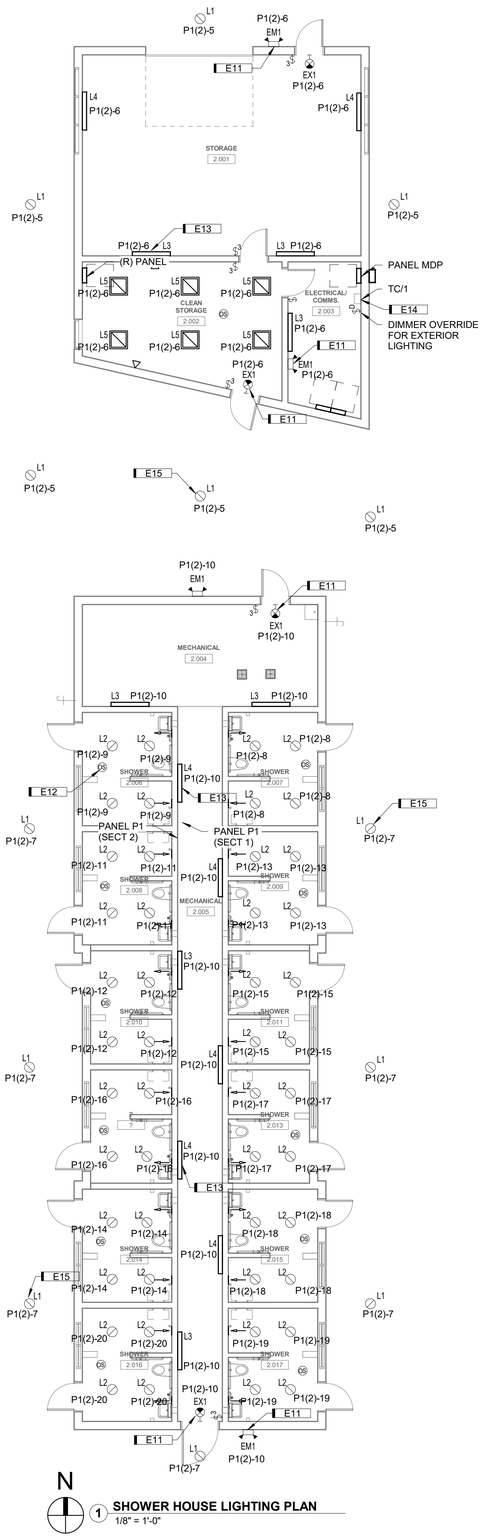
3 ENLARGED MECHANICAL ROOM PLAN
1/4" = 1'-0"



4 ONELINE DIAGRAM
12" = 1'-0"

ELECTRICAL KEYNOTES

E1	DISCONNECT SHALL BE RATED NEMA 3R AND RATED AS SERVICE ENTRANCE EQUIPMENT. BOND THE NEUTRAL AND GROUND INSIDE OF DISCONNECT AND DERIVE GROUNDING CONDUCTOR AND EXTEND TO GROUND RODS.
E2	SERVICE ENTRANCE CONDUITS TO BE PLACED TO LINE UP WITH PRECAST PANEL HOLES DESIGNATED FOR (2) 2-1/2" EMT CONDUIT
E3	SUPPLY FEED FOR ELECTRICAL PANEL P1 VIA DUCT BANK ABOVE CEILING TO MECHANICAL ROOM 2.004
E4	COORDINATE EXACT PLACEMENT OF PANELS P1(SECT 1) & PANEL P1(SECT 2) WITH PLUMBING PIPING TO ENSURE CODE COMPLIANT INSTALLATION.
E5	EXTEND DEDICATED 240V CIRCUIT FOR HAND DRYER. PUNCH 3/4" CONDUIT THROUGH CMU WALL SEPARATING THE RESTROOM AND CHASE. COORDINATE HOLE LOCATION WITH MOUNTING HEIGHT AND LOCATION OF HAND DRYER PRIOR TO INSTALLATION. TYPICAL 12 SHOWER ROOMS.
E6	EXTEND DEDICATED 120V CIRCUIT FOR GFI DUPLEX RECEPTACLE. PUNCH 3/4" CONDUIT THROUGH CMU WALL SEPARATING THE SHOWER ROOM AND CHASE. COORDINATE HOLE LOCATION WITH MOUNTING HEIGHT AND LOCATION OF RECEPTACLE PRIOR TO INSTALLATION. TYPICAL 12 SHOWER ROOMS.
E7	LOCATE JUNCTION BOX ABOVE CEILING WITH CAPPED 120V CIRCUIT FROM PANEL MDP. THIS CIRCUIT WILL FEED KIOSK AND/OR VIDEO BOARD IN BREEZE DURING CONSTRUCTION.
E8	(R) PANEL IS RELOCATED 400A PANEL FROM DEMOLISHED TEMPORARY ELECTRICAL RACK. MAINTAIN PANEL AND ALL BREAKERS FOR RELOCATION TO INTERIOR SPACE AS SHOWN.
E9	PROVIDE FRACTIONAL HORSEPOWER MOTOR SWITCH WITH MELTING ALLOY AS SAFETY DISCONNECT FOR GARAGE DOOR OPENER
E10	IT IS INTENDED THAT ELECTRICAL/COMMS. ROOM 2.003 BECOMES THE MAIN DISTRIBUTION POINT FOR FIBER OPTIC CABLING IN THE CAMPGROUND. REFER TO SHEET M1.02 FOR ADDITIONAL ROUTING AND SYSTEM AND INTERCONNECTION DETAILS.
E20	PROVIDE 4' X 8' PLYWOOD FOR COMMUNICATION.



N

1 SHOWER HOUSE LIGHTING PLAN

1/8" = 1'-0"

ELECTRICAL KEYNOTES

E11	EXTEND UNSTITCHED LEG OF CIRCUIT TO EMERGENCY FIXTURES.
E12	MOUNT OCCUPANCY SENSOR TO MAINTAIN MAXIMUM SEPARATION FROM AIR TERMINAL. EC SHALL COORDINATE TUNING AND TROUBLESHOOTING OF OCCUPANCY SENSOR ISSUES AFTER CONSTRUCTION IS COMPLETE. TYPICAL 12 SHOWER ROOMS.
E13	MOUNT FIXTURES IN 8-6" AFF. COORDINATE EXACT LOCATION OF FIXTURES WITH PIPING AND DUCT WORK TO AVOID IMPEDE NANCE OF LIGHT INTO SPACE. TYPICAL ALL TYPE L3 & L4 FIXTURES
E14	LOCATE PHOTOCELL FROM "TC/1" SO THAT IT FACES IN A NORTHWARD DIRECTION ON THE BUILDING EXTERIOR. WIRE THE SYSTEM SUCH THAT THE DIMMER SWITCH CAN BE USED TO VARY LEVELS OF LIGHT AFTER THE SYSTEM HAS BEEN ACTIVE BY THE FUNCTIONALITY OF "TC/1" REFER TO MATERIAL LIST FOR DEVICE SPECIFICATION.
E15	LOCATE TYPE L1 FIXTURES IN EXTERIOR SOFFIT AS SHOWN.
E16	FEED PANEL W1 FROM MAIN DISTRIBUTION PANEL IN ELECTRICAL/COMMS ROOM 2.003. EC SHALL PROVIDE PLACARD THAT STATES "FED FROM ELECTRICAL COMMS ROOM 2.003 IN SHOWER HOUSE". EC SHALL PROVIDE SERVICE ENTRANCE GROUNDING PER NEC ARTICLE 250.
E17	COORDINATE MOUNTING OF LIGHT FIXTURES WITH ROOF STRUCTURE PRIOR TO INSTALLATION. CONFIGURATION OF FIXTURES MAY BE ALTERED IN ORDER TO ACCOMMODATE MOUNTING. TYPICAL (4) L6 TYPE FIXTURES.
E18	LOCATE FIXTURE WITH AT LEAST 6" ABOVE FIXTURE FREE FOR AIR CIRCULATION.

LIGHTING FIXTURE SCHEDULE

MOUNTING:
- RE RECESSED
- SP SUSPENDED
- CL CEILING SURFACE
- WL WALL
- O OTHER (SEE DESCRIPTION)

FINISH:
- PAF PAINT AFTER FABRICATION

BALLAST:
- EPS ELECTRONIC PROGRAMMED START
- HO HIGH OUTPUT FACTOR
- UNV 120-277V

THE LIGHT FIXTURE SCHEDULE IS FOR THE CONVENIENCE OF THE ELECTRICAL CONTRACTOR (EC). ALL LIGHT FIXTURES AND LAMPS FOR THIS PROJECT SHALL BE FURNISHED BY THE EC. EC SHALL BE RESPONSIBLE FOR THE COMPLETE INSTALLATION OF LIGHT FIXTURES AS NOTED ON PLANS, OR APPROVED EQUALS AND SHALL FURNISH ALL ADDITIONAL MATERIAL REQUIRED TO YIELD A COMPLETE AND SATISFACTORY WORKING LIGHT FIXTURE INSTALLATION. CATALOG NUMBER IS BASIS-OF-DESIGN, OR ENGINEER APPROVED EQUAL.

TYPE MARK	MANUFACTURER	DESCRIPTION	MOUNTING	LAMP	VOLTAGE	FIXTURE VA	CATALOG NUMBER
F1	HUBBELL	LED EXTERIOR WALL PACK, 4000K, TYPE IV, 980 LUMENS, INTEGRAL PHOTOCELL, BLACK, ZERO UPLIGHT	EXTERIOR WALL	LED	120V	13VA	LNC-5LU-4K-4-2-PC(1)
F2	COLUMBIA	4' LED WRAP, 4000K, 2500 LUMENS, STEEL HOUSING, WRAP AROUND LENS	SURFACE	LED	120V	23	LAW4-40-LW-E-U
L1	KENALL	6" LED DOWNLIGHT, STAINLESS STEEL TRIM, IP65 RATED, 4000K, 1266 LUMENS	RECESSED	LED	120V	13VA	HADL6FF-XBR-12L40K9-W-CS-G-RIG 6-DV-DIM1-NAT
L2	PRESCOLITE	7" LED SURFACE J-BOX MOUNTED, IC RATED, WET LOCATION, 1000 LUMENS, POLYCARBONATE LENS. DIMMING	SURFACE	LED	120V	17VA	LBSLED1A10L-35K-9-WH
L3	COLUMBIA	4' LED WALL MOUNTED GASKETED STRIP LIGHT WITH 45 DEGREE MOUNTING BRACKET, 3500K, 3700 LUMENS	WALL	LED	120V	36VA	LXEP4-35LW-DFA-U-XE45MB
L4	COLUMBIA	4' LED WALL MOUNTED GASKETED STRIP LIGHT WITH EMERGENCY BATTERY PACK, 45 DEGREE MOUNTING BRACKET, 3500K, 3700 LUMENS	WALL	LED	120V	36VA	LXEP4-35LW-DFA-U-ELL14-XE45MB
L5	COLUMBIA	2X2 LED ARCHITECTURAL GRID MOUNTED TROFFER, 3500K, 3000 LUMENS	GRID	LED	120V	30VA	LTRE22-35MLG-RFA-EU
L6	COLUMBIA	4' LED WRAP, 4000K, 4700 LUMENS, STEEL HOUSING, WRAP AROUND LENS	SURFACE	LED	120V	48VA	LAW4-40-ML-E-U
L7	BEACON	EXTERIOR LED WALL PACK, EXTRUDED ALUMINUM HOUSING, TYPE IV DISTRIBUTION, 60 LEDs, BRONZE FINISH, 4300K.	WALL	LED	120	27VA	TRV-D-24L-27-4K7-4W-UNV-DBT
EM1	DUAL LITE	LED DIE CAST EMERGENCY FIXTURE, HIGH OUTPUT LED LAMPS, BATTER HEATER, WET LOCATION LISTED	WALL	LED	120V	2 VA	PG-B-HTR
EX1	DUAL LITE	LED THERMOPLASTIC EXIT RIGHT WITH RED BACKLIGHT AND EMERGENCY BATTERY BACKUP	WALL	LED	120V	2 VA	EVE-U-R-W-E-I

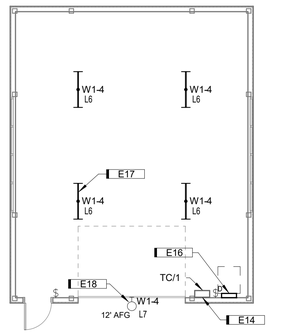
MECHANICAL EQUIPMENT CONNECTION SCHEDULE

MARK	VOLTAGE	PHASE	HORSEPOWER	FLA	MCA	MOCP	CONDUCTORS & CONDUIT	DISCONNECT TYPE	DISCONNECT FURNISH/INSTALL	CONTROLLER TYPE	CONTROLLER FURNISH/INSTALL
AS-1	120 V	1	- - -				REMOVABLE HEAD	- - -	- - -	- - -	- - -
CI-1				0 A				RECEPTACLE			
CP-1	120 V	1	1/40	6 A	8 A	20 A	2-#12AWG + 1-#12GND, 3/4" C.	CIRCUIT BREAKER	ELEC/ELEC	- - -	MECH/MECH
EHC-1	240 V	1	- - -	75 A	94 A	100 A	3-#1AWG + 1-#8GND, 1-1/2" C.	LOCAL ON/OFF	MFR/MFR	- - -	MECH/MECH
GF-1	120 V	1	- - -	4 A	6 A	20 A	2-#2AWG + 1-#8GND, 1" C.	CIRCUIT BREAKER	- - -	- - -	- - -
P-1	240 V	1	1	8 A	10 A	20 A	3-#10AWG + 1-#12GND, 1" C.	HOA	ELEC/ELEC	VFD	ELEC/ELEC
P-2	240 V	1	1	8 A	10 A	20 A	3-#10AWG + 1-#12GND, 1" C.	HOA	ELEC/ELEC	VFD	ELEC/ELEC
VHP-1	240 V	1	- - -	56 A	85 A	125 A	3-#1AWG + 1-#6GND, 1-1/2" C.	HOA	ELEC/ELEC	VFD	ELEC/ELEC
WH-1	120 V	1	- - -	2 A	3 A	20 A	2-#12AWG + 1-#12GND, 3/4" C.	CIRCUIT BREAKER	- - -	- - -	MECH/MECH
WS-1	120 V	1	- - -	2 A	3 A	20 A	2-#12AWG + 1-#12GND, 3/4" C.	CIRCUIT BREAKER	- - -	- - -	MECH/MECH

LIGHTING CONTROL MATERIAL LIST

THE LIGHTING CONTROL MATERIAL LIST IS FOR THE CONVENIENCE OF THE ELECTRICAL CONTRACTOR (EC). ALL LIGHTING CONTROL DEVICES AND COMPONENTS AS INDICATED IN THIS MATERIAL LIST FOR THIS PROJECT SHALL BE FURNISHED BY OWNER, UNLESS NOTED OTHERWISE. EC SHALL BE RESPONSIBLE FOR THE COMPLETE INSTALLATION OF THESE DEVICES AND COMPONENTS AS NOTED OR SHOWN ON PLANS. EC SHALL ALSO FURNISH ALL ADDITIONAL MATERIALS REQUIRED TO YIELD A COMPLETE AND SATISFACTORY WORKING LIGHTING CONTROL SYSTEM.

SYMBOL	DESCRIPTION	APPROVED MANUFACTURER
DEVICE COLOR	ALL TOGGLE SWITCH, RECEPTACLE, OUTLET AND COVERPLATE COLORS SHALL BE STANDARD WHITE COLOR, UNLESS NOTED OTHERWISE	HUBBELL PASS & SEYMOUR LEVITON COOPER
COVER PLATES	ALL TOGGLE SWITCHES, RECEPTACLES, AND OUTLETS SHALL BE COMPLETE WITH NYLON COVERPLATES IN FINISHED SPACES WHERE WALLS ARE FINISHED, STAINLESS STEEL COVERPLATES IN UNFINISHED SPACES FOR FLUSH BOXES, AND GALVANIZED STEEL COVERPLATES IN UNFINISHED SPACES FOR SURFACE MOUNTED BOXES. WHERE SEVERAL DEVICES ARE GANGED TOGETHER, THE COVERPLATE SHALL BE A SINGLE GANGED STYLE FOR THE NUMBER OF DEVICES USED.	HUBBELL PASS & SEYMOUR LEVITON COOPER
TOGGLE SWITCH $ *	SWITCH, TOGGLE HANDLE, MAINTAINED CONTACT, SINGLE POLE, SINGLE THROW, INDUSTRIAL SPECIFICATION GRADE, SIDE AND BACK WIRED, 20A, 120/277V, UL LISTED. * 3 = 3-WAY D = DIMMER	HUBBELL PASS & SEYMOUR LEVITON COOPER
OCCUPANCY SENSOR OS	OCCUPANCY SENSOR, DUAL TECHNOLOGY UP TO 1000 SQ.FT., MULTILEVEL 360 FRESNEL LENS, 120V LINE VOLTAGE (NO POWER PACK), RATED FOR RESTROOM WITH PARTITION, SET TIME DELAY TO 20 MINUTES., CEILING MOUNTING BRACKET,	WATTSTOPPER DT-335 LEVITON
TIME CLOCK TC/1	DIGITAL TIME CLOCK WITH PHOTOCELL INPUT FROM TORK PHOTOCELL , 32 ON/OFF OPERATIONS, AUTO DAYLIGHT SAVINGS ADJUSTMENT, MANUAL OVERRIDE, 365 DAY/7 DAY SCHEDULING, REMOTE OVERRIDE, OUTPUT CONTACTS: 20A NO, 10A NC, SPDT, UNIVERSAL VOLTAGE UP TO 277V, BATTERY BACK UP. PHOTOCELL: TORK EPC1	TORK DGU-100 EQUAL



N

5 WOODSHED LIGHTING PLAN

1/8" = 1'-0"

GENERAL ELECTRICAL NOTES:

1. * * INDICATES KEY NOTE USED TO DESCRIBE ADDITIONAL INFORMATION OF WORK REQUIRED, SPECIFIC TO THE SHEET IT IS SHOWN ON.
2. ALL ELECTRICAL CONDUCTORS SHALL BE COPPER.
3. ABBREVIATION KEY:

   AFF ABOVE FINISH FLOOR
   C. CONDUIT
   EC ELECTRICAL CONTRACTOR
   GC GENERAL CONTRACTOR
   MC MECHANICAL CONTRACTOR
   NIC NOT IN CONTRACT
   NL NIGHT LIGHT
   TYP TYPICAL
   UG UNDERGROUND
   "#" MOUNTING HEIGHT FROM FINISHED FLOOR TO CENTERLINE

4. LINE TYPE KEY:

   ———— NEW WORK BY ELECTRICAL CONTRACTOR (DARK SOLD LINE)
   – — – – NEW WORK UNDERFLOOR OR UNDERGROUND BY THIS CONTRACTOR (DARK LONG DASHED LINE)
   ———— NEW WORK BY OTHERS AND/OR EXISTING TO REMAIN (LIGHT SOLID LINE)

5. FLUSH MOUNT ALL TOGGLE SWITCHES AT +48" FROM FLOOR TO TOP OF BOX, EXCEPT WHERE OTHERWISE NOTED.
6. ELECTRICAL EQUIPMENT SHALL BE MOUNTED TO AVOID IMPEDANCE OF OPERATION AND/OR ACCESS TO ELECTRICAL AND MECHANICAL EQUIPMENT. ALL MOUNTING OF ELECTRICAL GEAR ON EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR SHALL BE APPROVED IN ADVANCE BY THE OTHER CONTRACTOR.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR SEALED INTO OPENINGS. WHERE CONDUIT PENETRATES WALLS AND FLOORS, SEAL WITH A U.L. LISTED SEALANT. SEAL PENETRATIONS WITH INTUMESCENT CAULK, PUTTY, OR SHEETINSTALLED PER MANUFACTURER'S RECOMMENDATION. ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E814 STANDARDS FOR FIRE TESTS OR THROUGH-PENETRATION FIRESTOPS AS MANUFACTURED BY 3M OR APPROVED EQUAL.
8. ALL PANELBOARDS SHALL BE COMPLETE WITH TYPED CIRCUIT DIRECTORY CARD IDENTIFYING LOAD SERVED AND ASSOCIATED AREA OR ROOM LOCATED.

GENERAL CONSTRUCTION NOTES:

1. WIRING SHALL BE #12 MINIMUM UNLESS NOTED OTHERWISE.
2. CONDUIT SHALL BE 3/4" MINIMUM UNLESS NOTED OTHERWISE.
3. ALL WORK SHALL CONFORM TO OR EXCEED THE MINIMUM REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), 2014 EDITION.
4. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETELY INSTALL ALL ELECTRICAL WORK.
5. NO ENERGIZED CONDUCTORS SHALL BE EXPOSED AT ANYTIME EXCEPT WHEN THE IMMEDIATE AREA IS UNDER THE SUPERVISION OF A QUALIFIED ELECTRICIAN.
6. ALL MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE NEW, COMPLETE WITH MANUFACTURER'S GUARANTEE OR WARRANTY AND SHALL BE LISTED BY UNDERWRITERS LABORATORIES (UL) INC.
7. ALL WORK SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.
8. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND FITTING NECESSARY TO PROPERLY INSTALL HIS WORK. HE SHALL COORDINATE WITH OTHER TRADES TO MINIMIZE THE DAMAGE AND AMOUNT OF PATCHING REQUIRED. ALL UNDUE OR UNTIMELY MUTILATION, MARRING, OR SOILING OF FINISHED SURFACES SHALL BE REPAIRED BY THE PROPER TRADES AND PAID FOR BY THIS CONTRACTOR.
9. CONTRACTOR SHALL KEEP HIS WORK AREA CLEAN OF ALL DEBRIS AND SHALL KEEP MATERIALS IN AREAS DESIGNATED BY THE OWNER.
10. THE PANEL CIRCUIT NUMBER SHALL BE MARKED ON THE BACKBOX OF ALL RECEPTACLES AND LIGHT SWITCHES BY INDELIBLE PEN.
11. CONDUCTORS USED THROUGHOUT THIS PROJECT SHALL BE COPPER. ALL CONDUCTORS SHALL HAVE 600 VOLT INSULATION (THW, THHN, THWN OR XHHW), SUITABLE FOR THE LOCATION PER NEC. ALL CONDUCTORS #8 OR LARGER SHALL BE STRANDED. ALL WIRING SHALL BE IN APPROVED RACEWAYS.
12. SPLICES AND CONNECTIONS TO CONDUCTORS LARGER THAN #8 SHALL BE BY MEANS OF COMPRESSION TYPE. ALL CONDUCTORS #8 AND SMALLER THAT ARE TO BE PIGTAIL SPLICED SHALL BE JOINED WITH WIRE NUTS.
13. PROVIDE PULL, JUNCTION AND OUTLET BOXES IN ACCORDANCE WITH THE NEC. ALL BOXES SHALL BE GALVANIZED SHEET STEEL. FASTEN BOXES RIGIDLY TO STRUCTURAL SURFACES. PROVIDE ELECTRICAL GROUNDING CONNECTIONS FOR INSTALLED BOXES.
14. THE ELECTRICAL SYSTEM GROUND SHALL BE AS SHOWN BUT IN NO CASE SHALL IT BE LESS THAN THE REQUIREMENTS OF THE NEC. THE ELECTRICAL GROUND SHALL CONSIST OF THE EQUIPMENT GROUND. GROUND SHALL BE MADE TO ALL METAL, NON-CURRENT CARRYING PARTS OF THE ELECTRICAL EQUIPMENT. GROUNDING CONDUCTORS, GREEN INSULATION, SHALL BE RUN IN THE SAME CONDUIT AS THE CURRENT CARRYING CONDUCTORS WITHOUT EXCEPTION.

BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
W1	120/240	1	3	200 A	100 A	10,000 AMPS
ROOM: WOOD SHED 2.018	CODE: L=LIGHTING, R=RECEPTACLES, M=MOTORS, K=KITCHEN					MOUNTING: SURFACE
FED... MDP						ENCLOSURE: NEMA 1
						FEED: BOTTOM

LOAD	CODE	POLE	BKR	CKT #	A KVA	B KVA	CKT #	BKR	POLE	CODE	LOAD
GARAGE DOOR		1	20 A	1	0.8 / 0.2		2	20 A	1		EXTERIOR RECEPTACLE
INTERIOR RECEPTACLE		1	20 A	3		0.2 / 0.2	4	20 A	1		LITES
SPARE 60A 2P BREAKER	--	1	60 A	5	0.0 / 0.0		6	--	1	--	SPACE
SPARE 60A 2P BREAKER	--	1	60 A	7		0.0 / 0.0	8	--	1	--	SPACE
SPACE	--	1	--	9	0.0 / 0.0		10	--	1	--	SPACE
SPACE	--	1	--	11		0.0 / 0.0	12	--	1	--	SPACE
			TOTAL LOAD:		993 VA	389 VA					
			TOTAL AMPS:		8 A	3 A					

Load Classification	Connected Load (VA)	Demand Factor	Estimated Demand (VA)	PANEL TOTALS	
LITES	219 VA	125.00%	274 VA	**TOTAL CONN. LOAD:**	1380 VA
Motor	828 VA	95.00%	787 VA	**TOTAL EST. DEMAND:**	1393 VA
RCPT	360 VA	100.00%	360 VA	**TOTAL CONN. CURRENT:**	6 A
				TOTAL EST. DEMAND...	6 A

Notes:
LOCATED IN WOODSHED ADJACENT TO NEW SHOWER HOUSE

BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
(R) PANEL	120/240	1	3	400 A	MLO	10,000 AMPS
ROOM: CLEAN STORAGE 2.002	CODE: L=LIGHTING, R=RECEPTACLES, M=MOTORS, K=KITCHEN					ENCLOSURE: NEMA 1
FED... MDP						FEED: TOP

LOAD	CODE	POLE	BKR	CKT #	A KVA	B KVA	CKT #	BKR	POLE	CODE	LOAD
SITES 47,48		2	150 A	1	4.8 / 8.6		2	150 A	2		SITES 49, 51
--	--	--	--	3		4.8 / 8.6	4	--	--	--	--
SITES 50,52,54		2	150 A	5	11.5 / 11.5		6	150 A	2		SITES 53,55,56
--	--	--	--	7		11.5 / 11.5	8	--	--	--	--
SPACE	--	1	--	9	0.0 / 0.0		10	--	1	--	SPACE
SPACE	--	1	--	11		0.0 / 0.0	12	--	1	--	SPACE
			TOTAL LOAD:		36480 VA	36480 VA					
			TOTAL AMPS:		304 A	304 A					

Load Classification	Connected Load (VA)	Demand Factor	Estimated Demand (VA)	PANEL TOTALS	
Power	72960 VA	100.00%	72960 VA	**TOTAL CONN. LOAD:**	72960 VA
				TOTAL EST. DEMAND:	72960 VA
				TOTAL CONN. CURRENT:	304 A
				TOTAL EST. DEMAND...	304 A

Notes:
REFER TO CIRCUIT DATA IN TABLE BELOW FOR REFEEDING CAMPGROUND SITES

CIRCUITS TO FEED HANDHOLE AT DEMOLISHED WOODSHED

CAMPGROUND CIRCUIT	DERATED CIRCUIT LOAD EXISTING	EXISTING WIRE SIZE (AT WOODSHED	WIRE SIZE (FROM SHOWER HOUSE)	CONDUIT SIZE
SITES 47,48	19,200VA	#2/0 ALUMINUM	#3/0 ALUMINUM	2-1/2"
SITES 50,52,54	28,800VA	#4/0 ALUMINUM	#4/0 ALUMINUM	2-1/2"
SITES 51,49	19,200VA	#2/0 ALUMINUM	#3/0 ALUMINUM	2-1/2"
SITES 53,55,57	28,800VA	#2/0 ALUMINUM	#4/0 ALUMINUM	2-1/2"

BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
P1(1)	120/240	1	3	400 A	MLO	10,000 AMPS
ROOM: ELECTRICAL/ COMMS....	CODE: L=LIGHTING, R=RECEPTACLES, M=MOTORS, K=KITCHEN					MOUNTING: SURFACE
FED... MDP						ENCLOSURE: NEMA 1
						FEED: TOP

LOAD	CODE	POLE	BKR	CKT #	A KVA	B KVA	CKT #	BKR	POLE	CODE	LOAD
SHOWER 2.016 HAND DRYER		2	20 A	1	0.5 / 0.5		2	20 A	2		SHOWER 2.017 HAND DRYER
--	--	--	--	3		0.5 / 0.5	4	--	--	--	--
VHP-1		2	125 A	5	6.7 / 9.0		6	100 A	2		EHC-1
--	--	--	--	7		6.7 / 9.0	8	--	--	--	--
P-1		2	20 A	9	1.0 / 1.0		10	20 A	2		P-2
--	--	--	--	11		1.0 / 1.0	12	--	--	--	--
CP-1		1	20 A	13	0.7 / 0.0		14	20 A	1	--	SPARE
SPARE	--	1	20 A	15		0.0 / 0.0	16	20 A	2	--	SPARE
SPARE	--	2	20 A	17	0.0 / 0.0		18	--	--	--	--
--	--	--	--	19		0.0 / 0.0	20	20 A	1	--	SPARE
STORAGE 2.001 RCPTS		1	20 A	21	1.1 / 0.2		22	20 A	1		BREEZEWAY EXTERIOR RCPT
MODEM RECEPTACLE		1	20 A	23		0.2 / 1.1	24	20 A	1		STORAGE 2.001 RCPTS
NORTH EXTERIOR RCPT		1	20 A	25	0.2 / 0.7		26	20 A	1		STORAGE 2.001 RCPTS
FUTURE KIOSK	--	1	--	27		0.0 / 0.0	28	20 A	1	--	SPARE
SPACE	--	1	--	29	0.0 / 0.0		30	--	1	--	SPACE
			TOTAL LOAD:		21414 VA	19766 VA					
			TOTAL AMPS:		178 A	165 A					

Load Classification	Connected Load (VA)	Demand Factor	Estimated Demand (VA)	PANEL TOTALS	
Motor	7128 VA	95.00%	6772 VA	**TOTAL CONN. LOAD:**	41179 VA
RCPT	2880 VA	100.00%	2880 VA	**TOTAL EST. DEMAND:**	40823 VA
SPEC	31440 VA	100.00%	31440 VA	**TOTAL CONN. CURRENT:**	172 A
				TOTAL EST. DEMAND...	170 A

Notes:
SUB FEED LUGS TO PANEL P1(2)

BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
P1(2)	120/240	1	3	400 A	MLO	10,000 AMPS
ROOM: ELECTRICAL/ COMMS....	CODE: L=LIGHTING, R=RECEPTACLES, M=MOTORS, K=KITCHEN					MOUNTING: SURFACE
FED... MDP						ENCLOSURE: NEMA 1
						FEED: TOP

LOAD	CODE	POLE	BKR	CKT #	A KVA	B KVA	CKT #	BKR	POLE	CODE	LOAD
GF-1		1	20 A	1	0.2 / 0.2		2	20 A	1		WF-1
WH-1		1	20 A	3		1.6 / 0.2	4	20 A	1		MECHANICAL 2.004 RCPT
EXTERIOR LITES		1	20 A	5	0.1 / 0.6		6	20 A	1		LITES STORAGE 2.001
EXTERIOR LITES		1	20 A	7		0.1 / 0.2	8	20 A	1		LITES SHOWER 2.007
LITES SHOWER 2.006		1	20 A	9	0.2 / 0.4		10	20 A	1		LITES MECHANICAL 2.005
LITES SHOWER 2.008		1	20 A	11		0.2 / 0.2	12	20 A	1		LITES SHOWER 2.010
LITES SHOWER 2.009		1	20 A	13	0.2 / 0.2		14	20 A	1		LITES SHOWER 2.014
LITES SHOWER 2.011		1	20 A	15		0.2 / 0.2	16	20 A	1		LITES SHOWER 2.012
LITES SHOWER 2.013		1	20 A	17	0.2 / 0.2		18	20 A	1		LITES SHOWER 2.015
LITES SHOWER 2.017		1	20 A	19		0.2 / 0.2	20	20 A	1		LITES SHOWER 2.016
SOUTH EXTERIOR RCPT		1	20 A	21	0.2 / 0.2		22	20 A	1		RCPT MECHANICAL 2.004
SHOWER 2.006 HAND DRYER		2	20 A	23		0.5 / 0.5	24	20 A	2		SHOWER 2.007 HAND DRYER
--	--	--	--	25	0.5 / 0.5		26	--	--	--	--
SHOWER 2.008 HAND DRYER		2	20 A	27		0.5 / 0.5	28	20 A	2		SHOWER 2.009 HAND DRYER
--	--	--	--	29	0.5 / 0.5		30	--	--	--	--
SHOWER 2.010 HAND DRYER		2	20 A	31		0.5 / 0.5	32	20 A	2		SHOWER 2.011 HAND DRYER
--	--	--	--	33	0.5 / 0.5		34	--	--	--	--
SHOWER 2.012 HAND DRYER		2	20 A	35		0.5 / 0.5	36	20 A	2		SHOWER 2.013 HAND DRYER
--	--	--	--	37	0.5 / 0.5		38	--	--	--	--
SHOWER 2.014 HAND DRYER		2	20 A	39		0.5 / 0.5	40	20 A	2		SHOWER 2.015 HAND DRYER
--	--	--	--	41	0.5 / 0.5		42	--	--	--	--
			TOTAL LOAD:		7839 VA	8367 VA					
			TOTAL AMPS:		65 A	70 A					

Load Classification	Connected Load (VA)	Demand Factor	Estimated Demand (VA)	PANEL TOTALS	
Heating	1560 VA	100.00%	1560 VA	**TOTAL CONN. LOAD:**	16204 VA
LITES	1990 VA	125.00%	2488 VA	**TOTAL EST. DEMAND:**	16211 VA
Motor	9840 VA	95.00%	9348 VA	**TOTAL CONN. CURRENT:**	68 A
RCPT	3060 VA	100.00%	3060 VA	**TOTAL EST. DEMAND...**	68 A

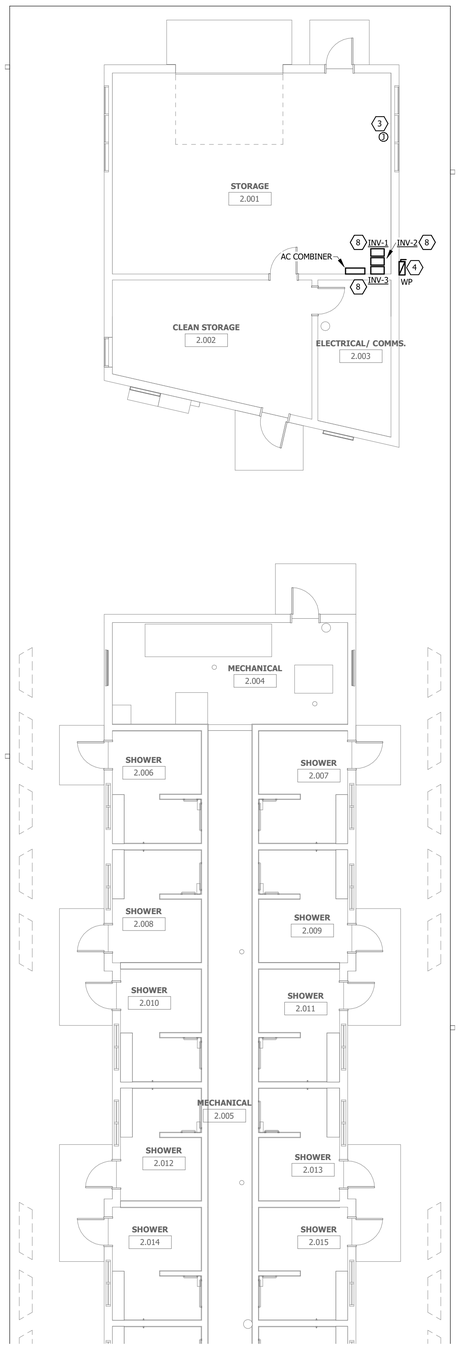
Notes:

POWER MATERIAL LIST

THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF QUANTITIES AND SHALL FURNISH ALL MATERIAL REQUIRED, WHETHER SPECIFIED OR NOT, TO PRODUCE A SATISFACTORY WORKING SYSTEM.

CATALOG NUMBERS SHALL NOT BE CONSIDERED COMLETE BUT ARE GIVEN ONLY TO AID THE CONTRACTOR IN THE SEARCH FOR MATERIAL. NO MATERIAL SHALL BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. EACH CONTRACTOR SHALL FIRST READ THE COMPLETE DESCRIPTION OF THE MATERIAL ON THESE DRAWINGS AND SPECIFICATIONS. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN. "STANDARD COLOR" INDICATED FACTORY FINISH AVAILABLE AT NO ADDITIONAL CHARGE.

SYMBOL	DESCRIPTION	APPROVED MANUFACTURER
DEVICE COLOR	ALL TOGGLE SWITCH, RECEPTACLE, OUTLET AND COVERPLATE COLORS SHALL BE STANDARD WHITE COLOR, UNLESS NOTED OTHERWISE	HUBBELL PASS & SEYMOUR LEVITON COOPER
COVER PLATES	ALL TOGGLE SWITCHES, RECEPTACLES, AND OUTLETS SHALL BE COMPLETE WITH NYLON COVERPLATES IN FINISHED SPACES WHERE WALLS ARE FINISHED, STAINLESS STEEL COVERPLATES IN UNFINISHED SPACES FOR FLUSH BOXES, AND GALVANIZED STEEL COVERPLATES IN UNFINISHED SPACES FOR SURFACE MOUNTED BOXES. WHERE SEVERAL DEVICES ARE GANGED TOGETHER, THE COVERPLATE SHALL BE A SINGLE GANGED STYLE FOR THE NUMBER OF DEVICES USED.	HUBBELL PASS & SEYMOUR LEVITON COOPER
SPD	SURGE PROTECTIVE DEVICE (TVSS), ANSI CATEGORY 1 & 2 FOR 480Y/277V SERVICE, PEAK SURGE CURRENT OF 300 KA PER PHASE AND 150 KA PER MODE. UL 1449-3RD EDITION LISTED, 7 MODES OF PROTECTION, AUDIBLE ALARM, SURGE COUNTER, LED INDICATORS FOR EACH PHASE, NEMA 4 ENCLOSURE. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.	INNOVATIVE TECHNOLOGY PTX300-3Y201-SD LIEBERT CURRENT TECHNOLOGY
TX/1	168kVA; PRIMARY: 7200V; SECONDARY: 120/240V, 1P, 3W; 2 @ 2.5%; 115 DEGREE TEMP RISE; COPPER WINDINGS, LIQUID FILLED, PAD MOUNTED, >98% EFFICIENT	SQUARE D CLASS 7230 EATON
PANEL 'MDP'	DISTRIBUTION PANELBOARD, SERVICE ENTRANCE RATED, SURFACE MOUNTED, 120/240V 1-PHASE, 3-WIRE, AIC RATING PER TRANSFORMER SPECIFICATION 600A MAIN CIRCUIT BREAKER, COPPER BUS, GROUND BUS, LOCKING FRONT DOOR, FULLY RATED BREAKERS, UL LISTED, NEMA 1.	SQUARE D NQ EATON
PANEL 'P1'	BRANCH PANELBOARD (2 SECTIONS), 20" WIDE SURFACE MOUNTED, 120/240V, 1 PHASE, 3 WIRE, 400A MLO (SECTION 1), 400A MLO (SECTION 2) COPPER BUS, GROUND BUS, BOLT-ON BREAKERS, FEED THRU LUGS, FULLY RATED BREAKERS, UL LISTED.	SQUARE D NQ EATON
PANEL 'W 1'	LOAD CENTER, 20" WIDE SURFACE MOUNTED, 120/240V, 1 PHASE, 3 WIRE, 200A FRAME.100A MAIN CIRCUIT BREAKER, COPPER BUS, GROUND BUS, BOLT-ON BREAKERS, FULLY RATED BREAKERS, UL LISTED. FURNISH WITH (1) 60A, 2P BREAKER, (5) 20A, 1P BREAKERS	SQUARE D NQ EATON
(R) PANEL	EXISTING BRANCH PANELBOARD FROM WOODSHED. 20" WIDE SURFACE MOUNTED, 120/240V, 1 PHASE, 3 WIRE, 400A MAIN CIRCUIT BREAKER, COPPER BUS, GROUND BUS, BOLT-ON BREAKERS, FULLY RATED BREAKERS, UL LISTED.	REUSE EXISTING
DISCONNECT DS/1	HEAVY DUTY NON-FUSIBLE DISCONNECT SWITCH, MINIMUM 240V, 600A/2P, NEMA 3R ENCLOSURE, UL LISTED. SHALL BE RATED FOR USE AS SERVICE ENTRANCE EQUIPMENT.	SQUARE D EATON
VFD VFD/2	VARIABLE FREQUENCY DRIVE WITH HAND-OFF-AUTO OVERRIDE, OVER CRRRENT PROTECTION, ANALOG AND DIGITAL I/0, MICROPROCESSOR CONTROLLED, >90% EFFICIENCY, RATER FOR 1HP PUMP	SQUARE D ATV61 EATON
(e) CONNECTOR (E)	EQUIPMENT CONNECTION, SIZE PER NEC. COORDINATE WITH CONTRACTOR FURNISHING EQUIPMENT.	SIZE PER NEC
MX/1 $M	MANUAL MOTOR STARTER SWITCH WITH MELTING ALLOY TYPE THERMAL OVERLOAD RELAY, TOGGLE OPERATOR, SINGLE POLE, RATED 1HP MAXIMUM AT 120 VOLT, NEMA 1 ENCLOSURE, W/ HANDLE GUARD/LOCK-OFF, UL LISTED.	SQUARE D CLASS 2510 TYPE FG5 EATON
3-BUTTON CTRL (GDO)	OVERHEAD DOOR 3-BUTTON UP/DOWN/STOP MANUAL CONTROL INSTALLED BY EC.	FURNISHED BY GC
STANDARD DUPLEX RECEPTACLE # #"	DUPLEX RECEPTACLE, 20 AMP, 125 VOLT, 3-WIRE GROUNDING TYPE, INDUSTRIAL SPECIFICATION GRADE, STRAIGHT BLADE, NEMA 5-20R, NYLON FACE, SIDE AND BACK WIRED, UL LISTED. COORDINATE ROUGH-IN WITH MILLWORK. # #" = MOUNTING HEIGHT	LEVITON 5362-GY HUBBELL PASS & SEYMOUR COOPER
GFI RECEPTACLE GFI	DUPLEX RECEPTACLE, GROUND FAULT CIRCUIT INTERRUPTING (GFCI), DECORA STYLE, 20 AMP, 125 VOLT, 3-WIRE GROUNDING TYPE, INDUSTRIAL SPECIFICATION GRADE, STRAIGHT BLADE, NEMA 5-20R, NYLON FACE, SIDE AND BACK WIRED, TEST AND RESET BUTTONS IN FACE, LOCKOUT ACTION TO PREVENT USE IF GFCI CIRCUIT IS NOT FUNCTIONING, UL LISTED. COORDINATE ROUGH-IN WITH MILLWORK. 'AC' DENOTES ABOVE COUNTER.	LEVITON 7899-G HUBBELL PASS & SEYMOUR COOPER
WP/GFI RECEPTACLE WP,GFI	DUPLEX RECEPTACLE, GROUND FAULT CIRCUIT INTERRUPTING (GFCI), DECORA STYLE, 20 AMP, 125 VOLT, 3-WIRE GROUNDING TYPE, INDUSTRIAL SPECIFICATION GRADE, STRAIGHT BLADE, NEMA 5-20R, NYLON FACE, SIDE AND BACK WIRED, TEST AND RESET BUTTONS IN FACE, LOCKOUT ACTION TO PREVENT USE IF GFCI CIRCUIT IS NOT FUNCTIONING, UL LISTED. PROVIDE WITH CAST ALUMINUM WET LOCATION WHILE-IN-USE BUBBLE COVER.	LEVITON 7899-G HUBBELL PASS & SEYMOUR COOPER HUBBELL WP26M (COVER)
VFD VFD/1	VARIABLE FREQUENCY DRIVE WITH HAND-OFF-AUTO OVERRIDE, OVER CRRRENT PROTECTION, ANALOG AND DIGITAL I/0, MICROPROCESSOR CONTROLLED, >90% EFFICIENCY	SQUARE D ATV61 EATON



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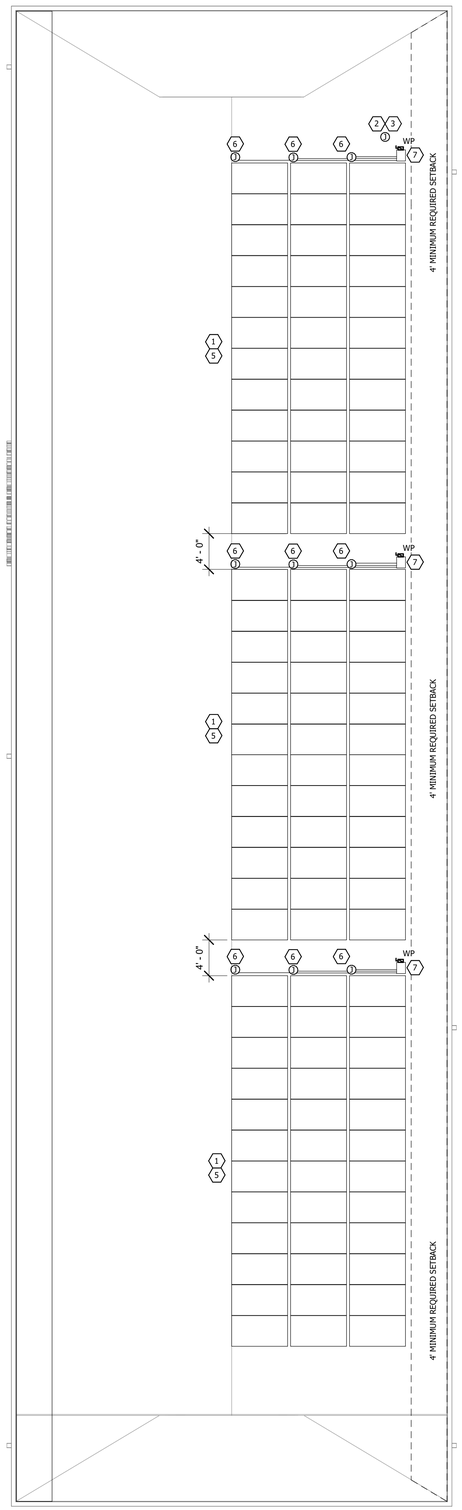
1 SHOWER HOUSE ELECTRICAL PLAN
1/8" = 1'-0"



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2 SHOWER HOUSE ROOF PLAN
1/8" = 1'-0"

GENERAL NOTES:

A. MAINTAIN SERVICE CLEARANCE AROUND ALL MECHANICAL & ELECTRICAL EQUIPMENT. DO NOT ROUTE PIPING OR CONDUIT IN CLEARANCE SPACE.

B. SURFACE RACEWAY SHALL NOT BE USED IN ANY FINISHED AREAS WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

C. PROVIDE AND INSTALL ALL ELECTRICAL CONTROL AND DISCONNECTING MEANS FOR ALL PHOTOVOLTAIC EQUIPMENT. COORDINATE AND VERIFY REQUIREMENTS WITH SCHEDULES AND SHOP DRAWINGS.

D. MAINTAIN ALL SERVICE CLEARANCES REQUIRED BY THE UTILITY AND NEC. COORDINATE INSTALLATION WITH OWNER REQUIREMENTS PRIOR TO ROUGH-IN.

E. INSTALL CONDUCTORS AS PER MANUFACTURER'S RECOMMENDATIONS.

F. GROUND PV SYSTEM PER NEC 690.

REFERENCED NOTES: (#)

(NOT ALL NOTES MAY BE APPLICABLE TO THIS SHEET)

1. PROVIDE (1) POWER OPTIMIZER PER EVERY (2) MODULES. THE INVERTER AND OPTIMIZERS SHALL BE EQUIPPED WITH A RAPID SHUTDOWN FEATURE THAT CONFORMS TO NEC 690.12. THE OUTPUT VOLTAGE OF THE POWER OPTIMIZERS ARE REGULATED BY THE INVERTER. THEY ARE NOT IMPACTED BY THE NUMBER OF MODULES IN THE STRING. THE CONTINUOUS CURRENT OF A SINGLE STRING IS EQUAL TO THE MAXIMUM OUTPUT CURRENT OF THE OPTIMIZER.
2. ROUTE ALL DC WIRING FROM PV COMBINERS TO JUNCTION BOX LOCATED ON ROOF. CONDUIT FROM JUNCTION BOX TO BE ROUTED TO PV INVERTER(S) IN STORAGE 2.001.
3. CONDUIT TO PENETRATE ROOF. ROUTE ALL CONDUIT TIGHT TO STRUCTURE. SEE ROOF PENETRATION DETAIL.
4. COORDINATE EXACT LOCATION OF UTILITY PV DISCONNECT WITH OWNER/ AHJ PRIOR TO ROUGH-IN. AT LOCATION OF PV UTILITY DISCONNECT SHALL BE A PERMANENT PLAQUE READING "INTERCONNECTION DISCONNECT SWITCH". DISCONNECT SHALL NOT OPEN THE NEUTRAL. COORDINATE ALL UTILITY REQUIREMENTS WITH UTILITY PRIOR TO ROUGH-IN.
5. RACKING SYSTEM TO BE IRONRIDGE XR RAIL FAMILY OR SIMILAR. INSTALL RACKING SYSTEM BASED ON MANUFACTURER'S INSTRUCTIONS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. COORDINATE MOUNTING TYPE WITH ROOFING CONTRACTOR PRIOR TO ROUGH-IN.
6. PROVIDE A JUNCTION BOX FOR EVERY STRING OF 12 PANELS. ROUTE CONDUIT TO PV COMBINER CABINETS.
7. PV COMBINER CABINET. 600V RATED. 3 CIRCUITS FUSED AT 15AMPS. NEMA 34 UL 1731 LISTED. MIDNITE SOLAR #MNPV3(HV) OR APPROVED EQUAL. PROVIDE WEATHER PROOF DISCONNECT AT EACH COMBINER. COORDINATE EXACT LOCATION AND FEEDER ROUTE WITH DESIGN TEAM PRIOR TO INSTALL.
8. THE CONTRACTOR SHALL PROVIDE A 1" CONDUIT FOR PV SYSTEM MONITORING FROM PV INVERTER LOCATION TO TELECOM ROOM . COORDINATE ROUTING WITH ALL EXISTING UTILITIES AND FIRE WALLS. THE CONTACTOR SHALL PROVIDE AND INSTALL THE NEW ETHERNET CABLE, OR EQUIVALENT, PER MANUFACTURER'S SPECIFICATION. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

ELECTRICAL SYMBOLS LIST

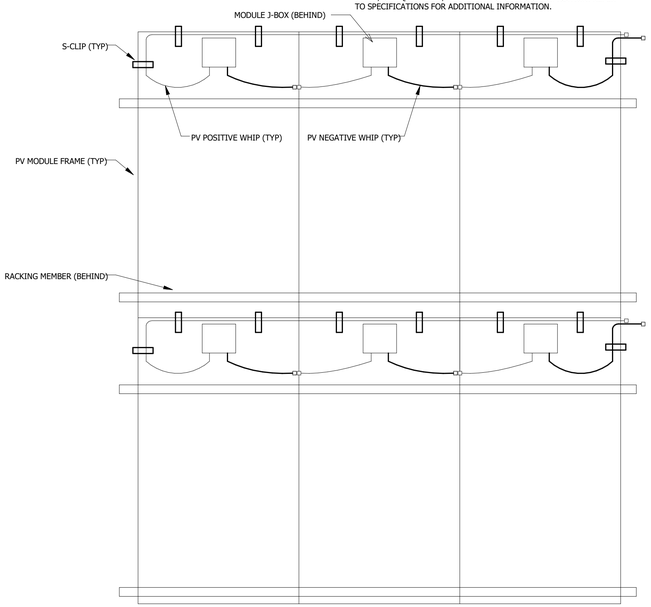
NOTE: NOT ALL SYMBOLS SHOWN MAY BE REQUIRED FOR THIS PROJECT

WIRING DEVICES
- (J) JUNCTION BOX

EQUIPMENT WIRING
- DISCONNECTING MEANS
- WP WEATHERPROOF DISCONNECTING MEANS

DISTRIBUTION
- SURFACE-MOUNT PANEL
- INVERTER

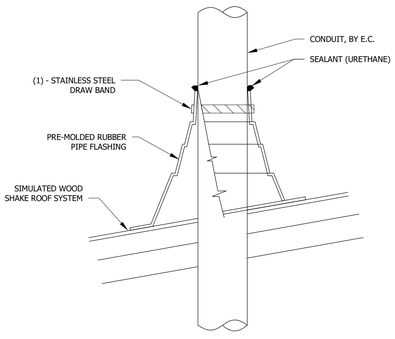
MISCELLANEOUS
- EX EXISTING - TO REMAIN
- EXR EXISTING - TO BE RELOCATED
- ER EXISTING - TO BE REMOVED
- CONDUIT
- UNDER GROUND CONDUIT
- POINT OF NEW CONNECTION
- WP WEATHERPROOF



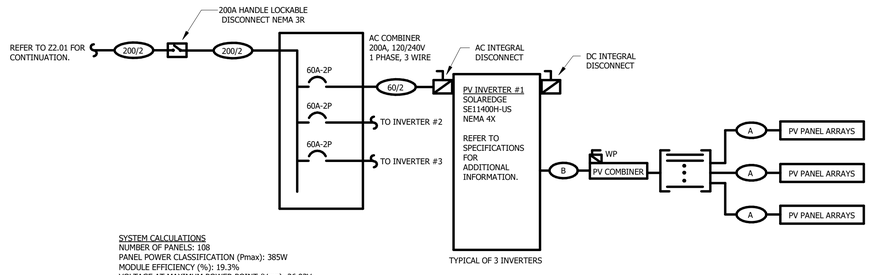
GENERAL NOTES:

A. REFER TO PLANS AND ONE-LINE FOR NUMBER OF PANELS PER STRING.

4 SHOWER HOUSE PV-WHIP MODULE
No Scale



5 CONDUIT ROOF PENETRATION - SHOWER HOUSE
No Scale



SYSTEM CALCULATIONS
NUMBER OF PANELS: 108
PANEL POWER CLASSIFICATION (Pmax): 385W
MODULE EFFICIENCY (%): 19.3%
VOLTAGE AT MAXIMUM POWER POINT (Vmp): 36.93V
CURRENT AT MAXIMUM POWER POINT (Imp): 10.42A
OPEN CIRCUIT VOLTAGE (Voc): 45.03V
SHORT CIRCUIT CURRENT (Isc): 10.97A
LOAD RATIO: 1.22
SYSTEM POWER CLASSIFICATION (AC): 34.2 kW
SYSTEM POWER CLASSIFICATION (DC): 41.58 kW

3 SHOWER HOUSE ELECTRICAL ONE-LINE DIAGRAM
No Scale

GENERAL NOTES:

A. ELECTRICAL POWER OUTAGES, IF REQUIRED, SHOULD BE STRATEGICALLY MINIMIZED AND SCHEDULED CLOSELY WITH OWNER. CHANGEOVERS COULD BE REQUIRED TO OCCUR AT ANY HOUR.

B. MAINTAIN ALL SERVICE CLEARANCES REQUIRED BY THE UTILITY AND NEC. COORDINATE INSTALLATION WITH UTILITY REQUIREMENTS PRIOR TO ROUGH-IN.

C. INSTALL ALL CONDUCTORS AS PER MANUFACTURER'S RECOMMENDATIONS.

COPPER CONDUCTOR AND CONDUIT SIZING CHART - DC VOLTAGE

	CONDUCTORS (THWN-2)			CONDUIT	PARALLEL RUNS
	PHASE	NEUTRAL	GROUND	EMT	
A	(2) #10 AWG	-	#10 AWG	2"	1
B	(2) #8 AWG	-	#10 AWG	2"	1

COPPER CONDUCTOR AND CONDUIT SIZING CHART - AC VOLTAGE

	CONDUCTORS (THWN-2)			CONDUIT		PARALLEL RUNS
	PHASE	NEUTRAL	GROUND	EMT	SCH 40	
60/2	(2) #6 AWG	#6 AWG	#10 AWG	3/4"	3/4"	1
200/2	(2) 3/0 AWG	3/0 AWG	#6 AWG	2"	2"	1

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GENERAL NOTES:

A. **REFER TO THE SEPTIC DRAWINGS FOR ADDITIONAL ELECTRICAL AND SITE COORDINATION.**

B. **REFER TO SHEET MS1.09 FOR OVERALL SITE PLAN AND ARRAY LOCATION.**

C. MAINTAIN SERVICE CLEARANCE AROUND ALL MECHANICAL & ELECTRICAL EQUIPMENT. DO NOT ROUTE PIPING OR CONDUIT IN CLEARANCE SPACE.

D. PROVIDE AND INSTALL ALL ELECTRICAL CONTROL AND DISCONNECTING MEANS FOR ALL PHOTOVOLTAIC EQUIPMENT. COORDINATE AND VERIFY REQUIREMENTS WITH SCHEDULES AND SHOP DRAWINGS.

E. MAINTAIN ALL SERVICE CLEARANCES REQUIRED BY THE UTILITY AND NEC. COORDINATE INSTALLATION WITH OWNER REQUIREMENTS PRIOR TO ROUGH-IN.

F. INSTALL CONDUCTORS AS PER MANUFACTURER'S RECOMMENDATIONS.

G. GROUND PV SYSTEM PER NEC 690.

REFERENCED NOTES: (#)

(NOT ALL NOTES MAY BE APPLICABLE TO THIS SHEET)

1. PROVIDE (1) POWER OPTIMIZER PER EVERY (2) MODULES. THE INVERTER AND OPTIMIZERS SHALL BE EQUIPPED WITH A RAPID SHUTDOWN FEATURE THAT CONFORMS TO NEC 690.12. THE OUTPUT VOLTAGE OF THE POWER OPTIMIZERS ARE REGULATED BY THE INVERTER. THEY ARE NOT IMPACTED BY THE NUMBER OF MODULES IN THE STRING. THE CONTINUOUS CURRENT OF A SINGLE STRING IS EQUAL TO THE MAXIMUM OUTPUT CURRENT OF THE OPTIMIZER.
2. COORDINATE EXACT LOCATION OF UTILITY PV DISCONNECT WITH OWNER/AHJ PRIOR TO ROUGH-IN. AT LOCATION OF PV UTILITY DISCONNECT SHALL BE A PERMANENT PLAQUE READING "INTERCONNECTION DISCONNECT SWITCH". DISCONNECT SHALL NOT OPEN THE NEUTRAL. COORDINATE ALL UTILITY REQUIREMENTS WITH UTILITY PRIOR TO ROUGH-IN.
3. CONDUIT FROM AC COMBINER TO PV DISCONNECT SHALL BE BORED CONDUIT TYPE. BORING LOCATION SHOWN SCHEMATICALLY ONLY. COORDINATE EXACT LOCATION CLOSELY WITH EXISTING UNDERGROUND LINES AND SEPTIC SYSTEM. REFER TO ONE-LINE FOR ADDITIONAL DETAILS.
4. REFER TO PILE DRIVEN PV ARRAY DETAILS ON SHEET Z1.06 AND SPECIFICATIONS FOR ADDITIONAL DETAILS ON RACKING SYSTEM. ADJUST RACKING MATERIAL TO FIT PV MODULE SPACING AS INDICATED ON THIS DRAWING. MODULES SHALL BE RACKED WITH 30 DEGREE TILT.
5. PROVIDE STRINGS OF 12 PANELS WITH PARALLEL CONNECTIONS TO INVERTER. ROUTE ALL DC WIRING FROM SOLAR ARRAY PANELS ALONG RACKING AND DOWN POST TO INVERTER AT GROUND LEVEL.
6. CONDUIT FROM INVERTERS TO AC COMBINER SHALL BE TRENCHED CONDUIT TYPE.
7. ROUTE (2) #8 AWG WIRE & (1) #12 AWG GROUND IN A 1" CONDUIT FROM A 20A/1P BREAKER IN THE SEPTIC SYSTEM LOAD CENTER TO THE PV SYSTEM FOR CONVERTING ETHERNET TO FIBER. REFER TO THE UNISTRUT DETAIL (THIS SHEET) AND THE 'MS' DRAWINGS FOR ADDITIONAL INFORMATION.
8. CONTRACTOR SHALL ROUTE AN ADDITIONAL 1" CONDUIT AND PROVIDE FIBER OPTIC CABLE FOR THE PV WEB BASED MONITORING SYSTEM. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE OS2 SINGLE MODE 2-STRAND FIBER MATCHING THE SAME MANUFACTURER AND CABLE TYPE BEING PROVIDED FOR THE LARGER 48-STRAND PULL. REFER TO THIS SHEET FOR ETHERNET TO FIBER CONVERSION. REFER TO SHEET MS1.10 FOR FIBER SPLICE LOCATION AND DETAILS.

ELECTRICAL SYMBOLS LIST

NOTE: NOT ALL SYMBOLS SHOWN MAY BE REQUIRED FOR THIS PROJECT

WIRING DEVICES

- (J) JUNCTION BOX

EQUIPMENT WIRING

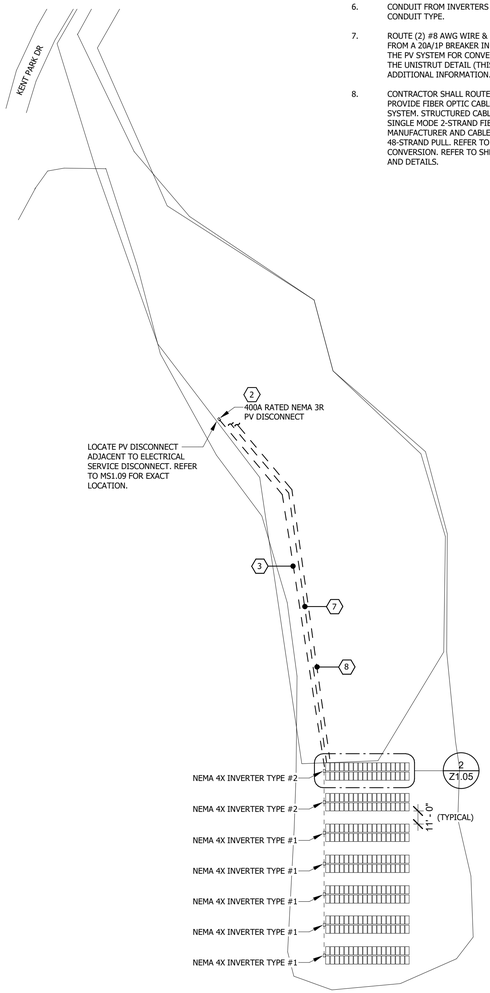
- DISCONNECTING MEANS
- WP WEATHERPROOF DISCONNECTING MEANS

DISTRIBUTION

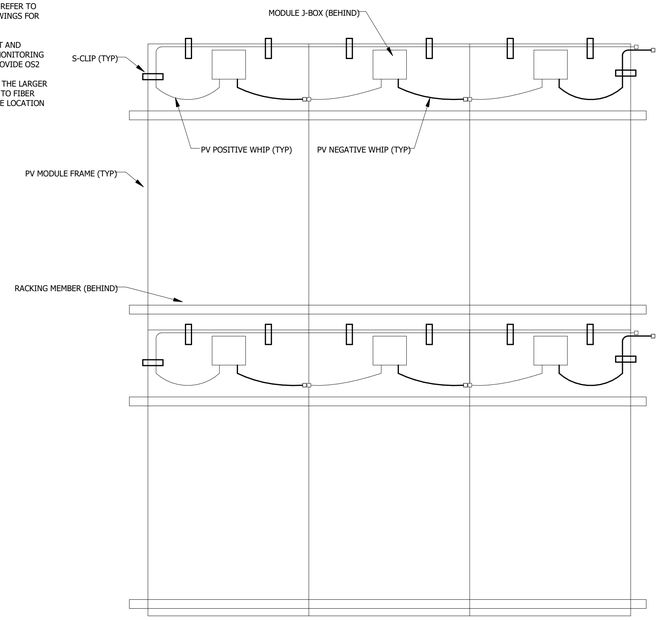
- UNISTRUT MOUNT PANEL
- INVERTER

MISCELLANEOUS

- EX EXISTING - TO REMAIN
- EXR EXISTING - TO BE RELOCATED
- ER EXISTING - TO BE REMOVED
- CONDUIT
- UNDER GROUND CONDUIT
- POINT OF NEW CONNECTION
- WP WEATHERPROOF



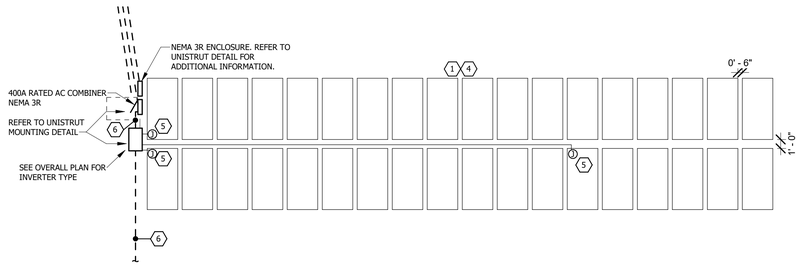
1 SEPTIC PV SITE PLAN - ELECTRICAL
1" = 60'-0"



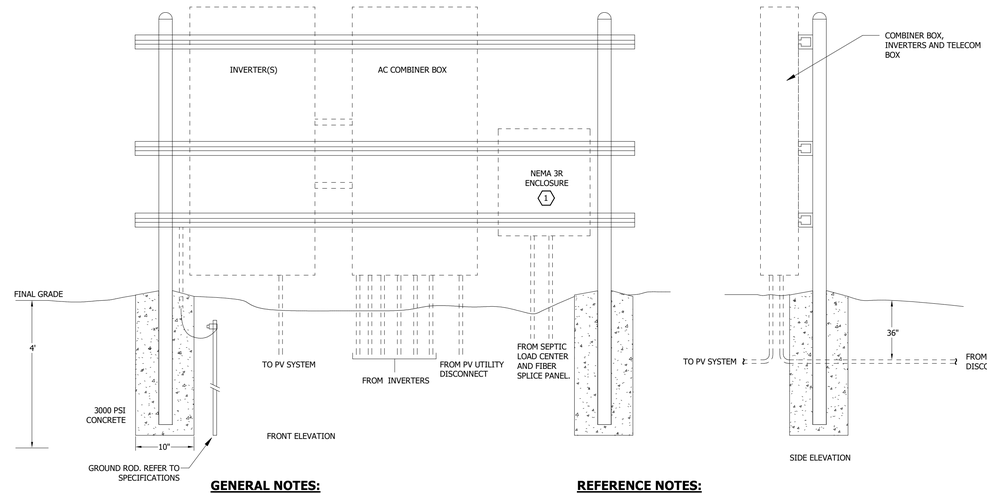
GENERAL NOTES:

A. REFER TO PLANS AND ONE-LINE FOR NUMBER OF PANELS PER STRING.

3 SEPTIC PV-WHIP MODULE
No Scale



2 PV ARRAY RACKING (TYPICAL)
1/8" = 1'-0"



GENERAL NOTES:

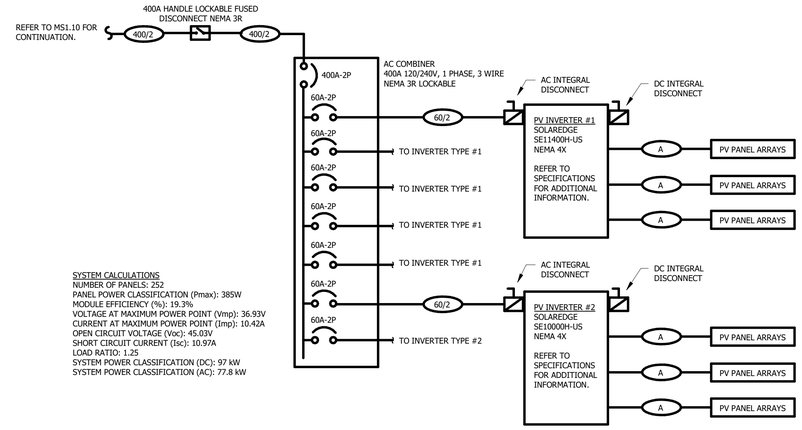
A. PROVIDE ALL NECESSARY COMPONENTS FOR A COMPLETE AND WORKING UNISTRUT SYSTEM.

B. ALL GROUNDING SHALL FOR PV SHALL MEET NEC 690. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

REFERENCE NOTES:

1. CONTRACTOR SHALL PROVIDE A 12"X10"X5" NEMA 3R ENCLOSURE (LCOM NB121005-10F OR SIMILAR) WITH A 120V POWER CONNECTION FOR INTEGRAL DUPLEX RECEPTACLE AND THERMOSTAT CONTROLLED COOLING SYSTEM FOR HOUSEING AN ETHERNET TO FIBER CONVERTER. CONTRACTOR SHALL PROVIDE A TEMPERATURE HARDENED COPPER TO FIBER CONVERTER EQUIVALENT TO BLACK BOX LMC270A-SM-20K-SC AND POWER SUPPLY.

4 UNISTRUT TERMINATION & CABINET MOUNT DETAIL
No Scale



5 SEPTIC ELECTRICAL ONE-LINE DIAGRAM
No Scale

COPPER CONDUCTOR AND CONDUIT SIZING CHART - DC VOLTAGE

	CONDUCTORS (THWN-2)			CONDUIT		PARALLEL RUNS
	PHASE	NEUTRAL	GROUND	EMT	SCH 40	
A	(2) #10 AWG	-	#10 AWG	2"	2"	1

COPPER CONDUCTOR AND CONDUIT SIZING CHART - AC VOLTAGE

	CONDUCTORS (THWN-2)			CONDUIT		PARALLEL RUNS
	PHASE	NEUTRAL	GROUND	EMT	SCH 40	
60/2	(2) #6 AWG	#6 AWG	#10 AWG	3/4"	3/4"	1
400/2	(2) 3/0 AWG	3/0 AWG	#3 AWG	2"	2"	2

GENERAL NOTES:

A. ELECTRICAL POWER OUTAGES, IF REQUIRED, SHOULD BE STRATEGICALLY MINIMIZED AND SCHEDULED CLOSELY WITH OWNER. CHANGEOVERS COULD BE REQUIRED TO OCCUR AT ANY HOUR.

B. MAINTAIN ALL SERVICE CLEARANCES REQUIRED BY THE UTILITY AND NEC. COORDINATE INSTALLATION WITH UTILITY REQUIREMENTS PRIOR TO ROUGH-IN.

C. INSTALL ALL CONDUCTORS AS PER MANUFACTURER'S RECOMMENDATIONS.

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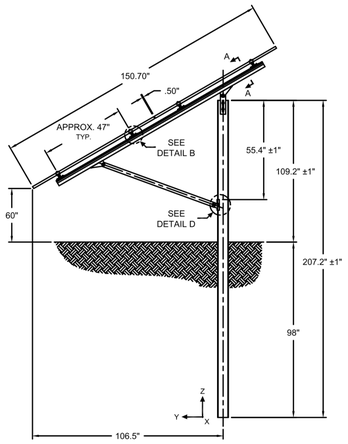
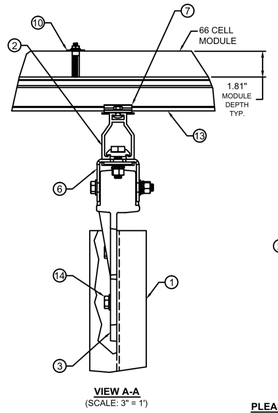
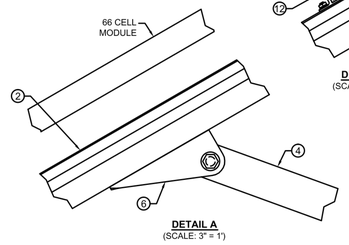


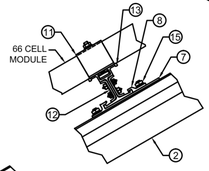
TYPICAL PV ARRAY
N-S ELEVATION (PILE DRIVEN)
(SCALE: 3/8" = 1')



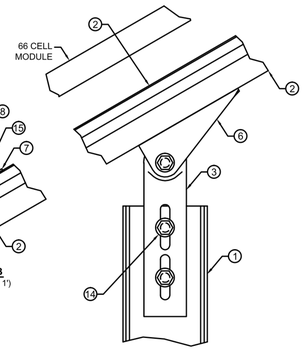
VIEW A-A
(SCALE: 3" = 1')



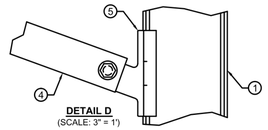
DETAIL A
(SCALE: 3" = 1')



DETAIL B
(SCALE: 3" = 1')



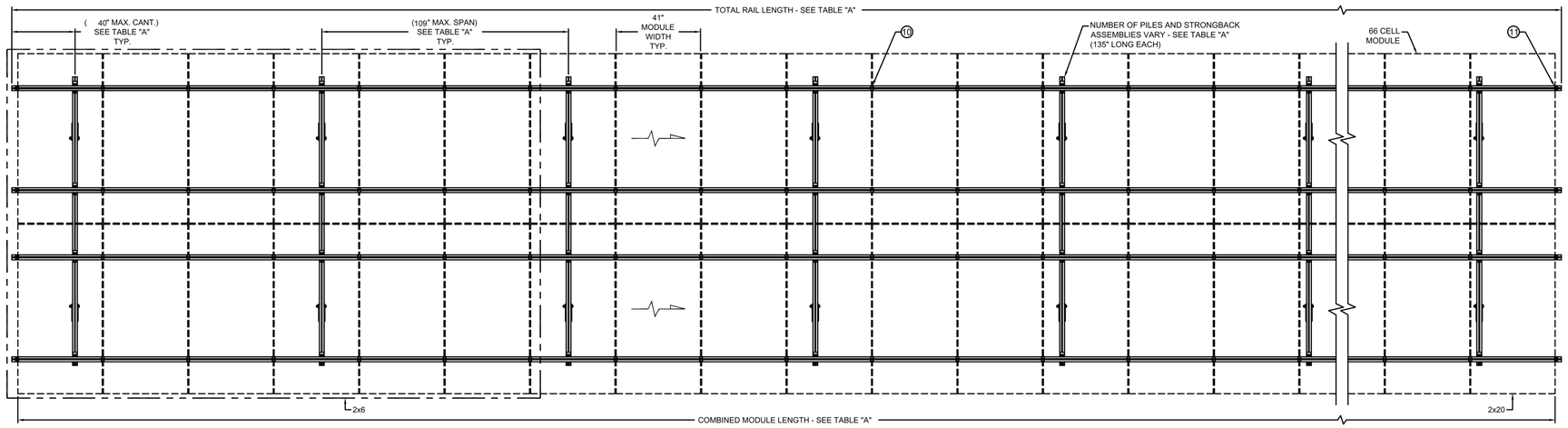
DETAIL C
(SCALE: 3" = 1')



DETAIL D
(SCALE: 3" = 1')

PLEASE NOTE:
VIEW A-A SHOWN @ 0° FOR
RACKING CLARITY AND
DETAILS A-D ARE SHOWN @ 30°

BILL OF MATERIALS			
SYM	DESCRIPTION	MATERIAL	FINISH
1	I-BEAM	50ksi STEEL	HDG
2	STRONGBACK	ALUMINUM	N/A
3	STRONGBACK ATTACHMENT	A36 STEEL	HDG
4	STRUT	ALUMINUM	N/A
5	STRUT ARM ATTACHMENT	A36 STEEL	HDG
6	SLIDE ATTACHMENT	ALUMINUM	N/A
7	RAIL BRACKET	ALUMINUM	N/A
8	RAIL CLAMP	ALUMINUM	N/A
10	MODULE MID-CLAMP ASSY.	STAINLESS	N/A
11	MODULE END-CLAMP ASSY.	STAINLESS	N/A
12	SPLICE PLATE	ALUMINUM	N/A
13	UD RAIL	ALUMINUM	N/A
14	1/2" - 13x1-1/2"	GRD 5	HDG
15	5/16" HARDWARE	GRD 5	HDG



TOP VIEW
(PERPENDICULAR TO MODULE)
(SCALE: 1/2" = 1')

TABLE A - RAIL LENGTHS, MAXIMUM SPAN AND CANTILEVER					DRIVEN PILE		
TABLE	COMBINED MODULE LENGTH	TOTAL RAIL LENGTH	QTY. OF 166" RAIL	QTY. OF 246" RAIL	SPAN	CANTILEVER	QTY. OF PILES
2x6	236.5"	242.5"	-	4	72"	13.25"	4
2x7	276"	282"	8	-	66"	9"	5
2x8	315.5"	321.5"	8	-	70"	20.75"	5
2x9	355"	361"	4	4	66"	15.5"	6
2x10	394.5"	400.5"	4	4	72"	20.25"	6
2x11	434"	440"	-	8	66"	22"	7
2x12	473.5"	479.5"	-	8	72"	23.75"	7
2x13	513"	519"	8	4	70"	14.5"	8

TABLE A - RAIL LENGTHS, MAXIMUM SPAN AND CANTILEVER					DRIVEN PILE		
TABLE	COMBINED MODULE LENGTH	TOTAL RAIL LENGTH	QTY. OF 166" RAIL	QTY. OF 246" RAIL	SPAN	CANTILEVER	QTY. OF PILES
2x14	552.5"	558.5"	8	4	72"	27.25"	8
2x15	592"	598"	4	8	72"	11"	9
2x16	631.5"	637.5"	4	8	66"	21.75"	10
2x17	671"	677"	-	12	72"	14.5"	10
2x18	710.5"	716.5"	12	4	68"	18.25"	11
2x19	750"	756"	8	8	72"	18"	11
2x20	789.5"	795.5"	8	8	68"	1.75"	12

NOTE: CONTRACTOR SHALL ADJUST DIMENSIONS OF RACKING SYSTEM TO FIT PV SPACING AS INDICATED IN DETAIL 2 ON DRAWING Z1.05 AND EQUIPMENT FOR THE APPOVED PV SYSTEM.

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