

BUILDING SUMMARY

PROJECT DESCRIPTION

LOCATION Southfield, MI

Project Description: Project includes a new storage building which will be used by the DPW to store equipment that is currently stored outside on the ground and/or in various areas of the existing DPW building. The building will be a pre-engineered metal building with metal siding and roof, a concrete slab on grade, and associated perimeter footings and foundation wall. General lighting and power will be provided to building. Overhead sectional doors will be provided at both ends to provide access to the building. Total building square footage is 8,755 Gross Square Feet.

BUILDING CODE INFORMATION

BUILDING 2015 Michigan Building Code  
MECHANICAL 2015 Michigan Mechanical  
PLUMBING 2018 Michigan Plumbing Code  
ELECTRICAL 2017 National Electrical Code  
ENERGY 2015 Michigan Uniform Energy Code referencing ANSI/ASHRAE/IESNA standard 90.1-2013  
FUEL GAS CODE 2015 International Fuel Gas  
FIRE NFPA 101, 2012  
LIFE SAFETY 2009 ICC/ANSI A117.1 & Michigan Barrier Free Design 2010 &  
ACCESSIBILITY Americans with Disabilities Act Accessible Guidelines (ADAAG)

PROJECT INFORMATION

USE AND OCCUPANCY  
OCCUPANCY CLASSIFICATION S-2  
SPECIAL USE NOT APPLICABLE  
INCIDENTAL USE AREAS NO  
ACCESSORY SPACES NO  
MEZZANINES/EQUIPMENT PLATFORMS NO

GENERAL BUILDING HEIGHTS AND AREAS  
UNLIMITED AREA NO  
MIXED OCCUPANCIES NO  
OCCUPANCY SEPARATION NO  
INCIDENTAL USE OCCUPANCY SEPARATION NOT APPLICABLE  
SPECIAL PROVISIONS N/A

	ALLOWED / REQUIRED	ACTUAL / PROVIDED
HEIGHT OF BUILDING	55 FEET	23'-5 1/2"
NUMBER OF STORIES	S-2: 3	1 STORY
BUILDING AREA	26000 SF	8,755 SF

TYPE OF CONSTRUCTION

CONSTRUCTION TYPE IIB  
RISK CATEGORY IV

FIRE RESISTANT CONSTRUCTION

ITEM	REQ'D RATING / HR	UL/FM #
PRIMARY STRUCTURE		
COLUMNS	0	
BEAMS	0	
BEARING WALLS		
EXTERIOR	0	
INTERIOR	0	
NONBEARING WALLS AND PARTITIONS		
EXTERIOR	0	
NONBEARING WALLS AND PARTITIONS		
INTERIOR	0	

AUTOMATIC SPRINKLER SYSTEM: NO  
PORTABLE FIRE EXTINGUISHERS YES CLASS: A, B, C  
MANUAL SINGLE PULL NO  
AUTOMATIC SMOKE DETECTION NO  
SMOKE ALARMS NO  
EMERGENCY ALARM SYSTEMS  
GAS DETECTION SYSTEM NO  
FLAMMABLE-GAS DETECTION SYSTEM NO  
CO2 SYSTEM NO  
REFRIGERANT DETECTOR NO

MEANS OF EGRESS

COMMON PATH OF TRAVEL S: 100'  
MEANS OF EGRESS SIZING  
STAIRS .3 INCHES PER OCCUPANT  
OTHER EGRESS COMPONENTS .2 INCHES PER OCCUPANT  
NUMBER OF EXITS  
OCCUPANT LOAD PER STORY MINIMUM NUMBER OF EXITS 4 PROVIDED  
1-500 2

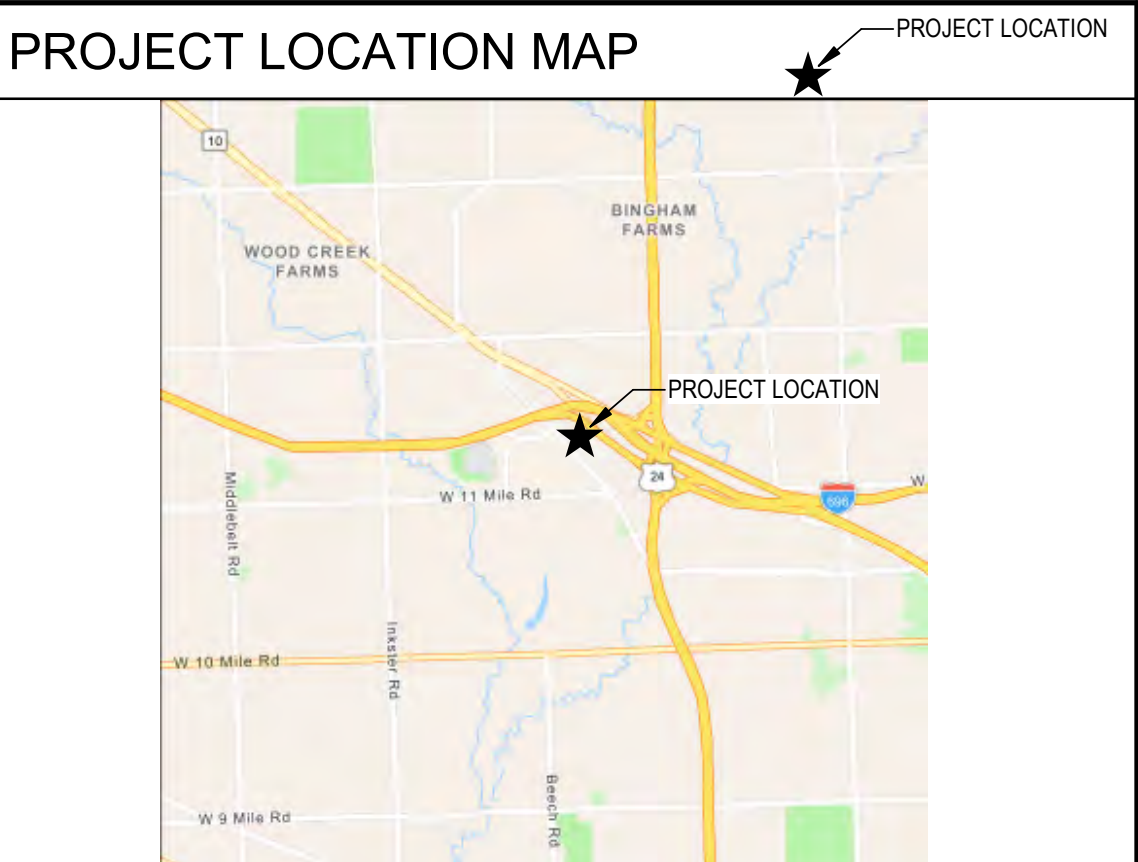
CITY OF SOUTHFIELD

DPW STORAGE BUILDING

25501 Clara Lane  
Southfield, MI 48034

OHM PROJECT No. 0153-22-0070

PROJECT LOCATION MAP



DRAWING INDEX

NUMBER	SHEET NAME	01 - 11/13/2023 - BIDS
GENERAL		
G-000	COVER & DRAWING INDEX	•
CIVIL		
C-002	CIVIL NOTES	•
C-003	CIVIL LEGEND	•
C-004	TOPOGRAPHIC SURVEY, OVERALL SITE PLAN, & REMOVALS	•
C-005	STORAGE BUILDING SITE PLAN	•
C-006	GRADING PLAN	•
C-007	MISC. SITE/CIVIL DETAILS	•
C-008	SOIL EROSION AND SEDIMENTATION CONTROL DETAILS	•
STRUCTURAL		
S-001	STRUCTURAL NOTES AND SYMBOLS	•
S-101	FOUNDATION PLAN AND DETAILS	•
ARCHITECTURAL		
A-001	ARCHITECTURAL NOTES & SYMBOLS	•
A-101	FIRST FLOOR PLAN	•
A-201	ELEVATIONS AND BUILDING SECTION	•
MECHANICAL		
M-001	MECHANICAL NOTES AND SYMBOLS	•
M-101	MECHANICAL PLAN	•
ELECTRICAL		
E-001	ELECTRICAL NOTES AND SYMBOLS	•
ES101	ELECTRICAL SITE PLAN	•
EP101	ELECTRICAL POWER PLAN	•
EL101	FLOOR 1 LIGHTING PLAN	•
E-501	ELECTRICAL DETAILS	•
E-601	ELECTRICAL SCHEDULES	•

I Certify That The Civil Plans Were Prepared Under My Direct Supervision	I Certify That The Structural Plans Were Prepared Under My Direct Supervision	I Certify That The Architectural Plans Were Prepared Under My Direct Supervision	I Certify That The Mechanical Plans Were Prepared Under My Direct Supervision	I Certify That The Electrical Plans Were Prepared Under My Direct Supervision
CIVIL ENGINEER	STRUCTURAL ENGINEER	ARCHITECT	MECHANICAL ENGINEER	ELECTRICAL ENGINEER



11/13/2023  
ISSUE: BIDS  
REVISIONS:

CITY OF SOUTHFIELD  
DPW STORAGE BUILDING  
25501 Clara Lane  
Southfield, MI 48034  
COVER & DRAWING INDEX

SHEET  
G-000
























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WATER & SEWER UTILITY SYMBOLS




EXISTING

	ST	STORM MANHOLE
		SQUARE CATCH BASIN
		ROUND CATCH BASIN
		CULVERT
		CULVERT W/O END SECTION
		CULVERT W/END SECTION
	S	SANITARY MANHOLE
	CO	CLEAN OUT
	GV	GATE VALVE & WELL
		GATE VALVE & BOX
	W	WATER STOP BOX
		FIRE HYDRANT
	MP	METER PIT
		WATER METER
	SH	SPRINKLER HEAD
	IR	IRRIGATION VALVE

PROPOSED

















		STORM MANHOLE
		SQUARE INLET/CATCH BASIN
		ROUND INLET/CATCH BASIN
		CULVERT END SECTION
		SANITARY MANHOLE
		CLEAN OUT
		GATE VALVE
	GV&W	GATE VALVE & WELL
	GV&B	GATE VALVE & BOX
	TSV&W	TAPPING SLEEVE VALVE & WELL
	TSV&B	TAPPING SLEEVE VALVE & BOX
		FIRE HYDRANT

REAL ESTATE SYMBOLS


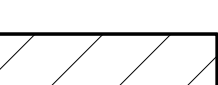














		CONTIGUOUS PROPERTY SYMBOL
		PARCEL NUMBER BOX
		NO ROW IMPACTS

MISCELLANEOUS UTILITY SYMBOLS

EXISTING

















		GUY WIRE
	GP	GUY POLE
	U	UTILITY POLE
		UTILITY POLE W/LIGHT
		LIGHT/DECOR LAMP POLE
		GAS VALVE
		GAS METER
		GAS RISER
		TRANSFORMER PAD
	OU	PRIVATE UTILITY MANHOLE
		ELECTRIC METER
	TS	TRAFFIC SIGNAL CONTROLLER
		HAND HOLE
		ELECTRIC RISER
	W	MONITORING WELL
		PEDESTRIAN SIGNAL

REMOVAL LEGEND














		SIDEWALK REMOVAL
		HMA SURFACE REMOVAL
		PAVEMENT REMOVAL
		CLEARING AND GRUBBING
		CURB AND GUTTER, REM
		TREE, REM
		SIGN, REM
	S	SALVAGE
	B	BULKHEAD
	A	ABANDON
	C	CLEARING
	R	REMOVE
	REL	RELOCATE
	REC	RECONSTRUCT
	REL B/O	RELOCATE BY OTHERS
	ADJ B/O	ADJUST BY OTHERS

MISCELLANEOUS SYMBOLS






EXISTING

		RIPRAP
		SIGN
		FLOW DIRECTION
		STUMP
		CONIFEROUS TREE
		DECIDUOUS TREE
		CONIFEROUS SHRUB
		DECIDUOUS SHRUB
	SB#	SOIL BORING
		SECTION CORNER
		IRON ROD/PIPE
	PK	PK NAIL
	BM #XXX	SURVEY BENCHMARK
	TP #	SURVEY TRAVERSE POINT
		CONCRETE
		GRAVEL

PROPOSED

		RIPRAP
		SIGN
		FLOW DIRECTION
		STRUCTURE NUMBER
	WM SAN STM	
		CURB AND GUTTER, STD
		CURB AND GUTTER, SPILLOUT
		ASPHALT, HEAVY
		ASPHALT
		CONCRETE
	SF	SILT FENCE
		INLET FILTER
		CHECK DAM, STONE

GRADING

		FLOW DIRECTION
		EXISTING SPOT GRADE
	749.25 FG	PROPOSED SPOT GRADE
	-665-	EXISTING CONTOUR
	-840-	PROPOSED CONTOUR

UTILITY PATTERN

EXISTING

	ELEC	ELECTRICAL *
	GAS	GAS\OIL
	CABLE/TEL	CABLE/TELEPHONE *
	12" WM	WATER MAIN/SERVICE
	12" SAN	SANITARY SEWER
	12" STM	STORM SEWER
*OH = OVERHEAD , UG = UNDERGROUND		

PROPOSED

	12" WM	WATER MAIN/SERVICE
	12" SAN	SANITARY SEWER
	12" STM	STORM SEWER
	4" UD	UNDERDRAIN
		SITE ELEC / LIGHTING

ROW PATTERN

EXISTING

	ROW	ROW
		SECTION
		PROPERTY/PARCEL

TOPO PATTERN

EXISTING

		HEDGE/TREE
		FENCE
		GUARDRAIL
		CENTERLINE OF DITCH
		WETLAND/EDGE OF WATER

PROPOSED

		CENTERLINE OF DITCH
		FENCE



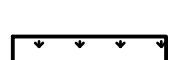
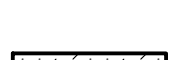
SITE LAYOUT


	10 12	EX AND PROP PARKING SPACE COUNT
		EX AND PROP BARRIER FREE PARKING SPACE

ABBREVIATION KEY

AC	ACRE	GV+W	GATE VALVE AND WELL
ADJ	ADJUST	IN	INCHES
ASPH	ASPHALT	MH	MANHOLE STRUCTURE
BC	BACK OF CURB	OHM	OHM ADVISORS
BF	BARRIER FREE	PAVT	PAVEMENT
C+G	CURB AND GUTTER	PROP	PROPOSED
CB	CATCH BASIN (STORM)	RCP	REINFORCED CONCRETE PIPE
CF	CUBIC FEET	REM	REMOVE (AND DISPOSE)
CL	CENTERLINE	RIM	TOP OF STRUCTURE CASTING
COMM	COMMUNICATION UTILITY (PHONE, CABLE, DATA, ETC)	SAN	SANITARY SEWER / SERVICE
CONC	CONCRETE	SF	SQUARE FEET
CPE	CORRUGATED POLYETHYLENE (PIPE)	STM	STORM SEWER
CY	CUBIC YARD	SVC	SERVICE (WATER/SANITARY)
DI	DUCTILE IRON	SY	SQUARE YARD
DIA	DIAMETER	T/	TOP OF
ELEC	ELECTRICAL	TC	TOP OF CURB
EX	EXISTING	TP	TOP OF PAVEMENT
FC	FACE OF CURB	TW	TOP OF WALK
FL	FLOWLINE	WM	WATER MAIN / SERVICE
FG	FINISH GRADE / SURFACE (NON-PAVED AREA)		
FM	FORCEMAIN		
FT	FEET		
GV	GATE VALVE		
GV+B	GATE VALVE AND BOX		

LANDSCAPE HATCHES AND SYMBOLS

	LAWN
	SPECIALTY SEED
	SPECIALTY SEED
	SPECIALTY SEED



ARCHITECTS ENGINEERS PLANNERS

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ISSUE - SITE PLAN REVIEW

REVISIONS

REVISED PER SITE PLAN COMMENTS - 10/2/2023

DATE

PROJ NUMBER

11/15/2023

0153-22-0070

ENG ARCH

ZJH

PROJ MGR

CO

CADD

JK

COUNTY

OAKLAND

MUNICIPALITY

SOUTHFIELD

CITY OF SOUTHFIELD

DPW STORAGE BUILDING

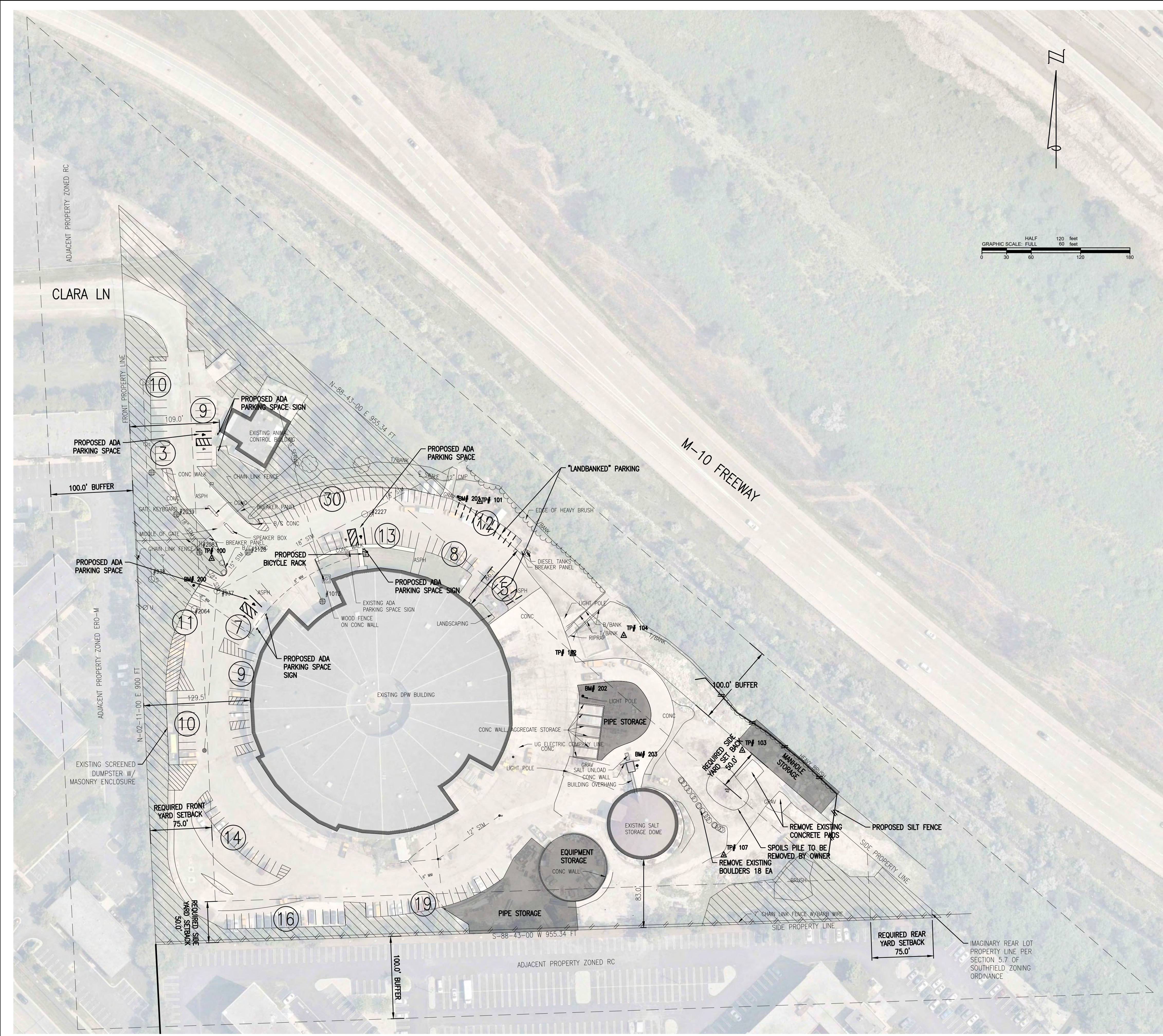
CIVIL LEGEND

C-003

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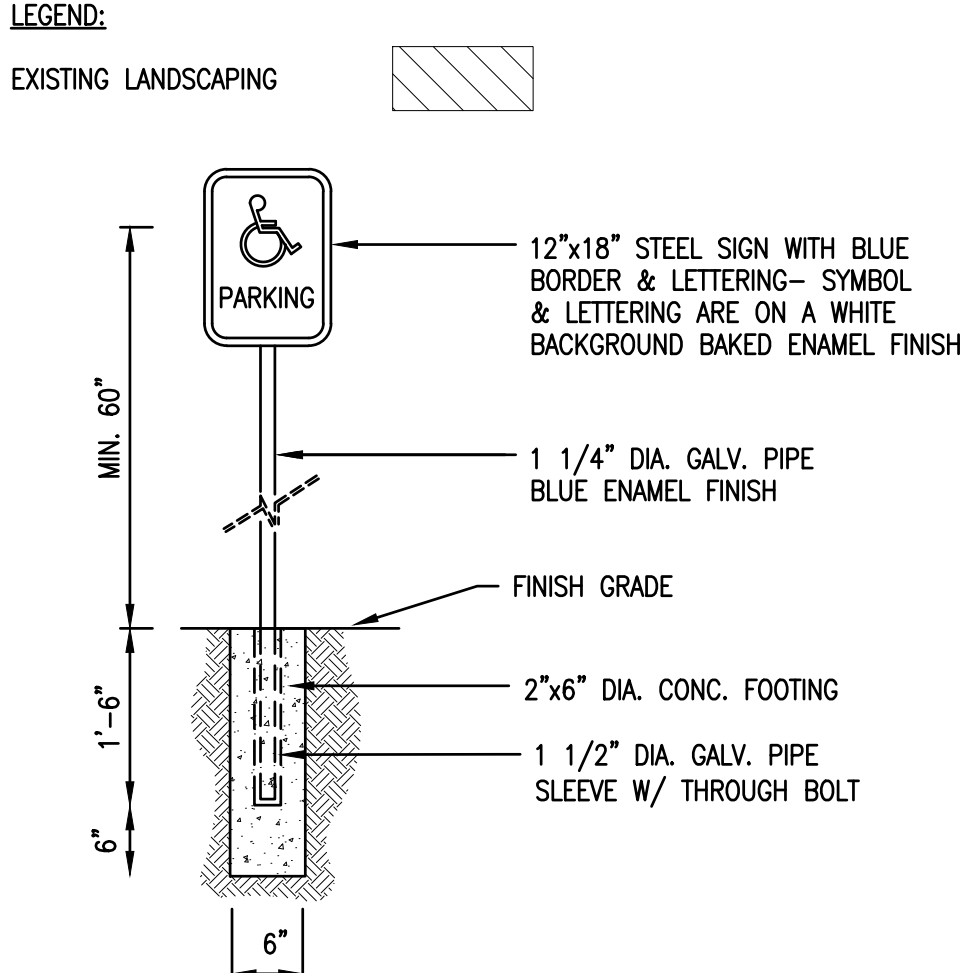


**PARCEL DESCRIPTION – 25501 CLARA (24-17-326-005)**  
(PER OAKLAND COUNTY TAX ROLLS)

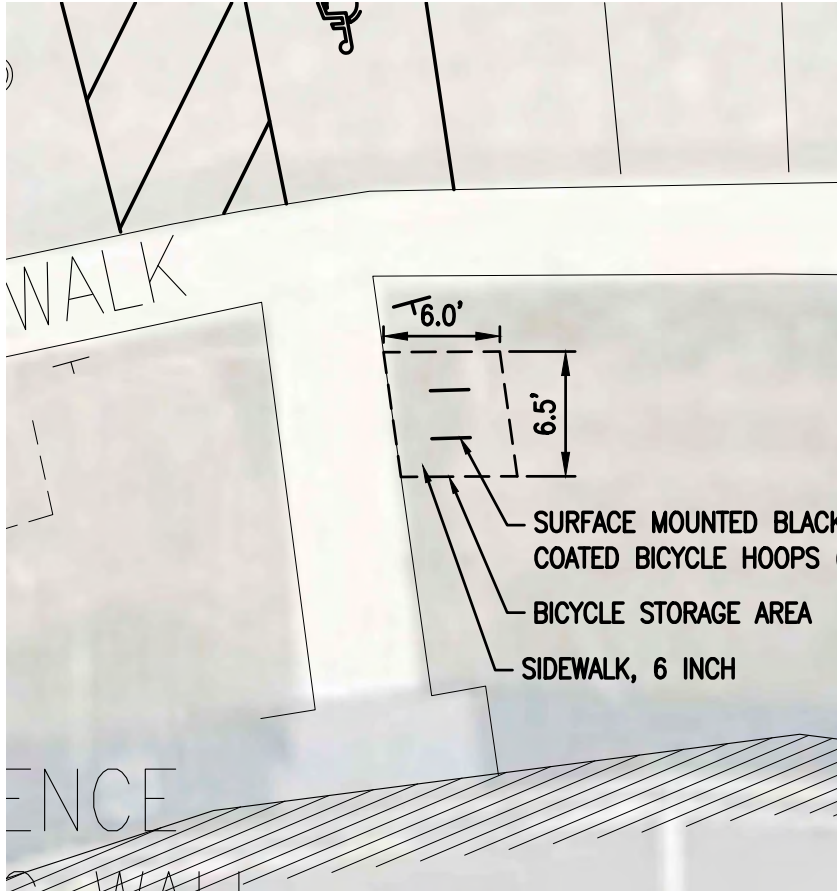
A PARCEL OF LAND BEING A PART OF THE NE 1/4 AND THE SW 1/4 OF SECTION 17, TOWN 1 NORTH, RANGE 10 EAST, CITY OF SOUTHFIELD, OAKLAND COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT POINT DISTANT S 87-51-00 W 355 FT & N 43-02-00 W 1518 FT & N 02-11-00 W 284.21 FT FROM S 1/4 COR, TH N 02-11-00 W 800 FT, TH SELY TO PT DIST N 88-43-00 E 955.34 FT FROM PT OF BEG, TH S 88-43-00 W 955.34 FT TO BEG

- NOTES:**
- EXISTING CONDITIONS ARE PRESENTED BASED ON PARTIAL TOPOGRAPHIC SURVEY & GIS INFORMATION BY OHM ADVISORS. ALL EXISTING INFORMATION PRESENTED IN THESE PLAN SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR, ANY DISCREPANCIES IN THE PLAN SHALL BE MADE AWARE TO THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION.
  - ONE-CALL UTILITY LOCATING: MISSDIG – 811 OR 800-482-7171. CONTRACTOR SHALL OPEN AN EXCAVATION TICKET A MINIMUM OF 3 WORKING DAYS PRIOR TO ANY EXCAVATION. WHEN MARKINGS AND FLAGS ARE DISRUPTED OR DESTROYED – CALL FOR REMARKING.
  - THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATIONS AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND LIMITED MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION SHALL NOT BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY THE OWNER OR ENGINEER OF DISCREPANCIES IN THE PLANS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS UNLESS OTHERWISE NOTED IN THE PLANS OR DIRECTED BY THE OWNER'S REPRESENTATIVE. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE LOCATION OR DEPTH OF ANY EXISTING UTILITY SHOWN OR NOT SHOWN ON THE PROJECT DRAWINGS.
  -

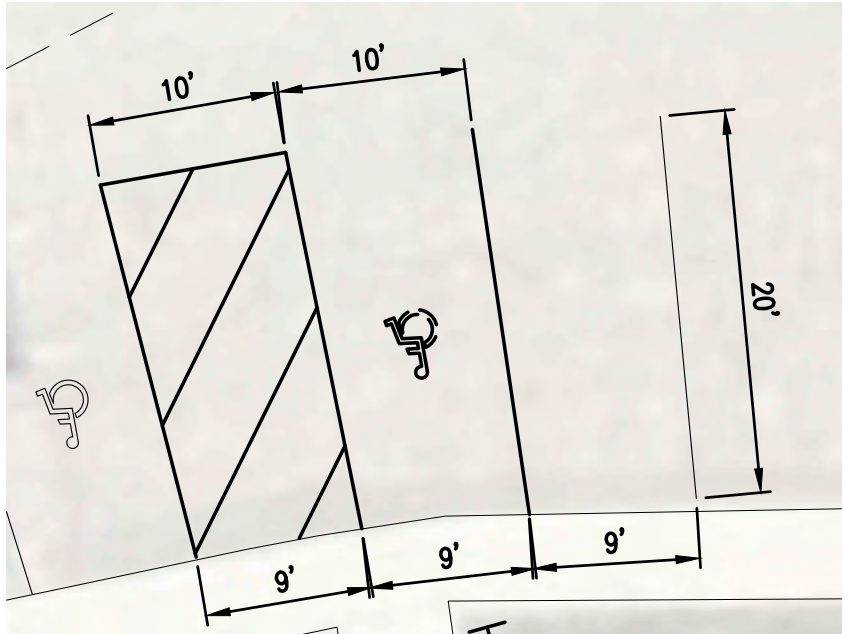


ACCESSIBLE PARKING SIGN DETAIL



BICYCLE RACK INSTALLATION PLAN

SCALE: 1:10



TYPICAL ADA & STANDARD PARKING SPACE DIMENSIONS  
SCALE: 1:10



Know what's below.  
Call before you dig.

**OHM**  
ARCHITECTS ENGINEERS PLANNERS  
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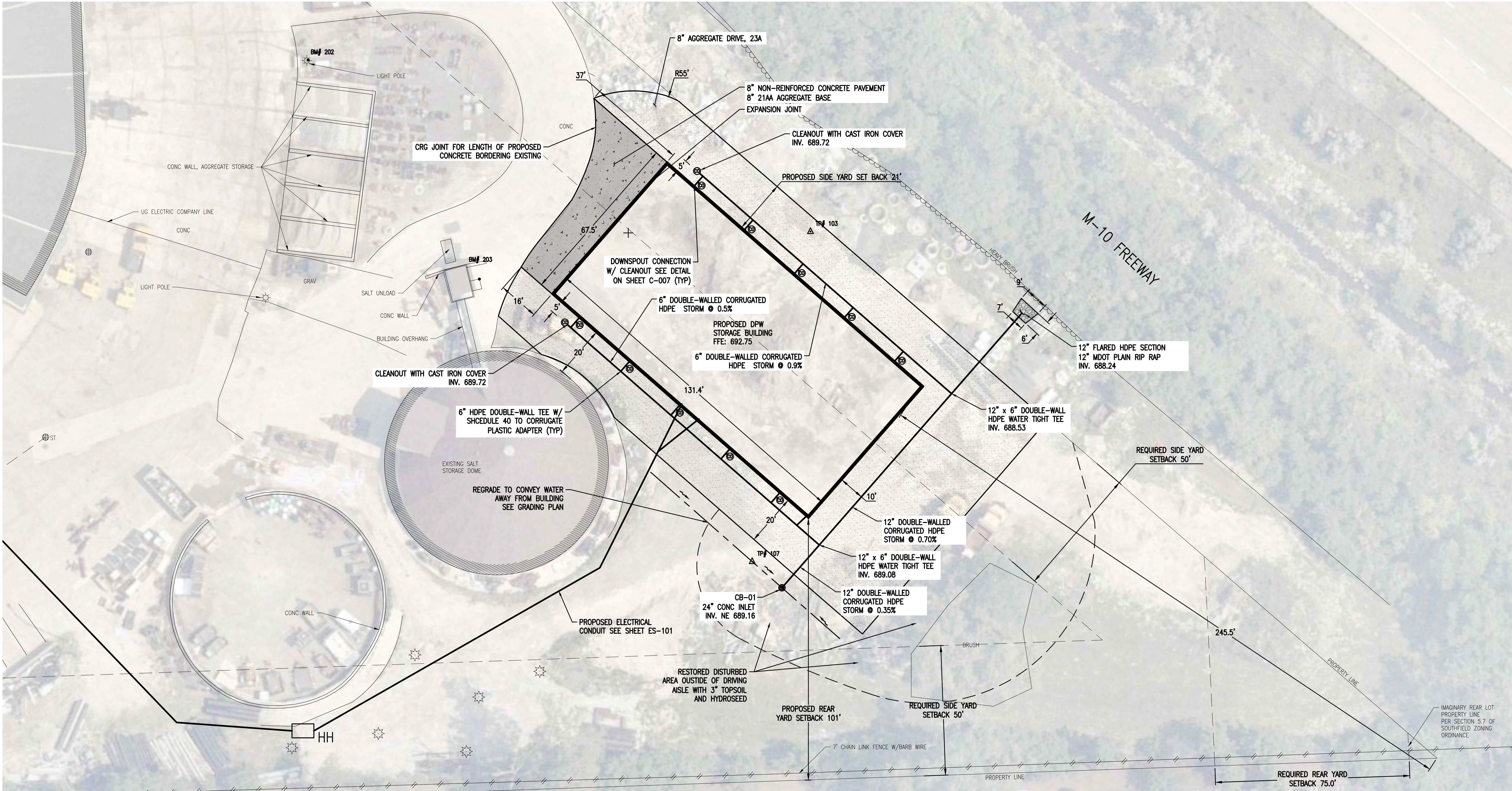
REVISIONS:	REVISED PER SITE PLAN COMMENTS - 10/2/2023

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	H	V	N/A	VERT DATUM	Value
11/15/2023	01650143220070	ZJH	CO	JK	OAKLAND	SOUTHFIELD	1"=80'					
CITY OF SOUTHFIELD DPW STORAGE BUILDING TOPOGRAPHIC SURVEY, OVERALL SITE PLAN & REMOVALS												
SHEET C-004												

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SITE DATA TABLE	
MUNICIPALITY:	CITY OF SOUTHFIELD
PARCEL NUMBER:	24-17-326-005
ZONING DISTRICT:	R-C
TOTAL LOT AREA (EXISTING):	10.34 AC
TOTAL LOT AREA (PROPOSED):	10.34 AC
TOTAL DISTURBED AREA:	17,020 SF
REQUIRED FRONT YARD SETBACK:	75 FT
PROPOSED FRONT YARD SETBACK:	109 FT
REQUIRED SIDE YARD SETBACK:	50 FT
PROPOSED SIDE YARD SETBACK:	12 FT
REQUIRED REAR YARD SETBACK:	75 FT
PROPOSED REAR YARD SETBACK:	101 FT
EXISTING BUILDING FOOTPRINT AREA:	100,610 SF
EXISTING GROSS FLOOR AREA:	100,610 SF
EXISTING BUILDING LOT COVERAGE:	22.3%
EXISTING BUILDING LOT COVERAGE:	24.3%
REQUIRED LANDSCAPE AREA	±1.03 AC
EXISTING LANDSCAPE AREA	±2.11 AC

PARKING COUNTS	
EXISTING (PRE-DEVELOPMENT)	
STANDARD SPACES:	156
DESIGNATED ADA SPACES:	3
TOTAL NUMBER OF SPACES:	159
PROPOSED (POST-DEVELOPMENT)	
STANDARD SPACES:	153 (LOSS OF 3 SPACES DUE TO RESTRIPING FOR ADA SPACES)
DESIGNATED ADA SPACES:	6 (3 PROPOSED)
LANDBANKED SPACES:	17
TOTAL NUMBER OF SPACES:	176
REQUIRED PARKING SPACES CALCULATIONS:	
1.5 SPACES PER 1,000 SF G.F.A.	
1.5 SPACES X ((100,610+11,200)/1,000)) = 168 SPACES	
-1 SPACE (FOR EVERY BIKE RACK WHICH ACCOMMODATES 4 BICYCLES, ONE OFF-STREET PARKING SPACE, UP TO A MAXIMUM OF 5% OF THE TOTAL REQUIRED PARKING MAY BE CREDITED BY THE CITY PLANNER)	
-17 SPACES (LANDBANKED)	
-5 SPACES (PER THE CITY PLANNER DISCRETION, 5% OF THE TOTAL PARKING REQUIREMENT CAN BE DEDUCTED BECAUSE THE SITE HAS FACILITIES FOR PUBLIC TRANSIT RIDERS INCLUDING INTERNAL BIKE STORAGE, PARKING, SHOWER FACILITIES, AND LOCKERS)	

REQUIRED SPACES: 168-1-17-5 = 145
PROPOSED BUILDING STATISTICS
PROPOSED BUILDING AREA: 8,870 SF
PROPOSED BUILDING HEIGH: 25 FT - 10IN

OHM-ADVISORS.COM

REVISIONS:  
REVISED PER SITE PLAN COMMENTS - 10/2/2023  
| | | | |

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/TOWNSHIP	SCALE	HORIZ DATUM	VERT DATUM
11/15/2023	01650143220070	Z.J.H	CO	J.K	OAKLAND	SOUTHFIELD	1"=20'	N/A	Value

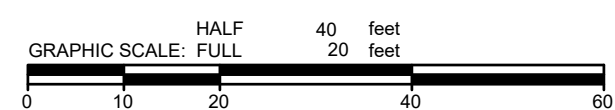
CITY OF SOUTHFIELD  
DPW STORAGE BUILDING

STORAGE BUILDING SITE PLAN

C-005

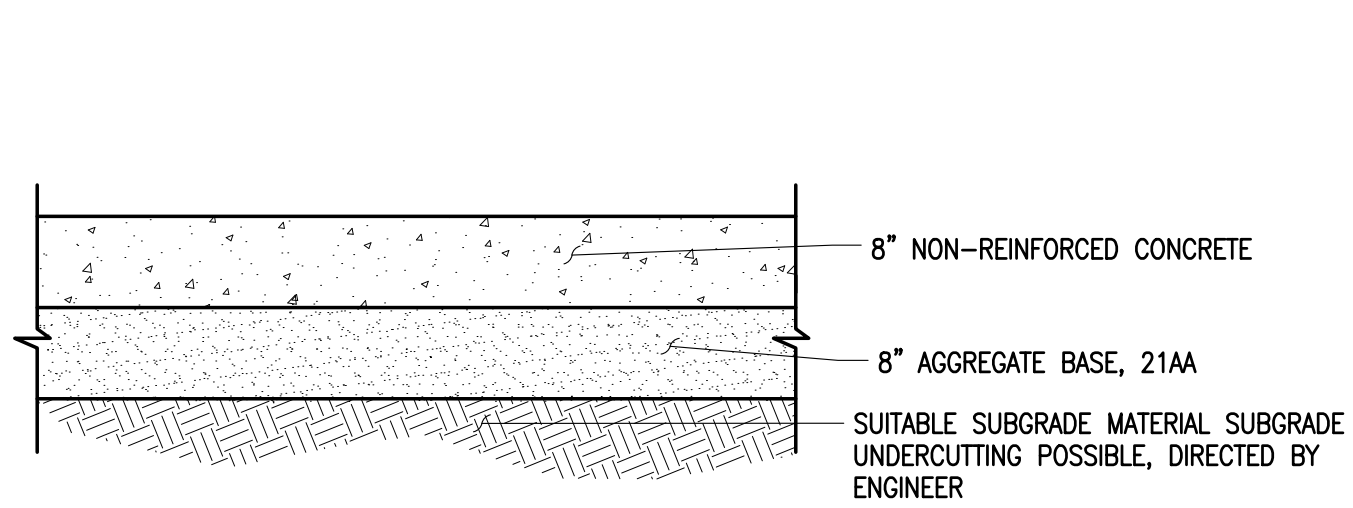
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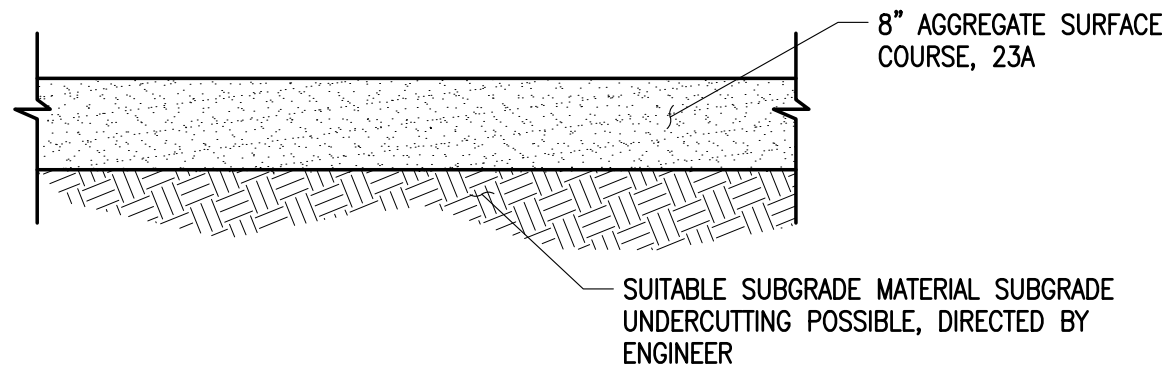


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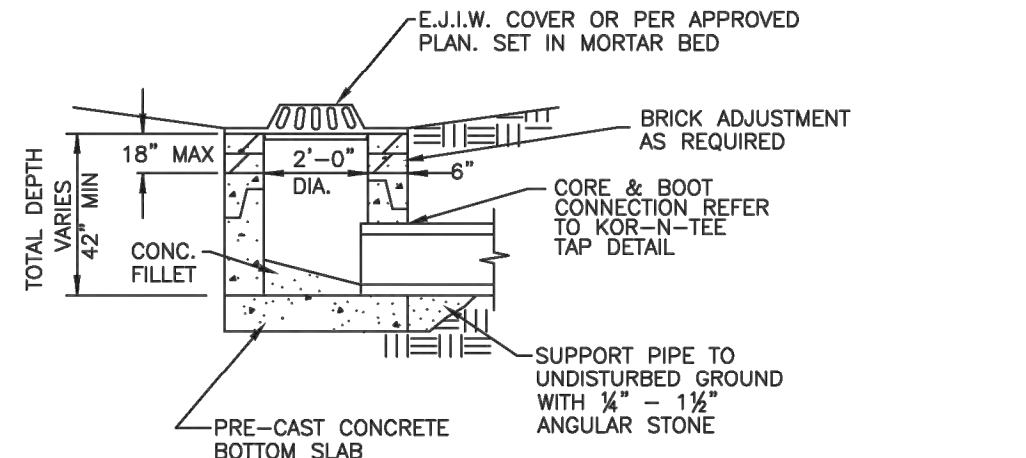
CONCRETE CROSS-SECTION

NOT TO SCALE



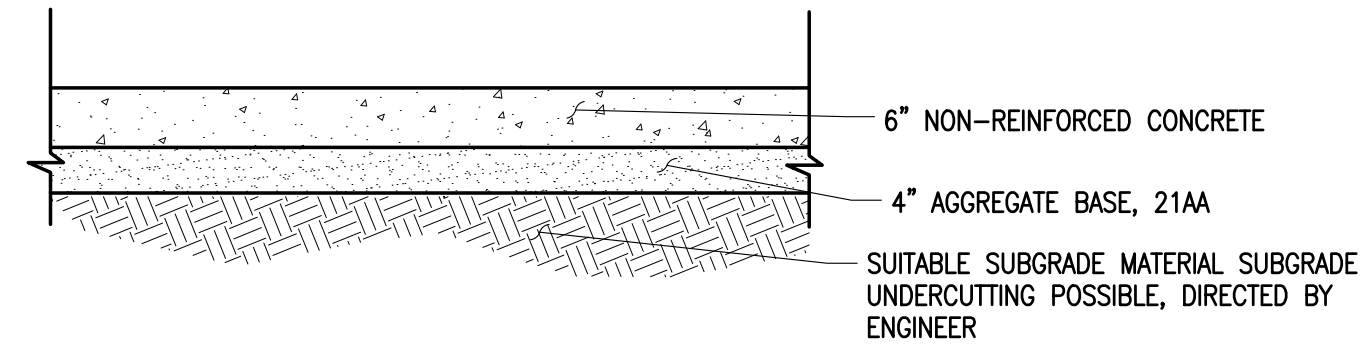
AGGREGATE CROSS-SECTION

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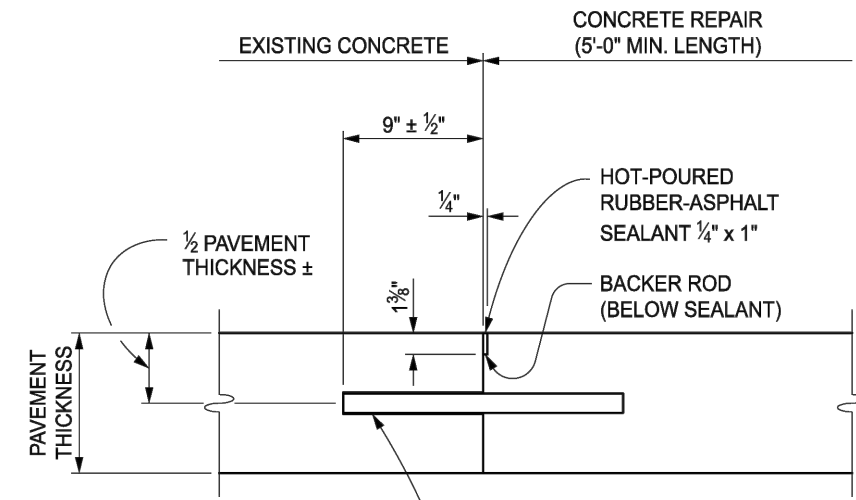
PRE-CAST INLET DETAIL

NO SCALE

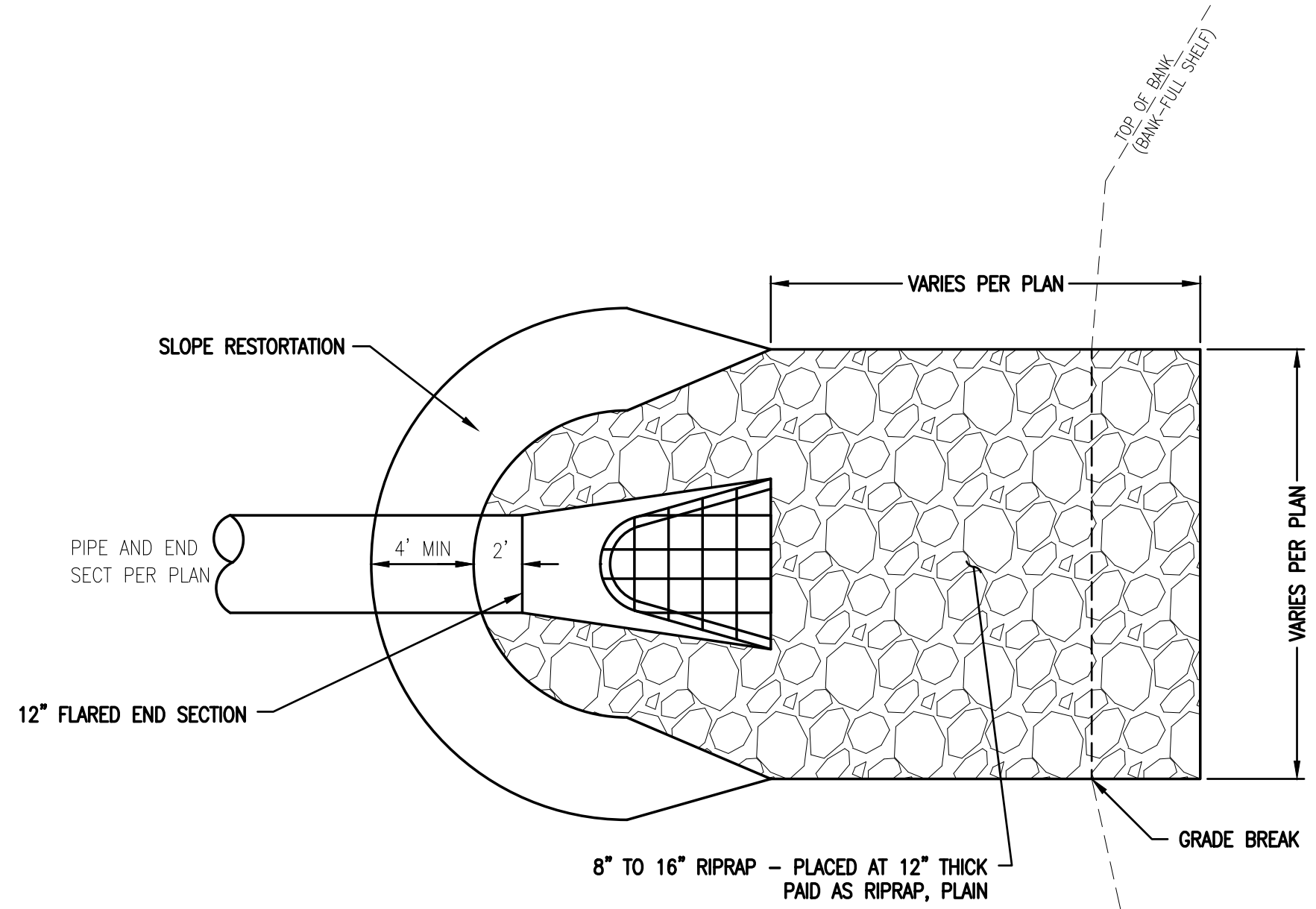


CONCRETE SIDEWALK CROSS-SECTION

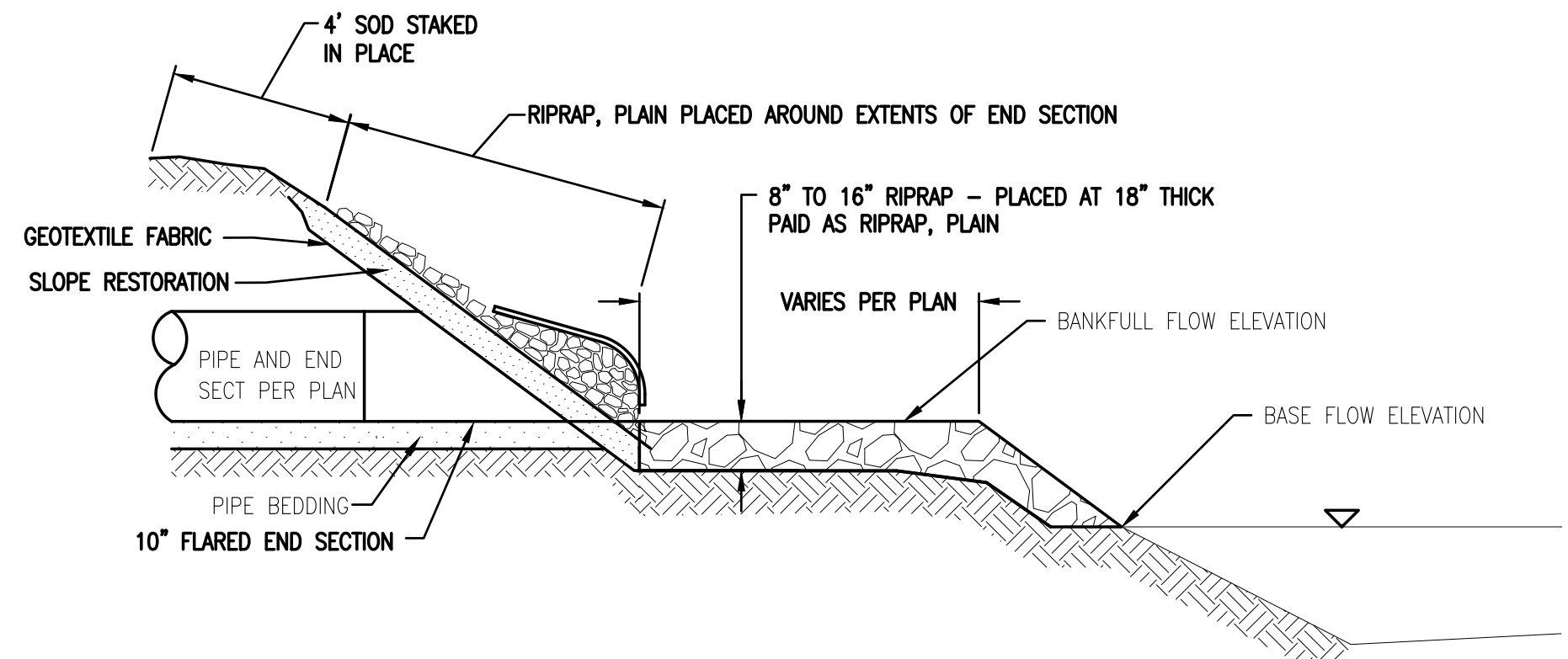
NOT TO SCALE



CONTRACTION JOINT, Crg

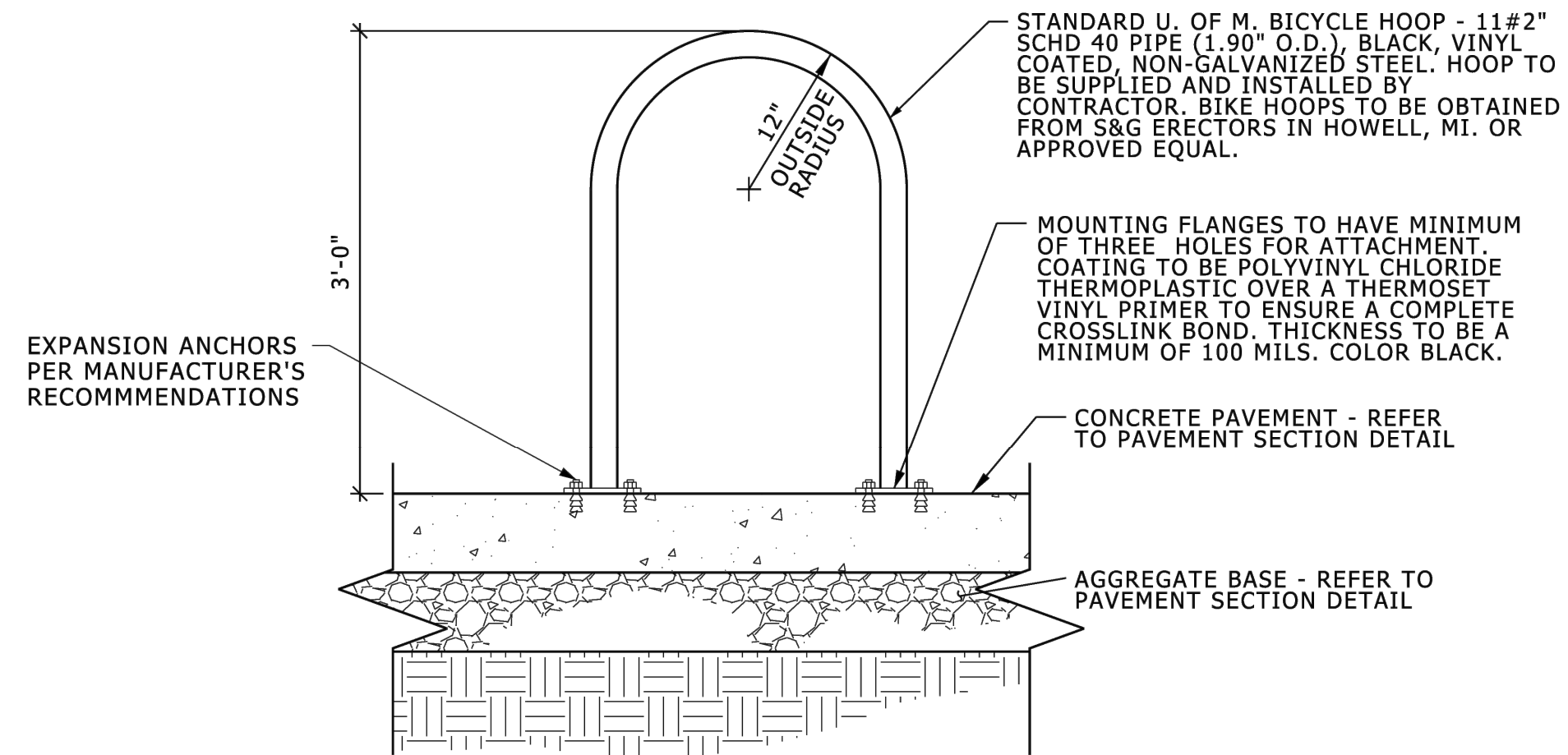


END SECTION – PLAN VIEW



END SECTION – PROFILE VIEW

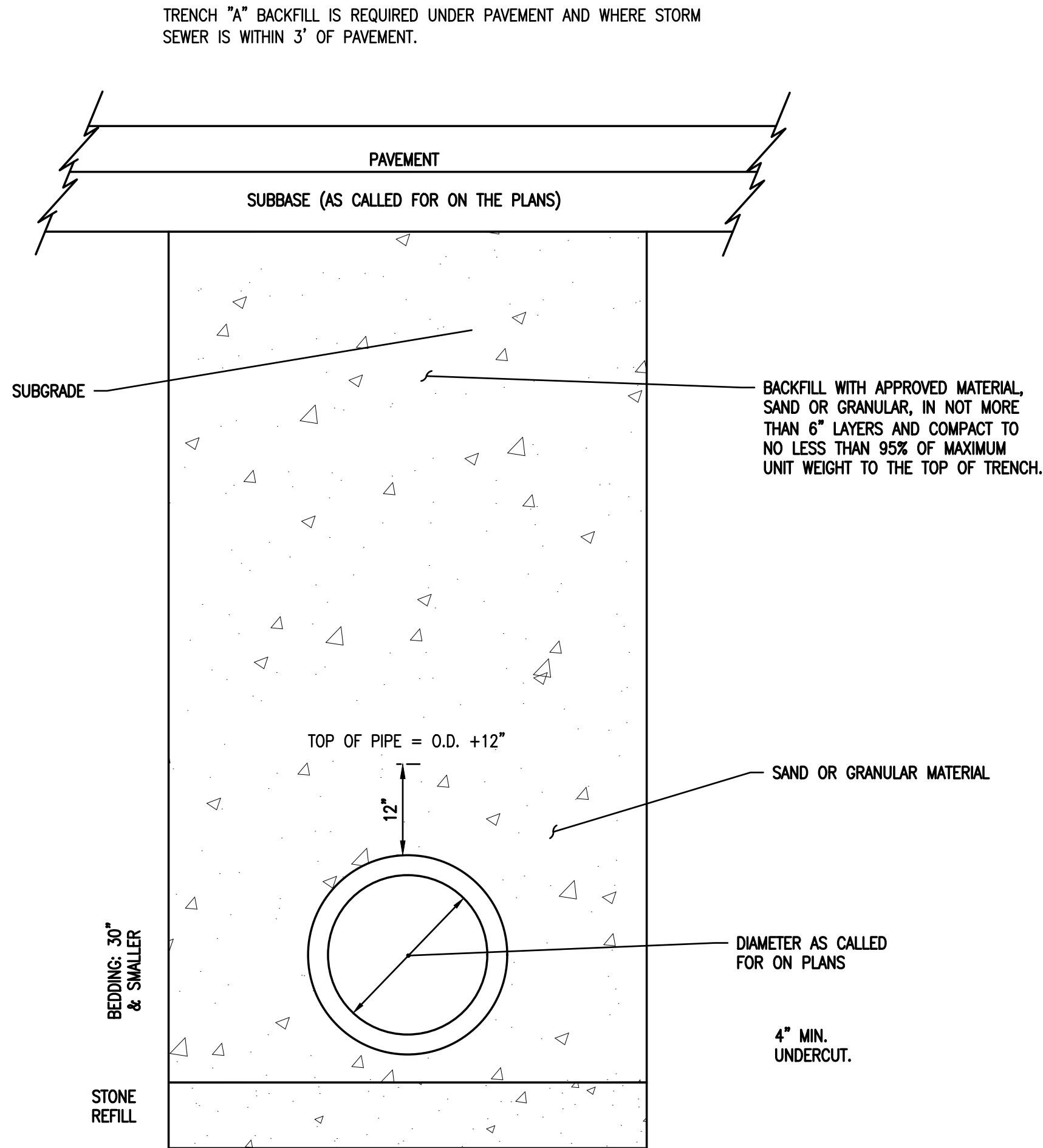
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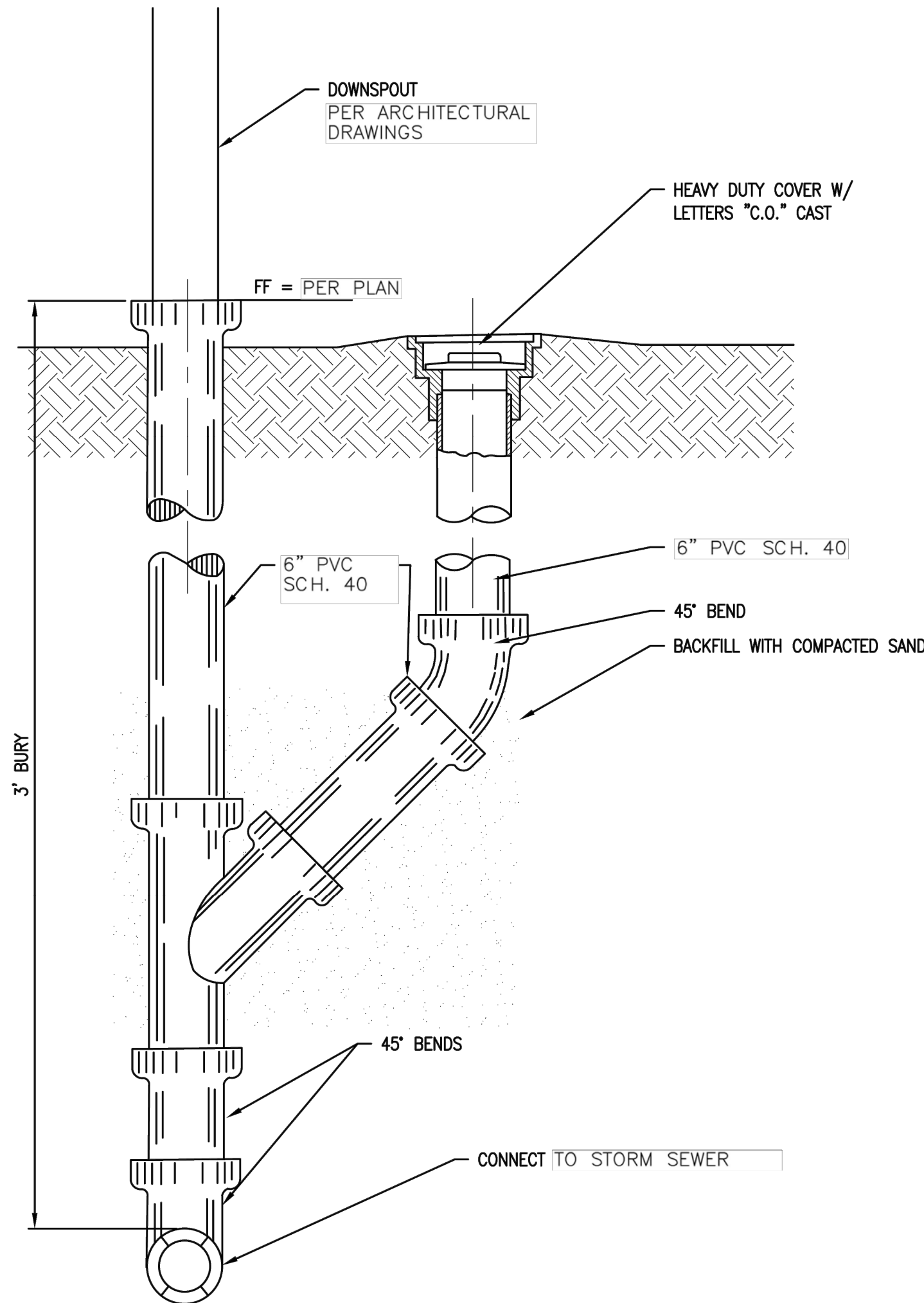
NOTE:  
BICYCLE HOOPS TO BE 3' O.C.

BICYCLE HOOP - SURFACE MOUNT

NO SCALE



TRENCH "A" BACKFILL

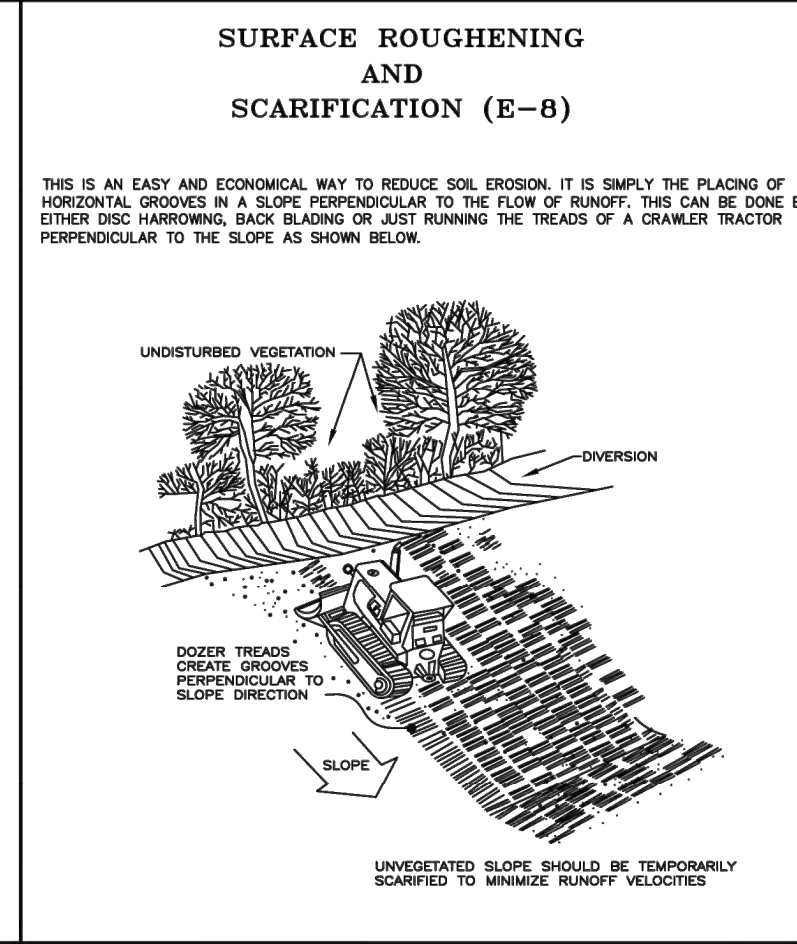
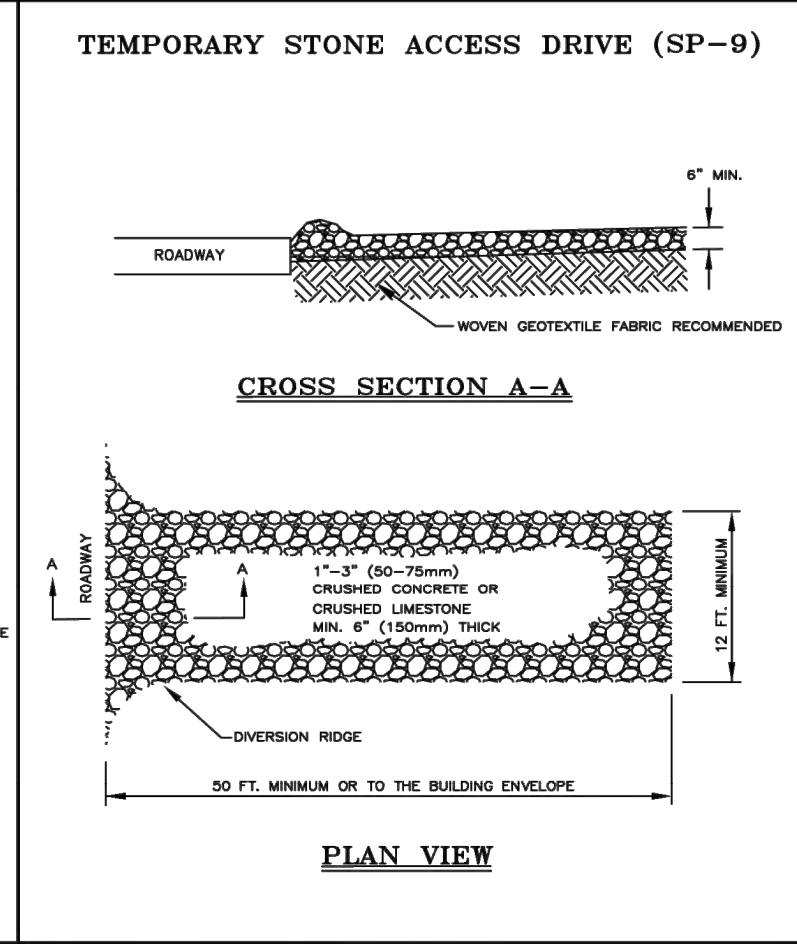
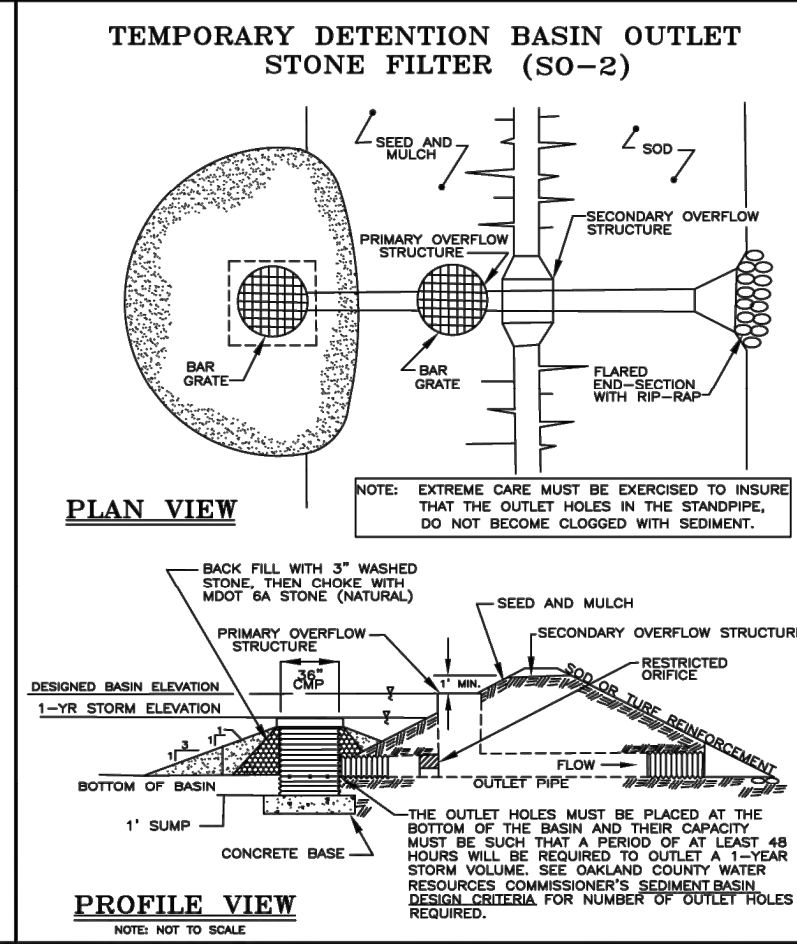
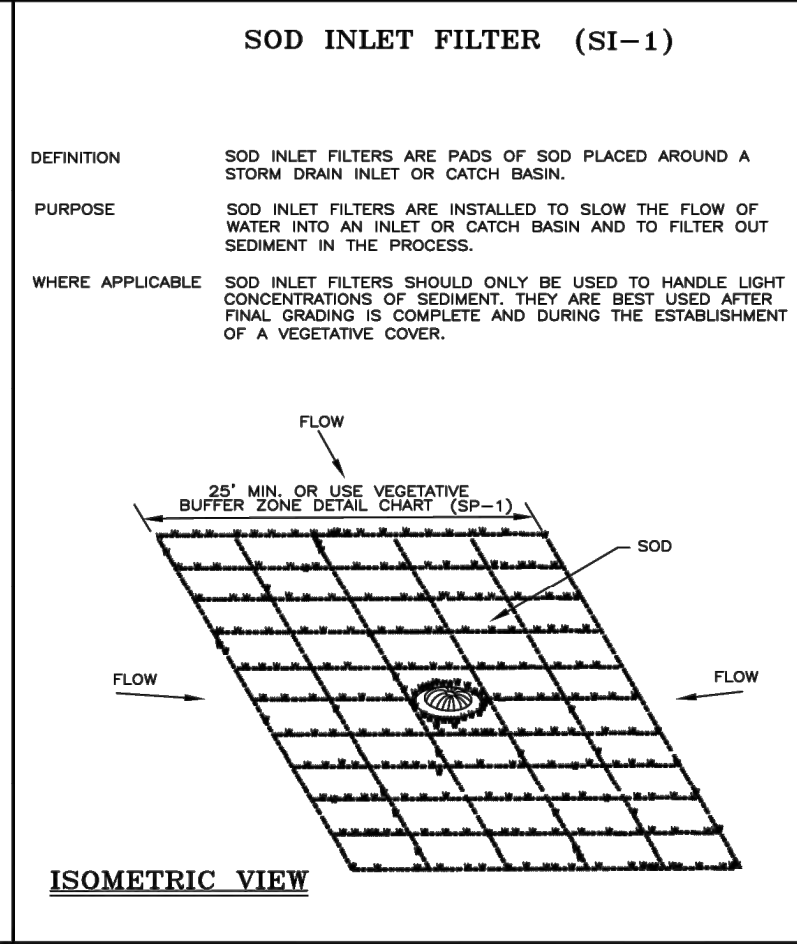
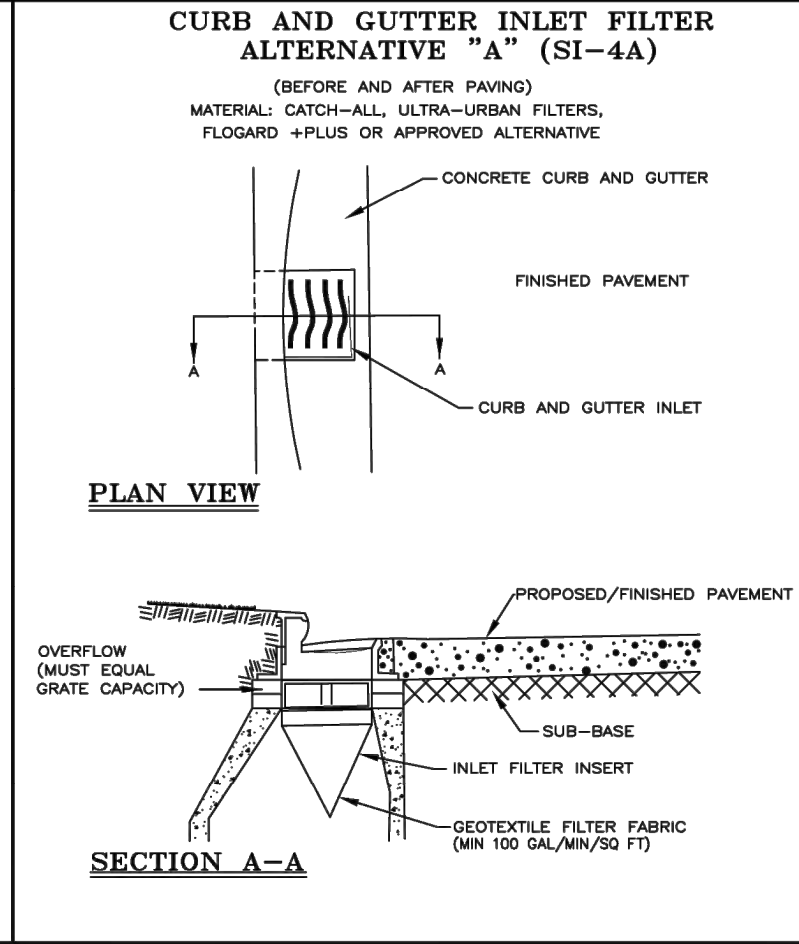
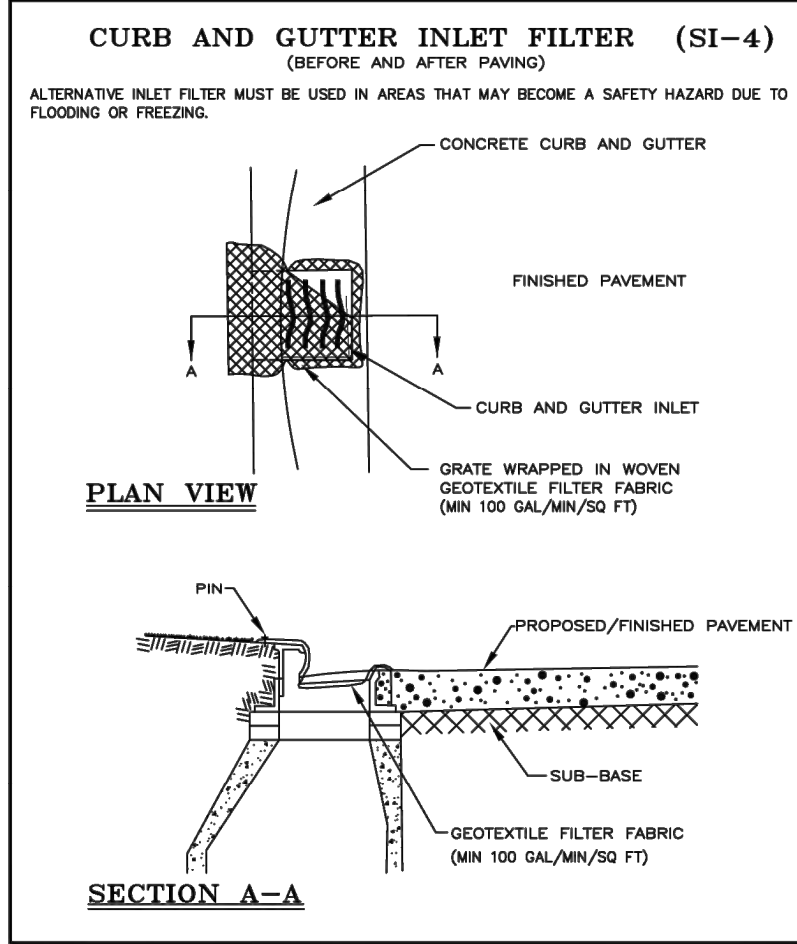
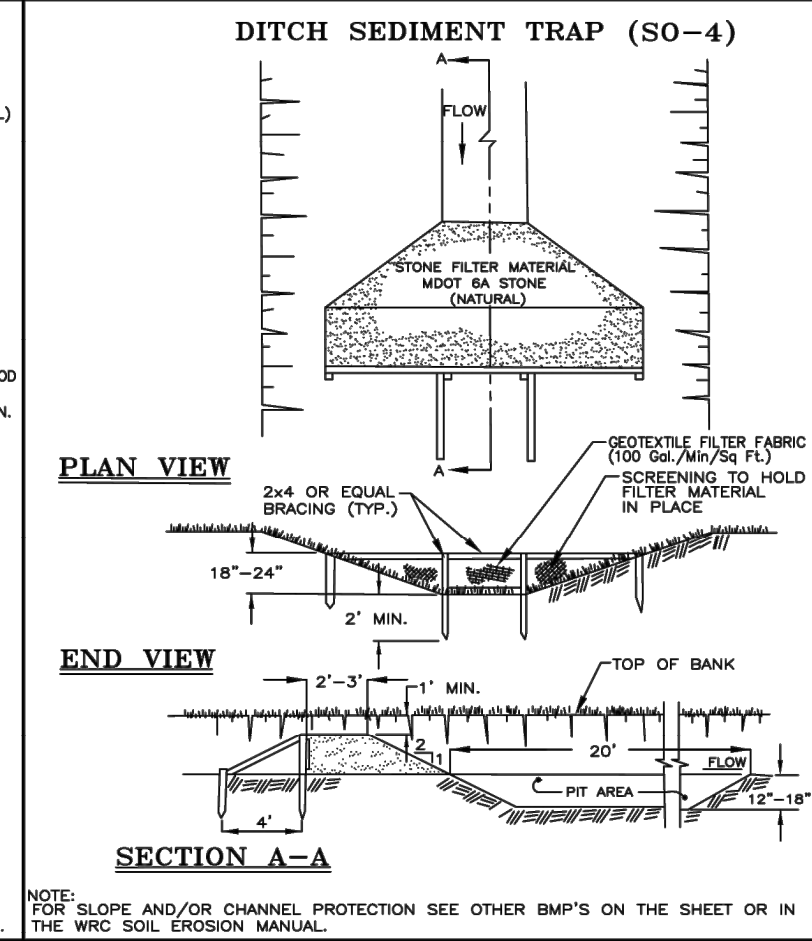
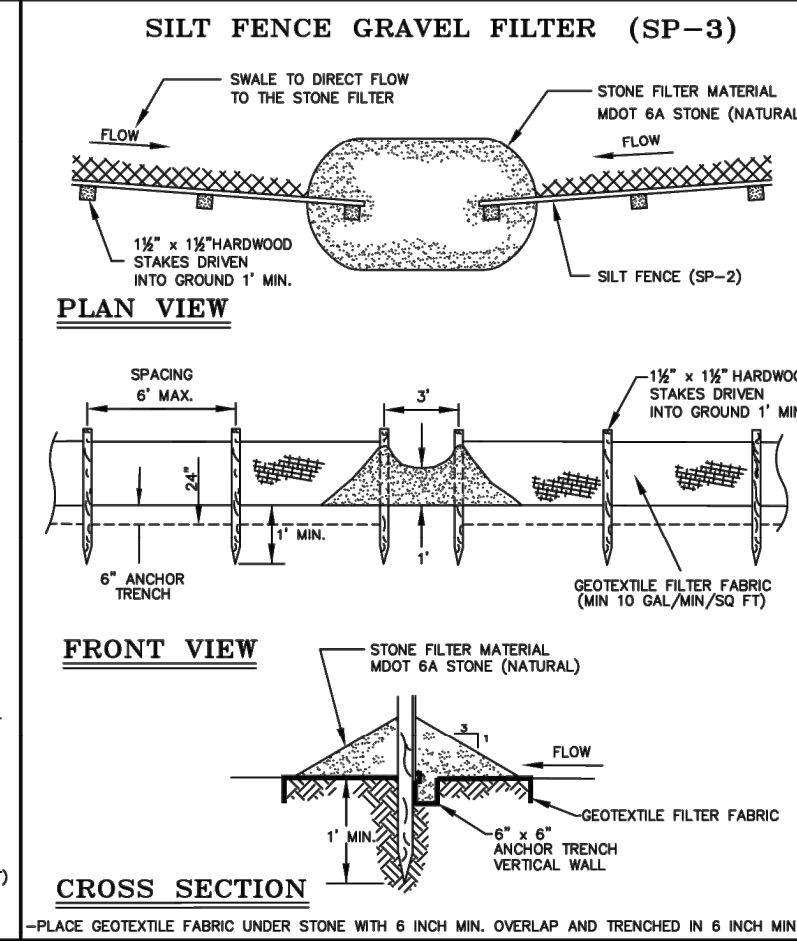
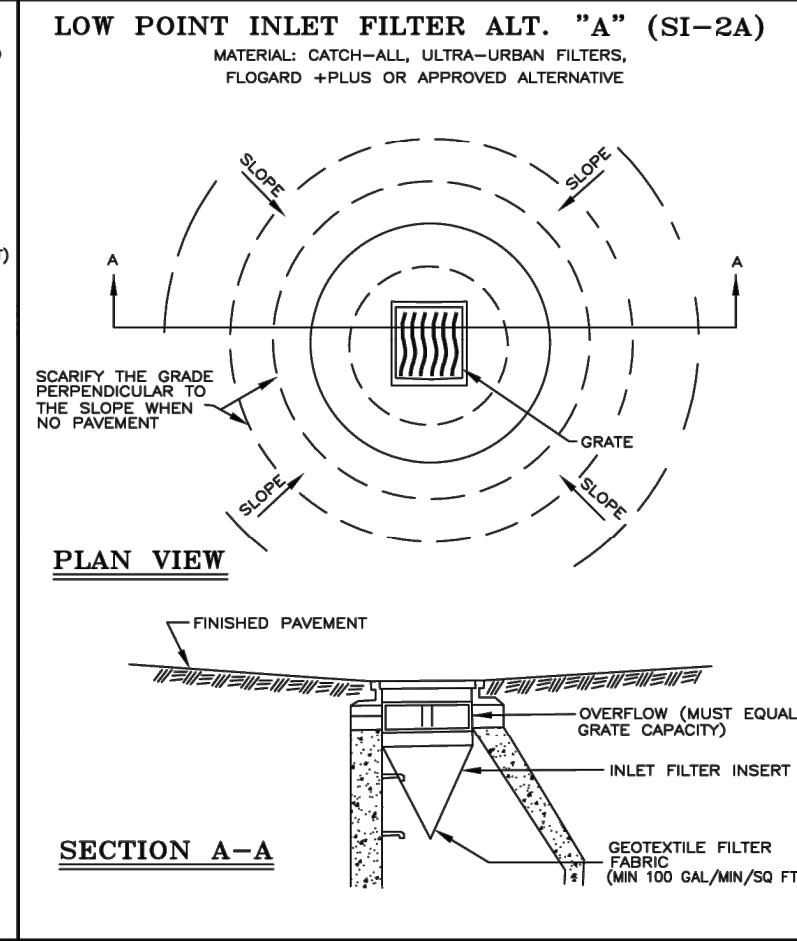
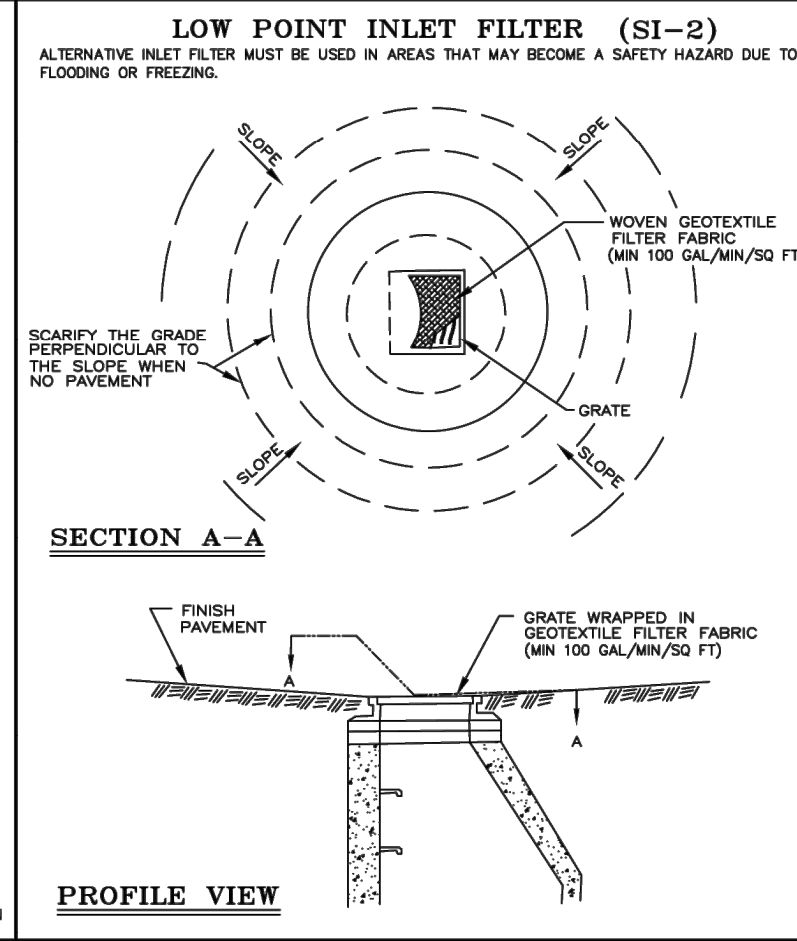
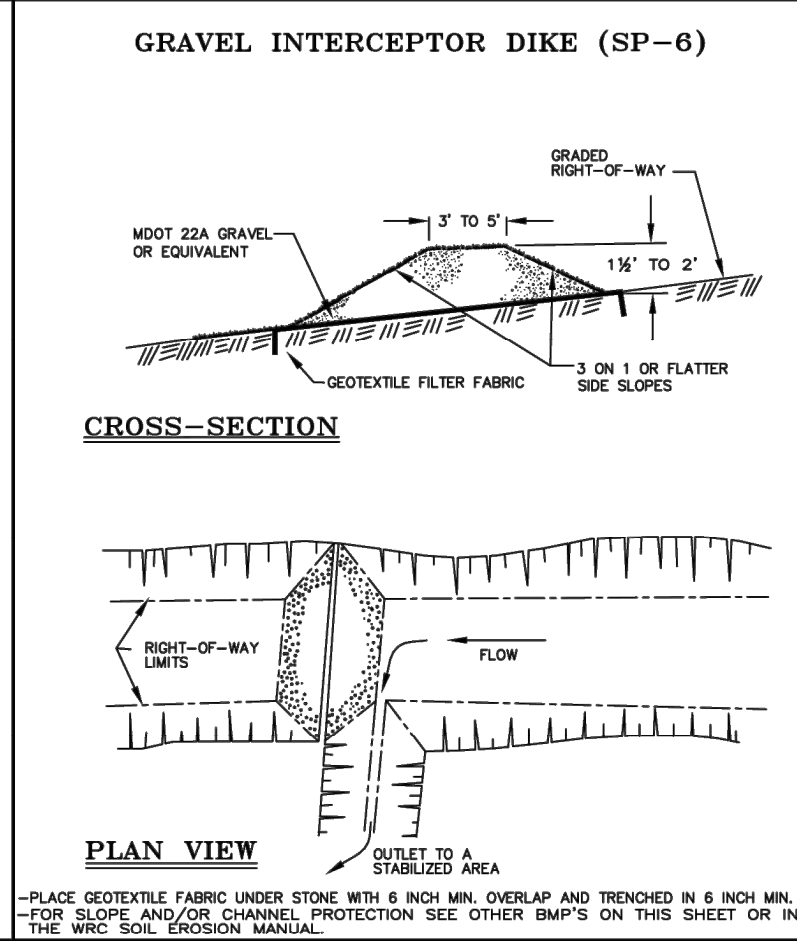
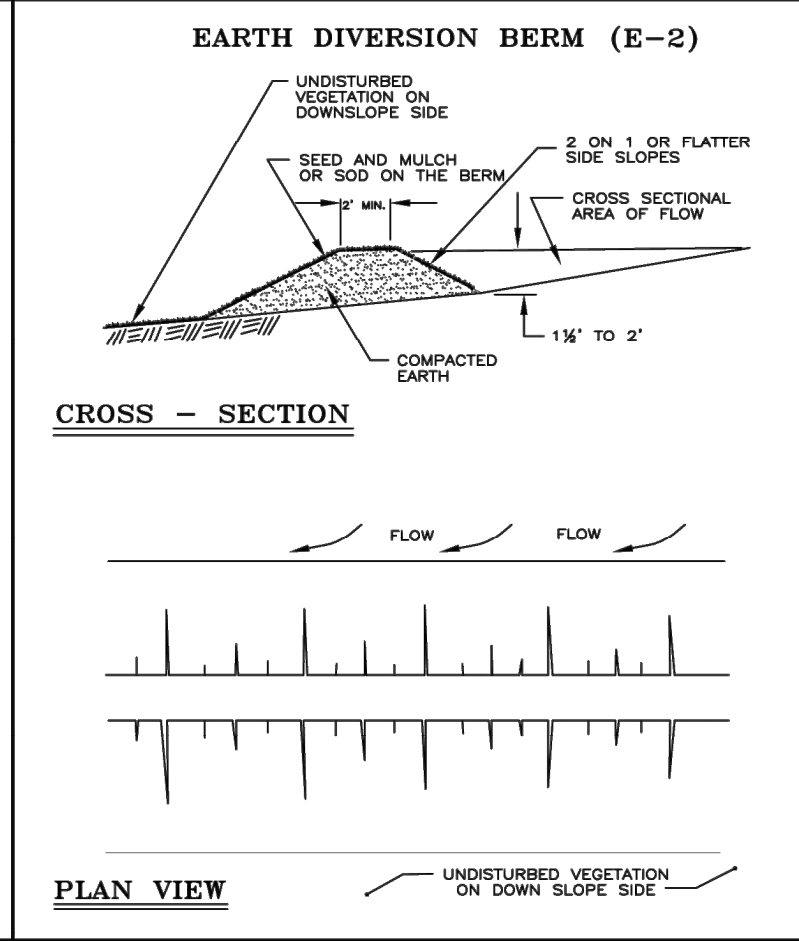
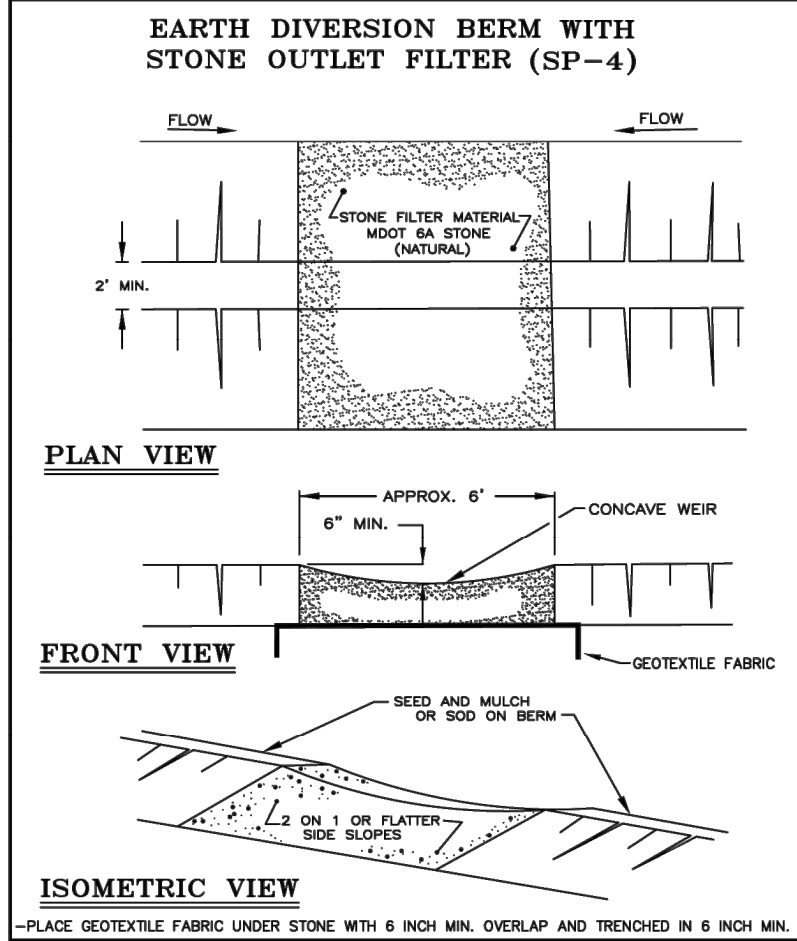
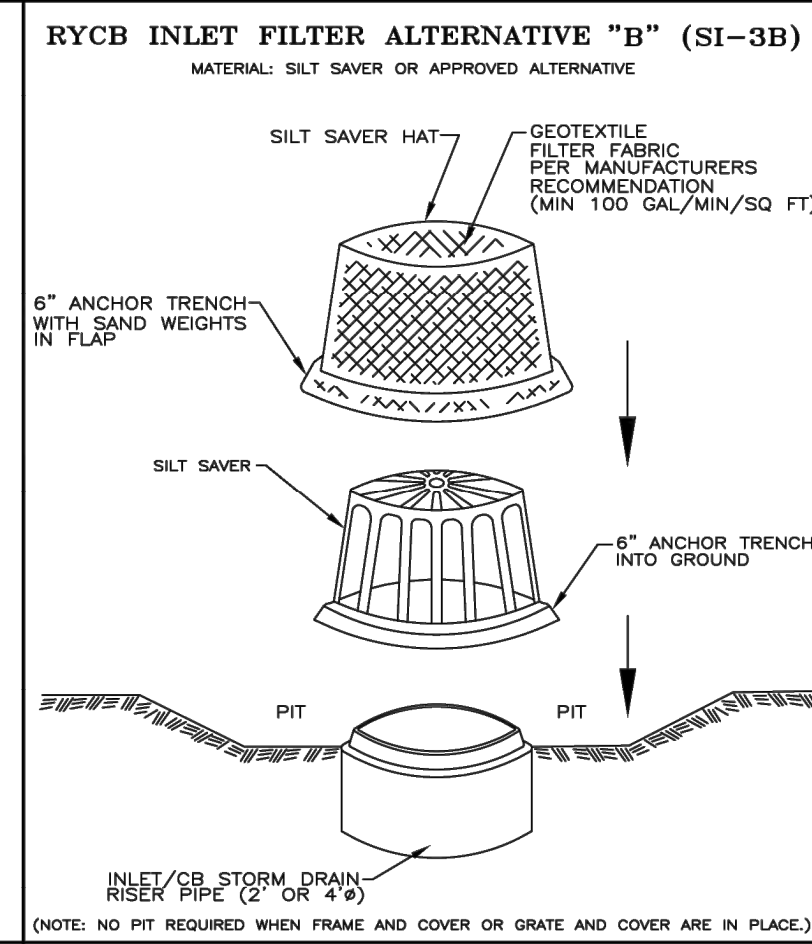
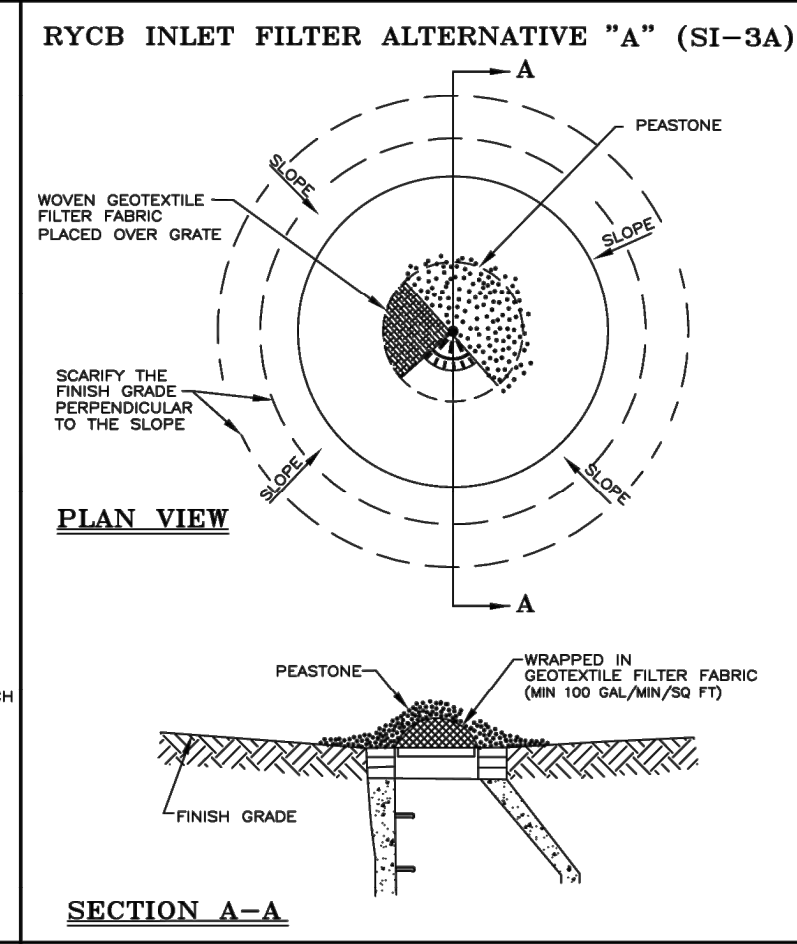
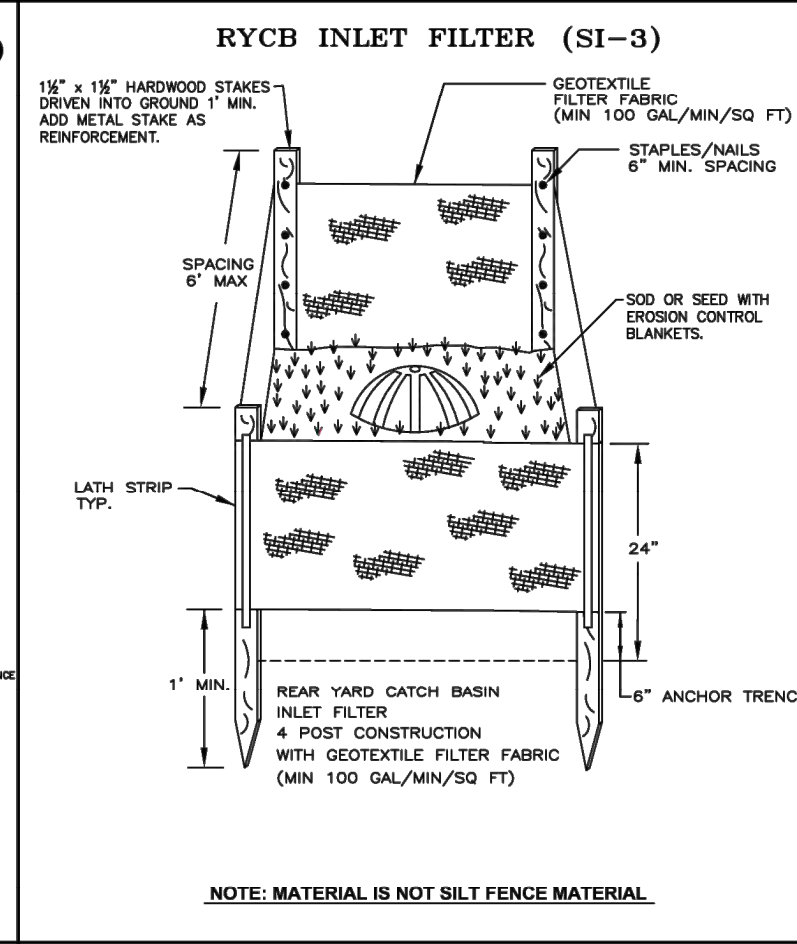
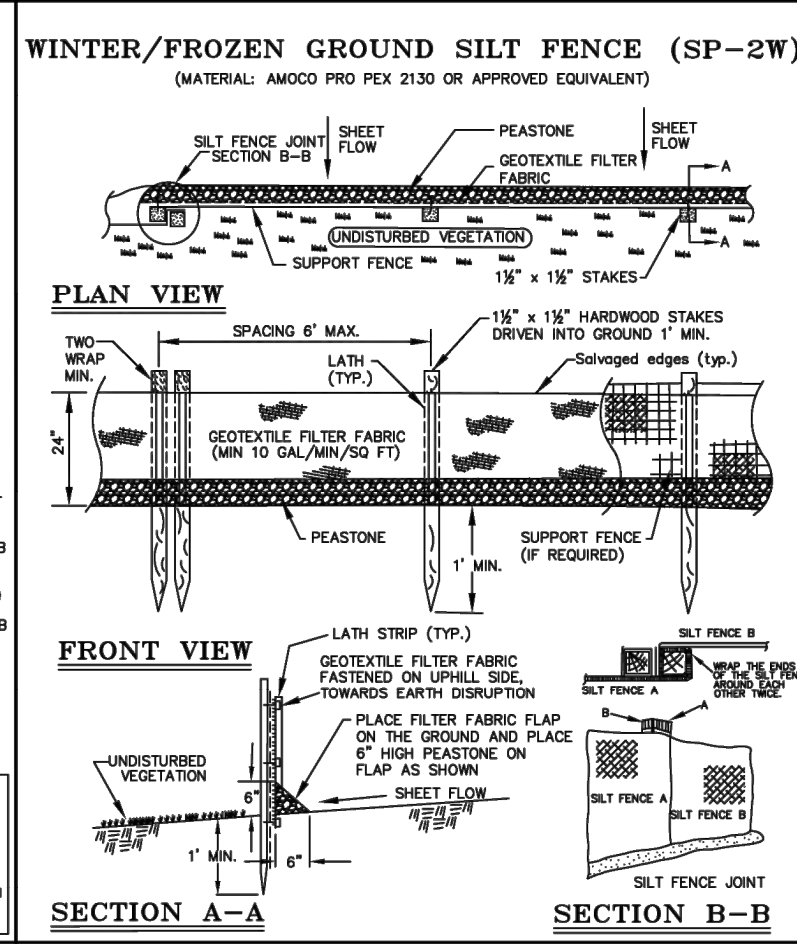
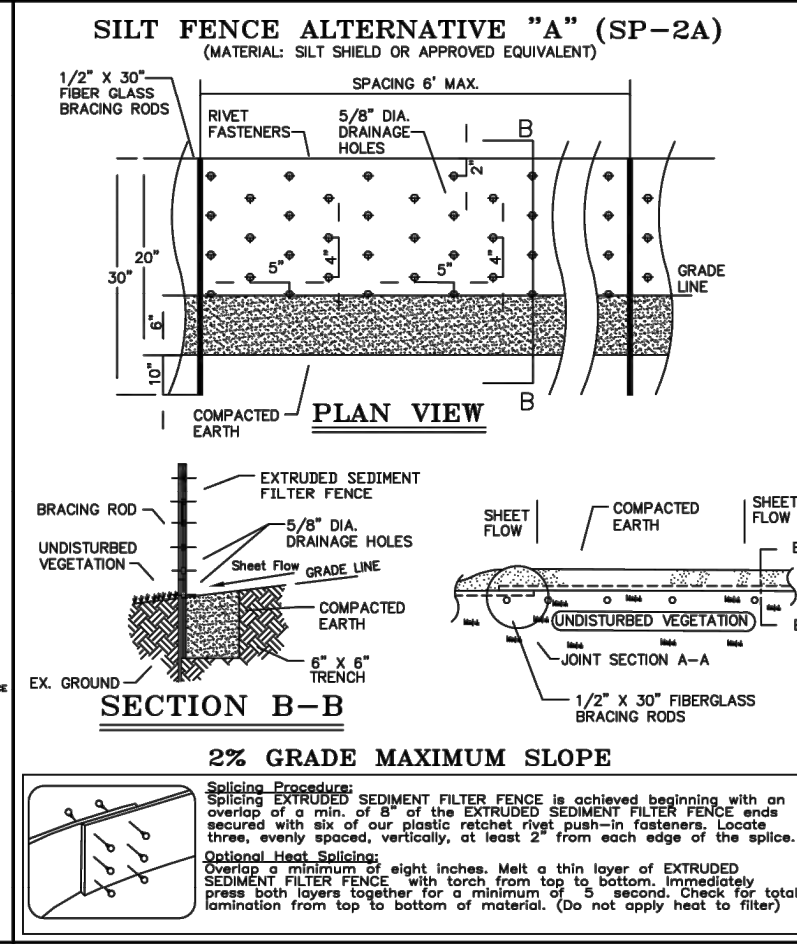
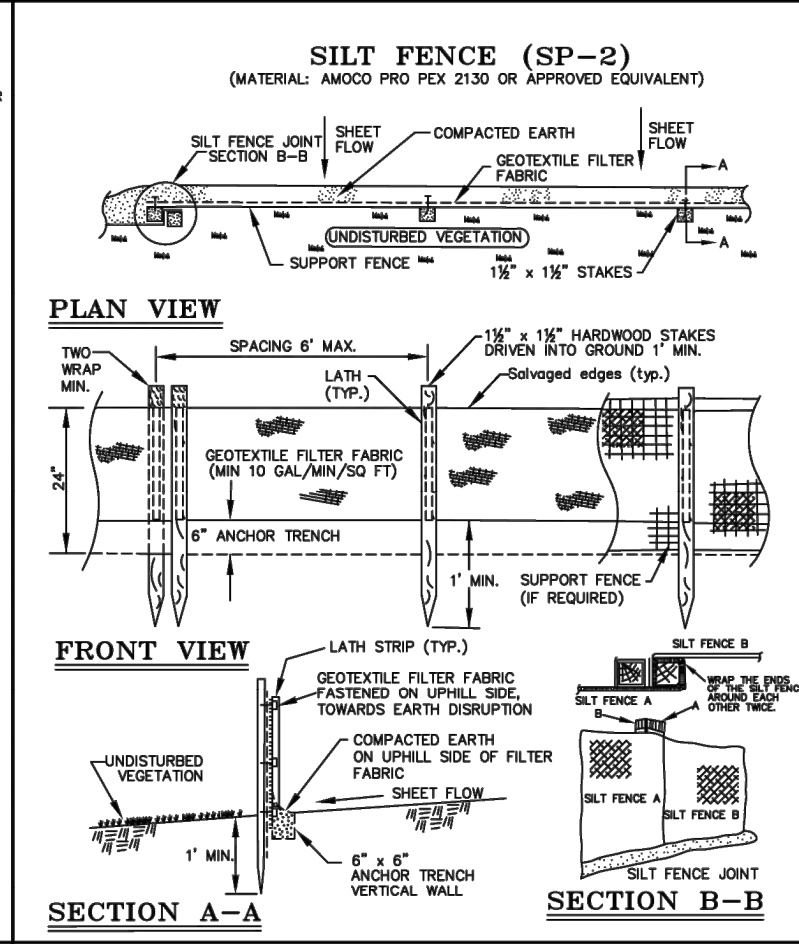
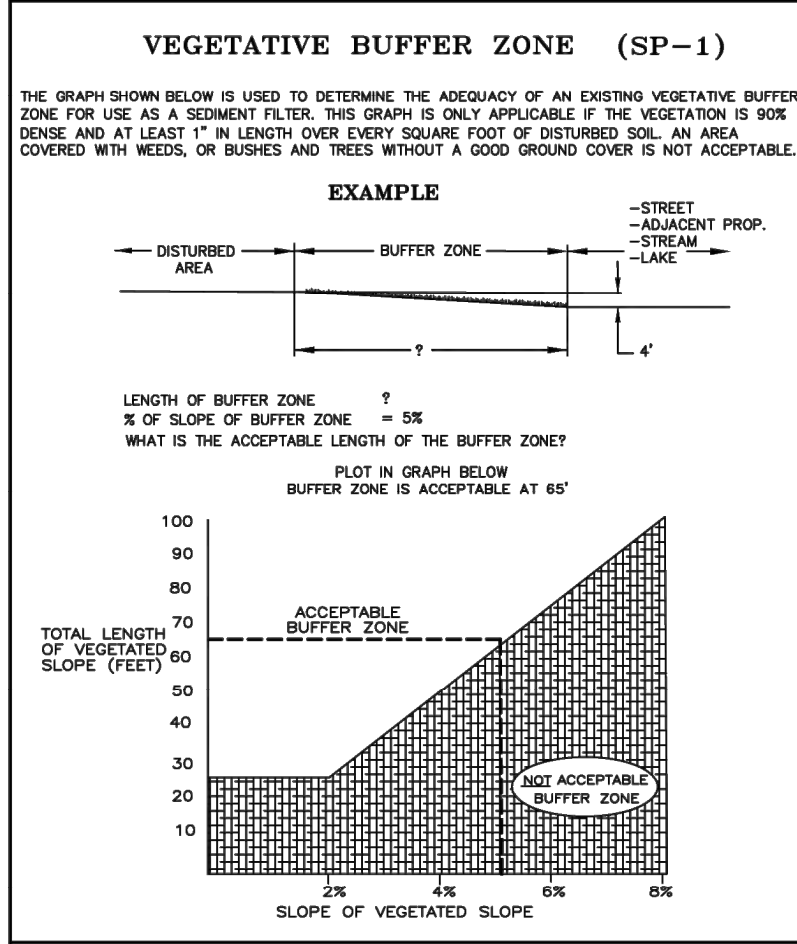
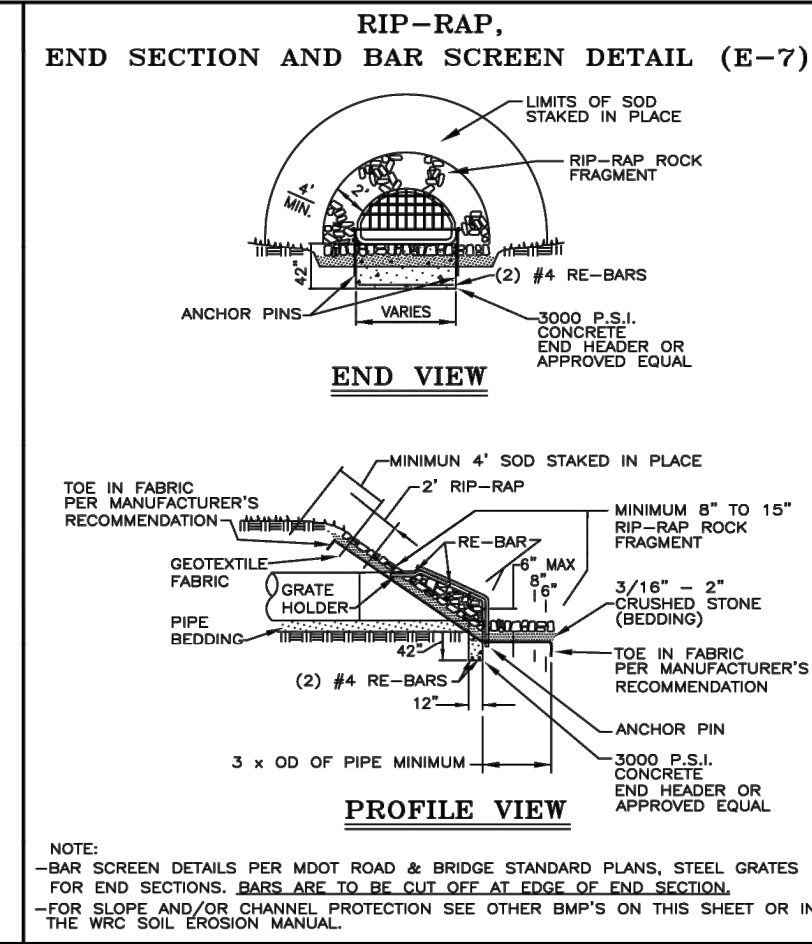
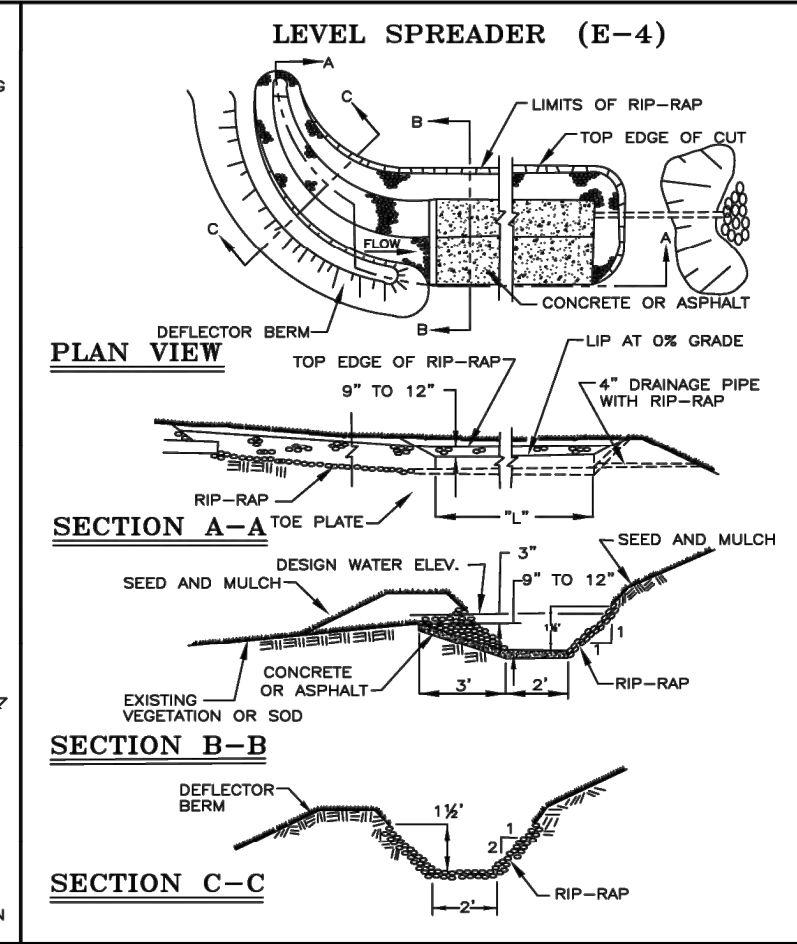
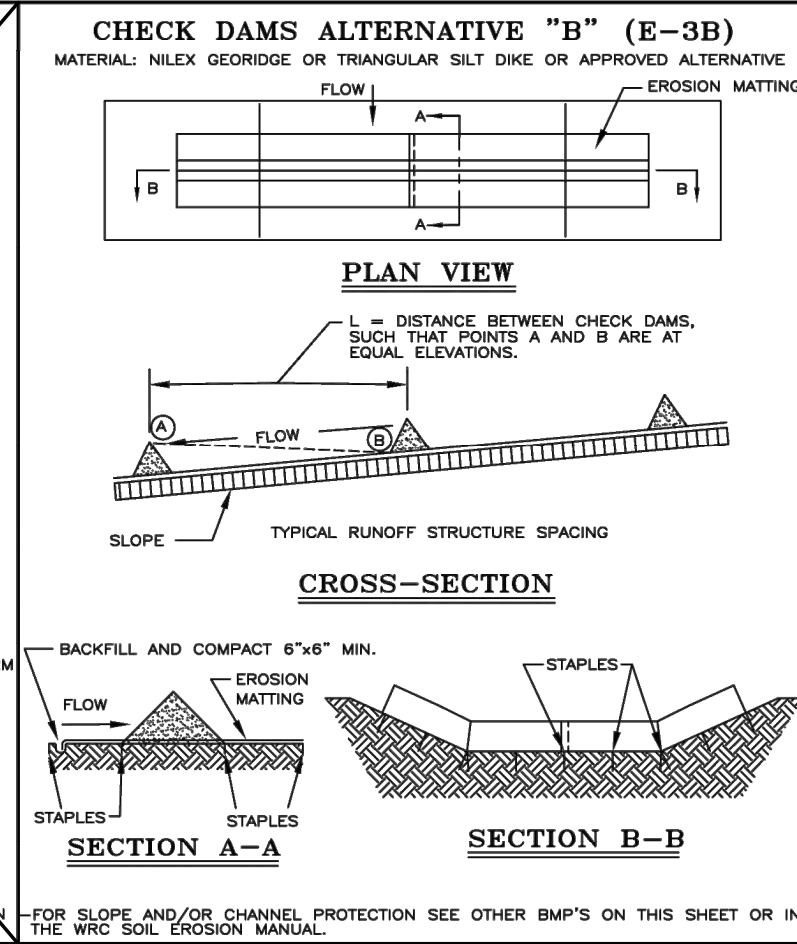
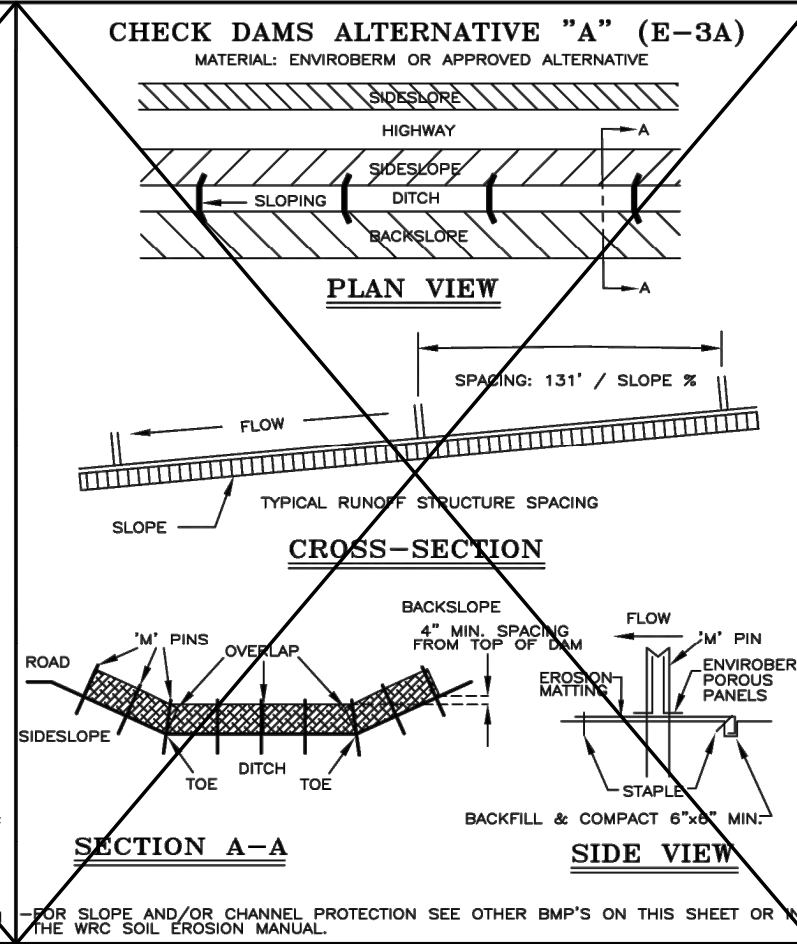
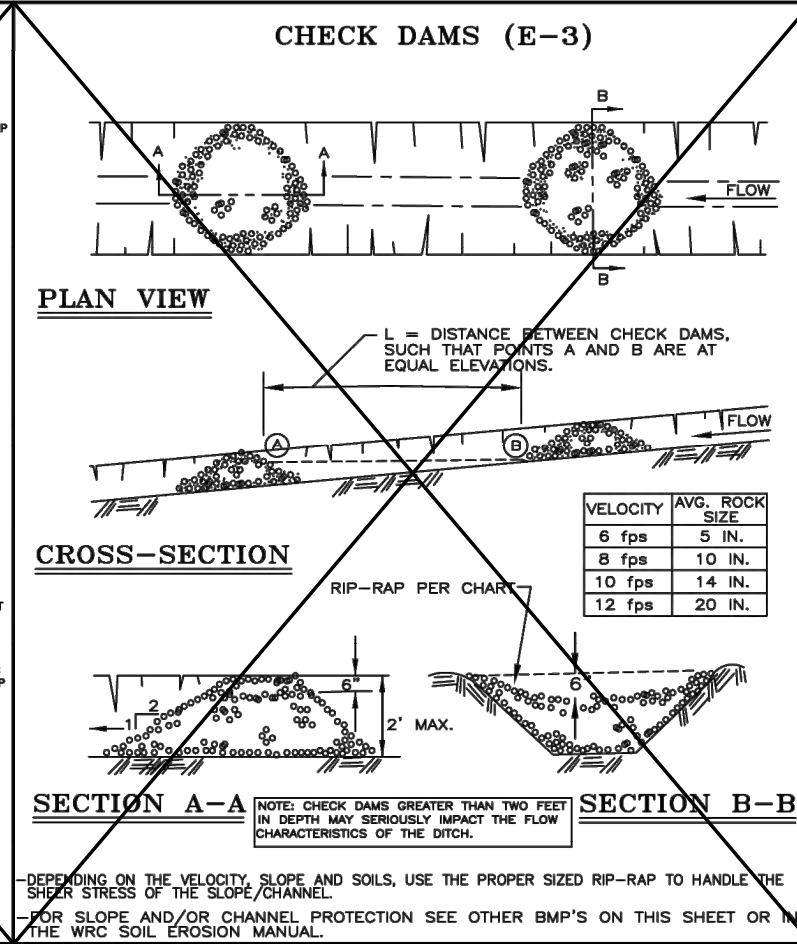
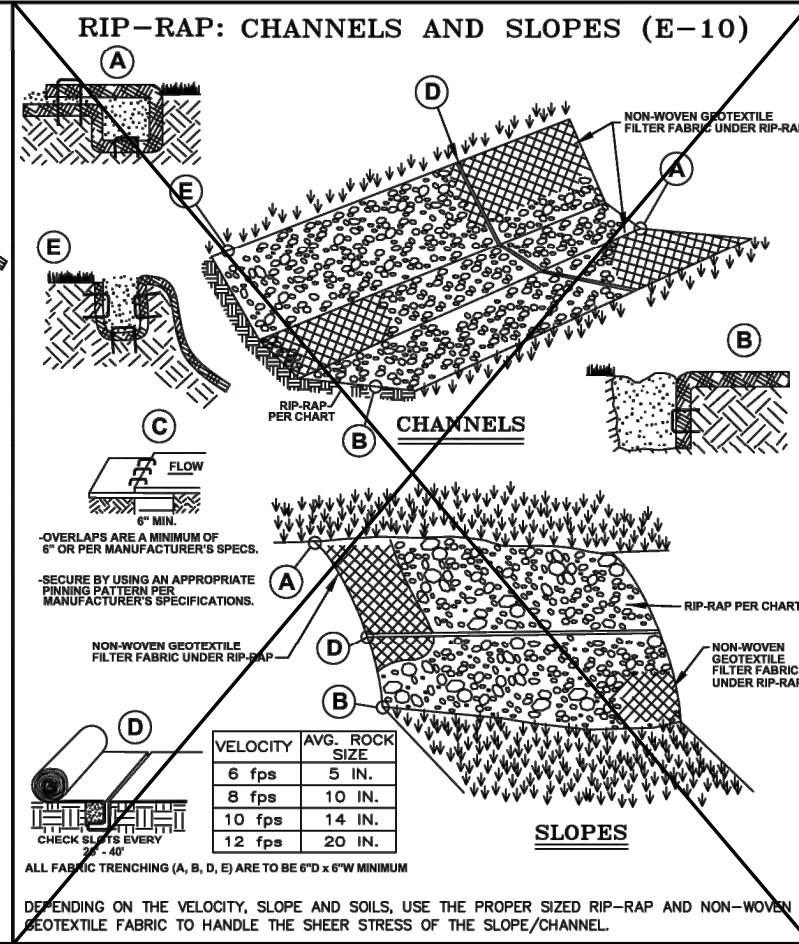
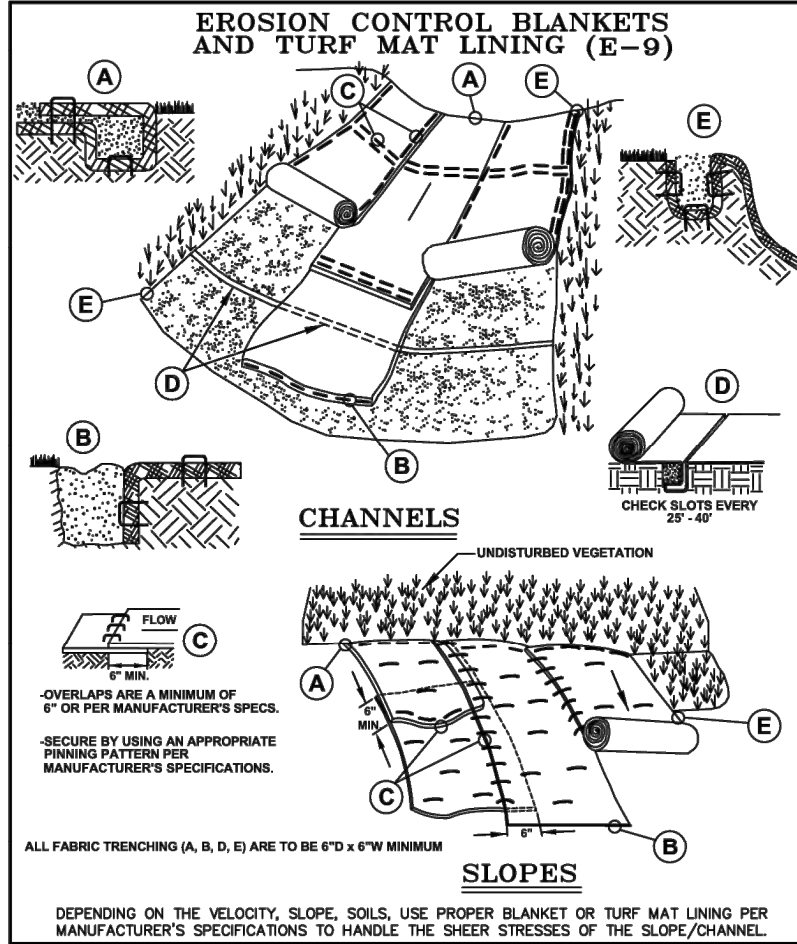


DOWNSPOUT CONNECTION & CLEAN-OUT

NOT TO SCALE



DRAWING PATH: P:\0126\01650143220070.dwg, sdd\_storage\Drawings\Civil\Plans\_Cons\220070\SITE.dwg, Nov 15, 2023 - 12:23pm



**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.	Date	Description
1	01/01/2011	ISSUED FOR APPROVAL
2	01/01/2011	ISSUED FOR APPROVAL
3	01/01/2011	ISSUED FOR APPROVAL
4	01/01/2011	ISSUED FOR APPROVAL
5	01/01/2011	ISSUED FOR APPROVAL
6	01/01/2011	ISSUED FOR APPROVAL
7	01/01/2011	ISSUED FOR APPROVAL
8	01/01/2011	ISSUED FOR APPROVAL
9	01/01/2011	ISSUED FOR APPROVAL
10	01/01/2011	ISSUED FOR APPROVAL

ORIG. DATE: 01/01/2011

SCALE: NONE

DESIGNED BY: WRC

DRAWN BY: Mapping

ONE PUBLIC WORKS DRIVE, BLDG 95 WEST WATERFORD, MICHIGAN 48387-3007

SHEET NO. 1 of 1



STRUC. ABBR.

A	AND
@	AT
ALUM	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL (ARCHTECT)
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS

B	
BF	BOTH FACES
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BRG	BEARING
BRKT	BRACKET
BTWN	BETWEEN

C	
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CL	CENTER LINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE

D	
DEG	DEGREE
DEMO	DEMOLITION
DET	DETAIL
DIA	DIAMETER
DIST	DISTANCE
DL	DEAD LOAD

E	
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ENG	ENGINEER
ENTR	ENTRANCE
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
EW	EACH WAY
EX	EXISTING
EXP	EXPANSION (EXPOSED)

F	
FD	FLOOR DRAIN
FF	FINISHED FLOOR
FIN	FINISH / FINISHED
FT	FOOT / FEET
FTG	FOOTING

G	
GA	GAGE
GALV	GALVANIZED
GB	GYPSUM BOARD
GYP	GYPSUM

H	
HDR	HEADER
HORIZ	HORIZONTAL
HR	HOUR
HT	HEIGHT

I	
IN	INCH / INCHES
INSUL	INSULATION

J	
JST	JOIST
JT	JOINT

L	
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LP	LOW POINT
LT	LEFT

M	
MAX	MAXIMUM
MBC	MICHIGAN BUILDING CODE
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING

N	
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT

STRUC. ABBR.

No.	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE

O	
OBC	OHIO BUILDING CODE
OC	ON CENTER
OH	OVERHEAD

P	
PCF	POUNDS PER CUBIC FOOT
PL	PLATE
PLMB	PLUMBING
PLYWD	PLYWOOD
PREFAB	PREFABRICATED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PVC	POLYVINYL CHLORIDE

Q	
QTY	QUANTITY

R	
REINF	REINFORCE
REQD	REQUIRED
REV	REVISE / REVISION
RO	ROUGH OPENING
RS	ROUGH SAWN
RT	RIGHT

S	
SIM	SIMILAR
SOG	SLAB ON GRADE
SQ FT	SQUARE FOOT / FEET
SQ IN	SQUARE INCH / INCHES
STL	STEEL

T	
T&B	TOP & BOTTOM
T&G	TONGUE & GROOVE
TEMP	TEMPERATURE / TEMPERED
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOM	TOP OF MASONRY
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL

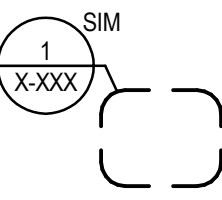

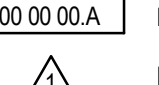
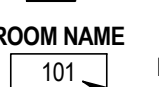
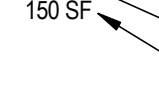

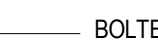








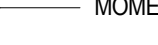
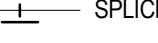
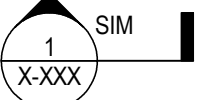
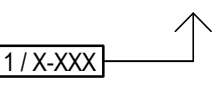


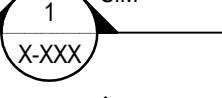
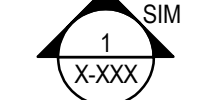
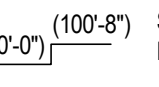
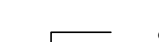
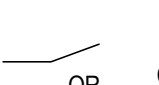

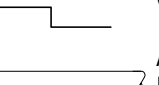










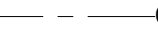
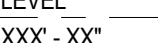
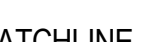

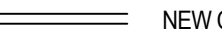
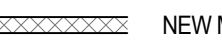

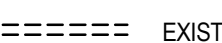
U	
UNO	UNLESS NOTED OTHERWISE

V	
VERT	VERTICAL
VIF	VERIFY IN FIELD

W	
W/	WITH
W/O	WITHOUT
WD	WOOD
WF	WDE FLANGE
WT	WEIGHT
WWF	WELDED WIRE FABRIC

Y	
Y	
YD	YARD

STRUCTURAL SYMBOLS LEGEND

VIEW REFERENCES	NOTES & ANNOTATIONS	CONNECTION TYPES
 DETAIL INDICATOR	(E) INDICATES EXISTING  SHEET KEYNOTE INDICATOR  REFERENCE KEYNOTE INDICATOR  REVISION INDICATOR  ROOM IDENTIFIER ROOM NUMBER ROOM AREA  NORTH INDICATOR PLAN NORTH TRUE NORTH	 BOLTED  BOTTOM FLANGE BRACING  CANTILEVER  CANTILEVER MOMENT  COLLECTOR  DOUBLE SHEAR TAB  FULL DEPTH WELD  MOMENT  MOMENT FRAME  SPLICE  TOP FLANGE WELD
 SECTION DETAIL INDICATOR  ALTERNATE DETAIL / SECTION DETAIL INDICATOR  WALL SECTION INDICATION  BUILDING SECTION INDICATOR  EXTERIOR ELEVATION INDICATOR  INTERIOR ELEVATION INDICATOR	 SLAB STEP LOCATION WITH ELEVATIONS  SLAB STEP LOCATION  CHANGE IN SLAB SLOPE (UP OR DOWN)  CHANGE IN SLAB THICKNESS  APPROXIMATE LOCATION OF UTILITY PIPE PENETRATION THROUGH FOUNDATION WALL  APPROXIMATE LOCATION OF DRAIN TILE  SPAN DIRECTION OF ELEMENT  EXTENT OF ELEMENT  CONTINUOUS EXTENT OF ELEMENT  WELDED WIRE FABRIC REINFORCING	<b>INDICATOR LINES &amp; POINTS</b>  INDICATOR OF APPROXIMATE LOCATION OF SOIL BORING  INDICATOR OF APPROXIMATE LOCATION OF MONUMENT  INDICATOR OF FINISH ELEVATION  CENTER LINE  LEVEL XXX - XX" ELEVATION MARK <b>MATCHLINE</b>  MATCHLINE  EXISTING GRID LINE  NEW GRID LINE  NEW BUILDING LINE
BUILDING ELEMENTS		
 NEW CONSTRUCTION  NEW MASONRY CONSTRUCTION  EXISTING TO REMAIN  EXISTING TO BE REMOVED		

SYSTEM SPECIFIC SYMBOLS

(REFER TO SCHEDULES)

REBAR FRAMING SYSTEM	FOUNDATION SYSTEM
<b>TOP BARS</b> #X @ X'-XX" MAX MIN TYP (QUANTITY - BAR SIZE - LENGTH) #X @ X'-XX" MAX MIN TYP (BAR SIZE - LENGTH - SPACING) BAR SPACING FOR FULL EXTENTS OF ARROW	<b>BOTTOM BARS</b> #X @ X'-XX" MAX MIN TYP (QUANTITY - BAR SIZE - LENGTH) #X @ X'-XX" MAX MIN TYP (BAR SIZE - LENGTH - SPACING) BAR SPACING FOR FULL EXTENTS OF ARROW

GENERAL NOTES - STRUCTURAL

- THE GENERAL STRUCTURAL NOTES ARE INTENDED TO AUGMENT THE DRAWINGS AND SPECIFICATIONS. SHOULD CONFLICTS OCCUR BETWEEN DOCUMENTS, THE STRICTEST PROVISION SHALL GOVERN.
- THE CONTRACTOR SHALL LIMIT THE AMOUNT OF LOAD IMPOSED UPON THE STRUCTURAL FRAMING SYSTEM DURING CONSTRUCTION. LOADS, INCLUDING CONSTRUCTION LOADS, MUST NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED. THE CONTRACTOR SHALL INFORM THE ENGINEER OF POTENTIAL CONSTRUCTION LOADS DEEMED EXCESSIVE BY THE CONTRACTOR.
- THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED SELF SUPPORTING, STABLE STRUCTURE UNLESS OTHERWISE INDICATED. THEY DO NOT INDICATE THE MEANS OR METHOD OF CONSTRUCTION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE, CONSTRUCTION SEQUENCE AND PROVIDE ALL MEASURES OR TEMPORARY BRACING NECESSARY TO ENSURE THE STABILITY AND SAFETY OF THE STRUCTURE AND ITS COMPONENTS. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR THE BUILDING, SHORING FOR EARTH BANKS, FORMS, SCAFFOLDING, PLANKING, SAFETY NETS, SUPPORT AND BRACING FOR CRANES AND GIN POLES, ETC.
- ALL MATERIALS AND WORKMANSHIP SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS OF THE GOVERNING BUILDING CODE: MICHIGAN BUILDING CODE, CURRENT EDITION.
- ALL SHOP DRAWINGS PREPARED BY SUPPLIERS, SUBCONTRACTORS, ETC. SHALL BE REVIEWED BY THE ARCHITECT/ENGINEER FOR CONFORMANCE WITH DESIGN INTENT ONLY. SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION. ENGINEER'S APPROVAL OF SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR FIT, QUANTITY AND CONSTRUCTION QUALITY CONTROL.
- STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL RELEVANT DIMENSIONS AND ELEVATIONS FOR EQUIPMENT INSTALLATIONS AGAINST APPROVED MANUFACTURERS CERTIFIED EQUIPMENT DRAWINGS AND COORDINATING ANY REQUIREMENTS WITH SHOP DRAWINGS AND WORK.
- MECHANICAL FRAMING LOADS, OPENINGS AND SUPPORT STRUCTURE ARE SHOWN FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL COORDINATE WITH MECHANICAL AND OTHER TRADES TO VERIFY EQUIPMENT SIZE AND LOCATIONS. ANY CHANGES IN EQUIPMENT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD.
- THE CONTRACTOR SHALL INFORM THE ENGINEER/ARCHITECT OF ANY DEVIATIONS FROM THE DRAWINGS. DO NOT CUT OR MODIFY STRUCTURAL MEMBERS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER.
- DRAWINGS ARE INTENDED TO BE PRINTED PER THE SCALE PROVIDED. THE CONTRACTOR SHALL CONTACT THE ENGINEER IF ADDITIONAL DIMENSIONS ARE REQUIRED.
- CONTRACTOR SHALL NOT MIX GALVANIZED AND STAINLESS STEEL AT ANY TIME. ANY METAL PARTS IN CONTACT WITH OTHER METAL PARTS SHALL BE OF A SIMILAR METAL.
- CONTRACTOR SHALL RECOGNIZE EFFECTS OF THERMAL MOVEMENTS AND MOISTURE CONTENT CHANGES OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD AND CONSIDER THESE EFFECTS DURING CONSTRUCTION AND/OR ERECTION SEQUENCES.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING COMPLETE AND FUNCTIONING SYSTEMS, INCLUDING BUT NOT LIMITED TO, PROVIDING (AT NO ADDITIONAL COST) ITEMS NOT SPECIFICALLY SHOWN IN THESE DRAWINGS WHICH ARE NORMALLY CONSIDERED NECESSARY.

SOILS AND EARTHWORK

- SOIL INVESTIGATIONS HAVE BEEN PERFORMED FOR THIS PROJECT BY G2 CONSULTING GROUP, BORINGS DRILLED 10/04/22.
- CONTRACTOR SHALL VERIFY SOIL BEARING CAPACITY PRIOR TO CONSTRUCTION.
- SPECIAL DESIGN AND CONSTRUCTION PROVISIONS FOR THIS PROJECT'S FOUNDATIONS:  
A. NONE
- INCLUDE IN THE WORK PROVIDING ALL EQUIPMENT, MATERIAL, AND QUALIFIED LABOR NECESSARY FOR EXCAVATION, SHORING, DEWATERING SYSTEMS, BACKFILL, AND COMPACTION OF SOILS, AS REQUIRED TO CONSTRUCT STRUCTURES TO THE LINE AND GRADE AS SHOWN ON THE PLANS.
- FOR PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL TELEPHONE (800) 482-7171 NOT LATER THAN THREE BUSINESS DAYS PRIOR TO EXCAVATING IN THE VICINITY OF UTILITY LINES. ALL "MISS DIG" PARTICIPATING MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM.
- EXCAVATE TO ELEVATIONS AND DIMENSIONS SHOWN ON THE PLANS WITHIN A TOLERANCE OF +/- 0.10 FEET. EXCAVATE BY HAND TO FINAL GRADE FOR FOOTINGS.
- NOTIFY THE ENGINEER FOR AN INSPECTION WHEN THE EXCAVATION HAS REACHED SUB-GRADE ELEVATION. IF UNSUITABLE BEARING MATERIALS ARE ENCOUNTERED AT SUB-GRADE ELEVATION, EXCAVATE AND REPLACE SUCH MATERIALS AS DIRECTED BY ENGINEER.
- SATISFACTORY SOIL MATERIALS ARE DEFINED AS GRANULAR MATERIALS CLASSIFIED AS GW, GP, GM, SW, SP, SW-SM, SP-SM OR SM BY THE UNIFIED SOILS CLASSIFICATION SYSTEM, ASTM D2487. LIMIT AMOUNT OF FINE MATERIAL PASSING NO. 200 SIEVE TO LESS THAN 5% MAXIMUM.
- UNSATISFACTORY SOIL MATERIALS ARE DEFINED AS SOILS CLASSIFIED AS GC, SW-SC, SP-SC, SC, ML, MH, CL, CH, OL, OH, AND PT BY THE UNIFIED SOIL CLASSIFICATION SYSTEM, OR ANY ORGANIC MATERIAL. "MARL" IS AN UNSATISFACTORY SOIL MATERIAL.
- BACKFILL ALL STRUCTURAL WORK WITH SATISFACTORY SOIL MATERIALS AND ENGINEERED FILL AS SHOWN ON PLANS. DO NOT BACKFILL WITH FROZEN MATERIALS. DO NOT PLACE ROCKS LARGER THAN 3" DIAMETER IN BACKFILL.
- COMPACT SOILS BELOW FOOTINGS TO A MINIMUM OF 95% OF THE MAXIMUM DENSITY AS DETERMINED BY MODIFIED PROCTOR, ASTM D1557.
- COMPACT BACKFILL IN LAYERS TO MINIMUM 95% MAXIMUM DENSITY AS DETERMINED BY MODIFIED PROCTOR, OR MICHIGAN CONE TEST.

CONCRETE NOTES

- PROVIDE MINIMUM 28-DAY CONCRETE COMPRESSIVE STRENGTH OF 4,000 PSI ( $f_c = 4,000$  PSI). PROVIDE NORMAL WEIGHT CONCRETE, WITH  $6\% \pm 1.5\%$  ENTRAINED AIR FOR EXTERIOR APPLICATIONS. MAXIMUM W/C RATIO  $< 0.45$ , AND MAXIMUM 4" SLUMP, UNLESS SUPER-PLASTICIZERS ARE USED. USE OF SUPER-PLASTICIZERS IS SUBJECT TO PRIOR APPROVAL BY THE ENGINEER. DO NOT PROVIDE AIR CONTENT  $> 3\%$  FOR TROWEL FINISHED SLABS. DO NOT PROVIDE AIR CONTENT  $> 3\%$  FOR TROWEL FINISHED SLABS.
- PROVIDE READY-MIX CONCRETE CONFORMING TO ASTM C-94.
- CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ACI 117 301, 306R, 306.1, AND 308.1, LATEST APPLICABLE EDITION.
- PLACE ANCHOR RODS SET IN CONCRETE TO RECEIVE STRUCTURAL STEEL WITHIN TOLERANCES SPECIFIED IN THE LATEST APPLICABLE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" IN LIEU OF TOLERANCES SPECIFIED IN ACI "STANDARD SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS".
- REINFORCING STEEL CONFORMING TO ASTM A-615, GRADE 60 IS REQUIRED. PLACE REINFORCING STEEL IN CONFORMANCE WITH CRSI MANUAL OF STANDARD PRACTICE.
- REINFORCING STEEL SHALL NOT BE WELDED.
- POST INSTALLED ANCHORS OR REBAR SHALL BE ANCHORED INTO CONCRETE WITH POWERS PE1000+ EPOXY INJECTION ADHESIVE, OR AN APPROVED EQUAL. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION INSTRUCTIONS. SEE DETAILS FOR MINIMUM EMBEDMENT.

REINFORCEMENT LAP SPlice LENGTH+						
BAR SIZE	$f_c = 3,000$ psi		$f_c = 4,000$ psi		$f_c = 5,000$ psi	
	TOP BARS*	ALL OTHER BARS	TOP BARS*	ALL OTHER BARS	TOP BARS*	ALL OTHER BARS
#3	28"	22"	24"	19"	22"	17"
#4	37"	29"	33"	25"	29"	23"
#5	47"	36"	40"	31"	36"	28"
#6	56"	43"	49"	38"	44"	34"
#7	81"	63"	70"	54"	63"	49"
#8	93"	72"	81"	62"	72"	56"

- \* TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF FRESH CONCRETE BELOW BAR.
- \* LAP SPlice LENGTHS SHOWN ARE CLASS B SPlice LENGTHS FOR UNCOATED OR GALVANIZED BARS WITH CLEAR COVER OF  $d_b$  OR MORE AND WITH CLEAR SPACING OF  $2d_b$  OR MORE. INCREASE LAP LENGTHS BY 50% FOR EPOXY COATED OR DUAL ZINC-EPOXY COATED BARS WITH CLEAR COVER LESS THAN  $3d_b$  OR WITH CLEAR SPACING LESS THAN  $6d_b$ . INCREASE LAP LENGTHS BY 20% FOR EPOXY COATED OR DUAL ZINC-EPOXY COATED BARS WITH CLEAR COVER OF  $3d_b$  OR MORE AND WITH CLEAR SPACING OF  $6d_b$  OR MORE. SPlice LENGTHS SHOWN ARE FOR NORMAL WEIGHT CONCRETE AND REINFORCEMENT WITH A YIELD STRENGTH OF 60,000 PSI (60 KSI).

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED EARTH: 3"
- CONCRETE CAST AGAINST FORMS BUT EXPOSED TO EARTH OR WEATHER
  - NO. 5 OR SMALLER 1 1/2"
  - GREATER THAN NO. 5 2"
- SLAB ON GRADE: 2" FROM T/SLAB

BUILDING LOADS

BUILDING CLASSIFICATION II

LIVE LOADS	
1. UNIFORM FLOOR LIVE LOAD	250 psf
2. ROOF LOAD - SEE SNOW LOAD	20 psf
DEAD LOADS	
1. MATERIAL DEAD LOAD	10 psf
2. MECHANICAL DEAD LOAD	5 psf
SNOW LOADS	
BALANCED SNOW	21 psf
1. GROUND SNOW LOAD, $P_g$	25 psf
2. FLAT-ROOF SNOW LOAD, $P_f$	21 psf
3. SNOW EXPOSURE FACTOR, $C_e$	1.0
4. RISK CATEGORY	II
5. SNOW LOAD IMPORTANCE FACTOR, $I_s$	1.0
6. ROOF THERMAL FACTOR, $C_t$	1.2
7. SLOPED ROOF FACTOR, $C_{sd}$	1.0
8. SLOPED ROOF SNOW LOAD, $P_s$	21 PSF
UNBALANCED SNOW	
1. LEeward	7 psf
2. LEeward (11.5)	40 psf
WIND LOADS $V_{ASD}=V_{ULT}(0.6)^{1/2}$ $Q_{ASD}=Q_{ULT}(0.6)$	
LOAD OR VARIABLE (WIND LOADS PROVIDED ARE LRFD)	
1. ULTIMATE DESIGN WIND SPEED (3-SECOND GUST)	115 mph
2. RISK CATEGORY	II
3. WIND EXPOSURE CATEGORY	C
4. INTERNAL PRESSURE COEFFICIENT (ENCLOSED BUILDING)	$\pm 0.18$
5. MAIN WIND FORCE RESISTING SYSTEM (MAX ROOF UPLIFT AT OVERHANG)	33 psf
6. MAIN WIND FORCE RESISTING SYSTEM (MAX WALL)	24 psf
7. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 1)	+18, -29 psf
8. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 2)	+18, -49 psf
9. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 3)	+18, -73 psf
10. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 4)	+31, -34 psf
11. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 5)	+31, -41 psf
EARTHQUAKE DESIGN DATA	
LOAD VARIABLE	
1. RISK CATEGORY	II
2. SEISMIC IMPORTANCE FACTOR, $I_e$	1.0
3. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER, $S_s$	0.091 g
4. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER, $S_1$	0.046 g
5. SITE CLASS	D
6. SEISMIC DESIGN CATEGORY	B
7. BASIC SEISMIC FORCE RESISTING SYSTEM: STEEL ORDINARY CONCENTRICALLY BRACED FRAME	
8. SEISMIC RESPONSE COEFFICIENT(S), $C_s$ (SECTION 12.8.1.1)	0.0139
9. RESPONSE MODIFICATION COEFFICIENT(S), $R$ (SECTION 12.2.1)	3.25
10. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE, SECTION 12.8	
MISCELLANEOUS DESIGN DATA	
ASSUMED SOIL BEARING STRENGTH	
2000 psf	
CONTRACTOR SHALL NOTIFY ENGINEER IF UNSATISFACTORY SOILS ARE FOUND DURING EXCAVATION	
NOTES	
1. APPLICABLE CODE IS 2015 MICHIGAN BUILDING CODE.	
2. APPLICABLE TECHNICAL CODE IS ASCE/ SEI 7-10.	
3. WIND LOAD BASED ON ASCE 7-10	
A. MWFS: CHAPTER 28, PART 1	
B. C&C: CHAPTER 30, PART 1	
4. LOADS ARE BASED ON SECTION 16 OF MBC 2015 UNLESS OTHERWISE NOTED.	



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PROJ. MGR: CO

COUNTY: OAKLAND

CITY OF SOUTHFIELD

DPW STORAGE BUILDING

25501 Clara Lane

Southfield, MI 48034

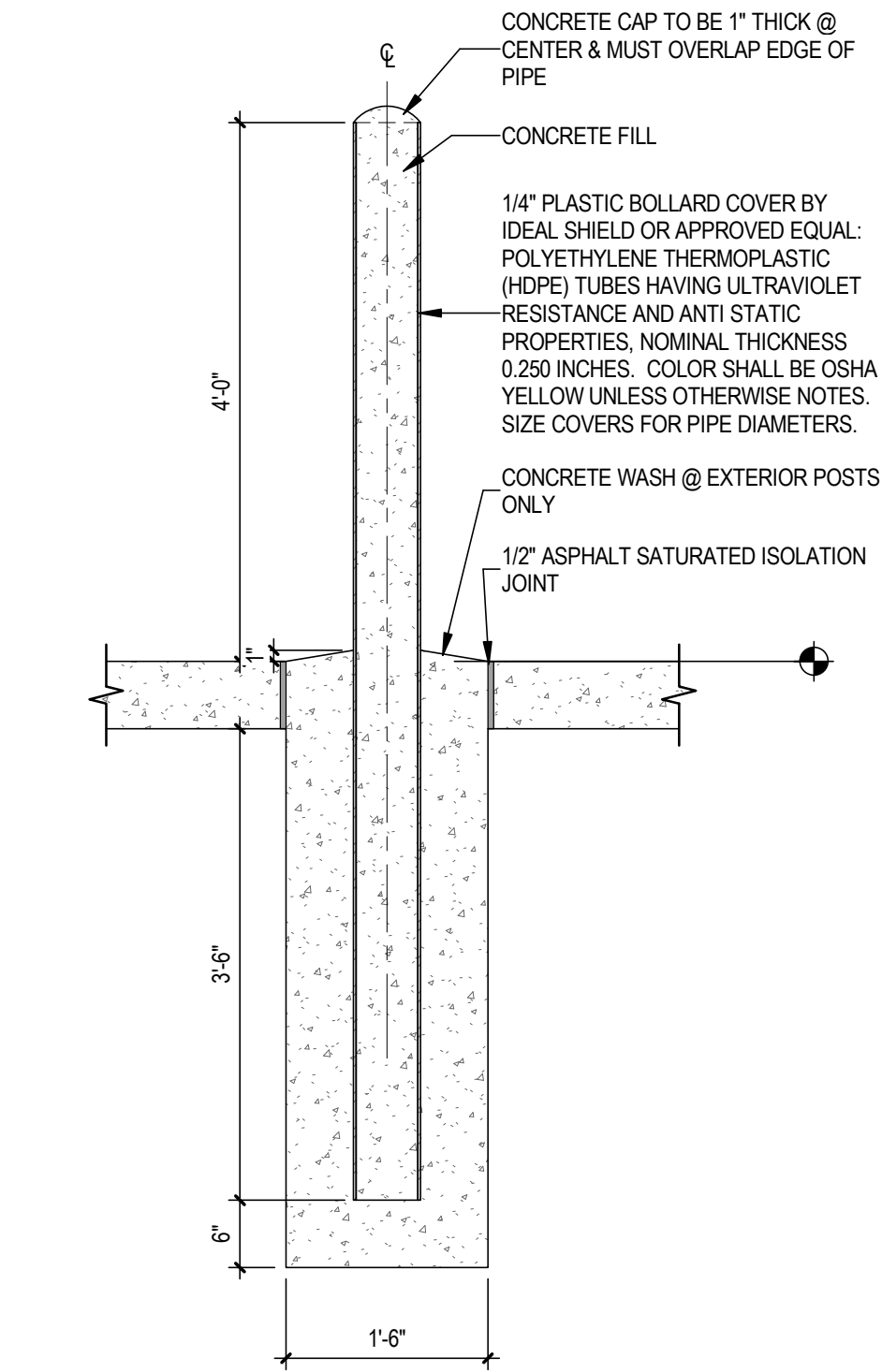
STRUCTURAL NOTES AND SYMBOLS

SHEET

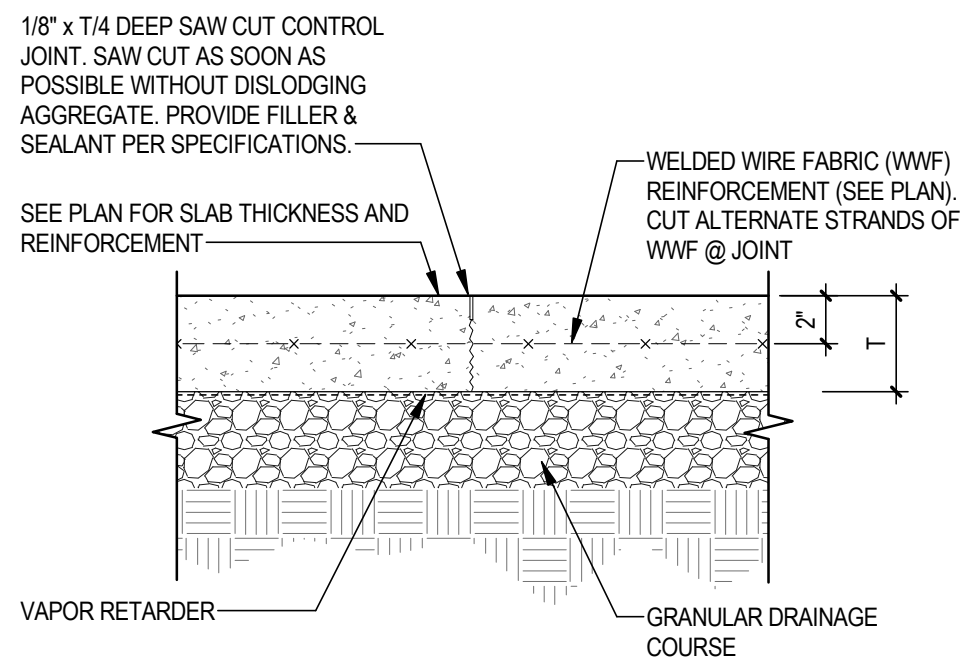
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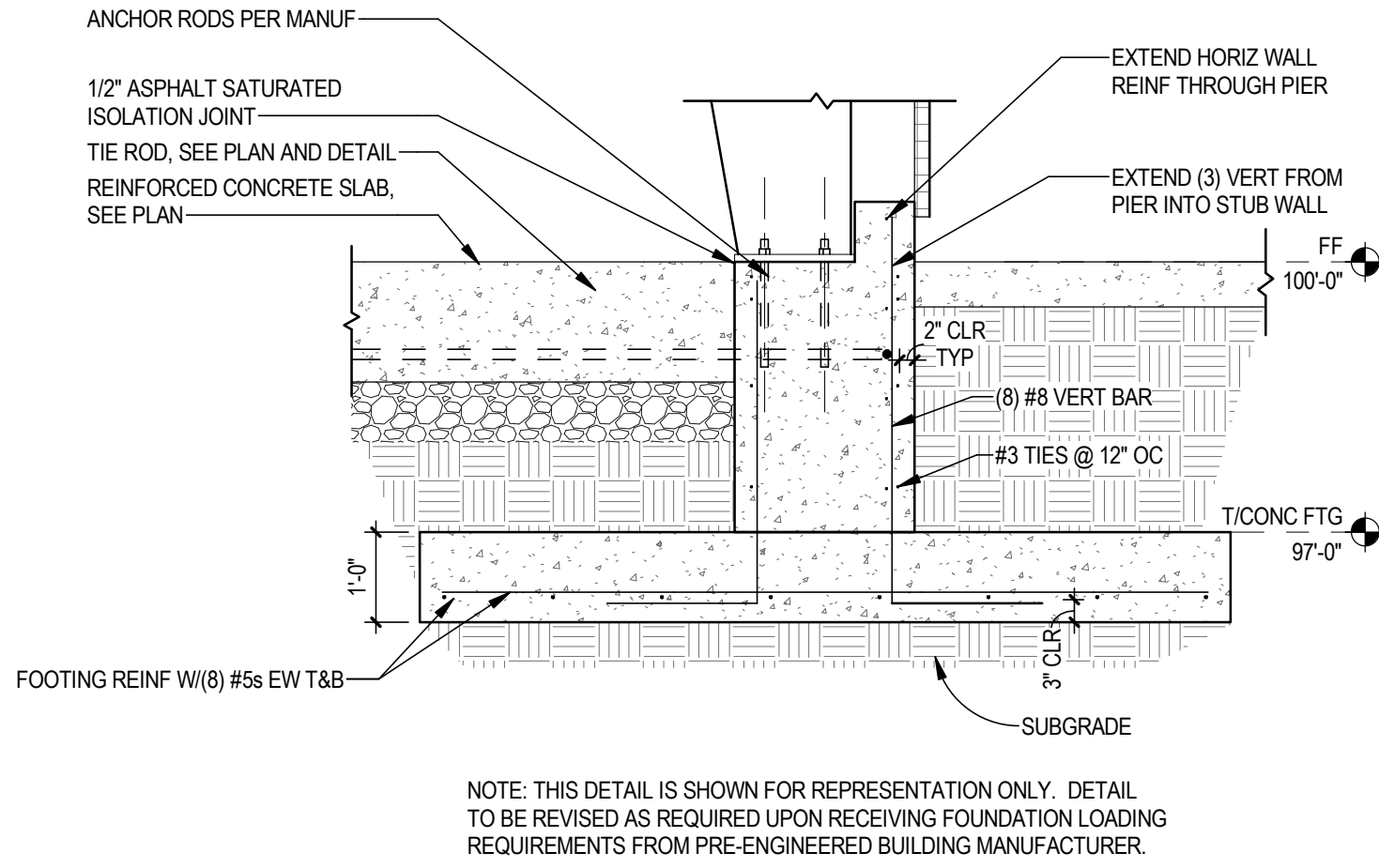
**5** TYPICAL GUARD POST DETAIL  
3/4" = 1'-0"



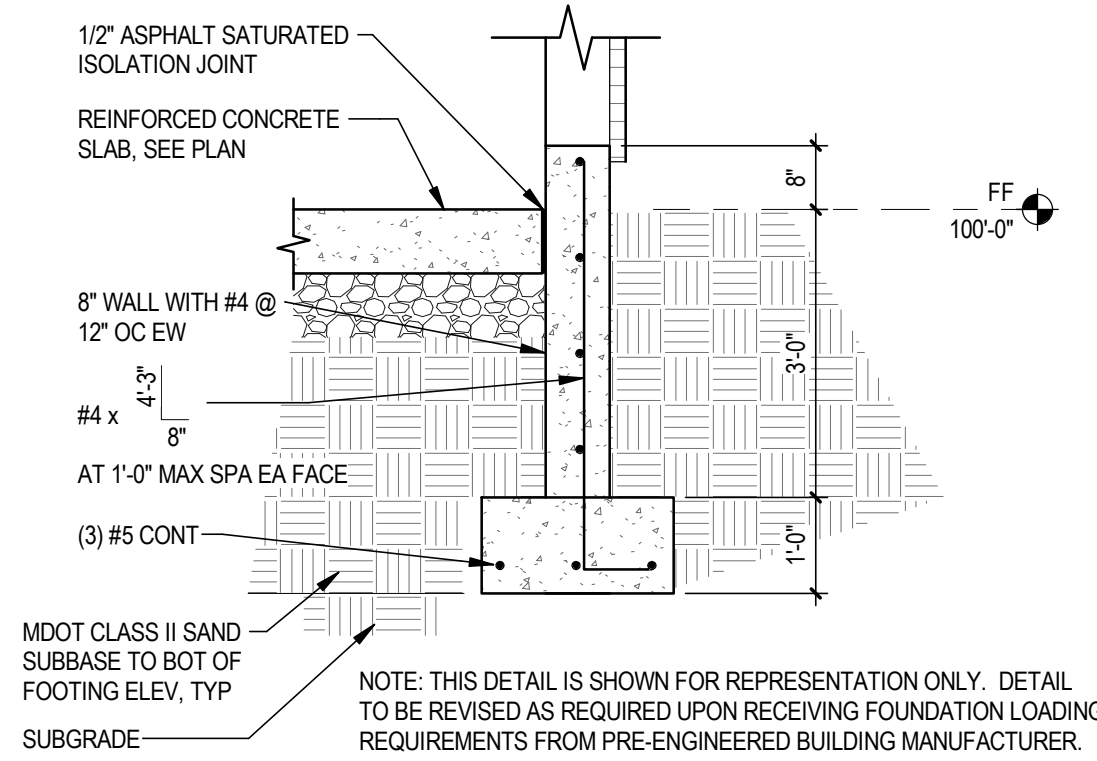
**3** TYP SLAB-ON-GRADE SAW-CUT JOINT  
1 1/2" = 1'-0"



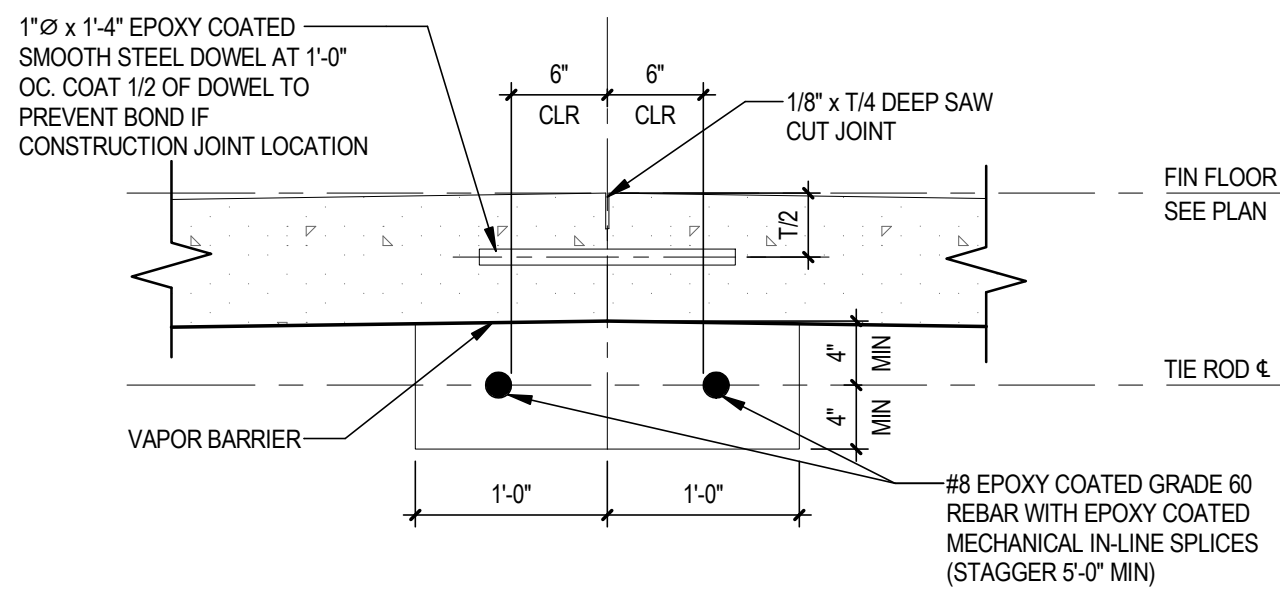
**6** PIER SECTION  
1/2" = 1'-0"



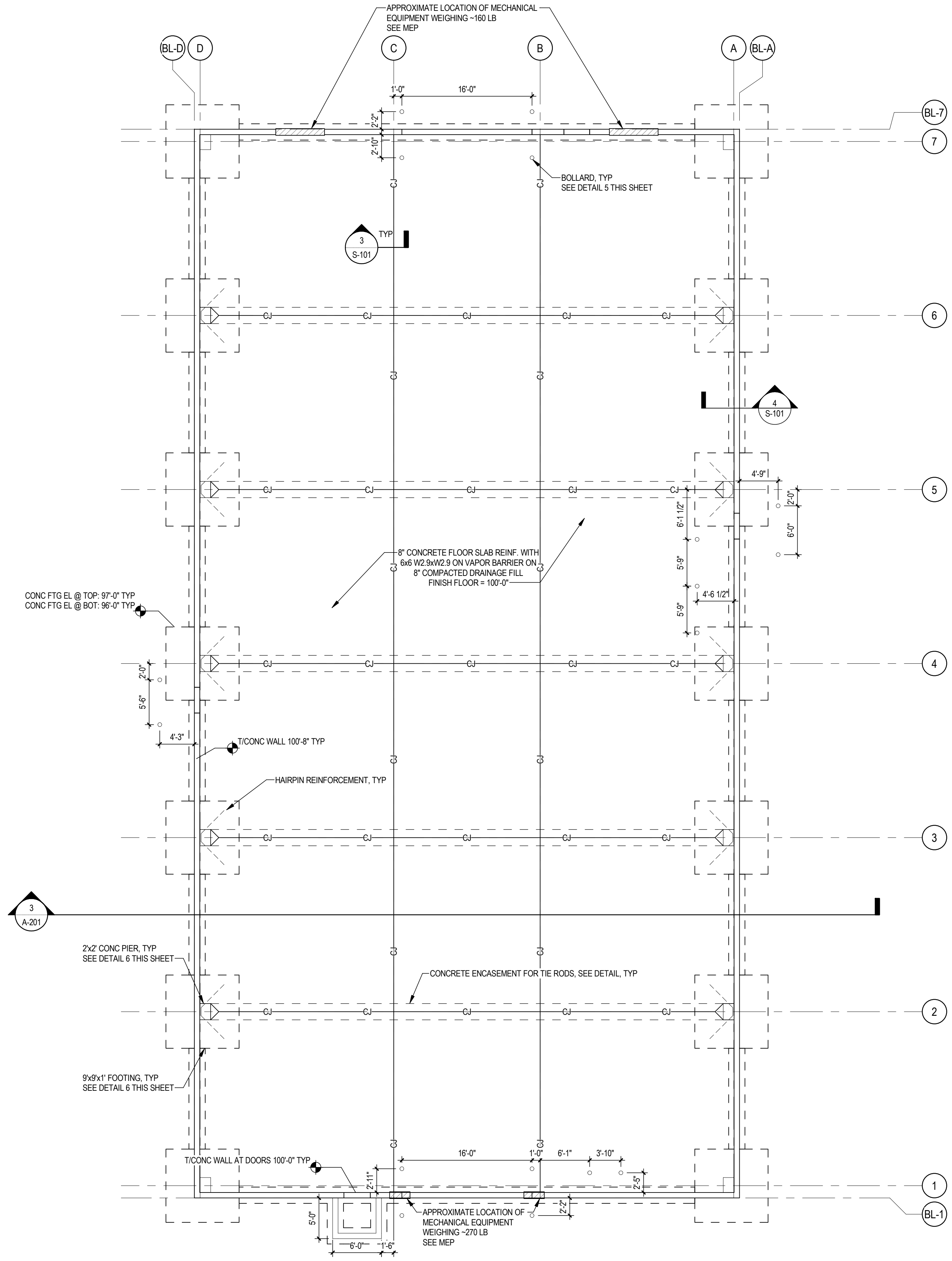
**4** FOUNDATION WALL SECTION  
1/2" = 1'-0"



**2** CONCRETE ENCASEMENT AT TIE RODS  
1" = 1'-0"



**1** FIRST FLOOR FOUNDATION PLAN  
1/8" = 1'-0"



NOTE: FRAME TO BE CAPABLE OF SUPPORTING A 1000 LB POINT LOAD AT ANY LOCATION ON THE ROOF AREA



ABBREVIATIONS

SEE LEGENDS ON A-002 FOR ACCESSORY ABBREVIATIONS

A

&

@

ACT

ADA

AFF

ANSI

ASTM

B

BOT

BRK

BSMT

C

CJ

CL

CMU

CONC

D

DN

DS

E

EA

EIFS

EJ

ELEC

ELEV

EMER

EQ

EXST

F

FA

FACP

FD

FDC

FE

FEC

FF

FHC

FO

FRTW

FSP

FT

FTG

G

GB

GYP

H

HD

HDW

HVAC

HW

AND

AT

ACOUSTICAL CEILING TILE

AMERICANS WITH DISABILITIES ACT

ABOVE FINISHED FLOOR

AMERICAN NATIONAL STANDARDS INSTITUTE

AMERICAN SOCIETY FOR TESTING AND MATERIALS

BOTTOM

BRICK

BASEMENT

CONTROL JOINT

CENTER LINE

CONCRETE MASONRY UNIT

CONCRETE

DOWN

DOWNSPOUT

EACH

EXTERIOR INSULATION AND FINISH SYSTEM

EXPANSION JOINT

ELECTRICAL

ELEVATOR

EMERGENCY

EQUAL

EXISTING

FIRE ALARM

FIRE ALARM CONTROL PANEL

FLOOR DRAIN

FIRE DEPARTMENT CONNECTION

FIRE EXTINGUISHER

FIRE EXTINGUISHER CABINET

FINISHED FLOOR

FIRE HOSE CABINET

FACE OF

FIRE RETARDANT TREATED WOOD

FIRE STANDPIPE

FOOT / FEET

FOOTING

GYPSUM BOARD

GYPSUM

HEAD

HARDWARE

HEATING-VENTILATING-AIR CONDITIONING

HOT WATER

ABBREVIATIONS

SEE LEGENDS ON A-002 FOR ACCESSORY ABBREVIATIONS

I

IN

L

LB

LDG

M

MAX

MEZZ

MFR

MIN

MISC

MO

N

NA

NFPA

NIC

No.

NTS

O

OC

OPP

OPP HND

P

PSF

PSI

Q

QTY

R

R

RD

RO

S

SAB

SD

SF

SIM

SQ IN

T

T

T&B

TYP

U

UNO

V

VIF

W

W/

W/O

WWF

INCH / INCHES

POUND

LANDING LEVEL

MAXIMUM

MEZZANINE

MANUFACTURER

MINIMUM

MISCELLANEOUS

MASONRY OPENING

NOT APPLICABLE

NATIONAL FIRE PROTECTION ASSOCIATION

NOT IN CONTRACT

NUMBER

NOT TO SCALE

ON CENTER

OPPOSITE

OPPOSITE HAND

POUNDS PER SQUARE FOOT

POUNDS PER SQUARE INCH

QUANTITY

RISER

ROOF DRAIN

ROUGH OPENING

SOUND ATTENUATION BLANKET INSULATION

SMOKE DETECTOR

SQUARE FOOT

SIMILAR

SQUARE INCH

TREAD

TOP & BOTTOM

TYPICAL

UNLESS NOTED OTHERWISE

VERIFY IN FIELD

WITH

WITHOUT

WELDED WIRE FABRIC

GENERAL NOTES - ARCHITECTURAL

1.

2.

3.

4.

5.

6.

7.

8.

9.

DO NOT SCALE DRAWINGS. IF DIMENSIONS CANNOT BE DETERMINED OR DOCUMENTS ARE IN CONFLICT, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ARCHITECT PRIOR TO CONTINUATION OF WORK

FIELD VERIFY ALL PROJECT CONDITIONS PRIOR TO THE START OF WORK, AND AS NEEDED THROUGHOUT THE DURATION OF CONSTRUCTION. BRING ANY DISCREPANCIES WHICH MAY SIGNIFICANTLY AFFECT NEW CONSTRUCTION WORK TO THE ATTENTION OF THE ARCHITECT FOR REVIEW

ALL WOOD BLOCKING AND BACKING SHALL BE FIRE-RETARDANT TREATED, UNO

INFORMATION SHOWN IN ONE LOCATION ON THE DRAWINGS IS THE SAME AS IF SHOWN ON MULTIPLE LOCATIONS

TYPICAL CONDITIONS ARE NOTED ONLY ONCE

COORDINATE OPENINGS AND PENETRATIONS BETWEEN TRADES

FLOOR LEVELS BETWEEN ADJACENT MATERIALS MUST NOT EXCEED 1/4". PROVIDE APPROPRIATE TRANSITION STRIPS OR LEVEL FLOORS AS REQUIRED

FLOORS MUST BE MADE LEVEL TO NO LESS THAN 1/8" IN 10', USING A 10' STRAIGHTEDGE

PROVIDE REQUIRED FILLERS, SEALANT, OR TRIM AS NECESSARY TO CLOSE GAPS BETWEEN ADJACENT MATERIALS

ARCHITECTURAL SYMBOLS LEGEND

VIEW REFERENCES

1

X-XXX

DETAIL INDICATOR

1

X-XXX

SECTION DETAIL INDICATOR

1

X-XXX

ALTERNATE DETAIL / SECTION DETAIL INDICATOR

1

X-XXX

WALL SECTION INDICATOR

1

X-XXX

BUILDING SECTION INDICATOR

1

X-XXX

EXTERIOR ELEVATION INDICATOR

1

X-XXX

INTERIOR ELEVATION INDICATOR

1

X-XXX

3D VIEW INDICATOR

NOTES & ANNOTATIONS

e

INDICATES EXISTING

XX

SHEET KEYNOTE INDICATOR

00 00 00.A

REFERENCE KEYNOTE INDICATOR

REVISION INDICATOR

ROOM NAME

101

150 SF

1,254 Occ

ROOM IDENTIFIER

ROOM NUMBER

ROOM AREA

OCC. COUNT

MWP

WALL TYPE INDICATOR

W1

WINDOW / LOUVER INDICATOR (REFER TO WINDOW SCHEDULE)

101A

DOOR INDICATOR (REFER TO DOOR SCHEDULE)

GL-1

GLAZING INDICATOR (REFER TO PROJECT MANUAL)

GLAZING MODIFIER (REFER TO STOREFRONT ELEVATIONS)

N

PLAN NORTH

TRUE NORTH

BUILDING ELEMENTS

NEW CONSTRUCTION

NEW MASONRY CONSTRUCTION

EXISTING TO REMAIN

EXISTING TO BE REMOVED

DOORS

CLEARANCE LINES

ACCESSIBILITY

60" DIAMETER WHEELCHAIR TURNING SPACE  
ICC A117.1 - 304.3

T-SHAPED WHEELCHAIR TURNING SPACE  
ICC A117.1 - 304.3

CLEAR FLOOR SPACE  
ICC A117.1 - 305.3

INTERNATIONAL SYMBOL OF ACCESSIBILITY  
ICC A117.1 - 703.6.3.1

INDICATOR LINES

CENTER LINE

ELEVATION MARK

SEE 1 / A101

MATCHLINE

EXISTING GRID LINE

PROPOSED GRID LINE

BUILDING LINE

SEPARATION INDICATOR

PROPERTY LINE INDICATOR

FINISHES

ROOM FINISH INDICATOR

ROOM NAME

101

PT-2

VB-1

CPT-P

FINISH INDICATOR

FINISH EXTENT INDICATOR

TRANSITION STRIP INDICATOR

FF&E

CASEWORK INDICATOR (REFER TO INTERIOR ELEVATIONS)

VISUAL DISPLAY BOARD INDICATOR

ACCESSORY, FURNITURE, FIXTURE, AND EQUIPMENT INDICATOR

SIGNAGE INDICATOR (REFER TO SCHEDULE)

SCHEDULE OF DEFERRED SUBMITTALS

DESCRIPTION

PROFESSIONAL SEAL

1. PRE-ENGINEERED METAL BUILDING

MATERIAL SYMBOL LEGEND

CONCRETE

CONCRETE MASONRY UNITS

FACE BRICK

NATURAL STONE

CAST STONE

ALUMINUM

STEEL

WOOD

ROUGH WOOD

SHIM

PLYWOOD

BATT INSULATION

RIGID INSULATION

MINERAL WOOL INSULATION

WOOD BOARD SIDING NARROW

WOOD BOARD SIDING WIDE

ACOUSTICAL TILE

GYPSUM WALL BOARD

4x4 TILE

8x8 TILE

12x12 TILE

EARTH / COMPACT FILL

POROUS FILL

ARCHITECTURAL NOTES & SYMBOLS

CITY OF SOUTHFIELD

DPW STORAGE BUILDING

25501 Clara Lane

Southfield, MI 48034

ARCHITECTURAL NOTES & SYMBOLS

OHM

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11/13/2023

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11/13/2023

PROJ NUMBER

015322-22-0070

PROJ MGR

CO

COUNTY

OAKLAND

SHEET

A-001


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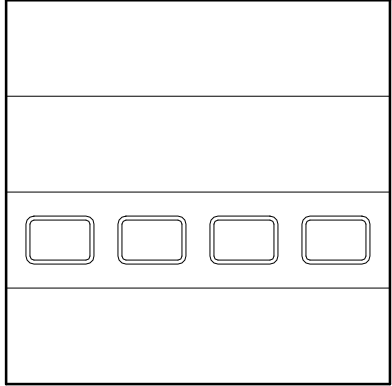
DOOR SCHEDULE													
SCHEDULE KEY:													
MARK:	TYPE:	DOOR MATERIAL:			FRAME MATERIAL:			DOOR / FRAME FINISH:		GLAZING TYPE:	HARDWARE SET:		
AS SPECIFIED ON FLOOR PLANS	REFER TO LEGENDS ON THIS SHEET	AL	ALUMINUM	EXST	AL	ALUMINUM	EXST	EXST	EXISTING TO REMAIN	GL-1	MANUFACTURER'S STANDARD		
		CW	CLAD WOOD	EXST	CW	CLAD WOOD	EXST	PF	PRE-FINISHED				
		FG	FIBERGLASS	EXST	FG	FIBERGLASS	EXST	PTD	PAINTED				
		PVC	POLYVINYL CHLORIDE	EXST	HM	HOLLOW METAL	EXST	STN	STAINED				
		ST	STEEL		PVC	POLYVINYL CHLORIDE							
		VL	VINYL		ST	STEEL							
		WD	WOOD		VL	VINYL							
					WD	VINYL							
SCHEDULE NOTES:													
1. SAFETY EYES AND SAFETY BAR													
2. 3 BUTTON OPERATOR NEXT TO DOOR													
3.													
REV.	MARK	SIZE		NO. OF LEAFS	DOOR			FRAME			GLAZING TYPE	HDW	NOTES
		WIDTH	HEIGHT		TYPE	MAT'L	FINISH	TYPE	MAT'L	FINISH			
101		3'-0"	7'-0"	1	F1 : F	HM	PTD	F1	HM	PTD	-	01	
102		16'-0"	14'-0"	1	OVP	STL	PF	MFR	STL	PF	GL-1		1, 2
103		3'-0"	7'-0"	1	F1 : F	HM	PTD	F1	HM	PTD	-	01	
104		16'-0"	14'-0"	1	OVP	STL	PF	MFR	STL	PF	GL-1		1, 2
105		3'-0"	7'-0"	1	F1 : F	HM	PTD	F1	HM	PTD	-	01	
106		3'-0"	7'-0"	1	F1 : F			F1			-		

DOOR TYPES

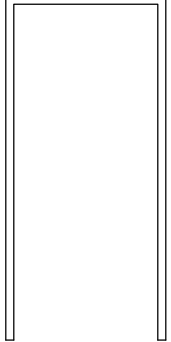


F1 : F

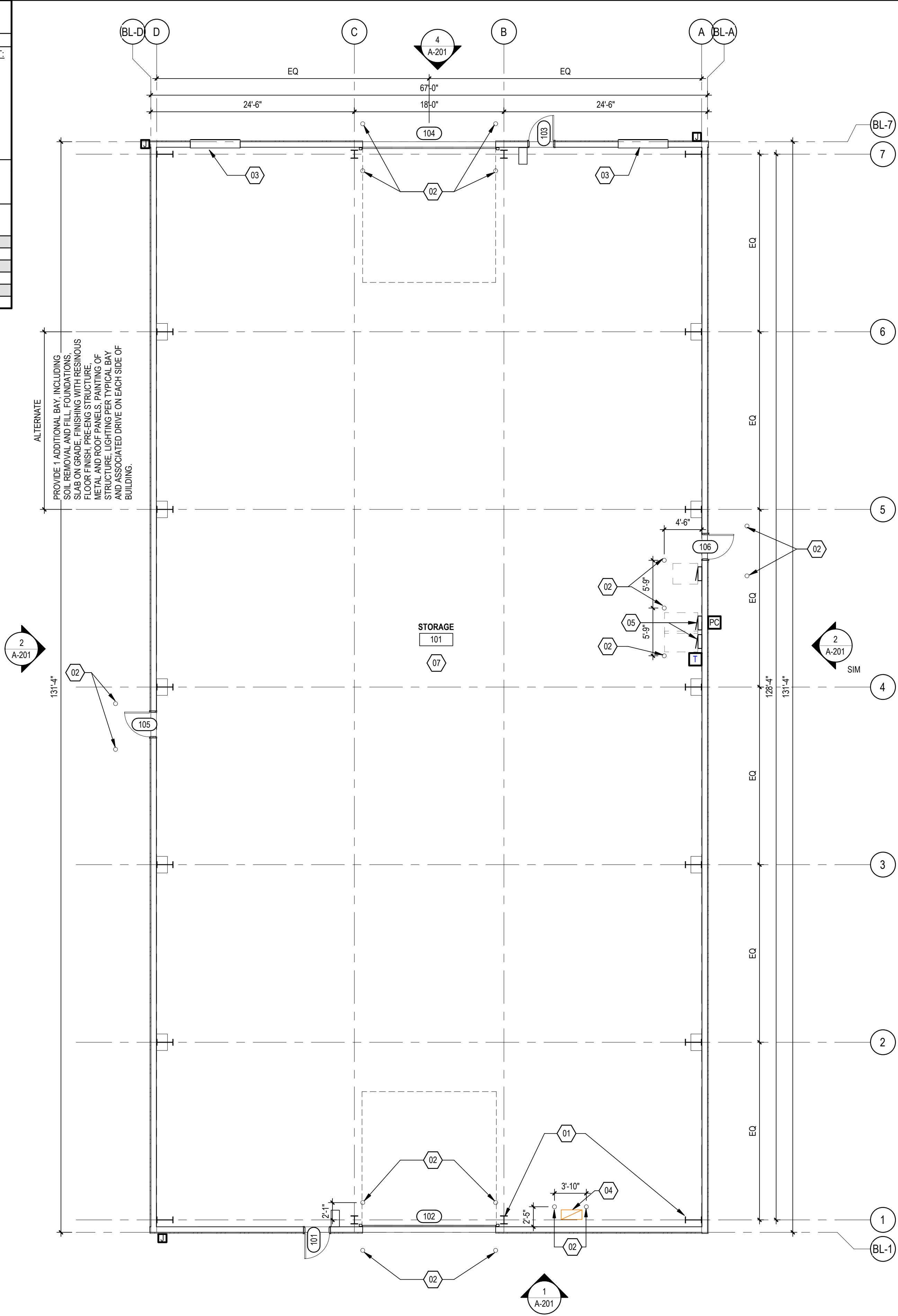
FRAME TYPES



OVP



F1




1 FIRST FLOOR PLAN  
1/8" = 1'-0"

GENERAL NOTES - PLANS

- FIRST FLOOR REFERENCE ELEVATION 100'-0" = 692.75, REFER TO CIVIL
- DO NOT SCALE DRAWINGS. IF DIMENSIONS CANNOT BE DETERMINED OR DOCUMENTS ARE IN CONFLICT, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ARCHITECT PRIOR TO CONTINUATION OF WORK
- REFER TO A-001 FOR MATERIAL / REFERENCE SYMBOLS AND ABBREVIATIONS
- COLUMN GRID AND DIMENSIONS PROVIDED FOR BIDDING PURPOSES, CONTRACTOR TO NOTE DEVIATIONS TO DIMENSIONS ON BID FORM IF REQUIRED TO MEET DESIGN AND PERFORMANCE SPECIFICATIONS INTENT.

- xx SHEET KEYNOTES - PLAN
- 01 STRUCTURAL STEEL AND GRID LAYOUT INDICATED FOR REFERENCE, FINAL LAYOUT AND SIZING TO BE BY PRE-ENGINEERED BUILDING MANUFACTURER
  - 02 BOLLARD, REF: STRUCTURAL FOR DETAIL
  - 03 LOUVER, REF: MECHANICAL
  - 04 MECHANICAL DUCT AND EXHAUST REF: MECHANICAL
  - 05 ELECTRICAL PANEL, REF: ELECTRICAL
  - 06 LIGHT FIXTURE, REF: ELECTRICAL
  - 07 BASE BID: PROVIDE PENETRATING LIQUID FLOOR TREATMENT; ALTERNATE: PROVIDE RESINOUS FLOOR FINISH.



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COUNTY: OAKLAND

CITY OF SOUTHFIELD  
DPW STORAGE BUILDING  
25501 Clara Lane  
Southfield, MI 48034

FIRST FLOOR PLAN

SHEET

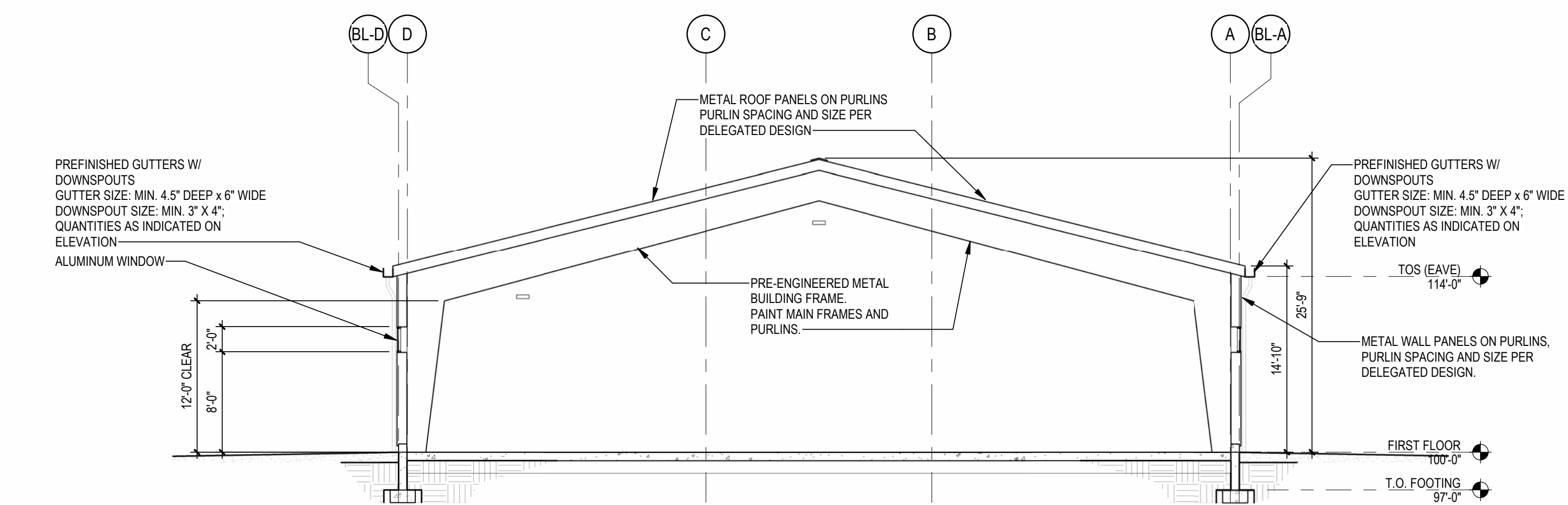
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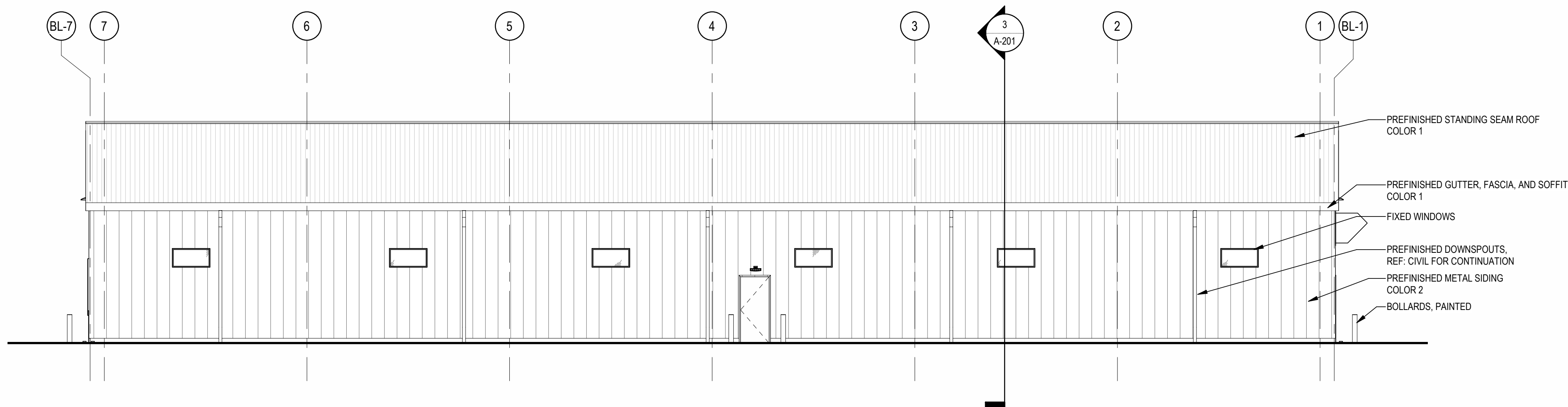


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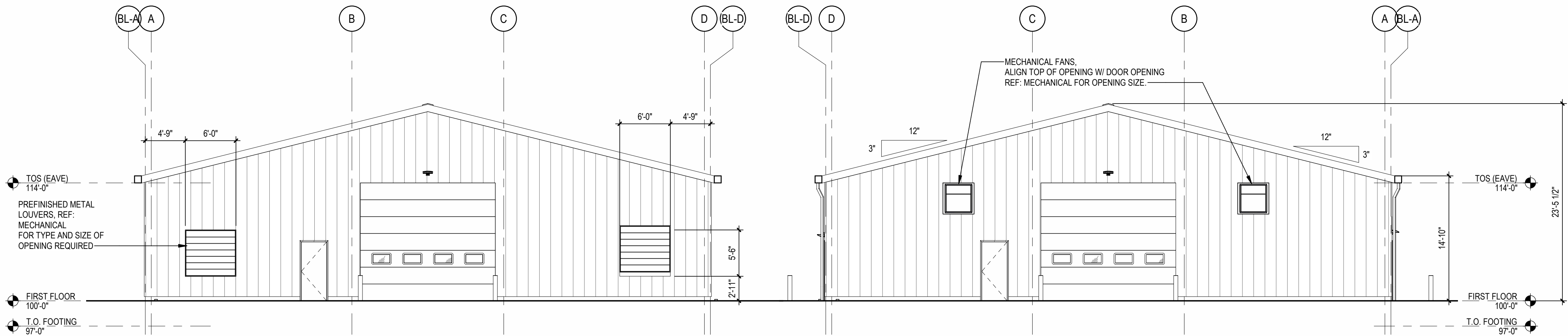
BM 363/0153-22-0070 Southfield DPW Cold Storage 015320070\_A\_SouthfieldDPW\_ColdStorage\_2021\_CEN.rvt



3 BUILDING SECTION  
1/8" = 1'-0"



2 SIDE WALL ELEVATION  
1/8" = 1'-0"



4 BACK WALL ELEVATION  
1/8" = 1'-0"

1 FRONT WALL ELEVATION  
1/8" = 1'-0"

GENERAL NOTES - ELEVATIONS

1. ALL PENETRATIONS SHALL BE SEALED WITH APPROPRIATE MATERIAL
2. ALL EXPOSED METAL ELEMENTS TO BE PRE-FINISHED; COLOR AS SELECTED BY ARCHITECT
3. REFER TO PROJECT MANUAL FOR ADDITIONAL INFORMATION ON FINISHES & INSTALLATION REQUIREMENTS



11/13/2023  
ISSUE: BIDS  
REVISIONS:

CITY OF SOUTHFIELD  
DPW STORAGE BUILDING  
25501 Clara Lane  
Southfield, MI 48034

SHEET  
A-201

ELEVATIONS AND BUILDING SECTION

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11/20/2023 8:54:04 AM  
BIN: 383/10/153-22-4070 Southfield DPW Cold Storage/0153220070\_FPM\_E\_SouthfieldDPW\_ColdStorage\_2021\_CEN.rvt  
PROJECT NUMBER: 0153220070 PM: CO DISCIPLINE LEAD: ST  
ISSUED FOR: BIDS  
11/13/2023  
CITY OF SOUTHFIELD  
DPW STORAGE BUILDING  
25501 Clara Lane  
Southfield, MI 48034  
MECHANICAL NOTES AND SYMBOLS  
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MECH. ABBR.

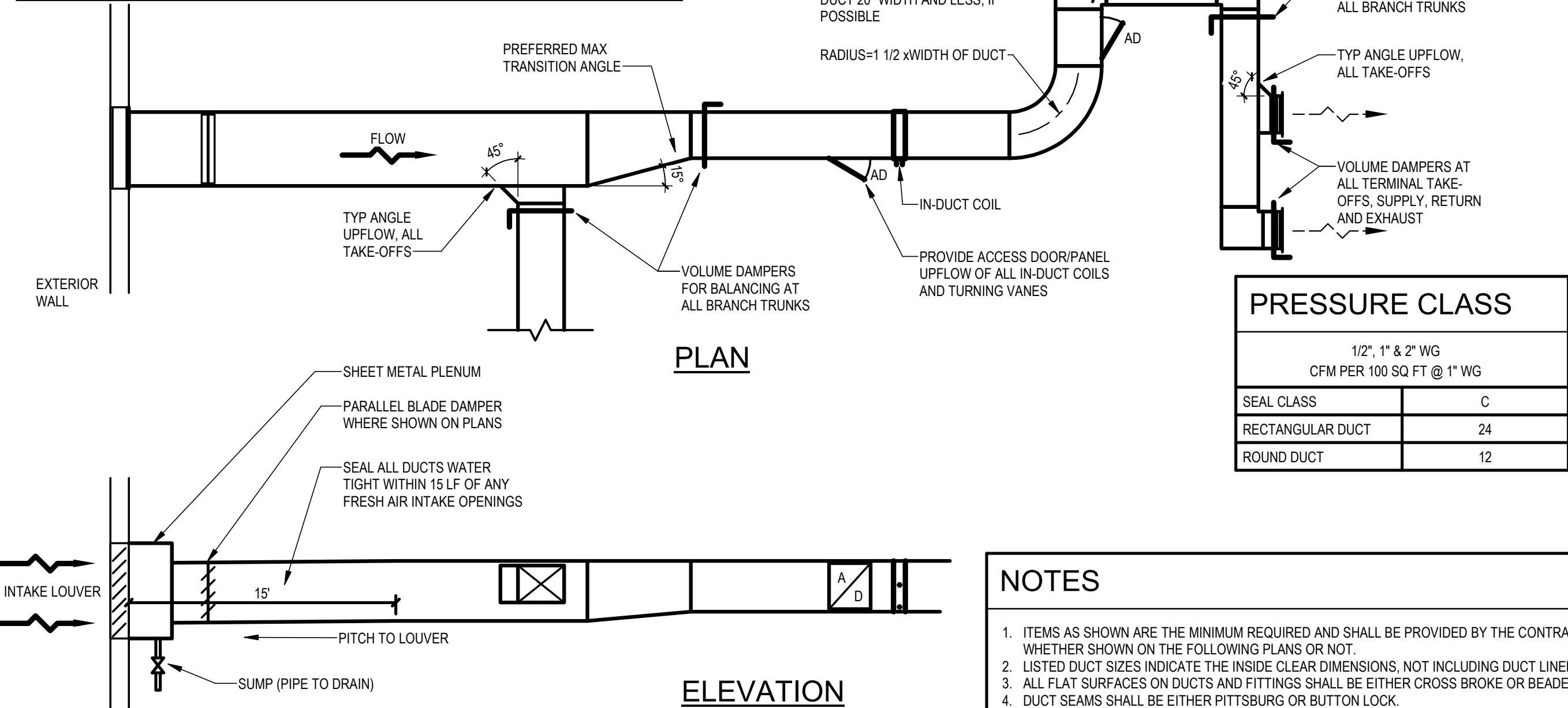
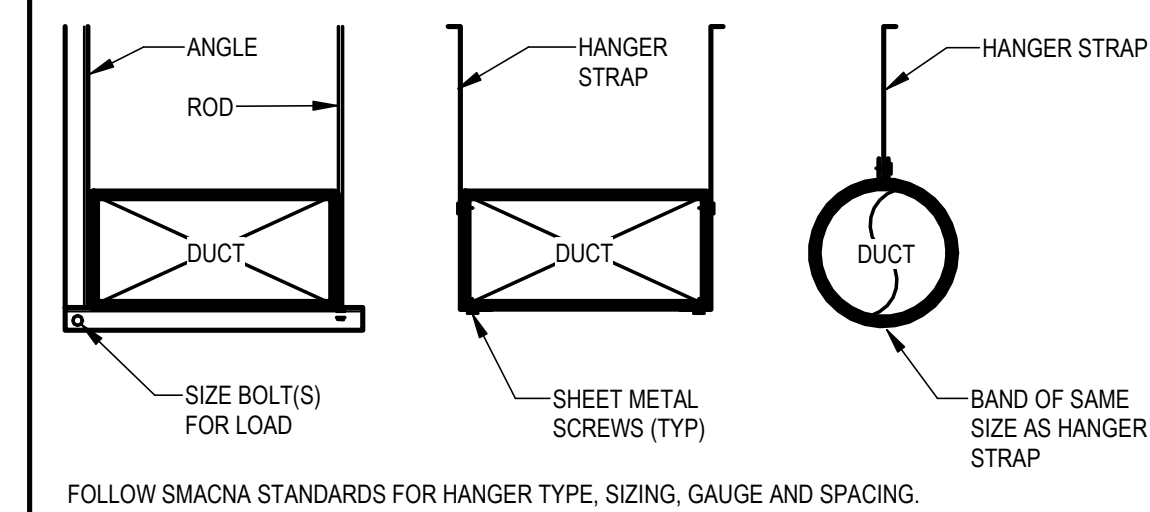
A	AIR
AAV	AUTOMATIC AIR VENT
AD	ACCESS DOOR/PANEL
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
APD	AIR PRESSURE DROP
AS	AIR SEPARATOR
B	BOILER
BDD	BACK DRAFT DAMPER
BFP	BACK FLOW PREVENTER
C	CUBIC FEET PER MINUTE
CG	CEILING GRID
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CND	STEAM CONDENSATE
COND	CONDENSING UNIT
CONV	CONVECTOR
CR	CONDENSATE RETURN
CUH	CABINET UNIT HEATER
D	DRY BULB
DIA Ø	DIAMETER
DN	DOWN
E	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWB	ENTERING WET BULB
EWT	ENTERING WATER TEMPERATURE
EXST	EXISTING
F	FAN COIL UNIT
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FOOT / FEET
FTR	FIN TUBE RADIATION
°F	FAHRENHEIT DEGREE
G	NATURAL / LP GAS
GA	GAUGE
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H	HOT WATER COIL
HP	HORSEPOWER
HPS	HIGH PRESSURE STEAM
HRU	HEAT RECOVERY UNIT
HTWR	HEATING WATER RETURN
HTWS	HEATING WATER SUPPLY
HVAC	HEATING VENTILATING & AIR CONDITIONING
HX	HEAT EXCHANGER
I	INCH / INCHES
IN	INCH / INCHES
K	KITCHEN HOOD
L	LOUVER
LAT	LEAVING AIR TEMPERATURE
LDB	LEAVING DRY BULB
LF	LINEAL FEET
LPS	LOW PRESSURE STEAM
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
M	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MIN	MINIMUM
MISC	MISCELLANEOUS
MTD	MOUNTED
MUA	MAKE-UP AIR UNIT

MECH. ABBR.

O	OUTSIDE AIR
OA	OUTSIDE AIR
P	PUMP
PH	PHASE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
R	SUPPLY REGISTER
RA	RETURN AIR
RAD	RADIANT HEATER
RD	ROUND DIFFUSER
RF	RETURN FAN
RH	GRAVITY RELIEF HOOD
RPM	REVOLUTIONS PER MINUTE
S	SUPPLY AIR
SC	STEAM COIL
SD	SMOKE DAMPER
SF	SUPPLY FAN
SP	STATIC PRESSURE
STD	STANDARD
STM	STEAM
SWG	SIDE WALL GRILLE
SWR	SIDE WALL REGISTER
T	TYPICAL
TYP	TYPICAL
U	UNIT HEATER
UH	UNIT HEATER
V	VENT
VAV	VARIABLE AIR VOLUME
VD	VANED DIFFUSER
W	WATER HEATER
WH	WATER HEATER
WPD	WATER PRESSURE DROP

DUCTWORK REQUIREMENTS

DUCT SUPPORT DETAILS



NOTES

- ITEMS AS SHOWN ARE THE MINIMUM REQUIRED AND SHALL BE PROVIDED BY THE CONTRACTOR WHETHER SHOWN ON THE FOLLOWING PLANS OR NOT.
- LISTED DUCT SIZES INDICATE THE INSIDE CLEAR DIMENSIONS. NOT INCLUDING DUCT LINER.
- ALL FLAT SURFACES ON DUCTS AND FITTINGS SHALL BE EITHER CROSS BROKE OR BEADED.
- DUCT SEAMS SHALL BE EITHER PITTSBURG OR BUTT LOCK.
- STANDING RIB CLEATS ARE REQUIRED ON DUCTS HAVING WIDTHS OF 24\"/>

DUCTS

	PROPOSED				EXISTING				DEMOLISH			
	RECTANGLE	ROUND	RECTANGLE	ROUND	RECTANGLE	ROUND	RECTANGLE	ROUND	RECTANGLE	ROUND	RECTANGLE	ROUND
EXHAUST AIR	12x12 EA	12ø EA	12x12 EA	12ø EA	12x12 EA	12ø EA	12x12 EA	12ø EA	12x12 EA	12ø EA	12x12 EA	12ø EA
OUTSIDE AIR	12x12 OA	12ø OA	12x12 OA	12ø OA	12x12 OA	12ø OA	12x12 OA	12ø OA	12x12 OA	12ø OA	12x12 OA	12ø OA
RETURN AIR	12x12 RA	12ø RA	12x12 RA	12ø RA	12x12 RA	12ø RA	12x12 RA	12ø RA	12x12 RA	12ø RA	12x12 RA	12ø RA
SUPPLY AIR	12x12 SA	12ø SA	12x12 SA	12ø SA	12x12 SA	12ø SA	12x12 SA	12ø SA	12x12 SA	12ø SA	12x12 SA	12ø SA

PIPING

	NEW	EXISTING	DEMOLISH
CHILLED WATER RETURN	6" CHWR	6" CHWR	6" CHWR
CHILLED WATER SUPPLY	6" CHWS	6" CHWS	6" CHWS
HEATING WATER RETURN	6" HTWR	6" HTWR	6" HTWR
HEATING WATER SUPPLY	6" HTWS	6" HTWS	6" HTWS
STEAM CONDENSATE	6" CND	6" CND	6" CND
STEAM	6" STM	6" STM	6" STM
NATURAL GAS	6" G	6" G	6" G

GENERAL NOTES - MECHANICAL

- DRAWINGS INDICATE REQUIRED SIZES AND POINTS OF TERMINATION OF PIPES AND DUCTS AND SUGGESTED ROUTES. IT IS NOT THE INTENTION OF THE DRAWINGS TO INDICATE ALL NECESSARY OFFSETS. INSTALL WORK IN MANNER TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. DO NOT SCALE FROM DRAWINGS.
- THE CONTRACTOR SHALL FIELD VERIFY THE SIZES, LOCATION, ELEVATIONS, AND DETAILS OF ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK.
- MECHANICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE PATCHING, CAPPING, OR REPAIRING OF WALLS AND ROOF WHERE OPENINGS OCCUR AS A RESULT OF REMOVAL OF MECHANICAL AND ELECTRICAL COMPONENTS AS PART OF THIS CONTRACT, UNLESS THE OPENING IS BEING RE-USED OR ENLARGED IN THE RENOVATION WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF ALL EQUIPMENT AND MATERIALS IN A "NEW" CONDITION DURING CONSTRUCTION.
- PROVIDE BALANCE DAMPERS FOR EACH DIFFUSER/GRILLE AND BRANCH DUCT.
- ALL EXTERNALLY ISOLATED HVAC EQUIPMENT SHALL HAVE FLEXIBLE DUCT CONNECTORS.
- ALL CONDENSATE DRAIN PIPING TO TERMINATE TO DRAIN VIA AIR GAP.
- COORDINATE ROOF MOUNTED EQUIPMENT SIZES WITH ARCHITECTURAL TRADES PRIOR TO CONSTRUCTION.
- ROOF OPENINGS SHALL BE SEALED WEATHER-TIGHT AND WITH ROOFING MATERIALS COMPATIBLE WITH EXISTING ROOF MEMBRANE. CONTRACTOR SHALL NOT VOID ROOF WARRANTY.
- DUCT ACCESS PANELS SHALL BE PROVIDED AT ALL FIRE DAMPERS, FIRE/SMOKE DAMPERS, MOTORIZED DAMPERS, AND DUCT SMOKE DETECTORS. WHERE NECESSARY, CEILING ACCESS PANELS SHALL BE PROVIDED AS WELL.
- INSTALL ALL NEW EQUIPMENT IN COMPLIANCE WITH THE MANUFACTURER'S REQUIRED CLEARANCES. ALL DISCONNECTS AND HIGH VOLTAGE ELECTRICAL PANELS SHALL HAVE THE CLEARANCE REQUIRED BY NEC ARTICLE 110 (36\"/>

INSULATION SCHEDULE

ITEM	THICKNESS	TYPE	REMARKS
HOT WATER SUPPLY	1 1/2" - 2" SEE NOTE 4	FIBERGLASS	SELF SEALING W/PVC FITTING COVERS
HOT WATER RETURN	1 1/2" - 2" SEE NOTE 4	FIBERGLASS	SELF SEALING W/PVC FITTING COVERS
OUTSIDE AIR DUCT	2"	FIBERGLASS	TYPE ASJ
SUPPLY DUCT	1 1/2"	FIBERGLASS	TYPE ASJ
EXHAUST DUCT	2"	FIBERGLASS	TYPE ASJ
KITCHEN EXHAUST	2"	FIREBOARD	TYPE ASJ

- ALL DUCTS WITHIN 25' OF MOTORS, INSTALL 1\"/>
- EXPOSED DUCTWORK SHALL BE INSULATED WITH RIGID FIBERGLASS DUCT INSULATION AND JACKET.
- INSULATE EXHAUST DUCTS WITHIN 10' OF EXTERIOR OPENINGS AND EXHAUST DUCTS EXPOSED TO OUTSIDE AIR.
- FOR PIPING NO LARGER THAN 1 1/4\", INSULATION THICKNESS SHALL BE 1 1/2\", FOR PIPING 1 1/2\"/>

HVAC SYMBOLS LEGEND

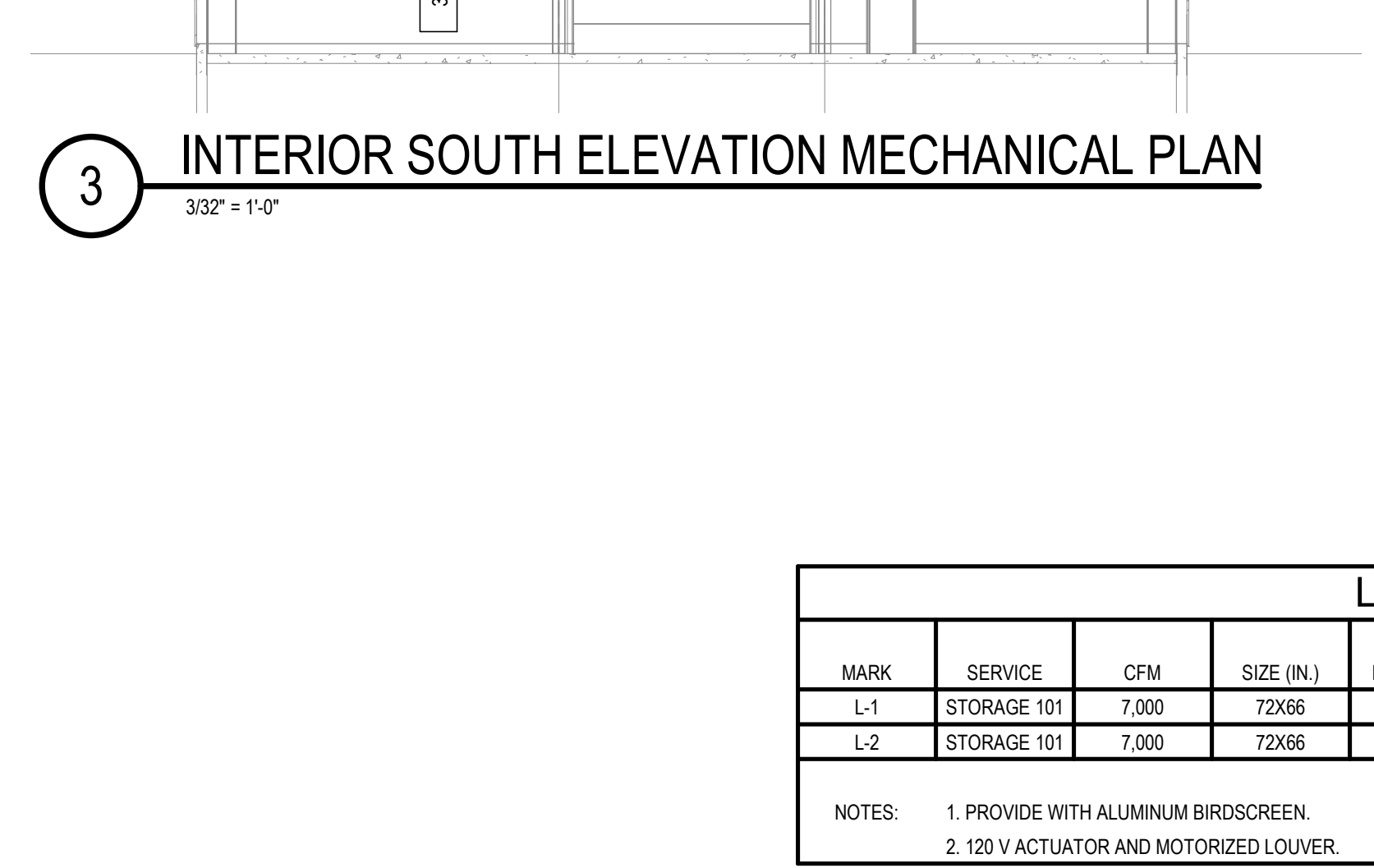
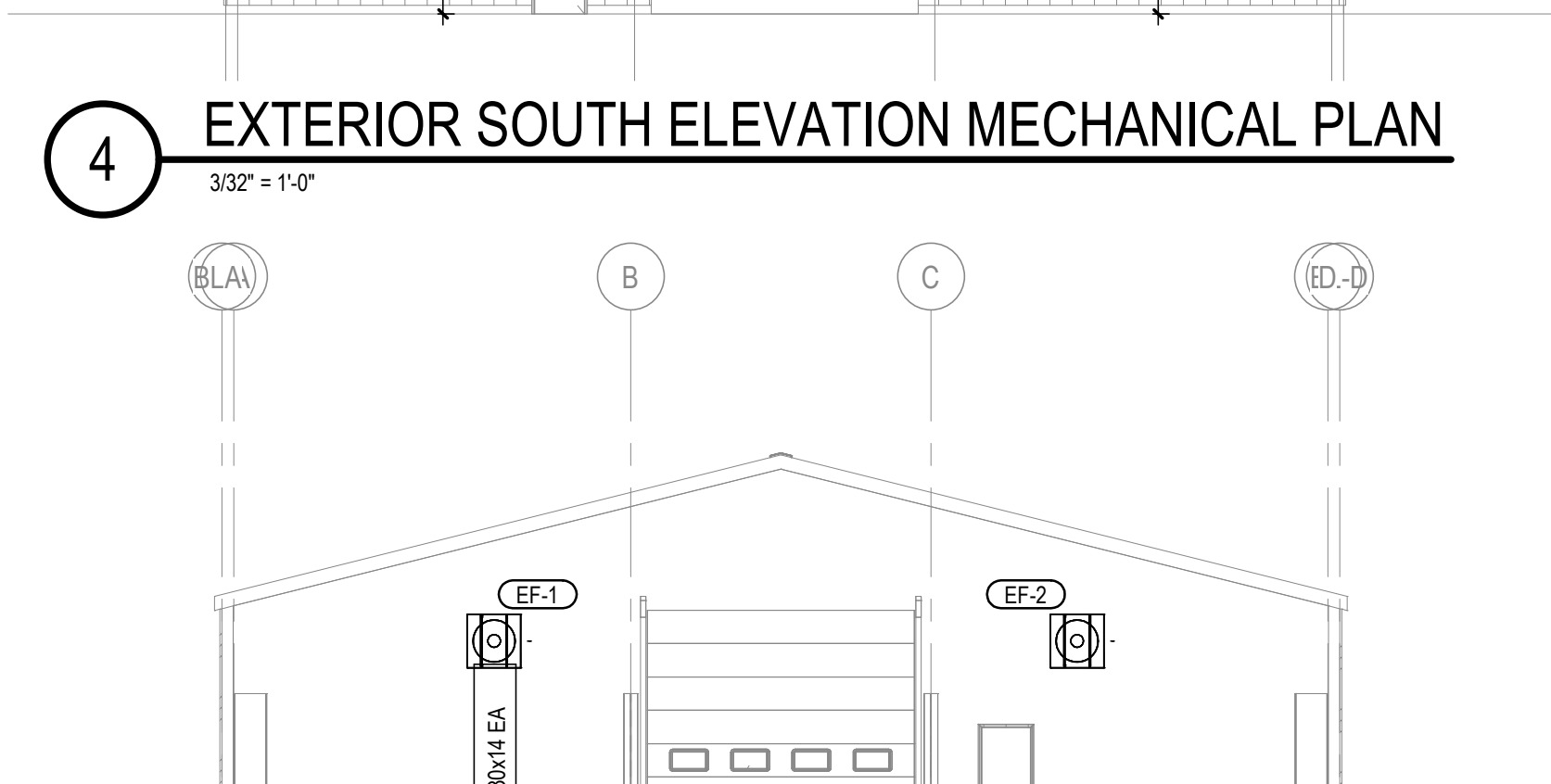
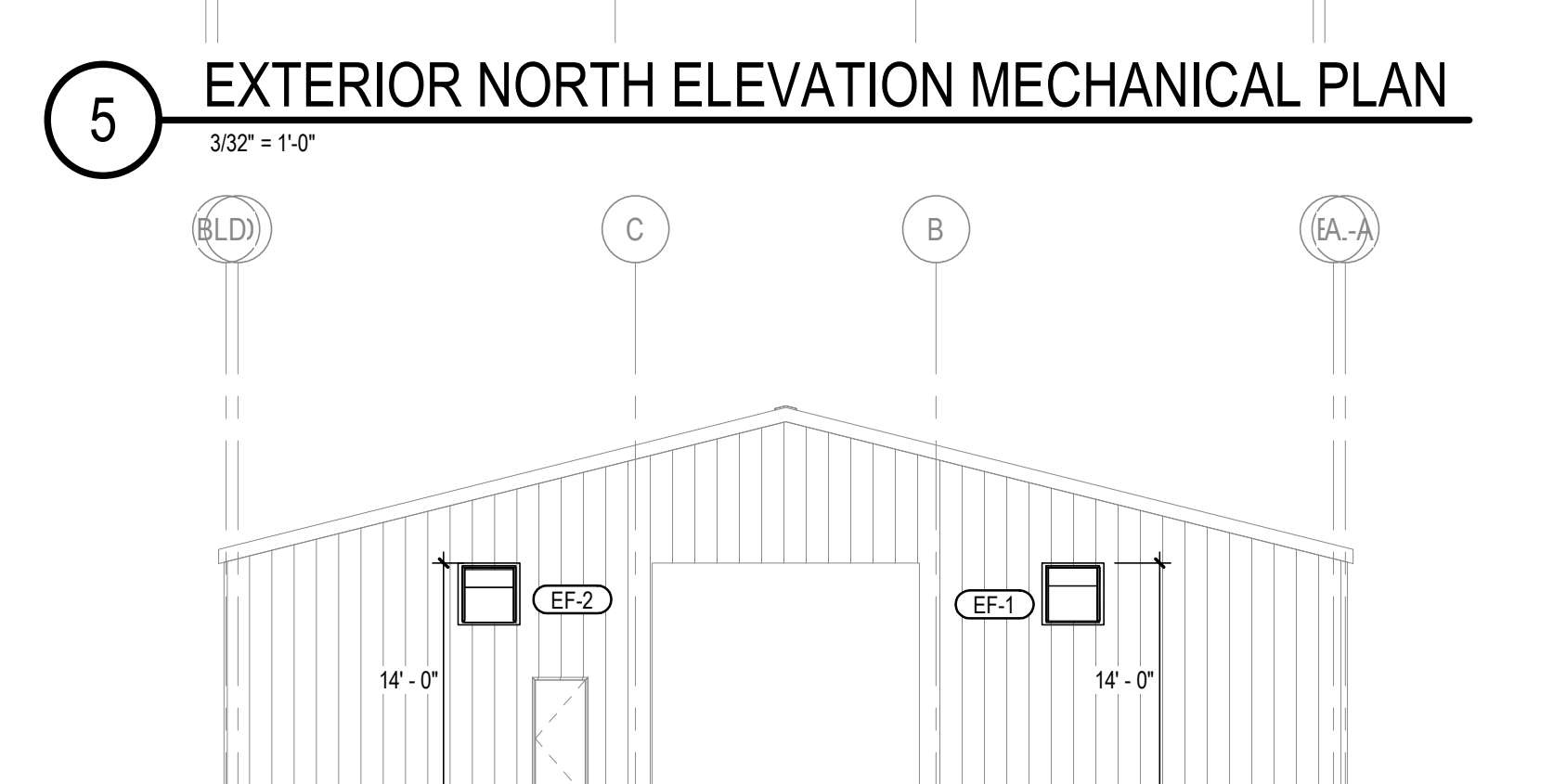
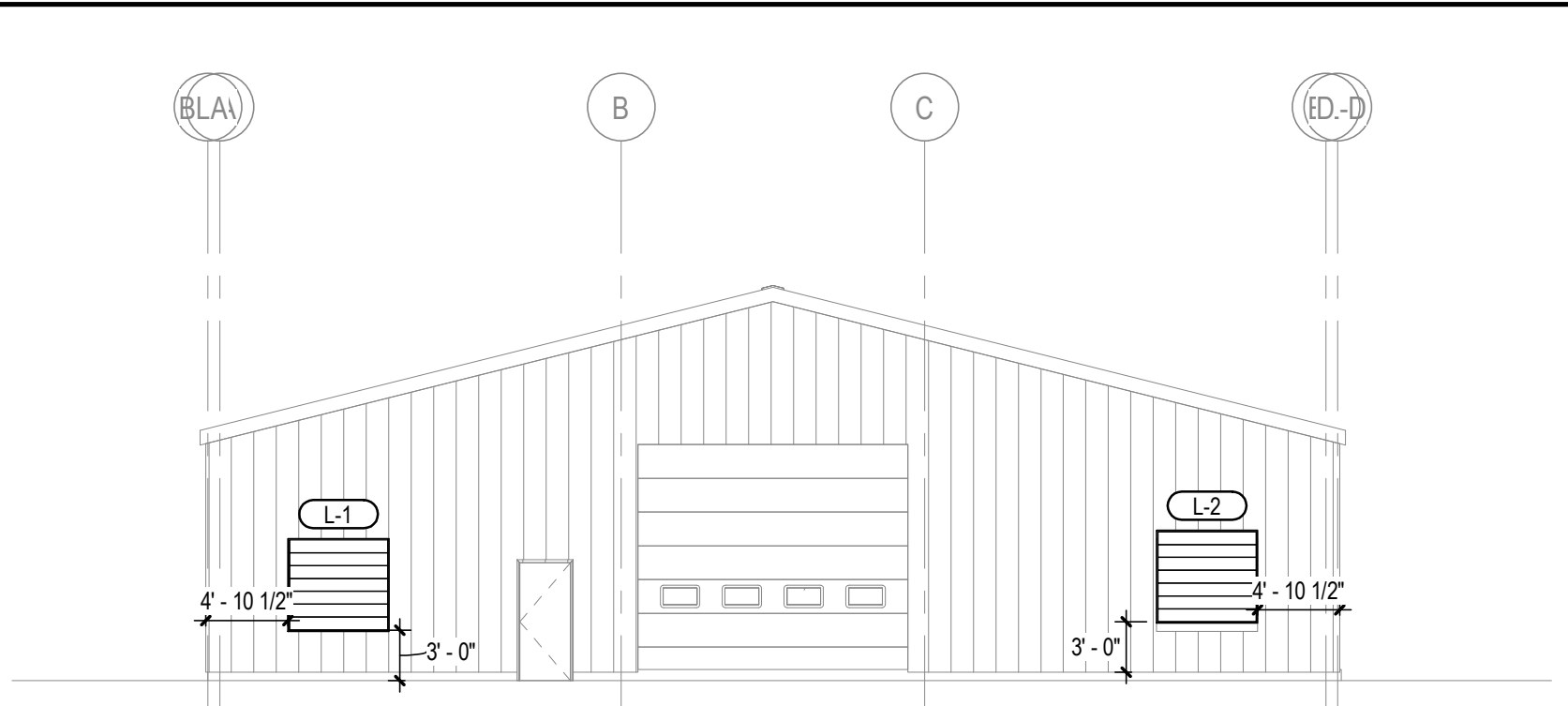
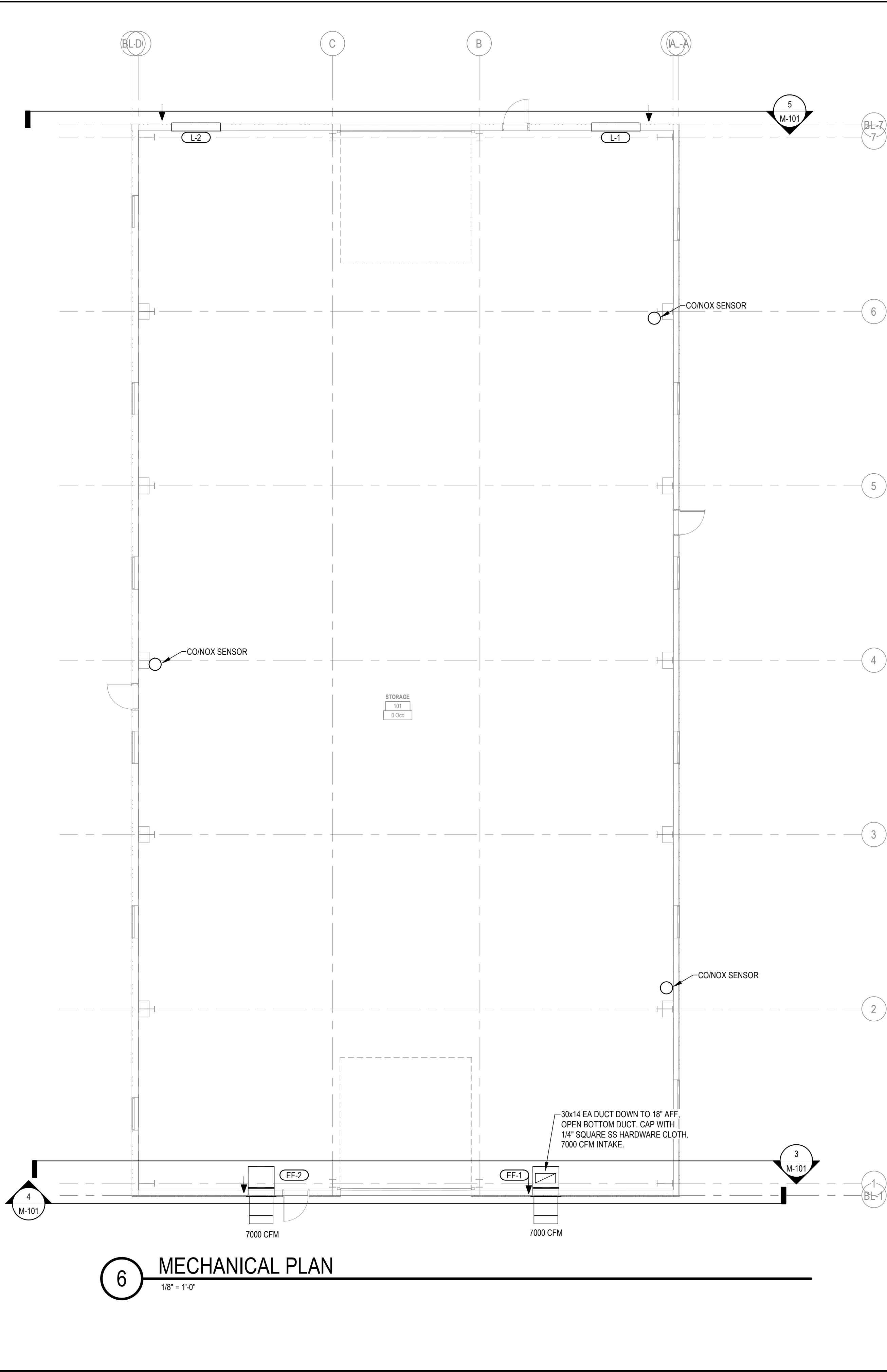
DIFFUSERS, GRILLES TAGS AND SYMBOLS

	CEILING DIFFUSER		MANUAL VOLUME DAMPER		CHECK VALVE
	LINEAR SLOT DIFFUSER		MOTORIZED DAMPER		GATE VALVE
	WALL DIFFUSER/GRILLE		FIRE DAMPER		BALL VALVE
	FLOOR REGISTER		SMOKE DAMPER		BUTTERFLY VALVE
	CEILING GRILLE		SMOKE AND FIRE DAMPER		2 WAY ELECTRONIC CONTROL VALVE
	TURNING VANES		THERMOSTAT		3 WAY ELECTRONIC CONTROL VALVE
	DUCT WIDTH x HEIGHT		HUMIDISTAT		2 WAY PNEUMATIC CONTROL VALVE
	ROUND DUCT DIAMETER		CONNECT TO EXISTING		3 WAY PNEUMATIC CONTROL VALVE
	DIFFUSER INDICATOR		PIPE BREAK		AVERAGING TEMPERATURE SENSOR
	EQUIPMENT TAG		AVERAGING TEMPERATURE SENSOR		RELIEF VALVE
	KEY NOTE TAG		PUMP		CIRCUIT SETTER
	BREAK LINE		ELECTRIC TO PNEUMATIC TRANSDUCER		BALANCE VALVE
	DIGITAL INPUT TO THE CONTROLLER		PNEUMATIC TO ELECTRIC TRANSDUCER		TRIPLE DUTY VALVE
	DIGITAL OUTPUT TO THE CONTROLLER		DIFFERENTIAL PRESSURE SENSOR/SWITCH		AIR VENT
	ANALOG INPUT TO THE CONTROLLER		SMOKE DETECTOR		MOTORIZED VALVE
	ANALOG OUTPUT TO THE CONTROLLER		AIRFLOW MEASURING STATION		OCCUPANCY SENSOR
	RELAY		CHILLED WATER COOLING COIL		CO2 SENSOR
	CURRENT SWITCH		GAS HEAT SECTION		FAN
	PNEUMATIC DAMPER ACTUATOR		FILTER BANK		
	SOLENOID VALVE				
	FINNED TUBE OR RADIANT PANEL				
	REFRIGERANT COOLING COIL				
	HOT WATER HEATING COIL				
	FIN TUBE RADIATION				

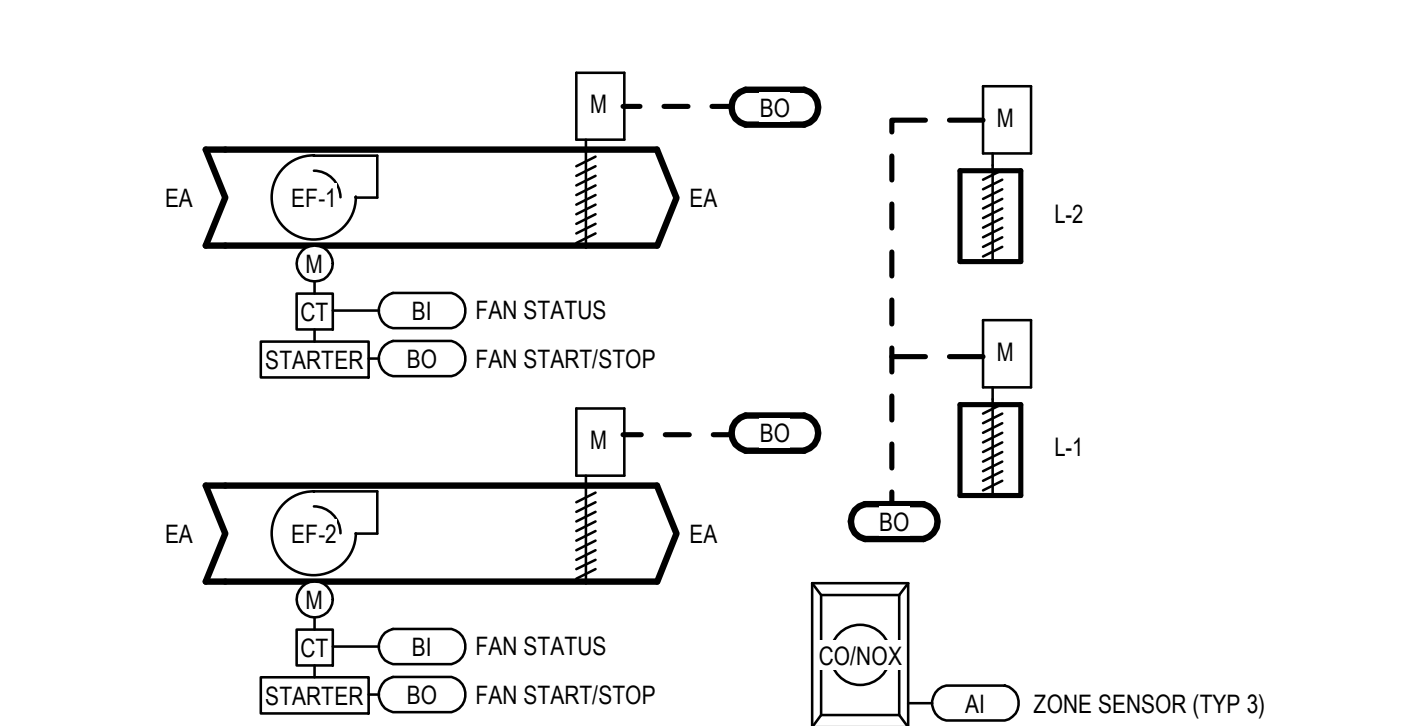


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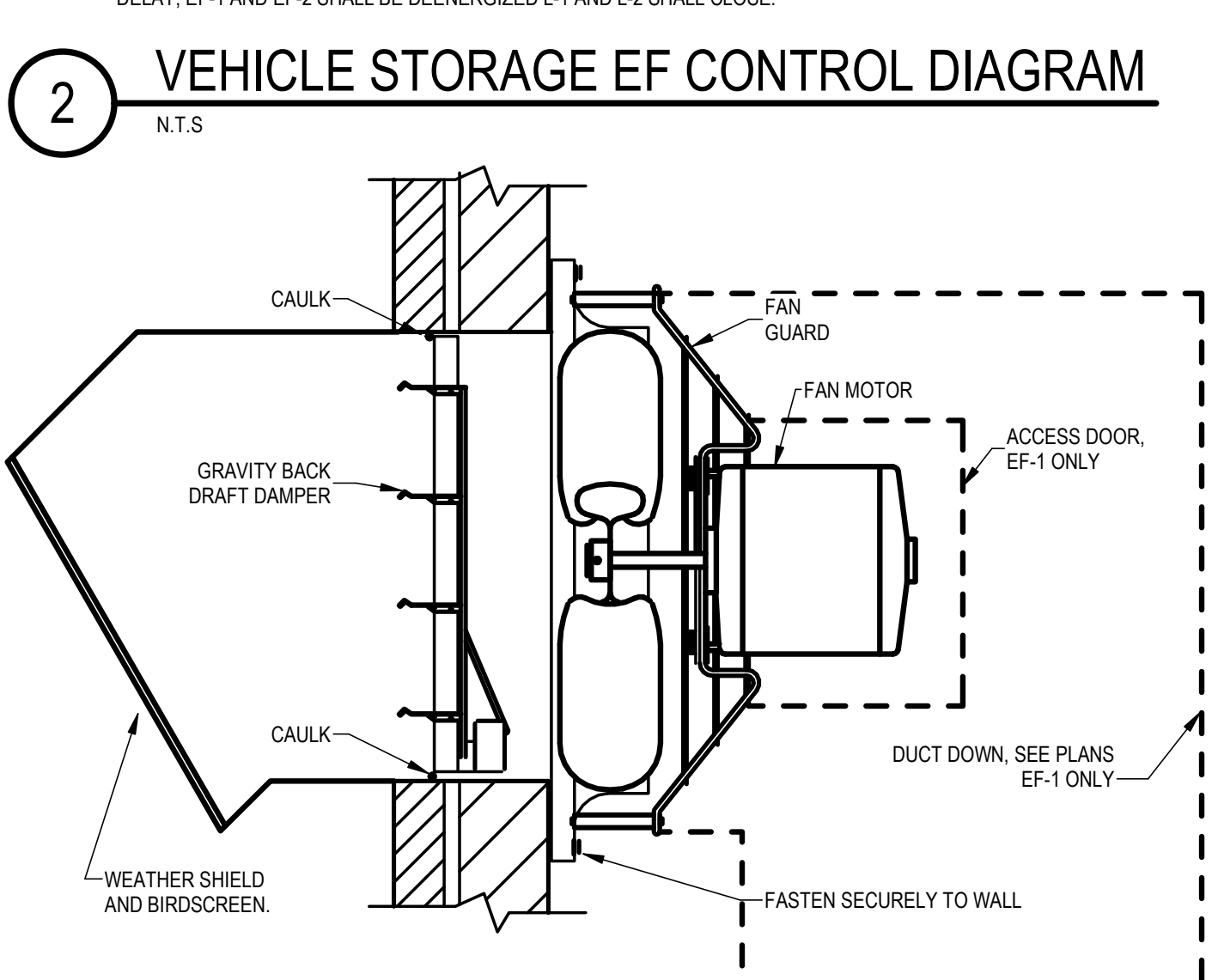


- ### GENERAL NOTES - MECHANICAL HVAC
- ALL BIDDING CONTRACTORS ARE REQUIRED TO FIELD VERIFY EXISTING CONDITIONS AND DESIGN INTENT. COORDINATE WITH THE CM, AND PERFORM A CONSTRUCTABILITY ANALYSIS PRIOR TO SUBMITTING A BID. QUESTIONS OR COMMENTS SHALL BE SUBMITTED IN WRITING DURING THE BIDDING PHASE. NO ADDITIONAL COSTS TO THE PROJECT WILL BE ACCEPTED AFTER PROJECT AWARD FOR CHANGES DUE TO LACK OF KNOWLEDGE OF EXISTING CONDITIONS OR LACK OF COORDINATION.
  - DRAWINGS INDICATE REQUIRED SIZES AND POINTS OF TERMINATION OF PIPES AND DUCTS AND SUGGESTED ROUTES. IT IS NOT THE INTENTION OF DRAWINGS TO INDICATE ALL NECESSARY OFFSETS. INSTALL WORK IN MANNER TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. DO NOT SCALE FROM DRAWINGS.
  - MECHANICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE PATCHING, CAPPING, OR REPAIRING OF WALLS AND ROOF WHERE OPENINGS OCCUR AS A RESULT OF REMOVAL OF MECHANICAL AND ELECTRICAL COMPONENTS AS PART OF THIS CONTRACT, UNLESS THE OPENING IS BEING RE-USED OR ENLARGED IN THE RENOVATION WORK.
  - PROVIDE BALANCE DAMPERS FOR EACH DIFFUSER/GRILLE AND BRANCH DUCT.
  - SIZES INDICATED FOR EXISTING DUCTWORK AND PIPING ARE PER THE ORIGINAL DOCUMENTS. FIELD VERIFY EXACT SIZES AND PROVIDE TRANSITIONS ACCORDINGLY.
  - COORDINATE LOCATIONS OF THE THERMOSTATS WITH OTHER TRADES.



**SEQUENCE OF OPERATION**

A HAND/OFF/AUTO SWITCH SHALL BE INSTALLED TO ALLOW FOR AUTOMATIC AND MANUAL OPERATION OF THE SYSTEM. IN THE HAND MODE, LOUVERS L-1 AND L-2 SHALL BE OPENED AND EF-1 AND EF-2 SHALL BE ENERGIZED. IN THE AUTO MODE, ON A RISE IN ELEVATED CONTAMINANT LEVEL (ADJ) DETECTED BY ANY OF THE CO/NOX SENSORS, LOUVERS L-1 AND L-2 SHALL BE OPENED AND EF-1 AND EF-2 SHALL BE ENERGIZED. THIS MODE SHALL REMAIN FOR 15 MINS (ADJ) AFTER ELEVATED CONANIMANT LEVELS ARE NO LONGER DETECTED. AFTER THIS TIME DELAY, EF-1 AND EF-2 SHALL BE DEENERGIZED L-1 AND L-2 SHALL CLOSE.

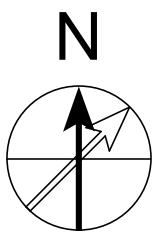


LOUVER SCHEDULE									
MARK	SERVICE	CFM	SIZE (IN.)	MAX PRESS. DROP (IN-WG)	MAX VELOCITY (FPM)	MINIMUM FREE AREA (FT²)	MANUFACTURER	MODEL	NOTES
L-1	STORAGE 101	7,000	72X66	0.026	450	16.22	GREENHECK	ECD601	1,2
L-2	STORAGE 101	7,000	72X66	0.026	450	16.22	GREENHECK	ECD601	1,2

NOTES:

- PROVIDE WITH ALUMINUM BIRDSCREEN.
- 120 V ACTUATOR AND MOTORIZED LOUVER.

FAN SCHEDULE														
MARK	SERVICE	LOCATION	FAN TYPE	DRIVE TYPE	CFM	RPM	ESP (IN-WG)	ELECTRICAL		CONTROLS	MANUFACTURER	MODEL	WEIGHT	NOTES
								HP	V/PH/Hz					
EF-1	STORAGE 101	WALL	PROPELLER	DIRECT	7000	1750	0.75	2	460/3/60	STARTER	GREENHECK	AER	261	1,2,3,4
EF-2	STORAGE 101	WALL	PROPELLER	DIRECT	7000	1750	0.75	2	460/3/60	STARTER	GREENHECK	AER	261	1,2,3
NOTES: 1. PROVIDE WITH OSHA MOTOR GUARD 2. PROVIDE WITH WEATHERHOOD 3. PROVIDE WITH GRAVITY DAMPER 4. PROVIDE WITH DUCT ACCESS DOOR FOR MOTOR SERVICE														



PROJECT NUMBER: 015322-0070  
DISCIPLINE: LEAD  
ST

CITY OF SOUTHFIELD  
DPW STORAGE BUILDING  
25501 Clara Lane  
Southfield, MI 48034

MECHANICAL PLAN

11/13/2023

ISSUED FOR: BIDS

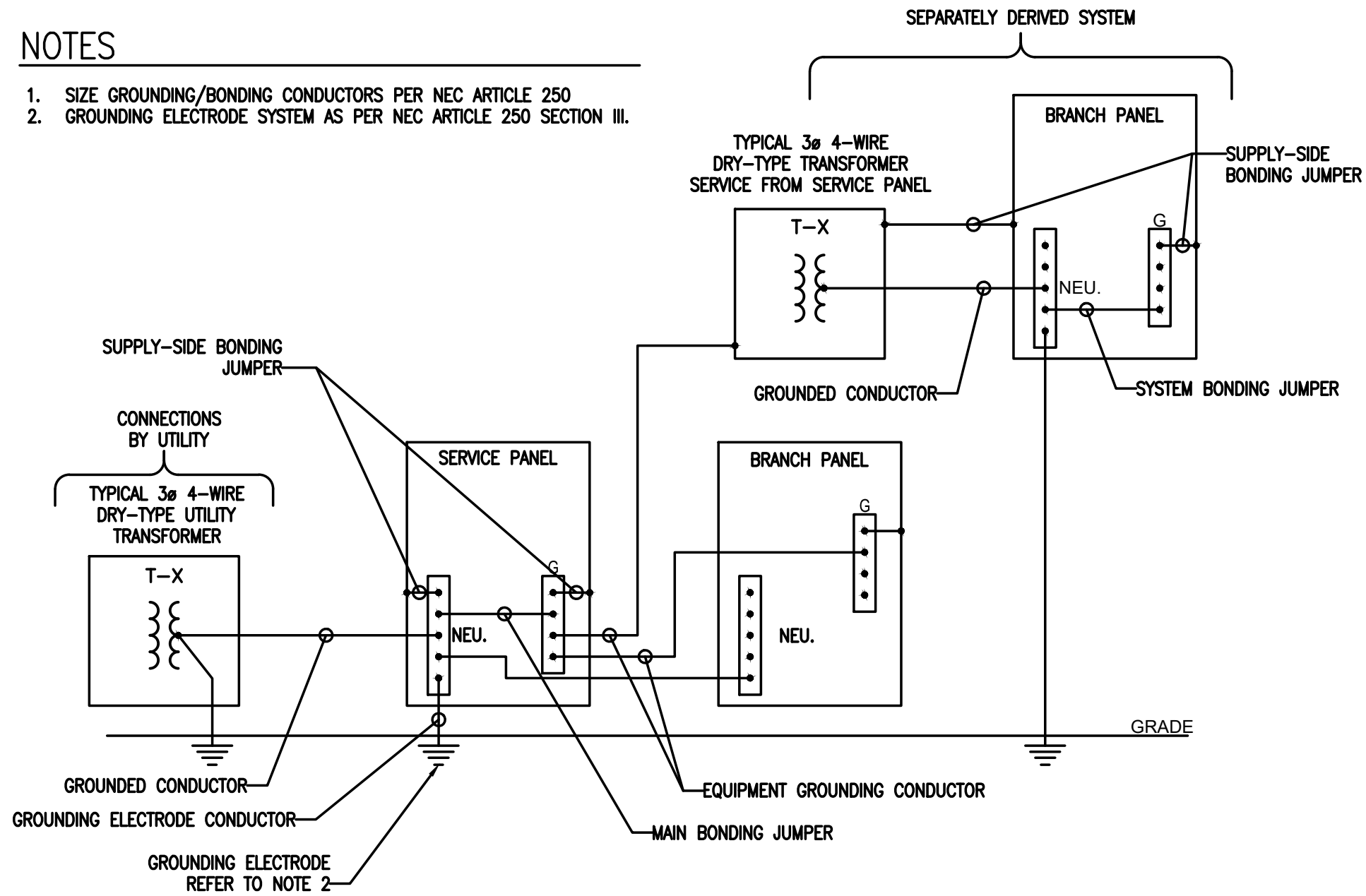
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NOTES

1. SIZE GROUNDING/BONDING CONDUCTORS PER NEC ARTICLE 250  
2. GROUNDING ELECTRODE SYSTEM AS PER NEC ARTICLE 250 SECTION III.



GROUNDING BONDING DIAGRAM

NO SCALE

ELEC. ABBREVIATIONS

SPECIAL	PHASE
Ø	
A	AMPERE
AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
C	CONDUIT
CAT	CATALOGUE
CB	CIRCUIT BREAKER
CMU	CONCRETE MASONRY UNIT
CO.	COMPANY
CUH	CABIN UNIT HEATER
E	ELECTRICAL CONTRACTOR
EC	ELECTRIC DUCT HEATER
EDH	EXHAUST FAN
EF	ELECTRIC WATER COOLER
F	FIRE ALARM
G	
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	EQUIPMENT GROUND
H	
HOA	HAND OFF AUTO
HID	HIGH INTENSITY DISCHARGE
HPS	HIGH PRESSURE SODIUM
HVAC	HEATING VENTILATION & AIR CONDITIONING
K	
K	KEY OPERATED DEVICE
KVA	KILOVOLT-AMPERES
KW	KILO-WATTS
L	
LED	LIGHT EMITTING DIODE
M	
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MH	METAL HALIDE
MISC	MISCELLANEOUS
MLO	MAIN LUG ONLY
MTD	MOUNTED
N	
NEU	NEUTRAL
NO	NUMBER
P	
PL	PILOT
R	
RECP	RECEPTACLE
RTU	ROOF TOP UNIT
T	
TEL	TELEPHONE
TRANS	TRANSFORMER
TV	TELEVISION
TYP	TYPICAL
U	
UGE	UNDERGROUND ELECTRIC
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
V	
V	VOLT
VA	VOLT-AMPERES
W	
W	WIRE
WNC	WIRELESS NETWORK CONTROLLER
WP	WEATHERPROOF

GENERAL NOTES – ELECTRICAL

1. ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE CURRENT NATIONAL ELECTRICAL CODE AND ANY STATE/LOCAL AMENDMENTS.  
2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACQUISITION OF AN ELECTRICAL PERMIT AND SCHEDULING OF THE NECESSARY INSPECTIONS. UPON COMPLETION OF THE WORK THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE OWNER EVIDENCE OF INSPECTION APPROVAL.

ELECTRICAL LEGEND

<div>LIGHT FIXTURES</div> <div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>SURFACE / CEILING MOUNT</div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>EMERGENCY SURFACE / CEILING MOUNT</div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>PENDANT / CHAIN MOUNT</div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>EMERGENCY PENDANT / CHAIN MOUNT</div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>RECESSED MOUNT</div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>EMERGENCY RECESSED MOUNT</div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>TRACK STRIP</div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>WALL 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OHM-ADVISORS.COM

ISSUE: SITE PLAN REVIEW

REVISIONS:

REVISED PER SITE PLAN COMMENTS - 10/22/2023

MUNICIPALITY

SOUTHFIELD

COUNTY

OAKLAND

CADD

JK

PROJ MGR

CO

DATE

11/13/2023

PROJ NUMBER

0153-22-0070

ENGINEER

ZJH

CITY OF SOUTHFIELD  
DPW STORAGE BUILDING

ELECTRICAL NOTES AND SYMBOLS

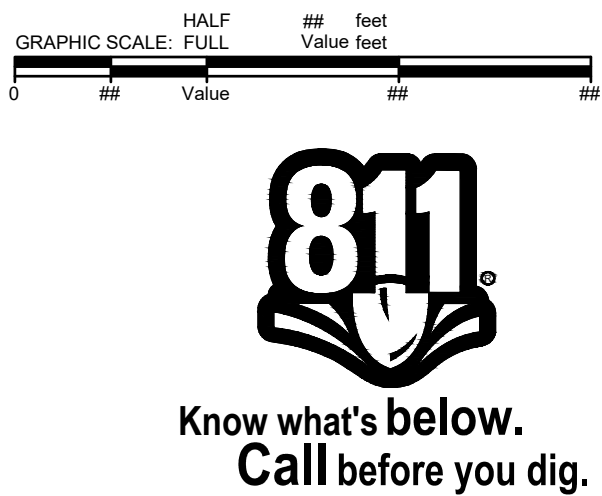
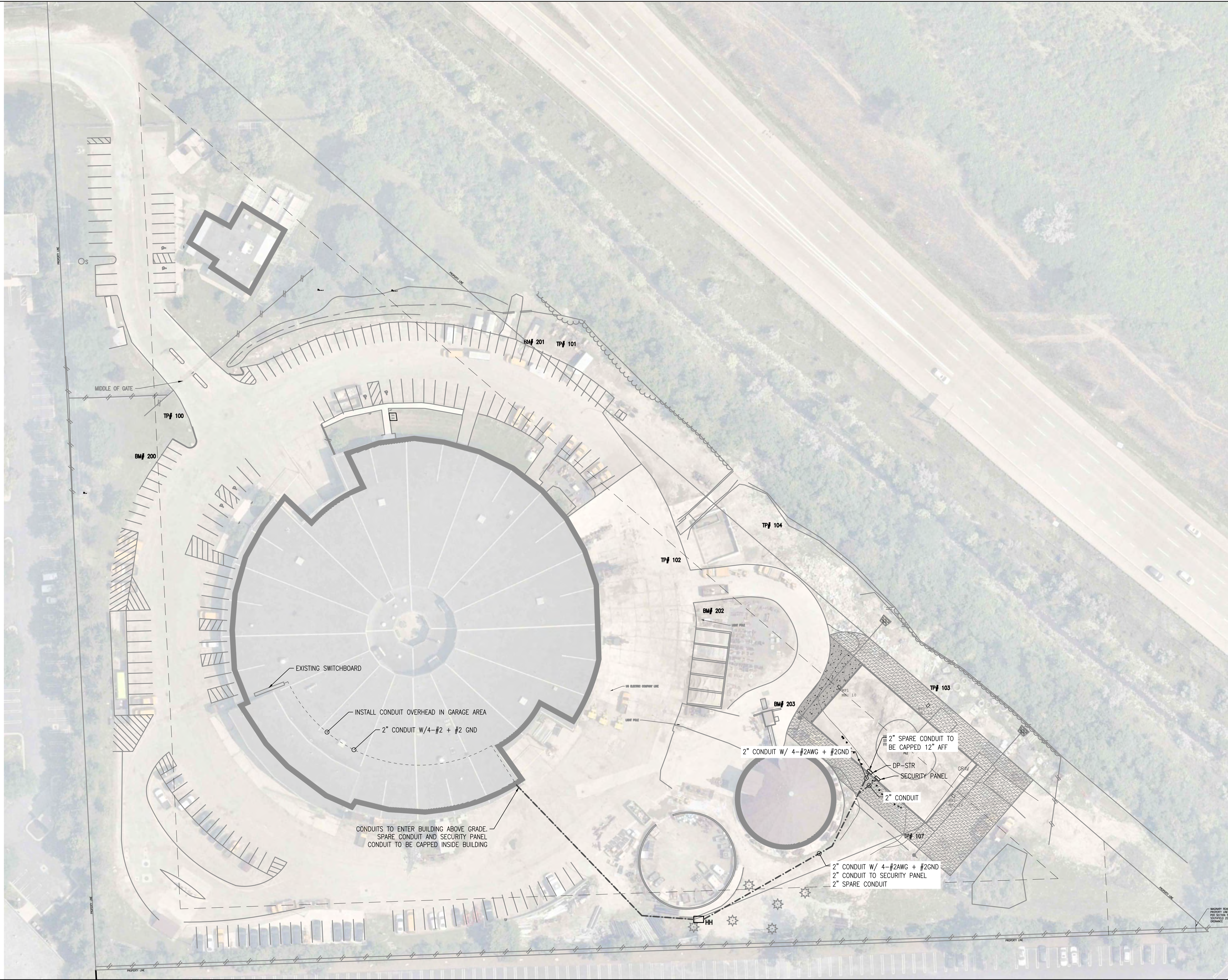
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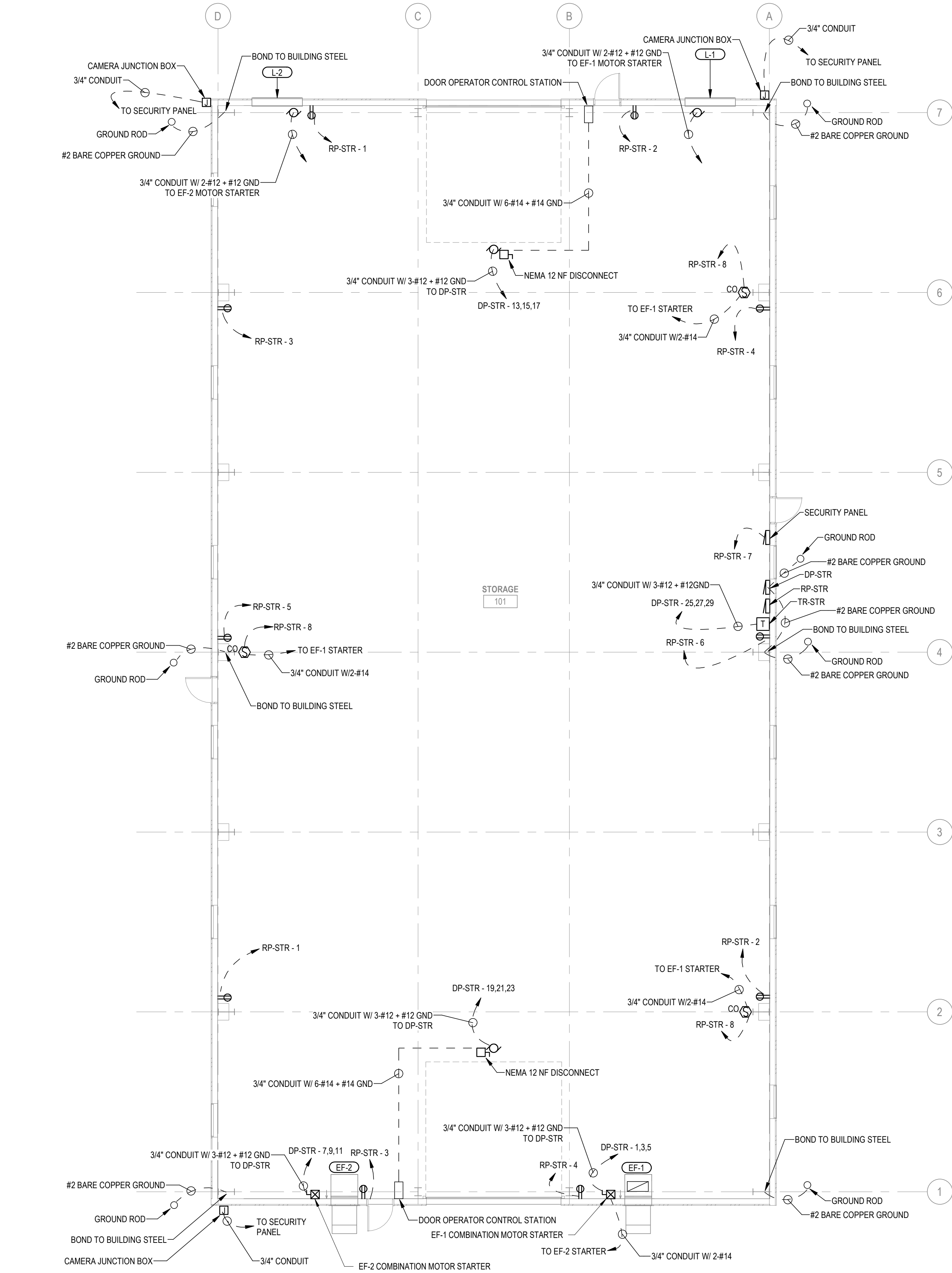


DRAWING PATH: P:\0126\_0165\0153\220070\_DPW\_Cold\_Storage\Drawings\Civil\Plans\_Const\220070STE - ELECTPWR.dwg Nov 13, 2023 - 1:43pm



DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	H: 1"=50'	V: N/A	Value	Value
11/19/2023	0153-02-0070	Z/H	CO	JK	OKLAHOMA	SOUTHFIELD				
<div> <div>CITY OF SOUTHFIELD</div> <div>DPW STORAGE BUILDING</div> <div>ELECTRICAL SITE PLAN</div> </div>										
<div> <div>REVISIONS</div> <div>REVISED PER SITE PLAN COMMENTS - 10/2/2023</div> <div> <div>.....</div> <div>.....</div> <div>.....</div> <div>.....</div> <div>.....</div> <div>.....</div> </div> </div>										
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1

ELECTRICAL POWER PLAN

1/8" = 1'-0"

GENERAL NOTES - POWER

1. PROVIDE BOXES AND CONDUITS FOR THE SECURITY CAMERAS. CAMERAS AND CABLES SHALL BE PROVIDED BY OTHERS.
2. SECURITY PANEL AND COMMUNICATION CABLES PROVIDED BY OTHERS.



11/13/2023

ISSUED FOR: BIDS

PROJECT NUMBER PM DISCIPLINE LEAD CO XX  
015322-0070

CITY OF SOUTHFIELD  
DPW STORAGE BUILDING  
25501 Clara Lane  
Southfield, MI 48034

ELECTRICAL POWER PLAN

EP101

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11/13/2023 4:08:42 PM  
BIN: 383/0/153-22-0070 Southfield DPW Cold Storage/0153220070\_FPLN\_SouthfieldDPW\_ColdStorage\_2021\_CEN.rvt

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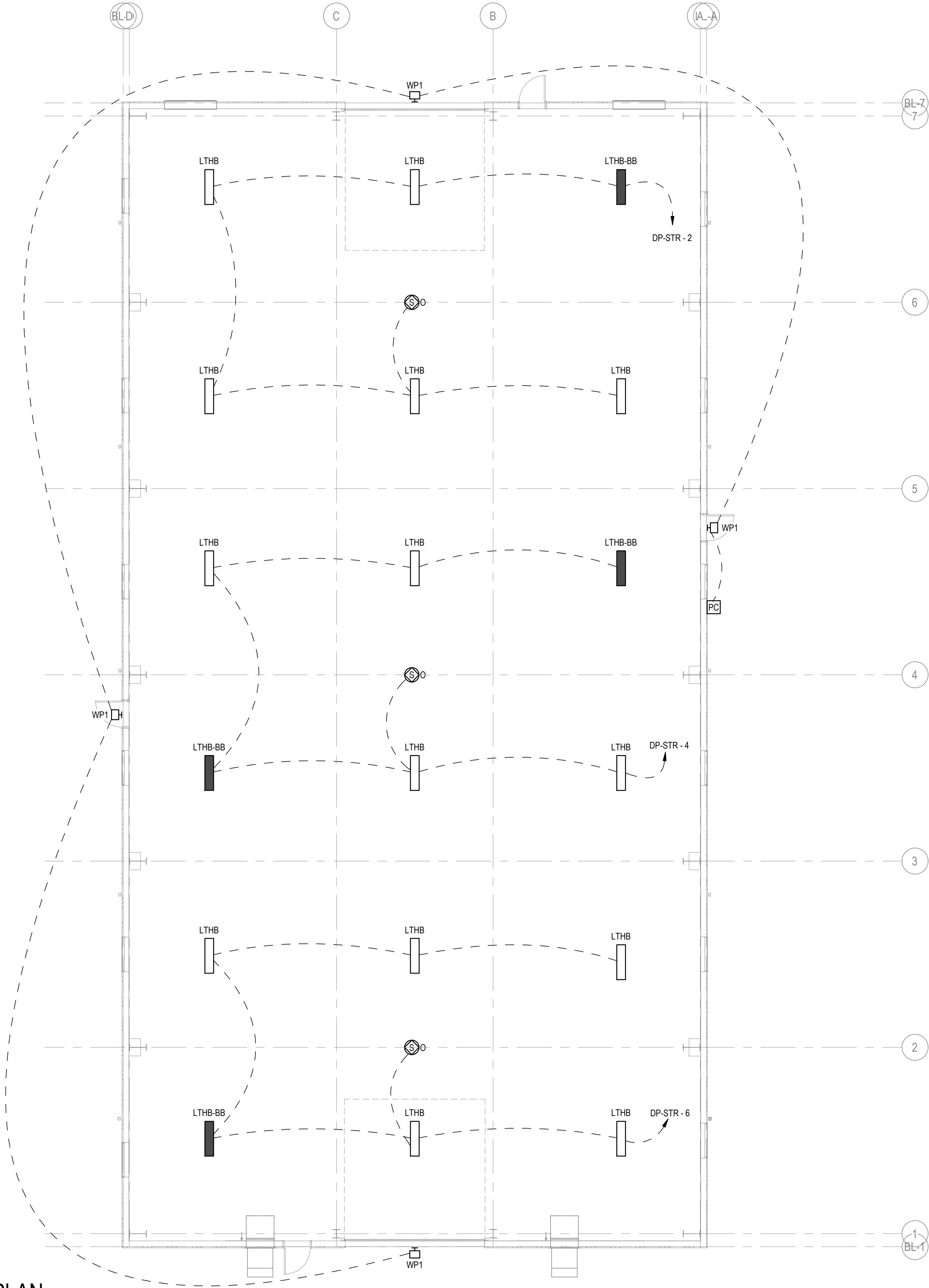
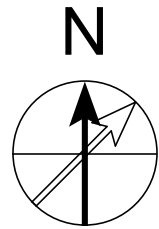
ISSUED FOR: BIDS

11/13/2023

CITY OF SOUTHFIELD  
DPW STORAGE BUILDING  
25501 Clara Lane  
Southfield, MI 48034

FLOOR 1 LIGHTING PLAN

EL101

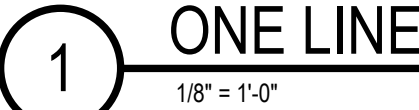


1 FLOOR 1 LIGHTING PLAN  
1/8" = 1'-0"





- 1) BOX SHALL BE CONCRETE OR COMPOSITE. METAL COVER IS ACCEPTABLE.
- 2) COVERS SHALL BE SECURED WITH 3/8" BOLTS, NUTS AND WASHERS, WHICH SHALL BE BRASS, STAINLESS STEEL OR OTHER CORROSION RESISTANT MATERIAL. STAINLESS STEEL SHALL HAVE A CHROMIUM CONTENT OF NOT LESS THAN 18% AND A NICKEL CONTENT OF NOT LESS THAN 8%, NUTS SHALL BE RECESSED BELOW TOP SURFACE OF COVER.
- 3) COVER LETTERING SHALL BE 1/2" MINIMUM LETTERS CAST IN STANDARD MARKINGS: (ELECTRICAL).
- 4) CONDUIT ENTERING THE BOX SHALL HAVE 90 DEGREE LONG RADIUS BEND (INSIDE THE BOX) AND THE CONDUITS OPENING, INSIDE THE BOX, SHALL BE AT LEAST 4" BELOW THE LID. OPENING SHALL HAVE SMOOTH EDGE. IF THE CONDUIT IS P.V.C. A SLIP COUPLING MUST BE USED. IF THE CONDUIT IS RIGID PIPE, A PROTECTIVE BUSHING SHALL BE USED.
- 5) CONDUCTORS SHALL HAVE A MINIMUM OF 24" SLACK FROM CONDUIT BELL END.
- 6) BACKFILL WITH EXCAVATED MATERIAL AND THOROUGHLY COMPACT.
- 7) WHERE PULLBOXES ARE INSTALLED IN CONCRETE AREAS, 1/2" PREMOLDED EXPANSION JOINT SHALL BE INSTALLED AROUND THE BOX.





LIGHTING FIXTURE SCHEDULE						
TYPE	DESCRIPTION	MFR.	CATALOG #	LAMPS	WATTS	NOTES
LTHB	HIGH BAY	COOPER	OHB-12HE-W-UNV-L840	LED	70	
LTHB-BB	HIGH BAY-BATTERY BACKUP	COOPER	OHB-12HE-W-UNV-L840-EL20W	LED	70	REQUIRES UNSWITCHED HOT
WP1	WALL PACK	LITHONIA	WDGE2 LED P2 30K 80CRI T4M MVOLT	LED	19	

BRANCH PANEL: RP-STR

LOCATION: STORAGE 101

SUPPLY FROM:

MOUNTING: SURFACE

ENCLOSURE: TYPE 12

VOLTS: 120/208 Wye

PHASES: 3

WIRES: 4

SCCR RATING: 10KA

MAINS TYPE: MCB

MAINS RATING: 60 A

MCB RATING: 35 A

NOTES:

IDENTIFICATION	WIRE	POLE	AMP	CKT	A KVA	B KVA	C KVA	A KVA	B KVA	C KVA	CKT	AMP	POLE	WIRE	IDENTIFICATION
RECEPTACLE	12	1	20	1	0.36			0.36			2	20	1	12	RECEPTACLE
RECEPTACLE	12	1	20	3		0.36			0.36		4	20	1	12	RECEPTACLE
RECEPTACLE	12	1	20	5			0.18			0.18	6	20	1	12	RECEPTACLE
SECURITY PANEL	12	1	20	7	0.00			1.50			8	20	1	12	COINOX SENSORS
				9							10				
				11							12				
CONNECTED LOAD: (KVA)					2.22		0.72		0.36						

BRANCH PANEL: DP-STR															
LOCATION: STORAGE 101				VOLTS: 480/277 Wye				SCCR RATING: 18KA							
SUPPLY FROM:				PHASES: 3				MAINS TYPE: MCB							
MOUNTING: SURFACE				WIRES: 4				MAINS RATING: 60 A							
ENCLOSURE: TYPE 12								MCB RATING: 60 A							
NOTES:															
IDENTIFICATION	WIRE	POLE	AMP	CKT	A KVA	B KVA	C KVA	A KVA	B KVA	C KVA	CKT	AMP	POLE	WIRE	IDENTIFICATION
EF-1	12	3	15	1	0.94			0.48			2	20	1	12	LIGHTING
				3		0.94			0.48		4	20	1	12	LIGHTING
				5			0.94			0.48	6	20	1	12	LIGHTING
EF-2	12	3	15	7	0.94			0.80			8	20	1	12	OUTDOOR LIGHTING
				9		0.94			0.00		10	20	1	--	SPARE
				11			0.94			0.00	12	20	1	--	SPARE
NORTH DOOR	12	3	15	13	0.58			0.00			14	20	1	--	SPARE
				15		0.58			0.00		16	20	1	--	SPARE
				17			0.58			0.00	18	20	1	--	SPARE
SOUTH DOOR	12	3	15	19	0.58			0.00			20	20	1	--	SPARE
				21		0.58			0.00		22	20	1	--	SPARE
				23			0.58			0.00	24	20	1	--	SPARE
TRANSFORMER	12	3	20	25	0.72			0.00			26	20	1	--	SPARE
				27		0.72			0.00		28	20	1	--	SPARE
				29			0.36				30				
				31							32				
				33							34				
				35							36				
CONNECTED LOAD: (KVA)					5.03		4.23		3.87						