

Highland Township Fire Station No. 1

Highland Township

1600 W. Highland Rd. Highland, MI 48357

CONSTRUCTION

PARTNERS



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65 Market Street
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(Fax) 586-469-3607

Builder:
Axiom Construction Services Group, LLC
7789 E. M-36
Whitemore Lake, MI 48189
(Phone) 248-446 1104
(Fax) 248-446 1105

Structural Engineer:
Shymanski & Assoc.
33426 5 Mile Rd
48154 Livonia, Michigan
(Phone) 734-855-4810

Owner:
Highland Township Fire Department
250 W Livingston Rd
Highland, MI 48357
(Phone) (248) 887-8688

Civil Engineer:
Environmental Engineers, Inc.

18620 W. Ten Mile Rd.
Southfield, MI 48075
(Phone) 248-424-9510

Mech. / Elec. Engineer:
MA Engineering
400 S. Old Woodward Ave
Birmingham, MI 48009
(Phone) 248-258-1610

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KEY PLAN

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Highland Township
Fire Department

PROJECT NAME

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Fire Station No. 1

1600 W. Highland Rd.
Highland, MI 48357

PROJECT NO.

18-122A

ISSUES / REVISIONS

Bidding - Construction 03/27/20
Addendum #1 04/20/20

DRAWN BY

AR

CHECKED BY

LL / AM

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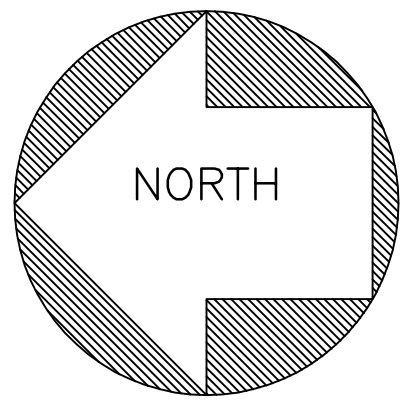
DG

SHEET NAME

COVER SHEET

SHEET NO.

A0-00



SCALE:
1"=40'



LEGEND

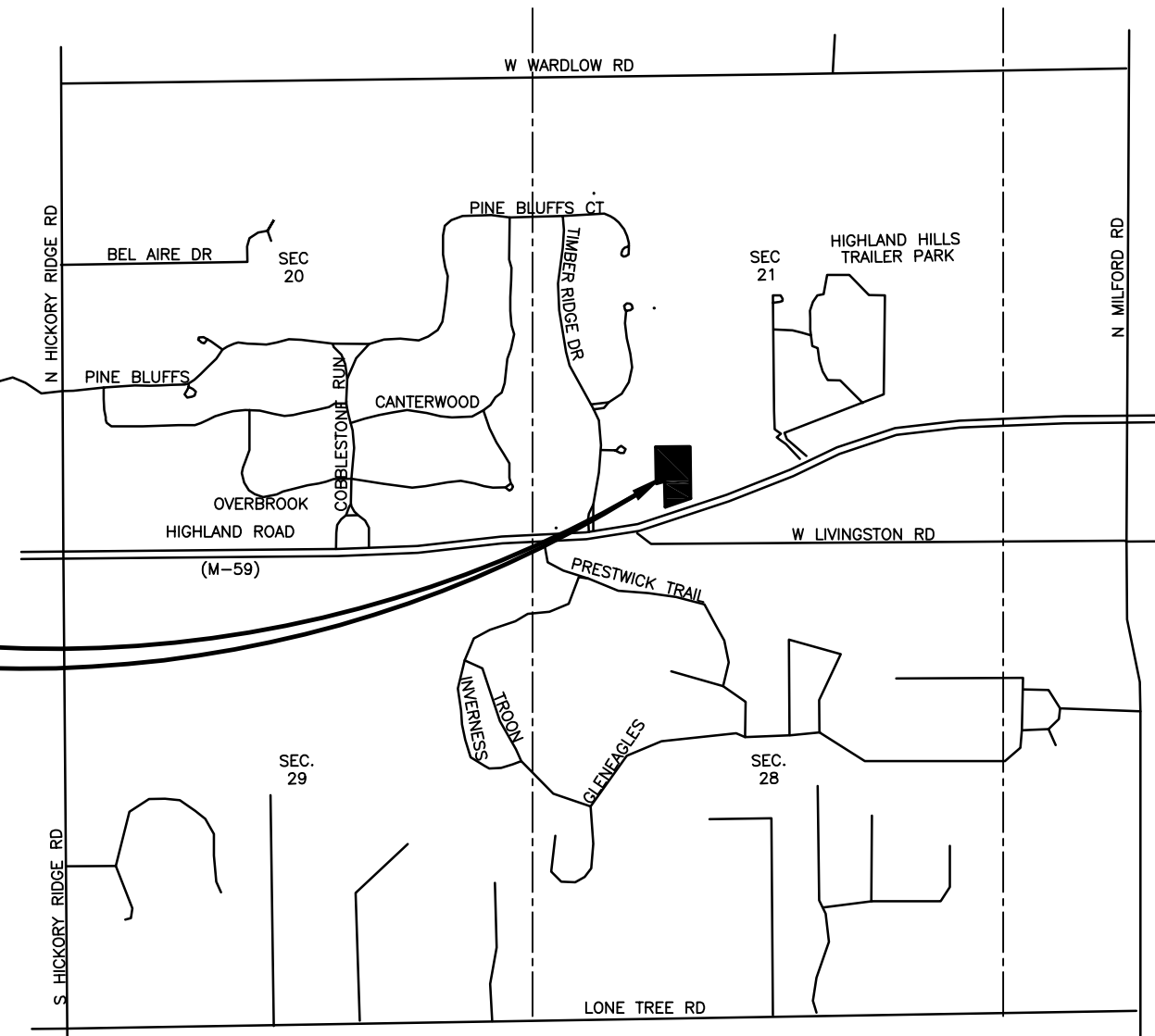
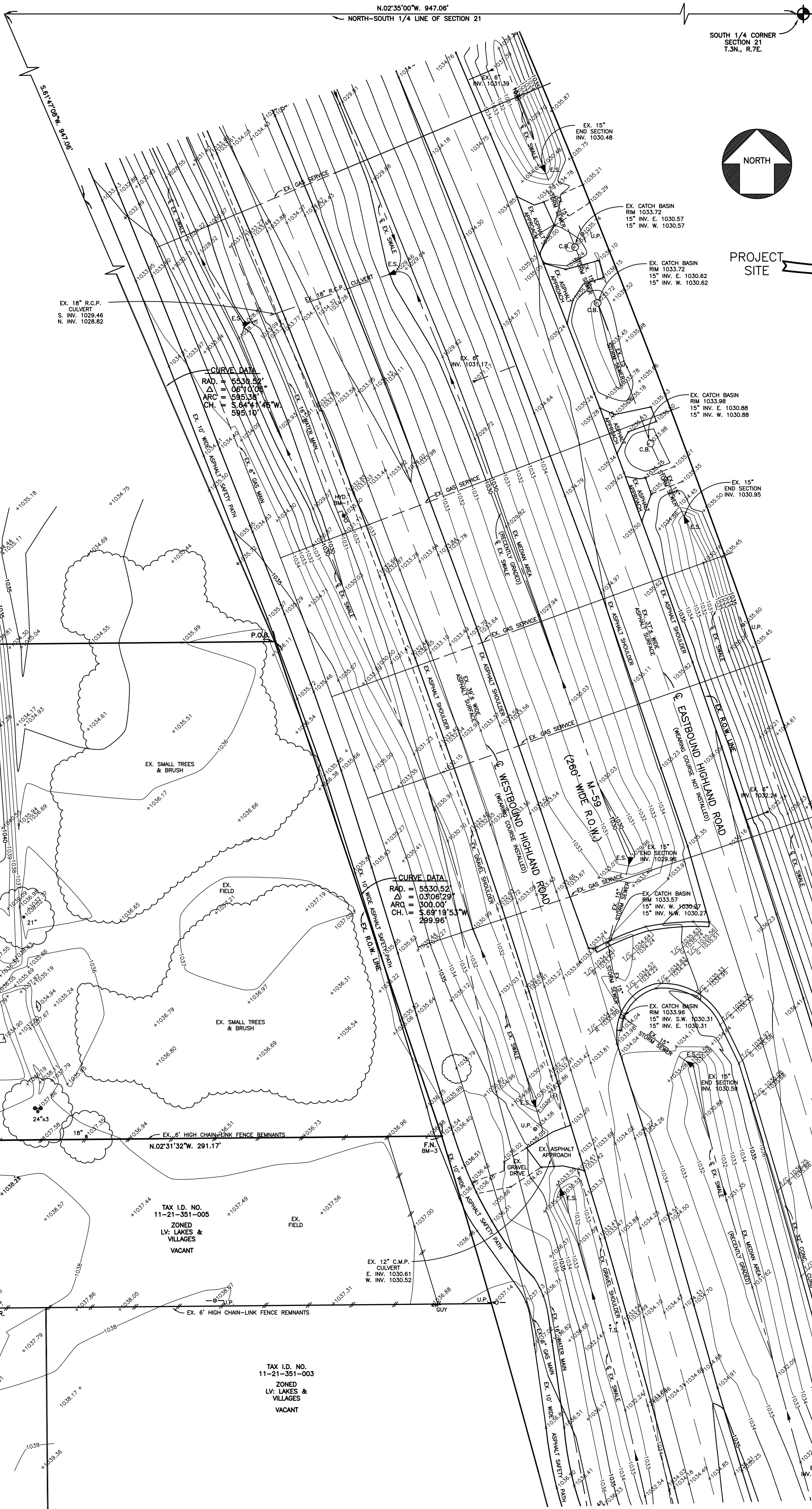
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- F.C.I.R. — FOUND CAPPED IRON ROD
- F.N. — FOUND NAIL

BENCH MARKS

- B.M.-1 ARROW ON HYDRANT LOCATED ON THE NORTH SIDE OF HIGHLAND ROAD 61'± SOUTH AND 53'± EAST OF THE SOUTHEAST PROPERTY CORNER ELEVATION 1035.51 U.S.G.S. DATUM
- B.M.-2 ARROW ON HYDRANT LOCATED ON THE NORTH SIDE OF HIGHLAND ROAD AT THE SOUTHEAST CORNER OF "TIMBER RIDGE SITE CONDOMINIUM" ELEVATION 1038.98 U.S.G.S. DATUM
- B.M.-3 FOUND NAIL IN SAFETY PATH AT THE SOUTHWEST PROPERTY CORNER ELEVATION 1036.54 U.S.G.S. DATUM

PROPERTY DESCRIPTION - (TAX I.D. 11-21-326-005)

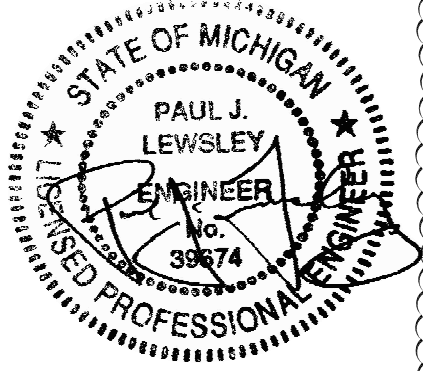
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LOCATION MAP
SCALE: 1"=2000'

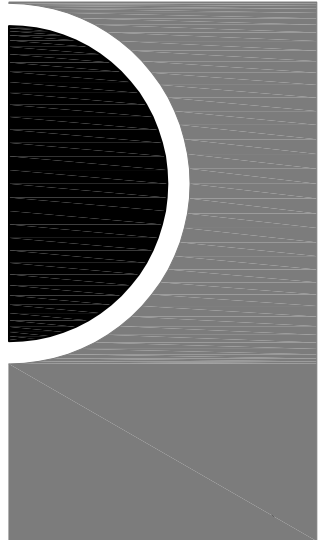
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- TS-1A SITE TOPOGRAPHIC SURVEY
- SP-1 SITE LAYOUT PLAN
- SD-1 SITE DEMOLITION PLAN
- SE-1 SITE SOIL EROSION & SEDIMENTATION CONTROL PLAN
- C-1 SITE GRADING & PAVING PLAN
- C-2 SITE STORMWATER MANAGEMENT PLAN & DETAILS
- C-3 SITE UTILITIES PLAN
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- C-5 SITE SEPTIC SYSTEM DETAILS
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- WM-4 O.C.W.R.C. STANDARD WATER MAIN DETAILS
- WM-5 O.C.W.R.C. STANDARD WATER MAIN DETAILS



NOTE: PROPERTY BOUNDARY INFORMATION FROM SURVEY PREPARED BY HUBBELL, ROTH & CLARK, INC. DATED JUNE 4, 2019 AND PROVIDED BY CLIENT.

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E-MAIL: pjewlesy@envengs.com

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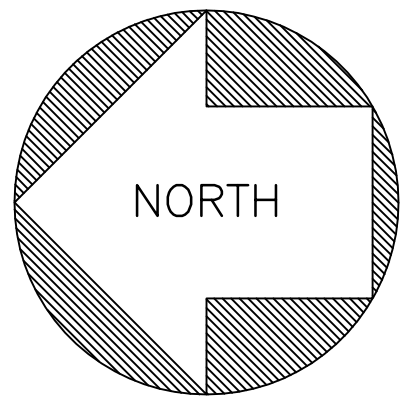
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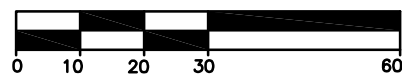
SHEET NO.

TS-1

EE # 1946



SCALE
1"=30'



LEGEND

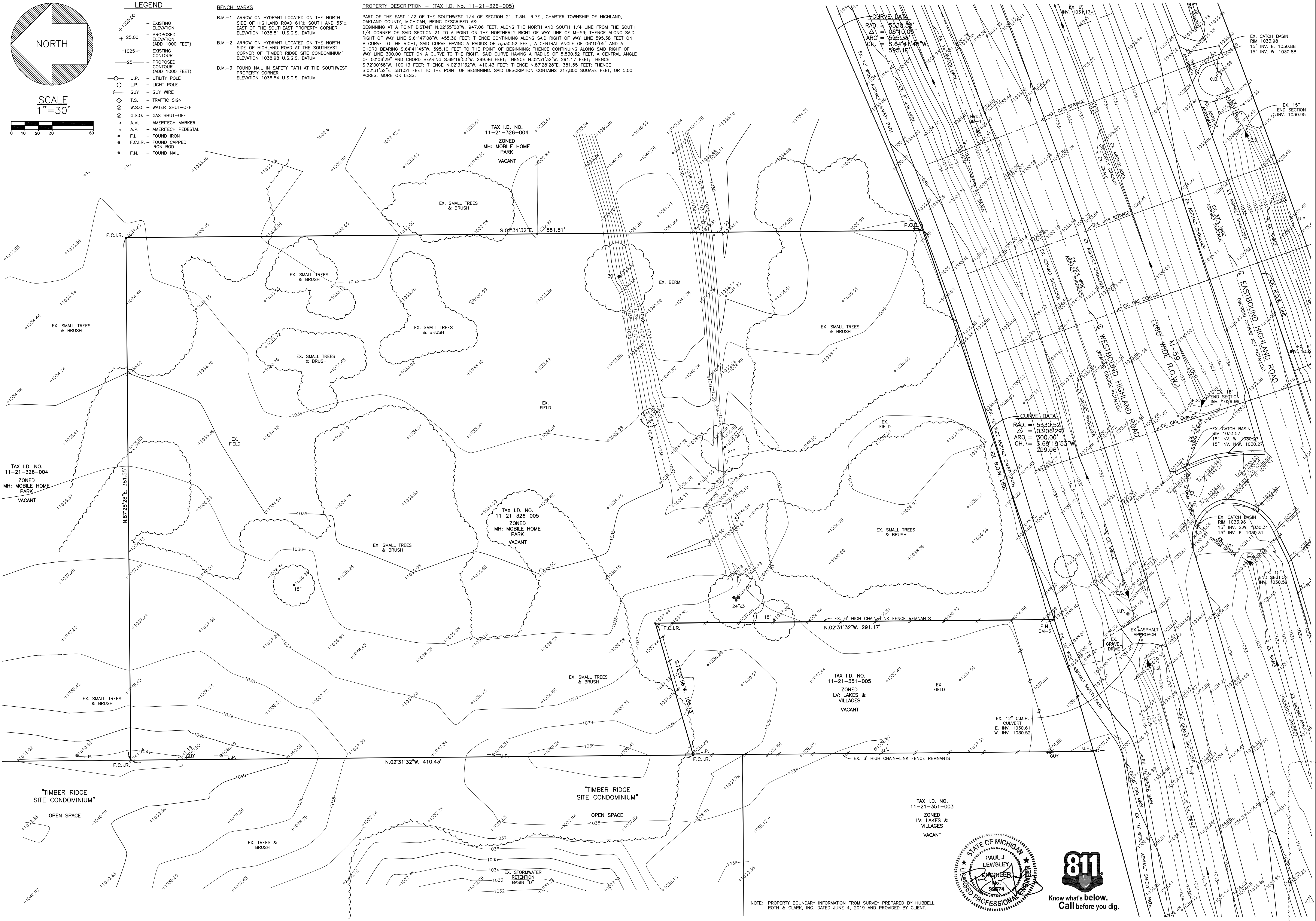
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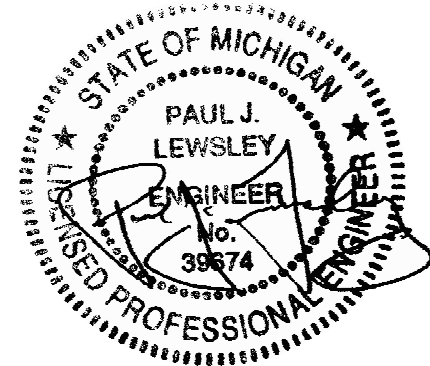
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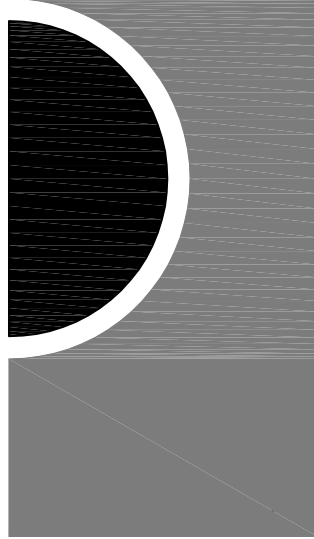
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SITE DATA

SITE AREA:
TOTAL PARCEL AREA: 217,800 SQ. FT. OR 5.00 ACRES

SITE ZONING CURRENT: MH (MOBILE HOME PARK)

PROPOSED BUILDING AREA: FIRST FLR. = 14,370 SQ. FT. TOTAL = 15,663 SQ. FT.

PROPOSED BUILDING HEIGHT: 42'-4"

PROPOSED BUILDING SETBACKS:
REQUIRED: 100.0' MIN.
PROPOSED: 100.0' MIN.

NO OTHER SETBACKS ARE REQUIRED PER MH ZONING

PROPOSED SITE PARKING: 30 SPACES INCL. 2 B.F.

SITE FLOODPLAIN INFORMATION:
BASED ON THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP NUMBER 26125C0300F, DATED SEPTEMBER 29, 2006 THE SUBJECT PROPERTY LIES WITHIN ZONE X, AN AREA OUTSIDE THE ANNUAL 0.2% CHANCE FLOODPLAIN.

SITE LANDSCAPING:
A 20' GREENBELT IS REQUIRED ALONG HIGHLAND ROAD (M-59).

SITE WETLANDS INFORMATION:
NO M.D.E.Q. REGULATED WETLANDS EXIST ONSITE.

SITE SOILS INFORMATION:
THE SITE SOILS ARE PREDOMINATELY SANDY SOILS OVERLAIN BY 2" TO 11" OF SANDY TOPSOIL PER PROJECT SOIL BORINGS.

SITE ENVIRONMENTAL INFORMATION:
THERE ARE NO KNOWN CONTAMINATED SITE AREAS. NO USE OR STORAGE OF HAZARDOUS MATERIALS, OTHER THAN NORMAL CLEANING PRODUCTS, IS ANTICIPATED.

TAX I.D. NO.
11-21-326-004

ZONED
MH: MOBILE HOME
PARK

VACANT

TAX I.D. NO.
11-21-328-005

ZONED
MH: MOBILE HOME
PARK

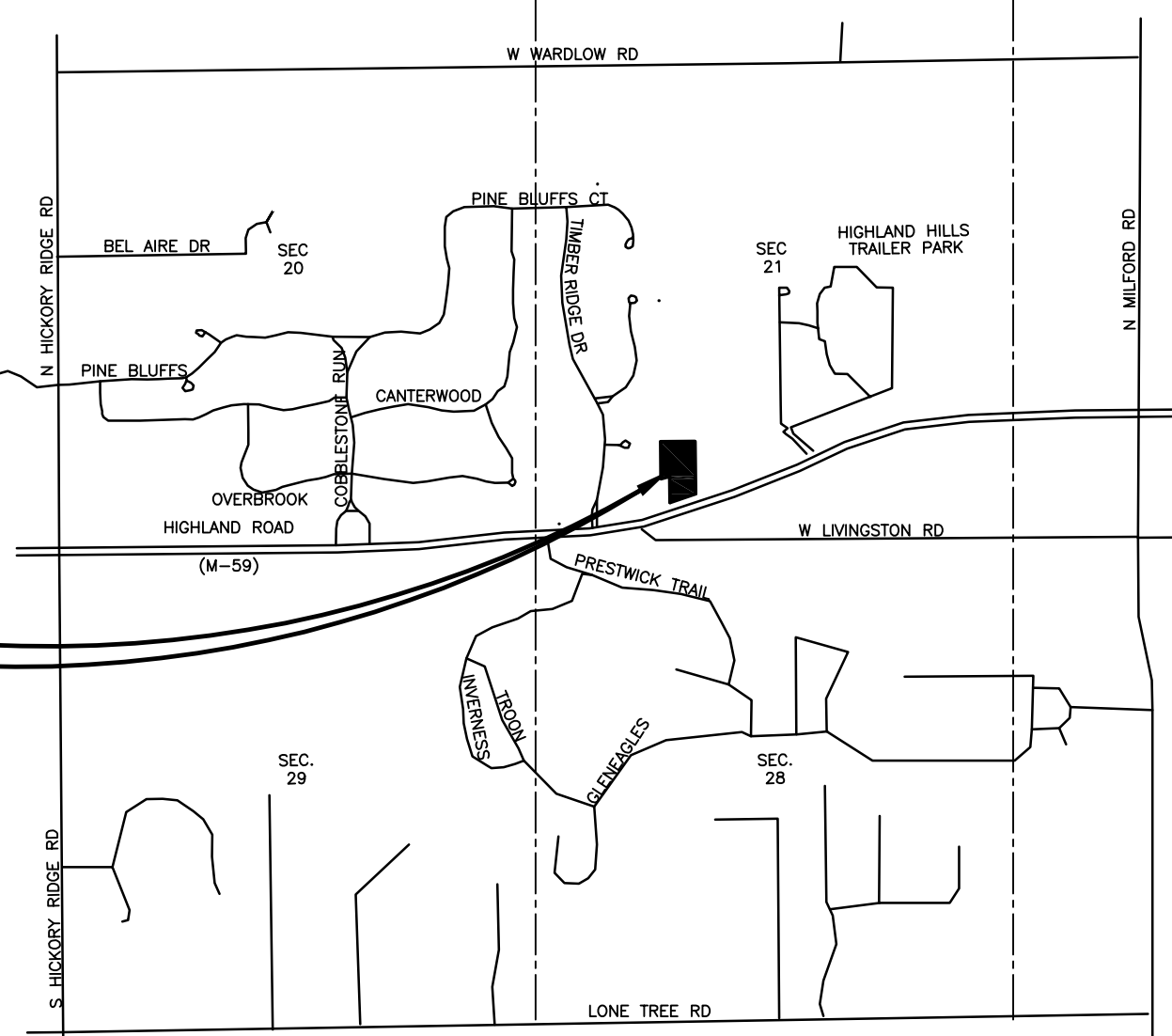
VACANT

TAX I.D. NO.
11-21-351-003

ZONED
LV: LAKES &
VILLAGES

VACANT

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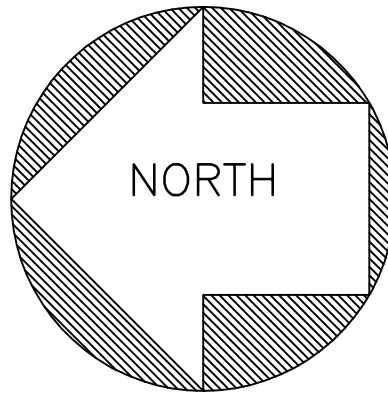


LOCATION MAP

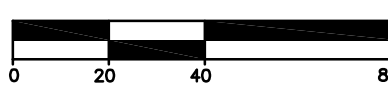
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LEGEND

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SCALE:
1"=40'



BENCH MARKS

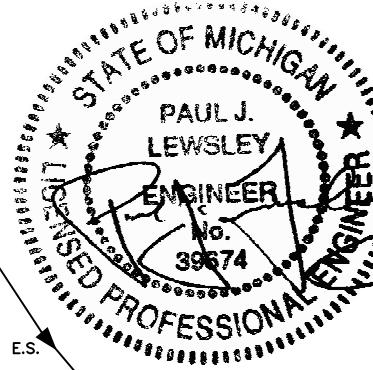
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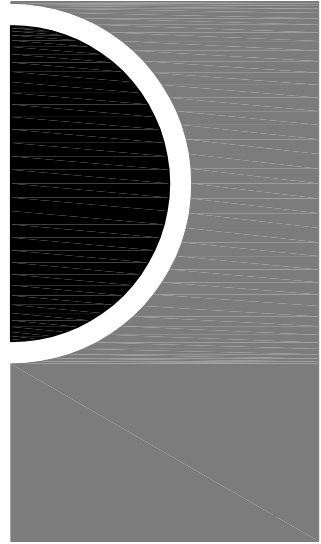
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- ST-2 HIGHLAND TOWNSHIP STANDARD STORM SEWER DETAILS
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- WM-2 O.C.W.R.C. STANDARD WATER MAIN DETAILS
- WM-3 O.C.W.R.C. STANDARD WATER MAIN DETAILS



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E-MAIL: pjlewsley@envengrs.com

KEY PLAN

OWNER

Highland Township
Fire Department

PROJECT NAME

Highland Township
Fire Station No. 1

1600 W. Highland Rd.
Highland, MI 48357

PROJECT NO.

18-122A

ISSUES / REVISIONS

REVISED 02/18/20 - 70% CONSTRUCTION SET

REVISED 03/04/20 - PROGRESS SET

REVISED 03/20/20 - BID SET

REVISION - CONSTRUCTION SET (2/20/20)

REVISED 04/20/20 - ADDENDUM No. 1

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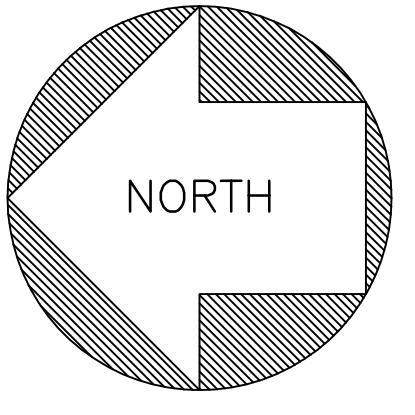
SHEET NAME

SITE LAYOUT PLAN

SHEET NO.

SP-1

EE # 1946



LEGEND

- 1000.00 - EXISTING ELEVATION
- + 25.00 - PROPOSED ELEVATION (ADD 1000 FEET)
- 1025 - EXISTING CONTOUR
- 25 - PROPOSED CONTOUR (ADD 1000 FEET)
- U.P. - UTILITY POLE
- L.P. - LIGHT POLE
- GUY - GUY WIRE
- T.S. - TRAFFIC SIGN
- W.S.O. - WATER SHUT-OFF
- G.S.O. - GAS SHUT-OFF
- A.M. - AMERITECH MARKER
- A.P. - AMERITECH PEDESTAL
- F.I. - FOUND IRON
- F.M. - FOUND MONUMENT
- F.P.K. - FOUND P.K. NAIL

SITE SOIL EROSION & SEDIMENTATION CONTROL MEASURES LEGEND

- 1 TEMPORARY SILT SACK INLET FILTERS
- 2 TEMPORARY TRACKING MAT
- 3 TEMPORARY SILT FENCE
- 4 4" TOPSOIL, SEED & MULCH RESTORATION

CONSTRUCTION NOTES

- 1.) ALL SITE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF HIGHLAND TOWNSHIP.
 - 2.) ALL CONSTRUCTION WITHIN HIGHLAND ROAD (M-59) RIGHT-OF-WAY SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF MICHIGAN DEPARTMENT OF TRANSPORTATION. A M.D.O.T. PERMIT IS REQUIRED.
 - 3.) ALL SOIL EROSION AND SILT MUST BE CONTROLLED AND CONTAINED ON-SITE. A SOIL EROSION CONTROL PERMIT IS REQUIRED FROM THE OAKLAND COUNTY WATER RESOURCES COMMISSIONER'S OFFICE AND A N.D.E.S. PERMIT IS REQUIRED FROM E.G.L.E. THE DISTURBED AREA OF THE SITE WILL BE 4.78 ACRES. THE SITE SOILS ARE PREDOMINATELY SANDY SOILS OVERLAIN BY 2" TO 11" OF SANDY TOPSOIL PER PROJECT SOIL BORINGS. THE PROPOSED CONSTRUCTION AREA SHALL BE CLEARED AND STRIPPED OF ALL TOPSOIL PRIOR TO THE START OF MASS GRADING OR UTILITIES WORK. ALL SITE FILLING UNDER OR WITHIN A 1 ON 1 INFLUENCE OF EXISTING OR PROPOSED BUILDING OR PAVEMENT AREAS SHALL UTILIZE CLEAN SOIL, FREE OF ANY VEGETATION OR ORGANIC MATERIALS. ALL FILL SHALL BE PLACED IN 8" MAXIMUM LIFTS AND COMPACTED TO 95% OF MAXIMUM DENSITY PER MODIFIED PROCTOR TEST. ALL DISTURBED UNPAVED AREAS TO BE STABILIZED WITH 4" MINIMUM TOPSOIL, SEED AND MULCH (OR SOD) AS SOON AS FINAL GRADING IS COMPLETE.
 - 4.) ALL UTILITIES EXCAVATION UNDER OR WITHIN 1 ON 1 INFLUENCE OF EXISTING OR PROPOSED PAVEMENT AREAS SHALL HAVE COMPACTED M.D.O.T. CL1 SAND SHOVEL.
 - 5.) ALL PROPOSED WATER MAIN AND FIRE LINE CONSTRUCTION SHALL BE DUCTILE IRON CLASS 54 PIPE, SHALL HAVE 5.5 FEET MINIMUM COVER AND SHALL BE IN ACCORDANCE WITH OAKLAND COUNTY STANDARD DETAILS. AN E.G.L.E. PERMIT IS REQUIRED FOR THE PROPOSED PUBLIC WATER MAIN CONSTRUCTION.
 - 6.) ALL PROPOSED SANITARY SEWER LEAD CONSTRUCTION SHALL BE 6" P.V.C. SDR 25.5 PIPE, AN E.G.L.E. PERMIT IS NOT REQUIRED FOR THE PROPOSED SANITARY SEWER LEAD CONSTRUCTION.
 - 7.) ALL PROPOSED STORM SEWER CONSTRUCTION SHALL BE PERFORMED ADS HP STORM SEWER PIPE WRAPPED WITH GEOTEXTILE FABRIC (UNLESS OTHERWISE NOTED), SHALL HAVE M.D.O.T. CURB BEDDING AND SHALL BE IN ACCORDANCE WITH HIGHLAND TOWNSHIP STANDARD DETAILS. ALL LOW POINT DRAINAGE STRUCTURES WITHIN PAVEMENT AREAS SHALL HAVE 8"x8" CONCRETE APRONS AND 10'-4" P.V.C. BLEEDER DRAIN IN A PEA GRAVEL TRENCH IN FOUR DIRECTIONS FROM THE STRUCTURE.
 - 8.) ALL PROPOSED GRADES SHOWN WITHIN PAVEMENT AREAS ARE FINISHED PAVEMENT GRADES. PAVEMENT PERIMETERS TO HAVE INTEGRAL CONCRETE CURB, MODIFIED M.D.O.T. P-2 CONCRETE CURB AND GUTTER OR CONCRETE WALK WITH INTEGRAL CURB AS SHOWN ON PLAN.
- PROPOSED ON-SITE ASPHALT PAVEMENT TO BE:
1-1/2" M.D.O.T. NO. 13A BITUMINOUS WEARING COURSE ON
1-1/2" M.D.O.T. NO. 30 BITUMINOUS LEVING COURSE ON
8" M.D.O.T. NO. 21AA AGGREGATE BASE
PROPOSED CONCRETE PAVEMENT TO BE:
8" M.D.O.T. P1 PLAIN CONCRETE PAVEMENT ON
8" M.D.O.T. NO. 21AA AGGREGATE BASE

SOIL EROSION & SEDIMENTATION CONTROL SEQUENCE

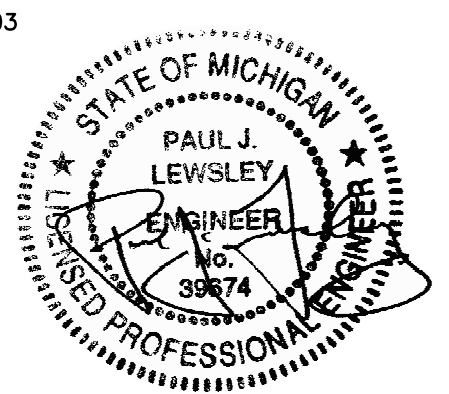
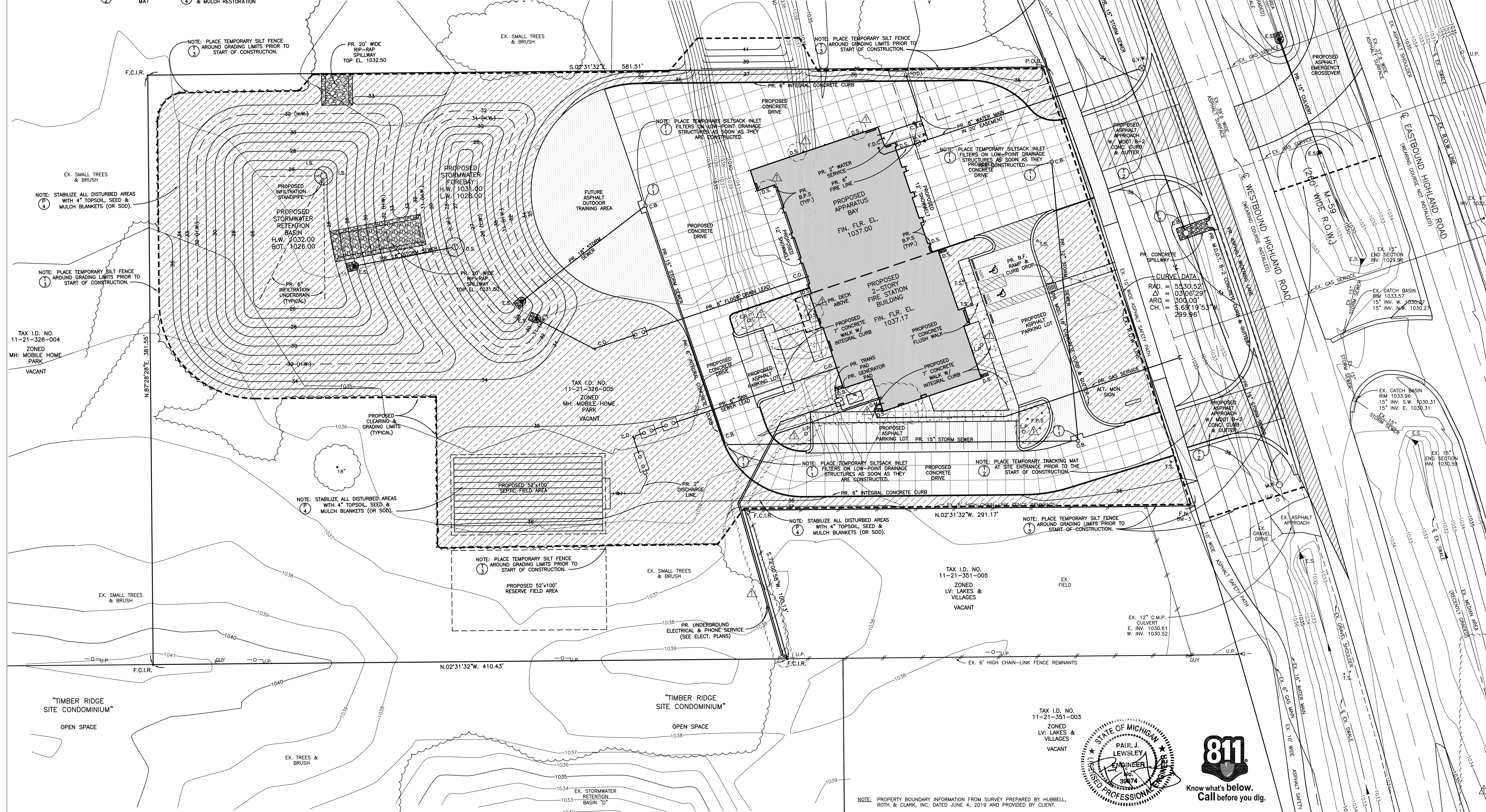
- 04/01 - 04/30/20 INSTALL TEMPORARY SILT FENCE AROUND PERIMETER OF SITE CONSTRUCTION AREA AS SHOWN ON PLAN. INSTALL TEMPORARY STONE TRACKING MAT AT PROPOSED APPROACH WHERE SHOWN ON PLAN. CLEAR CONSTRUCTION AREA. STRIP AND STOCKPILE TOPSOIL FROM CONSTRUCTION SITE AND EXCAVATE AND RESTORE TO ORIGINAL GRADE.
- 05/01 - 05/31/20 BEGIN BUILDING CONSTRUCTION. REMOVE ANY DIRT WHICH MAY BE TRACKED ONTO ADJACENT ROADWAY ON A DAILY BASIS. CONTROL DUST FROM SITE AT ALL TIMES BY WATERING AS NECESSARY. INSPECT AND MAINTAIN TEMPORARY EROSION CONTROL MEASURES ON A WEEKLY BASIS AND IMMEDIATELY AFTER EACH RAINFALL EVENT. ANY MAINTENANCE NEEDED TO KEEP THE MEASURES PERFORMING THEIR INTENDED PURPOSES SHOULD BE DONE IMMEDIATELY AFTER THE SITE INSPECTION.
- 06/01 - 07/31/20 INSTALL SITE UTILITIES. PLACE TEMPORARY INLET FILTERS ON ALL NEW DRAINAGE STRUCTURES AS SOON AS THEY ARE CONSTRUCTED. FINE GRADE PAVEMENT AREAS AND INSTALL PAVEMENT. REPAIR AND/OR REPLACE INLET FILTERS AS REQUIRED.
- 08/01 - 07/31/20 FINE GRADE ALL UNPAVED AREAS AND DISTRIBUTE 4" MIN. TOPSOIL, SEED AND MULCH (OR SOD) ALL DISTURBED PORTIONS OF SITE WHICH ARE UNPAVED WITHIN FIVE (5) DAYS OF FINAL GRADING.
- 10/01 - 10/31/20 COMPLETE BUILDING CONSTRUCTION. CLEAN SITE PAVEMENT AND STORM SEWERS REMOVING ANY ACCUMULATED SEDIMENT AND DEBRIS. REMOVE TEMPORARY EROSION CONTROL MEASURES WHEN ALL AREAS ARE STABILIZED.

NOTE: THE CONTRACTOR SHALL INSTALL, MONITOR AND MAINTAIN ALL TEMPORARY EROSION CONTROL DEVICES THROUGHOUT THE LIFE OF THE PROJECT. THE OWNER SHALL MONITOR AND MAINTAIN ALL PERMANENT EROSION CONTROL DEVICES UPON COMPLETION OF THE PROJECT.

SOIL EROSION & SEDIMENTATION CONTROL MEASURES

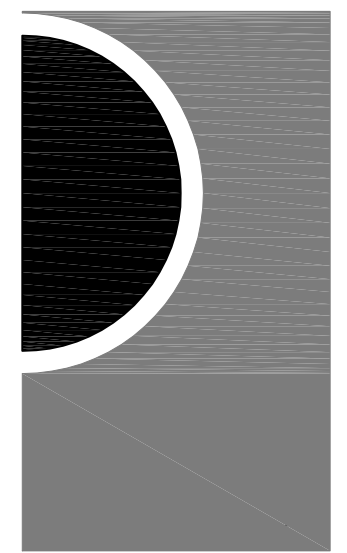
INSPECTION & MAINTENANCE SCHEDULE
ALL TEMPORARY EROSION CONTROL MEASURES SHOULD BE CHECKED ON A WEEKLY BASIS AND IMMEDIATELY AFTER EACH RAINFALL EVENT. ANY MAINTENANCE NEEDED TO KEEP THE MEASURES PERFORMING THEIR INTENDED PURPOSE SHOULD BE DONE IMMEDIATELY AFTER THE SITE INSPECTION. EXAMPLES OF REQUIRED MAINTENANCE INCLUDE THE FOLLOWING:

- 1.) INLET FILTERS - SILTSACK INSERTS SHOULD BE CLEANED OUT PERIODICALLY SO AS NOT TO BECOME CLOGGED. ANY DAMAGED FILTERS SHALL BE REPLACED IMMEDIATELY.
- 2.) TRACKING MAT - CRUSHED CONCRETE SHOULD BE ADDED TO THE TRACKING MATS AS THEY BECOME COVERED WITH MUD. DAMAGED ROADWAYS SHOULD BE CLEANED ON A DAILY BASIS AS NECESSARY TO REMOVE ANY DIRT WHICH MAY BE TRACKED ONTO THEM.
- 3.) SILT FENCE - SOIL ACCUMULATED BEHIND THE SILT FENCE SHOULD BE REMOVED AFTER REACHING A 6" HEIGHT. ANY AREAS WHERE THE SILT FENCE HAS BEEN UNDERCUT SHALL BE REINSTALLED WITH THE REQUIRED 6" MINIMUM ANCHOR TRENCH. ANY DAMAGED SILT FENCE SHALL BE REPLACED IMMEDIATELY.
- 4.) SLOPE STABILIZATION BLANKETS - STEEP SLOPES SHALL BE REPAIRED, REPLACED OR RESTAKED AS NECESSARY TO HOLD THE UNDERLYING TOPSOIL AND SEED IN PLACE UNTIL TURF IS ESTABLISHED.
- 5.) TOPSOIL, SEED & MULCH - ALL ORNAMENTAL AREAS SHOULD RECEIVE 4" TOPSOIL, SEED AND MULCH (OR HYDRO-SEED OR SOD) WITHIN THE (5) DAYS OF REACHING FINAL GRADE. ANY ERODED AREAS SHALL BE IMMEDIATELY REPAIRED BY REGRADING AND PLACING ADDITIONAL SEED & MULCH.



NOTE: PROPERTY BOUNDARY INFORMATION FROM SURVEY PREPARED BY HUBBELL, ROTH & CLARK, INC. DATED JUNE 4, 2019 AND PROVIDED BY CLIENT.

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KEY PLAN

OWNER

Highland Township Fire Department

PROJECT NAME

Highland Township Fire Station No. 1

1600 W. Highland Rd.
Highland, MI 48357

PROJECT NO.

18-122A

ISSUES / REVISIONS

- REVISED 02/18/20 - 70% CONSTRUCTION SET
- REVISED 03/04/20 - PROGRESS SET
- REVISED 03/20/20 - BID SET
- BIDDING - CONSTRUCTION 03/27/2020
- REVISED 04/02/20 - ADDENDUM No. 1

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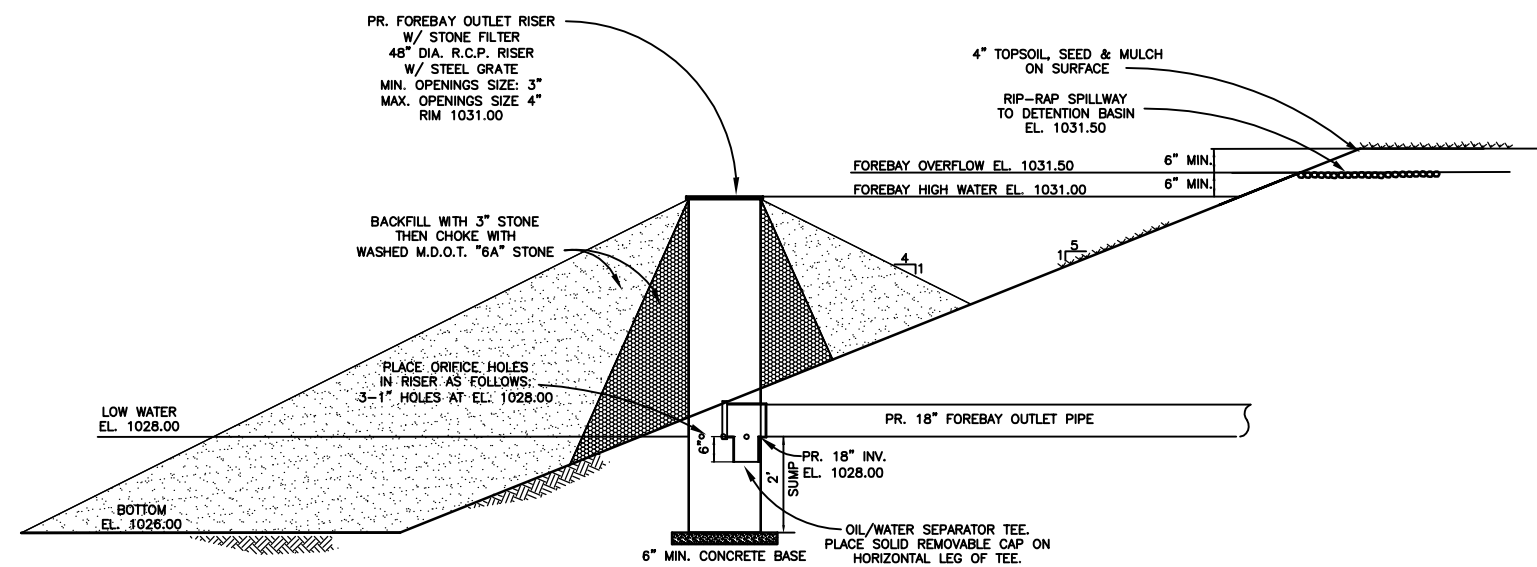
APPROVED BY

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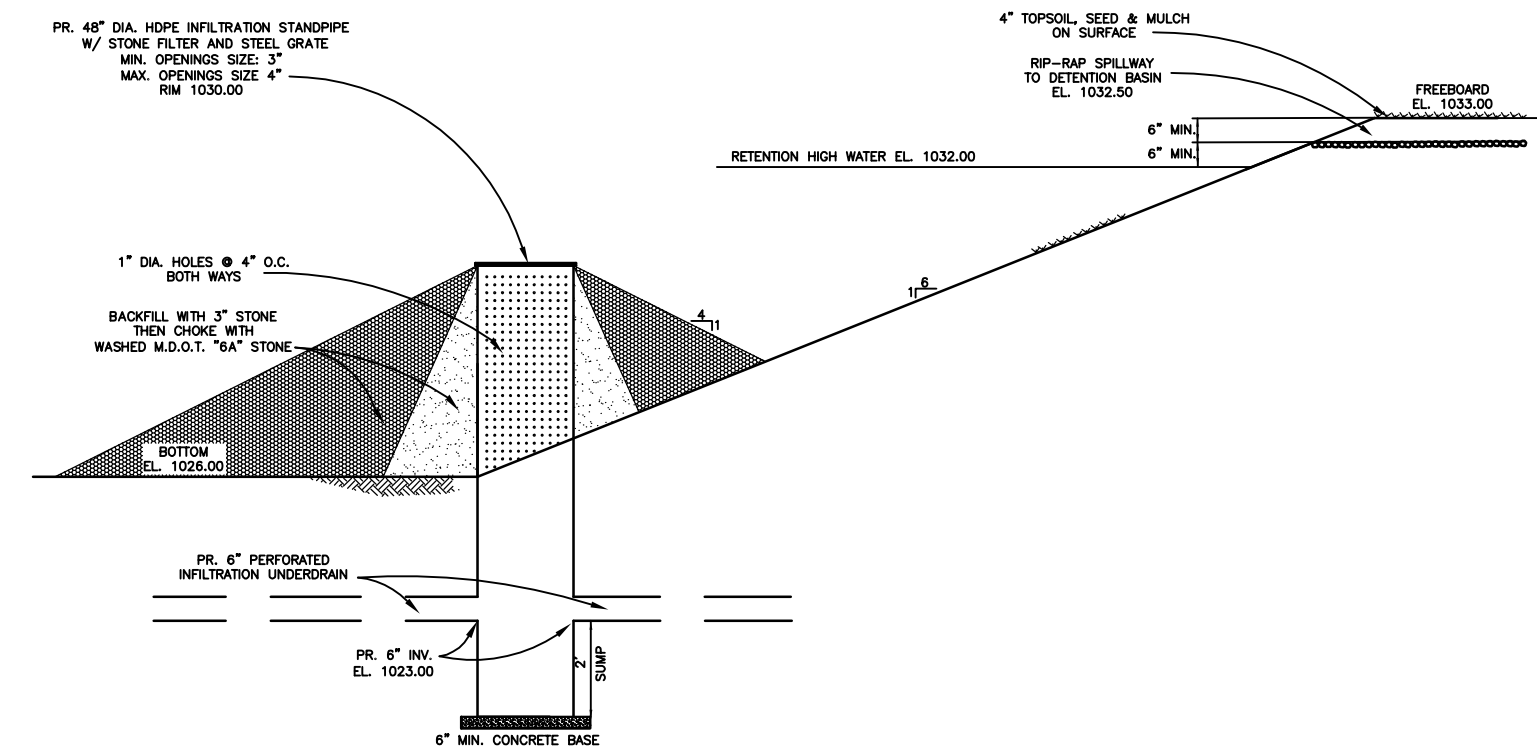
SITE SOIL EROSION & SEDIMENTATION CONTROL PLAN

SHEET NO.

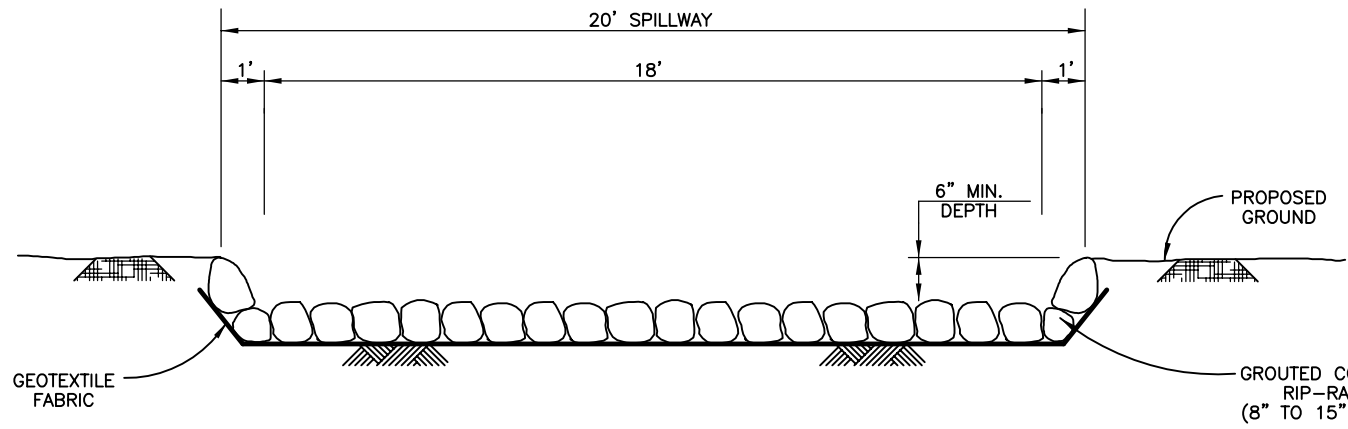
SE-1



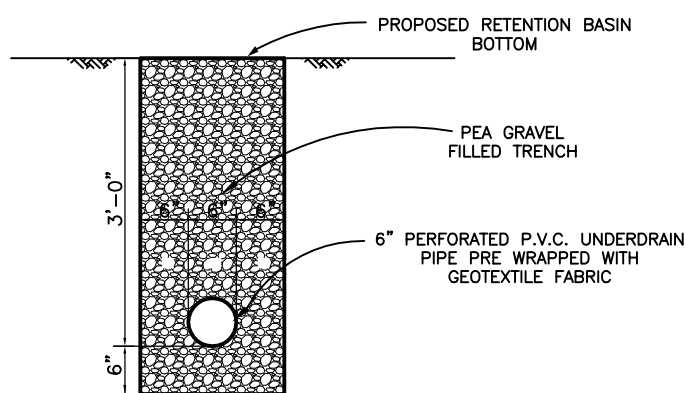
PROPOSED FOREBAY
OUTLET STRUCTURE DETAIL



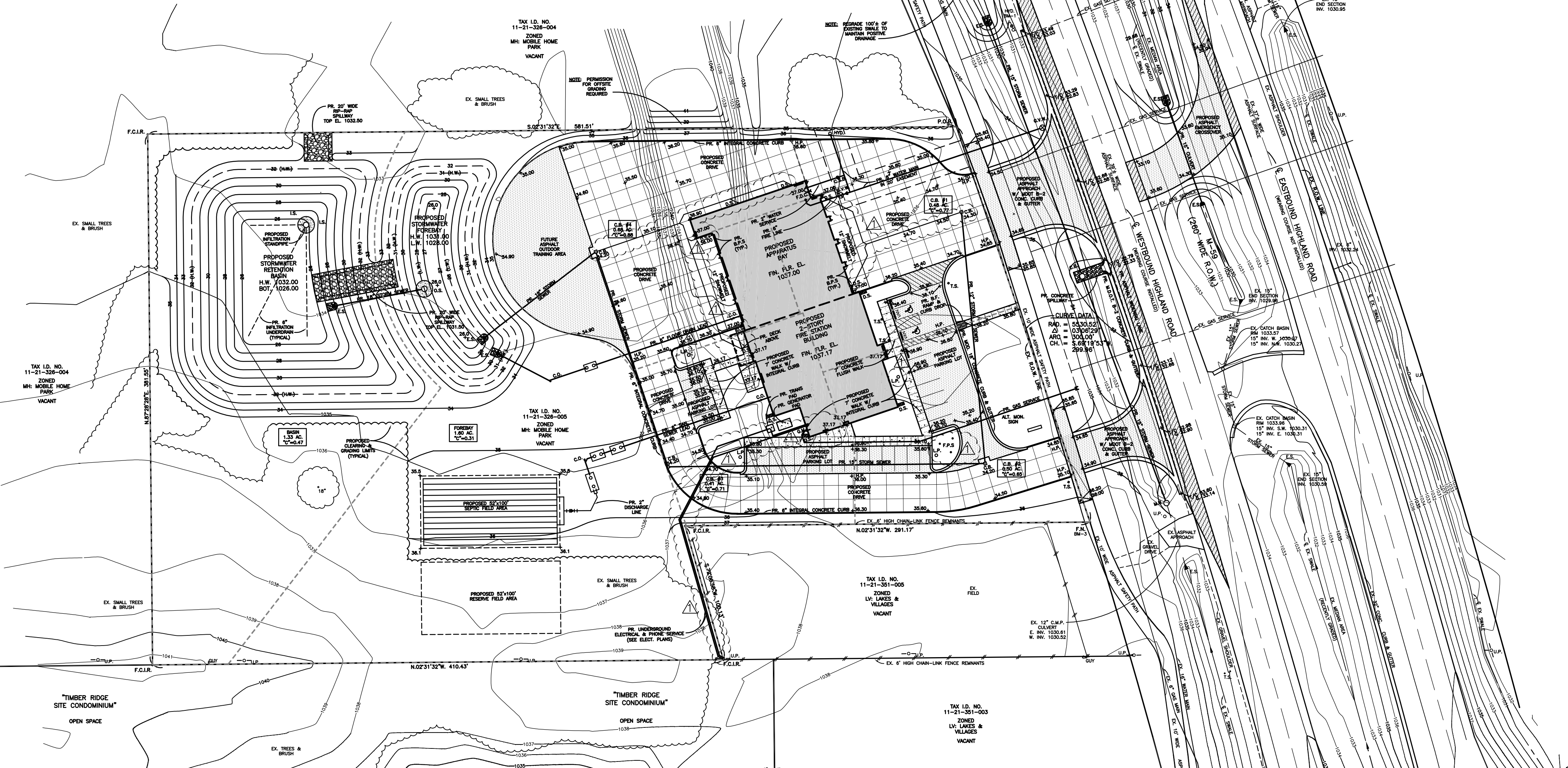
PROPOSED RETENTION BASIN
INFILTRATION RISER DETAIL



RIP-RAP OVERFLOW SPILLWAY
SECTION



TYPICAL PERFORATED
INFILTRATION UNDERDRAIN
TRENCH DETAIL



NOTE: PROPERTY BOUNDARY INFORMATION FROM SURVEY PREPARED BY HUBBELL,
ROTH & CLARK, INC. DATED JUNE 4, 2019 AND PROVIDED BY CLIENT.

DRAINAGE STRUCTURE	TOTAL AREA (AC)	IMP. AREA (C=0.90)	PER. AREA (C=0.20)	WATER AREA (C=1.00)	WEIGHTED AVG. C-VALUE
C.B.#1	0.48	0.39	0.09	0.00	0.77
C.B.#2	0.50	0.32	0.18	0.00	0.65
C.B.#3	0.41	0.30	0.11	0.00	0.71
C.B.#4	0.68	0.66	0.02	0.00	0.88
O.S.#1	1.60	0.00	1.38	0.22	0.31
O.S.#2	1.33	0.00	0.88	0.45	0.47
	5.00	1.67	2.66	0.67	


Project HIGHLAND TOWNSHIP FIRE STATION NO.1

Project No. 1946

Date 03/9/20 By PAUL LEWSLEY

Environmental engineers, Inc.

Design for Storm Sewer Systems



SHEET 1 OF 1

Q = CIA n = 0.013

T₁ = 1.75

T₂ initial = 15

Minutes Maximum

Show formula

From M.H. or D.P.#	To M.H. or D.P.#	Increment Acres "A"	Equivalent Area 100% Acres "C"	Total Area 100% Acres "CA"	T. Time Min.	L. Inches per hour	Q. c.f.s.	Diameter of pipe in.	Slope pipe ft./ft.	Slope H.G.	Length of line ft.	Velocity flow ft./ sec.	Time of flow min.	Capacity of sewer c.f.s. BASED ON N.E.	H.G. elevation upper end	Ground Elevation Upper end	Upper end	Invert Elevation Upper end	Lower end	
C.B.#1	C.B.#2	0.48	0.77	0.37	0.37	15.00	4.38	12"	0.0032	0.0021	182	2.5	1.21	1.95	1031.21	1034.30	1034.20	1030.80	1030.22	
C.B.#2	C.B.#3	0.50	0.65	0.33	0.70	16.21	4.25	2.98	15"	0.0028	0.0021	229	2.8	1.36	3.15	1030.83	1034.20	1034.20	1030.02	1029.38
C.B.#3	C.B.#4	0.41	0.71	0.29	0.99	17.57	4.11	4.07	15"	0.0040	0.0040	163	3.3	0.82	4.09	1030.35	1034.20	1034.20	1029.38	1028.73
C.B.#4	FOREBAY	0.68	0.88	0.60	1.59	18.39	4.03	6.41	18"	0.0040	0.0037	102	3.8	0.45	6.64	1029.70	1034.20	—	1028.53	1028.12
FOREBAY	RET. BASIN	1.60	0.31	0.50	2.09	18.84	3.99	8.34	18"	0.0080	0.0063	92	5.3	0.29	9.40	1029.04	1031.00	—	1028.00	1027.26

SITE STORMWATER RETENTION BASIN DESIGN CALCULATIONS

USE O.C.W.R.C. METHOD TO DETERMINE REQUIRED SITE RETENTION VOLUME BASED ON
100 YEAR FREQUENCY STORM AND PROVIDE FOREBAY AREA WITH CAPACITY FOR SITE
1 YR. STORM WHICH IS TO DISCHARGE OVER A 24 HOUR PERIOD. THE
TRIBUTARY AREA FOR THE PROPOSED RETENTION BASIN IS 8.00 ACRES. THE
AVERAGE SITE RUNOFF COEFFICIENT "C" IS 0.54 AS CALCULATED BELOW.

PROPOSED WEIGHTED "C" VALUE

LAND USE	AREA (A) (ACRES)	RUNOFF COEFFICIENT (C)	C = I (A/C)/A
IMPERVIOUS	1.67	0.90	C = RUNOFF COEFFICIENT
PERVIOUS	2.66	0.20	C = DRAINAGE AREA
WATER	5.00	1.00	C = (1.67x0.90+2.66x0.20+5.00x1.00)/8.00
			C = 0.54

100 YR. FREQUENCY STORM RETENTION VOLUME REQUIRED

V₁₀₀ = 2(16,500)(A)(C) WHERE:
V₁₀₀ = 2(16,500)(8.00)(0.54) V = VOLUME REQUIRED
V₁₀₀ = 89,100 CU. FT. A = TRIBUTARY AREA ACREAGE
RETENTION VOLUME REQUIRED: 89,100 CU. FT. C = AVERAGE SITE RUNOFF COEFFICIENT

PRETREATMENT VOLUME REQUIRED

1 YR. STORM = 4,320(A)(C)
1 YR. STORM = 4,320(8.00)(0.54) = 4,320(5.00)(0.54)
1 YR. STORM = 4,320(A)(C) = 11,664 CU. FT.
PRETREATMENT VOLUME REQUIRED: 11,664 CU. FT.

PROPOSED FOREBAY VOLUME PROVIDED

CONTOUR	AREA BELOW CONTOUR	AVERAGE AREA	DEPTH INTERVAL	VOLUME BETWEEN CONTOURS	CUMULATIVE VOLUME
1028.0 (L.W.)	2,371 S.F.	3,123 S.F. x 1.00 FT.	1.00	3,123 CU. FT.	3,123 CU. FT.
1029.0	3,875 S.F.	4,724 S.F. x 1.00 FT.	1.00	4,724 CU. FT.	7,847 CU. FT.
1030.0	5,573 S.F.	6,511 S.F. x 1.00 FT.	1.00	6,511 CU. FT.	14,358 CU. FT.
1031.0 (H.W.)	7,449 S.F.	8,501 S.F. x 1.00 FT.	1.00	8,501 CU. FT.	22,859 CU. FT.
1032.0	9,553 S.F.	10,501 S.F. x 1.00 FT.	1.00	10,501 CU. FT.	33,360 CU. FT.
				FOREBAY VOLUME PROVIDED = 22,859 CU. FT.	

PROPOSED RETENTION BASIN VOLUME PROVIDED

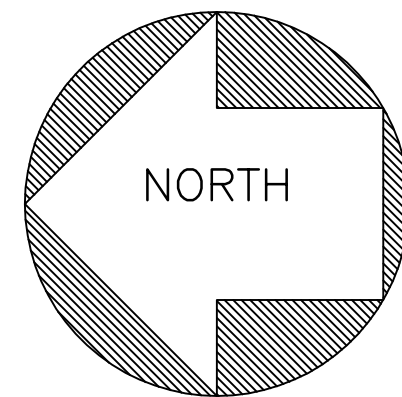
CONTOUR	AREA BELOW CONTOUR	AVERAGE AREA	DEPTH INTERVAL	VOLUME BETWEEN CONTOURS	CUMULATIVE VOLUME
1028.0 (BOT.)	4,677 S.F.	5,637 S.F. x 1.00 FT.	1.00	5,637 CU. FT.	5,637 CU. FT.
1029.0	6,596 S.F.	7,719 S.F. x 1.00 FT.	1.00	7,719 CU. FT.	13,356 CU. FT.
1030.0	11,272 S.F.	10,079 S.F. x 1.00 FT.	1.00	10,079 CU. FT.	23,435 CU. FT.
1031.0	14,064 S.F.	12,668 S.F. x 1.00 FT.	1.00	12,668 CU. FT.	36,103 CU. FT.
1032.0 (H.W.)	17,169 S.F.	15,617 S.F. x 1.00 FT.	1.00	15,617 CU. FT.	51,720 CU. FT.
1033.0	20,601 S.F.	18,855 S.F. x 1.00 FT.	1.00	18,855 CU. FT.	70,503 CU. FT.
				RETENTION BASIN VOLUME PROVIDED = 70,503 CU. FT.	

TOTAL STORAGE VOLUME PROVIDED IN RETENTION BASIN & FOREBAY:
22,859 + 70,503 = 93,362 CU. FT.

FOREBAY OUTLET RESTRICTOR SIZING CALCULATIONS

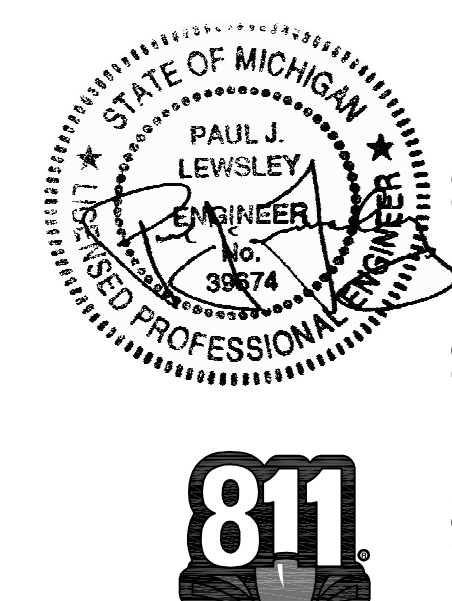
Q_{REQ} = V₁ / (24)(60)(60) SEC.
Q_{REQ} = 11,664/86,400 = 0.135 CFS
P_{REQ} = 0.667(T₁ - T₂)
P_{REQ} = 0.667(1031.00 - 1028.00)
P_{REQ} = 2.00 FT.
A₀ = Q_{REQ} / (0.62 x (2 x 32.2 x 2.00))
A₀ = 0.135 / (0.62 x 12.8) = 0.0144/0.00545 = 3.52
A₀ = AREA OF A 1" HOLE (0.00545 FT²)
REQUIRED NUMBER OF 1" HOLES = 0.0144/0.00545 = 3.52
USE 3-1" HOLES AT EL. 1028.00
A₀ = AREA OF A 3-1" HOLES = 3x0.00545
A₀ = 0.0164 FT²
Q_{REQ} = 0.62x0.0164(2x32.2x2.00)
Q_{REQ} = 0.115 CFS
T₁ = V₁ / (Q_{REQ} x 3.600)
T₁ = 11,664 / (0.115 x 3.600)
T₁ = 28.17 HR OR APPROXIMATELY 24 HOURS

LEGEND

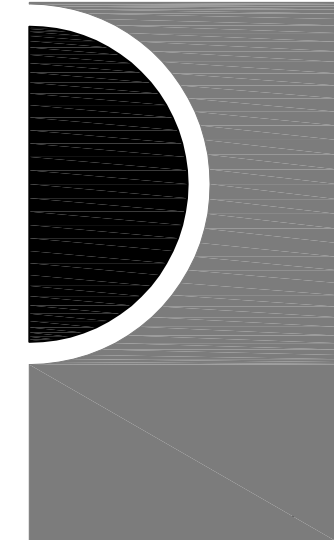


± 1028.00
± 25.00
— 1025 —
— 25 —

— EXISTING ELEVATION
— PROPOSED ELEVATION (ADD 1000 FEET)
— EXISTING CONTOUR
— PROPOSED CONTOUR (ADD 1000 FEET)
— U.P. — UTILITY POLE
— L.P. — LIGHT POLE
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KEY PLAN

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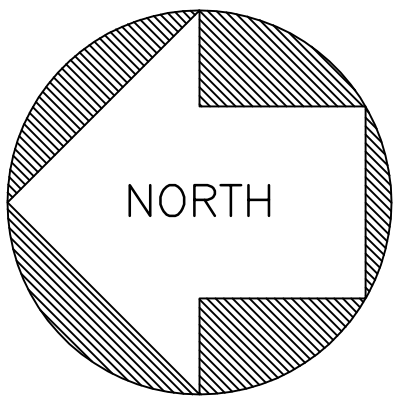
SHEET NAME

SITE STORMWATER
MANAGEMENT PLAN
& DETAILS

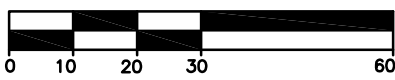
SHEET NO.

C-2

EE # 1946



SCALE
1"=30'



LEGEND

- EXISTING ELEVATION
- PROPOSED ELEVATION (ADD 1000 FEET)
- EXISTING CONTOUR
- PROPOSED CONTOUR (ADD 1000 FEET)
- UTILITY POLE
- LIGHT POLE
- GUY
- GUY WIRE
- T.S. - TRAFFIC SIGN
- W.S.O. - WATER SHUT-OFF
- G.S.O. - GAS SHUT-OFF
- A.M. - AMERITECH MARKER
- A.P. - AMERITECH PEDESTAL
- F.I. - FOUND IRON
- F.C.I.R. - FOUND, CAPPED IRON ROD
- F.N. - FOUND NAIL

PROPERTY DESCRIPTION - (TAX I.D. No. 11-21-326-005)

PART OF THE EAST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 21, T.3N., R.7E., CHARTER TOWNSHIP OF HIGHLAND, OAKLAND COUNTY, MICHIGAN, BEING DESCRIBED AS: BEGINNING AT A POINT DISTANT N.02°35'00"W. 947.06 FEET, ALONG THE NORTH AND SOUTH 1/4 LINE FROM THE SOUTH 1/4 CORNER OF SAID SECTION 21 TO A POINT ON THE NORTHERLY RIGHT OF WAY LINE OF M-59; THENCE ALONG SAID RIGHT OF WAY LINE S.61°47'08"W. 455.36 FEET; THENCE CONTINUING ALONG SAID RIGHT OF WAY LINE S.95°38' FEET ON A CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 5,530.52 FEET, A CENTRAL ANGLE OF 06°10'05" AND A CHORD BEARING S.64°41'45"W. 595.10 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID RIGHT OF WAY LINE 300.00 FEET ON A CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 5,530.52 FEET, A CENTRAL ANGLE OF 03°06'29" AND CHORD BEARING S.69°19'53"W. 299.96 FEET; THENCE N.02°31'32"W. 291.17 FEET; THENCE S.72°00'58"W. 100.13 FEET; THENCE N.02°31'32"W. 410.43 FEET; THENCE N.87°28'28"E. 381.55 FEET; THENCE S.02°31'32"E. 581.51 FEET TO THE POINT OF BEGINNING. SAID DESCRIPTION CONTAINS 217,800 SQUARE FEET, OR 5.00 ACRES, MORE OR LESS.

BENCH MARKS

- B.M.-1 ARROW ON HYDRANT LOCATED ON THE NORTH SIDE OF HIGHLAND ROAD 61± SOUTH AND 53± EAST OF THE SOUTHEAST PROPERTY CORNER ELEVATION 1035.51 U.S.G.S. DATUM
- B.M.-2 ARROW ON HYDRANT LOCATED ON THE NORTH SIDE OF HIGHLAND ROAD AT THE SOUTHEAST CORNER OF TIMBER RIDGE SITE CONDOMINIUM ELEVATION 1038.98 U.S.G.S. DATUM
- B.M.-3 FOUND NAIL IN SAFETY PATH AT THE SOUTHWEST PROPERTY CORNER ELEVATION 1036.54 U.S.G.S. DATUM

CONSTRUCTION NOTES

- ALL SITE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF HIGHLAND TOWNSHIP.
- ALL CONSTRUCTION WITHIN HIGHLAND ROAD (M-59) RIGHT-OF-WAY SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF MICHIGAN DEPARTMENT OF TRANSPORTATION. A M.D.O.T. PERMIT IS REQUIRED.
- ALL SOIL EROSION AND SILT MUST BE CONTROLLED AND CONTAINED ON-SITE. A SOIL EROSION CONTROL PERMIT IS REQUIRED FROM THE OAKLAND COUNTY WATER RESOURCES COMMISSIONER'S OFFICE AND A N.P.D.E.S. PERMIT IS REQUIRED FROM THE M.D.E.C. THE DISTURBED AREA OF THE SITE WILL BE 4.74 ACRES. THE SITE SOILS ARE PREDOMINANTLY SANDY SOILS OVERLAIN BY 2" TO 11" OF SANDY TOPSOIL PER PROJECT SOIL BORINGS. THE PROPOSED CONSTRUCTION AREA SHALL BE CLEARED AND STRIPPED OF ALL TOPSOIL PRIOR TO THE START OF MASS GRADING OR UTILITIES WORK. ALL SITE FILLING UNDER OR WITHIN A 1 ON 1 INFLUENCE OF EXISTING OR PROPOSED BUILDING OR PAVEMENT AREAS SHALL UTILIZE CLEAN SOIL, FREE OF ANY VEGETATION OR ORGANIC MATERIALS. ALL FILL SHALL BE PLACED IN 8" MAXIMUM LIFTS AND COMPACTED TO 98% OF MAXIMUM DENSITY PER MODIFIED PROCTOR TEST. ALL DISTURBED UNPAVED AREAS TO BE STABILIZED WITH 4" MINIMUM TOPSOIL, SEED AND MULCH (OR 300) AS SOON AS FINAL GRADING IS COMPLETE.
- ALL UTILITIES EXCAVATION UNDER OR WITHIN 1' ON 1 INFLUENCE OF EXISTING OR PROPOSED PAVEMENT AREAS SHALL HAVE COMPACTED M.D.O.T. CL.1 SAND BACKFILL.
- ALL PROPOSED WATER MAIN AND FIRE LINE CONSTRUCTION SHALL BE DUCTILE IRON CLASS 54 PIPE, SHALL HAVE 5.5 FEET MINIMUM COVER AND SHALL BE IN ACCORDANCE WITH OAKLAND COUNTY STANDARD DETAILS. AN E.G.L.E. PERMIT IS REQUIRED FOR THE PROPOSED PUBLIC WATER MAIN CONSTRUCTION.
- ALL PROPOSED SANITARY SEWER LEAD CONSTRUCTION SHALL BE 6" P.V.C. SDR 23.5 PIPE, AN E.G.L.E. PERMIT IS NOT REQUIRED FOR THE PROPOSED SANITARY SEWER LEAD CONSTRUCTION.
- ALL PROPOSED STORM SEWER CONSTRUCTION SHALL BE PERFORATED ADS HP STORM SEWER PIPE WRAPPED WITH GEOTEXTILE FABRIC (UNLESS OTHERWISE NOTED), SHALL HAVE M.D.O.T. CL.1 BEDDING AND SHALL BE IN ACCORDANCE WITH HIGHLAND TOWNSHIP STANDARD DETAILS. ALL LOW POINT DRAINAGE STRUCTURES WITHIN PAVEMENT AREAS SHALL HAVE 8"X8" CONCRETE APPROX AND 10"X4" P.V.C. BLEEDER DRAIN IN A FEA GRAVEL TRENCH IN FOUR DIRECTIONS FROM THE STRUCTURE. ALL PROPOSED GRADES SHOWN WITHIN PAVEMENT AREAS ARE FINISHED PAVEMENT GRADES. PAVEMENT PERIMETERS TO HAVE INTEGRAL CONCRETE CURBS, MODIFIED M.D.O.T. F-3 CONCRETE CURB AND GUTTER OR CONCRETE WALK WITH INTEGRAL CURB AS SHOWN ON PLAN.
- PROPOSED ON-SITE ASPHALT PAVEMENT TO BE:
 - 1-1/2" M.D.O.T. NO. 124 BITUMINOUS HEATING COURSE ON
 - 8" M.D.O.T. NO. 214A AGGREGATE BASE
 - PROPOSED CONCRETE PAVEMENT TO BE:
 - 7" M.D.O.T. P.1 PLAIN CONCRETE PAVEMENT ON
 - 8" M.D.O.T. NO. 214A AGGREGATE BASE

TAX I.D. NO.
11-21-326-004

ZONED
MH: MOBILE HOME
PARK

VACANT

TAX I.D. NO.
11-21-326-005

ZONED
MH: MOBILE HOME
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TAX I.D. NO.
11-21-326-006

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TAX I.D. NO.
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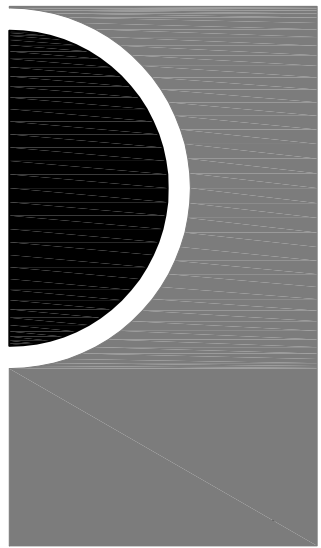
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PARTNERS in Architecture, PLC

65 MARKET STREET
MOUNT CLEMENS, MI 48043
P 586.463.3600
F 586.463.3607

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CONSULTANT

**ENVIRONMENTAL
ENGINEERS, INC.**
18620 WEST TEN MILE ROAD
SOUTHFIELD, MICHIGAN 48075
PHONE: 248/424-9510
FAX: 248/424-2954
E-MAIL: pjlewsley@envengrs.com

KEY PLAN

OWNER

Highland Township
Fire Department

PROJECT NAME

Highland Township
Fire Station No. 1

1600 W. Highland Rd.
Highland, MI 48357

PROJECT NO.

18-122A

ISSUES / REVISIONS

REVISED 02/18/20 - 70% CONSTRUCTION SET

REVISED 03/04/20 - PROGRESS SET

REVISED 03/20/20 - BID SET

BIDDING - CONSTRUCTION 03/27/2020

REVISED 04/20/20 - ADDENDUM No. 1

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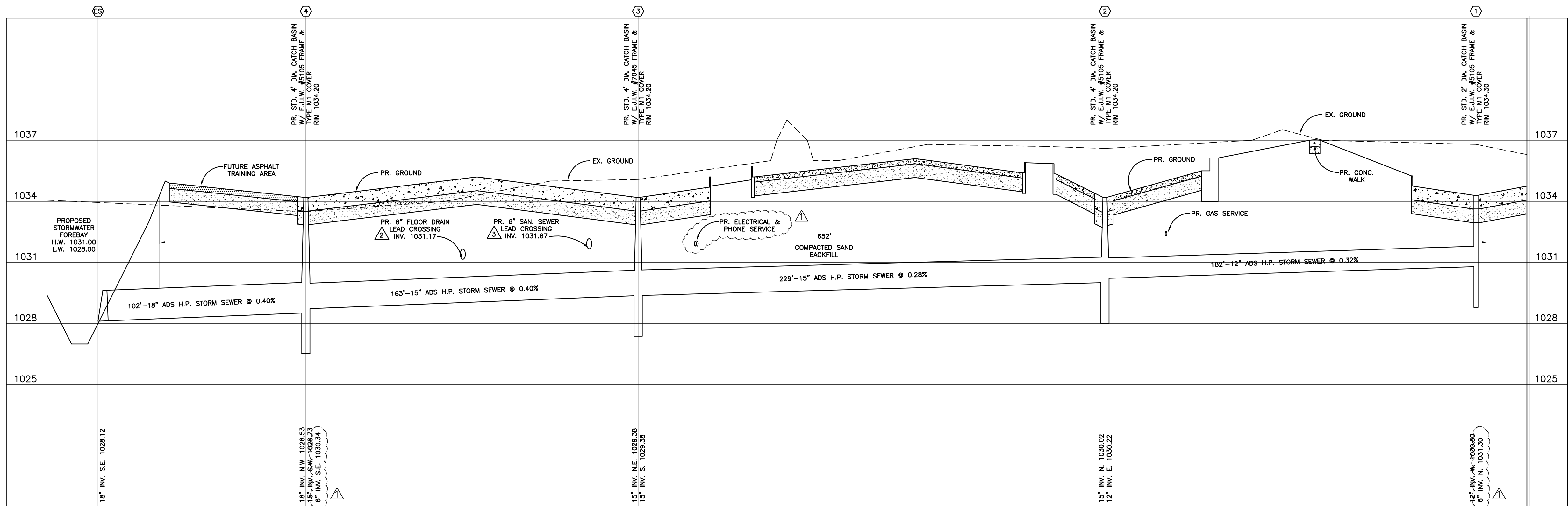
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SITE UTILITIES PROFILES

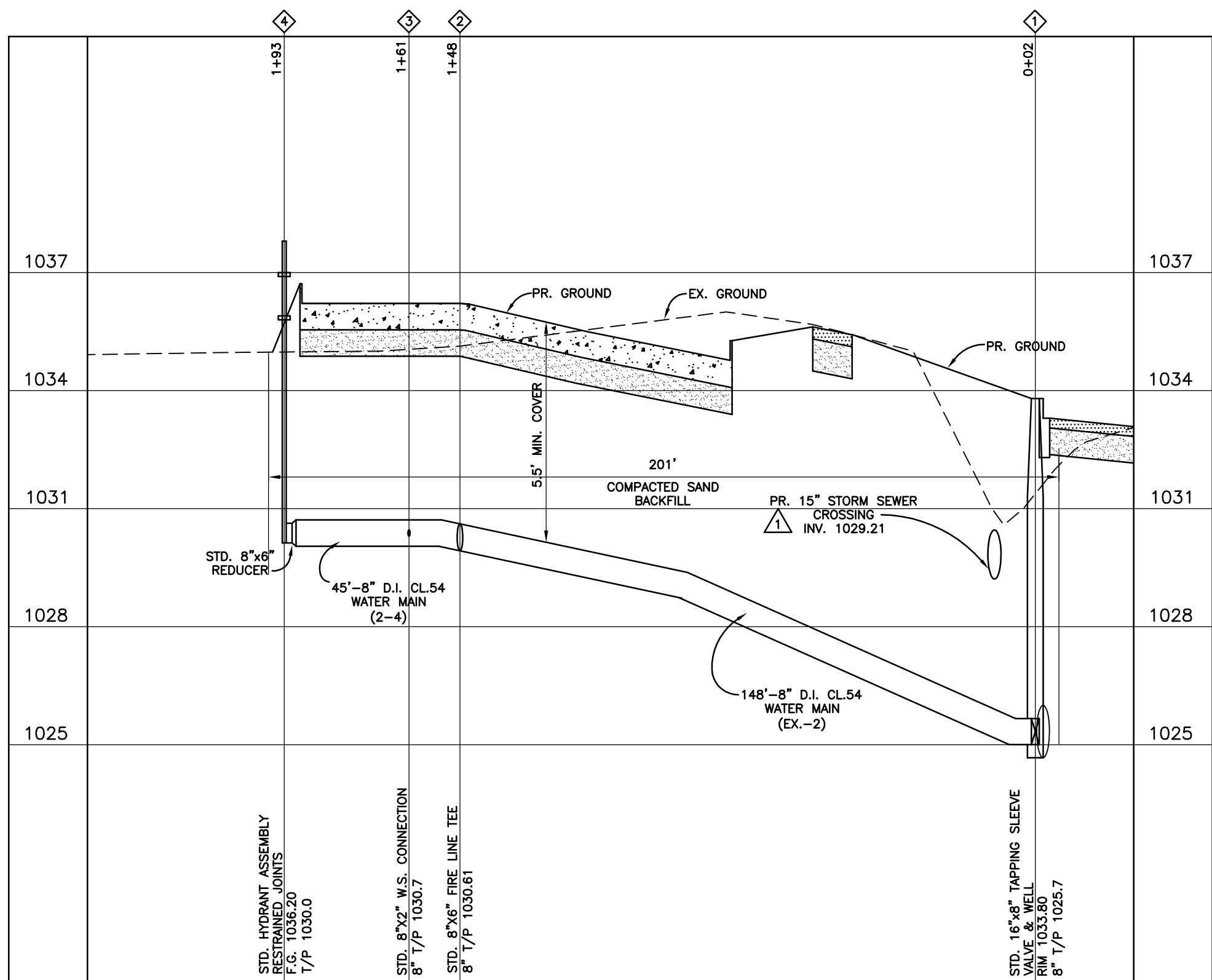
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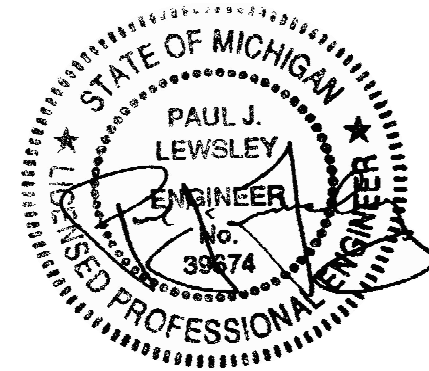
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STORM SEWER PROFILE
SCALE: 1"=30' HORIZONTAL
1"=3' VERTICAL



WATER MAIN PROFILE
SCALE: 1"=30' HORIZONTAL
1"=3' VERTICAL

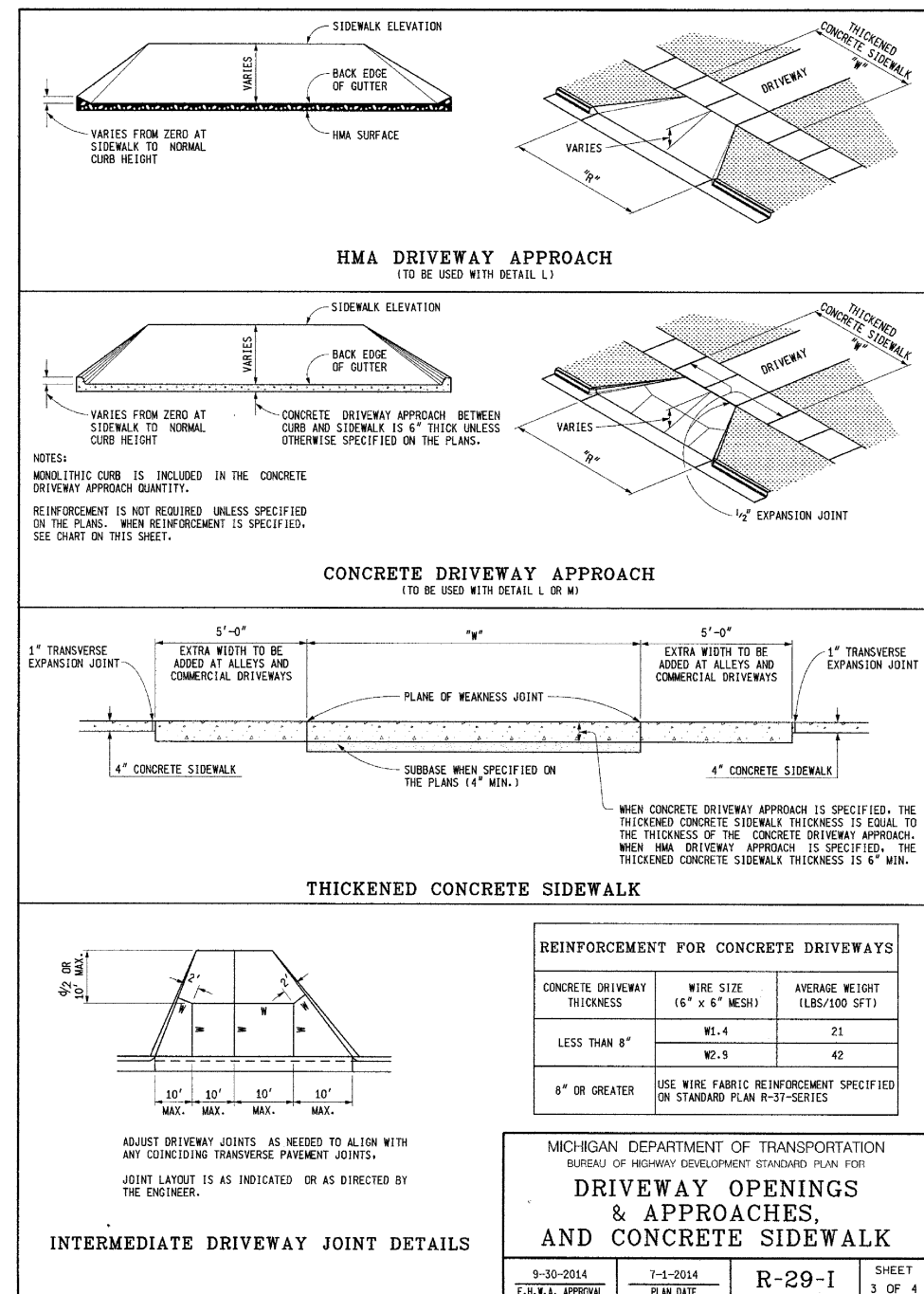


Know what's below.
Call before you dig.

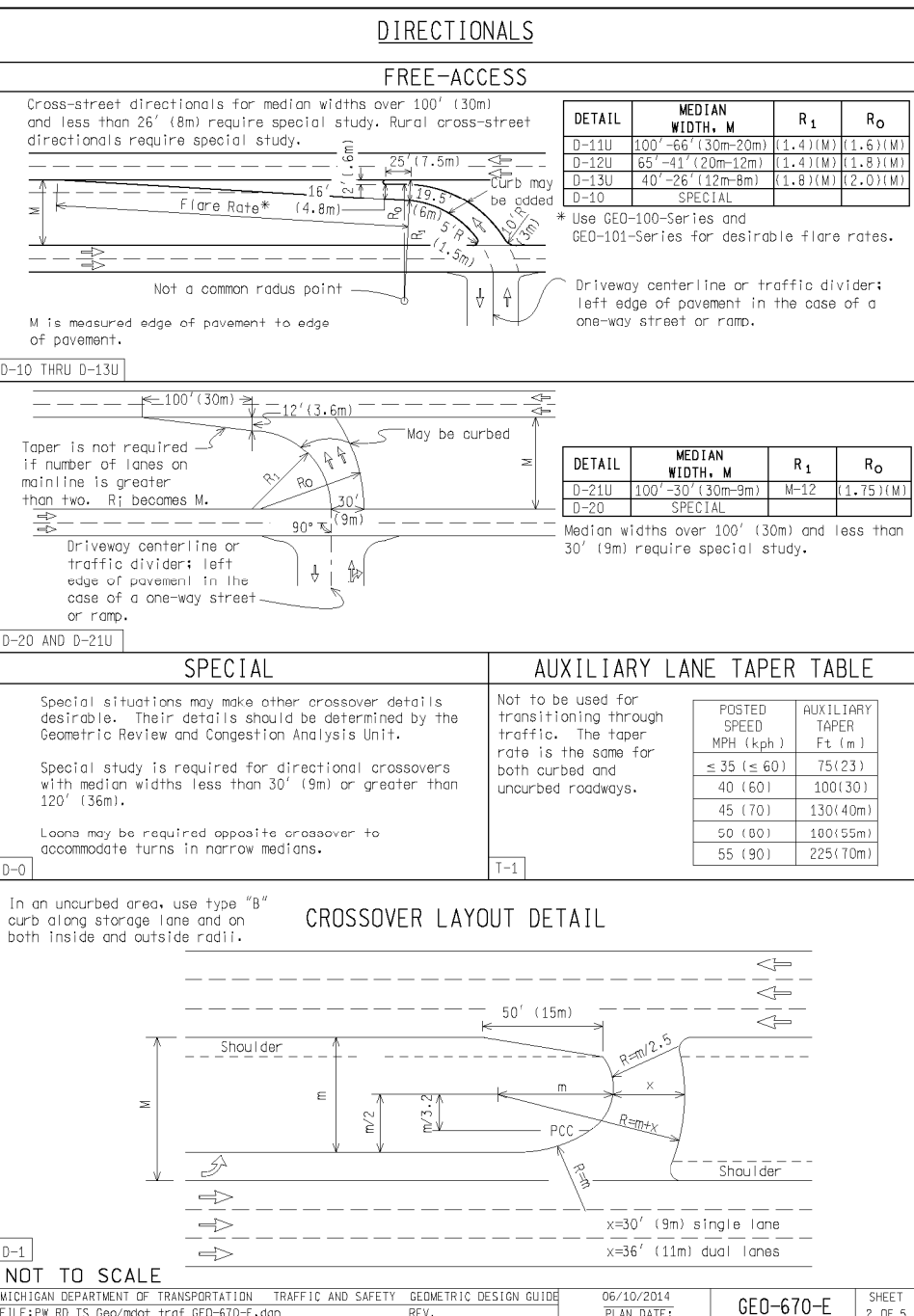
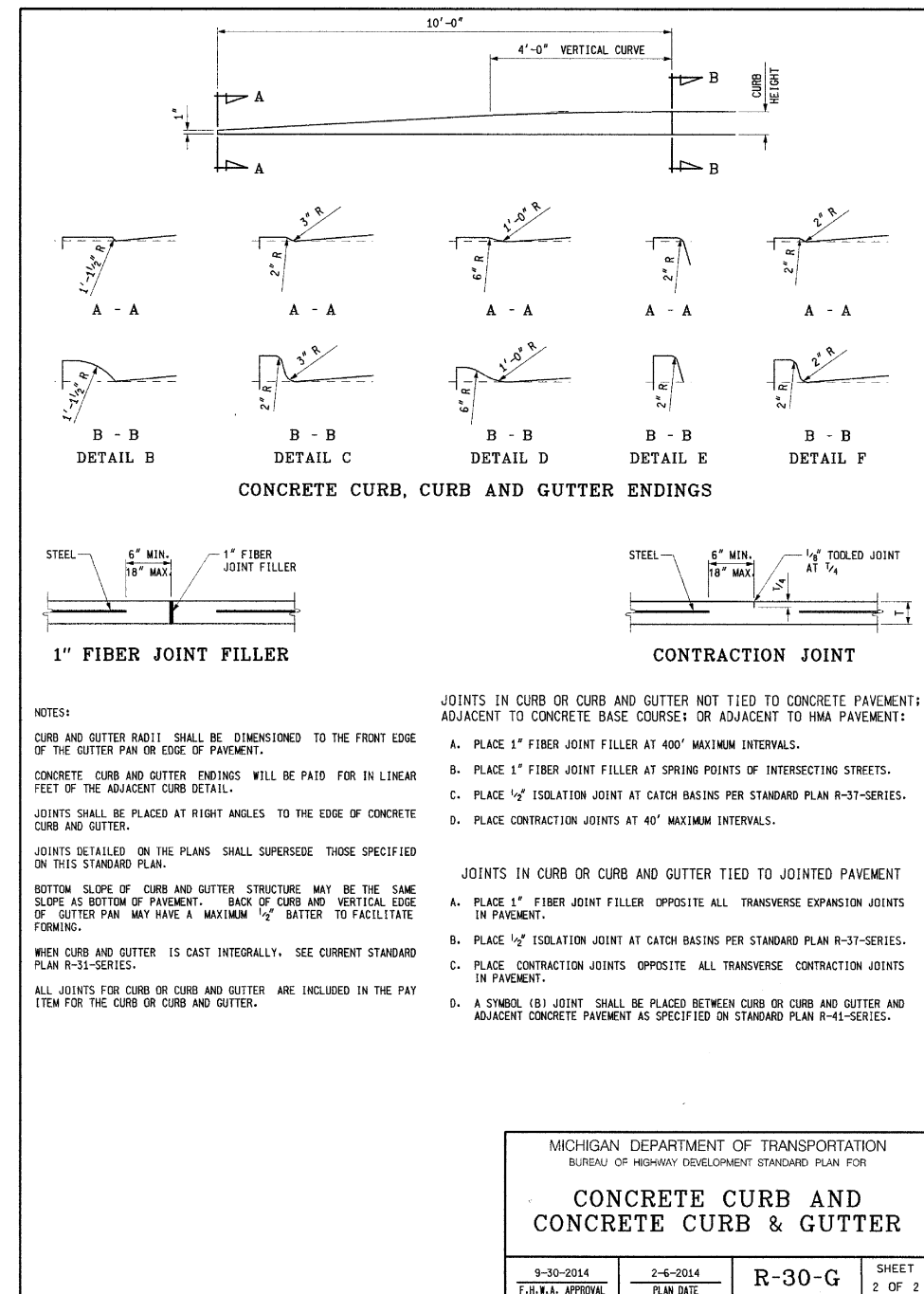
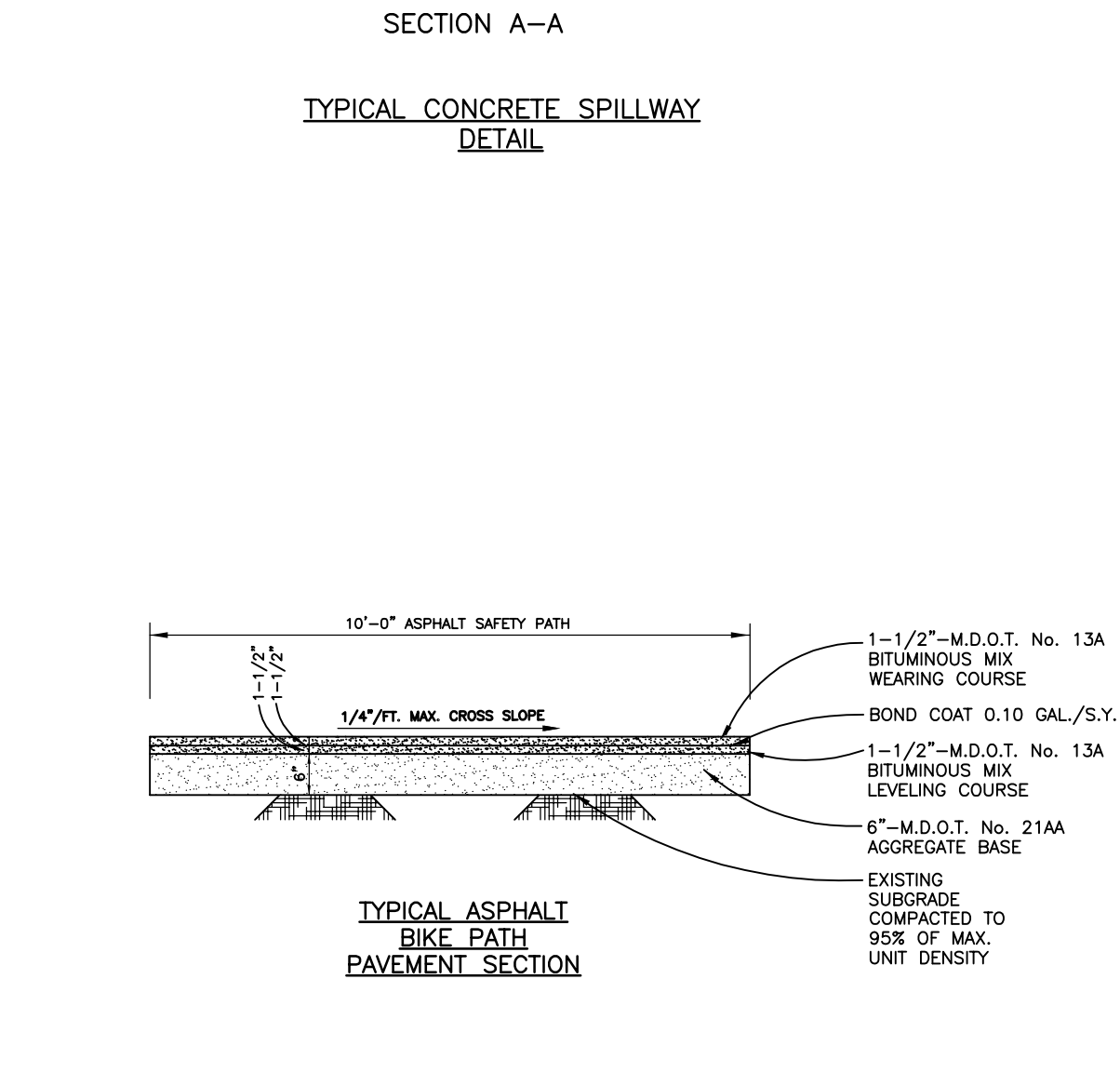
THE FORMULAS FOR THE MINIMUM LENGTH OF A MERGING TAPER IN DERIVING THE "L" VALUES SHOWN IN THE ABOVE TABLES ARE AS FOLLOWS:	TYPES OF TAPERS	TAPER LENGTH
$L = \frac{W \times S}{60}$ WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR LESS	UPSTREAM TAPERS	1/2 L - MINIMUM
	SHIFTING TAPER	L/2 - MINIMUM
$L = \frac{W \times S}{60}$ WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER	SHOULDER TAPER	1/3 L - MINIMUM
	TWO-WAY TRAFFIC TAPER	100' - MINIMUM
	DOWNSTREAM TAPER	100' - MINIMUM
	(USE IS OPTIONAL)	(PER LANE)
L = MINIMUM LENGTH OF MERGING TAPER		
S = POSTED SPEED LIMIT IN MPH PRIOR TO WORK AREA		
W = WIDTH OF OFFSET		

[illegible]

SPEED MPH	LENGTH FEET
20	33
25	50
30	83
35	132
40	181
45	230
50	279
55	329
60	411
65	476
70	542

[illegible]

-
- 15% MAXIMUM SLOPE ON SLOPE OF 15° MAXIMUM (SAS)
- 2-1/2% MAXIMUM SLOPE ON SLOPE OF 15° MAXIMUM (SAS)
- 6% MAXIMUM SLOPE ON SLOPE OF 15° MAXIMUM (SAS)
- APPROXIMATELY 15°
- SEE NOTES
- LOW VOLUME COMMERCIAL OR RESIDENTIAL DRIVEWAY SLOPES
- COMM. & RESIDENTIAL DRIVEWAY APPROACH
- SIDEWALK
- DRIVEWAY
- MAXIMUM GRADE 4% (S)
- MAXIMUM GRADE 1.5%
- MAXIMUM GRADE 4%
- COMMERCIAL DRIVEWAY PROFILE FOR MAJOR TRAFFIC GENERATORS
- NOTES:
- FOR DRIVEWAY DESIGN REFER ALSO TO "CONCRETE/PAVEMENT RULES REGULATING DRIVEWAYS, BRIDGES, AND TUNNELS ON OR OFF HIGHWAYS" AND "CONCRETE DESIGN 5-400-2015" COMMERCIAL DRIVEWAYS
- FOR CURB AND GUTTER DETAILS, SEE STANDARD PLAN 5-30-2015
- TRANSVERSE SIDEWALK SLOPES ARE TYPICALLY 1.5% TO 1.6% MAXIMUM. IN STREET BAYS WITH CURBING, TRANSVERSE SIDEWALK SLOPES ARE REQUIRED TO BE LESS THAN 1.5% (LIMITING DRAINAGE MUST BE PROVIDED).
- MINIMUM SETTING SPACES FOR COMMERCIAL DRIVES: THE TIMES OF VEHICLES USING THE DRIVE SLOPES ARE CONSIDERED.
- MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT CREATED IN 1969 FOR
**DRIVEWAY OPENINGS
& APPROACHES,
AND CONCRETE SIDEWALK**
- | | | | |
|---------------|-----------|--------|-------------------|
| 8-30-2014 | 8-1-2014 | R-29-I | SHEET
14 OF 21 |
| BLACK HISTORY | PERMANENT | | |



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CONSULTANT

KEY PLAN

OWNER

PROJECT NAME

1600 W. Highland Rd
Highland, MI 48357

PROJECT NO.

18-122A

ISSUES / REVISIONS

REVISÉ 02/18/20 - 70% CONSTRUCTION SET

REVISÉ 03/04/20 - PROGRESS SET

REVISED 03/20/20 - BID SET

BIDDING - CONSTRUCTION 03/27/20

REVISÉ 04/20(20) - ADDENDUM No. 1

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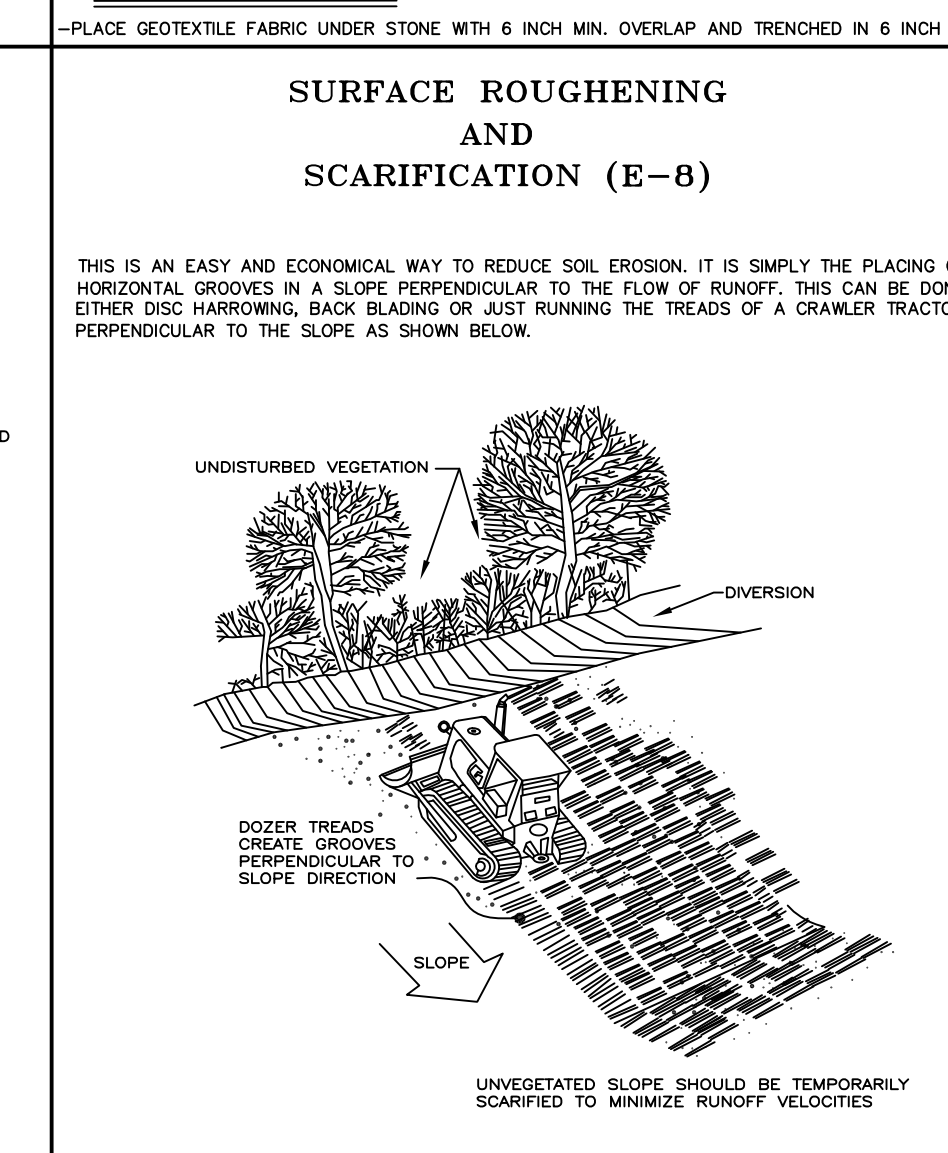
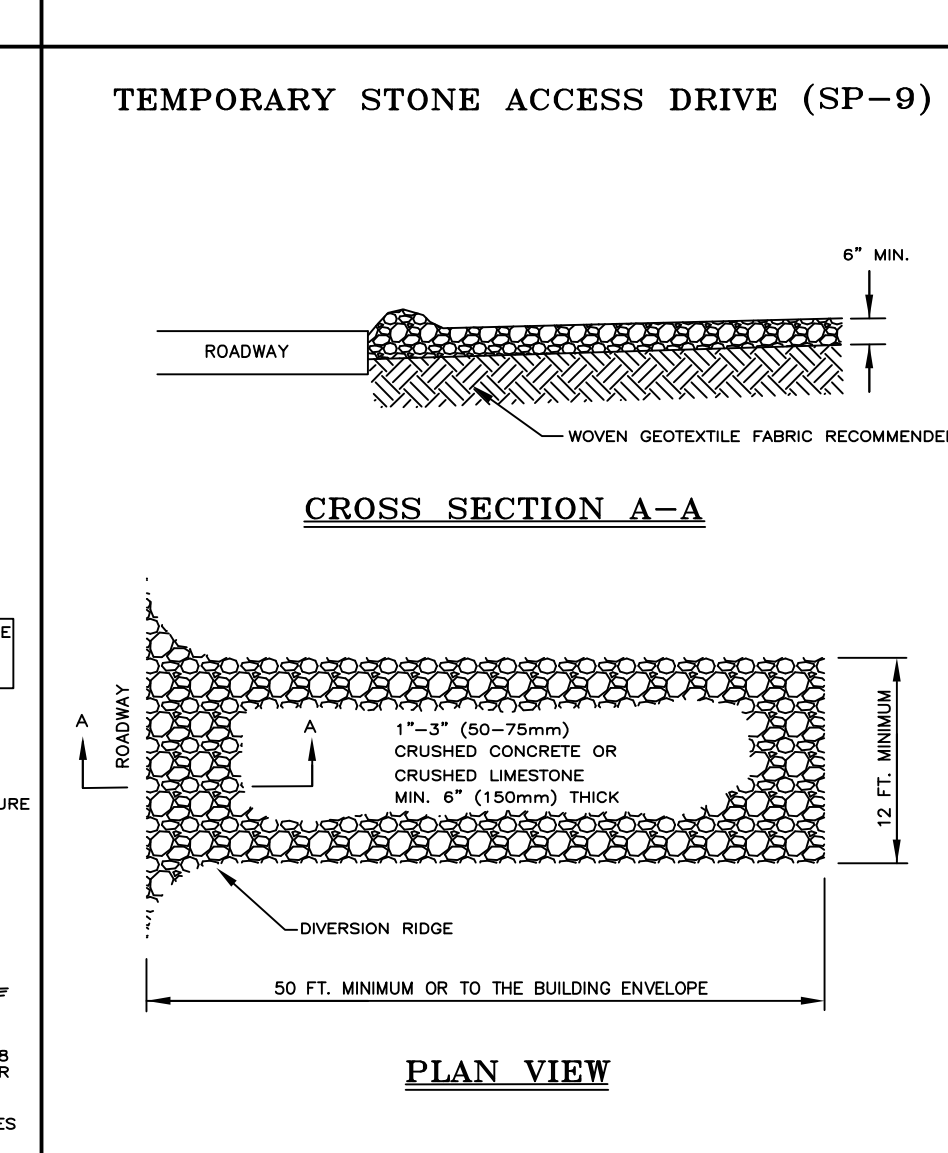
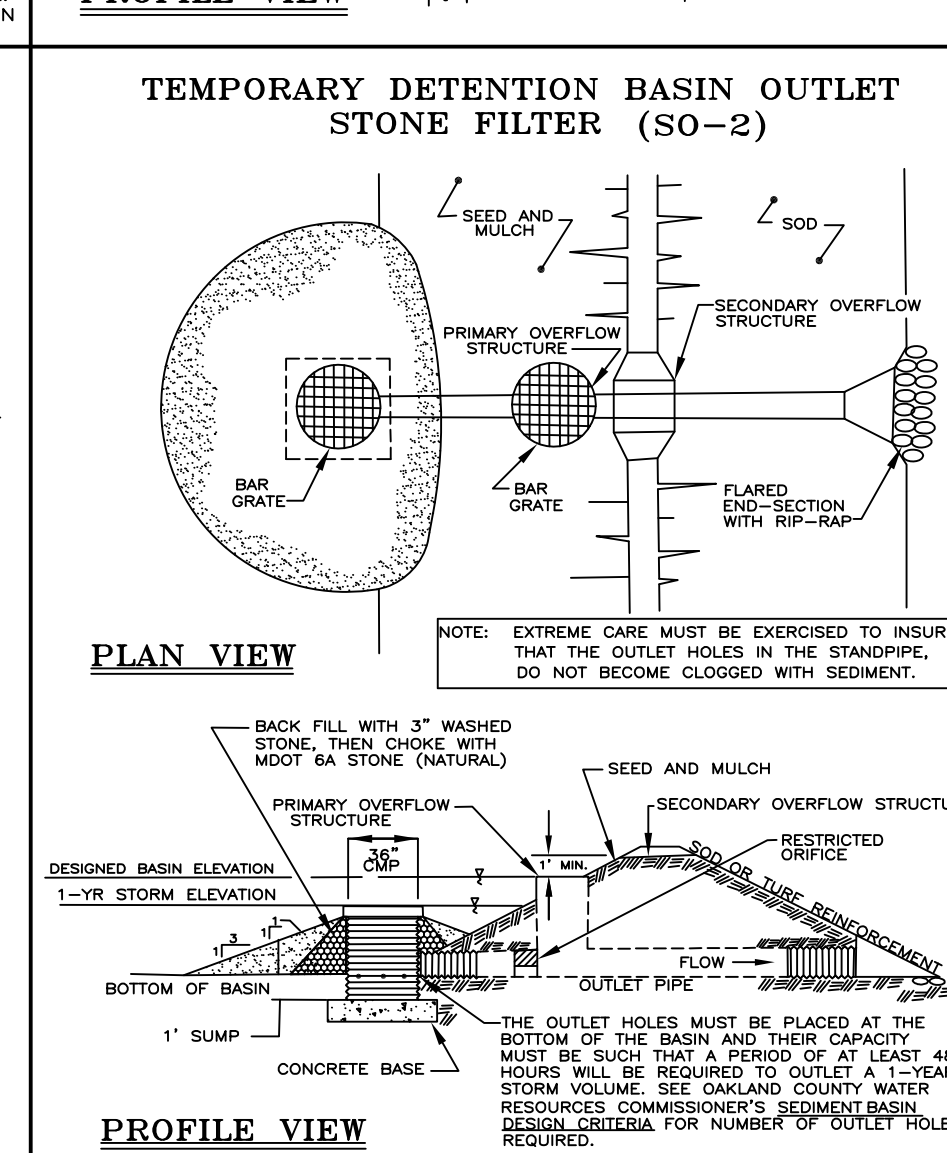
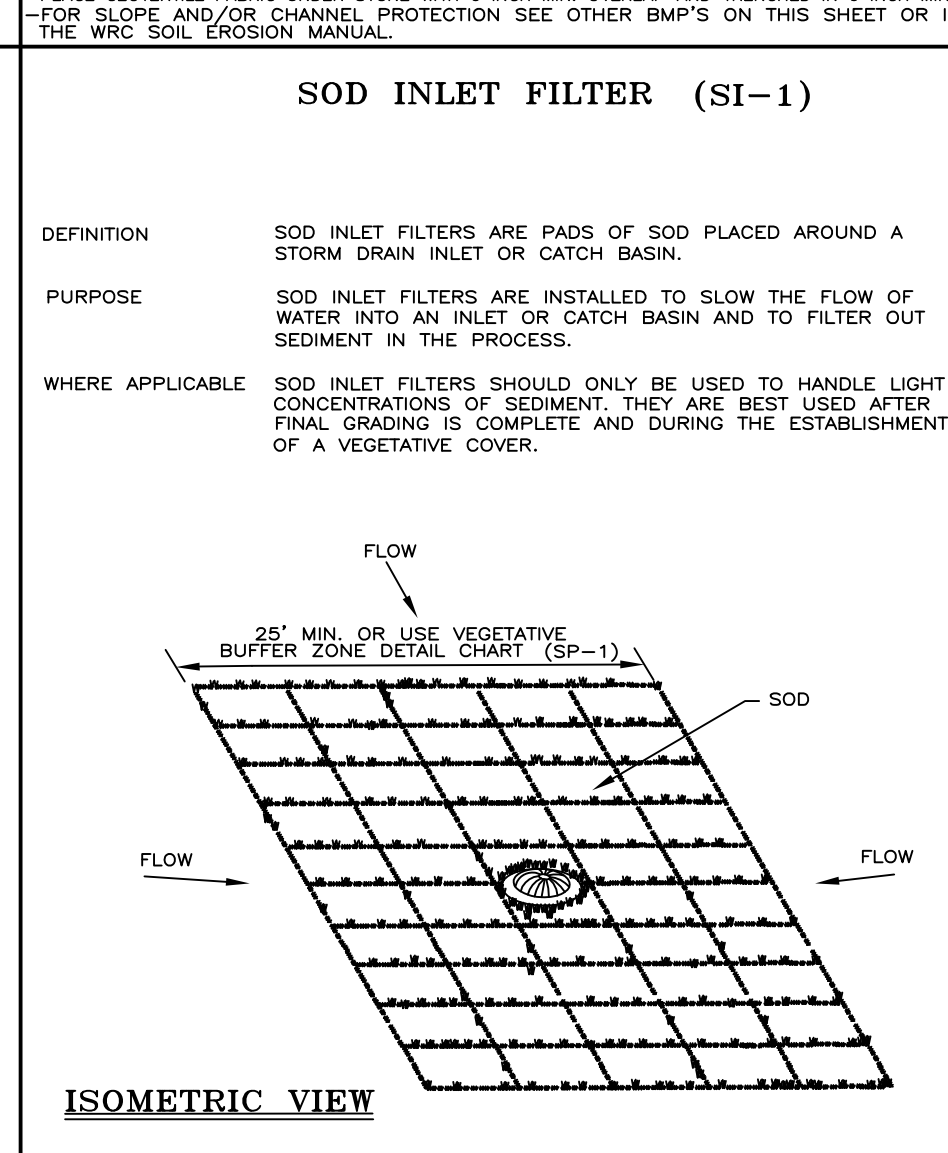
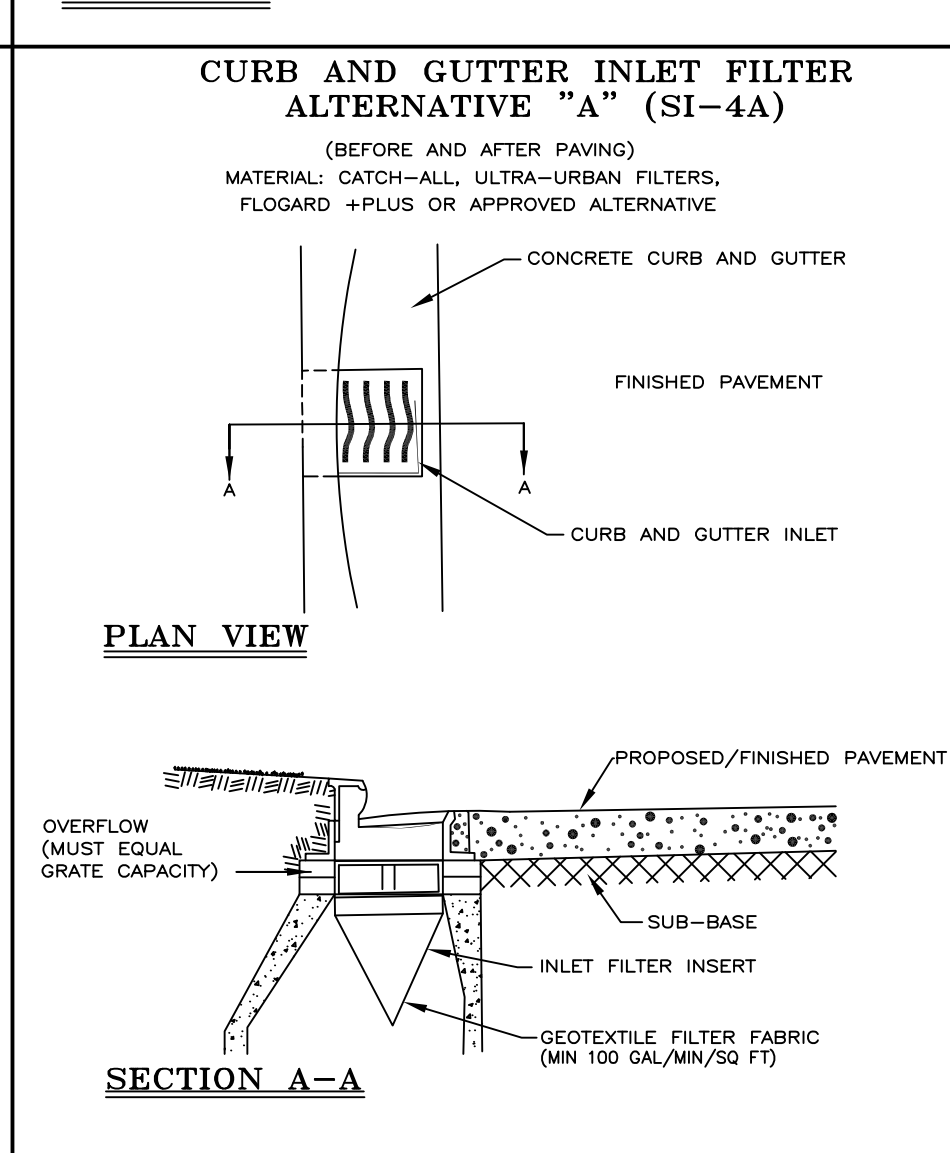
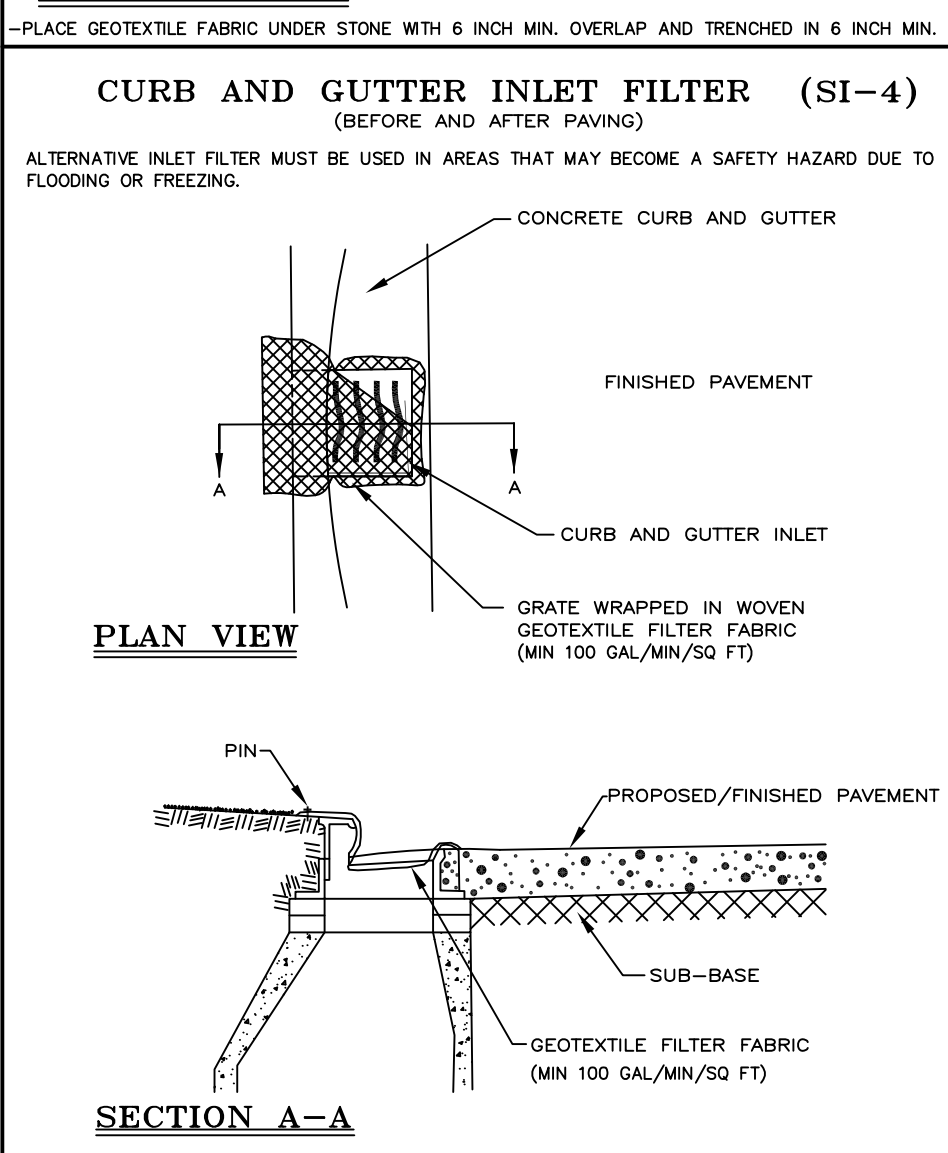
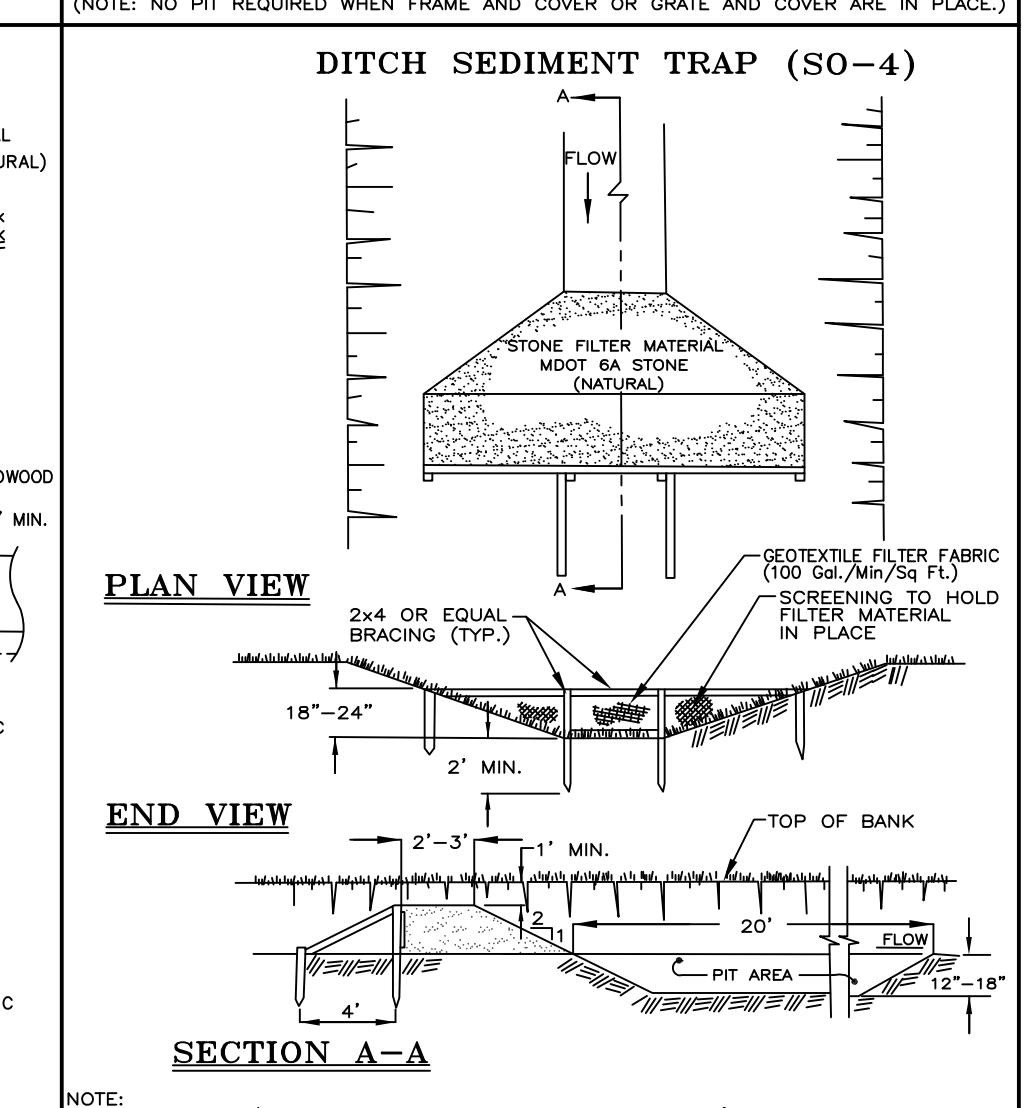
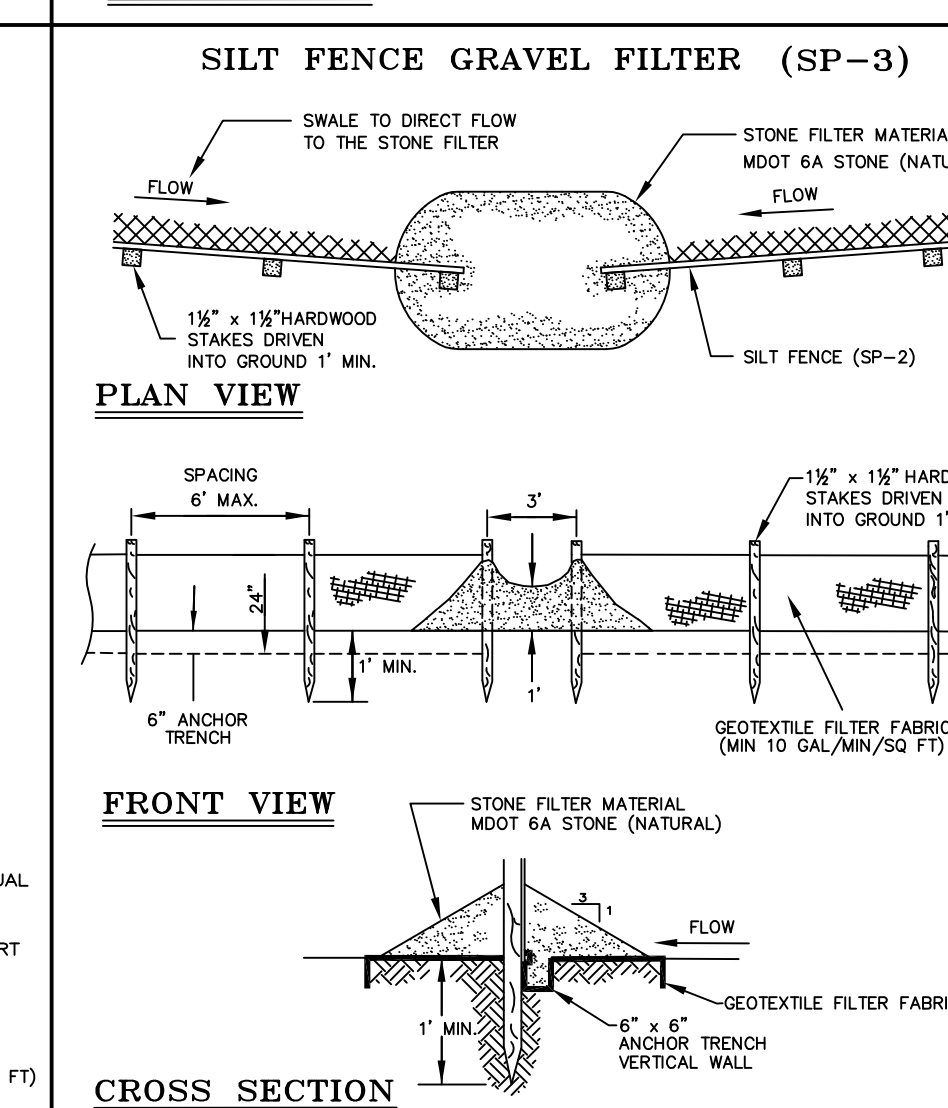
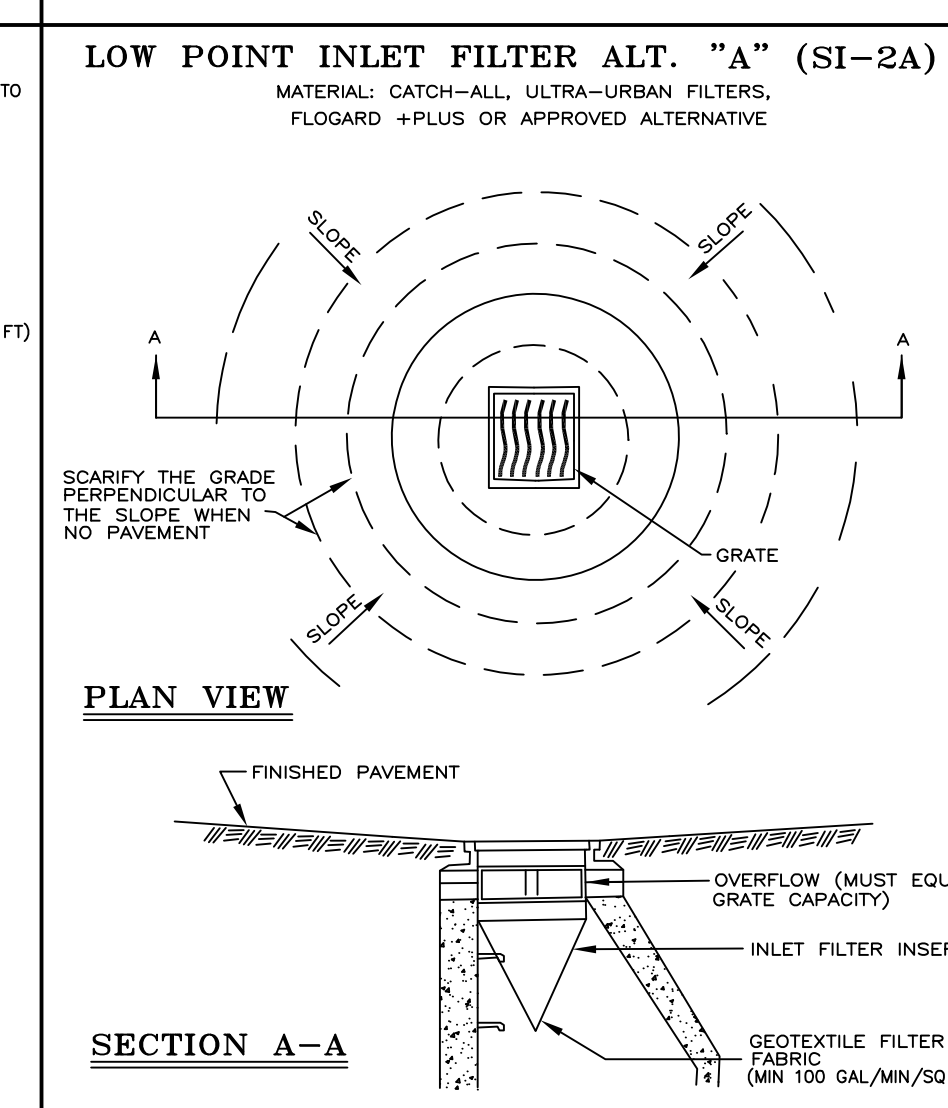
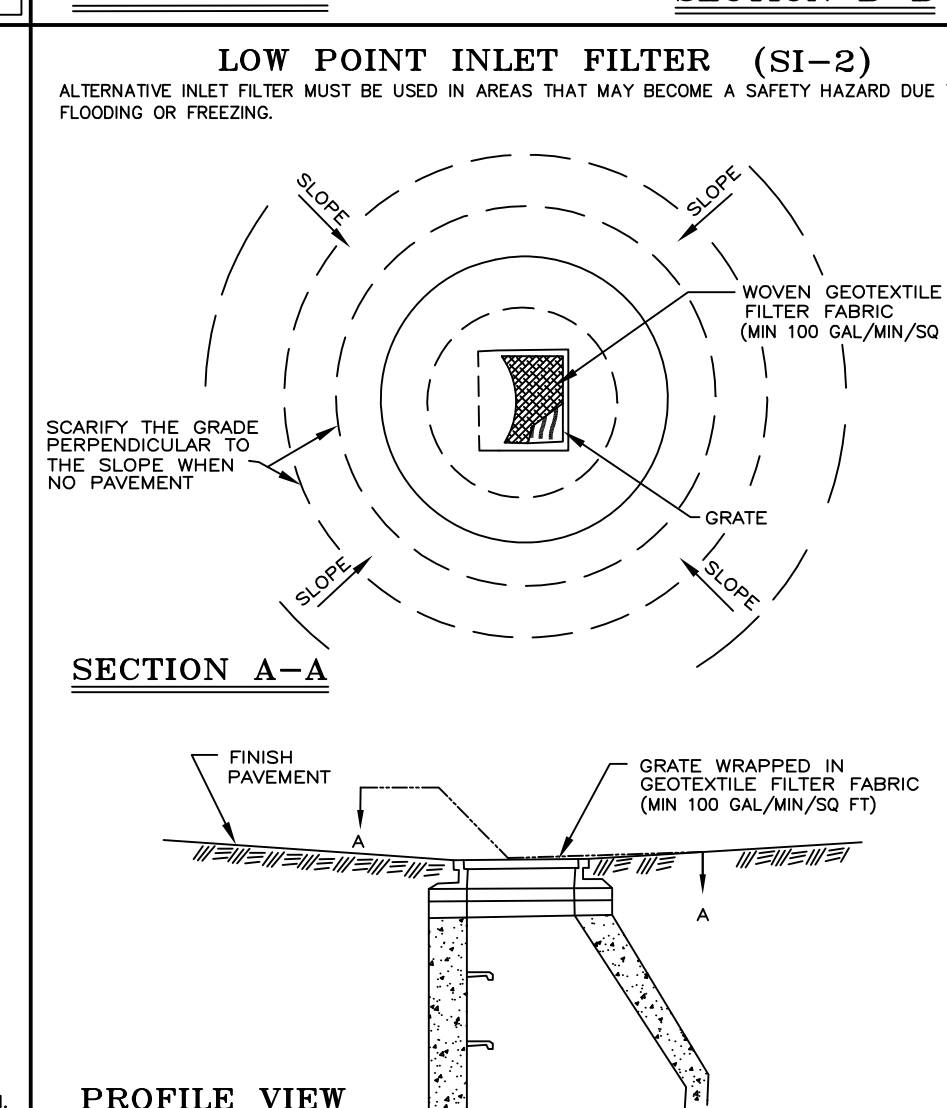
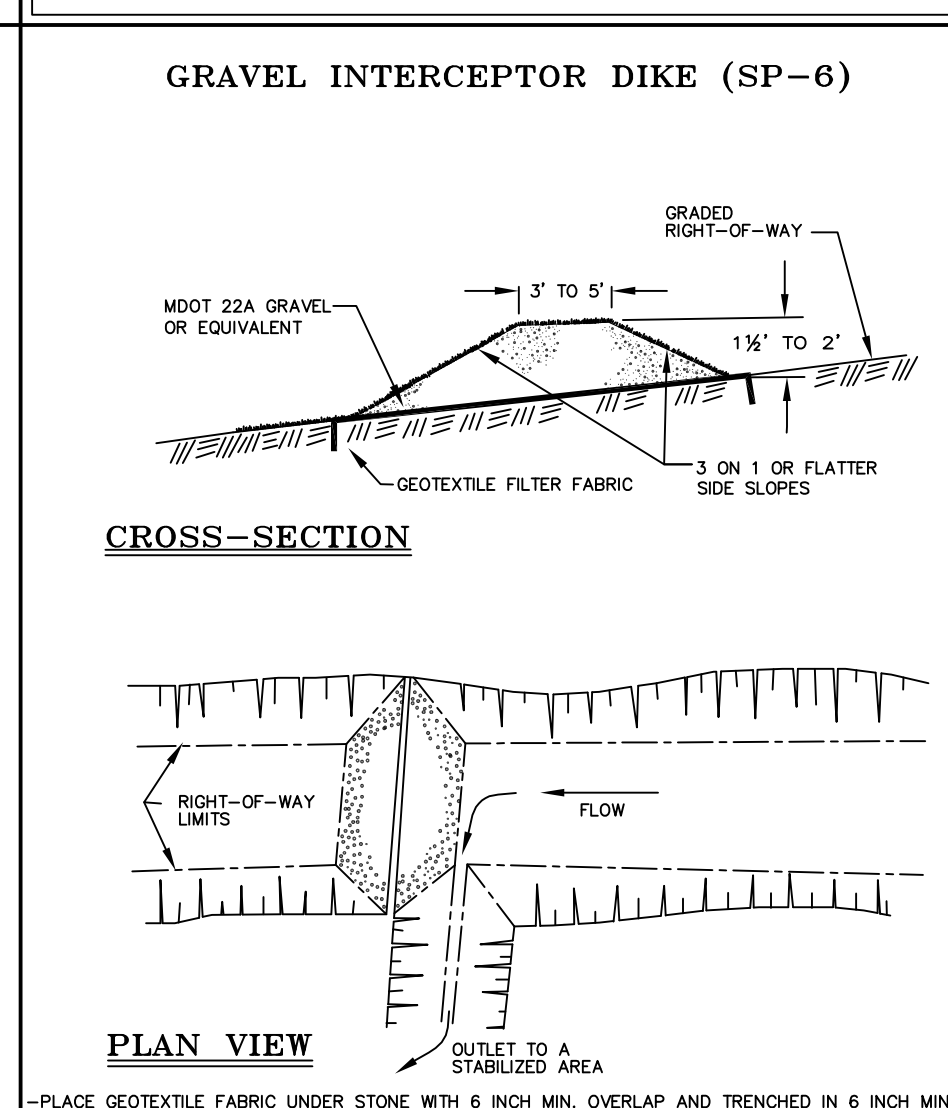
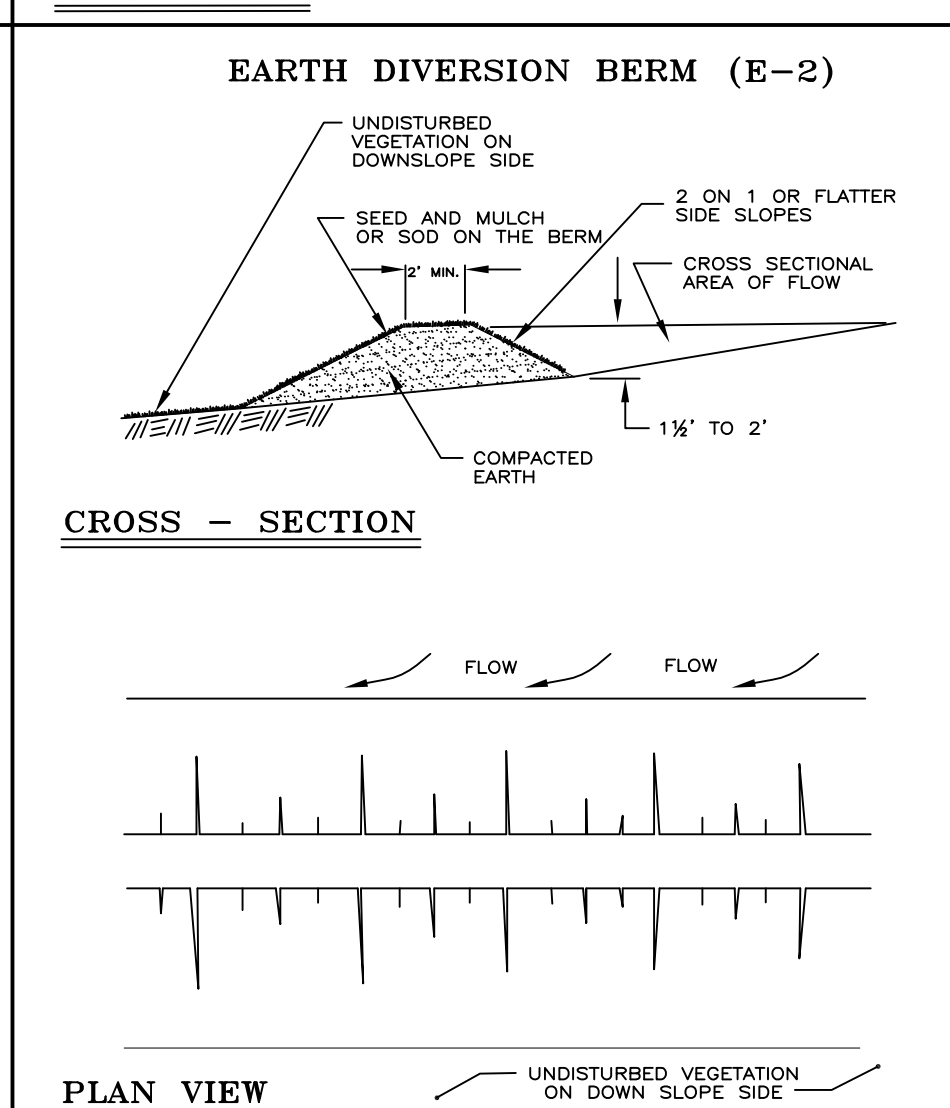
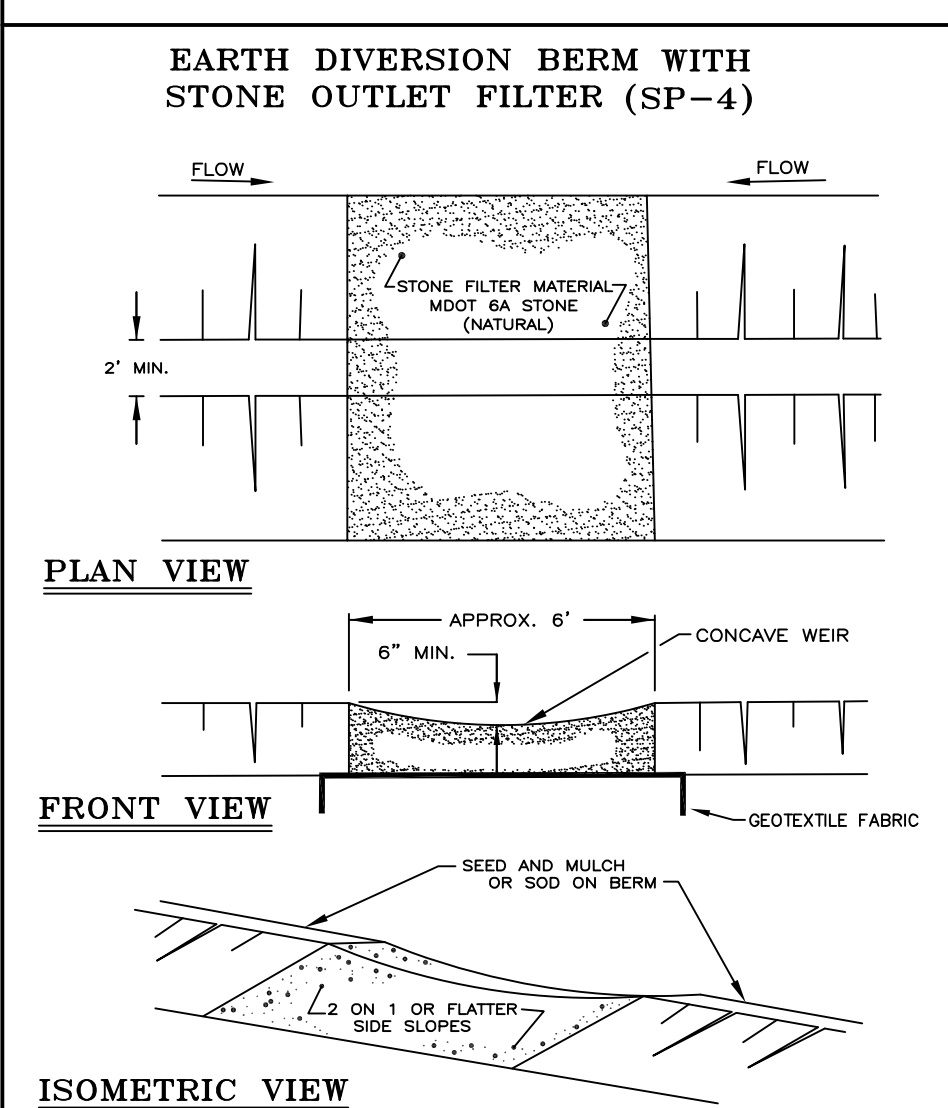
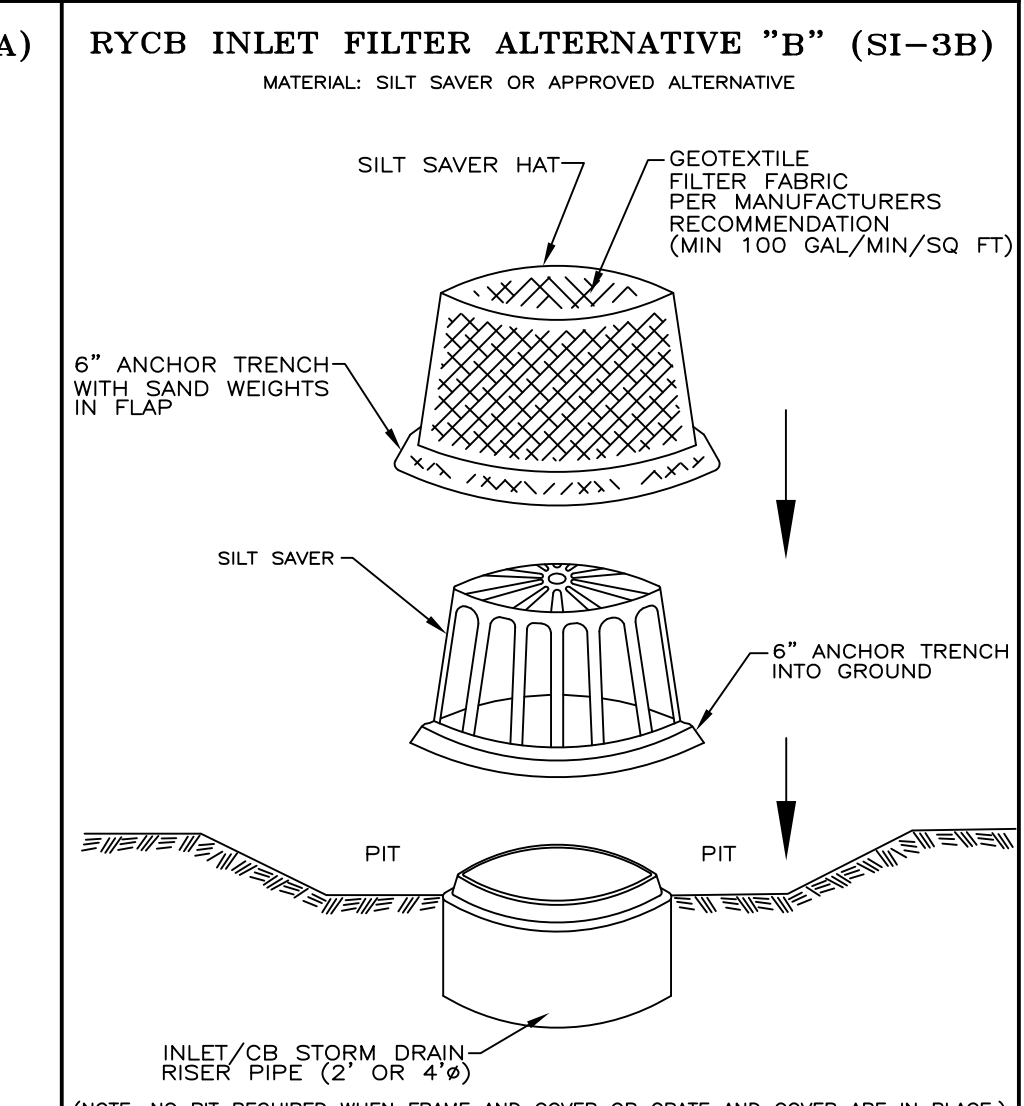
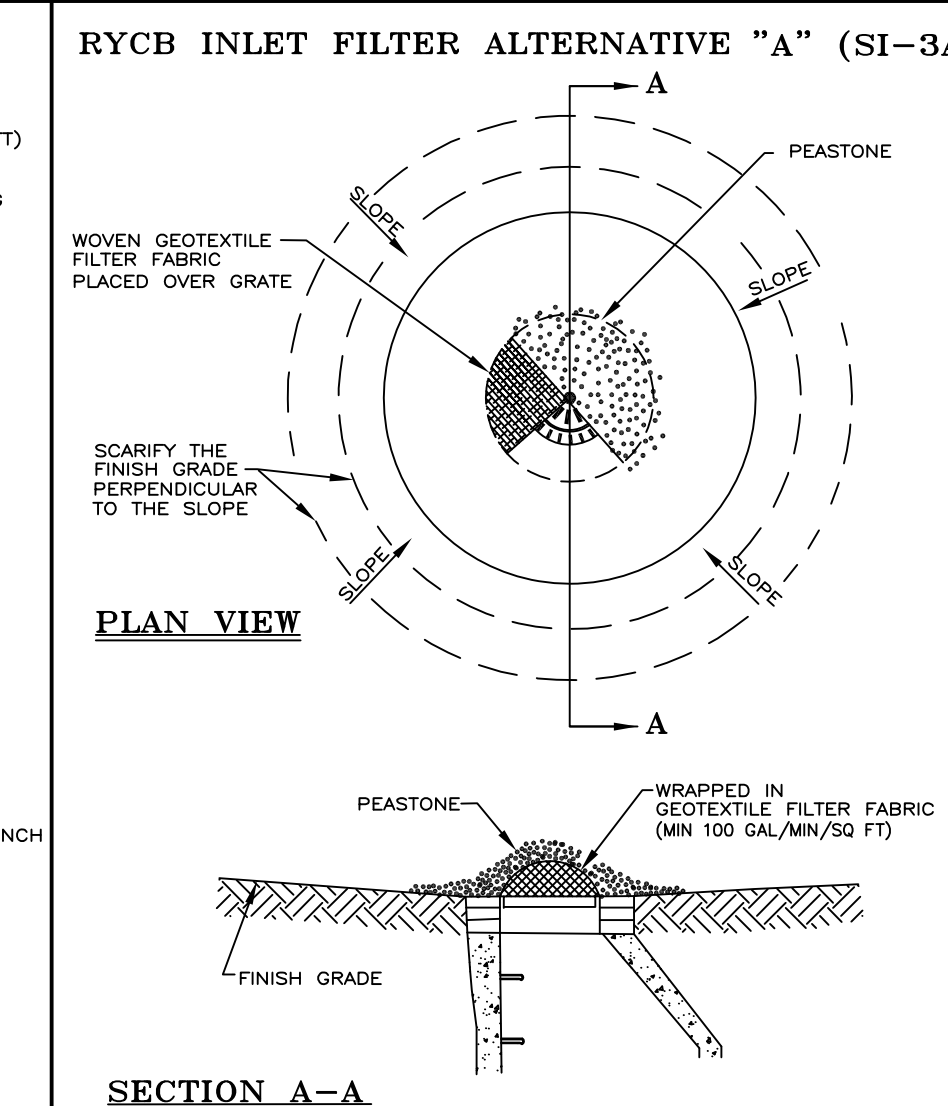
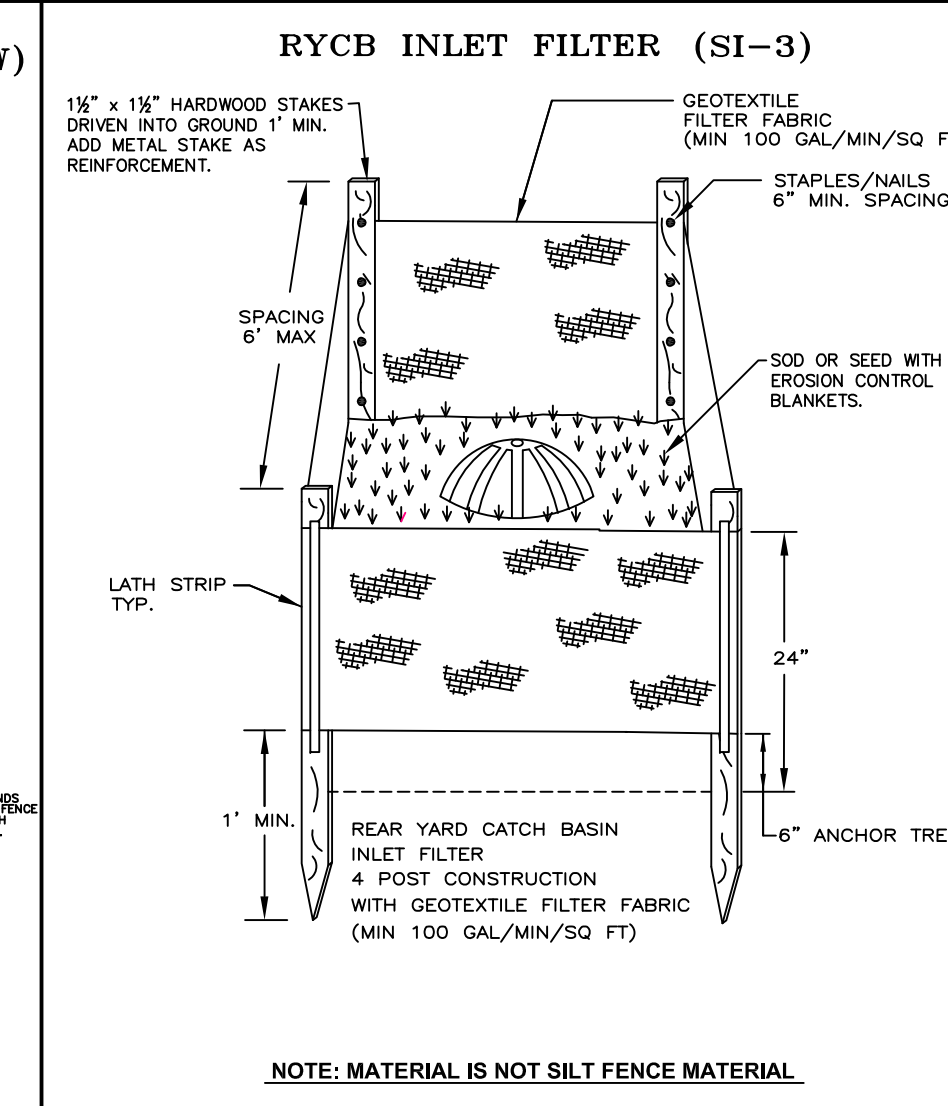
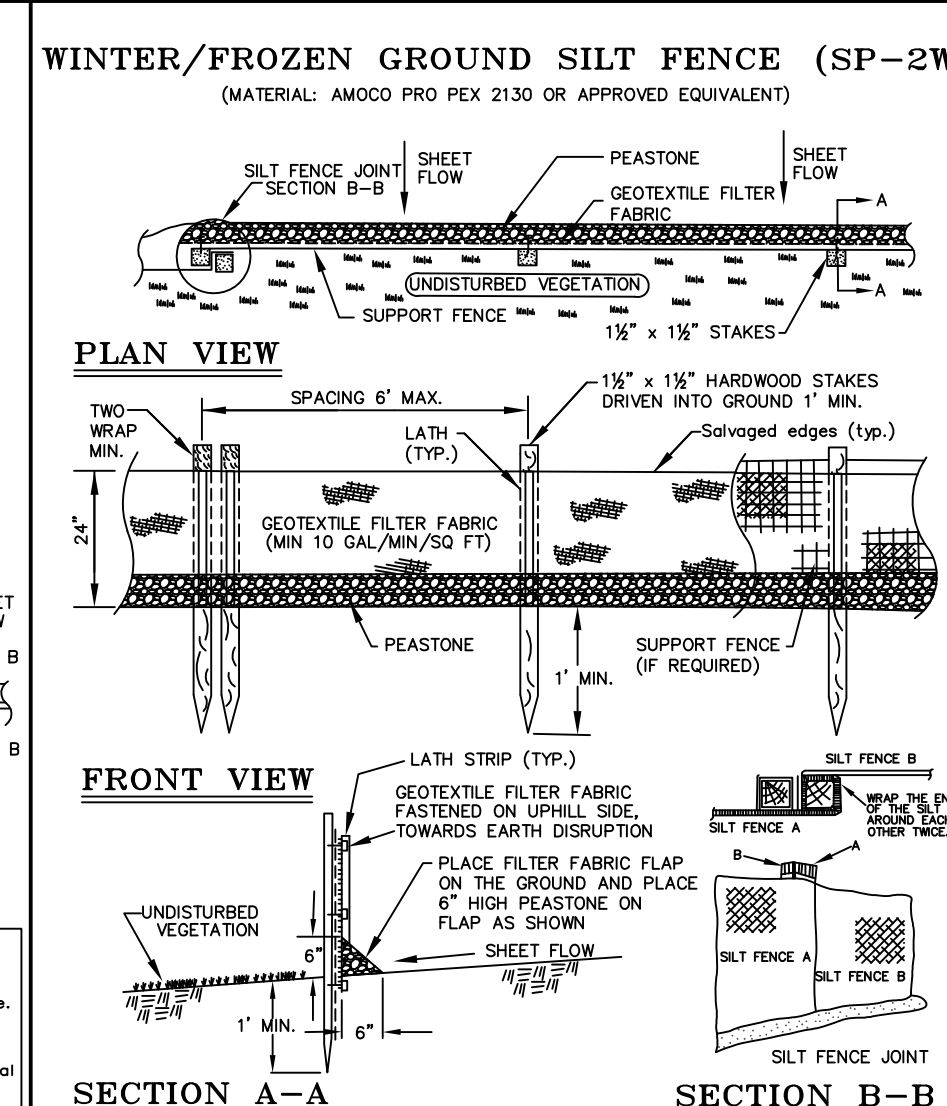
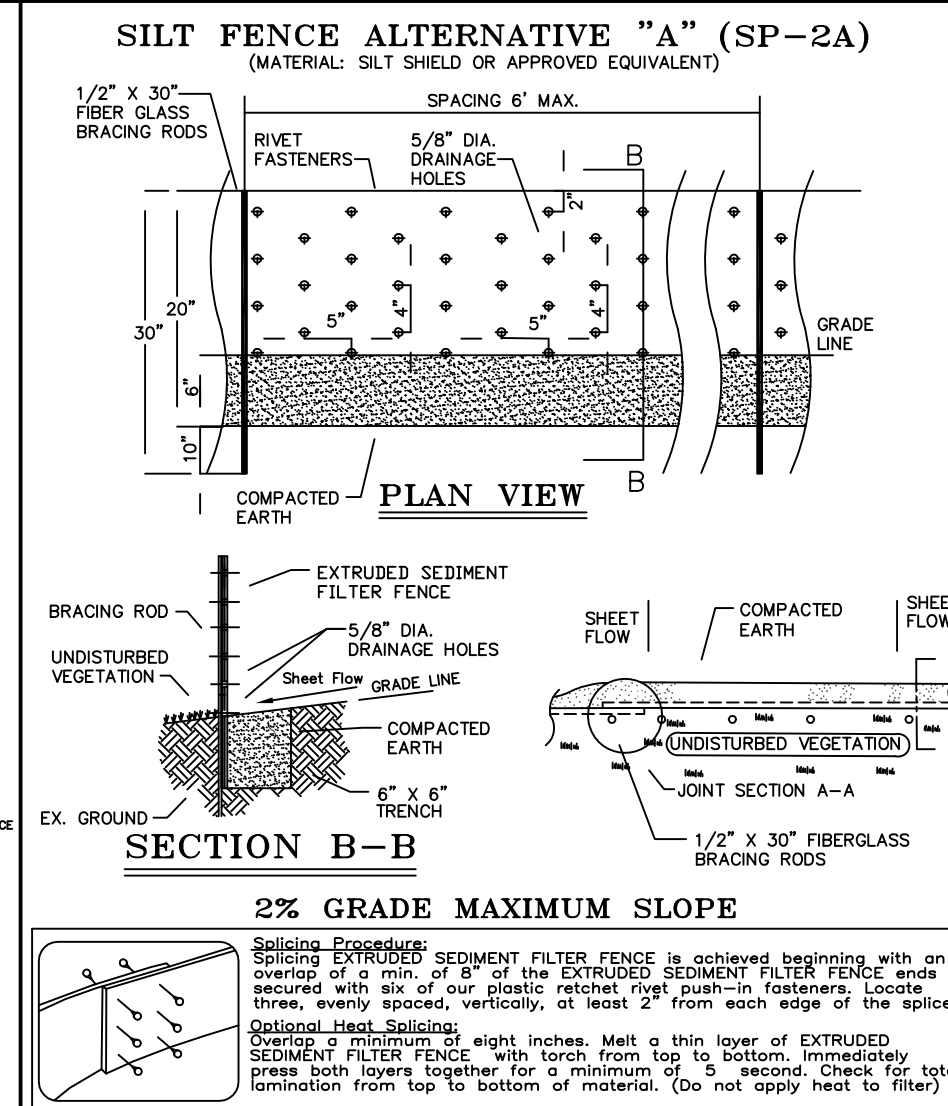
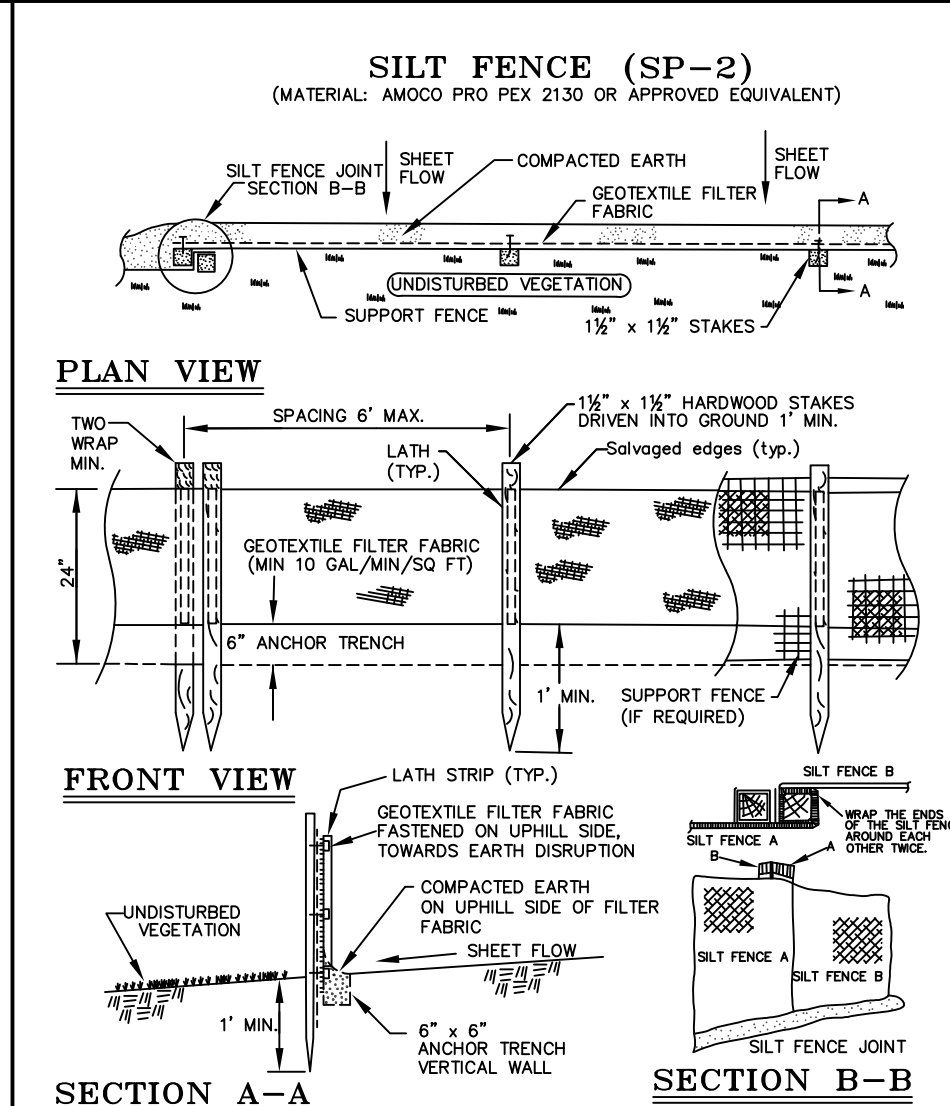
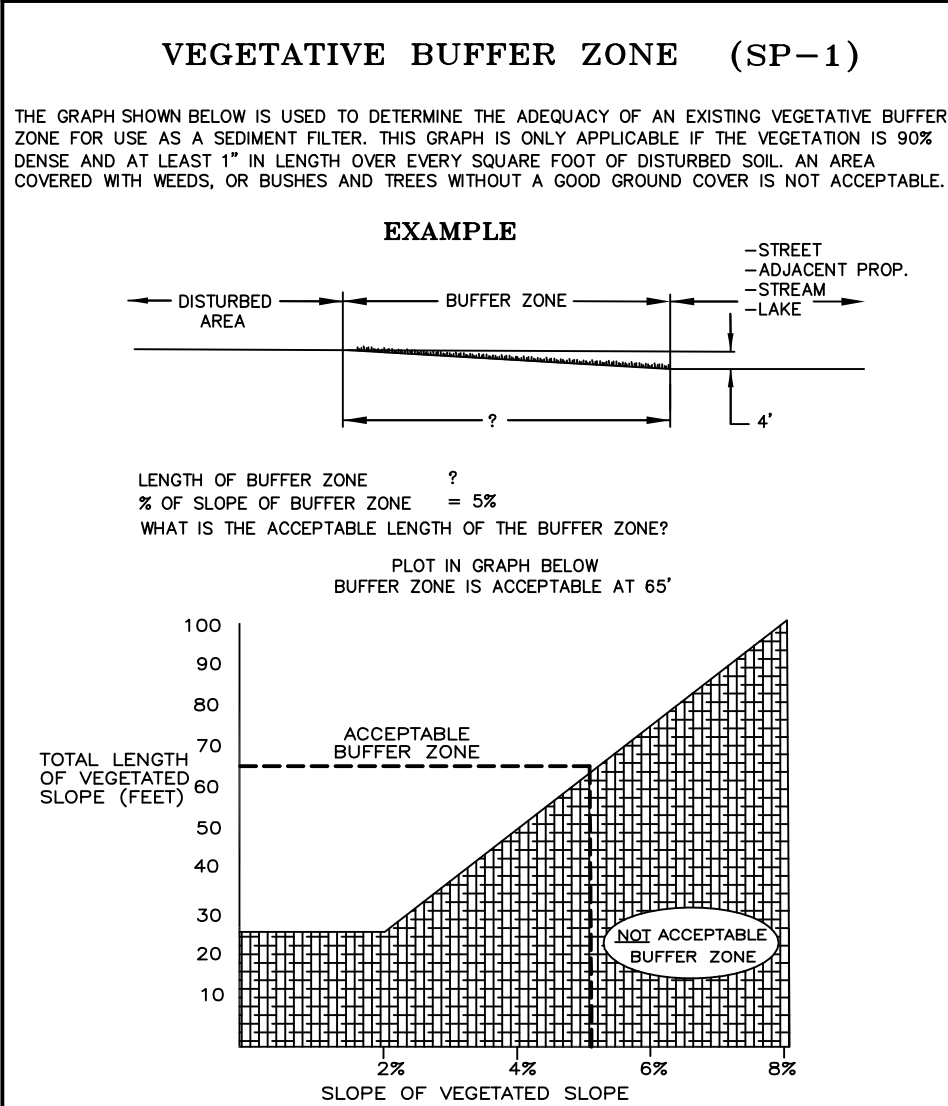
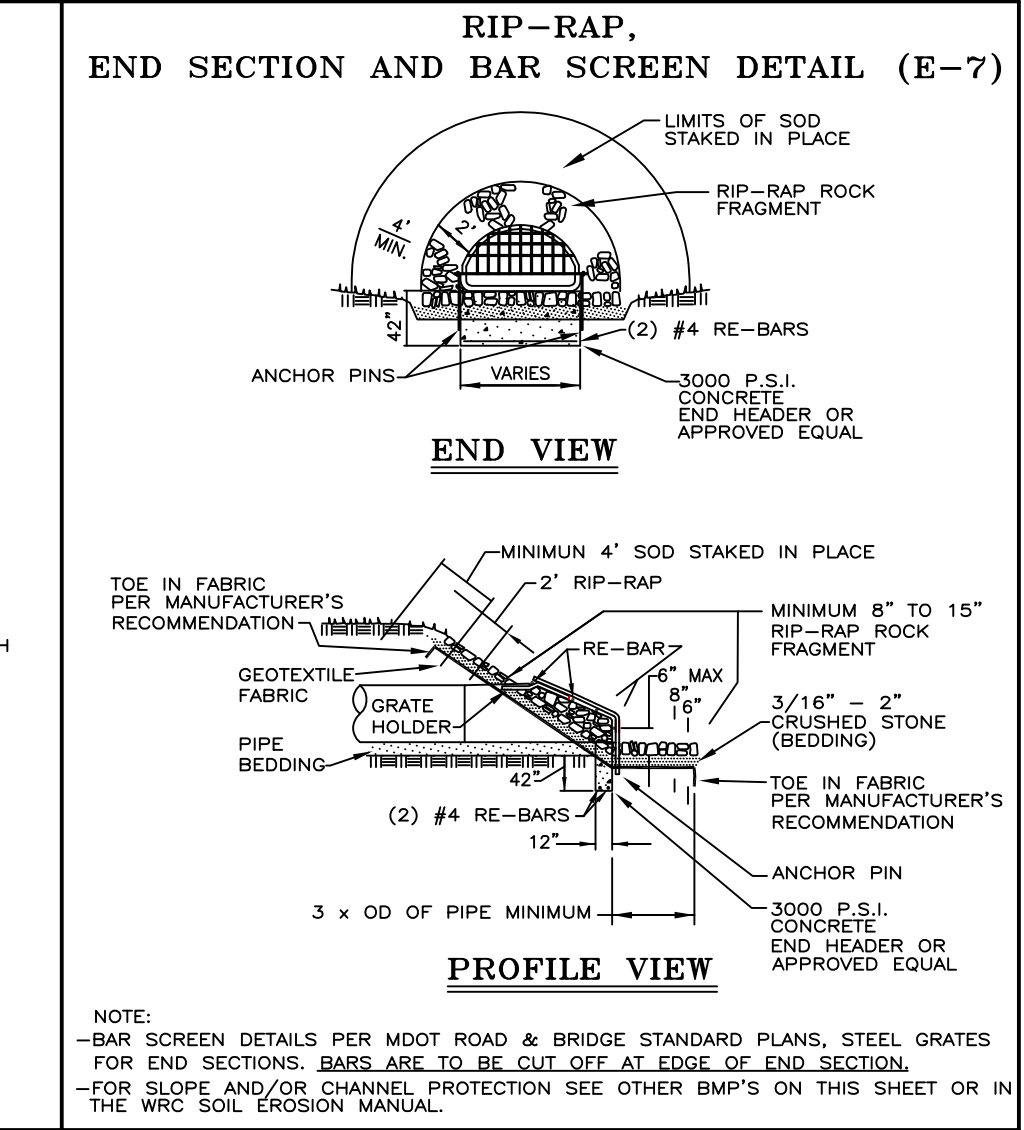
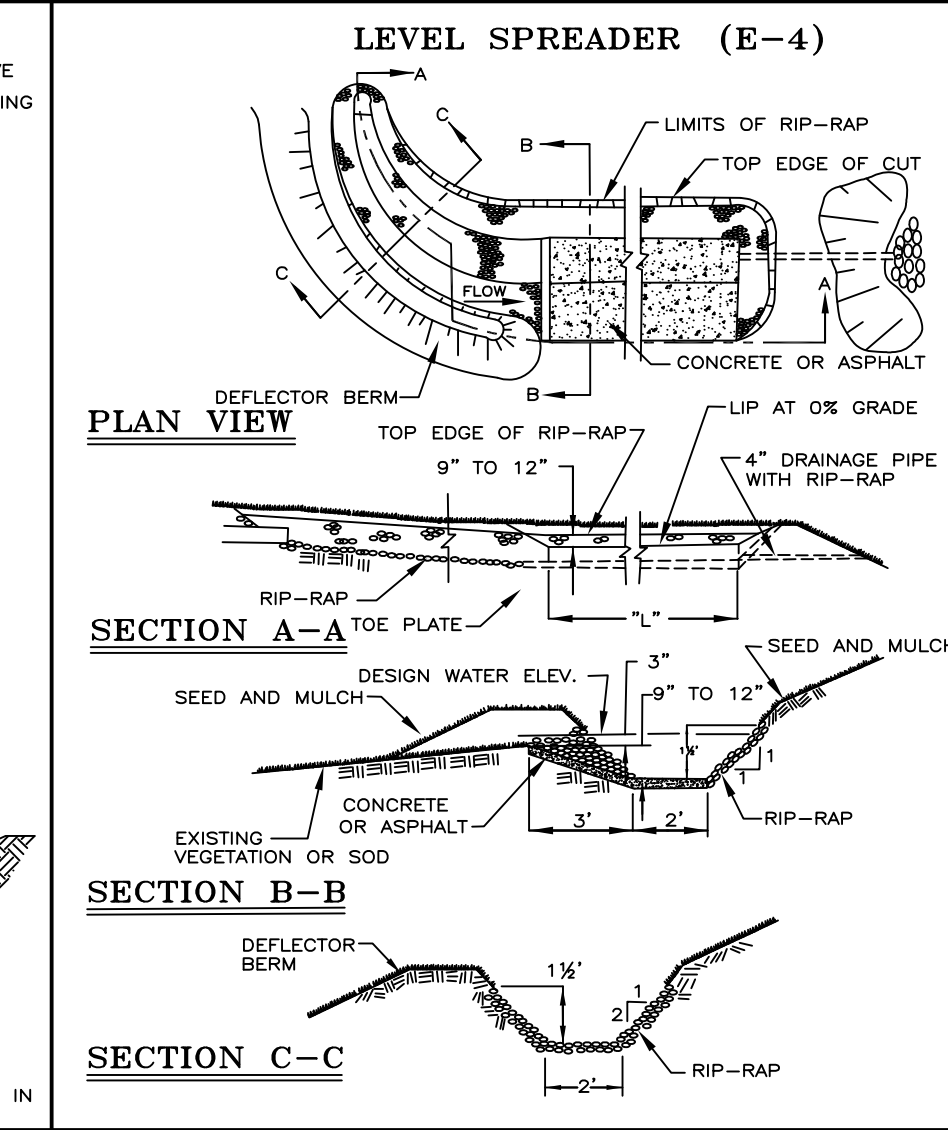
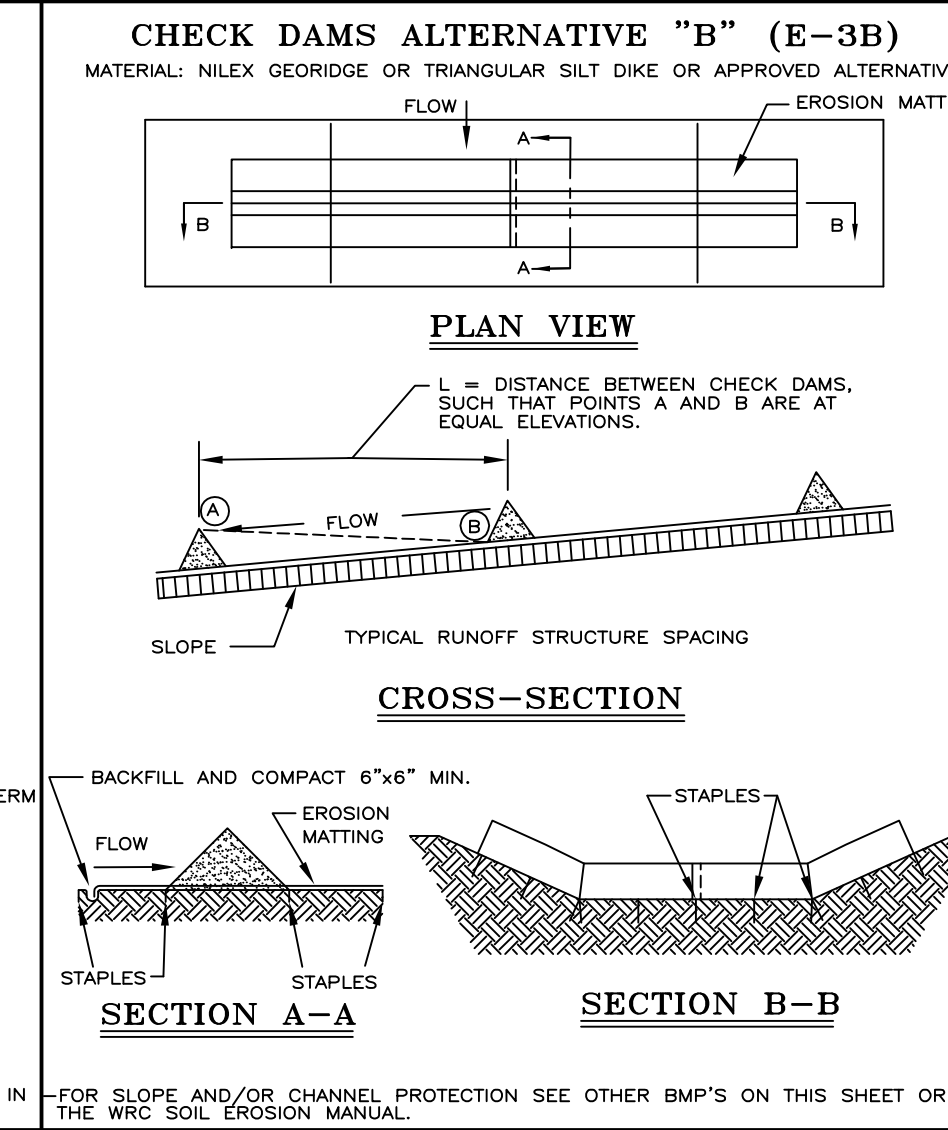
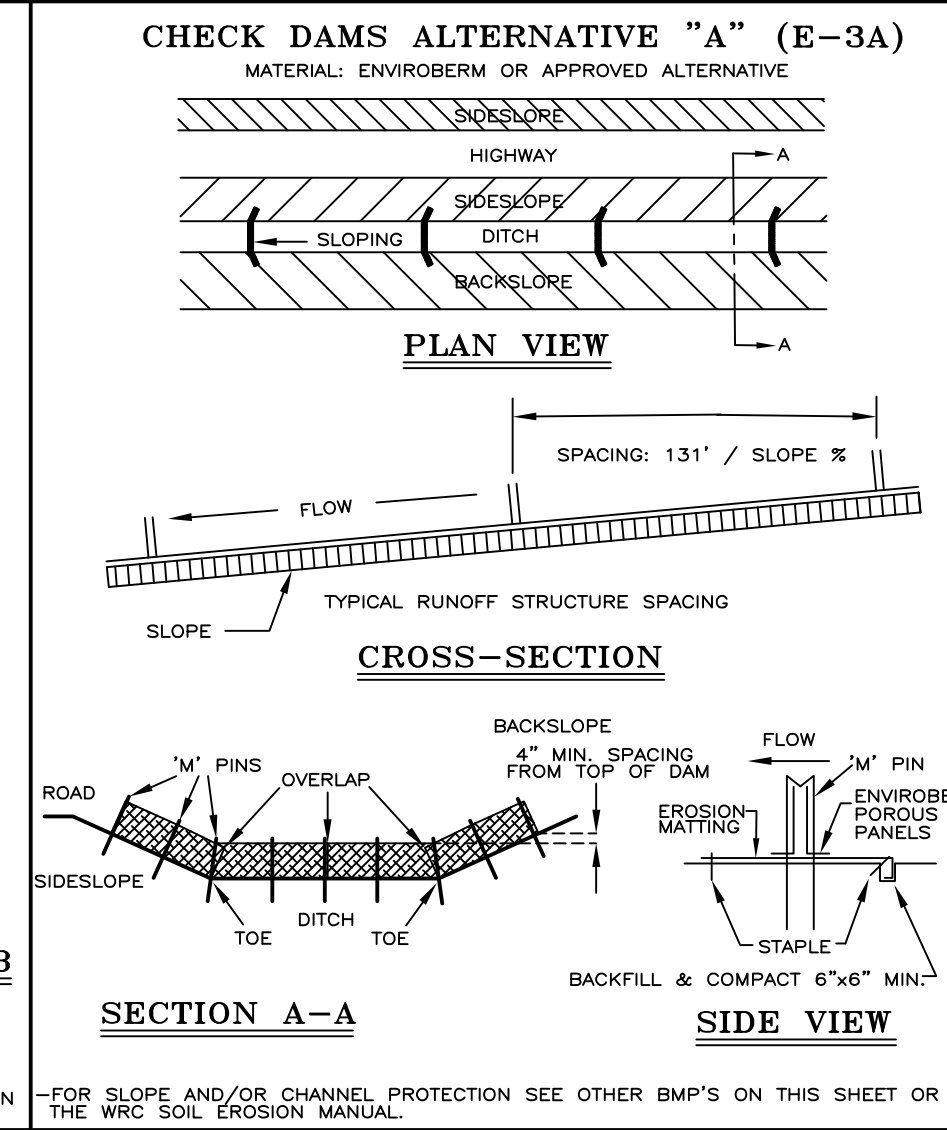
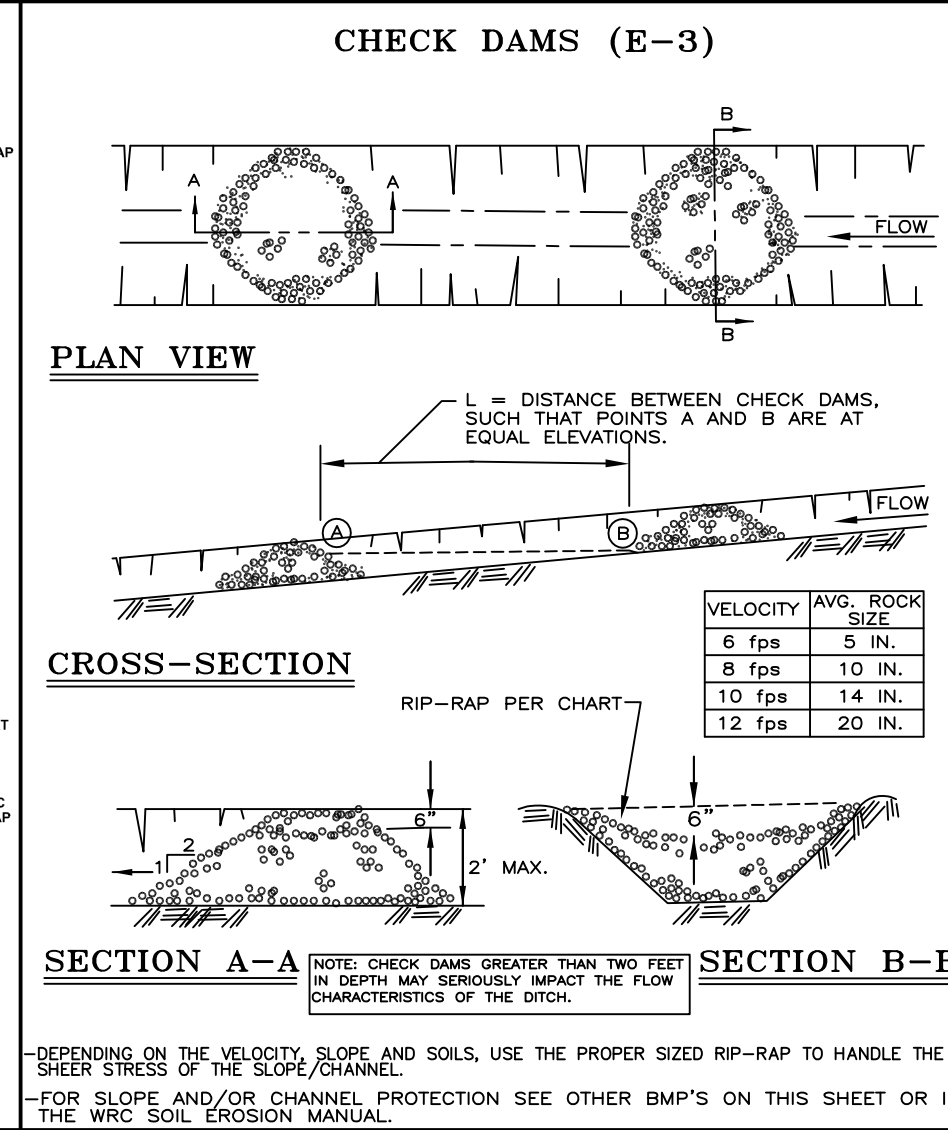
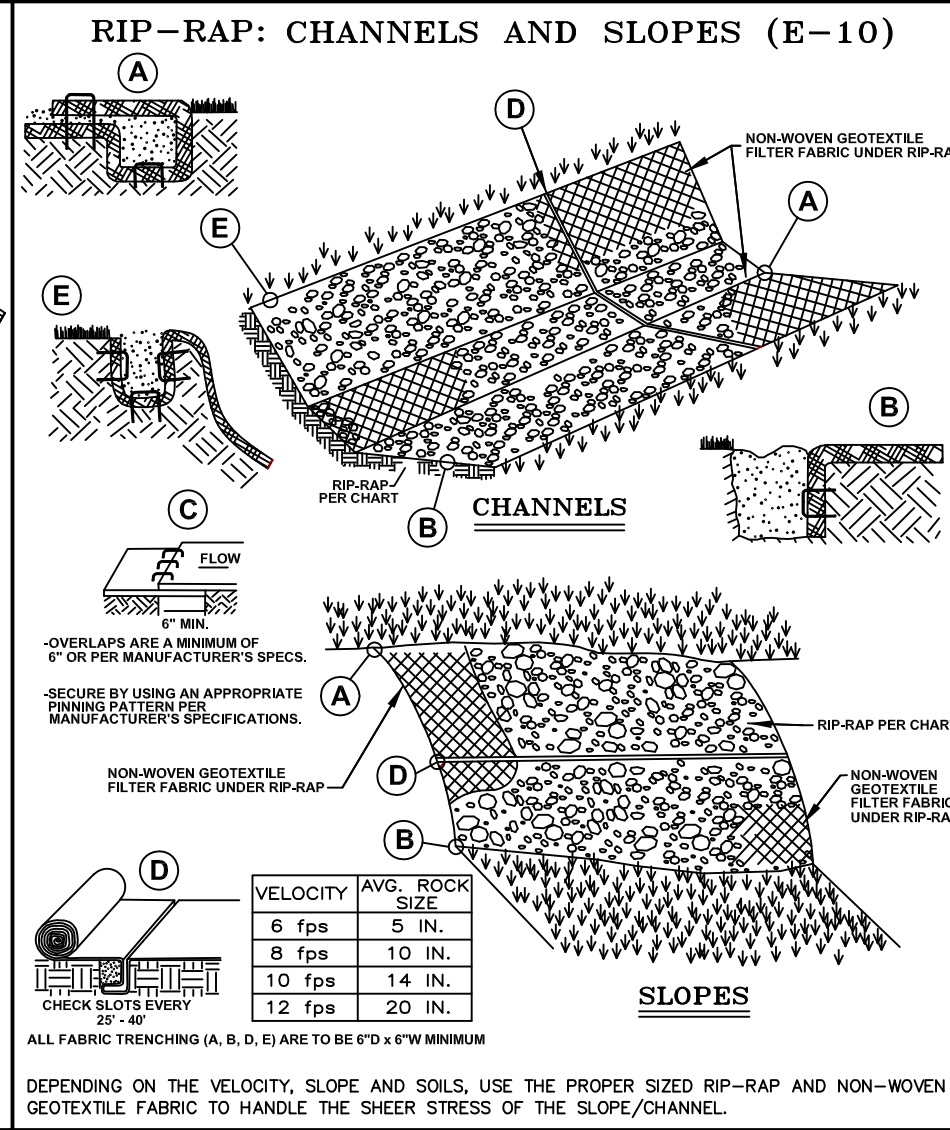
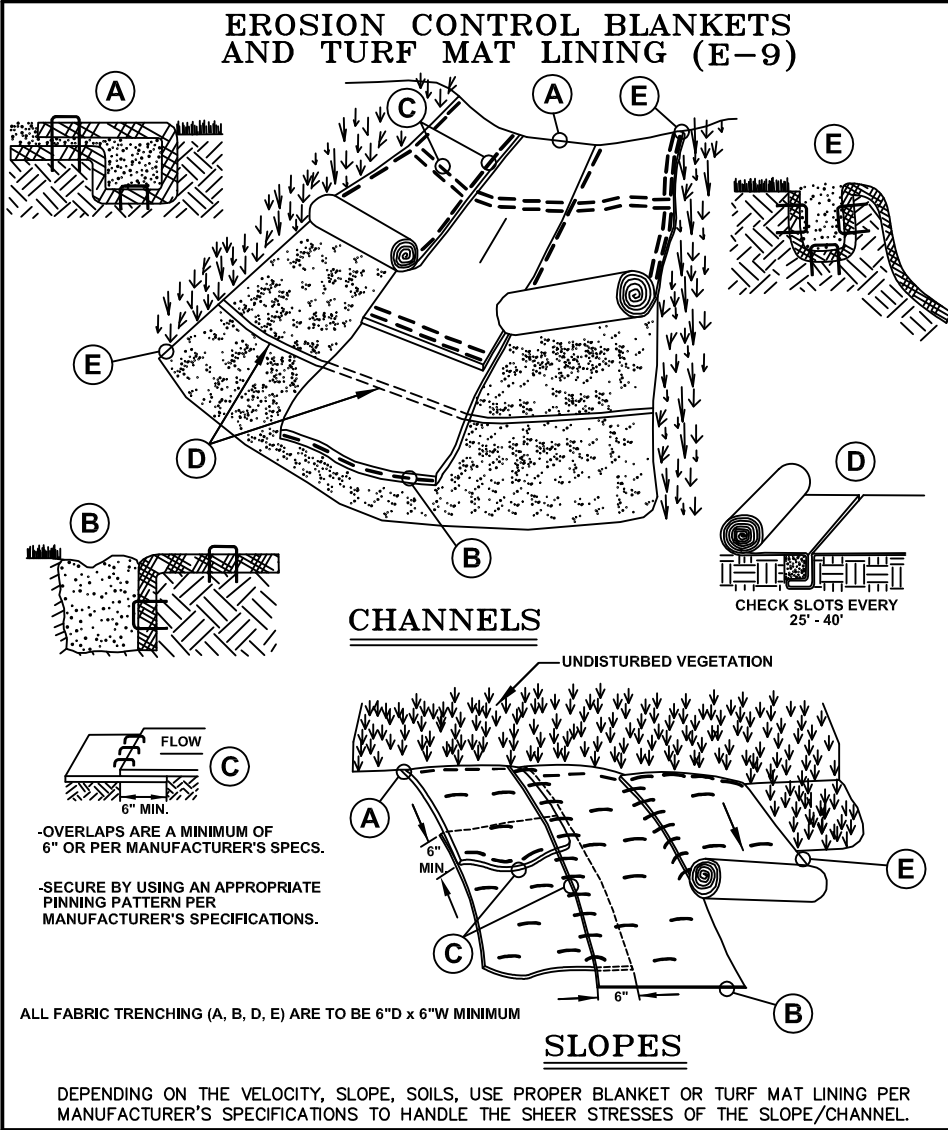
SHEET NAME

M.D.O.T. STANDARD DETAILS

SHEET NO.

C-7

EE # 1946



NOTE:

WHILE PERFORMING WORK INVOLVING GROUNDS MAINTENANCE AND/OR THE CONSTRUCTION/MAINTENANCE OF ANY INFRASTRUCTURE, INCLUDING ROADS, WATER MAINS, SANITARY SEWERS, STORM DRAINS AND STORM WATER BEST MANAGEMENT PRACTICES (BMPs), CONTRACTORS SHALL MINIMIZE POLLUTION FROM STORM WATER RUNOFF THAT CAN AFFECT WATER QUALITY RELATED TO WORK ACTIVITIES. POLLUTANTS THAT COULD IMPAIR WATER QUALITY MAY INCLUDE FUEL, GREASE AND OIL, NUTRIENTS, BACTERIA AND PATHOGENS, LITTER AND DEBRIS, AND SOIL EROSION AND SEDIMENTATION. APPLICABLE BMPs SHALL BE IMPLEMENTED BY THE CONTRACTOR TO THE MAXIMUM EXTENT PRACTICABLE TO PROTECT WATER QUALITY AND WILDLIFE HABITAT.

SOIL EROSION AND SEDIMENTATION CONTROL DETAILS

REVISION BLOCK

Rev.	By	Desc.
1	WRC	PROPOSED DETAIL
2	WRC	PROPOSED DETAIL
3	WRC	PROPOSED DETAIL
4	WRC	PROPOSED DETAIL
5	WRC	PROPOSED DETAIL
6	WRC	PROPOSED DETAIL
7	WRC	PROPOSED DETAIL
8	WRC	PROPOSED DETAIL
9	WRC	PROPOSED DETAIL
10	WRC	PROPOSED DETAIL

ORIG. DATE: 01/01/01

SCALE: NONE

DESIGNED BY: WRC

DRAWN BY: Mapping

WRC WATER RESOURCES COMMISSIONER

ONE PUBLIC WORKS DRIVE, BLDG 95 WEST WATERFORD, MICHIGAN 48328-1907

SHEET NO.: 1 of 1



INSIDE DIA.	SLAB THICKNESS	MAX. HEIGHT OF COVER	REINFORCEMENT		
			A-BARS EA. SIDE		B-BARS TOP & BOTTOM
			NO. SIZE	SPACING	
4'-0"	8"	8'-0"	(4)-#5	3 @ 3"	(3)-#5
5'-0"	8"	8'-0"	(6)-#5	3 @ 3" 2 @ 6"	(3)-#5
6'-0"	8"	8'-0"	(5)-#6	4 @ 8"	(3)-#5
7'-0"	8"	8'-0"	(7)-#6	6 @ 8"	(3)-#5
8'-0"	8"	8'-0"	(9)-#6	8 @ 8"	(3)-#5
9'-0"	10"	8'-0"	(11)-#6	10 @ 8"	(3)-#5
10'-0"	10"	8'-0"	(13)-#7	12 @ 8"	(3)-#5



- NOTES:**
1. ALL WORKSMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT ENGINEERING DESIGN STANDARDS AND SPECIFICATIONS OF HIGHLAND TOWNSHIP.
 2. IT SHALL BE THE OWNER'S ENGINEER AND CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES.
 3. ALL SEWER TRENCHES UNDER THE 45 DEGREE ZONE OF INFLUENCE LINE OF EXISTING OR PROPOSED PAYEMENTS, BIKE PATHS, SIDEWALKS OR DRIVE APPROPRIATE SHALL BE BACKFILLED WITH MDOT CLASS 11 SAND COMPACTED TO AT LEAST 95% OF MAXIMUM UNIT WEIGHT.
 4. ALL STORM SEWER SHALL BE INSTALLED ON CLASS "B" BEDDING OR BETTER.
 5. JOINTS FOR STORM SEWER SHALL BE PREMIUM JOINTS (TONGUE AND GROOVE WITH RUBBER GASKETS).
 6. LEAD MATERIAL SHALL BE 4" DIA. (MIN.) PVC SCHEDULE 40 OR SDR 23.5. LEAD CONNECTIONS MAY ONLY BE AT STRUCTURES.
 7. CONTACT THE TOWNSHIP ENGINEER 48 HOURS PRIOR TO STORM SEWER INSTALLATION TO SCHEDULE OBSERVATION. FULL TIME OBSERVATION IS REQUIRED FOR ALL UNDERGROUND STORM SEWER AND LEACHING SYSTEM CONSTRUCTION. CONTACT MICHAEL DARGA WITH HUBBELL, ROTH & CLARK, INC. 248-454-6532.
 8. BEFORE YOU DIG CALL MISS DIG AT 1-800-482-7171.
 9. ALL MORTAR AND CONCRETE WORK SHALL BE PROTECTED FROM FREEZING (40° F. AND FALLING) FOR A MINIMUM OF 48 HOURS.
 10. PIPE FOR STORM SEWERS WITHIN THE PUBLIC ROAD RIGHT-OF-WAY OR PRIVATE ROAD EASEMENT SHALL BE RCP, C-76, CLASS IV OR V RCP.
 11. DOUBLE WALLED HDPE MEETING THE REQUIREMENTS OF ASTM F2306.



HRC

WEB SITE: <http://www.hrc-engr.com>

DATE	ADDITIONS AND/OR REVISION
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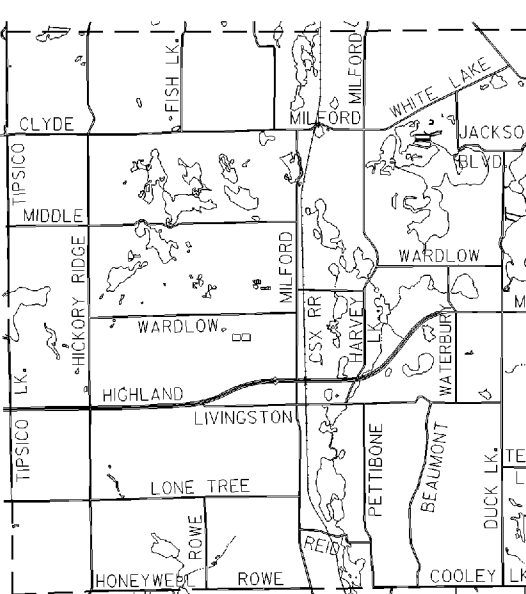
DESIGNED M.P.D.

RAWN T.E.W.

HECKED J.B.

APPROVED G.E.H.

\\200503\20050368\C\dstormsewershtl_V8.dgn



HIGHLAND TOWNSHIP

HIGHLAND TOWNSHIP DESIGN STANDARDS

STORM SEWER DETAILS

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DATE SEPTEMBER 2005	SHEET NO. 1

TIME = 25-JAN-2010 10:23

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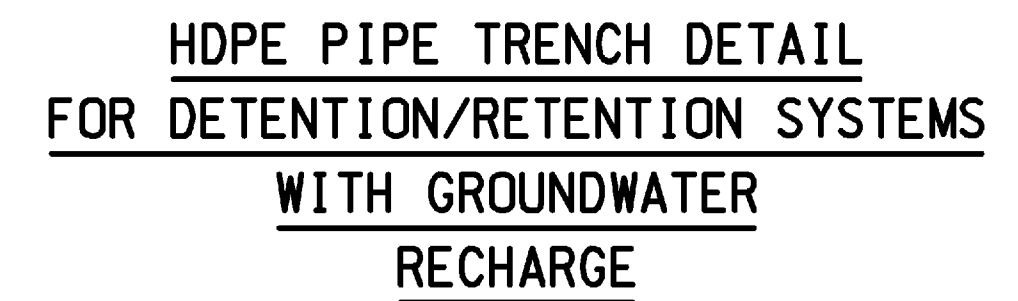
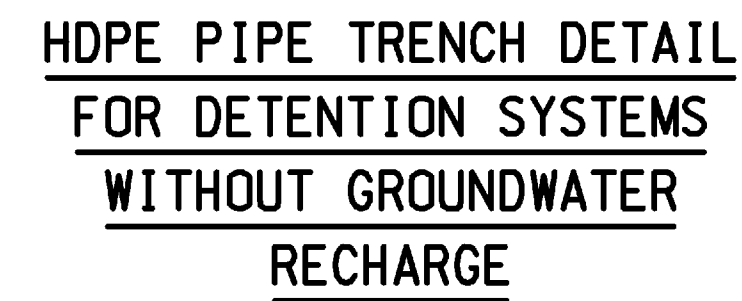
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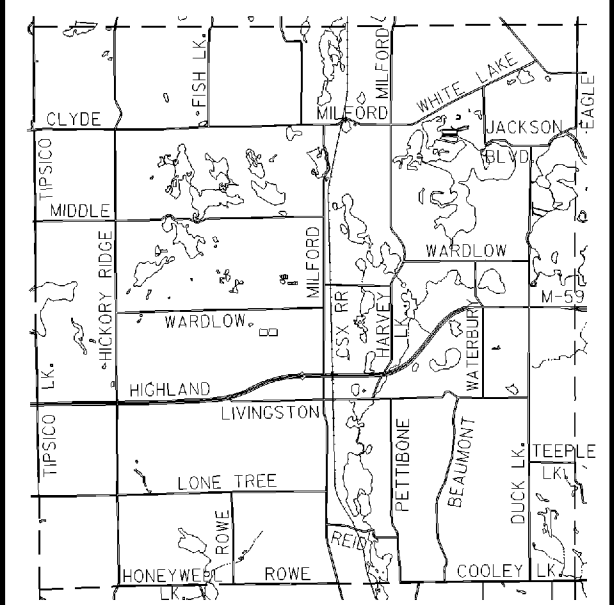
1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT ENGINEERING DESIGN STANDARDS AND SPECIFICATIONS OF HIGHLAND TOWNSHIP.
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11. DOUBLE WALLED HOPE MEETING THE REQUIREMENTS OF ASTM F2306.



STANDARD LEACHING BASIN



WEB SITE: <http://www.hrc-engr.com>

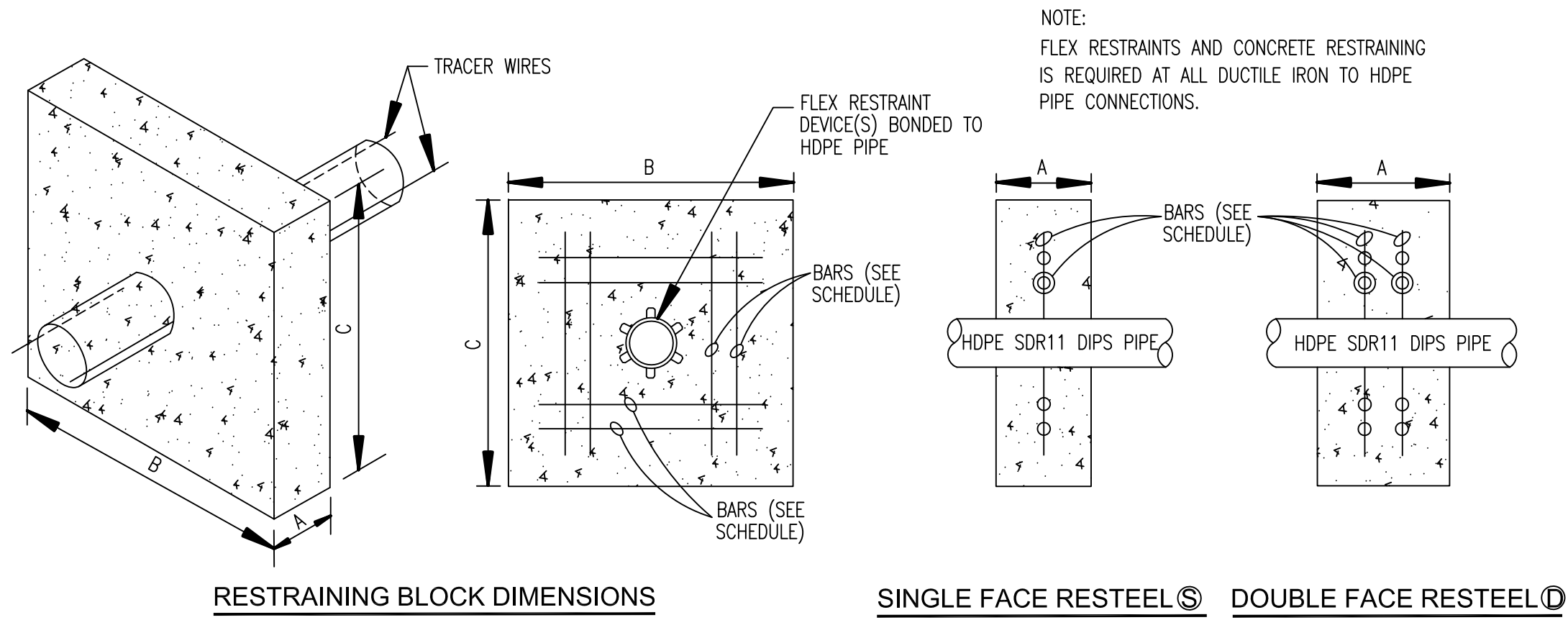
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HIGHLAND TOWNSHIP 

HIGHLAND TOWNSHIP DESIGN STANDARDS

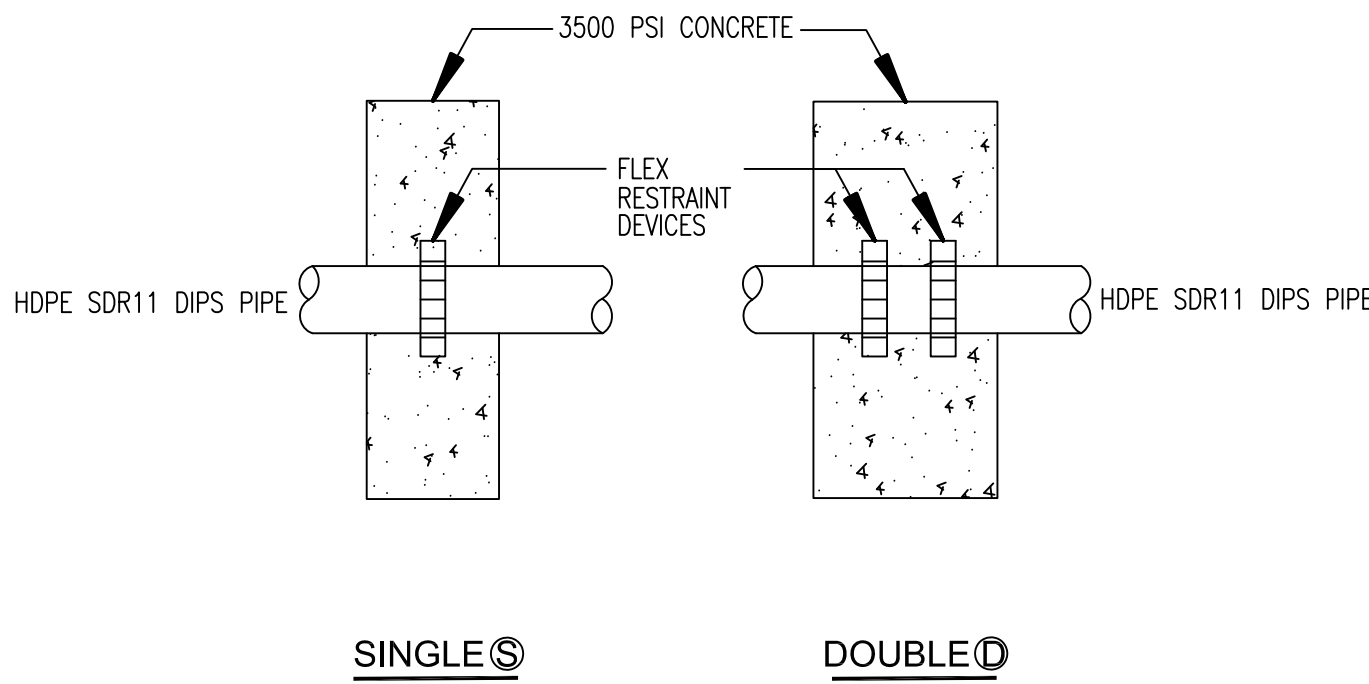
STORM SEWER DETAILS

HRC JOB NO. 20050368	SCALE NONE
DATE SEPTEMBER 2005	SHEET NO. 2



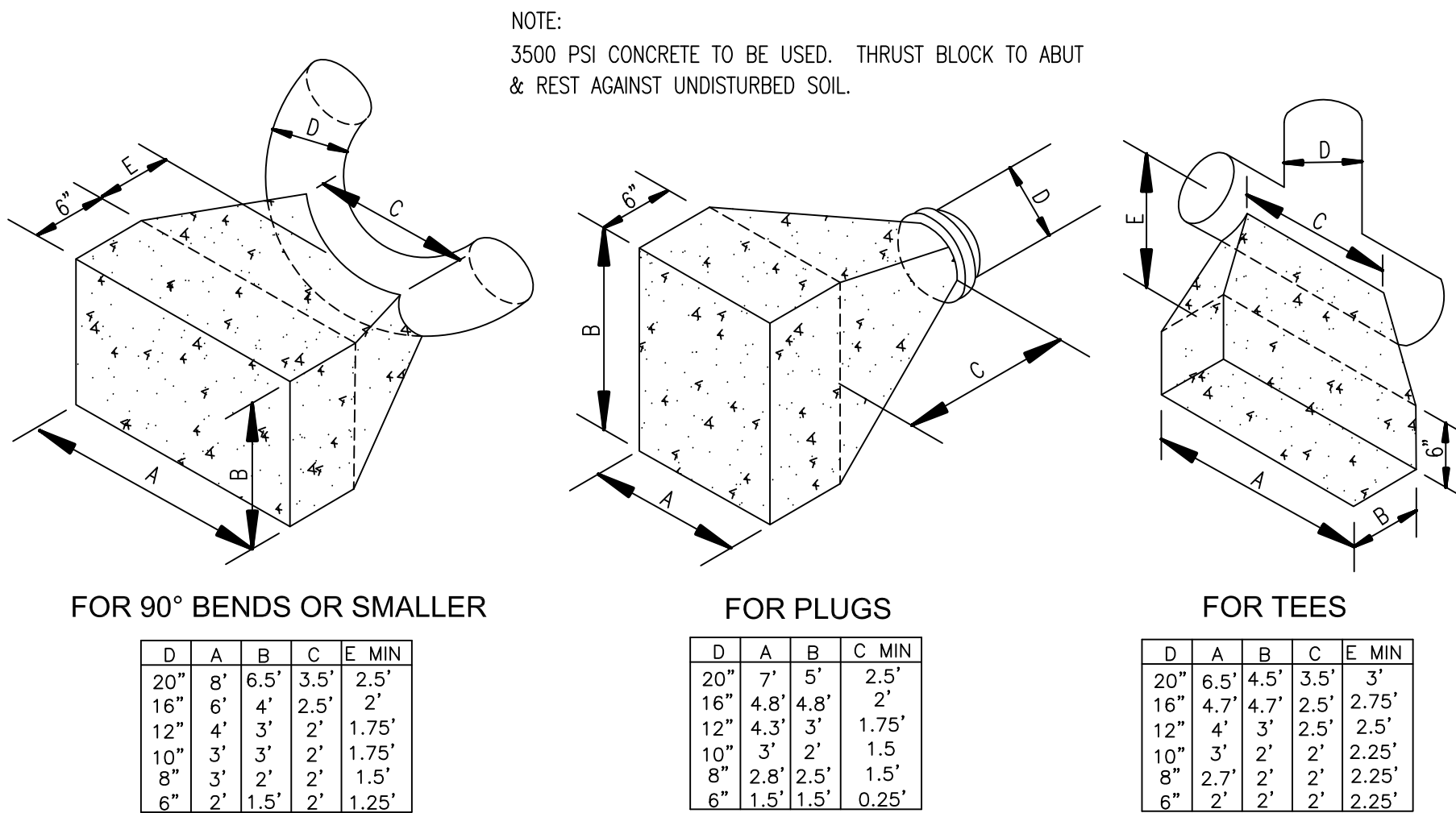
HDPE RESTRAINING RESTEEL

NOT TO SCALE



HDPE RESTRAINING BLOCK RESTRAINTS

NOT TO SCALE



HDPE THRUST BLOCK DETAILS

NOT TO SCALE

HDPE SDR11 DIPS RESTRAINING BLOCK SCHEDULE

HDPE SDR11 DIPS SIZE	A	B	C	EFFECTIVE AREA	# RESTRAINTS	REINFORCING
4"	1 FT	2 FT	2 FT	4.0 S.F.	1	4 #6 (S)
6"	1 FT	3 FT	3 FT	9.0 S.F.	2	4 #6 (S)
8"	1 FT	3.75 FT	3.75 FT	14.0 S.F.	2	4 #6 (S)
10"	1 FT	4.75 FT	4.75 FT	22.6 S.F.	3	8 #4 (S)
12"	1.5 FT	5.5 FT	5.5 FT	30.3 S.F.	4	8 #6 (S)
14"	1.5 FT	6.33 FT	6.33 FT	40.0 S.F.	5	8 #6 (S)
16"	2 FT	7.25 FT	7.25 FT	52.6 S.F.	6	16 #6 (D)
18"	2 FT	8.1 FT	8.1 FT	65.6 S.F.	7	16 #6 (D)
20"	2 FT	9 FT	9 FT	81.0 S.F.	9	16 #6 (D)
24"	2 FT	10.75 FT	10.75 FT	115.6 S.F.	14 (D)	16 #6 (D)
30"	2.5 FT	13.25 FT	13.25 FT	175.6 S.F.	19 (D)	16 #6 (D)
36"	2.5 FT	15.9 FT	15.9 FT	252.8 S.F.	28 (D)	16 #6 (D)

- Restraining blocks shall have a minimum of 3.0' of cover.
- Restraining block dimensions "B" and "C" may be changed due to depth of cover limitations provided the effective area is maintained.


HDPE Watermain Notes

- All HDPE watermain shall be D.I.P.S. SDR 11 manufactured from a PE 4710 resin. HDPE pipe shall be marked with a permanently co-extruded blue stripe.
- All HDPE fittings shall be manufactured from a PE 4710 resin.
- All HDPE water services shall be SDR 9.
- Electrofusion equipment shall be calibrated and certified per the pipe manufacturer's requirements.
- Concrete restraining blocks and thrust blocks shall be constructed of minimum 3,500 p.s.i. concrete.
- All HDPE piping shall be installed with two tracer/locator wires insulated with high molecular weight polyethylene (HMWPE) specifically for use in direct burial applications.
- Tracer wires shall be 6-gauge solid or stranded annealed or hard copper per UL83 (Thermoplastic Insulated Wires and Cables) and ASTM requirements including ASTM B1 (Standard Specification for Hard-Drawn Copper Wire), B3 (Standard Specification for Soft or Annealed Copper Wire), and B8 (Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft).
- Tracer wire shall be insulated. Insulation shall be for 600-volt applications and shall be a minimum of 45 mils thick. The minimum thickness at any point shall not be less than 90% of the specified average thickness in compliance with UL 83. The tracer wire shall have the UL 83 specification shall be clearly marked on the wire insulation. The insulation shall be colored blue for watermain applications.
- Two tracer wires shall be attached to the watermain pipe at five foot intervals or as approved by the Engineer. Attachment to pipe shall be made with plastic cable ties or equivalent. The use of tape is not approved. Tracer wires shall be checked for continuity prior to placing the watermain into service.
- HDPE pipe transitions to ductile iron pipe shall be performed using fused-on mechanical joint adapters or flange adapters. Mega-lugs or Mega-lugs combined with internal pipe stiffeners are not approved.
- Hydrostatic testing shall be per AWWA standards (ASTM F2164). Testing shall be performed after the initial expansion phase and after the system has stabilized. Testing pressure shall be 150 p.s.i. held for 2 hours.

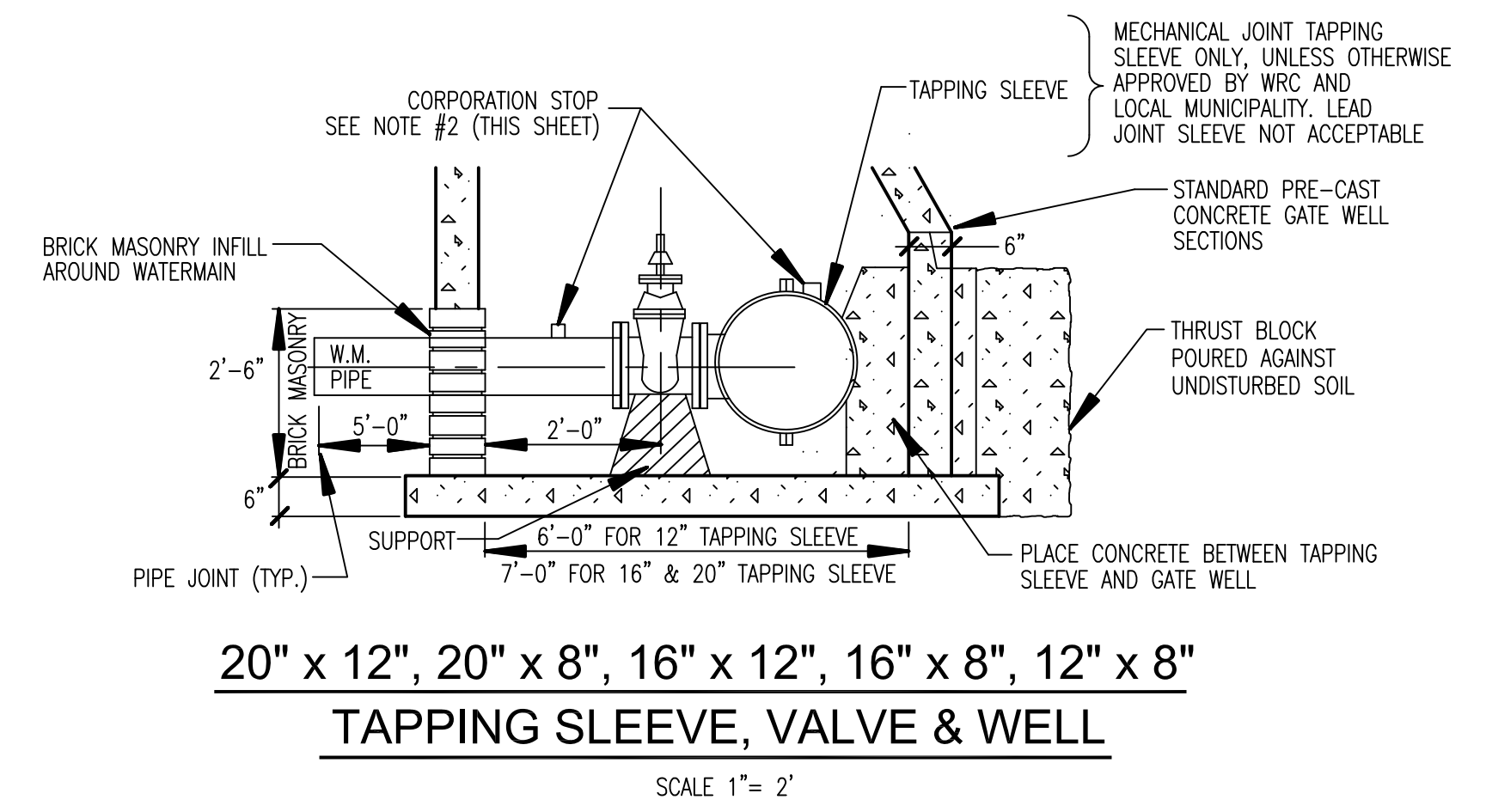
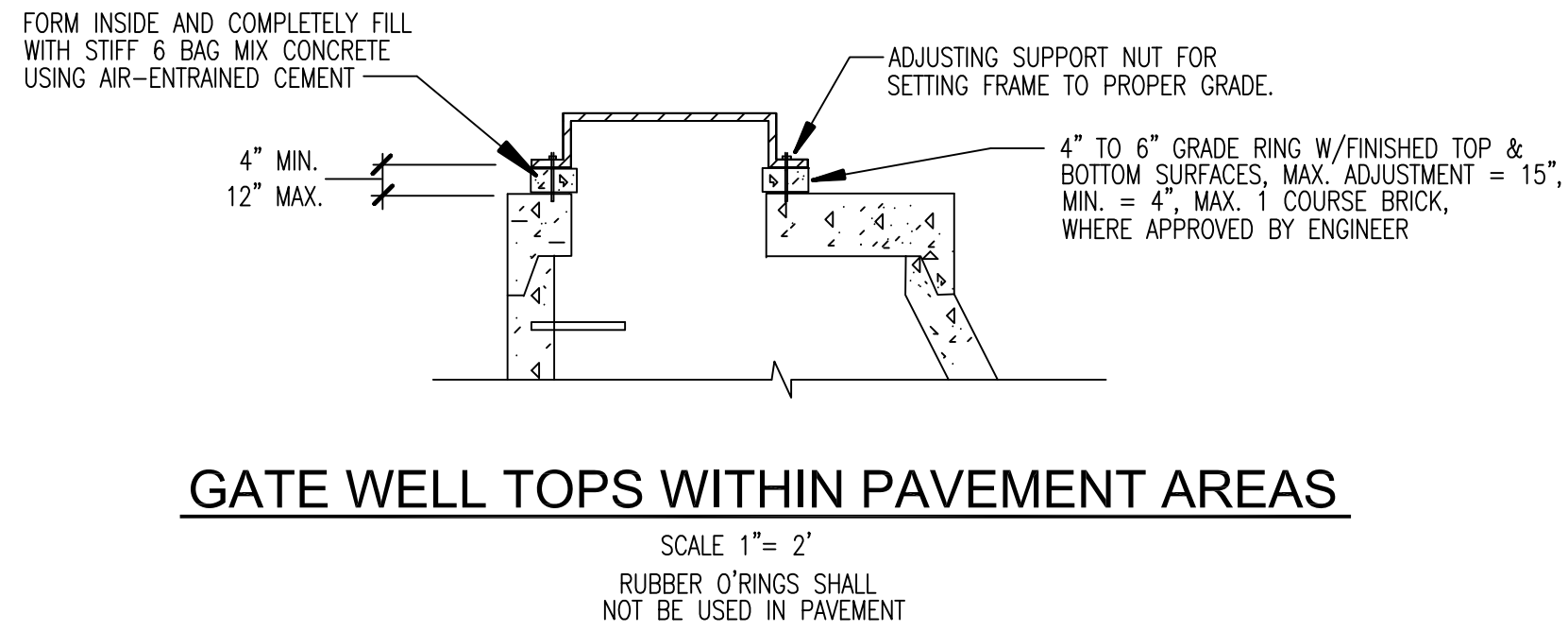
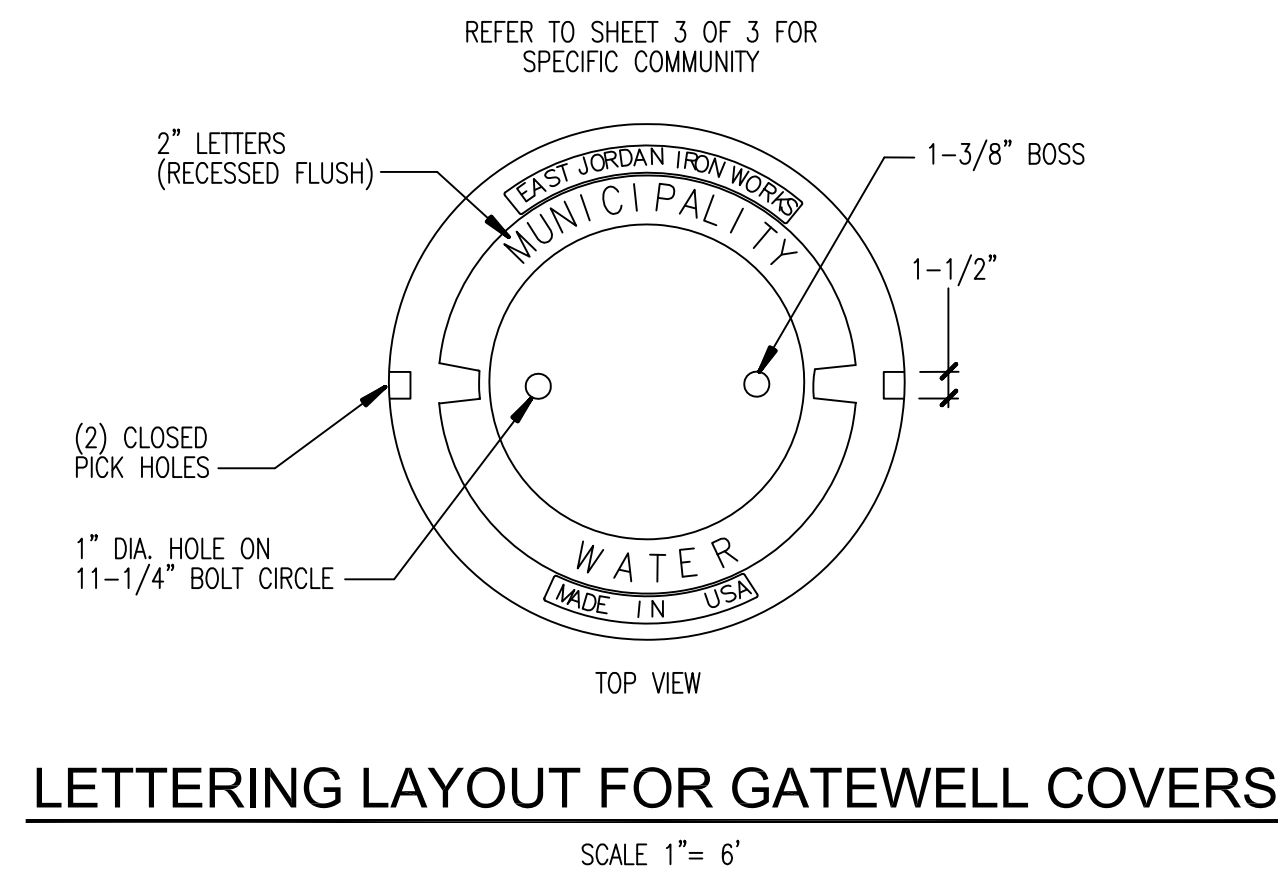
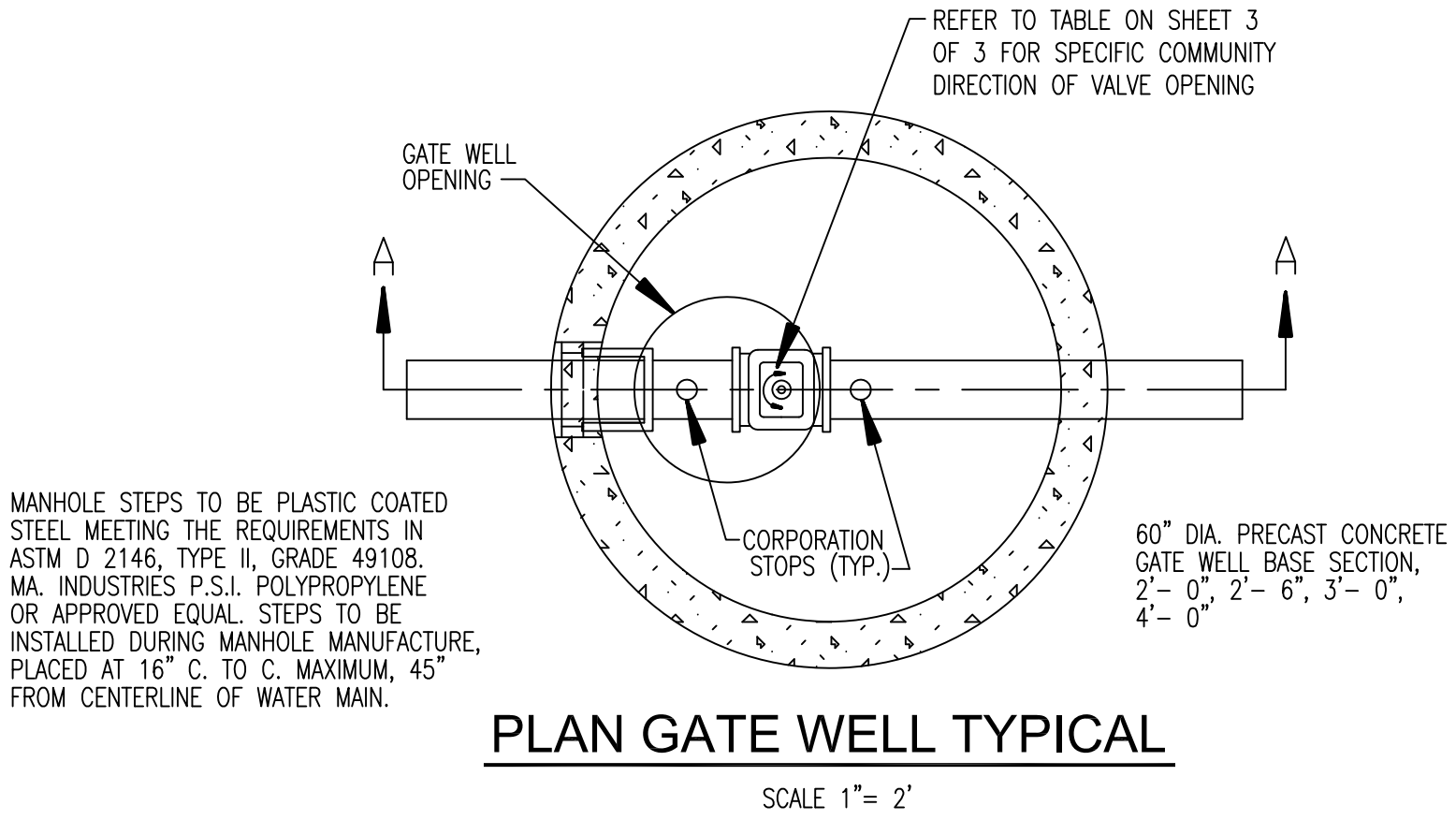
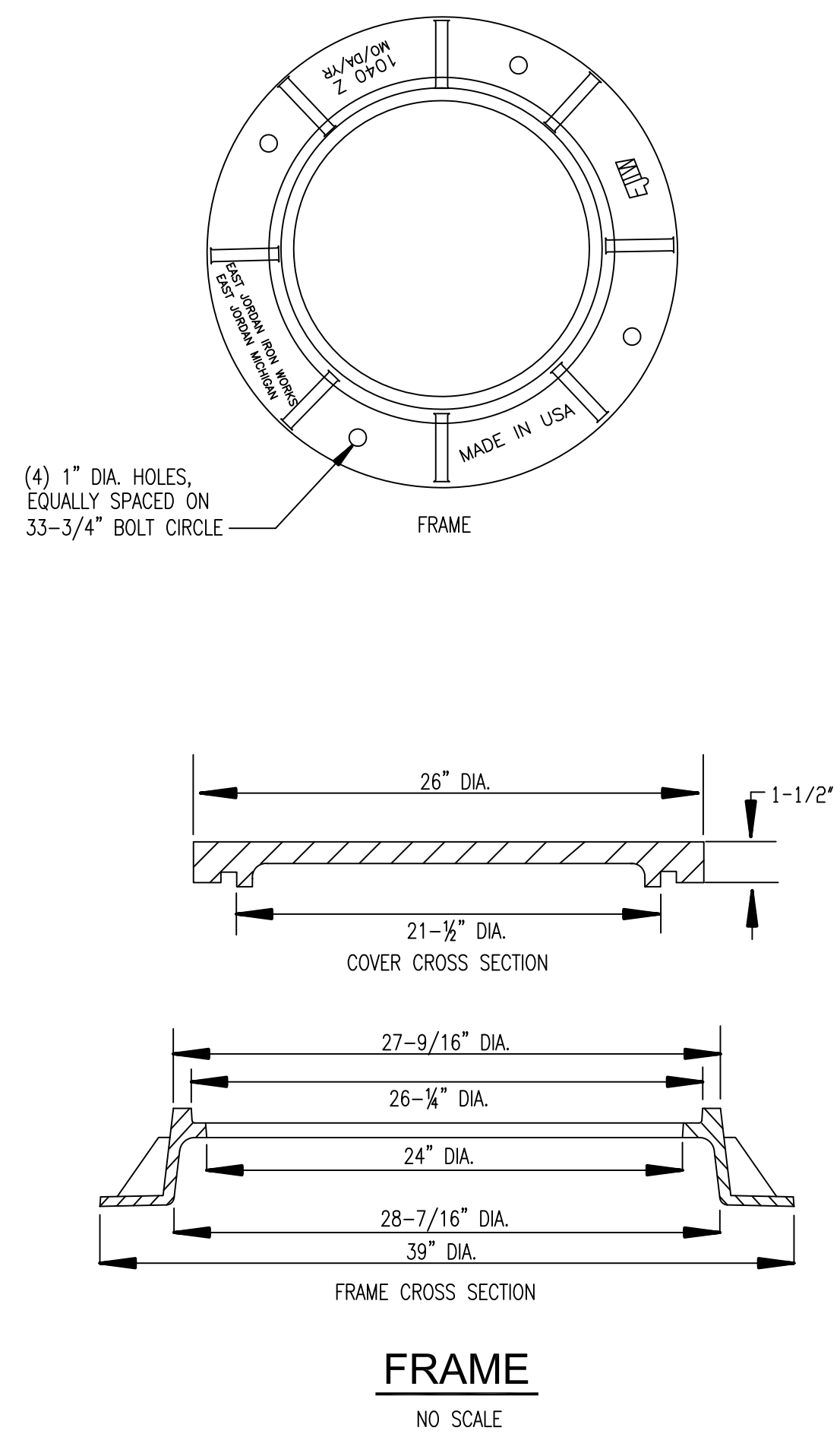
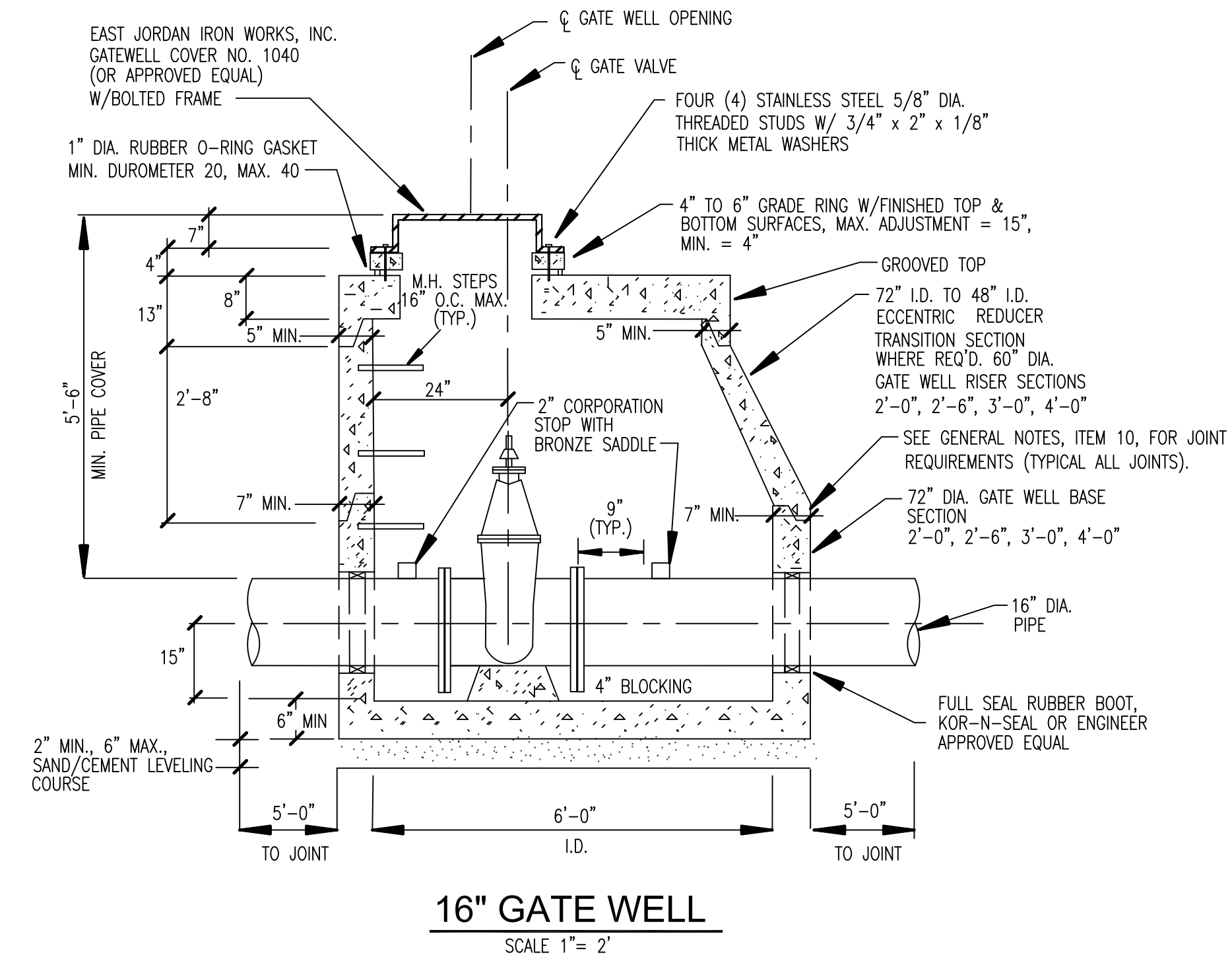
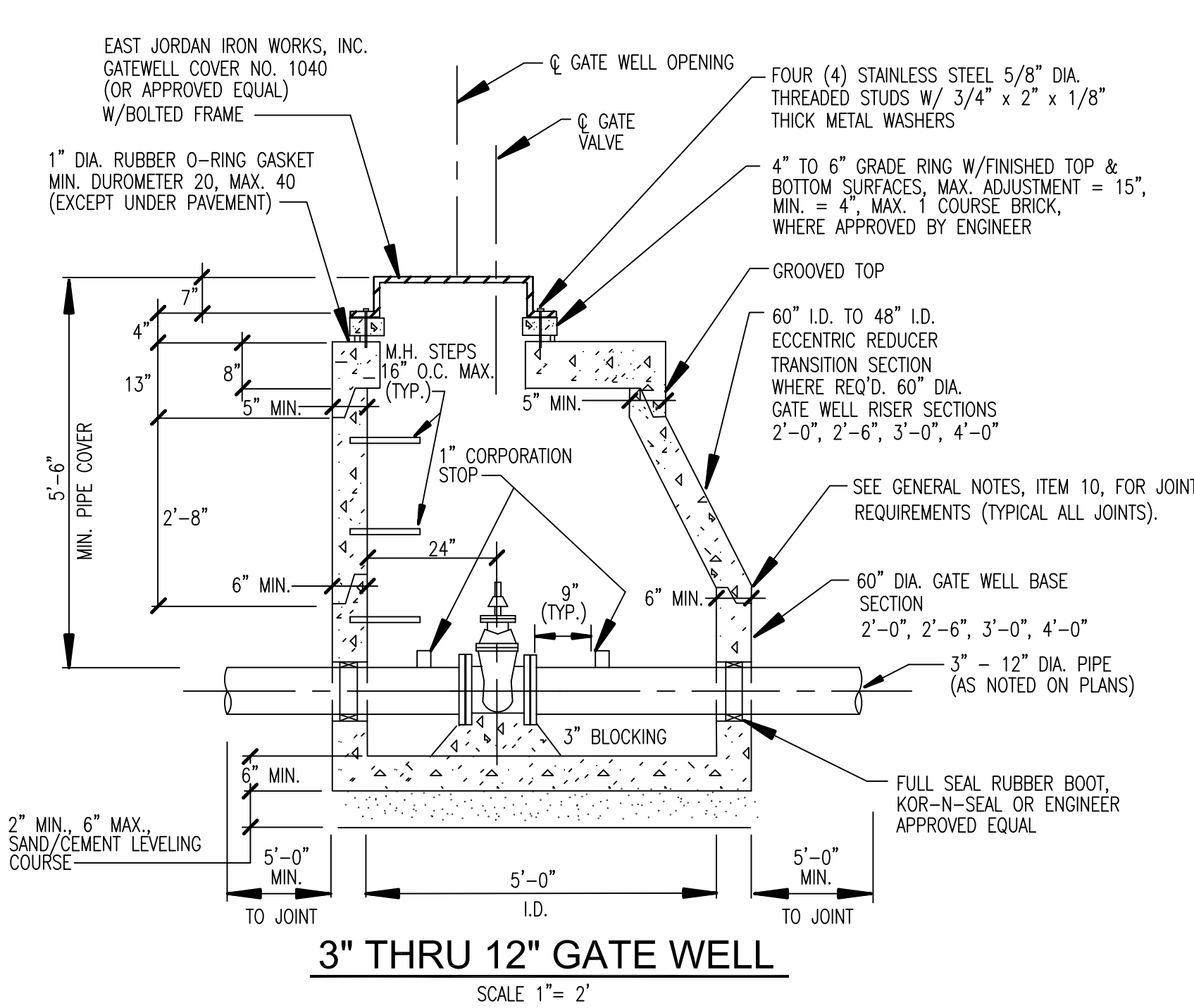
HDPE Watermain Allowable Losses for 2 Hour Test Period

Pipe Dia.	Pipe Length	Allowable Water Loss Per Ft.	Total Loss Allowed
3"	—	x 0.15	= —
4"	—	x 0.25	= —
6"	—	x 0.60	= —
8"	—	x 1.00	= —
10"	—	x 1.30	= —
12"	—	x 2.30	= —
14"	—	x 2.80	= —
16"	—	x 3.30	= —
18"	—	x 4.30	= —
20"	—	x 5.50	= —
24"	—	x 8.90	= —

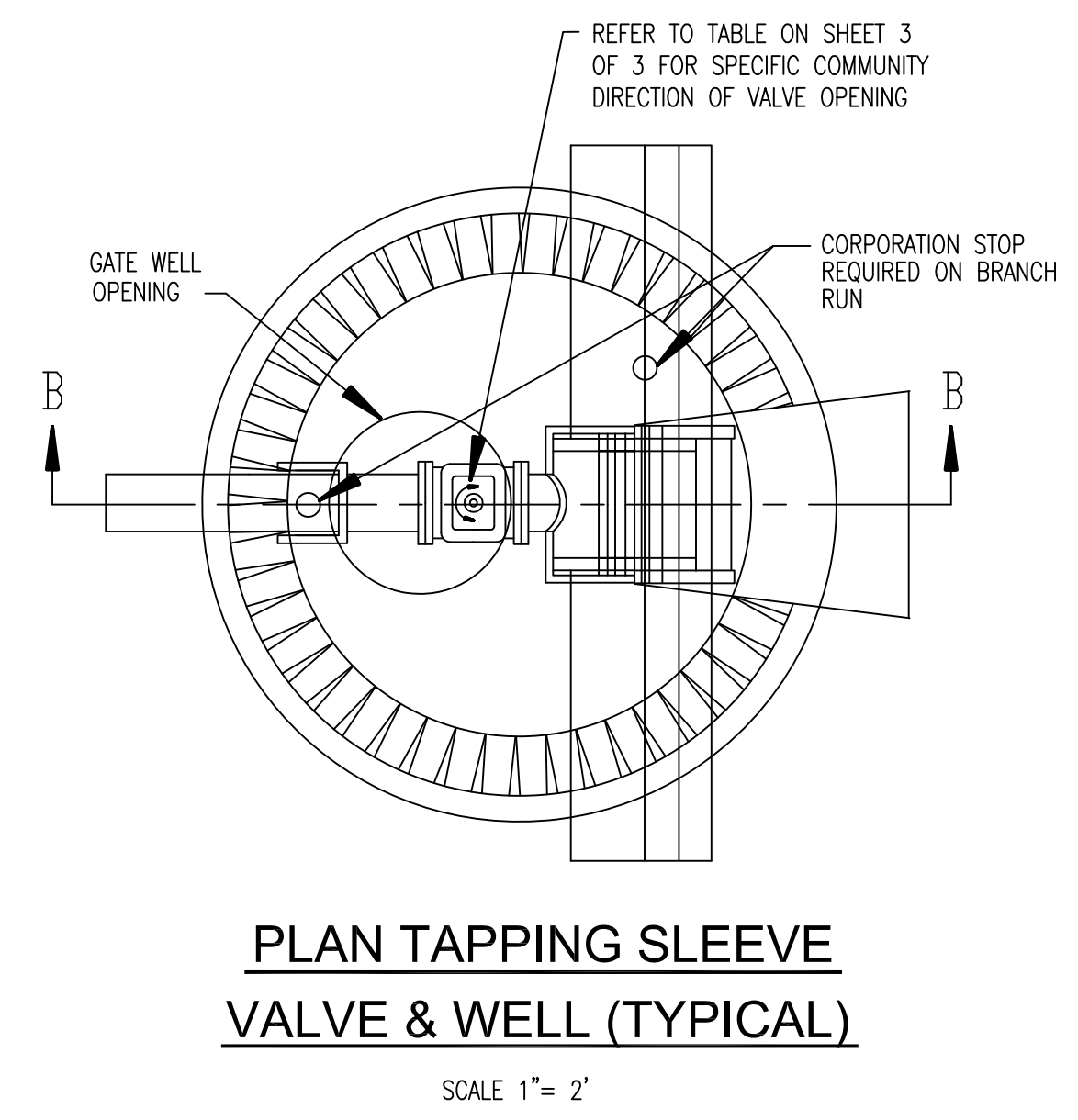
HDPE WATER MAIN STANDARD DETAILS

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Rev.	Rev.	Rev.	Description:
No.	By:	Date:	
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2			
3			
4			
ORIG. DATE: 01/01/01			
SCALE: NONE			
DESIGNED BY: OCDC			
DRAWN BY: OCDC Mapping			
		ONE PUBLIC WORKS DRIVE, BLDG 95 WEST WATERFORD, MICHIGAN 48326-1907	
WATER RESOURCES COMMISSIONER Jim Nash		SHEET NO.: 4 OF 5	

GATE VALVE & WELL DETAILS



- NOTES:
1. REFER TO NOTE 7 OF "VALVE AND SLEEVE NOTES" ON SHEET 3 OF 3.
 2. FOR PIPE SMALLER THAN 16" USE 1" CORPORATION STOP, FOR 16" PIPE OR LARGER USE 2" CORPORATION STOP WITH BRONZE SADDLE.
 3. REFER TO NOTE 11 OF "GENERAL NOTES" ON SHEET 3 OF 3.
 4. WRC DOES NOT RECOMMEND SIZE ON SIZE TAPPING.



WATER MAIN STANDARD DETAILS

Rev.	Rev.	Rev.	Description:
1	01/01/01	03/15/13	UPDATE TITLEBLOCK AND ARROWS
2	07/06/14		PROPOSED REVISIONS
3	11/01/14		PROPOSED CHANGE TO DELETE HOLES FROM GATEWELL COVERS
4	03/19/18		MARKUPS PER G. APPEL

ORIG. DATE: 01/01/01

SCALE: NONE

DESIGNED BY: WRC

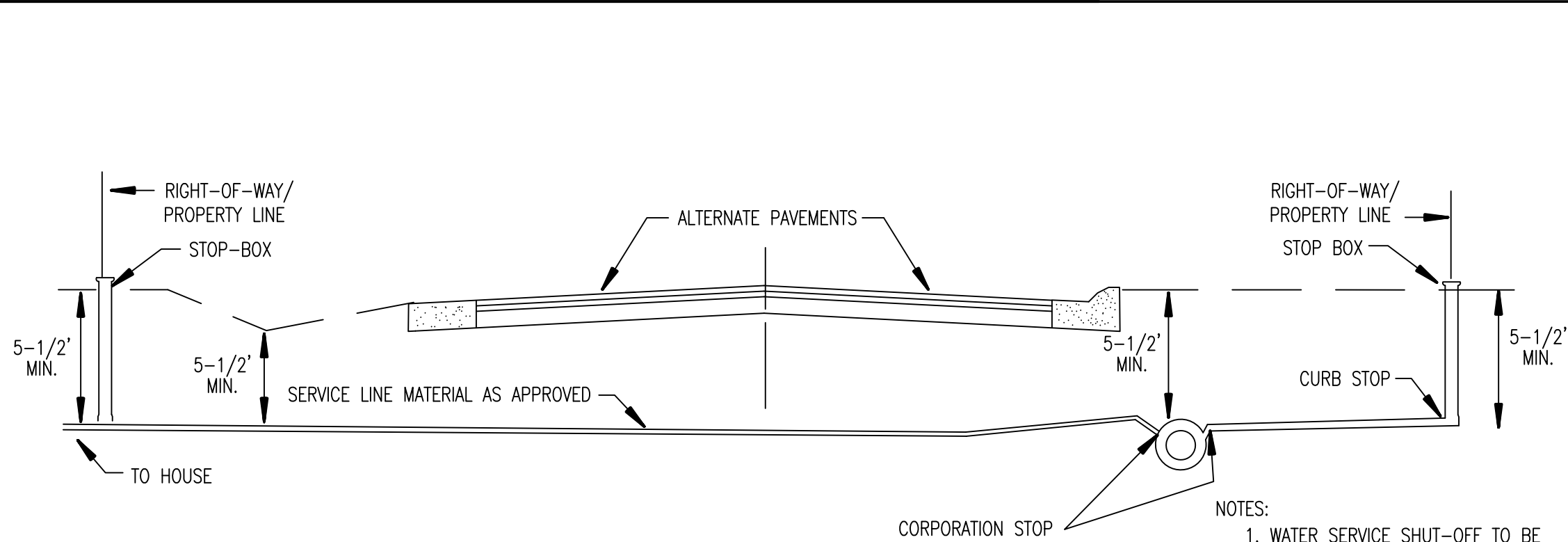
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WRC

WATER RESOURCES COMMISSIONER
Jim Nash

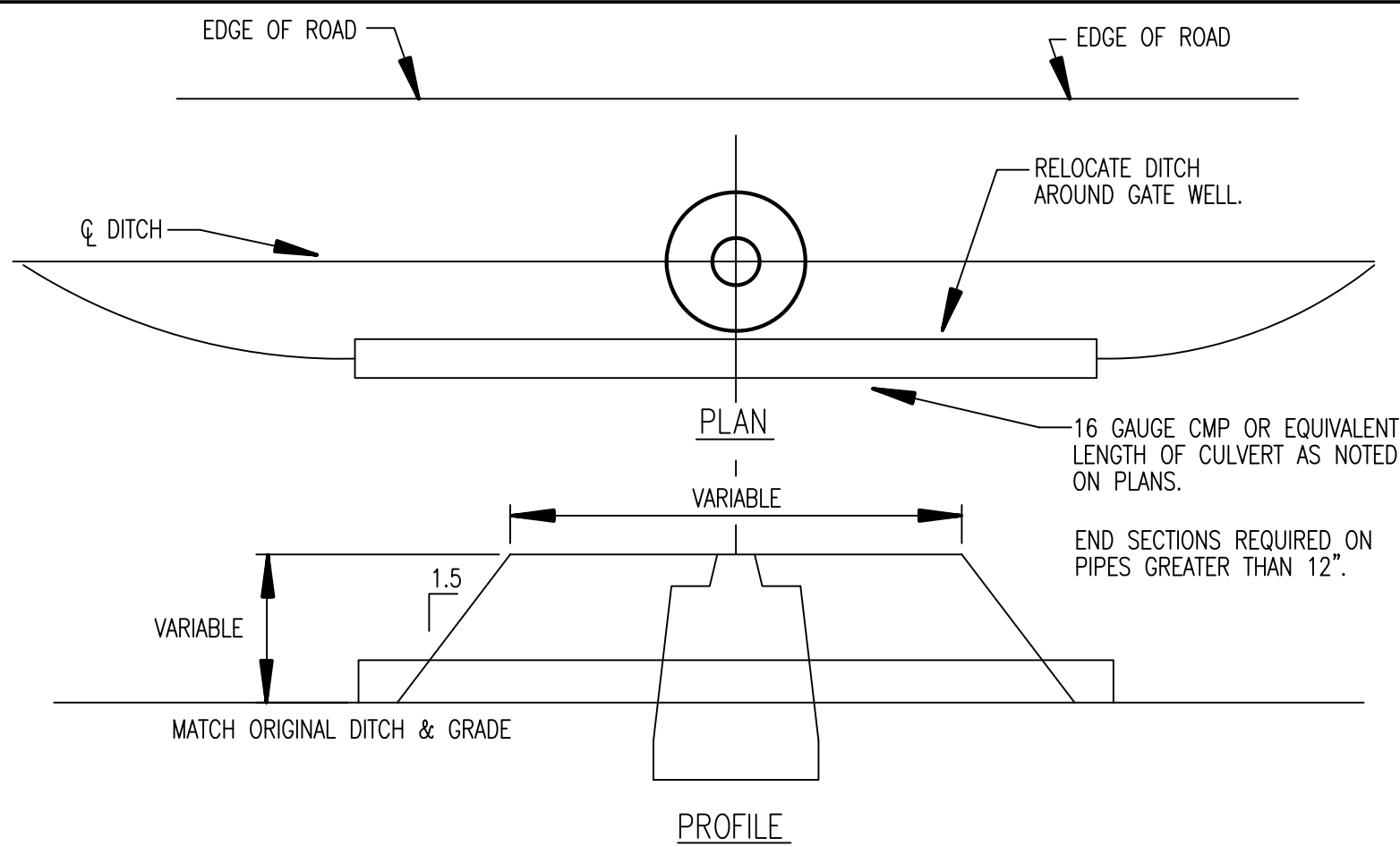
ONE PUBLIC WORKS DRIVE, BLDG 95 WEST
WATERFORD, MICHIGAN
48326-1907

SHEET NO.: 1 of 5



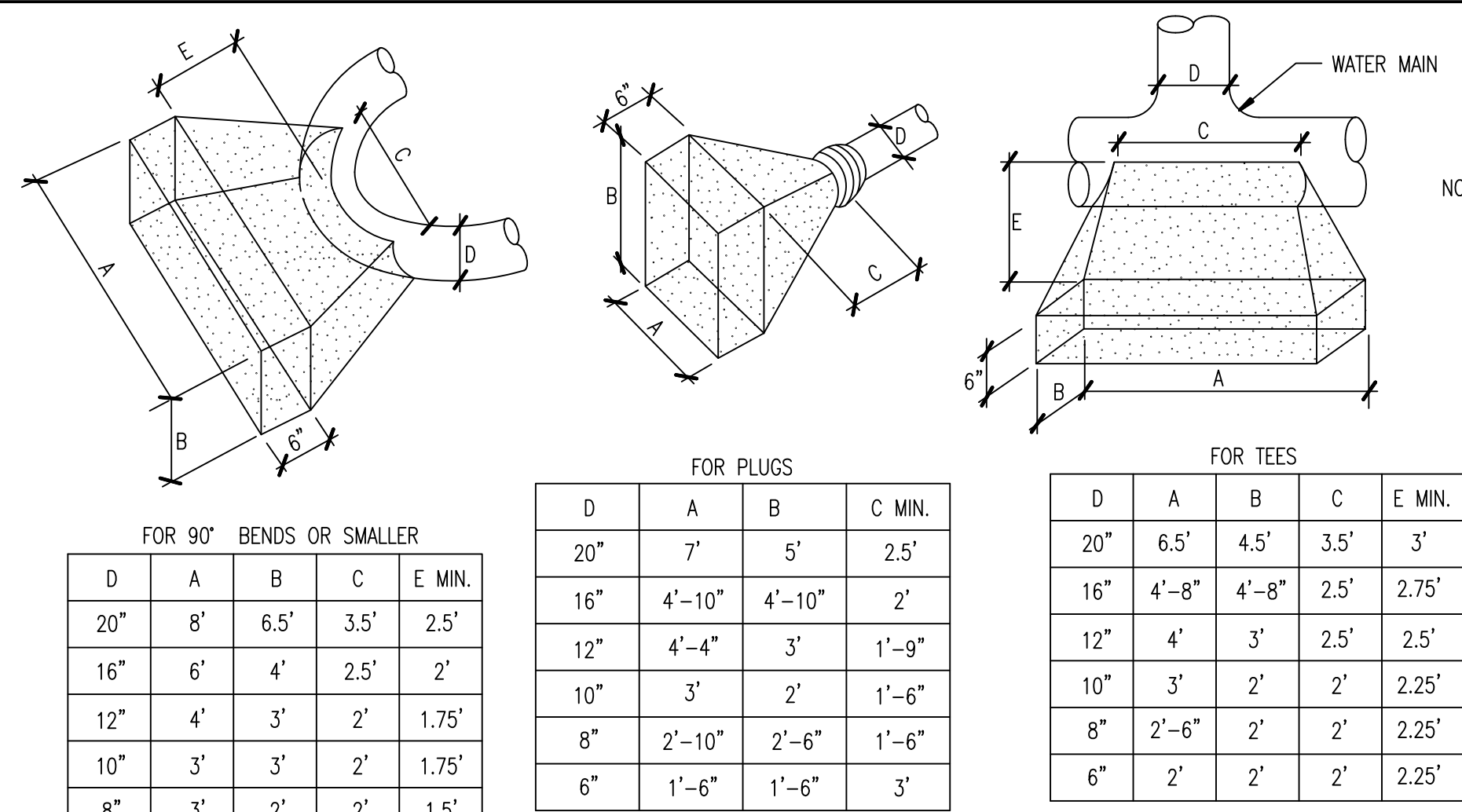
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NO SCALE

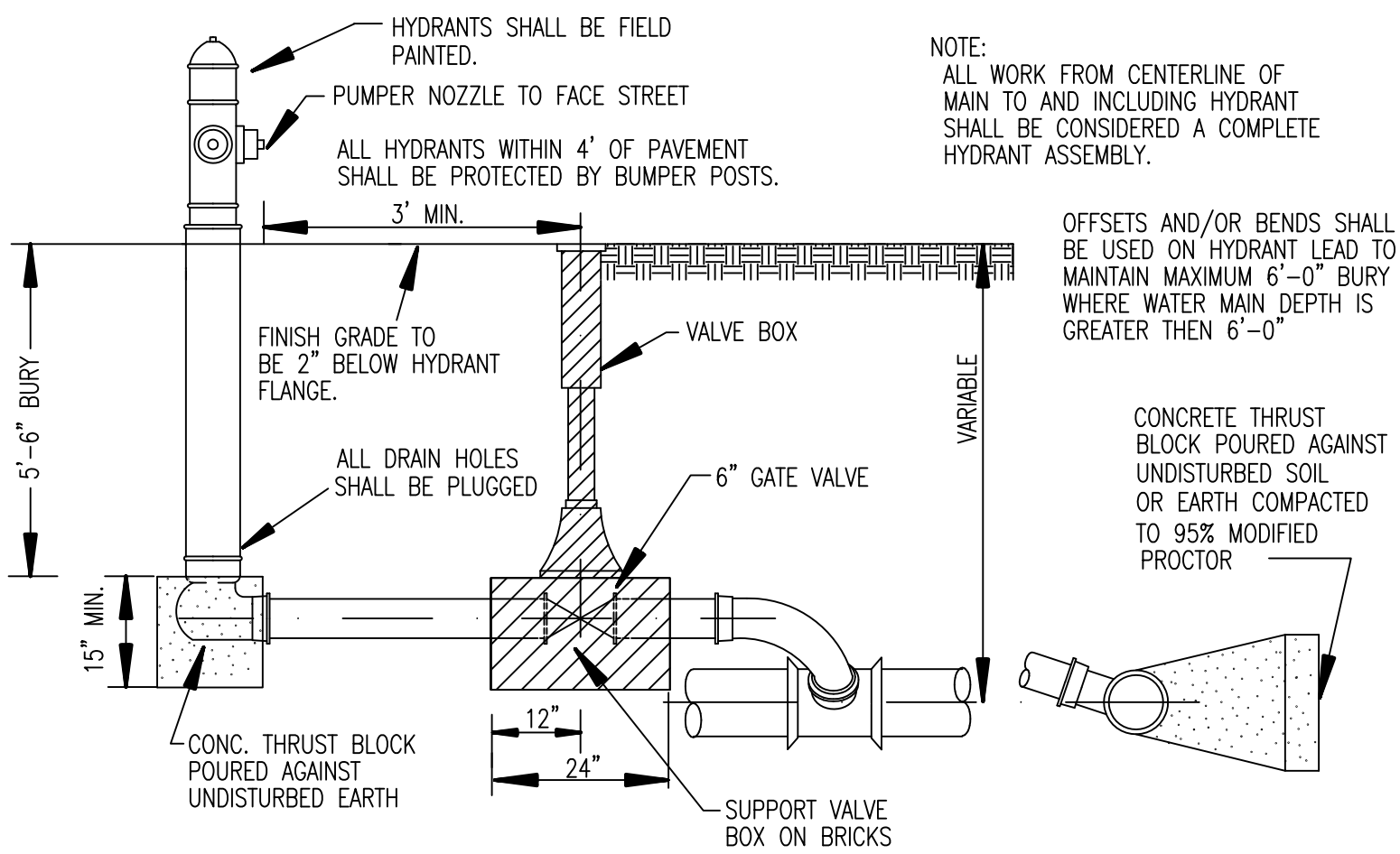


DITCH ENCLOSURE AT GATE WELL

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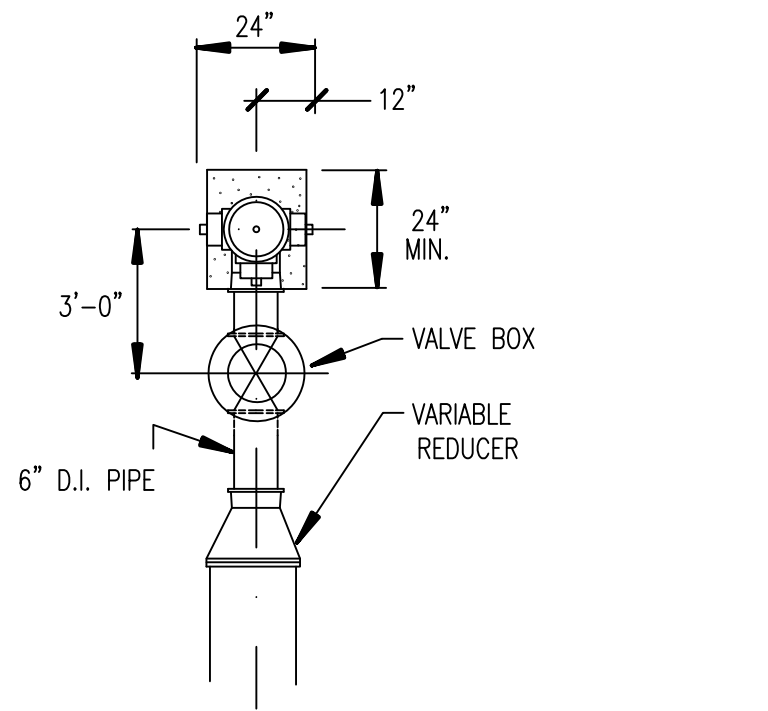


THRUST BLOCK DETAILS



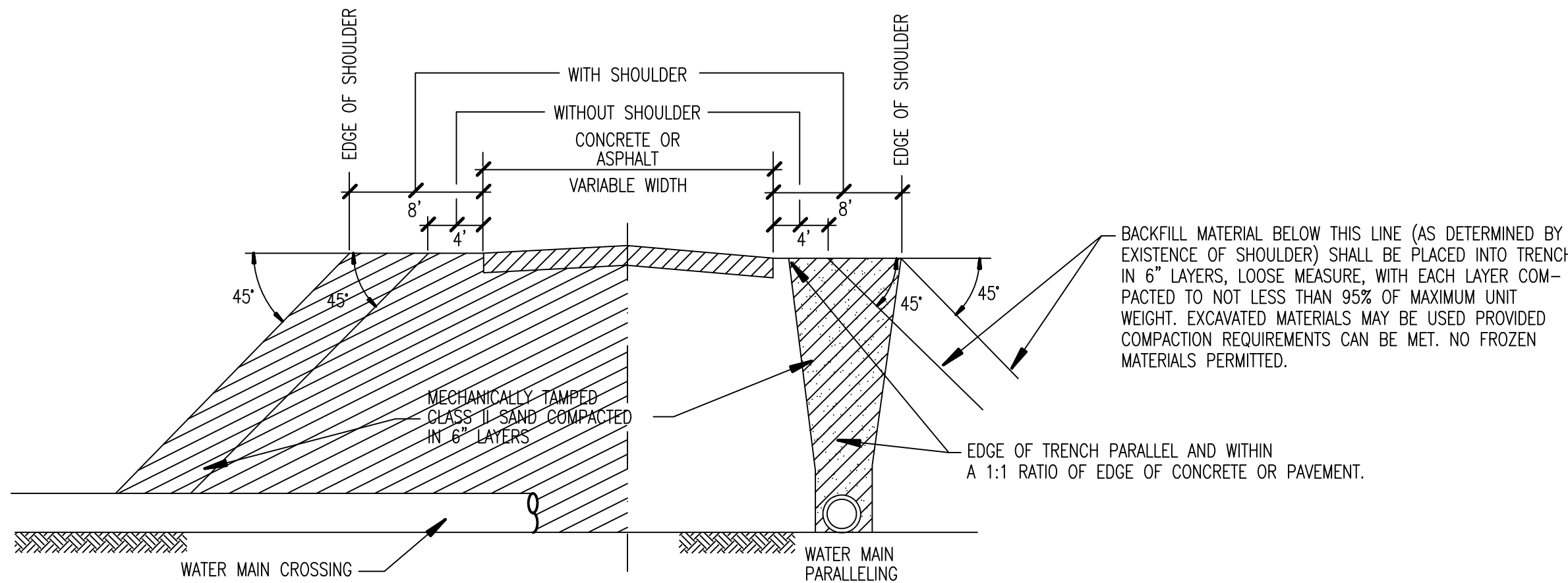
SECTION 6" HYDRANT SIDE OUTLET

SCALE 1" = 2'



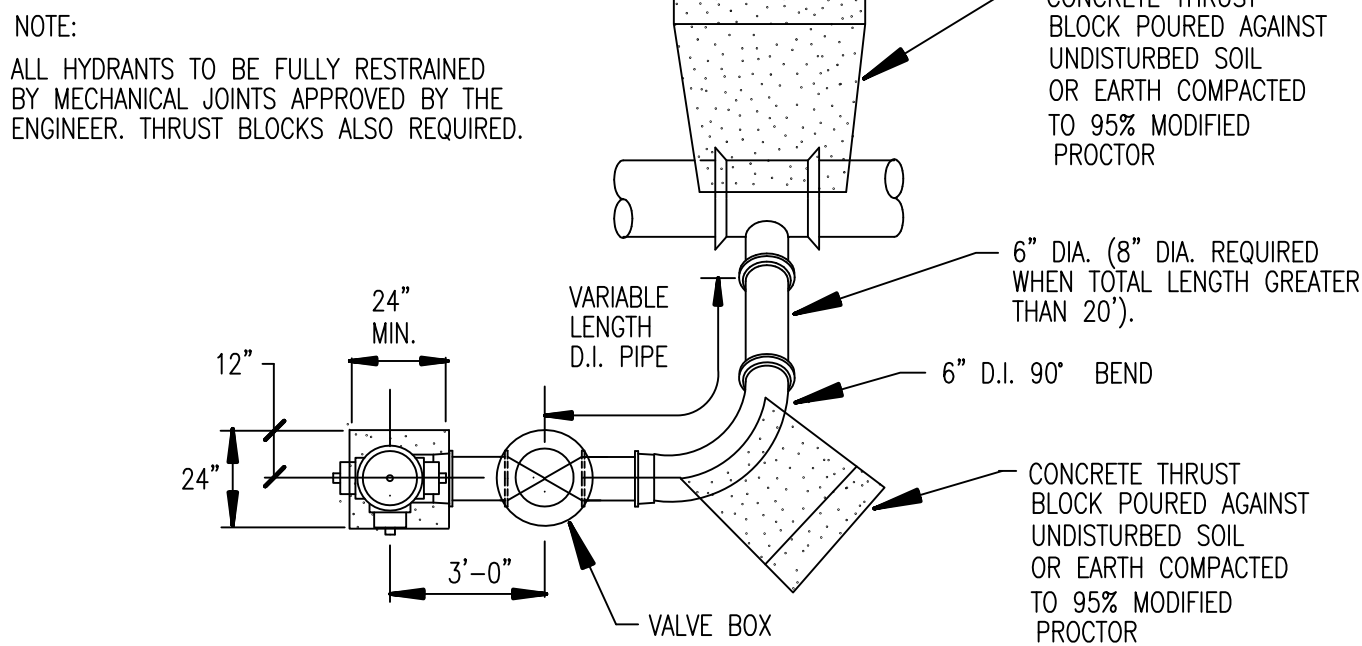
PLAN 6" HYDRANT WATER MAIN END

SCALE 1" = 1'



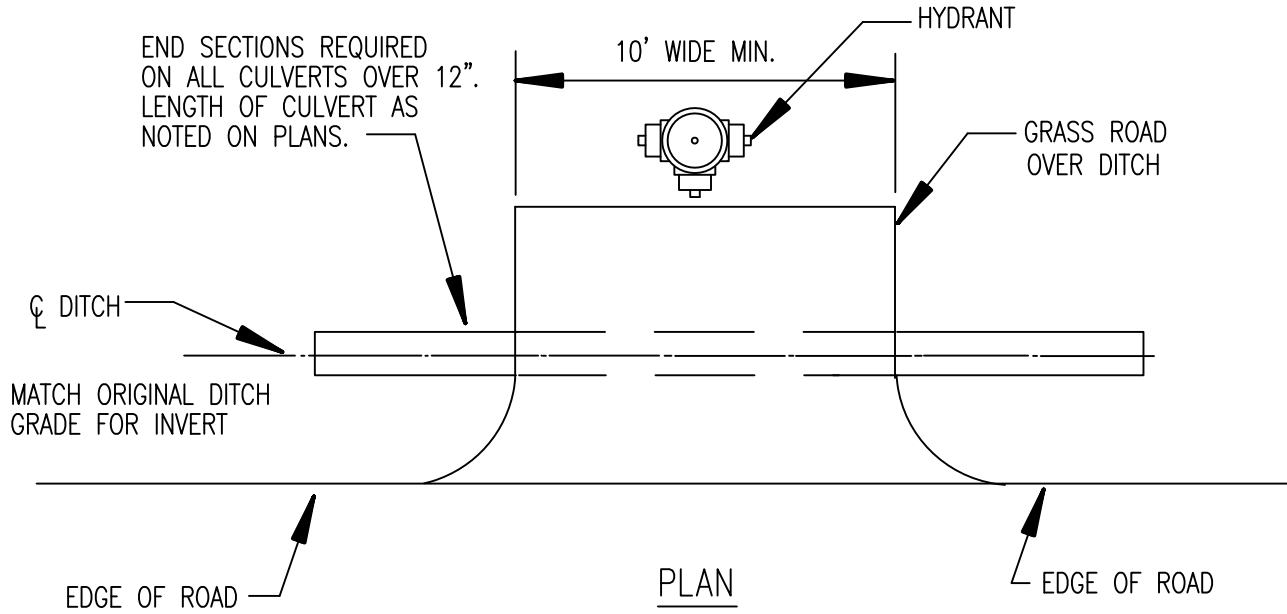
MINIMUM BACKFILL UNDER OR NEAR PAVEMENT

SCALE 1" = 6'



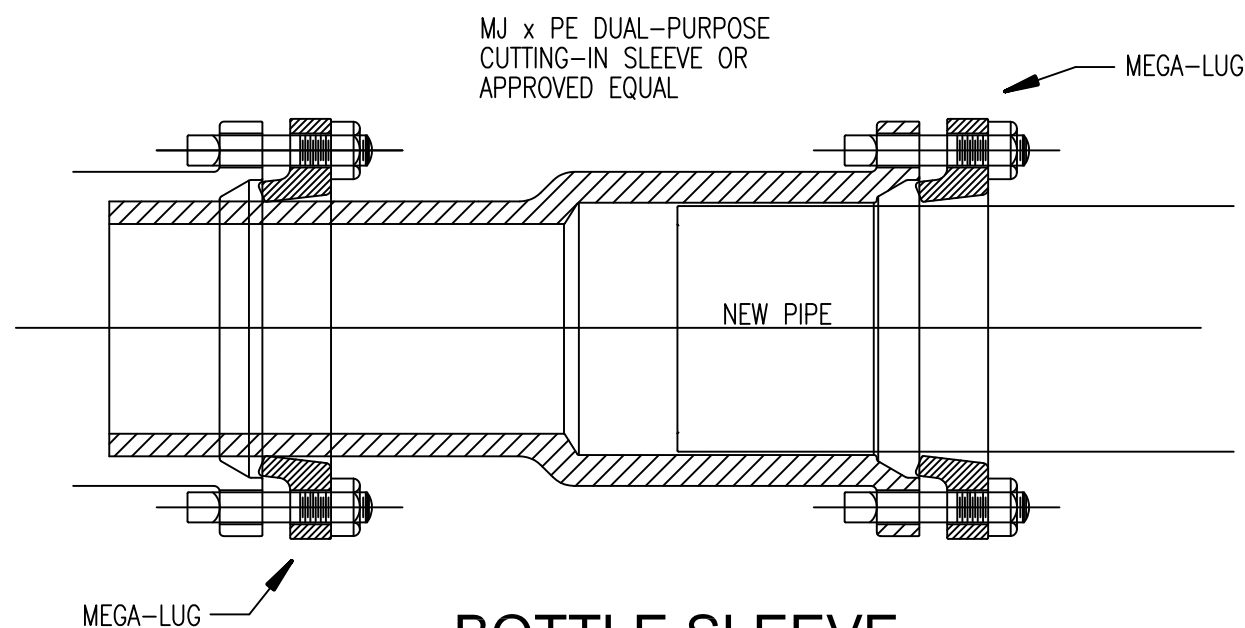
PLAN 6" HYDRANT SIDE OUTLET

SCALE 1" = 1'

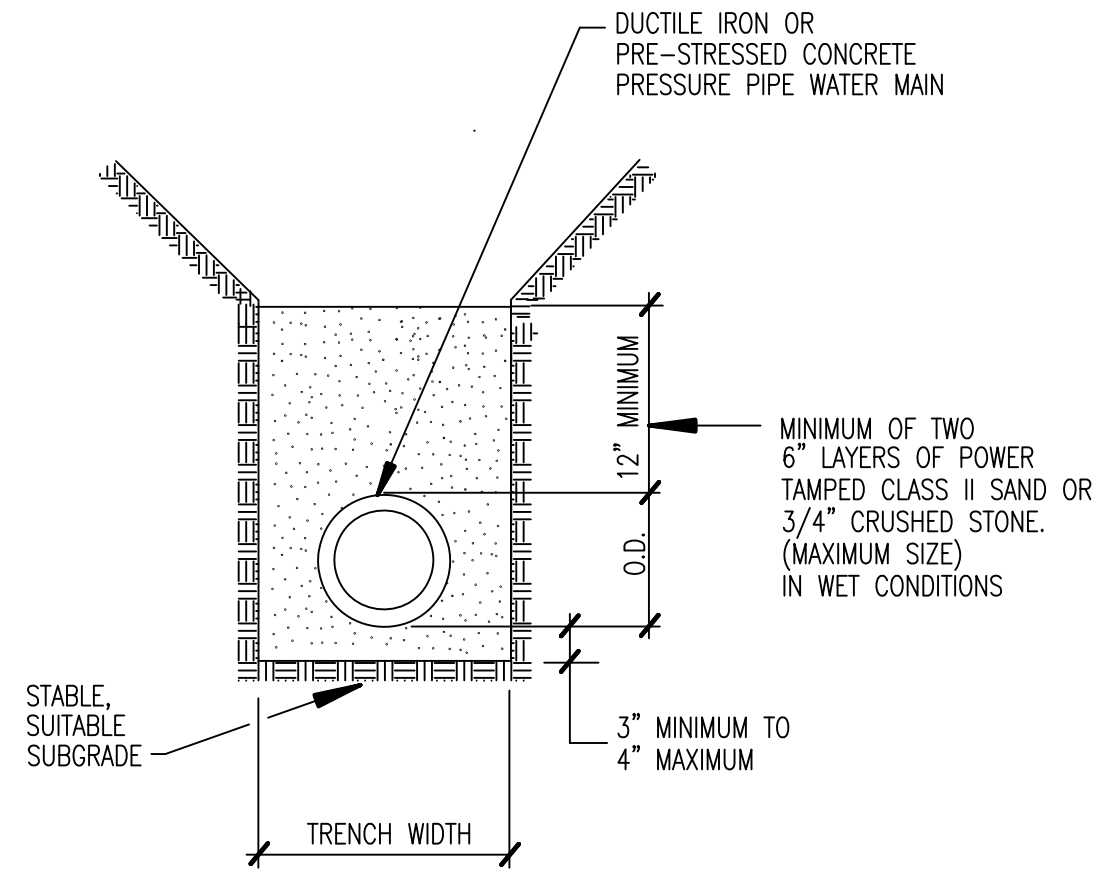


DITCH ENCLOSURE AT HYDRANT

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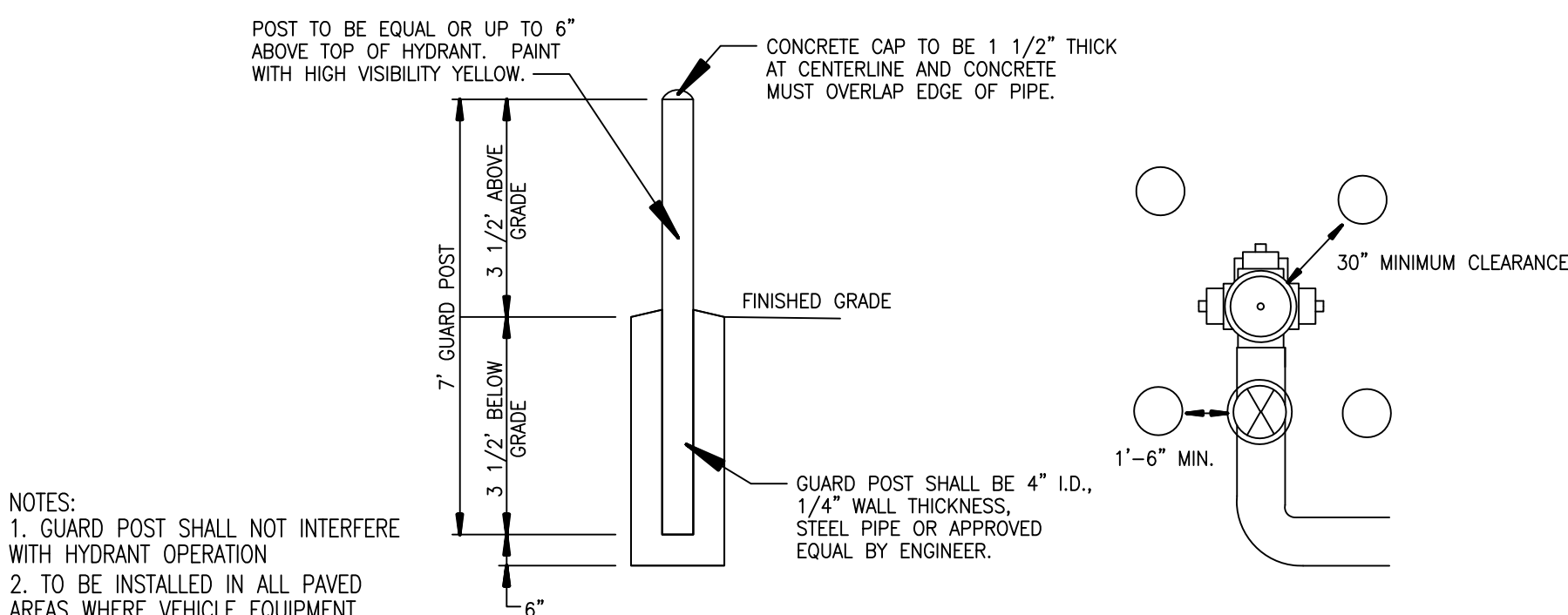


BOTTLE SLEEVE



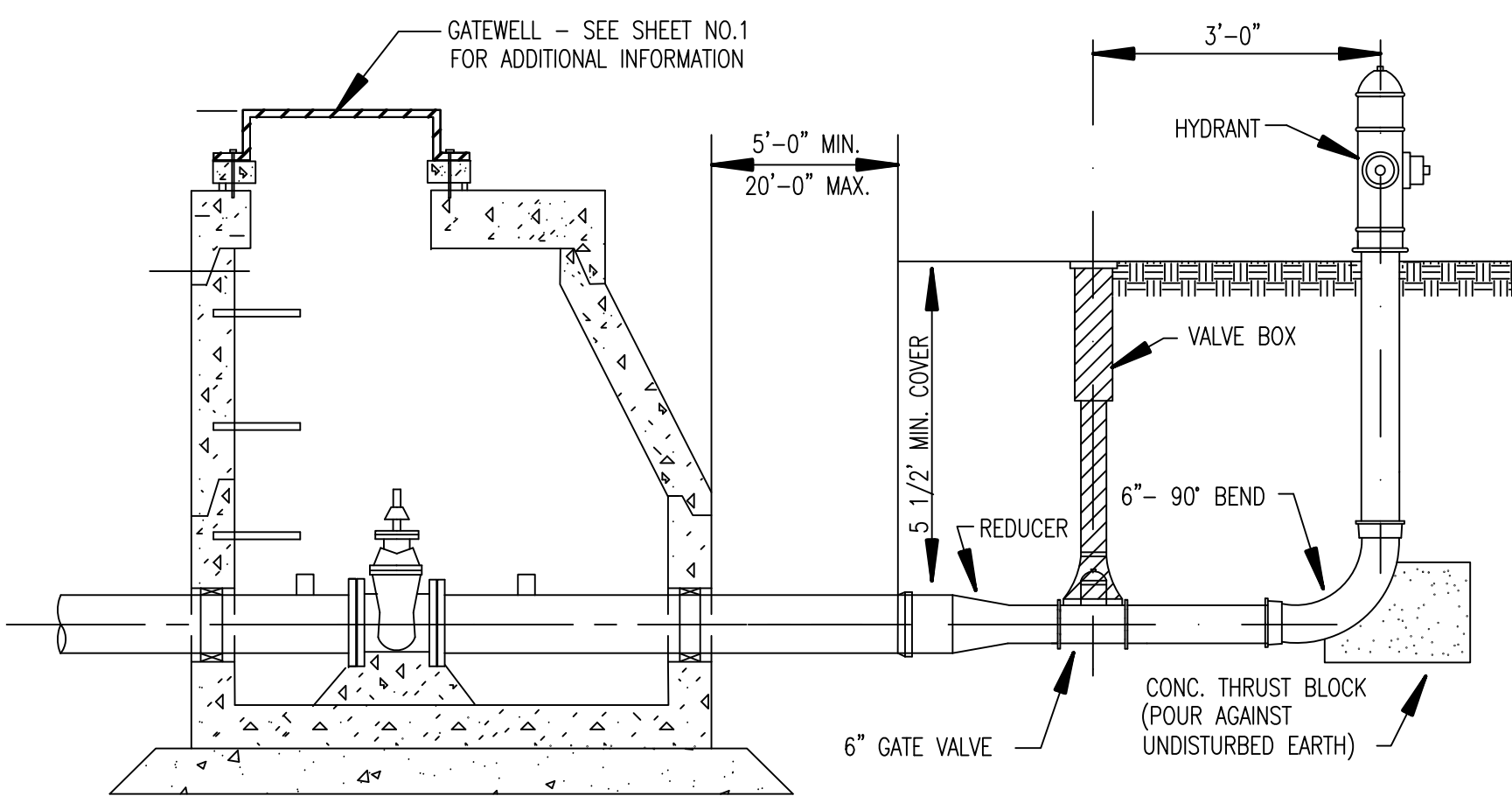
STANDARD BEDDING FOR WATER MAIN

SCALE 1" = 4'



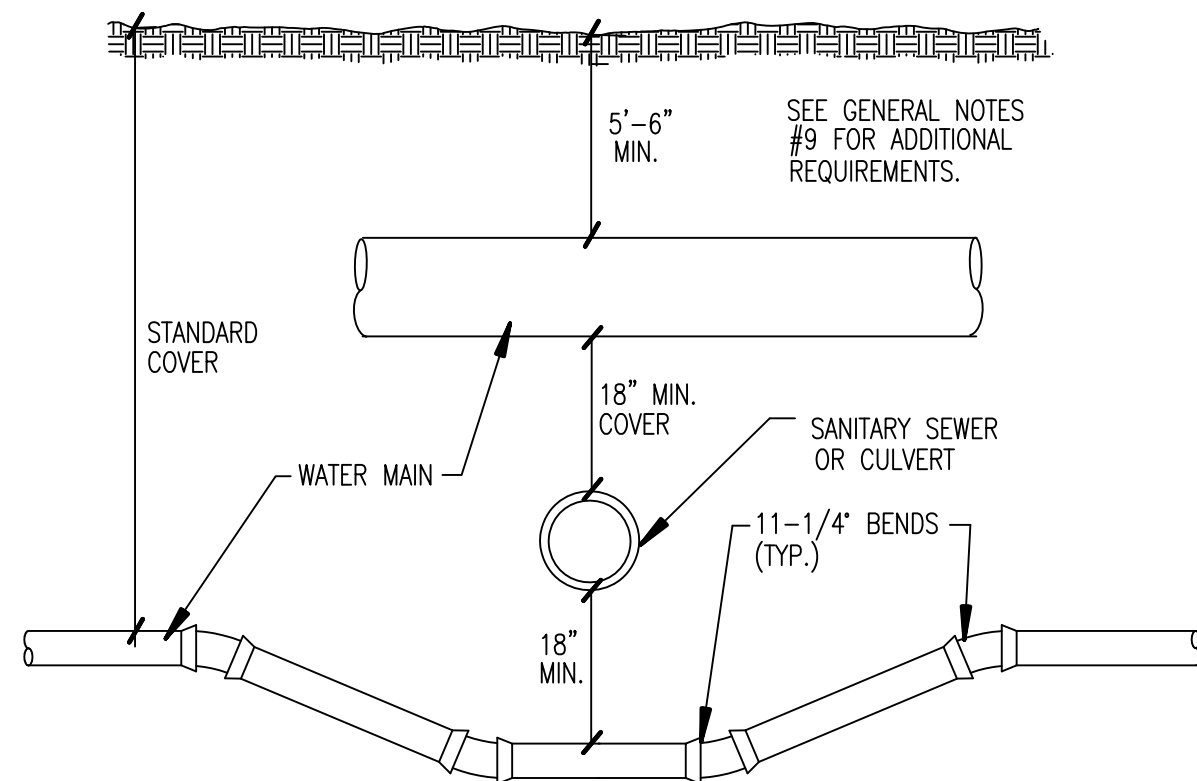
GUARD POST

SCALE 1" = 3'



DEAD END BLOWOFF CONNECTION

SCALE 1" = 1'



SEWER OR CULVERT CROSSING

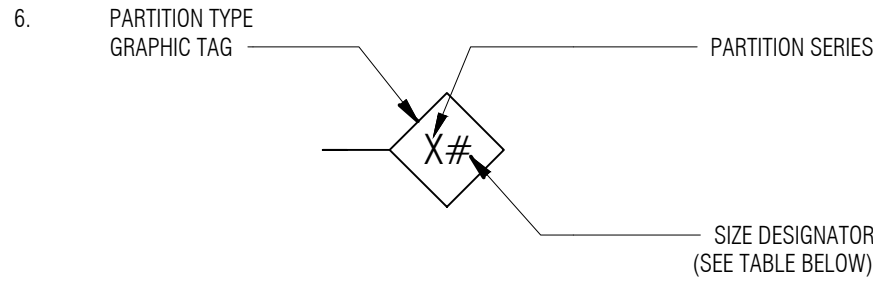
SCALE 1" = 2'

WATER MAIN STANDARD DETAILS

REVISION BLOCK			
Data Source / Source Date: N/A			
Rev. No.	Rev. By:	Rev. Date:	Description:
1	CS	07/06/14	PROPOSED REVISIONS
2	DS	11/01/14	PROPOSED CHANGE TO DELETE REFERENCE TO BOTTLE SLEEVE MANUFACTURER
3	DS	02/02/14	FINAL CHANGE TO DELETE REFERENCE TO BOTTLE SLEEVE MANUFACTURER
4	DS	02/14/15	MARKUPS PER G. APPEL
ORIG. DATE: 01/01/01			
SCALE: NONE			
DESIGNED BY: WRC			
DRAWN BY: WRC Mapping			
WRC		ONE PUBLIC WORKS DRIVE, BLDG 95 WEST WATERFORD, MICHIGAN 48326-1907	
JIM NASH		SHEET NO.: 2 of 5	

GENERAL NOTES:

1. "WALL" AND "PARTITION" ARE USED TO DENOTE EITHER WALLS OR PARTITIONS AND ARE USED INTERCHANGEABLY.
2. REFER TO STRUCTURAL FOR ALL REQUIRED REINFORCING AND FOR WALL CONNECTIONS TO FLOORS AND ROOFS
3. AT FIRE RATED WALLS FILL ALL VOIDS, PENETRATIONS ETC. AND SEAL - REFER TO DRAWING A0-02 LIFE SAFETY PLANS & CODE INFORMATION FOR ALL PARTITION FIRE RATINGS
4. WHERE A WALL RUNS PARALLEL TO THE DIRECTION OF A ROOF TRUSS AND DOES NOT ALIGN UNDERNEATH A TRUSS - PROVIDE MTL. STUD BRIDGING BETWEEN THE ROOF TRUSSES @ 48" O.C. MAX. TO ATTACH TO
5. REFER TO ROOM FINISH SCHEDULE FOR WALL FINISHES AND WAL BASE

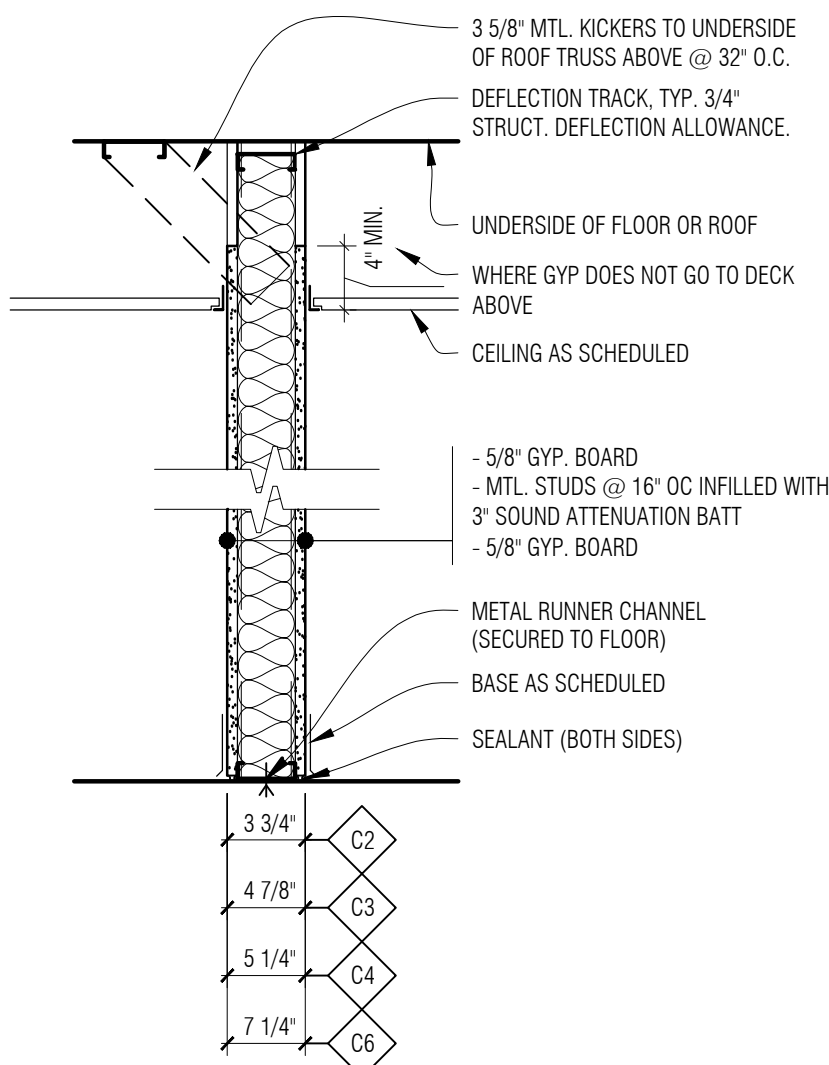


MATERIAL	DESIGNATION SIZE	ACTUAL SIZE	SPACING
MASONRY	4	3 5/8"	N/A
	6	5 5/8"	
	8	7 5/8"	
	12	11 5/8"	
STEEL STUDS	1	1 5/8"	16" OC
	2	2 1/2"	
	3	3 5/8"	
	4	4"	
	6	6"	
FURRING	0	7/8"	16" OC
	1	1 5/8"	
	2	2 1/2"	
	3	3 5/8"	
SHAFTWALL C-H STUDS	2	2 1/2"	24" OC
	4	4"	
	6	6"	

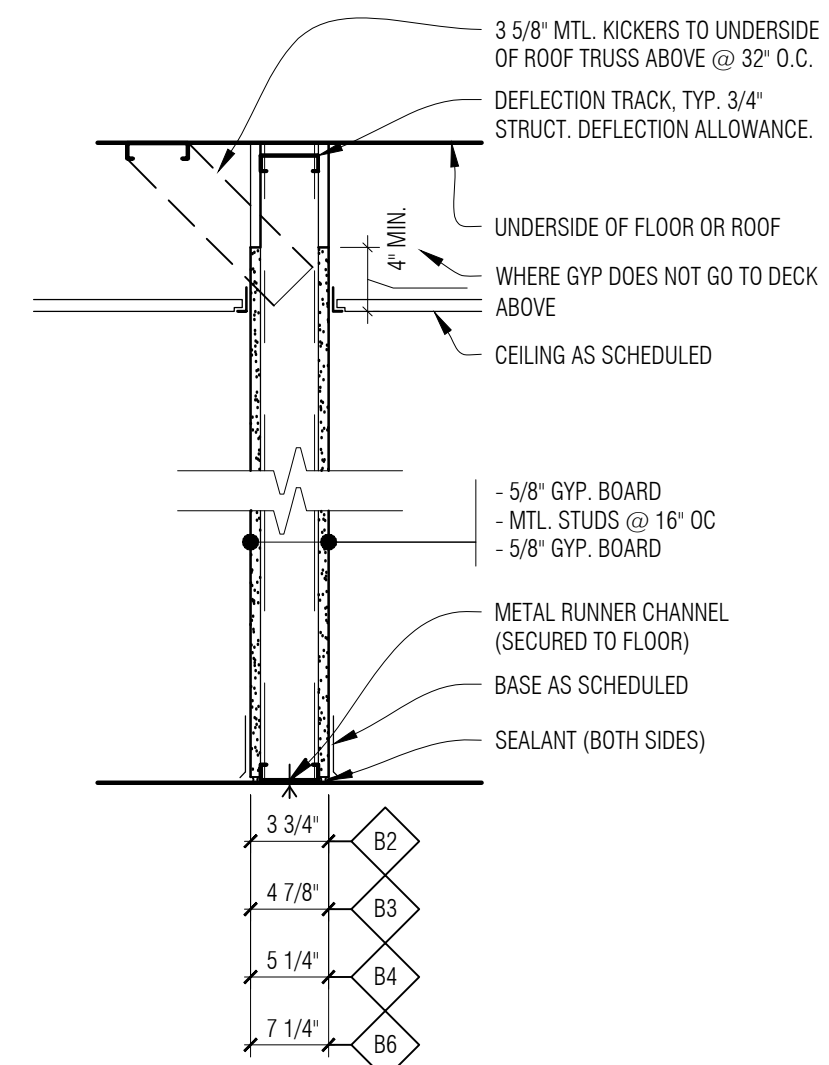
7. SUBSTITUTE TILE BACKING BOARD AT LOCATIONS TO RECEIVE A TILE WALL FINISH
8. ALL NON-LOAD BEARING METAL WALL FRAMING SHALL BE BASED ON TOTAL STUD HEIGHT
9. AT INTERSECTIONS OF DIS-SIMILAR PARTITION TYPES, THE HIGHEST RATED PARTITION IS TO RUN THROUGH THE INTERSECTION TO MAINTAIN ENCLOSURE
10. FIRE-RATED PARTITIONS SHALL BE CONSTRUCTED ACCORDING TO THE FIRE TEST INDICATED. NO SUBSTITUTIONS OF MATERIALS OR DEVIATIONS FROM CONSTRUCTION ARE ALLOWED. ADDITIONAL LAYERS MAY BE REQUIRED FOR ACOUSTICAL OR OTHER REASONS AND MUST BE EXECUTED AS SHOWN
11. STC RATINGS ARE MINIMUM ACOUSTICAL PERFORMANCE REQUIREMENT. SPECIFIC ACOUSTICAL TESTS ARE GIVEN FOR REFERENCE ONLY. SOUND ATTENUATION BLANKET THICKNESS SHALL BE AS FOLLOWS.
- A. 1 1/2" FOR PARTITIONS WITH 1 5/8" AND 2 1/2" STUDS (INCLUDING SHAFTWALLS)
- B. 3" FOR PARTITIONS WITH 3 5/8", 4" OR 6" STUDS UOIN
- C. 3" FOR SHAFTWALLS WITH 4" OR 6" STUDS UOIN
- D. AS REQUIRED FOR FIRE RATING

12. AT ALL FIRE RATED WALL CONSTRUCTION, PROVIDE SIGNAGE ABOVE THE ADJACENT ACCESSIBLE CEILING THAT STATES "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS." THE LETTERS ARE TO BE 3" HIGH MIN. AND ARE TO BE STENOLED IN PAINT DIRECTLY ONTO THE WALL. LOCATE THE SIGNS 30"-0" O.C. MAXIMUM, AND NO MORE THAN 15'-0" FROM THE END OF EACH WALL. [703.7]

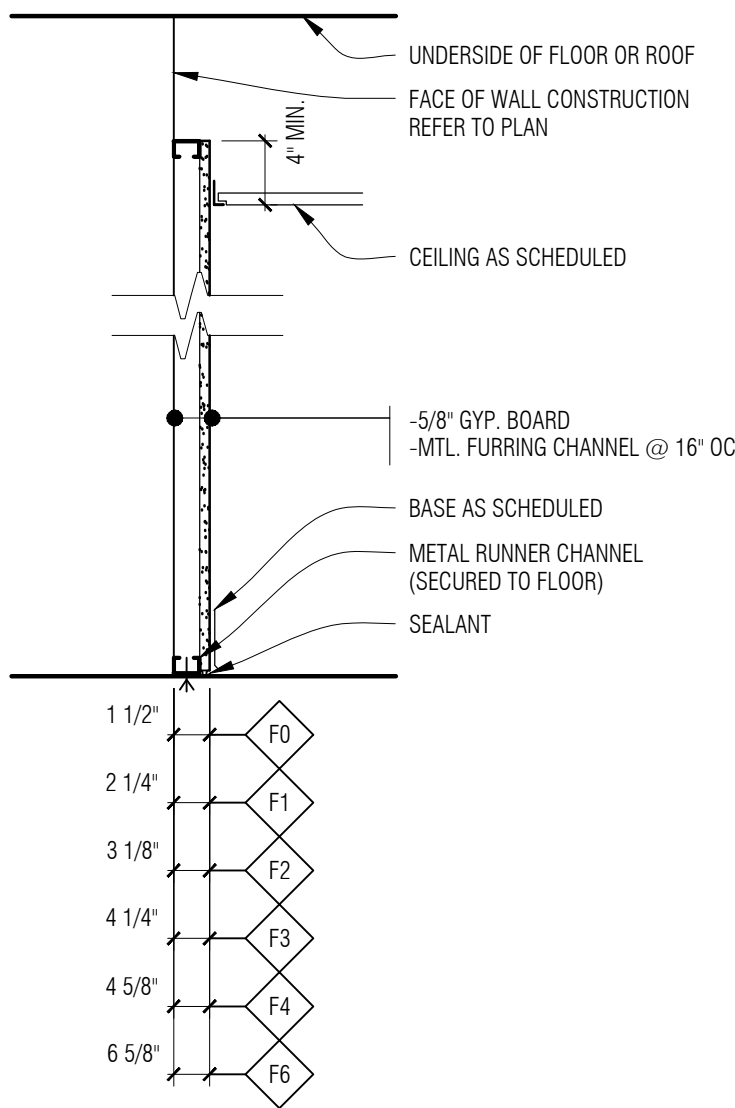
13. ALL TYPES MAY NOT BE USED. REFER TO DRAWINGS.



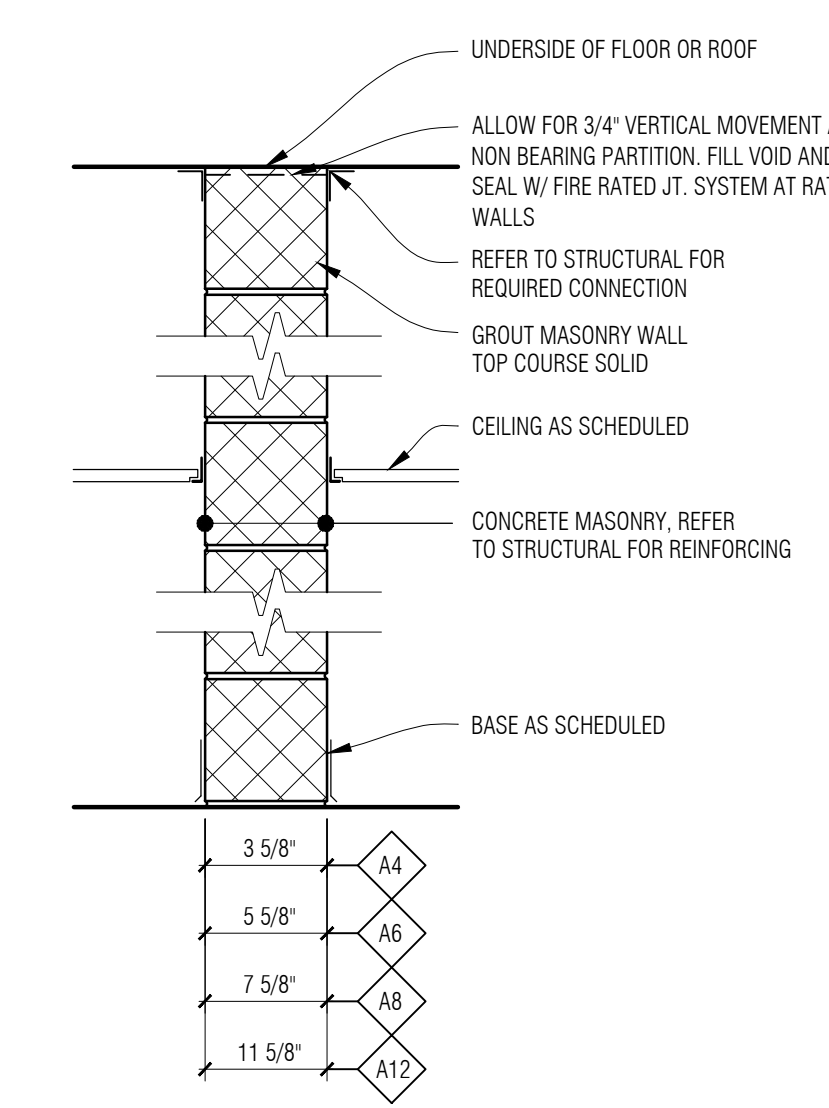
C PARTITION SERIES 'C'
1" = 1'-0"



B PARTITION SERIES 'B'
1" = 1'-0"



F PARTITION SERIES 'F'
1" = 1'-0"



A PARTITION SERIES 'A'
1" = 1'-0"

Room Finish General Notes:

- A. REFER TO SECTION 002000 MATERIAL FINISH COLOR SCHEDULE.
- B. REFER TO REFLECTED CEILING PLANS, INTERIOR ELEVATIONS AND FINISH FLOOR PLANS FOR LOCATIONS OF MATERIAL/ PAINT TRANSITION.
- C. PROVIDE REDUCER STRIP AT FLOOR MATERIAL TRANSITIONS AS NEEDED- REFER TO THRESHOLD DETAILS AND DOOR SCHEDULE.

Room Finish Key Notes:

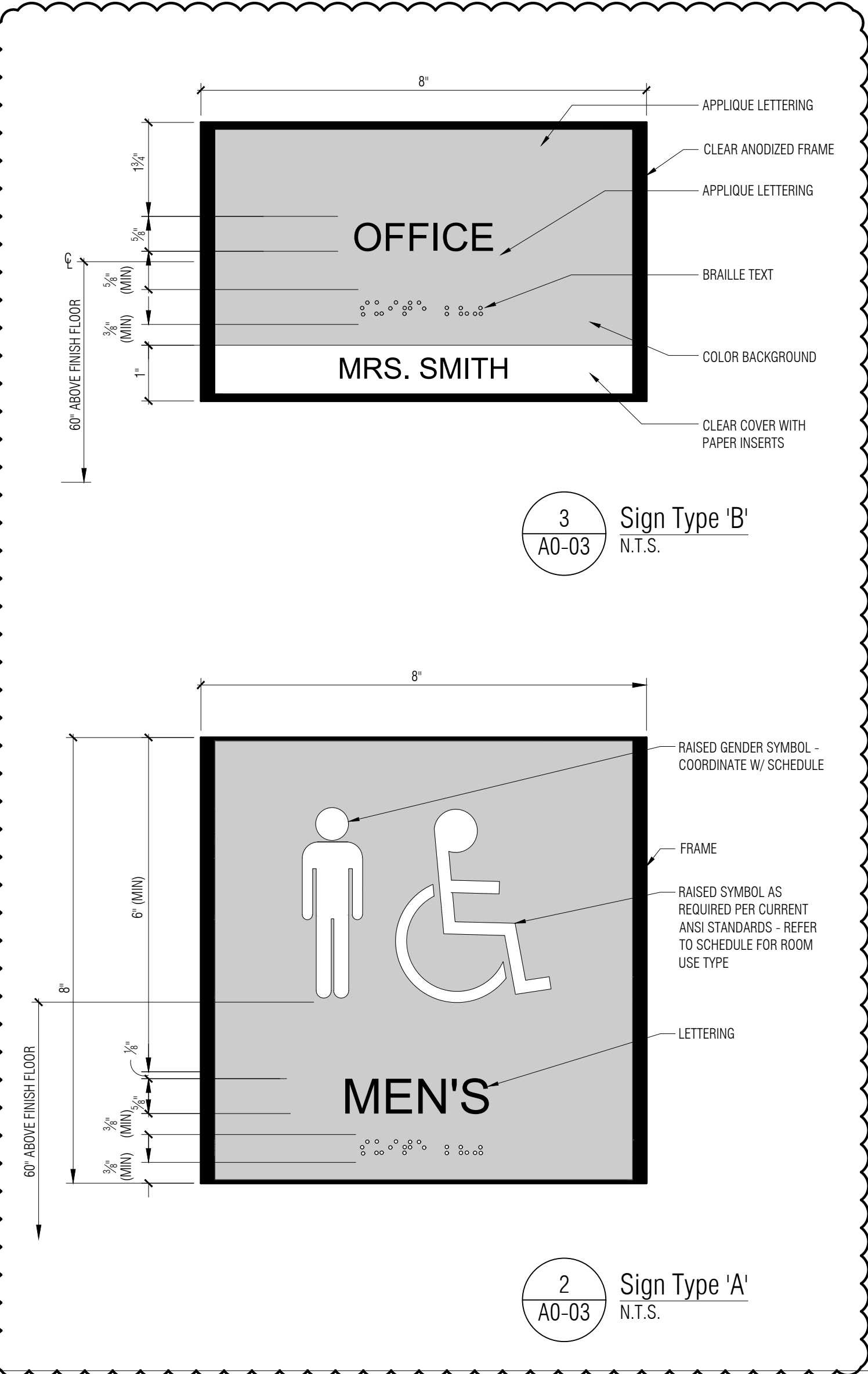
1. REFER TO INTERIOR ELEVATIONS FOR FINISHES.
2. REFER TO INTERIOR ELEVATIONS FOR BATHROOM WALL TILE LAYOUT & DESIGN.
3. REFER TO SPECIFICATION.
4. CHAIR RAIL - REFER TO FLOOR PLAN AND INTERIOR ELEVATIONS.
5. FIRE SUPPRESSION TO BE PAINTED PNT-3.
6. EXPOSED STRUCTURE TO BE PAINTED PNT-2 - REFER TO INTERIOR ELEVATIONS.
7. EXPOSED MECHANICAL TO BE PAINTED - REFER TO INTERIOR ELEVATIONS FOR PAINT NUMBERS.
8. ROOM AND WALL FINISHES TO BE PAINTED AS SHOWN - REFER TO SPECIFICATION.
9. SIGNAGE TYPE 'A' MOUNTED AT ROOM ENTRANCE - REFER TO DETAIL 2 AND MOUNTING HEIGHT SCHEDULE
10. SIGNAGE TYPE 'B' MOUNTED AT ROOM ENTRANCE - REFER TO DETAIL 3 AND MOUNTING HEIGHT SCHEDULE

Room Finish Legend:

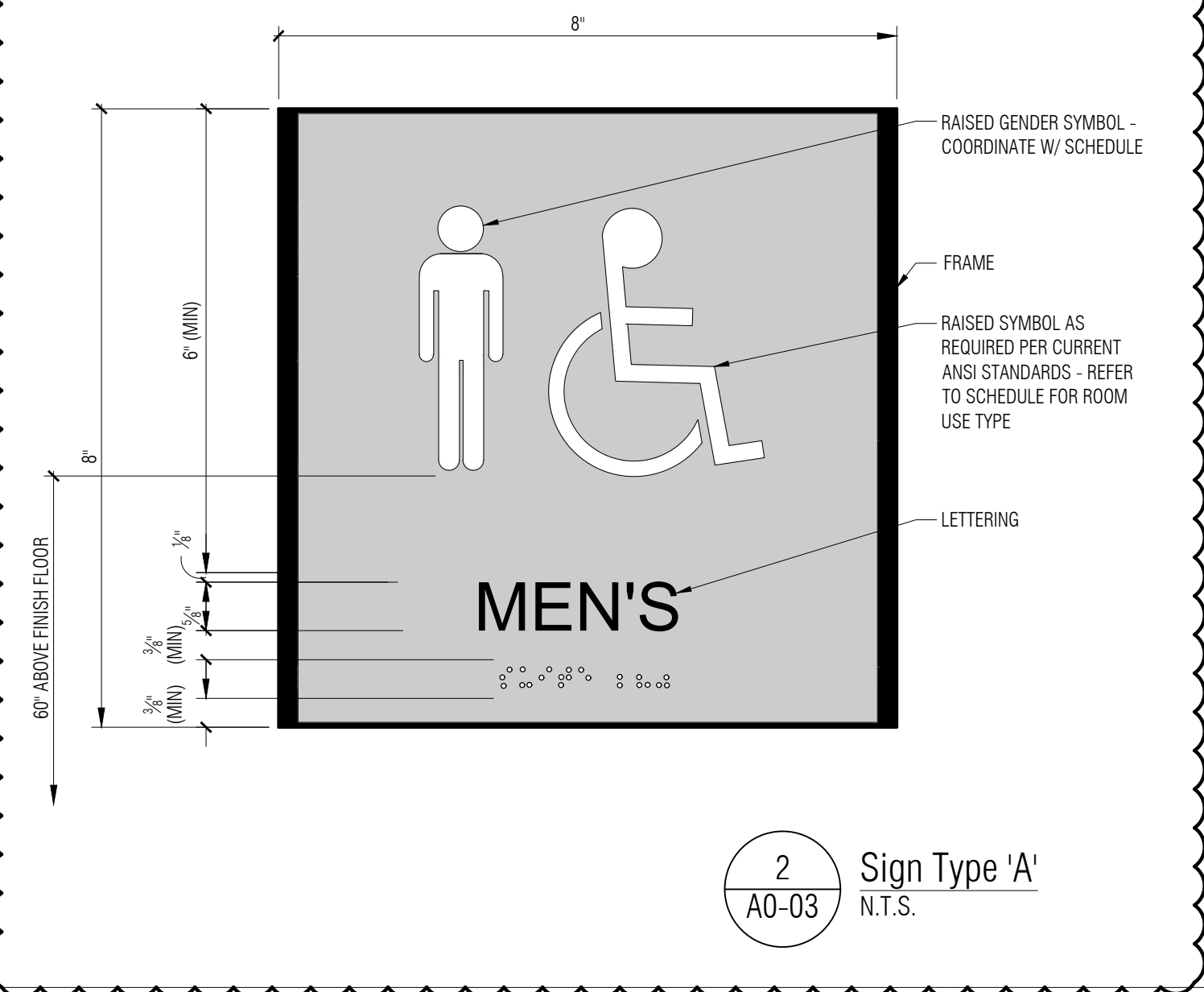
- AF ACT
ARS ARS
CONC CONCRETE
CHPL CONDUCTIVE LAMINATED FLOOR TILE
CPT CARPET
CT CERAMIC TILE
EIFS EXTERIOR INSULATION FINISHING SYSTEM
EPOXY FLOOR FINISH
EPOXY PAINT
EXP CONST EXPOSED CONSTRUCTION
ERW EPOXY RESIN WORK SURFACE
FB FACE BRICK
FWAP FABRIC WRAPPED ACOUSTICAL PANELS
GYD GYPSUM BOARD
GMU GLAZED MASONRY UNITS
HV HOMOGENEOUS VINYL
LSP LIGHTWEIGHT STONE PANELS
LVT LUXURY VINYL TILE
MCP METAL CEILING PANEL
MFT METAL FLOOR TRANSITION
PL PLASTIC LAMINATE
PT PORCELAIN TILE
PNT PAINT
PWAP PERFORATED WOOD ACOUSTICAL PANELS
RB RUBBER ACCESSORIES
RESILIENT WALL BASE
RF RESILIENT RUBBER FLOORING
RMAT RECESSED FLOOR MAT
SC SEALED CONCRETE
SDT STATIC DISSIPATING TILE
SMB SMOOTH FINISH MASONRY BLOCK (BURNISHED)
SP STONE VENEER PANELS
SS SOLID SURFACING
STN STONE
ST STREET, STAIN
TRZ TERRAZZO
TB TERRAZZO WALL BASE
TP TOILET PARTITIONS
VA VINYL ACCESSORIES
VCT VINYL COMPOSITION TILE
WC WALL COVERING
WD WOOD VENEER
WO WALK-OFF CARPET

Room Finish Schedule

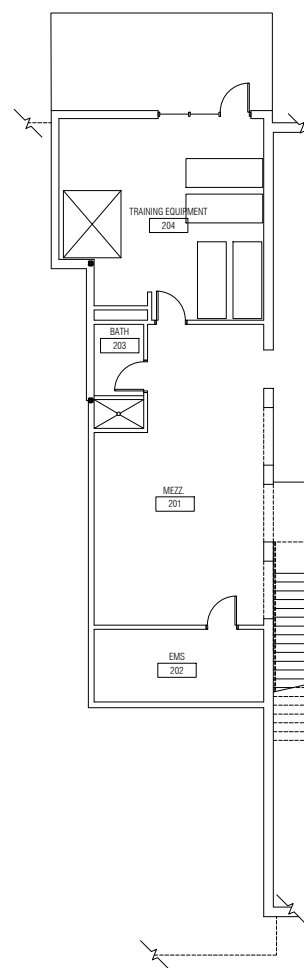
ROOM NO.	ROOM NAME	FLOOR	BASE	WALLS				CEILING FINISH	ROOM FINISH KEY NOTES
				NORTH	EAST	SOUTH	WEST		
MAIN LEVEL									
101	VESTIBULE	WO-1	RB-1	PNT-1 WC-3	PNT-1 WC-3	PNT-1 WC-3	PNT-1 WC-3	GYP. PNT-2	
102	LOBBY	LVT-1	RB-1	PNT-1, PL-1 WC-3 & WC-4	PNT-1 WC-3	PNT-1 WC-3	PNT-1 WC-3	ACT-1 & ACT-2	1
103	WOMEN'S RESTROOM	PT-1	PT-2	PNT-1 PT-2 & PT-3	PNT-1 PT-2 & PT-3	PNT-1 PT-2 & PT-3	PNT-1 PT-2 & PT-3	GYP. PNT-2	2, 9
104	MEN'S RESTROOM	PT-1	PT-2	PNT-1 PT-2 & PT-3	PNT-1 PT-2 & PT-3	PNT-1 PT-2 & PT-3	PNT-1 PT-2 & PT-3	GYP. PNT-2	2, 9
105	TRAINING / COMMUNITY RM.	CPT-1	RB-1	PNT-1 WC-1 & WC-5	PNT-6	PNT-6	PNT-6	EXP CONST / PNT-2 GYP. PNT-2	1
106	STORAGE	SC-1	NO BASE	PNT-1	PNT-1	PNT-1	PNT-1	GYP. PNT-2	
107	PASSAGE	LVT-1	RB-1	PNT-1 WC-4	PNT-1	PNT-1	PNT-1	ACT-1	1, 4
108	ADMIN DESK	LVT-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-2	10
109	MARSHALL	LVT-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	10
110	A. CHIEF	LVT-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	10
111	CHIEF	LVT-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	10
112	WATCH DESK	LVT-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	1
113	TRANSITION	EP-1	RB-1	EP PNT-1	EP PNT-1	EP PNT-1	EP PNT-1	GYP. PNT-2	
114	CAPTAIN'S OFFICE	LVT-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	
115	MULTI-USE	LVT-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	1
116	BATH	PT-1	PT-2	PNT-1 & WP-2	PNT-1 & WP-2	PNT-1 & WP-2	PNT-1 & WP-2	GYP. PNT-2	2
117	TRANSITION	EP-1	RB-1	EP PNT-1	EP PNT-1	EP PNT-1	EP PNT-1	GYP. PNT-2	
118	LAUNDRY/STORAGE	LVT-1	RB-1	PNT-1	PNT-1	EP PNT-1	PNT-1	ACT-1	
119	MECH	SC-1	NO BASE	EP PNT-1	EP PNT-1	EP PNT-1	EP PNT-1	EXP. CONST / PNT-2	
120	PASSAGE	LVT-1	RB-1	EP PNT-1	EP PNT-1	PNT-1	EP PNT-1	ACT-1	
121	DORM	CPT-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	
122	DORM	CPT-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	
123	DORM	CPT-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	
124	BATH	PT-1	PT-2	PNT-1 & WP-2	PNT-1 & WP-2	PNT-1 & WP-2	PNT-1 & WP-2	GYP. PNT-2	2
125	DORM	CPT-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	
126	DORM	CPT-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	
127	DORM	CPT-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	
128	BATH	PT-1	PT-2	PNT-1 & WP-2	PNT-1 & WP-2	PNT-1 & WP-2	PNT-1 & WP-2	GYP. PNT-2	2
129	KITCHEN / DINING / DAYROOM	CPT-1 LVT-2	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	1, 3
131	APPARATUS BAY	EP-1	NO BASE	EP PNT-1 PNT-2	EP PNT-1 PNT-2	EP PNT-1 PNT-2	EP PNT-1 PNT-2	EXP CONST / PNT-2	1, 3, 5, 6, 7
132	PPE STORAGE	EP-1	NO BASE	EP PNT-1	EP PNT-1	EP PNT-1	EP PNT-1	EXP CONST / PNT-2	5, 6, 7
133	DECON / REST	EP-1	NO BASE	EP PNT-1	EP PNT-1	EP PNT-1	EP PNT-1	GYP. PNT-2	5, 6, 7
134	RESTROOM	EP-1	PT-2	EP PNT-1	EP PNT-1	EP PNT-1	EP PNT-1	GYP. PNT-2	
135	PPE LAUNDRY	EP-1	NO BASE	EP PNT-1	EP PNT-1	EP PNT-1	EP PNT-1	GYP. PNT-2	5, 6, 7
136	PPE DRY	EP-1	NO BASE	EP PNT-1	EP PNT-1	EP PNT-1	EP PNT-1	GYP. PNT-2	5, 6, 7
137	SCBA MAINTENANCE	EP-1	NO BASE	EP PNT-1	EP PNT-1	EP PNT-1	EP PNT-1	GYP. PNT-2	5, 6, 7
138	COMPRESSORS	EP-1	NO BASE	EP PNT-1	EP PNT-1	EP PNT-1	EP PNT-1	GYP. PNT-2	5, 6, 7
139	WORK RM / EQUIP MAINTENANCE	EP-1	NO BASE	EP PNT-1	EP PNT-1	EP PNT-1	EP PNT-1	GYP. PNT-2	5, 6, 7
140	OUTDOOR STORAGE	SC-1	NO BASE	EP PNT-1	EP PNT-1	EP PNT-1	EP PNT-1	GYP. PNT-2	5, 6, 7
141	MECH	SC-1	NO BASE	PNT-1	PNT-1	EP PNT-1	PNT-1	ACT-1	
142	ELEC	SC-1	NO BASE	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	
MEZZANINE LEVEL									
201	MEZZANINE	SC-1	NO BASE	PNT-1	EP PNT-1	PNT-1	PNT-1	GYP. PNT-2	5, 6, 7
202	EMS	SC-1	NO BASE	PNT-1	EP PNT-1	PNT-1	PNT-1	GYP. PNT-2	5, 6, 7
203	BATH	PT-1	PT-2	PNT-1 & WP-2	PNT-1 & WP-2	PNT-1 & WP-2	PNT-1 & WP-2	GYP. PNT-2	2, 3, 8
204	TRAINING/EQUIPMENT	AF-1	RB-1	PNT-1	PNT-1	PNT-1	PNT-1	GYP. PNT-2	5, 6, 7



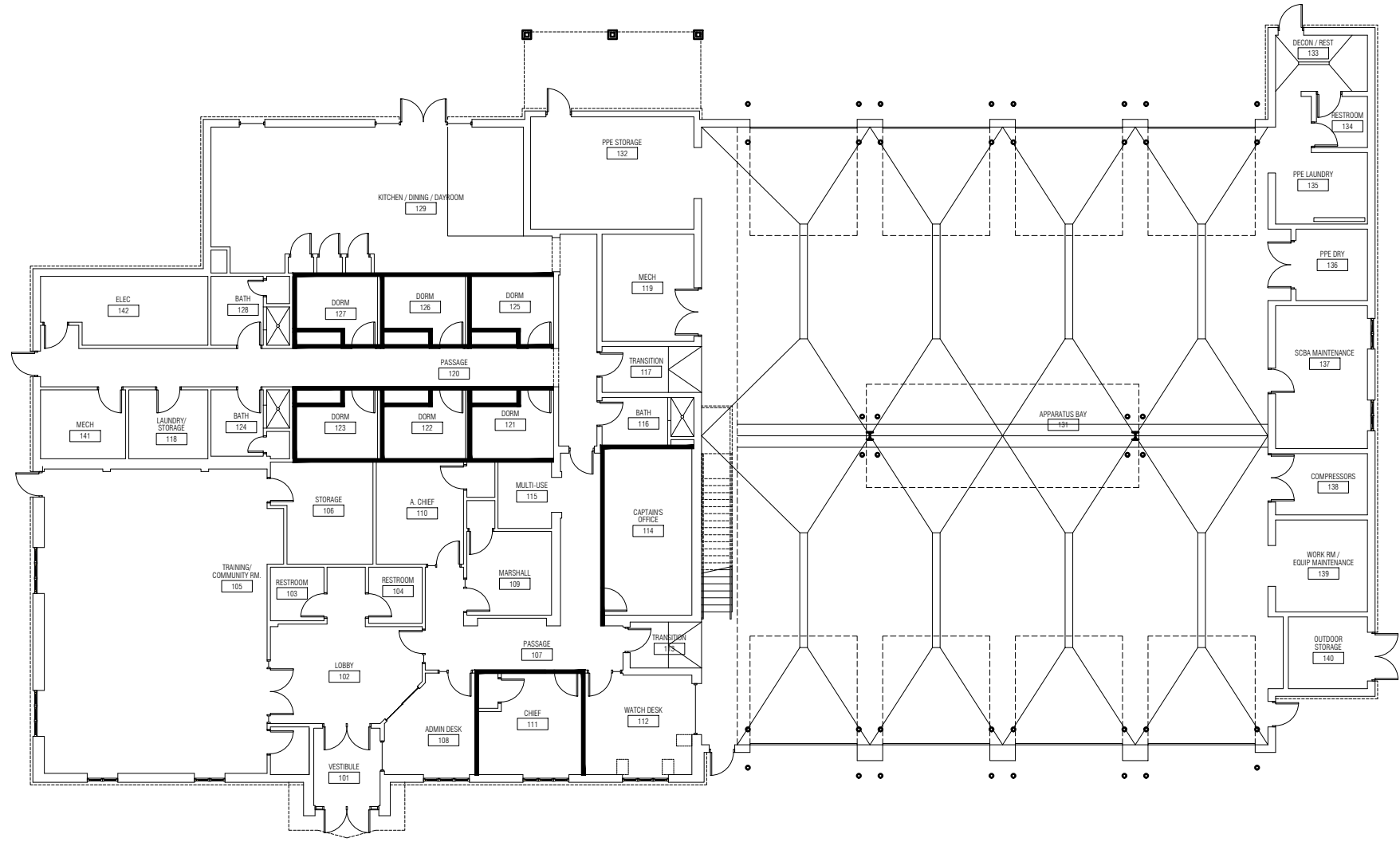
3 Sign Type 'B'
A0-03 N.T.S.



2 Sign Type 'A'
A0-03 N.T.S.



1 Walls to Deck Plan
1" = 20'-0"



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CONSULTANT

KEY PLAN

OWNER

Highland Township
Fire Department

PROJECT NAME

Highland Township
Fire Station No. 1

1600 W. Highland Rd.
Highland, MI 48357

PROJECT NO.

18-122A

ISSUES / REVISIONS

Bidding - Construction 03/27/20
Addendum #1 04/20/20

DRAWN BY

AR

CHECKED BY

LL / AM

APPROVED BY

DG

SHEET NAME

ROOM FINISH
SCHEDULE &
WALL TYPES

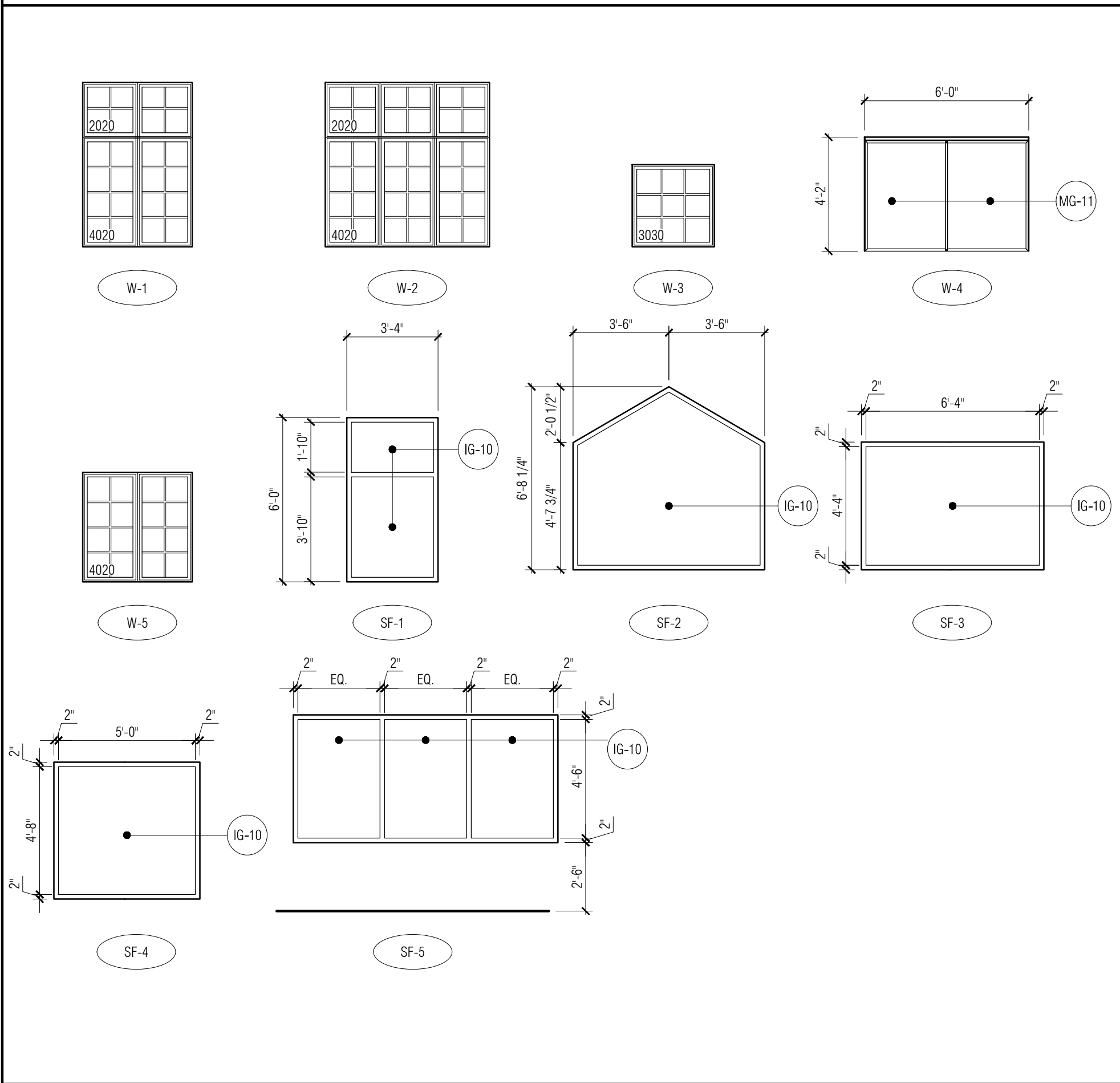
SHEET NO.

A0-03

Window Schedule

WINDOW NO.	WINDOW		DETAILS			WINDOW NOTES
	STYLE	MATERIAL	HEAD	JAMB	SILL	
W-1	CASEMENT FIXED	ALUM CLAD WD	9/A6-10 & 1/A6-04	D12 & D10	8/A6-10 & 8/A6-10 (SIM)	1, 2
W-2	CASEMENT FIXED	ALUM CLAD WD	9/A6-10 & 6/A6-10	D12 & D8	8/A6-10 & 5/A6-10	1, 2
W-3	CASEMENT FIXED	ALUM CLAD WD	5/A6-01		4/A6-10	1, 2
W-4	SLIDING TRANSACTION	ALUM	5/A8-03		5/A8-03	4
W-5	CASEMENT FIXED	ALUM CLAD WD	3/A6-02		7/A6-10	5
SF-1	STOREFRONT	ALUMINUM	6/A6-10 (SIM)	D12	5/A6-10 (SIM)	
SF-2	STOREFRONT	ALUMINUM	12/A6-10	7/A3-20 (SIM)	2/A6-03	
SF-3	STOREFRONT	ALUMINUM	D5	D6	D17	
SF-4	STOREFRONT	ALUMINUM	11/A8-03	D14 (SIM)	11/A8-03	
SF-5	STOREFRONT	ALUMINUM	D7	D8	5/A6-10 (SIM)	3

Window Types



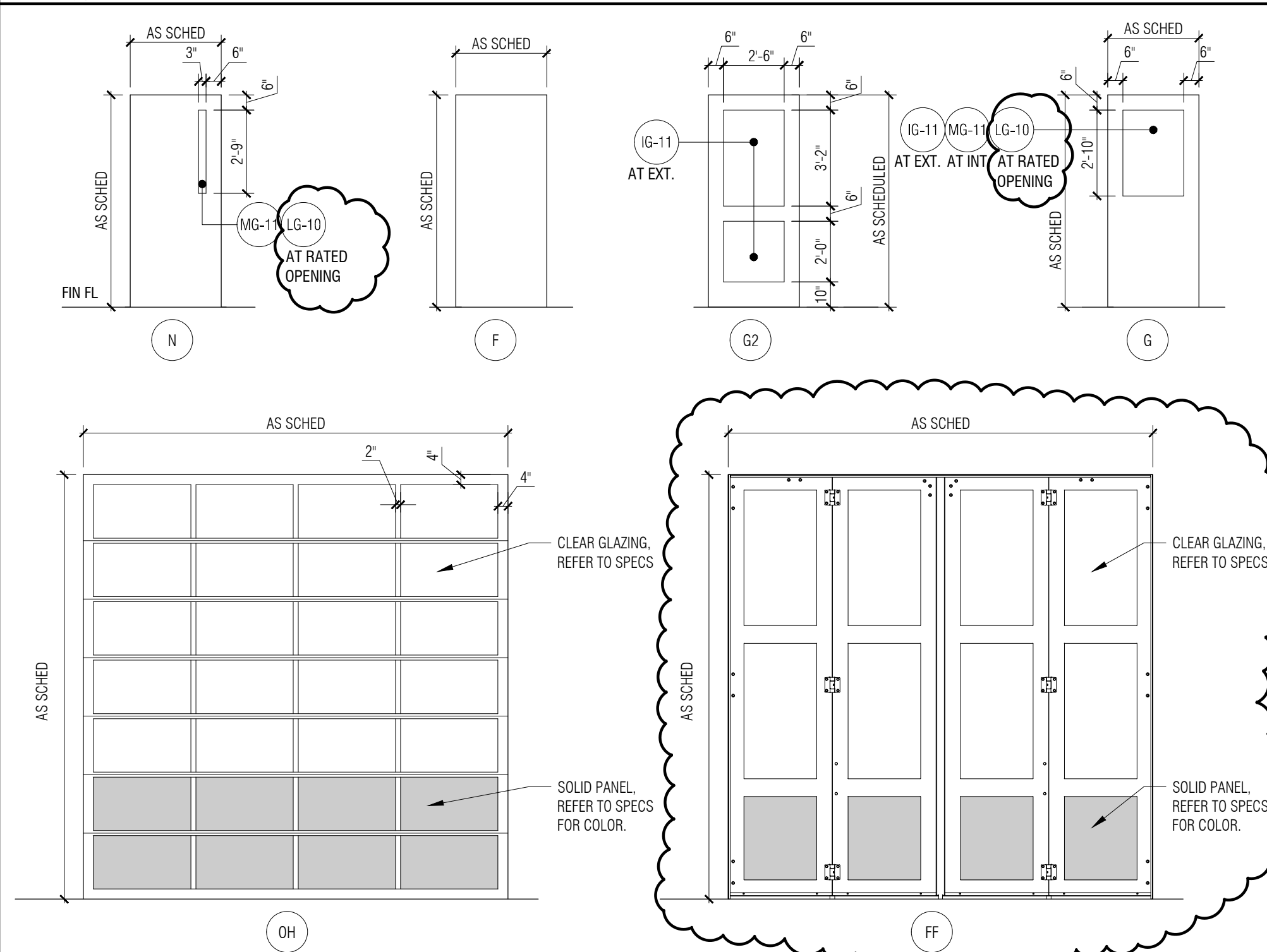
Window General Notes:

A. REFER TO SPECIFICATION FOR INTERIOR OR EXTERIOR FINISHES

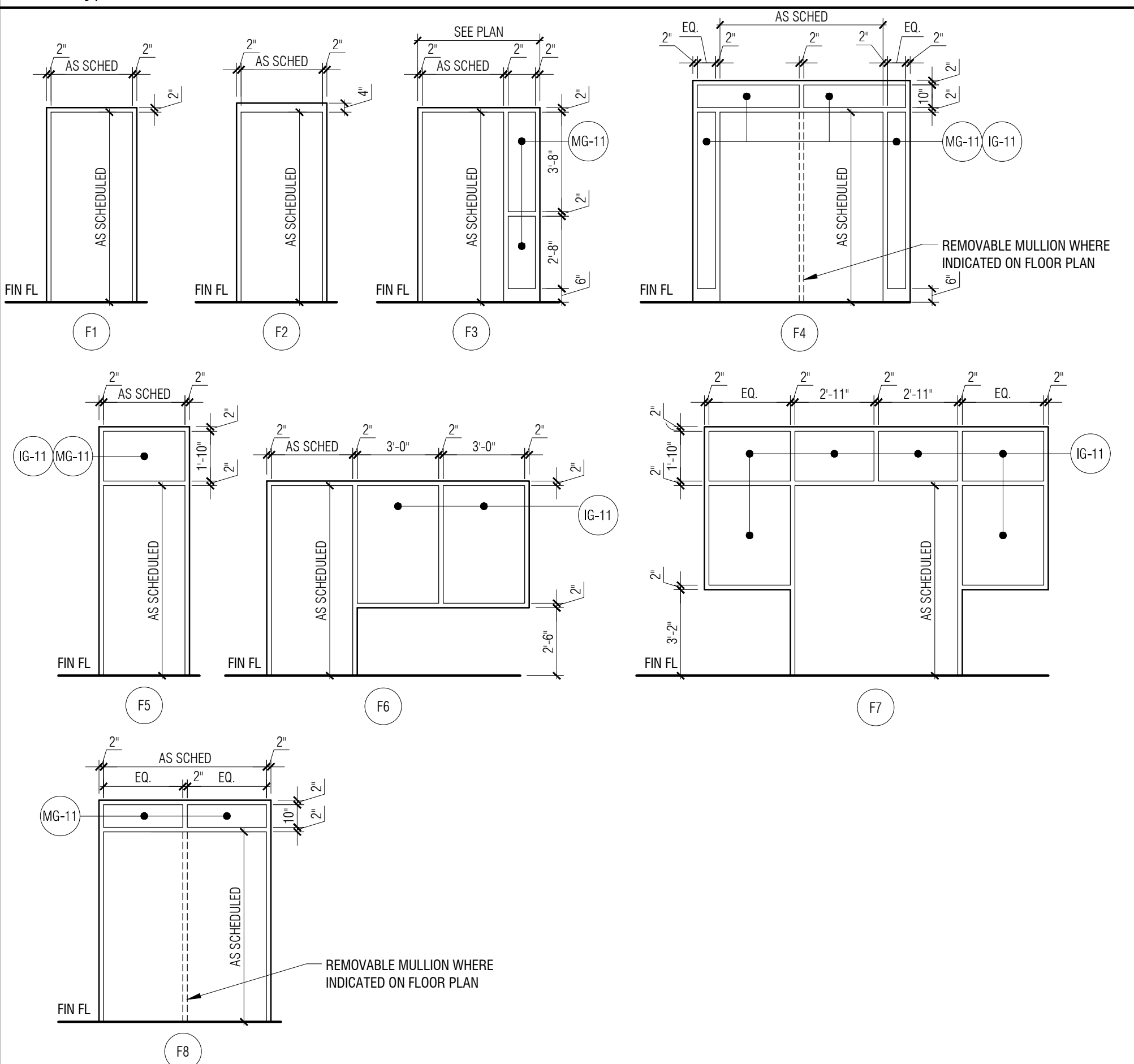
Window Key Notes:

1. REFER TO SPECIFICATIONS FOR BASIS OF DESIGN.
2. REFER TO WINDOW TYPE AND MODEL NUMBER FOR DIMENSIONS.
3. BASE BID IF ADD ALT # 3 IS NOT ACCEPTED - REFER TO DOOR 204B.
4. TRANSACTION WINDOW AS SPECIFIED - REFER TO MANUFACTURERS DETAILS FOR HEAD, JAMB AND SILL INSTALLATION
5. DORMER WINDOW - REFER TO ROOF PLAN A3-30

Door Types



Frame Types



Door / Openings General Notes:

- A. FIELD VERIFY ALL OPENINGS PRIOR TO DOOR/FRAME FABRICATION.
- B. DOOR TYPE NAMING CONVENTIONS ARE BASED ON SDI 108-18 STANDARDS WHERE APPLICABLE.
- C. FIRE RATED LABEL DOORS AND FRAMES ARE LISTED IN MINUTES.
- D. REFER TO 087100 DOOR HARDWARE SPEC FOR SECTION NUMBERS.
- E. ALL WOOD DOORS TO BE SOLID CORE.
- F. DOORS WITH THE SYMBOL ◀ ON MAIN LEVEL FLOOR PLAN A3-01 ARE TO RECEIVE CARD KEY ACCESS. PROVIDE CONDUIT AND PULL STRING. INDICATE LOCATION OF CONDUIT ABOVE CEILING SYSTEM. REFER TO HARDWARE SPECIFICATIONS.
- G. REFER TO DETAILS ON A0-13 AND A0-14.

Door / Opening Key Notes:

1. REFER TO ALTERNATE # 1.
2. DOOR FRAME TO ALIGNED TO "APPARATUS BAY" SIDE OF CMU.
3. DOOR FRAME TO BE ALIGNED TO "PASSAGE" SIDE OF CMU. DOOR FRAME SHOULD ALIGN WITH END OF GYP. RD RETURN.
4. 1/2" CONDUIT FOR ELECTRIFIED HARDWARE AND ACCESS CONTROL - REFER TO ELEC. AND DOOR HARDWARE.
5. DOOR IS PART OF ADD ALT; REPLACE WITH SF-5 (NO DOOR) IF NOT ACCEPTED - REFER TO WINDOW TYPES.

Door / Opening Schedule

DOOR NO.	DOOR / OPENING SIZE (W X H) CONTRACTOR TO VERIFY DOOR SIZE IF OPENING IS EXISTING	DOOR			FRAME			DETAILS			HARDWARE SET #	LABEL (MIN.)	DOOR / OPENING KEY NOTES	
		TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH	HEAD	JAMB	THRES. / SILL				
MAIN LEVEL														
101	(2) 3'-0" X 7'-0"	G2	ALUM	ANOD-1	F4	ALUM	ANOD-1	2/A6-03	7/A3-20	T2	3.0			
102	(2) 3'-0" X 7'-0"	G2	ALUM	ANOD-1	F8	ALUM	ANOD-1	D13	D14	T3	8.0		4	
103	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	T8	20.0			
104	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	T8	20.0			
105A	(2) 3'-0" X 7'-0"	G2	ALUM	ANOD-1	F4	ALUM	ANOD-1	D13	D14	T3	9.0			
105B	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	--	16.0			
105C	3'-0" X 7'-0"	F	ALUM	ANOD-1	F5	ALUM	ANOD-1	D11	D12/D16	T2	6.0			
106	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	T2	17.0			
107	3'-0" X 7'-0"	F	WD	ST-1	F3	HM	PNT-2	D3	D4	--	11.0		4	
108	3'-0" X 7'-0"	F	WD	ST-1	F3	HM	PNT-2	D3	D4	--	15.0			
109A	3'-0" X 7'-0"	F	WD	ST-1	F3	HM	PNT-2	D3	D4	--	15.0			
109B	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	--	21.0			
110A	3'-0" X 7'-0"	F	WD	ST-1	F3	HM	PNT-2	D3	D4	--	15.0			
110B	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	--	21.0			
111A	3'-0" X 7'-0"	F	WD	ST-1	F3	HM	PNT-2	D3	D4	--	15.0			
111B	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	--	21.0			
112	3'-0" X 7'-0"	F	WD	ST-1	F3	HM	PNT-2	D3	D4	--	15.0			
113	3'-0" X 7'-0"	G	HM	PNT-2	F1	HM	PNT-2	D5	D6	T9	10.0	45	3	
114	3'-0" X 7'-0"	F	WD	ST-1	F3	HM	PNT-2	D3	D4	--	15.0			
116	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D1	D2	T8	18.0		3	
117	3'-0" X 7'-0"	G	HM	PNT-2	F1	HM	PNT-2	D1	D2	T9	10.0	45	3	
118	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	--	27.0			
119	(2) 3'-0" X 7'-0"	F	HM	PNT-2	F2	HM	PNT-2	D1	D2	T1	14.0	45	2	
120A	3'-0" X 7'-0"	G	WD	ST-1	F1	HM	PNT-2	D3	D4	--	25.0	45		
120B	3'-0" X 7'-0"	F	ALUM	ANOD-1	F5	ALUM	ANOD-1	D11	D8/D15	T1	5.0		4	
121	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	T3	18.0			
122	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	T3	18.0			
123	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	T3	18.0			
124A	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	T8	18.0			
124B	2'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	--	21.0			
125	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	T3	18.0			
126	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	T3	18.0			
127	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	T3	18.0			
128A	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	T8	19.0			
128B	2'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	--	21.0			
129A	(2) 3'-0" X 7'-0"	G2	ALUM	ANOD-1	F7	ALUM	ANOD-1	6/A6-10 (SIM)	D8/D15	T1	2.0			
129B	2'-8" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	--	28.0			
129C	2'-8" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	--	28.0			
129D	2'-8" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	--	28.0			
131A	14'-0" X 14'-0"	OH	PREMANUFAC. SECTION OVERHEAD DOOR						D19	D18 / D20	--	26.0		1
131B	14'-0" X 14'-0"	OH	PREMANUFAC. SECTION OVERHEAD DOOR						D19	D18	--	26.0		1
131C	14'-0" X 14'-0"	OH	PREMANUFAC. SECTION OVERHEAD DOOR						D19	D18	--	26.0		1
131D	14'-0" X 14'-0"	OH	PREMANUFAC. SECTION OVERHEAD DOOR						D19	D18 / D20	--	26.0		1
131E	14'-0" X 14'-0"	OH	PREMANUFAC. SECTION OVERHEAD DOOR						D19	D20	--	26.0		1
131F	14'-0" X 14'-0"	OH	PREMANUFAC. SECTION OVERHEAD DOOR						D19	D20	--	26.0		1
131G	14'-0" X 14'-0"	OH	PREMANUFAC. SECTION OVERHEAD DOOR						D19	D20	--	26.0		1
131H	14'-0" X 14'-0"	OH	PREMANUFAC. SECTION OVERHEAD DOOR						D19	D20	--	26.0		1
131J	3'-0" X 7'-0"	N	FRP	--	F2	ALUM	ANOD-1	D9	D10	T1	4.0		4	
131K	3'-0" X 7'-0"	N	FRP	--	F2	ALUM	ANOD-1	D9	D10	T1	4.0			
132	3'-0" X 7'-0"	F	FRP	--	F2	ALUM	ANOD-1	D11	D12/D16	T1	5.0		4	
133	3'-0" X 7'-0"	N	FRP	--	F2	ALUM	ANOD-1	D9	D10	T1	5.0		4	
134A	3'-0" X 7'-0"	F	HM	PNT-2	F2	HM	PNT-2	D1	D2	--	18.0			
134B	3'-0" X 7'-0"	F	HM	PNT-2	F2	HM	PNT-2	D1	D2	--	18.0			
136	(2) 3'-0" X 7'-0"	N	HM	PNT-2	F2	HM	PNT-2	D1	D2	T1	22.0		2	
137	3'-0" X 7'-0"	N	HM	PNT-2	F2	HM	PNT-2	D1	D2	T1	13.0		2	
138	(2) 3'-0" X 7'-0"	F	HM	PNT-2	F2	HM	PNT-2	D1	D2	T1	23.0		2	
140	(2) 3'-0" X 7'-0"	F	FRP	--	F2	ALUM	ANOD-1	D9	D10	T1	7.0			
141	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	T9	29.0			
142	3'-0" X 7'-0"	F	WD	ST-1	F1	HM	PNT-2	D3	D4	T9	29.0			
MEZZANINE LEVEL														
202	3'-0" X 7'-0"	F	HM	PNT-2	F1	HM	PNT-2	D3	D4	--	12.0			
203	3'-0" X 7'-0"	F	HM	PNT-2	F1	HM	PNT-2	D3	D4	T6	18.0			
204A	3'-0" X 7'-0"	N	HM	PNT-2	F1	HM	PNT-2	D3	D4	T5	24.0			
204B	3'-0" X 7'-0"	G	ALUM	ANOD-1	F6	ALUM	ANOD-1	D7	D8	T2	1.0		5	

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CONSULTANT

KEY PLAN

OWNER

Highland Township
Fire Department

PROJECT NAME

Highland Township
Fire Station No. 1

1600 W. Highland Rd.
Highland, MI 48357

PROJECT NO.

18-122A

ISSUES / REVISIONS

Bidding - Construction 03/27/20
Addendum #1 04/20/20

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AR

CHECKED BY

LL / AM

APPROVED BY

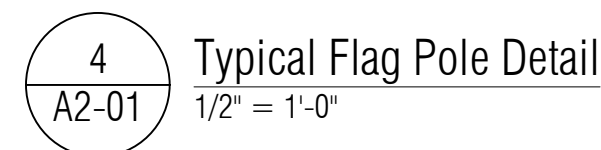
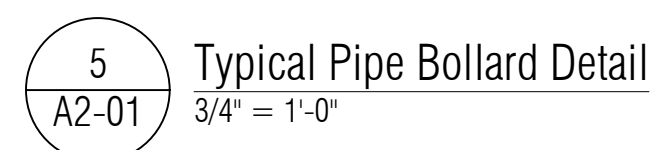
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SHEET NAME

DOOR SCHEDULE &
FRAME TYPES

SHEET NO.

A0-04

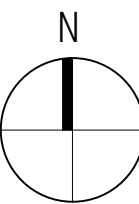


FLOOR PLAN GENERAL NOTES:

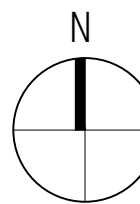
- ALL DIMENSIONS ARE TO FINISH FACE OF WALL - WALL THICKNESS IS SHOWN AS NOMINAL. SEE WALL TYPES FOR ACTUAL THICKNESS.
- COORDINATE SIZE AND LOCATION OF ALL DUCT, SHAFT AND LOUVER OPENINGS IN WALLS AND FLOORS WITH MECHANICAL AND ELECTRICAL. PROVIDE ALL REQUIRED LINTELS FOR OPENINGS.
- DO NOT SCALE DRAWINGS. USE DIMENSIONS PROVIDED. IF A CONFLICT IS ENCOUNTERED OR A REQUIRED DIMENSION IS NOT PROVIDED, REQUEST A CLARIFICATION FROM THE ARCHITECT.
- AT ALL LOCATIONS WHERE GYPSUM BOARD WALL INTERSECTS PERPENDICULAR TO MASONRY BLOCK WALL CORNER, THE GYPSUM BOARD IS TO BE SET BACK 1" FORM BULLNOSE OF BLOCK.

FLOOR PLAN KEY NOTES:

- SOLID SURFACE TRANSITION AT SHOWER - REFER TO DETAIL T7 ON A0-14
- THICKENED CONCRETE EQUIPMENT PAD, COORDINATE SIZE & LOCATON WITH MECH & ELEC EQUIPMENT
- UNDER COUNTER DISHWASHER PROVIDED BY OWNER
- DASHED LINE OF STONE SKIRTING AND SILL BELOW
- TV BY OWNER - REFER TO ELEC
- WASHER/DRYER PROVIDED BY OWNER - REFER TO MECH. - OWNER TO RELOCATE
- LINE OF FLOOR MATERIAL CHANGE - NO TRANSITION STRIP BETWEEN MATERIALS - REFER TO DETAIL T4 ON A0-14
- HATCHED AREA OF MEZZANINE ABOVE
- PLUMBING FIXTURE - REFER TO PLUMBING
- WALL MOUNTED PPE STORAGE - REFER TO SPECIFICATIONS
- STAINLESS STEEL WORK SURFACE - REFER TO SPECIFICATIONS
- MILLWORK/CASEWORK - REFER TO INTERIOR ELEVATIONS
- 42" HIGH COUNTERTOP WITH BRACKETS
- BASE BID: NO DECK
ALTERNATE #3: PRESSURE TREATED WOOD FLOOR DECK ON WOOD FLOOR CONSTRUCTION - REFER TO WALL SECTIONS AND STRUCTURAL.
- MEZZANINE GUARD RAIL, TERMINATION, MOUNTING, AND STAIR GUARD / HAND RAIL MUST MAINTAIN LESS THAN 4" GAP AT STEEL VERTICAL POSTS
- PRE-FABRICATED TRENCH DRAIN - PROVIDE 2" CHASE WITH JOINT SEALANT AROUND PERIMETER - REFER TO STRUCTURAL AND PLUMBING.
- STAND PIPE - REFER TO PLUMBING
- MASONRY OPENING - REFER TO DIMENSION PLAN AND ELEVATIONS FOR OPENING SIZE
- APPLIANCE - PROVIDED & INSTALLED BY OWNER
- 6" Ø x 4'-0" HIGH CONCRETE FILLED GALVANIZED STEEL PIPE BOLLARD
- SLOPED EPOXY FLOORING
- PORCELAIN TILE SHOWER WITH SHOWER PAN AND FLOOR DRAIN. COORDINATE DEPRESSION IN CONCRETE FLOOR SLAB AS REQUIRED FOR FLUSH FLOOR FINISH.
- GROMMET IN COUNTERTOP
- ALTERNATE: LINE OF DECK ABOVE
- ADJUSTABLE SHELVING
- EYE WASH STATION
- LINE OF CLERESTORY ABOVE - REFER TO DETAIL 3/A3-01
- MOP RACK
- ELECTRICAL WATER COOLER - REFER TO MECH. & ELEC
- COMPRESSORS TO BE RE LOCATED FROM STATION 1 - REFER TO MECH. & ELEC - OWNER TO RELOCATE
- EXTRACTOR TO BE RELOCATED FROM STATION 1 - REFER TO MECH. & ELEC - OWNER TO RELOCATE
- CLOSET WITH COAT RACK & SHELF
- DELEGATED DESIGN STAIR SYSTEM WITH 5' CLEAR REMOVABLE RAILING AT LANDING
- PPE CHARGING STATION - REFER TO SECTION DETAIL 7/A6-11
- TRANSITION RAMPED FLOOR - 1/2" PER 1'-0" SLOPE
- LINE OF ROOF EDGE BELOW
- SIGNAGE BY OWNER, CENTER WITH DOOR BELOW
- TRANSITION FROM FULL BET DEPTH STONE TO A 2" VENEER AT EXTERIOR LINE OF BUILDING BELOW
- LINE OF ENTRANCE SLAB - REFER TO STRUCTURAL
- WALL MOUNTED HOSE BIB - REFER TO PLUMBING



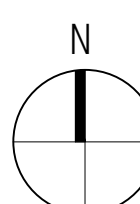
4 Vestibule Clerestory Plan
1/8" = 1'-0"



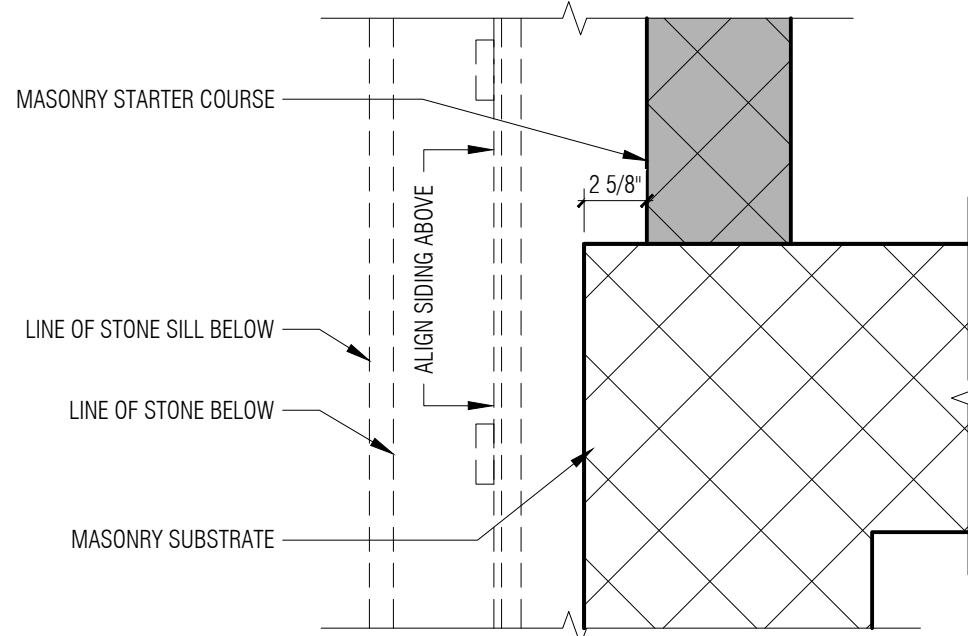
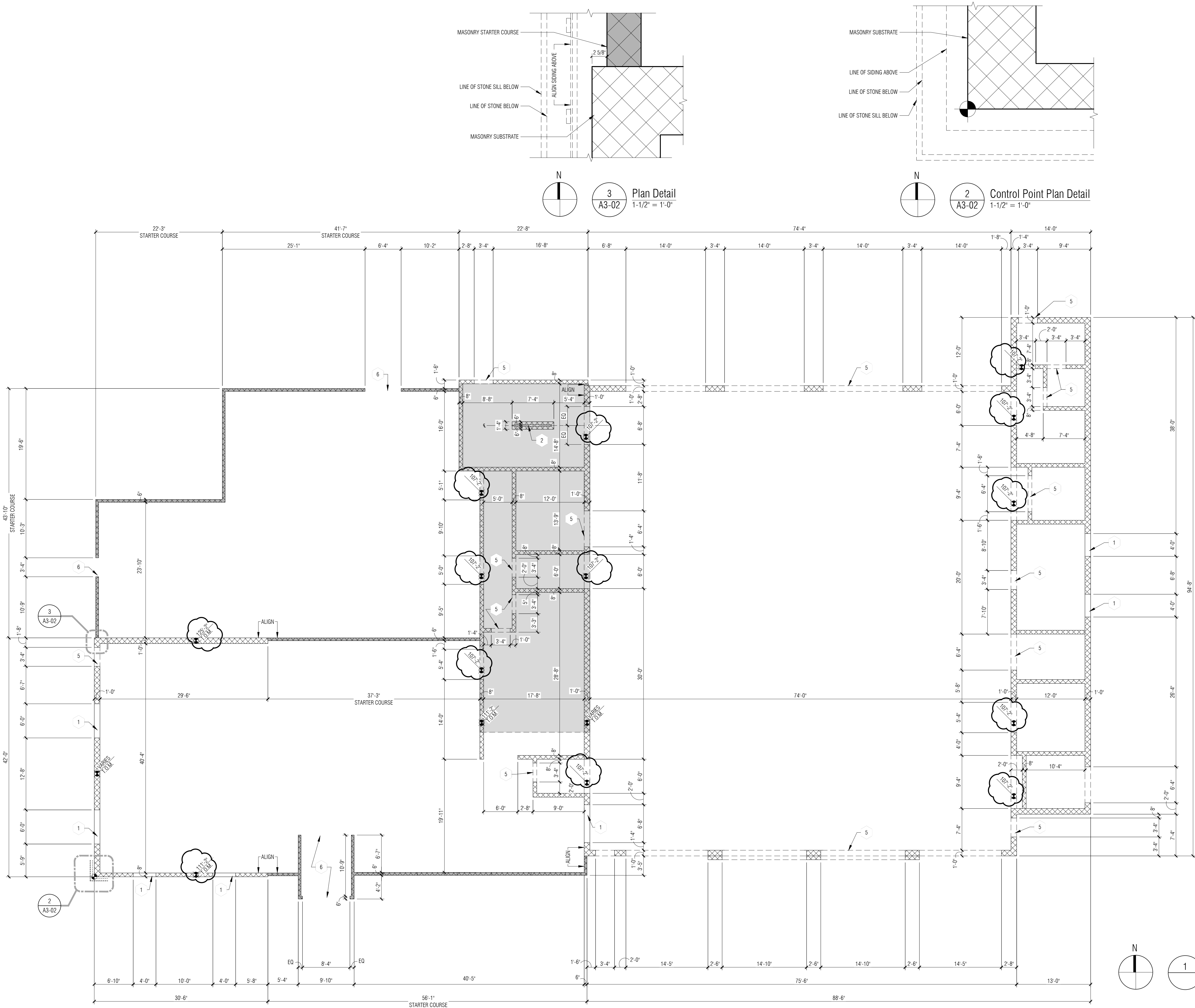
3 Clerestory Plan
1/8" = 1'-0"



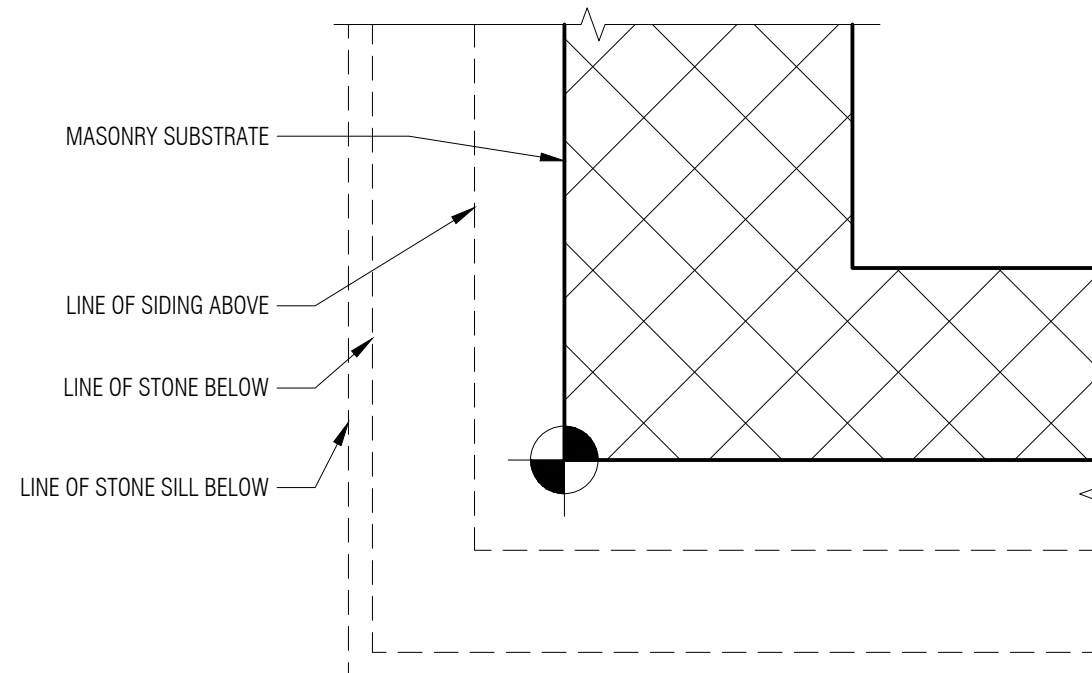
2 Mezzanine Level Floor Plan
1/8" = 1'-0"



1 Main Level Floor Plan
1/8" = 1'-0"



3
A3-02
Plan Detail
1-1/2" = 1'-0"



2
A3-02
Control Point Plan Detail
1-1/2" = 1'-0"

MASONRY DIMENSION PLAN GENERAL NOTES:

- A. ALL DIMENSIONS ARE TO FACE OF MASONRY WALL - WALL THICKNESS IS SHOWN AS NOMINAL.
- B. COORDINATE SIZE AND LOCATION OF ALL DUCT, SHAFT AND LOUVER OPENINGS IN WALLS AND FLOORS WITH MECHANICAL AND ELECTRICAL. PROVIDE ALL REQUIRED LINTELS FOR OPENINGS.
- C. DO NOT SCALE DRAWINGS. USE DIMENSIONS PROVIDED. IF A CONFLICT IS ENCOUNTERED OR A REQUIRED DIMENSION IS NOT PROVIDED, REQUEST A CLARIFICATION FROM THE ARCHITECT.

MASONRY DIMENSION PLAN KEY NOTES:

- 1 MASONRY OPENING FOR WINDOW - REFER TO SECTIONS FOR SILL HEIGHT
- 2 MASONRY HALF WALL REFER TO SECTION _____
- 3 SHADED AREAS [] DENOTE AREAS OF STARTER COURSE ONLY, MTL. STUD WALL ABOVE.
- 4 SHADED AREA [] DENOTE AREA OF MEZZANINE.
- 5 MASONRY OPENING FOR DOOR - REFER TO DOOR SCHEDULE.
- 6 OPENING IN MASONRY STARTER COURSE FOR DOOR - REFER TO SCHEDULE.

PARTNERS



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CONSULTANT

KEY PLAN

OWNER

Highland Township
Fire Department

PROJECT NAME

Highland Township
Fire Station No. 1

1600 W. Highland Rd.
Highland, MI 48357

PROJECT NO.

18-122A

ISSUES / REVISIONS

Bidding - Construction 03/27/20
Addendum #1 04/20/20

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SHEET NAME

MASONRY
DIMENSION PLAN

SHEET NO.

A3-02

GENERAL NOTES - TOILET ACCESSORIES

- A. REFER TO SPECIFICATION SECTION 102800 FOR DESCRIPTION OF TOILET ACCESSORIES.
- B. REFER TO MECHANICAL PLANS FOR ALL PLUMBING FIXTURES.
- C. CENTER FLOOR DRAIN IN ROOM UON. ENSURE 1/8" PER FOOT SLOPE TOWARD FLOOR DRAINS. (TYP.)
- D. PROVIDE WD BLOCKING SUPPORT AT ALL GRAB BAR LOCATIONS PER GRAB BAR MANUFACTURER'S RECOMMENDATION.

LEGEND - TOILET ACCESSORIES

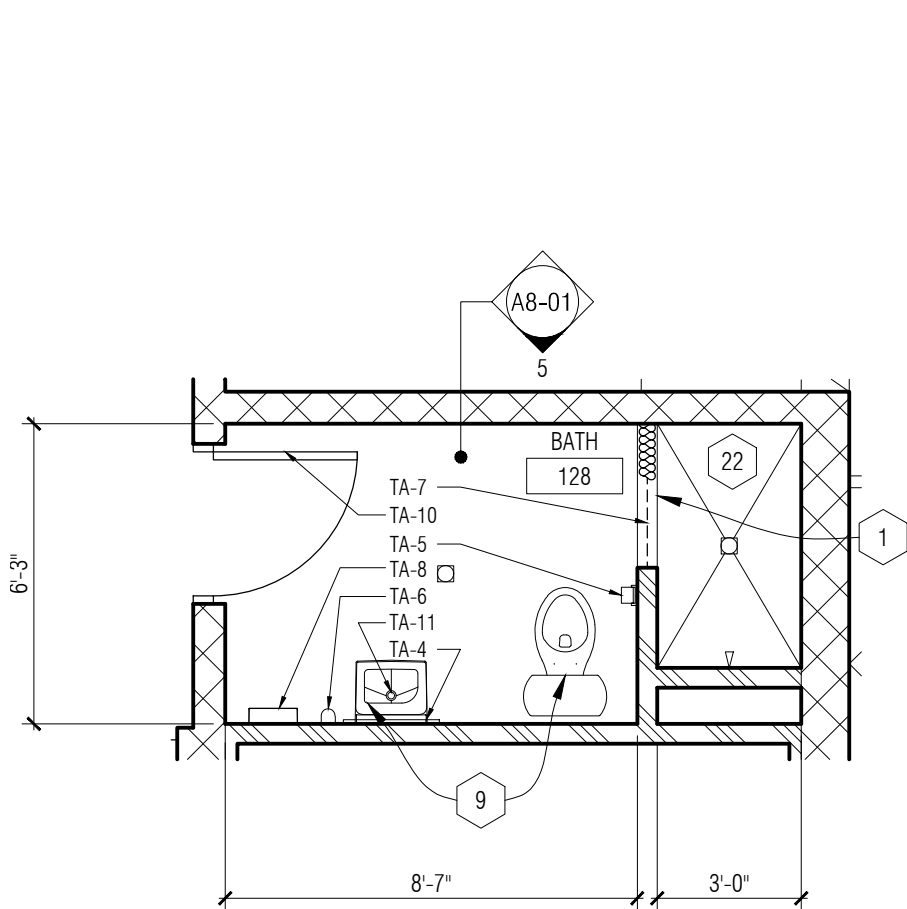
- TA-1 42" GRAB BAR
- TA-2 36" GRAB BAR
- TA-3 18" GRAB BAR - VERTICAL
- TA-4 WALL MOUNTED MIRROR
- TA-5 TOILET TISSUE DISPENSER
- TA-6 SURFACE MOUNTED SOAP DISPENSER
- TA-7 SHOWER CURTAIN ROD & HOOKS
- TA-8 PAPER TOWEL DISPENSER
- TA-9 ELECTRIC HAND DRIER
- TA-10 TOWEL HOOK
- TA-11 LAVATORY GUARD
- TA-12 FREE STANDING WASTE RECEPTACLE (NOT SHOWN- PROVIDE 1 AT EACH RESTROOM)

FLOOR PLAN GENERAL NOTES:

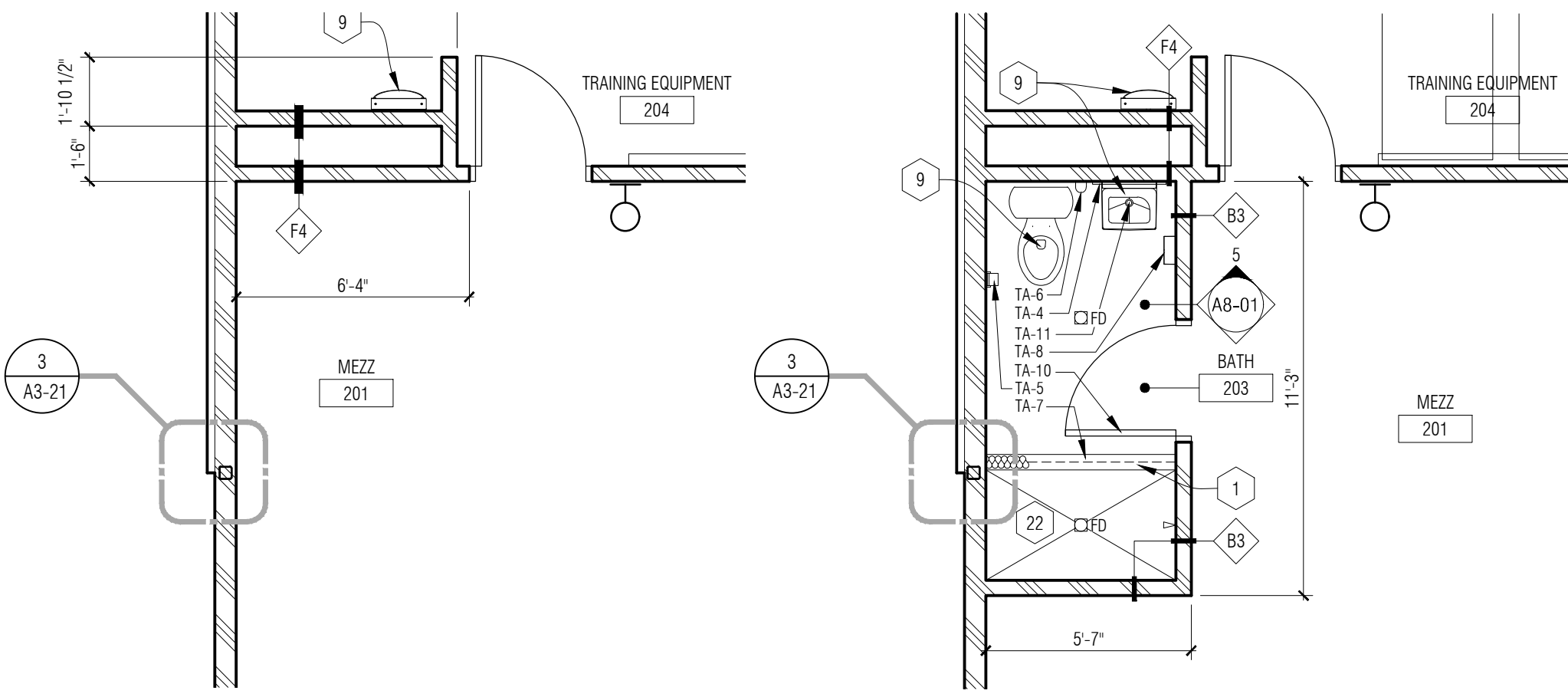
- A. ALL DIMENSIONS ARE TO FINISH FACE OF WALL - WALL THICKNESS IS SHOWN AS NOMINAL. SEE WALL TYPES FOR ACTUAL THICKNESS.
- B. COORDINATE SIZE AND LOCATION OF ALL DUCT, SHAFT AND LOUVER OPENINGS IN WALLS AND FLOORS WITH MECHANICAL AND ELECTRICAL. PROVIDE ALL REQUIRED LINTELS FOR OPENINGS.
- C. DO NOT SCALE DRAWINGS. USE DIMENSIONS PROVIDED. IF A CONFLICT IS ENCOUNTERED OR A REQUIRED DIMENSION IS NOT PROVIDED, REQUEST A CLARIFICATION FROM THE ARCHITECT.
- D. AT ALL LOCATIONS WHERE GYPSUM BOARD WALL INTERSECTS PERPENDICULAR TO MASONRY BLOCK WALL CORNER, THE GYPSUM BOARD IS TO BE SET BACK 1" FORM BULLNOSE OF BLOCK.

FLOOR PLAN KEY NOTES:

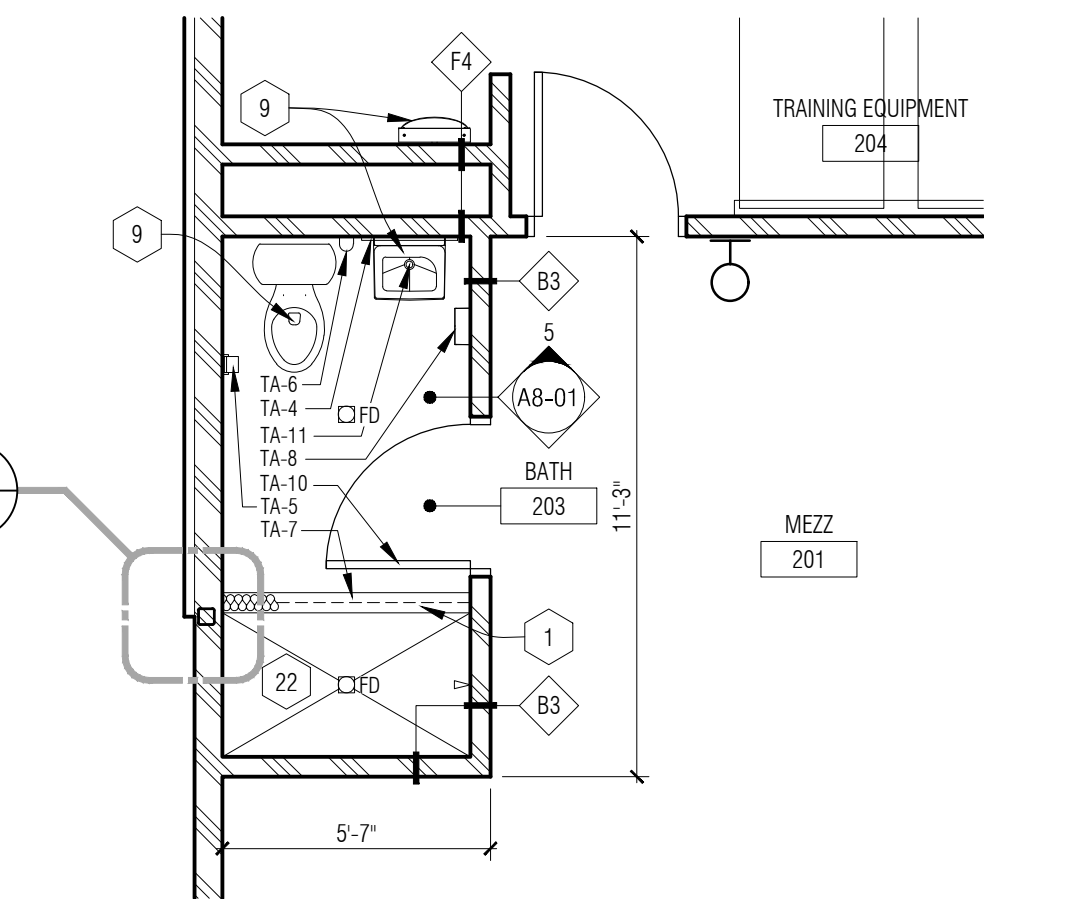
- 1 SOLID SURFACE TRANSITION AT SHOWER - REFER TO DETAIL T7 ON A0-14
- 2 THICKENED CONCRETE EQUIPMENT PAD, COORDINATE SIZE & LOCATOIN WITH MECH & ELEC EQUIPMENT
- 3 UNDER COUNTER DISHWASHER PROVIDED BY OWNER
- 4 DASHED LINE OF STONE SKIRTING AND SILL BELOW
- 5 TV BY OWNER - REFER TO ELEC
- 6 WASHER/DRYER PROVIDED BY OWNER - REFER TO MECH.
- 7 LINE OF FLOOR MATERIAL CHANGE - NO TRANSITION STRIP BETWEEN MATERIALS - REFER TO DETAIL T4 ON A0-14
- 8 HATCHED AREA OF MEZZANINE ABOVE
- 9 PLUMBING FIXTURE - REFER TO PLUMBING
- 10 WALL MOUNTED PPE STORAGE - REFER TO SPECIFICATIONS
- 11 STAINLESS STEEL WORK SURFACE - REFER TO SPECIFICATIONS
- 12 MILLWORK/CASEWORK - REFER TO INTERIOR ELEVATIONS
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ALTERNATE #2: PRESSURE TREATED WOOD FLOOR DECK ON WOOD FLOOR CONSTRUCTION - REFER TO WALL SECTIONS AND STRUCTURAL
- 15 MEZZANINE GUARD RAIL, TERMINATION, MOUNTING, AND STAIR GUARD / HAND RAIL MUST MAINTAIN LESS THAN 4" GAP AT STEEL VERTICAL POSTS
- 16 PRE-FABRICATED TRENCH DRAIN - PROVIDE 2" CHASE WITH JOINT SEALANT AROUND PERIMETER - REFER TO STRUCTURAL AND PLUMBING.
- 17 STAND PIPE - REFER TO PLUMBING
- 18 MASONRY OPENING - REFER TO DIMENSION PLAN AND ELEVATIONS FOR OPENING SIZE
- 19 APPLIANCE - PROVIDED & INSTALLED BY OWNER
- 20 6" Ø x 4'-0" HIGH CONCRETE FILLED GALVANIZED STEEL PIPE BOLLARD
- 21 SLOPED EPOXY FLOORING
- 22 PORCELAIN TILE SHOWER WITH SHOWER PAN AND FLOOR DRAIN. COORDINATE DEPRESSION IN CONCRETE FLOOR SLAB AS REQUIRED FOR FLUSH FLOOR FINISH.
- 23 GROMMET IN COUNTERTOP
- 24 ALTERNATE: LINE OF DECK ABOVE
- 25 ADJUSTABLE SHELVING
- 26 EYE WASH STATION
- 27 LINE OF CLERESTORY ABOVE - REFER TO DETAIL 3/A3-01
- 28 MDP RACK
- 29 ELECTRICAL WATER COOLER - REFER TO MECH. & ELEC
- 30 COMPRESSORS TO BE RE LOCATED FROM STATION 1 - REFER TO MECH. & ELEC - OWNER TO RELOCATE
- 31 EXTRACTOR TO BE RELOCATED FROM STATION 1 - REFER TO MECH. & ELEC - OWNER TO RELOCATE
- 32 CLOSET WITH COAT RACK & SHELF
- 33 DELEGATED DESIGN STAIR SYSTEM WITH 5' CLEAR REMOVABLE RAILING AT LANDING
- 34 PPE CHARGING STATION - REFER TO SECTION DETAIL 7/A6-11
- 35 TRANSITION RAMPED FLOOR - 1/2" PER 1'-0" SLOPE
- 36 LINE OF ROOF EDGE BELOW
- 37 SIGNAGE BY OWNER, CENTER WITH DOOR BELOW
- 38 TRANSITION FROM FULL BET DEPTH STONE TO A 2" VENEER AT EXTERIOR LINE OF BUILDING BELOW
- 39 LINE OF ENTRANCE SLAB - REFER TO STRUCTURAL
- 40 WALL MOUNTED HOSE BIB - REFER TO PLUMBING



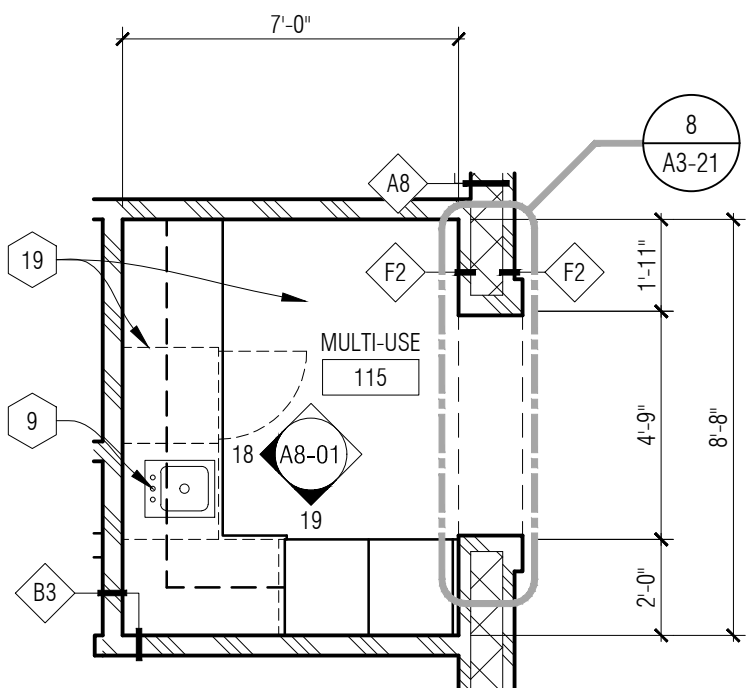
7
A3-01
Enlarged Plan - Bathroom 116
1/4" = 1'-0"



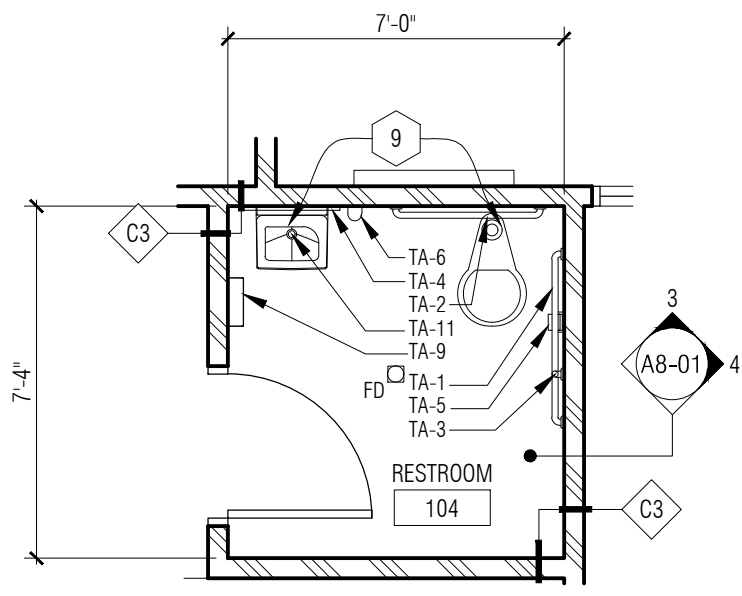
6
A3-01
Mezzanine Level Enlarged Floor Plan - Base Bid
1/4" = 1'-0"



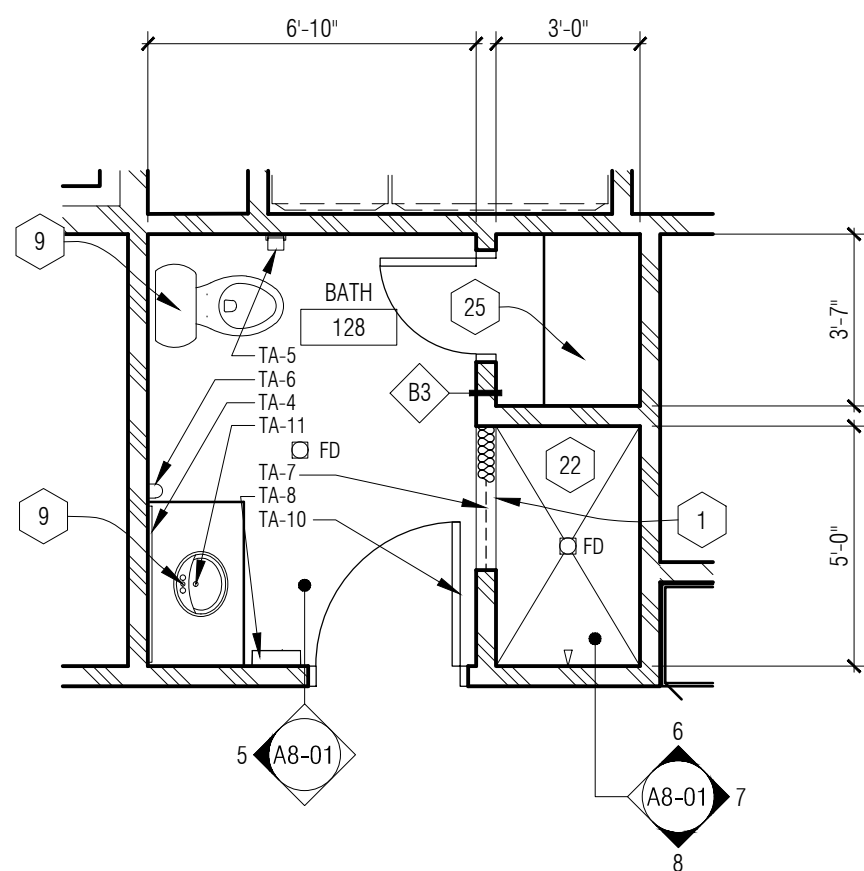
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A3-01
Mezzanine Level Enlarged Floor Plan - Alternate #2
1/4" = 1'-0"



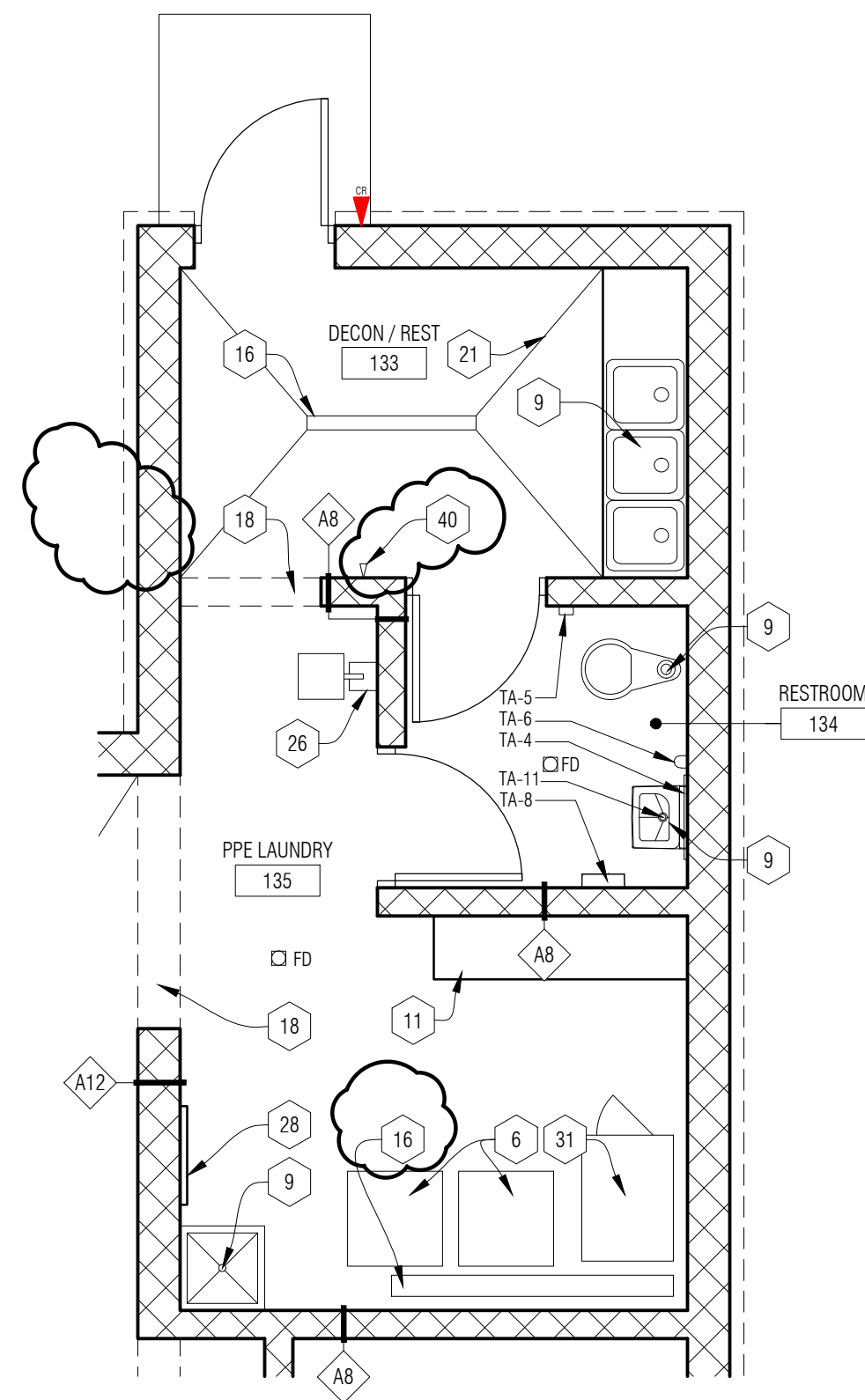
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A3-01
Enlarged Plan - Multi-Use
1/4" = 1'-0"



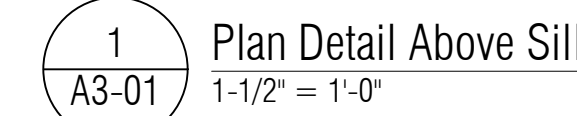
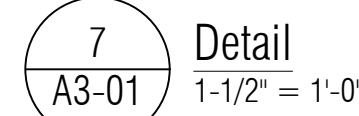
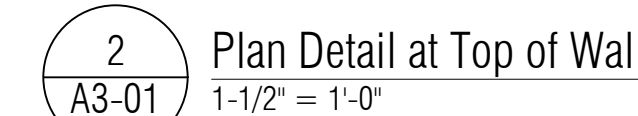
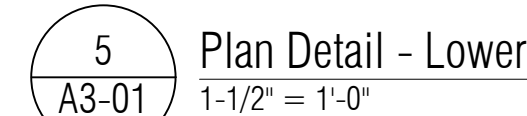
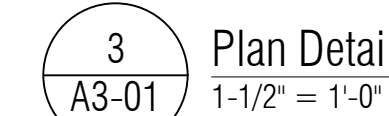
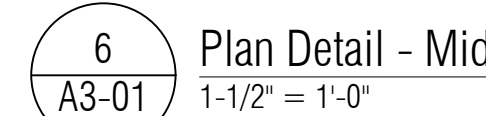
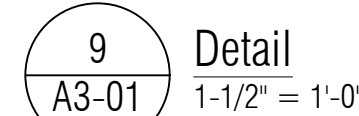
3
A3-01
Enlarged Plan - Restroom 103 & 104
1/4" = 1'-0"

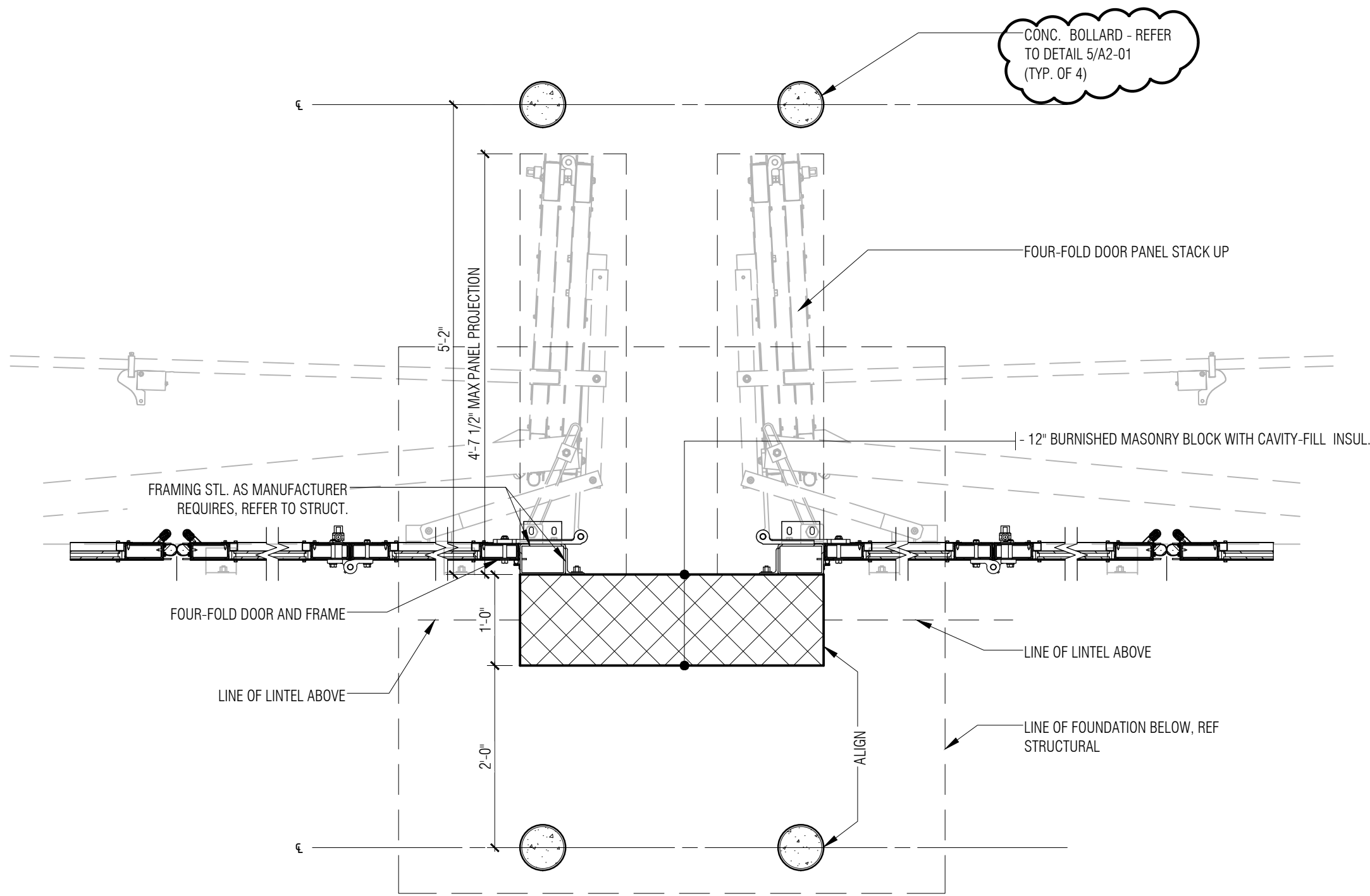


2
A3-01
Enlarged Plan - Bathroom 124 & 128
1/4" = 1'-0"

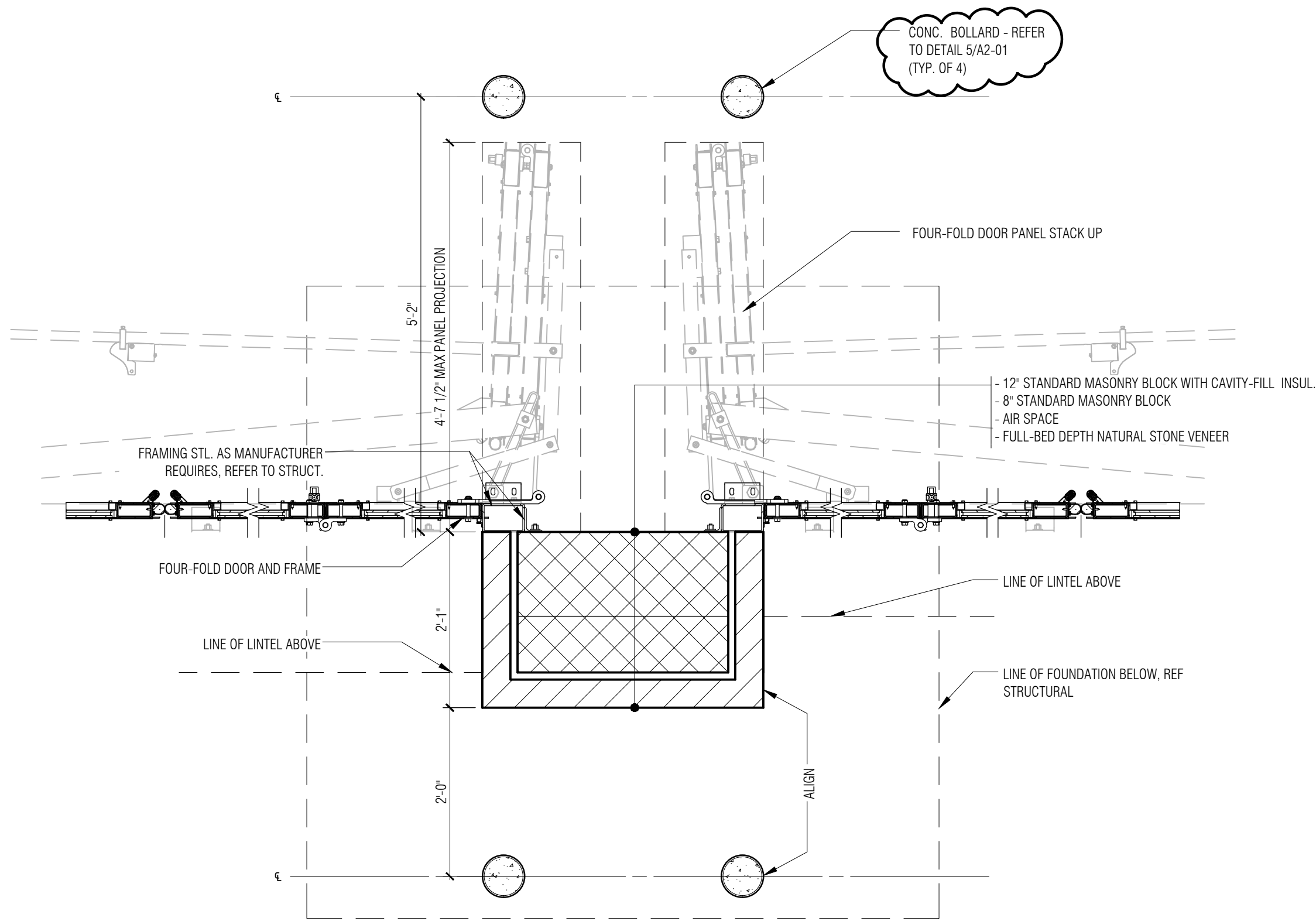


1
A3-01
Enlarged Plan - Decon Area
1/4" = 1'-0"

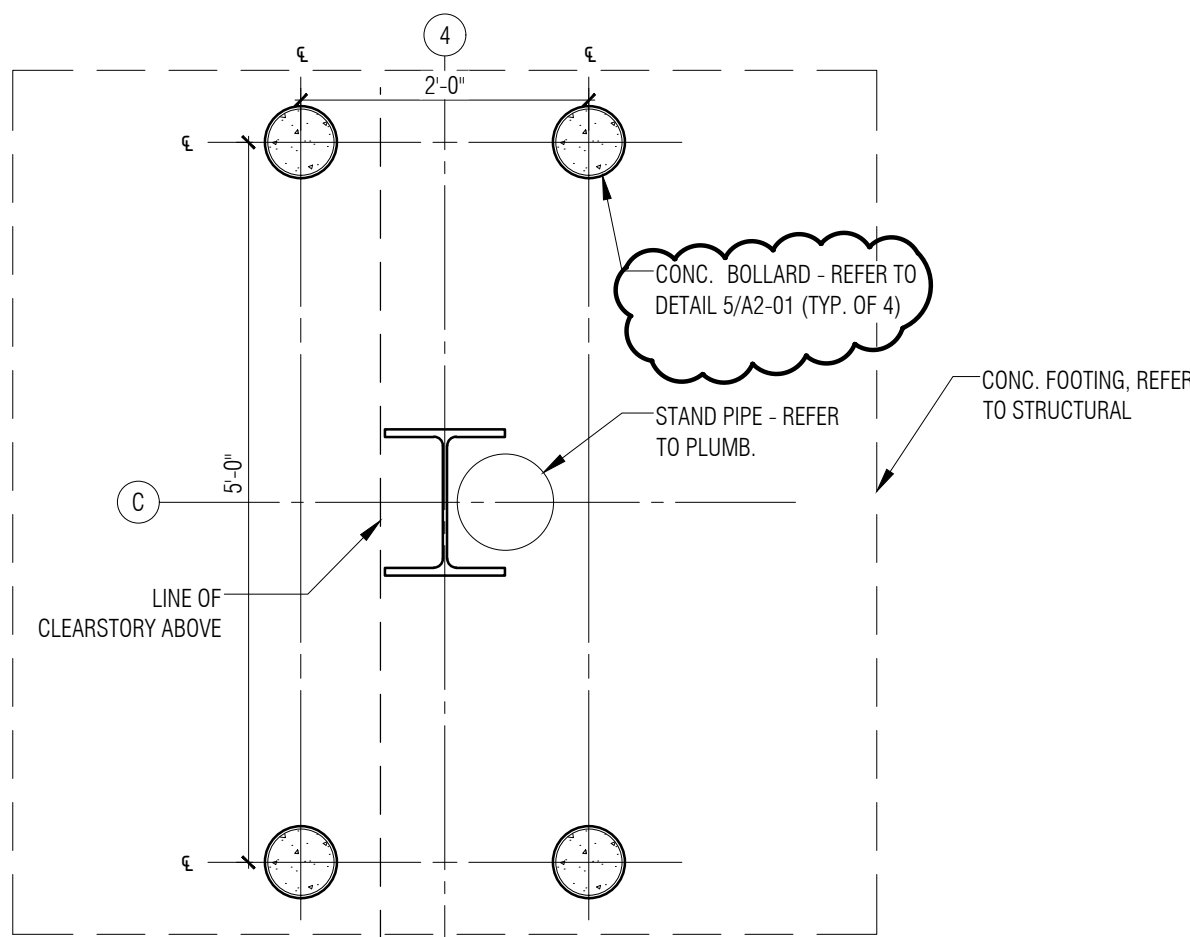




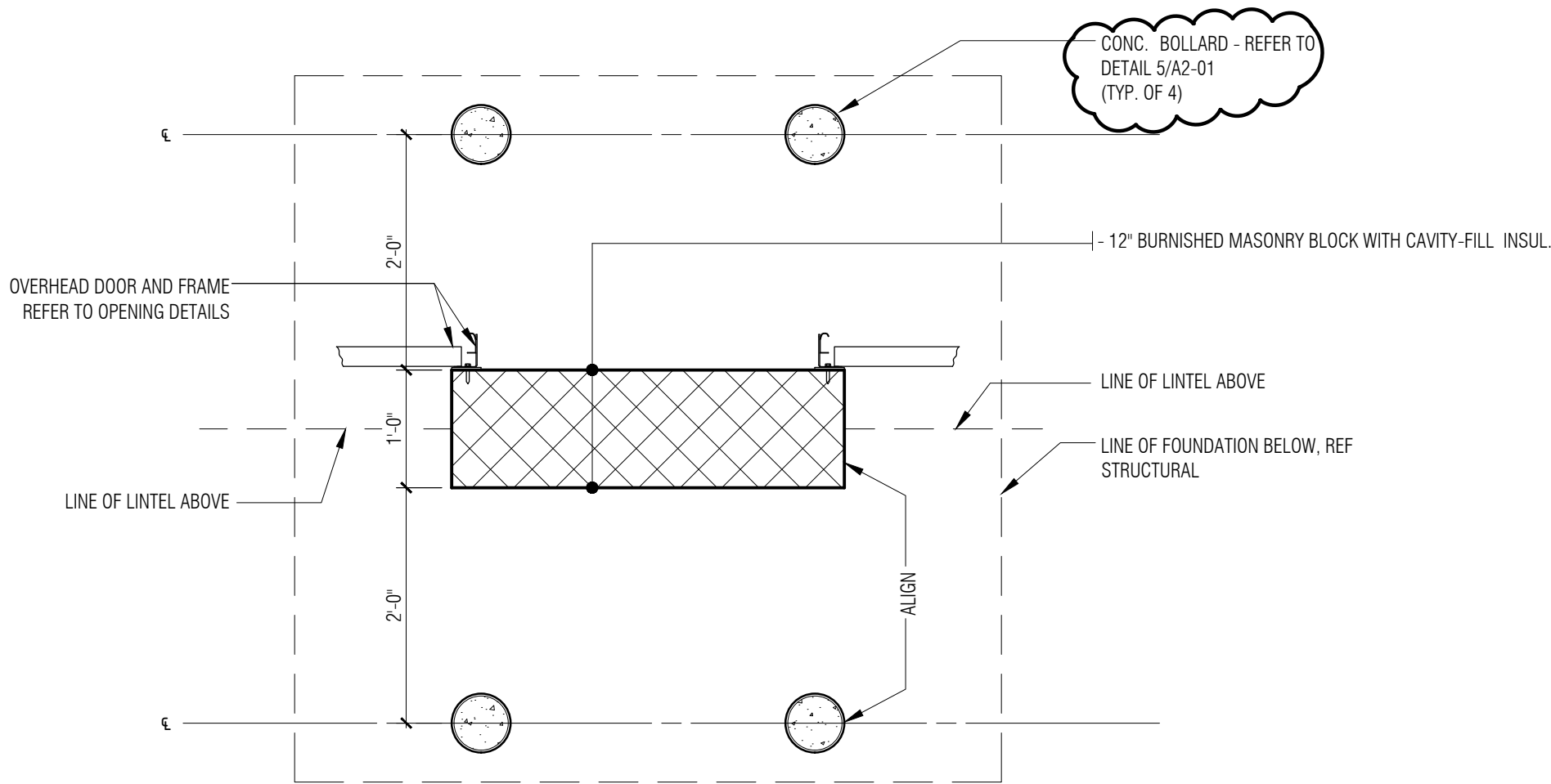
4 Plan Detail - Alternate #1
A3-01 3/4" = 1'-0"



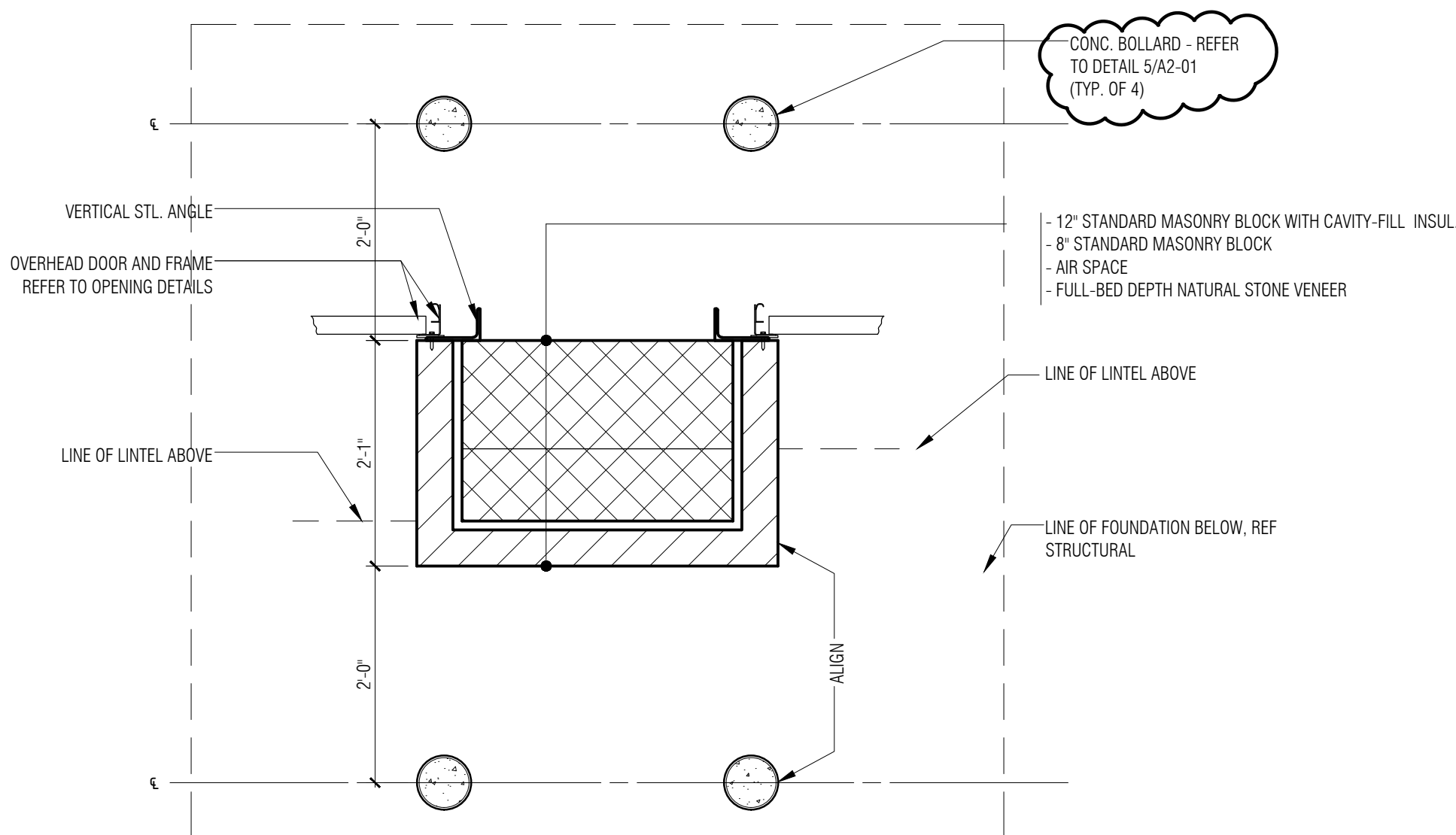
2 Plan Detail - Alternate #1
A3-01 3/4" = 1'-0"



5 Plan Detail
A3-01 3/4" = 1'-0"



3 Plan Detail
A3-01 3/4" = 1'-0"



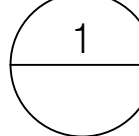
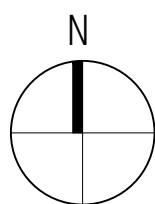
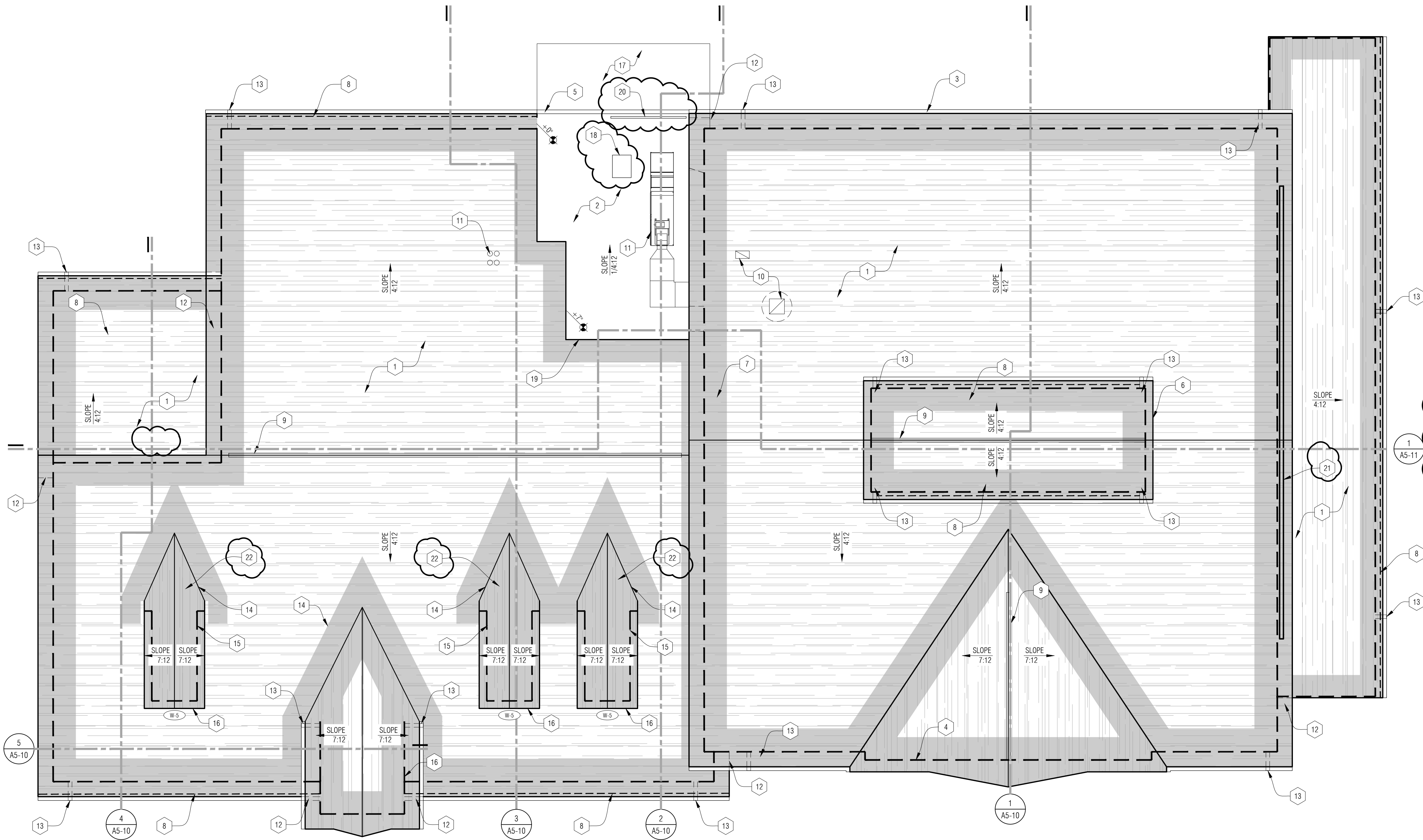
1 Plan Detail
A3-01 3/4" = 1'-0"

ROOF PLAN GENERAL NOTES:

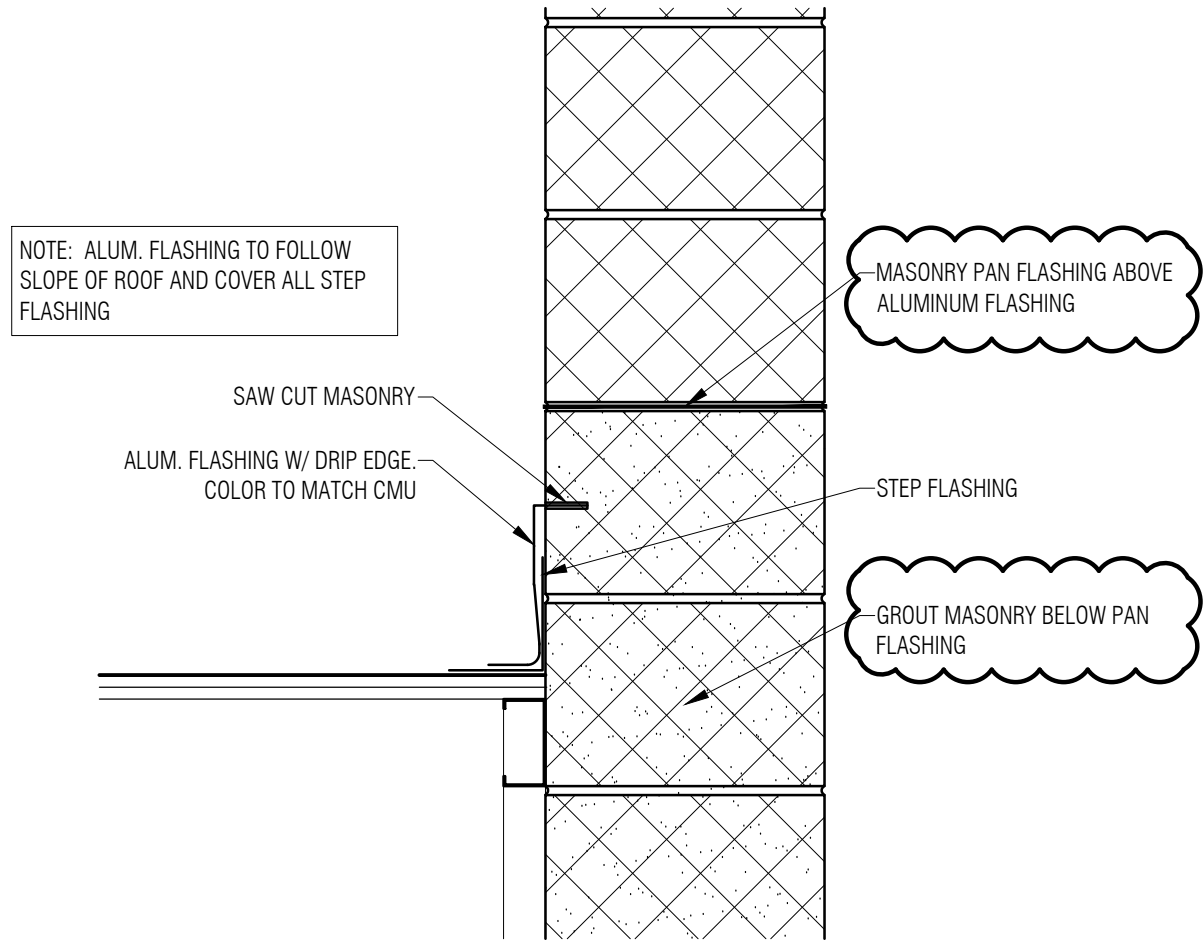
- A. REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION FOR ROOF RELATED ITEMS.
- B. TAPERED INSULATION SHALL SLOPE 1/4" PER 1'-0" TOWARDS ROOF SUMP UNLESS OTHERWISE NOTED. SLOPE VALUES ARE APPROXIMATE. IF SLOPE CANNOT BE ACHIEVED, CONTACT ARCHITECT BEFORE PROCEEDING FURTHER. ARROWS SHOWN REPRESENT DOWN SLOPE OF ROOF.
- C. REFER TO ROOF DETAILS FOR ALL PIPE PENETRATIONS - COORDINATE LOCATIONS AND QUANTITIES W/ MECHANICAL.
- D. DO NOT PENETRATE SHINGLE ROOF - REFER TO MECHANICAL AND ELECTRICAL FOR ALL THRU ROOF PENETRATIONS. FLASH AND SEAL ALL PENETRATIONS IN ACCORDANCE WITH THE ROOF MANUFACTURER'S SPECIFICATIONS AND DETAILS TO ENSURE WARRANTY & DETAILS.

ROOF PLAN KEY NOTES:

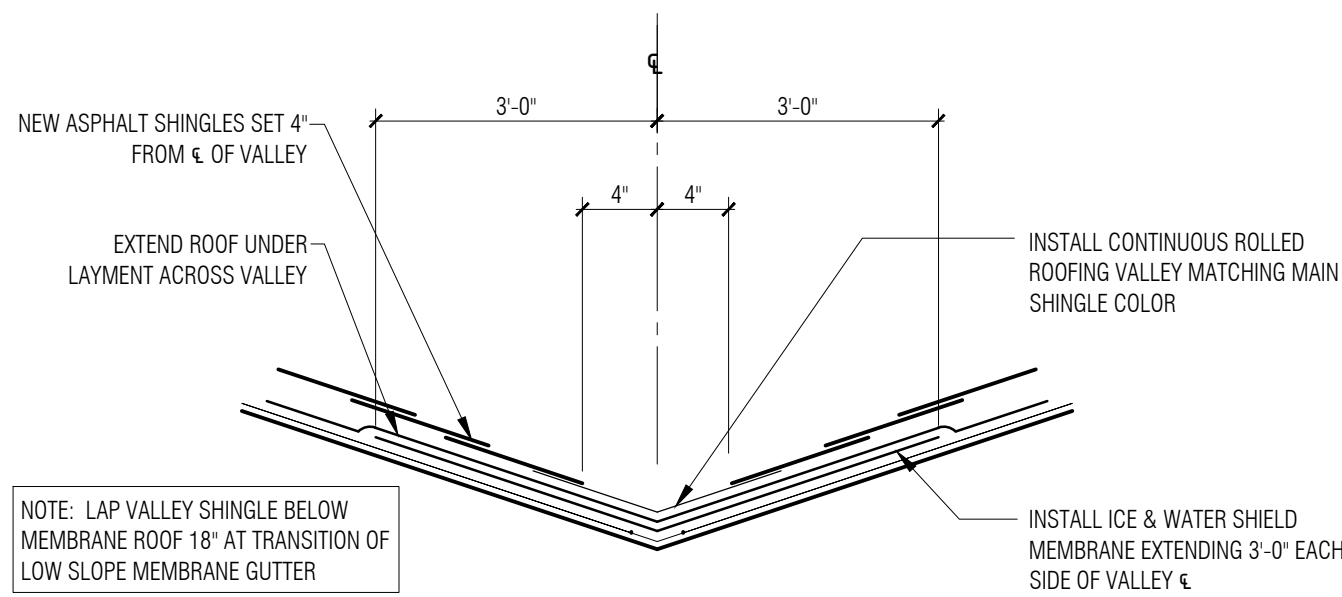
- 1 ASPHALT SHINGLE ROOF - ALL VENTING AND EXHAUST TO BE IN ROOF WALL / RIDGE OR SOFFIT. NO VENTING OR ANY M.E.P. PENETRATIONS THROUGH SHINGLE ROOF ON SOUTH SIDE
- 2 SINGLE-PLY MEMBRANE ROOFING ON R-15 MIN TAPERED INSULATION
- 3 6" K-STYLE METAL GUTTER (MRS-2)
- 4 LINE OF FACE OF WALL BELOW, TYPICAL (DASHED LINE)
- 5 WRAP ROOF MEMBRANE OVER SIDING, TWO-PIECE ALUMINUM GUTTER AND FASCIA SYSTEM APPLIED OVER MEMBRANE WRAP
- 6 PARAPET FLASHING MEMBRANE ON BOTH SIDES OF ROOF CUT-OUT. PROVIDE METAL FLASHING W/ DRIP EDGE AT SHINGLES SEE SIM. DETAIL 4/A0-31
- 7 SHADED AREA OF ICE AND WATER SHIELD SYSTEM - EXTEND 3'-0" MIN. PAST WALL BELOW AND VALLEYS.
- 8 CONTINUOUS INTAKE VENT. INSTALL PER MANUFACTURERS INSTRUCTIONS
- 9 CONTINUOUS RIDGE VENT - REFER TO DETAIL 2/A3-31
- 10 ROOF VENT - REFER TO MECH. & DETAIL 1/A3-31
- 11 MECHANICAL UNIT WITH CONTINUOUS ROOF CURB - REFER TO MECH. FOR ADDITIONAL INFORMATION & COORDINATE WITH ELEC. & STRUCTURAL - REFER TO DETAIL 5/A3-31
- 12 LINE OF ROOF BELOW
- 13 METAL DOWNSPOUT DRAIN (MRS-2)
- 14 PROVIDE ICE AND WATER SHIELD AT ALL VALLEYS AND RIDGES (DETAIL 5/A3-21) AND EXTEND 3'-0" BEYOND INTERIOR FACE OF EXTERIOR WALLS (DETAIL 6/A3-21)
- 15 PROVIDE FLASHING AT SIDEWALL TO ROOF TRANSITION - SEE DETAIL (4/A3-21)
- 16 WINDOW BELOW ROOF DORMER, REF A0-04: WINDOW SCHEDULE AND WINDOW TYPES
- 17 LINE OF TRAINING DECK BELOW - ALTERNATE #3
- 18 ROOF ACCESS HATCH
- 19 PROVIDE FLASHING AT ASPHALT SHINGLE ROOF TO SINGLY-PLY MEMBRANE ROOF TRANSITION
- 20 GUARD RAIL SECURED TO FLAT ROOF SYSTEM TO MEET OSHA REQUIREMENTS
- 21 CONTINUOUS RIDGE VENT SLOPE TO HIGH WALL - REFER TO SPECIFICATIONS
- 22 NO SHEATHING BELOW DORMER FOR CONTINUOUS ATTIC ATMOSPHERE



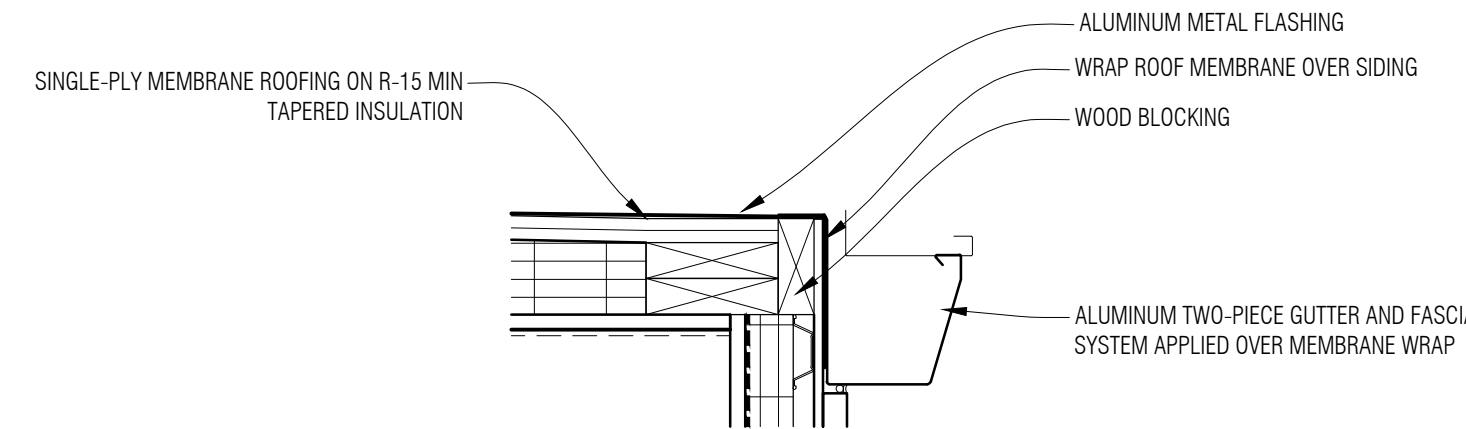
Roof Plan
1/8" = 1'-0"



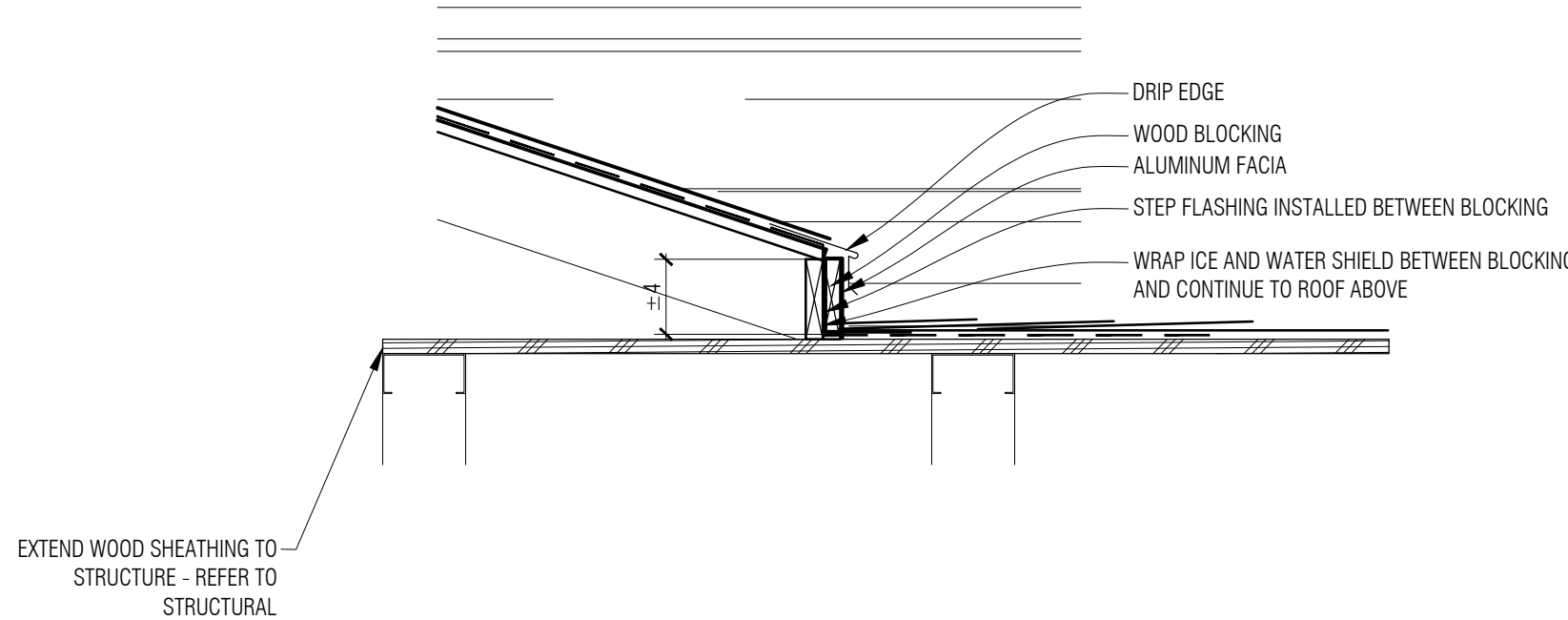
9
A6-04
Flashing at CMU Wall
NTS



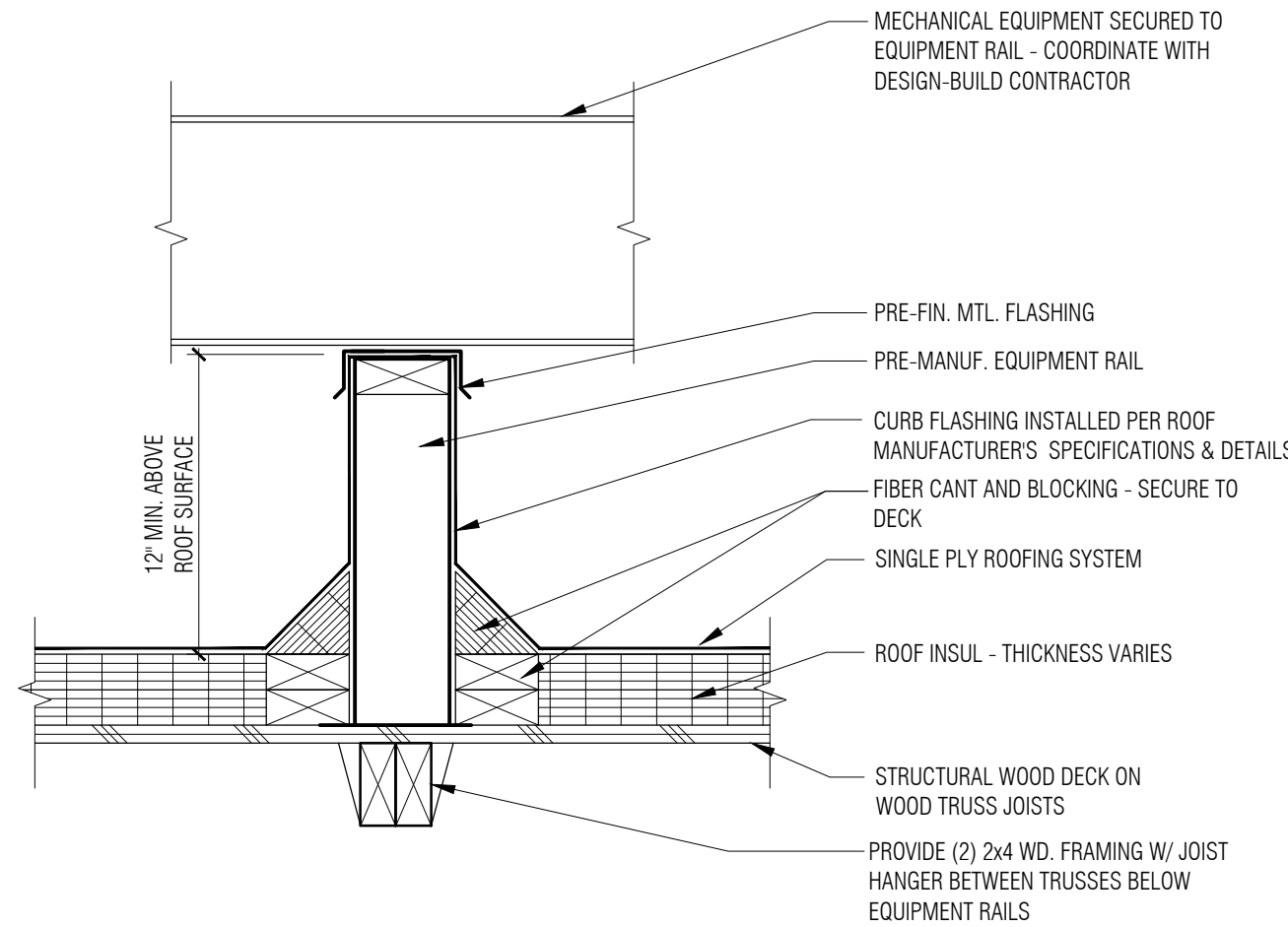
6
A3-20
Typical Detail Thru Roof Valley
N.T.S.



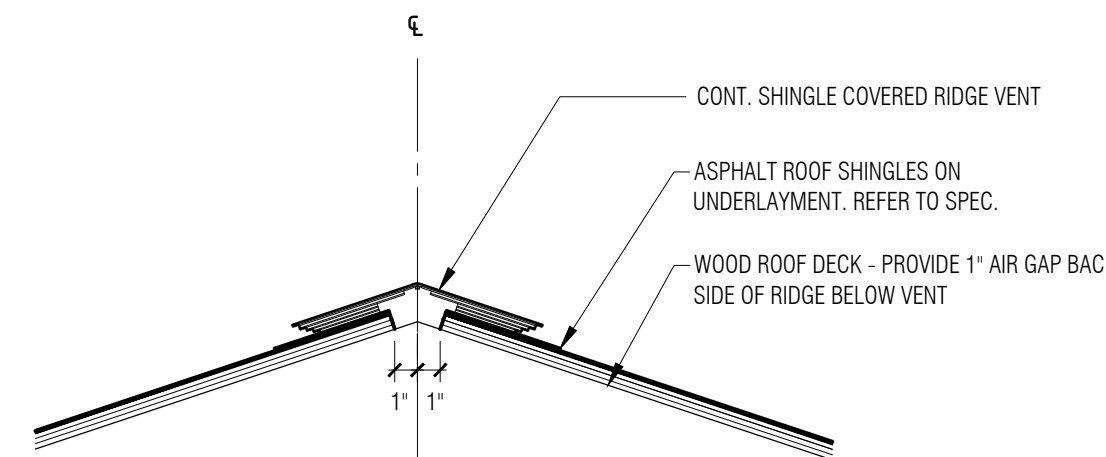
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A3-30
Gravel Stop Detail @ Flat Roof
N.T.S.



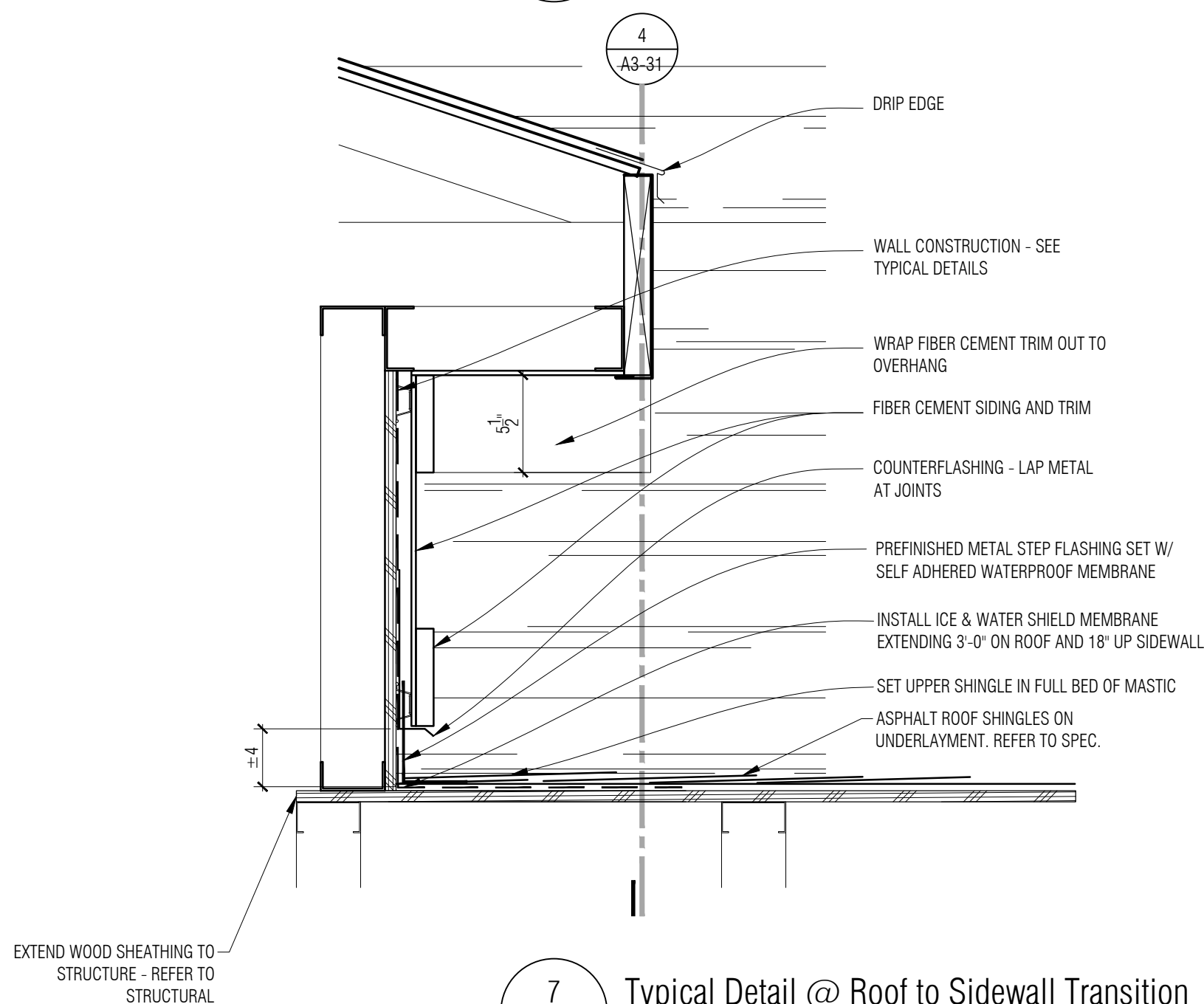
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A3-20
Typical Detail @ Roof to Sidewall Transition
1-1/2" = 1'-0"



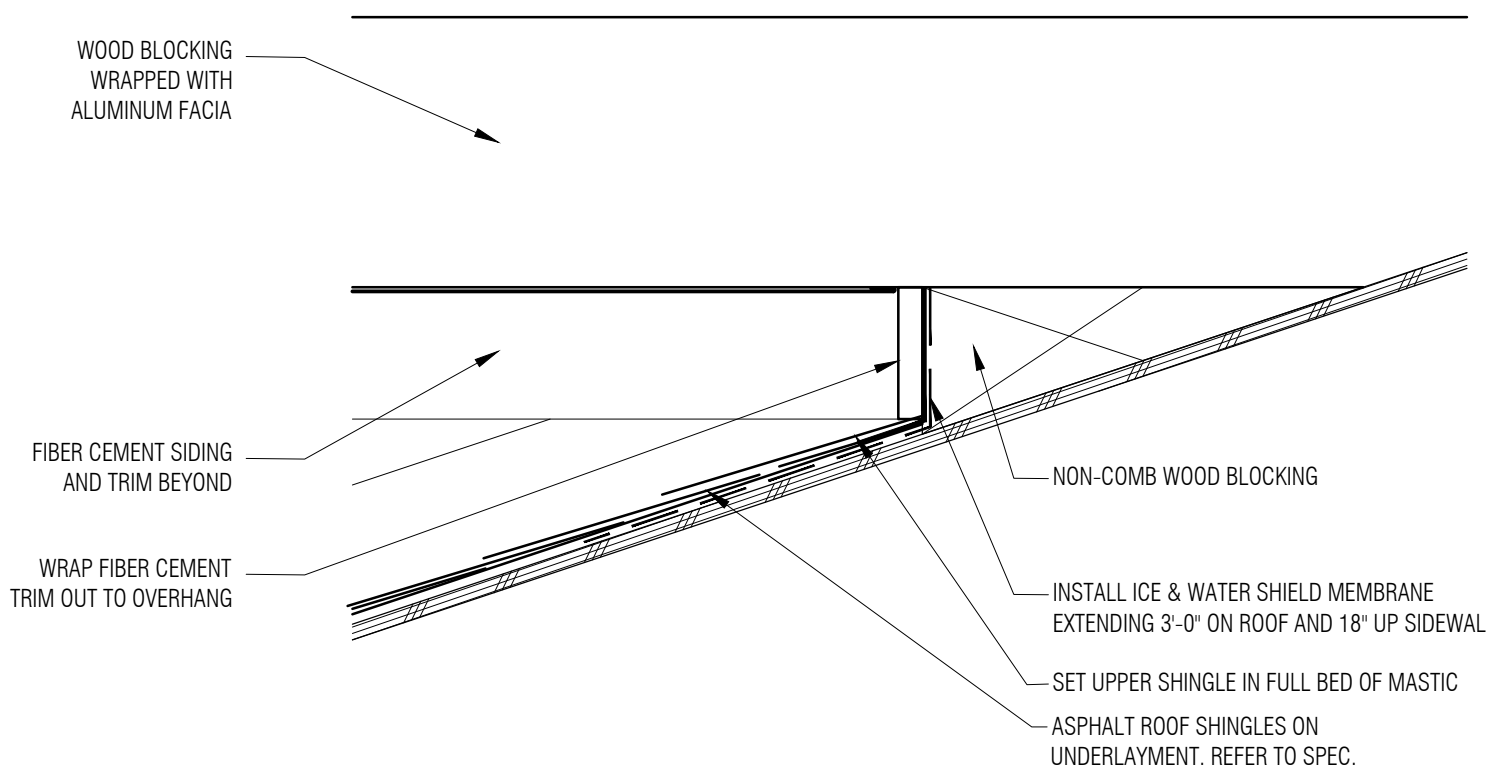
5
A3-30
Typical Equipment Support Rail
1-1/2" = 1'-0"



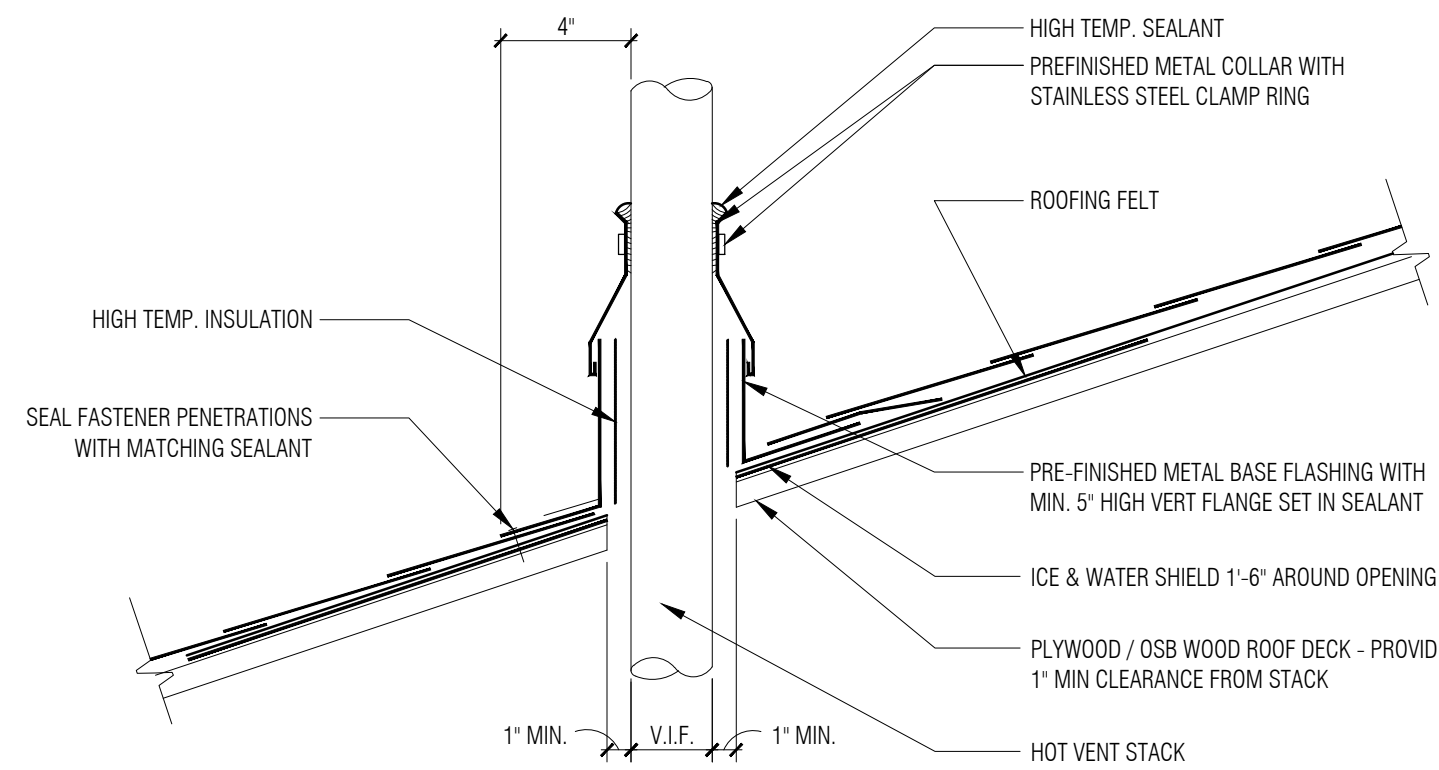
2
A3-30
Ridge Vent Detail @ Sloped Roof
1-1/2" = 1'-0"



7
A3-20
Typical Detail @ Roof to Sidewall Transition
1-1/2" = 1'-0"



4
A3-30
Typical Detail @ Roof to Sidewall Transition
1-1/2" = 1'-0"



1
A3-02
Hot Vent Stack
1 1/2" = 1'-0"

REFLECTED CEILING PLAN - GENERAL NOTES:

- REFER TO FLOOR PLANS FOR ROOM NAMES, NUMBERS AND ROOM DIMENSIONS.
- REFER TO ELECTRICAL FOR LIGHT FIXTURE TYPES AND SPECIFICATIONS.
- REFER TO MECHANICAL FOR DIFFUSERS, REGISTERS, AND RETURNS.
- ALL LIGHT FIXTURES ARE TO BE CENTERED WITHIN CEILING U.O.N.
- CEILING HEIGHT MEASURED FROM 100'-0" FINISH FLOOR.

REFLECTED CEILING PLAN - KEY NOTES:

- EXPOSED CEILING TO UNDERSIDE OF ROOF DECK - REFER TO ROOM FINISH SCHEDULE
- GYPSUM BOARD CEILING
- LINE OF OVERHEAD DOOR - REFER TO DOOR SCHEDULE
- GYPSUM BOARD CEILING / SOFFIT - REFER TO DETAIL 1/A4-02
- RECESSED CAN LIGHT FIXTURES - REFER TO ELECTRICAL
- WALL MOUNTED SIGN - REFER TO ELECTRICAL
- HOOD - REFER TO SPECIFICATIONS
- WALL COVERING SOFFIT ACCENT BAND - REFER TO DETAIL 6/A4-02 AND INTERIOR ELEVATIONS
- SUPPLY AIR DIFFUSER - REFER TO MECH
- IN GROUND LIGHT FIXTURE - REFER TO ELEC
- EXPOSED CONCRETE PLANK ABOVE - REFER TO ROOM FINISH SCHEDULE
- EXPOSED MECHANICAL DUCTWORK - PAINT TO MATCH CEILING, REFER TO MECH. AND ROOM FINISH SCHEDULE
- SUSPENDED MECH UNIT - REFER TO MECH
- GOOSENECK FIXTURE - REFER TO ELECTRICAL AND SPECIFICATIONS
- GYP. BOARD CEILING ON 1-1/2" HAT CHANNELS 16" O.C. MOUNTED TO UNDERSIDE OF STRUCTURE - REFER TO DETAIL 3/A4-02
- EXPOSED STRUCTURE - PAINT TO MATCH CEILING, REFER TO MECH. AND ROOM FINISH SCHEDULE
- LINE OF CUPOLA ABOVE - REFER TO PLAN (3/A4-01)
- CMU OPENING - REFER TO INTERIOR ELEVATIONS
- GYP. BOARD WALL BANDING W/ COVE LIGHTING - REFER TO DETAIL 4/A4-02
- GYP. BOARD FRAMING AROUND STRUCTURE - REFER TO BUILDING SECTIONS (A5-10)
- EXTERIOR WALL MOUNTED LIGHTING ABOVE DECK - REFER TO ALTERNATE #3
- EXTERIOR FIBER CEMENT SOFFIT (SD-4)
- UNDER CABINET LIGHT FIXTURE - REFER TO INTERIOR ELEVATIONS AND ELEC
- CEILING SUSPENDED TRACK LIGHTING - REFER TO ELEC
- MECH UNIT - REFER TO MECH.
- EXTERIOR METAL SOFFIT (MS-1)
- ROOF ACCESS HATCH

Ceiling Symbols Legend

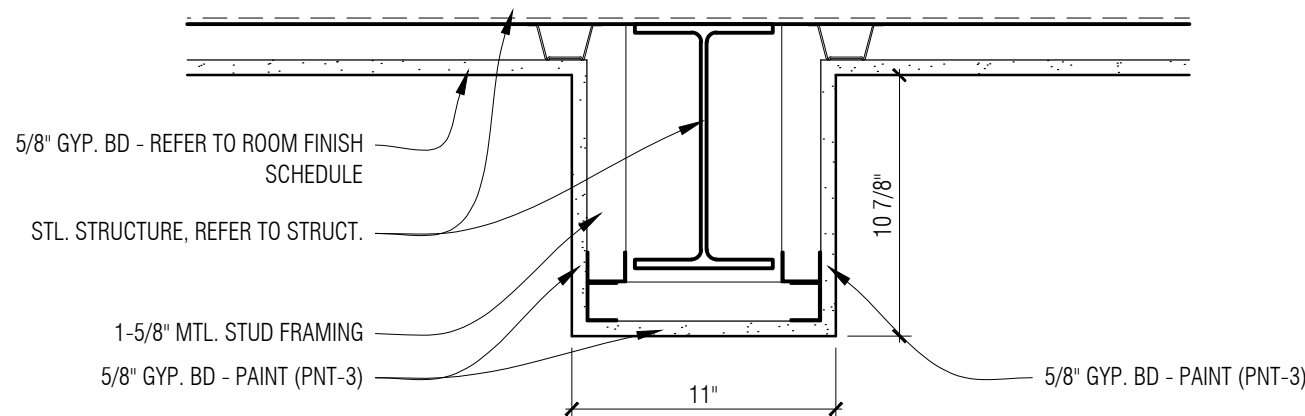
	5/8" GYP BD ON 3 5/8" MTL. STUD AT 16" O.C. SECURE TO STRUCTURE ABOVE AT 48" O.C. MAX EACH WAY
	LINEAR PENDANT FIXTURE
	2' X 4' LAY-IN LIGHT FIXTURE IN GRID
	SUPPLY AIR DIFFUSER (MECHANICAL)
	RETURN AIR GRILLE (MECHANICAL)
	HIGH BAY LIGHT FIXTURE
	6" RECESSED ROUND LIGHT FIXTURE
	6" RECESSED ROUND LIGHT WET FIXTURE
	PENDANT LIGHT FIXTURE
	EXTERIOR GARAGE LIGHT FIXTURE - WALL MOUNTED
	EXTERIOR LIGHT FIXTURE
	EXIT LIGHT - CEILING MOUNTED
	EXIT LIGHT - WALL MOUNTED
	VIDEO SURVEILLANCE CAMERA - COORD WITH TECH AND ELEC
	WIRELESS ACCESS POINT - COORD WITH TECH AND ELEC

4 Mezzanine Level Floor Plan - Base Bid
1/4" = 1'-0"

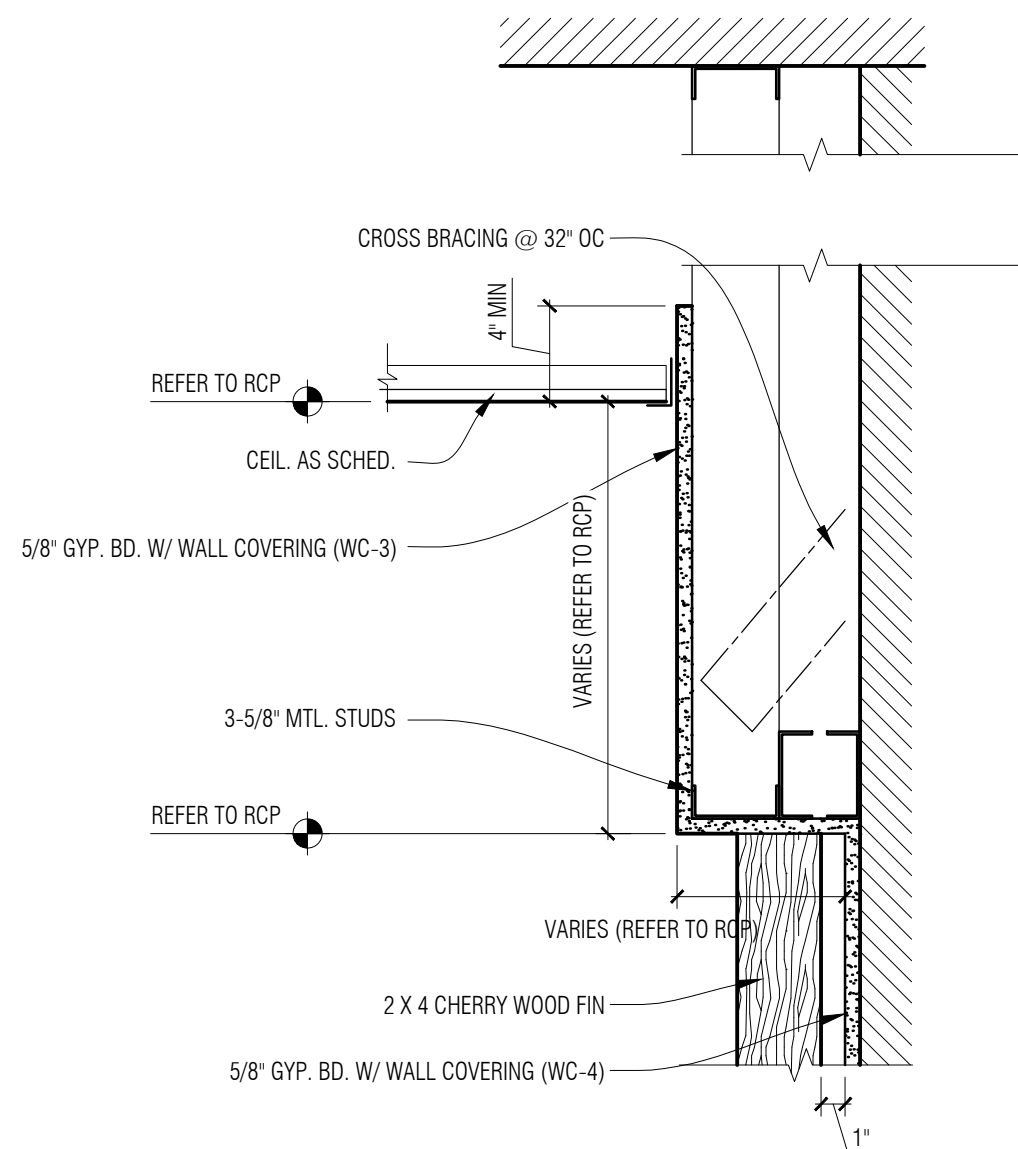
3 Cupola Reflected Ceiling Plan
1/8" = 1'-0"

2 Mezzanine Level Reflected Ceiling Plan
1/8" = 1'-0"

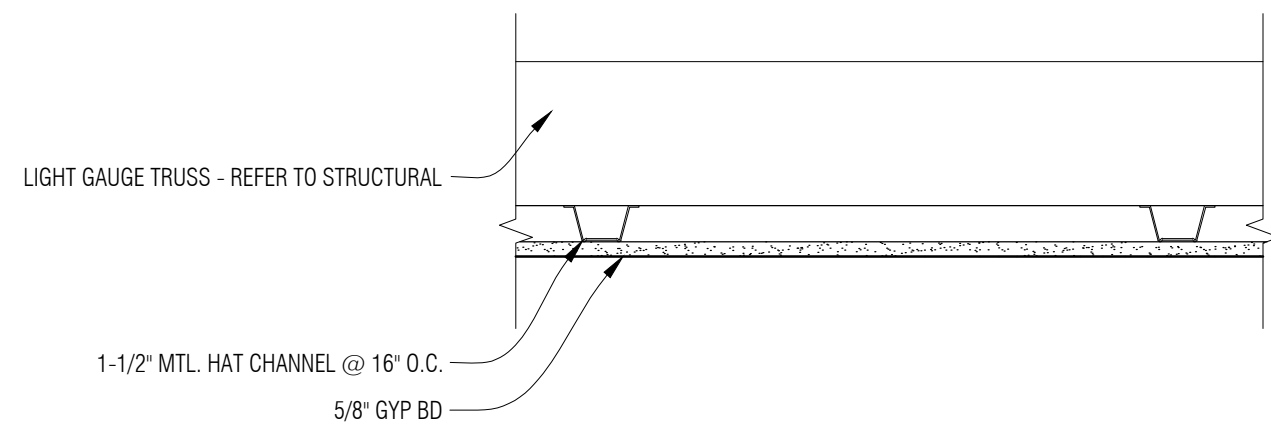
1 Main Level Reflected Ceiling Plan
1/8" = 1'-0"



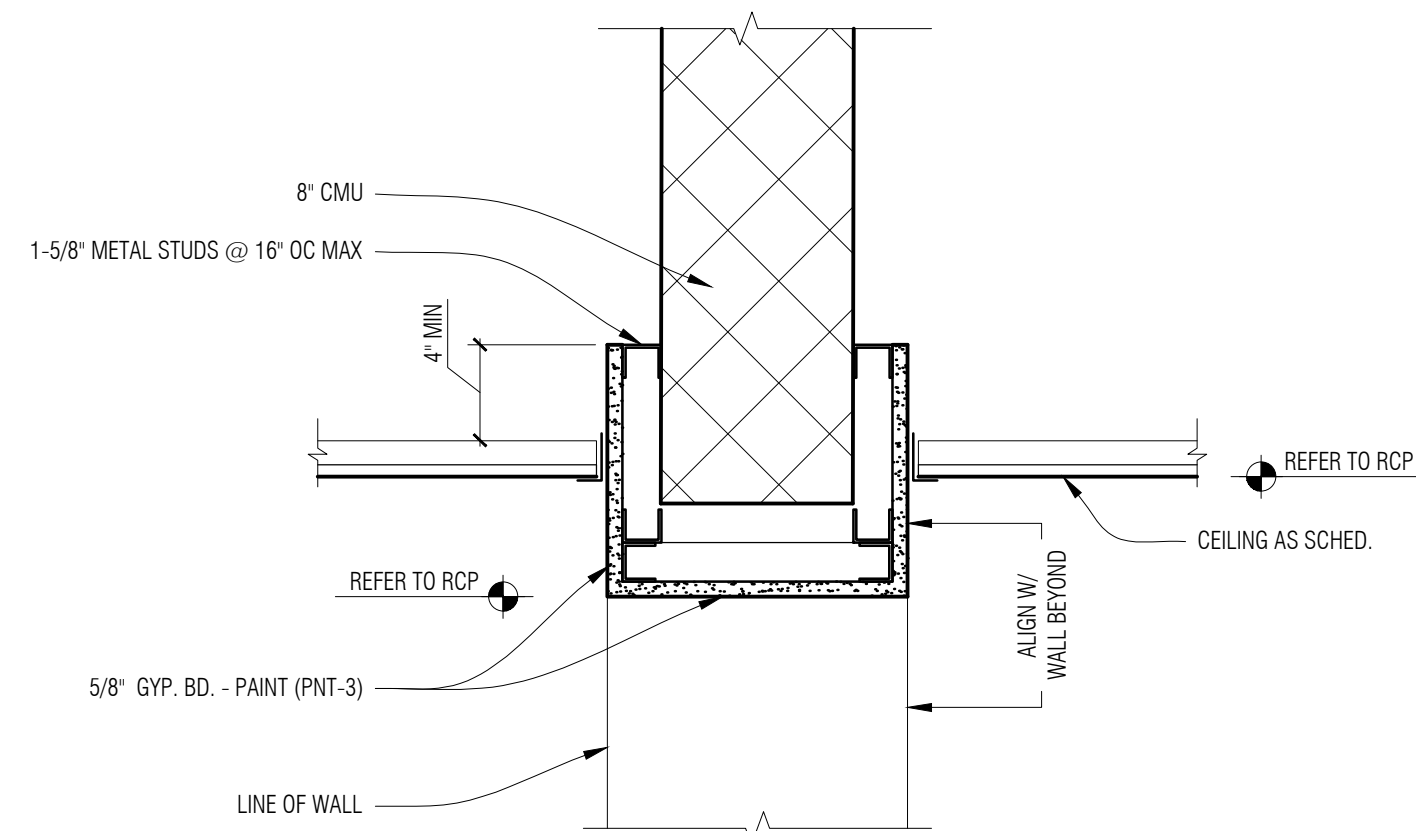
9 Section Detail
A4-01 1 1/2" = 1'-0"



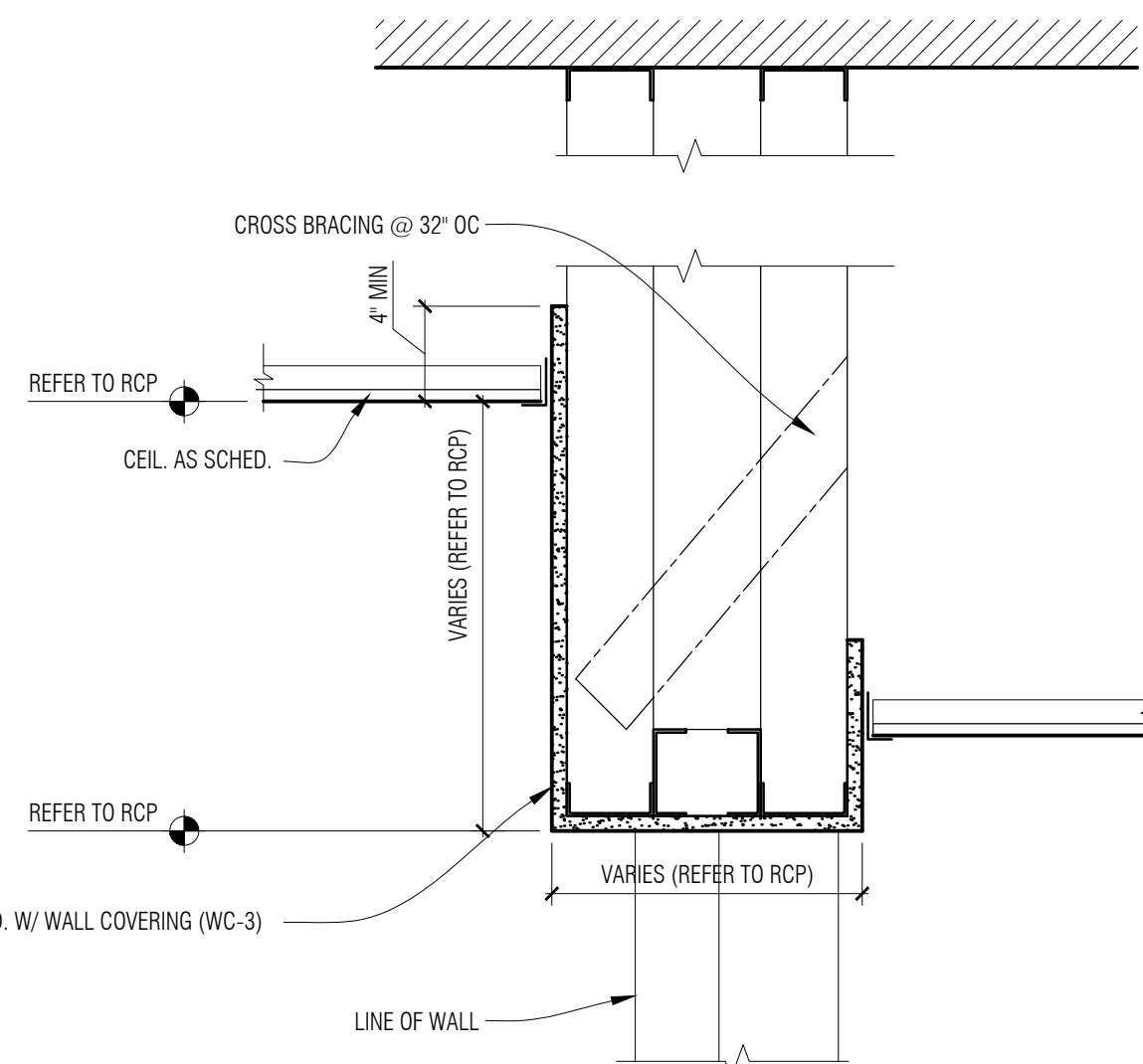
6 Section Detail
A4-01 1 1/2" = 1'-0"



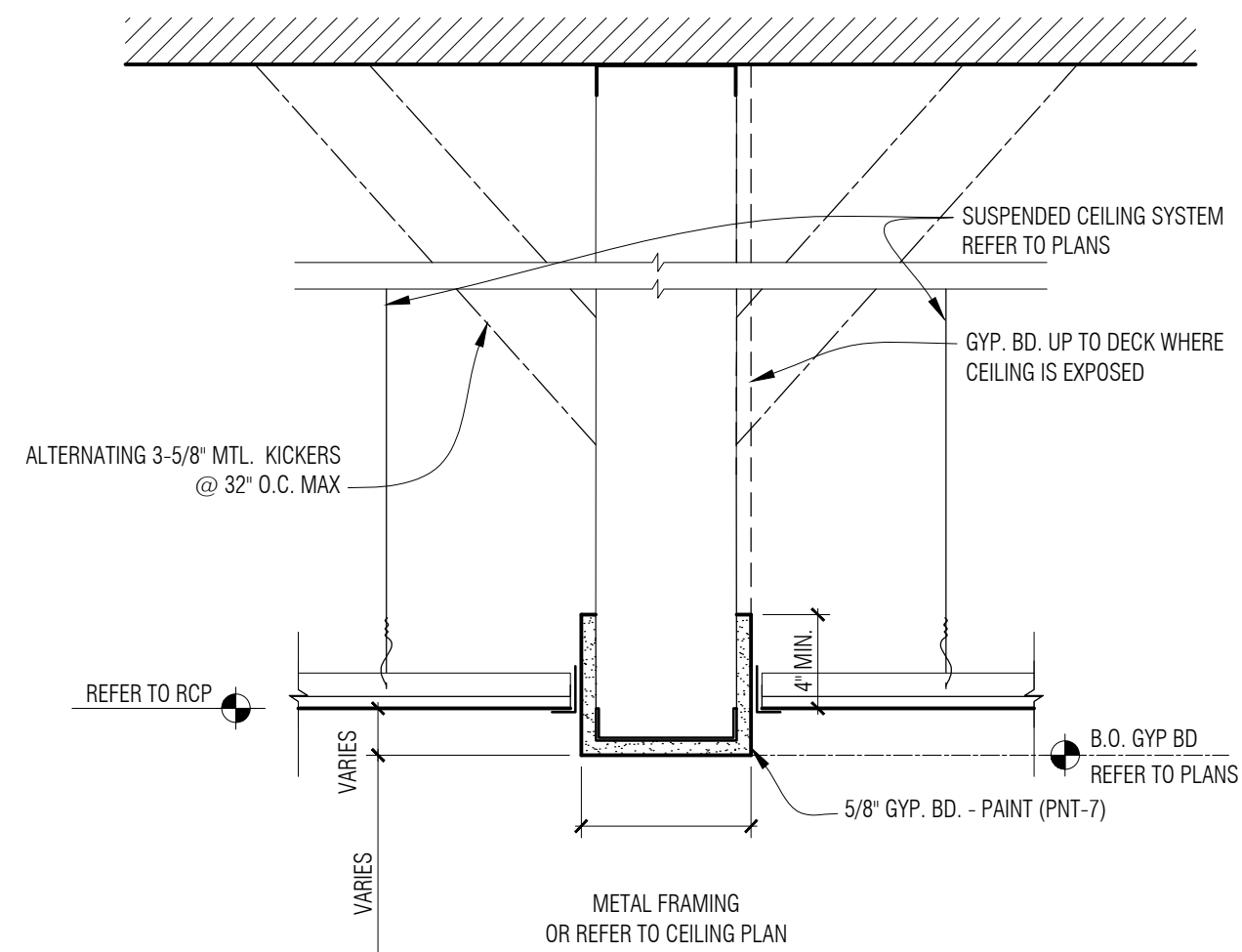
3 Section Detail
A4-01 1 1/2" = 1'-0"



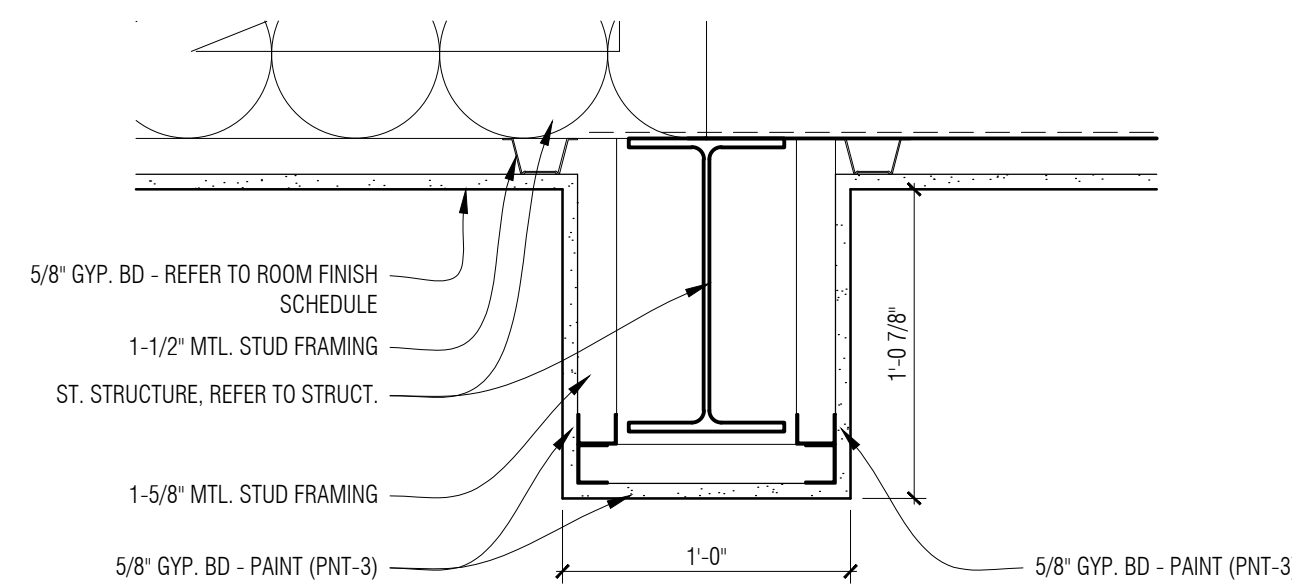
8 Section Detail
A4-01 1 1/2" = 1'-0"



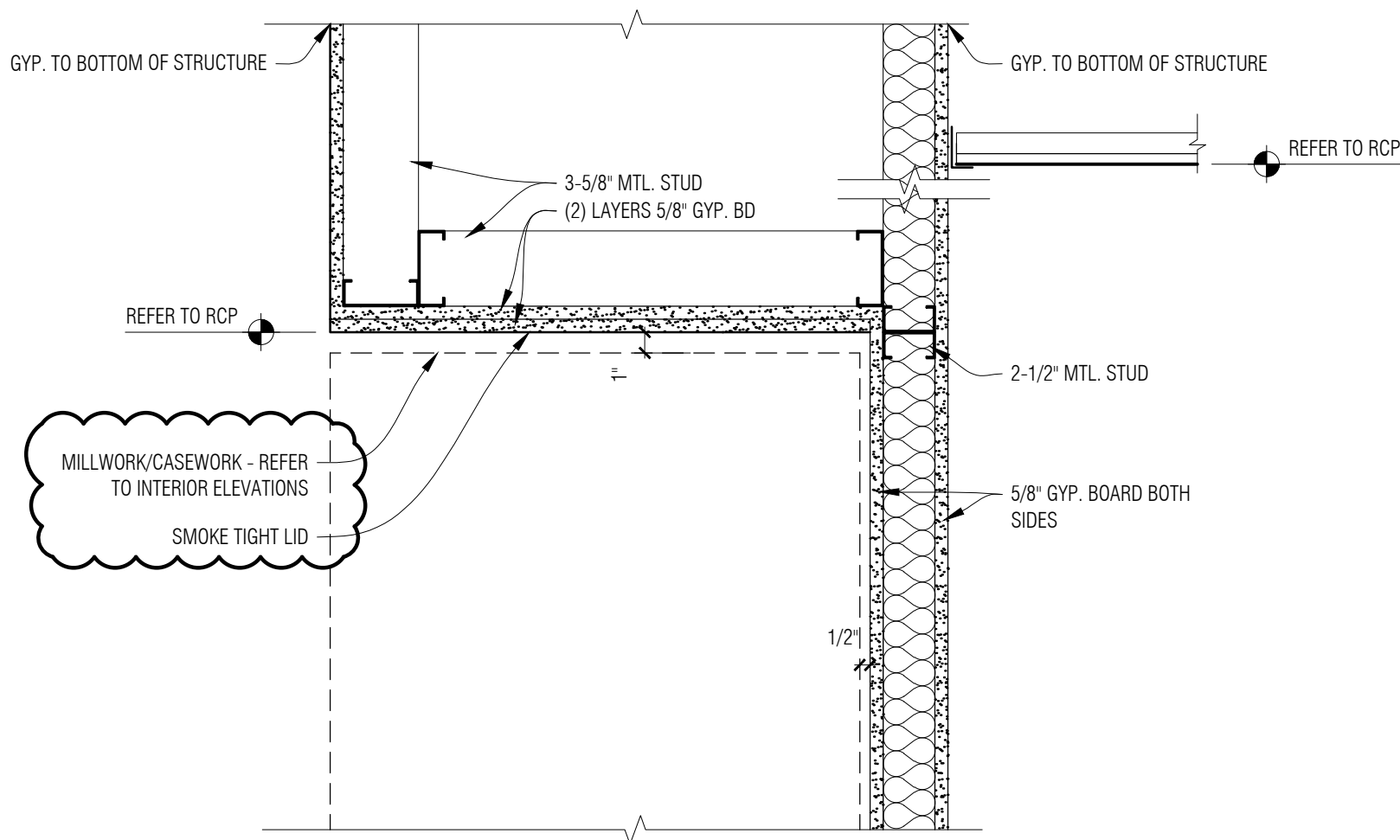
5 Section Detail
A4-01 1 1/2" = 1'-0"



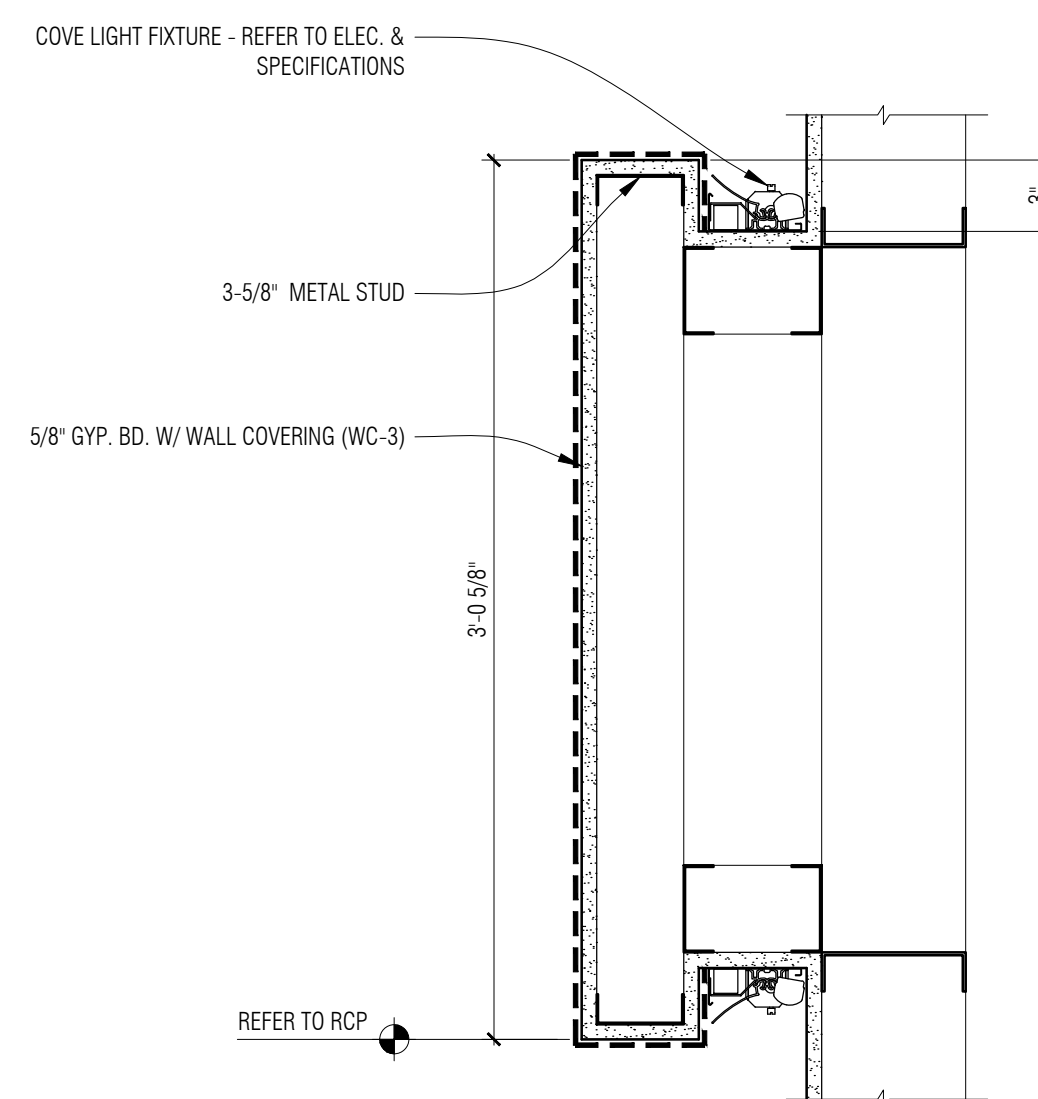
2 Section Detail
A4-01 1 1/2" = 1'-0"



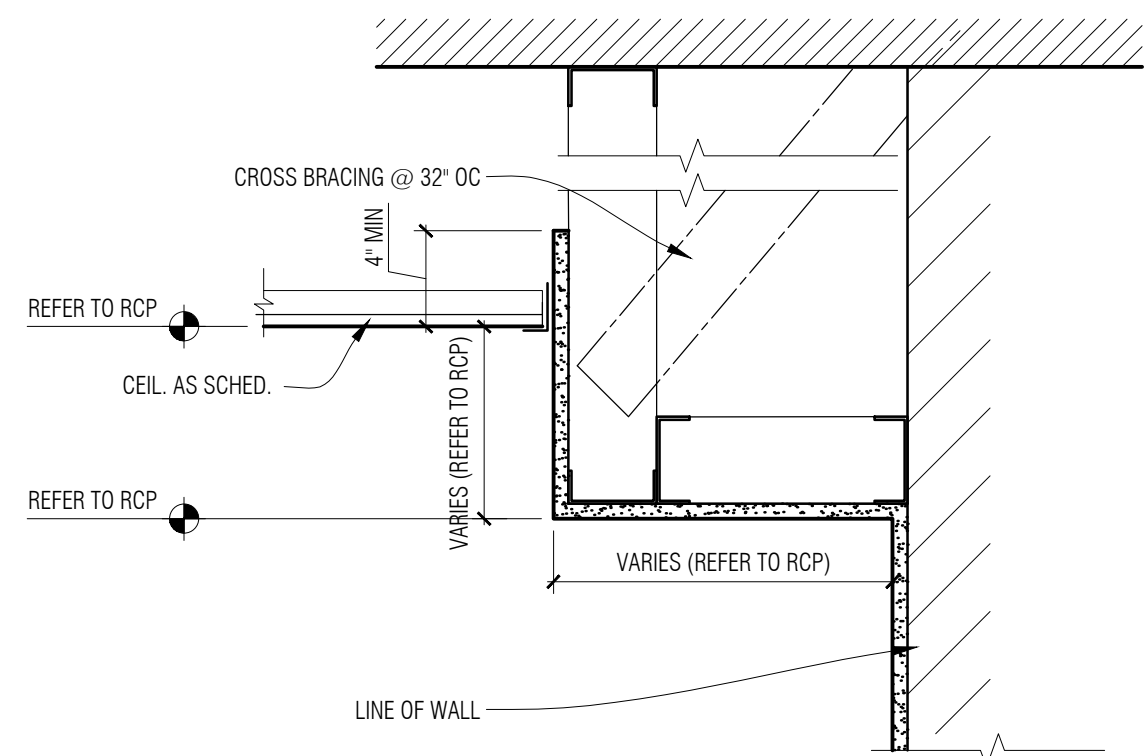
10 Section Detail
A4-01 1 1/2" = 1'-0"



7 Section Detail
A4-01 1 1/2" = 1'-0"



4 Section Detail
A4-01 1 1/2" = 1'-0"



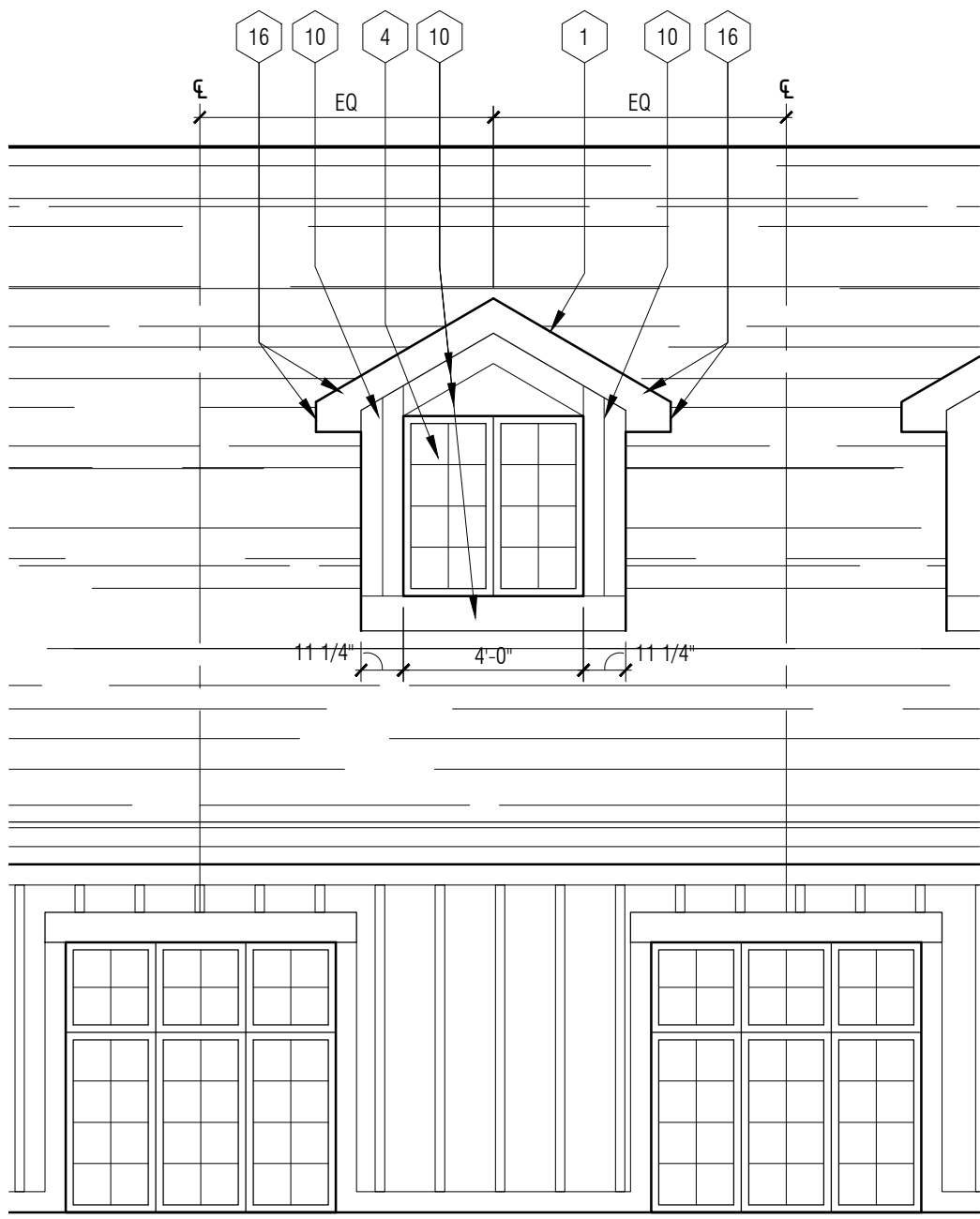
1 Section Detail
A4-01 1 1/2" = 1'-0"

EXTERIOR ELEVATIONS GENERAL NOTES:

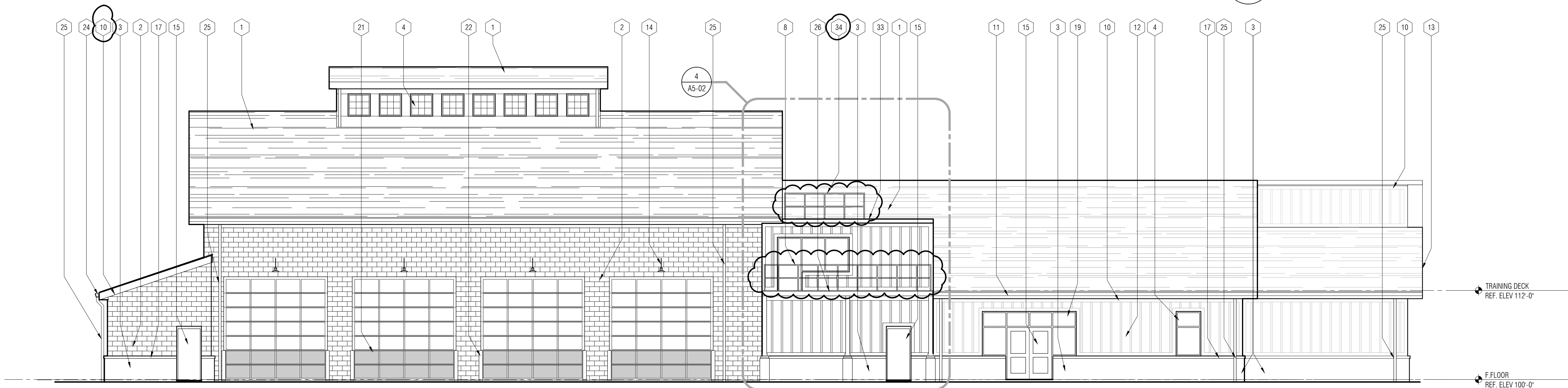
- A. REFER TO MATERIAL FINISH / COLOR SCHEDULE (SPEC SECTION 000200) FOR ALL MATERIAL NOTES.

EXTERIOR ELEVATIONS KEY NOTES:

- 1 ASPHALT ROOF SHINGLES (ARS-1)
- 2 GROUND FACE MASONRY UNIT W/ CAVITIES FILLED W/ INSULATION (GFMU-1)
- 3 FULL BED DEPTH NATURAL STONE (STN-1)
- 4 ALUMINUM CLAD FIXED WOOD WINDOW - REFER TO SHEET A0-04.
- 5 CEDAR TIMBER TRUSS
- 6 WOOD-PLASTIC COMPOSITE LUMBER (CL-1)
- 7 WOOD-PLASTIC COMPOSITE LUMBER (CL-2)
- 8 PIPE GUARDRAIL ON BALCONY - ALTERNATE #3
- 9 METAL SOFFIT (MS-1)
- 10 FIBER-CEMENT TRIM BOARD (SD-3) - PAINT
- 11 ALUMINUM GUTTER (MRS-2) ON ALUMINUM FASCIA (MRS-1)
- 12 FIBER-CEMENT BOARD & BATTEN SIDING (SD-1 & SD-2) - PAINT
- 13 FIBER-CEMENT SOFFIT (SD-4) - PAINT
- 14 GOOSENECK LIGHT FIXTURE - SEE ELECTRICAL
- 15 DOOR AND FRAME AS SCHEDULED - REFER TO SHEET A0-04
- 16 ALUMINUM FASCIA (MRS-1)
- 17 CAST STONE SILL (CS-1)
- 18 MECHANICAL UNIT - REFER TO MECH.
- 19 ALUMINUM STOREFRONT WINDOW AS SCHEDULED - REFER TO SHEET A0-04
- 20 ALUMINUM STOREFRONT WINDOW W/ MULLIONS AS SCHEDULED - REFER TO SHEET A0-04
- 21 BASE BID: INSULATED OVERHEAD DOORS - REFER TO SHEET A0-04
ALTERNATE #1: FOUR-FOLD DOORS, REFER TO 012300 - ALTERNATES
- 22 6" CONCRETE FILLED BOLLARD
- 23 BIRD'S BEAK ROOF OVERHANG
- 24 6" BOX CHAMFER METAL GUTTER (MRS-2)
- 25 METAL DOWNSPOUT DRAIN TO GROUND LEVEL (MRS-2)
- 26 PRESSURE TREATED WOOD DECKING - ALTERNATE #3
- 27 SCUPPER, REF 3/A3-31
- 28 MANUAL MECH. VENT - REFER TO MECH.
- 29 THIN VENEER STONE (STN-2)
- 30 LINE OF TRANSITION OF FULL DEPTH TO VENEER STONE - REFER TO DETAIL
- 31 BACKLIT METAL CHANNEL LETTERS - REFER TO SPECIFICATIONS TO SIZING
- 32 LOUVERED VENT
- 33 REFER TO ROOF PLAN A3-30 FOR SINGLE-PLY ROOFING
- 34 GUARD RAIL SECURED TO FLAT ROOF SYSTEM TO MEET OSHA REQUIREMENTS
- 35 LOUVER VENT - ALIGN WITH BLOCK COURSING



3
A5-01
Typ. Dormer Elevation
1/4" = 1'-0"



2
A3-01
North Elevation
1/8" = 1'-0"



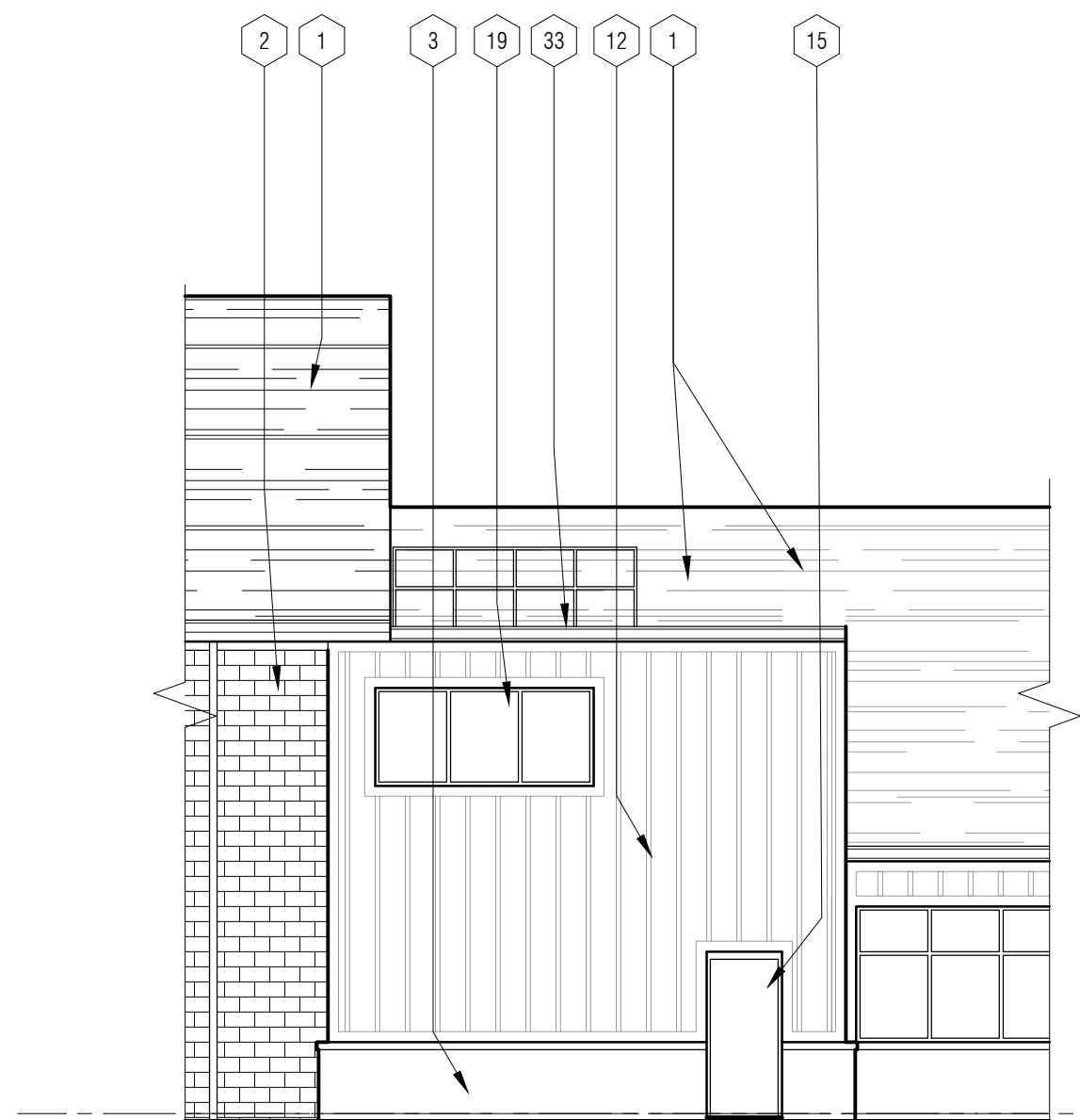
1
A3-01
South Elevation
1/8" = 1'-0"

EXTERIOR ELEVATIONS GENERAL NOTES:

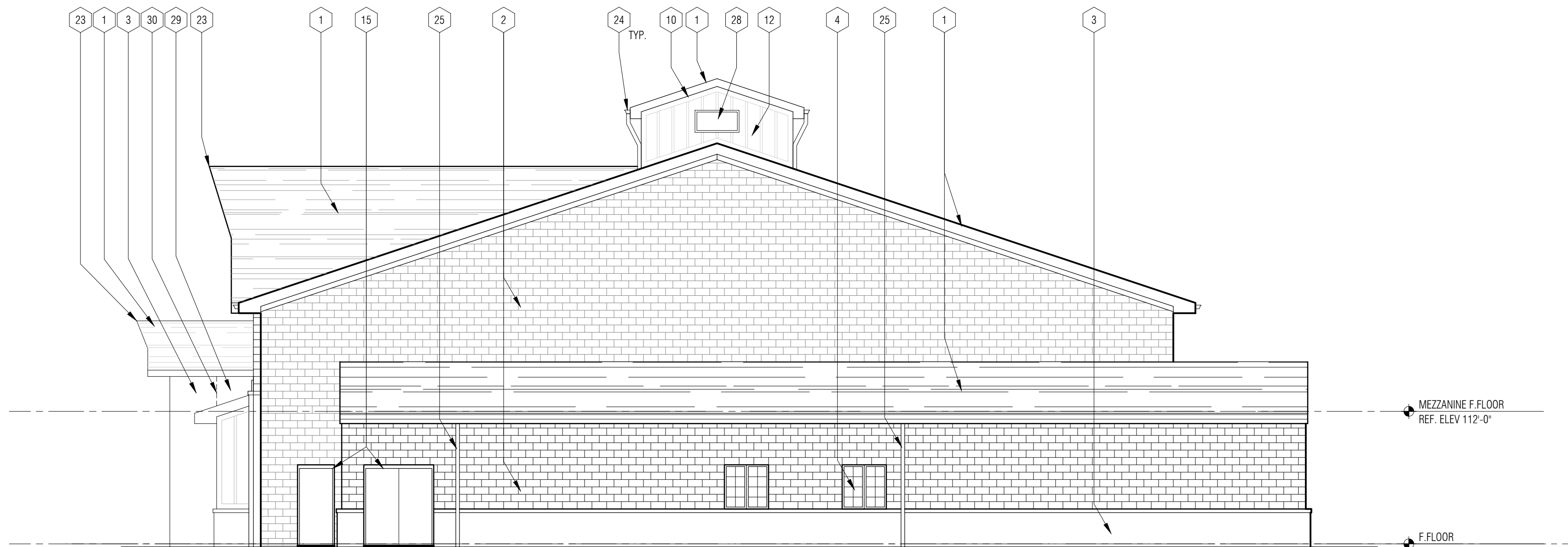
- A. REFER TO MATERIAL FINISH / COLOR SCHEDULE (SPEC SECTION 000200) FOR ALL MATERIAL NOTES.

EXTERIOR ELEVATIONS KEY NOTES:

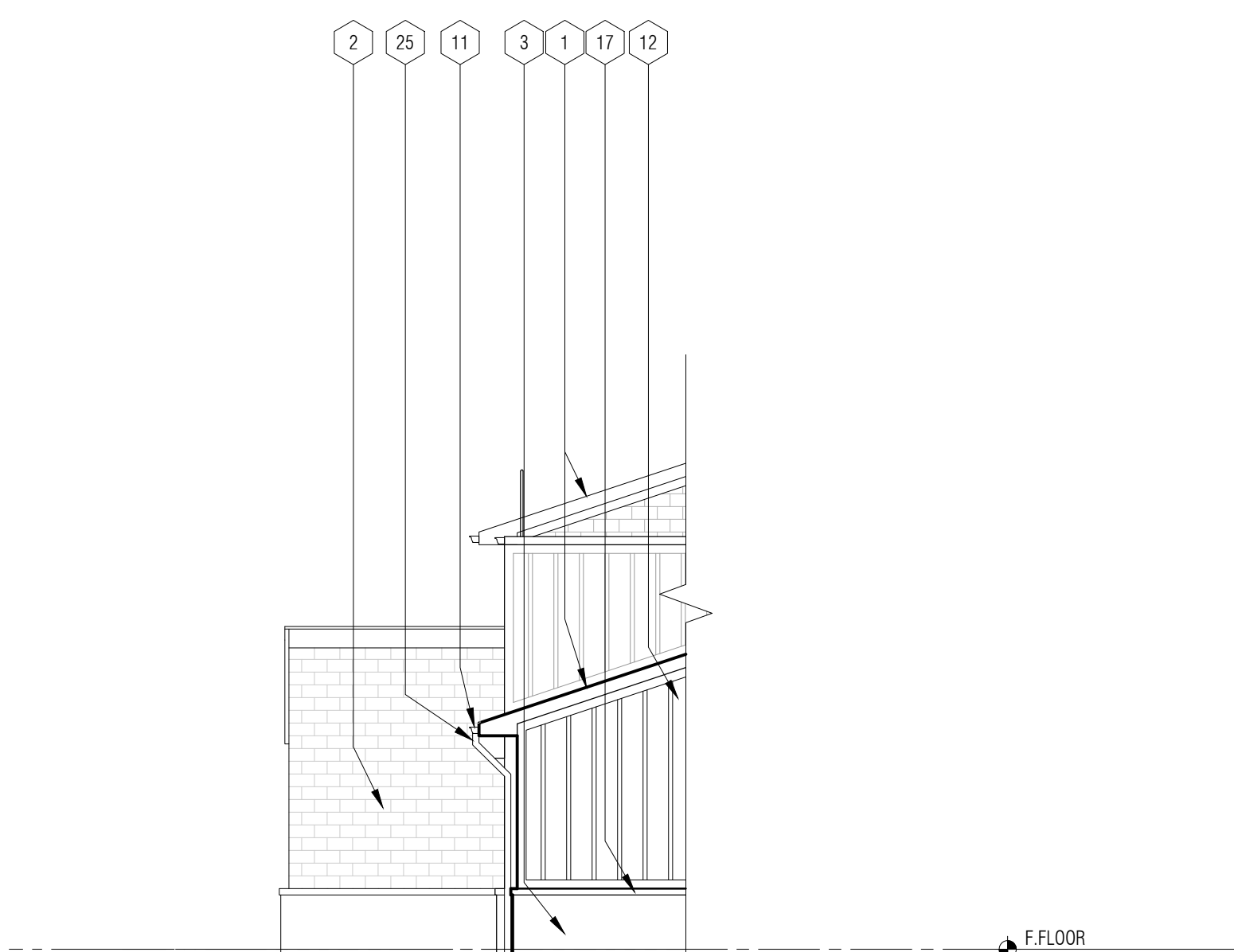
- 1 ASPHALT ROOF SHINGLES (ARS-1)
2 GROUND FACE MASONRY UNIT W/ CAVITIES FILLED W/ INSULATION (GFMU-1)
3 FULL BED DEPTH NATURAL STONE (STN-1)
4 ALUMINUM CLAD FIXED WOOD WINDOW - REFER TO SHEET A0-04.
5 CEDAR TIMBER TRUSS
6 WOOD-PLASTIC COMPOSITE LUMBER (CL-1)
7 WOOD-PLASTIC COMPOSITE LUMBER (CL-2)
8 PIPE GUARDRAIL ON BALCONY - ALTERNATE #3
9 METAL SOFFIT (MS-1)
10 FIBER-CEMENT TRIM BOARD (SD-3) - PAINT
11 ALUMINUM GUTTER (MRS-2) ON ALUMINUM FASCIA (MRS-1)
12 FIBER-CEMENT BOARD & BATTEN SIDING (SD-1 & SD-2) - PAINT
13 FIBER-CEMENT SOFFIT (SD-4) - PAINT
14 GOOSENECK LIGHT FIXTURE - SEE ELECTRICAL
15 DOOR AND FRAME AS SCHEDULED - REFER TO SHEET A0-04
16 ALUMINUM FASCIA (MRS-1)
17 CAST STONE SILL (CS-1)
18 MECHANICAL UNIT - REFER TO MECH.
19 ALUMINUM STOREFRONT WINDOW AS SCHEDULED - REFER TO SHEET A0-04
20 ALUMINUM STOREFRONT WINDOW W/ MULLIONS AS SCHEDULED - REFER TO SHEET A0-04
21 BASE BID: INSULATED OVERHEAD DOORS - REFER TO SHEET A0-04
ALTERNATE #1: FOUR-FOLD DOORS, REFER TO 012300 - ALTERNATES
22 6" CONCRETE FILLED BOLLARD
23 BIRD'S BEAK ROOF OVERHANG
24 6" BOX CHAMFER METAL GUTTER (MRS-2)
25 METAL DOWNSPOUT DRAIN TO GROUND LEVEL (MRS-2)
26 PRESSURE TREATED WOOD DECKING - ALTERNATE #3
27 SCUPPER, REF 3/A3-31
28 MANUAL MECH. VENT - REFER TO MECH.
29 THIN VENEER STONE (STN-2)
30 LINE OF TRANSITION OF FULL DEPTH TO VENEER STONE - REFER TO DETAIL
31 BACKLIT METAL CHANNEL LETTERS - REFER TO SPECIFICATIONS TO SIZING
32 LOUVERED VENT
33 REFER TO ROOF PLAN A3-30 FOR SINGLE-PLY ROOFING
34 GUARD RAIL SECURED TO FLAT ROOF SYSTEM TO MEET OSHA REQUIREMENTS
35 LOUVER VENT - ALIGN WITH BLOCK COURSING



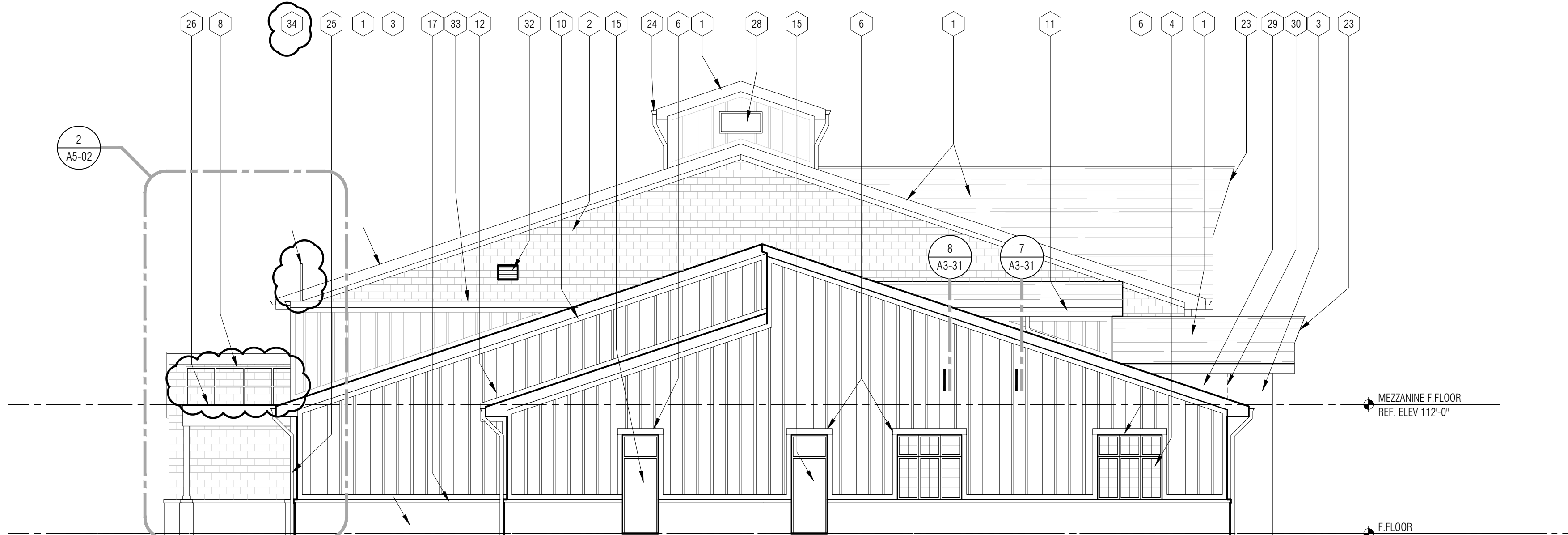
4 North Elevation - No Deck - Base Bid
A5-01 1/8" = 1'-0"



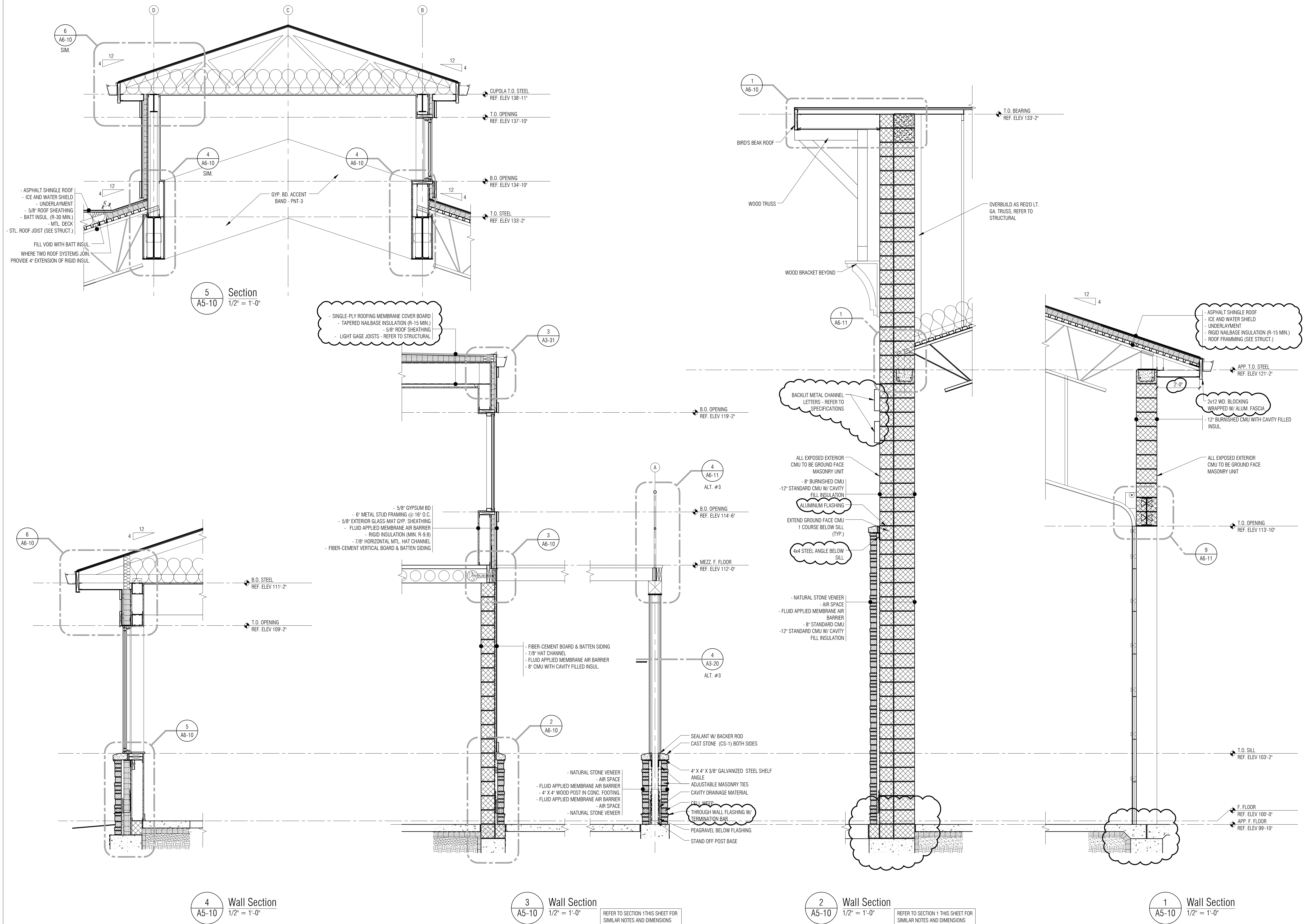
3 East Elevation
A3-01 1/8" = 1'-0"

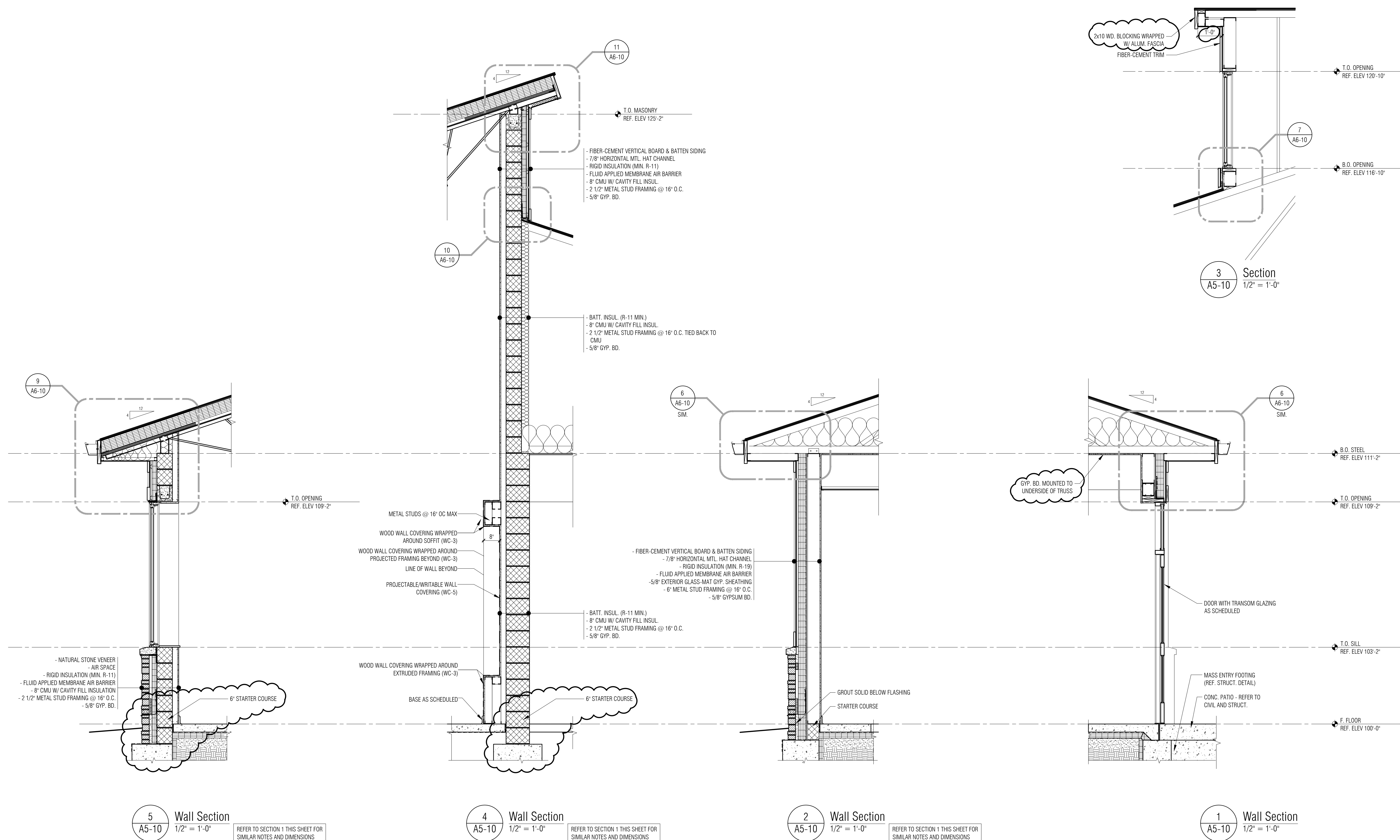


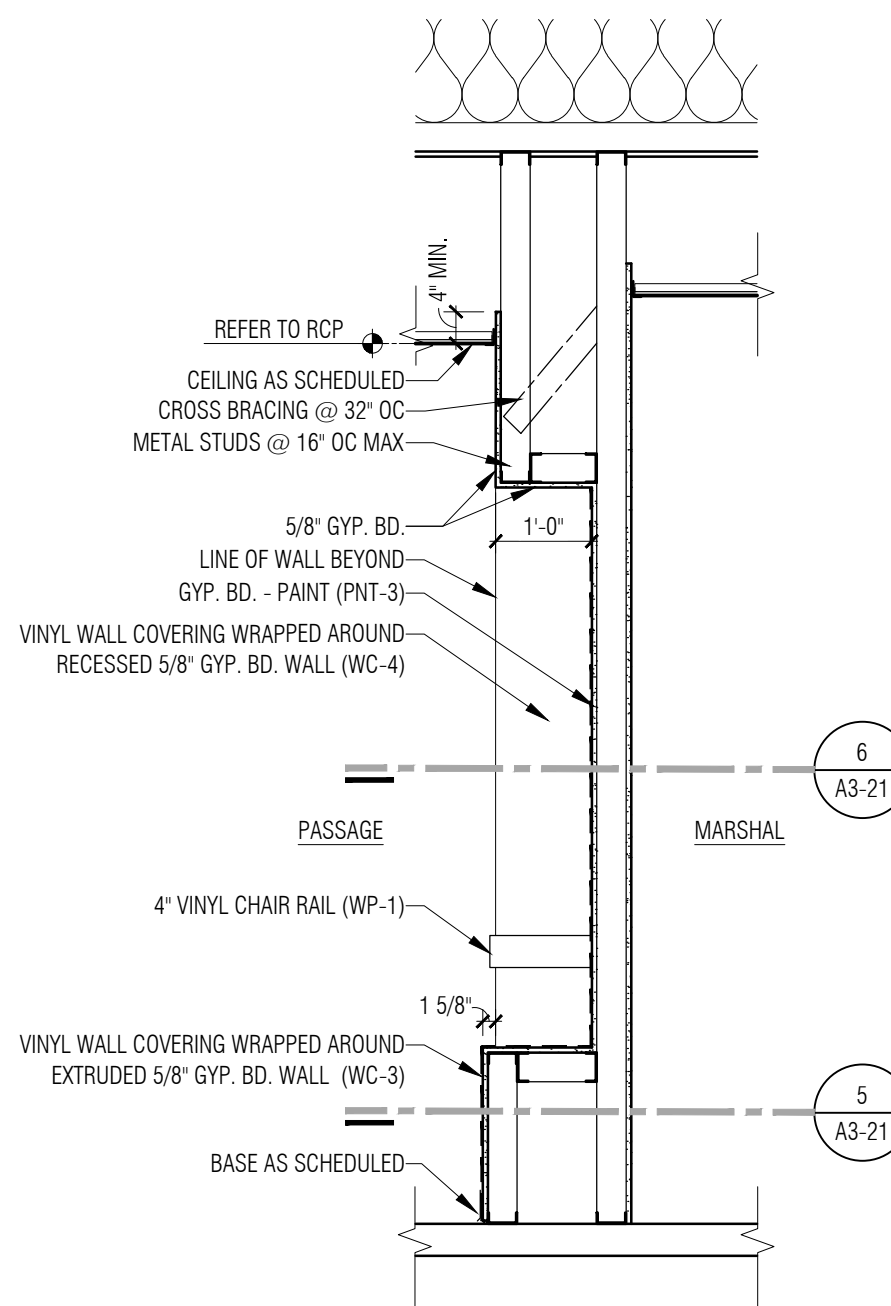
2 West Elevation - No Deck - Base Bid
A5-02 1/8" = 1'-0"



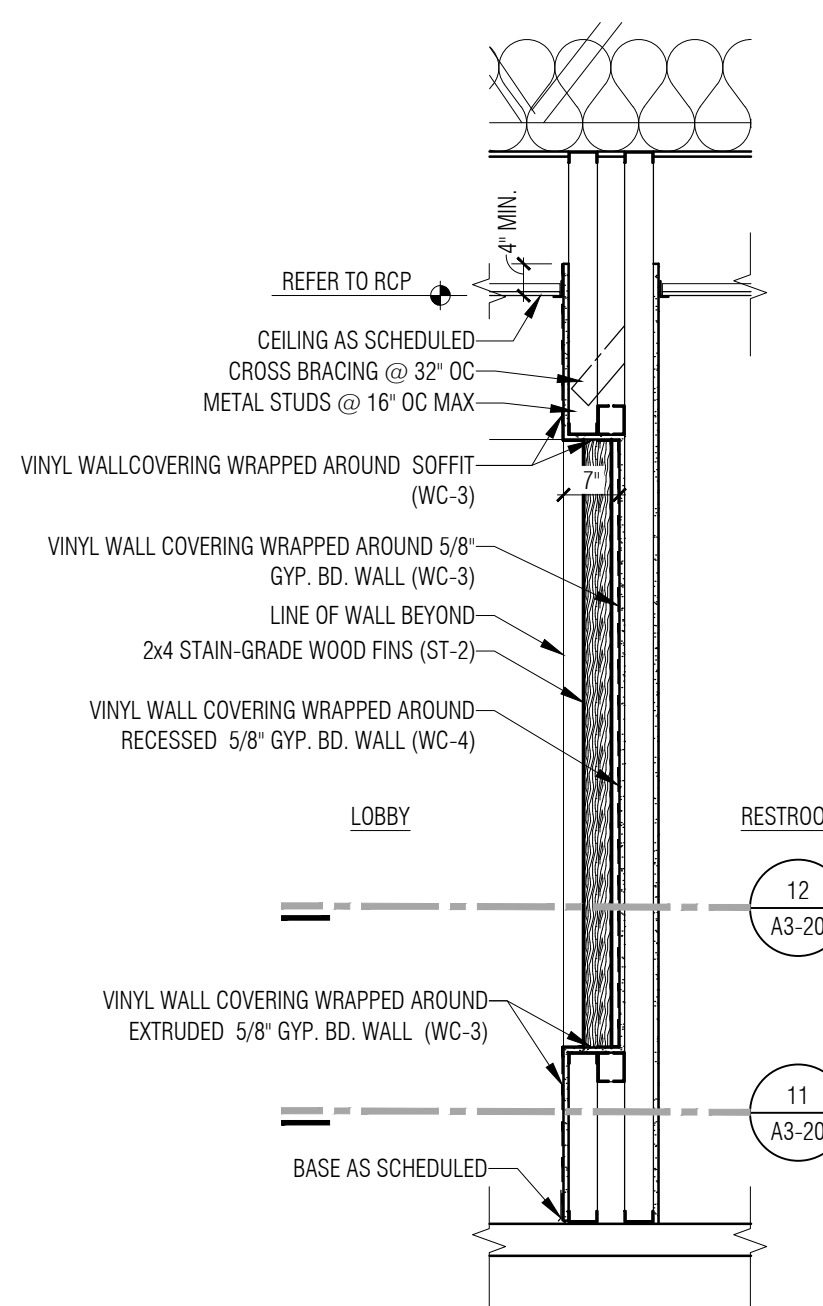
1 West Elevation
A3-01 1/8" = 1'-0"



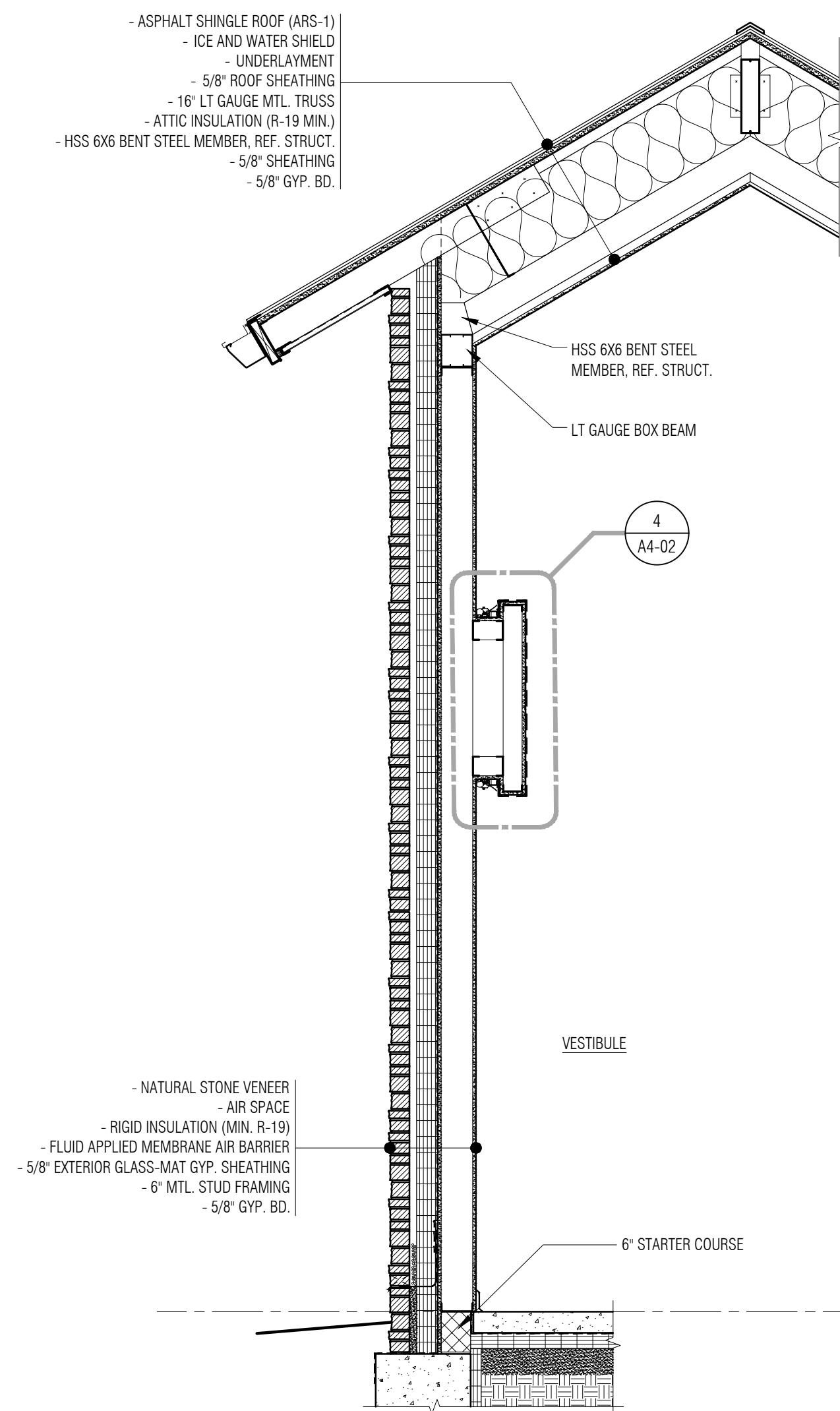




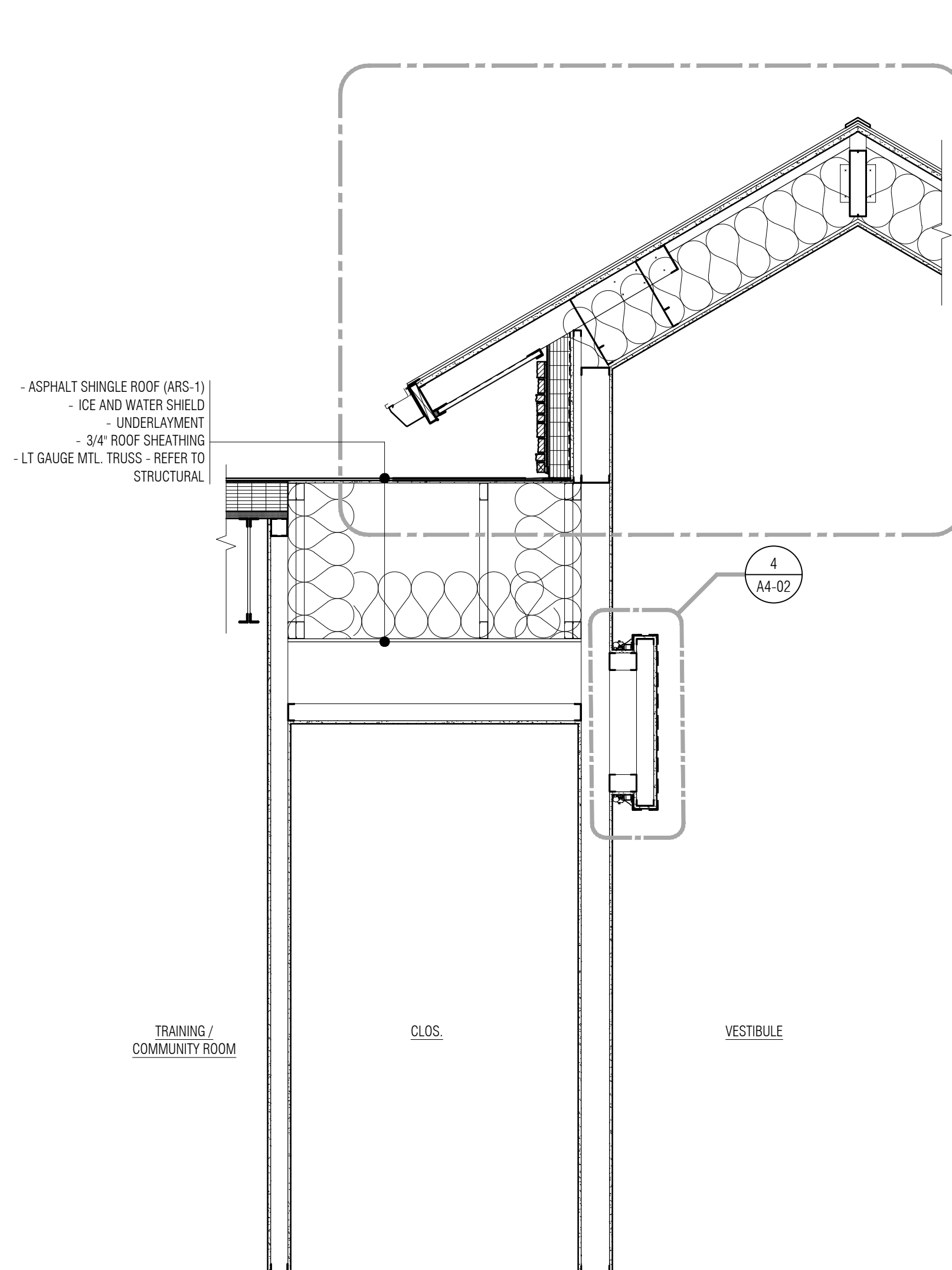
5 Wall Section
A5-10 1/2" = 1'-0"



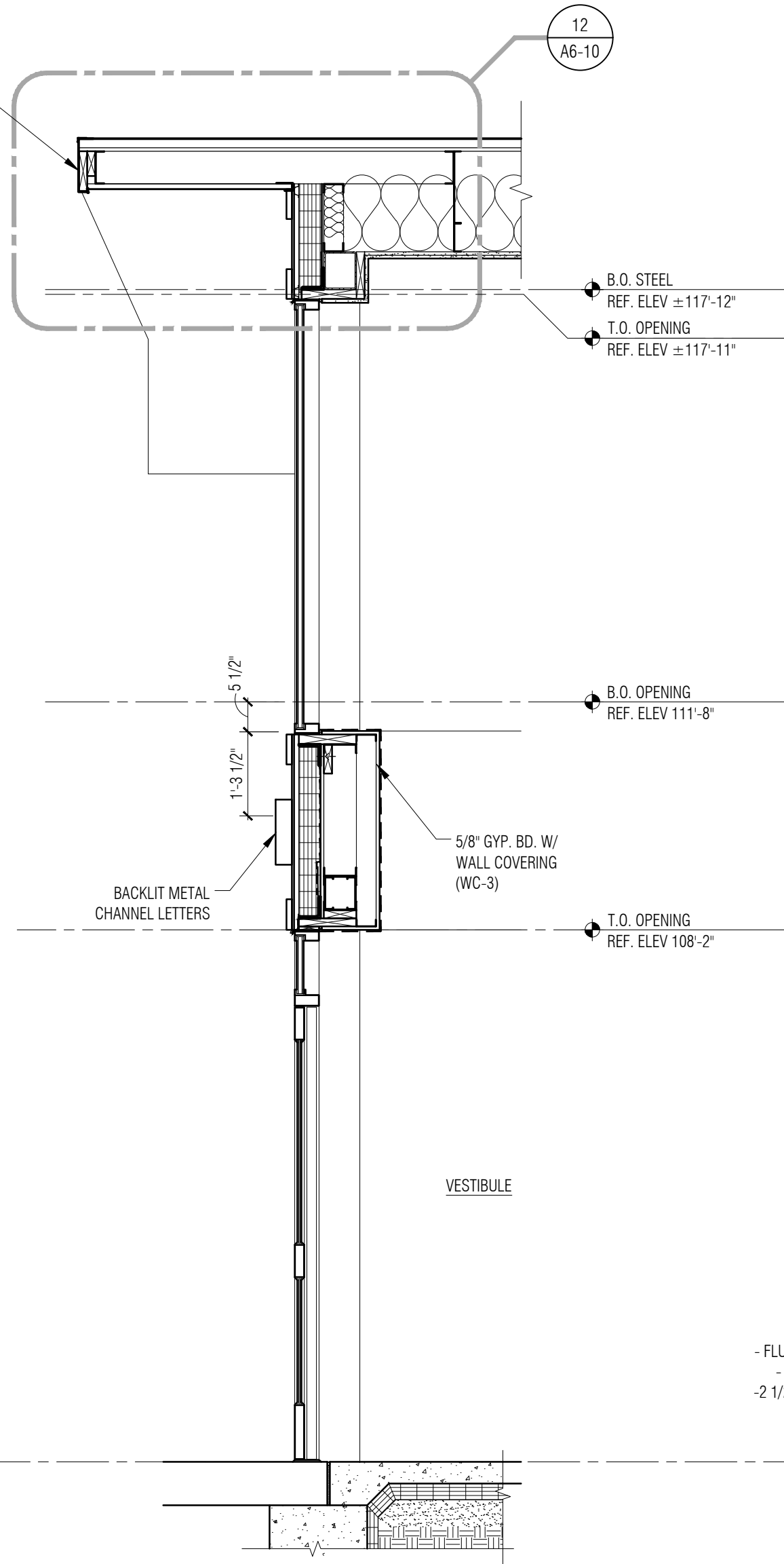
4 Wall Section
A5-10 1/2" = 1'-0"



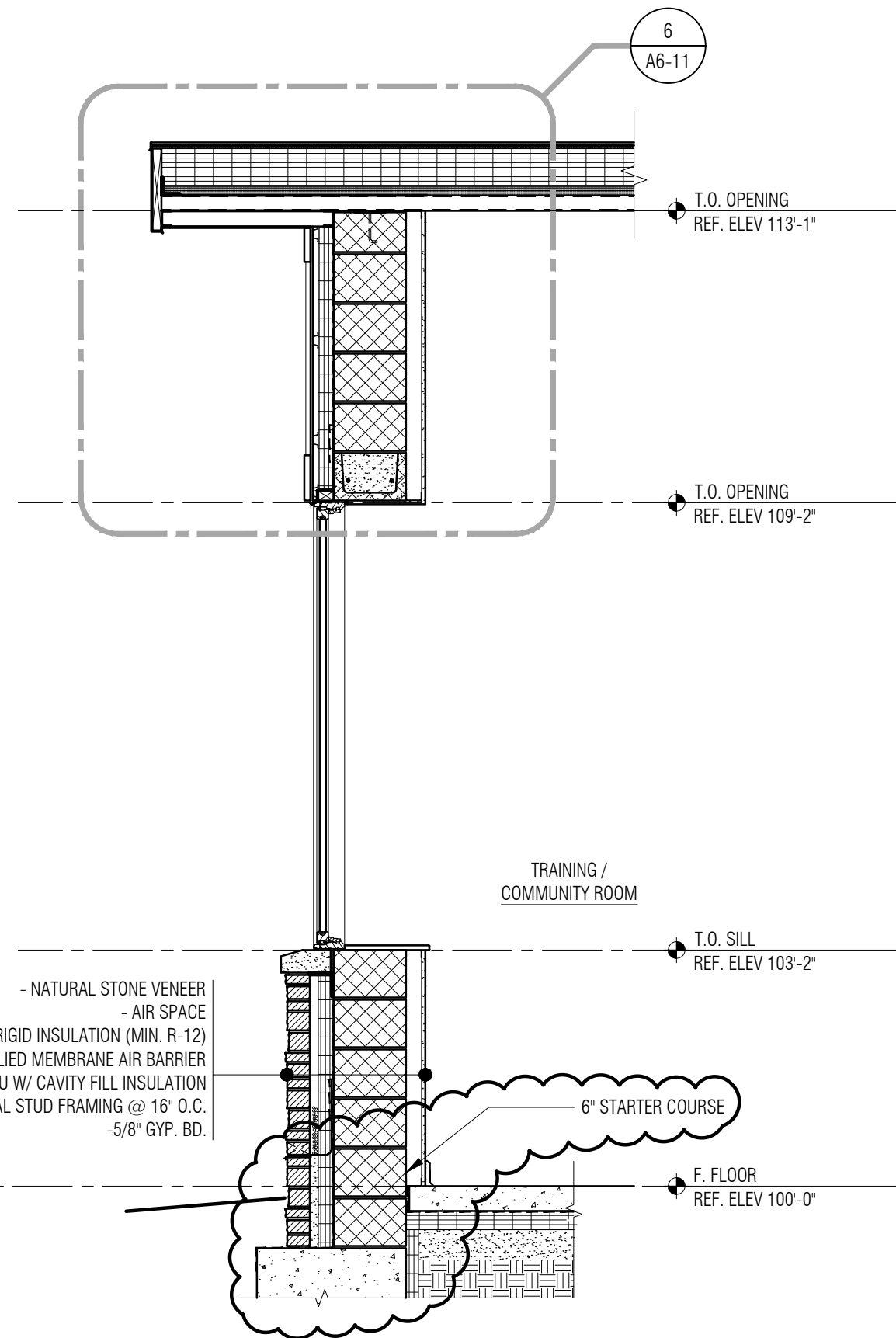
6 Wall Section
A3-01 1/2" = 1'-0"



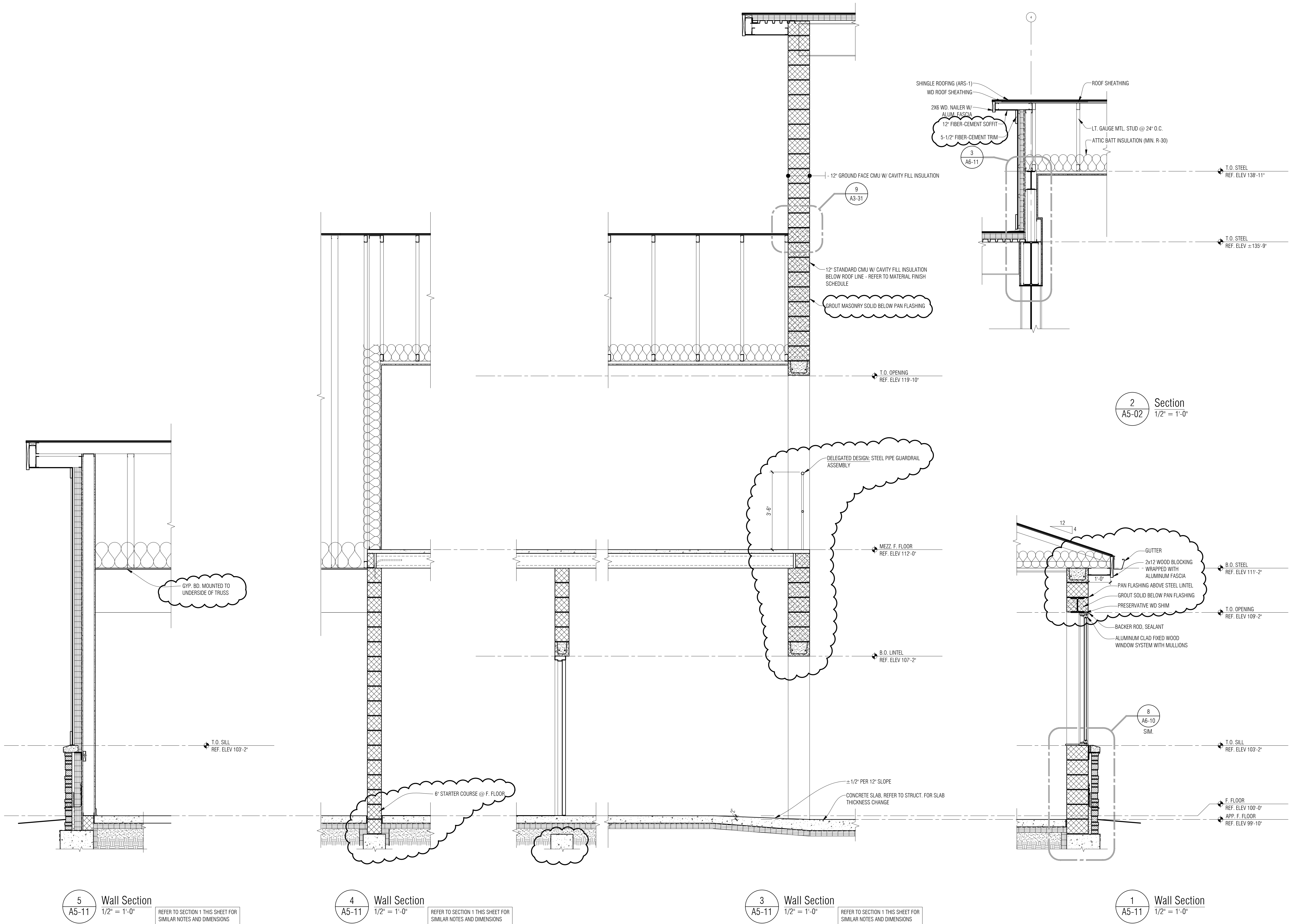
3 Wall Section
A5-10 1/2" = 1'-0"



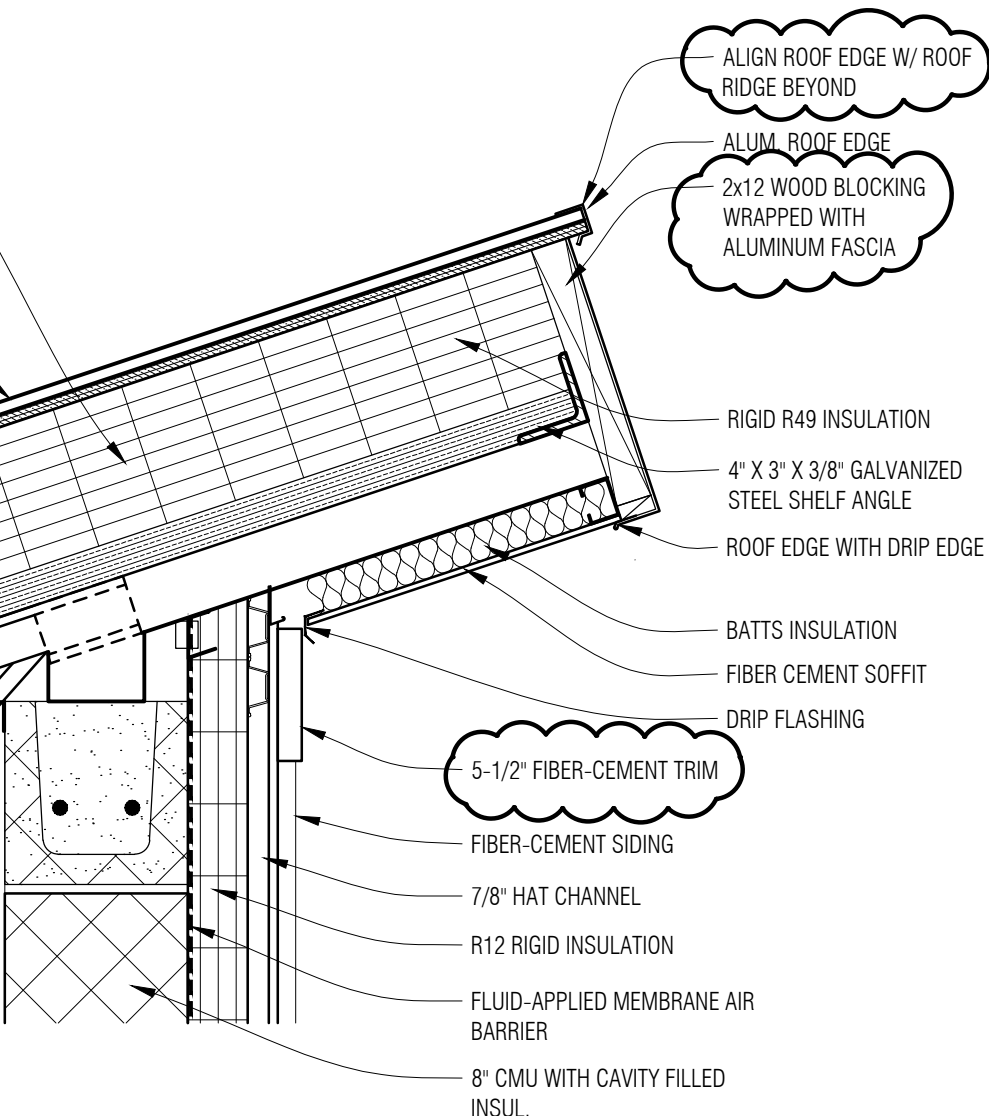
2 Wall Section
A5-10 1/2" = 1'-0"



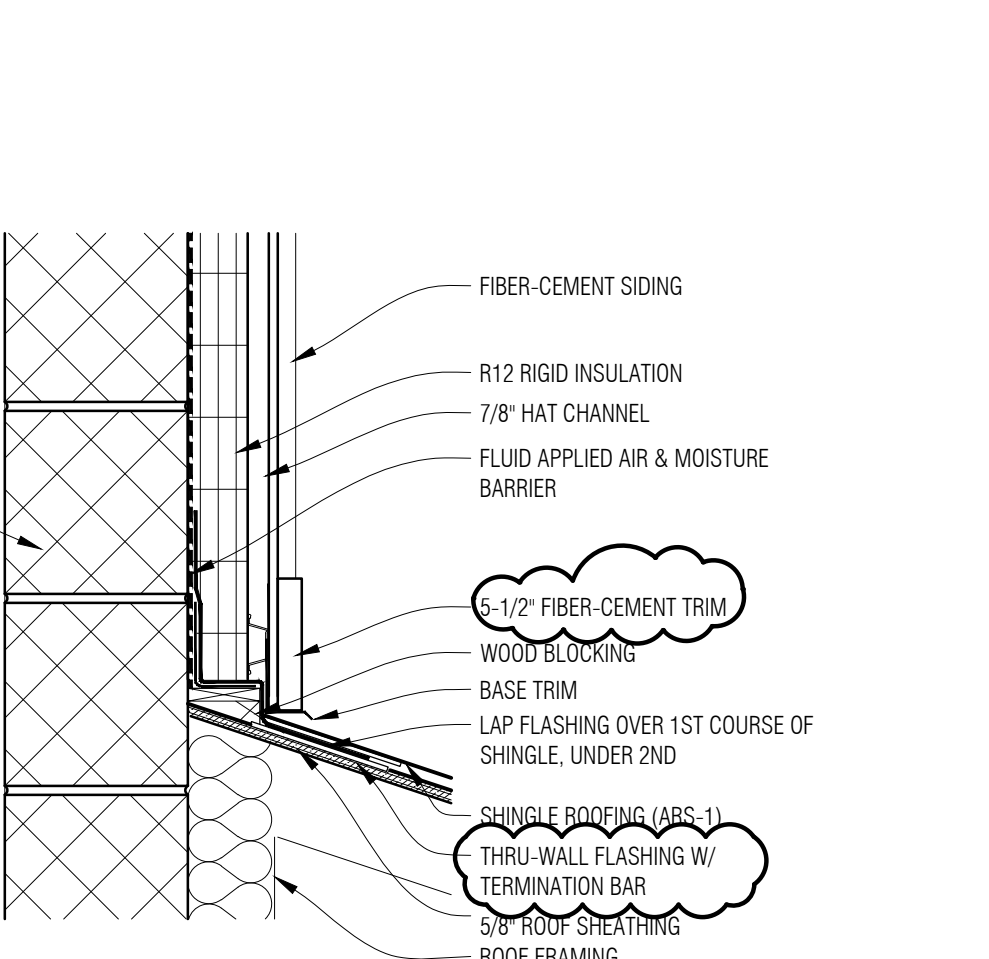
1 Wall Section
A5-10 1/2" = 1'-0"



12 Detail
1-1/2" = 1'-0"



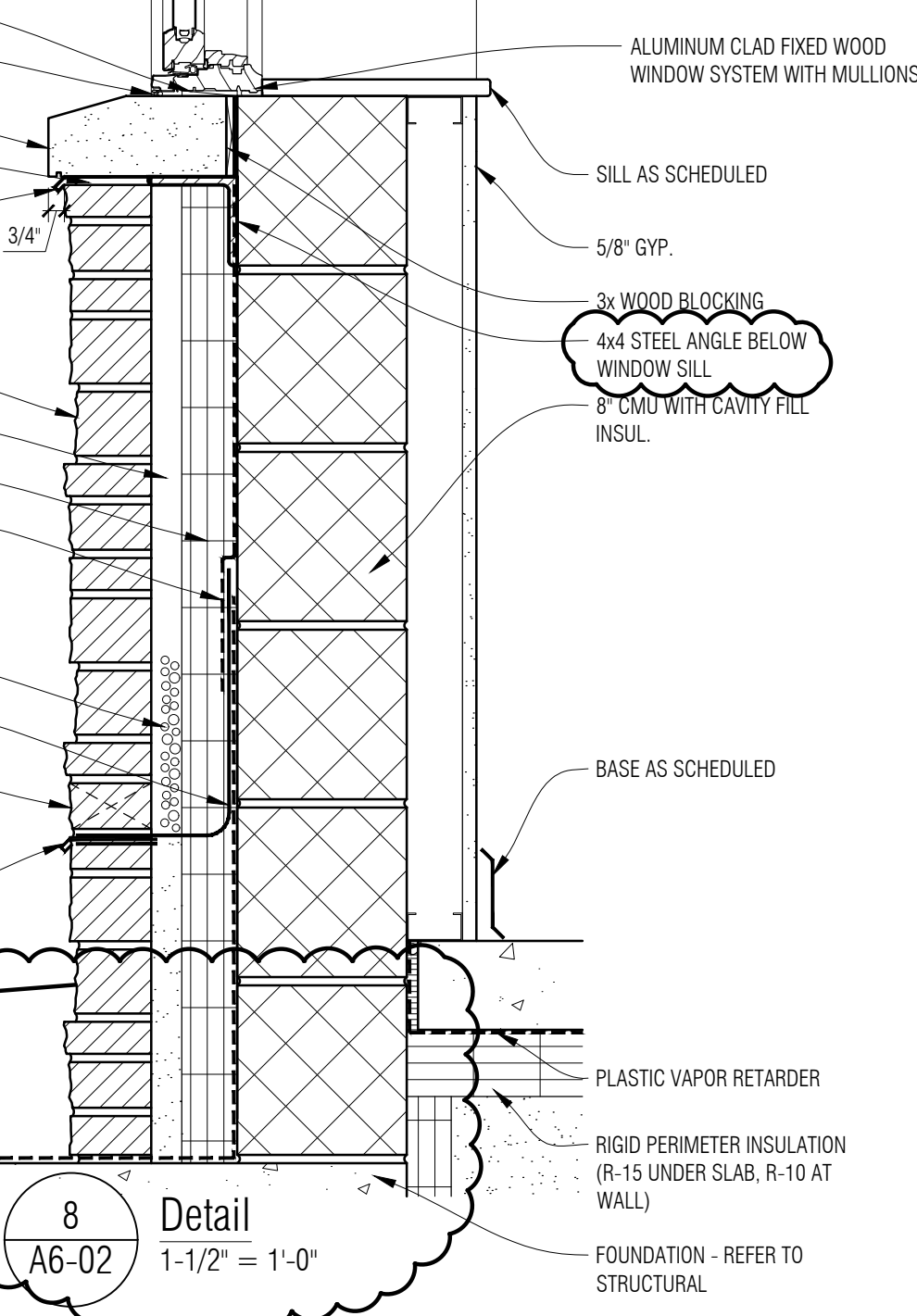
11 Detail
1-1/2" = 1'-0"



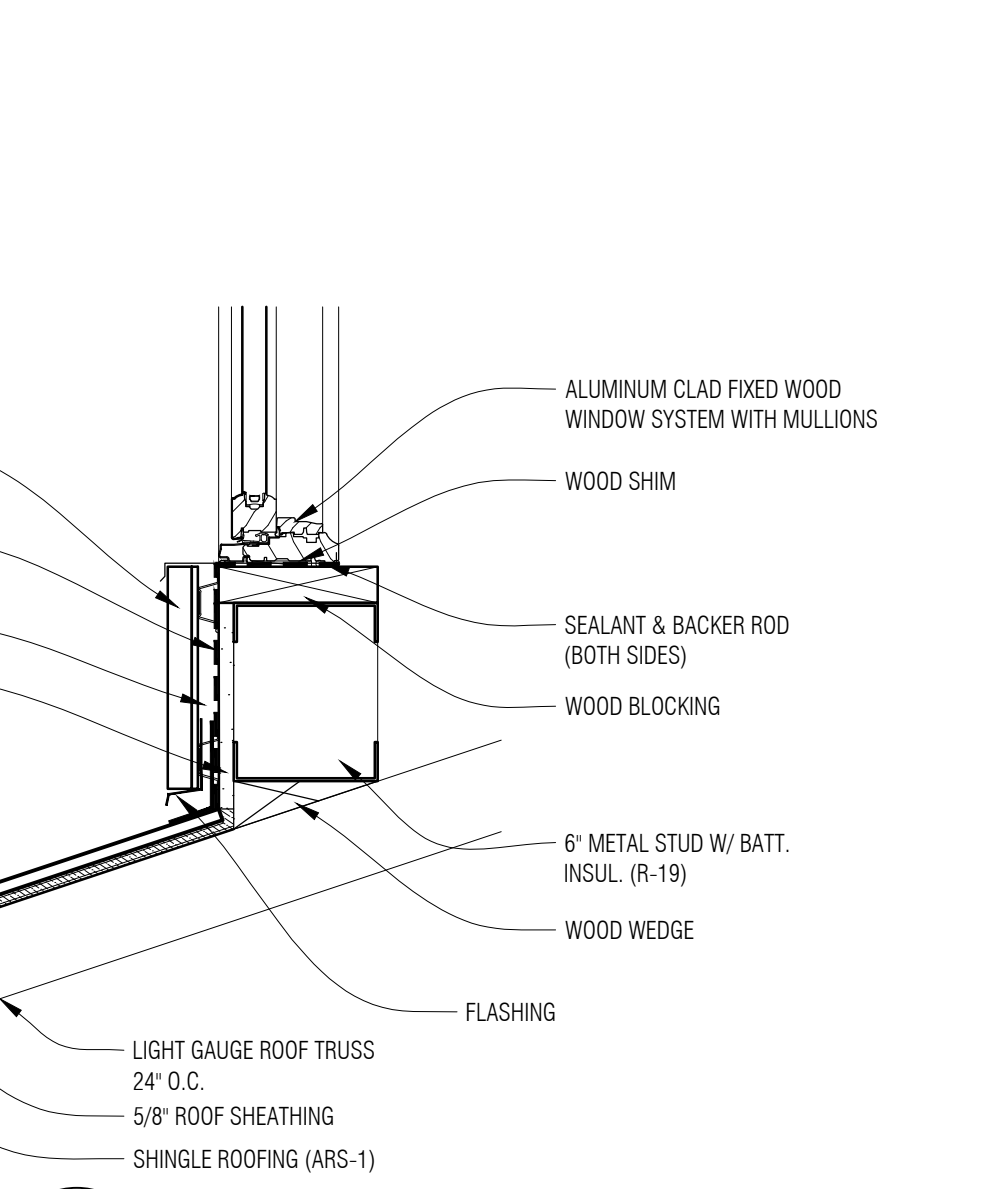
10 Detail
1-1/2" = 1'-0"



9 Detail
1-1/2" = 1'-0"



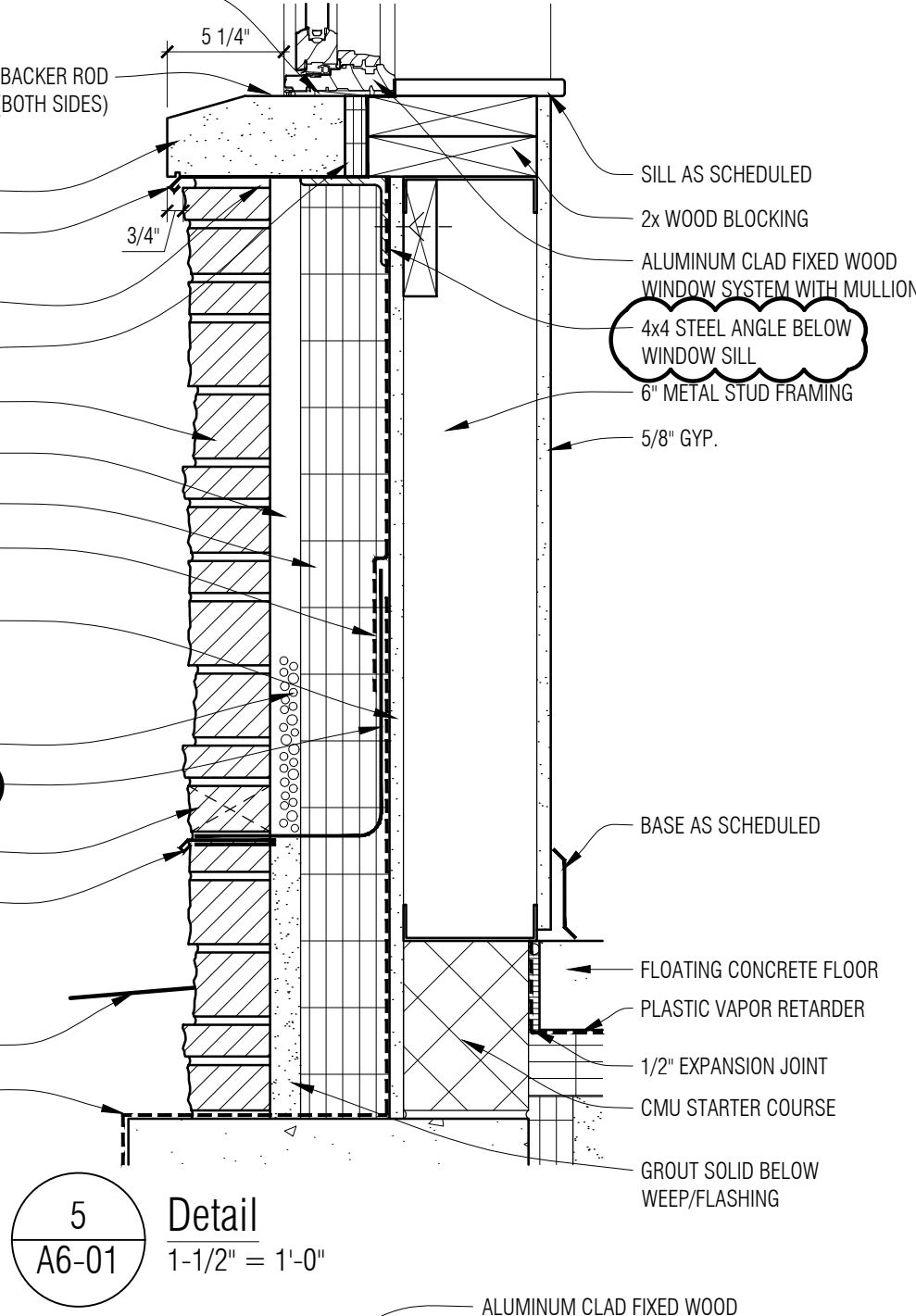
8 Detail
1-1/2" = 1'-0"



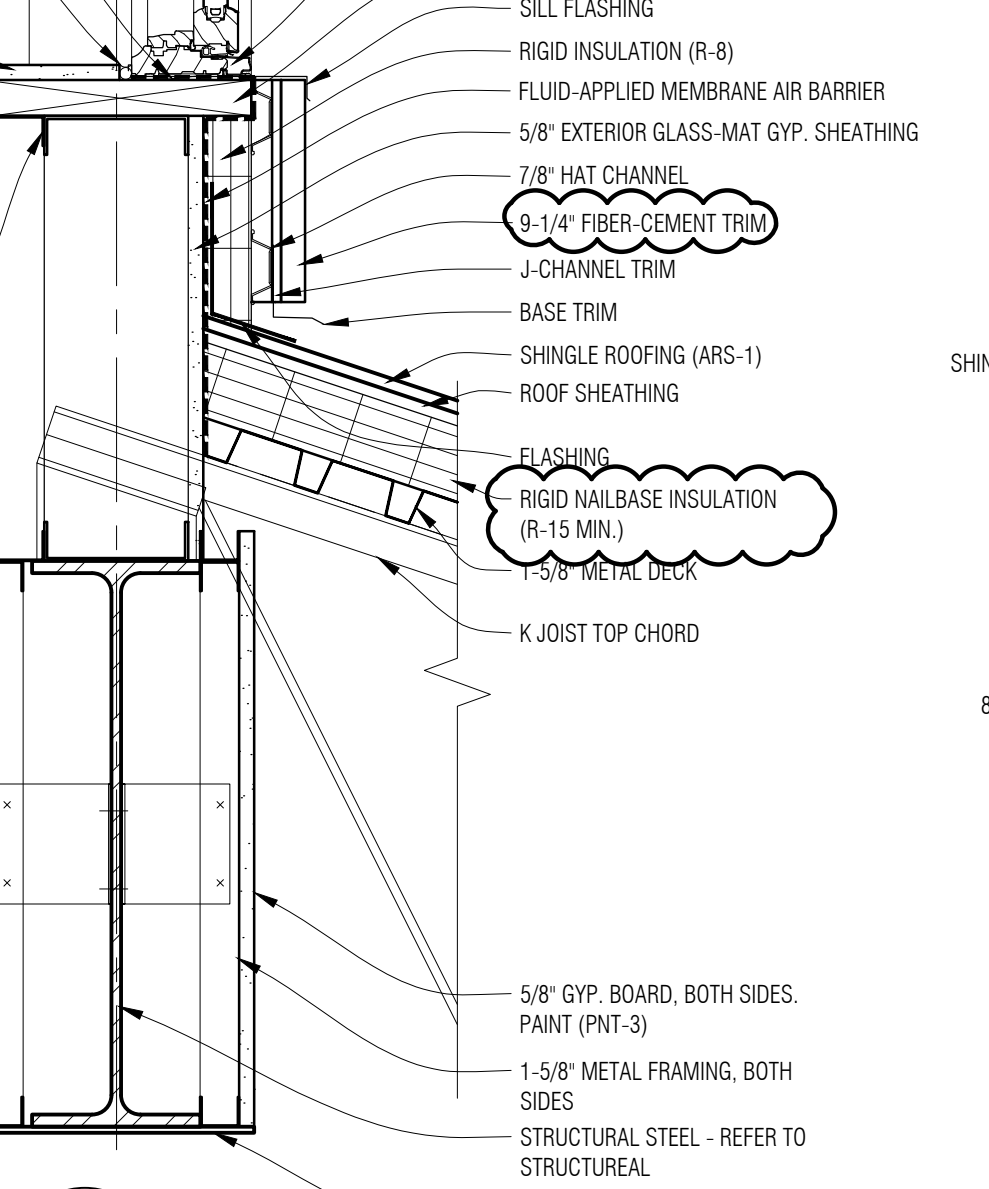
7 Detail
1-1/2" = 1'-0"



6 Detail
1-1/2" = 1'-0"



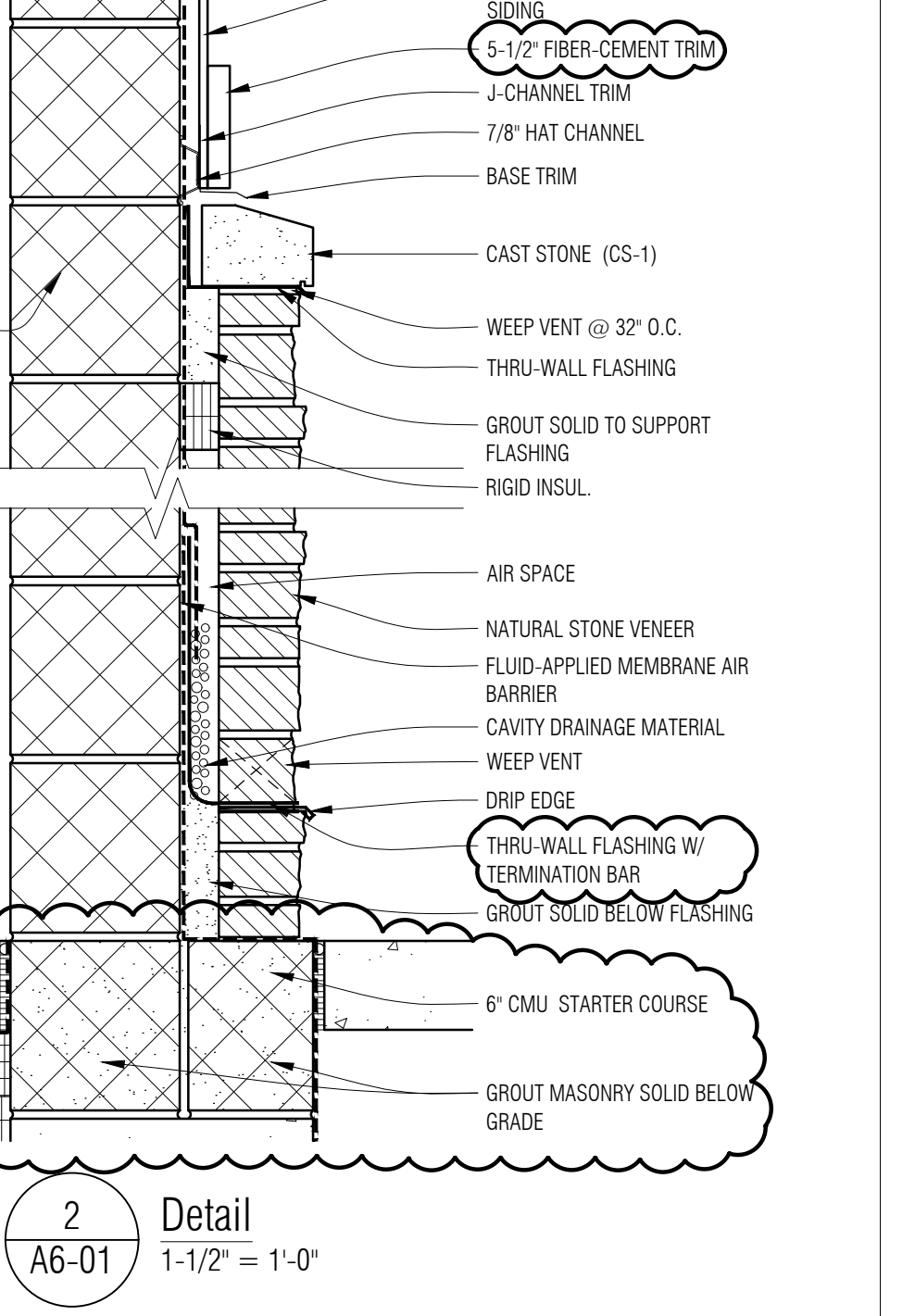
5 Detail
1-1/2" = 1'-0"



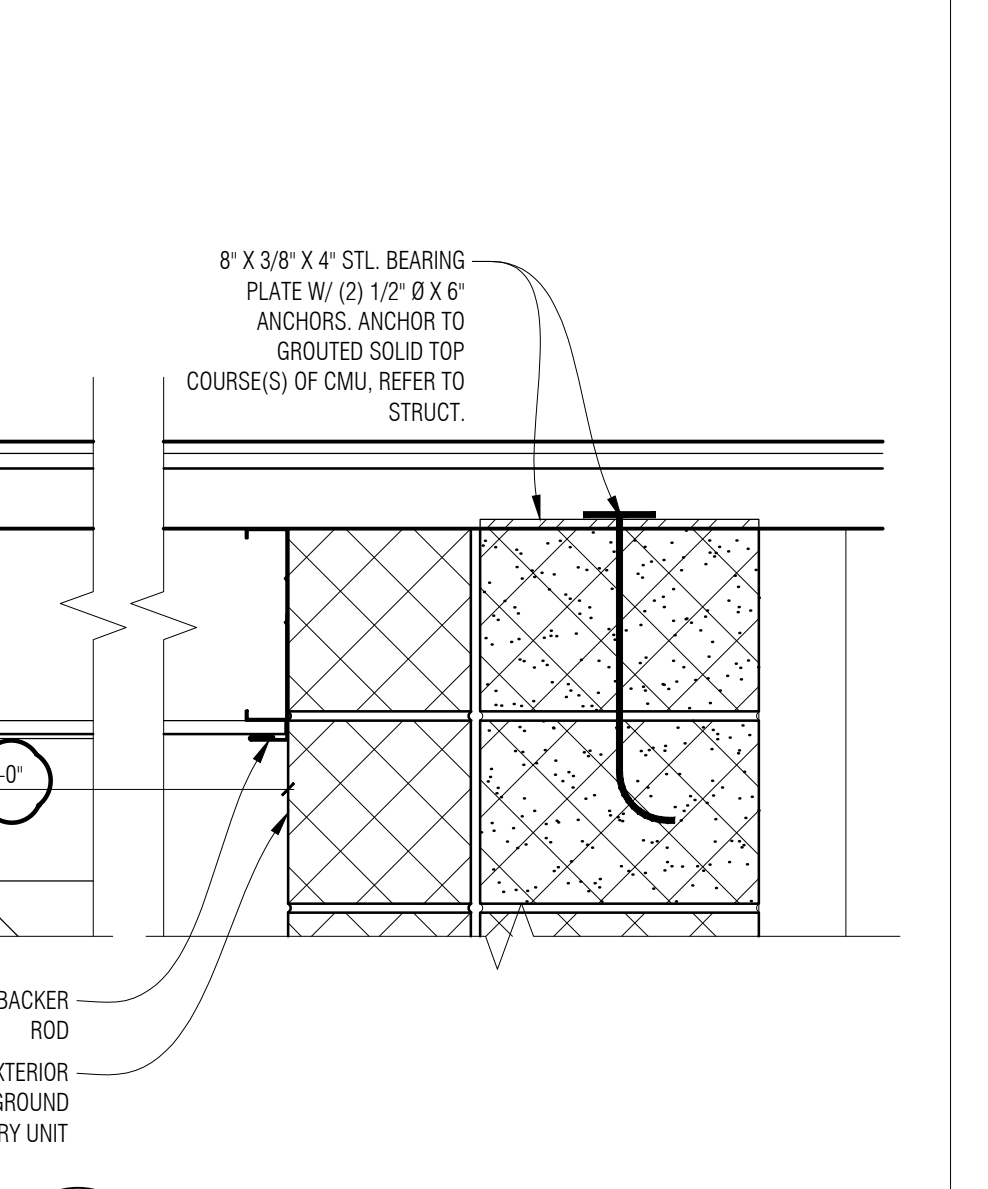
4 Detail
1-1/2" = 1'-0"



3 Detail
1-1/2" = 1'-0"

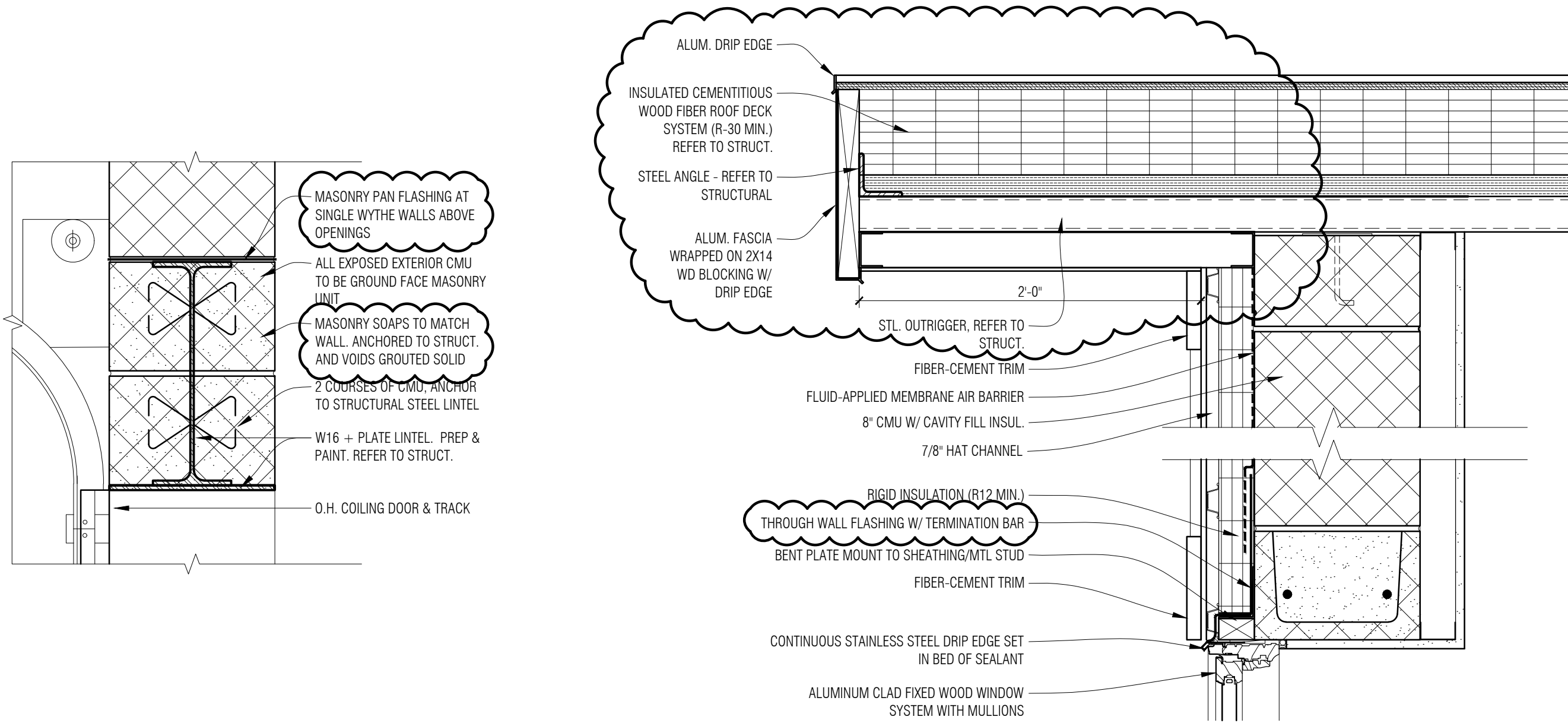


2 Detail
1-1/2" = 1'-0"

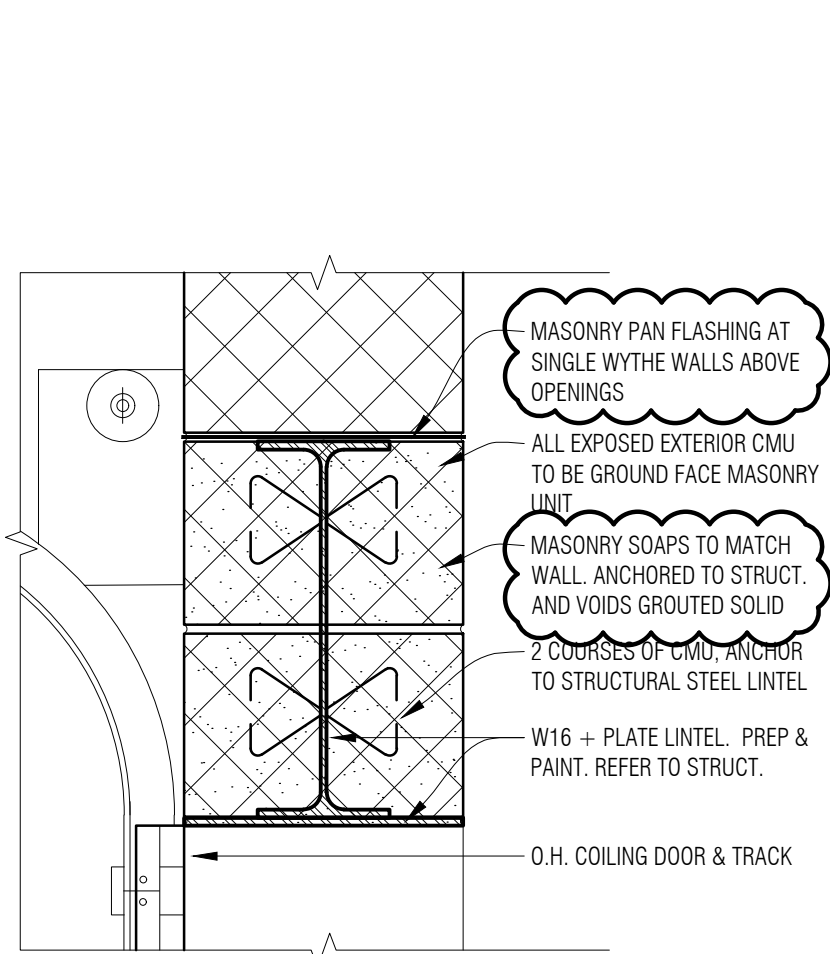


1 Detail
1-1/2" = 1'-0"

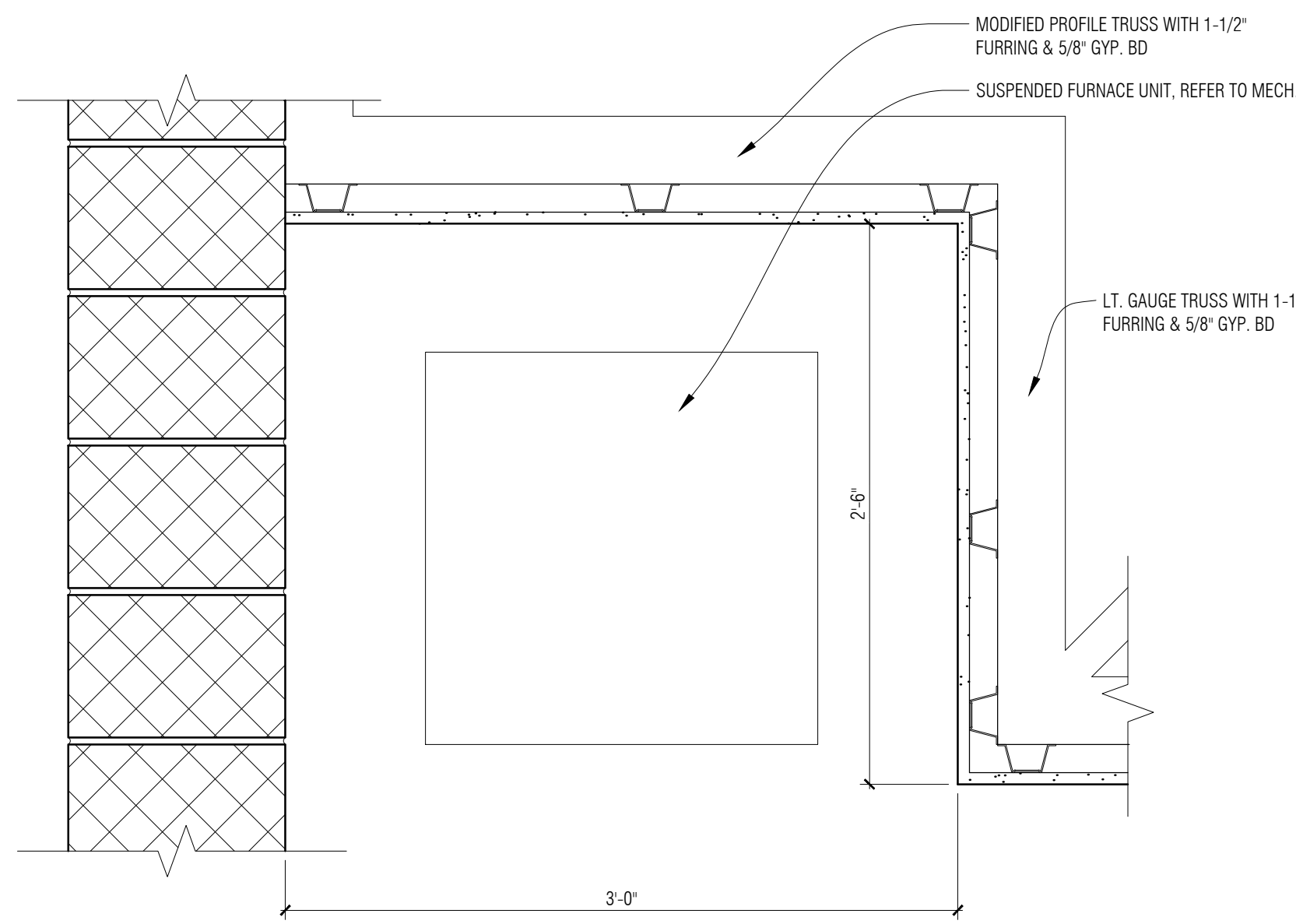




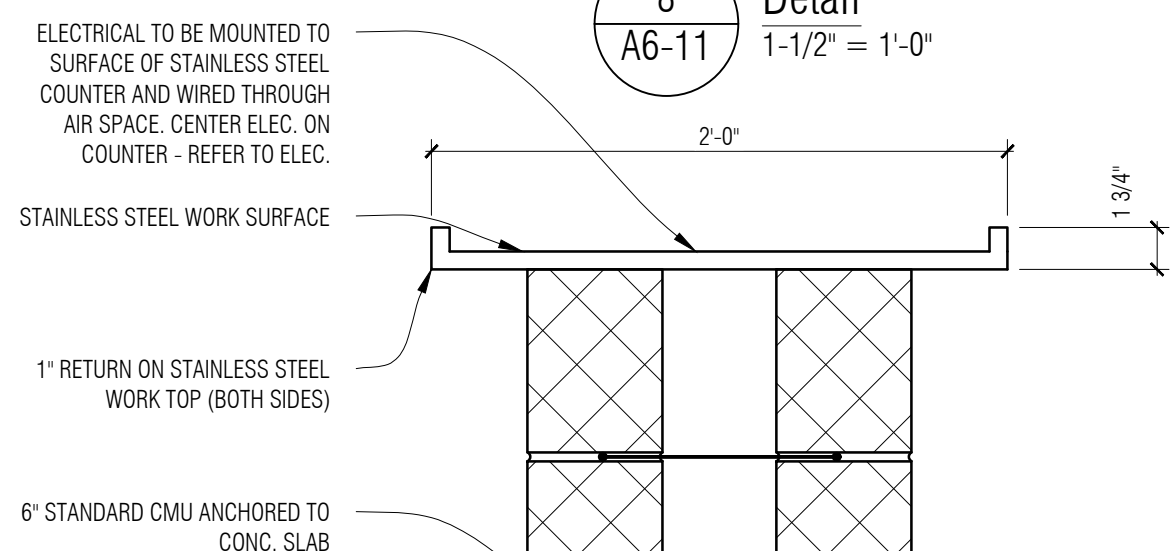
6 Detail
A6-11 1-1/2" = 1'-0"



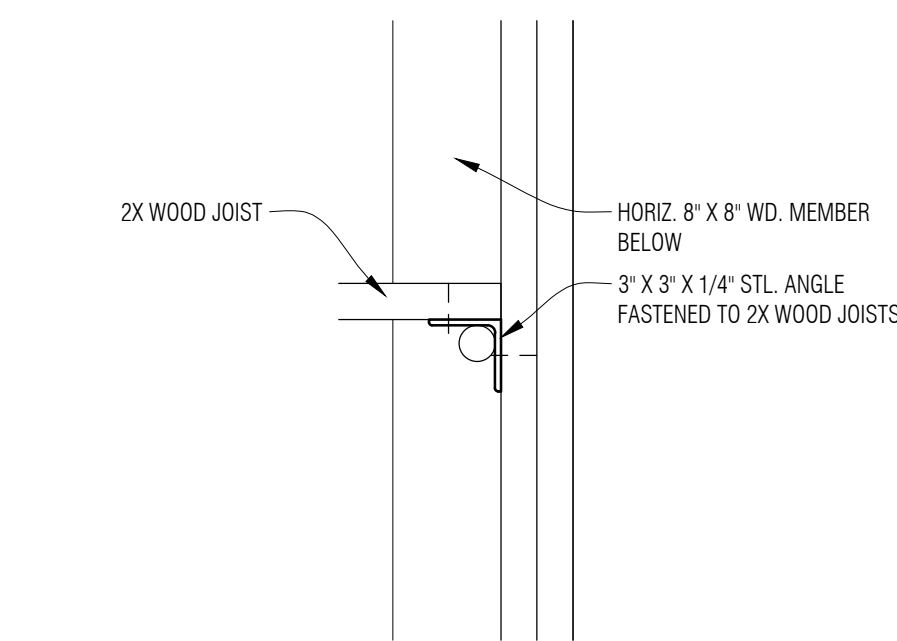
9 Detail
A6-11 1-1/2" = 1'-0"



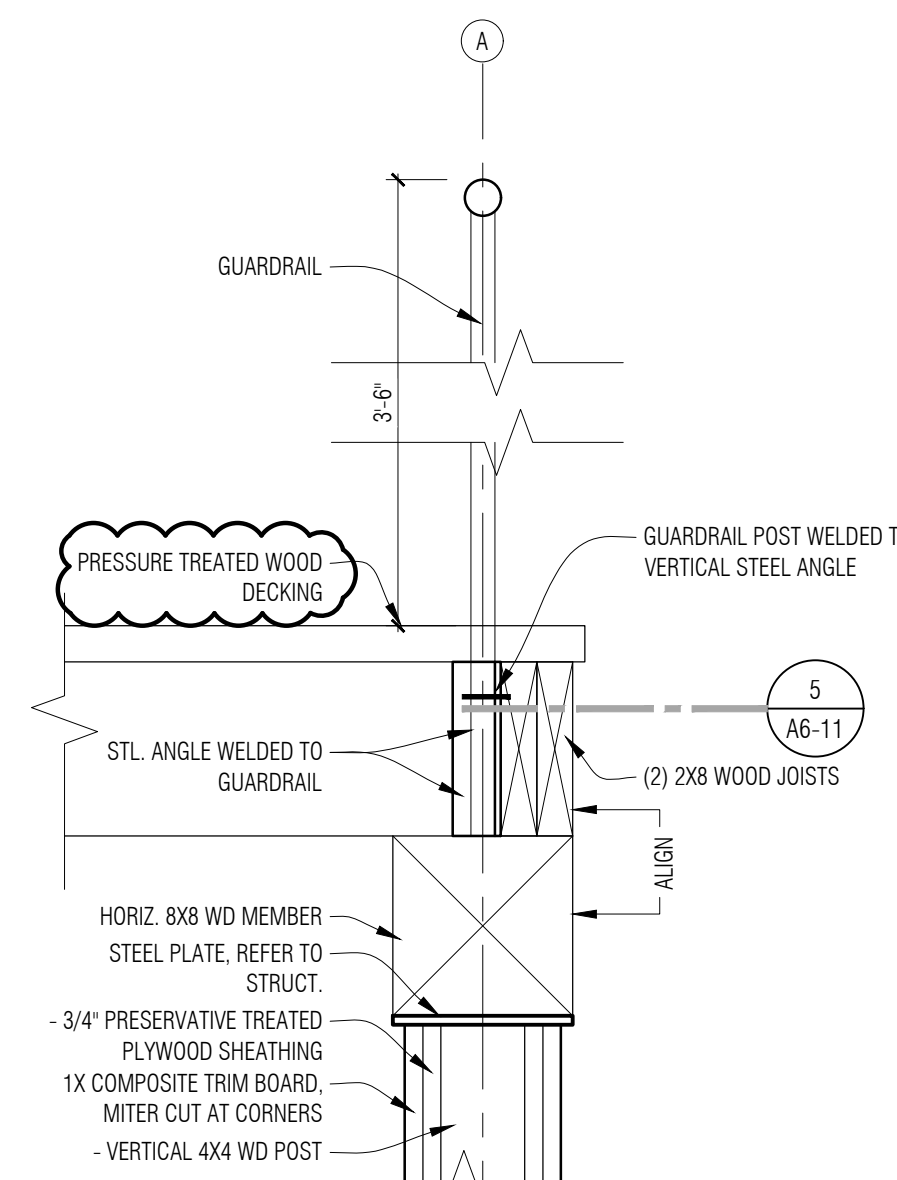
8 Detail
A6-11 1-1/2" = 1'-0"



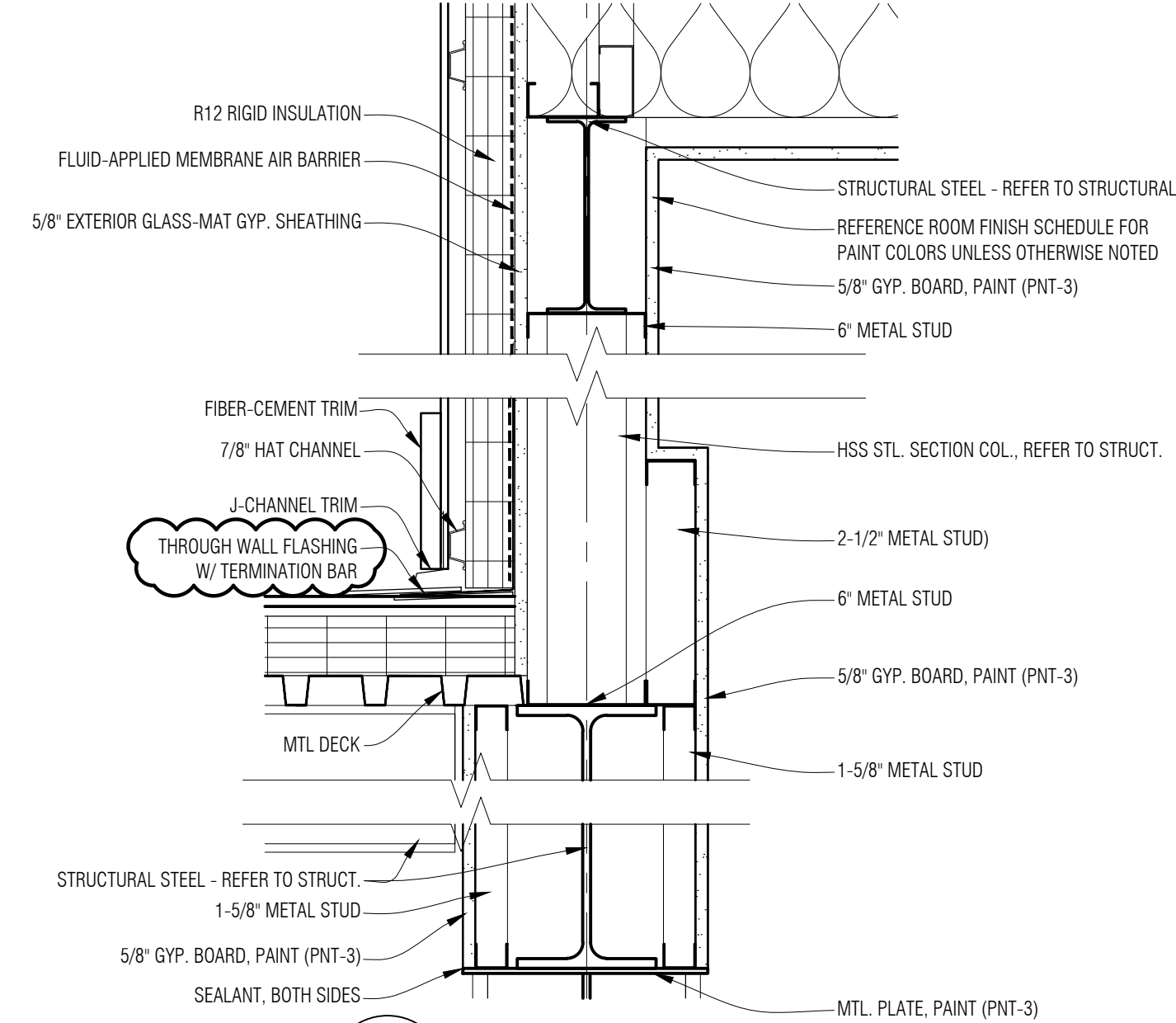
7 Detail
A6-11 1-1/2" = 1'-0"



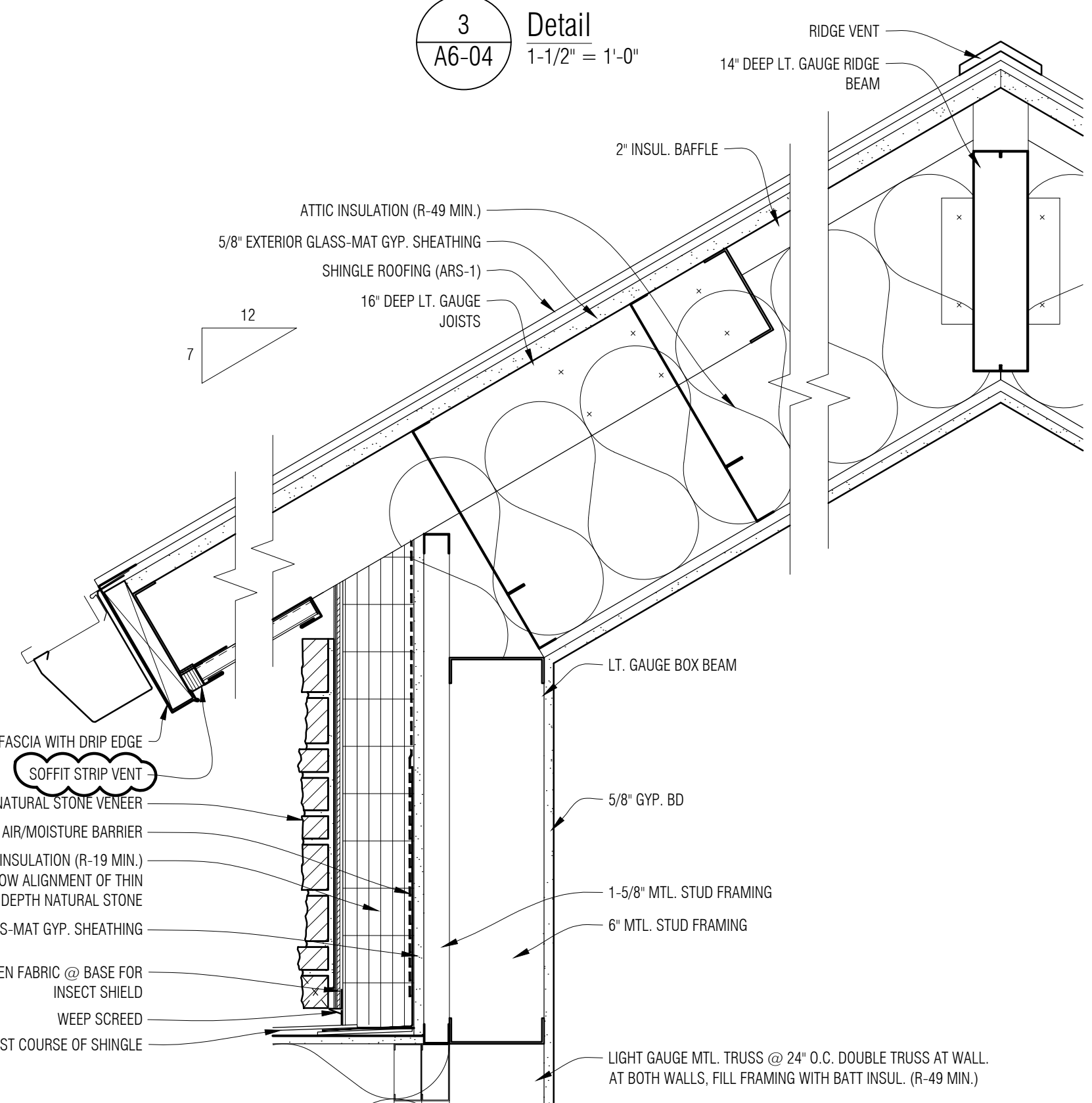
5 Detail
A6-11 1-1/2" = 1'-0"



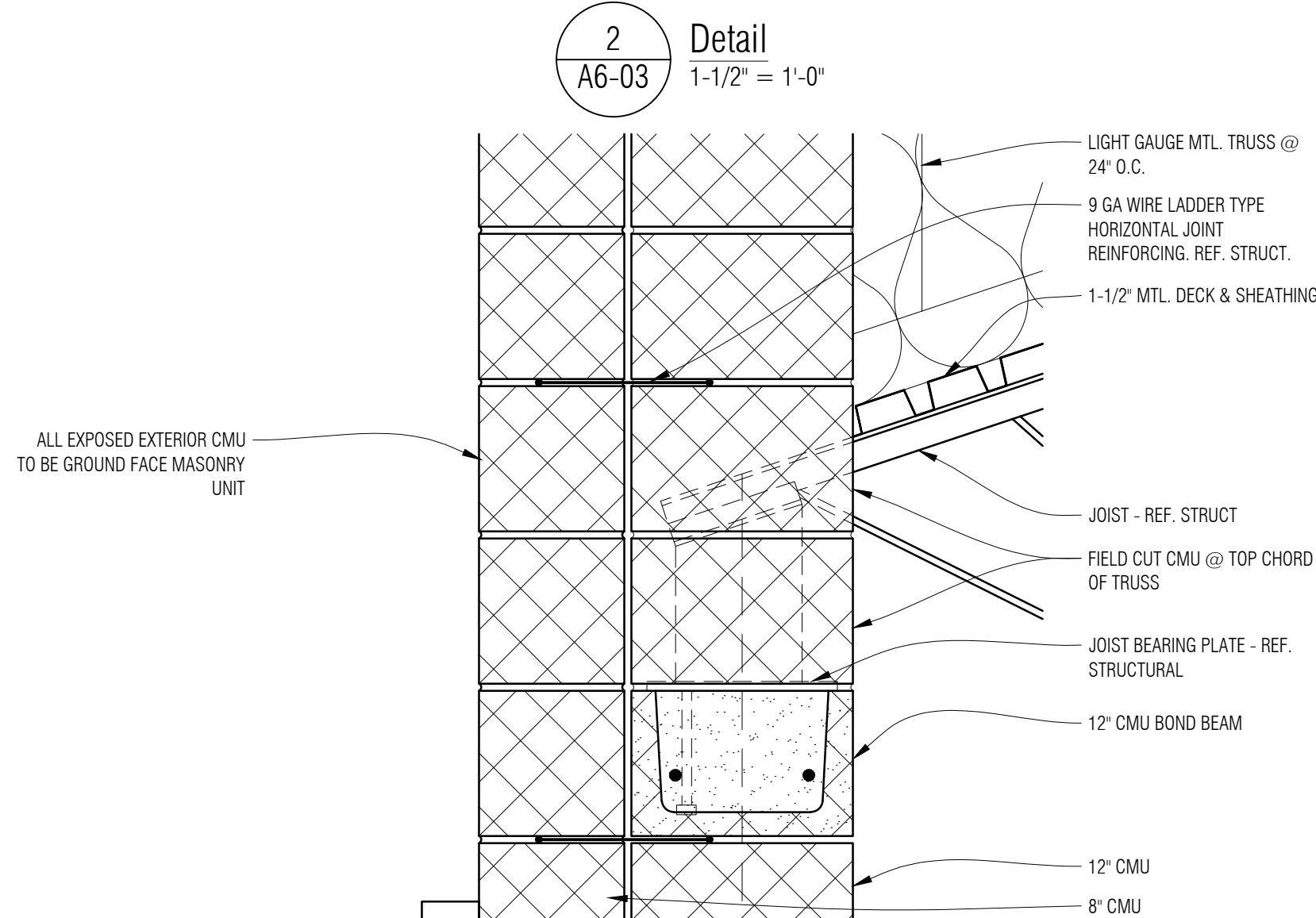
4 Detail - Alternate #3
A6-01 1-1/2" = 1'-0"



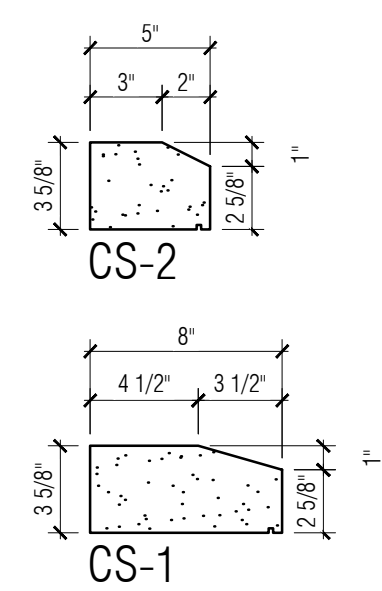
3 Detail
A6-04 1-1/2" = 1'-0"



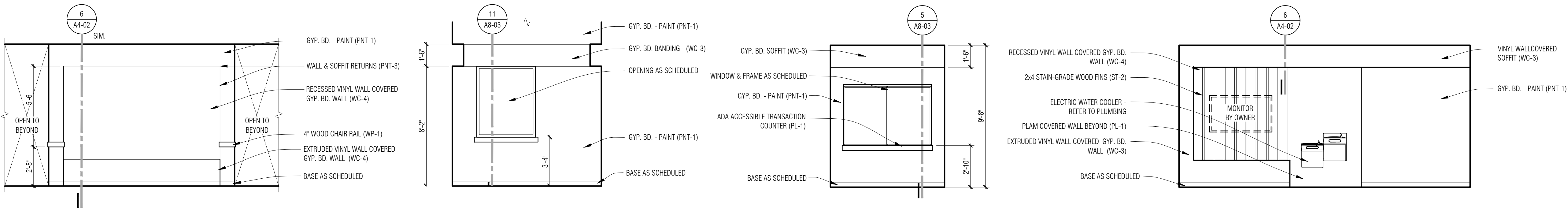
2 Detail
A6-03 1-1/2" = 1'-0"



1 Detail
A6-01 1-1/2" = 1'-0"



Sill Profiles
1-1/2" = 1'-0"



CASEWORK LEGEND

CASEWORK MODEL NUMBERS ARE DERIVED FOR BASIS OF DESIGN FROM CASE SYSTEMS DESIGN CORPORATION

- BASE CABINETS
- BC-1 DOOR/DRAWER STORAGE - B3110 / B3120
 - BC-2 DOORS/DRAWERS STORAGE - B3100
 - BC-3 SINK CABINET W/DOORS - B2100
 - BC-4 FILE DRAWER STORAGE (THREE DRAWERS) - B4540
 - BC-5 BLIND CORNER STORAGE W/DOOR - B0220

- WALL CABINETS
- WC-1 STORAGE W/ DOOR - W0110 OR W0120
 - WC-2 STORAGE W/ DOORS - W0100

- TALL CABINETS
- TC-1 STORAGE W/ DOORS - T0100

- STUDENT LOCKERS
- SL-1 THREE STUDENT LOCKER (L) - Z6210

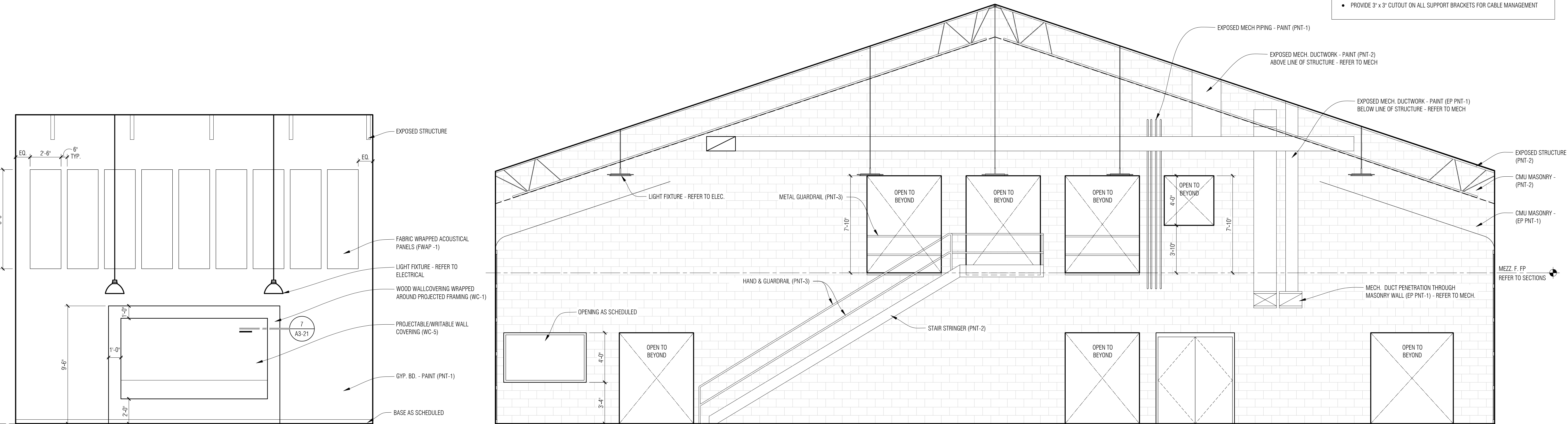
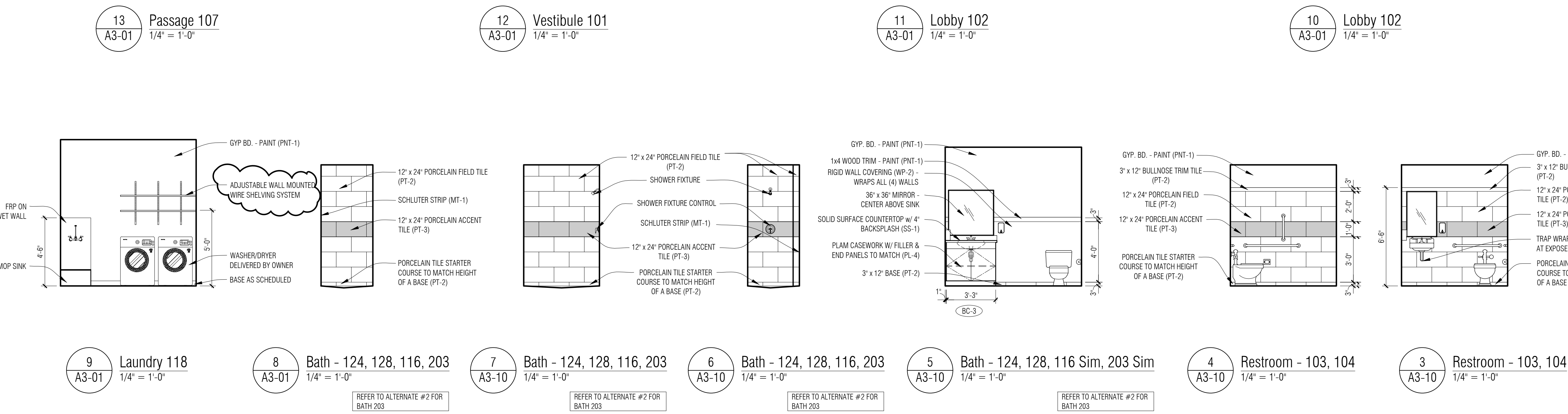
- SUPPORT BRACKETS
- SB-1 RADIUS PLAM WALL MOUNT SUPPORT BRACKET - X0700/X0710/X0720

GENERAL NOTES:

1. SOME TAGS ARE NOT USED ON THIS SHEET

- GENERAL CASEWORK NOTES:
- ALL EXPOSED SURFACES ARE TO BE FINISHED
 - PROVIDE FINISHED FILLER PANELS AS REQUIRED AT ALL SPACES BETWEEN CABINETS AND BETWEEN CASEWORK AND WALLS
 - CAULK AROUND ENTIRE PERIMETER OF ALL CABINETS AND COUNTERTOPS AT INTERSECTION OF DISIMILAR SURFACES
 - BASE CABINET DEPTH IS TO BE 24" DEEP NOMINAL (U.O.N.). WALL CABINET DEPTH IS TO BE 14" DEEP NOMINAL (U.O.N.)
 - REFER TO OTHER ELEVATIONS WITHIN THE SAME ROOM FOR SIMILAR APPLICABLE NOTES AND REQUIREMENTS
 - WHERE COUNTER TOP ABUTS WALL, PROVIDE PAINTED WOOD CLEAT
 - PROVIDE LIGHT VALANCES AT UPPER CABINETS WHERE UNDER CABINET LIGHTS ARE TO BE PROVIDED - COORD. W/ ELECTRICAL
 - REFER TO MATERIAL FINISH/COLOR SCHEDULE (SPEC SECTION 000200) FOR LAMINATE (PL-#) COLORS
 - SIZE ALL WALL MOUNT SUPPORT BRACKETS ACCORDING TO COUNTER DEPTH AND MANUFACTURER REOMENTS
 - PROVIDE 3" x 3" CUTOUT ON ALL WALL MOUNT SUPPORT BRACKETS FOR CABLE MANAGEMENT

- SUPPORT BRACKET - MANUFACTURER: CASE SYSTEMS
- CATALOG No. X0700/X0710/X0720 (U.O.N.)
 - DESCRIPTION: WALL MOUNT SUPPORT BRACKET
 - SIZE ALL SUPPORT BRACKETS ACCORDING TO COUNTER DEPTH AND MANUF. REQUIREMENTS
 - SPACE BRACKETS EVENLY BUT NOT TO EXCEED 48" O.C.
 - PROVIDE 3" x 3" CUTOUT ON ALL SUPPORT BRACKETS FOR CABLE MANAGEMENT



CASEWORK LEGEND

CASEWORK MODEL NUMBERS ARE DERIVED FOR BASIS OF
DESIGN FROM CASE SYSTEMS DESIGN CORPORATION

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 - BC-2 DOORS/DRAWERS STORAGE - B3100
 - BC-3 SINK CABINET W/DOORS - B2100
 - BC-4 FILE DRAWER STORAGE (THREE DRAWERS) - B4540
 - BC-5 BLIND CORNER STORAGE W/DOOR - B0220

- WALL CABINETS
- WC-1 STORAGE W/ DOOR - W0110 OR W0120
 - WC-2 STORAGE W/ DOORS - W0100

- TALL CABINETS
- TC-1 STORAGE W/ DOORS - T0100

- STUDENT LOCKERS
- SL-1 THREE STUDENT LOCKER (L) - Z6210

- SUPPORT BRACKETS
- SB-1 RADIUS PLAM WALL MOUNT SUPPORT BRACKET - X0700/X0710/X0720

GENERAL NOTES:

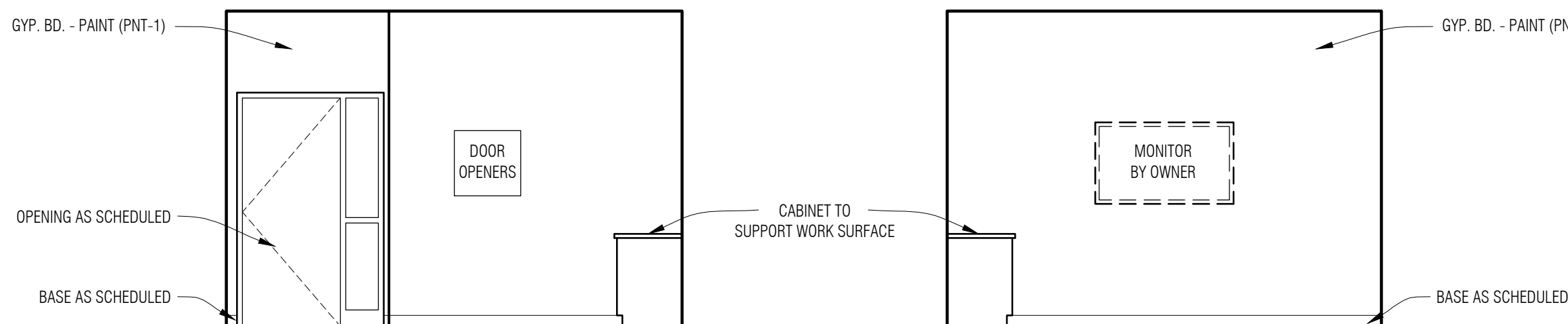
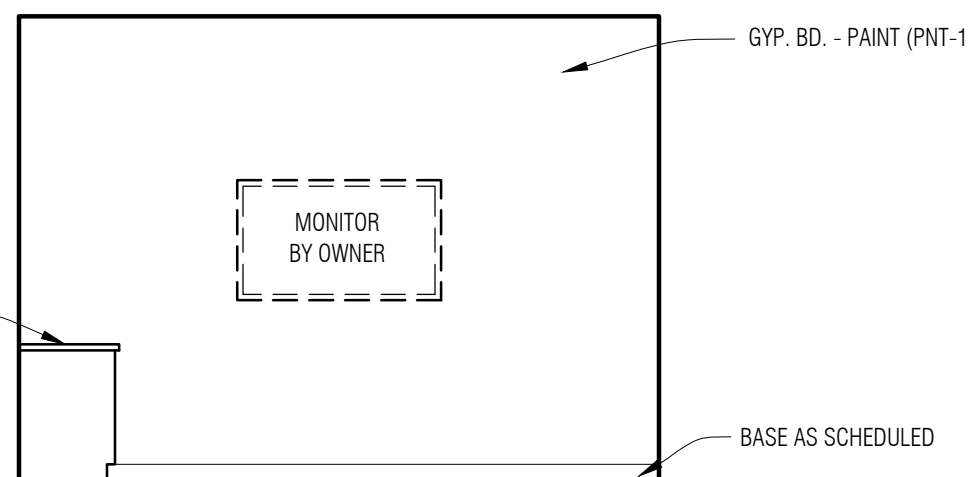
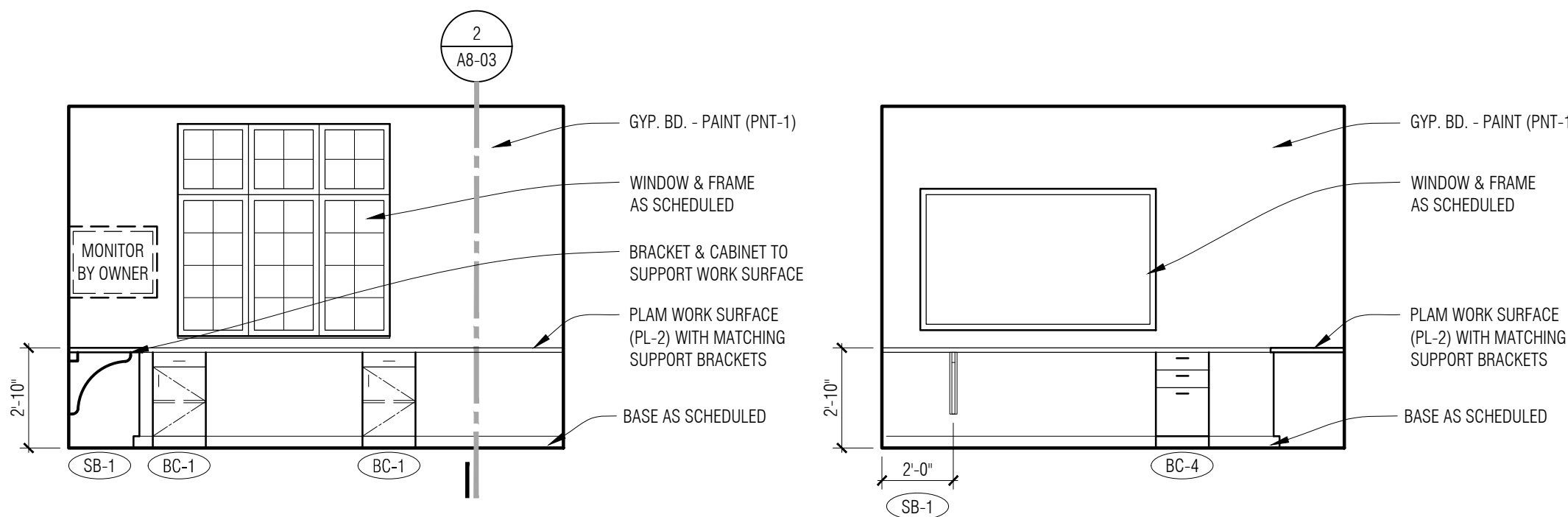
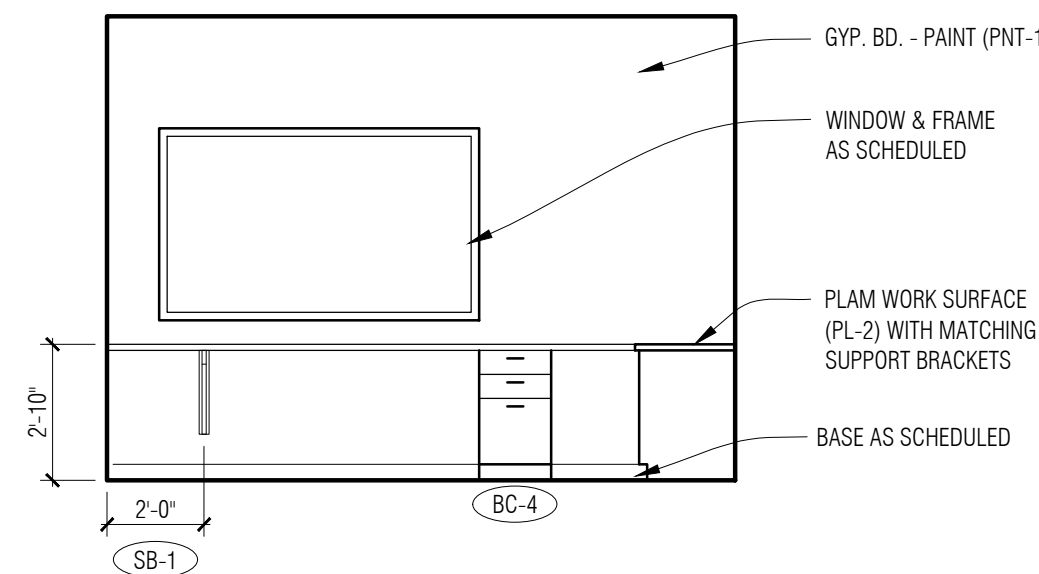
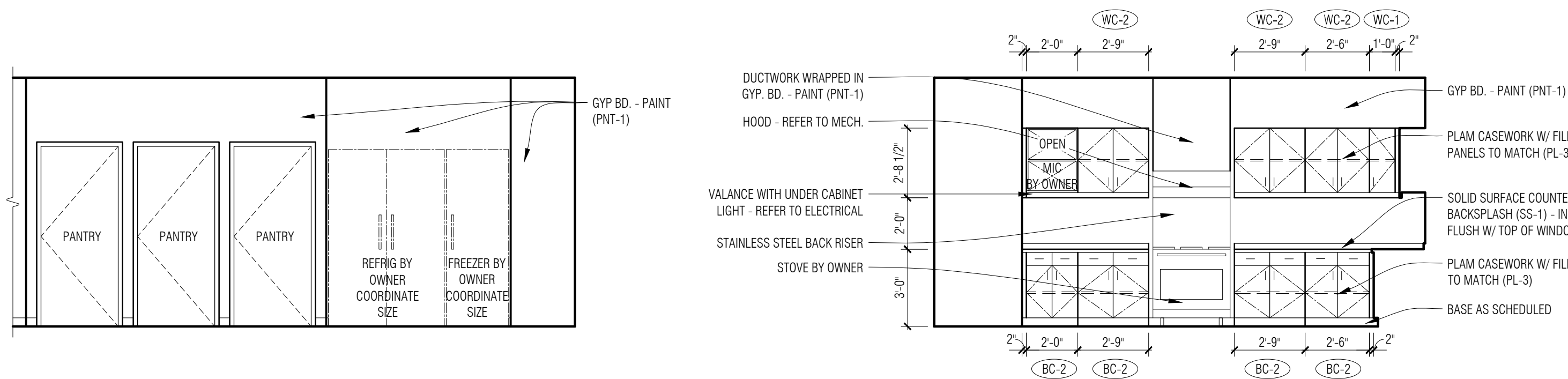
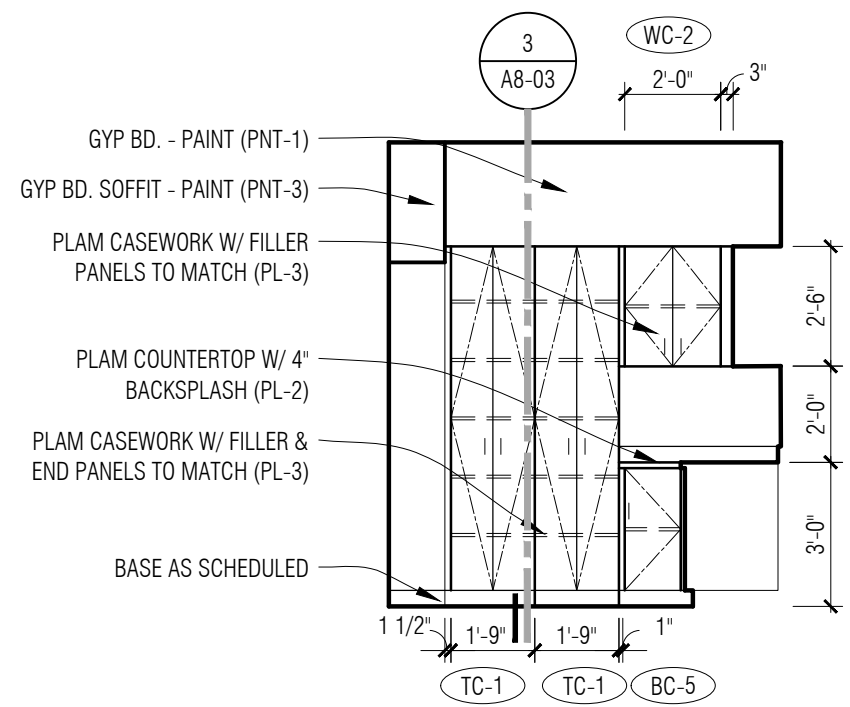
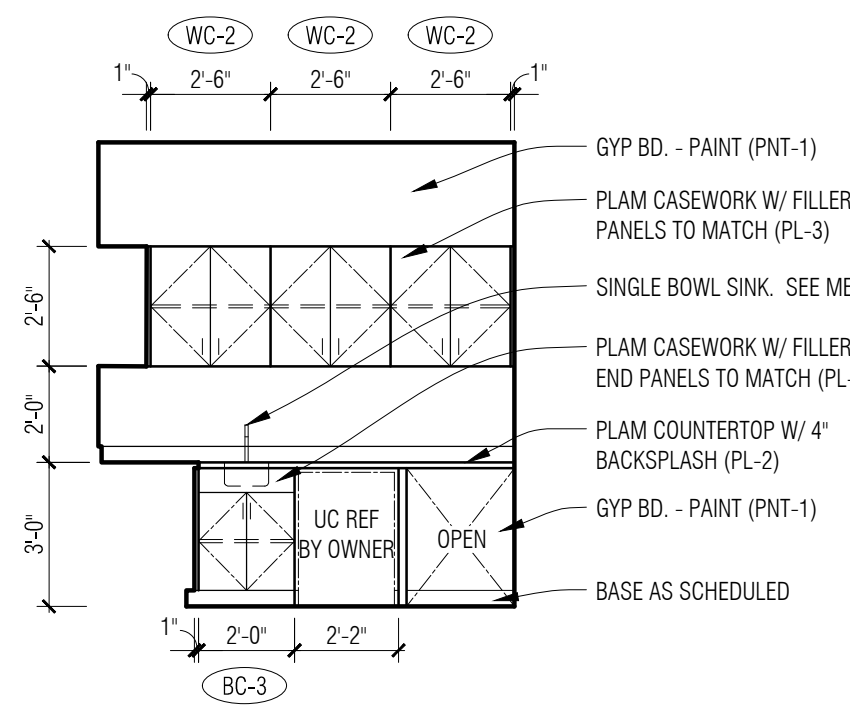
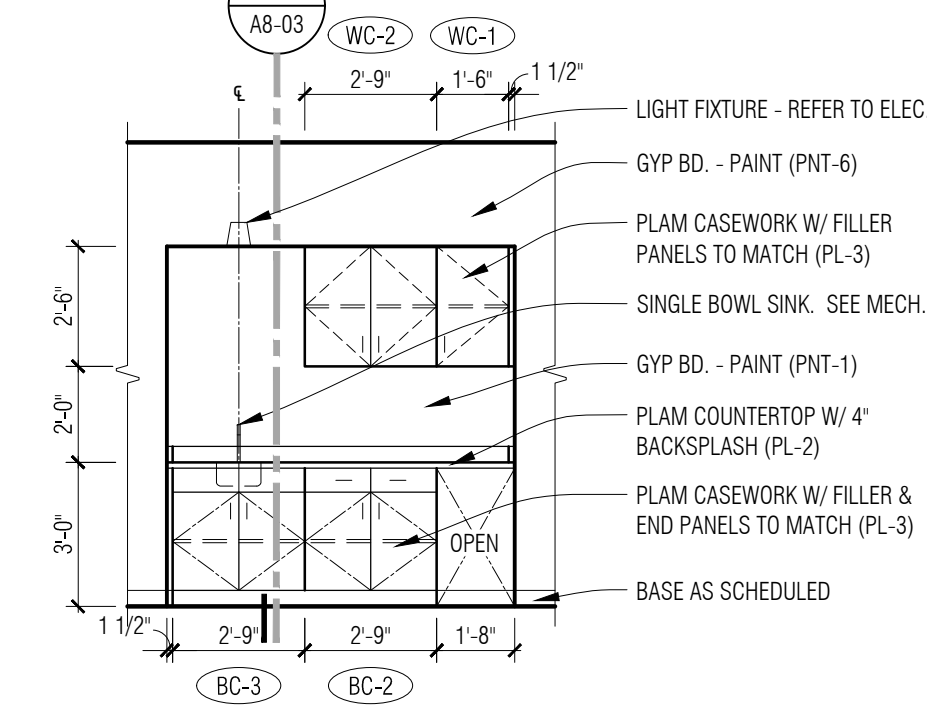
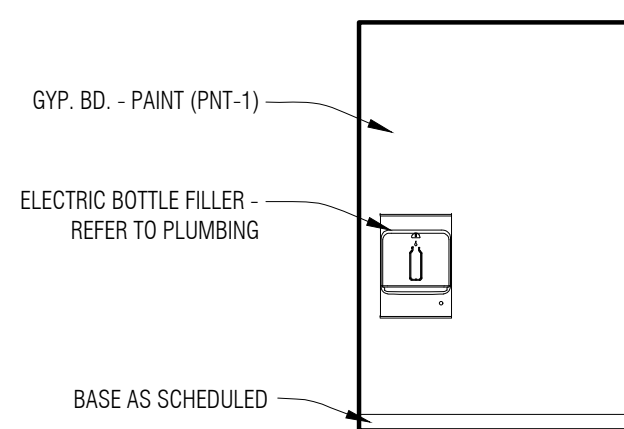
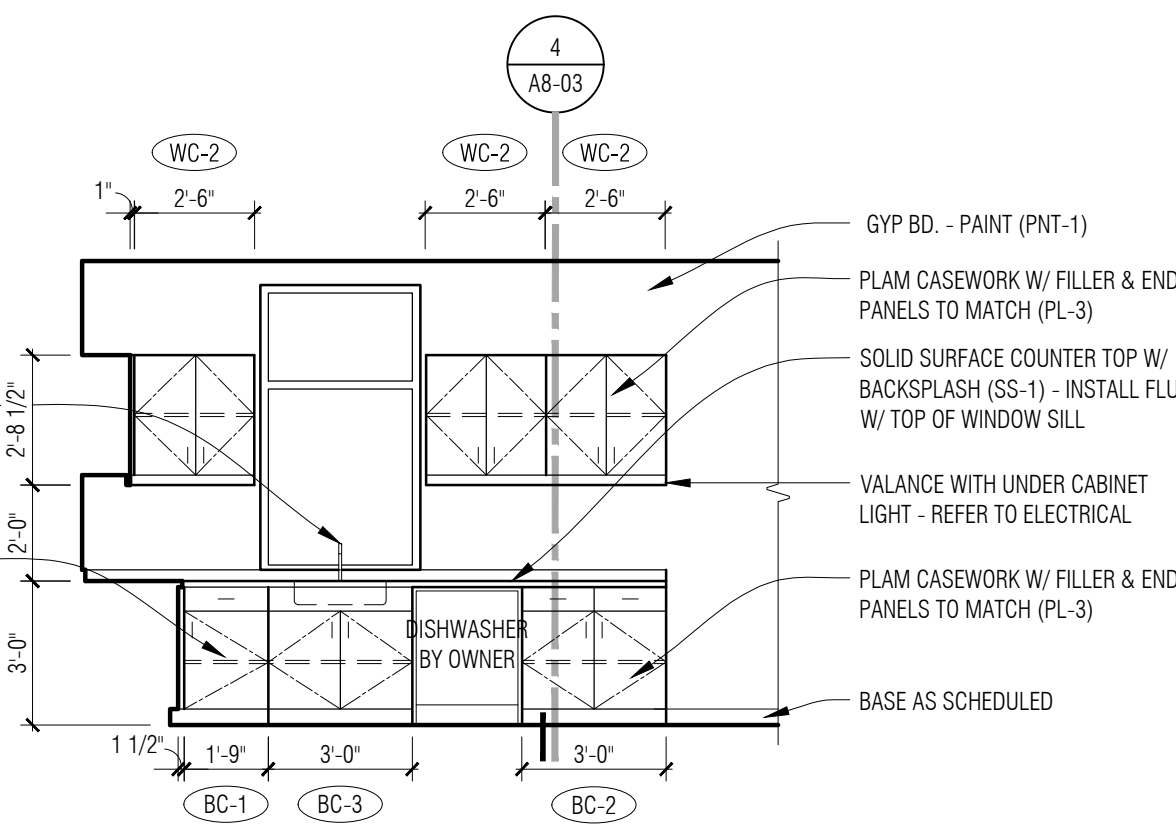
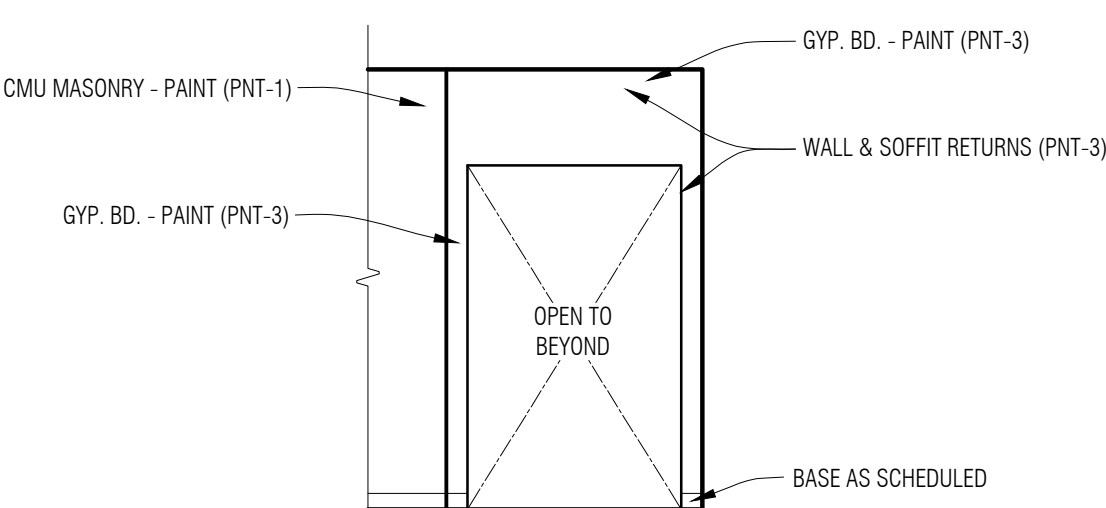
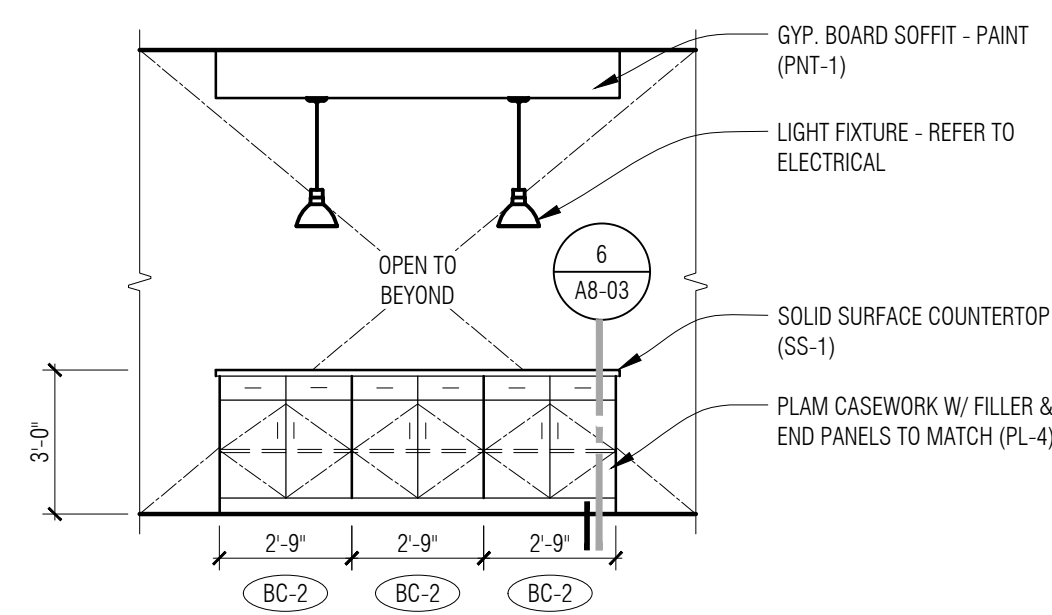
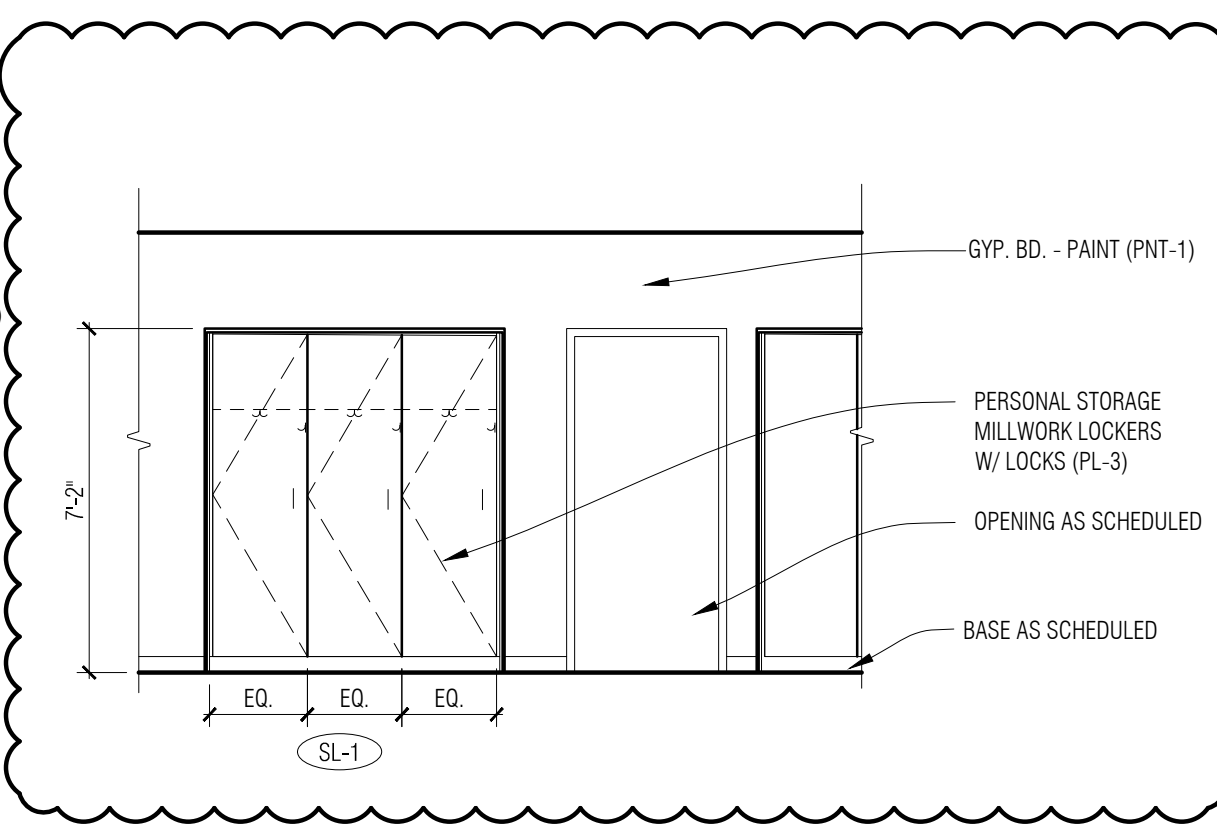
- SOME TAGS ARE NOT USED ON THIS SHEET

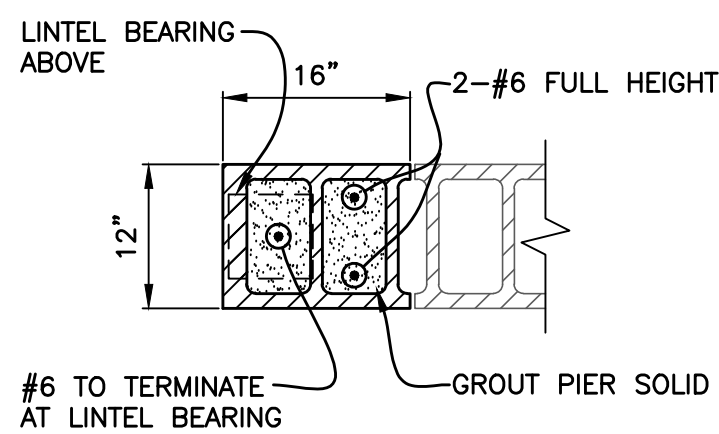
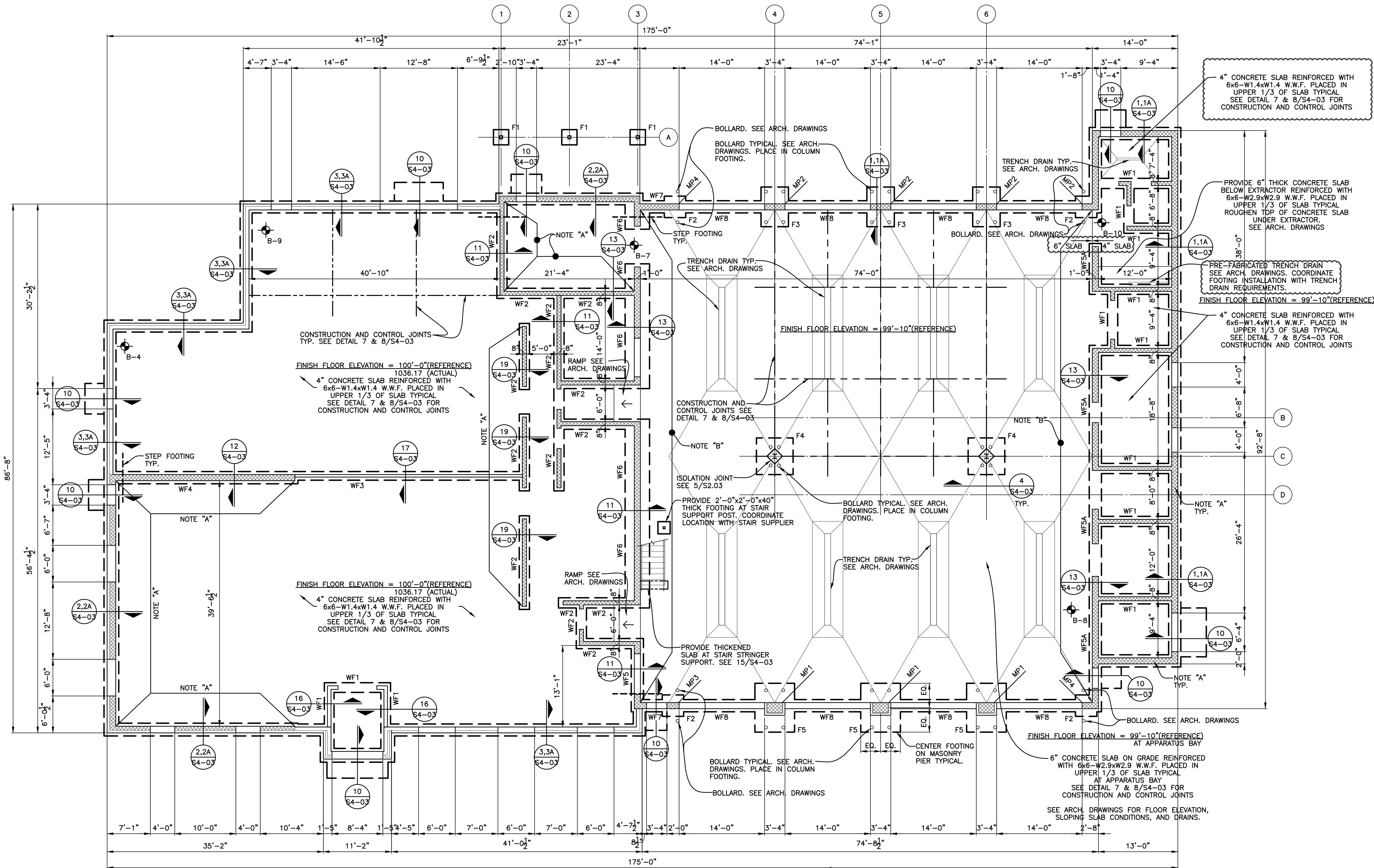
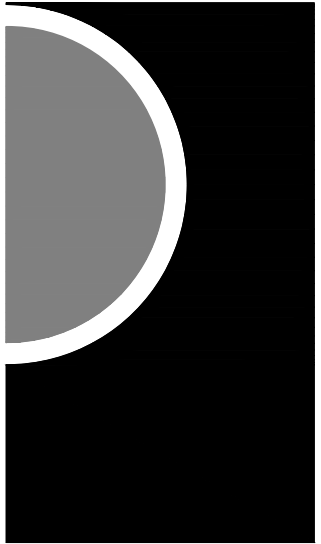
GENERAL CASEWORK NOTES:

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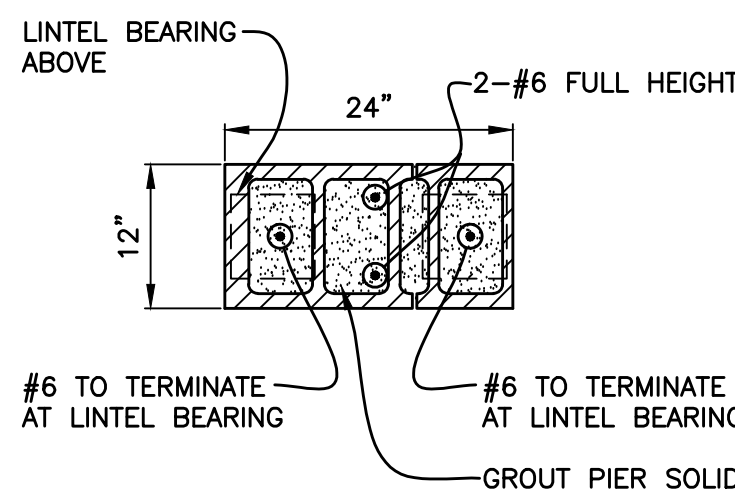
SUPPORT BRACKET - MANUFACTURER: CASE SYSTEMS

- CATALOG No. X0700/X0710/X0720 (U.O.N.)
- DESCRIPTION: WALL MOUNT SUPPORT BRACKET
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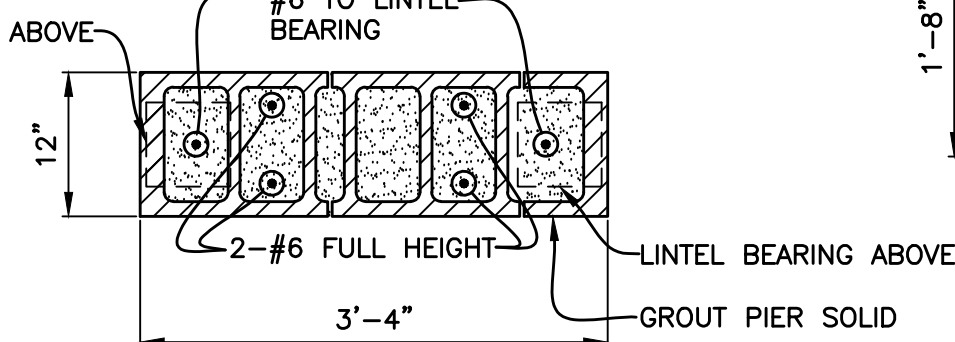
27
A3-01 Watch Desk
1/4" = 1'-0"26
A3-01 Watch Desk
1/4" = 1'-0"25
A3-01 Watch Desk 112
1/4" = 1'-0"24
A3-01 Watch Desk 112
1/4" = 1'-0"23
A3-01 Kitchen 129
1/4" = 1'-0"19
A3-10 Multi-Use 115
1/4" = 1'-0"18
A3-10 Multi-Use 115
1/4" = 1'-0"17
A3-01 Training/Community Rm 105
1/4" = 1'-0"16
A3-01 Training Equipment 204
1/4" = 1'-0"21
A3-01 Kitchen 129
1/4" = 1'-0"15
A3-21 Kitchen / Dining / Dayroom 129
1/4" = 1'-0"20
A3-01 Kitchen 129
1/4" = 1'-0"14
A3-01 Passage 120 - Typ.
1/4" = 1'-0"



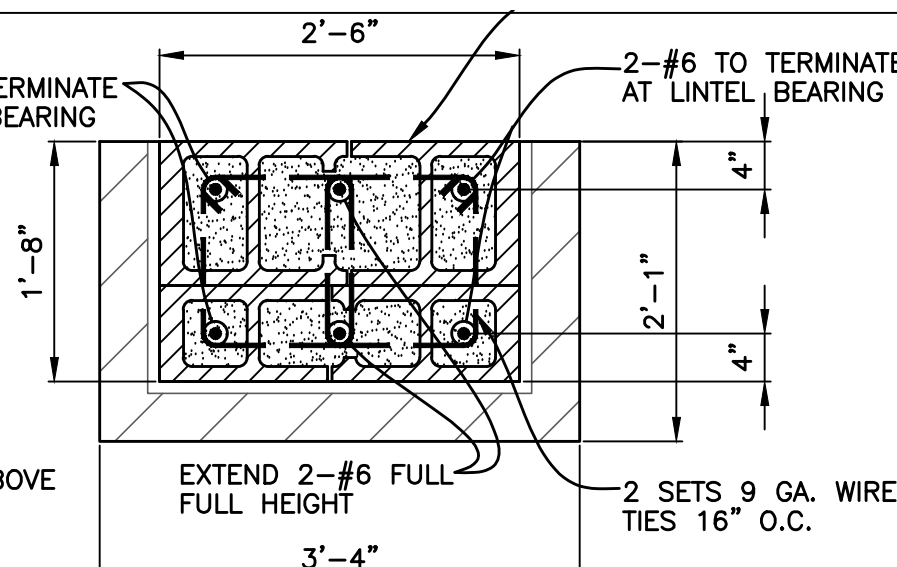
4 MASONRY PIER DETAIL (MP4)
SCALE : 3/4" = 1'-0"



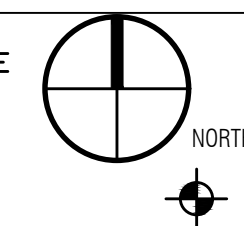
3 MASONRY PIER DETAIL (MP3)
SCALE : 3/4" = 1'-0"



2 MASONRY PIER DETAIL (MP2)
SCALE : 3/4" = 1'-0"



1 MASONRY PIER DETAIL (MP1)
SCALE : 3/4" = 1'-0"



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

INDICATES APPROXIMATE LOCATION OF SOIL BORING. SEE TESTING ENGINEERS & CONSULTANTS, INC TEC REPORT: 60006-1 FEBRUARY 3, 2020. SEE SOIL REPORT FOR SITE PREPARATIONS, AND FOUNDATION RECOMMENDATIONS.

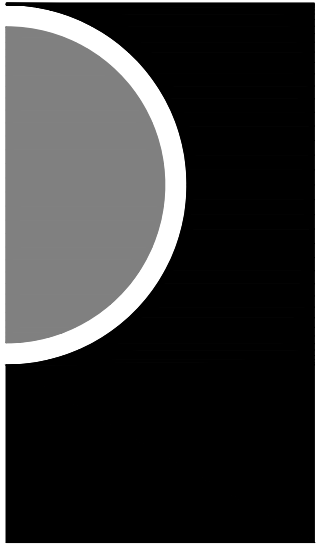
BOTTOM OF EXTERIOR FOOTING ELEVATION = 96'-0" UNLESS OTHERWISE NOTED (X'-X")

TOP OF INTERIOR FOOTING ELEVATION = 99'-2" @ APPARATUS BAY AND SIMILAR AREAS WITH F.F.=99'-10" TOP OF INTERIOR FOOTING ELEVATION = 99'-4" @ TRAINING, DORM, OFFICES, AND SIMILAR AREAS WITH F.F.=100'-0" COORDINATE WITH ARCH. DRAWINGS

SEE S4-02 SHEET FOR COLUMN FOOTING AND WALL FOOTING SCHEDULE

NOTE "A": REINFORCE EXTERIOR MASONRY WALLS AND INTERIOR MASONRY WALLS AS NOTED WITH #5 @ 48" O.C. FULL HEIGHT VERTICAL UNLESS OTHERWISE NOTED, GROUT REINFORCED CORES SOLID, DOWEL TO FOOTING. PLACE BARS AT CORNERS AND FACE OF OPENINGS AND EACH SIDE OF CONTROL JOINTS. SEE DETAILS 1, 2, 3, 4, 5 & 6/S4-02

NOTE "B": REINFORCE EXTERIOR MASONRY WALLS AND INTERIOR MASONRY WALLS AS NOTED WITH #6 @ 32" O.C. FULL HEIGHT VERTICAL UNLESS OTHERWISE NOTED, GROUT REINFORCED CORES SOLID, DOWEL TO FOOTING. PLACE BARS AT CORNERS AND FACE OF OPENINGS AND EACH SIDE OF CONTROL JOINTS. SEE DETAILS 1, 2, 3, 4, 5 & 6/S4-02



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F 586.469.3607

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email@sastructuralengineers.com

KEY PLAN

OWNER

Highland Township
Fire Department

PROJECT NAME

Highland Township
Fire Station No. 1

1600 W. Highland Rd.
Highland, MI 48357

PROJECT NO.

18-122A

ISSUES / REVISIONS

Bidding/Construction 03/27/2020
Addendum #1 04/20/2020

DRAWN BY

CS

CHECKED BY

TS

APPROVED BY

TS

SHEET NAME

MEZZANINE
FRAMING PLAN

SHEET NO.

S3-02

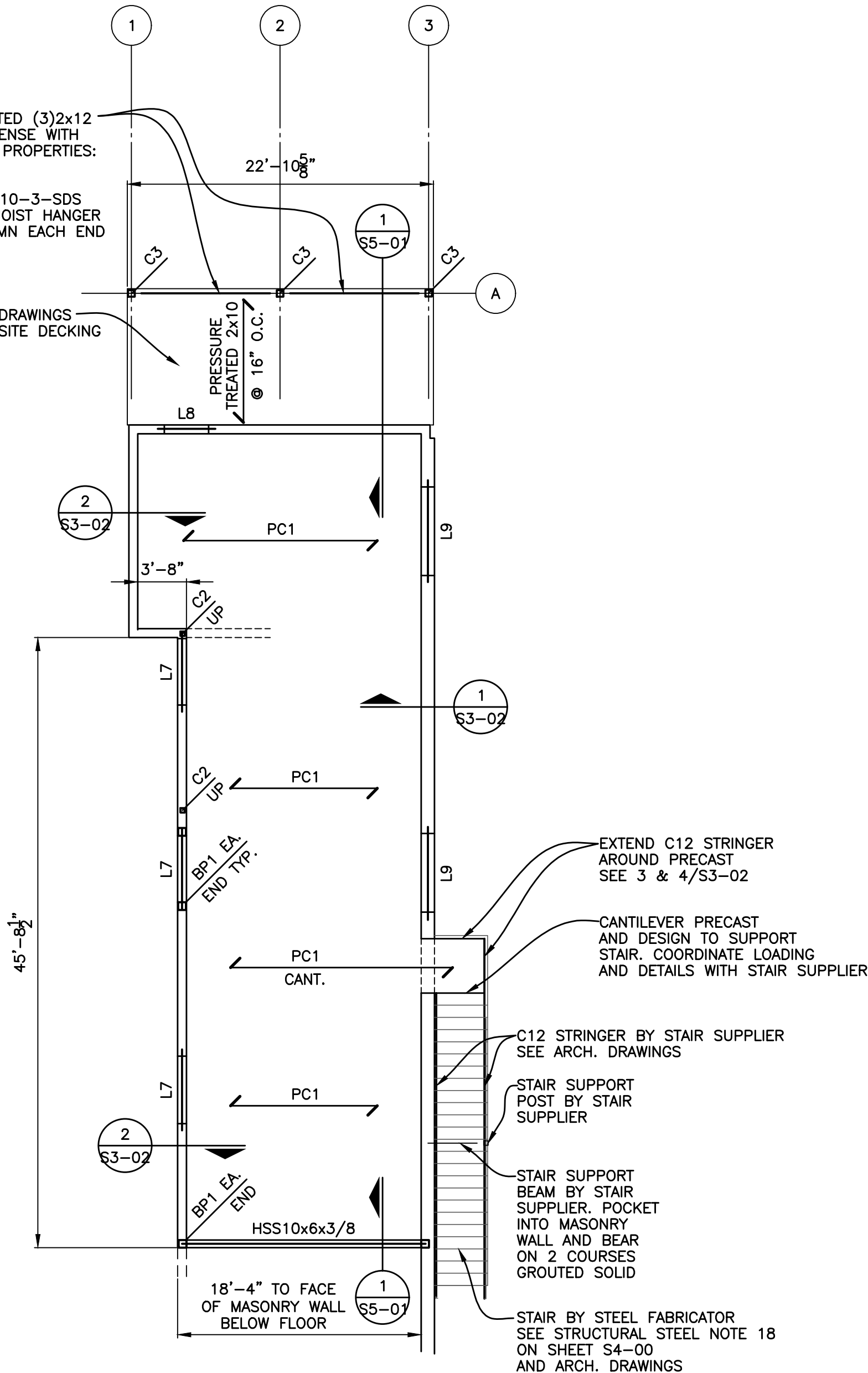
PRECAST PLANK SCHEDULE

NOTE: SEE ARCHITECTUAL DRAWINGS FOR
ADDITIONAL SUPERIMPOSED DEAD LOADS

MARK	SIZE	LIVE LOAD	MINIMUM SUPERIMPOSED DEAD LOAD	REMARKS
PC1	8" HOLLOWCORE UNIT	125 PSF		

PROVIDE PRESSURE TREATED (3)2x12
SOUTHERN PINE NO. 2 DENSE WITH
THE FOLLOWING MINIMUM PROPERTIES:
F_b = 1,150 PSI
E = 1,700 KSI
PROVIDE SIMPSON HUCQ210-3-SDS
CONCEALED FACEMOUNT JOIST HANGER
TO FACE OF WOOD COLUMN EACH END

SEE ARCH. DRAWINGS
FOR COMPOSITE DECKING

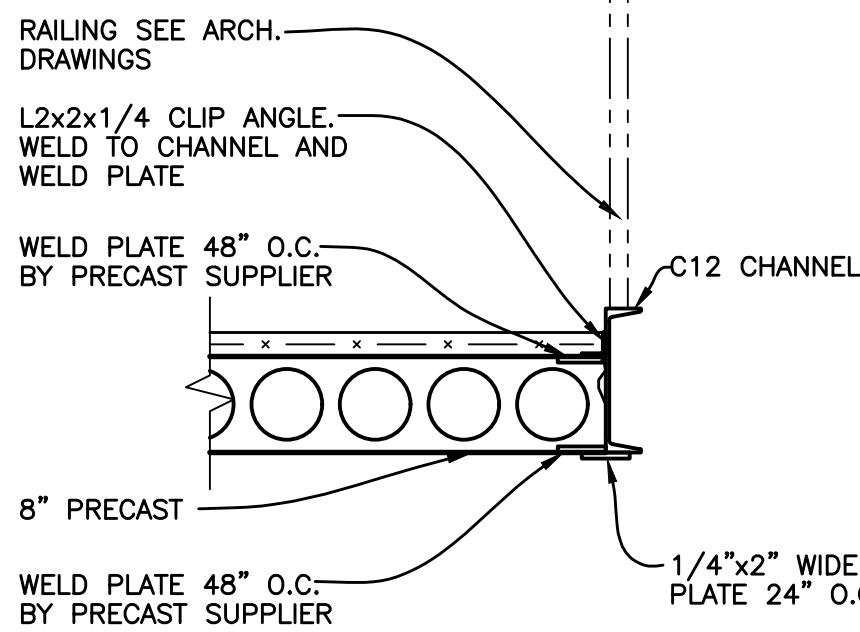


MEZZANINE FRAMING PLAN

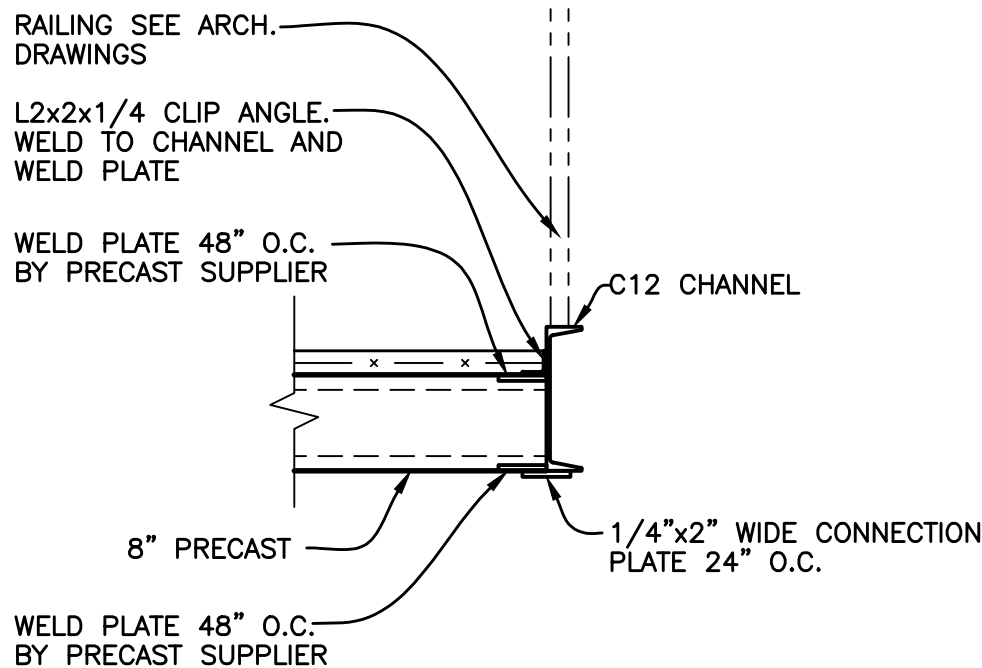
SCALE : 1/8" = 1'-0" F.F. = 112'-0"

SEE SHEET S3-03 FOR COLUMN SCHEDULE

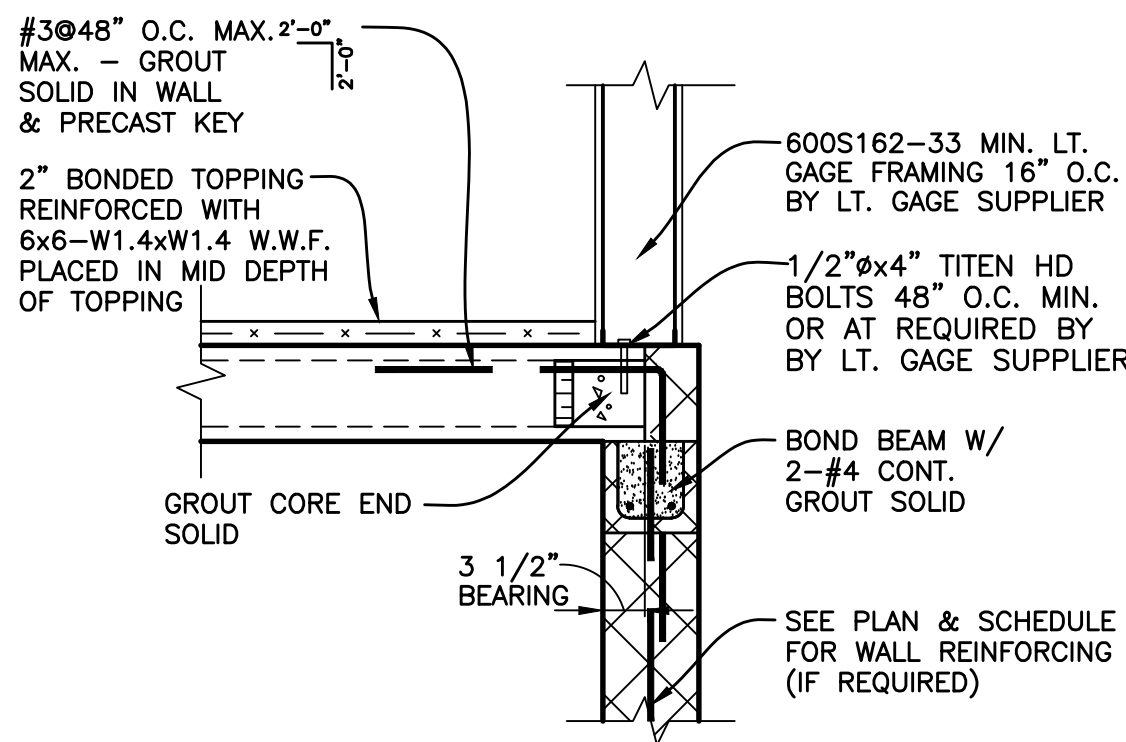
SEE SHEET S4-02 FOR LINTEL SCHEDULE



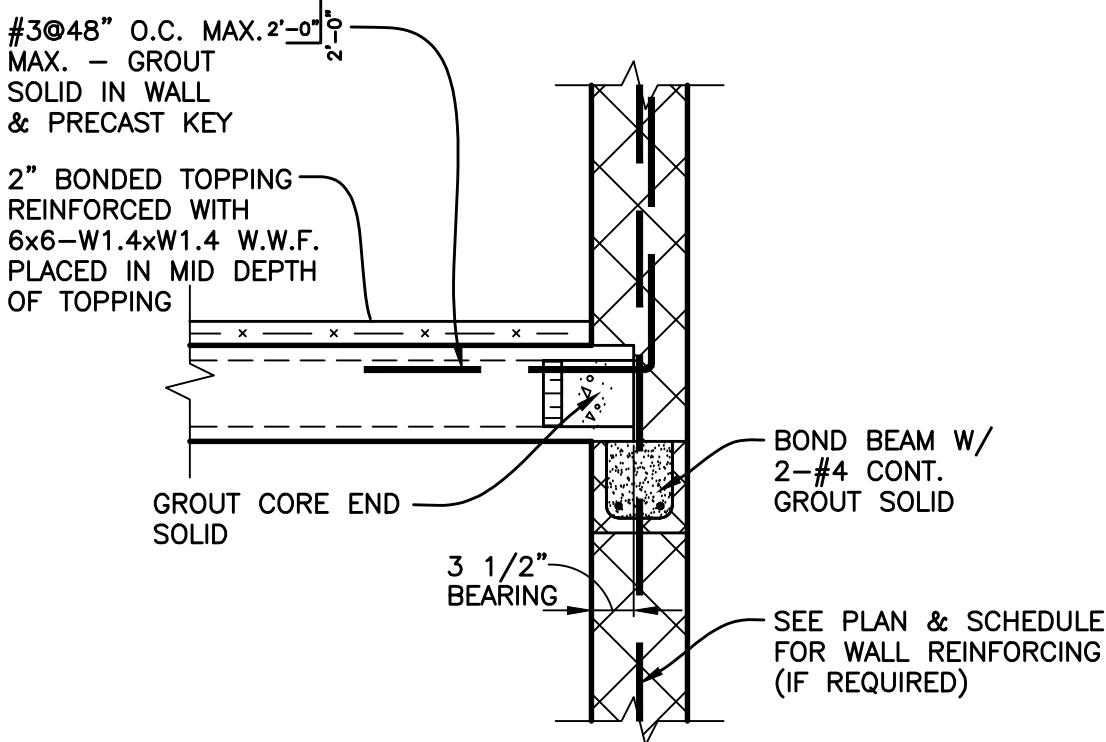
4 SECTION
S3-02 SCALE : 3/4" = 1'-0"



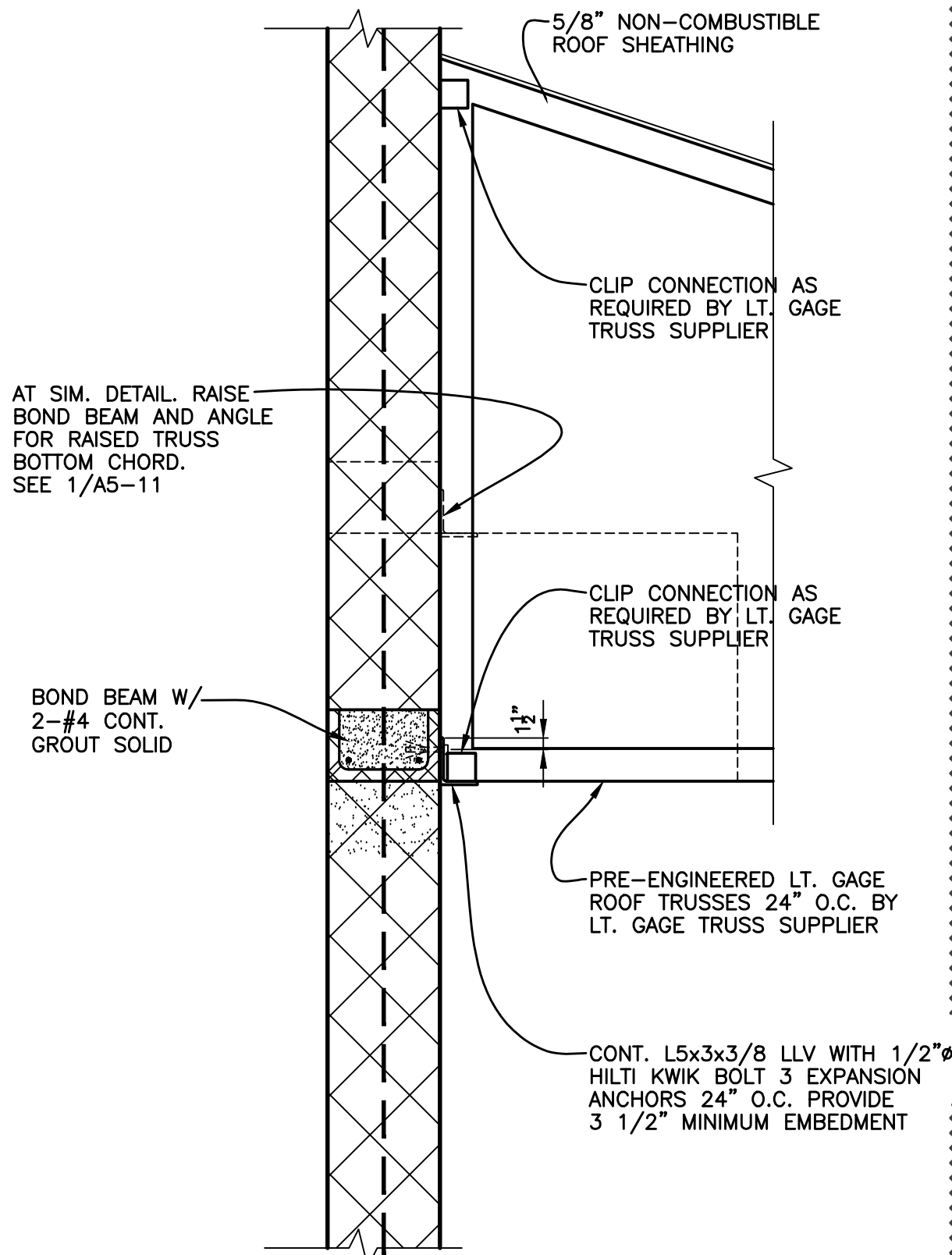
3 SECTION
S3-02 SCALE : 3/4" = 1'-0"



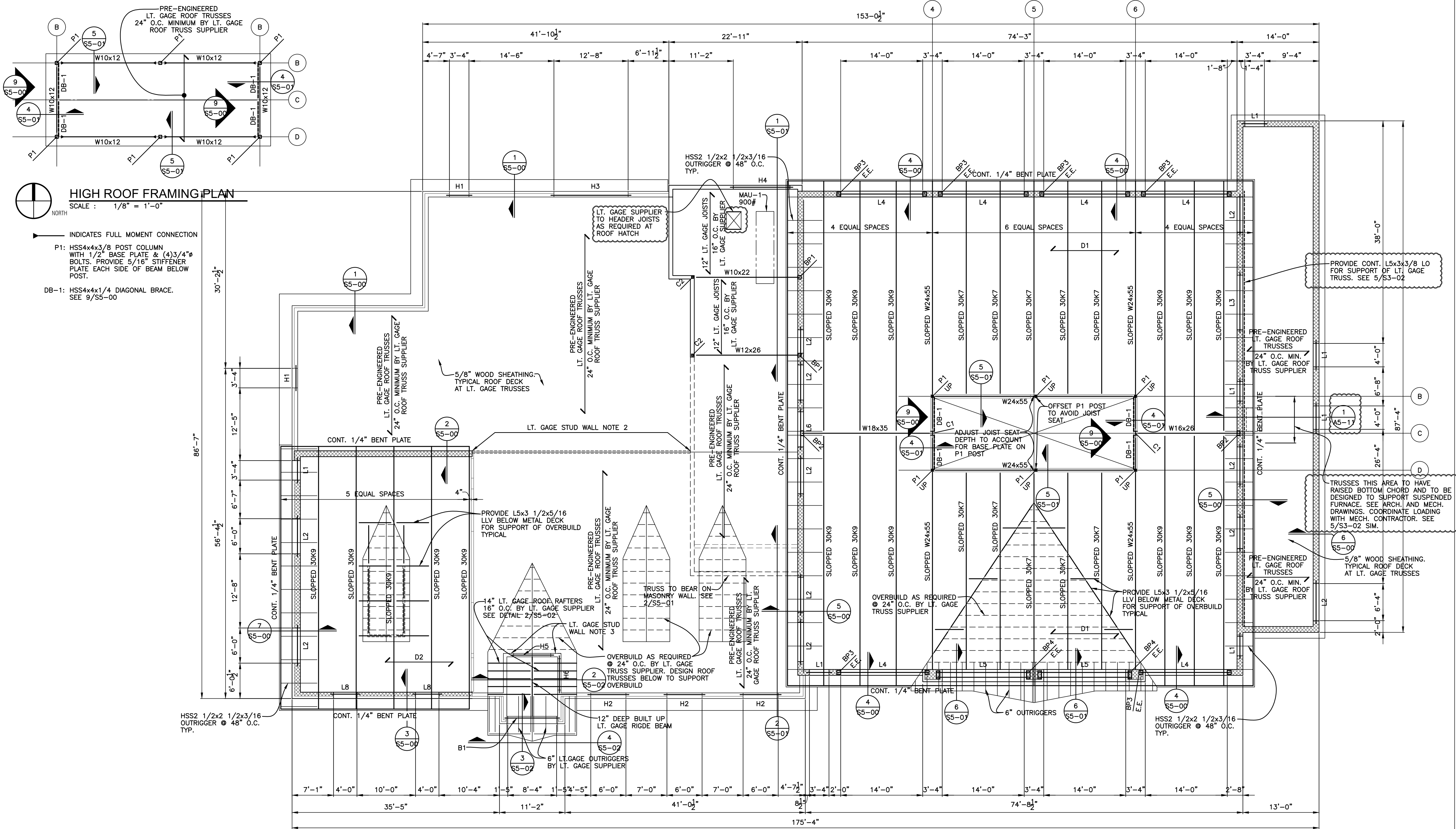
2 SECTION
S3-02 SCALE : 3/4" = 1'-0"



1 SECTION
S3-02 SCALE : 3/4" = 1'-0"



5 SECTION
S3-02 SCALE : 3/4" = 1'-0"



LT. GAGE FRAMING NOTES

- ALL LIGHT GAGE METAL MEMBERS AND CONNECTIONS SHALL BE DESIGNED BY LT. GAGE SUPPLIER—SUBMIT SHOP DRAWINGS FOR APPROVAL. DETAILS AND MEMBERS SIZES SHOWN ARE MINIMUM. PROVIDE SIGNED AND SEALED SHOP DRAWINGS AND CALCULATIONS. SEE LT. GAGE NOTES 1, 2, & 3/S4-00

STUD WALL NOTES: ALL STUDS TO BE 50 KSI

- ALL EXTERIOR BEARING WALL STUDS TO BE 600S162-54 @ 16" O.C. MINIMUM BY LT. GAGE SUPPLIER.
- INTERIOR BEARING WALL STUDS SUPPORTING ROOF TRUSSES ARE TO BE 362S200-54 @ 16" O.C. MINIMUM BY LT. GAGE SUPPLIER. REFER TO ARCHITECTURAL DRAWINGS FOR WALL SCHEDULE.
- INTERIOR BEARING WALL STUDS SUPPORTING ROOF TRUSSES ARE TO BE 600S162-33 @ 16" O.C. MINIMUM BY LT. GAGE SUPPLIER. REFER TO ARCHITECTURAL DRAWINGS FOR WALL SCHEDULE.

B1: HSS6x6x1/4 BENT STEEL TUBE HEADER. MITER ENDS OF TUBES AND WELD ALL AROUND WITH 1/4" FILLET WELD ALL AROUND. SEE DETAIL 4/S5-02



ROOF FRAMING PLAN

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

- D1 1 1/2-22 GA. GALVANIZED WIDE RIB METAL DECK (3 SPAN MINIMUM) SEE DETAIL 6/S5-00
- D2 8" THICK TECTUM "E" COMPOSITE ROOF DECK PANELS CONSISTING ON ONE LAYER 7/16" OSB ON 6 1/2" EPS INSULATION FOAM ON 1 1/2" TECTUM SUBSTRATE. REFER TO SPEC FOR ADDITIONAL INFORMATION.

JOIST FRAMING NOTES:

- JOIST SUPPLIER TO PROVIDE BRIDGING AS REQUIRED PER SJI
- JOIST SUPPLIER TO DESIGN ALL ROOF JOISTS FOR A NET UPLIFT OF 15 PSF (DO NOT REDUCE BY 0.6W).

TYPICAL ROOF SHEATHING IS 5/8" NON-COMBUSTIBLE PLYWOOD. PROVIDE ROOF CLIPS TYPICAL AT PANEL EDGES BETWEEN TRUSSES. STAGGER PLYWOOD JOINTS BETWEEN ROWS OF SHEATHING (OFFSET 4'-0" EACH ROW) ATTACH WITH 8d NAILS 6" O.C. AT EDGES AND 12" O.C. IN THE FIELD

SEE SHEET S4-02 FOR HEADER SCHEDULE

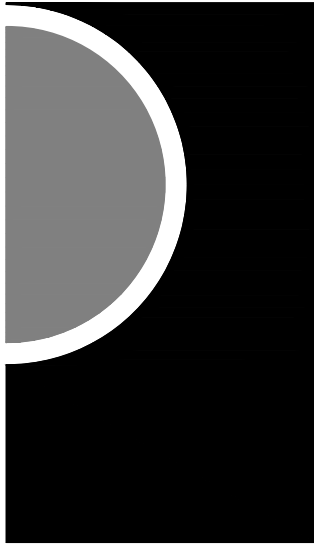
SEE SHEET S4-02 FOR LINTEL AND BEARING PLATE SCHEDULES

DB-1: HSS4x4x1/4 DIAGONAL BRACE. SEE 9/S5-00

COLUMN SCHEDULE

C3	C2	C1	MARK
6x6 P.T. POST	HSS4x4x1/4	W12x58	SIZE
	6"x1/2"x10" BASE PLATE	18"x1 1/4"x1'-6"	BASE PLATE
	(2)3/4"x1'-4" HEADED ANCHOR	(4)3/4"x1'-4" HEADED ANCHOR	ANCHOR BOLTS
PROVIDE SIMPSON CBS66 COLUMN BASE.	PLACE ON 3 COURSES GROUTED SOLID MASONRY. PLACE COLUMN BASE PLATE 8" BELOW PRECAST BEARING		REMARKS

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Livonia, Michigan 48154
ph. 734.855.4810 fs. 734.855.4809
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KEY PLAN

OWNER

Highland Township
Fire Department

PROJECT NAME

Highland Township
Fire Station No. 1

1600 W. Highland Rd.
Highland, MI 48357

PROJECT NO.

18-122A

ISSUES / REVISIONS

Bidding/Construction 03/27/2020
Addendum #1 04/20/2020

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TS

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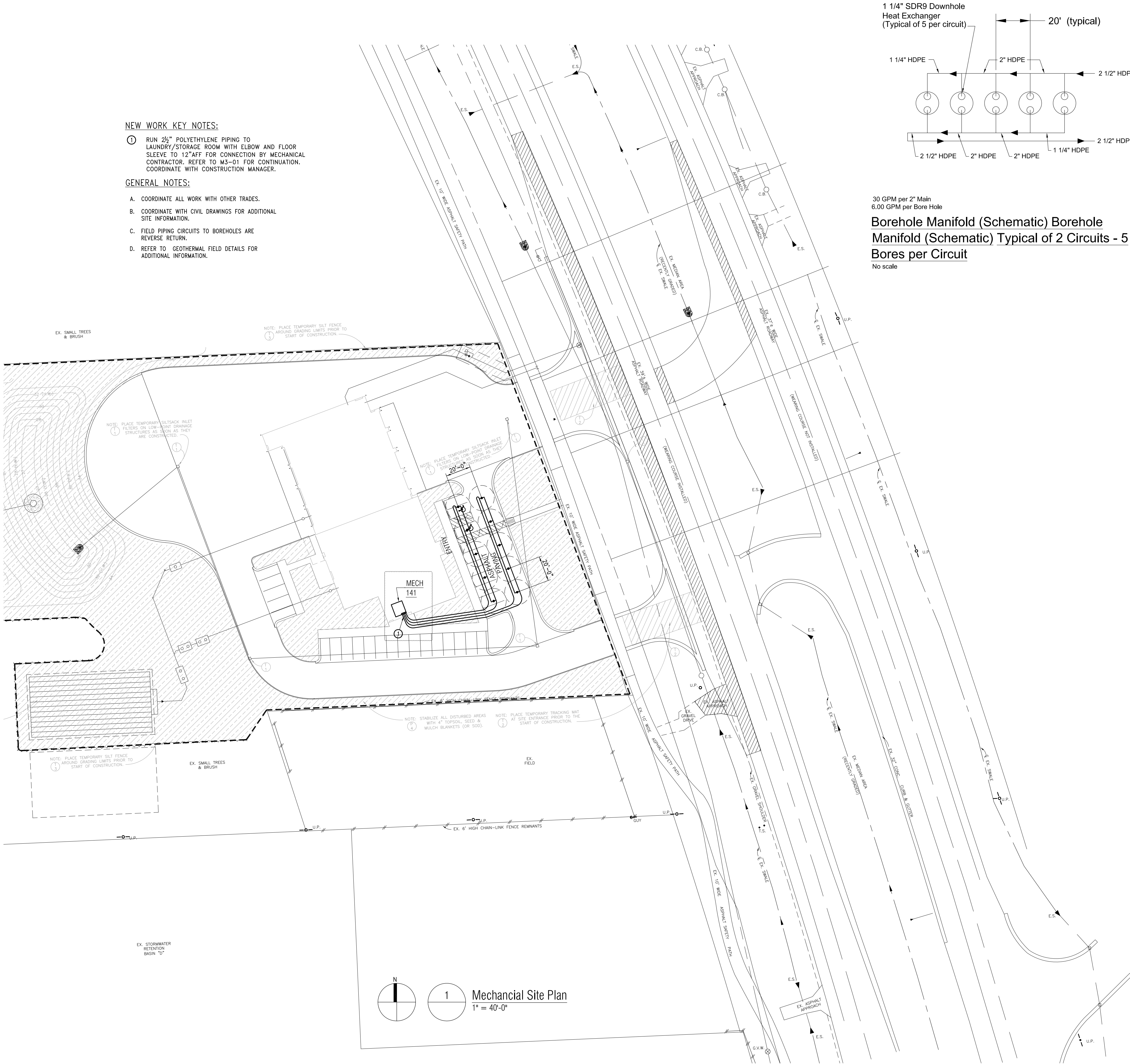
TS

SHEET NAME

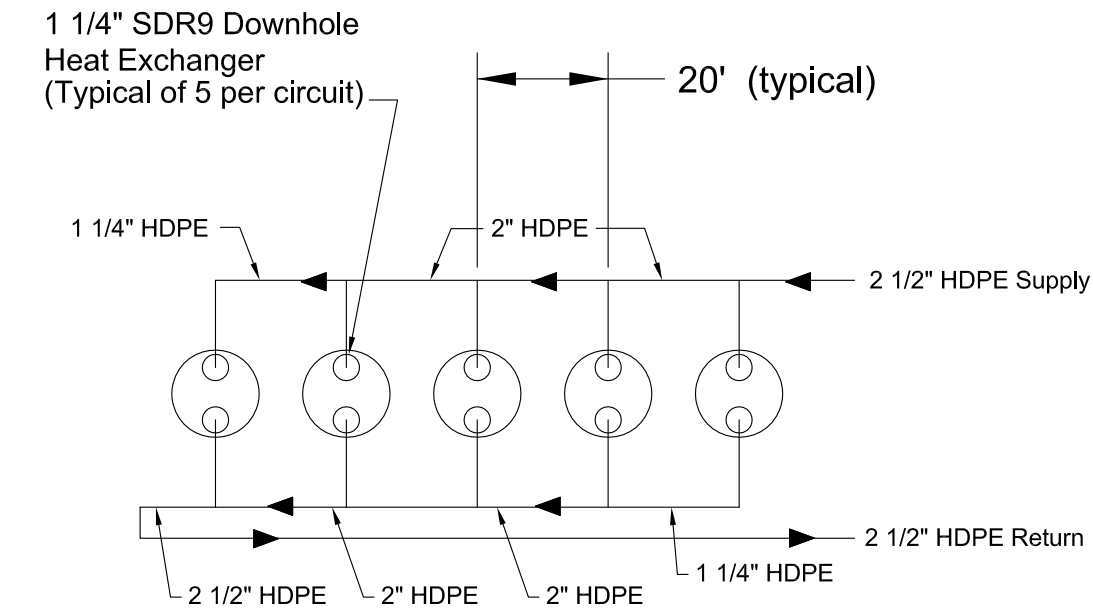
ROOF FRAMING
PLAN

SHEET NO.

S3-03



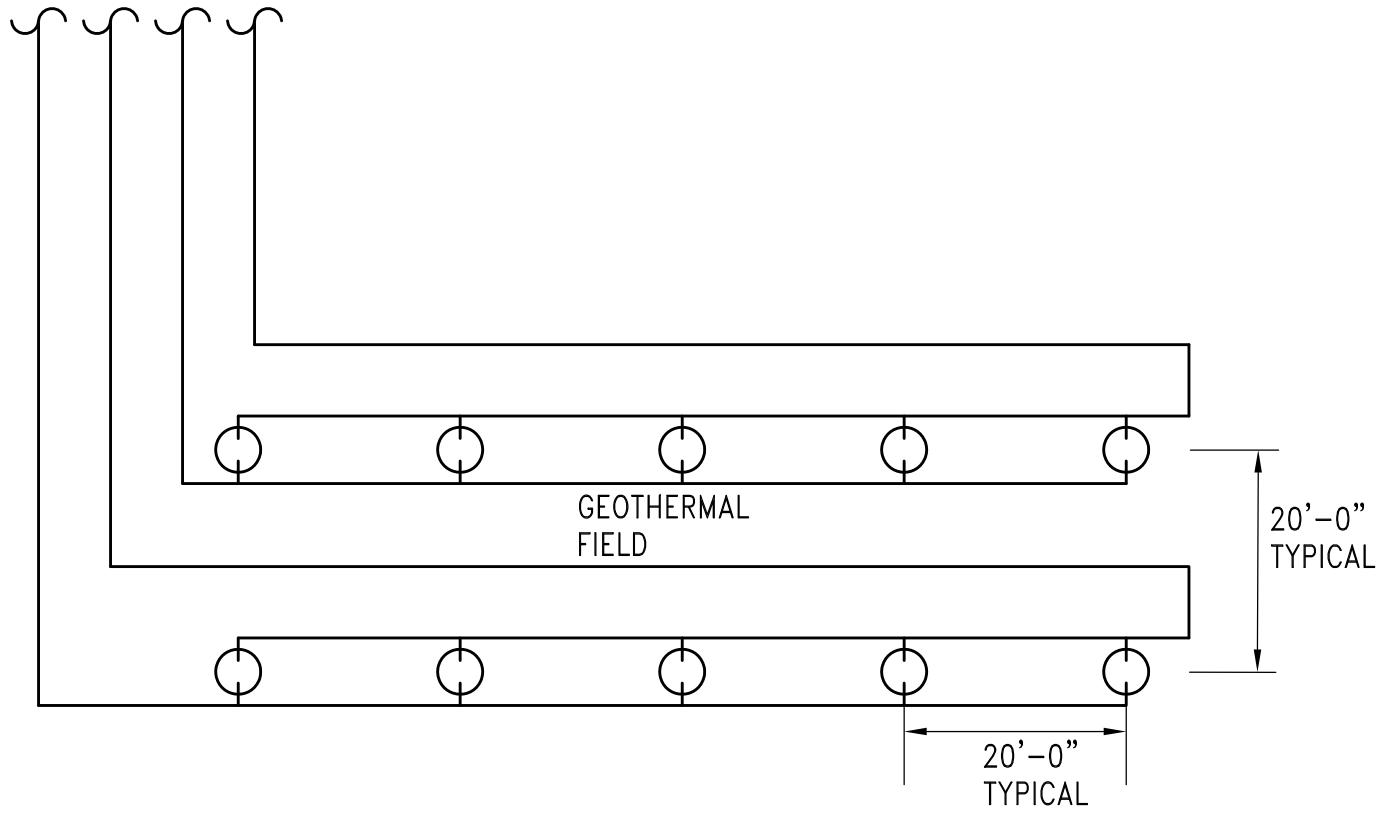
- NEW WORK KEY NOTES:**
- 1 RUN 2½" POLYETHYLENE PIPING TO LAUNDRY/STORAGE ROOM WITH ELBOW AND FLOOR SLEEVE TO 12" AFF. FOR CONNECTION BY MECHANICAL CONTRACTOR. REFER TO M3-01 FOR CONTINUATION. COORDINATE WITH CONSTRUCTION MANAGER.
- GENERAL NOTES:**
- A. COORDINATE ALL WORK WITH OTHER TRADES.
 - B. COORDINATE WITH CIVIL DRAWINGS FOR ADDITIONAL SITE INFORMATION.
 - C. FIELD PIPING CIRCUITS TO BOREHOLES ARE REVERSE RETURN.
 - D. REFER TO GEOTHERMAL FIELD DETAILS FOR ADDITIONAL INFORMATION.



30 GPM per 2" Main
6.00 GPM per Bore Hole

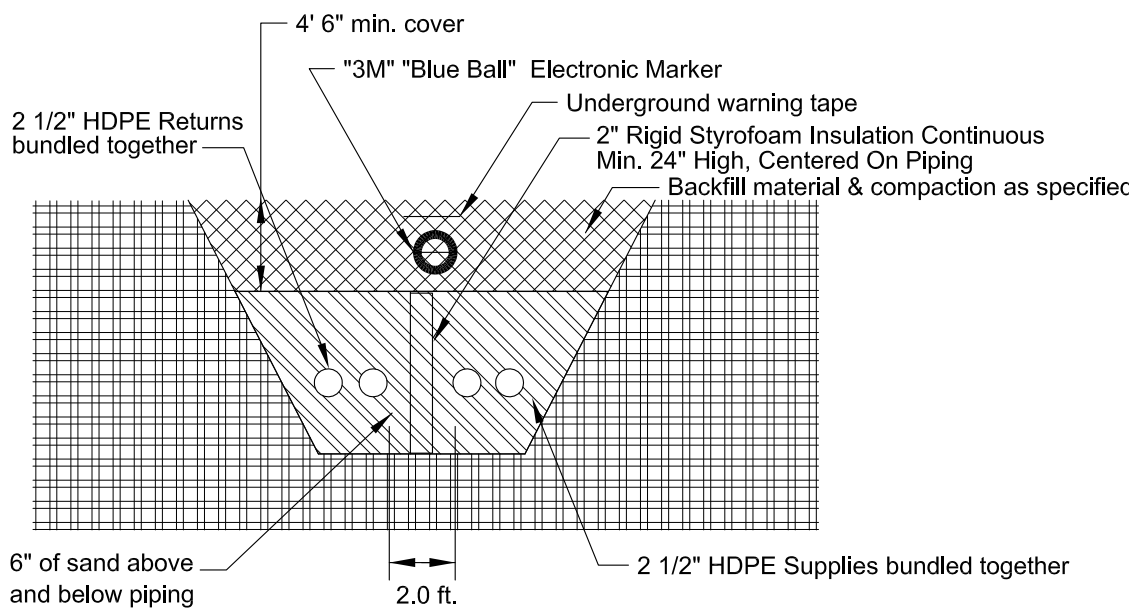
Borehole Manifold (Schematic) Borehole Manifold (Schematic) Typical of 2 Circuits - 5 Bores per Circuit

No scale



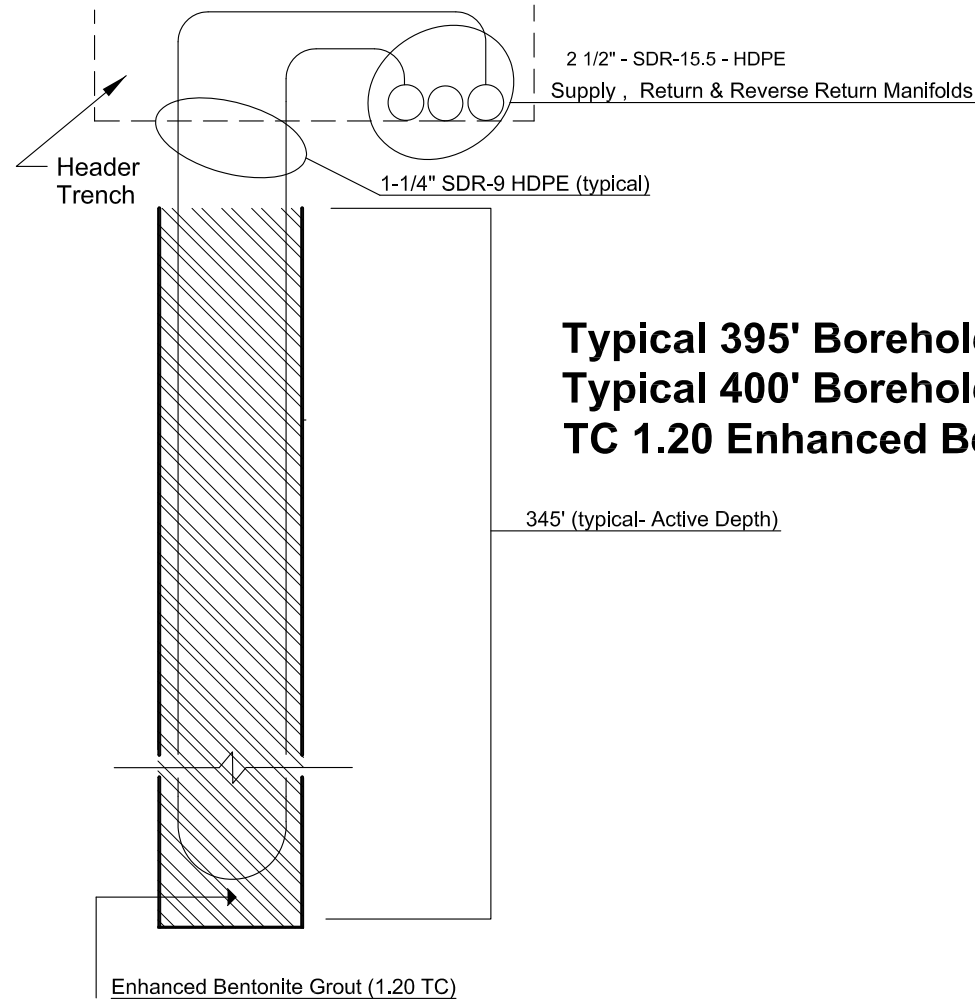
1 **Geothermal Field Detail**

1/8" = 1'-0"



Trench Detail

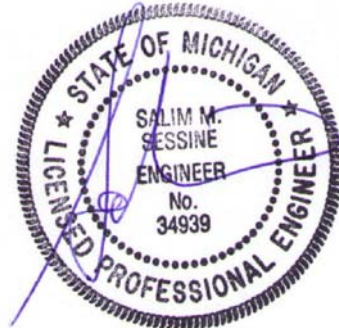
No scale



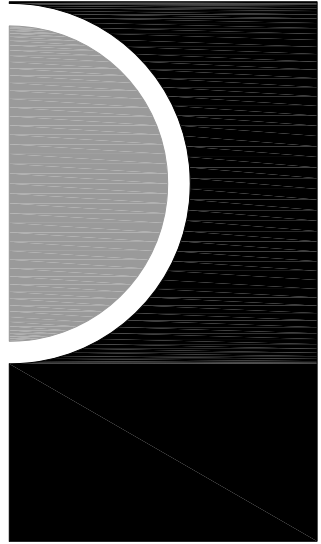
**Typical 395' Borehole (Active Depth)
Typical 400' Borehole TD
TC 1.20 Enhanced Bentonite Grout**

Bore Detail

No scale



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SCHEMATIC DESIGN	01-28-2020
BIDDING-CONSTRUCTION	03-27-2020
ADDENDUM # 1	04-20-2020

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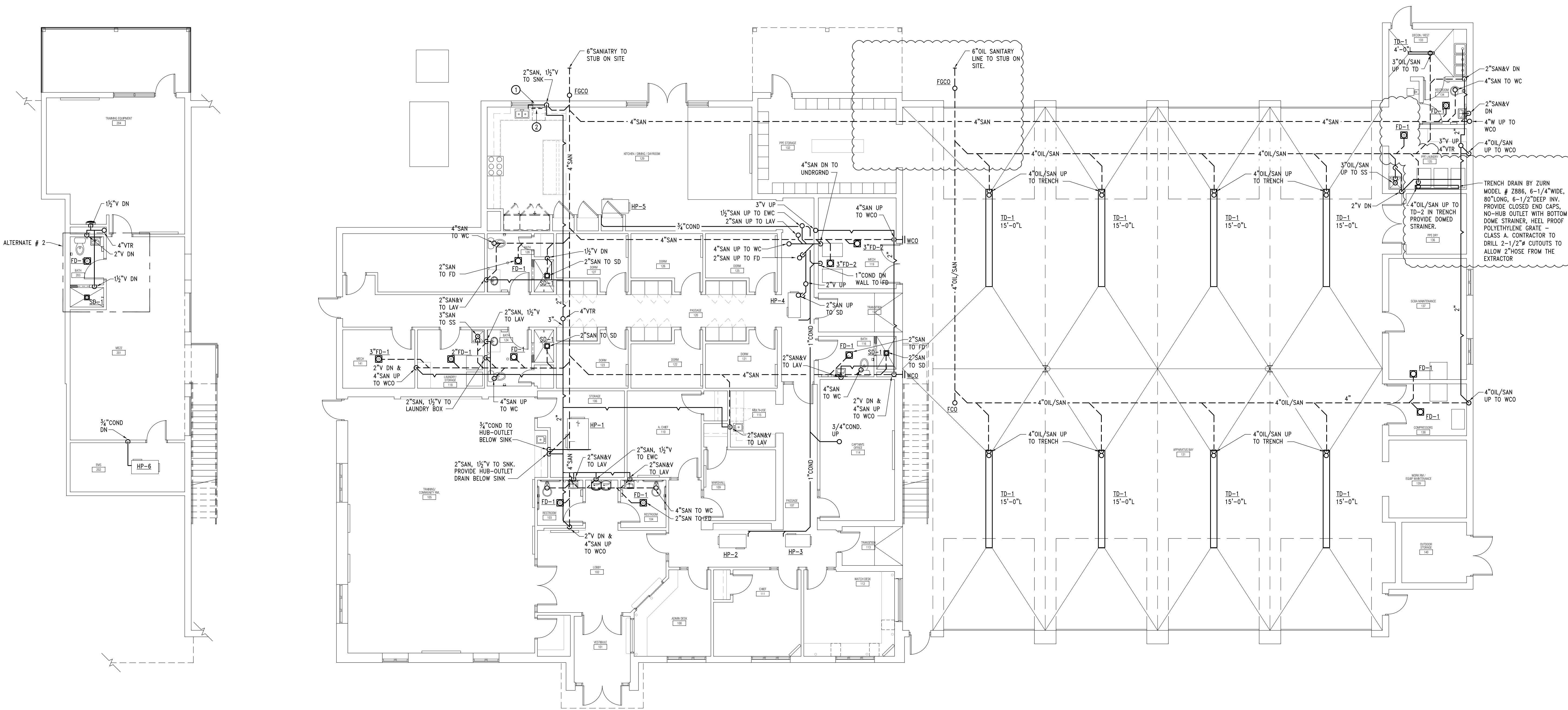
SS

SHEET NAME

MECHANICAL
SITE PLAN

SHEET NO.

M1-00



2 Mezzanine Level Floor Plan - Sanitary & Vent
1/8" = 1'-0"

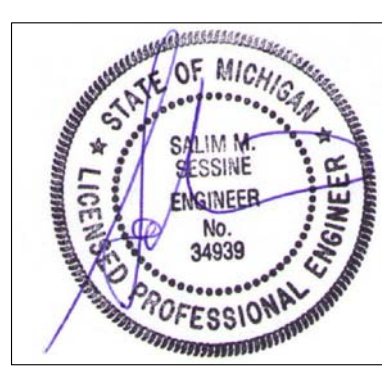
1 Main Level Floor Plan - Sanitary & Vent
1/8" = 1'-0"

NEW WORK KEY NOTES:

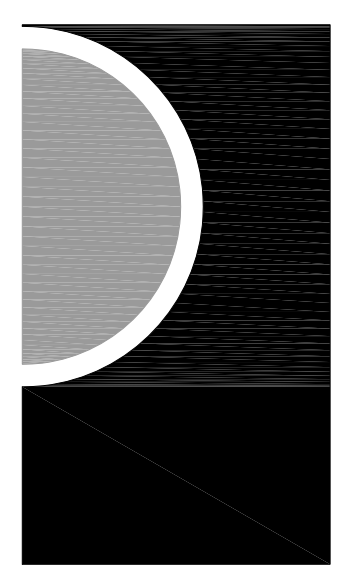
- ① EXTEND SANITARY IN WALL TO SINK. KEEP TIGHT TO INTERIOR OF WALL. PROVIDE MINIMUM 2" RIGID INSULATION BEHIND PIPE AND SEAL TO STUD AND ALL SEAMS.
- ② EXTEND WASTE TO DISHWASHER. PROVIDE FINAL CONNECTION PER MANUFACTURERS RECOMMENDATION.

GENERAL NOTES:

- A. COORDINATE ALL WORK WITH OTHER TRADES.



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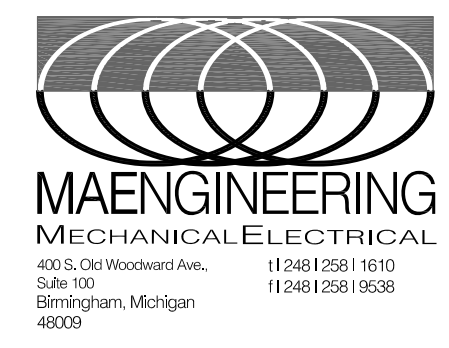
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ADDENDUM # 1	04-20-2020

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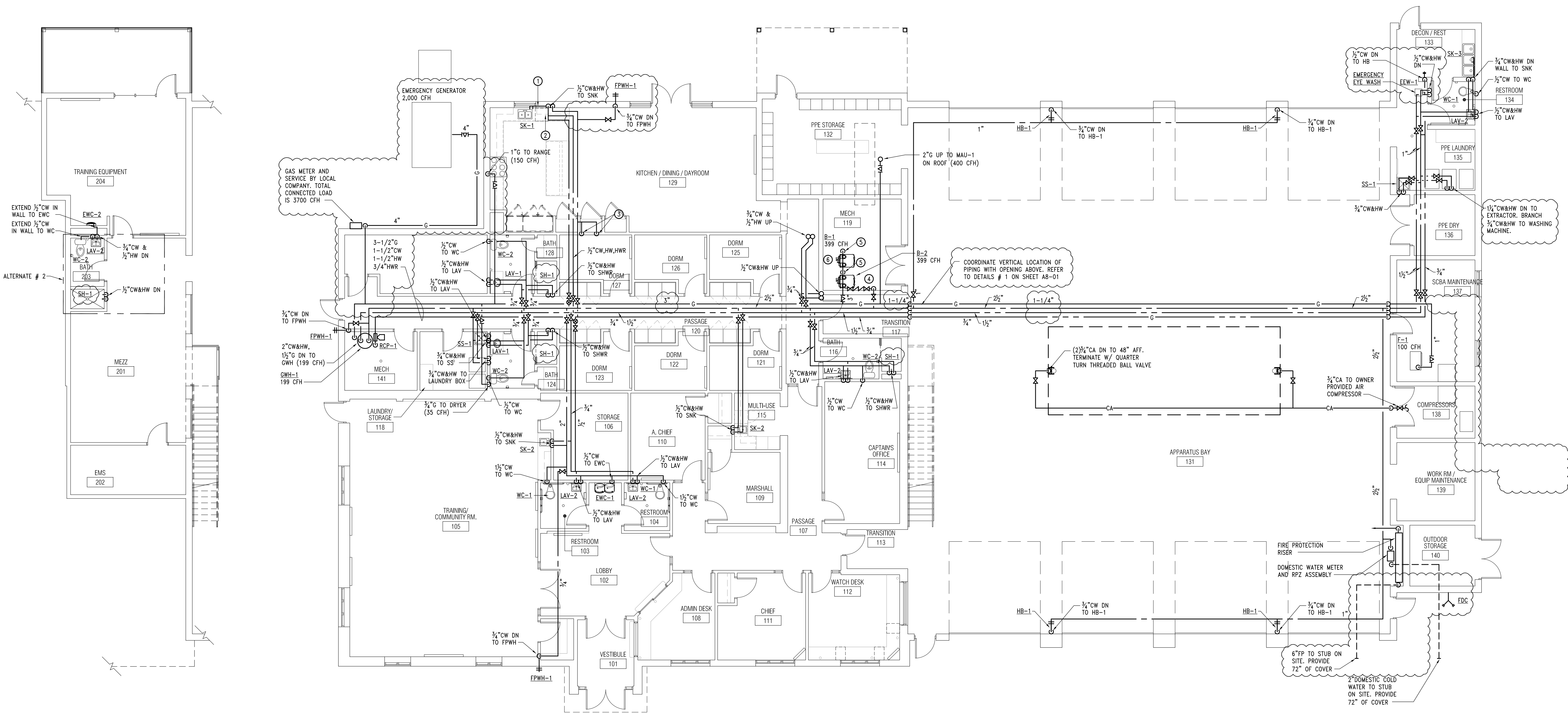
MS

SHEET NAME

FLOOR PLANS -
SANITARY & VENT

SHEET NO.

M1-01



2 Mezzanine Level Floor Plan - Domestic Water & gas
1/8" = 1'-0"

1 Main Level Floor Plan - Domestic Water & Gas
1/8" = 1'-0"

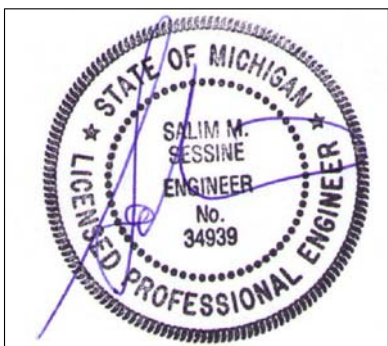
NATURAL GAS LOAD SUMMARY	
EQUIPMENT	INPUT (CFH)
GWH-1	199
B-1 (ALTERNATE # 5)	399
B-2	399
MAU-1	400
GAS RANGE (ALLOCATED)	150
GAS DRYER (ALLOCATED)	35
GENERATOR (ALLOCATED)	2000
F-1	100
TOTAL	= 3,682 CFH
PIPE DESIGN BASED ON: 7"W.C. @ 250 LINEAR FT. WITH 0.3"W.C. ALLOWABLE PRESSURE DROP.	

NEW WORK KEY NOTES:

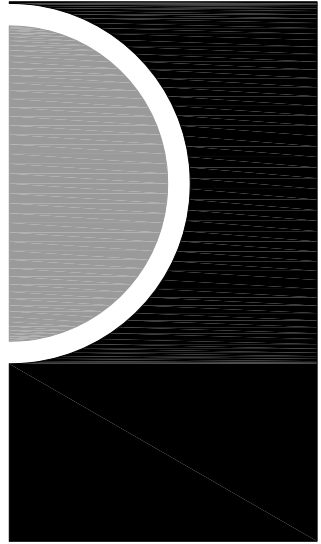
- EXTEND DOMESTIC WATER IN WALL TO SINK. KEEP TIGHT TO INTERIOR OF WALL. PROVIDE MINIMUM 2" RIGID INSULATION BEHIND PIPE AN SEAL TO STUD AND ALL SEAMS.
- EXTEND HOT WATER TO DISHWASHER. PROVIDE FINAL CONNECTION PER MANUFACTURERS RECOMMENDATION.
- 1/2" COLD WATER DOWN TO REFRIGERATOR. PROVIDE ONE BACKFLOW PREVENTER APOLLO MODEL #4C-100 SERIES PER COLD WATER DROP ABOVE CEILING. ROUTE DEVICE DRAIN TO SERVICE SINK.
- 1" COLD WATER TO MECHANICAL EQUIPMENT. PROVIDE RPZ AND PIPE "SPIT" TO FLOOR DRAIN.
- 2" GAS DOWN TO BOILER. PROVIDE SHUT-OFF IN VERTICAL. (399 CFH EA)
- BOILER # 1 (IN FLOOR HEAT) IS AN ALTERNATE # 5.

GENERAL NOTES:

- A. COORDINATE ALL WORK WITH OTHER TRADES.



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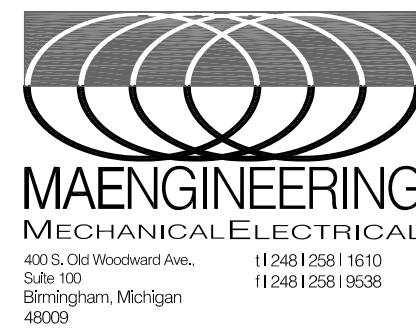
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ISSUES / REVISIONS

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BIDDING-CONSTRUCTION	03-27-2020
ADDENDUM # 1	04-20-2020

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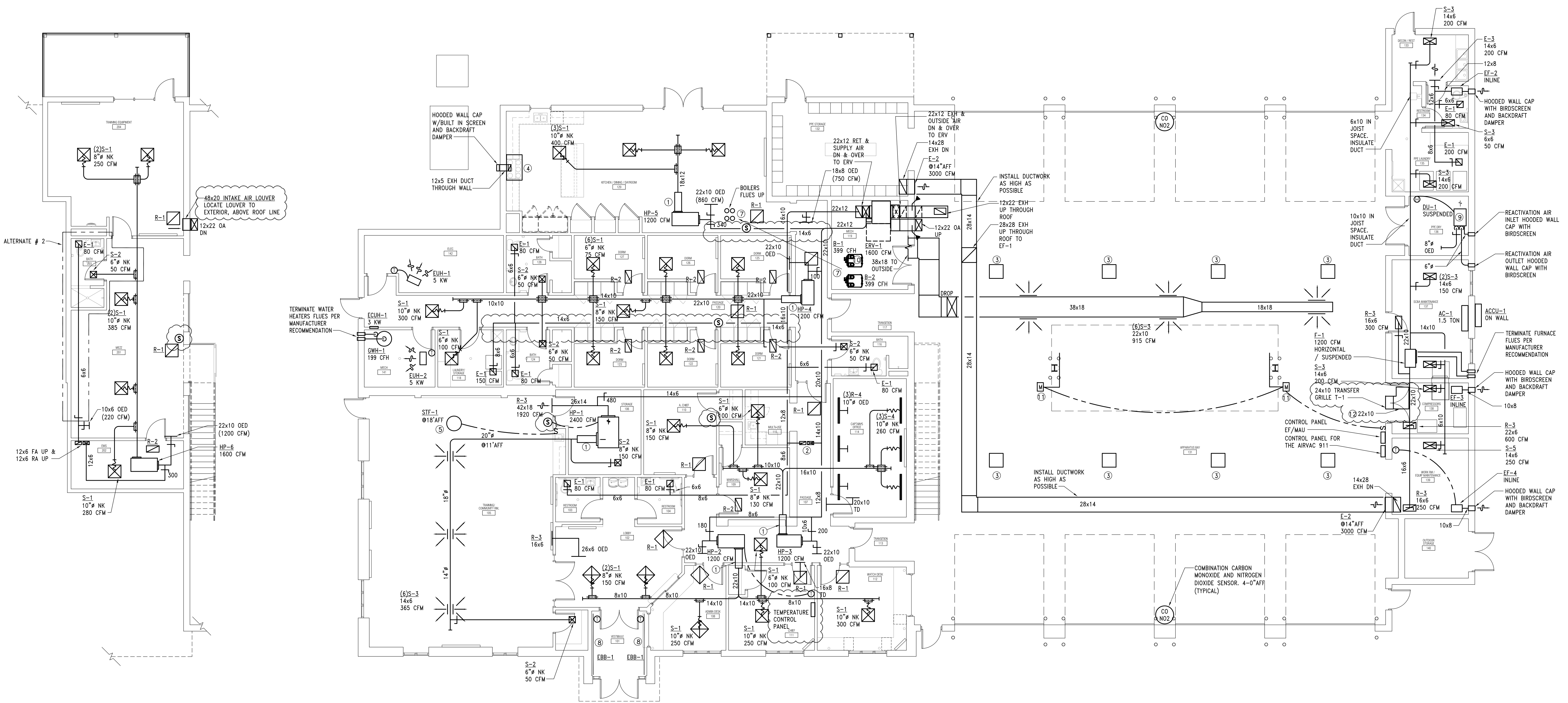
MS

SHEET NAME

FLOOR PLANS -
DOMESTIC WATER
AND GAS

SHEET NO.

M1-02



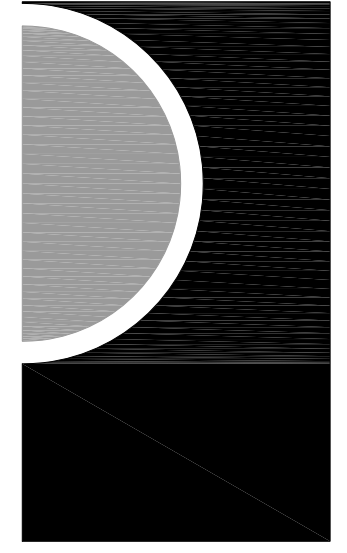
2 Mezzanine Level Floor Plan - HVAC
1/8" = 1'-0"

1 Main Level Floor Plan - HVAC
1/8" = 1'-0"

- HVAC KEY NOTES:**
- 1) PROVIDE CIRCULAR MEDIUM VELOCITY SILENCER BY PRICE MANUFACTURER MODEL CM24 SERIES.
 - 2) 12x6 FA UP & 12x6 RA UP. (300 CFM).
 - 3) ENGINE EXHAUST REMOVAL SYSTEM BY AIR VAC 911, 120/1, 3/4" HP, 13 AMPS. PROVIDE COMPLETE SYSTEM: WALL GAS DETECTORS, OVERRIDE SWITCH, CONTROL PANEL. INSTALL BOTTOM OF THE UNIT AT 25" AFF.
 - 4) KITCHEN HOOD BY ACCUREX MODEL XRRS-W-36-R, INTEGRAL FAN, REAR DISCHARGE, 500 CFM.
 - 5) DE-STRATIFICATION (STF-1) FAN BY AIR-ROW FANS MODEL AF-22, 120/1, 1170 CFM, 23 WATTS.
 - 6) PROVIDE GUARD RAIL TO MEET OSHA REQUIREMENT BY MIRO SECTOR GUARDRAIL PASSIVE FALL PROTECTION.
 - 7) PROPOSED FLUES ROUTING SERVING THE BOILERS. CONTRACTOR TO CONSULT WITH THE MANUFACTURE INSTALLATION MANUAL FOR INSTALLATION.
 - 8) PEDESTAL MOUNTED ELECTRIC BASEBOARD BY MARKEL MODEL # DBF, 9' LONG, 2250 WATTS, 208/1.
 - 9) DRYER UNIT. SEE SCHEDULES. INSTALL PER MANUFACTURER RECOMMENDATION.
 - 10) BOILER # 1 (IN FLOOR HEAT) IS AN ALTERNATE # 5.
 - 11) PROVIDE MOTORIZE DAMPER TO CONTROL (OPEN/CLOSE) THE COPULA LOUVERS, LOUVERS BY ARCHITECT.
 - 12) LINED TRANSFER DUCT FOR SOUND.



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Highland, MI 48357

PROJECT NO.
18-122A

ISSUES / REVISIONS
SCHEMATIC DESIGN 01-28-2020
BIDDING-CONSTRUCTION 03-27-2020
ADDENDUM # 1 04-20-2020

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SHEET NAME

FLOOR PLANS -
HVAC

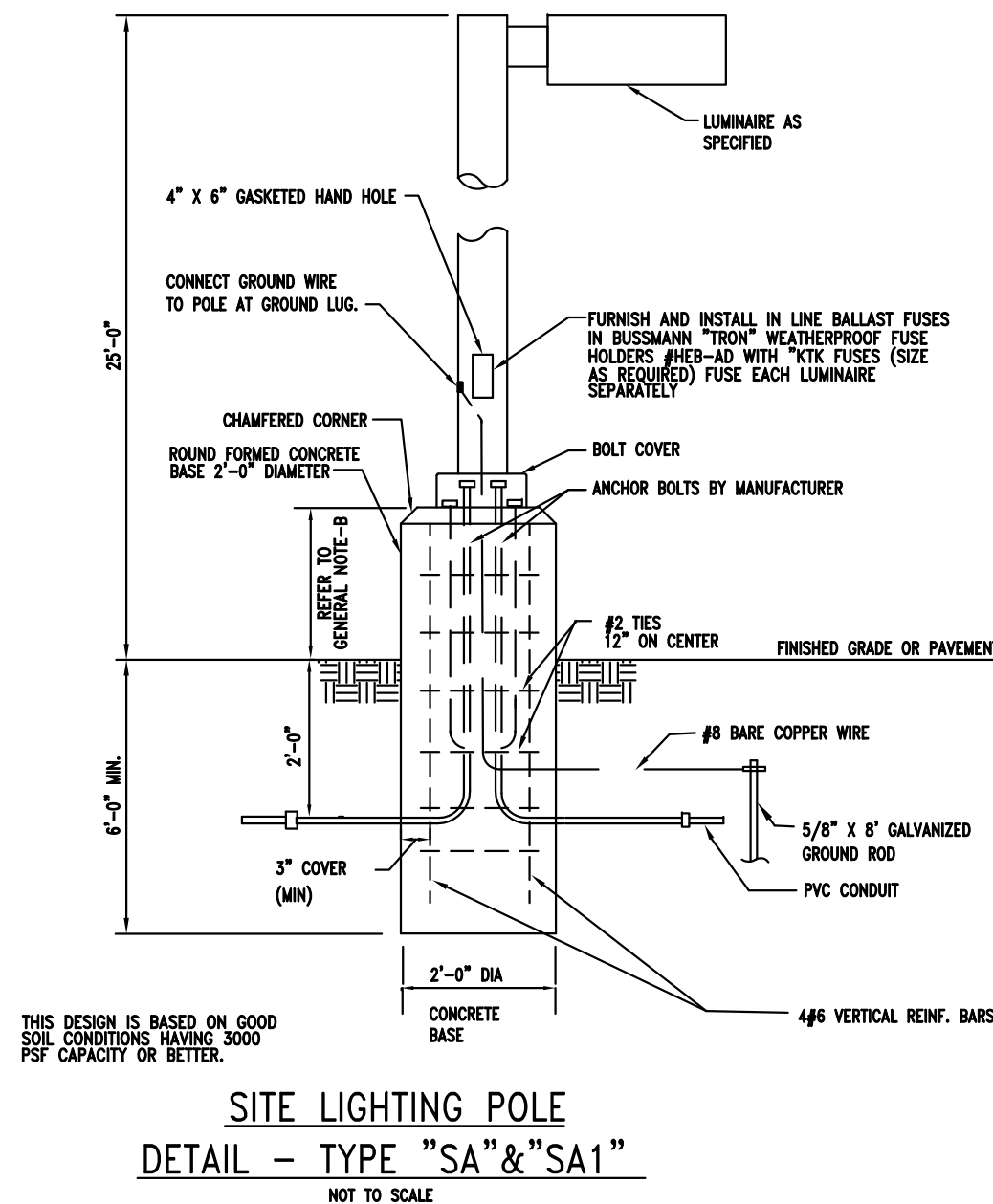
SHEET NO.
M2-01

GENERAL SITE PLAN NOTES:

- A. REFER TO SHEET E0.001 FOR ELECTRICAL LEGEND.
- B. LOCATE SITE LIGHTING POLES MIN. 3' BEHIND THE CURB NEXT TO DRIVE WAYS AND PARKING/VEHICLE TRAFFIC AREAS. 6" CONCRETE BASE SHALL BE USED THEN, IN LIEU OF THE 3'-0" SHOWN ON THE SITE LIGHTING PLAN DETAIL THIS SHEET, COORDINATE WITH ARCHITECT/OWNER.

KEYED NOTES:

- (1) EXACT LOCATION FOR UTILITY TRANSFORMER TO BE VERIFIED WITH UTILITY CO. AND ARCHITECT/OWNER. MAINTAIN THE REQUIRED CLEARANCES AROUND THE EQUIPMENT AND AWAY FROM THE BUILDING.
- (2) ELECTRICAL CONTRACTOR SHALL PROVIDE BASE BID PRICE FOR FURNISHING AND INSTALLING ELECTRICAL AND TELEPHONE/CABLE TV UNDERGROUND SERVICE RUNS AS INDICATED ON THE SITE PLAN. EXACT SERVICE POINT IS TO BE DETERMINED BY THE UTILITY COMPANIES. PROVIDE ADDITIONAL ADD AND DEDUCT PER LINEAR FOOT UNIT PRICES FOR SERVICE RUN LENGTHS GREATER THAN AND LESS THAN THE LENGTHS SHOWN.
- (3) EXACT LOCATIONS AND QUANTITIES OF FLAG POLES SHALL BE COORDINATED WITH CIVIL AND ARCHITECT/OWNER, PROVIDE ONE FLOOD LIGHT FOR EACH FLAG POLE.
- (4) PROVIDE WP J-BOXES MOUNTED ON 6" AFG CONCRETE BASE ON DEDICATED GFCI BRANCH BREAKER FOR SITE SIGNS, EXACT LOCATIONS AND QUANTITIES TO BE COORDINATED WITH CIVIL AND ARCHITECT/OWNER.
- (5) PROVIDE POWER, RACEWAYS AND WP BOXES FOR ACCESS CONTROL AND SECURITY SYSTEM DEVICES. EXAMINE ALL CODE REQUIREMENTS TO BE COORDINATED WITH SYSTEM PROVIDER AND ARCHITECT/OWNER. PROVIDE 2" IN ADDITION TO THE POWER CONDUIT FOR LOW VOLTAGE VEHICLES AND PROVIDE ADDITIONAL CONDUITS FOR INTERWIRING WITH DOORS AND MOTORIZED GATES AS REQUIRED.
- (6) EXACT LOCATION AND REQUIREMENTS FOR BUILDING EQUIPMENT (COMPACTOR, MOTORIZED GATES, ETC.) TO BE COORDINATED WITH ARCHITECT/OWNER. INFORMATION INDICATED IN DOCUMENTS IS FOR REFERENCE ONLY.



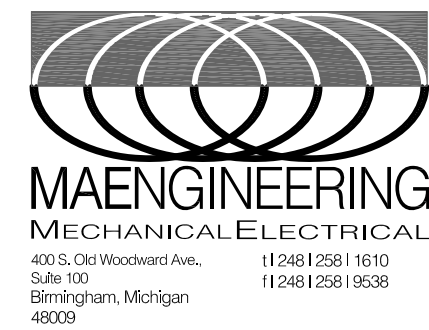
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ISSUES / REVISIONS

SCHEMATIC DESIGN	01-28-2020
BIDDING-CONSTRUCTION	03-27-2020
ADDENDUM # 1	04-20-2020

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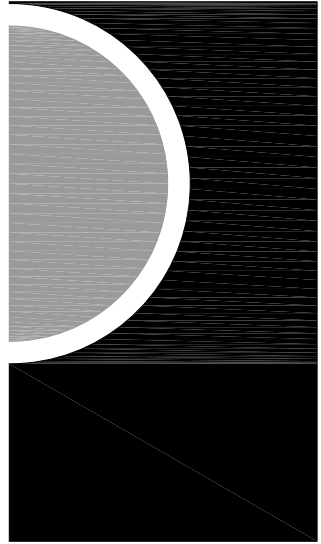
SHEET NAME

ELECTRICAL SITE PLAN

SHEET NO.

E1-00

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ADDENDUM # 1	04-20-2020

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SHEET NAME

FLOOR PLANS -
POWER

SHEET NO.

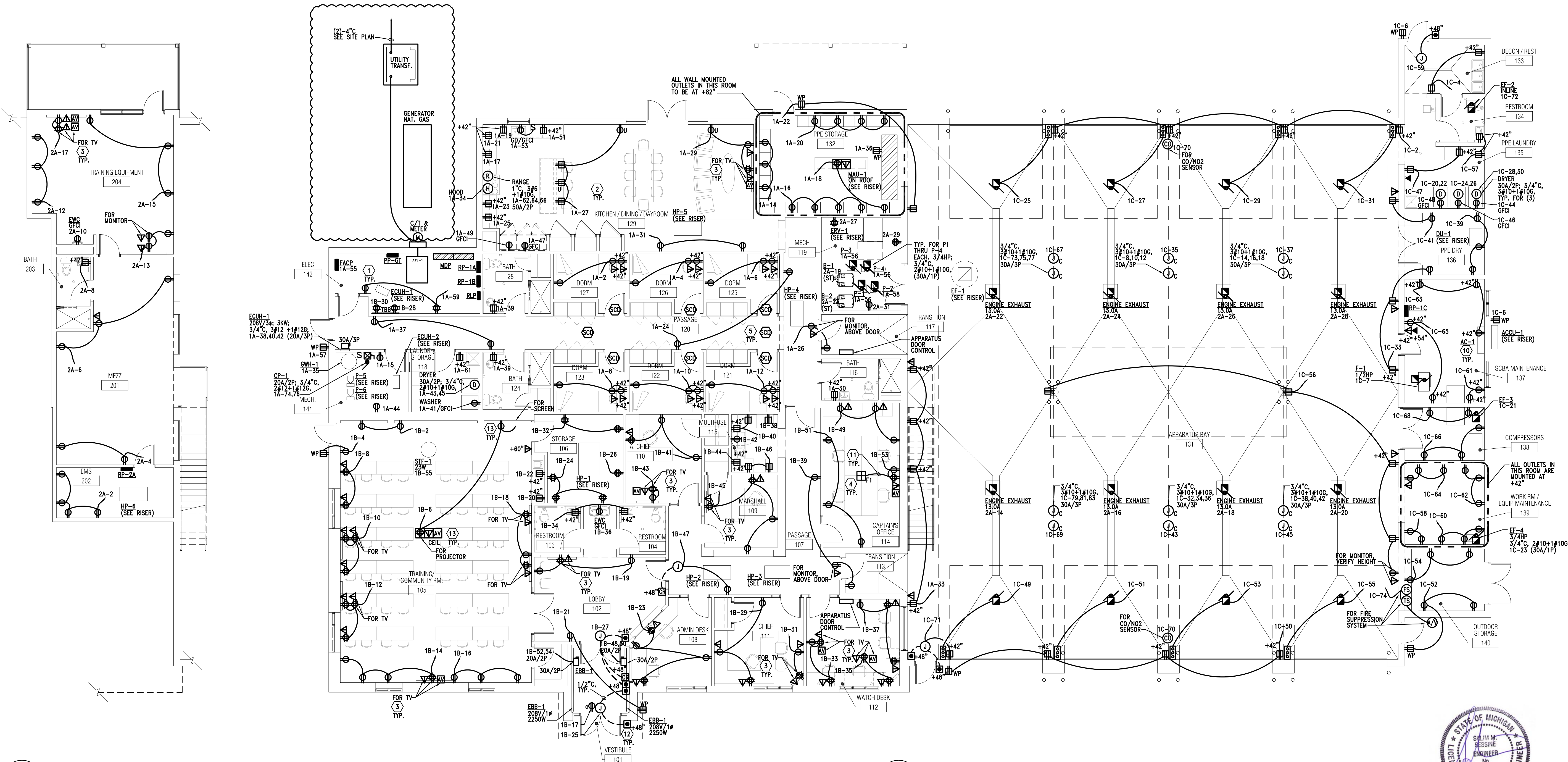
E3-00

KEYED POWER NOTES:

- 1 EXACT LOCATION AND REQUIREMENTS FOR EQUIPMENT TO BE COORDINATED WITH EQUIPMENT VENDOR. APPROVED SUBMITTALS AND NAMEPLATE DATA. INFORMATION INDICATED ON THESE PLANS IS FOR REFERENCE ONLY.
- 2 ALL RECEPTACLES LOCATED WITHIN 6'-0" OF A WATER SOURCE AND ALL IN THE KITCHENS SHALL BE GFI TYPE. PROVIDE GFI RECEPTACLES REGARDLESS OF SYMBOL USED ON PLAN FOR THESE LOCATIONS. FOR LOCATIONS THAT ARE NOT ACCESSIBLE, LOCATE BLANK PLATE GFI ABOVE THE RECEPTACLE AT +42" AFF OR NEAR ROOM WALL SWITCH(ES) OR PROVIDE GFCI BRANCH BREAKERS IN PANELBOARDS AS DIRECTED BY OWNER TO COMPLY WITH NEC 210.8.
- 3 DUPLEX RECEPTACLES AND DATA OUTLETS FOR FLAT SCREEN TV SHALL BE MOUNTED AT 5'-0" AFF UNLESS OTHERWISE NOTED. COORDINATE WITH ARCHITECT/OWNER FOR EXACT QUANTITIES, LOCATIONS AND MOUNTING HEIGHTS.
- 4 EXACT LOCATIONS FOR ALL FLOOR OUTLETS TO BE COORDINATED WITH ARCHITECT/OWNER.
- 5 PROVIDE (2)-20A/1P, 120V DEDICATED BRANCH CIRCUITS FOR ALL FIRE/SMOKE DAMPERS, WIRE TO RP-1A-** REFER TO PANEL SCHEDULES, COORDINATE AND REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND QUANTITIES. NOT ALL FIRE/SMOKE DAMPERS ARE INDICATED ON THESE PLANS.
- 6 COORDINATE WITH MECHANICAL FOR EXACT REQUIREMENTS FOR FIRE PROTECTION SYSTEM, INCLUDING NUMBER OF FLOW/TAMPER SWITCHES.
- 7 PROVIDE POWER FOR DRY PIPE SYSTEM COMPRESSOR, COORDINATE EXACT LOCATION AND REQUIREMENTS WITH FIRE SUPPRESSION CONTRACTOR. LOCATION INDICATED ON PLAN IS FOR REFERENCE ONLY.
- 8 EXACT LOCATIONS FOR FIRE ALARM CONTROL AND ANNUNCIATOR PANELS AND SECURITY SYSTEM PANELS TO BE COORDINATED WITH ARCHITECT/OWNER. PROVIDE FLUSH MOUNTING FOR ALL, UNLESS LOCATED IN UNFINISHED SPACES.
- 9 EXACT LOCATIONS FOR ALL ELECTRICAL EQUIPMENT TO BE COORDINATED, REFER TO GENERAL NOTE-F.
- 10 INDOOR AC UNIT IS FED FROM THE OUTDOOR ACCU UNIT, COORDINATE WITH MECHANICAL FOR COMPLETE INSTALLATION REQUIREMENTS, INCLUDING INTERWIRING OF THE UNIT.
- 11 RUN 1 1/4" C FROM LOW VOLTAGE COMPARTMENT BETWEEN FLOOR BOX AND MONITOR BOX, RUN CONCEALED IN CEILING AND WALL. COORDINATE WORK WITH SUITE BELOW.
- 12 PROVIDE DOUBLE GANG J-BOX WITH SINGLE MUD RING @48" AFF FOR CARD READER AND DOOR PUSH BUTTON, RUN 1/2" C FROM CARD READER/PUSH BUTTON TO DOOR OPERATOR OR STRIKE ACTUATOR FOR LOW VOLTAGE WIRING. PROVIDE 120V POWER IN THE CEILING FOR DOOR OPERATOR OR STRIKE AS INDICATED. FOR MORE DETAILS REFER TO SHEET E3-01. ALSO PROVIDE REQUIRED WIRING FOR INTERCOM REMOTE UNLOCK SYSTEM COORDINATE WITH DOOR INSTALLER.
- 13 PROVIDE POWER, DATA/AV AND CONTROLS FOR PROJECTOR AND PROJECTION SCREEN. EXACT LOCATIONS AND REQUIREMENTS TO BE COORDINATED WITH ARCHITECT/OWNER.

GENERAL POWER NOTES:

- A. REFER TO SHEET E.001 FOR ELECTRICAL LEGEND.
- B. PROVIDE COMPLETE ADDRESSABLE FIRE ALARM SYSTEM FOR THE BUILDING. FIRE ALARM SYSTEM SHALL INCLUDE ALL CONTROL, MONITORING, POWER SUPPLIES, INITIATING DEVICES, INDICATING APPLIANCES, CONTROL MODULES AND WIRING AS REQUIRED BY AUTHORITIES HAVING JURISDICTION FOR AN APPROVED INSTALLATION. REFER TO SPECIFICATIONS. SYSTEM SHALL BE LAYED OUT ON A PERFORMANCE BASIS, DEVICES INDICATED ON PLANS ARE FOR REFERENCE ONLY.
- C. PROVIDE FIRE STOPPING SYSTEM WHERE REQUIRED TO MAINTAIN THE FIRE RESISTANCE RATING OF THE ASSEMBLIES.
- D. EXACT LOCATIONS AND REQUIREMENTS FOR ALL EQUIPMENT SHALL BE VERIFIED WITH ARCHITECT/OWNER AND EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.
- E. COORDINATE EXACT LOCATIONS, MOUNTING HEIGHTS & REQUIREMENTS FOR ALL DEVICES WITH LATEST ARCHITECTURAL FURNITURE & EQUIPMENT LAYOUTS & ELEVATIONS.
- F. COORDINATE EXACT LOCATIONS FOR ALL ELECTRICAL EQUIPMENT, PANELBOARDS, DISCONNECTS, STARTERS, CONTROL, PANELS, ETC. WITH ARCHITECTURAL PLANS AND ALL OTHER TRADES INCLUDING MECHANICAL TO MAINTAIN REQUIRED WORKING CLEARANCES AND DEDICATED EQUIPMENT SPACE. DETERMINE EXACT LOCATIONS AND VERIFY WITH ALL OTHER TRADES PRIOR TO BEGINNING OF CONSTRUCTION TO AVOID INTERFERENCES WITH MECHANICAL, STRUCTURAL, ETC.
- G. MAINTAIN A MINIMUM OF 24" HORIZONTAL SEPARATION BETWEEN BOXES INSTALLED ON OPPOSITE SIDES OF FIRE RATED WALLS TO COMPLY WITH NEC 300.21.
- H. ALL WIRING DEVICES SHALL BE OF TAMPER RESISTANT CONSTRUCTION AND WITH AFCI PROTECTION.
- I. ALL DEVICES AT COUNTER LOCATIONS TO BE MOUNTED ABOVE THE COUNTER AT +42" AFF OR AS NOTED ON THESE PLANS. COORDINATE WITH ARCHITECT/OWNER AND MILLWORK CONTRACTOR FOR EXACT LOCATIONS.
- J. LOCATE DISCONNECT SWITCHES FOR MECHANICAL AND BUILDING EQUIPMENT TO MAINTAIN WORKING CLEARANCES. LOCATIONS ON THESE PLANS ARE FOR REFERENCE ONLY.
- K. GROUND FAULT PROTECTION FOR DEVICES INSTALLED AT LOCATIONS NOT READILY ACCESSIBLE. PROVIDE GROUND FAULT BLANK FACE DEVICE AT ACCESSIBLE LOCATION OR PROVIDE GFI BRANCH BREAKER IN PANELBOARD.
- L. ALL ROOF MOUNTED EQUIPMENT TO BE NEMA 3R WEATHERPROOF RATED, INCLUDING STARTERS, DISCONNECTS, ETC.



2 Mezzanine Level Floor Plan - Power
1/8" = 1'-0"

1 Main Level Floor Plan - Power
1/8" = 1'-0"

