NEW CONSTRUCTION:

DOW GARDENS WELCOME CENTER

MIDLAND, MICHIGAN

BID PACK NO.3

ALTERNATES:

ALTERNATE NO. 1

BASE BID: INSTALL GLASS AS INDICATED IN DRAWINGS

ALTERNATE 1A: OMIT GL-2 FROM ALL FRAMES

ALTERNATE 1B: ALL GLAZING TO BE GL-2

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TROY, MICHIGAN 48098
PHONE: (248) 879-5666

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NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO.1	12/26/24

WTAARCH.COM

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
TITLE SHEET

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 09, 2025

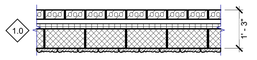
CHECKED BY
JMJ

SHEET NUMBER
TS

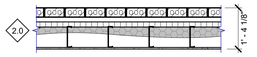
Autodesk Revit 2025 4:54:22 PM C:\Users\jjohnston\Documents\Central-2022022-Dow Gardens Welcome Center-Building_CAS_jjohnston.rvt

WALL TYPES

1/2" = 1'-0"



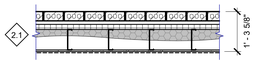
STONE VENEER (REFER TO EXTERIOR ELEVATIONS FOR COLOR AND COURSING) W/ 1" AIR GAP AND 2" RIGID INSULATION SYSTEM, R13 MIN. ON 8" C.M.U. WITH 3/4 STONE TILE (REFER TO ELEVATIONS FOR EXTENTS OF MATERIALS).



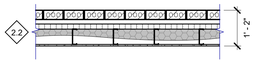
STONE VENEER (REFER TO EXTERIOR ELEVATIONS FOR COLOR AND COURSING) W/ 2" RIGID INSULATION SYSTEM, MIN. R13. ON SPRAY FOAM, R7.5 MIN. IN AIR GAP OF 16 GA. 8" MTL. STUDS @ 16" OC ON GYP.

IN LOCATION WITH TILE REPLACE 5/8" GYP. BOARD WITH CEMENT BACKER BOARD (REFER TO ELEVATIONS FOR EXTENTS OF MATERIALS).

2.0A SAME AS 2.0; EXCEPT REPLACE 5/8" GYP WITH (1) LAYER OF 5/8" GYP OVER (1) LAYER OF 1/2" GYP PER DETAIL ON SHEET 1/A3.00



STONE VENEER (REFER TO EXTERIOR ELEVATIONS FOR COLOR AND COURSING)W/ 2" RIGID INSULATION SYSTEM, MIN. R13. ON SPRAY FOAM, R7.5 MIN. IN AIR GAP OF 16 GA. 8" MTL. STUDS @ 16" OC ON GYP. WITH TILE ON CEMENT BACKER BOARD (REFER TO ELEVATIONS FOR EXTENTS OF MATERIALS).



STONE VENEER (REFER TO EXTERIOR ELEVATIONS FOR COLOR AND COURSING)W/ 2" RIGID INSULATION SYSTEM, MIN. R13. ON SPRAY FOAM, R7.5 MIN. IN AIR GAP OF 16 GA. 6" MTL. STUDS @ 16" OC ON GYP. WITH TILE ON CEMENT BACKER BOARD (REFER TO ELEVATIONS FOR EXTENTS OF MATERIALS).

5/8" GYP. BOARD ON 20 GA. 3 5/8" METAL STUDS @ 16" O.C.

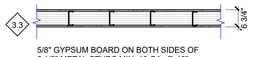
5/8" GYP. BOARD ON BOTH SIDES OF 20 GA. 3 5/8" METAL STUDS @ 16" O.C.

5/8" GYPSUM BOARD ON BOTH SIDES OF 3 5/8" METAL STUDS, MIN. 16 GA. @ 16" O.C. W/ SOUND ATTENUATION BLANKETS. EXTEND FROM FINISH FLOOR TO UNDERSIDE OF STRUCTURE ABOVE.

IN LOCATION WITH TILE REPLACE 5/8" GYP. BOARD WITH CEMENT BACKER BOARD (REFER TO ELEVATIONS FOR EXTENTS OF MATERIALS).

UL419 @ RATED WALL LOCATIONS USE TYPE "X" GYPSUM BOARD (REFER TO SHEET LS-1).

3.2A SAME AS 2.0; EXCEPT REPLACE 5/8" GYP ON CORRIDOR SIDE WITH (1) LAYER OF 5/8" GYP OVER (1) LAYER OF 1/2" GYP PER DETAIL ON SHEET 1/A3.00



5/8" GYPSUM BOARD ON BOTH SIDES OF 5 1/2" METAL STUDS MIN. 16 GA. @ 16" O.C. W/ SOUND ATTENUATION BLANKETS. EXTEND FROM FINISH FLOOR TO UNDERSIDE OF STRUCTURE ABOVE.

UL419 @ RATED WALL LOCATIONS USE TYPE "X" GYPSUM BOARD (REFER TO SHEET LS-1).

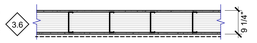
5/8" GYPSUM BOARD ON BOTH SIDES OF 8" METAL STUDS MIN. 16 GA. @ 16" O.C. W/ SOUND ATTENUATION BLANKETS. EXTEND FROM FINISH FLOOR TO UNDERSIDE OF STRUCTURE ABOVE.

UL419 @ RATED WALL LOCATIONS USE TYPE "X" GYPSUM BOARD (REFER TO SHEET LS-1).

3.4A SAME AS 2.0; EXCEPT REPLACE 5/8" GYP ON CORRIDOR SIDE WITH (1) LAYER OF 5/8" GYP OVER (1) LAYER OF 1/2" GYP PER DETAIL ON SHEET 1/A3.00

5/8" GYPSUM BOARD ON 8" METAL STUDS MIN. 16 GA. @ 16" O.C. W/ SOUND ATTENUATION BLANKETS WITH TILE ON CEMENT BACKER BOARD. (REFER TO ELEVATIONS FOR EXTENTS OF MATERIALS).

UL419 @ RATED WALL LOCATIONS USE TYPE "X" GYPSUM BOARD (REFER TO SHEET LS-1).

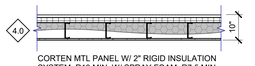


5/8" GYPSUM BOARD ON 5-1/2" METAL STUDS MIN. 16 GA. @ 16" O.C. W/ SOUND ATTENUATION BLANKETS W/ TILE ON CEMENT BACKER BOARD. (REFER TO ELEVATIONS FOR EXTENTS OF MATERIALS).

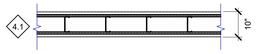
UL419 @ RATED WALL LOCATIONS USE TYPE "X" GYPSUM BOARD (REFER TO SHEET LS-1).

5/8" GYPSUM BOARD ON ONE SIDE OF 3 5/8" METAL STUDS, MIN. 16 GA. @ 16" O.C. W/ SOUND ATTENUATION BLANKETS W/ AIR SPACE CAVITY W/ 3 5/8" METAL STUDS, MIN. 20 GA. @ 16" O.C. W/ SOUND ATTENUATION BLANKETS ON 5/8" GYPSUM BOARD ONE SIDE. EXTEND BOTH FROM FINISH FLOOR TO UNDERSIDE OF STRUCTURE ABOVE

IN LOCATION WITH TILE REPLACE 5/8" GYP. BOARD WITH CEMENT BACKER BOARD (REFER TO ELEVATIONS FOR EXTENTS OF MATERIALS).

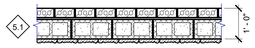


CORTEN MTL PANEL W/ 2" RIGID INSULATION SYSTEM, R13 MIN. W/ SPRAY FOAM, R7.5 MIN. IN AIR SPACE ON MIN. 16 GA. 8" MTL. STUDS ON 5/8" GYP.

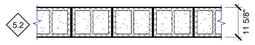


CORTEN MTL PANEL ON 1" HAT CHANNEL ON 3/4" WOOD SHEATHING ON BOTH SIDES OF 6" MTL STUDS MIN. 16 GA.

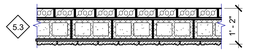
TILE ON CEMENT BACKER BOARD (REFER TO ELEVATIONS FOR EXTENTS OF MATERIALS) ONE SIDE OF 8" METAL STUDS MIN. 16 GA. @ 16" O.C. W/ SOUND ATTENUATION BLANKETS W/ 5/8" GYPSUM BOARD OTHER SIDE. EXTEND FROM FINISH FLOOR TO UNDERSIDE OF STRUCTURE ABOVE.



3-5/8" LIMESTONE MASONRY ADHERED TO 7-5/8" CONCRETE MASONRY UNIT



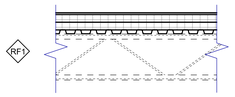
11-5/8" CONCRETE MASONRY UNIT



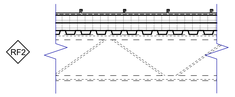
3-5/8" LIMESTONE MASONRY ADHERED TO 7-5/8" CONCRETE MASONRY UNIT W/ 3/4" LIMESTONE MASONRY ADHERED

ROOF TYPES

1/2" = 1'-0"



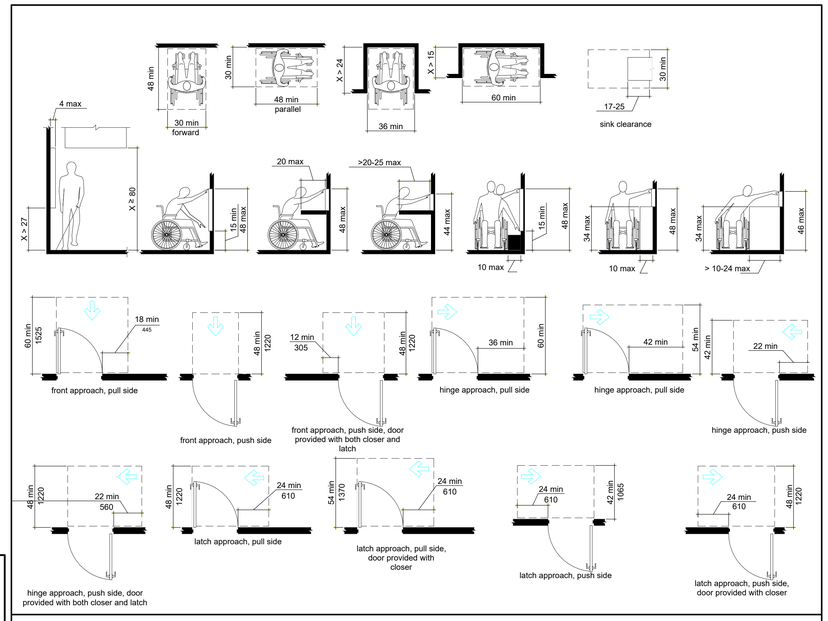
ROOFING MEMBRANE AND/OR FLASHING ON RIGID INSULATION (MIN. R-30) STAGGER JOINTS ON VAPOR BARRIER ON METAL DECKING (SEE STRUCTURAL).



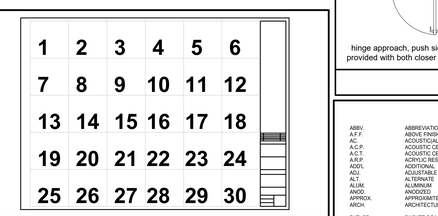
STANDING SEAM METAL COPPER ROOF ON UNDERLAYMENT ON RIGID INSULATION (MIN. R-30) STAGGER JOINTS ON METAL DECKING (SEE STRUCTURAL).

NOTE: PROVIDE ICE AND WATER SHIELD UNDERLAYMENT MIN 24" FROM INSIDE THE EXTERIOR WALL LINE OF THE BUILDING.

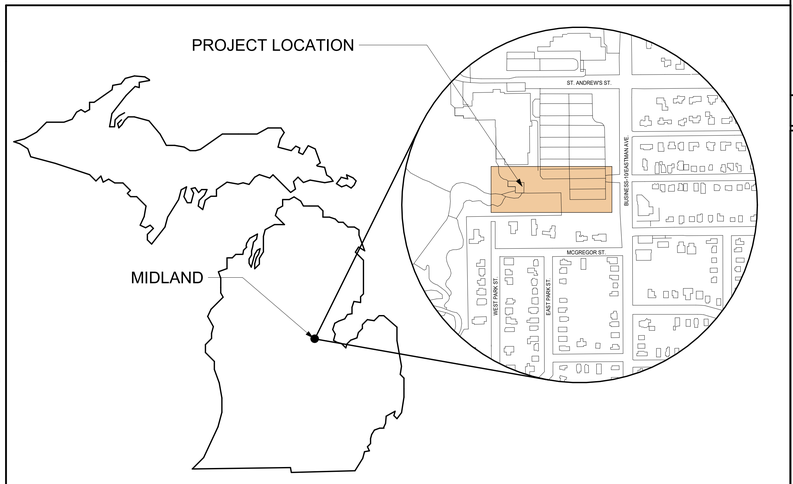
ROOFING MEMBRANE AND/OR FLASHING ON WEATHER BARRIER ON EXTERIOR GRADE SHEATHING ON METAL DECKING (SEE STRUCTURAL).



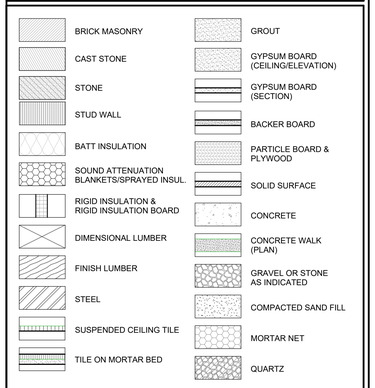
ACCESSIBILITY STANDARDS PER ANSI 117.1



LOCATION NUMBER GRID



PROJECT LOCATION

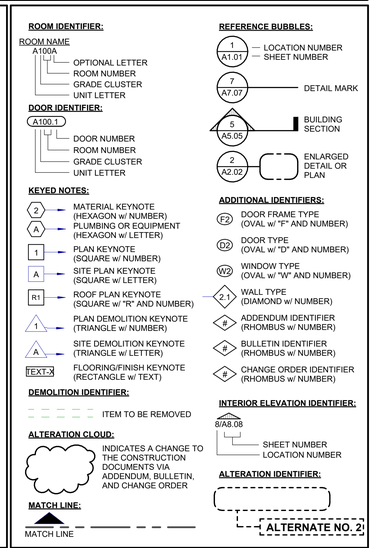


ARCHITECTURAL MATERIAL LEGEND

ABBV.	ABBREVIATIONS	F.R.P./FRP	FIBER REINFORCED POLYESTER
A.F.F.	ABOVE FINISHED FLOOR		
ACST.	ACOUSTICAL(L)	GA.	GAUGE
A.C.P.	ACOUSTIC CEILING PANEL	G. TILE/GT	GLASS TILE
A.C.T.	ACOUSTIC CEILING TILE	GL.	GLAZING
A.R.P.	ACRYLIC RESIN PANEL	G.B.	GRAB BAR
ADDTL	ADDITIONAL	GYP. BD.	GYPSUM BOARD
ADJ	ADJUSTABLE		
ALT	ALTERNATE	HWD.	HARDWOOD
ALUM.	ALUMINUM	H.P.	HIGH POINT
ANOD.	ANODIZED	H.M./HM	HOLLOW METAL
APPROX.	APPROXIMATE	HORIZ.	HORIZONTAL
ARCH.	ARCHITECTURAL	H.B.	HOSE BIB
BKR. BD.	BACKER BOARD	I.DIA./I.D.	INSIDE DIAMETER
BRG.	BEARING	I.F.BL.	INSIDE FACE OF BLOCK
BIT.	BITUMINOUS	I.F.BR.	INSIDE FACE OF BRICK
BLK'G)	BLOCKING	INSUL.	INSULATE(D)
BD.	BOARD	INT.	INTERIOR
BTM.	BOTTOM		
B.O.C.	BOTTOM OF CURB	JT.	JOINT
B.O.F.	BOTTOM OF FOOTING		
BRK.	BRICK	LAM./LAM	LAMINATE(D)
BLDG.	BUILDING	LAV.	LAVATORY (SINK)
		L.S.F./LSF	LINOLEUM SHEET FLOORING
CPT.	CARPET	L.F./LFT	LINOLEUM TILE FLOORING
C.B.	CATCH BASIN	L.P.	LOW POINT
CLG.	CEILING	L.V.T./LVT	LUXURY VINYL TILE
C.M.TILE/CMT	CERAMIC MOSAIC TILE		
CT	CERAMIC TILE	MFR.	MANUFACTURE(R)
CHBD.	CHALKBOARD	M.B.	MARKERBOARD
CLR.	CLEAR	MAS.	MASONRY
COL.	COLUMN	M.O.	MASONRY OPENING
CONC.	CONCRETE	MAT'L	MATERIAL
C.M.U./CMU	CONCRETE MASONRY UNIT	MAX.	MAXIMUM
CONT	CONTINUOUS	MECH	MECHANICAL
CJ	CONTINUOUS JOINT	MTL.	METAL
CTOP	COUNTER TOP	M.P./MP	METAL PANEL
COVR'G	COVERING	M.D.O.T.	MICHIGAN DEPARTMENT OF TRANPORTATION
DEPT.	DEPARTMENT		
DIA.	DIAMETER	MIN.	MINIMUM
D.O.	DOOR OPENING	MIR.	MIRROR
DBL.	DOUBLE	MISC.	MISCELLANEOUS
DN.	DOWN		
D.T.	DRAIN TILE	NOM.	NOMINAL
DWG.	DRAWING	N.I.C.	NOT IN CONTRACT
D.F.	DRINKING FOUNTAIN	N.T.S.	NOT TO SCALE
		NO.	NUMBER
EA.	EACH		
E.W.	EACH WAY	O.C.	ON CENTER
ELEC.	ELECTRIC(AL)	OPP.	OPPOSITE (HAND)
E.H.D.	ELECTRIC HAND DRYER	O.S.B.	ORIENTED STRAND BOARD
E.W.C.	ELECTRIC WATER COOLER	O.DIA./O.D.	OUTSIDE DIAMETER
EL.	ELEVATION	O.F.BL.	OUTSIDE FACE OF BLOCK
ELEV.	ELEVATOR	O.F.BR.	OUTSIDE FACE OF BRICK
EQ.	EQUAL	O.F.C.	OUTSIDE FACE OF CONCRETE
E.F	EXHAUST FAN	O.F.M.	OUTSIDE FACE OF MASONRY
EXIST.(E)	EXISTING	O.F.S.	OUTSIDE FACE OF STUDS
EXP.	EXPOSED		
EXT.	EXTERIOR	PT.,P	PAINT(ED)
		PR.	PAIR
FT.	FEET	P.T.D.	PAPER TOWEL DISPENSER
F.F.	FINISHED FACE	PART. BD.	PARTICLE BOARD
FIN.	FINISHED	PTN.	PARTITION
F.O.	FINISHED OPENING	PLAS.	PLASTER
F.E.	FIRE EXTINGUISHER	P.LAM./PL	PLASTIC LAMINATE
F.E.C.	FIRE EXTINGUISHER CABINET	PLYWD.	PLYWOOD
F.R.	FIRE RATED	P.O.N.C.	POINT OF NEW CONNECTION
F.RT.	FIRE RETARDANT	P.TILE/PT	PORCELAIN TILE
F.R.L./FRL	FIBER REINFORCED LAMINATE	PWR.	POWER
F.S.	FLOOR SINK	P.CONC.	PRECAST CONCRETE
F.S.F./FSF	FLOCKED SHEET FLOORING	P.C./PC	POLISHED CONCRETE
F.T.F./FTF	FLOCKED TILE FLOORING		
FLR.	FLOOR	Q.TILE/QT	QUARRY TILE
F.D.	FLOOR DRAIN	QTZ./QTZ	QUARTZ
FTG.	FOOTING		

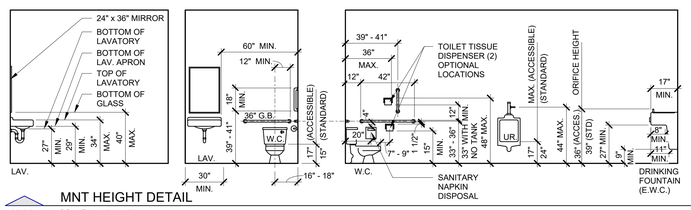
RAD.	RADIUS
REFRIG.	REFRIGERATOR
REINF.	REINFORCE(MENT)
REQ'D	REQUIRED
R.W.B./RWB	RESILIENT WALL BASE
R.S.F./RSF	RESILIENT SHEET FLOORING
R.T.F./RTF	RESILIENT TILE FLOORING
R.O.	ROUGH OPENING
S.A.T.	SUSPENDED ACOUSTICAL TILE
SF GL.	SAFETY GLAZING
S.N.DR.	SANITARY NAPKIN DISPENSER
S.N.DL.	SANITARY NAPKIN DISPOSAL
S.O.	SCHEDULE OPENING
SCHED.	SCHEDULE
SNT.	SEALANT
SHT.	SHEET
SIM.	SIMILAR
SM.F.	SMOOTH FACE
SPEC.	SPECIFICATION(S)
SP.F.	SPLIT FACE
SQ.FT.	SQUARE FEET
S.STL./SS	STAINLESS STEEL
STD.	STANDARD
STOR./STOR.	STORAGE/STORE
STR.	STRAIGHT
STRUC.	STRUCTURE
SUSP.	SUSPENDED
T.B.	TACKBOARD
TEL.	TELEPHONE
T.V.	TELEVISION
TEMP.	TEMPER(ED)
THK.	THICK
T.P.D.	TOILET PAPER DISPENSER
T.O.M.	TOP OF MASONRY
T.O.S.	TOP OF STEEL
U.N.O.	UNLESS NOTED OTHERWISE
URN.	URINAL
V.B.	VAPOR BARRIER
V.I.F.	VERIFY IN FIELD
VERT.	VERTICAL
V.T.R.	VENT THROUGH ROOF
VNL./VNL	VINYL
V.C.T./VCT	VINYL COMPOSITION TILE
W.C.	WATER CLOSET
W.MAT/WCM	WALK-OFF MAT
W.W.F.	WELDED WIRE FABRIC
W.W.M.	WELDED WIRE MESH
W.O.	WINDOW OPENING
w/	WITH
WD.	WOOD

LEGEND OF ABBREVIATIONS



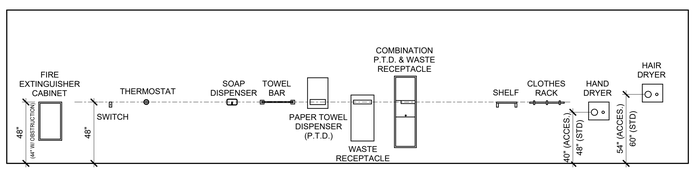
ARCHITECTURAL SYMBOL LEGEND

NOTE:
FIXTURES DEPICTED WITHIN THIS SCHEDULE ARE SCHEMATIC ONLY. FOR EXACT FIXTURE TYPES AND QUANTITIES, REFER TO MECHANICAL DRAWINGS AS WELL AS THE SPECIFICATION MANUAL.



MNT HEIGHT DETAIL

3/A0.01 SCALE: 1/4" = 1'-0"



	ISSUED FOR BID	01/09/25
B1	BULLETIN NO.1	12/26/24
NO.	REVISION	DATE

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WTA ARCHITECTS

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989 752 8107

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PROJECT TITLE

NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3

MIDLAND, MICHIGAN

SHEET TITLE

PROJECT INFORMATION

PROJECT NUMBER 2022022	SHEET NUMBER A0.01
PROJECT DATE JANUARY 09, 2025	
CHECKED BY JMJ	

Autodesk Docs://2022022 Dow Gardens Welcome Center Building_V24_jjohnston/V24.rvt
Autodesk Docs://2022022 Dow Gardens Welcome Center Building_V24_jjohnston/V24.rvt
C:\Users\jjohnston\Documents\Central\2022022 Dow Gardens Welcome Center Building_V24_jjohnston.rvt
Autodesk Docs://2022022 Dow Gardens Welcome Center Building_V24_jjohnston/V24.rvt
1/6/2025 4:04:26 PM

SURVEY MONUMENTATION

- TRAVERSE POINT
- BENCHMARK
- ALIGNMENT POINT
- SET IRON
- FOUND IRON
- SET MONUMENT
- FOUND MONUMENT
- SECTION & 1/4 CORNER
- 1/8 & 1/16 CORNER
- NGS & USGS MONUMENT
- SECTION LINE
- EXISTING PROPERTY LINE (APPROX)
- PARCEL LINE / LOT LINE
- EXISTING EASEMENT LINE
- 33' ROW — EXISTING RIGHT OF WAY
- PROPOSED EASEMENT
- 60' ROW — PROPOSED RIGHT OF WAY
- 11+00 — PROJECT CONTROL LINE

MISCELLANEOUS TOPO

- SATELLITE DISH
- ANTENNA
- COLUMN
- FLOOD LIGHT
- FOUNTAIN
- STATUE/SCULPTURE
- GRAVE MARKER
- PLANTER BOX
- ROCK
- MAILBOX
- PAPER BOX
- FENCE GATE
- TRASH CAN
- PICNIC TABLE
- PARK BENCH
- BBQ GRILL
- DUMPSTER
- BIKE RACK
- AIR CONDITIONING UNIT
- PAY PHONE/BOOTH
- SOIL BORING
- MONITORING WELL
- BUMPER BLOCK
- SWAMP OR WETLAND

SIGNS, SIGNALS & POSTS

- FLAG POLE
- ADVERTISING/BUSINESS SIGN
- POST (WOOD/METAL/CONCRETE/FENCE)
- HIGHWAY DELINEATOR POST
- EXISTING TRAFFIC SIGN
- PARKING METER
- BILLBOARD
- CANTILEVERED TRAFFIC SIGNAL
- CANTILEVERED SIGN
- PEDESTRIAN SIGNAL
- PEDESTRIAN CROSSING BUTTON
- TRAFFIC SIGNAL
- RAILROAD CROSSING GATE
- RAILROAD CROSSING SIGNAL
- PROPOSED TRAFFIC SIGN

PLAYGROUND EQUIPMENT

- SWING SET
- SLIDE (STRAIGHT)
- SLIDE (SPIRAL)
- MONKEY BARS (RECTANGLE)
- MONKEY BARS (ROUND)
- VOLLEYBALL POLE
- MERRY-GO-ROUND
- BASKETBALL HOOP POST
- FOOTBALL/SOCCER GOAL

MISCELLANEOUS UTILITIES

- CABLE TV RISER
- CABLE TV MARKER POST
- CIRCUIT BREAKER
- ELECTRIC METER
- ELECTRIC OUTLET
- ELECTRIC RISER
- ELECTRIC TRANSFORMER PAD
- ELECTRIC TRANSMISSION TOWER
- ELECTRIC MANHOLE
- ELECTRIC MARKER POST
- TELEPHONE RISER
- TELEPHONE MANHOLE
- TELEPHONE MARKER POST
- FIBER OPTIC MARKER POST
- UTILITY HANDHOLE
- STRAIN POLE
- UTILITY/LIGHT POLE
- GUY WIRE
- GUY POLE
- UTILITY POLE
- WOOD LIGHT POLE
- METAL LIGHT POLE
- ORNAMENTAL LIGHT POLE
- POLE BOX
- TRAFFIC CONTROL BOX
- ELECTRIC VEHICLE CHARGING STATION
- EXISTING MISCELLANEOUS MANHOLE
- O/H — EXISTING OVERHEAD UTILITY LINE
- U/G ELEC — EXISTING U.G. ELECTRIC LINE
- U/G TEL — EXISTING U.G. TELEPHONE LINE
- U/G F/O — EXISTING U.G. FIBER OPTIC LINE
- U/G CATV — EXISTING U.G. CABLE TV LINE

GAS

- GAS METER
- GAS RISER
- GAS STOP BOX
- GAS VALVE
- GAS VENT
- GAS BLOW OFF
- 6" S-MP GAS — EXISTING U.G. GAS LINE
- PROPANE TANK
- GAS TEST STATION
- GAS FILLPORT
- GAS PUMP
- GAS MANHOLE
- GAS MARKER POST

WATER MAIN

- EXISTING FIRE HYDRANT
- EXISTING WATER GATE VALVE AND BOX
- EXISTING WATER STOP BOX
- EXISTING WATER GATE VALVE AND WELL
- EXISTING WATER METER PIT
- EXISTING WATER WELL
- EXISTING SPRINKLER HEAD
- EXISTING POST HYDRANT
- EXISTING WATER BACK FLOW PREVENTER
- EXISTING WATER TOWER
- EXISTING SPRINKLER VALVE
- EXISTING WATER METER
- 12" WM — EXISTING WATER MAIN
- 12" WM — REMOVE WATER MAIN
- 12" WM — ABANDON WATER MAIN
- PROPOSED WATER MAIN
- EXISTING WATER FAUCET/SPIGOT
- EXISTING WATER MANHOLE
- EXISTING WATER VALVE
- EXISTING WATER POST VALVE
- EXISTING WATER AIR RELEASE VALVE
- EXISTING WATER MARKER POST
- PROPOSED FIRE HYDRANT
- PROPOSED WATER GATE VALVE AND BOX
- PROPOSED WATER STOP BOX
- PROPOSED WATER GATE VALVE AND WELL
- PROPOSED WATER MAIN REDUCER
- PROPOSED WATER MAIN SLEEVE

STORM SEWER

- EXISTING CURB INLET
- EXISTING SQUARE CATCHBASIN
- EXISTING ROUND CATCHBASIN
- EXISTING DOWNSPOUT
- EXISTING STORM SEWER CLEANOUT
- EXISTING STORM MANHOLE
- EXISTING PIPE INLET/OUTLET
- EXISTING STORM MARKER POST
- EX 1812 — EXISTING STORM SEWER STRUCTURE NUMBER
- 12" STM — EXISTING STORM SEWER
- 12" CONC — EXISTING DRIVE/CROSS CULVERT
- 12" STM — REMOVE STORM SEWER
- 12" STM — ABANDON STORM SEWER
- PROPOSED STORM SEWER LESS THAN 24"
- PROPOSED STORM SEWER 24" AND GREATER
- PROPOSED CATCH BASIN IN CURB LINE (5' DIA AND SMALLER)
- PROPOSED CATCH BASIN IN CURB LINE (6' DIA AND LARGER)
- PROPOSED CATCH BASIN IN GREEN SPACE (5' DIA AND SMALLER)
- PROPOSED CATCH BASIN IN GREEN SPACE (6' DIA AND LARGER)
- PROPOSED STORM MANHOLE (5' DIA AND SMALLER)
- PROPOSED STORM MANHOLE (6' DIA AND LARGER)
- PROPOSED CULVERT END SECTION
- PROPOSED STORM SEWER CLEANOUT
- 1 — PROPOSED STORM SEWER STRUCTURE NUMBER

SANITARY SEWER

- EXISTING SANITARY MANHOLE
- EXISTING SANITARY PUMP STATION
- EXISTING SANITARY SEWER VALVE
- EXISTING SEPTIC TANK
- EX 5236 — EXISTING SANITARY SEWER STRUCTURE NUMBER
- 12" SAN — EXISTING SANITARY SEWER
- 12" SAN — REMOVE SANITARY SEWER
- 12" SAN — ABANDON SANITARY SEWER
- 12" SAN FM — EXISTING SANITARY FORCE MAIN
- 12" SAN FM — REMOVE SANITARY FORCE MAIN
- 12" SAN FM — ABANDON SANITARY FORCE MAIN
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER CLEANOUT/RISER
- EXISTING SANITARY MARKER POST
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER CLEANOUT
- A — PROPOSED SANITARY SEWER STRUCTURE NUMBER

TREES & SHRUBS

- STUMP
- DECIDUOUS TREE
- DECIDUOUS SHRUB
- CONIFEROUS TREE
- CONIFEROUS SHRUB
- DEAD TREE
- EXISTING EDGE OF WOODS
- EXISTING EDGE OF BRUSH
- PROPOSED EDGE OF WOODS
- PROPOSED EDGE OF BRUSH

PARCEL INFORMATION

- 401-069 — PARCEL/TAX IDENTIFICATION NUMBER
- #5324 — EXISTING BUILDING AND ADDRESS/BUSINESS NAME

CAUTION SYMBOLS

- ••CAUTION•• HAZARDOUS FLAMMABLE MATERIAL UNDERGROUND — USED WITH UNDERGROUND GAS & ELECTRICAL LINES
- ••CAUTION•• FIBER OPTIC — USED WITH FIBER OPTIC LINES
- ••CAUTION•• CRITICAL UNDERGROUND UTILITY — USED WITH CRITICAL UNDERGROUND LINES

PLAN VIEW LINETYPES

- EXISTING CENTERLINE OF DITCH
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING RAILROAD TRACK
- 960 — EXISTING CONTOUR MAJOR
- 958 — EXISTING CONTOUR MINOR
- EXISTING EDGE OF WETLAND
- EXISTING SHORELINE / EDGE OF WATER
- EXISTING TOP OF BANK
- EXISTING TOE OF SLOPE
- PROPOSED DITCH CENTERLINE
- PROPOSED FENCE
- 960 — PROPOSED CONTOUR MAJOR
- 958 — PROPOSED CONTOUR MINOR
- PROPOSED SLOPE STAKE LINE
- PROPOSED SILT FENCE

PROPOSED CALLOUTS

TOPO CALLOUTS	PLAN VIEW	
ADJ	ADJ	ADJUST STRUCTURE
ADJ-X	ADJ-X	ADJUST STRUCTURE W/ NEW COVER
ADJ-B/O	ADJ-B/O	ADJUST STRUCTURE BY OTHERS
REC	REC	RECONSTRUCT STRUCTURE
REL	REL	RELOCATE
REL-B/O	REL-B/O	RELOCATE BY OTHERS
REM	R	REMOVE
R&R	R&R	REMOVE AND REPLACE
SALV	SALV	SALVAGE
SAVE	S	SAVE
ABN	A	ABANDON
CLR	C	CLEARING
	B	BULKHEAD
	SR-X	SIDEWALK RAMP TYPE
	##	SOIL EROSION CONTROL MEASURE

GPR LOCATED EXISTING U.G. LINES

- GPR CATV — U.G. CABLE TV LINE (GPR LOCATED)
- GPR ELEC — U.G. ELECTRIC LINE (GPR LOCATED)
- GPR FO — U.G. FIBER OPTIC LINE (GPR LOCATED)
- GPR GAS — U.G. GAS LINE (GPR LOCATED)
- GPR MISC — U.G. MISCELLANEOUS LINE (GPR LOCATED)
- GPR SAN — U.G. SANITARY SEWER LINE (GPR LOCATED)
- GPR STM — U.G. STORM SEWER LINE (GPR LOCATED)
- GPR TELE — U.G. TELEPHONE LINE (GPR LOCATED)
- GPR UNK — U.G. UNKNOWN LINE (GPR LOCATED)
- GPR WTR — U.G. WATER LINE (GPR LOCATED)

PAVEMENT IDENTIFICATION

- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER

REMOVAL HATCHING LEGEND

- REMOVE CURB AND GUTTER
- REMOVE PAVEMENT
- REMOVE SIDEWALK

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO. 1	12/26/24

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ROWE PROFESSIONAL SERVICES COMPANY

PROJECT TITLE

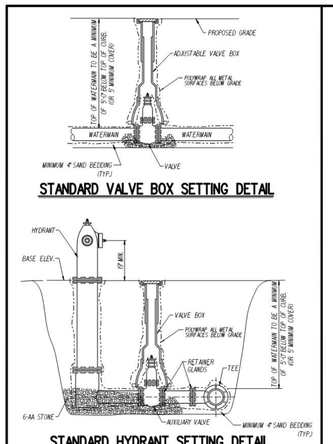
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE

CIVIL GENERAL LEGEND

PROJECT NUMBER	SHEET NUMBER
2022022	C1.00
PROJECT DATE: JANUARY 9, 2025	
CHECKED BY: AJW	

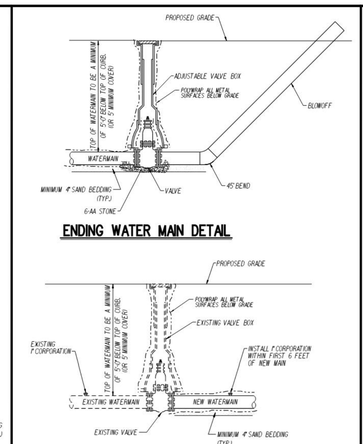
811 Know what's **below.** **Call** before you dig.



STANDARD VALVE BOX SETTING DETAIL

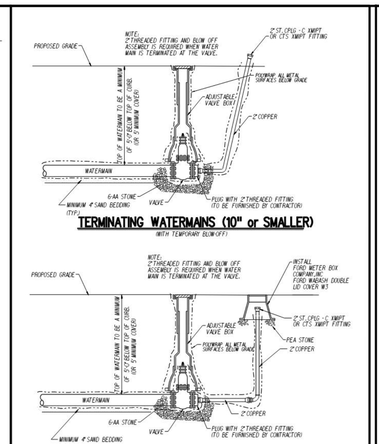
STANDARD HYDRANT SETTING DETAIL

HYDRANT SHALL BE PLACED AT BASE ELEVATION SHOWN ON PLANS. ANY REQUIRED EXTENSION OF THE HYDRANT SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE HYDRANT.



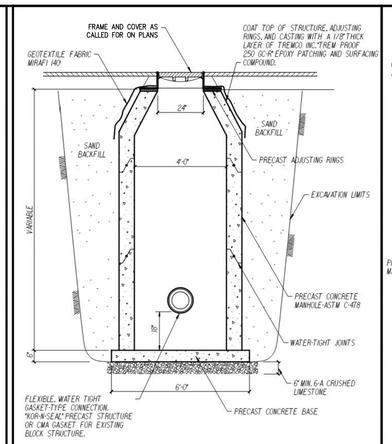
ENDING WATER MAIN DETAIL

BEGINNING WATERMAINS

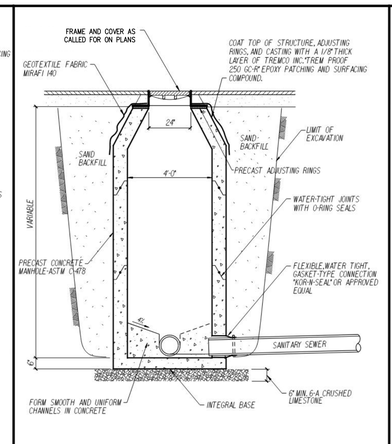


TERMINATING WATERMAINS (10" or SMALLER)

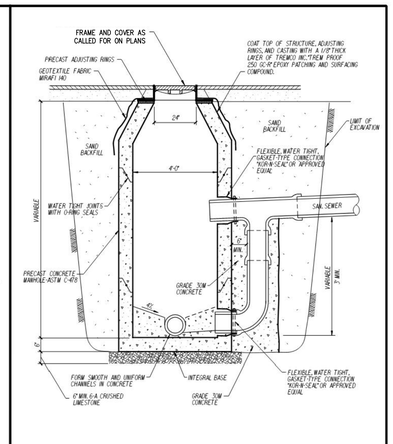
TERMINATING WATERMAINS (10" or SMALLER)



STANDARD STORM MANHOLE



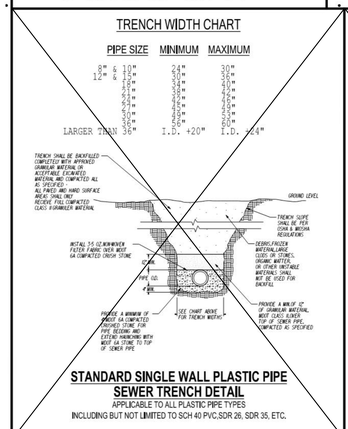
STANDARD SANITARY MANHOLE



STANDARD DROP MANHOLE

TRENCH WIDTH CHART

PIPE SIZE	MINIMUM	MAXIMUM
8" & 10"	24"	30"
12" & 15"	30"	36"
18"	33"	39"
21"	36"	42"
24"	39"	45"
30"	45"	51"
36"	48"	60"
LARGER THAN 36"	I.D. +20"	I.D. +24"



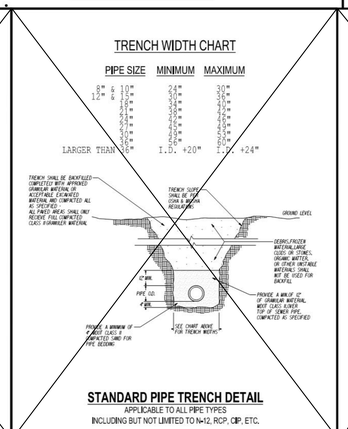
STANDARD SINGLE WALL PLASTIC PIPE SEWER TRENCH DETAIL

APPLICABLE TO ALL PLASTIC PIPE TYPES

INCLUDING BUT NOT LIMITED TO SCH 40 PVC,SDR 26, SDR 35, ETC.

TRENCH WIDTH CHART

PIPE SIZE	MINIMUM	MAXIMUM
8" & 10"	24"	30"
12" & 15"	30"	36"
18"	33"	39"
21"	36"	42"
24"	39"	45"
30"	45"	51"
36"	48"	60"
LARGER THAN 36"	I.D. +20"	I.D. +24"



STANDARD PIPE TRENCH DETAIL

APPLICABLE TO ALL PIPE TYPES

INCLUDING BUT NOT LIMITED TO N-12, RCP, CIP, ETC.

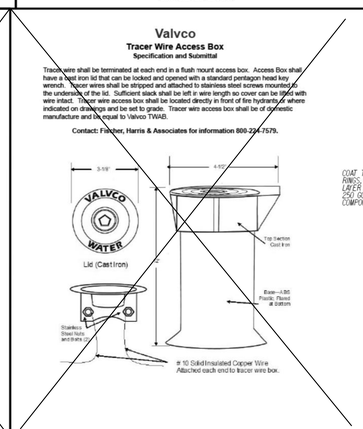
Valvco

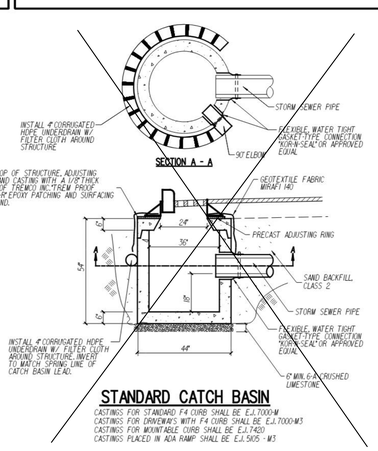
Tracer Wire Access Box

Specification and Submittal

Trace wire shall be terminated at each end in a flush mount access box. Access Box shall have a heat iron lid that can be locked and opened with a standard pentagon head key wrench. Tracer wires shall be stripped and attached to stainless steel screws mounted on the underside of the lid. Sufficient slack shall be left in wire length so cover can be lifted with wire intact. Tracer wire access box shall be located directly in front of fire hydrants or where indicated on drawings and be set to grade. Tracer wire access box shall be of domestic manufacture and be equal to Valvco TWAB.

Contact: Fischer, Harris & Associates for information 800-234-7579.



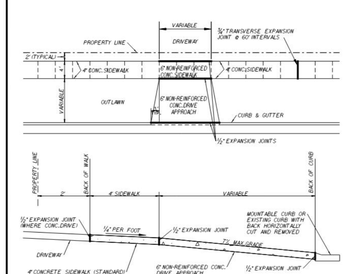


STANDARD CATCH BASIN

CASTINGS FOR STANDARD F-4 CURB SHALL BE E.J.7000-M
CASTINGS FOR DRIVEWAYS WITH F-4 CURB SHALL BE E.J.7000-M3
CASTINGS FOR MOUNTABLE CURB SHALL BE E.J.7450
CASTINGS PLACED IN ADA RAMP SHALL BE E.J.505 - W3

CITY OF MIDLAND

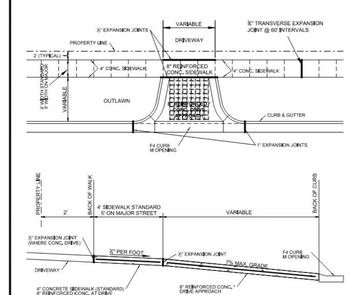
TYPICAL RESIDENTIAL DRIVEWAY AND SIDEWALK CONSTRUCTION DETAIL



TYPICAL SECTION AT DRIVEWAYS

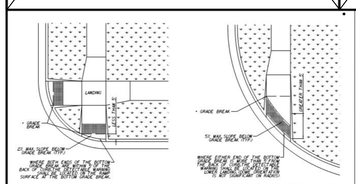
CITY OF MIDLAND

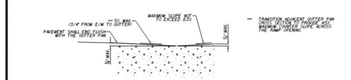
TYPICAL COMMERICAL/INDUSTRIAL "M" OPENING DRIVEWAY AND SIDEWALK CONSTRUCTION DETAIL



*** 8" CONCRETE REINFORCED WITH #4 EPOXY COATED BAR PLACED 12" x 12"****

TYPICAL SECTION AT DRIVEWAYS





SECTION THROUGH CURB CUT
(TYPICAL ALL RAMP TYPES)

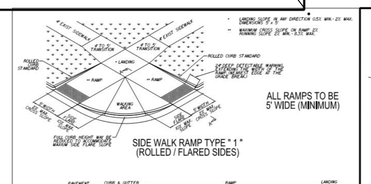
NOTES FOR ALL CURB RAMP TYPES

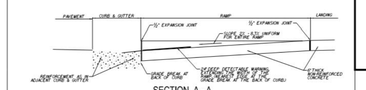
- ARMORTILE TRUNCATED DOME DETECTABLE WARNING PLATE *2069 (COLUMBIA RED) - SIZED AS REQUIRED IS THE CITY OF MIDLAND STANDARD
- SIDEWALK RAMPS AND LANDINGS TO BE CONSTRUCTED OF 6" CONCRETE NON-REINFORCED
- LOWERING ADDITIONAL SIDEWALK MAY BE NECESSARY TO OBTAIN SUITABLE APPROACHING SLOPES OF UP TO 8.3%. IF 8.3% SLOPE CAN NOT BE ACHIEVED IN 15' THEN SLOPE AS REQUIRED TO CONNECT EXIST SIDEWALK 15' FROM NEW LANDING TO THE LANDING
- DETAILS NOT ADDRESSED BY THESE TYPICALS FROM THE CITY OF MIDLAND SHALL BE DEFERRED TO MDOT STANDARDS
- USE EAST JORDAN CASTING 505-W1 FOR CATCH BASINS LOCATED IN RAMPS

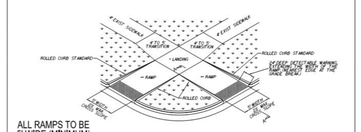
CITY OF MIDLAND

TYPICAL SIDEWALK RAMP CONSTRUCTION

PAGE 2 OF 2



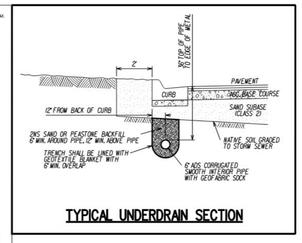




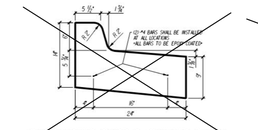
CITY OF MIDLAND

TYPICAL SIDEWALK RAMP CONSTRUCTION

PAGE 1 OF 2

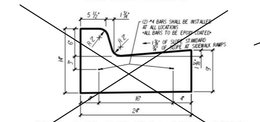


TYPICAL UNDERDRAIN SECTION



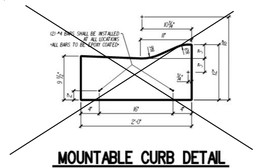
6" INVERTED CURB & GUTTER DETAIL

(END AREA = 1.72 S.F.)



6" STANDARD CURB (F4) & GUTTER DETAIL

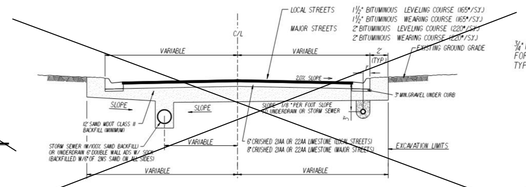
(END AREA = 1.65 S.F.)



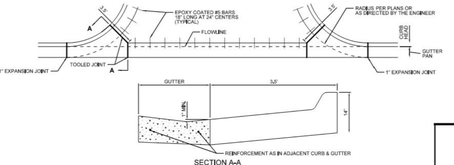
MOUNTABLE CURB DETAIL

WITH E.J.UK.7450 CASTING

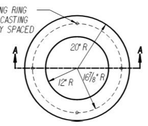
(END AREA = 1.64 S.F.)

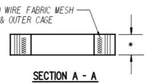


TYPICAL PAVEMENT SECTION



COMMERCIAL DRIVEWAY OPENING, DETAIL M





SECTION A - A

* ADJUSTING RINGS AVAILABLE IN 2", 3", 4" & 6" HEIGHTS

NOTE:
ADJUSTING RINGS TO BE MANUFACTURED TO ASTM C-478 SPECIFICATIONS

PRE-CAST CONCRETE ADJUSTING RING

LAST REVISION
10/4/2024

CITY OF MIDLAND, MICHIGAN
ENGINEERING DEPARTMENT

DETAIL SHEET

STANDARD DETAILS

SHEET 1 OF 1 SHEETS

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO. 1	12/26/24

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989 752 8107

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PROJECT TITLE

NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

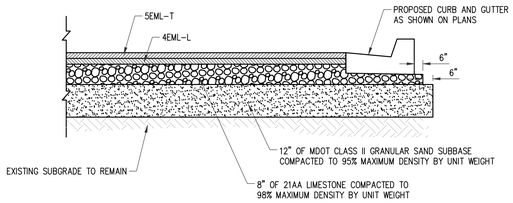
SHEET TITLE

CIVIL DETAILS

PROJECT NUMBER	SHEET NUMBER
2022022	C1.01
PROJECT DATE: JANUARY 9, 2025	
CHECKED BY: AJW	

Know what's **below.** **Call** before you dig.

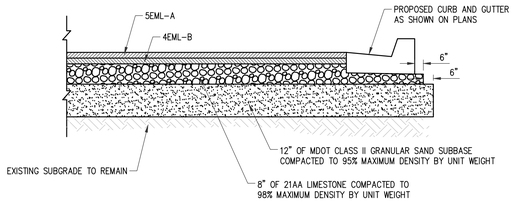
10/3/2024 8:44:39 AM R:\CADFILES\DETAILS\STANDARD DETAIL SHEET\STANDARD DETAIL SHEET.dgn,3:22.1717,Default



HMA APPLICATION CHART					
IDENT NO	ITEM	HMA PAVEMENT	THICKNESS	PERFORMANCE GRADE	COMMENTS
5EML-T	HMA, 5EML	HMA, 5EML	2"	58-28	TOP COURSE
4EML-L	HMA, 4EML	HMA, 4EML	2"	58-28	LEVELING COURSE
RAP SHALL BE LIMITED TO TIER 1 DESIGN (17% MAX RAP BY BINDER WEIGHT)					
BOND COAT RATE SHALL BE 0.05 TO 0.15 GAL/SYD					
TOP COURSE AGG. WEAR INDEX (AWI) EL = 220 MIN					

LIGHT DUTY HMA PAVEMENT CROSS SECTION

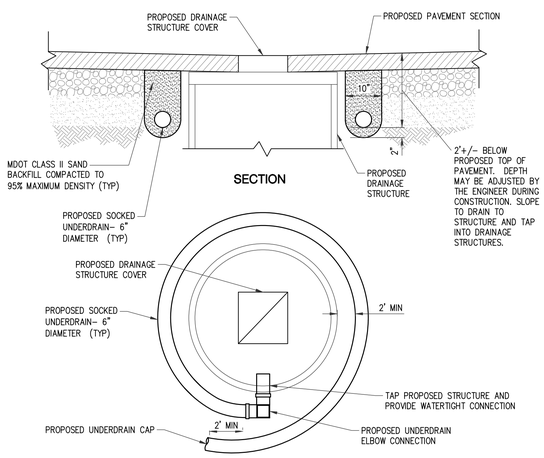
NOT TO SCALE



HMA APPLICATION CHART					
IDENT NO	ITEM	HMA PAVEMENT	THICKNESS	PERFORMANCE GRADE	COMMENTS
5EML-A	HMA, 5EML	HMA, 5EML	2"	58-28	TOP COURSE
4EML-B	HMA, 4EML	HMA, 4EML	2.5"	58-28	LEVELING COURSE
RAP SHALL BE LIMITED TO TIER 1 DESIGN (17% MAX RAP BY BINDER WEIGHT)					
BOND COAT RATE SHALL BE 0.05 TO 0.15 GAL/SYD					
TOP COURSE AGG. WEAR INDEX (AWI) EL = 220 MIN					

HEAVY DUTY HMA PAVEMENT CROSS SECTION

NOT TO SCALE



NOTES:
1. UNDERDRAINS TO BE INSTALLED SURROUNDING STRUCTURES 1, 2, 4, 12, 13, 14, 16, 20, 21, 17, 18, 19, 39, 34, 35, 40, 41, 23, 31, 25, 26, 32, 27, 28, AND 38.

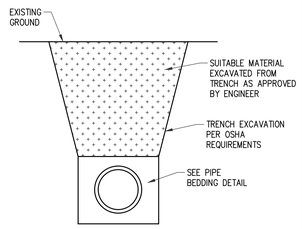
MANHOLE UNDERDRAIN WRAPPING DETAIL

NOT TO SCALE

NOTES:

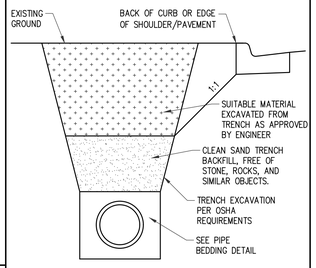
1. SUFFICIENT TRENCH WIDTH SHALL BE PROVIDED TO ALLOW FREE WORKING SPACE AND TO PERMIT COMPACTING THE BACKFILL AROUND THE PIPE.
2. THE FOLLOWING ARE MINIMUM TRENCH WIDTHS:

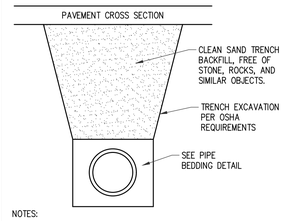
I.D. PIPE SIZE (INCHES)	18 OR SMALLER	21	24	30	36	42	48	54
"W" TRENCH WIDTH (FEET)	3.0	3.5	4.0	5.0	6.0	7.0	8.0	9.5
I.D. PIPE SIZE (INCHES)	60	66	72	78	84	90	96	102	108
"W" TRENCH WIDTH (FEET)	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0



NOT WITHIN INFLUENCE OF PAVEMENT OR OTHER STRUCTURE BACKFILL DETAIL

NOT TO SCALE



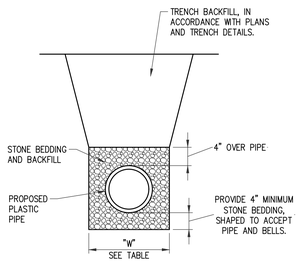


NOTES:

1. SAND SHALL BE MDOT GRANULAR MATERIAL CLASS II.
2. SAND SHALL BE COMPACTED TO 95% OF ITS MAXIMUM UNIT WEIGHT.

WITHIN INFLUENCE OF PAVEMENT OR OTHER STRUCTURE BACKFILL DETAIL

NOT TO SCALE

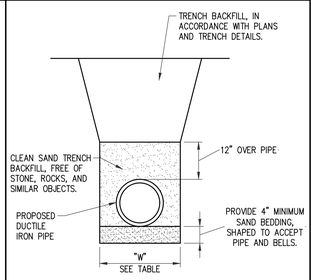


NOTES:

1. STONE SHALL BE MDOT, SERIES 6AA.

FLEXIBLE GRAVITY PIPE AGGREGATE BEDDING DETAIL

NOT TO SCALE

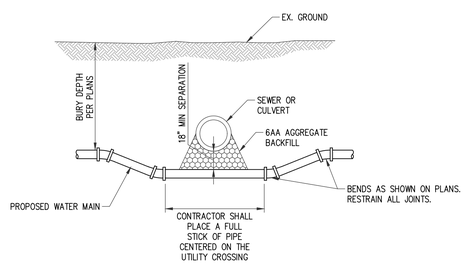


NOTES:

1. SAND SHALL BE MDOT GRANULAR MATERIAL CLASS II.
2. SAND SHALL BE COMPACTED TO 95% OF ITS MAXIMUM UNIT WEIGHT.

RIGID PRESSURE PIPE SAND BEDDING DETAIL

NOT TO SCALE



NOTE: ALL METAL PIPE AND FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE ENCASEMENT.

VERTICAL ISOLATION DETAIL

NOT TO SCALE

MINIMUM PIPE RESTRAINT SCHEDULE FOR GROUND BURIED PRESSURE PIPES (SEE NOTE 1)

LENGTH (IN FEET) OF RESTRAINT REQUIRED (SEE NOTE 2)							
PIPE DIAMETER \ DEFLECTION ANGLE	22 1/2°	33 3/4°	45°	56 1/4°	67 1/2°	78 3/4°	90° TEE OR DEAD END
6"	3	6	11	16	23	29	37
8"	4	8	15	22	31	41	50
10"	5	11	18	28	38	49	61
12"	6	13	22	33	45	59	73
14"	7	14	25	37	52	68	84
16"	8	16	28	42	59	77	95
18"	8	18	31	47	66	86	107
20"	9	20	35	53	73	95	118
24"	11	23	40	61	85	111	138
30"	13	29	50	75	105	136	170
36"	15	34	59	88	123	160	199
42"	17	39	67	101	141	184	228
48"	19	43	75	113	157	206	255

NOTES:

1. THIS TABLE IS BASED ON A TEST PRESSURE OF 180 PSI (OPERATING PRESSURE + WATER HAMMER.) FOR OTHER TEST PROCEDURES, ALL VALUES ARE TO BE INCREASED OR DECREASED PROPORTIONALLY.
2. IN EACH DIRECTION FROM POINT OF DEFLECTION OR TERMINATION EXCEPT FOR A TEE AT WHICH ONLY THE BRANCH IN THE DIRECTION OF THE TEE STEM.
3. IF TIE RODS ARE USED, PLACE 2 RODS 5/8 INCH DIAMETER MINIMUM FOR WATER MAIN 6 INCH TO 10 INCH AND 4 RODS 5/8 INCH DIAMETER MINIMUM FOR 12 INCH AND LARGER.

PIPE RESTRAINT SCHEDULE

NOT TO SCALE

LOCAL AGENCY AND UTILITY INFORMATION

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED FROM THE UTILITY OWNERS. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

AGENCY	UTILITY	SUBMITTAL DATE
AT&T MICHAEL BAIZ MB1269@ATT.COM (810) 768-0109	TELEPHONE	1/7/25
CHARTER COMMUNICATIONS MARK KINGSWORTHY MARK.KINGSWORTHY@CCISYSTEMS.COM	CABLE TV FIBER OPTICS	1/7/25
CONSUMERS ENERGY VIRGIE L. DOWNS VIRGIE.DOWNS@CMSENERGY.COM	ELECTRIC	1/7/25
CONSUMERS ENERGY BENJAMIN LEWIS BENJAMIN.LEWIS@CMSENERGY (989) 791-5918	GAS	1/7/25
CITY OF MIDLAND ENGINEERING DEPARTMENT SHANE BJORGE, PE SBJORGE@MIDLAND-MI.ORG (989) 837-3353 333 W ELLSWORTH STREET MIDLAND, MI 48640	POTABLE WATER SANITARY SEWER STORM SEWER CITY STREETS	11/12/24
MICHIGAN DEPARTMENT OF TRANSPORTATION MT. PLEASANT TSC BEN BURROWS BURROWSB@MICHIGAN.GOV 989-773-7756 1212 CORPORATE DRIVE MT. PLEASANT, MI 48858	MDOT STREETS	

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	ISSUED FOR BID	01/09/25
B1	BULLETIN NO. 1	12/26/24

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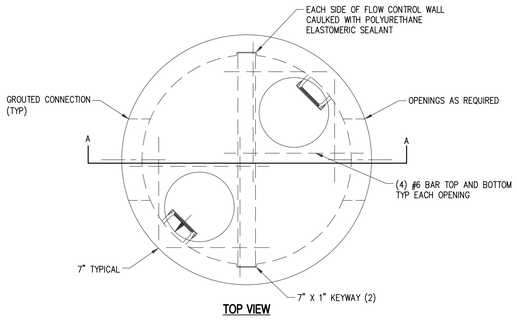
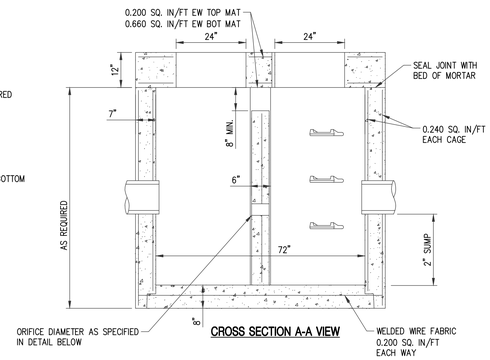
PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
CIVIL DETAILS

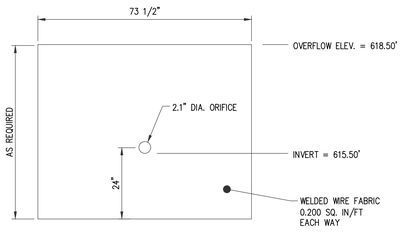
PROJECT NUMBER 2022022
PROJECT DATE JANUARY 9, 2025
CHECKED BY AJW
SHEET NUMBER C1.02



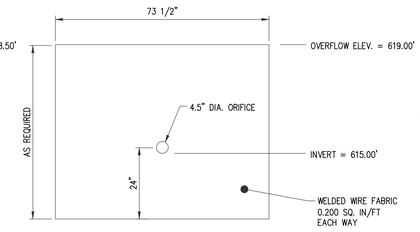
TOP VIEW



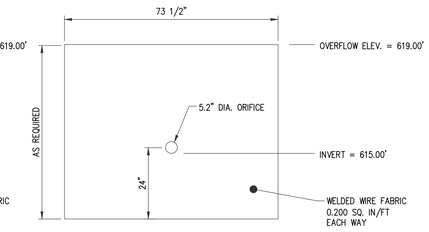
CROSS SECTION A-A VIEW



MANHOLE 6 WEIR WALL SIDE VIEW (SYSTEM A)



MANHOLE 15 WEIR WALL SIDE VIEW (SYSTEM B)



MANHOLE 22 WEIR WALL SIDE VIEW (SYSTEM C)

NOTES:

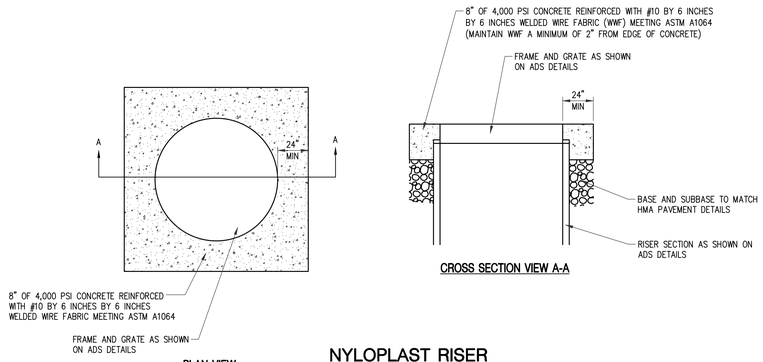
1) MANHOLE SECTIONS TO BE MANUFACTURED TO ASTM C-478 SPECIFICATIONS AND IN ACCORDANCE WITH NORTHERN CONCRETE PIPE, INC. (800-222-9918)

2) REINFORCING SHOWN FOR SCHEMATIC ONLY. ALL STEEL AREAS ARE MINIMUMS.

3) CONTRACTOR TO SEAL BETWEEN PRECAST WALL & BASE WITH BUTYL ROPE.

72" PRECAST OUTLET CONTROL STRUCTURE W/ OVERFLOW

NOT TO SCALE

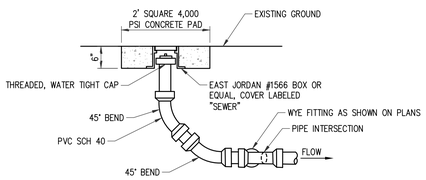


PLAN VIEW

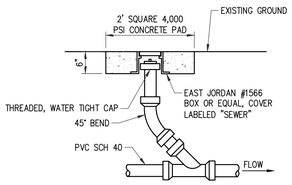
CROSS SECTION VIEW A-A

NYLOPLAST RISER CONCRETE COLLAR DETAIL

NOT TO SCALE



DEAD END CLEANOUT



INLINE CLEANOUT

CLEANOUT RISER DETAILS

NOT TO SCALE

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PROJECT TITLE

NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE

CIVIL DETAILS

PROJECT NUMBER: 2022022

PROJECT DATE: JANUARY 9, 2025

CHECKED BY: AJW

SHEET NUMBER: C1.03

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER:	MIGUEL VARGAS 419-215-8020 MIGUEL.VARGAS@ADSPIPE.COM
ADS SALES REP:	RANDY LEDNICKY 989-390-6923 RANDY.LEDNICKY@ADSPIPE.COM
PROJECT NO:	S431842

ADS
Advanced Drainage Systems, Inc.

DOW GARDENS WELCOME CENTER SYS. B

MIDLAND, MI

ADS RETENTION/DETENTION PIPE SYSTEM SPECIFICATION

SCOPE
THIS SPECIFICATION DESCRIBES ADS RETENTION/DETENTION PIPE SYSTEMS FOR USE IN NON-PRESSURE GRAVITY-FLOW STORM WATER COLLECTION SYSTEMS UTILIZING A CONTINUOUS OUTFALL STRUCTURE.

PIPE REQUIREMENTS
ADS RETENTION/DETENTION SYSTEMS MAY UTILIZE ANY OF THE VARIOUS PIPE PRODUCTS BELOW:
- N-12 ® WTIB PIPE (PER AASHTO) SHALL MEET AASHTO M 294, TYPE S OR ASTM F2306
- N-12 ® WTIB PIPE (PER ASTM F2648) SHALL MEET ASTM F2648
- N-12 ® MEGA GREEN ™ WTIB SHALL MEET ASTM F2648

ALL PRODUCTS SHALL HAVE A SMOOTH INTERIOR AND ANNULAR EXTERIOR CORRUGATIONS. ALL STIB PIPE PRODUCTS ARE AVAILABLE AS PERFORATED OR NON-PERFORATED. PRODUCT-SPECIFIC PIPE SPECIFICATIONS ARE AVAILABLE IN THE DRAINAGE HANDBOOK SECTION 1 "SPECIFICATIONS".

JOINT PERFORMANCE
WATERTIGHT (WTIB):
WTIB PIPE SHALL BE JOINED USING A BELL AND SPIGOT JOINT. THE JOINT SHALL BE WATERTIGHT ACCORDING TO THE REQUIREMENTS OF ASTM D3212. GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477. 12-60 INCH (300-1500 mm) DIAMETERS SHALL HAVE A BELL REINFORCED WITH A POLYMER COMPOSITE BAND. THE BELL TOLERANCE DEVICE SHALL BE INSTALLED BY THE MANUFACTURER.

PIPE AND FITTING CONNECTIONS SHALL BE WITH A BELL AND SPIGOT CONNECTION UTILIZING A SPUN-ON OR WELDED BELL AND VALLEY OR SADDLE GASKET. THE JOINT SHALL MEET THE WATERTIGHT REQUIREMENTS OF ASTM D3212, AND GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477. DETENTION SYSTEMS ARE SUBJECT TO GREATER LEAKAGE THAN TYPICAL SINGLE RUN STORM SEWER APPLICATIONS AND THEREFORE ARE NOT APPROPRIATE FOR APPLICATIONS REQUIRING LONG-TERM FLUID CONTAINMENT OR HYDROSTATIC PRESSURE. FOR ADDITIONAL DETAILS REFER TO TECHNICAL NOTE 7.01 "RAINWATER HARVESTING WITH HDPE PIPE CISTERNS".

FITTINGS
FITTINGS SHALL CONFORM TO ASTM F2306 AND MEET JOINT PERFORMANCE INDICATED ABOVE FOR FITTINGS CONNECTIONS. CUSTOM FITTINGS ARE AVAILABLE AND MAY REQUIRE SPECIAL INSTALLATION CRITERION.

INSTALLATION
INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D2321 AND ADS RECOMMENDED INSTALLATION GUIDELINES, WITH THE EXCEPTION THAT MINIMUM COVER IN NON-TRAFFIC AREAS FOR 12-60 INCH (300-1500 mm) DIAMETERS SHALL BE 1 FT (0.3 m). MINIMUM COVER IN TRAFFICKED AREAS FOR 12-36 INCH (300-900 mm) DIAMETERS SHALL BE 1 FT (0.3 m) AND FOR 42-60 INCH (1050-1500 mm) DIAMETERS, THE MINIMUM COVER SHALL BE 2 FT (0.6 m). BACKFILL SHALL CONSIST OF CLASS I (COMPACTED) OR CLASS II (MINIMUM 95% SPD) MATERIAL, WITH THE EXCEPTION THAT 60 INCH (1500 mm) SYSTEMS SHALL USE CLASS I MATERIAL ONLY. MINIMUM COVER HEIGHTS DO NOT ACCOUNT FOR PIPE BUOYANCY. REFER TO ADS TECHNICAL NOTE 5.05 "PIPE FLOTATION" FOR BUOYANCY DESIGN CONSIDERATIONS. MAXIMUM COVER OVER SYSTEM USING STANDARD BACKFILL IS 8 FT (2.4 m); CONTACT A REPRESENTATIVE WHEN MAXIMUM FILL HEIGHT MAY BE EXCEEDED. ADDITIONAL INSTALLATION REQUIREMENTS ARE PROVIDED IN THE DRAINAGE HANDBOOK SECTION 6 "RETENTION/DETENTION".

ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES:

1) ALL ELEVATIONS, DIMENSIONS AND LOCATIONS OF RISERS, INLETS AND OUTLETS, SHALL BE VERIFIED BY THE ENGINEER PRIOR TO RELEASING FOR FABRICATION.

2) IN SITUATIONS WHERE A FINE-GRAINED BACKFILL MATERIAL IS USED ADJACENT TO THE PIPE SYSTEM, AND ESPECIALLY INVOLVING GROUND WATER CONDITIONS, CONSIDERATION SHOULD BE GIVEN TO THE USE OF GASKETED PIPE JOINTS. AT THE VERY LEAST THE PIPE JOINTS SHOULD BE WRAPPED IN A SUITABLE, NON-WOVEN GEOTEXTILE FABRIC TO PREVENT INFILTRATION OF FINES INTO THE PIPE SYSTEM.

3) CONSIDERATION FOR CONSTRUCTION EQUIPMENT LOADS MUST BE TAKEN INTO ACCOUNT.

4) ALL PIPE DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

5) ALL RISERS TO BE FIELD EXTENDED OR TRIMMED TO FINAL GRADE.

THE UNDERSIGNED HEREBY APPROVES THE ATTACHED PAGES.	
CUSTOMER	DATE

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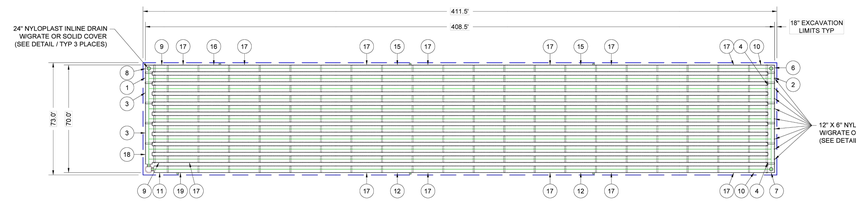
BILL OF MATERIALS

*THE COMPONENTS AND QUANTITIES LISTED HEREIN ARE NOT INTENDED TO BE A COMPREHENSIVE MATERIAL LIST. EXTRA COMPONENTS, NOT LISTED HEREIN, MAY BE NECESSARY TO COMPLETE THE CONSTRUCTION OF THE SYSTEM.

ITEM	QTY.	PART #	DESCRIPTION	MATERIAL	VENDOR	NOTE
1	1	4851AN65B	48" SINGLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
2	1	4851ANGC-1	48" SINGLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
2-1	1	0602AN	6" CLEANOUT	HDPE	ADS	COMPONENT
3	3	4852AN65B	48" DOUBLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
4	4	4852ANGC-1	48" DOUBLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
4-1	2	0602AN	6" CLEANOUT	HDPE	ADS	COMPONENT
6	1	4898ANGC-1	48" X 90° MANIFOLD BEND	HDPE	ADS	SEE DETAIL
6-1	1	2403AN	24" RISER	HDPE	ADS	COMPONENT
7	1	4898ANBGC-1	48" X 90° MANIFOLD BEND	HDPE	ADS	SEE DETAIL
7-1	1	2403AN	24" RISER	HDPE	ADS	COMPONENT
8	1	4898ANBGC-2	48" X 90° MANIFOLD BEND	HDPE	ADS	SEE DETAIL
8-1	1	2403AN	24" RISER	HDPE	ADS	COMPONENT
9	10	STICK-1	48" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
10	11	STICK-2	48" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
11	1	STICK-3	48" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
12	2	STICK-4	48" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
15	2	STICK-7	48" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
16	1	STICK-8	48" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
17	203	4865-0020IB	48" PIPE STICK : SOLID	HDPE	ADS	WTIB
18	1	MANIFOLD-1	48" DOUBLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
19	1	STICK-9	48" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
	3	2724AG	24" NYLOPLAST INLINE DRAIN	AS SPECIFIED	ADS	SEE DETAIL
	9	2712AG	12" X 6" NYLOPLAST INLINE DRAIN	AS SPECIFIED	ADS	AS SHOWN
	1	AS SPECIFIED	ADS GEOTEXTILE FABRIC	AS SPECIFIED	ADS	AS NEEDED

NOTES
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE PIPE COVER REQUIREMENTS ARE MET.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE PIPE TO THE BUILDING/STRUCTURE. NO FOUNDATION LOADS SHALL BE TRANSMITTED TO THE PIPE. THE SITE DESIGN ENGINEER MUST CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON BEARING CAPACITY OF SOILS AND SEEPAGE INTO BASEMENTS.
- STUB SIZES AND INVERTS TO BE VERIFIED BY THE SITE DESIGN ENGINEER PRIOR TO FABRICATION.
- ADS RISERS ARE FABRICATED 36" (900 mm) FROM TOP OF PIPE TO TOP OF RISER DUE TO SHIPPING LIMITATIONS. ADDITIONAL PIPE AND COUPLERS CAN BE USED TO EXTEND THE RISERS TO GRADE.
- INSTALLED SYSTEM VOLUME: 56.002 CF



DOW GARDENS WELCOME CENTER SYS. B
MIDLAND, MI
DATE: 9-25-24 DRAWN: JRL
PROJECT #: S431842 CHECKED: JRL

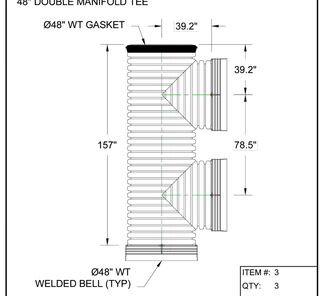
DATE	DRWN	CHKD	DESCRIPTION
10-28-24	TJN	TJN	REVISED PER ENGINEER'S MARK-UPS.
10-24-24	TJN	TJN	REVISED PER ENGINEER'S MARK-UPS.

48" WTIB SOLID DETENTION
LandMax Stormwater Management System
4640 TRUEMAN BLVD HILLIARD, OH 43026

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS FOR PROJECT USE UNDER THE DIRECTION OF THE PROJECT OWNER OR PROJECT REPRESENTATIVE. THE DRAWING IS AN ACCURATE REPRESENTATION OF THE ADS PRODUCT(S) REQUESTED AND MEETS ALL APPLICABLE LEAN, REGULATORY, AND PRODUCT REQUIREMENTS. PRIOR APPROVAL OF ANY ALTERATIONS TO THE DRAWING PRIOR TO ORDERING AND/OR CONSTRUCTION IS THE ULTIMATE RESPONSIBILITY OF THE END CUSTOMER. NOT THE PRODUCT(S) DEPICTED HEREIN, WHICH ARE DESIGNED TO MEET ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LEAN, REGULATORY, AND PRODUCT REQUIREMENTS.

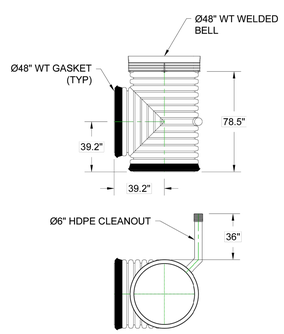
2 SHEET OF 9

48" DOUBLE MANIFOLD TEE



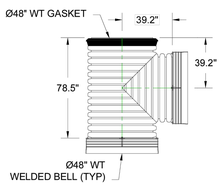
ITEM #: 3
QTY: 3
4852AN65B

48" SINGLE MANIFOLD TEE W/ 6" CLEANOUT



ITEM #: 2
QTY: 1
4851ANGC-1

48" SINGLE MANIFOLD TEE



ITEM #: 1
QTY: 1
4851AN65B

DOW GARDENS WELCOME CENTER SYS. B
MIDLAND, MI
DATE: 9-25-24 DRAWN: JRL
PROJECT #: S431842 CHECKED: JRL

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10-24-24	TJN	TJN	REVISED PER ENGINEER'S MARK-UPS.

48" WTIB SOLID DETENTION
LandMax Stormwater Management System
4640 TRUEMAN BLVD HILLIARD, OH 43026

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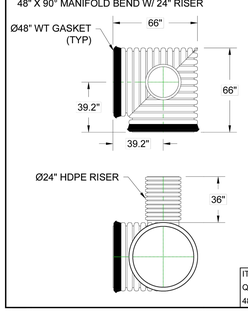
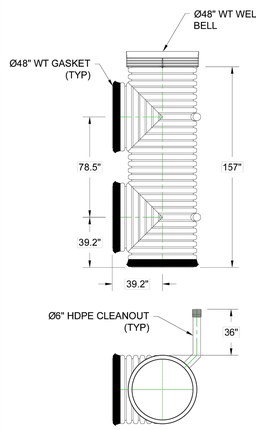
3 SHEET OF 9

48" X 90° MANIFOLD BEND W/ 24" RISER



ITEM #: 6
QTY: 1
4898ANGC-1

48" DOUBLE MANIFOLD TEE W/ (2) 6" CLEANOUTS



ITEM #: 4
QTY: 4
4852ANGC-1

DOW GARDENS WELCOME CENTER SYS. B
MIDLAND, MI
DATE: 9-25-24 DRAWN: JRL
PROJECT #: S431842 CHECKED: JRL

DATE	DRWN	CHKD	DESCRIPTION
10-28-24	TJN	TJN	REVISED PER ENGINEER'S MARK-UPS.
10-24-24	TJN	TJN	REVISED PER ENGINEER'S MARK-UPS.

48" WTIB SOLID DETENTION
LandMax Stormwater Management System
4640 TRUEMAN BLVD HILLIARD, OH 43026

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4 SHEET OF 9

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO. 1	12/26/24

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Saginaw, Michigan 48607
989 752 8107
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ROWE PROFESSIONAL SERVICES COMPANY

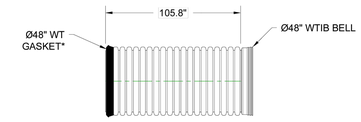
PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
SYSTEM B DETAILS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 9, 2025
CHECKED BY AJW
SHEET NUMBER C1.04

Know what's **below.** **Call** before you dig.

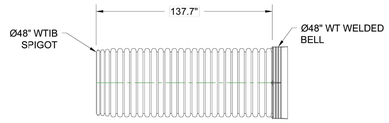
48" PIPE STICK : SOLID



*WELD VENT TUBES SHUT PRIOR TO SHIPPING

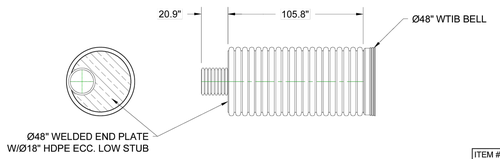
ITEM #: 9
QTY: 10
STICK-1

48" PIPE STICK : SOLID



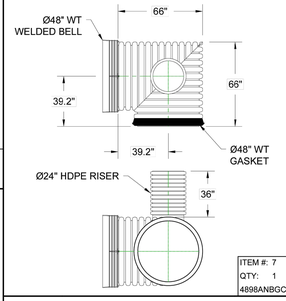
ITEM #: 10
QTY: 11
STICK-2

48" PIPE STICK : SOLID W/ WELDED END PLATE W/ 18" STUB



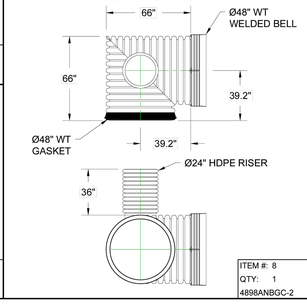
ITEM #: 11
QTY: 1
STICK-3

48" X 90° MANIFOLD BEND W/ 24" RISER



ITEM #: 7
QTY: 1
4898ANBGC-1

48" X 90° MANIFOLD BEND W/ 24" RISER



ITEM #: 8
QTY: 1
4898ANBGC-2

DOW GARDENS WELCOME CENTER
SYS. B
MIDLAND, MI
DATE: 9-25-24 DRAWN: JRL
PROJECT # 5431842 CHECKED: JRL

DATE	DRWN	CHKD	DESCRIPTION
10-28-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.
10-9-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.

48" WTIB SOLID DETENTION
LandMax
Stormwater Management System
4640 TRUEMAN BLVD
HILLIARD, OH 43026
ADS

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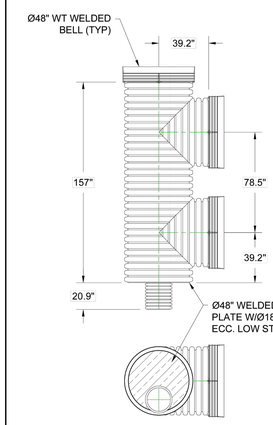
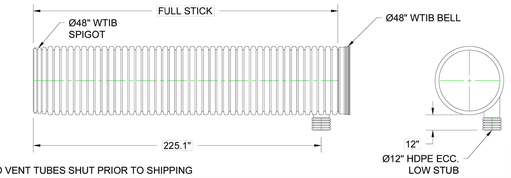
5 SHEET OF 9

48" DOUBLE MANIFOLD TEE W/WELDED END PLATE W/18" STUB



ITEM #: 18
QTY: 1
MANIFOLD-1

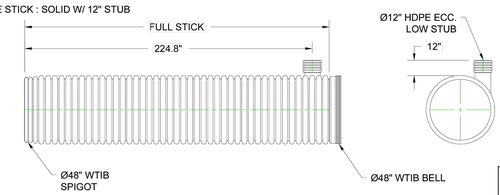
48" PIPE STICK : SOLID W/ 12" STUB



*WELD VENT TUBES SHUT PRIOR TO SHIPPING

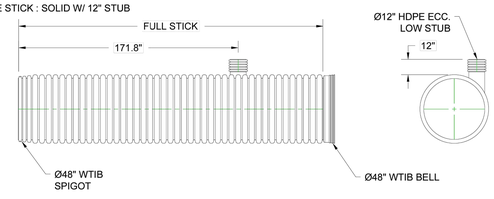
ITEM #: 12
QTY: 2
STICK-4

48" PIPE STICK : SOLID W/ 12" STUB



ITEM #: 15
QTY: 2
STICK-7

48" PIPE STICK : SOLID W/ 12" STUB



ITEM #: 16
QTY: 1
STICK-8

DOW GARDENS WELCOME CENTER
SYS. B
MIDLAND, MI
DATE: 9-25-24 DRAWN: JRL
PROJECT # 5431842 CHECKED: JRL

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10-28-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.
10-9-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.

48" WTIB SOLID DETENTION
LandMax
Stormwater Management System
4640 TRUEMAN BLVD
HILLIARD, OH 43026
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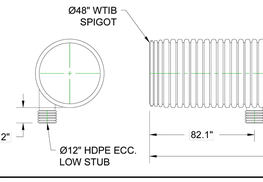
6 SHEET OF 9

48" PIPE STICK : SOLID W/ 12" STUB



ITEM #: 19
QTY: 1
STICK-9

DOW GARDENS WELCOME CENTER
SYS. B
MIDLAND, MI
DATE: 9-25-24 DRAWN: JRL
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48" WTIB SOLID DETENTION
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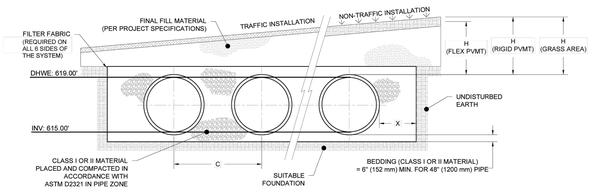
7 SHEET OF 9

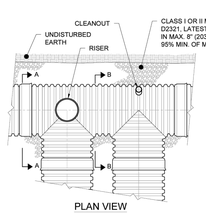


NOMINAL DIAMETER	NOMINAL O.D.	STANDARD SPACING "C"	TYPICAL SIDE WALL "X"	MIN. H (NON-TRAFFIC)	MIN. H (TRAFFIC)	MAX. H*
48" (1200 mm)	54" (1372 mm)	78.5" (1994 mm)	18" (457 mm)	12" (305 mm)	24" (610 mm)	8' (2.4 m)

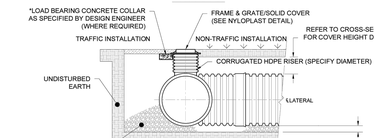
* MAXIMUM FILL HEIGHTS OVER MANIFOLD FITTINGS. CONTACT MANUFACTURER'S REPRESENTATIVE FOR INSTALLATION CONSIDERATIONS WHEN COVER EXCEEDS 8 FT (2.4 m).

NOTES:

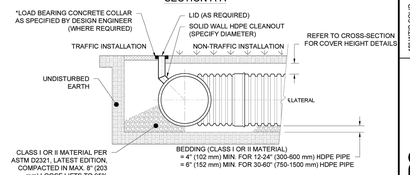
1. ALL REFERENCES TO CLASS I OR II MATERIAL ARE PER ASTM D2321 "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
2. ALL RETENTION AND DETENTION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, LATEST EDITION AND THE MANUFACTURER'S PUBLISHED INSTALLATION GUIDELINES.
3. MEASURES SHOULD BE TAKEN TO PREVENT THE MIGRATION OF NATIVE FINES INTO THE BACKFILL MATERIAL, WHEN REQUIRED. SEE ASTM D2321.
4. FILTER FABRIC: A GEOTEXTILE FABRIC IS REQUIRED AS SPECIFIED BY THE ENGINEER TO PREVENT THE MIGRATION OF FINES FROM THE NATIVE SOIL INTO THE SELECT BACKFILL MATERIAL.
5. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
6. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I OR II. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (102 mm) FOR 4"-24" (100-600 mm); 6" (152 mm) FOR 30-60" (750-1500 mm).
7. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I OR II IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" (152 mm) ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
8. COVER: MINIMUM COVER OVER ALL RETENTION/DETENTION SYSTEMS IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" (305 mm) FROM TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER IS 12" (305 mm) UP TO 36" (900 mm) DIAMETER PIPE AND 24" (610 mm) OF COVER FOR 42-60" (1050-1500 mm) DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. MAXIMUM FILL HEIGHT LIMITED TO 8 FT (2.4 m) OVER FITTINGS FOR STANDARD INSTALLATIONS. CONTACT A SALES REPRESENTATIVE WHEN MAXIMUM FILL HEIGHTS EXCEED 8 FT (2.4 m) FOR INSTALLATION CONSIDERATIONS.



PLAN VIEW



SECTION A-A



SECTION B-B

* LOAD BEARING CONCRETE COLLAR SHALL BE CONSTRUCTED IN TRAFFIC AREAS SUCH THAT THE LIVE LOAD IS TRANSMITTED TO THE SURROUNDING SOIL AND NOT DIRECTLY TO THE RISER.

DOW GARDENS WELCOME CENTER
SYS. B
MIDLAND, MI
DATE: 9-25-24 DRAWN: JRL
PROJECT # 5431842 CHECKED: JRL

DATE	DRWN	CHKD	DESCRIPTION
10-28-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.
10-9-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.

48" WTIB SOLID DETENTION
LandMax
Stormwater Management System
4640 TRUEMAN BLVD
HILLIARD, OH 43026
ADS

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8 SHEET OF 9

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO. 1	12/26/24

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PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
SYSTEM B DETAILS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 9, 2025
CHECKED BY AJW
SHEET NUMBER C1.05

Know what's **below.** **Call** before you dig.

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER:	MIGUEL VARGAS 419-215-8026 MIGUEL.VARGAS@ADSPIPE.COM
ADS SALES REP:	RANDY LEDNICKY 989-390-6923 RANDY.LEDNICKY@ADSPIPE.COM
PROJECT NO:	S431842

Advanced Drainage Systems, Inc.

DOW GARDENS WELCOME CENTER SYS. C

MIDLAND, MI

ADS RETENTION/DETENTION PIPE SYSTEM SPECIFICATION

SCOPE
THIS SPECIFICATION DESCRIBES ADS RETENTION/DETENTION PIPE SYSTEMS FOR USE IN NON-PRESSURE GRAVITY-FLOW STORM WATER COLLECTION SYSTEMS UTILIZING A CONTINUOUS OUTFALL STRUCTURE.

PIPE REQUIREMENTS
ADS RETENTION/DETENTION SYSTEMS MAY UTILIZE ANY OF THE VARIOUS PIPE PRODUCTS BELOW:
- N-12® WTIB PIPE (PER AASHTO) SHALL MEET AASHTO M 294, TYPE S OR ASTM F2306
- N-12® WTIB PIPE (PER ASTM F2648) SHALL MEET ASTM F2648
- N-12® MEGA GREEN™ WTIB SHALL MEET ASTM F2648

ALL PRODUCTS SHALL HAVE A SMOOTH INTERIOR AND ANNULAR EXTERIOR CORRUGATIONS. ALL STIB PIPE PRODUCTS ARE AVAILABLE AS PERFORATED OR NON-PERFORATED. PRODUCT-SPECIFIC PIPE SPECIFICATIONS ARE AVAILABLE IN THE DRAINAGE HANDBOOK SECTION 1 "SPECIFICATIONS".

JOINT PERFORMANCE
WATERTIGHT (WTIB):
WTIB PIPE SHALL BE JOINED USING A BELL AND SPIGOT JOINT. THE JOINT SHALL BE WATERTIGHT ACCORDING TO THE REQUIREMENTS OF ASTM D3212. GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477. 12-60 INCH (300-1500 mm) DIAMETERS SHALL HAVE A BELL REINFORCED WITH A POLYMER COMPOSITE BAND. THE BELL TOLERANCE DEVICE SHALL BE INSTALLED BY THE MANUFACTURER.

PIPE AND FITTING CONNECTIONS SHALL BE WITH A BELL AND SPIGOT CONNECTION UTILIZING A SPUN-ON OR WELDED BELL AND VALLEY OR SADDLE GASKET. THE JOINT SHALL MEET THE WATERTIGHT REQUIREMENTS OF ASTM D3212, AND GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477. DETENTION SYSTEMS ARE SUBJECT TO GREATER LEAKAGE THAN TYPICAL SINGLE RUN STORM SEWER APPLICATIONS AND THEREFORE ARE NOT APPROPRIATE FOR APPLICATIONS REQUIRING LONG-TERM FLUID CONTAINMENT OR HYDROSTATIC PRESSURE. FOR ADDITIONAL DETAILS REFER TO TECHNICAL NOTE 7.01 "RAINWATER HARVESTING WITH HDPE PIPE CISTERNS".

FITTINGS
FITTINGS SHALL CONFORM TO ASTM F2306 AND MEET JOINT PERFORMANCE INDICATED ABOVE FOR FITTINGS CONNECTIONS. CUSTOM FITTINGS ARE AVAILABLE AND MAY REQUIRE SPECIAL INSTALLATION CRITERION.

INSTALLATION
INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D2321 AND ADS RECOMMENDED INSTALLATION GUIDELINES, WITH THE EXCEPTION THAT MINIMUM COVER IN NON-TRAFFIC AREAS FOR 12-60 INCH (300-1500 mm) DIAMETERS SHALL BE 1 FT (0.3 m). MINIMUM COVER IN TRAFFICKED AREAS FOR 12-36 INCH (300-900 mm) DIAMETERS SHALL BE 1 FT (0.3 m) AND FOR 42-60 INCH (1050-1500 mm) DIAMETERS, THE MINIMUM COVER SHALL BE 2 FT (0.6 m). BACKFILL SHALL CONSIST OF CLASS I (COMPACTED) OR CLASS II (MINIMUM 95% SPD) MATERIAL, WITH THE EXCEPTION THAT 60 INCH (1500 mm) SYSTEMS SHALL USE CLASS I MATERIAL ONLY. MINIMUM COVER HEIGHTS DO NOT ACCOUNT FOR PIPE BUOYANCY. REFER TO ADS TECHNICAL NOTE 5.05 "PIPE FLOTATION" FOR BUOYANCY DESIGN CONSIDERATIONS. MAXIMUM COVER OVER SYSTEM USING STANDARD BACKFILL IS 8 FT (2.4 m); CONTACT A REPRESENTATIVE WHEN MAXIMUM FILL HEIGHT MAY BE EXCEEDED. ADDITIONAL INSTALLATION REQUIREMENTS ARE PROVIDED IN THE DRAINAGE HANDBOOK SECTION 6 "RETENTION/DETENTION".

ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

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NOTES:

1) ALL ELEVATIONS, DIMENSIONS AND LOCATIONS OF RISERS, INLETS AND OUTLETS, SHALL BE VERIFIED BY THE ENGINEER PRIOR TO RELEASING FOR FABRICATION.

2) IN SITUATIONS WHERE A FINE-GRAINED BACKFILL MATERIAL IS USED ADJACENT TO THE PIPE SYSTEM, AND ESPECIALLY INVOLVING GROUND WATER CONDITIONS, CONSIDERATION SHOULD BE GIVEN TO THE USE OF GASKETED PIPE JOINTS. AT THE VERY LEAST THE PIPE JOINTS SHOULD BE WRAPPED IN A SUITABLE, NON-WOVEN GEOTEXTILE FABRIC TO PREVENT INFILTRATION OF FINES INTO THE PIPE SYSTEM.

3) CONSIDERATION FOR CONSTRUCTION EQUIPMENT LOADS MUST BE TAKEN INTO ACCOUNT.

4) ALL PIPE DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

5) ALL RISERS TO BE FIELD EXTENDED OR TRIMMED TO FINAL GRADE.

THE UNDERSIGNED HEREBY APPROVES THE ATTACHED PAGES.

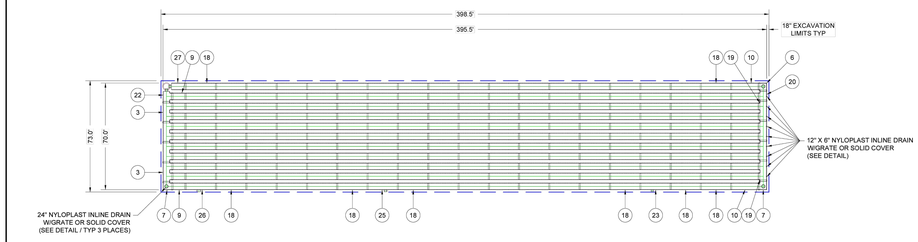
CUSTOMER DATE

BILL OF MATERIALS

*THE COMPONENTS AND QUANTITIES LISTED HEREIN ARE NOT INTENDED TO BE A COMPREHENSIVE MATERIAL LIST. EXTRA COMPONENTS, NOT LISTED HEREIN, MAY BE NECESSARY TO COMPLETE THE CONSTRUCTION OF THE SYSTEM.

ITEM	QTY.	PART #	DESCRIPTION	MATERIAL	VENDOR	NOTE
3	4	4852AN65B	48" DOUBLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
6	1	4898ANGC-1	48" X 90° MANIFOLD BEND	HDPE	ADS	SEE DETAIL
6-1	1	2403AN	24" RISER	HDPE	ADS	COMPONENT
7	2	4898ANBGC-1	48" X 90° MANIFOLD BEND	HDPE	ADS	SEE DETAIL
7-1	1	2403AN	24" RISER	HDPE	ADS	COMPONENT
9	10	STICK-1	48" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
10	11	STICK-2	48" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
18	195	4865-0020IB	48" PIPE STICK : SOLID	HDPE	ADS	WTIB
19	4	4852ANGC-1	48" DOUBLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
19-1	2	0602AN	6" CLEANOUT	HDPE	ADS	COMPONENT
20	1	4851ANGC-1	48" SINGLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
20-1	1	0602AN	6" CLEANOUT	HDPE	ADS	COMPONENT
22	1	MANIFOLD-1	48" SINGLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
23	1	STICK-4	48" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
25	1	STICK-5	48" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
26	1	STICK-6	48" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
27	1	STICK-7	48" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
	3	2724AG	24" NYLOPLAST INLINE DRAIN	AS SPECIFIED	ADS	SEE DETAIL
	1	AS SPECIFIED	ADS GEOTEXTILE FABRIC	AS SPECIFIED	ADS	AS SHOWN
	9	2712AG	12" X 6" NYLOPLAST INLINE DRAIN	AS SPECIFIED	ADS	NOT SHOWN

NOTES
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE PIPE COVER REQUIREMENTS ARE MET.
- STUB SIZES AND INVERTS TO BE VERIFIED BY THE SITE DESIGN ENGINEER PRIOR TO FABRICATION.
- ADS RISERS ARE FABRICATED 36" (900 mm) FROM TOP OF PIPE TO TOP OF RISER DUE TO SHIPPING LIMITATIONS. ADDITIONAL PIPE AND COUPLERS CAN BE USED TO EXTEND THE RISERS TO GRADE.
- INSTALLED SYSTEM VOLUME: 54.324 CF



DOW GARDENS WELCOME CENTER SYS. C
MIDLAND, MI
DATE: 8-25-24 DRAWN: JRL
PROJECT #: S431842 CHECKED: JRL

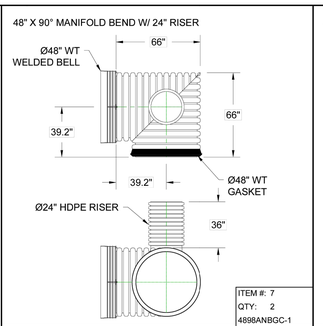
DATE	DRWN	CHKD	DESCRIPTION
10-28-24	TLN	TLN	REVISED FOR ENGINEER'S MARK-UPS.
10-24-24	TLN	TLN	REVISED FOR ENGINEER'S MARK-UPS.

48" WTIB SOLID DETENTION
LandMax Stormwater Management System
4640 TRUEMAN BLVD HILLIARD, OH 43026
0 40' 80'

THIS DRAWING IS BEING PROVIDED AS INFORMATION PROVIDED TO VENDORS AND/OR CONTRACTORS. IT IS THE ULTIMATE RESPONSIBILITY OF THE VENDOR OR CONTRACTOR TO VERIFY THE PRODUCT SPECIFIED MEETS ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS. PRIOR APPROVAL SUBMITTAL, VENDOR THE DRAWING PROVIDED TO VENDORS AND/OR CONTRACTORS. IT IS THE ULTIMATE RESPONSIBILITY OF THE VENDOR OR CONTRACTOR TO VERIFY THE PRODUCT SPECIFIED MEETS ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

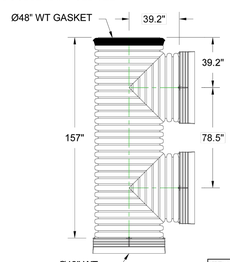
2 SHEET OF 9

48" X 90° MANIFOLD BEND W/ 24" RISER



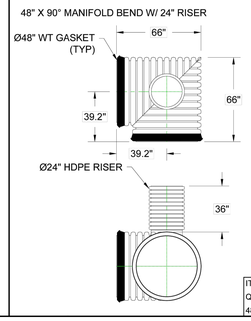
ITEM #: 7
QTY: 2
4898ANBGC-1

48" DOUBLE MANIFOLD TEE



ITEM #: 3
QTY: 4
4852AN65B

48" X 90° MANIFOLD BEND W/ 24" RISER



ITEM #: 6
QTY: 1
4898ANGC-1

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10-24-24	TLN	TLN	REVISED FOR ENGINEER'S MARK-UPS.

48" WTIB SOLID DETENTION
LandMax Stormwater Management System
4640 TRUEMAN BLVD HILLIARD, OH 43026

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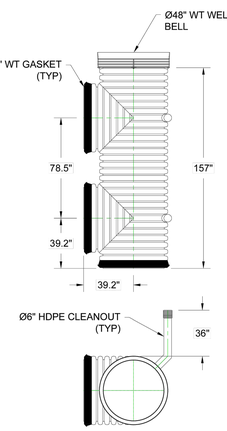
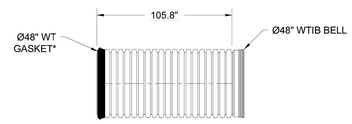
3 SHEET OF 9

48" DOUBLE MANIFOLD TEE W/ (2) 6" CLEANOUTS



ITEM #: 19
QTY: 4
4852ANGC-1

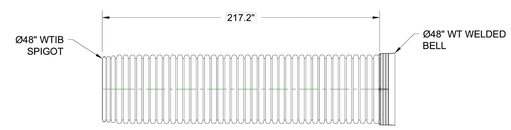
48" PIPE STICK : SOLID



*WELD VENT TUBES SHUT PRIOR TO SHIPPING

ITEM #: 9
QTY: 10
STICK-1

48" PIPE STICK : SOLID



ITEM #: 10
QTY: 11
STICK-2

DOW GARDENS WELCOME CENTER SYS. C
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PROJECT #: S431842 CHECKED: JRL

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10-24-24	TLN	TLN	REVISED FOR ENGINEER'S MARK-UPS.

48" WTIB SOLID DETENTION
LandMax Stormwater Management System
4640 TRUEMAN BLVD HILLIARD, OH 43026

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4 SHEET OF 9

NO.	REVISION	DATE
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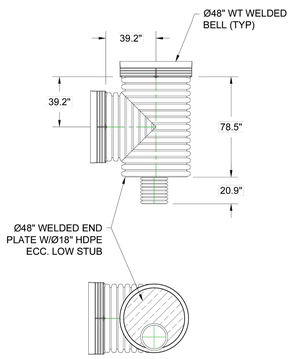
PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
SYSTEM C DETAILS

PROJECT NUMBER	SHEET NUMBER
2022022	C1.06
PROJECT DATE: JANUARY 9, 2025	
CHECKED BY: AJW	

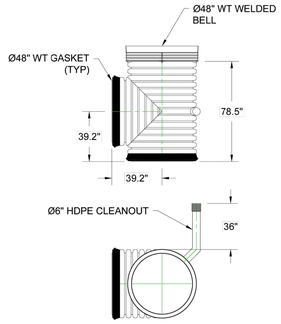
Know what's **below.** **Call** before you dig.

48" SINGLE MANIFOLD TEE W/ WELDED END PLATE W/ 18" STUB



ITEM #: 22
QTY: 1
MANIFOLD-1

48" SINGLE MANIFOLD TEE W/ 6" CLEANOUT



ITEM #: 20
QTY: 1
4851ANGC-1

DOW GARDENS WELCOME CENTER
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10-29-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.
10-24-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.

48" WTIB SOLID DETENTION
LandMax Stormwater Management System
4640 TRUEMAN BLVD HILLIARD, OH 43026

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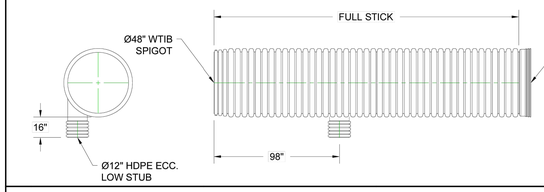
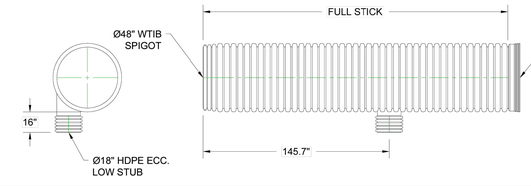
48" PIPE STICK : SOLID W/ 12" STUB



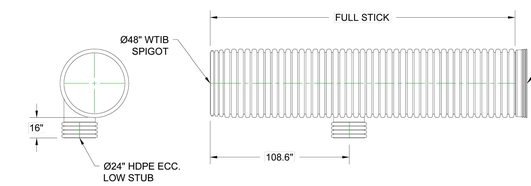
ITEM #: 23
QTY: 1
STICK-4

48" PIPE STICK : SOLID W/ 18" STUB



ITEM #: 25
QTY: 1
STICK-5

48" PIPE STICK : SOLID W/ 24" STUB



ITEM #: 26
QTY: 1
STICK-6

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DATE: 9-25-24 DRAWN: JRL
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10-24-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.

48" WTIB SOLID DETENTION
LandMax Stormwater Management System
4640 TRUEMAN BLVD HILLIARD, OH 43026

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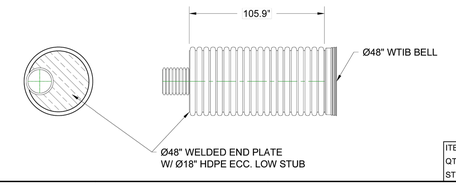
48" PIPE STICK : SOLID W/ WELDED END PLATE W/ 18" STUB



ITEM #: 27
QTY: 1
STICK-7

DOW GARDENS WELCOME CENTER
SYS. C
MIDLAND, MI
DATE: 9-25-24 DRAWN: JRL
PROJECT #: S431842 CHECKED: JRL

DATE	DRWN	CHKD	DESCRIPTION
10-29-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.
10-24-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.

48" WTIB SOLID DETENTION
LandMax Stormwater Management System
4640 TRUEMAN BLVD HILLIARD, OH 43026

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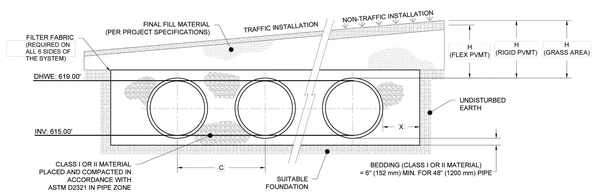
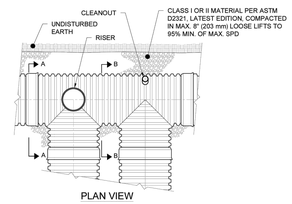


NOMINAL DIAMETER	NOMINAL O.D.	STANDARD SPACING "C"	TYPICAL SIDE WALL "X"	MIN. H (NON-TRAFFIC)	MIN. H (TRAFFIC)	MAX. H*
48" (1200 mm)	54" (1372 mm)	78.5" (1994 mm)	18" (457 mm)	12" (305 mm)	24" (610 mm)	8' (2.4 m)

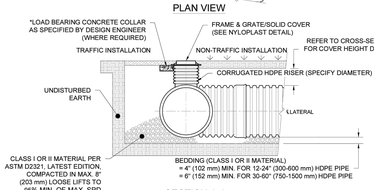
* MAXIMUM FILL HEIGHTS OVER MANIFOLD FITTINGS. CONTACT MANUFACTURER'S REPRESENTATIVE FOR INSTALLATION CONSIDERATIONS WHEN COVER EXCEEDS 8 FT (2.4 m).

NOTES:

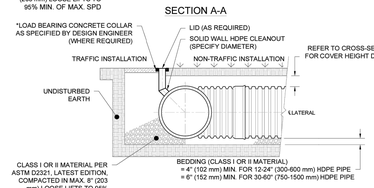
1. ALL REFERENCES TO CLASS I OR II MATERIAL ARE PER ASTM D2321 "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
2. ALL RETENTION AND DETENTION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, LATEST EDITION AND THE MANUFACTURER'S PUBLISHED INSTALLATION GUIDELINES.
3. MEASURES SHOULD BE TAKEN TO PREVENT THE MIGRATION OF NATIVE FINES INTO THE BACKFILL MATERIAL. WHEN REQUIRED. SEE ASTM D2321.
4. FILTER FABRIC: A GEOTEXTILE FABRIC IS REQUIRED AS SPECIFIED BY THE ENGINEER TO PREVENT THE MIGRATION OF FINES FROM THE NATIVE SOIL INTO THE SELECT BACKFILL MATERIAL.
5. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
6. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I OR II. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER, UNLESS OTHERWISE NOTED BY THE ENGINEER. MINIMUM BEDDING THICKNESS SHALL BE 4" (102 mm) FOR 4"-24" (100-600 mm); 6" (152 mm) FOR 30-60" (750-1500 mm).
7. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I OR II IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" (152 mm) ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
8. COVER: MINIMUM COVER OVER ALL RETENTION/DETENTION SYSTEMS IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" (305 mm) FROM TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER IS 12" (305 mm) UP TO 36" (900 mm) DIAMETER PIPE AND 24" (610 mm) OF COVER FOR 42-60" (1050-1500 mm) DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. MAXIMUM FILL HEIGHT LIMITED TO 8 FT (2.4 m) OVER FITTINGS FOR STANDARD INSTALLATIONS. CONTACT A SALES REPRESENTATIVE WHEN MAXIMUM FILL HEIGHTS EXCEED 8 FT (2.4 m) FOR INSTALLATION CONSIDERATIONS.



PLAN VIEW



SECTION A-A



SECTION B-B

* LOAD BEARING CONCRETE COLLAR SHALL BE CONSTRUCTED IN TRAFFIC AREAS SUCH THAT THE LIVE LOAD IS TRANSMITTED TO THE SURROUNDING SOIL AND NOT DIRECTLY TO THE RISER.

DOW GARDENS WELCOME CENTER
SYS. C
MIDLAND, MI
DATE: 9-25-24 DRAWN: JRL
PROJECT #: S431842 CHECKED: JRL

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10-24-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.

48" WTIB SOLID DETENTION
LandMax Stormwater Management System
4640 TRUEMAN BLVD HILLIARD, OH 43026

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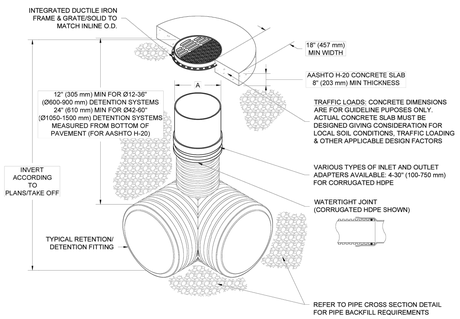
NYLOPLAST INLINE DRAIN

NTS



NOTES

1. 8-30" (200-750 mm) GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
2. 12-30" (300-750 mm) FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC
5. FOR COMPLETE DESIGN AND PRODUCT INFORMATION: **WWW.NYLOPLAST-US.COM**
6. TO ORDER CALL: **800-821-6710**

A	PART #	GRATE/SOLID COVER OPTIONS		
8" (200 mm)	2708AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
10" (250 mm)	2710AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
12" (300 mm)	2712AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
15" (375 mm)	2715AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
18" (450 mm)	2718AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
24" (600 mm)	2724AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
30" (750 mm)	2730AG	PEDESTRIAN AASHTO H-20	STANDARD AASHTO H-20	SOLID AASHTO H-20

DOW GARDENS WELCOME CENTER
SYS. C
MIDLAND, MI
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Nyloplast®
4640 TRUEMAN BLVD HILLIARD, OH 43026
770-932-2443 | WWW.NYLOPLAST-US.COM

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NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO. 1	12/26/24

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Saginaw, Michigan 48607
989 752 8107

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ROWE PROFESSIONAL SERVICES COMPANY

PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
SYSTEM C DETAILS

PROJECT NUMBER
2022022

SHEET NUMBER
C1.07

PROJECT DATE
JANUARY 9, 2025

CHECKED BY
AJW

Know what's **below.**
Call before you dig.

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER:	MIGUEL VARGAS 419-215-8020 MIGUEL.VARGAS@ADSPIPE.COM
ADS SALES REP:	RANDY LEDNICKY 989-390-6923 RANDY.LEDNICKY@ADSPIPE.COM
PROJECT NO:	S431842

Advanced Drainage Systems, Inc.

DOW GARDENS WELCOME CENTER SYS. A

MIDLAND, MI

ADS RETENTION/DETENTION PIPE SYSTEM SPECIFICATION

SCOPE
THIS SPECIFICATION DESCRIBES ADS RETENTION/DETENTION PIPE SYSTEMS FOR USE IN NON-PRESSURE GRAVITY-FLOW STORM WATER COLLECTION SYSTEMS UTILIZING A CONTINUOUS OUTFALL STRUCTURE.

PIPE REQUIREMENTS
ADS RETENTION/DETENTION SYSTEMS MAY UTILIZE ANY OF THE VARIOUS PIPE PRODUCTS BELOW:
- N-12 ® WTIB PIPE (PER AASHTO) SHALL MEET AASHTO M 294, TYPE S OR ASTM F2306
- N-12 ® WTIB PIPE (PER ASTM F2648) SHALL MEET ASTM F2648
- N-12 ® MEGA GREEN ™ WTIB SHALL MEET ASTM F2648

ALL PRODUCTS SHALL HAVE A SMOOTH INTERIOR AND ANNULAR EXTERIOR CORRUGATIONS. ALL STIB PIPE PRODUCTS ARE AVAILABLE AS PERFORATED OR NON-PERFORATED. PRODUCT-SPECIFIC PIPE SPECIFICATIONS ARE AVAILABLE IN THE DRAINAGE HANDBOOK SECTION 1 "SPECIFICATIONS".

JOINT PERFORMANCE
WATERTIGHT (WTIB):
WTIB PIPE SHALL BE JOINED USING A BELL AND SPIGOT JOINT. THE JOINT SHALL BE WATERTIGHT ACCORDING TO THE REQUIREMENTS OF ASTM D3212. GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477. 12-60 INCH (300-1500 mm) DIAMETERS SHALL HAVE A BELL REINFORCED WITH A POLYMER COMPOSITE BAND. THE BELL TOLERANCE DEVICE SHALL BE INSTALLED BY THE MANUFACTURER.

PIPE AND FITTING CONNECTIONS SHALL BE WITH A BELL AND SPIGOT CONNECTION UTILIZING A SPUN-ON OR WELDED BELL AND VALLEY OR SADDLE GASKET. THE JOINT SHALL MEET THE WATERTIGHT REQUIREMENTS OF ASTM D3212, AND GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477. DETENTION SYSTEMS ARE SUBJECT TO GREATER LEAKAGE THAN TYPICAL SINGLE RUN STORM SEWER APPLICATIONS AND THEREFORE ARE NOT APPROPRIATE FOR APPLICATIONS REQUIRING LONG-TERM FLUID CONTAINMENT OR HYDROSTATIC PRESSURE. FOR ADDITIONAL DETAILS REFER TO TECHNICAL NOTE 7.01 "RAINWATER HARVESTING WITH HDPE PIPE CISTERNS".

FITTINGS
FITTINGS SHALL CONFORM TO ASTM F2306 AND MEET JOINT PERFORMANCE INDICATED ABOVE FOR FITTINGS CONNECTIONS. CUSTOM FITTINGS ARE AVAILABLE AND MAY REQUIRE SPECIAL INSTALLATION CRITERION.

INSTALLATION
INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D2321 AND ADS RECOMMENDED INSTALLATION GUIDELINES, WITH THE EXCEPTION THAT MINIMUM COVER IN NON-TRAFFIC AREAS FOR 12-60 INCH (300-1500 mm) DIAMETERS SHALL BE 1 FT (0.3 m). MINIMUM COVER IN TRAFFICKED AREAS FOR 12-36 INCH (300-900 mm) DIAMETERS SHALL BE 1 FT (0.3 m) AND FOR 42-60 INCH (1050-1500 mm) DIAMETERS, THE MINIMUM COVER SHALL BE 2 FT (0.6 m). BACKFILL SHALL CONSIST OF CLASS I (COMPACTED) OR CLASS II (MINIMUM 95% SPD) MATERIAL, WITH THE EXCEPTION THAT 60 INCH (1500 mm) SYSTEMS SHALL USE CLASS I MATERIAL ONLY. MINIMUM COVER HEIGHTS DO NOT ACCOUNT FOR PIPE BUOYANCY. REFER TO ADS TECHNICAL NOTE 5.05 "PIPE FLOTATION" FOR BUOYANCY DESIGN CONSIDERATIONS. MAXIMUM COVER OVER SYSTEM USING STANDARD BACKFILL IS 8 FT (2.4 m); CONTACT A REPRESENTATIVE WHEN MAXIMUM FILL HEIGHT MAY BE EXCEEDED. ADDITIONAL INSTALLATION REQUIREMENTS ARE PROVIDED IN THE DRAINAGE HANDBOOK SECTION 6 "RETENTION/DETENTION".

ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

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NOTES:

1) ALL ELEVATIONS, DIMENSIONS AND LOCATIONS OF RISERS, INLETS AND OUTLETS, SHALL BE VERIFIED BY THE ENGINEER PRIOR TO RELEASING FOR FABRICATION.

2) IN SITUATIONS WHERE A FINE-GRAINED BACKFILL MATERIAL IS USED ADJACENT TO THE PIPE SYSTEM, AND ESPECIALLY INVOLVING GROUND WATER CONDITIONS, CONSIDERATION SHOULD BE GIVEN TO THE USE OF GASKETED PIPE JOINTS. AT THE VERY LEAST THE PIPE JOINTS SHOULD BE WRAPPED IN A SUITABLE, NON-WOVEN GEOTEXTILE FABRIC TO PREVENT INFILTRATION OF FINES INTO THE PIPE SYSTEM.

3) CONSIDERATION FOR CONSTRUCTION EQUIPMENT LOADS MUST BE TAKEN INTO ACCOUNT.

4) ALL PIPE DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

5) ALL RISERS TO BE FIELD EXTENDED OR TRIMMED TO FINAL GRADE.

THE UNDERSIGNED HEREBY APPROVES THE ATTACHED PAGES.

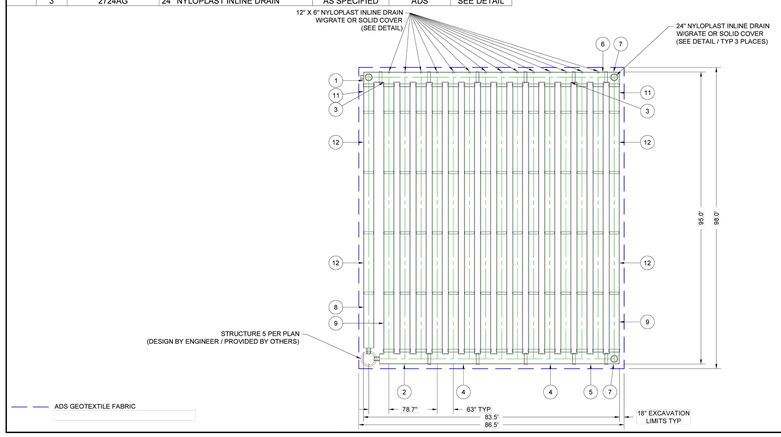
CUSTOMER DATE

BILL OF MATERIALS

*THE COMPONENTS AND QUANTITIES LISTED HEREIN ARE NOT INTENDED TO BE A COMPREHENSIVE MATERIAL LIST. EXTRA COMPONENTS, NOT LISTED HEREIN, MAY BE NECESSARY TO COMPLETE THE CONSTRUCTION OF THE SYSTEM.

ITEM	QTY.	PART #	DESCRIPTION	MATERIAL	VENDOR	NOTE
1	1	BEND-1	36" X 90° BEND	HDPE	ADS	SEE DETAIL
2	1	MANIFOLD-2	36" TRIPLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
3	4	3653ANGC-1	36" TRIPLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
3-1	3	0602AN	6" CLEANOUT	HDPE	ADS	COMPONENT
4	3	3653AN65B	36" TRIPLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
5	1	3652AN65B	36" DOUBLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
6	1	3652ANGC-1	36" DOUBLE MANIFOLD TEE	HDPE	ADS	SEE DETAIL
6-1	2	0602AN	6" CLEANOUT	HDPE	ADS	COMPONENT
7	2	3698ANBGC-1	36" X 90° MANIFOLD BEND	HDPE	ADS	SEE DETAIL
7-1	1	2403AN	24" RISER	HDPE	ADS	COMPONENT
8	1	STICK-1	36" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
9	15	STICK-2	36" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
11	16	STICK-4	36" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
12	48	3665-0020IB	36" PIPE STICK : SOLID	HDPE	ADS	SEE DETAIL
13	1	2403AN	24" RISER	HDPE	ADS	COMPONENT
	1	AS SPECIFIED	ADS GEOTEXTILE FABRIC	AS SPECIFIED	ADS	AS NEEDED
	14	2712AG	12" X 6" NYLOPLAST INLINE DRAIN	AS SPECIFIED	ADS	AS SHOWN
	3	2724AG	24" NYLOPLAST INLINE DRAIN	AS SPECIFIED	ADS	SEE DETAIL

NOTES
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE PIPE COVER REQUIREMENTS ARE MET.
- STUB SIZES AND INVERTS TO BE VERIFIED BY THE SITE DESIGN ENGINEER PRIOR TO FABRICATION.
- ADS RISERS ARE FABRICATED 36" (900 mm) FROM TOP OF PIPE TO TOP OF RISER DUE TO SHIPPING LIMITATIONS. ADDITIONAL PIPE AND COUPLERS CAN BE USED TO EXTEND THE RISERS TO GRADE.
- INSTALLED SYSTEM VOLUME: 11,182 CF



DOW GARDENS WELCOME CENTER SYS. A MIDLAND, MI
DATE: 9-25-24 DRAWN: JRL
PROJECT # S431842 CHECKED: JRL

DATE	BY	CHK	DESCRIPTION
10-28-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.
10-18-24	BVD	—	ADD RISER TO FITTING 1
10-14-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.
10-9-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.

36" WTIB SOLID DETENTION LandMax Stormwater Management System
4640 TRUEMAN BLVD HILLIARD, OH 43026
0 20' 40'
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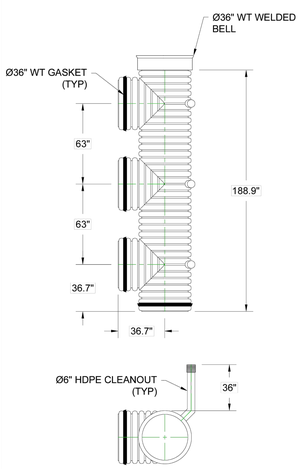
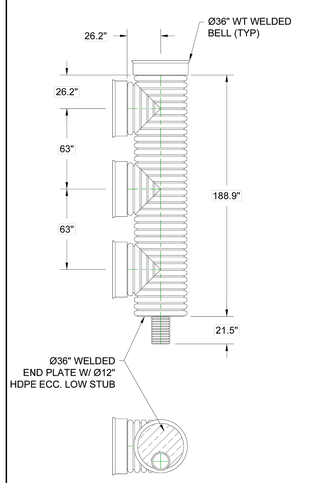
2 SHEET OF 7

36" TRIPLE MANIFOLD TEE W/ (3) 6" CLEANOUTS



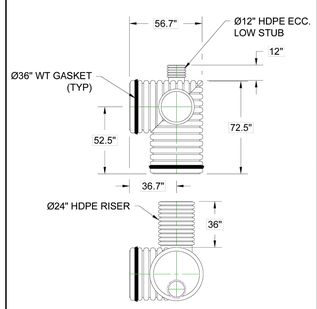
ITEM #: 3
QTY: 4
3653ANGC-1

36" TRIPLE MANIFOLD TEE W/ WELDED END PLATE W/ 12" STUB



ITEM #: 2
QTY: 1
MANIFOLD-2

36" X 90° BEND W/ 24" RISER & 12" STUB



ITEM #: 1
QTY: 1
BEND-1

DOW GARDENS WELCOME CENTER SYS. A MIDLAND, MI
DATE: 9-25-24 DRAWN: JRL
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10-9-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.

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4640 TRUEMAN BLVD HILLIARD, OH 43026
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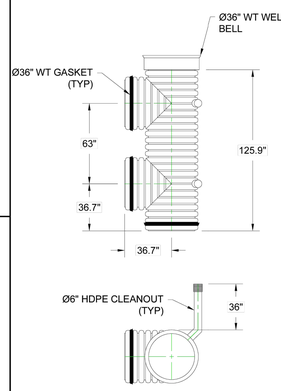
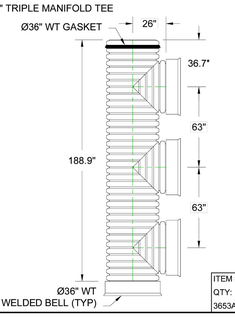
3 SHEET OF 7

36" DOUBLE MANIFOLD TEE W/ (2) 6" CLEANOUTS



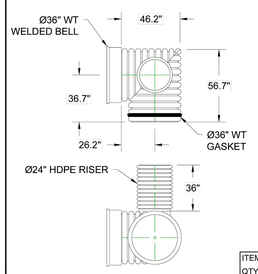
ITEM #: 6
QTY: 1
3652ANGC-1

36" TRIPLE MANIFOLD TEE



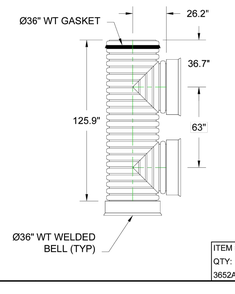
ITEM #: 4
QTY: 3
3653AN65B

36" X 90° MANIFOLD BEND W/ 24" RISER



ITEM #: 7
QTY: 2
3698ANBGC-1

36" DOUBLE MANIFOLD TEE



ITEM #: 5
QTY: 1
3652AN65B

DOW GARDENS WELCOME CENTER SYS. A MIDLAND, MI
DATE: 9-25-24 DRAWN: JRL
PROJECT # S431842 CHECKED: JRL

DATE	BY	CHK	DESCRIPTION
10-28-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.
10-18-24	BVD	—	ADD RISER TO FITTING 1
10-14-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.
10-9-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.

36" WTIB SOLID DETENTION LandMax Stormwater Management System
4640 TRUEMAN BLVD HILLIARD, OH 43026
THIS DRAWING AND SUBSEQUENT REVISIONS THEREOF WERE PREPARED UNDER THE DIRECTION OF THE PROJECT ENGINEER AND ARE THE PROPERTY OF ADS. THIS DRAWING IS NOT TO BE REPRODUCED OR USED ON OTHER PROJECTS WITHOUT WRITTEN PERMISSION FROM ADS. THIS DRAWING IS NOT INTENDED FOR AS-BUILT USE. CONTACT ADS IF AS-BUILT DRAWINGS ARE REQUIRED.

4 SHEET OF 7

Know what's **below.** **Call** before you dig.

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25

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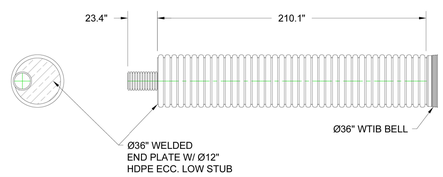
ROWE PROFESSIONAL SERVICES COMPANY

PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
SYSTEM A DETAILS

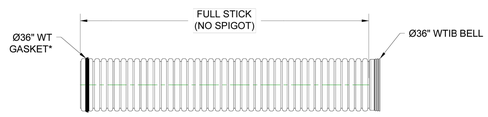
PROJECT NUMBER 2022022
PROJECT DATE JANUARY 9, 2025
CHECKED BY AJW
SHEET NUMBER C1.08

36" PIPE STICK : SOLID W/ 36" WELDED END PLATE W/ 12" STUB



ITEM #: 8
QTY: 1
STICK-1

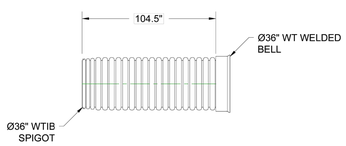
36" PIPE STICK : SOLID



ITEM #: 9
QTY: 15
STICK-2

*WELD VENT TUBES SHUT PRIOR TO SHIPPING

36" PIPE STICK : SOLID



ITEM #: 11
QTY: 16
STICK-4

DOW GARDENS WELCOME CENTER
SYS. A
MIDLAND, MI

DATE: 9-25-24 DRAWN: JRL
PROJECT #: S43-1842 CHECKED: JRL

DATE	DRWN.	CHKD.	DESCRIPTION
10-29-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.
12-12-24	TLN	TLN	ADD VENT STITCHES
01-09-25	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.

36" WTIB SOLID
SYSTEM A

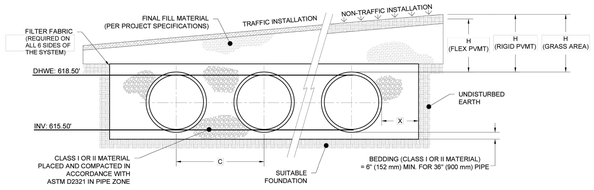
LandMax
Stormwater Management System

4440 TRUEMAN BLVD
HILLIARD, OH 43026

ADS

THE DRAWING AND DESIGN THEREIN IS INFORMATION TO ASSISTPERSONNEL FOR THE CONSTRUCTION OF THE ADS PRODUCTS. THE DRAWING AND DESIGN MAY NOT BE USED FOR ANY OTHER PURPOSE OR REPRODUCED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION OF ADS. ALL SUPPLIERS AND CONTRACTORS MUST BE ADVISED THAT ALL SUPPLIES AND MATERIALS MUST BE PURCHASED FROM ADS TO BE ELIGIBLE FOR ADS PRODUCT WARRANTY OR INSTALLATION GUARANTEE.

5 SHEET OF 7

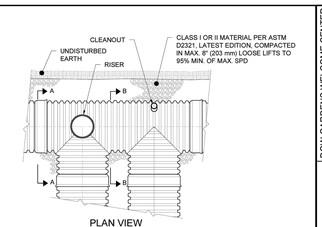


NOMINAL DIAMETER	NOMINAL O.D.	CUSTOM SPACING "C"	TYPICAL SIDE WALL "X"	MIN. H (NON-TRAFFIC)	MIN. H (TRAFFIC)	MAX. H*
36" (900 mm)	42" (1067 mm)	PER PLAN	18" (457 mm)	12" (305 mm)	12" (305 mm)	8' (2.4 m)

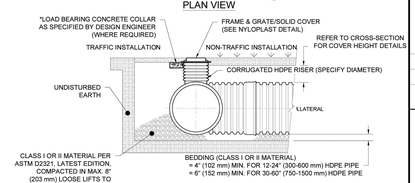
* MAXIMUM FILL HEIGHTS OVER MANIFOLD FITTINGS. CONTACT MANUFACTURER'S REPRESENTATIVE FOR INSTALLATION CONSIDERATIONS WHEN COVER EXCEEDS 8 FT (2.4 m).

NOTES:

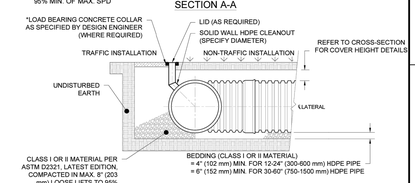
1. ALL REFERENCES TO CLASS I OR II MATERIAL ARE PER ASTM D2321 "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
2. ALL RETENTION AND DETENTION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, LATEST EDITION AND THE MANUFACTURER'S PUBLISHED INSTALLATION GUIDELINES.
3. MEASURES SHOULD BE TAKEN TO PREVENT THE MIGRATION OF NATIVE FINES INTO THE BACKFILL MATERIAL, WHEN REQUIRED. SEE ASTM D2321.
4. FILTER FABRIC: A GEOTEXTILE FABRIC IS REQUIRED AS SPECIFIED BY THE ENGINEER TO PREVENT THE MIGRATION OF FINES FROM THE NATIVE SOIL INTO THE SELECT BACKFILL MATERIAL.
5. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE. THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
6. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I OR II. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (102 mm) FOR 4"-24" (100-600 mm); 6" (152 mm) FOR 30-60" (750-1500 mm)
7. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I OR II IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" (152 mm) ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
8. COVER: MINIMUM COVER OVER ALL RETENTION/DETENTION SYSTEMS IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" (305 mm) FROM TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER IS 12" (305 mm) UP TO 36" (900 mm) DIAMETER PIPE AND 24" (610 mm) OF COVER FOR 42-60" (1050-1500 mm) DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. MAXIMUM FILL HEIGHT LIMITED TO 8 FT (2.4 m) OVER FITTINGS FOR STANDARD INSTALLATIONS. CONTACT A SALES REPRESENTATIVE WHEN MAXIMUM FILL HEIGHTS EXCEED 8 FT (2.4 m) FOR INSTALLATION CONSIDERATIONS.



PLAN VIEW



SECTION A-A



SECTION B-B

* LOAD BEARING CONCRETE COLLAR SHALL BE CONSTRUCTED IN TRAFFIC AREAS SUCH THAT THE LIVE LOAD IS TRANSMITTED TO THE SURROUNDING SOIL AND NOT DIRECTLY TO THE RISER.

DOW GARDENS WELCOME CENTER
SYS. A
MIDLAND, MI

DATE: 9-25-24 DRAWN: JRL
PROJECT #: S43-1842 CHECKED: JRL

DATE	DRWN.	CHKD.	DESCRIPTION
10-29-24	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.
12-12-24	TLN	TLN	ADD VENT STITCHES
01-09-25	TLN	TLN	REVISED PER ENGINEER'S MARK-UPS.

36" WTIB SOLID
SYSTEM A

LandMax
Stormwater Management System

4440 TRUEMAN BLVD
HILLIARD, OH 43026

ADS

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NO.	REVISION	DATE
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PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
SYSTEM A DETAILS

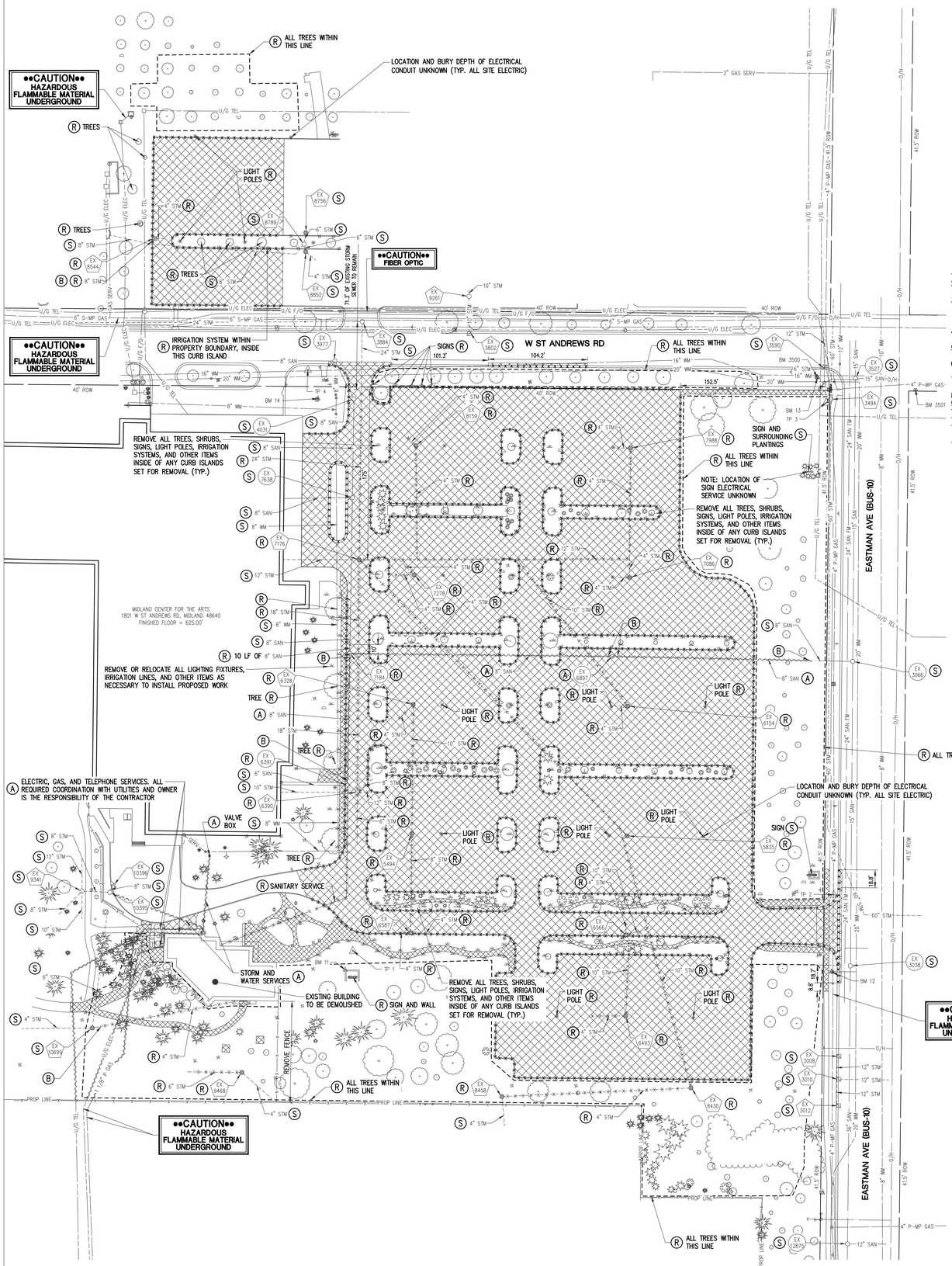
PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 9, 2025

CHECKED BY
AJW

SHEET NUMBER
C1.09

811
Know what's **below.**
Call before you dig.



GENERAL CONSTRUCTION NOTES

UNDERGROUND UTILITY IDENTIFICATION AND LOCATION

THE CONTRACTOR SHALL CALL MISS DIG (1-800-482-7171 OR 811) A MINIMUM OF THREE WORK DAYS IN ADVANCE OF BEGINNING EXCAVATION. THE CONTRACTOR IS RESPONSIBLE TO IDENTIFY AND NOTIFY UTILITY AGENCIES WITHIN THE PROJECT AREA WHICH DO NOT PARTICIPATE IN THE MISS DIG NOTIFICATION PROGRAM.

PUBLIC UTILITIES

EXISTING UTILITIES ARE SHOWN BASED UPON RECORDS AND LOCATIONS PROVIDED BY UTILITY AGENCIES. THE INFORMATION SHOWN IS CONSIDERED APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR. UNLESS THE PLANS SPECIFICALLY SHOW THAT EXISTING UTILITIES ARE TO BE MOVED, THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN EXISTING UTILITIES.

VERIFICATION OF UNDERGROUND UTILITIES

THE CONTRACTOR SHALL EXCAVATE AND LOCATE ALL EXISTING UTILITIES IN THE PROJECT AREA IN ADVANCE OF CONSTRUCTION TO VERIFY THEIR ACTUAL LOCATION. POTENTIAL CONFLICTS SHALL BE REPORTED TO THE ENGINEER. THE CONTRACTOR SHALL MAKE SUCH CHANGES TO GRADE AND ALIGNMENT OF PROPOSED WORK AS DIRECTED BY THE ENGINEER TO AVOID CONFLICTS, AT NO INCREASE IN COST TO THE OWNER.

UTILITY SERVICE

UNLESS SPECIFICALLY PROVIDED OTHERWISE IN THE CONTRACT DOCUMENTS, ALL EXISTING UTILITIES ARE TO REMAIN IN SERVICE DURING THE PROJECT.

SURVEY CORNERS, BENCHMARKS, AND CONTROL POINTS

THE CONTRACTOR SHALL PRESERVE ALL GOVERNMENT CORNERS, PROPERTY CORNERS, BENCHMARKS, SURVEY CONTROL POINTS AND OTHER SURVEY POINTS WITHIN THE PROJECT AREA. WHERE CORNERS, BENCHMARKS, OR SURVEY POINTS ARE ENCOUNTERED WHICH WILL BE DISTURBED BY THE CONTRACTOR'S ACTIVITIES; A LICENSED SURVEYOR SHALL WITNESS THE POINT BEFORE DISTURBANCE AND SHALL RE-SET THE POINT FOLLOWING THE COMPLETION OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL PAY THE SURVEYOR TO WITNESS AND TO RE-SET THE POINTS.

PROTECTION OF TREES, SHRUBS, AND LANDSCAPING

ALL TREES, SHRUBS, AND LANDSCAPING WITHIN THE CONSTRUCTION AREA WHICH ARE NOT SPECIFICALLY DESIGNATED FOR REMOVAL SHALL BE PROTECTED FROM DAMAGE BY THE CONTRACTOR. DAMAGED TREES, SHRUBS, AND LANDSCAPING SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

REMOVAL NOTES

1. CONTRACTOR TO REFER TO ARCHITECTURAL (PACKAGES/SECTIONS) FOR ADDITIONAL DEMOLITION/REMOVAL PLANS.
2. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR DAMAGE TO ITEMS NOT SCHEDULED FOR REMOVAL. REPAIRS SHALL BE MADE AT THE CONTRACTOR'S OWN EXPENSE.
3. REMOVAL ITEMS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION AND ARE SHOWN SCHEMATICALLY. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID TO BE FULLY FAMILIAR WITH THE EXTENT OF REMOVAL ITEMS. QUESTIONS REGARDING ITEMS TO BE REMOVED SHALL BE DIRECTED TO THE OWNER OR ARCHITECT PRIOR TO CONSTRUCTION.
4. CLEARING AND DEMOLITION SHALL INCLUDE COMPLETE REMOVAL OF ALL ITEMS NOTED AND SHALL INCLUDE BACKFILL AND COMPACTION OF VOIDS WITH CLEAN CLASS II SAND.
5. ALL MATERIALS REMOVED NOT DESIGNATED FOR RE-USE SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF SITE IN ACCORDANCE WITH ALL APPLICABLE STANDARDS AND REGULATIONS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SIDEWALKS, PAVEMENTS AND CURB & GUTTER DESIGNATED TO REMAIN. ANY DAMAGE TO THESE ITEMS SHALL BE REPLACED AT NO COST TO THE OWNER.
7. SITE PREPARATION TO INCLUDE ALL ITEMS REQUIRED TO PREPARE FOR CONSTRUCTION OF ALL ITEMS SHOWN IN THE FOLLOWING PLANS.
8. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL REMOVALS WITH OWNER AND APPLICABLE AGENCIES.
9. ALL CLEARING AND TEMPORARY SESC IMPROVEMENTS TO BE INSTALLED PRIOR CONSTRUCTION.
10. CONTRACTOR TO VERIFY WITH OWNER THAT THERE ARE NO KNOWN ENVIRONMENTAL CONCERNS ON-SITE.
11. ALL PAVEMENT REMOVAL SHALL BE SAWCUT.
12. CONTRACTOR SHALL REMOVE OR RELOCATE ALL IRRIGATION LINES, LIGHTING FIXTURES, AND OTHER ITEMS AS NECESSARY TO INSTALL PROPOSED WORK OR AS DIRECTED BY OWNER.
13. EXISTING STORM SEWER IS SHOWN SCHEMATICALLY BASED ON A COMBINATION OF A PREVIOUS PLAN (1989 PARKING LOT IMPROVEMENTS) AND A FIELD INVESTIGATION. THE CONTRACTOR SHALL BE BECOME FAMILIAR WITH THE SITE, INCLUDING THE STORM SEWER TO BE REMOVED, AND SHALL BASE THEIR BID ON THE INFORMATION BEST AVAILABLE TO THEM.

SURVEY NOTES:

HORIZONTAL DATUM: MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE (NAD83 CORS2011)
VERTICAL DATUM: NAVD88
UNITS: INTERNATIONAL FEET

BENCHMARK DATA TABLE

NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
BM 3500	774498	13154985	626.86	CITY OF MIDLAND BM 1260, TOP OF HYDRANT, SW QUAD OF EASTMAN AND ST. ANDREWS, MIDLAND DATUM ELEVATION = 628.80
BM 3501	774485	13155088	625.45	CITY OF MIDLAND BM 1261, NW BOLT OF SIGNAL POST, SE QUAD OF EASTMAN AND ST. ANDREWS, MIDLAND DATUM ELEVATION = 627.39
BM 11	773876	13154488	626.65	TOP NW CORNER OF WALL FOR DOW GARDENS SIGN, S. 11.9' SW CORNER OF WALL, E. 14.9' NE CORNER OF WALL
BM 12	773873	13154999	626.91	TOP SW FLANGE BOLT OF HYDRANT, S. SIDE OF DRIVE AND SW OF ELIZABETH ST., W. 2.9' SIDEWALK, E. 6.1' TOP OF CURB, S. 12.4' W. LEG OF SIGN
BM 13	774498	13154985	625.86	SE FLANGE BOLT OF HYDRANT , SW QUAD OF EASTMAN AND ST. ANDREWS, N. 8.5' TOP OF CURB, E. 11.2' SIDEWALK, S. 13.3' SIDEWALK
BM 14	774475	13154460	623.87	CHISELED SQUARE IN NE SIDE OF CONCRETE BASE FOR FLAG POLE, S. SIDE OF ST. ANDREWS, N. 52.5' CENTERLINE OF ST. ANDREWS, E. 43.5' CENTER OF DRIVE, S. 36.5' TOP OF CURB

TRAVERSE POINT DATA TABLE

NUMBER	NORTHING	EASTING	DESCRIPTION
TP 1	773895.6670	13154496.6380	SET IRON W/ "ROWE TRAV" CAP 100'± E. OF VISITOR ENTRANCE TO DOW GARDENS, N. 10.5' SIDEWALK, S. 20.2' WALL AROUND GARDENS SIGN
TP 2	773954.4590	13155001.9600	SET IRON W/ "ROWE TRAV" CAP 35'± OF N. SIDE OF DOW GARDENS ENTRANCE AND CENTERLINE OF ELIZABETH EXTENDED, W. 4.8' SIDEWALK, E. 3.2' TOP OF CURB
TP 3	774471.3870	13154993.9650	SET IRON W/ "ROWE TRAV" CAP AT SW QUAD OF EASTMAN AND ST. ANDREWS, E. 5.3' SIDEWALK, N. 8.0' SIDEWALK
TP 4	774505.7680	13154449.3970	SET IRON W/ "ROWE TRAV" CAP 25'± S. OF CENTERLINE OF ST. ANDREWS, E. 14.0' SIDEWALK, W. 17.3' TOP OF CURB, N. 4.4' TOP OF CURB

STRUCTURE INVENTORY

MH# 10395
TYPE: STORM
COVER: SOLID
RIM= 620.66
8" PVC NE INV.=616.46
8" VCP W INV.=616.36
6" VCP SE INV.=616.36

MH# 10396
TYPE: STORM
COVER: CURB INLET
RIM= 620.04
8" PVC SW INV.=616.34

MH# 10699
TYPE: STORM
COVER: BEEHIVE
RIM= 622.23
4" PVC E INV.=620.88
6" VCP N INV.=620.63
4" CPP W INV.=620.83

MH# 12875
TYPE: SANITARY
COVER: SOLID
RIM= 625.41
36" RCP N INV.=606.61
36" RCP S INV.=606.51
12" RCP E INV.=613.41

MH# 3008
TYPE: STORM
NO INFO AVAILABLE

MH# 3010
TYPE: STORM
NO INFO AVAILABLE

MH# 3012
TYPE: STORM
NO INFO AVAILABLE

MH# 3038
TYPE: SANITARY
NO INFO AVAILABLE

MH# 3066
TYPE: SANITARY
NO INFO AVAILABLE

MH# 3494
TYPE: STORM
COVER: SOLID
RIM= 624.77
60" RCP S INV.=610.37
60" RCP N INV.=610.37
12" RCP N INV.=618.67

MH# 3527
TYPE: SANITARY
NO INFO AVAILABLE

MH# 3590
TYPE: STORM
COVER: CURB INLET
RIM= 623.04
12" RCP N INV.=620.29
6" CPP W INV.=621.04

MH# 3802
TYPE: STORM
COVER: CURB INLET
RIM= 623.57
10" VCP N INV.=618.52

MH# 3884
TYPE: STORM
COVER: SOLID
RIM= 623.77
24" RCP S INV.=613.17
24" RCP W INV.=612.97

MH# 3977
TYPE: SANITARY
COVER: SOLID
RIM= 623.21
8" VCP W INV.=612.01
8" VCP SE INV.=611.96

MH# 4031
TYPE: SANITARY
COVER: SOLID
RIM= 622.95
8" VCP NW INV.=611.95
8" VCP S INV.=611.85

MH# 5494
TYPE: STORM
COVER: FLAT GRATE
RIM= 621.61
No Pipe Data

MH# 5835
TYPE: STORM
COVER: FLAT GRATE
RIM= 622.18
No Pipe Data

MH# 6154
TYPE: STORM
COVER: FLAT GRATE
RIM= 622.02
4" PVC N INV.=618.27 (INSIDE 10")
4" CPP W INV.=618.67

MH# 6328
TYPE: STORM
COVER: FLAT GRATE
RIM= 621.60
4" CPP SW INV.=618.30
4" S INV. =617.90 (INSIDE 10")

MH# 6390
TYPE: STORM
COVER: SOLID
RIM= 622.76
18" RCP N INV.=615.26
10" VCP W INV.=616.56
8" CPP NE INV.=617.06
6" VCP S INV.=617.16
12" RCP E INV.=615.36

MH# 6391
TYPE: SANITARY
COVER: SOLID
RIM= 623.03
6" VCP W INV.=618.93
8" VCP N INV.=618.83
4" CIP S INV.=619.23

MH# 6493
TYPE: STORM
COVER: FLAT GRATE
RIM= 621.95
4" PVC N INV.=618.80 (INSIDE 10")
4" CPP W INV.=618.80

MH# 6566
TYPE: STORM
COVER: FLAT GRATE
RIM= 622.26
10" CIP E INV.=618.26
4" CPP N INV.=618.76

MH# 6587
TYPE: STORM
COVER: FLAT GRATE
RIM= 621.70
8" PVC N INV.=618.40
4" CPP E INV.=619.40
4" CPP W INV.=619.40

MH# 6897
TYPE: SANITARY
COVER: SOLID
RIM= 622.73
8" VCP W INV.=609.23
8" VCP E INV.=609.13

MH# 7086
TYPE: STORM
COVER: FLAT GRATE
RIM= 621.99
4" PVC N INV.=618.29
4" CPP W INV.=618.64

MH# 7176
TYPE: STORM
COVER: FLAT GRATE
RIM= 622.56
24" RCP N INV.=614.46
18" RCP S INV.=614.51
12" RCP W INV.=615.06
12" RCP E INV.=614.66
4" CPP SE INV.=617.76

MH# 7184
TYPE: SANITARY
COVER: SOLID
RIM= 622.70
8" VCP N INV.=610.40
8" VCP S INV.=615.80
8" VCP E INV.=610.30

MH# 7278
TYPE: STORM
COVER: FLAT GRATE
RIM= 621.55
4" PVC NW INV.=617.95
4" CPP W INV.=618.20

MH# 7638
TYPE: SANITARY
COVER: SOLID
RIM= 622.83
8" VCP N INV.=611.13
8" VCP S INV.=611.03
8" VCP W INV.=612.23

MH# 7988
TYPE: STORM
COVER: FLAT GRATE
RIM= 622.38
4" PVC S INV.=618.43
4" CPP W INV.=618.78

MH# 8159
TYPE: STORM
COVER: FLAT GRATE
RIM= 621.64
4" PVC S INV.=618.04
4" CPP NW INV.=618.34

MH# 8430
TYPE: STORM
COVER: BEEHIVE
RIM= 622.82
4" PVC N INV.=617.97 (INSIDE 10")
4" CPP W INV.=620.47

MH# 8458
TYPE: STORM
COVER: FLAT GRATE
RIM= 623.08
4" CPP E INV.=622.18
4" CPP S INV.=622.18

MH# 8544
TYPE: STORM
COVER: CURB INLET
RIM= 622.28
4" CPP E INV.=620.03
8" VCP S INV.=617.63

MH# 8756
TYPE: STORM
COVER: FLAT GRATE
RIM= 623.23
6" SLCPP S INV.=619.98

MH# 8789
TYPE: STORM
COVER: SOLID
RIM= 623.78
6" SLCPP N INV.=619.78
6" SLCPP S INV.=619.48
8" SLCPP SW INV.=619.48

MH# 8852
TYPE: STORM
COVER: FLAT GRATE
RIM= 623.17
6" SLCPP N INV.=619.92
4" CPP SE INV.=620.52

MH# 9261
TYPE: STORM
COVER: SOLID
RIM= 624.08
10" VCP S INV.=618.58
10" VCP N INV.=618.58

MH# 9341
TYPE: STORM
COVER: SOLID
RIM= 625.87
8" VCP E INV.=615.87
12" RCP N INV.=615.27
8" RCP SW INV.=616.77
10" VCP S INV.=616.97

MH# 9468
TYPE: STORM
COVER: FLAT GRATE
RIM= 623.23
4" CPP SE INV.=621.78
6" CPP W INV.=621.93

Know what's **below.** **Call** before you dig.

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO. 1	12/26/24

WTA ARCHITECTS
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989 752 8107

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ROWE PROFESSIONAL SERVICES COMPANY

PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

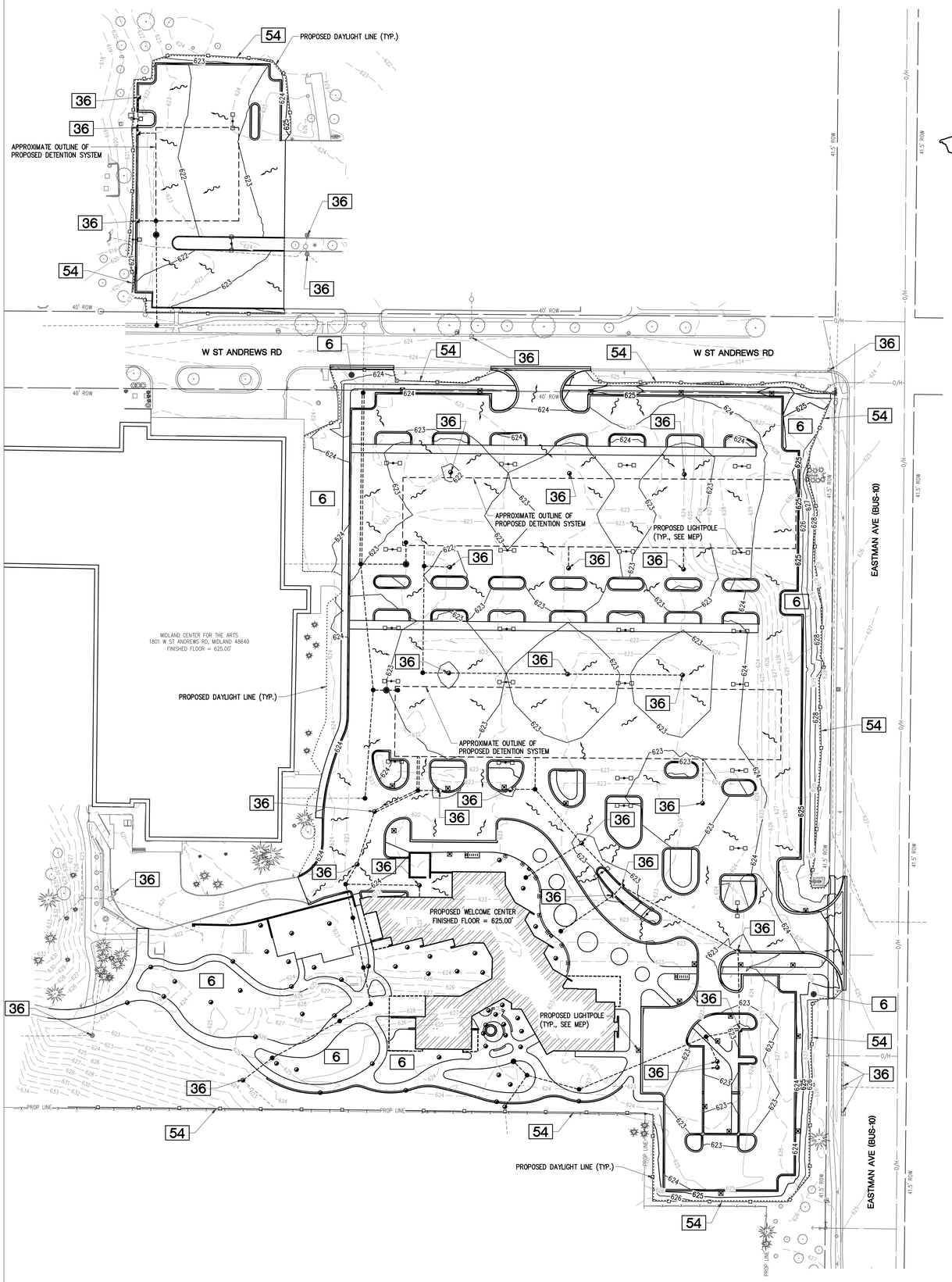
SHEET TITLE
CIVIL DEMOLITION PLAN

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 9, 2025

CHECKED BY
AJW

SHEET NUMBER
C2.00



MICHIGAN UNIFIED KEYING SYSTEM

6	SEEDING WITH MULCH AND/OR MATTING	FACILITATES ESTABLISHMENT OF VEGETATIVE COVER EFFECTIVE FOR DRAINAGEWAYS WITH LOW VELOCITY. EASILY PLACED IN SMALL QUANTITIES BY INEXPERIENCED PERSONNEL. SHOULD INCLUDE PREPARED TOPSOIL BED
36	CATCH BASIN, DRAIN INLET	COLLECTS HIGH VELOCITY CONCENTRATED RUNOFF. MAY USE FILTER CLOTH OVER INLET
54	SILT FENCE	USES GEOTEXTILE FABRIC AND POSTS OR POLES. EASY TO CONSTRUCT AND LOCATE AS NECESSARY.

SEEDING ZONES

PERMANENT SEEDING GUIDE

	APR	MAY	JUN	JUL	AUG	SEP	OCT	
IRRIGATED AND/OR MULCH WITHOUT IRRIGATION OR MULCH								ZONE 1
IRRIGATED AND/OR MULCH WITHOUT IRRIGATION OR MULCH								ZONE 2
IRRIGATED AND/OR MULCH WITHOUT IRRIGATION OR MULCH								ZONE 3

TEMPORARY SEEDING GUIDE

ZONE 1

TYPE OF SEED	APR	MAY	JUN	JUL	AUG	SEP	OCT
SPRING OATS/BARLEY OR DOMESTIC RYEGRASS							
SUDANGRASS							
RYE OR PERENNIAL RYE							
WHEAT							

ZONE 2

TYPE OF SEED	APR	MAY	JUN	JUL	AUG	SEP	OCT
SPRING OATS/BARLEY OR DOMESTIC RYEGRASS							
SUDANGRASS							
RYE OR PERENNIAL RYE							
WHEAT							

ZONE 3

TYPE OF SEED	APR	MAY	JUN	JUL	AUG	SEP	OCT
SPRING OATS/BARLEY OR DOMESTIC RYEGRASS							
SUDANGRASS							
RYE OR PERENNIAL RYE							
WHEAT							

SOIL EROSION & SEDIMENTATION CONTROL

1. CONTRACTOR SHALL SUBMIT A DETAILED EROSION CONTROL PLAN AND OBTAIN A SOIL EROSION & SEDIMENTATION CONTROL PERMIT PRIOR TO ANY EARTH CHANGES.
2. CONSTRUCTION OPERATION SHALL BE SCHEDULED AND PERFORMED SO THAT PREVENTATIVE EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO EXCAVATION AND TEMPORARY STABILIZATION MEASURES ARE IN PLACE IMMEDIATELY FOLLOWING BACKFILLING AND/OR GRADING OPERATIONS.
3. BORROW AND FILL DISPOSAL AREAS WILL BE SELECTED AND APPROVED AT TIME OF PLAN REVIEW.
4. SPECIAL PRECAUTIONS WILL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.
5. CLEANUP WILL BE DONE IN A MANNER TO ENSURE THAT EROSION CONTROL MEASURES ARE NOT DISTURBED.
6. THE PROJECT WILL CONTINUALLY BE INSPECTED FOR SOIL EROSION AND SEDIMENTATION CONTROL COMPLIANCE. DEFICIENCIES WILL BE CORRECTED BY THE DEVELOPER WITHIN 24 HOURS.
7. TEMPORARY EROSION CONTROL MEASURES SHALL BE COMPLETELY REMOVED BY THE DEVELOPER UPON ESTABLISHMENT OF PERMANENT CONTROL MEASURES.
8. ALL TEMPORARY SOIL EROSION CONTROL MEASURES MUST BE REMOVED FROM THE PROJECT AREA PRIOR TO RELEASE OF RETAINAGE.
9. VEGETATION MUST BE ACCEPTABLY ESTABLISHED PRIOR TO FINAL RELEASE OF THE RETAINAGE.

SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
STRIP & STOCKPILE TOPSOIL												
ROUGH GRADE SEDIMENT CONTROL												
TEMP. CONTROL MEASURES												
STORM FACILITIES												
TEMP. CONSTRUCTION ROADS												
SITE CONSTRUCTION												
PERM. CONTROL MEASURES												
FINISH GRADING												

NOTE: TO BE COMPLETED BY CONTRACTOR

CONSTRUCTION SEQUENCE

1. IMPLEMENTATION OF TEMPORARY EROSION CONTROL MEASURES, SELECTIVE GRADING, AND PROTECTION OF STORM SEWER FACILITIES.
2. DEMOLITION AND REMOVAL OF FACILITIES.
3. CONSTRUCTION OF UNDERGROUND UTILITIES, PAVING, AND CURB AND GUTTER.
4. PERMANENT MEASURES; FINAL GRADING, SEEDING AND MULCHING.

N

0 50 ft 100 ft

GENERAL CONSTRUCTION NOTES

ADA COMPLIANCE

ALL PROPOSED CONSTRUCTION SHALL COMPLY WITH THE PROVISIONS OF THE AMERICANS WITH DISABILITIES ACT (ADA), AND APPLICABLE GUIDELINES OR STANDARDS. WHERE EXISTING CONDITIONS AND/OR THE REQUIREMENTS OF THE PLANS WILL RESULT IN FINISHED CONDITIONS THAT DO NOT MEET THE ADA REQUIREMENTS, GUIDELINES, OR STANDARDS; THE CONTRACTOR SHALL NOTIFY THE OWNER BEFORE PROCEEDING WITH CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO REMOVE AND REPLACE WORK DETERMINED TO BE NOT IN ACCORDANCE WITH APPLICABLE REQUIREMENTS, GUIDELINES, OR STANDARDS.

EARTHWORK

THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF THE EARTHWORK QUANTITIES, AND BASE THEIR BID ON THEIR DETERMINATION OF THE QUANTITIES OF WORK REQUIRED.

IF ADDITIONAL FILL MATERIAL MUST BE PROVIDED TO ATTAIN THE FINISH GRADES SHOWN ON THE PLANS, THE CONTRACTOR SHALL PROVIDE THE REQUIRED FILL MATERIAL, UNLESS A SPECIFIC BORROW AREA IS IDENTIFIED ON THE PLANS.

EXCESS SOILS RESULTING FROM EXCAVATION AND EARTHWORK SHALL BECOME THE CONTRACTOR'S PROPERTY AND DISPOSED OF PROPERLY, UNLESS AN AREA(S) HAS BEEN DESIGNATED FOR STOCKPILING OR "BLENDING IN" THE EXCESS MATERIAL WITHIN THE PROJECT LIMITS.

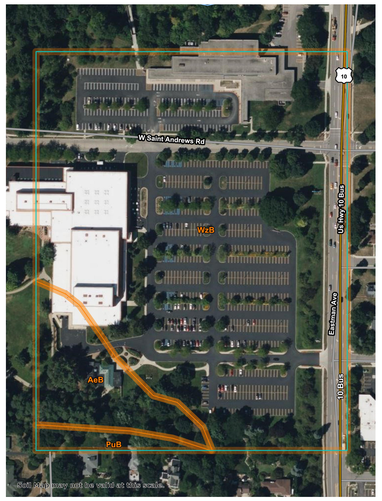
DRAINAGE

THE CONTRACTOR SHALL MAINTAIN DRAINAGE OF THE PROJECT AREA AND ADJACENT AREAS. WHERE EXISTING DRAINAGE FACILITIES ARE DISTURBED OR BLOCKED BY CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY PROVISIONS FOR DRAINAGE.

WHERE CONSTRUCTION HAS DISTURBED EXISTING DITCHES, SWALES, OR OTHER DRAINAGE FACILITIES; THE CONTRACTOR SHALL RESTORE THEM TO THEIR GRADES AND DIMENSIONS WHICH EXISTED PRIOR TO THE BEGINNING OF CONSTRUCTION, UNLESS DIRECTED OTHERWISE.

DRAINAGE SHALL NOT BE REROUTED ONTO ADJACENT PROPERTIES NOR ALLOWED TO DRAIN ONTO ADJACENT PROPERTIES AT AN INCREASED RATE, AS A RESULT OF THE CONTRACTOR'S WORK.

SOILS MAP AND INFO



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AeB	Aquents	2.5	10.7%
PuB	Pipestone-Oakville-Urban land complex, 0 to 6 percent slopes	0.6	2.4%
WzB	Wixom-Belleville-Urban land complex, 0 to 3 percent slopes	20.3	86.9%
Totals for Area of Interest		**23.4**	**100.0%**

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Midland County, Michigan
Survey Area Data: Version 19, Aug 29, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 11, 2020—Aug 31, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO. 1	12/26/24

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ROWE PROFESSIONAL SERVICES COMPANY

PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

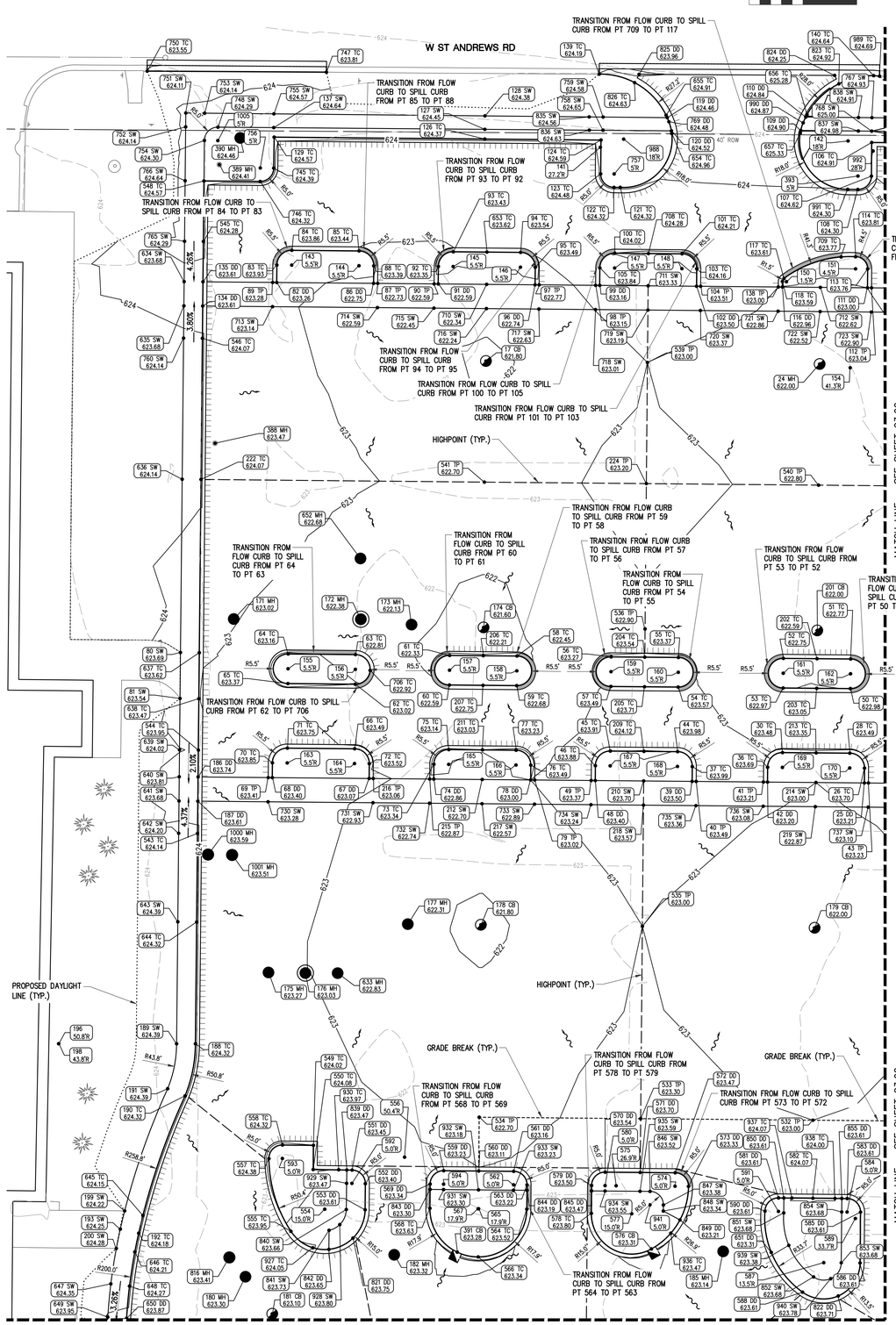
SHEET TITLE
CIVIL OVERALL GRADING AND SESC PLAN

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 9, 2025

CHECKED BY
AJW

SHEET NUMBER
C3.00



GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
17	CB=621.80		774402.19	13154596.81
24	MH=622.00		774401.08	13154720.80
25	DD=623.21	TC, SW	774245.42	13154737.41
26	TC=623.70	PC	774250.92	13154737.46
28	TC=623.49	PC	774256.47	13154732.01
30	TC=623.48	PC	774256.70	13154707.01
36	TC=623.69	PC	774251.25	13154701.46
37	TC=623.99	PC	774251.50	13154673.46
39	DD=623.50	TC, SW	774246.00	13154673.41
40	TP=623.49	SW	774245.98	13154674.91
41	TP=623.21	SW	774245.76	13154699.91
42	DD=623.20	TC, SW	774245.75	13154701.41
43	TP=623.23	SW	774245.41	13154738.91
44	TC=623.98	PC	774257.05	13154668.01
45	TC=623.91	PC	774257.27	13154643.01
46	TC=623.88	PC	774251.82	13154637.46
48	DD=623.40	TC, SW	774246.32	13154637.41
49	TP=623.37	SW	774246.33	13154635.91
50	TC=622.98	PC	774280.47	13154732.22
51	TC=622.77	PC	774291.47	13154732.32
52	TC=622.75	PC	774291.70	13154707.32
53	TC=622.97	PC	774280.70	13154707.22
54	TC=623.57	PC	774281.05	13154668.23
55	TC=623.37	PC	774292.05	13154668.32
56	TC=623.27	PC	774292.27	13154643.33
57	TC=623.49	PC	774281.27	13154643.23
58	TC=622.45	PC	774292.58	13154608.33
59	TC=622.68	PC	774281.58	13154608.23
60	TC=622.59	PC	774281.81	13154583.23
61	TC=622.33	PC	774292.81	13154583.33
62	TC=623.02	PC	774282.12	13154548.23
63	TC=622.81	PC	774293.12	13154548.33
64	TC=623.16	PC	774293.34	13154523.33
65	TC=623.37	PC	774282.34	13154523.23
66	TC=623.49	PC	774258.12	13154548.02
67	DD=623.07	TC, SW	774247.07	13154553.42
68	DD=623.40	TC, SW	774247.40	13154517.42
69	TP=623.41	SW	774247.41	13154515.92
70	TC=623.85	PC	774252.89	13154517.47
71	TC=623.75	PC	774258.35	13154523.02
72	TC=623.52	PC	774252.57	13154553.47
73	TC=623.34	PC	774252.36	13154577.47
74	DD=622.86	TC, SW	774246.86	13154577.42
75	TC=623.14	PC	774257.81	13154583.01
76	TC=623.49	PC	774252.03	13154613.46
77	TC=623.23	PC	774257.58	13154608.01
78	DD=623.00	TC, SW	774246.54	13154613.41
79	TP=623.02	SW	774246.52	13154614.91
80	SW=623.69	ME	774293.90	13154483.30
81	SW=623.54	ME	774276.81	13154483.13
82	DD=623.26	TC, SW	774431.39	13154519.07
83	TC=623.93	PC	774437.89	13154519.13
84	TC=623.86	PC	774443.34	13154524.67
85	TC=623.44	PC	774443.11	13154549.67
86	DD=622.75	TC, SW	774431.07	13154555.07
87	TP=622.73	SW	774431.06	13154556.57
88	TC=623.39	PC	774437.57	13154555.12
89	TP=623.28	SW	774431.41	13154517.57
90	TP=622.59	SW	774430.86	13154577.56
91	DD=622.59	TC, SW	774430.85	13154579.06
92	TC=623.35	PC	774437.35	13154579.12
93	TC=623.43	PC	774442.80	13154584.67
94	TC=623.54	PC	774442.58	13154609.67
95	TC=623.49	PC	774437.03	13154615.12
96	DD=622.74	TC, SW	774430.53	13154615.06
97	TP=622.77	SW	774430.51	13154616.56
98	TP=623.15	SW	774430.33	13154637.56
99	DD=623.16	TC, SW	774430.31	13154639.06
100	TC=624.02	PC	774442.26	13154644.67
101	TC=624.21	PC	774442.04	13154669.67
102	DD=623.50	TC, SW	774429.99	13154675.06
103	TC=624.16	PC	774436.49	13154675.12
104	TP=623.51	SW	774429.98	13154676.56
105	TC=623.84	PC	774436.81	13154639.12
106	TC=624.91		774483.41	13154740.14
107	TC=624.62	PC	774470.91	13154740.02
108	TC=624.30	PC	774465.95	13154734.98

GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
109	DD=624.90	TC, PC, SW	774487.88	13154713.78
110	DD=624.84	TC, SW	774492.87	13154715.64
111	DD=623.00	TC, SW	774429.42	13154738.57
112	TP=623.04	SW	774429.41	13154740.07
113	TC=623.76	PC	774436.42	13154738.63
114	TC=623.81	PC	774440.96	13154734.14
116	DD=622.96	TC, SW	774429.70	13154706.94
117	TC=623.61	PC	774432.90	13154707.56
118	TC=623.59	PC	774431.75	13154706.96
119	DD=624.46	TC, SW	774492.63	13154664.17
120	DD=624.52	TC, PC, SW	774487.74	13154665.71
121	TC=624.32	PC	774466.75	13154646.71
122	TC=624.32	PC	774466.72	13154644.39
123	TC=624.48	PC	774471.76	13154639.43
124	TC=624.59		774484.31	13154639.55
126	TC=624.37		774484.70	13154596.36
127	SW=624.45		774488.31	13154596.39
128	SW=624.38		774493.31	13154596.44
129	TC=624.57		774485.40	13154518.11
134	DD=623.61	TC, SW	774422.64	13154491.57
135	DD=623.61	TC, SW	774431.64	13154491.66
137	SW=624.64		774488.94	13154591.96
138	TP=623.00	SW	774429.72	13154705.44
139	TC=624.19	ME, PC	774508.82	13154638.91
140	TC=624.64	PC	774508.25	13154740.87
171	MH=623.02		774306.34	13154503.10
172	MH=622.38		774306.24	13154550.32
173	MH=622.13		774304.25	13154569.18
174	CB=621.60		774303.19	13154595.92
175	MH=623.27		774174.98	13154516.01
176	MH=623.03		774174.77	13154529.72
177	MH=622.31		774192.94	13154567.78
178	CB=621.80		774192.70	13154594.93
179	CB=622.00		774191.59	13154718.93
180	MH=623.30		774061.92	13154507.46
181	CB=623.10		774048.15	13154517.41
182	MH=623.32		774070.07	13154562.72
185	MH=623.14		774071.34	13154684.96
186	DD=623.74	TC, SW	774247.64	13154489.84
187	DD=623.61	TC, SW	774238.63	13154489.75
188	TC=624.32	PC	774148.50	13154488.86
189	SW=624.39	PC	774148.50	13154481.86
190	TC=624.32	PC	774129.13	13154485.01
191	SW=624.39	PC	774131.80	13154478.54
192	TC=624.18	PC, SW	774078.09	13154467.78
193	SW=624.25	PC, ME	774079.63	13154460.95
199	SW=624.22	ME	774086.40	13154462.57
200	SW=624.28	ME	774072.43	13154459.46
201	CB=622.00		774302.08	13154719.92
202	TC=622.59		774291.58	13154719.82
203	TC=623.05		774280.58	13154719.72
204	TC=623.54		774292.16	13154655.83
205	TC=623.71		774281.16	13154655.73
206	TC=622.21		774292.69	13154595.83
207	TC=622.75		774281.70	13154595.73
209	TC=624.12		774257.16	13154655.51
210	SW=623.70		774246.16	13154655.41
211	TC=623.03		774257.70	13154595.51
212	SW=622.70		774246.70	13154595.42
213	TC=623.35		774256.59	13154719.51
214	SW=623.00		774245.59	13154719.41
215	TP=622.87	SW	774246.87	13154575.92
216	TP=623.06	SW	774247.06	13154554.92
217	SW=622.57	TP	774237.70	13154595.33
218	SW=623.57	TP	774237.16	13154655.33
219	SW=622.87	TP	774236.59	13154719.18
222	TC=624.07	SW	774358.20	13154490.94
224	TP=623.20		774356.65	13154656.40
388	MH=623.47		774371.65	13154496.14
389	MH=624.41		774475.18	13154497.75
390	MH=624.46		774485.11	13154505.53
391	CB=623.28	TC	774071.06	13154586.12
532	TP=623.00		774120.09	13154718.29
533	TP=623.30		774120.66	13154654.29
534	TP=622.70		774121.20	13154594.29
535	TP=623.00		774192.14	13154654.93
536	TP=622.90		774302.66	13154655.92

GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
539	TP=623.00		774401.65	13154656.81
540	TP=622.80		774356.08	13154720.40
541	TP=622.70		774357.20	13154596.20
543	TC=624.14	SW	774226.65	13154489.64
544	TC=623.95	SW	774257.64	13154489.94
545	TC=624.28	SW	774446.64	13154491.81
546	TC=624.07	SW	774410.64	13154491.46
548	TC=624.57	SW	774469.13	13154492.03
549	TC=624.02		774110.75	13154532.70
550	TC=624.08		774101.75	13154532.61
551	DD=623.45	TC, PC, SW	774101.56	13154547.06
552	DD=623.40	TC, PC, SW	774096.49	13154552.00
553	DD=623.61	TC, PC, SW	774086.81	13154551.91
555	TC=623.95	PC	774078.82	13154524.34
557	TC=624.38	PC	774105.82	13154516.16
558	TC=624.32	PC	774110.87	13154521.22
559	DD=623.23	TC, PC, SW	774101.32	13154581.11
560	DD=623.11	TC, SW	774101.20	13154594.11
561	DD=623.16	TC, PC, SW	774101.09	13154607.11
563	DD=623.22	TC, PC, SW	774096.04	13154612.07
564	TC=623.52	PC	774087.04	13154611.99
566	TC=623.34	PC	774069.29	13154593.93
568	TC=623.63	PC	774087.35	13154575.99
569	DD=623.34	TC, PC, SW	774096.36	13154576.07
570	DD=623.54	TC, SW, PC	774100.78	13154641.11
571	DD=623.70	TC, SW	774100.66	13154654.11
572	DD=623.47	TC, SW, PC	774100.55	13154667.11
573	DD=623.33	TC, SW, PC	774095.49	13154672.06
576	CB=623.31	PC, TC	774072.25	13154658.29
578	TC=623.80	PC	774085.47	13154635.97
579	DD=623.50	TC, PC, SW	774095.83	13154636.07
581	DD=623.61	TC, PC, SW	774091.20	13154705.53
582	TC=624.07		774091.09	13154718.28
583	DD=623.61	TC, PC, SW	774090.98	13154731.03
585	DD=623.61	TC, PC, SW	774085.93	13154735.98
586	DD=623.61	TC, PC, SW	774067.04	13154735.81
588	DD=623.61	TC, PC, SW	774056.18	13154714.45
590	DD=623.61	TC, PC, SW	774086.29	13154700.48
633	MH=622.83		774174.73	13154541.71
634	SW=623.68		774431.71	13154484.66
635	SW=623.68		774422.71	13154484.57
636	SW=624.14		774358.27	13154483.94
637	TC=623.62	SW	774293.83	13154490.30
638	TC=623.47	SW	774276.74	13154490.13
639	SW=624.02		774257.71	13154482.94
640	SW=623.81		774247.71	13154482.84
641	SW=623.68		774238.72	13154482.76
642	SW=624.20		774226.72	13154482.64
643	SW=624.39		774193.81	13154482.31
644	TC=624.32	SW	774193.74	13154489.31
645	TC=624.15	SW	774084.69	13154469.35
646	TC=624.21	SW	774071.14	13154466.34
647	SW=624.35		774059.29	13154457.43
648	TC=624.27	SW	774058.44	13154464.37
649	SW=623.95		774046.92	13154456.29
650	DD=623.87	TC, SW	774046.49	13154463.28
651	DD=623.31	TC, SW	774070.96	13154702.83
652	MH=622.68		774328.83	13154550.19
653	TC=623.62		774442.69	13154597.17
654	TC=624.96		774486.75	13154665.85
655	TC=624.91		774493.54	13154663.75
656	TC=625.28		774493.75	13154716.10
657	TC=625.33		774486.90	13154713.59
706	TC=622.92		774287.25	13154553.77
708	TC=624.28		774442.15	13154657.17
709	TC=623.77		774440.87	13154728.77
710	SW=622.34		774430.69	13154597.06
711	SW=623.33		774430.15	13154657.06
712	SW=622.62		774429.58	13154721.06
713	SW=623.14	TP	774422.41	13154517.49
714	SW=622.59	TP	774422.06	13154556.48
715	SW=622.45	TP	774421.87	13154577.48
716	SW=622.24	TP	774421.69	13154596.98
717	SW=622.63	TP	774421.52	13154616.48
718	SW=623.01	TP	774421.33	13154637.48
719	SW=623.19	TP	774421.15	13154656.98
720	SW=623.37	TP	774420.98	13154676.48

GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
721	SW=622.86	TP	774420.72	13154705.36
722	SW=622.52	TP	774420.58	13154720.98
723	SW=622.90	TP	774420.41	13154739.99
730	SW=623.28	TP	774238.41	13154515.84
731	SW=622.93	TP	774238.06	13154554.84
732	SW=622.74	TP	774237.87	13154575.84
733	SW=622.89	TP	774237.52	13154614.83
734	SW=623.24	TP	774237.33	13154635.83
735	SW=623.36	TP	774236.98	13154674.83
736	SW=623.08	TP	774236.76	13154699.83
737	SW=623.10	TP	774236.41	13154738.83
745	TC=624.39	PC	774473.88	13154517.97
746	TC=624.32	PC	774468.94	13154512.92
747	TC=623.81	ME	774509.55	13154537.53
748	SW=624.29	PC	774489.11	13154497.22
750	TC=623.55	ME	774509.94	13154470.93
751	SW=624.11		774494.38	13154485.28
752	SW=624.14		774489.21	13154485.23
753	SW=624.14		774494.31	13154492.28
754	SW=624.30	PC	774484.16	13154492.18
755	SW=624.57		774494.06	13154518.01
758	SW=624.65		774487.95	13154640.28
759	SW=624.58		774492.87	13154640.33
760	SW=624.14		774410.71	13154484.46
765	SW=624.29		774446.71	13154484.81
766	SW=624.64		774469.20	13154485.03
767	SW=624.93		774492.63	13154740.22
768	SW=625.00		774487.64	13154740.11
769	DD=624.48	TC, SW, PC	774491.12	13154664.78
816	MH=623.41		774069.09	13154501.48
821	DD=623.75	TC, SW	774076.29	13154547.39
822	DD=623.71	TC, SW	774054.78	13154727.70
823	TC=624.92		774505.21	13154727.94
824	DD=624.25	TP, TC	774508.33	13154726.35
825	DD=623.96	TP, TC	774508.74	13154653.69
826	TC=624.63		774505.65	13154652.05
835	SW=624.56		774492.92	13154635.16
836	SW=624.63		774487.99	13154635.20
837	SW=624.98		774487.68	13154735.16
838	SW=624.91		774492.68	13154735.22
839	DD=623.47	TC, SW	774101.58	13154545.11
840	SW=623.66	PC	774086.91	13154544.91
841	SW=623.73	PC	774079.18	13154538.51
842	DD=623.65	TC, PC, SW	774072.09	13154538.45
843	DD=623.30	TC, SW	774094.36	13154576.05
844	DD=623.19	TC, SW	774094.04	13154612.05
845	DD=623.47	TC, SW	774093.83	13154636.05
846	SW=623.52	PC	774093.63	13154657.77
847	SW=623.38	PC	774088.59	13154662.73
848	SW=623.34		774086.34	13154662.71
849	DD=623.21	TC, SW	774083.03	13154668.88
850	DD=623.61	TC, SW	774091.19	13154707.51
851	SW=623.68	PC	774085.65	13154707.46
852	SW=623.68	PC	774061.87	13154718.53
853	SW=623.68	PC	774067.10	13154728.81
854	SW=623.68		774085.99	13154728.98
855	DD=623.61	TC, SW	774090.99	13154729.03
927	TC=624.05		774072.68	13154532.47
928	SW=623.80		774081.29	13154542.49
929	SW=623.47		774096.65	13154545.03
930	TC=623.97		774101.67	13154542.10
931	SW=623.30		774094.32	13154581.05
932	SW=623.18		774094.20	13154594.04
933	SW=623.23		774094.09	13154607.05
934	SW=623.55		774093.78	13154641.05
935	SW=623.59		774093.67	13154654.05
936	TC=623.47		774078.10	13154665.48
937	TC=624.07		774091.16	13154710.51
938	TC=624.00		774091.02	13154726.48
939	SW=623.38		774073.58	13154709.32
940	SW=623.78		774061.20	13154724.91
989	TC=624.69	ME	774508.06	13154743.06
990	DD=624.87	TC, SW, PC	774490.70	13154741.66
991	TC=624.30	PC	774465.98	13154731.20
1000	MH=623.59		774218.81	13154493.56
1001	MH=623.51		774218.66	13154502.50

RADIUS POINTS			
POINT	DESCRIPTION	NORTHING	EASTING
141	27.2' RADIUS (TC)	774481.63	13154639.31
142	18' RADIUS (TC)	774483.98	13154731.35
143	5.5' RADIUS (TC)	774437.84	13154524.62
144	5.5' RADIUS (TC)	774437.61	13154549.62
145	5.5' RADIUS (TC)	774437.30	13154584.62
146	5.5' RADIUS (TC)	774437.08	13154609.62
147	5.5' RADIUS (TC)	774436.76	13154644.62
148	5.5' RADIUS (TC)	774436.54	13154669.62
150	1.5' RADIUS (TC)	774431.69	13154708.46
151	4.5' RADIUS (TC)	774436.46	13154734.13
154	41.3' RADIUS (TC)	774399.71	13154732.15
155	5.5' RADIUS (TC)	774287.84	13154523.28
156	5.5' RADIUS (TC)	774287.62	13154548.28
157	5.5' RADIUS (TC)	774287.31	13154583.28
158	5.5' RADIUS (TC)	774287.08	13154608.28
159	5.5' RADIUS (TC)	774286.77	13154643.28
160	5.5' RADIUS (TC)	774286.55	13154668.28
161	5.5' RADIUS (TC)	774286.20	13154707.27

NOTE: POINTS 194 & 998 LOCATED ON SHEET C3.03

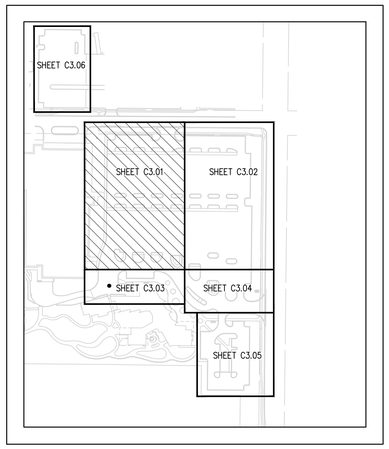
RADIUS POINTS			
POINT	DESCRIPTION	NORTHING	EASTING
162	5.5' RADIUS (TC)	774285.97	13154732.27
163	5.5' RADIUS (TC)	774252.85	13154522.97
164	5.5' RADIUS (TC)	774252.62	13154547.97
165	5.5' RADIUS (TC)	774252.31	13154582.97
166	5.5' RADIUS (TC)	774252.08	13154607.96
167	5.5' RADIUS (TC)	774251.77	13154642.96
168	5.5' RADIUS (TC)	774251.55	13154667.96
169	5.5' RADIUS (TC)	774251.20	13154706.96
170	5.5' RADIUS (TC)	774250.97	13154731.96
194	258.8' RADIUS (TC)	774021.25	13154720.29
196	50.8' RADIUS (TC)	774148.53	13154438.06
198	43.8' RADIUS (SW)	774148.53	13154438.06
393	5' RADIUS (TC)	774470.94	13154735.02
554	15.0' RADIUS (TC)	774087.01	13154536.91
556	50.4' RADIUS (TC)	774106.35	13154566.58
562	5.0' RADIUS (TC)	774096.09	13154607.07
565	17.9' RADIUS (TC)	774087.19	13154594.09
567	17.9' RADIUS (TC)	774087.19	13154593.89

RADIUS POINTS			
POINT	DESCRIPTION	NORTHING	EASTING
574	5.0' RADIUS (TC)	774095.55	13154667.06
575	26.9' RADIUS (TC)	774095.73	13154645.17
577	15.0' RADIUS (TC)	774085.34	13154650.97
580	5.0' RADIUS (TC)	774095.78	13154641.07
584	5.0' RADIUS (TC)	774085.98	13154730.98
587	13.5' RADIUS (TC)	774067.16	13154722.31
589	33.7' RADIUS (TC)	774083.57	13154734.07
591	5.0' RADIUS (TC)	774086.20	13154705.48
592	5.0' RADIUS (TC)	774096.62	13154547.00
593	5.0' RADIUS (TC)	774105.88	13154521.16
594	5.0' RADIUS (TC)	774096.32	13154581.07
756	5' RADIUS (TC)	774473.94	13154512.97
757	5' RADIUS (TC)	774471.73	13154644.43
941	5.0' RADIUS (SW)	774088.63	13154657.73
988	18' RADIUS (TC)	774484.66	13154647.97
992	28' RADIUS (TC)	774480.25	13154740.63
998	200' RADIUS (TC)	774034.17	13154662.90
1005	5' RADIUS (SW)	774484.11	13154497.18

GRADING LEGEND

CB – CATCH BASIN
DD – DUB DOWN (ADD 0.46' FOR FULL HEIGHT CURB)
FF – FINISH FLOOR ELEVATION
TP – TOP OF PAVEMENT
ME – MATCH EXISTING
PC – POINT OF CURVATURE
SW – TOP OF SIDEWALK
TC – TOP OF CURB
MH – MANHOLE RIM ELEVATION

PROPOSED SPILL CURB AND GUTTER
PROPOSED TRANSITIONAL CURB AND GUTTER
FLOW DIRECTION



SHEET KEY

Know what's **below.** **Call** before you dig.

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO. 1	12/26/24

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Saginaw, Michigan 48607
989 752 8107

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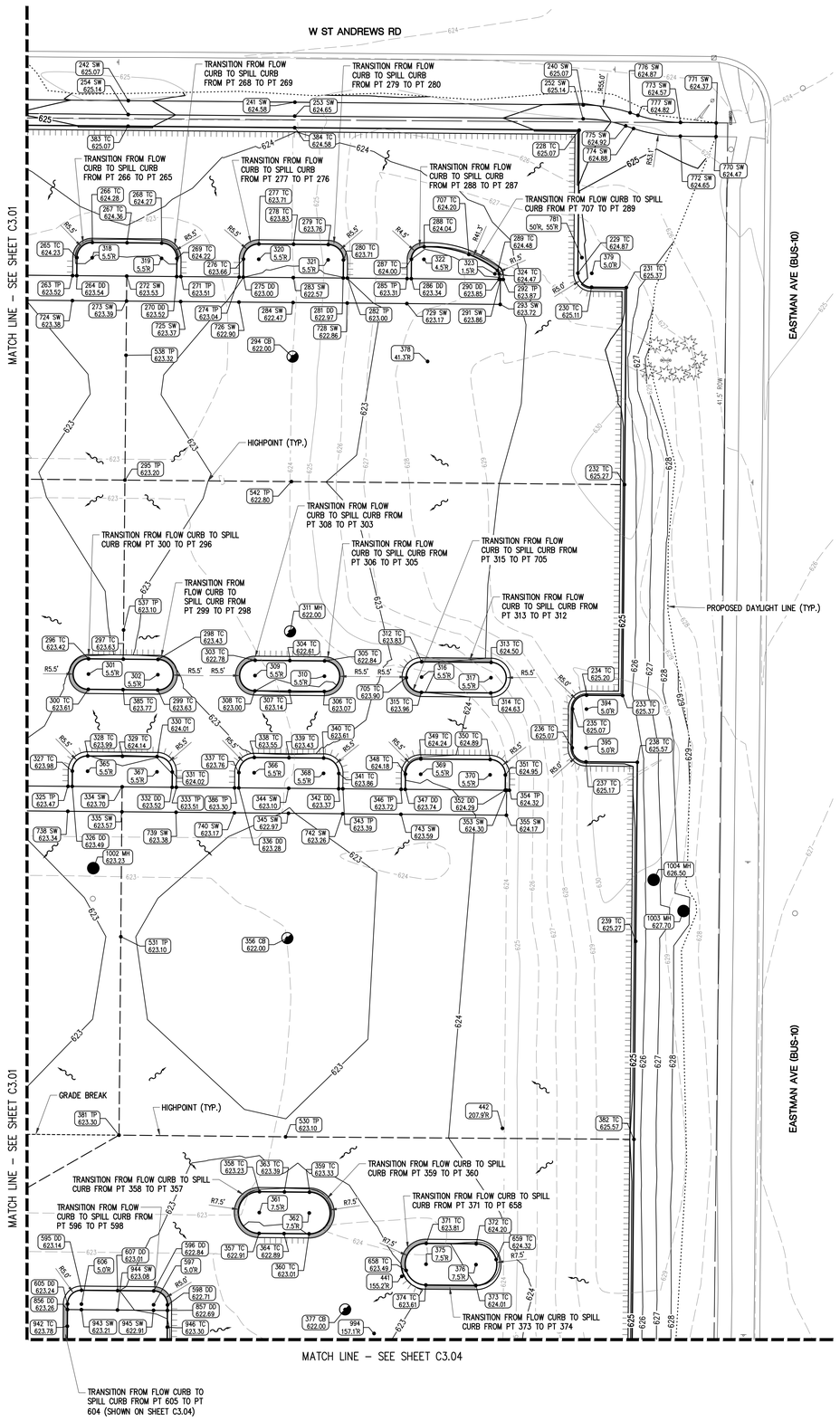
ROWE PROFESSIONAL SERVICES COMPANY

PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
CIVIL DETAILED GRADING PLAN

PROJECT NUMBER 2022022
SHEET NUMBER C3.01
PROJECT DATE JANUARY 9, 2025
CHECKED BY AJW



GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
228	TC=625.07		774481.58	13154944.03
229	TC=624.87	PC	774430.08	13154943.57
230	TC=625.11	PC	774425.04	13154948.53
231	TC=625.37		774424.93	13154961.04
232	TC=625.27		774353.91	13154960.39
233	TC=625.37		774277.93	13154959.70
234	TC=625.20	PC	774278.05	13154946.70
235	TC=625.07	PC	774273.10	13154941.66
236	TC=625.07	PC	774259.10	13154941.53
237	TC=625.17	PC	774254.05	13154946.49
238	TC=625.57		774253.89	13154964.99
239	TC=625.27		774189.39	13154964.41
240	SW=625.07	PC	774490.70	13154945.53
241	SW=624.58		774491.68	13154841.62
242	SW=625.07		774492.25	13154781.63
252	SW=625.14	PC	774485.71	13154945.49
253	SW=624.65		774486.68	13154841.58
254	SW=625.14		774487.25	13154781.58
263	TP=623.52	SW	774429.22	13154761.56
264	DD=623.54	TC, SW	774429.20	13154763.06
265	TC=624.23	PC	774435.70	13154763.12
266	TC=624.28	PC	774441.15	13154768.66
267	TC=624.36		774441.04	13154781.16
268	TC=624.27	PC	774440.93	13154793.66
269	TC=624.22	PC	774435.38	13154799.11
270	DD=623.52	TC, SW	774428.88	13154799.06
271	TP=623.51	SW	774428.87	13154800.56
272	SW=623.53		774429.04	13154781.06
273	SW=623.39	TP	774420.04	13154780.98
274	TP=623.04	SW	774428.68	13154821.55
275	DD=623.00	TC, SW	774428.66	13154823.05
276	TC=623.66	PC	774435.16	13154823.11
277	TC=623.71	PC	774440.61	13154828.66
278	TC=623.83		774440.50	13154841.16
279	TC=623.76	PC	774440.39	13154853.66
280	TC=623.71	PC	774434.84	13154859.11
281	DD=622.97	TC, SW	774428.34	13154859.05
282	TP=623.00	SW	774428.33	13154860.55
283	SW=622.57		774428.50	13154841.05
284	SW=622.47	TP	774419.50	13154840.97
285	TP=623.31	SW	774428.14	13154882.05
286	DD=623.34	TC, SW	774428.12	13154883.55
287	TC=624.00	PC	774435.12	13154883.61
288	TC=624.04	PC	774439.58	13154888.18
289	TC=624.48	PC	774431.04	13154914.61
290	DD=623.85	TC, SW	774427.84	13154915.18
291	SW=623.86		774427.83	13154915.68
292	TP=623.87		774427.83	13154916.68
293	SW=623.72	TP	774418.84	13154915.60
294	CB=622.00		774400.00	13154840.80
295	TP=623.20	HP	774355.54	13154780.40
296	TC=623.42	PC	774291.16	13154767.32
297	TC=623.63		774291.05	13154779.82
298	TC=623.43	PC	774290.93	13154792.32

GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
299	TC=623.63	PC	774279.93	13154792.22
300	TC=623.61	PC	774280.16	13154767.22
303	TC=622.78	PC	774290.62	13154827.32
304	TC=622.61		774290.51	13154839.82
305	TC=622.84	PC	774290.40	13154852.32
306	TC=623.07	PC	774279.40	13154852.22
307	TC=623.14		774279.51	13154839.72
308	TC=623.00	PC	774279.62	13154827.22
311	MH=622.00		774301.01	13154839.91
312	TC=623.83	PC	774290.08	13154887.32
313	TC=624.50	PC	774289.86	13154912.31
314	TC=624.63	PC	774278.86	13154912.22
315	TC=623.96	PC	774279.08	13154887.22
324	TC=624.47	PC	774429.83	13154915.20
325	TP=623.47	SW	774425.22	13154759.91
326	DD=623.49	TC, SW	774245.21	13154761.41
327	TC=623.98	PC	774250.71	13154761.46
328	TC=623.99	PC	774256.16	13154767.01
329	TC=624.14		774256.05	13154779.51
330	TC=624.01	PC	774255.94	13154792.01
331	TC=624.02	PC	774250.39	13154797.46
332	DD=623.52	TC, SW	774244.89	13154797.41
333	TP=623.51	SW	774244.87	13154798.91
334	SW=623.70		774245.05	13154779.41
335	SW=623.57	TP	774236.05	13154779.33
336	DD=623.28	TC, SW	774244.67	13154821.41
337	TC=623.76	PC	774250.17	13154821.46
338	TC=623.55	PC	774255.62	13154827.00
339	TC=623.43		774255.51	13154839.50
340	TC=623.61	PC	774255.40	13154852.00
341	TC=623.86	PC	774249.85	13154857.45
342	DD=623.37	TC, SW	774244.35	13154857.40
343	TP=623.39	SW	774244.34	13154858.90
344	SW=623.10		774244.51	13154839.41
345	SW=622.97	TP	774235.51	13154839.32
346	TP=623.72	SW	774244.15	13154879.90
347	DD=623.74	TC, SW	774244.13	13154881.40
348	TC=624.18	PC	774249.63	13154881.45
349	TC=624.24	PC	774255.08	13154887.00
350	TC=624.89	PC	774254.86	13154912.00
351	TC=624.95	PC	774249.31	13154917.45
352	DD=624.29	TC, SW	774243.81	13154917.40
353	SW=624.30		774243.81	13154917.90
354	TP=624.32		774243.80	13154918.90
355	SW=624.17	TP	774234.81	13154917.82
356	CB=622.00		774190.51	13154838.92
357	TC=622.91	PC	774084.17	13154828.74
358	TC=623.23	PC	774099.17	13154828.87
359	TC=623.33	PC	774099.00	13154846.87
360	TC=623.01	PC	774084.01	13154846.74
363	TC=623.39		774099.09	13154837.87
364	TC=622.89		774084.09	13154837.74
371	TC=623.81	PC	774080.56	13154888.94
372	TC=624.20	PC	774080.40	13154906.94

GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
373	TC=624.01	PC	774065.40	13154906.80
374	TC=623.61	PC	774065.56	13154888.80
377	CB=622.00		774056.76	13154859.75
381	TP=623.30		774119.55	13154778.28
382	TC=625.57		774118.03	13154963.77
383	TC=625.07		774483.04	13154781.54
384	TC=624.58		774482.50	13154841.54
385	TC=623.77		774280.05	13154779.72
386	TP=623.30	SW	774244.69	13154819.91
530	TP=623.10		774118.95	13154838.28
531	TP=623.10		774191.05	13154778.92
537	TP=623.10		774301.55	13154779.91
538	TP=623.32		774400.53	13154780.80
542	TP=622.80		774355.01	13154840.40
595	DD=623.14	TC, PC, SW	774063.67	13154764.78
596	DD=622.84	TC, PC, SW	774063.44	13154790.78
598	DD=622.71	TC, PC, SW	774058.39	13154795.74
605	DD=623.24	TC, PC, SW	774058.72	13154759.74
607	DD=623.01	TC, SW	774063.56	13154777.78
658	TC=623.49		774070.80	13154881.72
659	TC=624.32		774074.74	13154914.14
705	TC=623.90		774284.38	13154881.77
707	TC=624.20		774436.84	13154904.28
724	SW=623.38	TP	774420.22	13154761.48
725	SW=623.37	TP	774419.87	13154800.47
726	SW=622.90	TP	774419.68	13154821.47
728	SW=622.86	TP	774419.33	13154860.47
729	SW=623.17	TP	774419.14	13154881.97
738	SW=623.34	TP	774236.22	13154759.83
739	SW=623.38	TP	774235.87	13154798.83
740	SW=623.17	TP	774235.69	13154819.83
742	SW=623.26	TP	774235.34	13154858.82
743	SW=623.59	TP	774235.15	13154879.82
770	SW=624.47	ME	774479.29	13154993.34
771	SW=624.37	ME	774484.22	13154993.39
772	SW=624.65	PC	774479.45	13154980.49
773	SW=624.57	PC	774484.40	13154980.54
774	SW=624.88	PC	774482.21	13154963.62
775	SW=624.92	PC	774483.15	13154960.81
776	SW=624.87	PC	774487.89	13154962.39
777	SW=624.82	PC	774486.96	13154965.20
856	DD=623.26	TC, SW	774056.72	13154759.72
857	DD=622.69	TC, SW	774056.39	13154795.72
942	TC=623.78		774050.72	13154759.67
943	SW=623.21		774056.67	13154764.72
944	SW=623.08		774056.56	13154777.72
945	SW=622.91		774056.44	13154790.72
946	TC=623.30		774050.39	13154795.66
1002	MH=623.23		774215.73	13154769.02
1003	MH=627.70		774200.30	13154981.64
1004	MH=626.50		774211.53	13154970.87

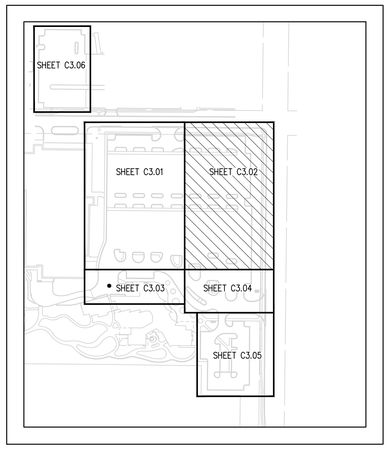
RADIUS POINTS			
POINT	DESCRIPTION	NORTHING	EASTING
301	5.5' RADIUS (TC)	774285.66	13154767.27
302	5.5' RADIUS (TC)	774285.43	13154792.27
309	5.5' RADIUS (TC)	774285.12	13154827.27
310	5.5' RADIUS (TC)	774284.90	13154852.27
316	5.5' RADIUS (TC)	774284.58	13154887.27
317	5.5' RADIUS (TC)	774284.36	13154912.27
318	5.5' RADIUS (TC)	774435.65	13154768.62
319	5.5' RADIUS (TC)	774435.43	13154793.61
320	5.5' RADIUS (TC)	774435.11	13154828.61
321	5.5' RADIUS (TC)	774434.89	13154853.61
322	4.5' RADIUS (TC)	774435.08	13154888.11
323	1.5' RADIUS (TC)	774429.85	13154913.70
361	7.5' RADIUS (TC)	774091.67	13154828.81
362	7.5' RADIUS (TC)	774091.50	13154846.81
365	5.5' RADIUS (TC)	774250.66	13154766.96
366	5.5' RADIUS (TC)	774250.12	13154826.96
367	5.5' RADIUS (TC)	774250.44	13154791.96
368	5.5' RADIUS (TC)	774249.90	13154851.95
369	5.5' RADIUS (TC)	774249.58	13154886.95
370	5.5' RADIUS (TC)	774249.36	13154911.95

NOTES:
1) POINT 780 NOT SHOWN ON SHEET.

RADIUS POINTS			
POINT	DESCRIPTION	NORTHING	EASTING
375	5.5' RADIUS (TC)	774073.06	13154888.87
376	7.5' RADIUS (TC)	774072.90	13154906.87
378	41.3' RADIUS (TC)	774398.30	13154889.44
379	5.0' RADIUS (TC)	774430.04	13154948.57
394	5.0' RADIUS (TC)	774273.05	13154946.66
395	5.0' RADIUS (TC)	774259.05	13154946.53
441	155.2' RADIUS (TC)	774068.67	13154880.14
597	5.0' RADIUS (TC)	774058.44	13154790.74
606	5.0' RADIUS (TC)	774058.67	13154764.74
780	48.1' AND 53.1' RADIUS (SW)	774534.40	13154980.99
781	50' AND 55' RADIUS (SW)	774435.71	13154945.02

GRADING LEGEND

CB – CATCH BASIN
DD – DUB DOWN (ADD 0.46' FOR FULL HEIGHT CURB)
FF – FINISH FLOOR ELEVATION
TP – TOP OF PAVEMENT
ME – MATCH EXISTING
PC – POINT OF CURVATURE
SW – TOP OF SIDEWALK
TC – TOP OF CURB
MH – MANHOLE RIM ELEVATION
PROPOSED SPILL CURB AND GUTTER
PROPOSED TRANSITIONAL CURB AND GUTTER
FLOW DIRECTION



SHEET KEY

Know what's **below.** **Call** before you dig.

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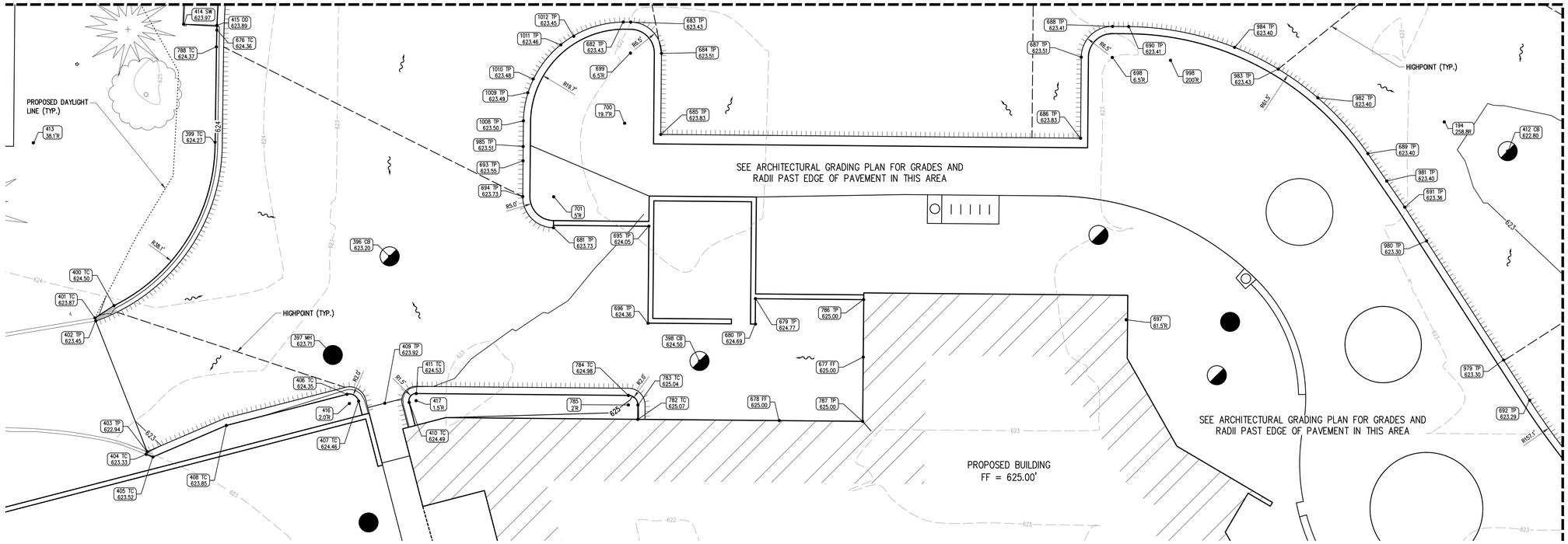
PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
CIVIL DETAILED GRADING PLAN

PROJECT NUMBER: 2022022
PROJECT DATE: JANUARY 9, 2025
CHECKED BY: AJW
SHEET NUMBER: C3.02



GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
396	CB=623.20		773993.04	13154499.22
397	MH=623.71		773972.35	13154487.31
398	CB=624.50		773971.08	13154564.19
399	TC=624.27	PC	774017.00	13154462.63
400	TC=624.50	PC	773982.71	13154441.44
401	TC=623.87	ME	773980.12	13154437.45
402	TP=623.45	ME	773979.48	13154437.62
403	TP=622.94	ME	773952.07	13154448.40
404	TC=623.33	ME	773951.51	13154448.17
405	TC=623.52		773950.95	13154449.59
406	TC=624.35	PC	773964.11	13154490.28
407	TC=624.46	PC	773962.67	13154492.72
408	TC=623.85		773957.58	13154464.99
409	TP=623.92		773962.23	13154498.20
410	TC=624.49	PC	773962.40	13154503.31
411	TC=624.53	PC	773964.27	13154504.78
412	CB=622.80		774015.11	13154733.58
414	SW=623.97		774041.75	13154456.04
415	DD=623.89	TC, SW	774041.50	13154463.03
676	TC=624.36		774040.50	13154463.00
677	FF=625.00	TP	773971.91	13154598.49
678	FF=625.00	TP	773958.59	13154580.90
679	TP=624.77		773984.17	13154575.90
680	TP=624.69		773978.84	13154575.89
681	TP=623.73	PC	773999.05	13154533.55
682	TP=623.43	PC	774042.20	13154548.18
683	TP=623.43	PC	774042.18	13154549.76
684	TP=623.51	PC	774035.62	13154556.20
685	TP=623.83		774018.62	13154556.05

GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
686	TP=623.83		774017.83	13154644.04
687	TP=623.51	PC	774034.83	13154644.20
688	TP=623.41	PC	774041.27	13154650.75
689	TP=623.40	PC	774014.59	13154704.28
690	TP=623.41	PC	774041.24	13154654.16
691	TP=623.36		774003.37	13154711.99
692	TP=623.29		773962.86	13154738.20
693	TP=623.55		774013.09	13154527.17
694	TP=623.73	PC	774005.59	13154527.12
695	TP=624.05		773999.37	13154553.56
696	TP=624.36		773979.03	13154553.38
782	TC=625.07		773958.85	13154551.23
783	TC=625.04	PC	773961.85	13154551.26
784	TC=624.98	PC	773963.87	13154549.28
786	TP=625.00		773983.96	13154598.57
787	TP=625.00		773958.43	13154598.37
788	TC=624.37	PC	774036.99	13154462.92
979	TP=623.30		773971.29	13154732.72
980	TP=623.30		773996.26	13154716.59
981	TP=623.40		774008.84	13154708.23
982	TP=623.40		774026.30	13154693.79
983	TP=623.43		774032.33	13154685.49
984	TP=623.40		774036.88	13154676.35
985	TP=623.51		774016.09	13154527.20
1008	TP=623.50	PC	774021.48	13154527.26
1009	TP=623.49		774027.38	13154528.17
1010	TP=623.48		774030.26	13154529.32
1011	TP=623.46		774037.42	13154535.11
1012	TP=623.45		774039.22	13154537.82

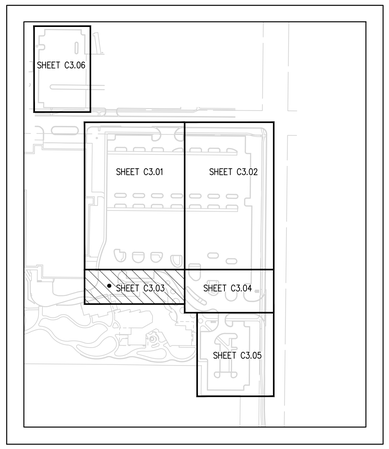
RADIUS POINTS			
POINT	DESCRIPTION	NORTHING	EASTING
194	258.8' RADIUS (TC)	774021.25	13154720.29
413	38.1' RADIUS (TC)	774016.86	13154424.53
416	2.0' RADIUS (TC)	773962.17	13154490.78
417	1.5' RADIUS (TC)	773962.77	13154504.76
697	61.5' RADIUS (TP)	773979.74	13154653.60
698	6.5' RADIUS (TP)	774034.77	13154650.70
699	6.5' RADIUS (TP)	774035.68	13154549.70
700	19.7' RADIUS (TP)	774020.97	13154548.48
701	5' RADIUS (TP)	774005.54	13154533.61
785	2' RADIUS (TC)	773961.87	13154549.26
994	157.1' RADIUS (TP)	774048.11	13154870.16

NOTE: POINT 994 SHOWN ON SHEET C3.02

GRADING LEGEND

CB – CATCH BASIN
DD – DUB DOWN (ADD 0.46' FOR FULL HEIGHT CURB)
FF – FINISH FLOOR ELEVATION
TP – TOP OF PAVEMENT
ME – MATCH EXISTING
PC – POINT OF CURVATURE
SW – TOP OF SIDEWALK
TC – TOP OF CURB
MH – MANHOLE RIM ELEVATION

PROPOSED SPILL CURB AND GUTTER
PROPOSED TRANSITIONAL CURB AND GUTTER
FLOW DIRECTION



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PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

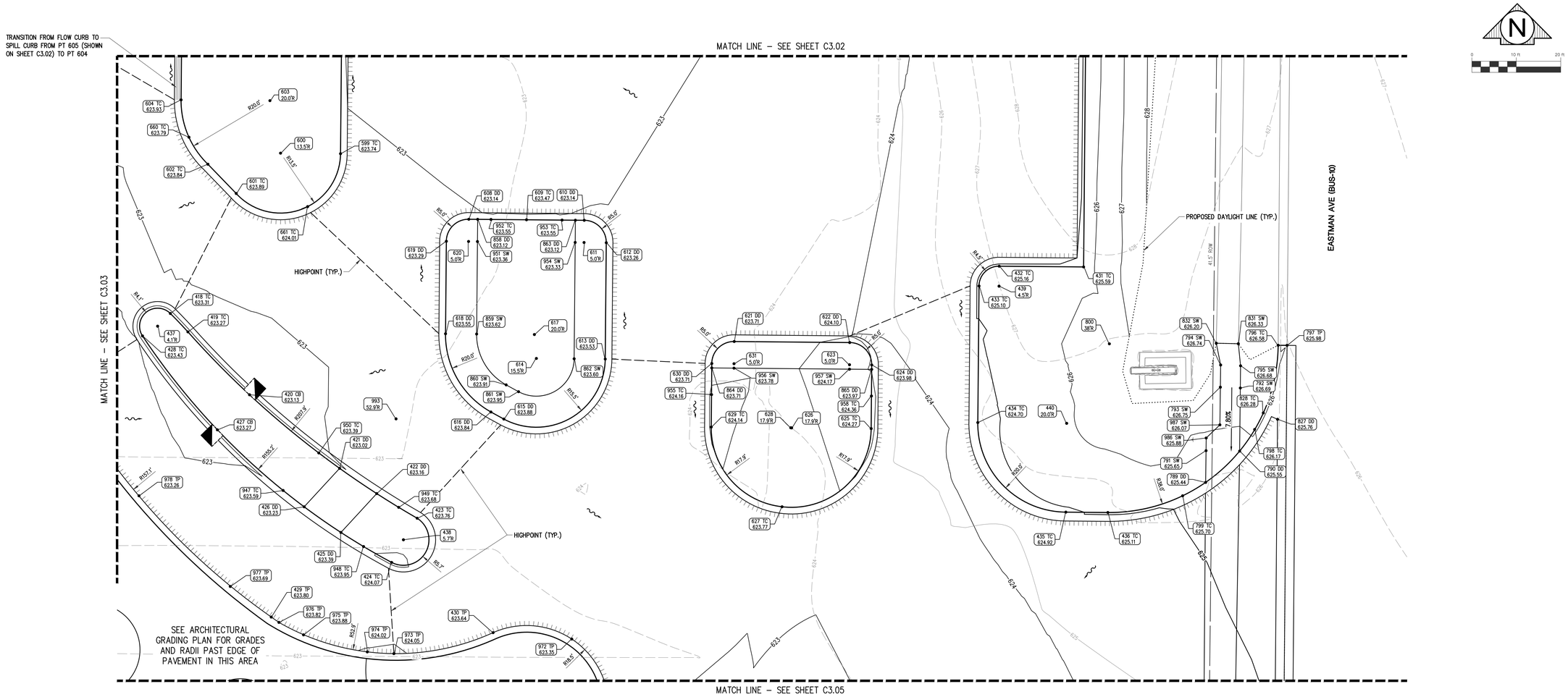
SHEET TITLE
CIVIL DETAILED GRADING PLAN

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 9, 2025

CHECKED BY
AJW

SHEET NUMBER
C3.03



GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
418	TC=623.31	PC	773987.91	13154757.12
419	TC=623.27		773983.77	13154761.07
420	CB=623.13	TC	773969.60	13154774.95
421	DD=623.02	TC, SW	773953.03	13154795.22
422	DD=623.16	TC, SW	773947.34	13154803.58
423	TC=623.76	PC	773941.79	13154812.67
424	TC=624.07	PC	773931.84	13154806.92
425	DD=623.39	TC, SW	773938.59	13154795.52
426	DD=623.23	TC, SW	773944.36	13154787.24
427	CB=623.27	TC	773961.70	13154767.71
428	TC=623.43	PC	773982.86	13154750.84
429	TP=623.80		773919.54	13154779.83
430	TP=623.64	PC	773916.02	13154829.76
431	TC=625.59		773998.40	13154962.71
432	TC=625.16	PC	773998.57	13154943.71
433	TC=625.10	PC	773994.11	13154939.17
434	TC=624.70	PC	773963.35	13154938.89
435	TC=624.92	PC	773943.17	13154958.71
436	TC=625.11	PC	773943.08	13154968.17
599	TC=623.74	PC	774023.91	13154795.43
601	TC=623.89	PC	774014.94	13154771.94
602	TC=623.84	PC	774021.53	13154765.57
604	TC=623.93	PC	774036.03	13154759.53
608	DD=623.14	TC, PC, SW	774009.14	13154824.30
609	TC=623.47		774009.02	13154837.30
610	DD=623.14	TC, PC, SW	774008.90	13154850.30
612	DD=623.26	TC, PC, SW	774003.86	13154855.25
613	DD=623.53	TC, PC, SW	773977.65	13154855.02
615	DD=623.88	TC, PC, SW	773964.13	13154832.19

GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
616	DD=623.84	TC, PC, SW	773965.72	13154829.29
618	DD=623.55	TC, PC, SW	773983.35	13154819.07
619	DD=623.29	TC, PC, SW	774004.18	13154819.25
621	DD=623.71	TC, PC, SW	773981.60	13154884.05
622	DD=624.10	TC, PC, SW	773981.37	13154910.05
624	DD=623.98	TC, PC, SW	773976.32	13154915.01
625	TC=624.27	PC	773961.99	13154914.88
627	TC=623.77	PC	773944.38	13154894.82
629	TC=624.14	PC	773962.33	13154878.88
630	DD=623.71	TC, PC, SW	773976.65	13154879.01
660	TC=623.79		774027.62	13154761.31
661	TC=624.01		774011.98	13154788.02
789	DD=625.44	TC, SW	773949.87	13154990.18
790	DD=625.55	TC, SW	773956.91	13154997.83
791	SW=625.65		773957.01	13154990.27
792	SW=626.69		773971.13	13154997.98
793	SW=626.75		773971.31	13154993.49
794	SW=626.74		773976.31	13154993.56
795	SW=626.68		773976.13	13154998.04
796	TC=626.58	ME	773980.75	13155006.50
797	TP=625.98	ME	773980.73	13155008.50
798	TC=626.17		773961.80	13155001.21
799	TC=625.70		773946.85	13154984.99
827	DD=625.76	TP, TC	773964.07	13155006.36
828	TC=626.28		773965.51	13155003.17
831	SW=626.33	ME	773981.10	13154997.53
832	SW=626.20	ME	773981.21	13154992.57
858	DD=623.12	TC, SW	774009.12	13154826.30
859	SW=623.62	PC	773983.29	13154826.06

GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
860	SW=623.91	PC	773971.83	13154832.71
861	SW=623.95	PC	773970.30	13154835.50
862	SW=623.60	PC	773977.71	13154848.02
863	DD=623.12	TC, SW	774008.92	13154848.30
864	DD=623.71	TC, SW	773975.65	13154879.00
865	DD=623.97	TC, SW	773975.32	13154915.00
947	TC=623.59		773948.05	13154782.51
948	TC=623.95		773935.41	13154800.61
949	TC=623.68		773944.25	13154808.52
950	TC=623.39		773956.50	13154790.53
951	SW=623.36		774004.12	13154826.25
952	TC=623.55		774009.09	13154829.30
953	TC=623.55		774008.95	13154845.30
954	SW=623.33		774003.92	13154848.25
955	TC=624.16		773969.64	13154878.94
956	SW=623.78		773975.60	13154884.00
957	SW=624.17		773975.37	13154910.00
958	TC=624.36		773969.32	13154914.94
972	TP=623.35		773914.58	13154847.48
973	TP=624.05		773911.30	13154807.44
974	TP=624.02		773911.68	13154801.45
975	TP=623.88		773915.52	13154787.10
976	TP=623.82		773918.34	13154781.56
977	TP=623.69		773926.43	13154770.60
978	TP=623.26		773946.85	13154750.06
986	SW=625.88		773959.87	13154990.31
987	SW=626.07		773962.83	13154993.38

RADIUS POINTS			
POINT	DESCRIPTION	NORTHING	EASTING
437	4.1' RADIUS (TC)	773985.05	13154754.25
438	5.7' RADIUS (TC)	773936.94	13154809.59
439	4.5' RADIUS (TC)	773994.07	13154943.67
440	20.0' RADIUS (TC)	773963.17	13154958.89
441	155.2' RADIUS (TC)	774068.67	13154880.14
442	207.9' RADIUS (TC)	774122.01	13154916.41
600	13.5' RADIUS (TC)	774024.03	13154781.93
603	20.0' RADIUS (TC)	774035.85	13154779.53
611	5.0' RADIUS (TC)	774003.90	13154850.25
614	15.5' RADIUS (TC)	773977.79	13154839.52
617	20.0' RADIUS (TC)	773983.17	13154839.06
620	5.0' RADIUS (TC)	774004.14	13154824.25
623	5.0' RADIUS (TC)	773976.37	13154910.01
626	17.9' RADIUS (TC)	773962.15	13154896.98
628	17.9' RADIUS (TC)	773962.17	13154896.78
631	5.0' RADIUS (TC)	773976.60	13154884.01
800	38' RADIUS (TC)	773981.08	13154968.50
993	52.9' RADIUS (TP)	773964.18	13154807.92
994	157.1' RADIUS (TP)	774048.11	13154870.16
996	18.5' RADIUS (TP)	773899.13	13154837.31

NOTE:
1) POINTS 441, 442, AND 994 SHOWN ON SHEET C3.02.
2) POINT 996 SHOWN ON SHEET C3.05.

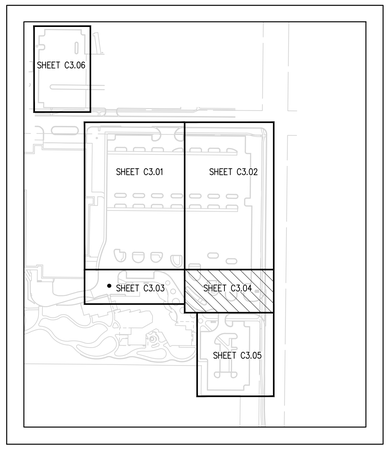
GRADING LEGEND

CB – CATCH BASIN
DD – DUB DOWN (ADD 0.46' FOR FULL HEIGHT CURB)
FF – FINISH FLOOR ELEVATION
TP – TOP OF PAVEMENT
ME – MATCH EXISTING
PC – POINT OF CURVATURE
SW – TOP OF SIDEWALK
TC – TOP OF CURB
MH – MANHOLE RIM ELEVATION

PROPOSED SPILL CURB AND GUTTER

PROPOSED TRANSITIONAL CURB AND GUTTER

FLOW DIRECTION



SHEET KEY

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PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

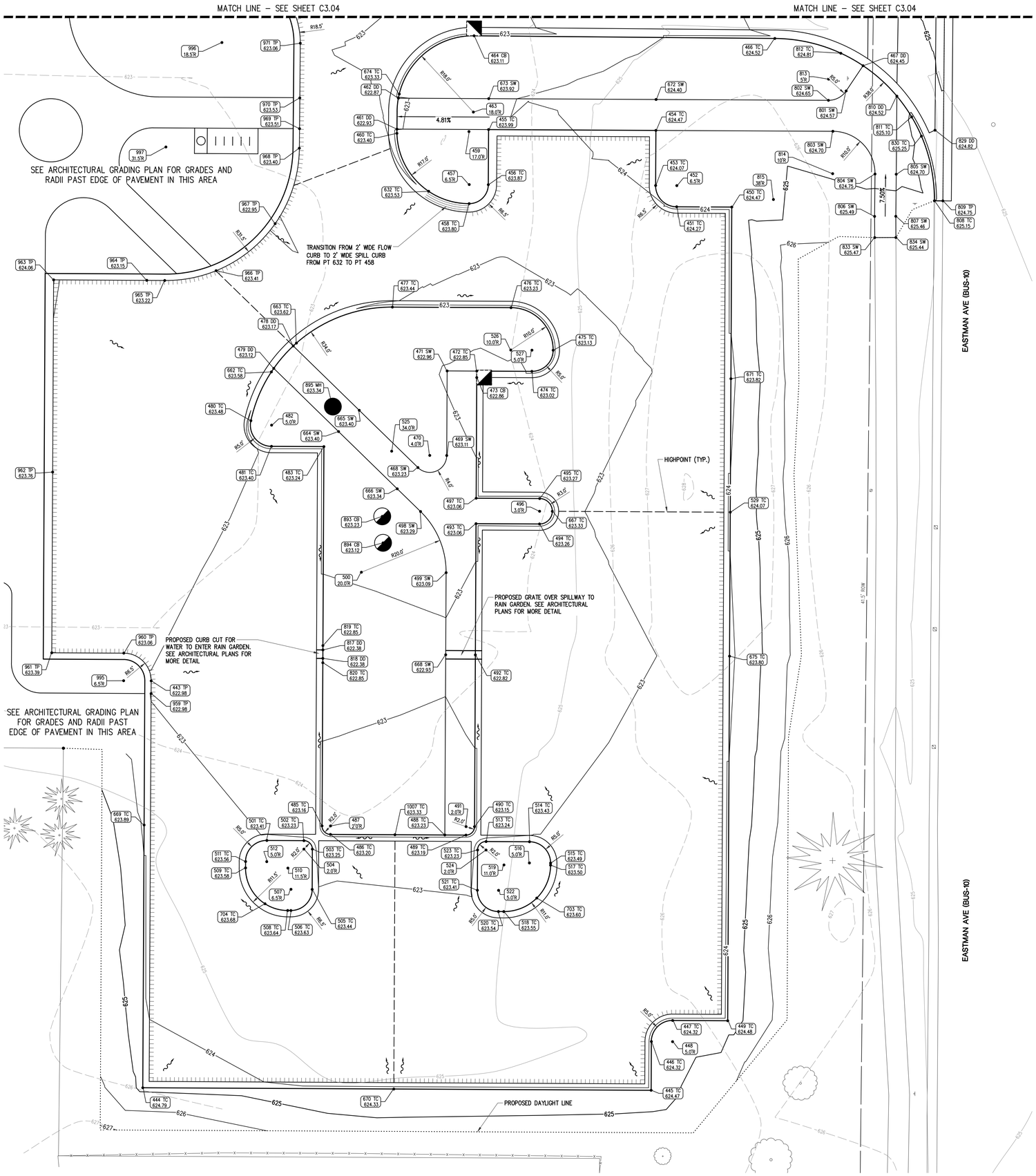
SHEET TITLE
CIVIL DETAILED GRADING PLAN

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 9, 2025

CHECKED BY
AJW

SHEET NUMBER
C3.04



GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
443	TP=622.98	PC	773748.51	13154820.61
444	TC=624.79		773652.49	13154818.63
445	TC=624.47		773651.89	13154938.63
446	TC=624.32	PC	773663.39	13154938.69
447	TC=624.32	PC	773668.37	13154943.71
449	TC=624.48		773668.30	13154956.71
450	TC=624.47		773860.30	13154957.67
451	TC=624.27	PC	773860.36	13154944.67
453	TC=624.07	PC	773865.39	13154939.69
454	TC=624.47		773878.39	13154939.76
455	TC=623.99		773878.59	13154900.26
456	TC=623.87	PC	773865.59	13154900.19
458	TC=623.80	PC	773861.11	13154895.67
460	TC=623.40	PC	773877.70	13154878.62
461	DD=622.93	TC, SW	773878.70	13154878.63
462	DD=622.87	TC, SW	773886.00	13154878.97
464	CB=623.11	PC, TC	773900.72	13154896.83
466	TC=624.52	PC	773900.08	13154967.84
467	DD=624.45	TC, SW	773893.65	13154988.66
468	SW=623.23	PC	773798.84	13154883.58
469	SW=623.11	PC	773801.68	13154890.38
471	SW=622.96		773821.63	13154890.47
472	TC=622.85	SW	773821.60	13154897.47
473	CB=622.86	TC	773820.07	13154897.47
474	TC=623.02	PC	773821.53	13154910.47
475	TC=623.13	PC	773826.51	13154915.50
476	TC=623.23	PC	773836.56	13154905.55
477	TC=623.44	PC	773836.70	13154877.55
478	DD=623.17	TC, SW	773827.53	13154854.15
479	DD=623.12	TC, SW	773822.24	13154849.55
480	TC=623.48	PC	773809.90	13154844.15
481	TC=623.40	PC	773803.84	13154849.01
483	TC=623.24		773803.78	13154861.39
485	TC=623.16	PC	773714.28	13154860.94
486	TC=623.20	PC	773712.27	13154862.93
488	TC=623.23	SW	773712.14	13154889.93
489	TC=623.19	PC, SW	773712.11	13154894.93
490	TC=623.15	PC, SW	773714.10	13154896.94
492	TC=622.82	SW	773754.63	13154897.14
493	TC=623.06	SW	773785.60	13154897.30
494	TC=623.26	PC, SW	773785.53	13154912.28
495	TC=623.27	PC, SW	773791.53	13154912.31
497	TC=623.06	SW	773791.60	13154897.33
498	SW=623.29	PC	773788.46	13154884.20
499	SW=623.09	PC	773774.04	13154890.24
501	TC=623.41	PC	773710.85	13154847.92
502	TC=623.23	PC	773710.80	13154856.67
503	TC=623.25	PC	773708.79	13154858.66
505	TC=623.44	PC	773699.29	13154858.61
506	TC=623.63	PC	773694.32	13154853.59
508	TC=623.64	PC	773694.32	13154852.84
509	TC=623.58	PC	773704.37	13154842.89
511	TC=623.56	PC	773705.87	13154842.90
513	TC=623.24	PC	773710.59	13154899.67
514	TC=623.43	PC	773710.54	13154909.92
515	TC=623.49	PC	773705.51	13154914.90
517	TC=623.50	PC	773705.01	13154914.89
518	TC=623.55	PC	773694.07	13154903.84

GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
520	TC=623.54	PC	773694.07	13154902.59
521	TC=623.41	PC	773699.10	13154897.61
523	TC=623.23	PC	773708.60	13154897.66
529	TC=624.07		773788.30	13154957.31
632	TC=623.53		773864.02	13154886.11
662	TC=623.58		773821.41	13154848.99
663	TC=623.62		773828.20	13154854.89
664	SW=623.40		773807.33	13154864.85
665	SW=623.40		773812.34	13154869.73
666	SW=623.34		773793.82	13154878.70
667	TC=623.33	SW	773788.51	13154915.30
668	SW=622.93		773754.66	13154890.14
669	TC=623.89		773714.49	13154818.94
670	TC=624.33		773652.20	13154877.88
671	TC=623.82		773819.80	13154957.47
672	SW=624.40		773885.69	13154939.79
673	SW=623.92		773885.89	13154900.30
674	TC=623.33		773886.97	13154879.18
675	TC=623.80		773754.33	13154957.14
703	TC=623.60		773697.25	13154911.63
704	TC=623.68		773695.91	13154847.49
801	SW=624.57	PC	773887.70	13154984.67
802	SW=624.65	PC	773885.49	13154980.49
803	SW=624.70	PC	773878.18	13154981.53
804	SW=624.75	PC	773868.10	13154991.48
805	SW=624.70		773868.05	13154996.48
806	SW=625.49		773858.10	13154991.38
807	SW=625.46		773858.12	13154996.39
808	TC=625.15	ME	773861.78	13155005.50
809	TP=624.75	ME	773861.76	13155007.50
810	DD=624.52	TC, SW	773886.47	13154996.64
811	TC=625.10		773881.56	13155000.13
812	TC=624.81		773896.60	13154983.40
817	DD=622.38	TC	773755.81	13154861.15
818	DD=622.38	TC	773753.81	13154861.14
819	TC=622.85		773756.83	13154861.15
820	TC=622.85		773752.78	13154861.13
829	DD=624.82	TP, TC	773878.43	13155005.64
830	TC=625.25		773877.03	13155002.44
833	SW=625.47	ME	773853.10	13154991.42
834	SW=625.44	ME	773853.12	13154996.41
893	CB=623.23		773787.31	13154875.16
894	CB=623.12		773781.06	13154875.35
895	MH=623.34		773813.22	13154863.50
959	TP=622.98		773745.51	13154820.59
960	TP=623.06	PC	773755.04	13154814.14
961	TP=623.39		773755.13	13154797.14
962	TP=623.76		773797.77	13154797.35
963	TP=624.06		773843.13	13154797.58
964	TP=623.15		773843.02	13154819.58
965	TP=623.22	PC	773842.98	13154823.81
966	TP=623.41		773845.29	13154835.94
967	TP=622.95		773856.38	13154849.87
968	TP=623.40	PC	773874.20	13154855.59
969	TP=623.51		773878.80	13154855.63
970	TP=623.53		773886.04	13154855.70
971	TP=623.06	PC	773898.96	13154855.81
1007	TC=623.33		773712.19	13154878.15

RADIUS POINTS			
POINT	DESCRIPTION	NORTHING	EASTING
448	5.0' RADIUS (TC)	773663.37	13154943.69
452	6.5' RADIUS (TC)	773865.36	13154944.69
457	6.5' RADIUS (TC)	773865.61	13154895.69
459	17.0' RADIUS (TC)	773878.11	13154895.63
463	18.0' RADIUS (TC)	773882.72	13154896.67
470	4.0' RADIUS (SW)	773801.70	13154886.38
482	5.0' RADIUS (TC)	773808.84	13154849.04
487	2.0' RADIUS (TC)	773714.27	13154862.94
491	2.0' RADIUS (TC)	773714.11	13154894.94
496	3.0' RADIUS (TC)	773788.53	13154912.30
500	20.0' RADIUS (SW)	773774.14	13154870.24
504	2.0' RADIUS (TC)	773708.80	13154856.66
507	6.5' RADIUS (TC)	773699.32	13154853.61
510	11.5' RADIUS (TC)	773704.32	13154852.89
512	5.0' RADIUS (TC)	773705.85	13154847.90
516	5.0' RADIUS (TC)	773705.54	13154909.90
519	11.0' RADIUS (TC)	773705.07	13154903.89
522	5.0' RADIUS (TC)	773699.07	13154902.61
524	2.0' RADIUS (TC)	773708.59	13154899.66
525	34.0' RADIUS (TC)	773802.70	13154877.38
526	10.0' RADIUS (TC)	773826.56	13154905.50
527	5.0' RADIUS (TC)	773826.53	13154910.50
813	5' RADIUS (SW)	773890.49	13154980.51
814	10' RADIUS (SW)	773868.18	13154981.48
815	38' RADIUS (TC)	773862.09	13154967.50
995	6.5' RADIUS (TP)	773748.54	13154814.11
996	18.5' RADIUS (TP)	773899.13	13154837.31
997	31.5' RADIUS (TP)	773874.48	13154824.09

GRADING LEGEND

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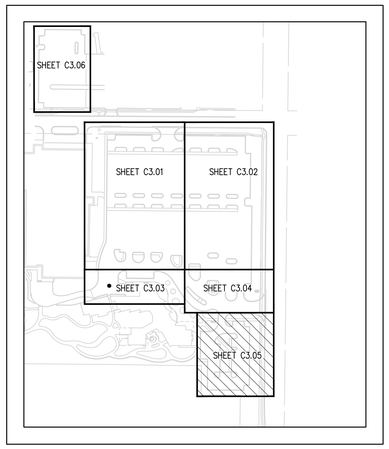
MH – MANHOLE RIM ELEVATION

PROPOSED SPILL CURB AND GUTTER
PROPOSED TRANSITIONAL CURB AND GUTTER
FLOW DIRECTION



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NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
CIVIL DETAILED GRADING PLAN

PROJECT NUMBER
2022022

PROJECT DATE
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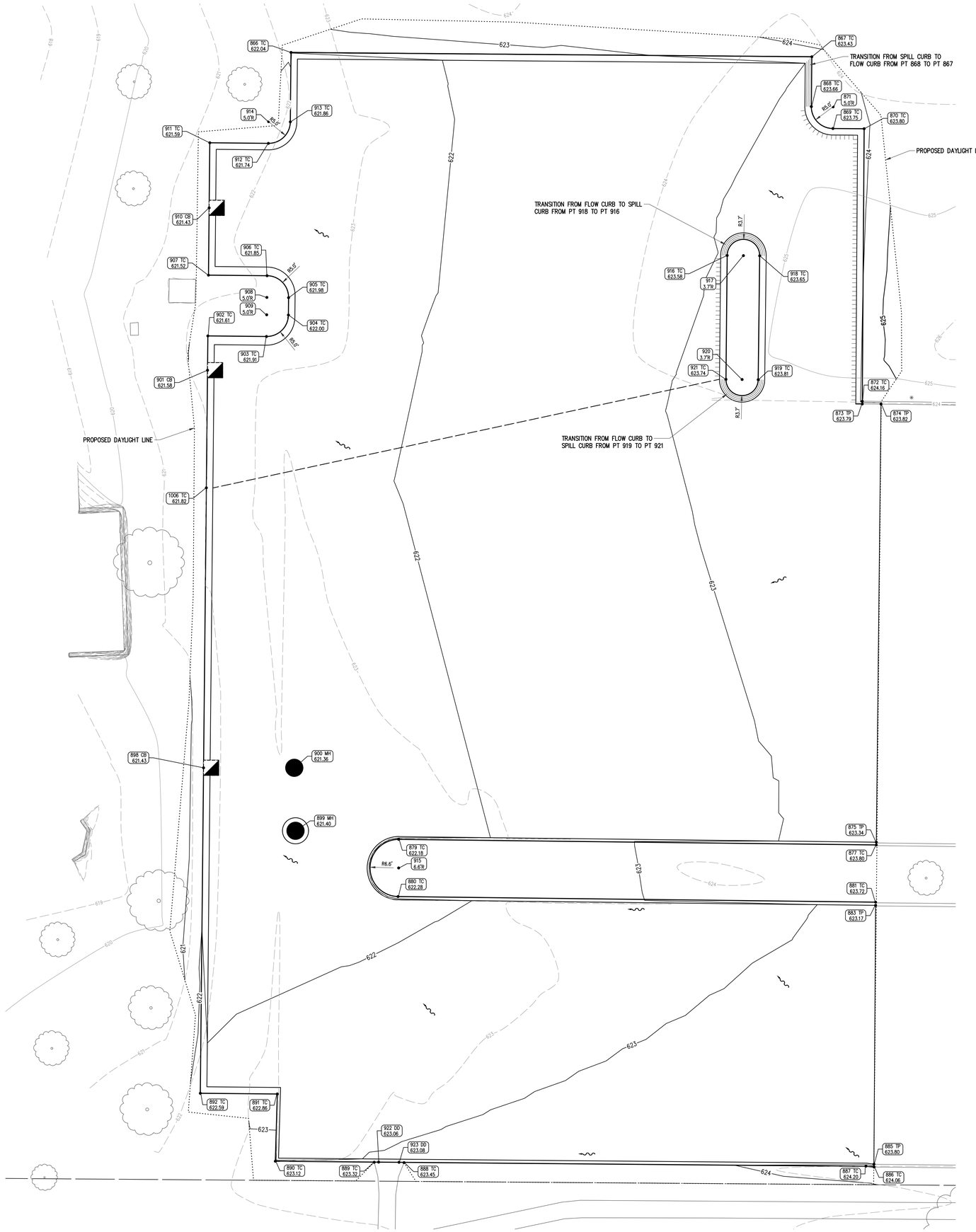

GRADING TABLE				
POINT	ELEVATION	DESCRIPTION	NORTHING	EASTING
866	TC=622.04		774829.28	1315428 8.46
867	TC=623.43		774828.28	1315440 8.43
868	TC=623.66	PC	774816.79	1315440 8.33
869	TC=623.75	PC	774811.75	1315441 3.30
870	TC=623.80		774811.70	1315442 0.49
872	TC=624.16	ME	774748.91	1315442 0.06
873	TP=623.79	ME	774748.30	1315442 0.06
874	TP=623.82	ME	774748.25	1315442 4.37
875	TP=623.34	ME	774647.32	1315442 3.29
877	TC=623.80	ME	774646.69	1315442 3.29
879	TC=622.18	PC	774647.97	1315431 3.27
880	TC=622.28	PC	774634.79	1315431 3.12
881	TC=623.72	ME	774633.51	1315442 3.13
883	TP=623.17	ME	774632.77	1315442 3.12
885	TP=623.80	ME	774573.12	1315442 2.74
886	TC=624.06	ME	774572.47	1315442 2.77
887	TC=624.20		774572.68	1315442 0.90
888	TC=623.45	SW, ME	774573.50	1315431 4.50
889	TC=623.32	SW, ME	774573.58	1315430 7.63
890	TC=623.12		774573.82	1315428 4.85
891	TC=622.86		774589.31	1315428 5.30
892	TC=622.59		774589.47	1315426 7.57
898	CB=621.43	TC	774664.46	1315426 8.32
899	MH=621.40		774649.95	1315428 9.49
900	MH=621.36		774664.45	1315428 9.21
901	CB=621.58	TC	774756.05	1315426 9.23
902	TC=621.61		774763.97	1315426 9.31
903	TC=621.91	PC	774763.83	1315428 2.81
904	TC=622.00	PC	774768.78	1315428 7.86
905	TC=621.98	PC	774772.78	1315428 7.90
906	TC=621.85	PC	774777.83	1315428 2.95
907	TC=621.52		774777.96	1315426 9.45
910	CB=621.43	TC	774793.46	1315426 9.60
911	TC=621.59		774808.46	1315426 9.75
912	TC=621.74	PC	774808.33	1315428 3.25
913	TC=621.86	PC	774813.28	1315428 8.30
916	TC=623.58	PC	774782.50	1315438 8.93
918	TC=623.65	PC	774782.42	1315439 6.42
919	TC=623.81	PC	774753.88	1315439 6.08
921	TC=623.74	PC	774753.96	1315438 8.66
922	DD=623.06	TC, SW, ME	774573.61	1315430 8.64
923	DD=623.08	TC, SW, ME	774573.57	1315431 3.34
1006	TC=621.82		774728.97	1315426 8.96

RADIUS POINTS			
POINT	DESCRIPTION	NORTHING	EASTING
871	5.0' RADIUS (TC)	774816.75	1315441 3.33
908	5.0' RADIUS (TC)	774772.83	1315428 2.90
909	5.0' RADIUS (TC)	774768.83	1315428 2.86
914	5.0' RADIUS (TC)	774813.33	1315428 3.30
915	6.6' RADIUS (TC)	774641.38	1315431 3.26
917	3.7' RADIUS (TC)	774782.47	1315439 2.68
920	3.7' RADIUS (TC)	774753.92	1315439 2.37

GRADING LEGEND

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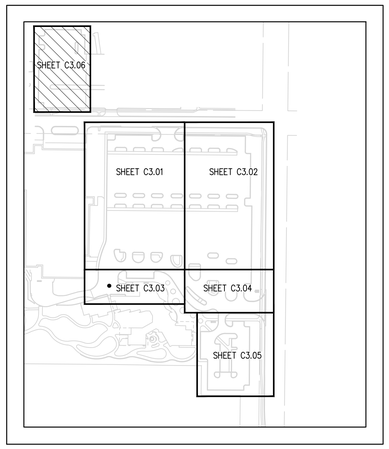
FLOW DIRECTION



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WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE

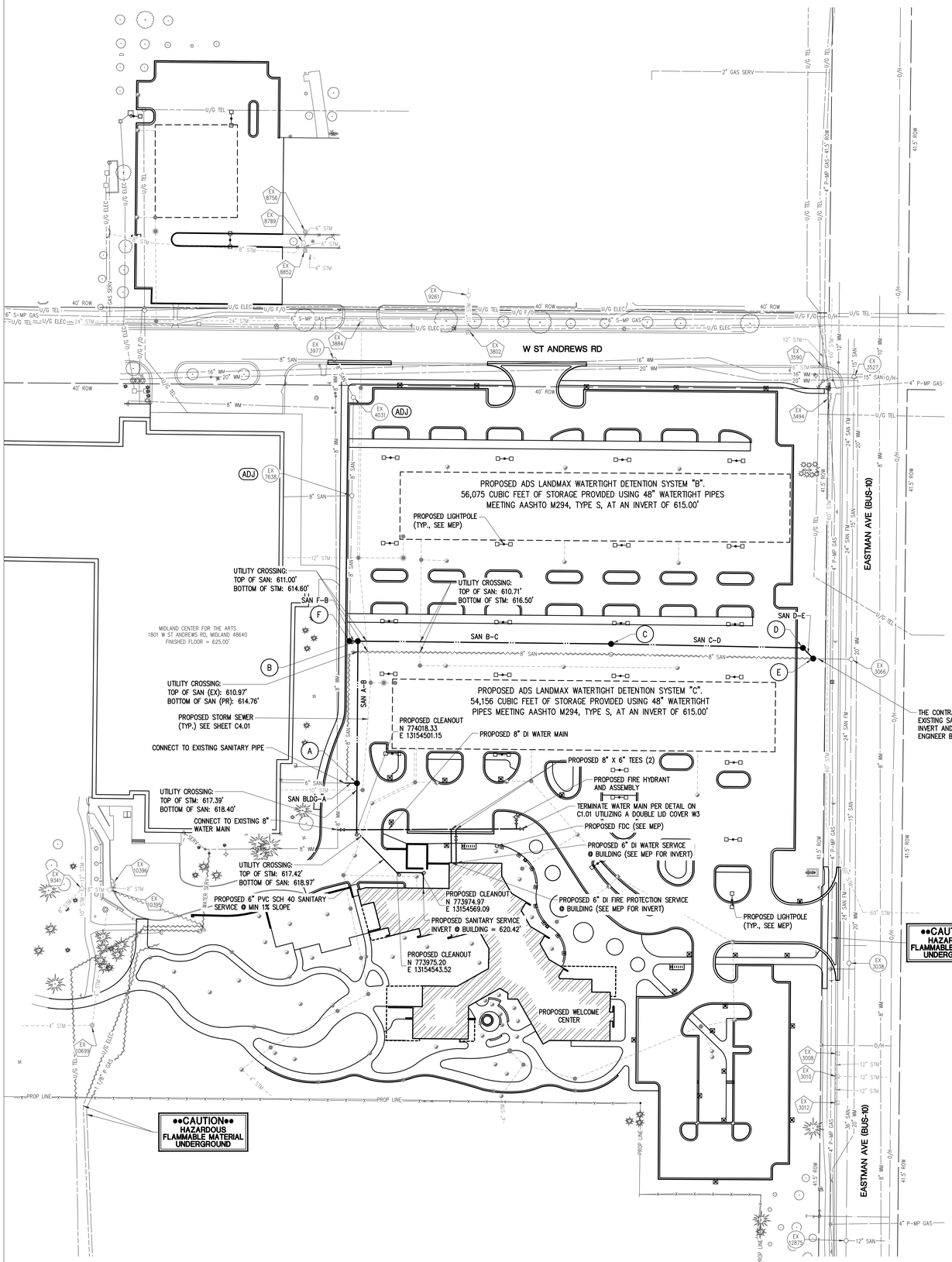
CIVIL DETAILED GRADING PLAN

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 9, 2025

CHECKED BY
AJW

SHEET NUMBER
C3.06



WATER MAIN FITTING TABLE		
FITTING TYPE	NORTHING	EASTING
FDC	774003.21	13154648.97
6" GATE VALVE AND BOX	774011.17	13154605.76
8" GATE VALVE AND BOX	774020.13	13154486.19
45 DEGREE VERT BEND	774020.15	13154489.69
45 DEGREE VERT BEND	774020.16	13154493.25
45 DEGREE VERT BEND	774020.29	13154518.20
45 DEGREE VERT BEND	774020.31	13154521.76
8"X6" SERVICE LEAD TEE	774020.72	13154600.66
8"X6" SERVICE LEAD TEE	774020.75	13154605.71
8"X6" HYDRANT LEAD TEE	774021.07	13154669.28
8" GATE VALVE AND BOX	774021.10	13154674.96
FIRE HYDRANT	774033.61	13154669.21

PROPOSED SANITARY SEWER STRUCTURE TABLE						
STRUCT NO.	DIA.	COVER TYPE	RIM ELEVATION	INVERT	NORTHING	EASTING
A	48"	EJ 1040 AGS	RIM=623.41	8" 618.20 N (PR) 6" 618.65 W (PR) 6" 618.40 S (PR)	774069.09	13154501.48
B	48"	EJ 1040 AGS	RIM=623.51	8" 610.30 E (PR) 8" 614.76 S (PR) 8" 610.30 W (PR) 8" 610.40 S (PR)	774218.66	13154502.50
C	48"	EJ 1040 AGS	RIM=623.23	8" 609.15 E (PR) 8" 609.23 W (PR)	774215.73	13154769.02
D	48"	EJ 1040 AGS	RIM=626.50	8" 608.34 SE (PR) 8" 608.34 W (PR)	774211.53	13154970.87
E	48"	EJ 1040 AGS	RIM=627.70	8" 608.28 NW (PR) 8" 608.28 E (EX) 8" 608.28 W (EX)	774200.30	13154981.64
F	48"	EJ 1040 AGS	RIM=623.59	8" 610.34 E (PR) 8" 610.44 N (EX)	774218.81	13154493.56

PROPOSED SANITARY SEWER PIPE TABLE				
PIPE NUMBER	DIAMETER	PIPE MATERIAL	TOTAL LENGTH	SLOPE
SAN A-B	8"	PVC	150'	2.30%
SAN B-C	8"	PVC	267'	0.40%
SAN BLDG-A	6"	PVC	13'	0.63%
SAN C-D	8"	PVC	202'	0.40%
SAN D-E	8"	PVC	16'	0.40%
SAN F-B	8"	PVC	9'	0.40%

GENERAL CONSTRUCTION NOTES

LAYOUT

THE LAYOUT SHOWN ON THE DRAWINGS FOR MANHOLES IS TO THE CENTER OF THE STRUCTURE.

WHERE RIM ELEVATIONS ARE PROVIDED ON THE PLANS FOR MANHOLE CASTINGS, THE ELEVATION PROVIDED IS FOR THE TOP OF THE CASTING.

WHERE RIM ELEVATIONS ARE PROVIDED FOR INLET TYPE CASTINGS, THE ELEVATIONS ARE PROVIDED AS FOLLOWS:

- CURB INLETS – THE ELEVATION OF THE TOP OF CURB
- ALL OTHER INLETS – THE ELEVATION OF THE FLOW LINE

WHERE RIM ELEVATIONS ARE PROVIDED ON THE PLANS FOR INLETS OR MANHOLE CASTINGS, THE ELEVATIONS PROVIDED ARE CONSIDERED PRELIMINARY. THE CONTRACTOR SHALL MAKE THE FINAL ADJUSTMENT FOLLOWING THE ESTABLISHMENT OF ACTUAL GRADING AND PAVEMENT ELEVATIONS.

ADJUSTING STRUCTURES

WHERE CASTINGS FOR MANHOLES, CATCH BASINS, INLETS, VALVE BOXES, AND MONUMENT BOXES ARE TO BE ADJUSTED TO MEET A NEW PAVEMENT SURFACE ELEVATION, THE FINAL ADJUSTMENT SHALL NOT BE COMPLETED UNTIL ALL PAVEMENT COURSES HAVE BEEN PLACED EXCEPT THE FINAL COURSE. THE FINAL ADJUSTMENT SHALL BE COMPLETED JUST PRIOR TO PLACEMENT OF THE FINAL COURSE OF PAVEMENT.

THE MATERIALS AND PROCEDURES FOR ADJUSTING STRUCTURES SHALL MEET THE REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION OVER THE ROAD AND UTILITIES.

SANITARY SEWER CONSTRUCTION NOTES

AT LEAST TEN FEET OF HORIZONTAL AND EIGHTEEN INCHES OF VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN THE SEWER AND EXISTING WATER MAINS.

THE CONTRACTOR SHALL CONDUCT A LOW PRESSURE AIR TEST ON ALL SANITARY SEWERS LESS THAN 24 INCHES IN DIAMETER. THE AIR TEST SHALL MEET THE REQUIREMENTS OF ASTM C 924 FOR CONCRETE PIPE AND ASTM F1471 FOR PLASTIC PIPE. IN AREAS WHERE GROUNDWATER IS OVER THE PIPE, THE TEST PRESSURE SHALL BE INCREASED EQUAL TO THE HYDRAULIC PRESSURE EXERTED BY THE WATER OVER THE PIPE, AS DETERMINED BY THE ENGINEER.

THE EXISTING SANITARY SERVICE TO THE MIDLAND CENTER FOR THE ARTS IS INTENDED TO REMAIN IN SERVICE DURING THE PROJECT EXCEPT FOR WHEN CONNECTING EXISTING SEWER PIPES TO PROPOSED STRUCTURES A, E, AND F.

WATER MAIN CONSTRUCTION NOTES

NEW WATER MAIN SHALL BE CONNECTED TO THE EXISTING WATER MAIN BY THE CITY OF MIDLAND WATER DISTRIBUTION DEPARTMENT UTILIZING MATERIAL SUPPLIED BY THE CONTRACTOR. THE CONTRACTOR IS TO COORDINATE WITH THE CITY OF MIDLAND AND PAY ALL FEES. IF THE CITY OF MIDLAND DETERMINES THEY DO NOT NEED TO PERFORM THE TAP, THE CONTRACTOR IS RESPONSIBLE FOR THIS WORK.

AT LEAST TEN FEET OF HORIZONTAL AND EIGHTEEN INCHES OF VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND SEWERS (STORM OR SANITARY).

AS A MINIMUM, THE DEPTH OF BURY OVER THE TOP OF THE WATER MAIN PIPE TO THE FINISHED GROUND OR PAVEMENT SURFACE SHALL BE 5 FEET.

ALL BENDS, TEES, PLUGS, HYDRANTS, VALVES, AND OTHER FITTINGS WHERE THRUST MAY OCCUR SHALL BE RESTRAINED APPROPRIATELY BY THRUST BLOCKS OR JOINT RESTRAINT.

EXISTING WATER VALVES SHALL BE OPERATED ONLY BY THE WATER DEPARTMENT'S PERSONNEL.

THE SHUTTING DOWN OF EXISTING WATER MAINS TO ALLOW FOR COMPLETING THE CONTRACTOR'S WORK SHALL BE SCHEDULED IN ADVANCE BY THE CONTRACTOR WITH THE OWNER. THE CONTRACTOR SHALL PROVIDE NOTIFICATION TO AFFECTED WATER CUSTOMERS IN AT LEAST A DAY IN ADVANCE OF ANY SCHEDULED SERVICE DISRUPTIONS.

THE CONTRACTOR SHALL EXPOSE EXISTING MAINS TO VERIFY THE SIZE, MATERIALS, AND ANY FITTINGS NECESSARY BEFORE SHUTTING DOWN EXISTING WATER MAINS FOR NEW CONNECTIONS. ALL FITTINGS, PARTS, AND EQUIPMENT NECESSARY TO COMPLETE THE PROPOSED CONNECTIONS TO THE EXISTING MAIN SHALL BE AVAILABLE AT THE SITE BEFORE THE EXISTING MAIN IS SHUT DOWN.

THE COMPLETED WATER MAIN SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE TEST, PERFORMED BY THE CITY OF MIDLAND DISTRIBUTION DEOPARTMENT. THE TEST PRESSURE SHALL BE 150 PSI. THE TEST DURATION SHALL BE 2 HOURS. THE CONTRACTOR SHALL CONDUCT SUCH PRELIMINARY TESTING TO EXPEL AIR AND VERIFY THAT THERE ARE NO LEAKS IN THE PIPELINE. THE CONTRACTOR IS TO COORDINATE WITH THE CITY OF MIDLAND AND PAY ALL FEES.

IF THE CONTRACTOR ELECTS TO PRESSURE TEST AGAINST AN EXISTING VALVE, THE OWNER DOES NOT GUARANTEE THAT EXISTING VALVES CAN RESIST THE TEST PRESSURE. IF THE CONTRACTOR BELIEVES THAT AN EXISTING VALVE IS THE CAUSE OF A FAILED PRESSURE TEST, THE CONTRACTOR SHALL EITHER REPAIR THE VALVE AND RETEST OR TEST AGAINST A PLUG, AT THEIR EXPENSE.

UNLESS SPECIFICALLY PROVIDED OTHERWISE, THE CONTRACTOR IS RESPONSIBLE TO FURNISH WATER FOR TESTING AND DISINFECTION.

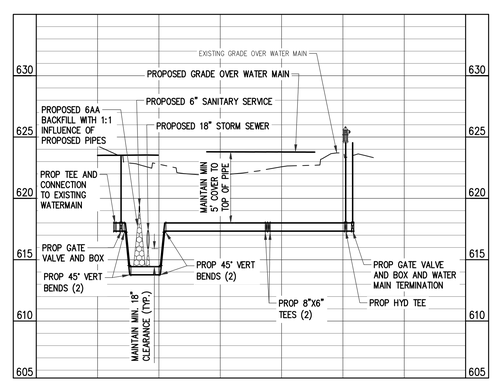
WATER FROM THE CONTRACTOR'S FLUSHING AND DISINFECTION ACTIVITIES SHALL BE DISPOSED OF TO PREVENT EROSION OR FLOODING.

THE CONTRACTOR SHALL FURNISH AND INSTALL CORPORATIONS, TAPS, PIPING, AND FITTINGS AS NECESSARY TO COMPLETE THE REQUIRED FLUSHING AND TESTING FOR ACCEPTANCE. AFTER ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL CORPORATIONS, TAPS, PIPING, AND FITTINGS USED FOR FLUSHING AND TESTING. TAPS TO THE WATER MAIN SHALL BE PLUGGED WITH BRASS PLUGS.

TAPS FOR SERVICE CONNECTIONS SHALL BE COMPLETED UNDER PRESSURE. THE CORPORATION AND SERVICE LEAD SHALL BE VISUALLY CHECKED FOR LEAKAGE WHILE UNDER PRESSURE. ALL JOINTS SHALL REMAIN EXPOSED UNTIL THE ENGINEER HAS OBSERVED THEM.

ALL OF PROPOSED WATER SHALL BE BACKFILLED WITH CLASS II SAND AND COMPACTED ACCORDING TO SPECS.

FOR UNKNOWN PROPOSED GRADES ABOVE PROPOSED WATER MAIN, SEE ARCHITECTURAL GRADING SHEETS.



PROPOSED WATER MAIN PROFILE

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO. 1	12/26/24

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PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
CIVIL SANITARY AND WATER PLAN

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 9, 2025
CHECKED BY AJW
SHEET NUMBER C4.00

Know what's **below.** **Call** before you dig.

GENERAL CONSTRUCTION NOTES

LAYOUT

THE LAYOUT SHOWN ON THE DRAWINGS FOR MANHOLES IS TO THE CENTER OF THE STRUCTURE.

WHERE RIM ELEVATIONS ARE PROVIDED ON THE PLANS FOR MANHOLE CASTINGS, THE ELEVATION PROVIDED IS FOR THE TOP OF THE CASTING.

WHERE RIM ELEVATIONS ARE PROVIDED FOR INLET TYPE CASTINGS, THE ELEVATIONS ARE PROVIDED AS FOLLOWS:

- CURB INLETS – THE ELEVATION OF THE TOP OF CURB
- ALL OTHER INLETS – THE ELEVATION OF THE FLOW LINE

WHERE RIM ELEVATIONS ARE PROVIDED ON THE PLANS FOR INLETS OR MANHOLE CASTINGS, THE ELEVATIONS PROVIDED ARE CONSIDERED PRELIMINARY. THE CONTRACTOR SHALL MAKE THE FINAL ADJUSTMENT FOLLOWING THE ESTABLISHMENT OF ACTUAL GRADING AND PAVEMENT ELEVATIONS.

ADJUSTING STRUCTURES

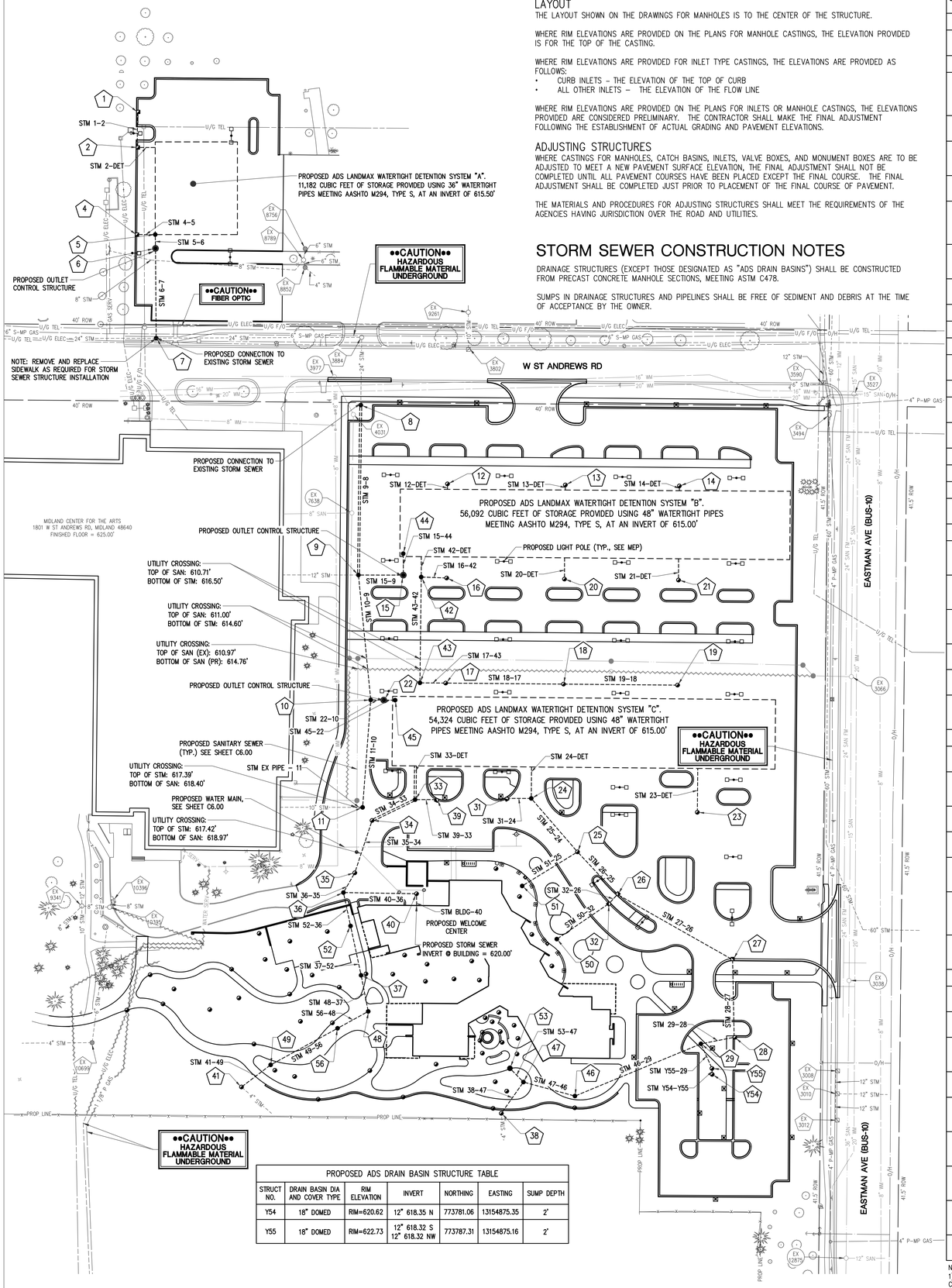
WHERE CASTINGS FOR MANHOLES, CATCH BASINS, INLETS, VALVE BOXES, AND MONUMENT BOXES ARE TO BE ADJUSTED TO MEET A NEW PAVEMENT SURFACE ELEVATION, THE FINAL ADJUSTMENT SHALL NOT BE COMPLETED UNTIL ALL PAVEMENT COURSES HAVE BEEN PLACED EXCEPT THE FINAL COURSE. THE FINAL ADJUSTMENT SHALL BE COMPLETED JUST PRIOR TO PLACEMENT OF THE FINAL COURSE OF PAVEMENT.

THE MATERIALS AND PROCEDURES FOR ADJUSTING STRUCTURES SHALL MEET THE REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION OVER THE ROAD AND UTILITIES.

STORM SEWER CONSTRUCTION NOTES

DRAINAGE STRUCTURES (EXCEPT THOSE DESIGNATED AS "ADS DRAIN BASINS") SHALL BE CONSTRUCTED FROM PRECAST CONCRETE MANHOLE SECTIONS, MEETING ASTM C478.

SUMPS IN DRAINAGE STRUCTURES AND PIPELINES SHALL BE FREE OF SEDIMENT AND DEBRIS AT THE TIME OF ACCEPTANCE BY THE OWNER.



PROPOSED ADS DRAIN BASIN STRUCTURE TABLE						
STRUCT NO.	DRAIN BASIN DIA AND COVER TYPE	RIM ELEVATION	INVERT	NORTHING	EASTING	SUMP DEPTH
Y54	18" DOMED	RIM=620.62	12" 618.35 N	773781.06	13154875.35	2'
Y55	18" DOMED	RIM=622.73	12" 618.32 S 12" 618.32 NW	773787.31	13154875.16	2'

PROPOSED STORM SEWER STRUCTURE TABLE							
STRUCT NO.	DIA.	COVER TYPE	RIM ELEVATION	INVERT	NORTHING	EASTING	SUMP DEPTH
1	24"	EJ 7000 M2	T/C=621.43	12" 617.50 S (PR)	774793.46	13154270.60	2.00
2	48"	EJ 7000 M2	T/C=621.58	12" 617.31 N (PR) 12" 615.68 E (PR)	774756.05	13154270.23	2.00
4	48"	EJ 7000 M2	T/C=621.43	12" 617.75 E (PR)	774664.46	13154269.32	2.00
5	48"	EJ 1040 A	RIM=621.36	12" 617.65 W (PR) 12" 615.50 S (PR) 12" 615.50 N (PR) 12" 615.50 E (PR)	774664.45	13154289.21	0.00
6	72"	EJ 1040 A	RIM=621.40	12" 615.50 N (PR) 12" 615.00 S (PR)	774649.95	13154289.49	0.00
7	48"	EJ 1040 A	RIM=622.83	12" 614.53 N (PR) 24" 611.47 W (EX) 24" 612.97 E (EX)	774555.53	13154290.20	0.00
8	48"	EJ 1040 A	RIM=624.46	24" 614.17 S (PR) 24" 613.56 N (EX)	774485.11	13154505.53	2.00
9	48"	EJ 1040 A	RIM=623.02	12" 615.06 W (EX) 15" 614.17 S (PR) 15" 614.17 E (PR) 24" 613.56 N (PR)	774306.34	13154503.10	0.00
10	48"	EJ 1040 A	RIM=623.27	15" 614.82 N (PR) 12" 615.00 S (PR) 18" 614.82 E (PR)	774174.98	13154516.01	0.00
11	48"	EJ 1040 A	RIM=623.30	10" 616.50 W (PR) 12" 616.50 N (PR)	774061.92	13154507.46	0.00
12	48"	EJ 1040 M1	RIM=621.80	12" 615.11 S (PR)	774402.19	13154596.81	2.00
13	48"	EJ 1040 M1	RIM=622.00	12" 615.11 S (PR)	774401.08	13154720.80	2.00
14	48"	EJ 1040 M1	RIM=622.00	12" 615.11 S (PR)	774400.00	13154840.80	2.00
15	72"	EJ 1040 A	RIM=622.38	15" 615.00 W (PR) 18" 615.00 N (PR)	774306.24	13154550.32	0.00
16	24"	EJ 1040 M1	RIM=621.60	12" 618.10 W (PR)	774303.19	13154595.92	2.00
17	48"	EJ 1040 M1	RIM=621.80	15" 617.28 E (PR) 18" 617.28 W (PR)	774192.70	13154594.93	2.00
18	48"	EJ 1040 M1	RIM=622.00	12" 617.90 E (PR) 15" 617.90 W (PR)	774191.59	13154718.93	2.00
19	24"	EJ 1040 M1	RIM=622.00	12" 618.50 W (PR)	774190.51	13154838.92	2.00
20	48"	EJ 1040 M1	RIM=622.00	12" 615.22 N (PR)	774302.08	13154719.92	2.00
21	48"	EJ 1040 M1	RIM=622.00	12" 615.22 N (PR)	774301.01	13154839.91	2.00
22	72"	EJ 1040 A	RIM=623.03	12" 615.00 E (PR) 18" 615.00 W (PR)	774174.77	13154529.72	0.00
23	48"	EJ 1040 M1	RIM=622.00	12" 615.46 N (PR)	774056.76	13154859.75	2.00
24	48"	EJ 1040 A	RIM=623.14	18" 616.06 SE (PR) 12" 618.37 W (PR) 18" 615.33 N (PR)	774071.34	13154684.96	0.00
25	48"	EJ 1040 M1	RIM=622.80	18" 616.43 NW (PR) 18" 616.43 SE (PR) 12" 619.33 SW (PR)	774015.11	13154733.58	0.00
26	48"	EJ 7000 M2	T/C=623.08	12" 619.24 SW (PR) 18" 616.74 NW (PR) 18" 616.74 SE (PR)	773970.34	13154775.62	2.00
27	48"	EJ 7000 M2	T/C=623.11	18" 617.44 NW (PR) 15" 617.44 S (PR)	773901.72	13154896.84	2.00
28	48"	EJ 7000 M2	T/C=622.86	15" 617.85 W (PR) 15" 617.85 N (PR)	773820.06	13154898.47	2.00
29	48"	EJ 1040 A	RIM=623.34	12" 618.03 SW (PR) 15" 618.03 E (PR) 12" 618.18 SE (PR)	773813.22	13154863.50	0.00
31	24"	EJ 7000 M2	T/C=623.31	12" 618.50 E (PR)	774071.37	13154658.78	2.00
32	48"	EJ 7000 M2	T/C=623.23	12" 619.30 NE (PR) 12" 619.38 SW (PR)	773960.97	13154767.03	0.00
33	48"	EJ 1040 A	RIM=623.32	24" 615.61 SW (PR) 12" 618.39 E (PR) 24" 615.61 N (PR)	774070.07	13154562.72	0.00
34	48"	EJ 1040 M1	RIM=623.10	18" 615.80 S (PR) 24" 615.80 NE (PR)	774048.15	13154517.41	0.00
35	48"	EJ 1040 M1	RIM=623.20	18" 616.00 SW (PR) 18" 616.00 N (PR)	773993.04	13154499.22	0.00
36	48"	EJ 1040 A	RIM=623.35	18" 616.15 NE (PR) 12" 619.00 E (PR) 15" 616.15 S (PR)	773972.35	13154487.31	0.00
37	48"	EJ 1040 A	RIM=623.54	10" 620.17 E (PR) 15" 616.60 N (PR) 10" 616.98 SW (PR) 15" 616.60 S (PR)	773885.29	13154505.89	0.00
38	48"	EJ 1040 M1	RIM=623.60	4" 622.18 S (EX) 10" 620.20 NW (PR) 12" 620.20 NE (PR)	773740.07	13154653.45	2.00
39	24"	EJ 7000 M2	T/C=623.28	12" 618.50 W (PR)	774070.17	13154585.66	2.00
40	48"	EJ 1040 M1	RIM=623.62	10" 619.87 S (PR) 12" 619.87 W (PR)	773971.08	13154564.19	2.00
41	48"	EJ 6115N	RIM=623.23	12" 617.63 NE (PR) 4" 621.78 SE (EX)	773767.81	13154380.01	2.00
42	48"	EJ 1040 A	RIM=622.13	18" 616.61 N (PR) 18" 616.61 S (PR) 12" 617.97 E (PR)	774304.25	13154569.18	0.00
43	48"	EJ 1040 A	RIM=622.31	18" 617.14 N (PR) 18" 617.14 E (PR)	774192.94	13154567.78	0.00
44	48"	EJ 1040 A	RIM=622.68	18" 615.00 S (PR) 12" 615.00 N (PR) 12" 615.00 E (PR)	774328.83	13154550.19	0.00
45	48"	EJ 1040 A	RIM=622.83	12" 615.00 W (PR) 12" 615.00 E (PR) 12" 615.00 S (PR)	774174.73	13154541.71	0.00
46	48"	EJ 1040 A	RIM=623.46	12" 618.75 W (PR) 12" 618.75 NE (PR) 10" 619.88 S (PR)	773758.28	13154730.92	0.00
47	48"	EJ 1040 A	RIM=624.00	12" 619.03 NW (PR) 12" 620.00 SW (PR) 12" 619.03 E (PR)	773773.02	13154676.69	0.00
48	48"	EJ 1040 A	RIM=624.30	15" 616.86 N (PR) 15" 616.86 SW (PR)	773847.30	13154513.37	0.00

NOTE:
1) STRUCTURES 6, 15, AND 22 ARE OUTLET CONTROL STRUCTURES AND HAVE 2 COVERS EACH.
2) STRUCTURES NOT LABELED ARE ADS DRAIN BASIN YARD INLETS. FOR CLARITY, THESE STRUCTURES ARE NOT LABELED, AND THE PIPES BETWEEN THEM ARE NOT SHOWN. SEE SHEET C4.02 FOR INFORMATION ON THESE STRUCTURES AND PIPES.

PROPOSED STORM SEWER STRUCTURE TABLE							
STRUCT NO.	DIA.	COVER TYPE	RIM ELEVATION	INVERT	NORTHING	EASTING	SUMP DEPTH
49	48"	EJ 1040 A	RIM=622.55	12" 617.44 SW (PR) 10" 618.11 NW (PR) 12" 617.04 NE (PR) 10" 619.36 SE (PR)	773791.08	13154410.69	0.00
50	48"	EJ 1040 A	RIM=624.00	8" 619.73 W (PR) 8" 619.71 S (PR) 12" 619.71 NE (PR)	773923.37	13154711.82	0.00
51	48"	EJ 1040 A	RIM=623.75	8" 619.88 S (PR) 8" 619.67 NW (PR) 12" 619.67 NE (PR)	773979.30	13154675.40	0.00
52	48"	EJ 1040 A	RIM=623.60	15" 616.33 S (PR) 15" 616.33 N (PR) 10" 620.41 W (PR)	773937.22	13154494.80	0.00
53	60"	EJ 1040 A	RIM=624.40	10" 620.35 N (PR) 12" 619.13 SE (PR) 10" 620.53 NE (PR) 8" 619.20 SW (PR)	773787.45	13154662.50	0.00
56	48"	EJ 1040 A	RIM=625.25	15" 617.04 NE (PR) 12" 617.44 SW (PR) 10" 619.66 NW (PR) 10" 619.06 SE (PR)	773829.53	13154481.09	0.00

PROPOSED STORM SEWER PIPE TABLE				
PIPE NUMBER	DIAMETER	PIPE MATERIAL	TOTAL LENGTH	SLOPE
STM 1–2	12"	ADS N12	37'	0.50%
STM 2–DET	12"	ADS N12	19'	0.97%
STM 4–5	12"	ADS N12	20'	0.49%
STM 5–6	12"	ADS N12	15'	0.00%
STM 6–7	12"	ADS N12	94'	0.50%
STM 9–8	24"	ADS N12	179'	0.34%
STM 10–9	15"	ADS N12	132'	0.50%
STM 11–10	12"	ADS N12	113'	1.32%
STM 12–DET	12"	ADS N12	6'	2.00%
STM 13–DET	12"	ADS N12	5'	2.07%
STM 14–DET	12"	ADS N12	5'	2.23%
STM 15–9	15"	ADS N12	47'	1.76%
STM 15–44	18"	ADS N12	23'	0.00%
STM 16–42	12"	ADS N12	27'	0.50%
STM 17–43	18"	ADS N12	27'	0.50%
STM 18–17	15"	ADS N12	124'	0.50%
STM 19–18	12"	ADS N12	120'	0.50%
STM 20–DET	12"	ADS N12	22'	1.00%
STM 21–DET	12"	ADS N12	22'	0.98%
STM 22–10	18"	ADS N12	14'	1.31%
STM 23–DET	12"	ADS N12	46'	1.00%
STM 24–DET	18"	ADS N12	33'	1.00%
STM 25–24	18"	ADS N12	74'	0.50%
STM 26–25	18"	ADS N12	61'	0.50%
STM 27–26	18"	ADS N12	139'	0.50%
STM 28–27	15"	ADS N12	82'	0.50%
STM 29–28	15"	ADS N12	36'	0.50%
STM 31–24	12"	ADS N12	26'	0.50%
STM 32–26	12"	ADS N12	13'	0.50%
STM 33–DET	24"	ADS N12	35'	1.72%
STM 34–33	24"	ADS N12	50'	0.37%
STM 35–34	18"	ADS N12	58'	0.35%
STM 36–35	18"	ADS N12	24'	0.64%
STM 37–52	15"	ADS N12	53'	0.50%
STM 38–47	12"	ADS N12	40'	0.50%
STM 39–33	12"	ADS N12	23'	0.50%
STM 40–36	12"	ADS N12	77'	1.13%
STM 41–49	12"	ADS N12	39'	0.50%
STM 42–DET	18"	ADS N12	21'	0.50%
STM 43–42	18"	ADS N12	111'	0.48%
STM 45–22	12"	ADS N12	12'	0.00%
STM 46–29	12"	ADS N12	144'	0.50%
STM 47–46	12"	ADS N12	56'	0.50%
STM 48–37	15"	ADS N12	39'	0.66%
STM 49–56	12"	ADS N12	80'	0.50%
STM 50–32	12"	ADS N12	67'	0.50%
STM 51–25	12"	ADS N12	68'	0.50%
STM 52–36	15"	ADS N12	36'	0.50%
STM 53–47	12"	ADS N12	20'	0.50%
STM 56–48	15"	ADS N12	37'	0.50%
STM BLDG–40	10"	PVC	12'	1.03%
STM EX PIPE – 11	10"	CONCRETE	8'	0.80%
STM Y54–Y55	12"	ADS N12	6'	0.50%
STM Y55–29	12"	ADS N12	28'	0.50%

NOTE:
1) ALL ADS N12 PIPES SHALL BE WATERTIGHT PIPES MEETING AASHTO M294, TYPE S.

N

0 50 ft 100 ft

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO. 1	12/26/24

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PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
CIVIL STORM SEWER PLAN

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 9, 2025
CHECKED BY AJW
SHEET NUMBER C4.01

Know what's below. Call before you dig.

PROPOSED ADS DRAIN BASIN STRUCTURE TABLE						
STRUCT NO.	DRAIN BASIN DIA AND COVER TYPE	RIM ELEVATION	INVERT	NORTHING	EASTING	SUMP DEPTH
Y1	15" DOMED	RIM=623.75	8" 620.00 SE	773997.53	13154647.81	2'
Y2	15" DOMED	RIM=623.75	8" 620.00 N	773968.10	13154672.62	2'
Y3	15" DOMED	RIM=623.75	8" 620.00 E	773928.24	13154685.58	2'
Y4	15" DOMED	RIM=623.75	8" 620.00 N	773895.03	13154706.64	2'
Y5	12" STANDARD H-20 RATED SQUARE	RIM=623.30	10" 620.00 N	773745.88	13154730.71	2'
Y6	12" STANDARD H-20 RATED SQUARE	RIM=623.24	10" 620.30 SE	773745.32	13154644.80	2'
Y7	10" STANDARD GRATE	RIM=624.68	10" 620.86 N 10" 620.70 SW	773802.52	13154669.93	2'
Y8	15" DOMED	RIM=624.15	10" 621.00 N 10" 620.70 S	773818.97	13154670.90	2'
Y9	15" DOMED	RIM=624.15	10" 620.86 S	773832.66	13154666.90	2'
Y10	15" DOMED	RIM=624.22	10" 621.00 SW	773846.28	13154650.85	2'
Y11	15" DOMED	RIM=624.41	10" 620.00 SE	773840.54	13154636.52	2'
Y12	10" STANDARD GRATE	RIM=624.64	10" 619.92 NW 10" 620.88 NE 10" 620.88 SE	773836.38	13154643.86	2'
Y13	10" STANDARD GRATE	RIM=624.66	10" 620.75 NW 10" 620.64 S	773826.08	13154652.35	2'
Y14	10" STANDARD GRATE	RIM=624.66	10" 620.64 S 10" 620.75 N	773814.75	13154654.25	2'
Y16	10" STANDARD GRATE	RIM=624.72	8" 621.00 S	773825.44	13154633.51	2'
Y17	10" STANDARD GRATE	RIM=624.76	8" 620.91 N 8" 620.91 S	773816.67	13154630.95	2'
Y18	10" STANDARD GRATE	RIM=624.64	8" 620.77 N 8" 620.77 SE	773803.40	13154633.49	2'
Y19	15" STANDARD H-20 RATED SQUARE	RIM=623.80	10" 620.00 SW	773791.76	13154584.80	2'
Y20	12" STANDARD H-20 RATED SQUARE	RIM=623.20	10" 619.51 NE 10" 619.51 NW	773757.20	13154550.07	2'
Y21	15" STANDARD H-20 RATED SQUARE	RIM=623.97	10" 619.06 SE 10" 618.50 NW	773785.06	13154515.11	2'
Y22	12" STANDARD H-20 RATED SQUARE	RIM=623.77	10" 620.00 NW	773754.81	13154460.75	2'
Y23	15" STANDARD H-20 RATED SQUARE	RIM=623.54	10" 618.39 NW 10" 618.39 SE	773812.96	13154393.17	2'
Y24	15" STANDARD H-20 RATED SQUARE	RIM=624.20	10" 618.98 NW 10" 618.98 SE	773849.26	13154346.64	2'
Y25	15" STANDARD H-20 RATED SQUARE	RIM=623.54	10" 619.61 W 10" 619.61 NE	773855.17	13154297.40	2'
Y26	15" STANDARD H-20 RATED SQUARE	RIM=623.68	10" 620.00 E	773848.68	13154259.37	2'
Y27	15" STANDARD H-20 RATED SQUARE	RIM=623.95	10" 620.00 SE	773885.89	13154283.86	2'
Y28	15" STANDARD H-20 RATED SQUARE	RIM=623.90	10" 619.41 SW 10" 619.71 NW 10" 619.41 SE	773870.87	13154309.00	2'

PROPOSED ADS DRAIN BASIN STRUCTURE TABLE						
STRUCT NO.	DRAIN BASIN DIA AND COVER TYPE	RIM ELEVATION	INVERT	NORTHING	EASTING	SUMP DEPTH
Y29	15" STANDARD H-20 RATED SQUARE	RIM=623.90	10" 617.97 N 10" 617.97 E	773861.48	13154377.30	2'
Y30	15" STANDARD H-20 RATED SQUARE	RIM=623.90	10" 618.20 S	773891.72	13154369.57	2'
Y32	15" DOMED	RIM=621.50	10" 618.50 S	773929.31	13154398.57	2'
Y33	15" DOMED	RIM=623.40	10" 618.29 N 10" 618.29 SE	773902.00	13154404.91	2'
Y34	15" DOMED	RIM=624.21	10" 618.16 NW 10" 618.16 S	773891.38	13154427.68	2'
Y35	15" STANDARD H-20 RATED SQUARE	RIM=624.03	8" 621.07 E 8" 621.07 SE	773921.15	13154430.95	2'
Y36	15" STANDARD H-20 RATED SQUARE	RIM=624.03	8" 620.66 W 10" 620.66 E	773931.32	13154470.32	2'
Y37	15" STANDARD H-20 RATED SQUARE	RIM=623.76	10" 617.18 W 10" 617.18 NE	773872.73	13154482.91	2'
Y38	15" STANDARD H-20 RATED SQUARE	RIM=623.60	10" 620.00 E	773836.90	13154442.03	2'
Y39	15" STANDARD H-20 RATED SQUARE	RIM=623.65	10" 619.66 W 10" 619.58 SE	773835.28	13154475.65	2'
Y40	15" STANDARD H-20 RATED SQUARE	RIM=623.85	10" 620.50 E 10" 620.50 W	773886.46	13154539.27	2'
Y41	15" DOMED	RIM=624.15	10" 620.50 E	773906.49	13154551.69	2'
Y42	15" DOMED	RIM=624.06	10" 621.03 E 10" 621.03 S 10" 620.25 W	773896.98	13154575.32	2'
Y43	15" STANDARD H-20 RATED SQUARE	RIM=624.10	8" 619.93 E 10" 620.85 W 10" 620.85 N	773878.95	13154573.64	2'
Y44	15" STANDARD H-20 RATED SQUARE	RIM=623.94	8" 620.23 E 8" 620.23 W	773881.46	13154603.65	2'
Y45	15" DOMED	RIM=624.06	10" 621.50 W	773900.35	13154622.34	2'
Y46	15" DOMED	RIM=624.06	8" 620.50 W	773880.20	13154630.34	2'
Y47	15" STANDARD H-20 RATED SQUARE	RIM=624.00	10" 617.96 N 10" 617.57 E 10" 617.57 W	773865.52	13154430.76	2'
Y48	15" STANDARD H-20 RATED SQUARE	RIM=624.27	10" 620.22 E 10" 620.22 W	773886.73	13154511.04	2'
Y49	15" DOMED	RIM=623.60	10" 619.65 SE 10" 619.65 W	773778.87	13154435.98	2'
Y50	15" DOMED	RIM=623.45	10" 619.43 E 10" 619.43 NW	773785.37	13154415.11	2'
Y51	15" DOMED	RIM=622.00	8" 619.00 NW 8" 619.57 SE 8" 619.41 NE	773773.29	13154647.08	2'
Y52	15" DOMED	RIM=622.00	8" 619.41 NW	773763.41	13154659.17	2'
Y53	15" DOMED	RIM=623.84	8" 621.50 NW	773885.47	13154454.38	2'

PROPOSED STORM SEWER STRUCTURE TABLE							
STRUCT NO.	DIA.	COVER TYPE	RIM ELEVATION	INVERT	NORTHING	EASTING	SUMP DEPTH
35	48"	EJ 1040 M1	RIM=623.20	18" 616.00 SW (PR) 18" 616.00 N (PR)	773993.04	13154499.22	0.00
36	48"	EJ 1040 A	RIM=623.35	18" 616.15 NE (PR) 12" 619.00 E (PR) 15" 616.15 S (PR)	773972.35	13154487.31	0.00
37	48"	EJ 1040 A	RIM=623.54	10" 620.17 E (PR) 15" 616.60 N (PR) 10" 616.98 SW (PR) 15" 616.60 S (PR)	773885.29	13154505.89	0.00
38	48"	EJ 1040 M1	RIM=623.60	4" 622.18 S (EX) 10" 620.20 NW (PR) 12" 620.20 NE (PR)	773740.07	13154653.45	2.00
40	48"	EJ 1040 M1	RIM=623.62	10" 619.87 S (PR) 12" 619.87 W (PR)	773971.08	13154564.19	2.00
41	48"	EJ 6115N	RIM=623.23	12" 617.63 NE (PR) 4" 621.78 SE (EX)	773767.81	13154380.01	2.00
46	48"	EJ 1040 A	RIM=623.46	12" 618.75 W (PR) 12" 618.75 NE (PR) 10" 619.88 S (PR)	773758.28	13154730.92	0.00
47	48"	EJ 1040 A	RIM=624.00	12" 619.03 NW (PR) 12" 620.00 SW (PR) 12" 619.03 E (PR)	773773.02	13154676.69	0.00
48	48"	EJ 1040 A	RIM=624.30	15" 616.86 N (PR) 15" 616.86 SW (PR)	773847.30	13154513.37	0.00
49	48"	EJ 1040 A	RIM=622.55	12" 617.44 SW (PR) 10" 618.11 NW (PR) 12" 617.04 NE (PR) 10" 619.36 SE (PR)	773791.08	13154410.69	0.00
50	48"	EJ 1040 A	RIM=624.00	8" 619.73 W (PR) 8" 619.71 S (PR) 12" 619.71 NE (PR)	773923.37	13154711.82	0.00
51	48"	EJ 1040 A	RIM=623.75	8" 619.88 S (PR) 8" 619.67 NW (PR) 12" 619.67 NE (PR)	773979.30	13154675.40	0.00
52	48"	EJ 1040 A	RIM=623.60	15" 616.33 S (PR) 15" 616.33 N (PR) 10" 620.41 W (PR)	773937.22	13154494.80	0.00
53	60"	EJ 1040 A	RIM=624.40	10" 620.35 N (PR) 12" 619.13 SE (PR) 10" 620.53 NE (PR) 8" 619.20 SW (PR)	773787.45	13154662.50	0.00
56	48"	EJ 1040 A	RIM=625.25	15" 617.04 NE (PR) 12" 617.44 SW (PR) 10" 619.66 NW (PR) 10" 619.06 SE (PR)	773829.53	13154481.09	0.00

N

0 20 ft 40 ft

GENERAL CONSTRUCTION NOTES

LAYOUT

THE LAYOUT SHOWN ON THE DRAWINGS FOR MANHOLES IS TO THE CENTER OF THE STRUCTURE.

WHERE RIM ELEVATIONS ARE PROVIDED ON THE PLANS FOR MANHOLE CASTINGS, THE ELEVATION PROVIDED IS FOR THE TOP OF THE CASTING.

WHERE RIM ELEVATIONS ARE PROVIDED FOR INLET TYPE CASTINGS, THE ELEVATIONS ARE PROVIDED AS FOLLOWS:

- CURB INLETS – THE ELEVATION OF THE TOP OF CURB
- ALL OTHER INLETS – THE ELEVATION OF THE FLOW LINE

WHERE RIM ELEVATIONS ARE PROVIDED ON THE PLANS FOR INLETS OR MANHOLE CASTINGS, THE ELEVATIONS PROVIDED ARE CONSIDERED PRELIMINARY. THE CONTRACTOR SHALL MAKE THE FINAL ADJUSTMENT FOLLOWING THE ESTABLISHMENT OF ACTUAL GRADING AND PAVEMENT ELEVATIONS.

ADJUSTING STRUCTURES

WHERE CASTINGS FOR MANHOLES, CATCH BASINS, INLETS, VALVE BOXES, AND MONUMENT BOXES ARE TO BE ADJUSTED TO MEET A NEW PAVEMENT SURFACE ELEVATION, THE FINAL ADJUSTMENT SHALL NOT BE COMPLETED UNTIL ALL PAVEMENT COURSES HAVE BEEN PLACED EXCEPT THE FINAL COURSE. THE FINAL ADJUSTMENT SHALL BE COMPLETED JUST PRIOR TO PLACEMENT OF THE FINAL COURSE OF PAVEMENT.

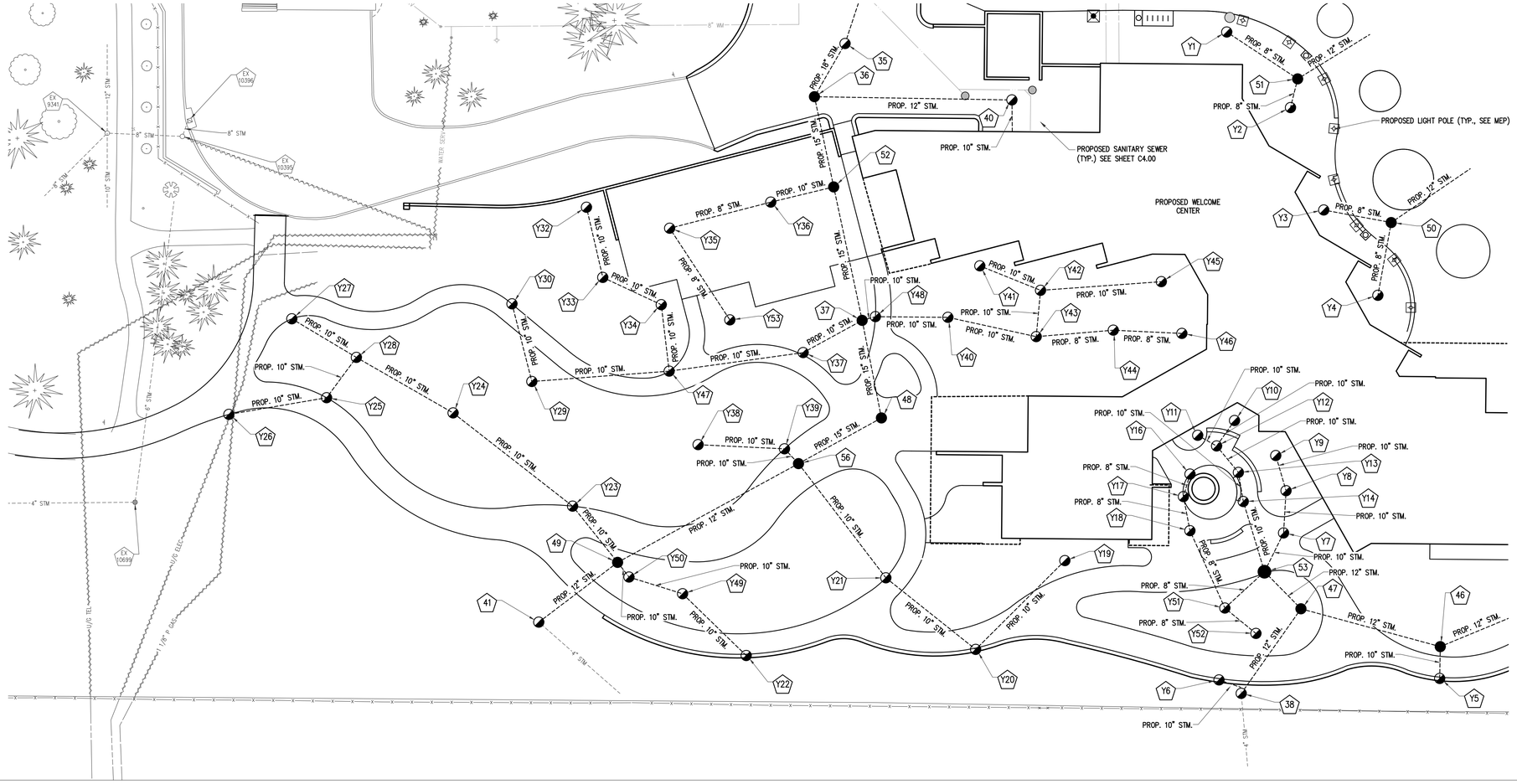
THE MATERIALS AND PROCEDURES FOR ADJUSTING STRUCTURES SHALL MEET THE REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION OVER THE ROAD AND UTILITIES.

STORM SEWER CONSTRUCTION NOTES

DRAINAGE STRUCTURES (EXCEPT THOSE DESIGNATED AS "ADS DRAIN BASINS") SHALL BE CONSTRUCTED FROM PRECAST CONCRETE MANHOLE SECTIONS, MEETING ASTM C478.

SUMPS IN DRAINAGE STRUCTURES AND PIPELINES SHALL BE FREE OF SEDIMENT AND DEBRIS AT THE TIME OF ACCEPTANCE BY THE OWNER.

THE MATERIAL AND PROCEDURES FOR INSTALLATION FOR ADS DRAIN BASINS STRUCTURES TO BE AS RECOMMENDED BY THE MANUFACTURER OR AS SPECIFIED BY THE ENGINEER.



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PROJECT TITLE

NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE

CIVIL DRAIN BASIN PLAN

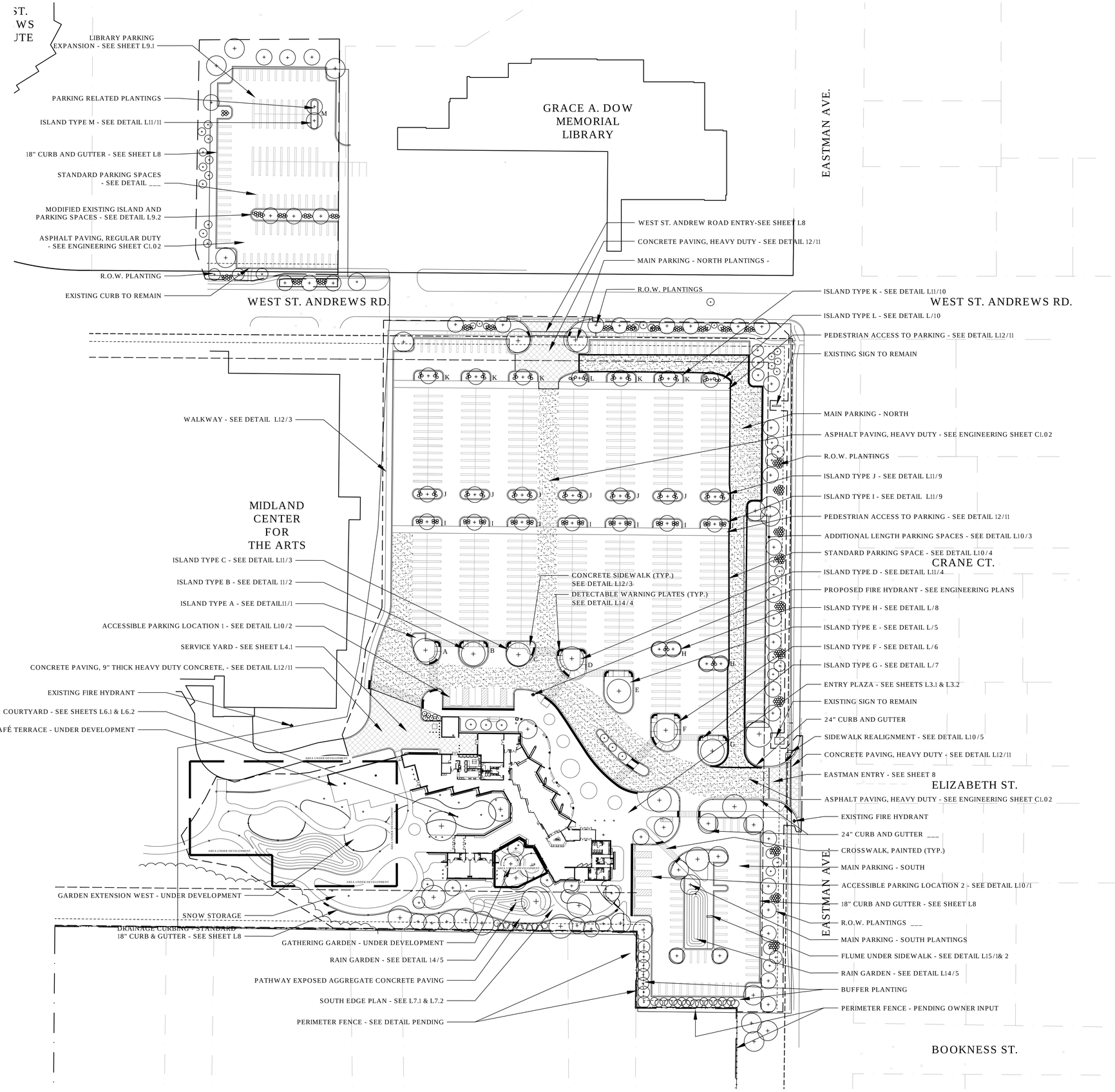
PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 9, 2025

CHECKED BY
AJW

SHEET NUMBER
C4.02

811 Know what's **below.** **Call** before you dig.



DOW GARDENS
WELCOME CENTER

NORTH SCALE: 1" = 50'

NOTES:

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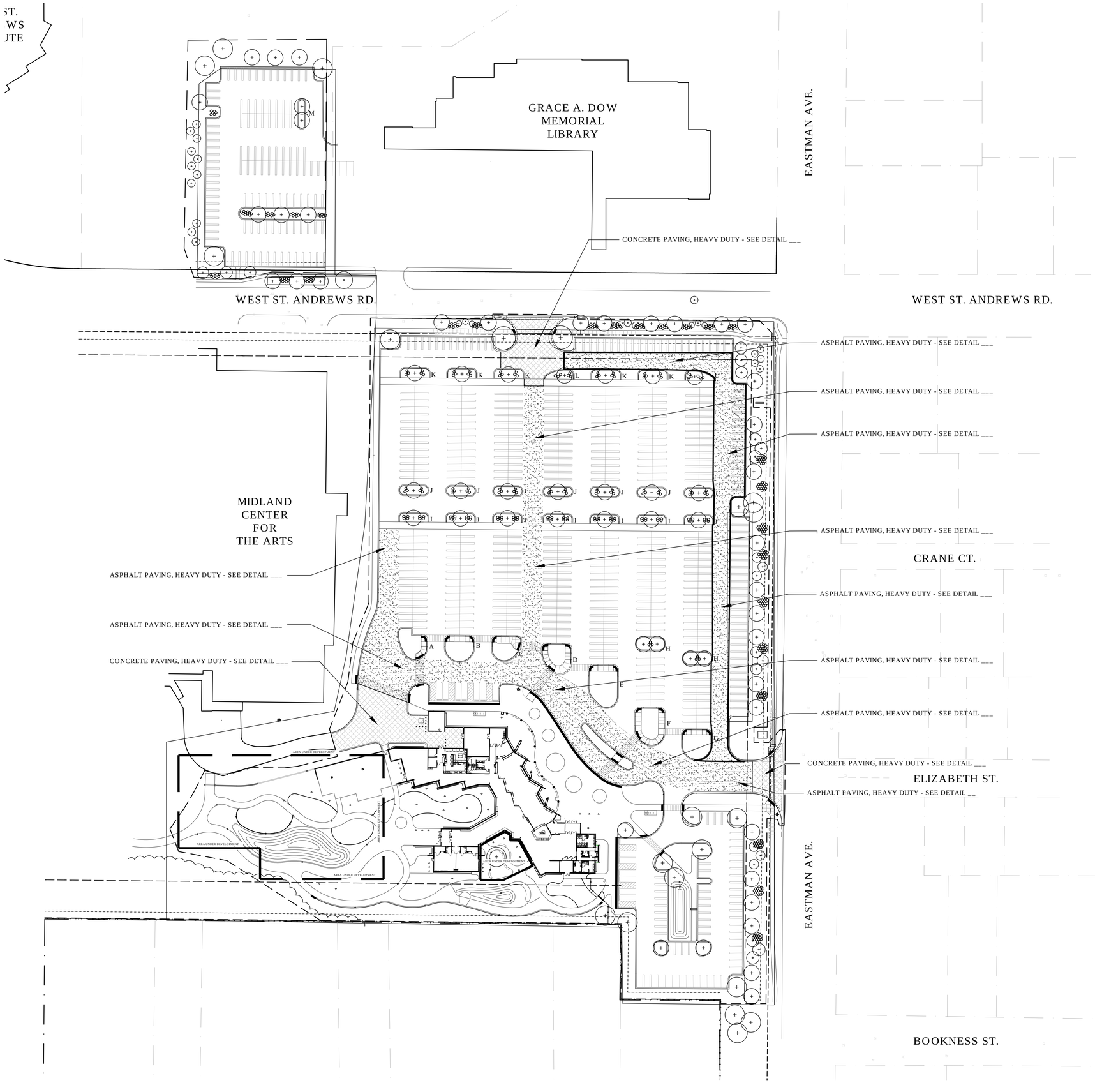
NEW CONSTRUCTION FOR:
DOW GARDENS WELCOME CENTER
MIDLAND, MICHIGAN

SHEET TITLE
SITE OVERVIEW

PROJECT NUMBER 2022022
PROJECT DATE OCTOBER 18, 2024
CHECKED BY M.G.R.
SHEET NUMBER L1.1



DOW GARDENS
WELCOME CENTER

NORTH SCALE: 1" = 50'

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PROJECT TITLE
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MIDLAND, MICHIGAN

SHEET TITLE
HEAVY DUTY PAVING OVERVIEW

PROJECT NUMBER 2022022
PROJECT DATE OCTOBER 18, 2024
CHECKED BY M.G.R.
SHEET NUMBER L2.1

STRIPED CROSSWALK
CURB TAPER (TYP.) - SEE DETAIL L12/2
WHEELSTOPS (TYP. - SEE DETAIL L12/5
ACCESSIBLE PARKING SIGNAGE - SEE DETAIL L14/3
BIKE RACKS AND TRASH RECEPTACLE
SEE DETAIL L14/2 FOR BIKE RACKS
DETECTABLE WARNING PLATES (TYP.)
SEE DETAIL L14/4

REMOTE FIRE DEPARTMENT CONNECTION
NEW FIRE HYDRANT

STRIPED CROSSWALK (TYP.)
PAVEMENT TRANSITION TO LANDING
CROSSWALK LANDING
ENTRY PLAZA ACCESSIBLE CURB EDGE - SEE DETAIL L12/9
SEASONAL PLANTINGS BEDS, TURN-DOWN EDGE
5 TOTAL - SEE DETAIL L12/1
TRASH RECEPTACLE - 2 SHOWN - OWNER SELECTION PENDING
LIGHT BOLLARD (TYP.) - SEE ELECTRICAL PLANS
BENCHES - LENGTHS VARY - SEE DETAIL L14/1

SPLASH DISSIPATER - SEE DETAIL L12/7
DETECTABLE WARNING PLATES (TYP.)
SEE DETAIL L14/4

STRIPED CROSSWALK (TYP.)
CONCRETE WALKWAY - SEE DETAIL L12/3
TRANSITION FROM ACCESSIBLE CURB EDGE
TO STANDARD 18 " CURB AND GUTTER

DISSIPATOR PAD AND STONE-LINED
CHANNEL FROM DOWNSPOUT TO
YARD INLET - 3 AS SHOWN
SEE DETAIL L14/7

WHEELCHAIR ACCESSIBLE
COMPANION SPACE
CONCRETE PAVING - 2 SHOWN
SEE DETAIL L12/3

STRIPED CROSSWALK
EMBEDDED STONE SURFACE
SEE DETAIL L12/8
BIKE RACKS AND TRASH RECEPTACLE
SEE DETAIL L14/2 (OWNER INPUT NEEDED
FOR TRASH RECEPTACLE
STORM WATER INLET WILL BE ADDED TO
ENGINEERING STORM WATER MANAGEMENT SHEETS

SPLASH DISSIPATERS
SEE DETAIL L12/7

STRIPED CROSSWALK
WHEELSTOPS (TYP.) - SEE DETAIL L12/5
ACCESSIBLE PARKING SIGNAGE - SEE DETAIL L14/3
DETECTABLE WARNING PLATES - SEE DETAIL L14/4

AREA UNDER DEVELOPMENT

DOW GARDENS
WELCOME CENTER
NORTH SCALE: 1" = 10'

NOTES:

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MIDLAND, MICHIGAN

SHEET TITLE
ENTRY PLAZA
SITE PLAN

PROJECT NUMBER 2022022
PROJECT DATE OCTOBER 18, 2024
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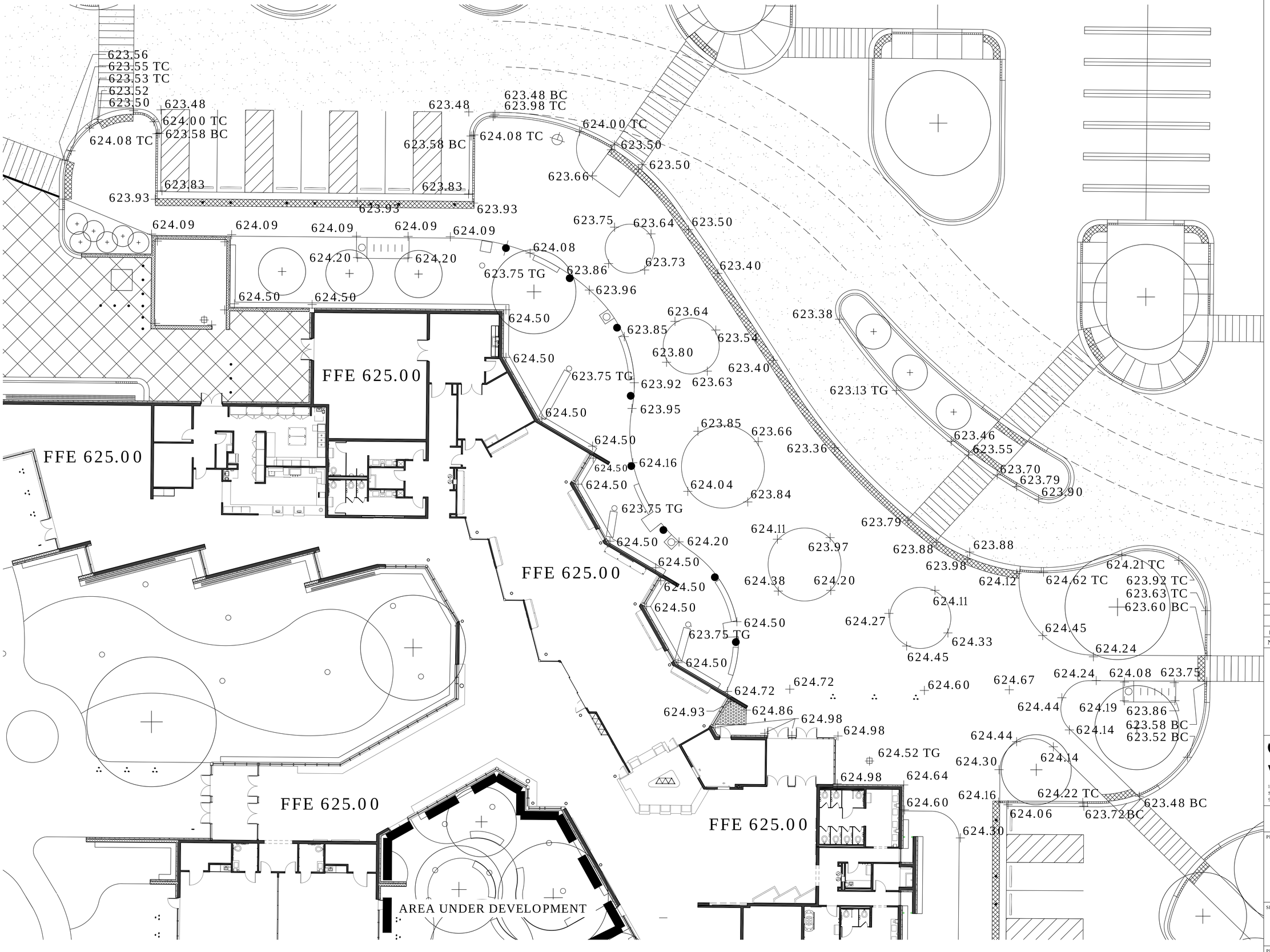
SHEET NUMBER L3.1



DOW GARDENS
WELCOME CENTER

NORTH SCALE: 1" = 10'

NOTES:

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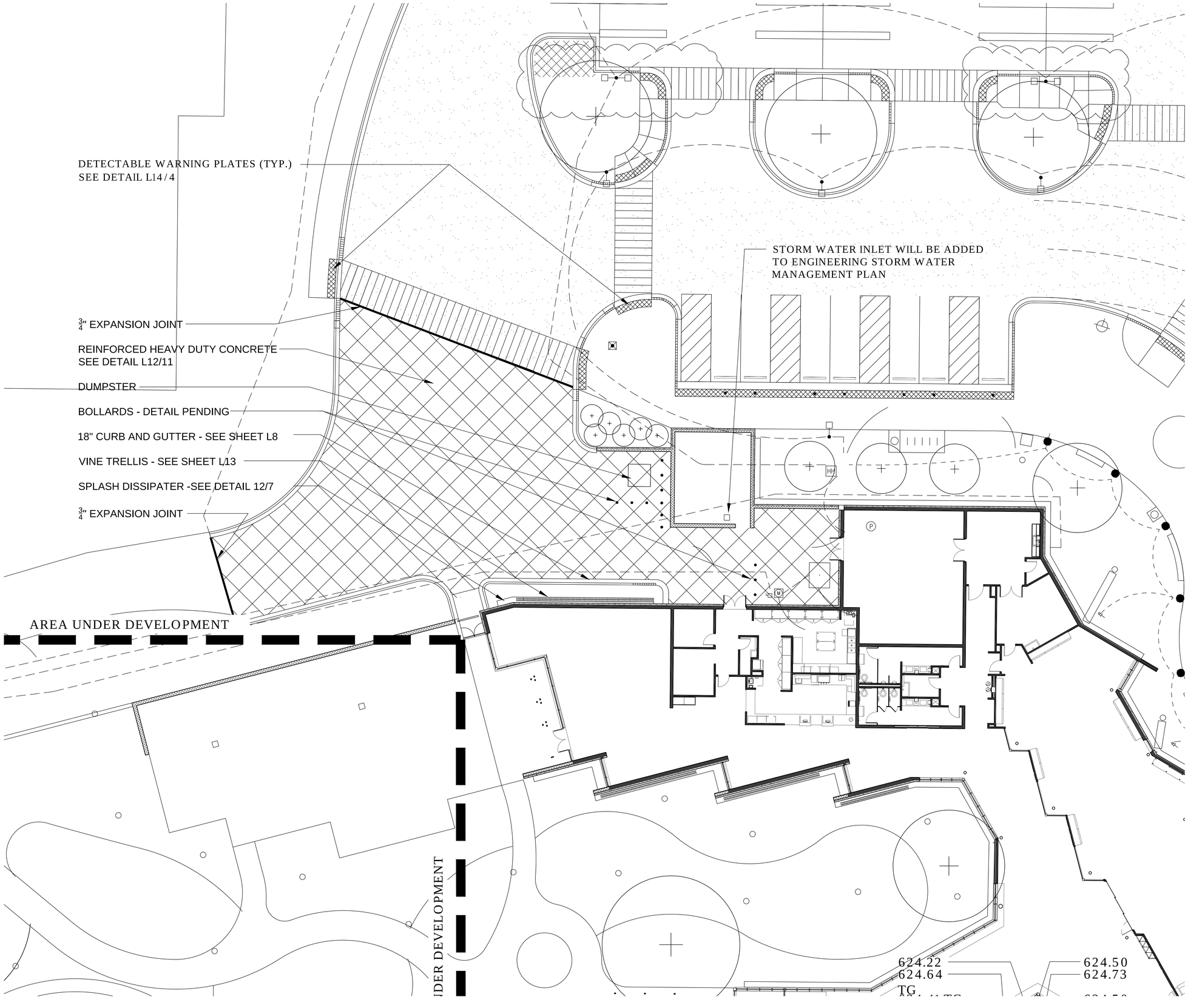
MIDLAND, MICHIGAN

SHEET TITLE
ENTRY PLAZA
GRADING PLAN

PROJECT NUMBER: 2022022
PROJECT DATE: OCTOBER 18, 2024
CHECKED BY: M.G.R.
SHEET NUMBER: L3.2



DOW GARDENS
WELCOME CENTER

NORTH SCALE: 1" = 10'

NOTES:

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PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
MIDLAND, MICHIGAN

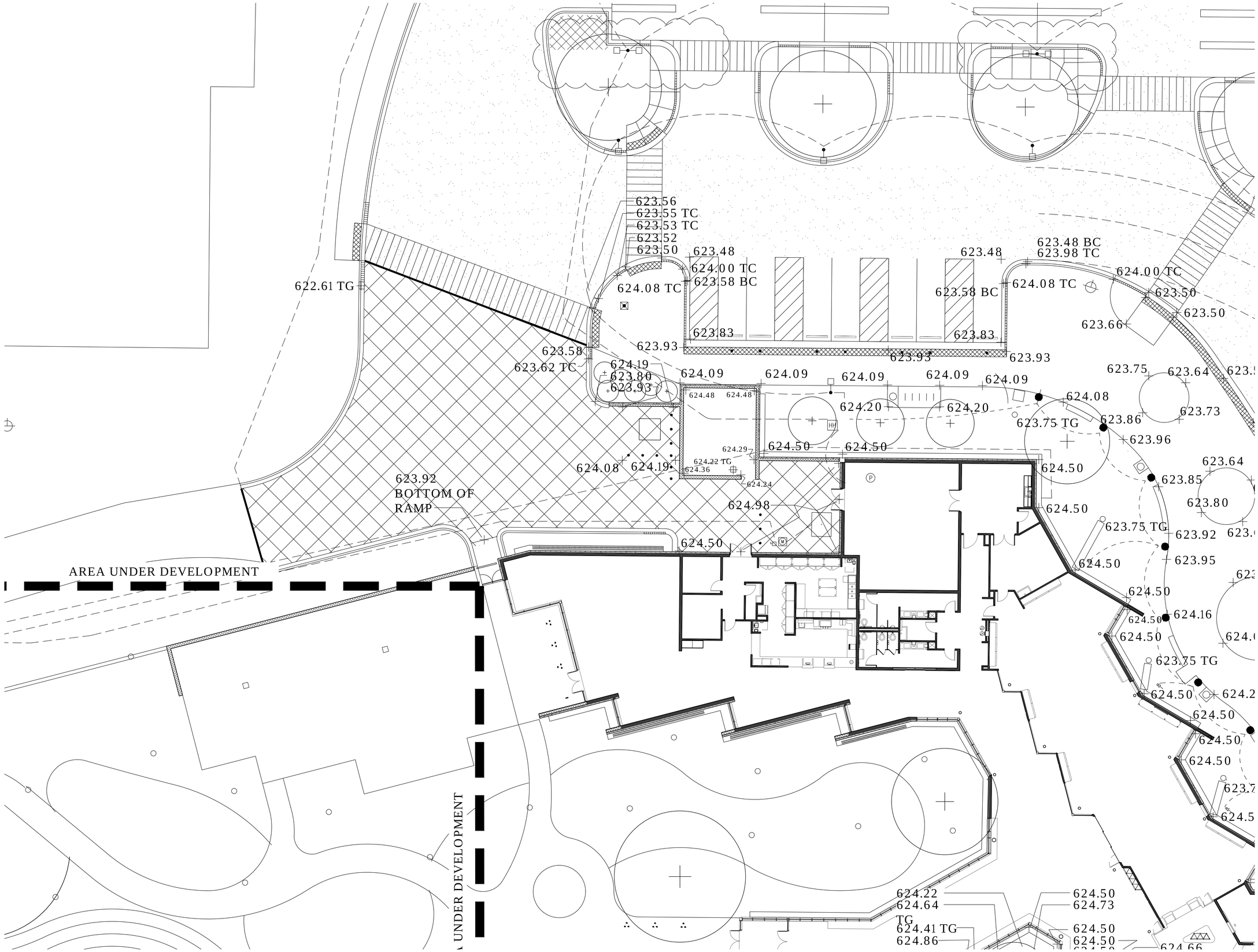
SHEET TITLE
SERVICE YARD
SITE PLAN

PROJECT NUMBER
2022022

PROJECT DATE
OCTOBER 18, 2024

CHECKED BY
M.G.R.

SHEET NUMBER
L4.1



NOTES:
1. SEE ENGINEERING PLANS FOR PRIMARY GRADING AND DRAINAGE IN THE SERVICE YARD.

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NEW CONSTRUCTION FOR:
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WELCOME CENTER
MIDLAND, MICHIGAN

SHEET TITLE
SERVICE YARD
GRADING PLAN* SEE NOTE #1 ABOVE

PROJECT NUMBER 2022022
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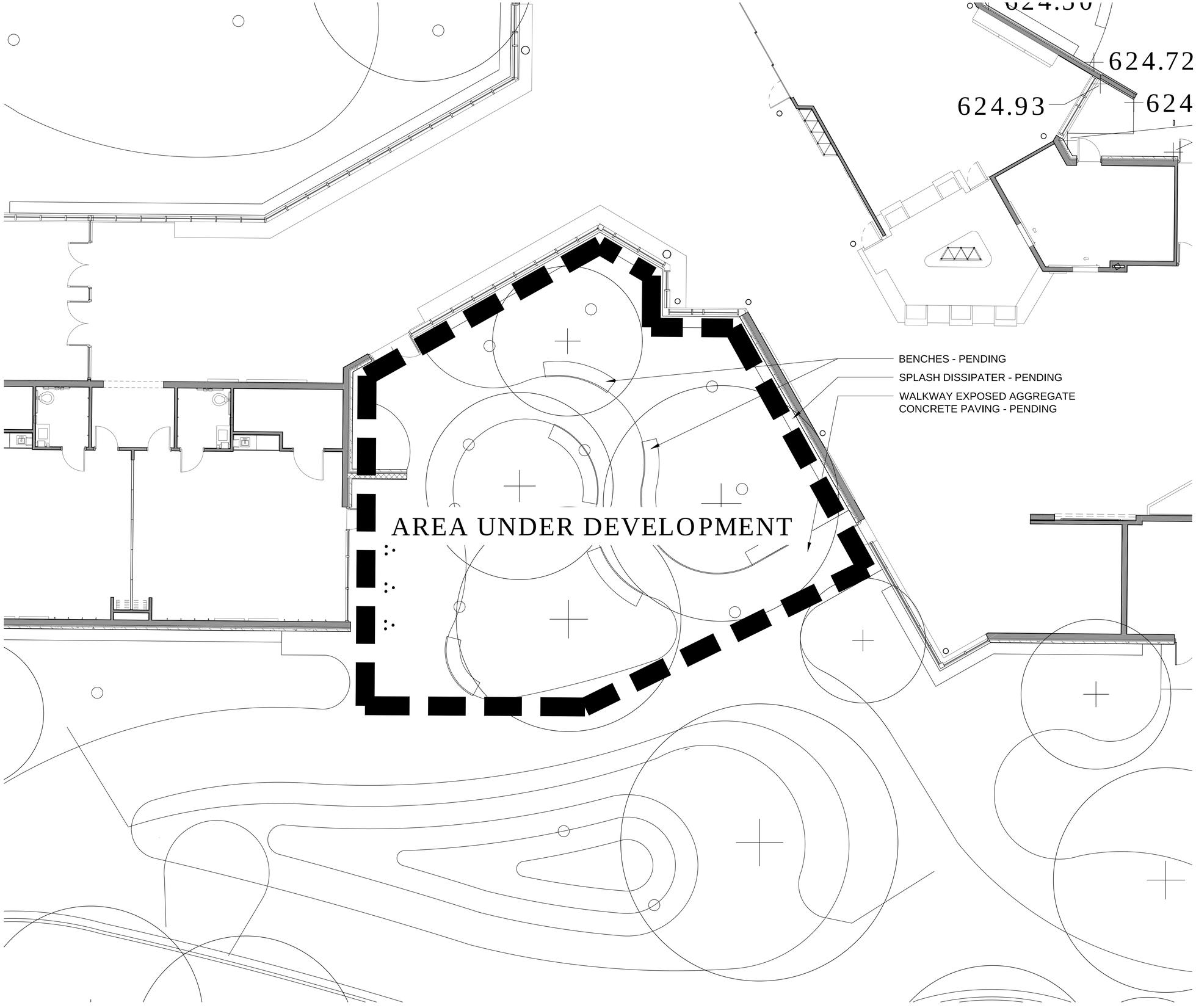
SHEET NUMBER L4.2

DOW GARDENS
WELCOME CENTER
NORTH SCALE: 1" = 5'



DOW GARDENS
WELCOME CENTER

NORTH SCALE: 1" = 5'

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NEW CONSTRUCTION FOR:

DOW GARDENS
WELCOME CENTER

MIDLAND, MICHIGAN

SHEET TITLE

GATHERING GARDEN
SITE PLAN

PROJECT NUMBER
2022022

PROJECT DATE
OCTOBER 18, 2024

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M.G.R.

SHEET NUMBER
L5.1

AREA UNDER DEVELOPMENT

CAFE TERRACE -
UNDER DEVELOPMENT

SPLASH DISSIPATER - SEE DETAIL L12/7

VINE TRELLISES - SEE SHEET L13

LAWN BED SPADED EDGE

AREA UNDER DEVELOPMENT

AREA UNDER DEVELOPMENT

AREA UNDER DEVELOPMENT

DOW GARDENS
WELCOME CENTER

NORTH SCALE: 1" = 10'

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NEW CONSTRUCTION FOR:

DOW GARDENS
WELCOME CENTER

MIDLAND, MICHIGAN

SHEET TITLE

COURTYARD
SITE PLAN

PROJECT NUMBER
2022022

PROJECT DATE
OCTOBER 18, 2024

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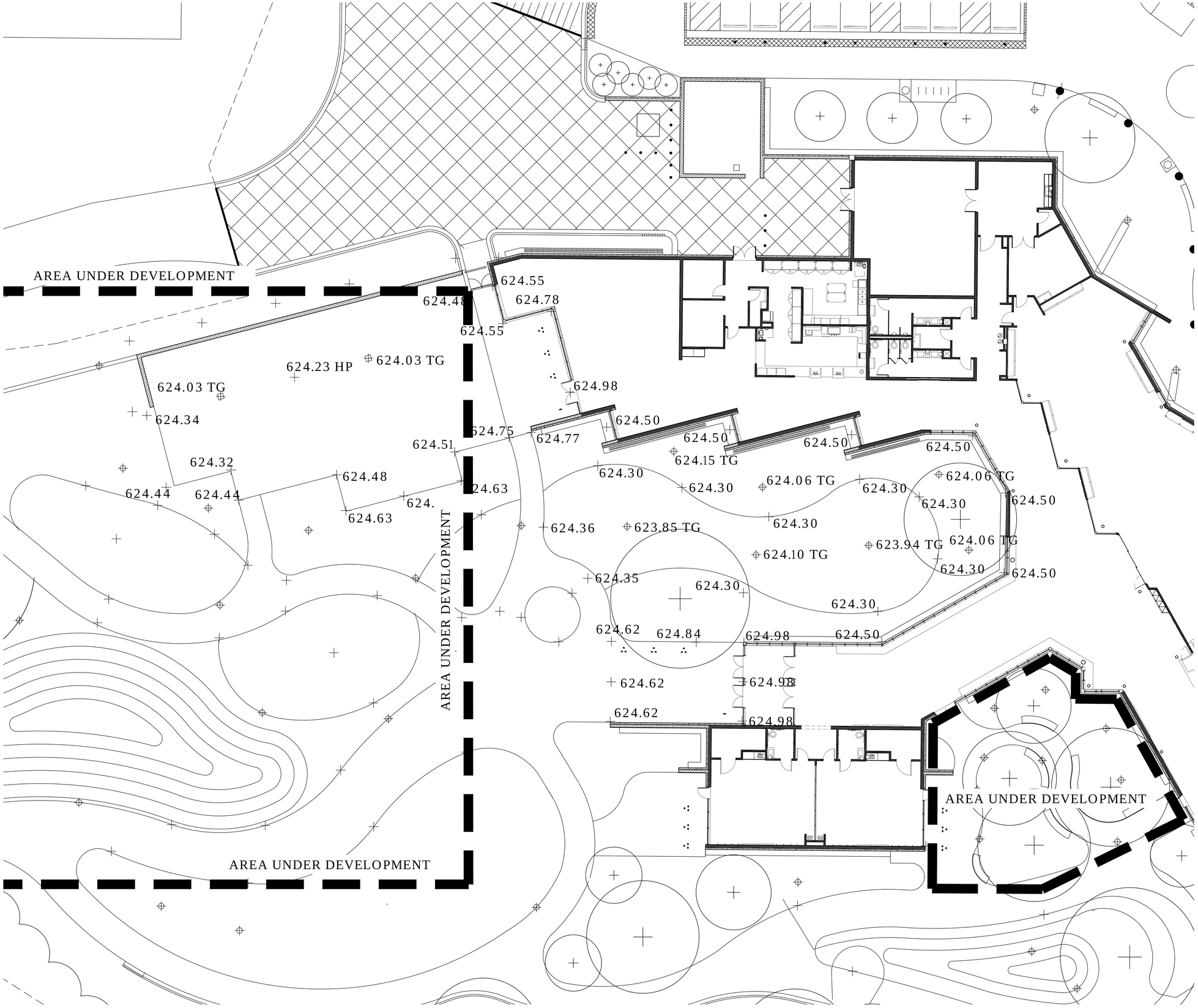
SHEET NUMBER
L6.1



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PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
MIDLAND, MICHIGAN

SHEET TITLE
COURTYARD
GRADING PLAN

PROJECT NUMBER
2022022

PROJECT DATE
OCTOBER 18, 2024

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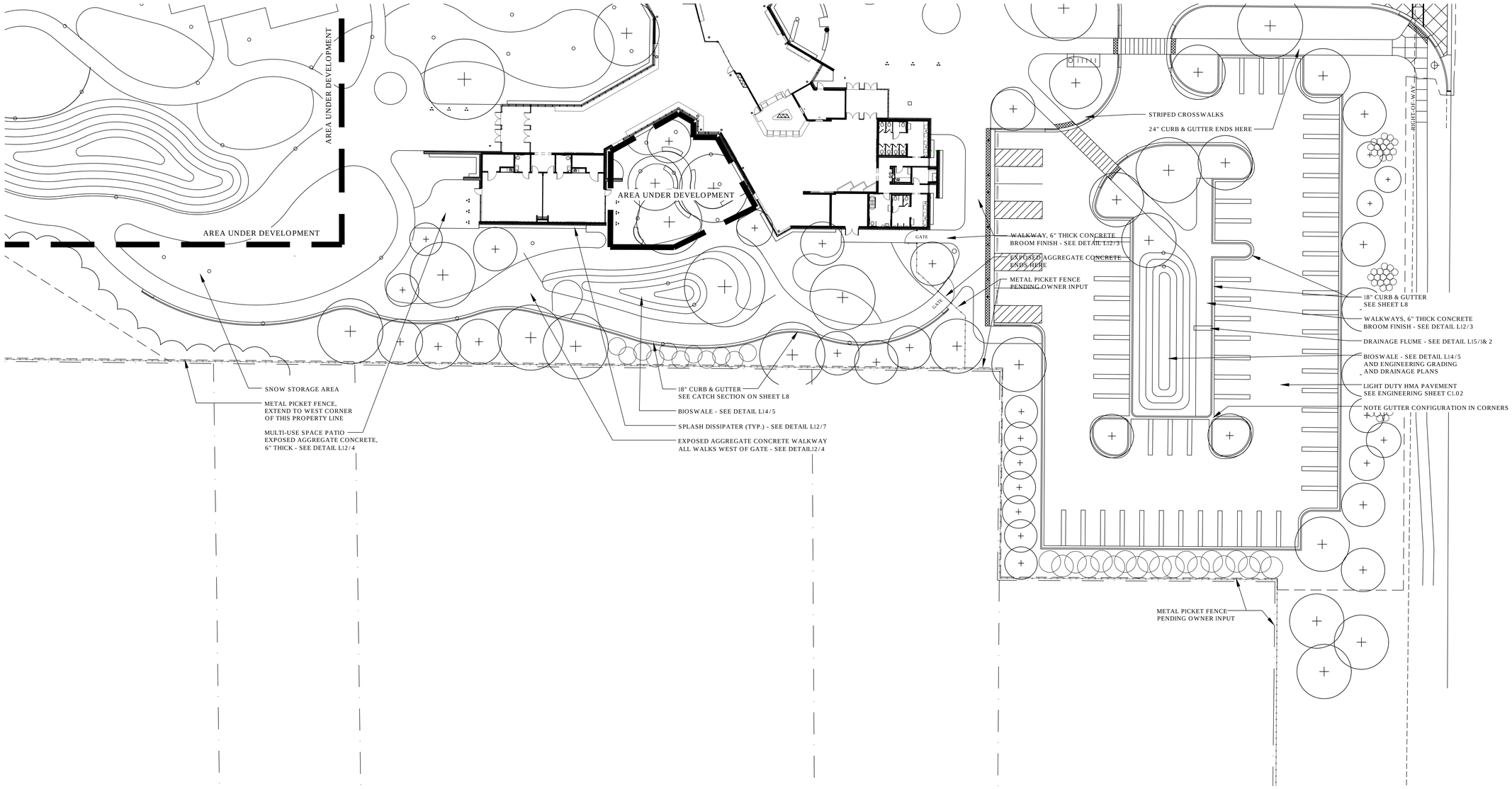
SHEET NUMBER
L6.2

NORTH
DOW GARDENS
WELCOME CENTER
SCALE: 1" = 10'



DOW GARDENS
WELCOME CENTER

NORTH SCALE: 1" = 20'

NOTES:

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NEW CONSTRUCTION FOR:

DOW GARDENS
WELCOME CENTER

MIDLAND, MICHIGAN

SHEET TITLE

SOUTH EDGE
SITE PLAN

PROJECT NUMBER
2022022

PROJECT DATE
OCTOBER 18, 2024

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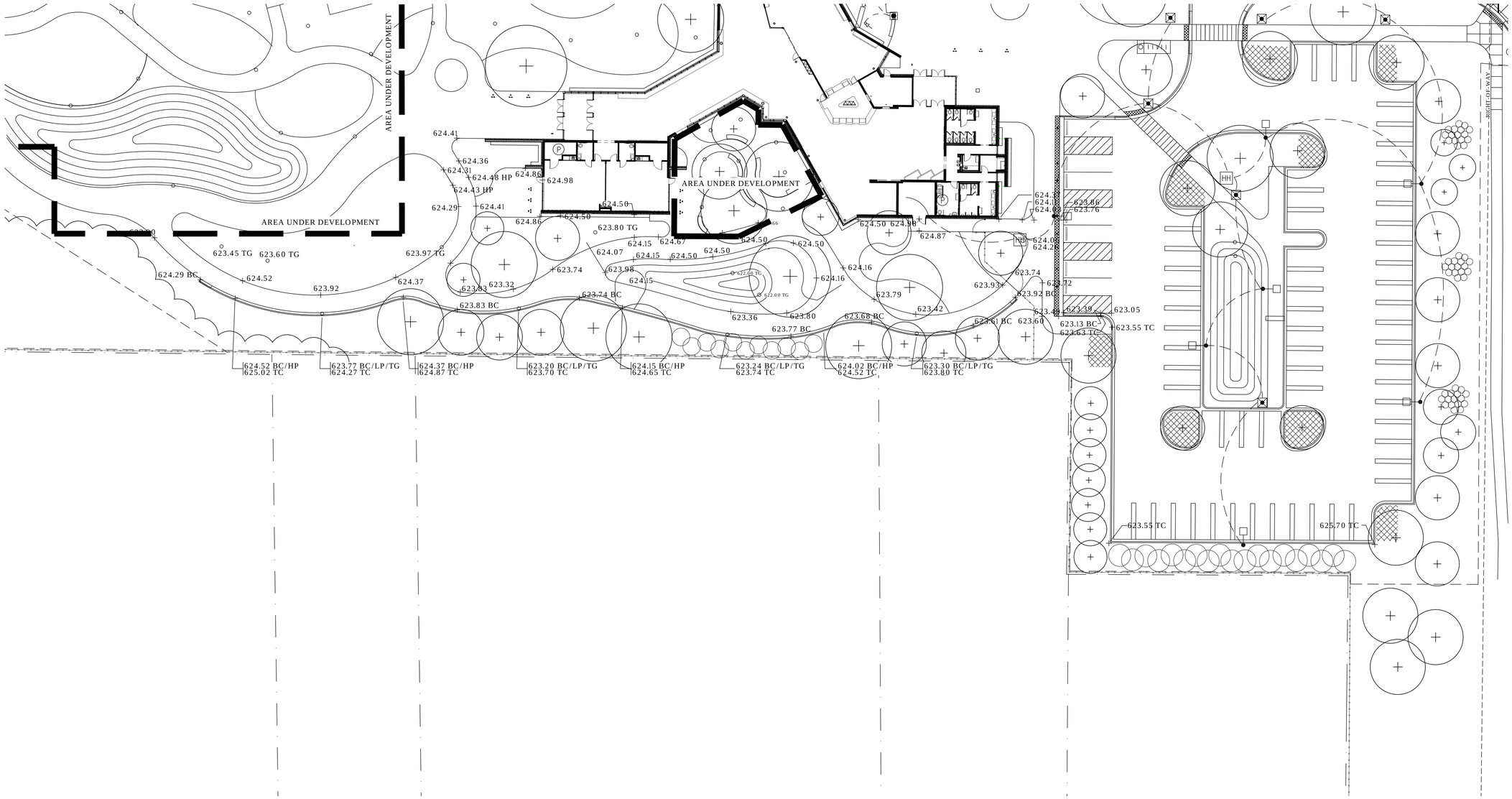
SHEET NUMBER
L7.1



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NEW CONSTRUCTION FOR:

DOW GARDENS
WELCOME CENTER

MIDLAND, MICHIGAN

SHEET TITLE

SOUTH EDGE
GRADING PLAN

PROJECT NUMBER
2022022

PROJECT DATE
OCTOBER 18, 2024

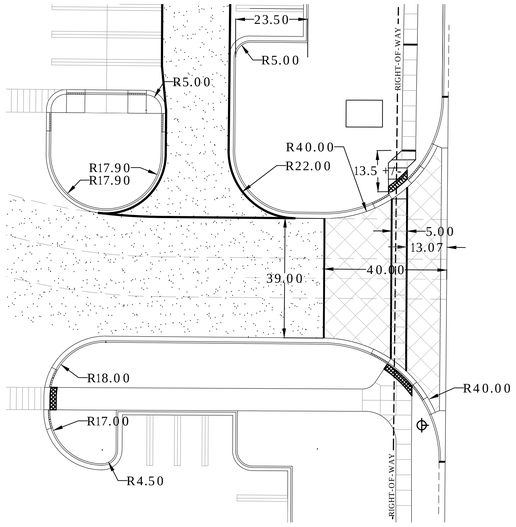
CHECKED BY
M.G.R.

SHEET NUMBER
L7.2

NORTH

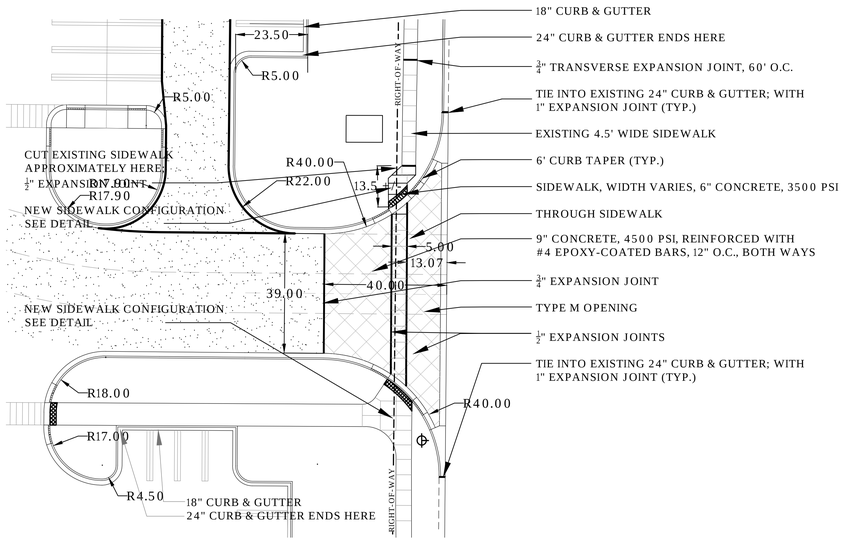
DOW GARDENS
WELCOME CENTER

SCALE: 1" = 20'



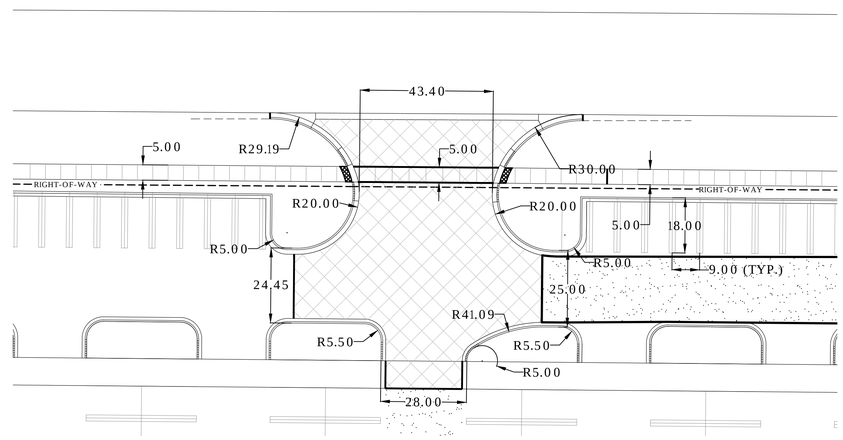
DRIVEWAY DETAIL - DIMENSIONS
EASTMAN AVE. ENTRANCE

SCALE: 1" = 20'



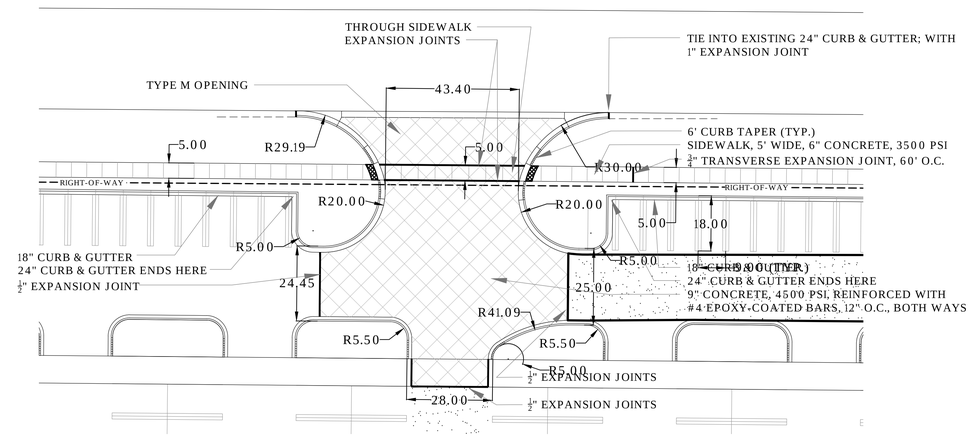
DRIVEWAY DETAIL - NOTATIONS
EASTMAN AVE. ENTRANCE

SCALE: 1" = 20'



DRIVEWAY DETAIL - DIMENSIONS
W. ST. ANDREWS ENTRANCE

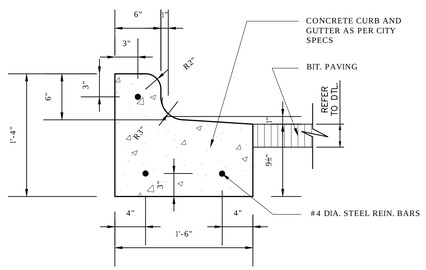
SCALE: 1" = 20'



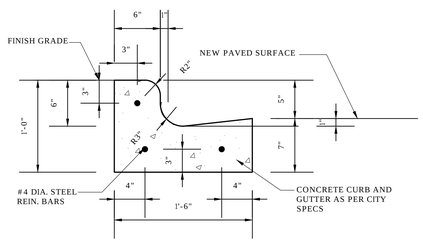
DRIVEWAY DETAIL - NOTATIONS
W. ST. ANDREWS ENTRANCE

SCALE: 1" = 20'

NOTES:
1. REFER TO CITY OF MIDLAND, MICHIGAN ENGINEERING DEPARTMENT DETAIL SHEET-STANDARD DETAILS FOR ADDITIONAL INFORMATION REGARDING "COMMERCIAL DRIVEWAY OPENING, DETAIL M."

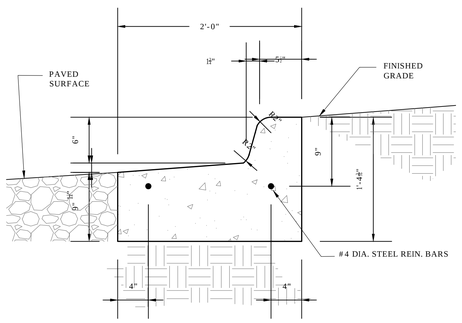


18" CURB & GUTTER - SPILL
SCALE: 1 1/2" = 1'-0"

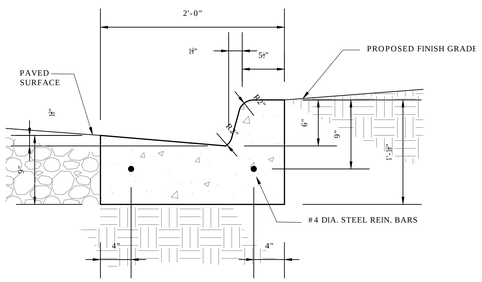


18" CURB & GUTTER - CATCH
SCALE: 1 1/2" = 1'-0"

NOTES—ALL CURB& GUTTER:
1. SCORE CURB / VALLEY GUTTER AT 15' O.C.
2. PROVIDE 1/2" EXPANSION JOINTS AT 90' O.C.



24" CURB & GUTTER - SPILL
SCALE: 1 1/2" = 1'-0"



24" CURB & GUTTER - CATCH
SCALE: 1 1/2" = 1'-0"

DOW GARDENS
WELCOME CENTER
NORTH SCALE: SEE INDIVIDUAL DETAILS

NOTES:

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO. 1	12/26/24

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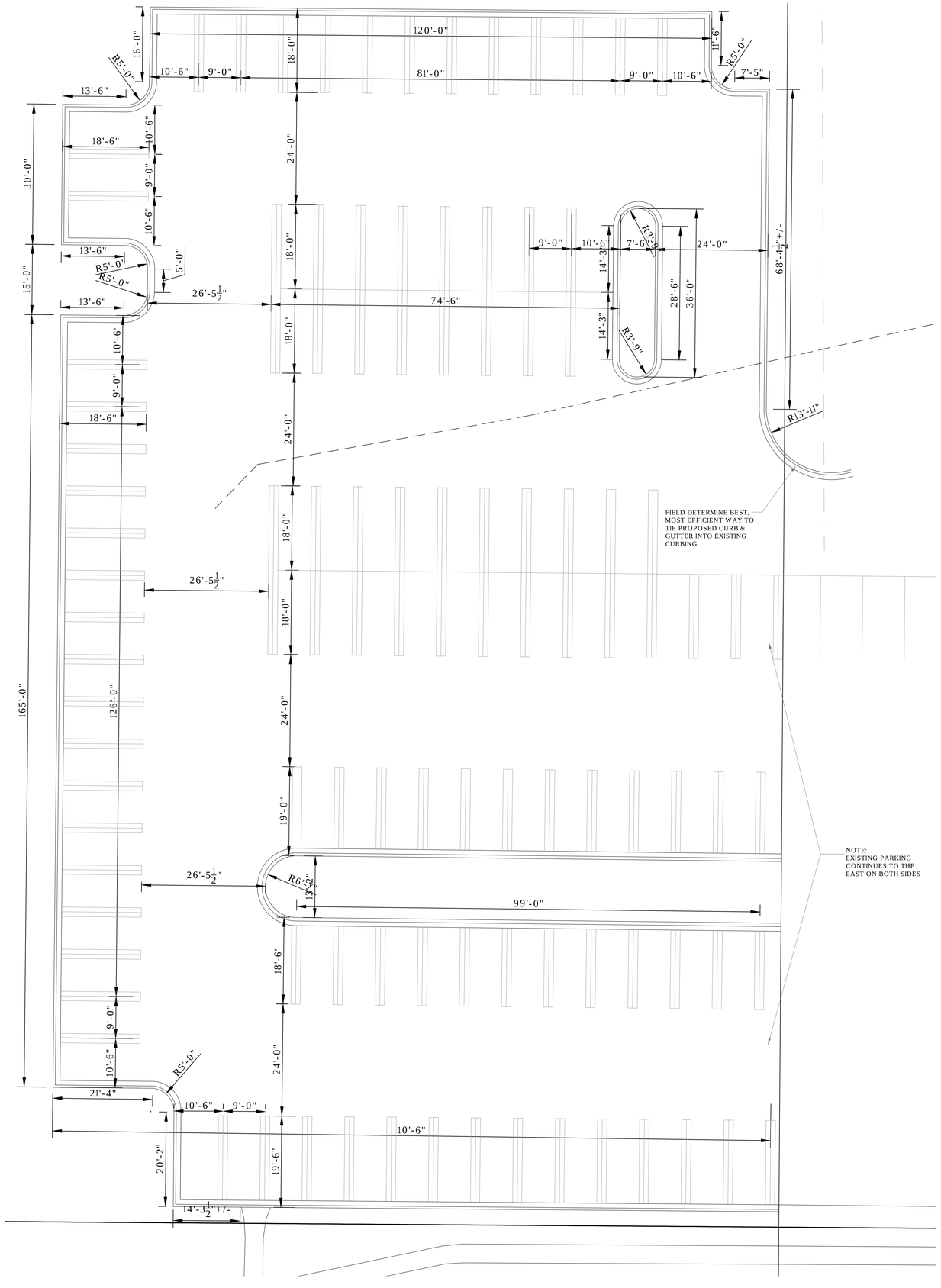
SCALE: SEE INDIVIDUAL DETAILS

PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
MIDLAND, MICHIGAN

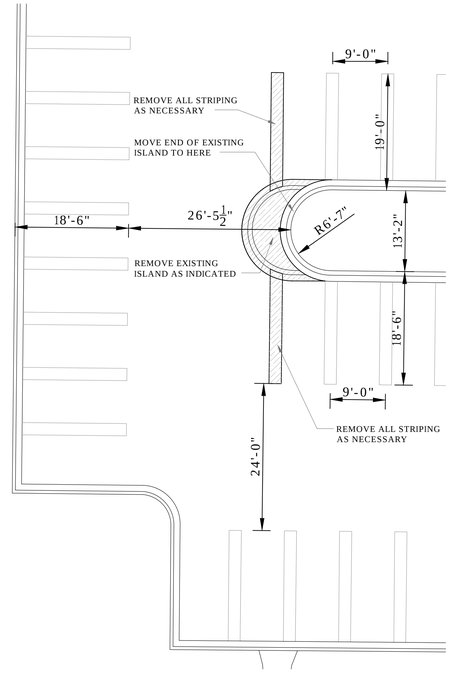
SHEET TITLE
MAIN ENTRANCE DETAILS; & CURB AND GUTTER DETAILS

PROJECT NUMBER 2022022
PROJECT DATE OCTOBER 18, 2024
CHECKED BY M.G.R.
SHEET NUMBER L8



DOW GARDENS
WELCOME CENTER
NORTH SCALE: SEE INDIVIDUAL DETAILS

1 LIBRARY PARKING EXPANSION DETAIL
SCALE: 1" = 10'



2 LIBRARY EXISTING PARKING ISLAND MODIFICATION DETAIL
SCALE: 1" = 10'

NOTES:

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PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
MIDLAND, MICHIGAN

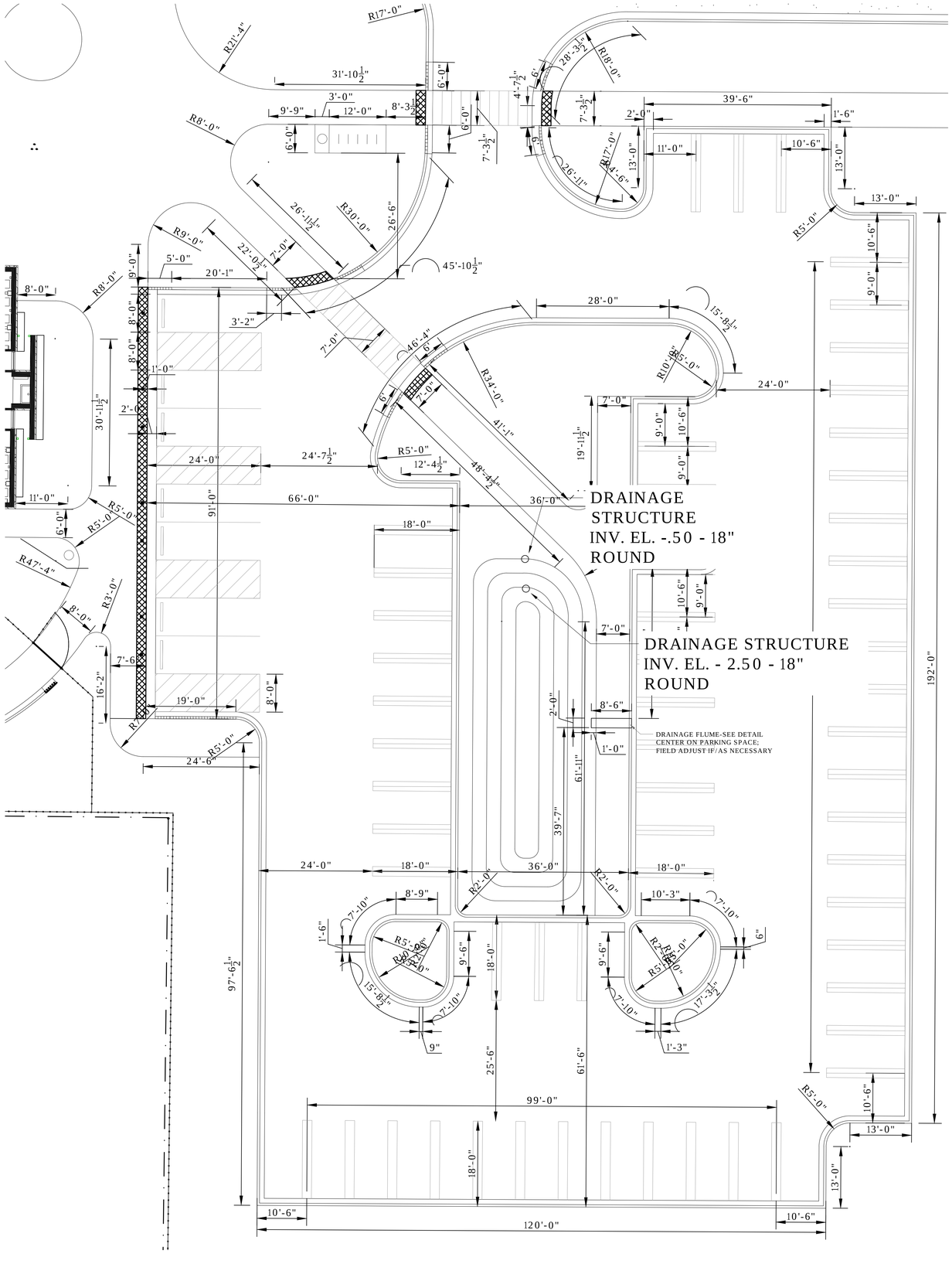
SHEET TITLE
LIBRARY PARKING LOT
EXPANSION STAKING
AND DETAILS

PROJECT NUMBER
2022022

PROJECT DATE
OCTOBER 18, 2024

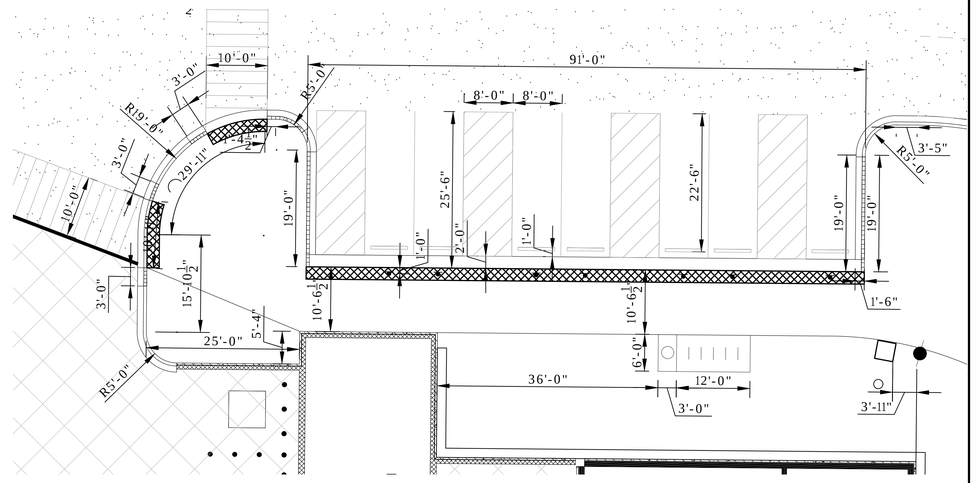
CHECKED BY
M.G.R.

SHEET NUMBER
L9

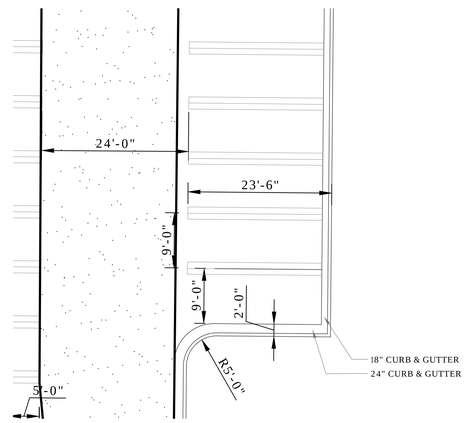


1 SOUTH PARKING LOT AND BARRIER FREE PARKING LOCATION 2
SCALE: 1" = 10'

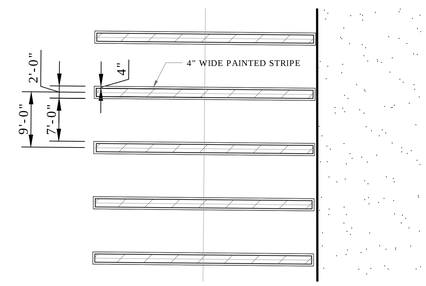
DOW GARDENS
WELCOME CENTER
NORTH SCALE: SEE INDIVIDUAL DETAILS



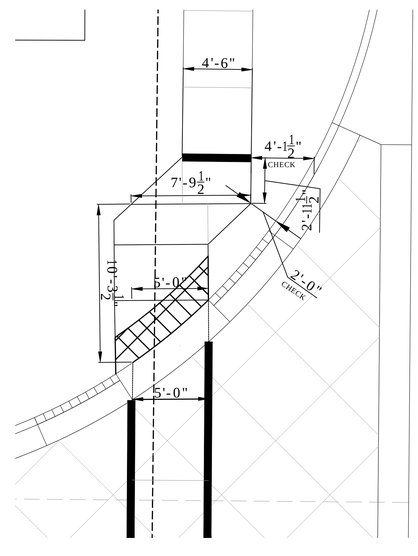
2 BARRIER FREE PARKING LOCATION 1
SCALE: 1" = 10'



3 ADDITIONAL LENGTH PARKING SPACES
SCALE: 1" = 10'



4 CITY OF MIDLAND PARKING STRIPING
SCALE: 1" = 10'



5 SIDEWALK REALIGNMENT
SCALE: 1" = 4'

NOTES:

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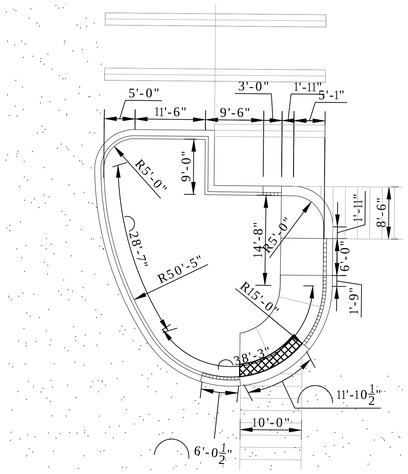
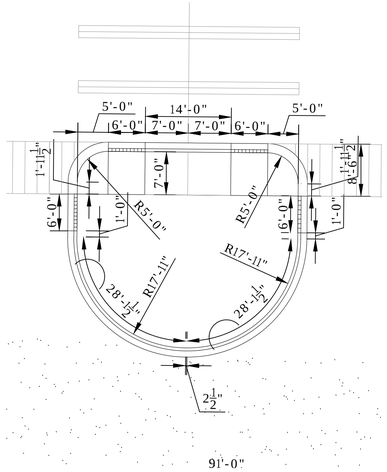
PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
MIDLAND, MICHIGAN

SHEET TITLE
CONSTRUCTION AND
PARKING DETAILS

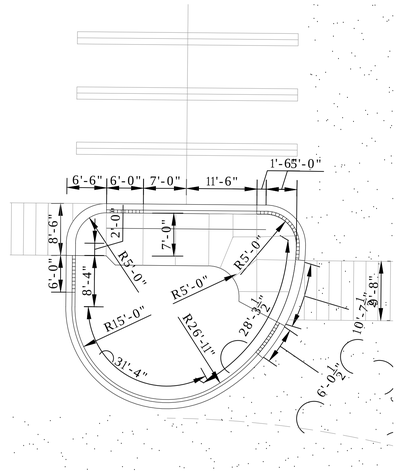
PROJECT NUMBER 2022022
PROJECT DATE OCTOBER 18, 2024
CHECKED BY M.G.R.
SHEET NUMBER L10



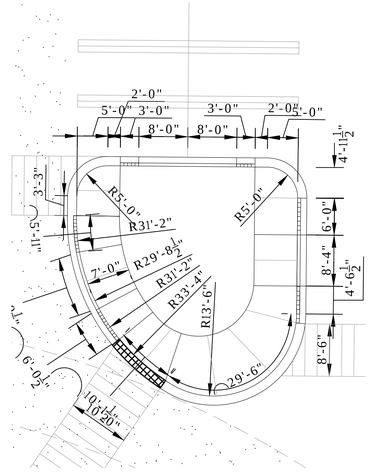
1 ENLARGED ISLAND DETAIL - A
SCALE: 1" = 10'



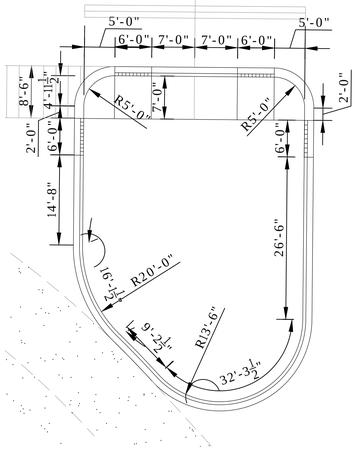
2 ENLARGED ISLAND DETAIL - B
SCALE: 1" = 10'



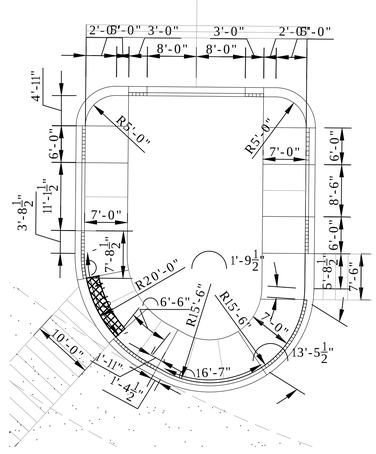
3 ENLARGED ISLAND DETAIL - C
SCALE: 1" = 10'



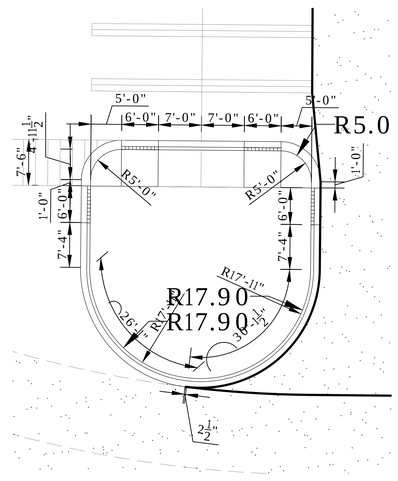
4 ENLARGED ISLAND DETAIL - D
SCALE: 1" = 10'



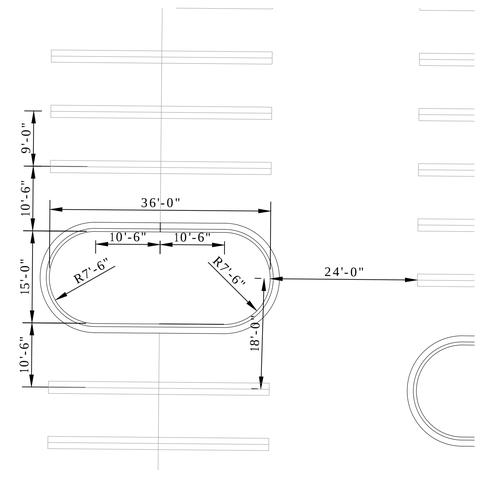
5 ENLARGED ISLAND DETAIL - E
SCALE: 1" = 10'



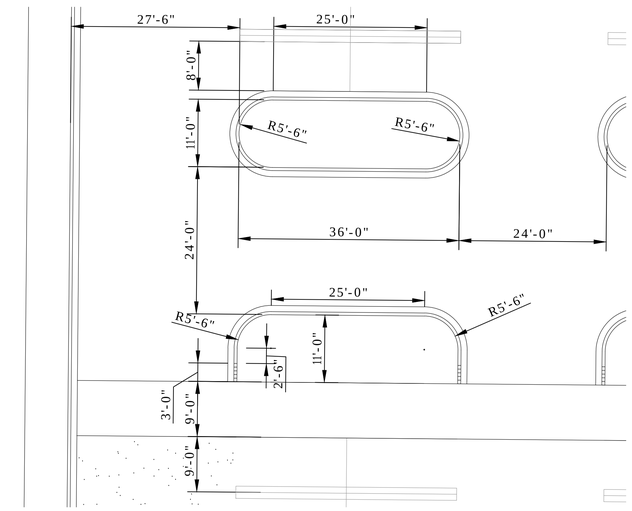
6 ENLARGED ISLAND DETAIL - F
SCALE: 1" = 10'



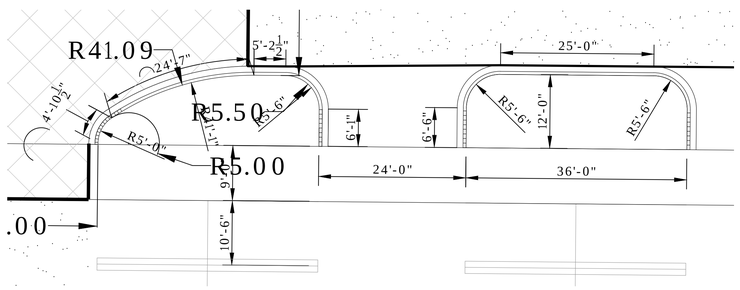
7 ENLARGED ISLAND DETAIL - G
SCALE: 1" = 10'



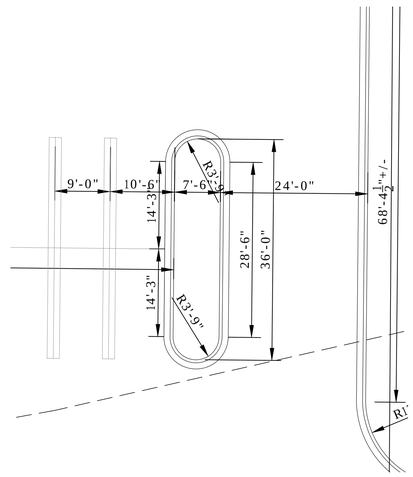
8 ENLARGED ISLAND DETAIL - H
SCALE: 1" = 10'



9 ENLARGED ISLAND DETAIL - I & J
SCALE: 1" = 10'



10 ENLARGED ISLAND DETAIL - K & L
SCALE: 1" = 10'



11 ENLARGED ISLAND DETAIL - M
SCALE: 1" = 10'

DOW GARDENS
WELCOME CENTER
NORTH SCALE: SEE INDIVIDUAL DETAILS

NOTES:
1. 18" CURB AND GUTTER TO BE USED IN ALL SITUATIONS SHOWN ON THIS SHEET

NO.	REVISION	DATE
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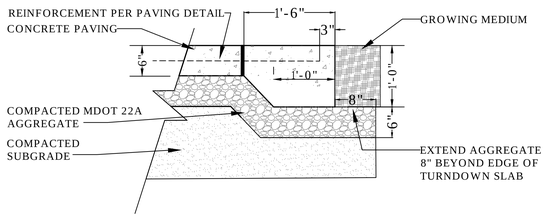
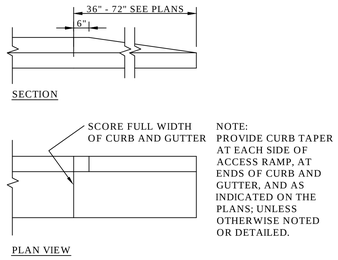
PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
MIDLAND, MICHIGAN

SHEET TITLE
PARKING ISLAND
STAKING DETAILS

PROJECT NUMBER 2022022
PROJECT DATE OCTOBER 18, 2024
CHECKED BY M.G.R.
SHEET NUMBER L11

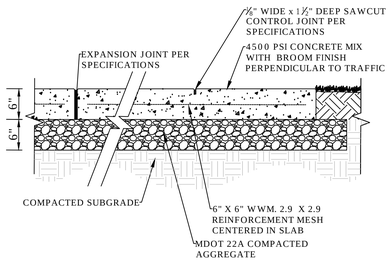


1 TURNDOWN EDGE FOR CIRCULAR PLANTING BEDS
SCALE: 1" = 1'-0"



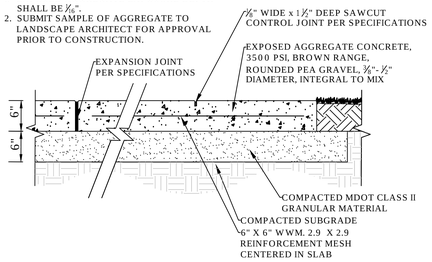
NOTE:
PROVIDE CURB TAPER AT EACH SIDE OF ACCESS RAMP, AT ENDS OF CURB AND GUTTER, AND AS INDICATED ON THE PLANS; UNLESS OTHERWISE NOTED OR DETAILED.

2 CURB TAPERS
SCALE: 1/2" = 1'-0"

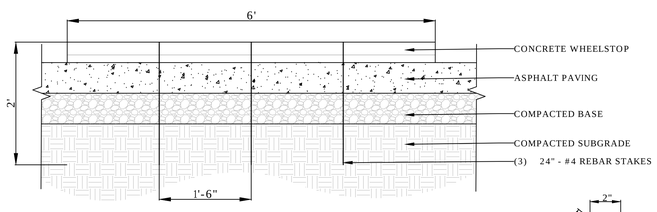


3 PLAZA CONCRETE PAVING
SCALE: 1" = 1'-0"

NOTES:
1. EXPOSED AGGREGATE EXPOSURE DEPTH SHALL BE ⅜".
2. SUBMIT SAMPLE OF AGGREGATE TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO CONSTRUCTION.



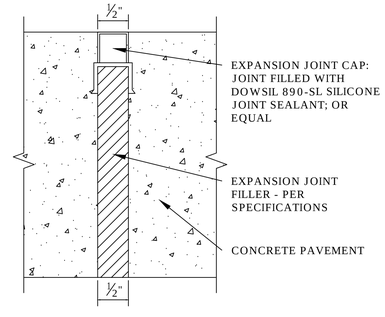
4 PATHWAY EXPOSED AGGREGATE CONCRETE PAVING
SCALE: 1" = 1'-0"



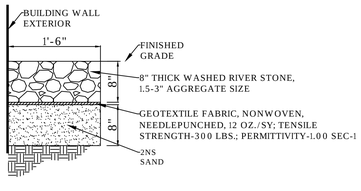
SPECIFICATIONS

LENGTH	72"
HEIGHT	4"
WIDTH	6"
COLORS	STANDARD CONCRETE
SECURING HOLES:	COUNTERSUNK 1/2" DIAMETER SEAL WITH SILICONE JOINT SEALANT

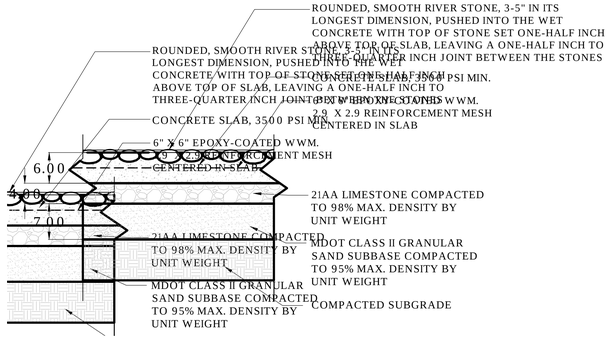
5 WHEELSTOP DETAIL
SCALE: 1" = 1'-0"



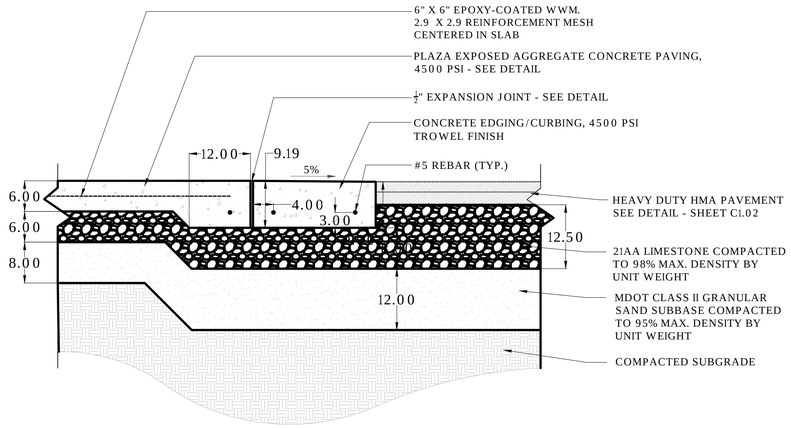
6 EXPANSION JOINT DETAIL
SCALE: 1" = 4"



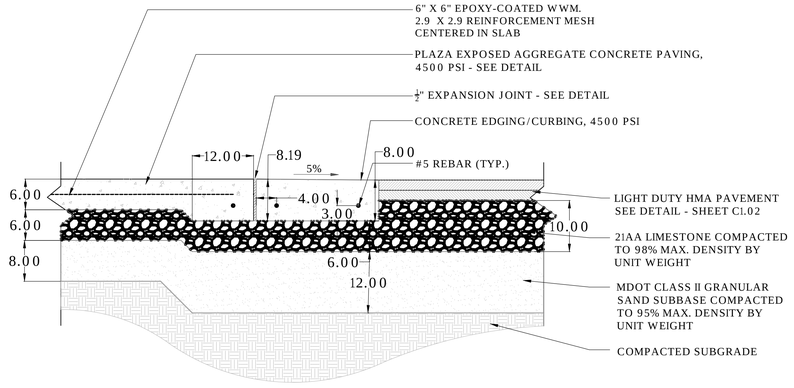
7 SPLASH DISSIPATER
SCALE: 1" = 1'-0"



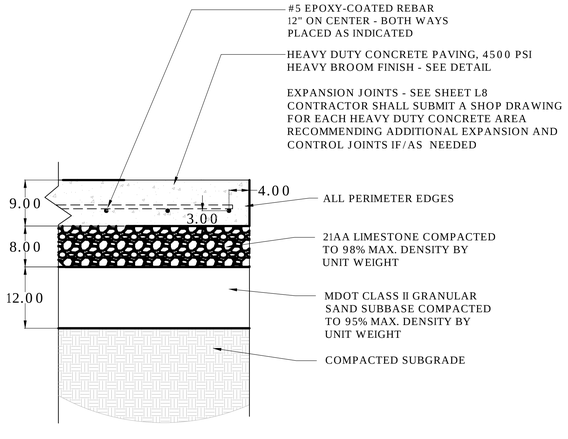
8 EXPOSED RIVER STONE PAVING
SCALE: 1" = 1'-0"



9 ACCESSIBLE CURB EDGE AT ENTRY PLAZA
SCALE: 1" = 1'-0"



10 ACCESSIBLE CURB EDGE AT BARRIER FREE PARKING BAYS
SCALE: 1" = 1'-0"



11 HEAVY DUTY CONCRETE PAVING FOR DRIVEWAY ENTRIES AND SERVICE YARD
SCALE: 1" = 1'-0"

NORTH
DOW GARDENS WELCOME CENTER
PER INDIVIDUAL DETAIL

811 Know what's below. Call before you dig.

NOTES:

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO. 1	12/26/24

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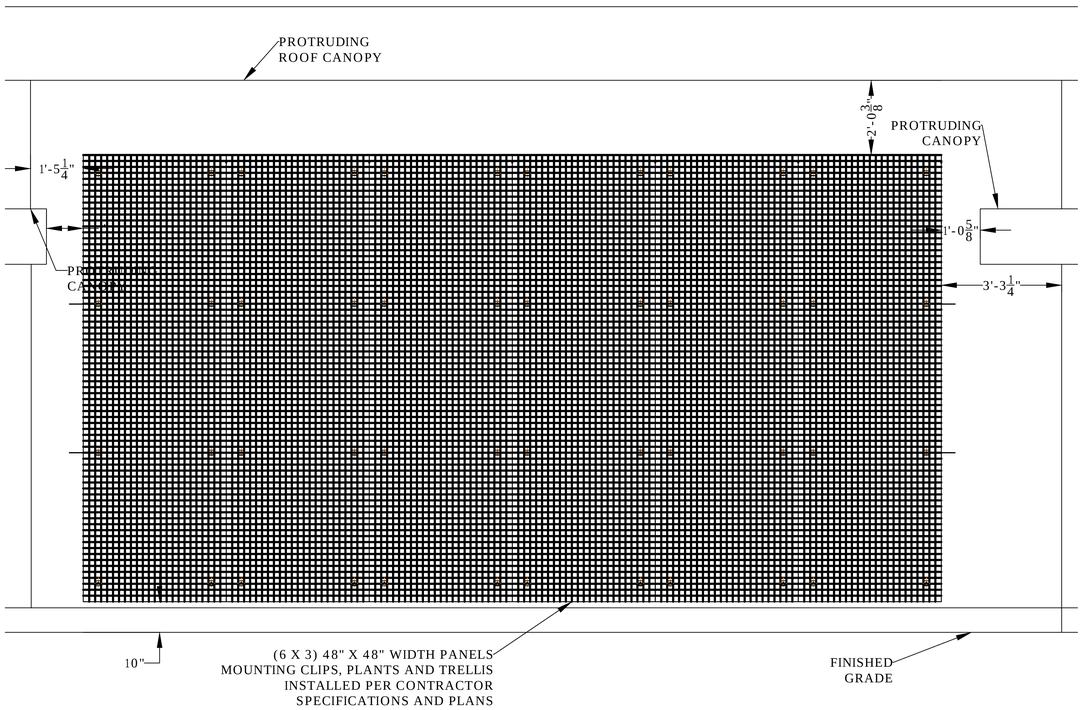
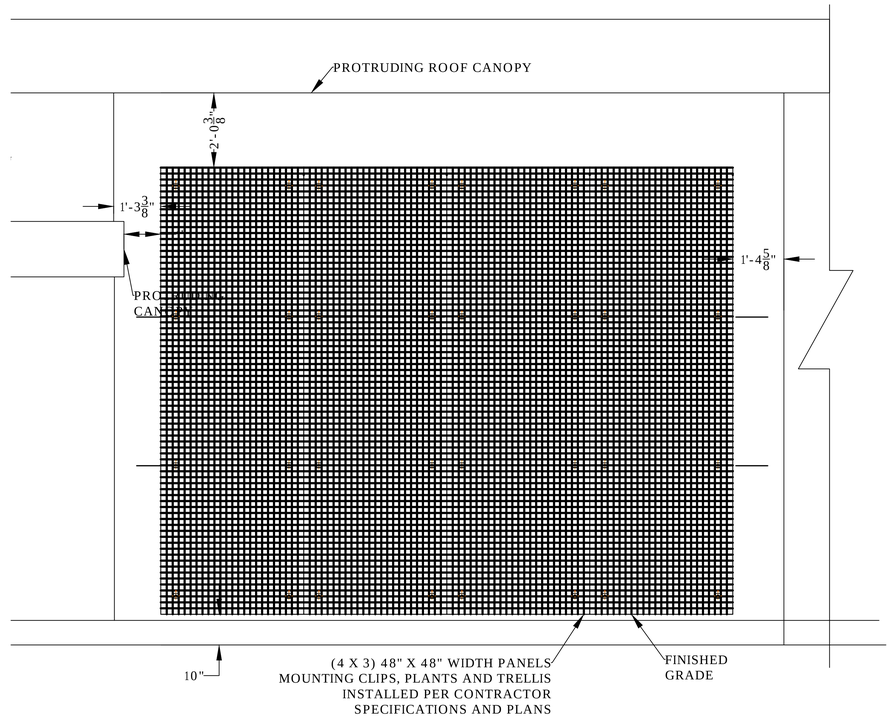
PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS WELCOME CENTER
MIDLAND, MICHIGAN

SHEET TITLE
CONSTRUCTION DETAILS

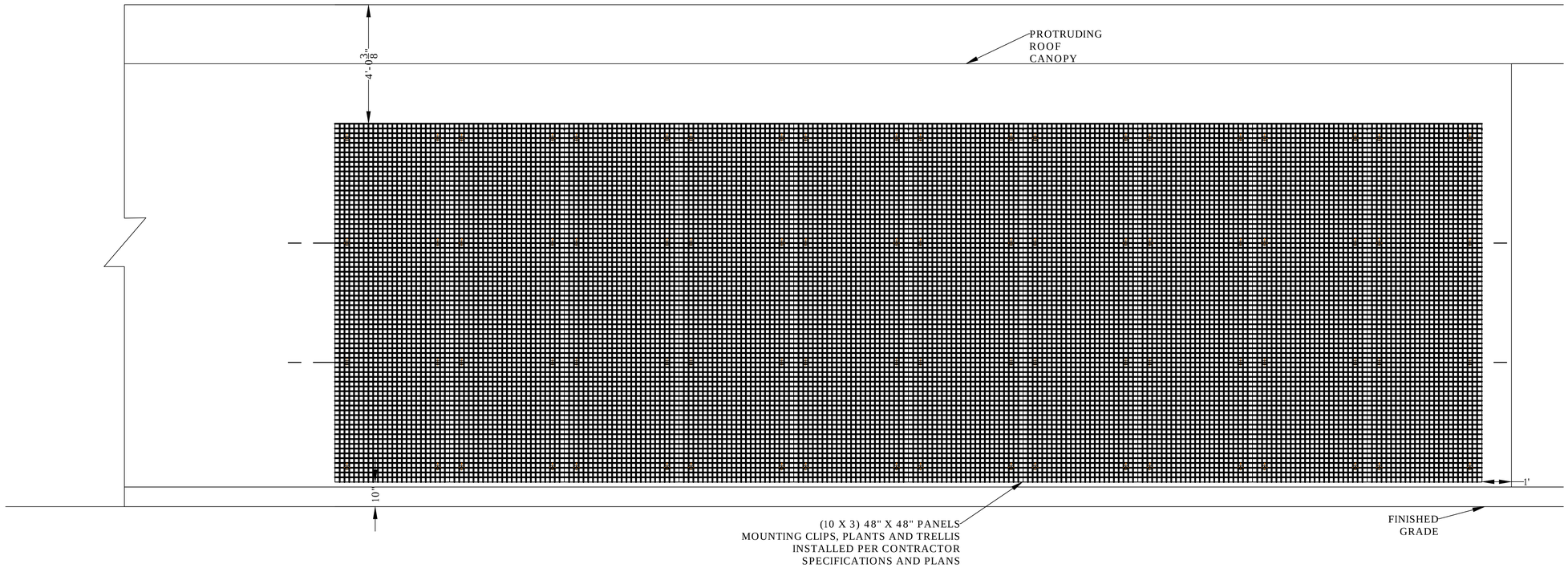
PROJECT NUMBER 2022022
PROJECT DATE OCTOBER 18, 2024
CHECKED BY M.G.R.
SHEET NUMBER L12



1 GREENSCREEN TRELLIS - COURTYARD WALLS (2)
SCALE: 1" = 20'



2 GREENSCREEN TRELLIS - COURTYARD WALL
SCALE: 1" = 20'



3 GREENSCREEN TRELLIS - SERVICE YARD WALL
SCALE: 1" = 20'

Know what's below.
Call before you dig.

DOW GARDENS
WELCOME CENTER
NORTH PER INDIVIDUAL DETAIL

NOTES:

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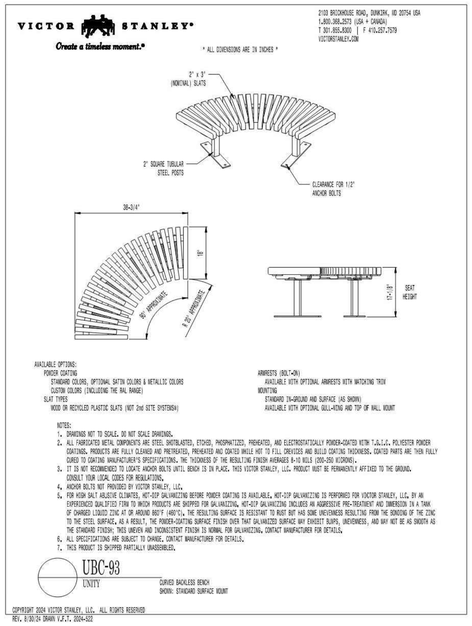
SCALE: 1" - 40'

PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS
WELCOME CENTER
MIDLAND, MICHIGAN

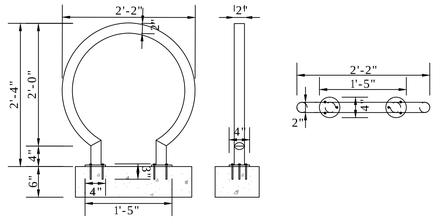
SHEET TITLE
VINE TRELLISES LAYOUT AND BASIC DETAILS

PROJECT NUMBER
2022022
PROJECT DATE
OCTOBER 18, 2024
CHECKED BY
M.G.R.
SHEET NUMBER
L13

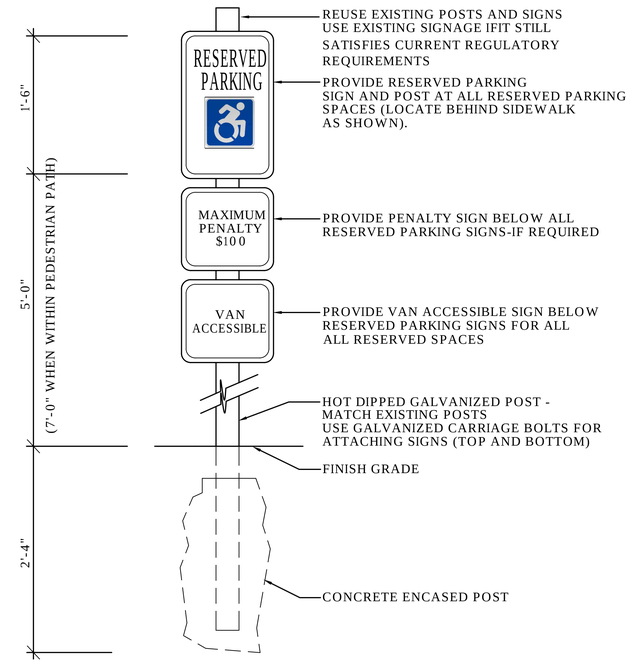


1 BENCH DETAIL
NOT TO SCALE

NOTES
1. BENCH LENGTH AND CURVATURE SHALL BE CUSTOM FITTED FOR EACH LOCATION. MINOR ADJUSTMENTS CAN BE MADE FOR MANUFACTURING PURPOSES.
2. BENCH SUPPORTS SHALL BE DIRECT BURIAL. CONCRETE FOOTING WIDTH AND DEPTH SHALL BE SPECIFIED IN THE SUBMITTAL PACKAGE, BUT AT A MINIMUM 24" DEEP AND 8" IN DIAMETER.
3. THE FRONT EDGE OF THE BENCHES SHALL EXTEND 4" BEYOND THE EDGE OF THE ADJOINING CONCRETE WALKWAY.
4. BENCH MATERIALS SHALL BE RECYCLED PLASTIC SLATS ON A RECYCLED STEEL FRAME. COLORS TO BE SELECTED FROM SAMPLES OF MANUFACTURERS STANDARD COLORS.
5. PROVIDE SHOP DRAWINGS FOR EACH UNIQUE BENCH UNIT.
6. CONTACT:
KRISTEN BEVARD
kristenb@victorstanley.com
800.368.2573 x341

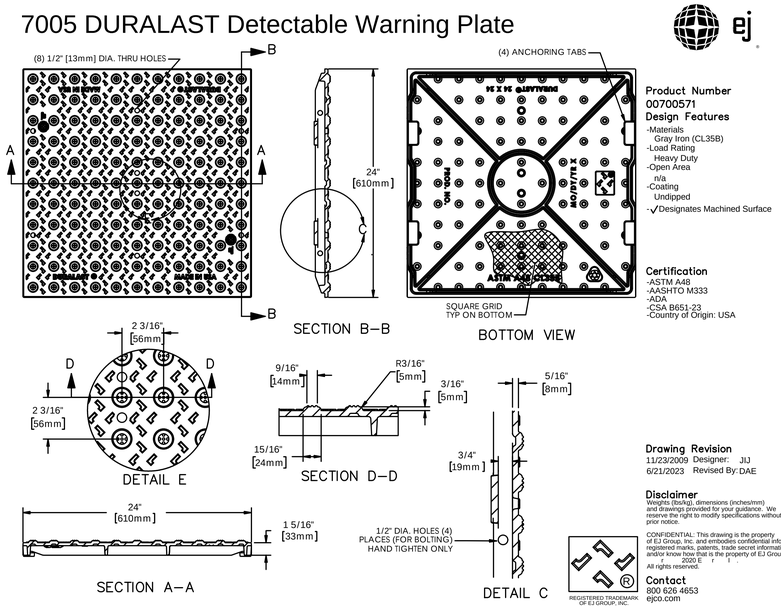


2 BIKE RACK (PLACEHOLDER)
SCALE: 1" = 1'-0"



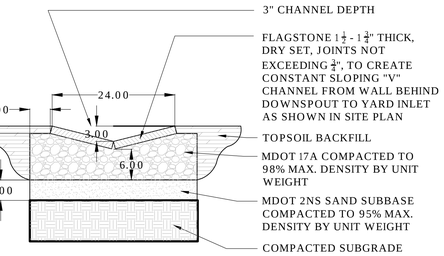
3 RESERVED PARKING SPACE SIGNAGE
SCALE: $1\frac{1}{2}$" = 1'-0"

NOTES
1. MEET ALL CURRENT STANDARDS FOR TEXT, SIZE, AND HEIGHT.
2. SET POST HEIGHT IN ACCORDANCE WITH CURRENT REGULATIONS
3. SUBMIT SHOP DRAWINGS FOR SIGNAGE, POST, AND FOOTING DETAILS.

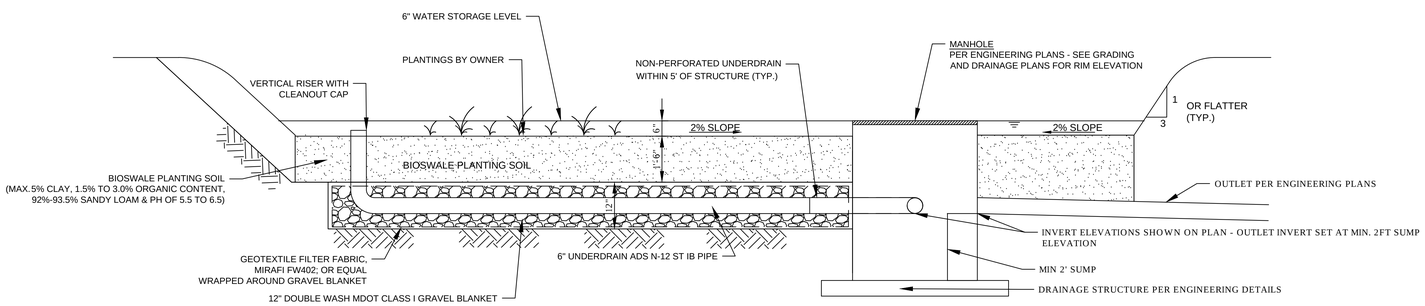


4 DETECTABLE WARNING PLATES
NOT TO SCALE

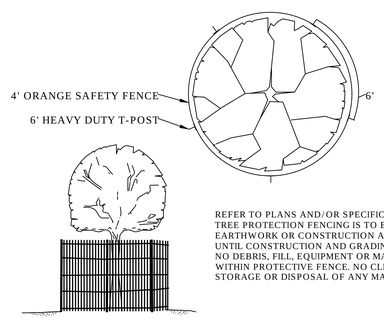
NOTES
1. USE COMBINATIONS OF SIZES AND RADIUSED PIECES TO ACHIEVE BEST FIT FOR EACH SITUATION.
1. CUT PIECES TO FIT ANGULAR CONFIGURATIONS.
2. SUBMIT SHOP DRAWINGS FOR ALL UNIQUE SITUATIONS.



7 STONE LINED CHANNEL
SCALE: 1" = 1'-0"



5 BIOSWALE
SCALE: 1/2" = 1'-0"



REFER TO PLANS AND/OR SPECIFICATIONS FOR FENCING PLACEMENT GUIDELINES
TREE PROTECTION FENCING IS TO BE ERECTED PRIOR TO ANY EARTHWORK OR CONSTRUCTION AND IS TO REMAIN IN PLACE UNTIL CONSTRUCTION AND GRADING IS COMPLETE.
NO DEBRIS, FILL, EQUIPMENT OR MATERIAL IS ALLOWED WITHIN PROTECTIVE FENCE. NO CLEANING OF EQUIPMENT OR STORAGE OR DISPOSAL OF ANY MATERIAL WITHIN THE PROTECTIVE

6 TREE PROTECTION DETAIL
NOT TO SCALE

DOW GARDENS WELCOME CENTER
NORTH SEE INDIVIDUAL DETAILS

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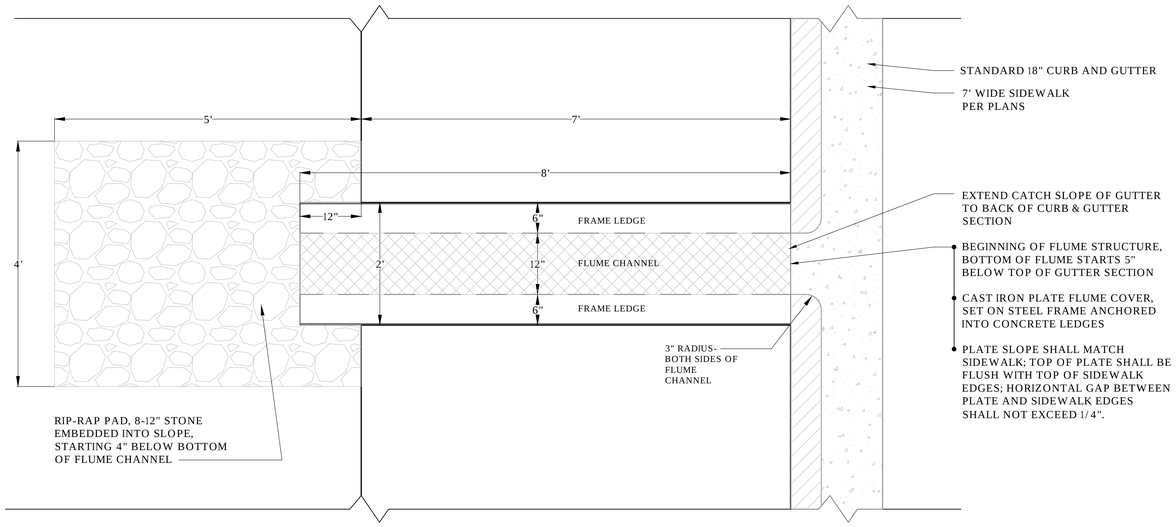
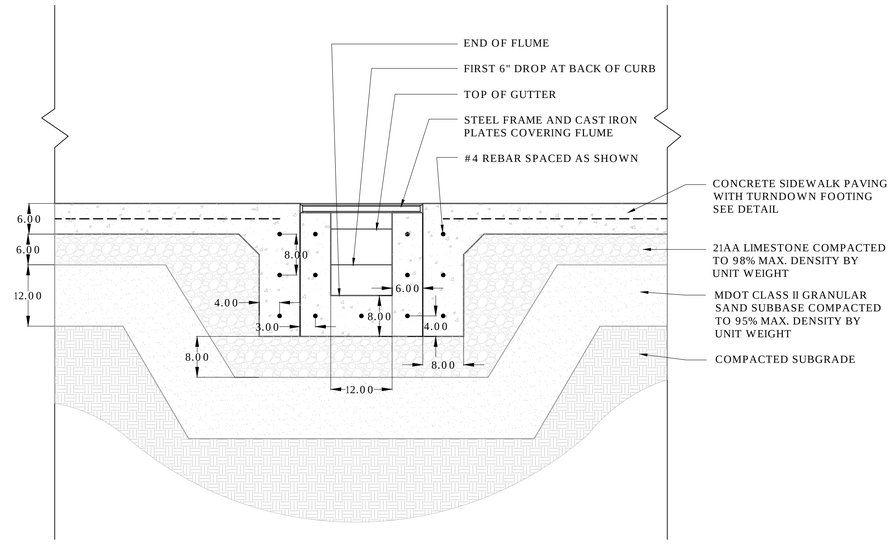
PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS WELCOME CENTER
MIDLAND, MICHIGAN

SHEET TITLE
CONSTRUCTION DETAILS

PROJECT NUMBER 2022022
PROJECT DATE OCTOBER 18, 2024
CHECKED BY M.G.R.
SHEET NUMBER L14



1 FLUME PLAN VIEW
SCALE: 1" = 1'-0"



2 FLUME SECTION
SCALE: 1" = 1'-0"

NOTES:

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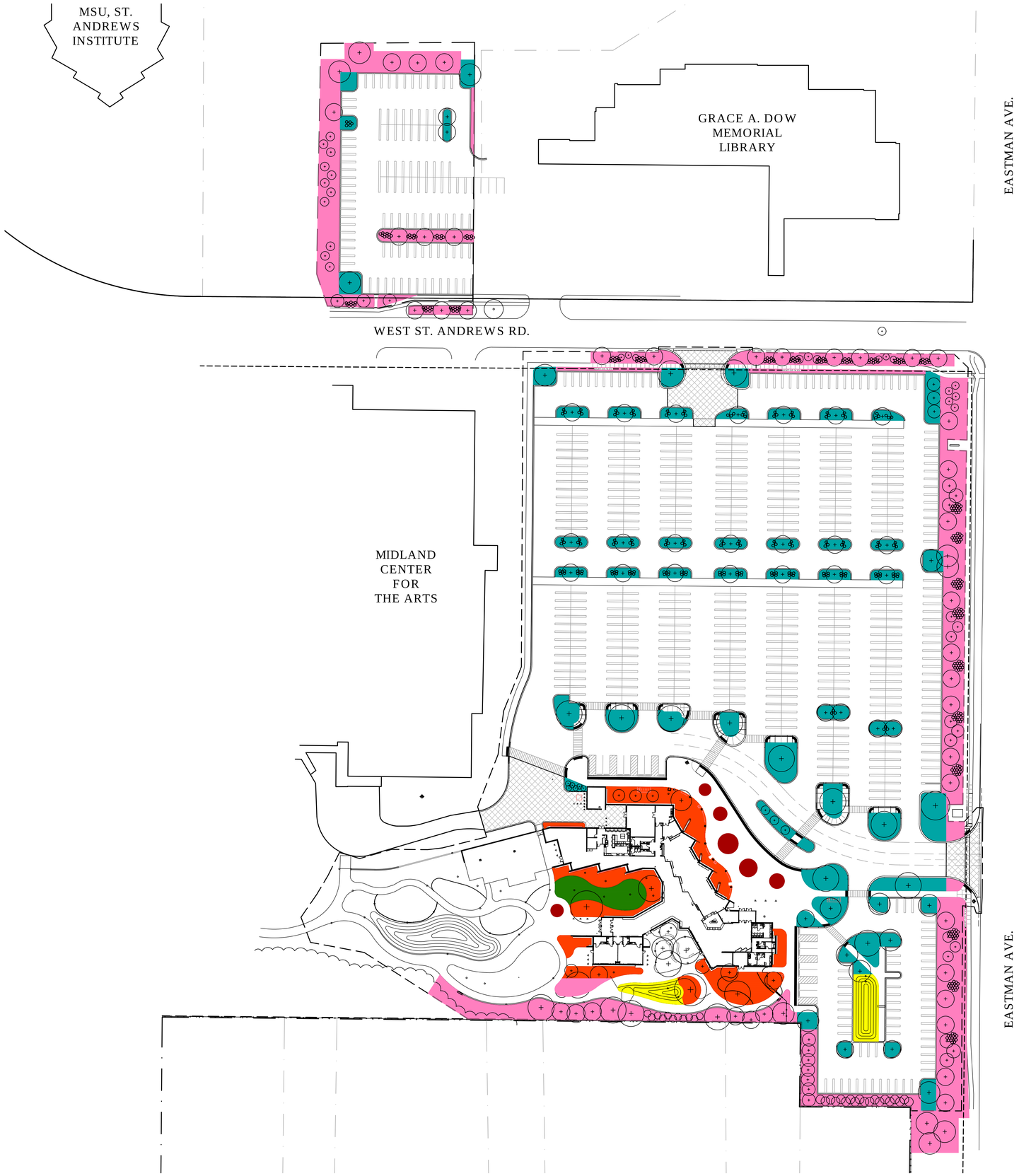
PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS WELCOME CENTER
MIDLAND, MICHIGAN

SHEET TITLE
FLUME DETAILS

PROJECT NUMBER 2022022
PROJECT DATE OCTOBER 18, 2024
CHECKED BY M.G.R.
SHEET NUMBER L15

NORTH
DOW GARDENS WELCOME CENTER
SEE INDIVIDUAL DETAILS

Know what's below. Call before you dig.



DOW GARDENS WELCOME CENTER

NORTH SCALE: 1" = 50'

LEGEND

- SOIL PREPARATION TYPE 1
- SOIL PREPARATION TYPE 2
- SOIL PREPARATION TYPE 3
- SOIL PREPARATION TYPE 4
- SOIL PREPARATION TYPE 5
- SOIL PREPARATION TYPE 6

NOTES - SOIL PREPARATION:

1. TEST EXISTING SOILS TO REMAIN AND STOCKPILED SOILS FOR SUITABILITY AS PLANTING SOILS PER SPECIFICATIONS. TEST RESULTS SHALL BE AVAILABLE FOR REVIEW AND INCORPORATION INTO SOIL PREPARATION WORK AT LEAST 4 WEEKS PRIOR TO THE INITIATION OF SUCH WORK. STOCKPILED SOILS PROVEN SUITABLE FOR PLANTING SHALL BE SCREENED BEFORE PLACEMENT IN PLANTING AREAS.
2. REQUIREMENTS ASSOCIATED WITH EACH SOIL PREPARATION TYPE ARE DETAILED AS FOLLOWS:

TYPE 1:
- A. SET SUBGRADE ELEVATION 12 INCHES BELOW FINAL GRADE.
- B. BREAK UP AND LOOSEN SUBGRADE TO A DEPTH OF 4 INCHES.
- C. PLACE 2 INCHES OF MANUFACTURED OR AMENDED TOPSOIL OVER LOOSENED SUBGRADE AND TILL INTO THE 4 INCHES OF LOOSENED SUBGRADE.
- D. PLACE A MINIMUM OF AN ADDITIONAL 12 INCHES OF MANUFACTURED OR AMENDED STOCKPILED TOPSOIL PER SPECIFICATIONS TO ACHIEVE FINISH GRADE. COMPACT PER SPECIFICATIONS. ALLOW FOR SETTLEMENT.
- E. APPLY 4 INCHES OF COMPOST, AS SPECIFIED, TO TOPSOIL AND TILL INTO TOP 4 INCHES OF TOPSOIL.

TYPE 2:
- A. SET SUBGRADE ELEVATION 8 INCHES BELOW FINAL GRADE.
- B. BREAK UP AND LOOSEN SUBGRADE TO A DEPTH OF 4 INCHES.
- C. PLACE 2 INCHES OF MANUFACTURED OR AMENDED TOPSOIL OVER LOOSENED SUBGRADE AND TILL INTO THE 4 INCHES OF LOOSENED SUBGRADE.
- D. PLACE A MINIMUM OF AN ADDITIONAL 8 INCHES OF MANUFACTURED OR AMENDED STOCKPILED TOPSOIL PER SPECIFICATIONS TO ACHIEVE FINISH GRADE. COMPACT PER SPECIFICATIONS. ALLOW FOR SETTLEMENT.
- E. APPLY 4 INCHES OF COMPOST, AS SPECIFIED, TO TOPSOIL AND TILL INTO TOP 4 INCHES OF TOPSOIL.

TYPE 3:
- A. SET SUBGRADE ELEVATION 18 INCHES BELOW FINAL GRADE.
- B. PLACE 6 INCHES OF MDOT 2NS SAND.
- C. PLACE A MINIMUM OF 12 INCHES OF MANUFACTURED TOPSOIL PER SPECIFICATIONS TO ACHIEVE FINISH GRADE. COMPACT PER SPECIFICATIONS. ALLOW FOR SETTLEMENT.
- D. APPLY 4 INCHES OF COMPOST, AS SPECIFIED, TO TOPSOIL AND TILL INTO TOP 4 INCHES OF TOPSOIL.

TYPE 4:
- A. REMOVE EXISTING TURF.
- B. BREAK UP, LOOSEN, AND TILL EXISTING SOILS TO A DEPTH OF 6 INCHES.
- C. AMEND PER SOIL TEST RESULTS.
- D. AFTER THE INITIAL LOOSENING AND TILLING, ADD 4 INCHES OF COMPOST AND TILL INTO THE TOP 4 INCHES OF SOIL.

TYPE 5:
- A. PREPARE RAIN GARDEN SOILS PER DETAIL L14/8.
- B. LOOSEN AND TILL TOP 4 INCHES OF SIDE SLOPE SOILS.
- C. ADD AMENDMENTS PER SOIL TESTS AND 2 INCHES OF COMPOST AND TILL THESE MATERIALS INTO THE TOP 4 INCHES OF SOIL.

TYPE 6:
- A. SET SUBGRADE ELEVATION 6 INCHES BELOW FINAL GRADE.
- B. BREAK UP AND LOOSEN SUBGRADE TO A DEPTH OF 4 INCHES.
- C. PLACE 2 INCHES OF MANUFACTURED OR AMENDED TOPSOIL OVER LOOSENED SUBGRADE AND TILL INTO THE 4 INCHES OF LOOSENED SUBGRADE.
- D. PLACE A MINIMUM OF AN ADDITIONAL 6 INCHES OF MANUFACTURED OR AMENDED STOCKPILED TOPSOIL PER SPECIFICATIONS TO ACHIEVE FINISH GRADE. COMPACT PER SPECIFICATIONS FOR TURF. ALLOW FOR SETTLEMENT.
- E. APPLY 2 INCHES OF COMPOST, AS SPECIFIED, TO TOPSOIL AND TILL INTO TOP 4 INCHES OF TOPSOIL.

NOTES:

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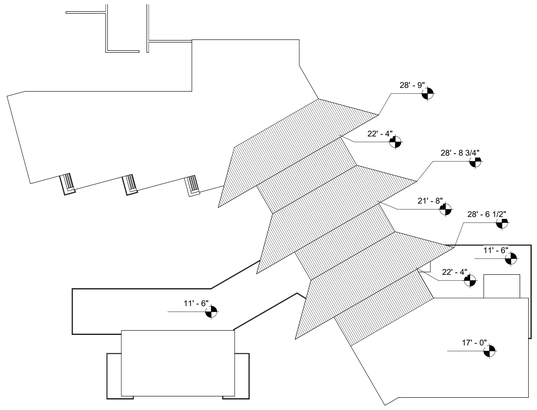
PROJECT TITLE
NEW CONSTRUCTION FOR:
DOW GARDENS WELCOME CENTER
MIDLAND, MICHIGAN

SHEET TITLE
SOIL PREPARATION PLAN

PROJECT NUMBER 2022022
PROJECT DATE OCTOBER 18, 2024
CHECKED BY M.G.R.
SHEET NUMBER L16.1



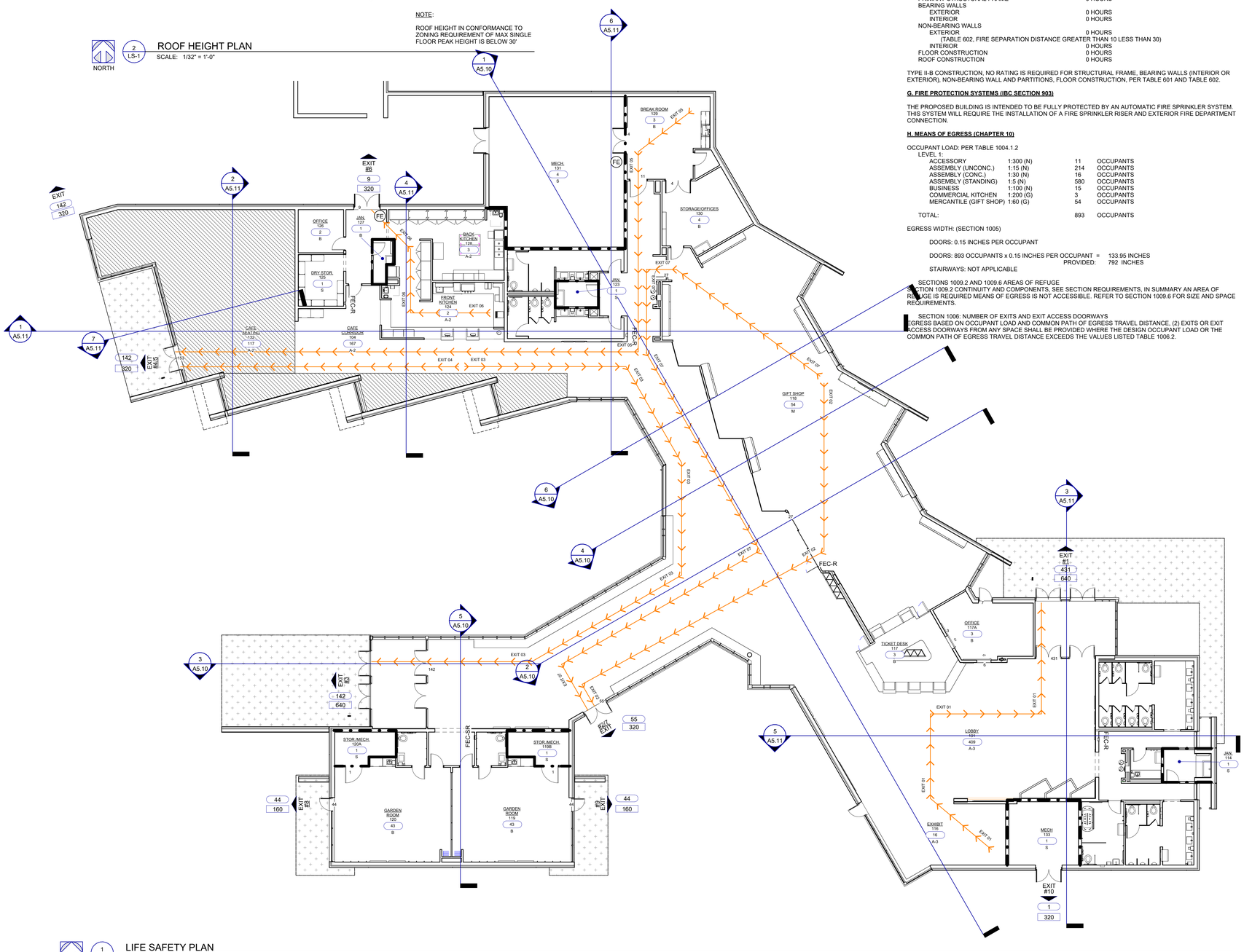
NOTE:

ROOF HEIGHT IN CONFORMANCE TO ZONING REQUIREMENT OF MAX SINGLE FLOOR PEAK HEIGHT IS BELOW 30'

NORTH

2 LS-1 ROOF HEIGHT PLAN

SCALE: 1/32" = 1'-0"



NORTH

1 LS-1 LIFE SAFETY PLAN

SCALE: 3/32" = 1'-0"

BUILDING CODE NOTES:

A. USE AND OCCUPANCY (CHAPTER 3)

MAIN OCCUPANCY GROUP "A" ASSEMBLY

OCCUPANCIES:
GROUP B ADMINISTRATION AREAS (IBC SECTION 304 - ACCESSORY USE LESS THAN 10%)
GROUP A-2 CAFETERIA/KITCHEN (IBC SECTION 303)
GROUP A-3 LOBBY/WAITING (IBC SECTION 303)
GROUP M GIFT SHOP (IBC SECTION 309)

B. BUILDING HEIGHT (CHAPTER 6)

ALLOWED STORIES:	3 STORIES (TABLE 504.4)
ALLOWABLE HEIGHT:	75 FEET (TABLE 504.3)

C. BUILDING AREA

ALLOWABLE AREA:	38,000 SQUARE FEET (TABLE 506.2)
ALLOWABLE AREA ACTUAL:	39,482 SQUARE FEET (AREA INCREASES PER EQUATIONS 5-1, 5-4, 5-5)
PROPOSED AREA:	21,961 SQUARE FEET

ALLOWABLE AREA INCREASES FOR FRONTAGE TO BE CALCULATED WHICH WILL INCREASE ACTUAL ALLOWABLE AREA.

EQUATION 5-1: ALLOWABLE AREA = AT + (NS*If)	38000 + (9500*0.137)= 39302
EQUATION 5-4: W=(L1*w1 + L2*w2)/F	(389*30 + 45*25) /434 =29.5
EQUATION 5-5: If=[F/P-0.25] * 30/W	[434/1115-0.25] * 29.5/30 = .137

D. CONSTRUCTION TYPE

CONSTRUCTION TYPE (PROPOSED):	TYPE II-B

E. INCIDENTAL USES (TABLE 509 AND REV. 12.3.2.1.2)

STORAGE OVER 100 SQUARE FOOTAGE	1 HOUR
JANITOR CLOSET	1 HOUR
MECHANICAL ROOM	1 HOUR

F. TYPES OF CONSTRUCTION (IBC TABLE 601)

PRIMARY STRUCTURAL FRAME	0 HOURS
BEARING WALLS	
EXTERIOR	0 HOURS
INTERIOR	0 HOURS
NON-BEARING WALLS	
EXTERIOR	0 HOURS
(TABLE 602, FIRE SEPARATION DISTANCE GREATER THAN 10 LESS THAN 30)	
INTERIOR	0 HOURS
FLOOR CONSTRUCTION	0 HOURS
ROOF CONSTRUCTION	0 HOURS

TYPE II-B CONSTRUCTION, NO RATING IS REQUIRED FOR STRUCTURAL FRAME, BEARING WALLS (INTERIOR OR EXTERIOR), NON-BEARING WALL AND PARTITIONS, FLOOR CONSTRUCTION, PER TABLE 601 AND TABLE 602.

G. FIRE PROTECTION SYSTEMS (IBC SECTION 903)

THE PROPOSED BUILDING IS INTENDED TO BE FULLY PROTECTED BY AN AUTOMATIC FIRE SPRINKLER SYSTEM. THIS SYSTEM WILL REQUIRE THE INSTALLATION OF A FIRE SPRINKLER RISER AND EXTERIOR FIRE DEPARTMENT CONNECTION.

H. MEANS OF EGRESS (CHAPTER 10)

OCCUPANT LOAD: PER TABLE 1004.1.2

LEVEL 1:

ACCESSORY	1:300 (N)	11	OCCUPANTS
ASSEMBLY (UNCONC.)	1:15 (N)	214	OCCUPANTS
ASSEMBLY (CONC.)	1:30 (N)	16	OCCUPANTS
ASSEMBLY (STANDING)	1:5 (N)	580	OCCUPANTS
BUSINESS	1:100 (N)	15	OCCUPANTS
COMMERCIAL KITCHEN	1:200 (G)	3	OCCUPANTS
MERCANTILE (GIFT SHOP)	1:60 (G)	54	OCCUPANTS
TOTAL:		893	OCCUPANTS

EGRESS WIDTH: (SECTION 1005)

DOORS: 0.15 INCHES PER OCCUPANT

DOORS: 893 OCCUPANTS x 0.15 INCHES PER OCCUPANT = 133.95 INCHES
PROVIDED: 792 INCHES

STAIRWAYS: NOT APPLICABLE

SECTIONS 1009.2 AND 1009.6 AREAS OF REFUGE
SECTION 1009.2 CONTINUITY AND COMPONENTS, SEE SECTION REQUIREMENTS, IN SUMMARY AN AREA OF REFUGE IS REQUIRED MEANS OF EGRESS IS NOT ACCESSIBLE. REFER TO SECTION 1009.6 FOR SIZE AND SPACE REQUIREMENTS.

SECTION 1006: NUMBER OF EXITS AND EXIT ACCESS DOORWAYS
EGRESS BASED ON OCCUPANT LOAD AND COMMON PATH OF EGRESS TRAVEL DISTANCE, (2) EXITS OR EXIT ACCESS DOORWAYS FROM ANY SPACE SHALL BE PROVIDED WHERE THE DESIGN OCCUPANT LOAD OR THE COMMON PATH OF EGRESS TRAVEL DISTANCE EXCEEDS THE VALUES LISTED TABLE 1006.2.

SECTION 1017: EXIT ACCESS TRAVEL DISTANCE
TABLE 1017.2 GROUP A, M: 200 FEET MAX. UNPROTECTED, 250 FEET MAX. PROTECTED. GROUP B: 200 FEET MAX. UNPROTECTED, 300 FEET MAX. PROTECTED.

SECTION 1020.4: DEAD ENDS
20 FEET MAXIMUM DEAD END IN CORRIDORS WHERE MORE THAN ONE EXIT OR EXIT ACCESS DOORWAY IS REQUIRED.

I. 2015 MICHIGAN PLUMBING CODE (CHAPTER 29 TABLE 2902.1)

PLUMBING FIXTURE - OCCUPANT LOAD
(EXCLUDES COMMON SPACES)

TOTAL A-2 OCCUPANT LOAD FOR PLUMBING FIXTURES: 304 OCCUPANTS
PLUMBING FIXTURE RATIOS:
WATER CLOSETS:
MEN: 152/75
WOMEN: 152/75
LAVATORIES: 304/200
DRINKING FOUNTAINS: 304/500

REQUIRED PLUMBING FIXTURES FOR A-2:
WATER CLOSETS:
MEN: 3
WOMEN: 3
LAVATORIES: 2
DRINKING FOUNTAINS: 1
SERVICE SINK: 1

TOTAL A-3 OCCUPANT LOAD FOR PLUMBING FIXTURES: 511 OCCUPANTS
PLUMBING FIXTURE RATIOS:
WATER CLOSETS:
MEN: 256/125
WOMEN: 256/65
LAVATORIES: 511/200
DRINKING FOUNTAINS: 511/500

REQUIRED PLUMBING FIXTURES FOR A-2:
WATER CLOSETS:
MEN: 2
WOMEN: 4
LAVATORIES: 3
DRINKING FOUNTAINS: 2
SERVICE SINK: 1

TOTAL B OCCUPANT LOAD FOR PLUMBING FIXTURES: 15 OCCUPANTS
PLUMBING FIXTURE RATIOS:
WATER CLOSETS: 8/25
LAVATORIES: 8/40
DRINKING FOUNTAINS: 15/100

REQUIRED PLUMBING FIXTURES FOR B:
WATER CLOSETS:
MEN: 1
WOMEN: 1
LAVATORIES: 1
DRINKING FOUNTAINS: 0 NOT REQUIRED PER MPC 2021 SECTION 410.2
SERVICE SINK: 1

TOTAL M OCCUPANT LOAD FOR PLUMBING FIXTURES: 54 OCCUPANTS
PLUMBING FIXTURE RATIOS:
WATER CLOSETS: 54/500
LAVATORIES: 54/750
DRINKING FOUNTAINS: 54/1000

REQUIRED PLUMBING FIXTURES FOR M:
WATER CLOSETS:
MEN: 1
WOMEN: 1
LAVATORIES: 1
DRINKING FOUNTAINS: 1
SERVICE SINK: 1

TOTAL REQUIRED/PROVIDED FIXTURES

WATER CLOSET:
MALE: 7 REQUIRED/ 9 PROVIDED
FEMALE: 9 REQUIRED/ 11 PROVIDED

LAVATORIES:
MALE: 4 REQUIRED/ 6 PROVIDED
FEMALE: 4 REQUIRED/ 7 PROVIDED

DRINKING FOUNTAINS: 4 REQUIRED/ 4 PROVIDED

SERVICE SINK: 4 REQUIRED/ 4 PROVIDED

FAMILY/ASSISTED
RESTROOMS: 1 REQUIRED/ 1 PROVIDED

2015 MICHIGAN ENERGY CODE

CLIMATE ZONE: 5A (MIDLAND)
INSULATION REQUIREMENTS:
ROOF (ENTIRELY ABOVE DECK): R30 C.I.
WALLS (MASS): R 11.4 C.I.
WALLS (STEEL FRAMED): R-13 + R-10 C.I.
SLAB ON GRADE FLOOR (UNHEATED): R-15
VERTICAL FENESTRATION:
METAL FRAMING:
U= 0.42
SHGC = 0.40
VT = 1.10

EXTERIOR DOOR:
U = 0.77

APPLICABLE CODES:

NFPA 101 LIFE SAFETY CODE (2016)
MICHIGAN BUILDING CODE (2015)
MICHIGAN MECHANICAL CODE (2021)
MICHIGAN PLUMBING CODE (2021)
MICHIGAN ENERGY CODE (2015)
NATIONAL ELECTRIC CODE WITH PART 8 RULES (2023)
INTERNATIONAL FIRE CODE (2015)

CODE LEGEND

- 2 HOUR FIRE WALL
- 1 HOUR FIRE BARRIER
- XXX — EGRESS CAPACITY - MAXIMUM NUMBER OF OCCUPANTS ALLOWED TO EGRESS
- XXX — OCCUPANT LOAD - NUMBER OF OCCUPANTS LOADING EXIT
- EXIT #1 — EXIT - REQUIRED EGRESS FROM BUILDING
- ROOM NAME 101 / 22 / E — ROOM #; OCCUPANT LOAD; OCCUPANCY TYPE
- A-2 UNCONCENTRATED SEATING ZONE
- 2 HR SPRAY APPLIED FIREPROOFING TO STRUCTURE AND UNDERSIDE OF DECKING
- FEC-R — FULLY RECESSED FIRE EXTINGUISHER CABINET
- FEC-SR — SEMI-RECESSED FIRE EXTINGUISHER CABINET
- FE — WALL MOUNTED FIRE EXTINGUISHER BRACKET

CODE PLAN EGRESS PATH LENGTH

PATH ID	LENGTH
EXIT 01	92'
EXIT 02	112'
EXIT 03	171'
EXIT 04	66'
EXIT 05	174'
EXIT 06	47'
EXIT 07	192'

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
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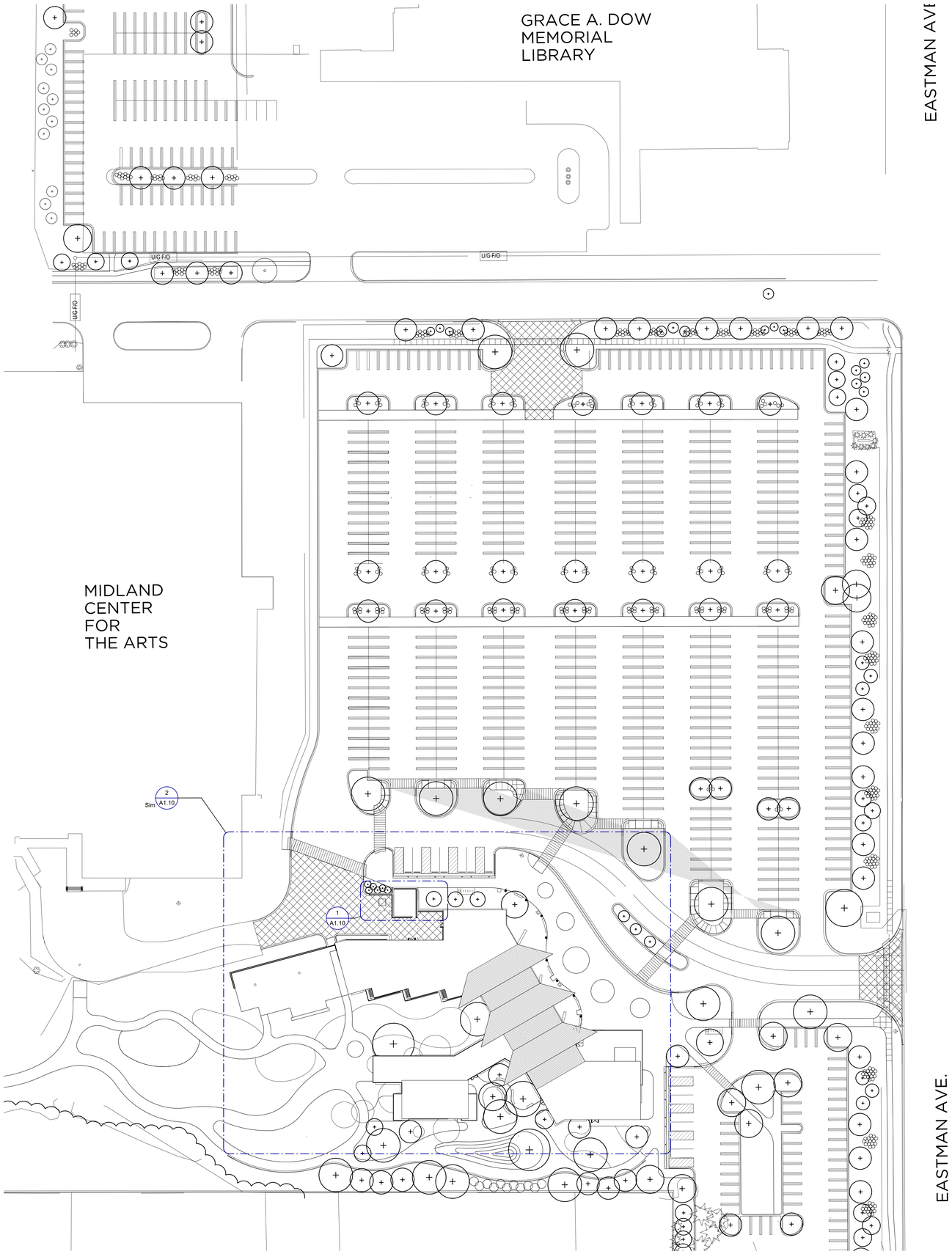
PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
LIFE SAFETY PLAN

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER LS-1

Autodesk Revit 2024 Build:20240400(x64) 1/6/2025 4:36:39 PM C:\Users\jjohnson\Documents\Central 2022\2022-Dow Gardens Welcome Center-Building_V24_jjohnson.rvt



NORTH

ARCHITECTRUAL SITE PLAN

SCALE: 1" = 40'-0"

GENERAL SITE PLAN NOTES:

1. PROVIDE SNOW MELT WHERE INDICATED IN MECHANICAL DRAWINGS. RE: MECHANICAL.
2. REFER TO CIVIL DOCUMENTS FOR BENCHMARKS, BOUNDARIES, EASEMENTS, ETC.
3. REFER TO LANDSCAPE AND CIVIL DOCUMENTS FOR ALL GRADING AND SPOT ELEVATIONS.
4. COORDINATE WATER AND UTILITY SERVICES WITH LOCAL MUNICIPALITY AND UTILITY PROVIDER.
5. RE-VEGETATE ALL DISTURBED SITE AREAS, INSIDE AND OUTSIDE OF THE PROPERTY LINES. REFER TO LANDSCAPE DRAWINGS FOR PLANTING PLANS.
6. REFER TO ENLARGED SITE PLANS FOR ARCHITECTURAL SITE AMENITIES.
7. MAINTAIN EGRESS FROM THE EXISTING DOW GARDENS VISITOR CENTER DURING CONSTRUCTION.
8. MAINTAIN OPERATION OF EXISTING VISITOR CENTER DURING CONSTRUCTION.

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO.1	12/26/24

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PROJECT TITLE

NEW CONSTRUCTION:

DOW GARDENS
WELCOME CENTER

BID PACK NO.3

MIDLAND, MICHIGAN

SHEET TITLE

ARCHITECTURAL SITE PLAN

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 09, 2025

CHECKED BY
JMJ

SHEET NUMBER
A1.01

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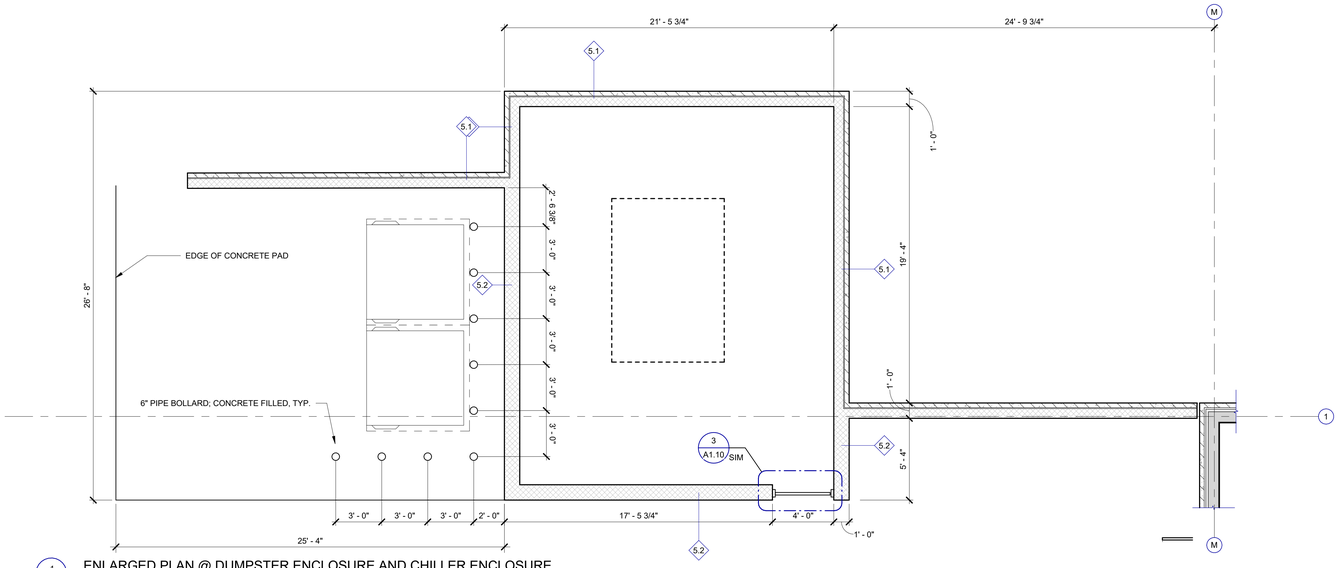
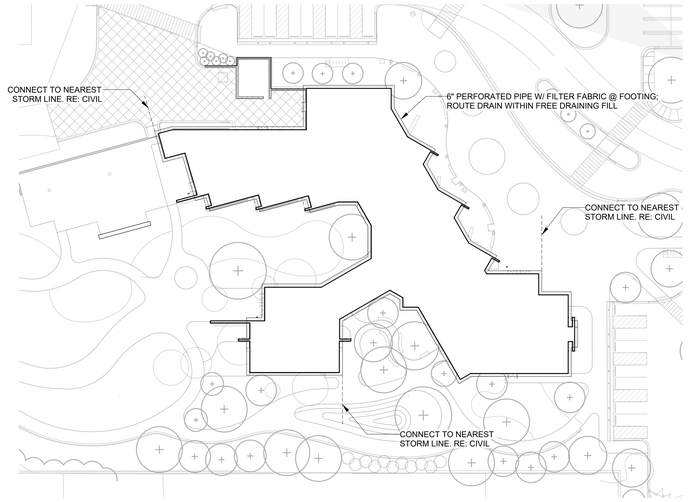


1 A1.10 ENLARGED PLAN @ DUMPSTER ENCLOSURE AND CHILLER ENCLOSURE

SCALE: 1/4" = 1'-0"
REFERENCE: 1/ A1.01



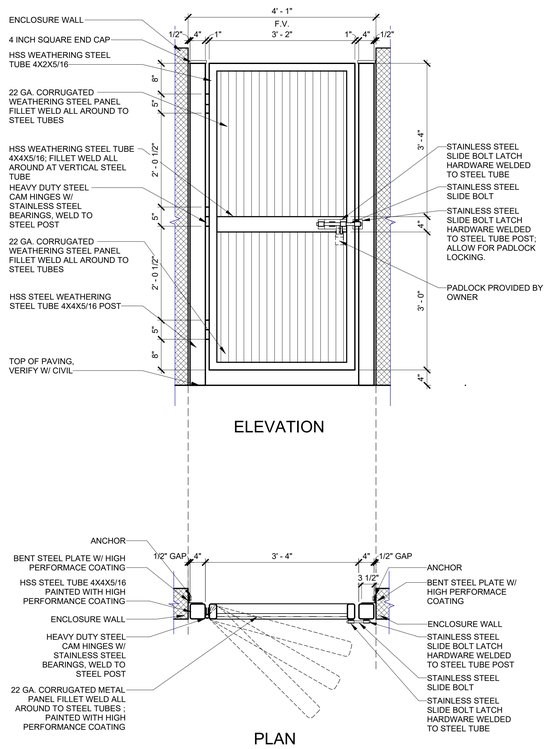
NOTE:
1. THIS PLAN IS SCHEMATIC REPRESENTATION OF THE PERIMETER FOOTING DRAIN FOR BIDDING PURPOSES. DESIGN SHALL BE REDRAWN AND SUBMITTED FOR REVIEW BY CONTRACTOR WITH THEIR OWN BACKGROUND. CONTRACTOR TO COORDINATE WITH MECHANICAL, PLUMBING, ELECTRICAL, SITE DRAINAGE, AND STRUCTURAL TRADES.
2. DRAIN TILE TO HAVE CLEAN OUTS W/ CAPS FLUSH W/ GRADE SPACED NO MORE THAN 100' (LINEAR TILE DIMENSION). CLEAN OUTS TO BE LOCATED IN PLANTING AREAS. CONTRACTOR TO COORDINATE LOCATIONS WITH ARCHITECT FOR ALL CLEAN OUTS NOT IN PLANTING AREAS.

2 A1.10 ARCHITECTRUAL SITE PLAN

SCALE: 1" = 40'-0"
REFERENCE: 1/ A1.01

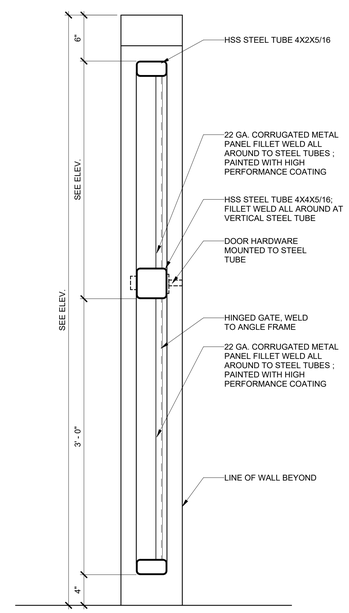
GENERAL SITE PLAN NOTES:

1. PROVIDE SNOW MELT WHERE INDICATED IN MECHANICAL DRAWINGS. RE: MECHANICAL.
2. REFER TO CIVIL DOCUMENTS FOR BENCHMARKS, BOUNDARIES, EASEMENTS, ETC.
3. REFER TO LANDSCAPE AND CIVIL DOCUMENTS FOR ALL GRADING AND SPOT ELEVATIONS.
4. COORDINATE WATER AND UTILITY SERVICES WITH LOCAL MUNICIPALITY AND UTILITY PROVIDER.
5. RE-VEGETATE ALL DISTURBED SITE AREAS, INSIDE AND OUTSIDE OF THE PROPERTY LINES. REFER TO LANDSCAPE DRAWINGS FOR PLANTING PLANS.
6. REFER TO ENLARGED SITE PLANS FOR ARCHITECTURAL SITE AMENITIES.
7. MAINTAIN EGRESS FROM THE EXISTING DOW GARDENS VISITOR CENTER DURING CONSTRUCTION.
8. MAINTAIN OPERATION OF EXISTING VISITOR CENTER DURING CONSTRUCTION.



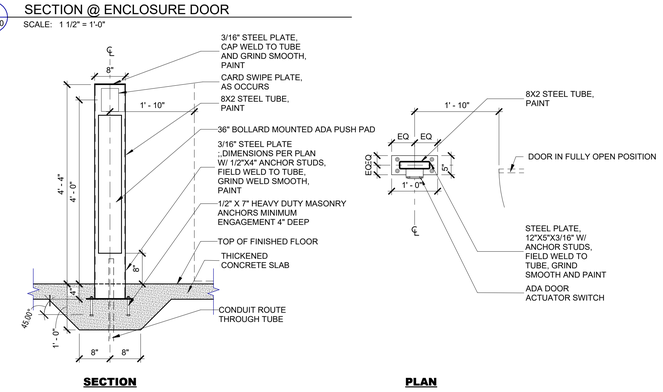
3 A1.10 MECHANICAL ENCLOSURE DOOR DETAIL

SCALE: 3/4" = 1'-0"
REFERENCE: 1/ A1.10



4 A1.10 SECTION @ ENCLOSURE DOOR

SCALE: 1 1/2" = 1'-0"



5 A1.10 DETAIL @ ACTUATOR BOLLARD

SCALE: 3/4" = 1'-0"
REFERENCE: 1/ A2.12

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
ARCHITECTURAL SITE DETAILS

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 09, 2025

CHECKED BY
JMJ

SHEET NUMBER
A1.10

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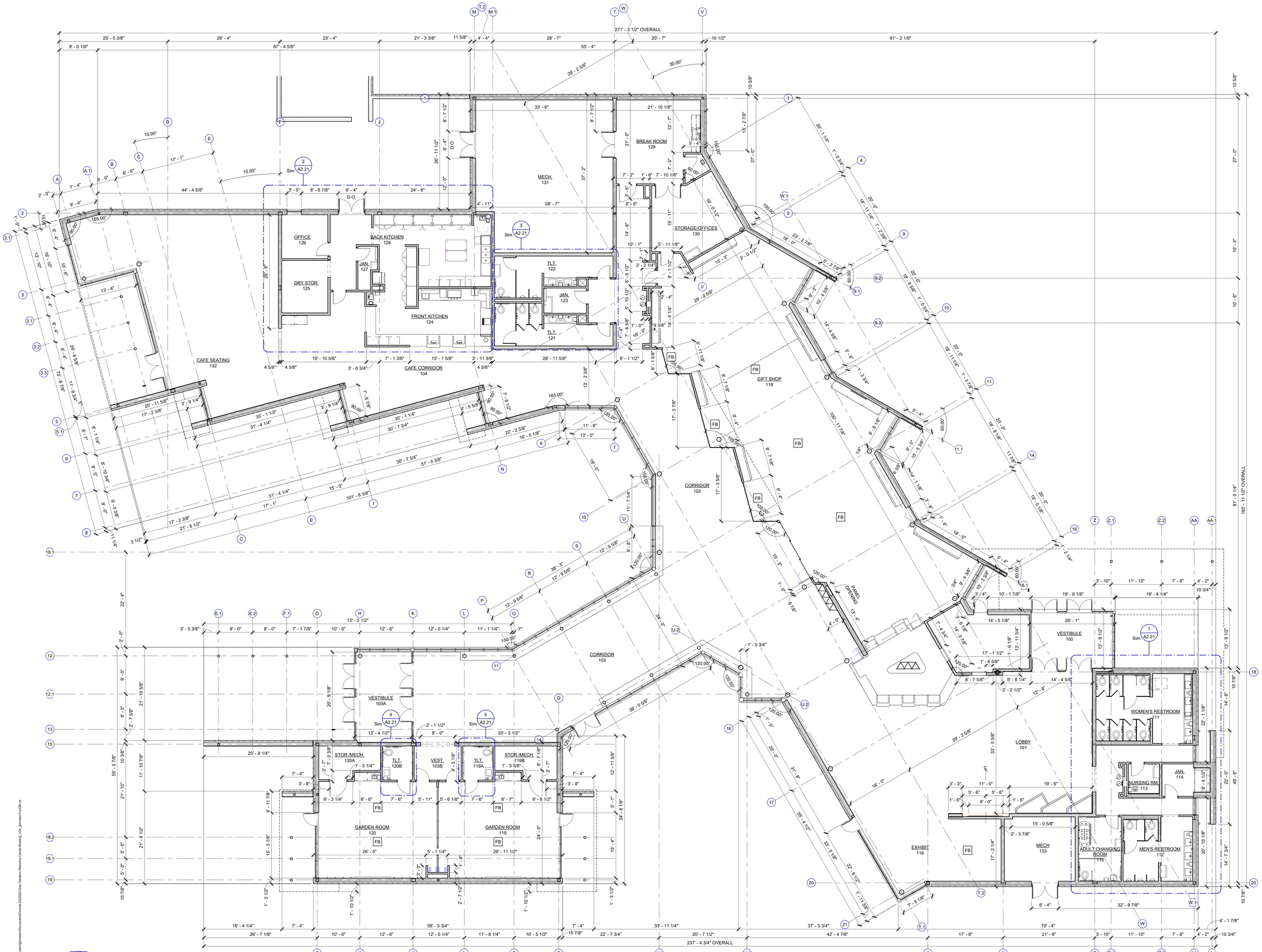

NORTH

FIRST FLOOR DIMENSION PLAN

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

GENERAL PLAN NOTES:

1. DIMENSIONS INDICATED ARE FROM FACE OF FINISH AND TO FACE OF MASONRY UNLESS NOTED OTHERWISE. SEE ENLARGED PLANS FOR ADDITIONAL DIMENSIONS NOT INDICATED ON OVERALL PLANS.
2. CONTRACTOR TO COORDINATE LOCATIONS OF ADDITIONAL PENETRATION THROUGH WALLS AND FLOORS NOT INDICATION ON ARCHITECTURAL DRAWINGS, RE: MECH, PLUMBING AND ELECTRICAL. REFER TO STRUCTURAL DRAWINGS FOR LINTEL OR FRAMING REQUIREMENTS.
3. REFER TO SHEET A0.01 FOR TYPICAL BARRIER-FREE AND ACCESSORIES HEIGHTS.
4. REFER TO SHEET A2.31 FIRST FLOOR FURNITURE/EQUIPMENT. CONTRACTOR TO VERIFY ALL ITEMS THAT REQUIRE BLOCKING.
5. REFER TO A3.02 FIRST FLOOR FLOORING PLAN FOR DIMENSIONED FLOOR BOX LOCATIONS.
6. PROVIDE SMOOTH MASONRY UNITS BEHIND ALL APPLIED DEVICES AND FINISHES INCLUDING KNOX BOXES, ADA, PUSH PADS, CARD READERS, AND CANOPY ELEMENTS.

FLOOR PLAN SYMBOL LEGEND:

ADA	ADA PUSH PAD
CR	CARD READER
KB	KNOX BOX
RB	RELEASE BUTTON
FEC-R	FULLY RECESSED FIRE EXTINGUISHER CABINET
FEC-SR	SEMI-RECESSED FIRE EXTINGUISHER CABINET
AED	FULLY RECESSED AED CABINET
FB	POWER/DATA FLOOR BOX. RE: ELECTRICAL.

NOTE: MOUNTING LOCATION TO BE VERIFIED WITH ARCHITECT PRIOR TO ROUGH-IN.

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO.1	12/26/24
	ISSUED FOR BID	08/27/24

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PROJECT TITLE

NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3

MIDLAND, MICHIGAN

SHEET TITLE

FIRST FLOOR DIMENSION PLAN

PROJECT NUMBER: 2022022

PROJECT DATE: JANUARY 09, 2025

CHECKED BY: JMJ

SHEET NUMBER: A2.11

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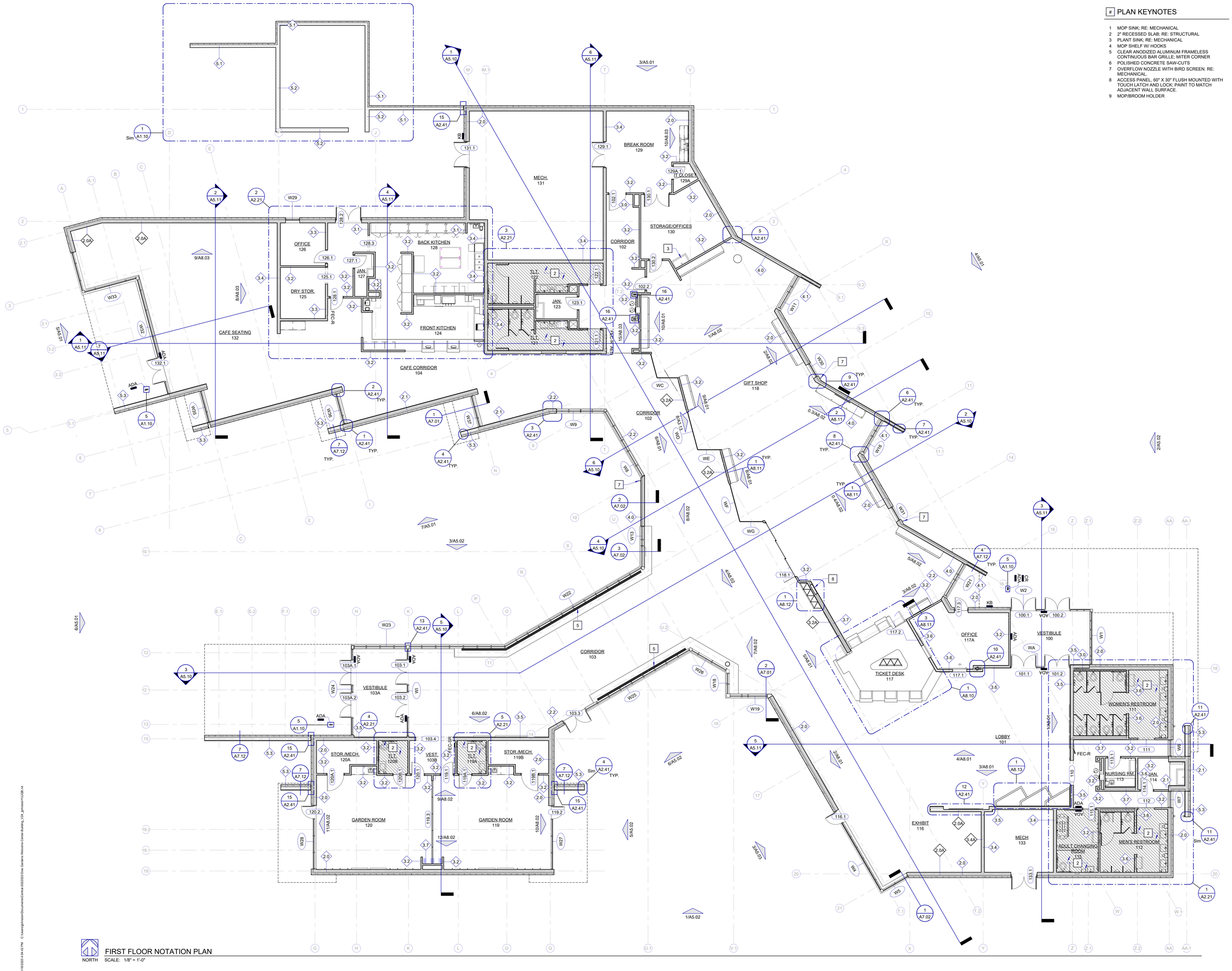

FIRST FLOOR NOTATION PLAN
NORTH SCALE: 1/8" = 1'-0"

PLAN KEYNOTES

1. MOP SINK; RE: MECHANICAL
2. 2" RECESSED SLAB; RE: STRUCTURAL
3. PLANT SINK; RE: MECHANICAL
4. MOP SHELF W/ HOOKS
5. CLEAR ANODIZED ALUMINUM FRAMELESS CONTINUOUS BAR GRILLE; MITER CORNER
6. POLISHED CONCRETE SAW-CUTS
7. OVERFLOW NOZZLE WITH BIRD SCREEN. RE: MECHANICAL.
8. ACCESS PANEL, 60" X 30" FLUSH MOUNTED WITH TOUCH LATCH AND LOCK, PAINT TO MATCH ADJACENT WALL SURFACE.
9. MOP/BROOM HOLDER

GENERAL PLAN NOTES:

1. DIMENSIONS INDICATED ARE FROM FACE OF FINISH AND TO FACE OF MASONRY UNLESS NOTED OTHERWISE. SEE ENLARGED PLANS FOR ADDITIONAL DIMENSIONS NOT INDICATED ON OVERALL PLANS.
2. CONTRACTOR TO COORDINATE LOCATIONS OF ADDITIONAL PENETRATION THROUGH WALLS AND FLOORS NOT INDICATION ON ARCHITECTURAL DRAWINGS, RE: MECH, PLUMBING AND ELECTRICAL. REFER TO STRUCTURAL DRAWINGS FOR LINTEL OR FRAMING REQUIREMENTS.
3. REFER TO SHEET A0.01 FOR TYPICAL BARRIER-FREE AND ACCESSORIES HEIGHTS.
4. REFER TO SHEET A2.31 FIRST FLOOR FURNITURE/EQUIPMENT. CONTRACTOR TO VERIFY ALL ITEMS THAT REQUIRE BLOCKING.
5. REFER TO A3.02 FIRST FLOOR FLOORING PLAN FOR DIMENSIONED FLOOR BOX LOCATIONS.
6. PROVIDE SMOOTH MASONRY UNITS BEHIND ALL APPLIED DEVICES AND FINISHES INCLUDING KNOX BOXES, ADA, PUSH PADS, CARD READERS, AND CANOPY ELEMENTS.

FLOOR PLAN SYMBOL LEGEND:

- ADA — ADA PUSH PAD
- CR — CARD READER
- KB — KNOX BOX
- RB — RELEASE BUTTON
- FEC-R — FULLY RECESSED FIRE EXTINGUISHER CABINET
- FEC-SR — SEMI-RECESSED FIRE EXTINGUISHER CABINET
- AED — FULLY RECESSED AED CABINET
- FB — POWER/DATA FLOOR BOX. RE: ELECTRICAL.

NOTE: MOUNTING LOCATION TO BE VERIFIED WITH ARCHITECT PRIOR TO ROUGH-IN.

NO.	REVISION	DATE
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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
FIRST FLOOR NOTATION PLAN

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A2.12

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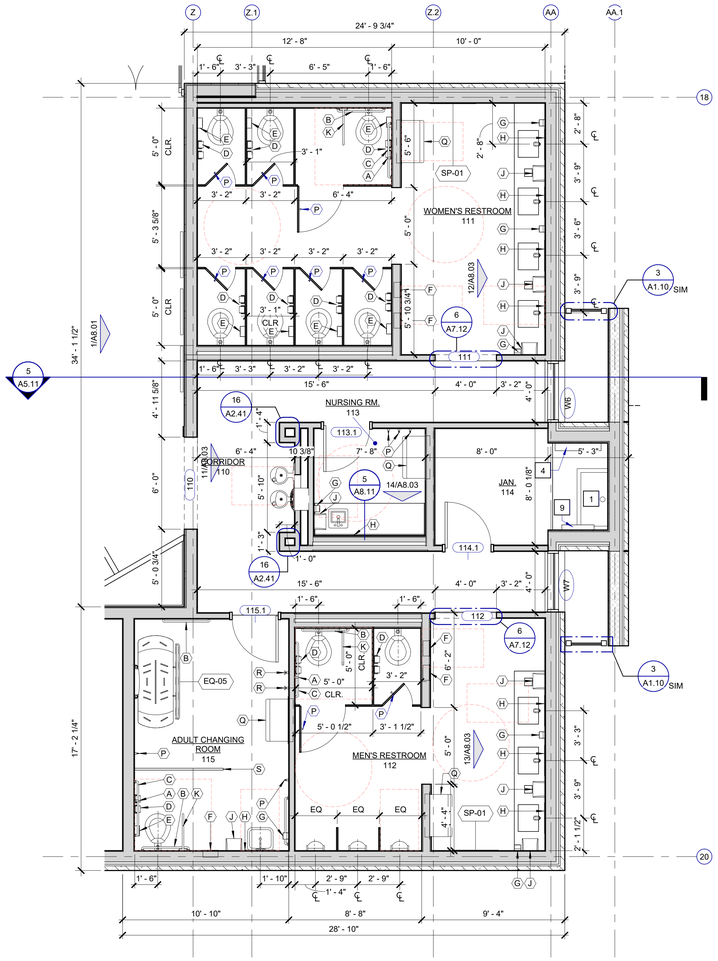
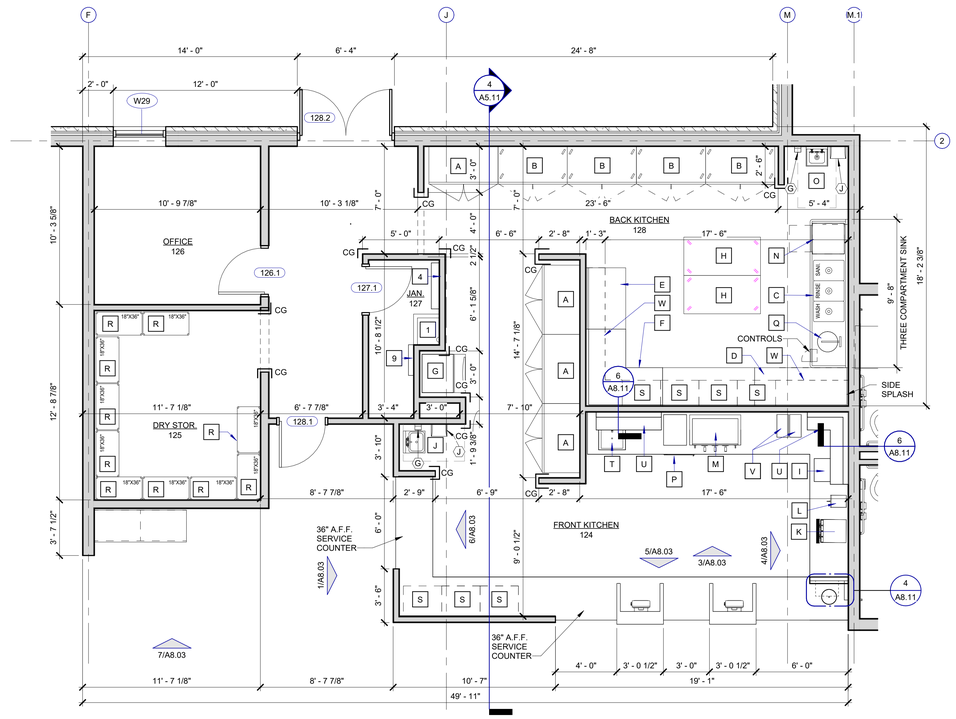
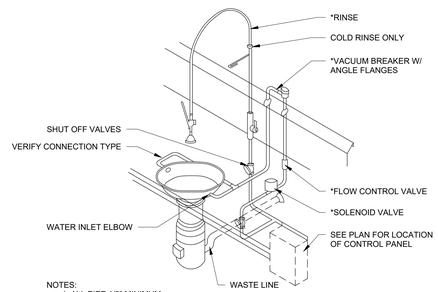


NORTH 1 A2.21 ENLARGED FLOOR PLAN @ TOILET RM 111/112
SCALE: 1/4" = 1'-0"



NORTH 2 A2.21 ENLARGED FLOOR PLAN @ KITCHEN 124
SCALE: 1/4" = 1'-0"



NOTES:
1. ALL PIPE 1/2" MINIMUM.
2. *THESE COMPONENTS FURNISHED BY FSEC.
3. ALL OTHER COMPONENTS PROVIDED BY PLUMB. TRADES.

6 A2.21 DETAIL OF DISPOSER W/ SPRAY
SCALE: 1" = 1'-0"

GENERAL PLB. / EQUIP. NOTES:

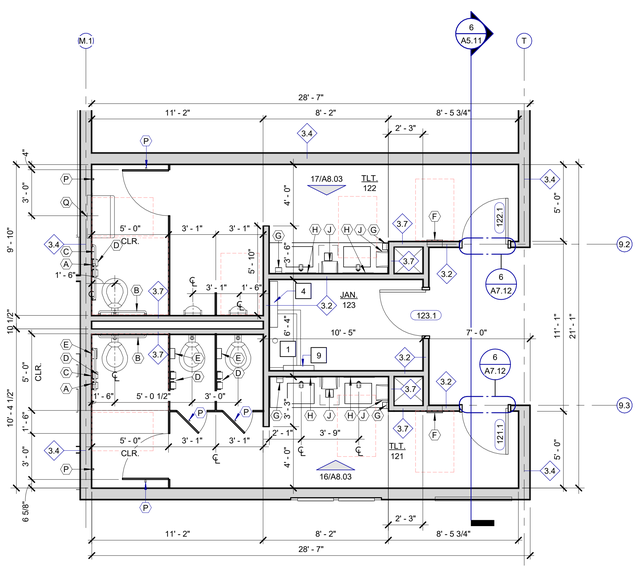
1. ENLARGED KITCHEN PLAN IS TO BE USED FOR BIDDING PURPOSES ONLY & MUST BE REDRAWN BY FOOD SERVICE EQUIPMENT CONTRACTOR USING ARCHITECTS FINAL WORKING DRAWINGS (ARCH., ELECT., MECH., & PLUMB.). FOOD SERVICE EQUIPMENT CONTRACTOR SHALL FURNISH FULLY DIMENSIONED ROUGH-IN PLAN FOR ELECTRICAL, PLUMBING, MECHANICAL, DEPRESSION & WALL OPENINGS WITHIN 30 DAYS AFTER AWARD OF CONTRACT. PLANS ARE TO BE REDRAWN & NOT TRACED OFF OF ORIGINAL DRAWINGS.
2. FOOD SERVICE EQUIPMENT CONTRACTOR IS TO ASSIST ELECTRICAL TRADES DURING PERIOD WHILE FINAL ROUGH-IN CONNECTIONS ARE BEING MADE. FOOD SERVICE EQUIPMENT CONTRACTOR SHALL FURNISH ALL NECESSARY WIRING DETAILS AS REQUIRED. FOOD SERVICE EQUIPMENT CONTRACTOR ALSO TO HAVE FIELD SUPERVISOR ON JOBSITE AT TIME OF FINAL CONNECTIONS
3. FOOD SERVICE EQUIPMENT CONTRACTOR SHALL CONTACT ELECTRICAL ENGINEER BEFORE DRAWING ROUGH-IN PLAN TO VERIFY EXACT VOLTAGES AVAILABLE ON JOBSITE. THIS CHECK MUST BE MADE TO INSURE PROPER VOLTAGES TO ALL EQUIPMENT.

GENERAL PLAN NOTES:

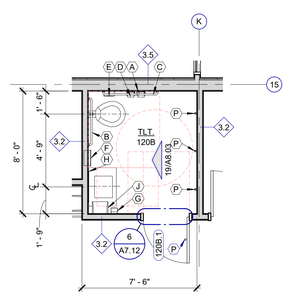
1. DIMENSIONS INDICATED ARE FROM FACE OF FINISH AND TO FACE OF MASONRY UNLESS NOTED OTHERWISE. SEE ENLARGED PLANS FOR ADDITIONAL DIMENSIONS NOT INDICATED ON OVERALL PLANS.
2. CONTRACTOR TO COORDINATE LOCATIONS OF ADDITIONAL PENETRATION THROUGH WALLS AND FLOORS NOT INDICATION ON ARCHITECTURAL DRAWINGS, RE: MECH, PLUMBING AND ELECTRICAL. REFER TO STRUCTURAL DRAWINGS FOR LINTEL OR FRAMING REQUIREMENTS.
3. REFER TO SHEET A0.01 FOR TYPICAL BARRIER-FREE AND ACCESSORIES HEIGHTS.
4. REFER TO SHEET A2.31 FIRST FLOOR FURNITURE/EQUIPMENT. CONTRACTOR TO VERIFY ALL ITEMS THAT REQUIRE BLOCKING.
5. REFER TO A3.02 FIRST FLOOR FLOORING PLAN FOR DIMENSIONED FLOOR BOX LOCATIONS.
6. PROVIDE SMOOTH MASONRY UNITS BEHIND ALL APPLIED DEVICES AND FINISHES INCLUDING KNOX BOXES, ADA, PUSH PADS, CARD READERS, AND CANOPY ELEMENTS.

. PLAN KEYNOTES

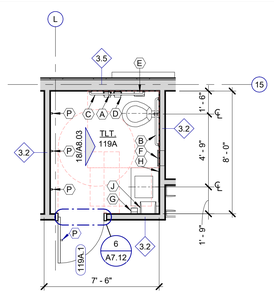
1. MOP SINK; RE: MECHANICAL
2. 2" RECESSED SLAB; RE: STRUCTURAL
3. PLANT SINK; RE: MECHANICAL
4. MOP SHELF W/ HOOKS
5. CLEAR ANODIZED ALUMINUM FRAMELESS CONTINUOUS BAR GRILLE; MITER CORNER
6. POLISHED CONCRETE SAW-CUTS
7. OVERFLOW NOZZLE WITH BIRD SCREEN. RE: MECHANICAL.
8. ACCESS PANEL, 60" X 30" FLUSH MOUNTED WITH TOUCH LATCH AND LOCK; PAINT TO MATCH ADJACENT WALL SURFACE.
9. MOP/BROOM HOLDER



NORTH 3 A2.21 ENLARGE FLOOR PLAN @ TOILET RM 121/122
SCALE: 1/4" = 1'-0"



NORTH 4 A2.21 ENLARGED FLOOR PLAN @ TOILET RM 120B
SCALE: 1/4" = 1'-0"



NORTH 5 A2.21 ENLARGED FLOOR PLAN @TOILET RM 119A
SCALE: 1/4" = 1'-0"

KITCHEN EQUIPMENT SCHEDULE

ITEM #	QTY	DESCRIPTION	MANUFACTURER	MODEL #	PLUMBING REMARKS	ELECTRICAL REMARKS	GENERAL REMARKS
A	4	REACH-IN REFRIDGERATOR	TRUE MANUFACTURERING	T-49F-FLX-HC REFRIGERATOR		PLUG IN CONNECTION	
B	4	REACH-IN FREEZER	TRUE MANUFACTURERING	T-49F-FLX-HC FREEZER		PLUG IN CONNECTION	
C	1	3 - COMPARTMENT SINK	ADVANCE TABCO	FC-3-1824	SOILED TO GT; WASH RINSE TO IW		CUSTOM SIDEBOARDS
D	1	STAINLESS STEEL WORK TABLE	CUSTOM	S/S			72" LENGTH
E	1	STAINLESS STEEL WORK TABLE	CUSTOM	S/S			48" LENGTH
F	1	STAINLESS STEEL WORK TABLE	CUSTOM	S/S			60" BOTH SIDES CORNER
G	1	ICE MAKER	MANITOWOC	IYT0450A	WATER CONNECTION	PLUG IN CONNECTION	
H	2	MOBILE WORK TABLE	ADVANCE TABCO	MS-305			
I	1	DROP-IN ICE BIN	ADVANCE TABCO	D-36-IBL	IW		
J	1	HAND SINK	ADVANCE TABCO	7-PS-20	WATER CONNECTION/ IW		
K	1	DOUBLE BREWER	BUNN	51200.0100	WATER CONNECTION	PLUG IN CONNECTION	
L	1	DUAL COFFEE BEAN GRINDER	BUNN	FPG-2 DBC SST		PLUG IN CONNECTION	
M	1	ESPRESSO MACHINE	NOUVA SIMONELLI	MAURE18VDG03ND0001	WATER CONNECTION	PLUG IN CONNECTION	
N	1	UNDERCOUNTER DISHWASHER	CMA DISHMACHINES	180UC	WATER CONNECTION/ IW	PLUG IN CONNECTION	
O	1	HAND SINK WITH SPLASH GURDS	ADVANCE TABCO	7-PS-40	WATER CONNECTION/ IW		
P	1	UNDER COUNTER REFRIDGERATOR	TRUE MANUFACTURERING	TUC-27-HC		PLUG IN CONNECTION	
Q	1	GARBAGE DISPOSAL	IN-SINK-ERATOR	SS-200-15 W/ AQUA SAVER		PLUG IN CONNECTION	
R	10	WIRE SHELVING	METRO	SUPER ERECTA SUPER BRITE			
S	7	MICROWAVE SHELF	ADVANCE TABCO	MS-20-30-EC-X			
T	1	WATER STATION WITH ICE BIN	ADVANCE TABCO	D-24-WSIBL2	WATER CONNECTION/ IW		
U	2	CUSTOM MILLWORK SHELVING	CUSTOM	MILLWORK			RE: CASEWORK DETAILS
V	2	BEVERAGE CONTAINERS	CATER GATOR	215BEVDP5BK			
W	2	WALL SHELVING	CUSTOM	S/S			15" DEPTH

TOILET ACCESSORIES SCHEDULE

KEYNOTE	ITEM DESCRIPTION	FURNISHED BY	INSTALLED BY	COMMENTS
A	18" VERTICAL GRAB BAR	G.C.	G.C.	
B	36" GRAB BAR	G.C.	G.C.	
C	42" GRAB BAR	G.C.	G.C.	
D	TOILET PAPER DISPENSER	G.C.	G.C.	
E	SANITARY NAPKIN DISPOSAL	G.C.	G.C.	
F	WALL MOUNTED HAND DRYER	G.C.	G.C.	
G	SOAP DISPENSER	OWNER	G.C.	
H	24" X 36" MIRROR	G.C.	G.C.	RE. ELEC.
J	PAPER TOWEL DISPENSER	OWNER	G.C.	
K	SWING UP GRAB BAR	G.C.	G.C.	
P	DOUBLE COAT/ROBE HOOK	G.C.	G.C.	
Q	RECESSED BABY CHANGER	G.C.	G.C.	
R	UTILITY HOOK	G.C.	G.C.	5' - 0" A.F.F.
S	PRIVACY SCREEN	G.C.	G.C.	ADULT CHANGING ROOM, REF. SPEC.

SPECIALTIES SCHEDULE

ID#	ITEM DESCRIPTION	HEIGHT	WIDTH	FURNISHED BY	INSTALLED BY	COMMENTS
SP-01	MIRROR	6' - 0"	3' - 0"	G.C.	G.C.	GARDEN RMS, GIFT SHOP, TOILET ROOMS, REF. SPEC.
SP-02	SILICONE EDGE GRAPHIC BANNER	RE: ELEVATIONS	RE: ELEVATIONS	OWNER	OWNER	REF: INTERIOR ELEVATIONS, CONTRACTOR TO PROVIDE BLOCKING
SP-03	COAT/ROBE HOOK	RE: ELEVATIONS	RE: ELEVATIONS	G.C.	G.C.	REF: INTERIOR ELEVATIONS AND SPEC.

EQUIPMENT SCHEDULE

ID#	ITEM DESCRIPTION	HEIGHT	WIDTH	FURNISHED BY	INSTALLED BY	COMMENTS
EQ-02A	MONITOR	-	-	OWNER	G.C.	55" PORTRAIT
EQ-02B	MONITOR	-	-	OWNER	G.C.	55" LANDSCAPE
EQ-03	REFRIDGERATOR	N/A	3' - 0"	OWNER	G.C.	
EQ-04	ELECTRONIC VIDEO SIGNAGE	5' - 10"	8' - 0"	G.C.	G.C.	
EQ-05	ADULT CHANGING TABLE	-	-	G.C.	G.C.	POWERED

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
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	ISSUED FOR BID	08/27/24

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
ENLARGED PLANS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A2.21

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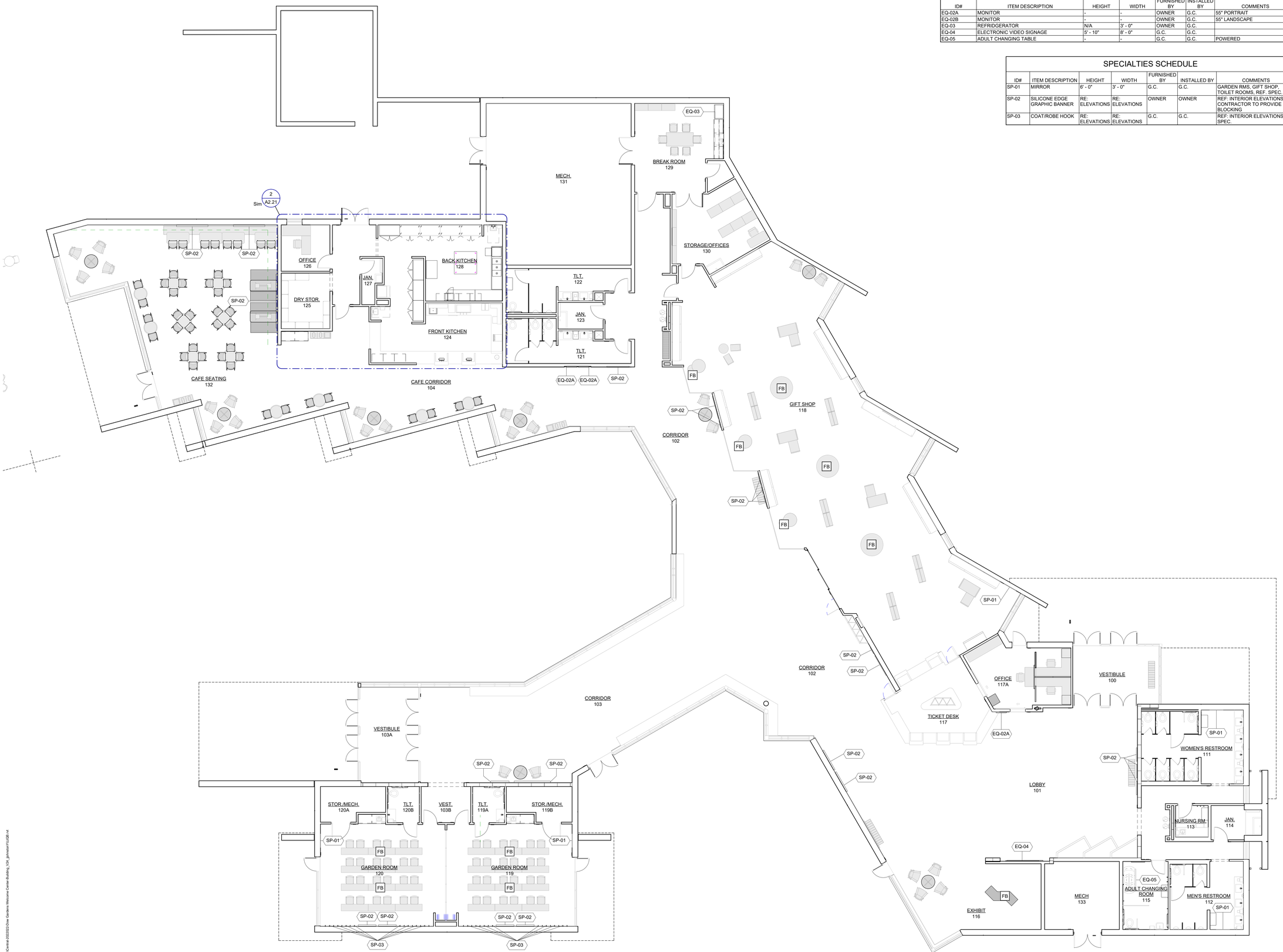

EQUIPMENT SCHEDULE

ID#	ITEM DESCRIPTION	HEIGHT	WIDTH	FURNISHED BY	INSTALLED BY	COMMENTS
EQ-02A	MONITOR	-	-	OWNER	G.C.	55" PORTRAIT
EQ-02B	MONITOR	-	-	OWNER	G.C.	55" LANDSCAPE
EQ-03	REFRIDGERATOR	N/A	3' - 0"	OWNER	G.C.	
EQ-04	ELECTRONIC VIDEO SIGNAGE	5' - 10"	8' - 0"	G.C.	G.C.	
EQ-05	ADULT CHANGING TABLE	-	-	G.C.	G.C.	POWERED

SPECIALTIES SCHEDULE

ID#	ITEM DESCRIPTION	HEIGHT	WIDTH	FURNISHED BY	INSTALLED BY	COMMENTS
SP-01	MIRROR	6' - 0"	3' - 0"	G.C.	G.C.	GARDEN RMS, GIFT SHOP, TOILET ROOMS, REF. SPEC.
SP-02	SILICONE EDGE GRAPHIC BANNER	RE: ELEVATIONS	RE: ELEVATIONS	OWNER	OWNER	REF: INTERIOR ELEVATIONS, CONTRACTOR TO PROVIDE BLOCKING
SP-03	COAT/ROBE HOOK	RE: ELEVATIONS	RE: ELEVATIONS	G.C.	G.C.	REF: INTERIOR ELEVATIONS AND SPEC.

INTERIOR GENERAL NOTES:

1. AT STUD WALL LOCATIONS PROVIDE BLOCKING AS REQUIRED FOR ALL WALL MOUNTED ITEMS, INCLUDING BUT NOT LIMITED TO: GRAB BARS, MIRRORS, DISPENSERS, SEG BANNERS, ETC. (REFER TO MFR. RECOMMENDATIONS).
2. ALL FURNITURE SHOWN SHADED IS NOT IN CONTRACT.
3. REFER TO FINISH MATERIAL LEGEND FOR SPECIFIC MANUFACTURER, STYLE, COLOR & SIZE INFORMATION.
4. FULL HEIGHT WINDOWS TO HAVE (CT-1B) TO UNDERSIDE OF SILL UNLESS OTHERWISE NOTED.
5. CERAMIC TILE & STONE TILE TO CONTINUE 6" INTO ALL CEILING RECESSES. REFER TO CEILING DETAILS FOR ADDITIONAL INFORMATION.
6. STAINLESS STEEL CORNER GUARDS TO BE USED IN KITCHEN. SEE FINISH PLAN.
7. REFER TO A3.02 FIRST FLOOR FLOORING PLAN FOR DIMENSIONED FLOOR BOX LOCATIONS.
8. THE ROOM FINISH TAGS INDICATE OVERALL FINISH TO BE USED IN THE ROOM. ALL SURFACES TO USE THIS FINISH UNLESS OTHERWISE NOTED. SEE FINISH PLANS AND INTERIOR FINISH ELEVATIONS FOR ACCENT FINISHES.
9. CONTRACTOR TO PROVIDE PRE-INSTALLATION FOR MOCKUPS, RE: SPEC.
10. ALL WALL FASTENERS OR MOUNTING BRACKETS TO BE INSTALLED IN GROUT JOINTS.

FLOOR PLAN SYMBOL LEGEND:

- ADA — ADA PUSH PAD
- CR — CARD READER
- KB — KNOX BOX
- RB — RELEASE BUTTON
- FEC-R — FULLY RECESSED FIRE EXTINGUISHER CABINET
- FEC-SR — SEMI-RECESSED FIRE EXTINGUISHER CABINET
- AED — FULLY RECESSED AED CABINET
- FB — POWER/DATA FLOOR BOX. RE: ELECTRICAL.

NOTE: MOUNTING LOCATION TO BE VERIFIED WITH ARCHITECT PRIOR TO ROUGH-IN.

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO.1	12/26/24

WTAARCH.COM
WTA ARCHITECTS
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Saginaw, Michigan 48607
989 752 8107

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
FIRST FLOOR FURNITURE / EQUIPMENT PLAN

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A2.31

NORTH
FURNITURE / EQUIPMENT PLAN
SCALE: 1/8" = 1'-0"

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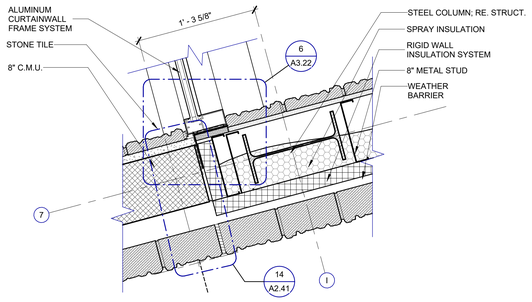
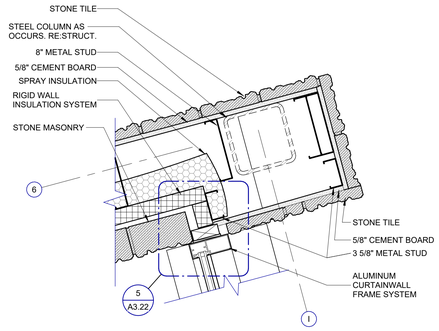
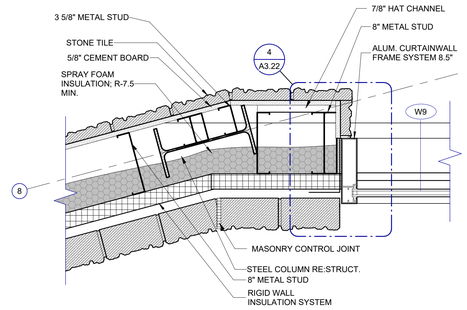


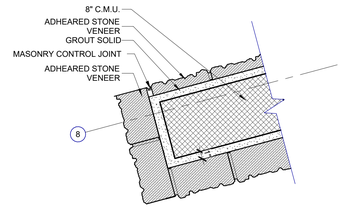
1 A2.41 TYP. PLAN DETAIL @ CORR. 104 WINDOW
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.12



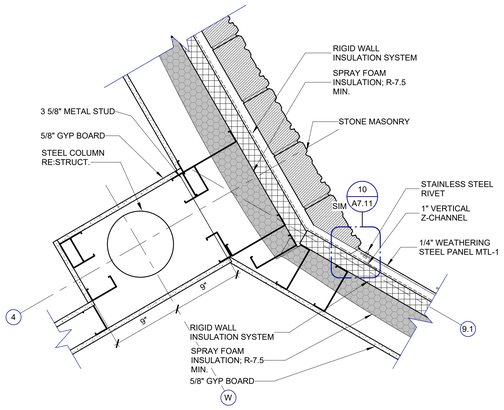
2 A2.41 TYP. END WRAP @ CAFE WINDOW
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.12



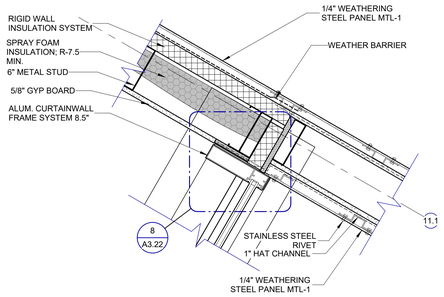
3 A2.41 COLUMN WRAP AND JAMB @ W9
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.12



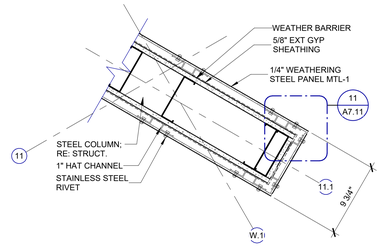
4 A2.41 TYP. MASONRY ON CMU END WRAP DETAIL
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.12



5 A2.41 WALL JOINT @ GIFTSHOP/OFFICE
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.12



6 A2.41 TYP. WALL TYPE 4.1 TO 4.0
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.12



7 A2.41 TYP. METAL PANEL WALL END WRAP
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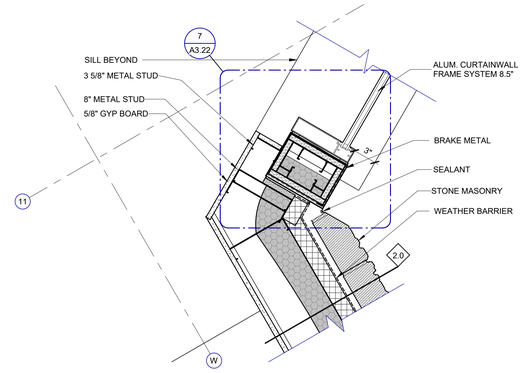
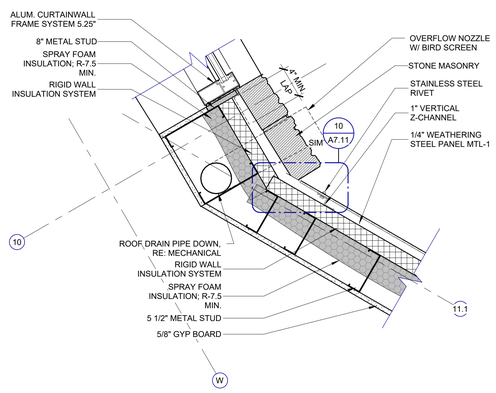
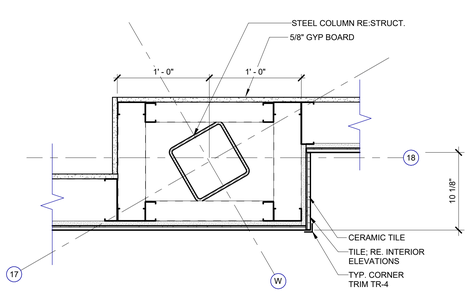
REFERENCE: 1/ A2.12



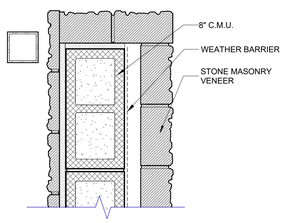
8 A2.41 TYP. PLAN DETAIL @ GIFTSHOP WINDOW
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.12



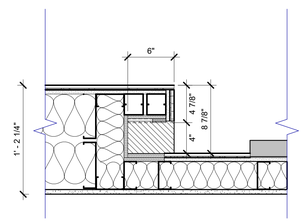
9 A2.41 PLAN DETAIL @ W30, W31
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.12

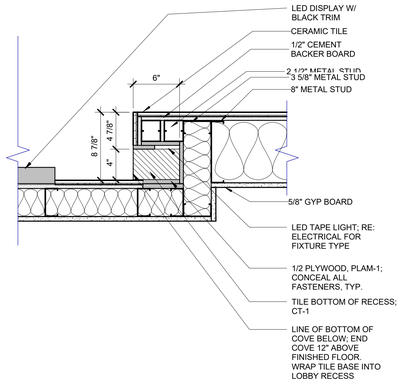


10 A2.41 COLUMN ENCLOSURE @ LOBBY
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.12

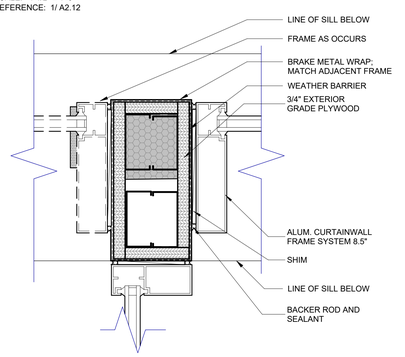


11 A2.41 PLAN DETAIL @ MASONRY WING WALL
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.12

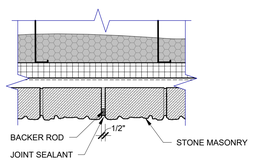




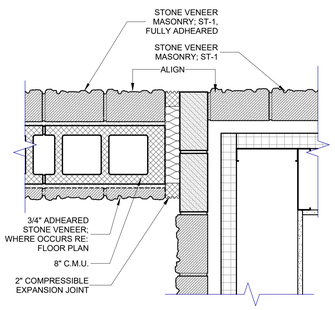
12 A2.41 LOBBY RECESS PLAN DETAIL
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.12



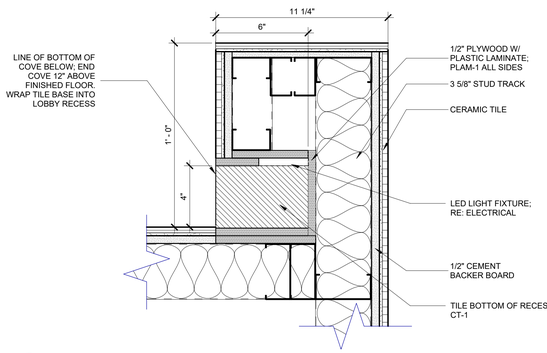
13 A2.41 PLAN DETAIL @ CURTAIN WALL INTERSECTION
SCALE: 3" = 1'-0"
REFERENCE: 1/ A2.12



14 A2.41 TYP. MASONRY CONTROL JOINT DETAIL
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.41



15 A2.41 PLAN DETAIL @ MASONRY EXPANSION JOINT
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.12



16 A2.41 PLAN DETAIL @ LIGHT COVE
SCALE: 3" = 1'-0"
REFERENCE: 1/ A2.12

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO.1	12/26/24
	ISSUED FOR BID	08/27/24

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
PLAN DETAILS

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 09, 2025

CHECKED BY
JMJ

SHEET NUMBER
A2.41

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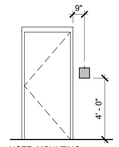
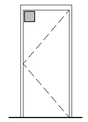
SIGNAGE SCHEDULE

ROOM NUMBER	ROOM: NAME	SIGN TYPE	DOOR NUMBER	MOUNTING TYPE	BACKER PLATE	TEXT LINE 1	TEXT LINE 2	TEXT LINE 3	REMARKS
		S1	117C	DOUBLE-FACE TAPE	NO	CORRIDOR	BRAILLE		
		S8	132.1	DOUBLE-FACE TAPE	YES	EXIT	BRAILLE		
		S8	125.2	MECHANICAL	YES	EXIT	BRAILLE		
		S8	131.1	DOUBLE-FACE TAPE	YES	EXIT	BRAILLE		
		S8	117A.1	DOUBLE-FACE TAPE	YES	EXIT	BRAILLE		
		S8	133.1	DOUBLE-FACE TAPE	YES	EXIT	BRAILLE		
		S8	116.1	DOUBLE-FACE TAPE	YES	EXIT	BRAILLE		
		S8	103.3	DOUBLE-FACE TAPE	YES	EXIT	BRAILLE		
		S8	119.4	DOUBLE-FACE TAPE	YES	EXIT	BRAILLE		
		S8	120.4	DOUBLE-FACE TAPE	YES	EXIT	BRAILLE		
		S10	125.2	ADHESIVE	NO	DELIVERIES	BRAILLE		EXTERIOR
		S12	116.1	2" CONCEALED STAND-OFF	NO	RE: 2/A8.01			
101	LOBBY	S11	101.2	MECHANICAL	NO	EXIT	BRAILLE		
102	CORRIDOR								
103A	VESTIBULE	S8	103.1	DOUBLE-FACE TAPE	NO	EXIT	BRAILLE		
103B	VEST.	S3	103.4	MECHANICAL	NO	GARDEN	ROOMS		
104	CAFE CORRIDOR	S1		DOUBLE-FACE TAPE	NO	CORRIDOR	BRAILLE		
110	CORRIDOR	S9		MECHANICAL	NO	RESTROOM	BRAILLE		
111	WOMEN'S RESTROOM	S4	111.1	DOUBLE-FACE TAPE	NO	WOMEN	BRAILLE		
112	MEN'S RESTROOM	S5	112.1	DOUBLE-FACE TAPE	NO	MEN	BRAILLE		
113	NURSING RM.	S2	113.1	DOUBLE-FACE TAPE	NO	NURSING	ROOM	BRAILLE	
114	JAN.	S1	114.1	DOUBLE-FACE TAPE	NO	CUSTODIAL	BRAILLE		
115	ADULT CHANGING ROOM	S7	115.1	DOUBLE-FACE TAPE	NO	CHANGING	PLACE	BRAILLE	
115	ADULT CHANGING ROOM	S6		DOUBLE-FACE TAPE	NO	RESTROOM	BRAILLE		
117A	OFFICE.	S1	117.1	DOUBLE-FACE TAPE	NO	OFFICE	BRAILLE		
117A	OFFICE	S1	120.16	DOUBLE-FACE TAPE	NO	OFFICE	BRAILLE		
118	GIFT SHOP	S1	130.2	DOUBLE-FACE TAPE	NO	GIFT SHOP	BRAILLE		
118	GIFT SHOP	S1	118.1	DOUBLE-FACE TAPE	YES	GIFT SHOP	BRAILLE		
119	GARDEN ROOM	S1	119.1	DOUBLE-FACE TAPE	NO	GARDEN ROOM	BRAILLE		
119A	TLT.	S6	119A.1	DOUBLE-FACE TAPE	NO	RESTROOM	BRAILLE		
119B	STOR./MECH.	S1	119B.1	DOUBLE-FACE TAPE	NO	MECHANICAL	ROOM	BRAILLE	
120	GARDEN ROOM	S1	120.1	DOUBLE-FACE TAPE	NO	GARDEN ROOM	BRAILLE		
120A	STOR./MECH.	S2	120A.1	DOUBLE-FACE TAPE	NO	MECHANICAL	ROOM	BRAILLE	
120B	TLT.	S6	120B.1	DOUBLE-FACE TAPE	NO	RESTROOM	BRAILLE		
121	TLT.	S4	121.1	DOUBLE-FACE TAPE	NO	WOMEN	BRAILLE		
122	TLT.	S5	122.1	DOUBLE-FACE TAPE	NO	MEN	BRAILLE		
123	JAN.	S1	123.1	DOUBLE-FACE TAPE	NO	CUSTODIAL	BRAILLE		
125	DRY STOR.	S1	125.1	DOUBLE-FACE TAPE	NO	DRY STORAGE	BRAILLE		
126	OFFICE	S1	126.1	DOUBLE-FACE TAPE	NO	OFFICE	BRAILLE		
127	JAN.	S1	127.1	DOUBLE-FACE TAPE	NO	CUSTODIAL	BRAILLE		
129	BREAK ROOM	S1	129.1	DOUBLE-FACE TAPE	NO	BREAK ROOM	BRAILLE		
129A	IT CLOSET	S1	116.3	DOUBLE-FACE TAPE	NO	IT CLOSET	BRAILLE		
130	STORAGE/OFFICES	S1	130.1	DOUBLE-FACE TAPE	NO	STORAGE /	OFFICES	BRAILLE	
130	STORAGE/OFFICES	S2	130.2	DOUBLE-FACE TAPE	NO	STORAGE /	OFFICES	BRAILLE	
131	MECH.	S2	129.1	DOUBLE-FACE TAPE	NO	MECHANICAL	ROOM	BRAILLE	
131	MECH.	S10	131.1	ADHESIVE	NO	MECHANICAL	ROOM	BRAILLE	EXTERIOR
133	MECH	S10	133.1	ADHESIVE	NO	MECHANICAL	ROOM	BRAILLE	EXTERIOR



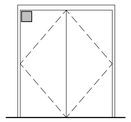
NOTE: MOUNTING TYPICAL FOR OPPOSITE DOOR CONFIGURATION.

A



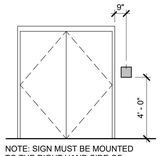
NOTE: MOUNT WITH EXTERIOR ADHESIVE. MOUNTING TYPICAL FOR OPPOSITE DOOR CONFIGURATION.

B



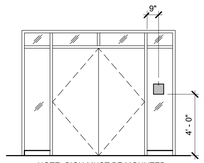
NOTE: MOUNT WITH EXTERIOR ADHESIVE.

C



NOTE: SIGN MUST BE MOUNTED TO THE RIGHT HAND SIDE OF DOOR.

D



NOTE: SIGN MUST BE MOUNTED TO THE RIGHT HAND SIDE OF DOOR.

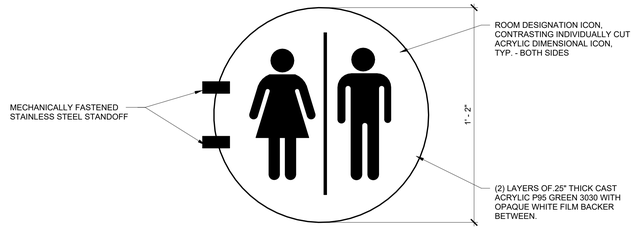
E

DIMENSIONAL METAL SIGNAGE LEGEND

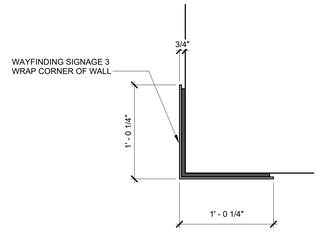
KEY	SIZE(H)	FONT	NAME	FINISH	MOUNTING TYPE
A	12"	ARIAL	WELCOME	CLEAR ANODIZED	STUD
B	8"	ARIAL	RESTROOMS	CLEAR ANODIZED	STUD
C	12"	ARIAL	OUR LEGACY	CLEAR ANODIZED	STUD
D	12"	ARIAL	GIFT SHOP	CLEAR ANODIZED	BOTTOM STUD
E	8"	ARIAL	GARDEN ROOMS	CLEAR ANODIZED	STUD
F	12"	ARIAL	CAFE	CLEAR ANODIZED	BOTTOM STUD
G	18"	ARIAL	DOW GARDENS (HALO LIT)	CLEAR ANODIZED	STUD
H	12"	ARIAL	THANK YOU FOR VISITING	CLEAR ANODIZED	BOTTOM STUD
I	18"	ARIAL	DOW GARDENS	DARK BRONZE ANODIZED	BOTTOM STUD

SIGNAGE GENERAL NOTES:

1. ALL TEXT TO BE VERIFIED BY OWNER PRIOR TO FABRICATION. RE: SIGNAGE SPEC 101400

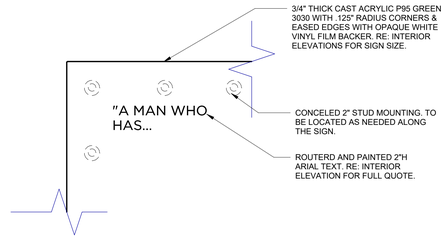


WAYFINDING SIGNAGE 5

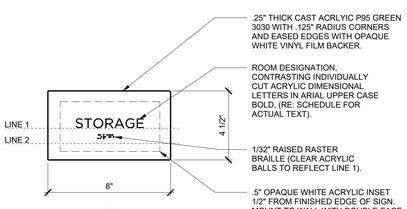


3 A2.50 PLAN DETAIL - WAYFINDING SIGNAGE 3

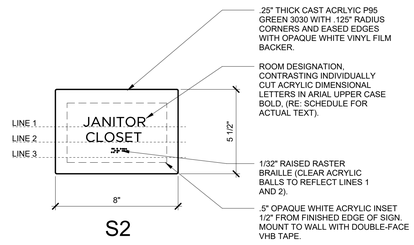
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A2.51



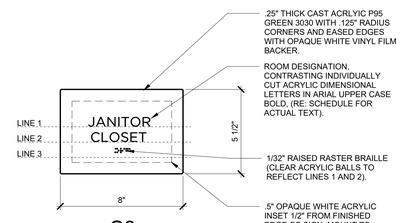
S12



S1



S2



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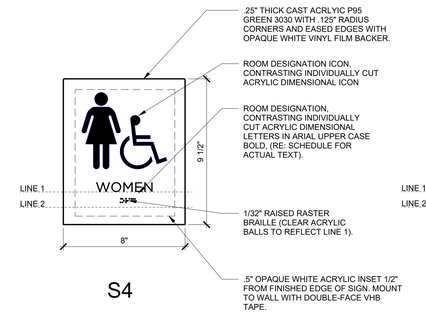

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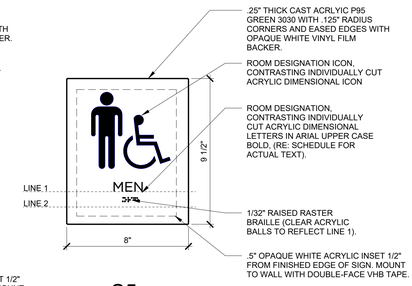

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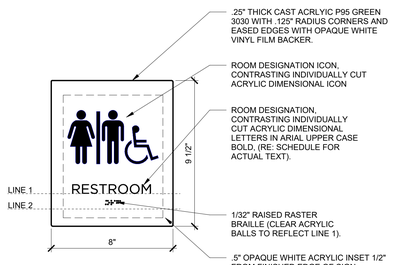

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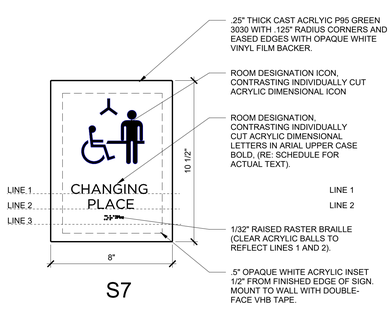

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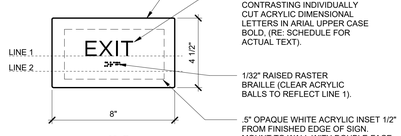

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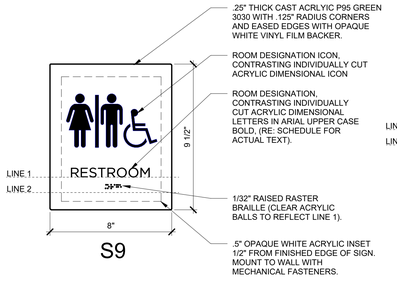

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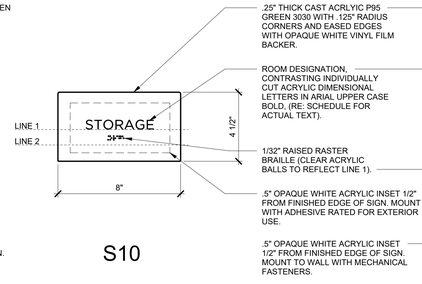

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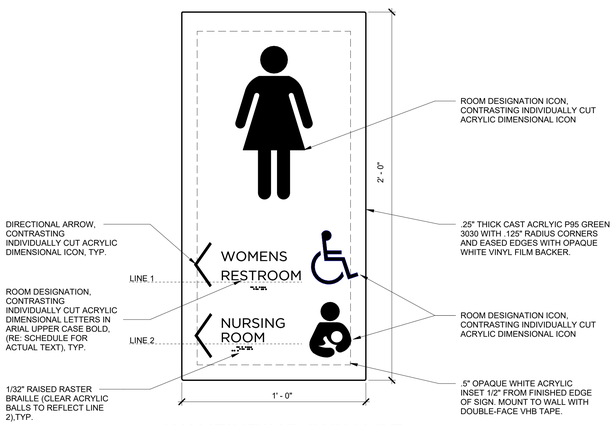
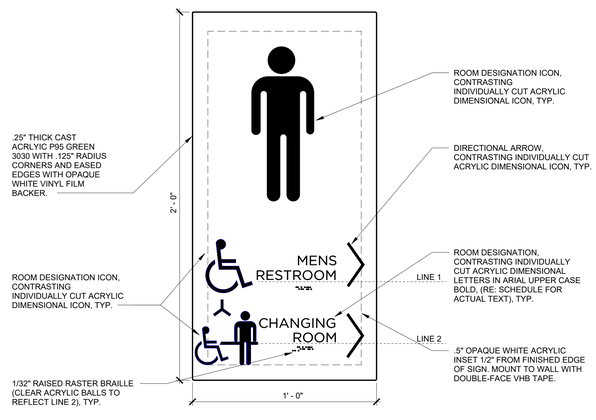


WAYFINDING SIGNAGE 1



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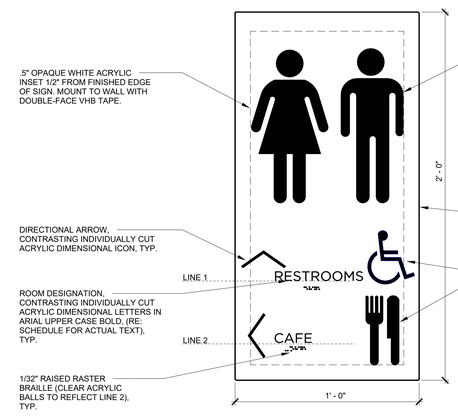

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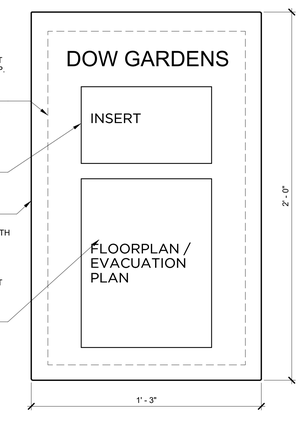

WAYFINDING SIGNAGE 4

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B1	BULLETIN NO.1	12/26/24

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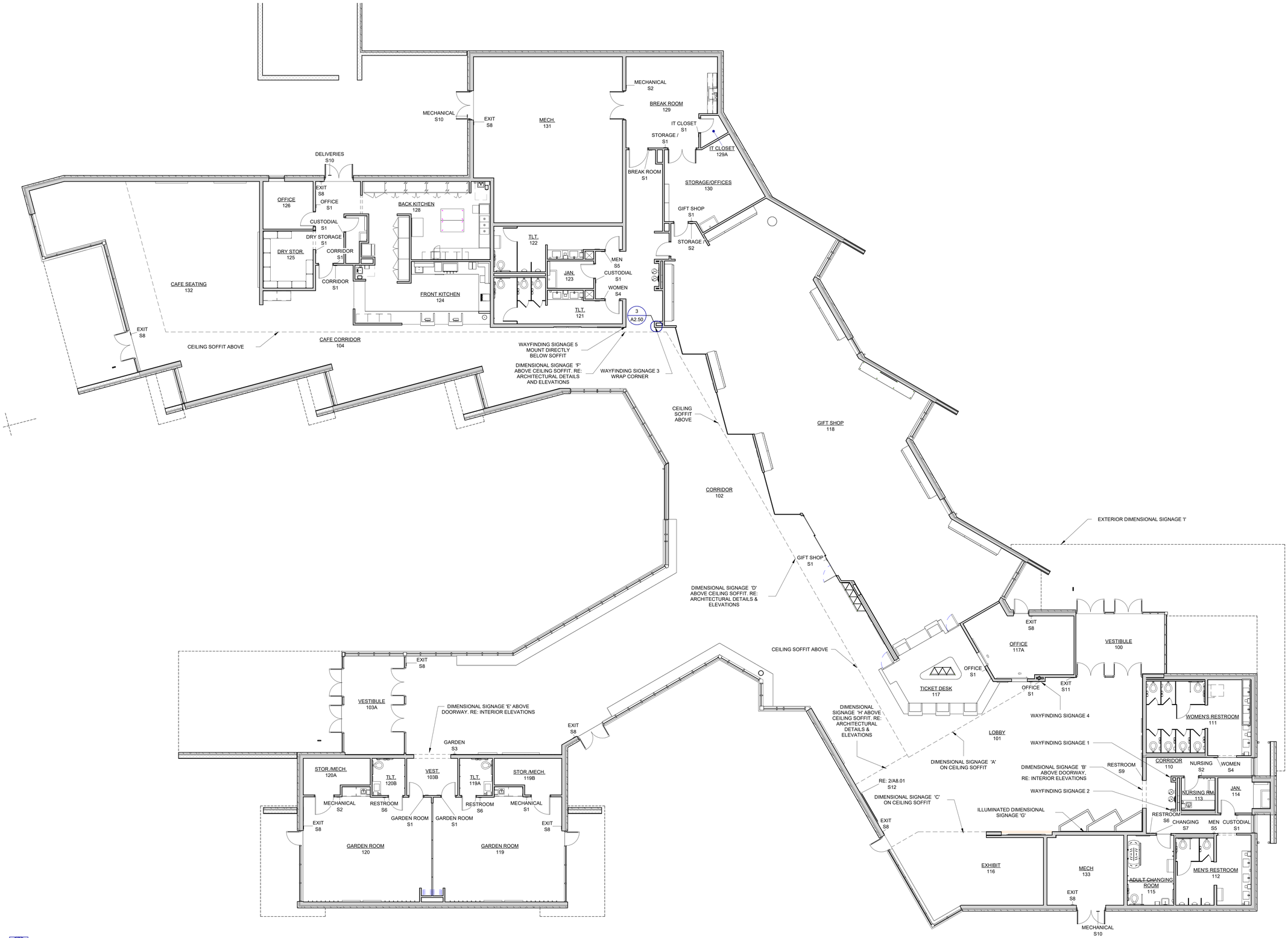
PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
SIGNAGE DETAILS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A2.50

Autodesk Docs: 2022022-Dow Gardens Welcome Center-Building_V24_jjohnson@wtaarch.com Saved: 1/6/2025 4:04:58 PM C:\Users\jjohnson\Documents\Central\



NORTH

SIGNAGE PLAN

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

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO.1	12/26/24

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PROJECT TITLE

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DOW GARDENS WELCOME CENTER
BID PACK NO.3

MIDLAND, MICHIGAN

SHEET TITLE

SIGNAGE PLAN

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 09, 2025

CHECKED BY
JMJ

SHEET NUMBER
A2.51

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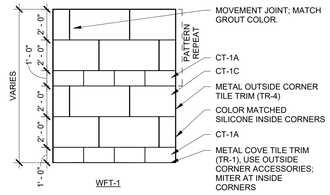
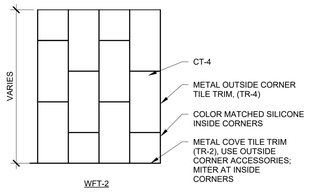
FINISH MATERIAL LEGEND

SN	MANUFACTURER	STYLE	COLOR	SIZE	FLAME SPREAD	REMARKS
ACOUSTIC CEILING TILE						
ACT-1	ARMSTRONG	CALLA	WHITE	2 X 2		RE: REFLECTED CEILING PLANS
ACT-2	ARMSTRONG	CLEAN ROOM FL		2 x 2		VINYL FACED TILE; RE: REFLECTED CEILING PLANS
ACOUSTIC METAL CEILING						
AMC-1	MOZ	BLENDZ PATINA METAL	PATINA 110 FLAT	CUSTOM		WITH ACOUSTIC INFILL, SEE SPECS
ACOUSTICAL GYPSUM						
AG-1	ARMSTRONG	ACOUSTIBUILT	WHITE			RE: REFLECTED CEILING PLANS
ACRYLIC SHEET						
AS-1	CHEMCAST	CAST ACRYLIC	GREEN 3030	1/4"		P95 FINISH; GIFT SHOP DISPLAY CASES & SIGNAGE
CERAMIC TILE						
CT-1A	VILT	WINDSOR PLACE	TAN	12"X24"		SEE WALL FINISH (WFT-1); 18 x 35 TILE TO BE USED FOR BASE OF CORRIDOR 103 BENCH
CT-1B	VILT	WINDSOR PLACE	TAN	18"X35"		
CT-1C	VILT	WINDSOR PLACE	TAN	24"X48"		
CT-2	TILEBAR	MONET	WILD ATELIER GREEN	24"x 48"		ACCENT WALL TILE - TOILET RMS & DRINKING FOUNTAINS, SEE WALL FINISH (WFT-3)
CT-3	NOT USED	NOT USED	NOT USED	NOT USED		NOT USED
CT-4	ATLAS CONCORDE	BOOST WALL	WHITE MATTE	24"X48"		FIELD WALL TILE - TOILET RMS, SEE WALL FINISH (WFT-2)
CT-5	ATLAS CONCORDE	APLOMB	CREAM- LEAF LUX	20"x47"		ACCENT WALL TILE - GARDEN RM TOILET RMS
CT-6	WOW USA	FEZ	AQUA	2.5" X 5"		ACCENT WALL TILE - CAFE; HORIZONTAL RUNNING BOND INSTALL
CT-7A	DAL TILE	REKINDLE	TERRACOTTA RK14 SQUARE	24 X 24		FLOOR TILE - TOILET RMS,CHANGING RM
CT-7B	DAL TILE	REKINDLE	TERRACOTTA RK14 P43F9 BULLNOSE	3"X24"		FLOOR BASE- GARDEN RM TOILET RMS
CT-8	AMERICAN OLEAN	COLOR STORY	36 CALM MATTE	8"X24"		FIELD WALL TILE - CAFE FRONT KITCHEN; HORIZONTAL STACK BOND INSTALL
CT-9	DAL TILE	SLIMLITE ALLOY EFFECTS	DISTRESSED COPP TP48	39 X 118		ACCENT WALL TILE - LOBBY, MAIN CORRIDOR
FABRIC						
FAB-1	CARNEGIE XOREL	WINDSOR 6131/ HIGH ACRYLIC BACKING	36			OPERABLE PARTITION IN GARDEN ROOMS
GLASS TILE						
GT-1	ISLAND STONE	GLASS ESSENTIALS	OCEANIA	2" x 8"		MATTE FINISH, RUNNING BOND INSTALL
INTERIOR PAINT						
PT-1	SHERWIN-WILLIAMS		ALABASTER SW 7008			
PT-2	BENJAMIN MOORE		685 VERDIGRIS			
PT-3	SHERWIN-WILLIAMS		RAIN SW 6219			
PT-4	NOT USED		NOT USED			
PT-5	SHERWIN-WILLIAMS		HIGH REFLECTIVE WHITE SW 7757			
PT-6	NOT USED					
PT-7	MDC	CERAMIC	CP3224 (DARK BROWN)			INTERIOR STEEL SILLS AND STONE VENEER EDGE FINISH
PT-8	BENJAMIN MOORE	CLASSICS	CABOT TRAIL 998			INTERIOR HOLLOW METAL DOOR FRAMES
PT-9	SHERWIN-WILLIAMS		SAFETY RED SM9500			EXTERIOR COLUMNS & INTERIOR PLANTER COLUMNS, RE: HIGH PERFORMANCE COATINGS
PT-10	SHERWIN-WILLIAMS		TRICORN BLACK SW6258			CEILING RECESS DETAILS WHERE NOTED
PT-11	TIGER DRYLAC		TBD			ALL INTERIOR STEEL COLUMNS, RE: SHOP APPLIED COATINGS SPEC.
LINEAR CEILING SYSTEM						
LC-1	RULON	ENDURE LINEAR 900	KNOTTY OAK 408 ON BLACK BASE			EXTERIOR SOFFITS
LC-2	RULON	ENDURE LINEAR 800 OPEN	KNOTTY OAK 408 ON BLACK BASE			INTERIOR - WITH ACOUSTIC INFILL, SEE SPECS.
METAL PANEL						
MP-1		1/4" WEATHERING STEEL PLATE	NATURAL PATINA			
PLASTIC LAMINATE						
PLAM-1	ARBORITE		COPPER ARTISIAN WALNUT W2003 AW			
POLISHED CONCRETE						
PC-1		CUSTOM AGGREGATE	INTEGRAL COLOR			SEE SPECIFICATIONS
QUARTZ COUNTERTOP						
QC-1	CAMBRIA		WEYBOURNE			CASEWORK COUTNERTOPS
QC-2	SILESTONE		BRASS RELISH			SUEDE AND HYBRIQ FINISH
RESILIENT WALL BASE						
RWB-1	ROPPE	4" STRAIGHT BASE	100 BLACK			USED ON CASEWORK AT RESINOUS FLOORS (RF-1,2)
RWB-2	ROPPE	4-5/8" PINNACLE PLUS #65 VERTICAL	678 MOCHACCINO			USED AT CASEWORK AS NOTED IN INTERIOR ELEVATIONS
RESINOUS FLOORING						
RF-1	SIKA	POLYURETHANE CEMENT-22 NA PURCEM	TRAFFIC GREY			TROWELED BASE, RE: FLOOR FINISH PLAN
RF-2	SIKA	COMFORTFLOOR PS-65	DOLPHIN GRAY			RE: FLOOR FINISH PLAN
SEALED CONCRETE						
SC						JANITOR CLOSESTS, MECHANICAL RMS
SOLID SURFACE						
SS-1	CORIAN		SAVANNAH			TICKET DESK ACCENT
SS-2	NOT USED		NOT USED			NOT USED
SS-3	MARIO ROMANO WALLS CORIAN	1/2" FLUTED	CAMEO WHITE			1/2" THICK CARVED PANEL TICKET DESK ACCENT
STONE						
ST-1	ARRISCRAFT	ADAIR PARLIMENT	SEPIA VEINED	RE: SPEC		INTERIOR RUGGED SPLIT FACE, RE: SPEC & ELEVATIONS
ST-2	ARRISCRAFT	ADAIR LIMESTONE TILE	SEPIA VEINED	RE: SPEC		EXTERIOR RUGGED SPLIT FACE, RE: SPEC & ELEVATIONS
ST-3	ARRISCRAFT	ADAIR MASONRY UNITS	SEPIA VEINED	RE: SPEC		EXTERIOR LIMESTONE BASE COURSE; FINE DRESSED
ST-4	ARRISCRAFT	ADAIR LIMESTONE TILE	SEPIA VEINED	RE: SPEC		INTERIOR LIMESTONE BASE COURSE; FINE DRESSED
TILE TRIM						
TR-1	SCHLUTER	DILEX-AHKA	SATIN ANODIZED ALUMINUM			WALL TILE TO POURED FLOOR TRANSITION
TR-2	SCHLUTER	DILEX-AHK	SATIN ANODIZED ALUMINUM			WALL TILE TO FLOOR TILE TRANSITION; USE OUTSIDE CORNER ACCESSORIES
TR-3	FRY REGLET	DRMZ-625-75	CLEAR ANODIZED			TILE BASE METAL REVEAL DRYWALL TRIM FOR WFT-6
TR-4	SCHLUTER	QUADEC	SATIN ANODIZED ALUMINUM			WALL TILE OUTSIDE CORNER TRIM
TR-5	SCHLUTER	JOLLY	SATIN ANODIZED ALUMINUM			METAL EDGE TILE TRIM
TR-6	SCHLUTER	DILEX-BWA	BLACK			FLOOR TILE TO POLISHED CONCRETE TRANSITION
TOILET PARTITIONS						
TP-1	PIONITE	BLACK CORE PHENOLIC	MOSS GRAY	VARIES		CEILING HUNG
VINYL FILM						
VF-1	3M	ARCHITECTURAL DECORATIVE FILMS	CRYSTAL GLASS FINISH			GLASS DOOR LITES AS NOTED ON THE DOOR SCHEDULE
WINDOW TREATMENTS						
WT-1	HUNTER DOUGLAS	SHEERWEAVE 7100 BLACKOUT	BEIGE/ PEARL GREY			GARDEN ROOMS WINDOWS



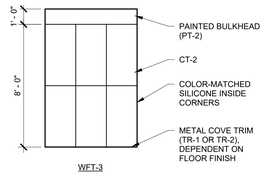
WFT-1

NOTE: CONTRACTOR TO PROVIDE VERTICAL MOVEMENT JOINTS EVERY 20' AS RECOMMENDED BY TCNA GUIDELINES. REFER TO FINISH PLAN FOR ADDITIONAL LOCATIONS.

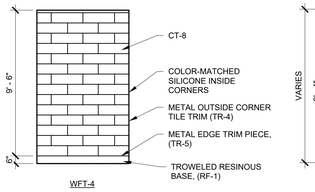


WFT-2

NOTE: CONTRACTOR TO PROVIDE VERTICAL MOVEMENT JOINTS EVERY 20' AS RECOMMENDED BY TCNA GUIDELINES. REFER TO FINISH PLAN FOR ADDITIONAL LOCATIONS.

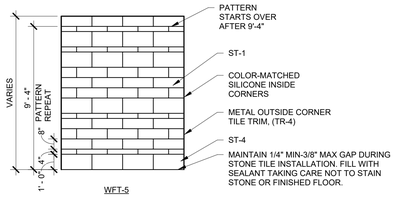


WFT-3



WFT-4

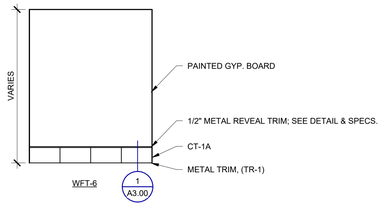
NOTE: CONTRACTOR TO PROVIDE VERTICAL MOVEMENT JOINTS EVERY 20' AS RECOMMENDED BY TCNA GUIDELINES. REFER TO FINISH PLAN FOR ADDITIONAL LOCATIONS.



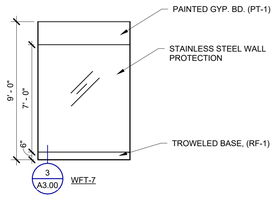
WFT-5

NOTE: STONE LENGTHS WILL VARY. REFERENCE WALL TYPE ABOVE FOR HEIGHTS AND PATTERN ONLY.

NOTE: CONTRACTOR TO PROVIDE VERTICAL MOVEMENT JOINTS EVERY 20' AS RECOMMENDED BY TCNA GUIDELINES. REFER TO FINISH PLAN FOR ADDITIONAL LOCATIONS.

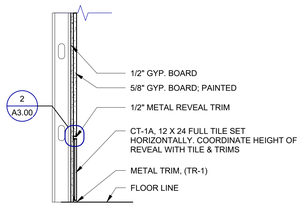


WFT-6



WFT-7

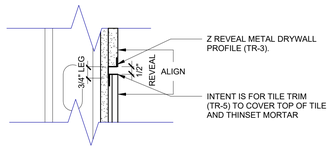
NOTE: REFER TO WALL FLASHING DETAILS FOR STAINLESS STEEL SEAMS AND CORNER GUARD DETAILS.



METAL REVEAL DETAIL
AT GYP. BOARD WALLS W/ CERAMIC TILE BASE ONLY

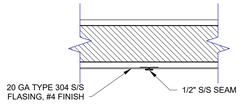
1 A3.00 TILE BASE METAL REVEAL DETAIL

SCALE: 1" = 1'-0"
REFERENCE: WFT-6/ A3.00

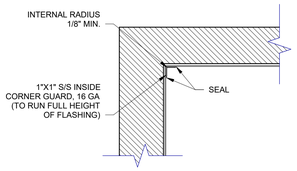


2 A3.00 ENLARGED TILE BASE METAL REVEAL DETAIL

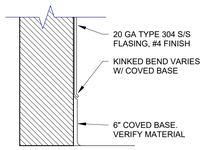
SCALE: 3" = 1'-0"
REFERENCE: 1/ A3.00



HORIZ. CUT OF FLASHING SEAM



HORIZ. CUT OF INSIDE CORNER GUARD



VERT. CUT AT COVE BASE

3 A3.00 WALL FLASHING DETAIL

SCALE: 1 1/2" = 1'-0"
REFERENCE: WFT-7/ A3.00

INTERIOR GENERAL NOTES:

1. AT STUD WALL LOCATIONS PROVIDE BLOCKING AS REQUIRED FOR ALL WALL MOUNTED ITEMS, INCLUDING BUT NOT LIMITED TO: GRAB BARS, MIRRORS, DISPENSERS, SEG BANNERS, ETC. (REFER TO MFR. RECOMMENDATIONS).
2. ALL FURNITURE SHOWN SHADED IS NOT IN CONTRACT.
3. REFER TO FINISH MATERIAL LEGEND FOR SPECIFIC MANUFACTURER, STYLE, COLOR & SIZE INFORMATION.
4. FULL HEIGHT WINDOWS TO HAVE (CT-1B) TO UNDERSIDE OF SILL UNLESS OTHERWISE NOTED.
5. CERAMIC TILE & STONE TILE TO CONTINUE 6" INTO ALL CEILING RECESSES. REFER TO CEILING DETAILS FOR ADDITIONAL INFORMATION.
6. STAINLESS STEEL CORNER GUARDS TO BE USED IN KITCHEN. SEE FINISH PLAN.
7. REFER TO A3.02 FIRST FLOOR FLOORING PLAN FOR DIMENSIONED FLOOR BOX LOCATIONS.
8. THE ROOM FINISH TAGS INDICATE OVERALL FINISH TO BE USED IN THE ROOM. ALL SURFACES TO USE THIS FINISH UNLESS OTHERWISE NOTED. SEE FINISH PLANS AND INTERIOR FINISH ELEVATIONS FOR ACCENT FINISHES.
9. CONTRACTOR TO PROVIDE PRE-INSTALLATION FOR MOCKUPS, RE: SPEC.
10. ALL WALL FASTENERS OR MOUNTING BRACKETS TO BE INSTALLED IN GROUT JOINTS.

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	ISSUED FOR BID	01/09/25
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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
FINISH LEGEND, WALL FINISH TYPES AND DETAILS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A3.00

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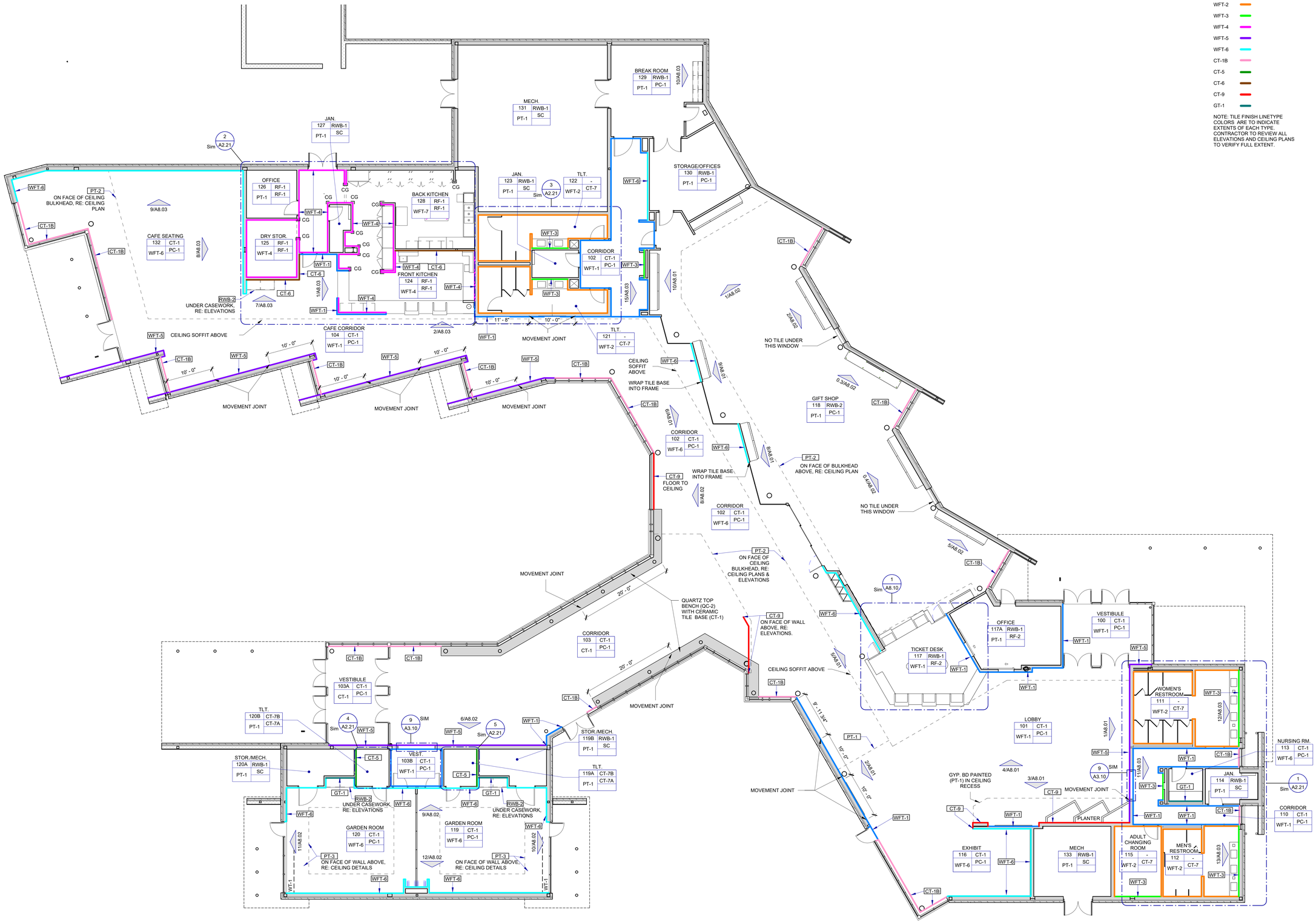

TILE FINISHES KEY:

- WFT-1
- WFT-2
- WFT-3
- WFT-4
- WFT-5
- WFT-6
- CT-1B
- CT-5
- CT-6
- CT-9
- GT-1

NOTE: TILE FINISH LINETYPE COLORS ARE TO INDICATE EXTENTS OF EACH TYPE. CONTRACTOR TO REVIEW ALL ELEVATIONS AND CEILING PLANS TO VERIFY FULL EXTENT.

INTERIOR GENERAL NOTES:

1. AT STUD WALL LOCATIONS PROVIDE BLOCKING AS REQUIRED FOR ALL WALL MOUNTED ITEMS, INCLUDING BUT NOT LIMITED TO: GRAB BARS, MIRRORS, DISPENSERS, SEG BANNERS, ETC. (REFER TO MFR. RECOMMENDATIONS).
2. ALL FURNITURE SHOWN SHADED IS NOT IN CONTRACT.
3. REFER TO FINISH MATERIAL LEGEND FOR SPECIFIC MANUFACTURER, STYLE, COLOR & SIZE INFORMATION.
4. FULL HEIGHT WINDOWS TO HAVE (CT-1B) TO UNDERSIDE OF SILL UNLESS OTHERWISE NOTED.
5. CERAMIC TILE & STONE TILE TO CONTINUE 6" INTO ALL CEILING RECESSES. REFER TO CEILING DETAILS FOR ADDITIONAL INFORMATION.
6. STAINLESS STEEL CORNER GUARDS TO BE USED IN KITCHEN. SEE FINISH PLAN.
7. REFER TO A3.02 FIRST FLOOR FLOORING PLAN FOR DIMENSIONED FLOOR BOX LOCATIONS.
8. THE ROOM FINISH TAGS INDICATE OVERALL FINISH TO BE USED IN THE ROOM. ALL SURFACES TO USE THIS FINISH UNLESS OTHERWISE NOTED. SEE FINISH PLANS AND INTERIOR FINISH ELEVATIONS FOR ACCENT FINISHES.
9. CONTRACTOR TO PROVIDE PRE-INSTALLATION FOR MOCKUPS, RE: SPEC.
10. ALL WALL FASTENERS OR MOUNTING BRACKETS TO BE INSTALLED IN GROUT JOINTS.

ROOM FINISH MATERIAL LEGEND

ACCENT TAG, ACCENT APPLIED TO WALL INDICATED FROM CORNER TO CORNER

XX-1

ACCENT TAG, ACCENT APPLIED TO WALLS FROM CORNER TO CORNER AS INDICATED BY ARROWS

XX-1

WINDOW TREATMENTS

WT- #

ROOM FINISH TAG

ROOM NAME

NO.	BASE
WALL	FLOOR
	REMARKS

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO.1	12/26/24

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Saginaw, Michigan 48607
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PROJECT TITLE

NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3

MIDLAND, MICHIGAN

SHEET TITLE

FIRST FLOOR FINISH PLAN

PROJECT NUMBER: 2022022

PROJECT DATE: JANUARY 09, 2025

CHECKED BY: JMJ

SHEET NUMBER: A3.01

NORTH

FIRST FLOOR FINISH PLAN

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

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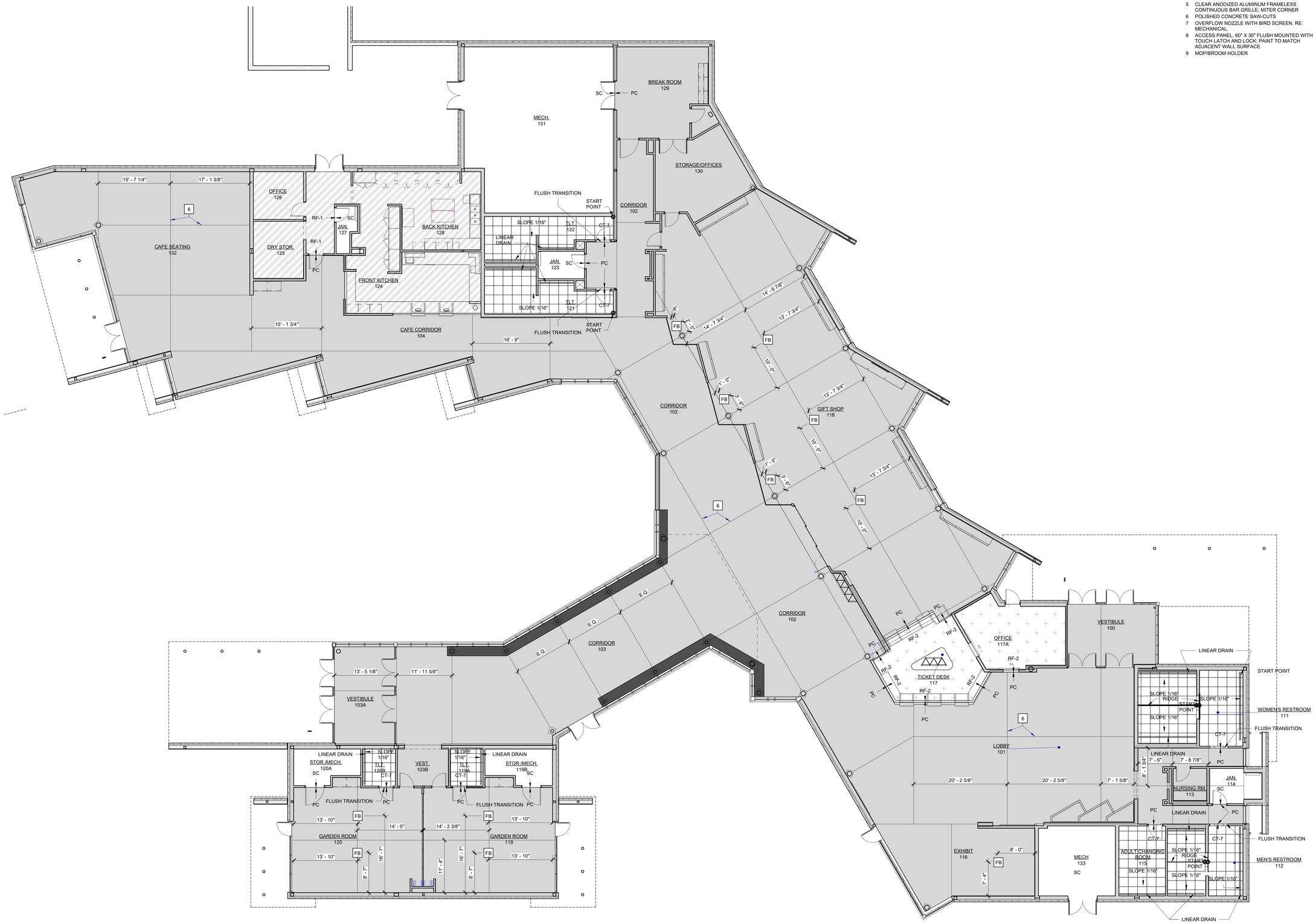

FIRST FLOOR FLOORING FINISH PLAN

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

PLAN KEYNOTES

1. MOP SINK; RE: MECHANICAL
2. 2" RECESSED SLAB; RE: STRUCTURAL
3. PLANT SINK; RE: MECHANICAL
4. MOP SHELF W/ HOOKS
5. CLEAR ANODIZED ALUMINUM FRAMELESS CONTINUOUS BAR GRILLE; MITER CORNER
6. POLISHED CONCRETE SAW-CUTS
7. OVERFLOW NOZZLE WITH BIRD SCREEN. RE: MECHANICAL.
8. ACCESS PANEL, 60" X 30" FLUSH MOUNTED WITH TOUCH LATCH AND LOCK, PAINT TO MATCH ADJACENT WALL SURFACE.
9. MOP/BROOM HOLDER

FLOORING LEGEND:

- POLISHED CONCRETE
- SEALED CONCRETE
- RESINOUS FLOOR (RF-1)
- RESINOUS FLOOR (RF-2)
- CERAMIC TILE (CT-7)

GENERAL FLOORING NOTES:

1. DISSIMILAR FLOORING TRANSITIONS SHALL OCCUR UNDER DOOR WHEN DOOR IS IN CLOSED POSITION UNLESS NOTED OTHERWISE.
2. REFER TO FINISH PLANS FOR LOCATION OF MATERIALS.
3. REFER TO NOTATION PLAN FOR SLAB RECESS LOCATIONS.
4. SEAMLESS TRANSITIONS DESIRED AT ALL FLOORING TRANSITIONS. ALL TRANSITIONS TO MEET ADA MINIMUMS.
5. CENTER TILE IN TOILET 119A & 120B.

FLOOR PLAN SYMBOL LEGEND:

- ADA — ADA PUSH PAD
- CR — CARD READER
- KB — KNOX BOX
- RB — RELEASE BUTTON
- FEC-R — FULLY RECESSED FIRE EXTINGUISHER CABINET
- FEC-SR — SEMI-RECESSED FIRE EXTINGUISHER CABINET
- AED — FULLY RECESSED AED CABINET
- FB — POWER/DATA FLOOR BOX. RE: ELECTRICAL.

NOTE: MOUNTING LOCATION TO BE VERIFIED WITH ARCHITECT PRIOR TO ROUGH-IN.

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO.1	12/26/24

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
FIRST FLOOR FLOORING PLAN

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A3.02

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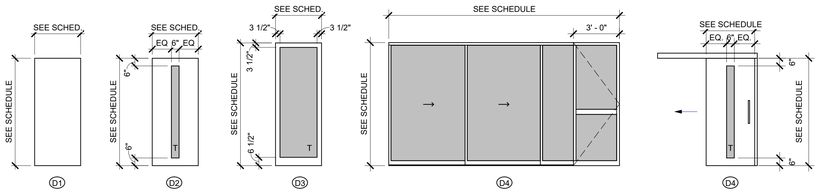
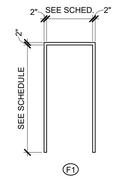


DOOR TYPES

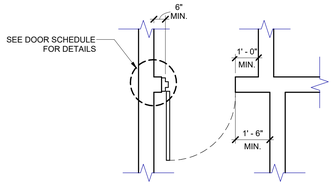
1/4" = 1'-0"



FRAME TYPES

1/4" = 1'-0"

NOTE: PROVIDE CLEARANCES SHOWN AT ALL DOORS UNLESS NOTED OTHERWISE ON FLOOR PLANS OR ENLARGED PLANS



TYPICAL DOOR CLEARANCE DETAIL

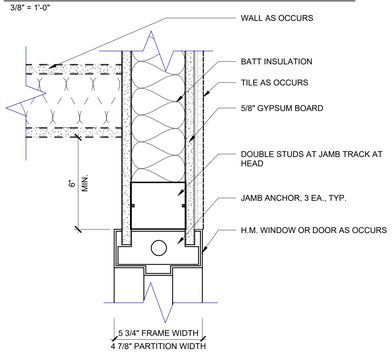
3/8" = 1'-0"

DOOR SCHEDULE

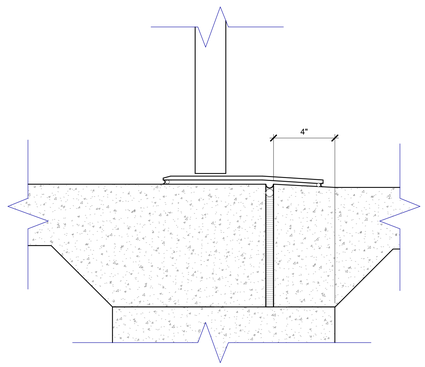
DOOR NUMBER	WIDTH	HEIGHT	THK.	DOOR PANEL TYPE	DOOR PANEL MAT.	DOOR PANEL FINISH	DOOR FRAME TYPE	DOOR FRAME MAT.	DOOR FRAME FINISH	DETAILS *=SIM. HEAD	JAMB	SILL	FIRE RATING LABEL	MIN.	REMARKS	HW SET
100.1	(2) 3' - 0"	10' - 0"	2 1/4"	D3	ALUM		W2	ALUM		SEE FRAME	SEE FRAME				CARD READER	15
100.2	(2) 3' - 0"	10' - 0"	2 1/4"	D3	ALUM		W2	ALUM		SEE FRAME	SEE FRAME					15
101.1	(2) 3' - 0"	8' - 0"	2 1/4"	D3	ALUM		WA	ALUM		SEE FRAME	SEE FRAME					22
101.2	(2) 3' - 0"	8' - 0"	2 1/4"	D3	ALUM		WA	ALUM		SEE FRAME	SEE FRAME					22
102.1	4' - 0"	7' - 0"	1 3/4"	D1	HM		F1	HM		3/A3.10	3/A3.10				KEYPAD	09
102.2	3' - 0"	7' - 0"	1 3/4"	D1	HM		F1	HM		3/A3.10	3/A3.10					24
103.1	(2) 3' - 0"	8' - 0"	2 1/4"	D3	ALUM		WI	ALUM		SEE FRAME	SEE FRAME					21
103.2	(2) 3' - 0"	8' - 0"	2 1/4"	D3	ALUM		WI	ALUM		SEE FRAME	SEE FRAME					21
103.3	(2) 3' - 0"	8' - 0"	2 1/4"	D3	ALUM		W25	ALUM		SEE FRAME	SEE FRAME					19
103.4	8' - 0"	8' - 0"		-	-	-	-	-	-	9/A3.10	10/A3.10				OPENING	26
103A.1	(2) 3' - 0"	10' - 0"	2 1/4"	D3	ALUM		W24	ALUM		SEE FRAME	SEE FRAME					29
103A.2	(2) 3' - 0"	10' - 0"	2 1/4"	D3	ALUM		W24	ALUM		SEE FRAME	SEE FRAME					29
110	6' - 0"	8' - 0"		-	-	-	-	-	-	9/A3.10	10/A3.10				OPENING	26
111	4' - 0"	8' - 0"		-	-	-	-	-	-	10/A3.10	10/A3.10				OPENING	26
112	4' - 0"	8' - 0"		-	-	-	-	-	-	10/A3.10	10/A3.10				OPENING	26
113.1	3' - 0"	7' - 0"	1 3/4"	D1	WD		F1	HM		3/A3.10	3/A3.10					06
114.1	3' - 0"	7' - 0"	1 3/4"	D1	WD		F1	HM		3/A3.10	3/A3.10			45		11
115.1	3' - 0"	7' - 0"	1 3/4"	D1	WD		F1	HM		3/A3.10	3/A3.10					04
116.1	3' - 0"	8' - 0"	2 1/4"	D3	ALUM		W4	ALUM		SEE FRAME	SEE FRAME				CARD READER	16
117.1	6' - 9"	7' - 4"	1 3/4"	D5	WD		-	ALUM		14/A3.10	15/A3.10	14/A3.10			SLIDING DOOR; THUMBTURN	23
117.2	6' - 9"	7' - 4"	1 3/4"	D5	WD		-	ALUM		14/A3.10	15/A3.10	14/A3.10			SLIDING DOOR; THUMBTURN	23
117.3	3' - 0"	7' - 0"	1 3/4"	D1	HM		F1	HM		5/A3.10	6/A3.10					17
118.1	15' - 0"	10' - 0"	1 1/2"	D4	ALUM		-	ALUM		7/A3.10	9/A3.10, 10/A3.10	8/A3.10			SLIDING MALL FRONT. PANIC HARDWARE ON GIFT SHOP SIDE OF DOOR SECTION	25
119.1	3' - 0"	7' - 0"	1 3/4"	D2	WD		F1	HM		3/A3.10	3/A3.10				CARD READER, FROSTED FILM ON DOOR LITE	14
119.2	3' - 0"	8' - 0"	2 1/4"	D3	ALUM		W27	ALUM		SEE FRAME	SEE FRAME				CARD READER, FROSTED FILM ON DOOR LITE	27
119.3	20' - 0"	10' - 0"		-			-	-	-						FOLDING PANEL PARTITION	25
119A.1	3' - 0"	7' - 0"	1 3/4"	D1	WD		F1	HM		3/A3.10	3/A3.10					05
119B.1	4' - 0"	7' - 0"	1 3/4"	D1	WD		F1	HM		3/A3.10	3/A3.10			45		10
120.1	3' - 0"	7' - 0"	1 3/4"	D2	WD		F1	HM		3/A3.10	3/A3.10				KEYPAD	14
120.2	3' - 0"	8' - 0"	2 1/4"	D3	ALUM		W28	ALUM		SEE FRAME	SEE FRAME				KEYPAD	27
120A.1	4' - 0"	7' - 0"	1 3/4"	D1	WD		F3	HM		3/A3.10	3/A3.10			45		10
120B.1	3' - 0"	7' - 0"	1 3/4"	D1	WD		F1	HM		3/A3.10	3/A3.10					05
121.1	3' - 0"	7' - 0"	1 3/4"	D1	WD		F1	HM		3/A3.10	3/A3.10					01
122.1	3' - 0"	7' - 0"	1 3/4"	D1	WD		F1	HM		3/A3.10	3/A3.10					01
123.1	3' - 0"	7' - 0"	1 3/4"	D1	WD		F1	HM		3/A3.10	3/A3.10			45		11
125.1	4' - 0"	8' - 0"														
126.1	3' - 0"	7' - 0"	1 3/4"	D2	HM		F1	HM		3/A3.10	3/A3.10					02
127.1	3' - 0"	7' - 0"	1 3/4"	D1	HM		F1	HM		3/A3.10	3/A3.10			45		11
128.1	3' - 0"	7' - 0"	1 3/4"	D1	WD		F1	HM		3/A3.10	3/A3.10					07
128.2	(2) 3' - 0"	7' - 0"	1 3/4"	D1	HM		F1	HM		5/A3.10	6/A3.10					12
128.3	4' - 0"	8' - 0"														
129.1	(2) 3' - 0"	7' - 0"	1 3/4"	D1	HM		F1	HM						45		13
129A.1	3' - 0"	7' - 0"	1 3/4"	D1	HM		F1	HM		3/A3.10	3/A3.10					13
130.1	(2) 3' - 0"	7' - 0"	1 3/4"	D1	HM		F1	HM		3/A3.10	3/A3.10					03
130.2	3' - 0"	7' - 0"	1 3/4"	D1	WD		F1	HM	HM	3/A3.10	3/A3.10					09
131.1	(2) 3' - 0"	7' - 0"	1 3/4"	D1	HM		F1	HM		5/A3.10	6/A3.10				CARD READER	12
132.1	(2) 3' - 0"	9' - 10"	2 1/4"	D3	ALUM		W32	HM		SEE FRAME	SEE FRAME					29
133.1	(2) 3' - 0"	7' - 0"	1 3/4"	D1	HM		F1	HM		5/A3.10	6/A3.10					12

DOOR AND FRAME GENERAL NOTES:

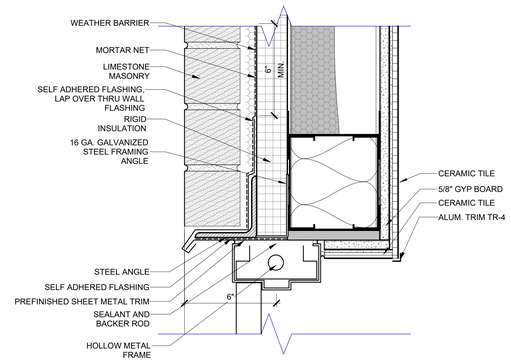
1. GENERAL CONTRACTOR SHALL COORDINATE AND FIELD VERIFY ALL HOLLOW METAL FRAME DIMENSIONS PRIOR TO FABRICATION.
2. ALL DIMENSIONS INDICATE ROUGH OPENING DIMENSIONS.
3. REFER TO SPECIFICATIONS FOR GLASS TYPE DESCRIPTIONS.
4. ALL HOLLOW METAL FRAMES SHALL HAVE A 6" NOMINAL JAMB DEPTH UON. ALL FACE WIDTHS SHALL BE 2" UON.
5. INSTALL GLAZING ON THE CORRIDOR SIDE OF FRAMES AT CORRIDOR WINDOWS. INSTALL GLAZING ON THE SIDE OF THE LARGER ROOM AT GLAZING BETWEEN ROOMS. FOR ALL OTHER FRAMES VERIFY WITH ARCHITECT.
6. PROVIDE SEALANT AT JOINTS BETWEEN ALL DOOR AND WINDOW FRAMES AND ADJACENT MATERIALS (FIRE RATED SEALANT AT RATED FRAMES).
7. AT ALL DOORS AND FRAMES COORDINATE SECURITY DEVICES SPECIFICATIONS AND ELECTRICAL DRAWINGS. PREP FRAMES FOR CONDUIT AND DEVICES AS REQUIRED.
8. PAINT ALL HOLLOW METAL DOORS & FRAMES WITH HIGH PERFORMANCE COATING (PT-8)



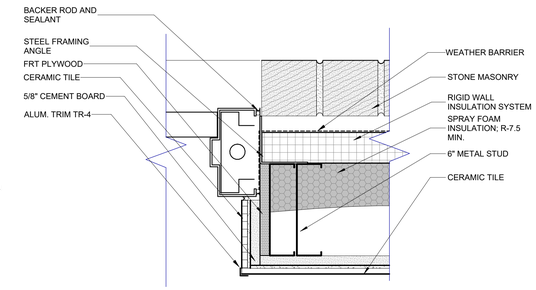
1 A3.10 H.M. DOOR JAMB/HEAD @ MTL. STUD WALL
SCALE: 3" = 1'-0"



2 A3.10 EXTERIOR DOOR SILL
SCALE: 3" = 1'-0"



3 A3.10 HM DOOR HEAD W/ LINTEL
SCALE: 3" = 1'-0"



4 A3.10 HM DOOR JAMB
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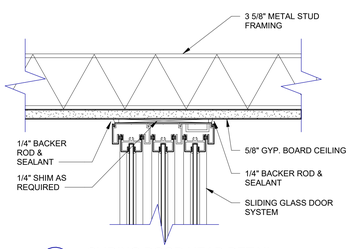
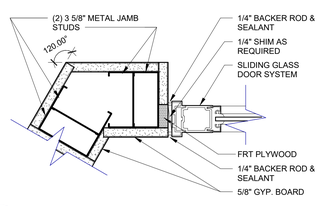
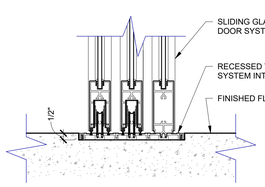


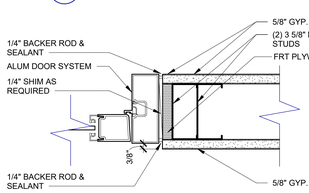
5 A3.10 SLIDING DOOR HEAD DETAIL
SCALE: 3" = 1'-0"



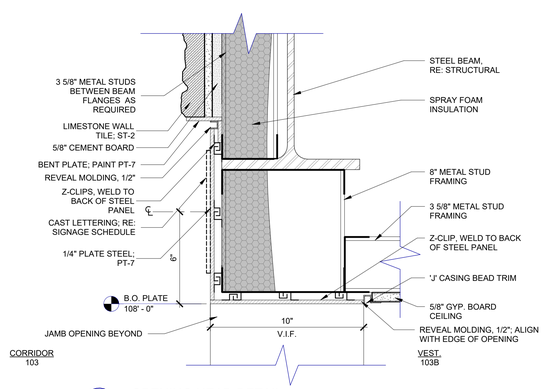
7 A3.10 SLIDING DOOR JAMB DETAIL
SCALE: 3" = 1'-0"



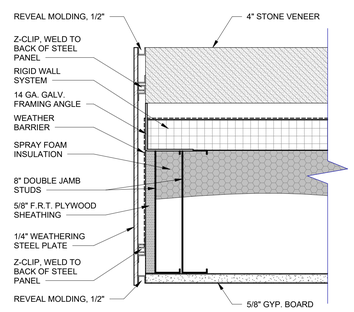
6 A3.10 SLIDING DOOR SILL DETAIL
SCALE: 3" = 1'-0"



8 A3.10 DOOR JAMB DETAIL
SCALE: 3" = 1'-0"



9 A3.10 OPENING HEAD DETAIL
SCALE: 3" = 1'-0"
REFERENCE: 1/ A3.01



10 A3.10 OPENING JAMB DETAIL
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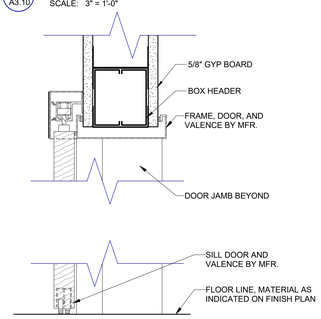
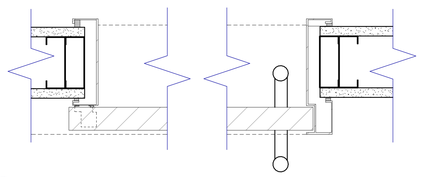


14 A3.10 DOOR HEAD/SILL @ HORIZONTAL SLIDER
SCALE: 3" = 1'-0"



15 A3.10 DOOR JAMB @ HORIZONTAL SLIDER
SCALE: 3" = 1'-0"

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO.1	12/26/24

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
DOOR SCHEDULE, DETAILS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A3.10

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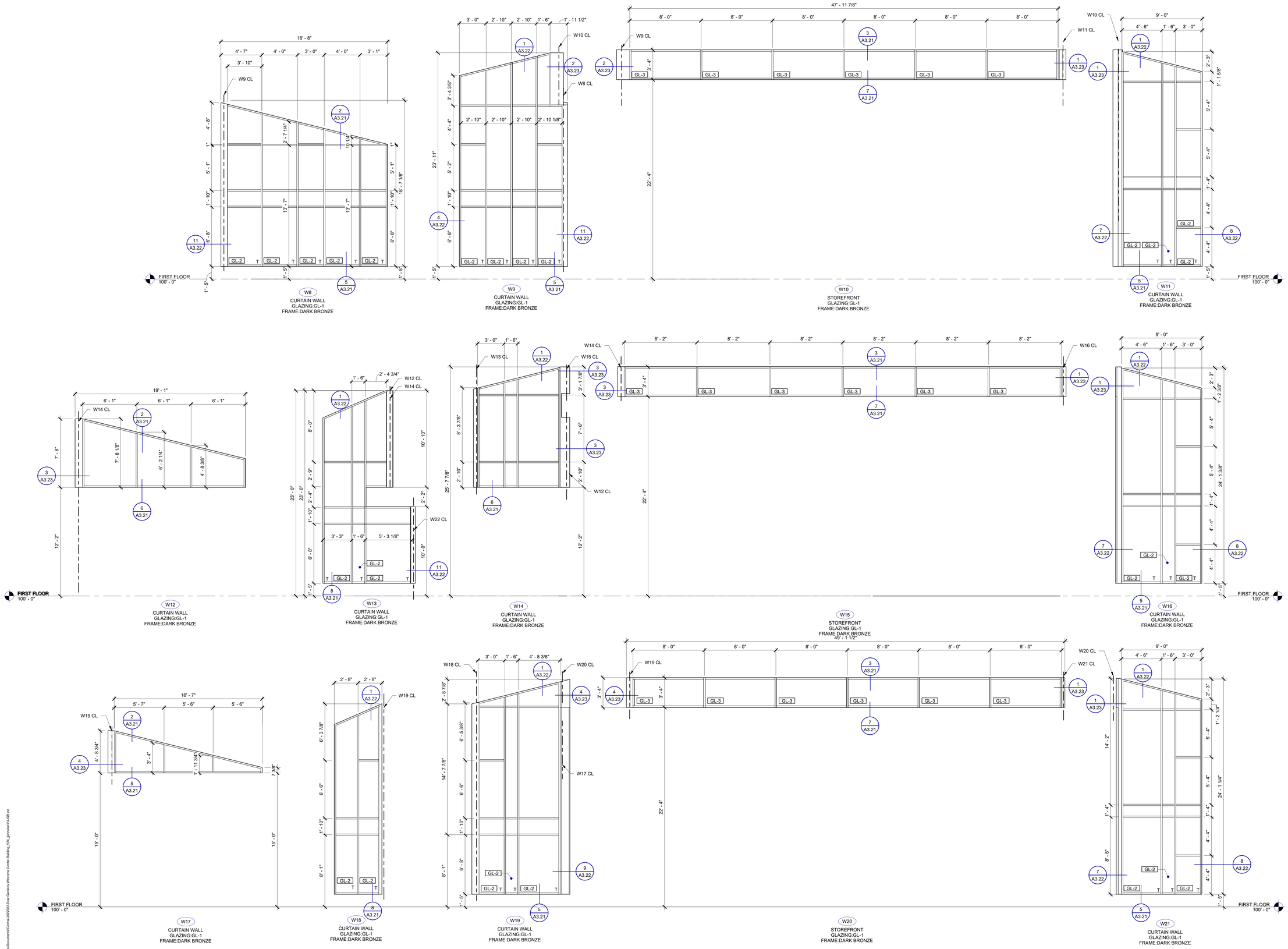

DOOR AND FRAME GENERAL NOTES:

1. GENERAL CONTRACTOR SHALL COORDINATE AND FIELD VERIFY ALL HOLLOW METAL FRAME DIMENSIONS PRIOR TO FABRICATION.
2. ALL DIMENSIONS INDICATE ROUGH OPENING DIMENSIONS.
3. REFER TO SPECIFICATIONS FOR GLASS TYPE DESCRIPTIONS.
4. ALL HOLLOW METAL FRAMES SHALL HAVE A 6" NOMINAL JAMB DEPTH UON. ALL FACE WIDTHS SHALL BE 2" UON.
5. INSTALL GLAZING ON THE CORRIDOR SIDE OF FRAMES AT CORRIDOR WINDOWS. INSTALL GLAZING ON THE SIDE OF THE LARGER ROOM AT GLAZING BETWEEN ROOMS. FOR ALL OTHER FRAMES VERIFY WITH ARCHITECT.
6. PROVIDE SEALANT AT JOINTS BETWEEN ALL DOOR AND WINDOW FRAMES AND ADJACENT MATERIALS (FIRE RATED SEALANT AT RATED FRAMES).
7. AT ALL DOORS AND FRAMES COORDINATE SECURITY DEVICES SPECIFICATIONS AND ELECTRICAL DRAWINGS. PREP FRAMES FOR CONDUIT AND DEVICES AS REQUIRED.
8. PAINT ALL HOLLOW METAL DOORS & FRAMES WITH HIGH PERFORMANCE COATING (PT-8)

FRAME TYPE GENERAL NOTES:

1. SEE SPECIFICATIONS NUMBER 08800 FOR GLAZING TYPE INFORMATION.
2. PROVIDE SAFETY GLAZING PER SPECIFICATION AS REQUIRED BY CODE.
3. PROVIDE BUTT GLAZED JOINTS WITH AN ACOUSTIC SEAL AT ALL ABUTTED INTERIOR STOREFRONT SYSTEMS

GLAZING TYPES

INDICATES IMPACT RESISTANT FILM LOCATIONS.

T — INDICATES LOCATION OF TEMPERED GLASS

GL-# — MATERIAL KEYNOTE (USE MATERIAL INDICATED IN NOTE ONLY AT LOCATIONS TAGGED)

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO.1	12/26/24

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Saginaw, Michigan 48607
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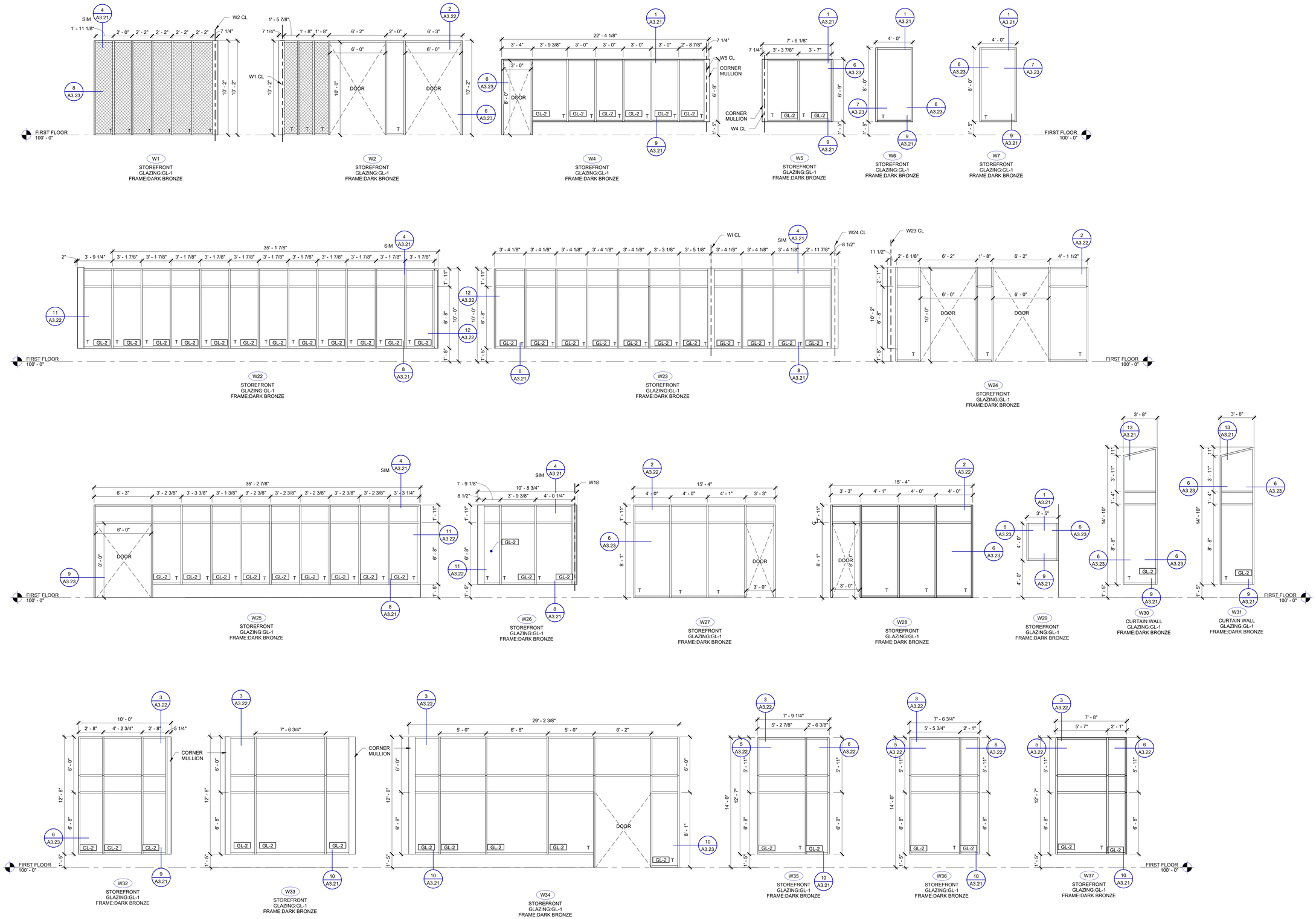
PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
EXTERIOR FRAME ELEVATIONS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A3.11

Author:TIGO/2024 4:05:12 PM C:\Users\jimson\Documents\Central-2022022-Dow Gardens Welcome Center-Building_V24_jimson1YUJ2B.rvt



DOOR AND FRAME GENERAL NOTES:

1. GENERAL CONTRACTOR SHALL COORDINATE AND FIELD VERIFY ALL HOLLOW METAL FRAME DIMENSIONS PRIOR TO FABRICATION.
2. ALL DIMENSIONS INDICATE ROUGH OPENING DIMENSIONS.
3. REFER TO SPECIFICATIONS FOR GLASS TYPE DESCRIPTIONS.
4. ALL HOLLOW METAL FRAMES SHALL HAVE A 6" NOMINAL JAMB DEPTH UON. ALL FACE WIDTHS SHALL BE 2" UON.
5. INSTALL GLAZING ON THE CORRIDOR SIDE OF FRAMES AT CORRIDOR WINDOWS. INSTALL GLAZING ON THE SIDE OF THE LARGER ROOM AT GLAZING BETWEEN ROOMS. FOR ALL OTHER FRAMES VERIFY WITH ARCHITECT.
6. PROVIDE SEALANT AT JOINTS BETWEEN ALL DOOR AND WINDOW FRAMES AND ADJACENT MATERIALS (FIRE RATED SEALANT AT RATED FRAMES).
7. AT ALL DOORS AND FRAMES COORDINATE SECURITY DEVICES SPECIFICATIONS AND ELECTRICAL DRAWINGS. PREP FRAMES FOR CONDUIT AND DEVICES AS REQUIRED.
8. PAINT ALL HOLLOW METAL DOORS & FRAMES WITH HIGH PERFORMANCE COATING (PT-8)

FRAME TYPE GENERAL NOTES:

1. SEE SPECIFICATIONS NUMBER 08800 FOR GLAZING TYPE INFORMATION.
2. PROVIDE SAFETY GLAZING PER SPECIFICATION AS REQUIRED BY CODE.
3. PROVIDE BUTT GLAZED JOINTS WITH AN ACOUSTIC SEAL AT ALL ABUTTED INTERIOR STOREFRONT SYSTEMS

GLAZING TYPES

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SHEET TITLE
EXTERIOR FRAME ELEVATIONS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A3.12

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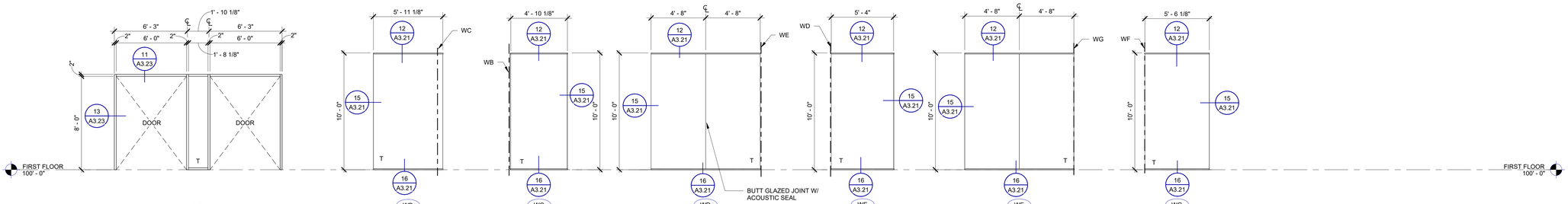

WA
STOREFRONT
GLAZING:GL-A
FRAME:DARK BRONZE

WB
STOREFRONT
GLAZING:GL-A
FRAME:DARK BRONZE

WC
STOREFRONT
GLAZING:GL-A
FRAME:DARK BRONZE

WD
STOREFRONT
GLAZING:GL-A
FRAME:DARK BRONZE

WE
STOREFRONT
GLAZING:GL-A
FRAME:DARK BRONZE

WF
STOREFRONT
GLAZING:GL-A
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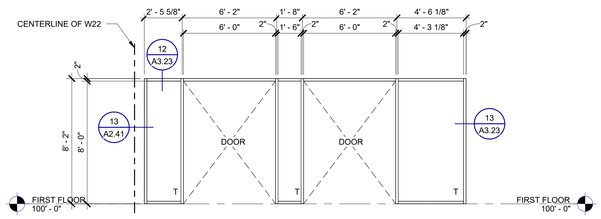
FRAME:DARK BRONZE



WI
STOREFRONT
GLAZING:GL-A
FRAME:DARK BRONZE

DOOR AND FRAME GENERAL NOTES:

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PROJECT TITLE

NEW CONSTRUCTION:

DOW GARDENS WELCOME CENTER

BID PACK NO.3

MIDLAND, MICHIGAN

SHEET TITLE

INTERIOR FRAME ELEVATIONS

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 09, 2025

CHECKED BY
JMJ

SHEET NUMBER
A3.13

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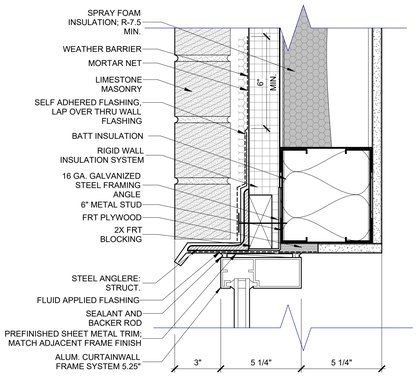
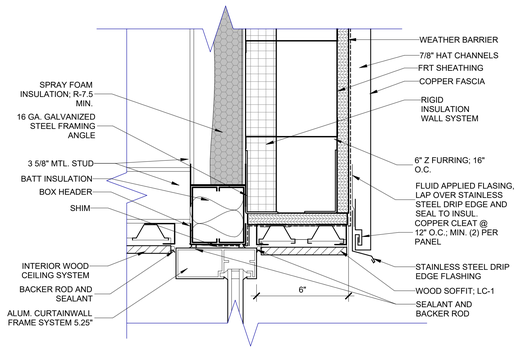
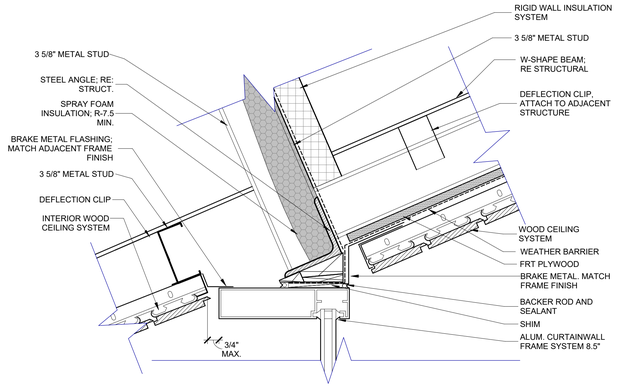


1 A3.21 HEAD DETAIL @ MASONRY
SCALE: 3" = 1'-0"
REFERENCE: 3/ A3.12



2 A3.21 HEAD DETAIL @ W12 - LOW SLOPED METAL ROOF
SCALE: 3" = 1'-0"
REFERENCE: 1/ A3.11



3 A3.21 HEAD DETAIL @ CLERESTORY WINDOW
SCALE: 3" = 1'-0"
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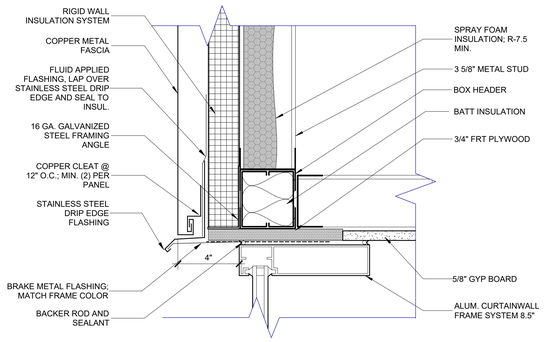
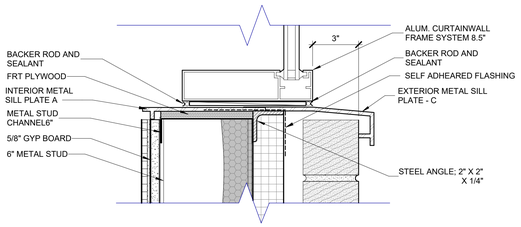
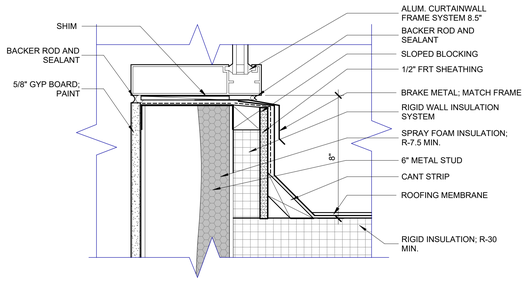


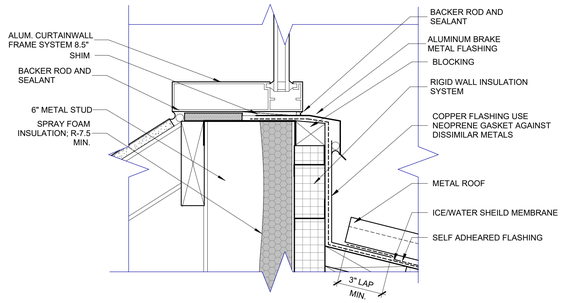
4 A3.21 HEAD DETAIL @ FLAT ROOF FACIA
SCALE: 3" = 1'-0"
REFERENCE: 1/ A3.12



5 A3.21 METAL SILL @ 8.5" FRAME ON 6" MTL STUD
SCALE: 3" = 1'-0"
REFERENCE: 1/ A3.11



6 A3.21 SILL DETAIL @ LOW ROOF OVER CORRIDOR 103
SCALE: 3" = 1'-0"
REFERENCE: 5/ A3.11



7 A3.21 SILL DETAIL @ CLERESTORY WINDOW
SCALE: 3" = 1'-0"
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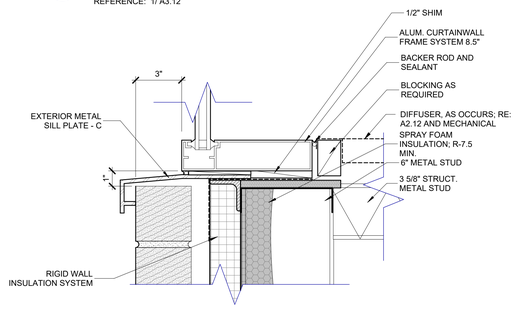
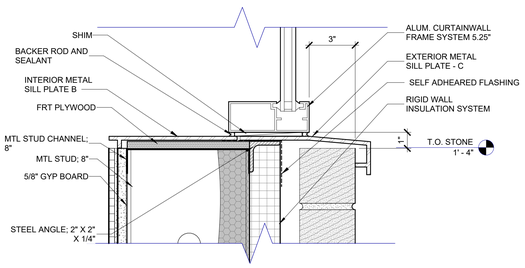
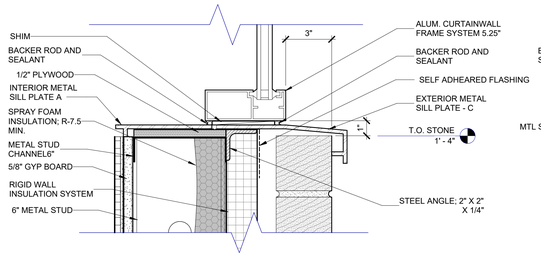


8 A3.21 METAL SILL @ BENCH DETAIL
SCALE: 3" = 1'-0"
REFERENCE: 6/ A3.11



9 A3.21 METAL SILL @ 8" STUD WALL
SCALE: 3" = 1'-0"
REFERENCE: 3/ A3.12



10 A3.21 METAL SILL @ 6" STUD WALL
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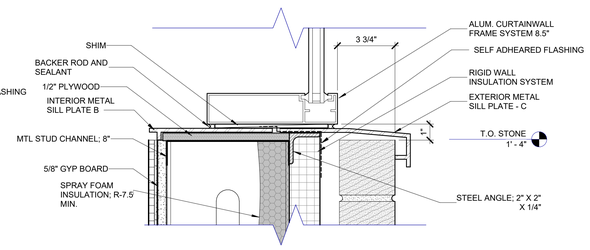
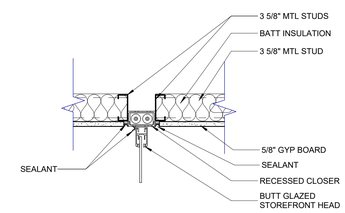
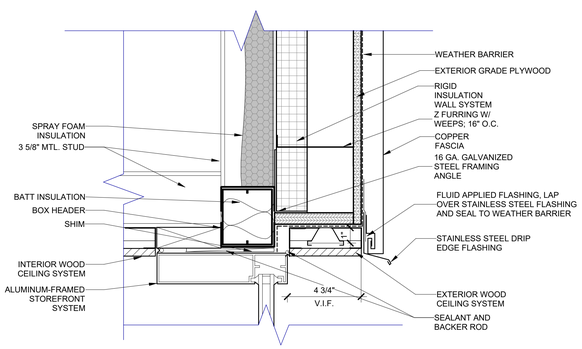
REFERENCE: 18/ A3.12



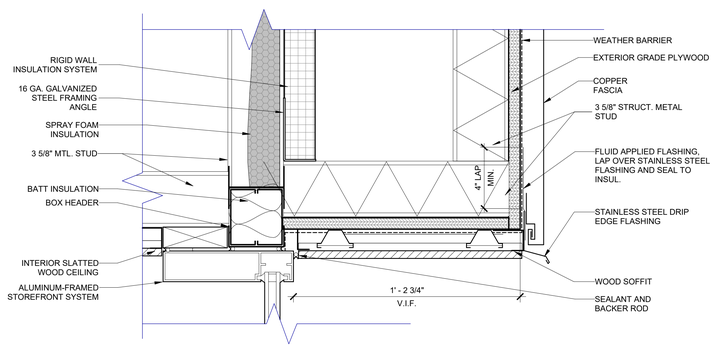
11 A3.21 METAL SILL @ GIFT SHOP HIGH WINDOW
SCALE: 3" = 1'-0"



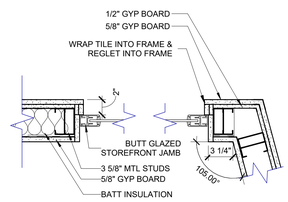
12 A3.21 HEAD @ FIXED GLAZING PANEL DOOR
SCALE: 1 1/2" = 1'-0"
REFERENCE: 2/ A3.13



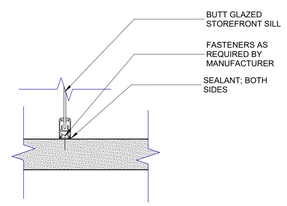
13 A3.21 HEAD DETAIL @ W17 - LOW SLOPED METAL ROOF
SCALE: 3" = 1'-0"
REFERENCE: 15/ A3.12



14 A3.21 HEAD DETAIL @ W8 - LOW SLOPED METAL ROOF
SCALE: 3" = 1'-0"



15 A3.21 JAMB @ FIXED GLAZING PANEL PARTITION
SCALE: 1 1/2" = 1'-0"
REFERENCE: 2/ A3.13



16 A3.21 TYP STOREFRONT SILL
SCALE: 1 1/2" = 1'-0"
REFERENCE: 2/ A3.13

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MIDLAND, MICHIGAN

SHEET TITLE
FRAME DETAILS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A3.21

Autodesk Docs://2022022 Dow Gardens Welcome Center Building_V24_jonnson/A\JOB.rvt
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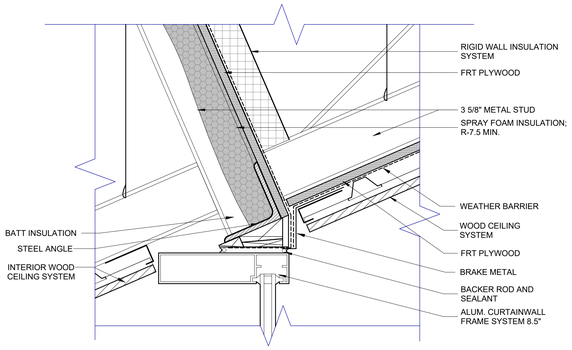
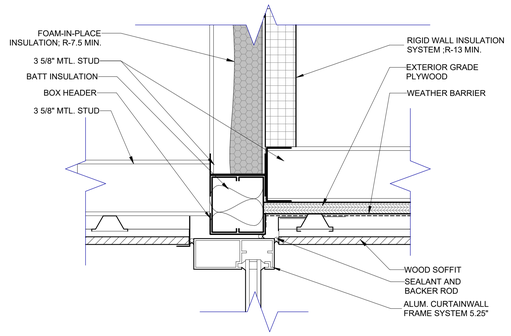


1 A3.22 HEAD DETAIL @ HIGH SLOPED WOOD SOFFIT
SCALE: 3" = 1'-0"
REFERENCE: 2/ A3.11



2 A3.22 HEAD DETAIL @ CANOPY
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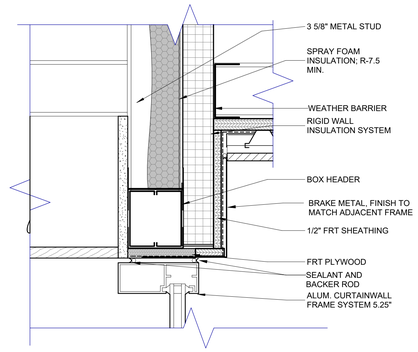

3 A3.22 HEAD DETAIL @ CAFE
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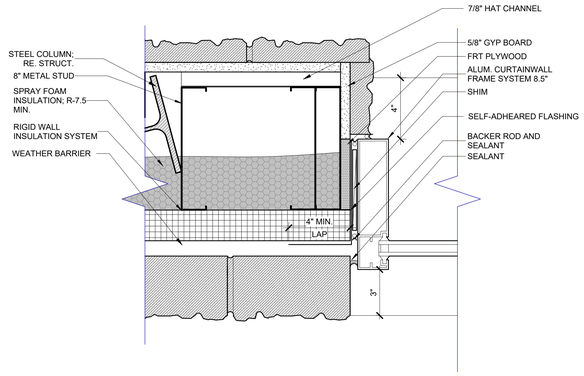
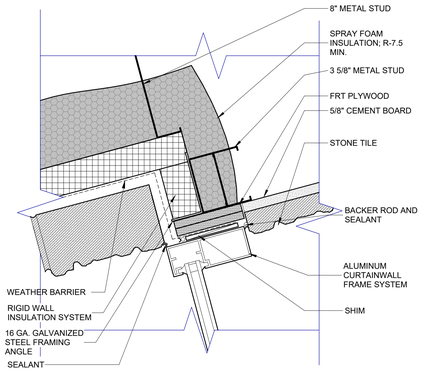
REFERENCE: 17/ A3.12



4 A3.22 JAMB @ W9
SCALE: 3" = 1'-0"
REFERENCE: 3/ A2.41



5 A3.22 TYP. N. JAMB @ CORR. 104 WINDOW
SCALE: 3" = 1'-0"
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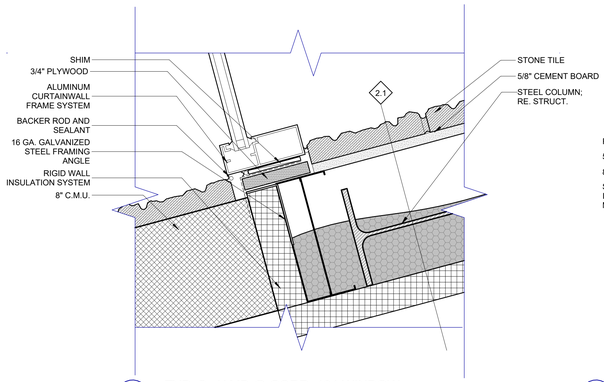

6 A3.22 TYP. S. JAMB @ CORR. 104 WINDOW
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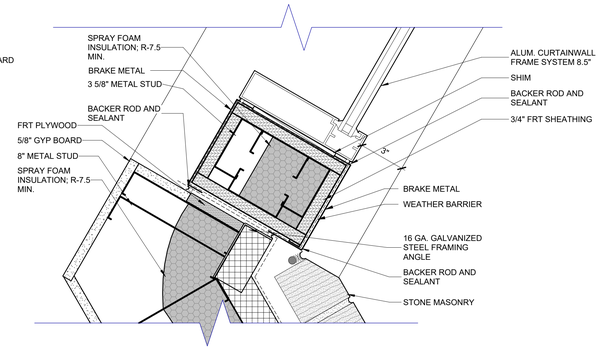
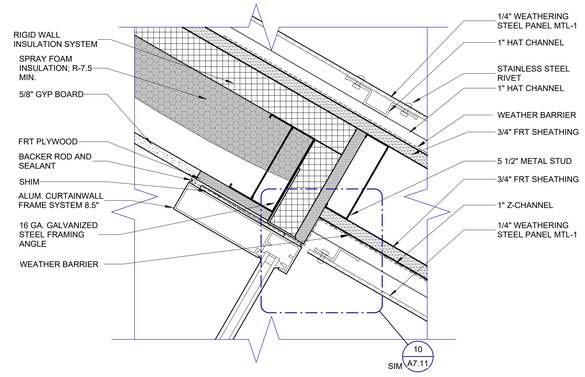
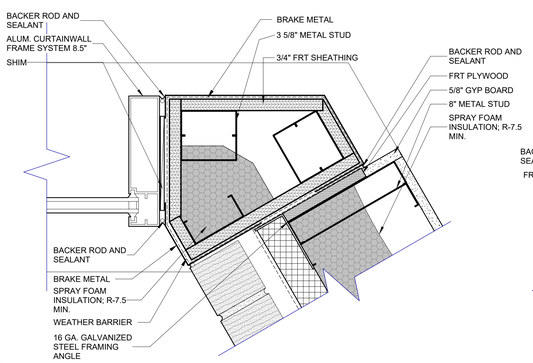


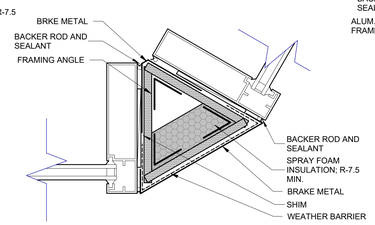
7 A3.22 TYP JAMB S. @ GIFT SHOP BOTTOM FRAME
SCALE: 3" = 1'-0"
REFERENCE: 8/ A2.41



8 A3.22 TYP. JAMB N. @ GIFT SHOP FRAME
SCALE: 3" = 1'-0"
REFERENCE: 6/ A2.41



9 A3.22 JAMB @ W19 LOW FRAME
SCALE: 3" = 1'-0"
REFERENCE: 12/ A3.11



10 A3.22 TYP. JAMB @ 120 DEGREE EXTERIOR
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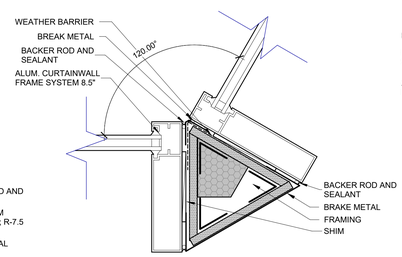

11 A3.22 TYP. JAMB @ 120 DEGREE INTERIOR
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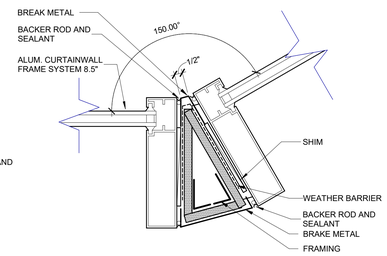

12 A3.22 TYP. JAMB @ 150 DEGREE
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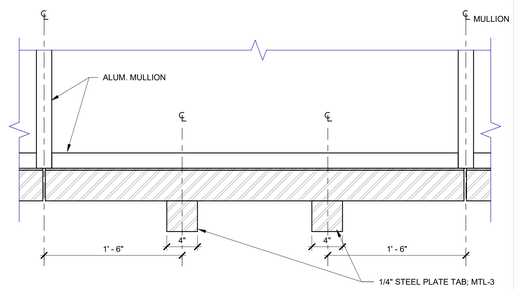
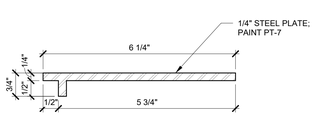
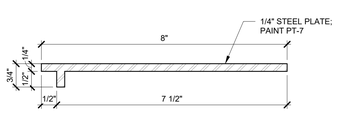
REFERENCE: 7/ A3.12



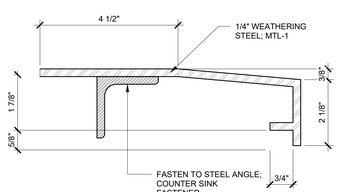
13 A3.22 METAL SILL JOINT ELEVATON
SCALE: 1 1/2" = 1'-0"



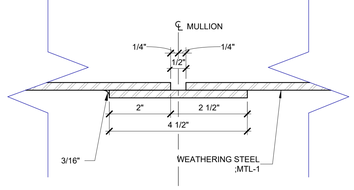
14 A3.22 INTERIOR METAL SILL PLATE A
SCALE: 6" = 1'-0"



15 A3.22 INTERIOR METAL SILL B
SCALE: 6" = 1'-0"



16 A3.22 EXTERIOR METAL SILL PLATE C
SCALE: 6" = 1'-0"



18 A3.22 METAL SILL JOINT DETAIL
SCALE: 6" = 1'-0"

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
FRAME DETAILS

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 09, 2025

CHECKED BY
JMJ

SHEET NUMBER
A3.22

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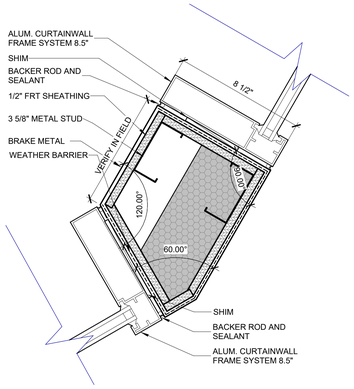
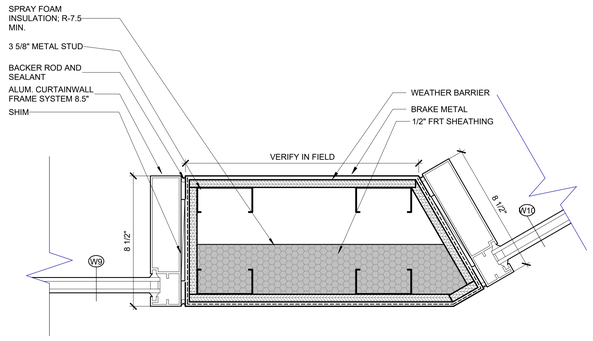
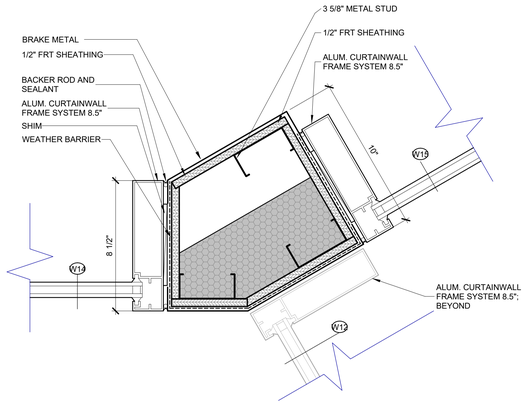


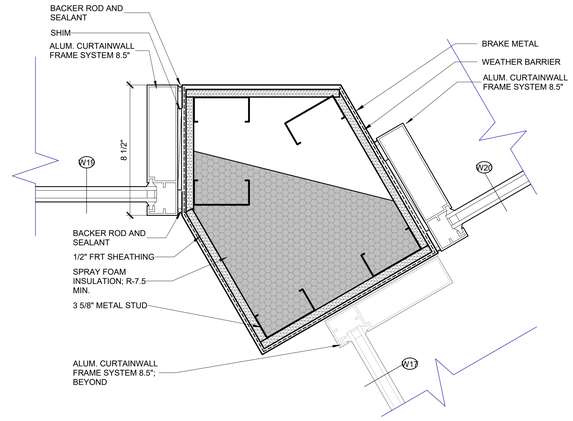
1 A3.23 TYP. BRAKE MTL JAMB @ GIFTSHOP-CLERESTORY
SCALE: 3" = 1'-0"
REFERENCE: 3/ A3.11



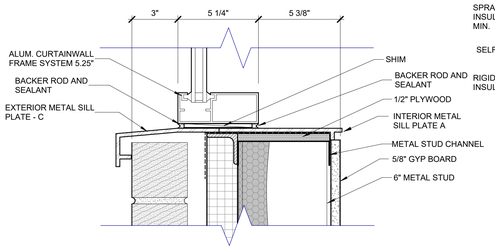
2 A3.23 BRAKE MTL JAMB @ W9-W10
SCALE: 3" = 1'-0"
REFERENCE: 2/ A3.11



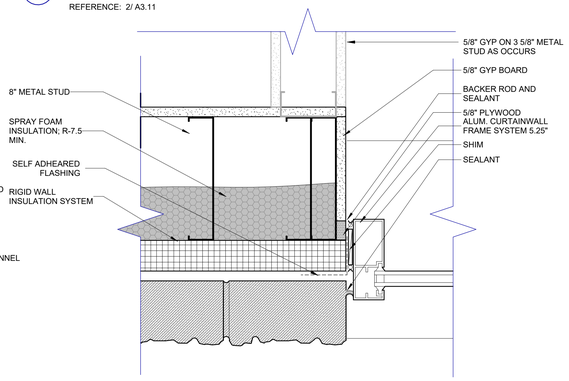
3 A3.23 BRAKE MTL JAMB @ W14-15
SCALE: 3" = 1'-0"
REFERENCE: 5/ A3.11



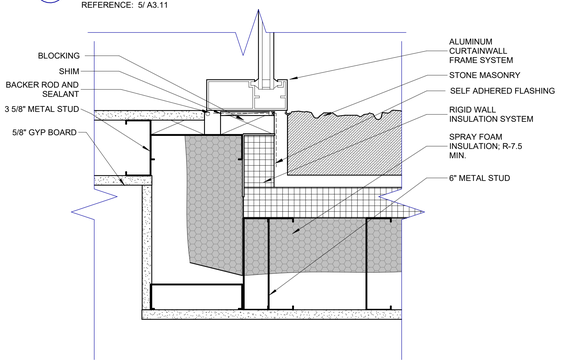
4 A3.23 BRAKE MTL JAMB @ W19-W20
SCALE: 3" = 1'-0"
REFERENCE: 10/ A3.11



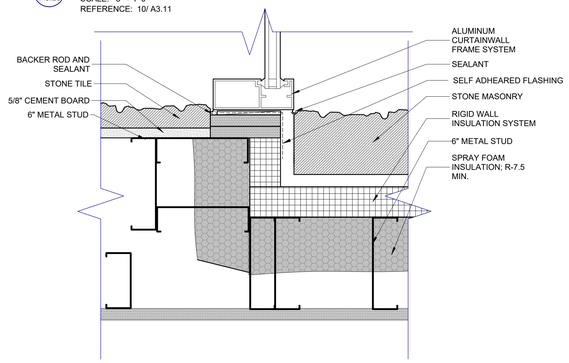
5 A3.23 METAL SILL @ 5.25" FRAME ON 6" MTL STUD
SCALE: 3" = 1'-0"
REFERENCE: 13/ A7.10



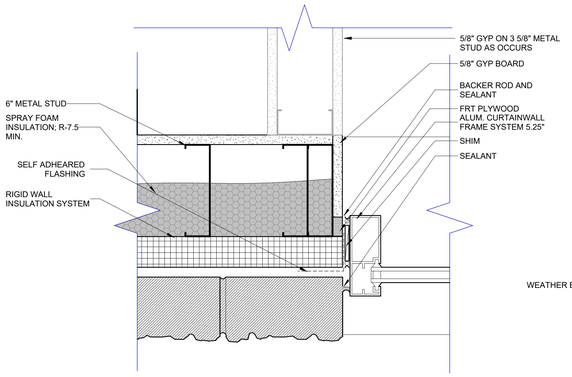
6 A3.23 JAMB @ STONE ON 8" METAL STUD
SCALE: 3" = 1'-0"
REFERENCE: 2/ A3.12



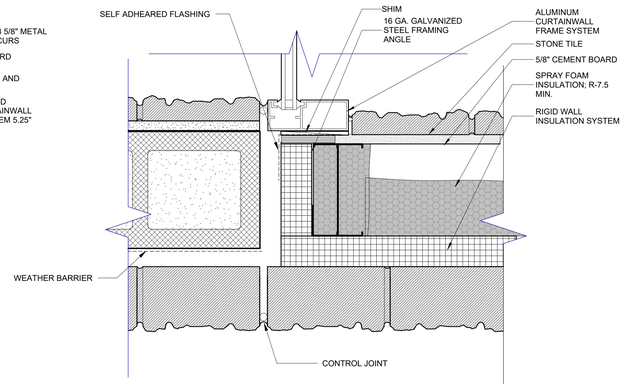
7 A3.23 JAMB @ RESTROOM
SCALE: 3" = 1'-0"
REFERENCE: 5/ A3.12



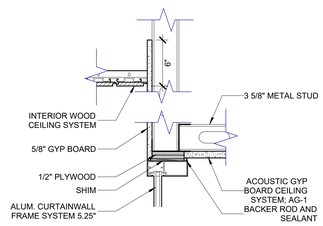
8 A3.23 JAMB @ LOBBY VESTIBULE
SCALE: 3" = 1'-0"
REFERENCE: 1/ A3.12



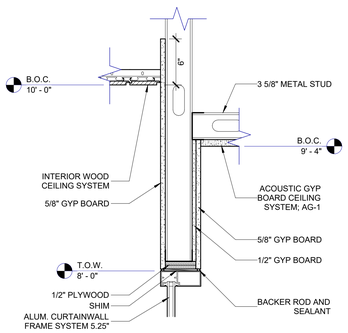
9 A3.23 JAMB @ STONE ON 6" METAL STUD
SCALE: 3" = 1'-0"
REFERENCE: 10/ A3.12



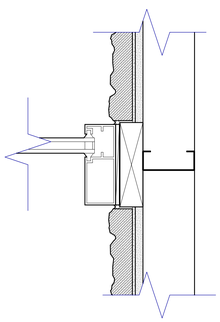
10 A3.23 JAMB @ CAFE
SCALE: 3" = 1'-0"
REFERENCE: 19/ A3.12



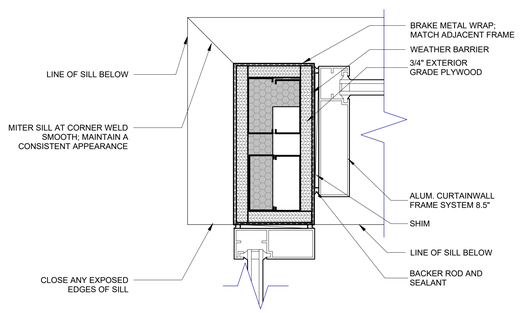
11 A3.23 HEAD DETAIL @ INTERIOR FRAME WA
SCALE: 1 1/2" = 1'-0"
REFERENCE: 9/ A3.13



12 A3.23 HEAD DETAIL @ INTERIOR FRAME WI
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A3.13



13 A3.23 JAMB DETAIL @ INTERIOR FRAME
SCALE: 3" = 1'-0"
REFERENCE: 1/ A3.13



14 A3.23 PLAN DETAIL @ CURTAIN WALL CORNER
SCALE: 3" = 1'-0"

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
FRAME DETAILS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
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SHEET NUMBER A3.23

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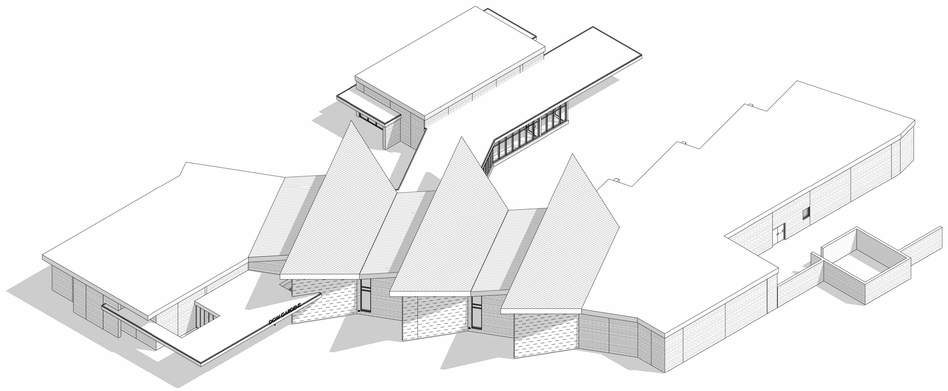
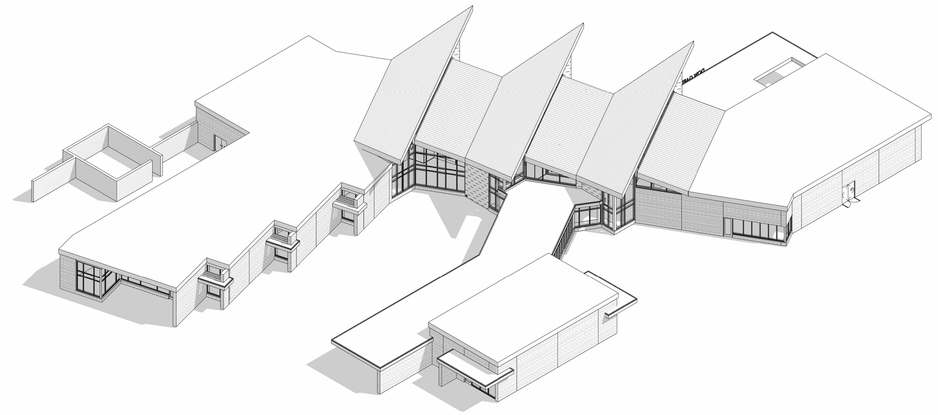
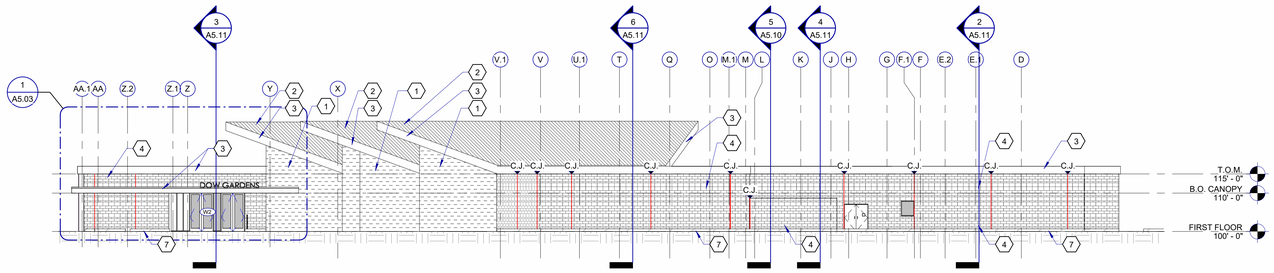


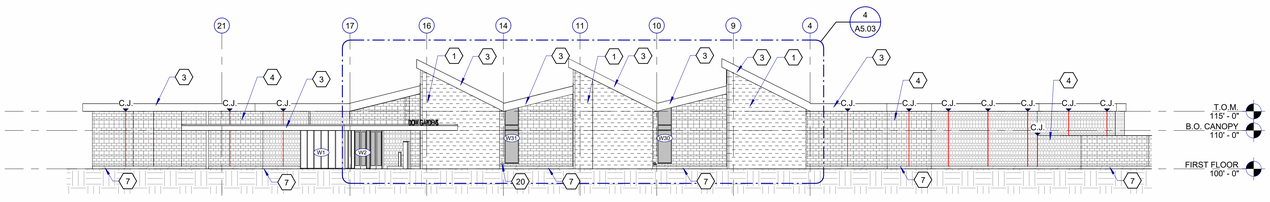
1 A5.01 NE AXON
SCALE:



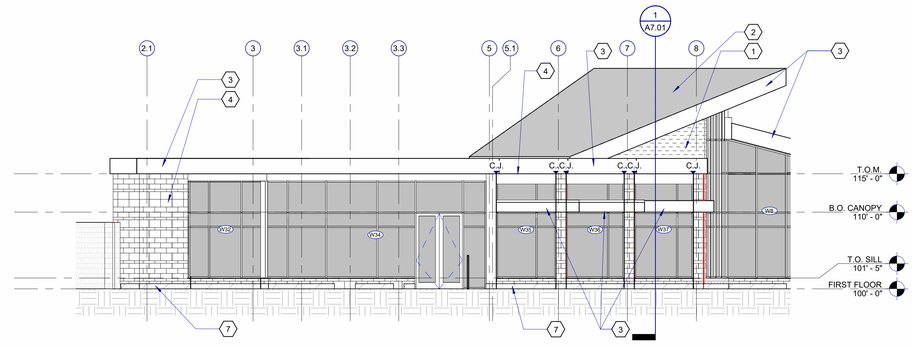
2 A5.01 SW AXON
SCALE:



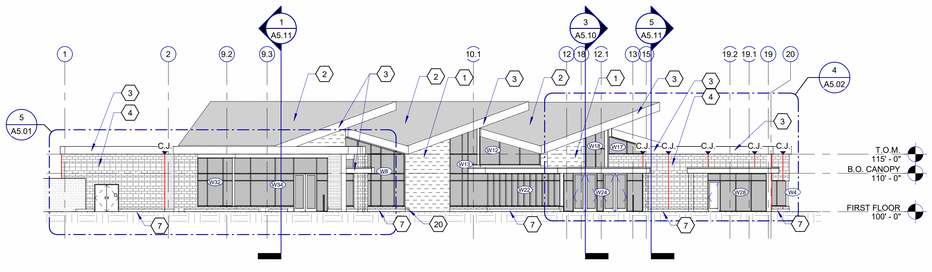
3/A5.01 OVERALL EXTERIOR ELEVATION - NORTH
SCALE: 1/16" = 1'-0"



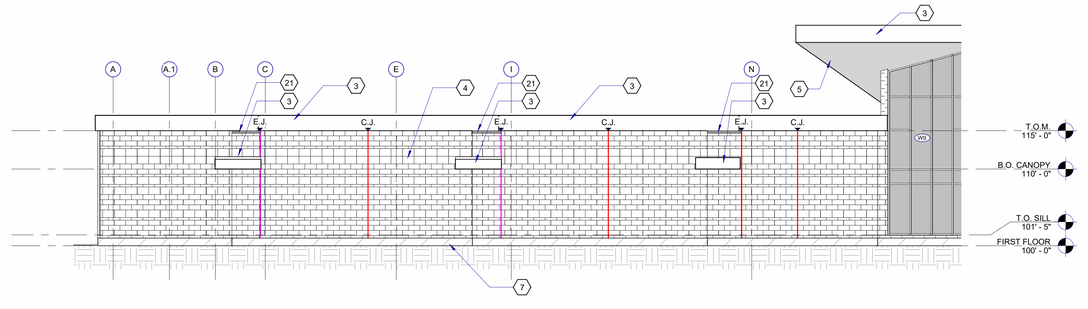
4/A5.01 OVERALL EXTERIOR ELEVATION - EAST
SCALE: 1/16" = 1'-0"



5/A5.01 EXTERIOR ELEVATION - CAFE - WEST
SCALE: 1/8" = 1'-0"



6/A5.01 OVERALL EXTERIOR ELEVATION - WEST
SCALE: 1/16" = 1'-0"



7/A5.01 EXTERIOR ELEVATION - CAFE - SOUTH
SCALE: 1/8" = 1'-0"

GENERAL ELEVATION NOTES:

1. PROVIDE SMOOTH MASONRY UNITS BEHIND ALL APPLIED DEVICES AND FINISHES INCLUDING KNOX BOXES, ADA, PUSH PADS, CARD READERS, AND CANOPY ELEMENTS.

MATERIAL KEYNOTES

1 CORTEN METAL PANEL
2 COPPER STANDING SEAM METAL ROOF
3 COPPER FACIA
4 LIMESTONE MASONRY, COURSING PATTERN TO MATCH WFT-5 REFER TO SHEET A3.00
5 LINEAR WOOD CEILING; LC-1
6 2" RIGID POLYISO CONTINUOUS INSULATION W ALUMINUM FACER MIN. R-13
7 SMOOTH DOLOMITE BASE COURSE ST-3
8 FOOTING & FOUNDATION (SEE STRUCTURAL)
9 CONCRETE SLAB w/ W.W.F. ON VAPOR BARRIER (SEE STRUCTURAL)
10 COMPACTED GRANULAR FILL
11 PERIMETER INSULATION (MIN. R-15)
12 GLASS AND GLAZING SYSTEM (SEE SPEC.)
13 STEEL COLUMN (SEE STRUCTURAL)
14 STEEL BEAM OR MISC. FRAMING (SEE STRUCTURAL)
15 CEILING SYSTEM (SEE RCP)
16 MECHANICAL DUCTWORK (SEE MECHANICAL)
17 STEEL TUBE, PAINTED WITH HIGH PERFORMANCE COATING. RE: SPEC.
18 ROOF SYSTEM
19 LIGHT FIXTURE; RE: ELECTRICAL
20 OVERFLOW NOZZLE W/ BIRD SCREEN. MIN. 12" A.F.F.
21 LIMESTONE CAP; MATCH ST-1

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
EXTERIOR ELEVATIONS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A5.01

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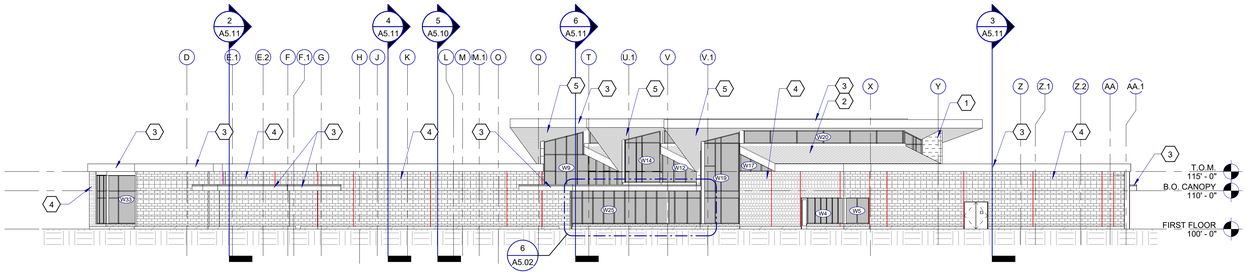
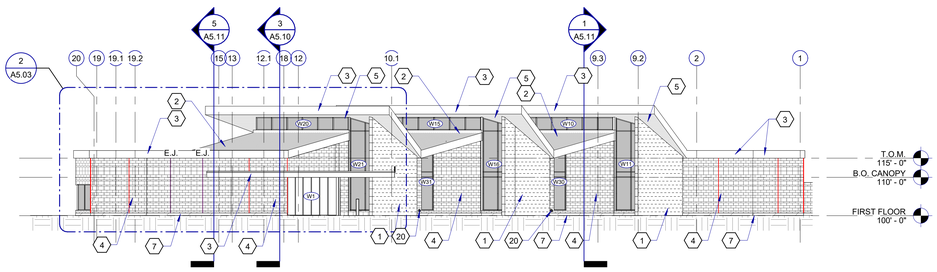


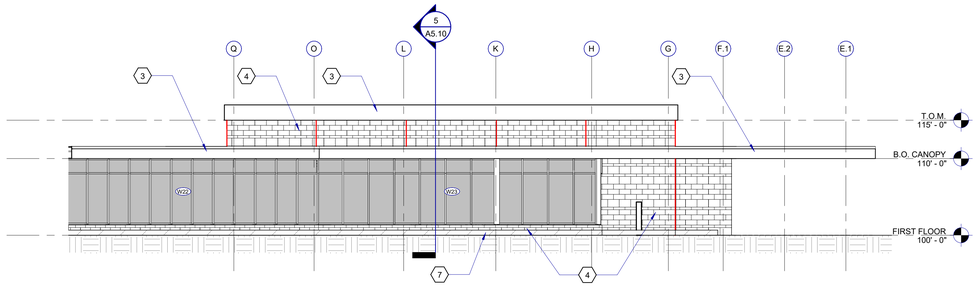
OVERALL EXTERIOR ELEVATION - SOUTH

1/A5.02 SCALE: 1/16" = 1'-0"



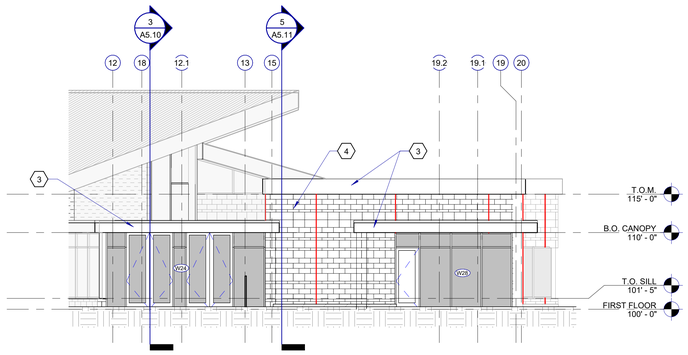
OVERALL EXTERIOR ELEVATION - EAST

2/A5.02 SCALE: 1/16" = 1'-0"



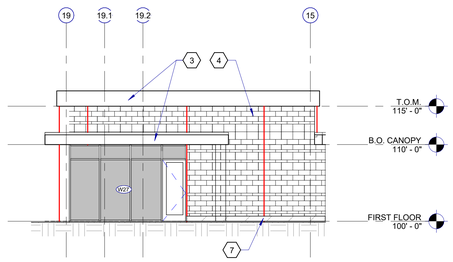
EXTERIOR ELEVATION - COOR. 103 AND GARDEN ENTRY - NORTH

3/A5.02 SCALE: 1/8" = 1'-0"



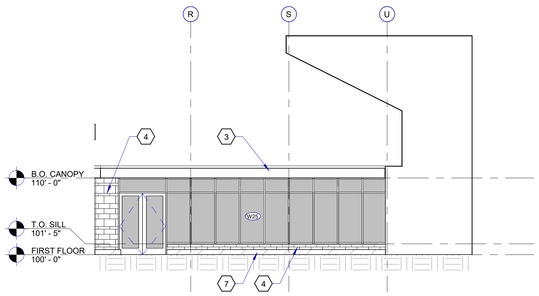
EXTERIOR ELEVATION - MULTIPURPOSE SPACE AND GARDEN ENTRANCE - WEST

4/A5.02 SCALE: 1/8" = 1'-0"



EXTERIOR ELEVATION - MULTIPURPOSE SPACE - EAST

5/A5.02 SCALE: 1/8" = 1'-0"



EXTERIOR ELEVATION - COOR. 103 - NORTH WEST

6/A5.02 SCALE: 1/8" = 1'-0"

GENERAL ELEVATION NOTES:

1. PROVIDE SMOOTH MASONRY UNITS BEHIND ALL APPLIED DEVICES AND FINISHES INCLUDING KNOX BOXES, ADA, PUSH PADS, CARD READERS, AND CANOPY ELEMENTS.

MATERIAL KEYNOTES

1 CORTEN METAL PANEL
2 COPPER STANDING SEAM METAL ROOF
3 COPPER FACIA
4 LIMESTONE MASONRY, COURSING PATTERN TO MATCH WFT-5 REFER TO SHEET A3.00
5 LINEAR WOOD CEILING; LC-1
6 2" RIGID POLYISO CONTINUOUS INSULATION W ALUMINUM FACER MIN. R-13
7 SMOOTH DOLOMITE BASE COURSE ST-3
8 FOOTING & FOUNDATION (SEE STRUCTURAL)
9 CONCRETE SLAB w/ W.W.F. ON VAPOR BARRIER (SEE STRUCTURAL)
10 COMPACTED GRANULAR FILL
11 PERIMETER INSULATION (MIN. R-15)
12 GLASS AND GLAZING SYSTEM (SEE SPEC.)
13 STEEL COLUMN (SEE STRUCTURAL)
14 STEEL BEAM OR MISC. FRAMING (SEE STRUCTURAL)
15 CEILING SYSTEM (SEE RCP)
16 MECHANICAL DUCTWORK (SEE MECHANICAL)
17 STEEL TUBE, PAINTED WITH HIGH PERFORMANCE COATING. RE: SPEC.
18 ROOF SYSTEM
19 LIGHT FIXTURE; RE: ELECTRICAL
20 OVERFLOW NOZZLE W/ BIRD SCREEN. MIN. 12" A.F.F.
21 LIMESTONE CAP; MATCH ST-1

NO.	REVISION	DATE
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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
EXTERIOR ELEVATIONS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A5.02

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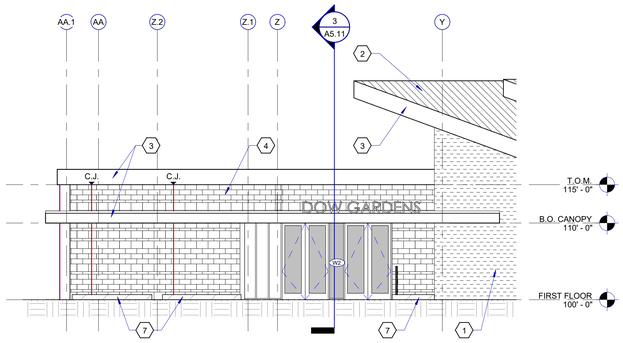
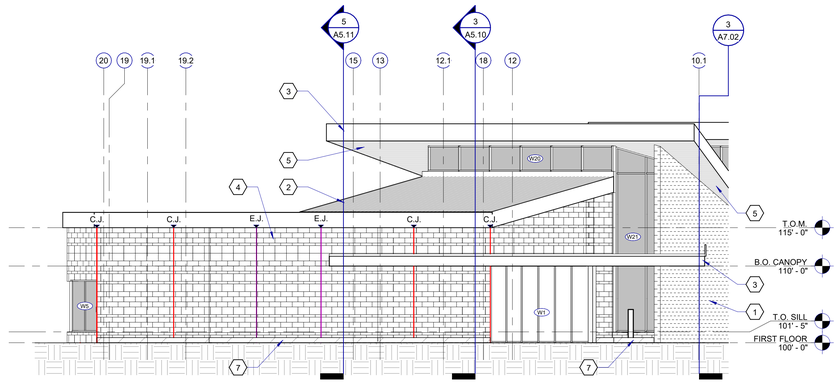
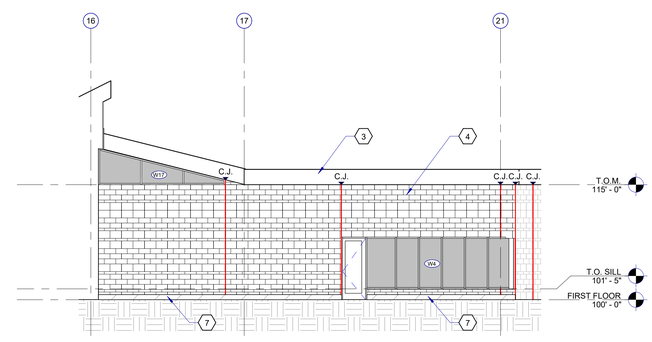


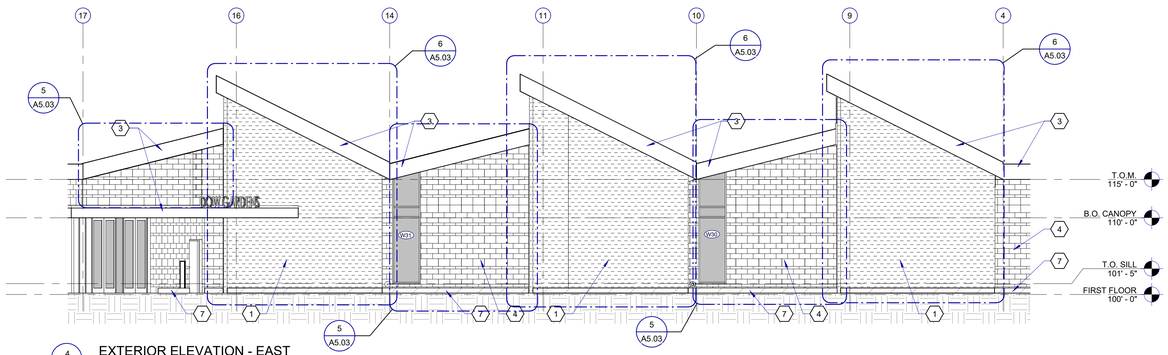
1 A5.03 MAIN ENTRANCE AND LOBBY - NORTH
SCALE: 1/8" = 1'-0"
REFERENCE: 3/ A5.01



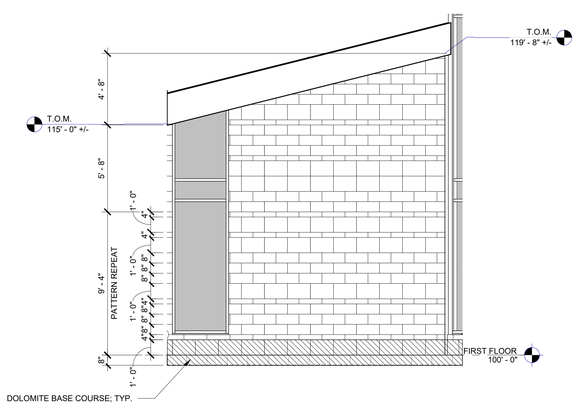
2 A5.03 MAIN ENTRANCE AND LOBBY - EAST
SCALE: 1/8" = 1'-0"
REFERENCE: 2/ A5.02



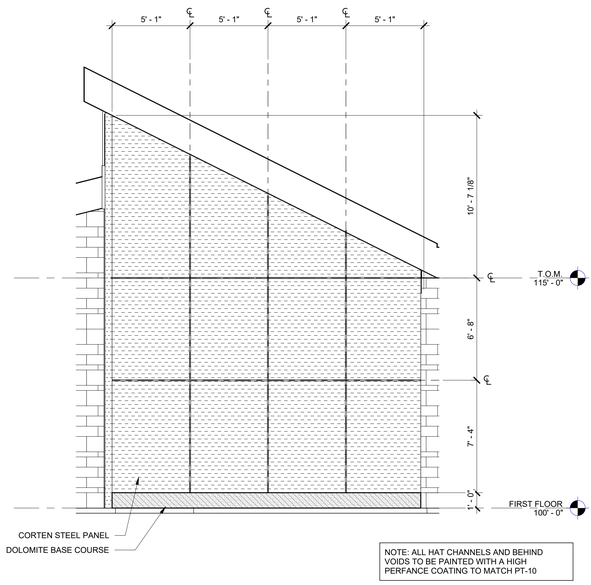
3 A5.03 LOBBY AND EXHIBIT - WEST
SCALE: 1/8" = 1'-0"
REFERENCE: 1/ A2.12



4 A5.03 EXTERIOR ELEVATION - EAST
SCALE: 1/8" = 1'-0"
REFERENCE: 4/ A5.01



5 A5.03 TYPICAL MASONRY COURSING ELEVATION
SCALE: 1/4" = 1'-0"
REFERENCE: 4/ A5.03



6 A5.03 TYPICAL CORTEN PANEL LAYOUT
SCALE: 1/4" = 1'-0"
REFERENCE: 4/ A5.03

GENERAL ELEVATION NOTES:

1. PROVIDE SMOOTH MASONRY UNITS BEHIND ALL APPLIED DEVICES AND FINISHES INCLUDING KNOX BOXES, ADA, PUSH PADS, CARD READERS, AND CANOPY ELEMENTS.

MATERIAL KEYNOTES

1 CORTEN METAL PANEL
2 COPPER STANDING SEAM METAL ROOF
3 COPPER FACIA
4 LIMESTONE MASONRY, COURSING PATTERN TO MATCH WFT-5 REFER TO SHEET A3.00
5 LINEAR WOOD CEILING; LC-1
6 2" RIGID POLYISO CONTINUOUS INSULATION W ALUMINUM FACER MIN. R-13
7 SMOOTH DOLOMITE BASE COURSE ST-3
8 FOOTING & FOUNDATION (SEE STRUCTURAL)
9 CONCRETE SLAB w/ W.W.F. ON VAPOR BARRIER (SEE STRUCTURAL)
10 COMPACTED GRANULAR FILL
11 PERIMETER INSULATION (MIN. R-15)
12 GLASS AND GLAZING SYSTEM (SEE SPEC.)
13 STEEL COLUMN (SEE STRUCTURAL)
14 STEEL BEAM OR MISC. FRAMING (SEE STRUCTURAL)
15 CEILING SYSTEM (SEE RCP)
16 MECHANICAL DUCTWORK (SEE MECHANICAL)
17 STEEL TUBE, PAINTED WITH HIGH PERFORMANCE COATING. RE: SPEC.
18 ROOF SYSTEM
19 LIGHT FIXTURE; RE: ELECTRICAL
20 OVERFLOW NOZZLE W/ BIRD SCREEN. MIN. 12" A.F.F.
21 LIMESTONE CAP; MATCH ST-1

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NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
EXTERIOR ELEVATIONS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A5.03

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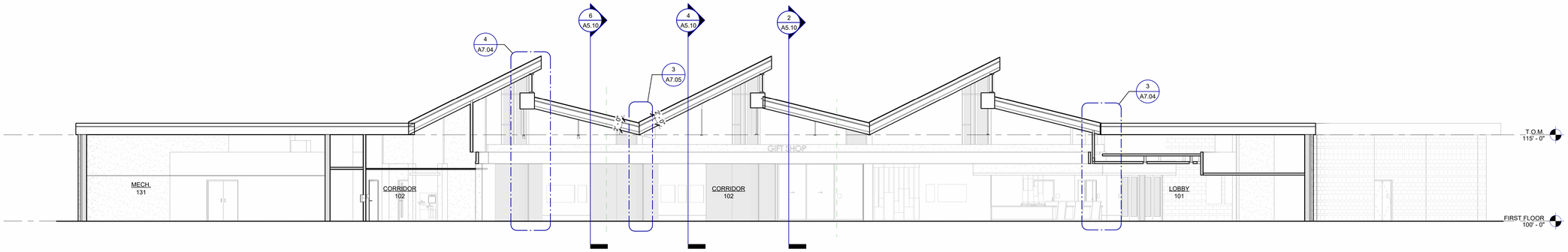
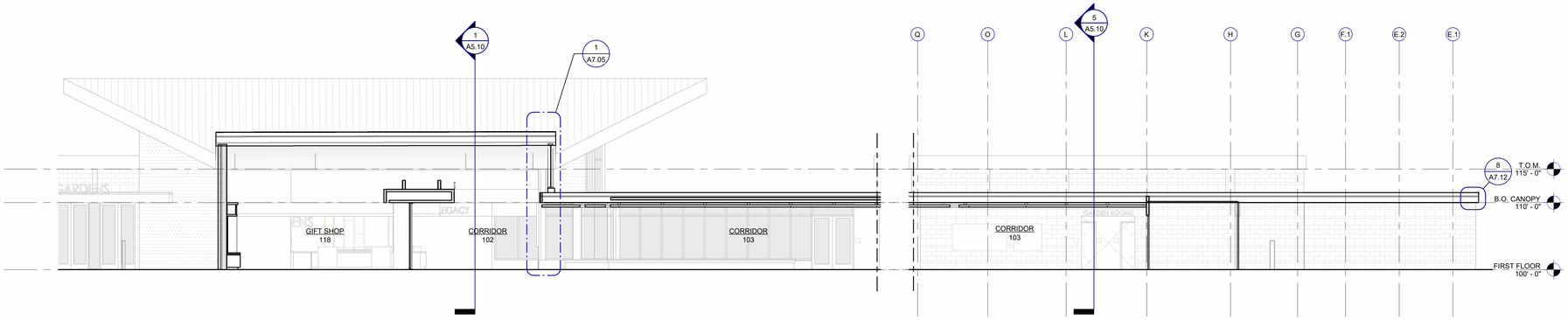


1 A5.10 BUILDING SECTION
SCALE: 1/8" = 1'-0"
REFERENCE: 1/ A2.12



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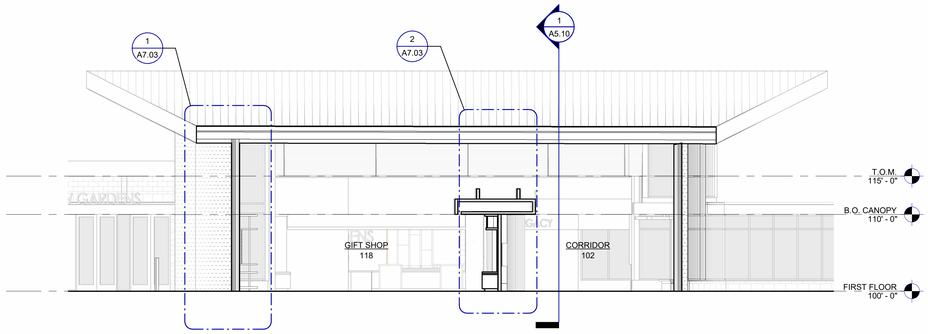

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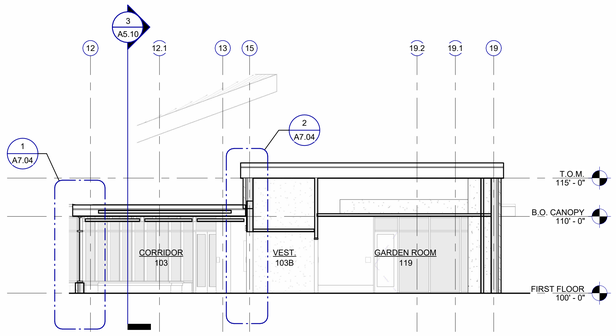

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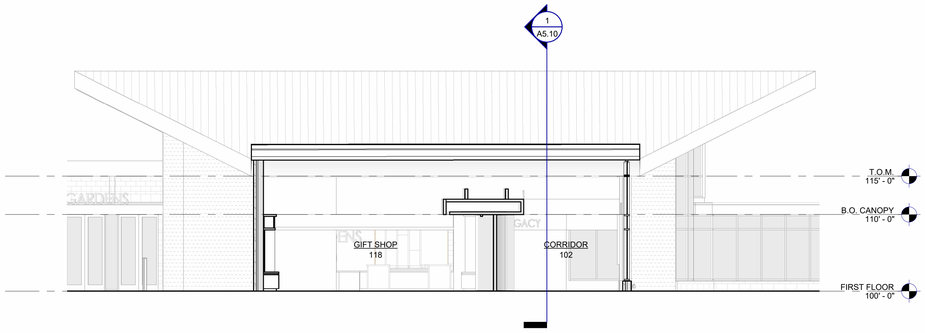
REFERENCE: 1/ A2.12



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SCALE: 1/8" = 1'-0"
REFERENCE: 1/ A2.12

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BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
BUILDING SECTIONS

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 09, 2025

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SHEET NUMBER
A5.10

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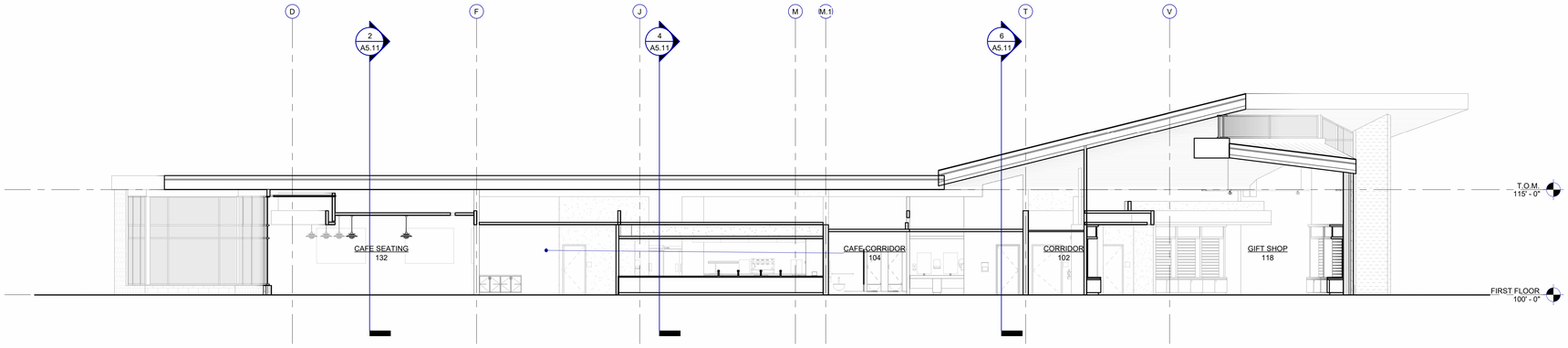

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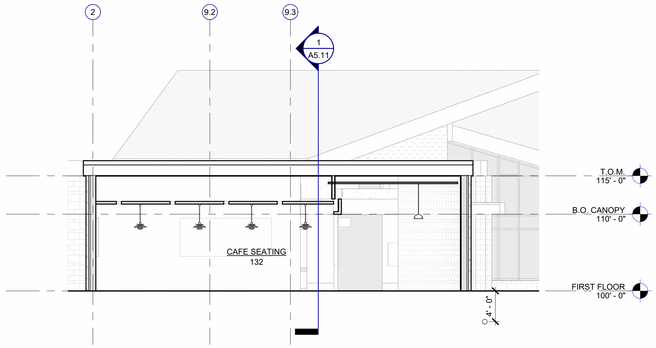

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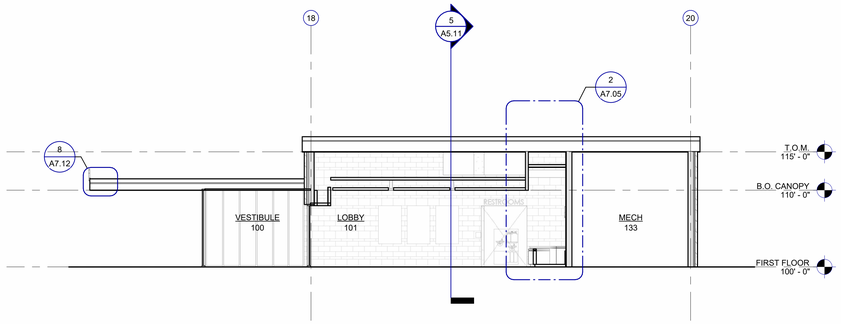

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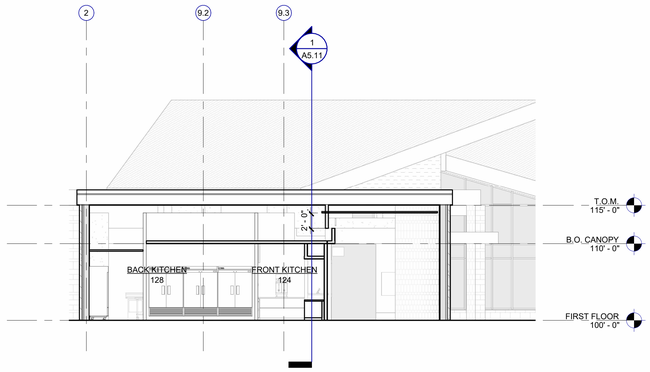

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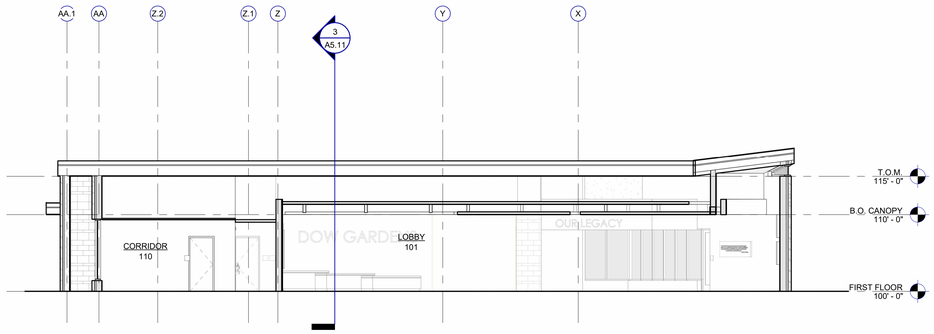

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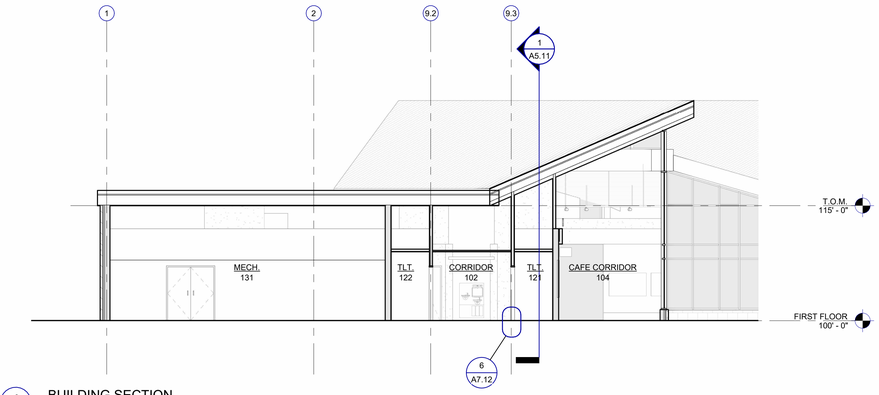

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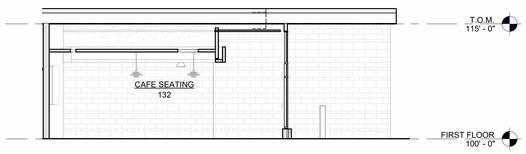

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SCALE: 1/8" = 1'-0"
REFERENCE: 1/ A2.12

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
BUILDING SECTIONS

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 09, 2025

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SHEET NUMBER
A5.11

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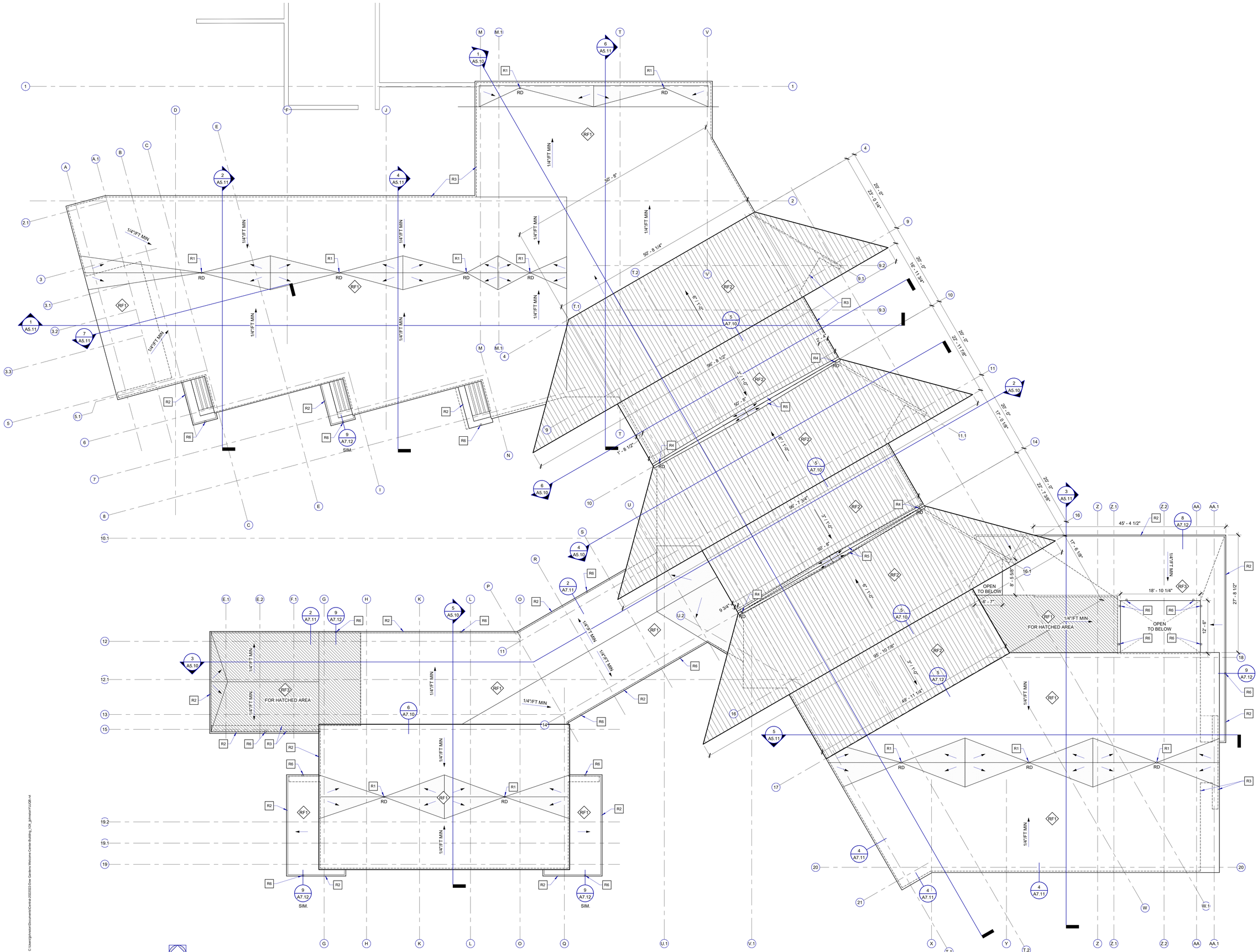

ROOF PLAN

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

ROOF GENERAL NOTES:

1. PROVIDE ROOFING MANUFACTURER'S STANDARD FLASHING DETAILS FOR ALL ROOF PENETRATIONS. COORDINATE WITH ALL AFFECTED TRADES.
2. REFER TO MECHANICAL AND PLUMBING PLANS FOR LOCATIONS AND EXTENT OF EXPOSED PIPING ON ROOF.
3. REFER TO PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS FOR MOUNTED EQUIPMENT AND PENETRATIONS. ALL EQUIPMENT PENETRATIONS MAY NOT BE SHOWN ON THE ROOF PLAN.
4. MAINTAIN ALL ROOF DRAINS CLEAN AND FREE-FLOWING DURING AND UPON COMPLETION OF CONSTRUCTION.

R# ROOF PLAN KEYNOTES

1 ROOF DRAIN. RE: MECHANICAL.
2 COPPER ROOF EDGE.
3 LINE OF EXTERIOR WALL BELOW.
4 ROOF DRAIN WITH PIPING DOWN THROUGH EXTERIOR WALL CAVITY TO OVERFLOW NOZZLE. SEE EXTERIOR ELEVATIONS.
5 FORMED BAFFLE SYSTEM SLOPED PER ARROW INDICATION ON PLAN.
6 4" COPPER SCUPPER.

ROOF LEGEND:

RF# — INDICATES ROOF TYPE, SEE ROOF TYPES, SHEET A0.01
INDICATES ROOF SLOPE
RD — INDICATES ROOF DRAIN (RD)
INDICATES TAPERED ROOF INSULATION
INDICATES ROOF SCUPPER

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MIDLAND, MICHIGAN

SHEET TITLE
ROOF PLAN

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
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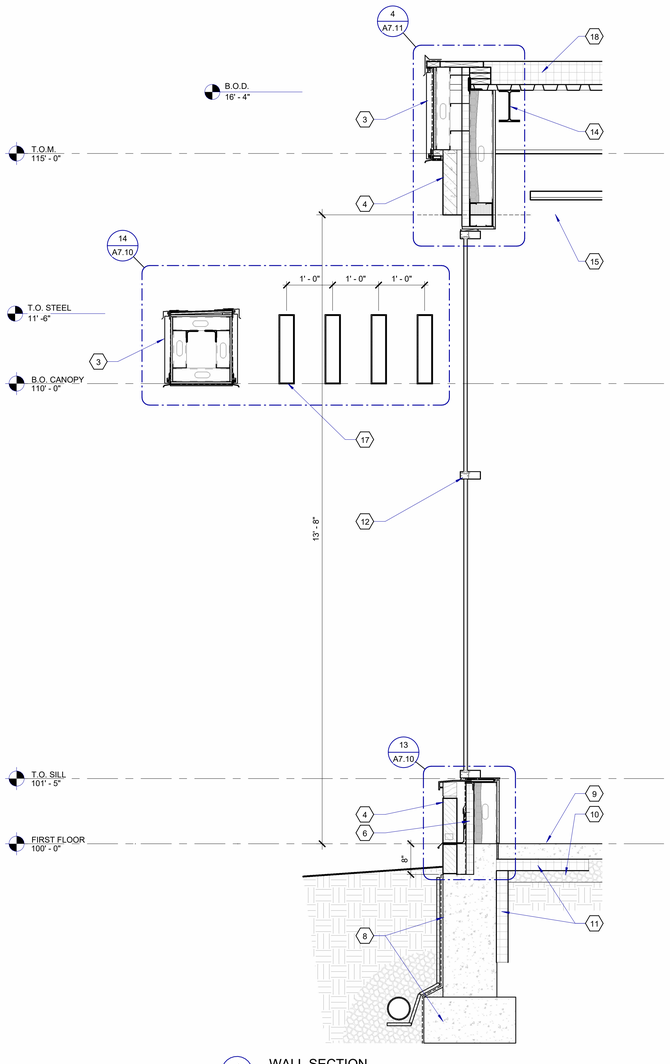

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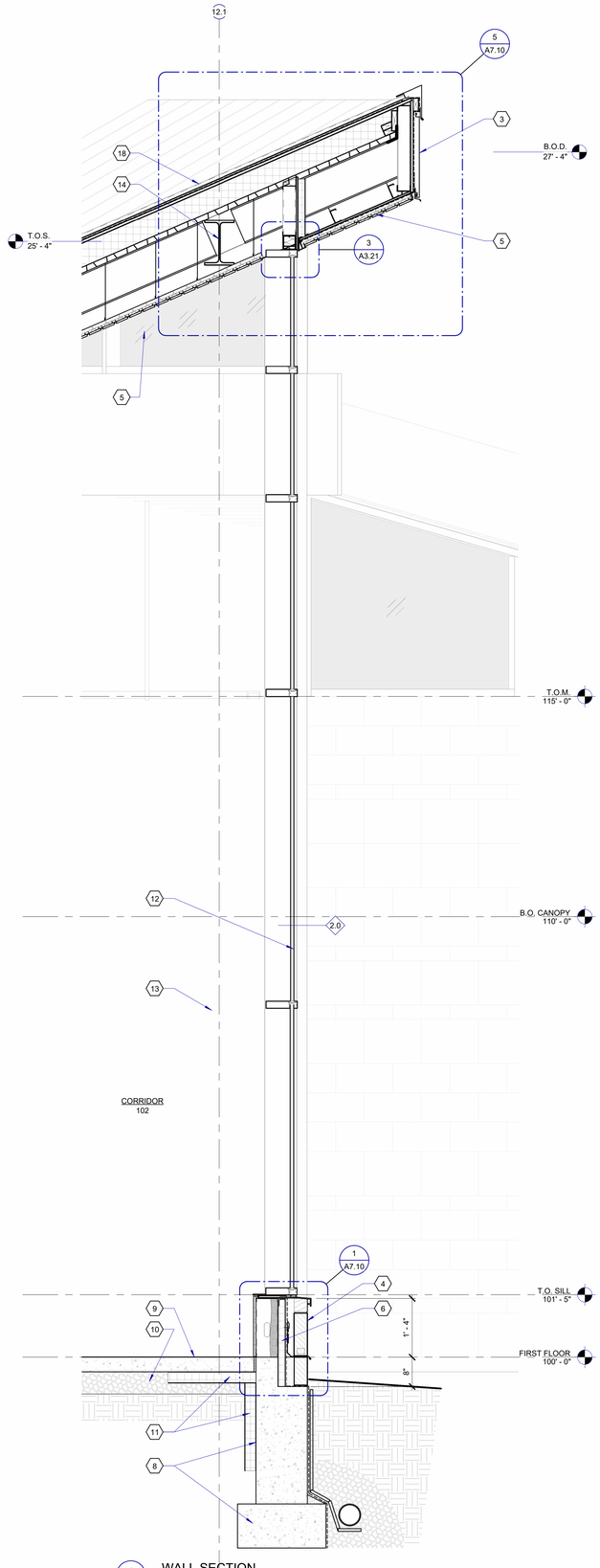
REFERENCE: 1/ A2.12



2 A7.01 WALL SECTION
SCALE: 3/4" = 1'-0"
REFERENCE: 1/ A2.12

MATERIAL KEYNOTES

1 CORTEN METAL PANEL
2 COPPER STANDING SEAM METAL ROOF
3 COPPER FACIA
4 LIMESTONE MASONRY, COURSING PATTERN TO MATCH WFT-5 REFER TO SHEET A3.00
5 LINEAR WOOD CEILING; LC-1
6 2" RIGID POLYISO CONTINUOUS INSULATION W ALUMINUM FACER MIN. R-13
7 SMOOTH DOLOMITE BASE COURSE ST-3
8 FOOTING & FOUNDATION (SEE STRUCTURAL)
9 CONCRETE SLAB w/ W.W.F. ON VAPOR BARRIER (SEE STRUCTURAL)
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13 STEEL COLUMN (SEE STRUCTURAL)
14 STEEL BEAM OR MISC. FRAMING (SEE STRUCTURAL)
15 CEILING SYSTEM (SEE RCP)
16 MECHANICAL DUCTWORK (SEE MECHANICAL)
17 STEEL TUBE, PAINTED WITH HIGH PERFORMANCE COATING. RE: SPEC.
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20 OVERFLOW NOZZLE W/ BIRD SCREEN. MIN. 12" A.F.F.
21 LIMESTONE CAP; MATCH ST-1

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DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
WALL SECTIONS

PROJECT NUMBER
2022022

PROJECT DATE
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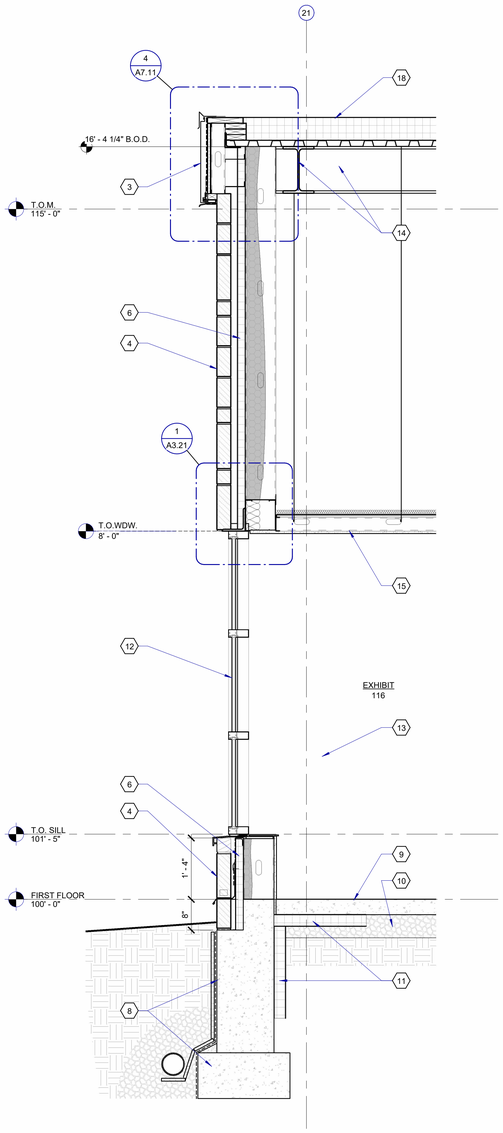

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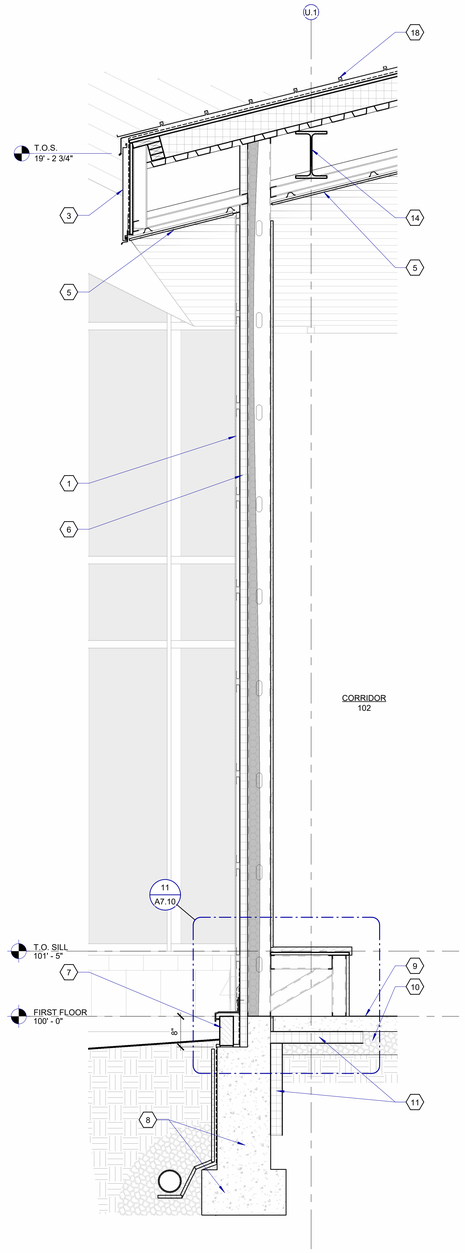

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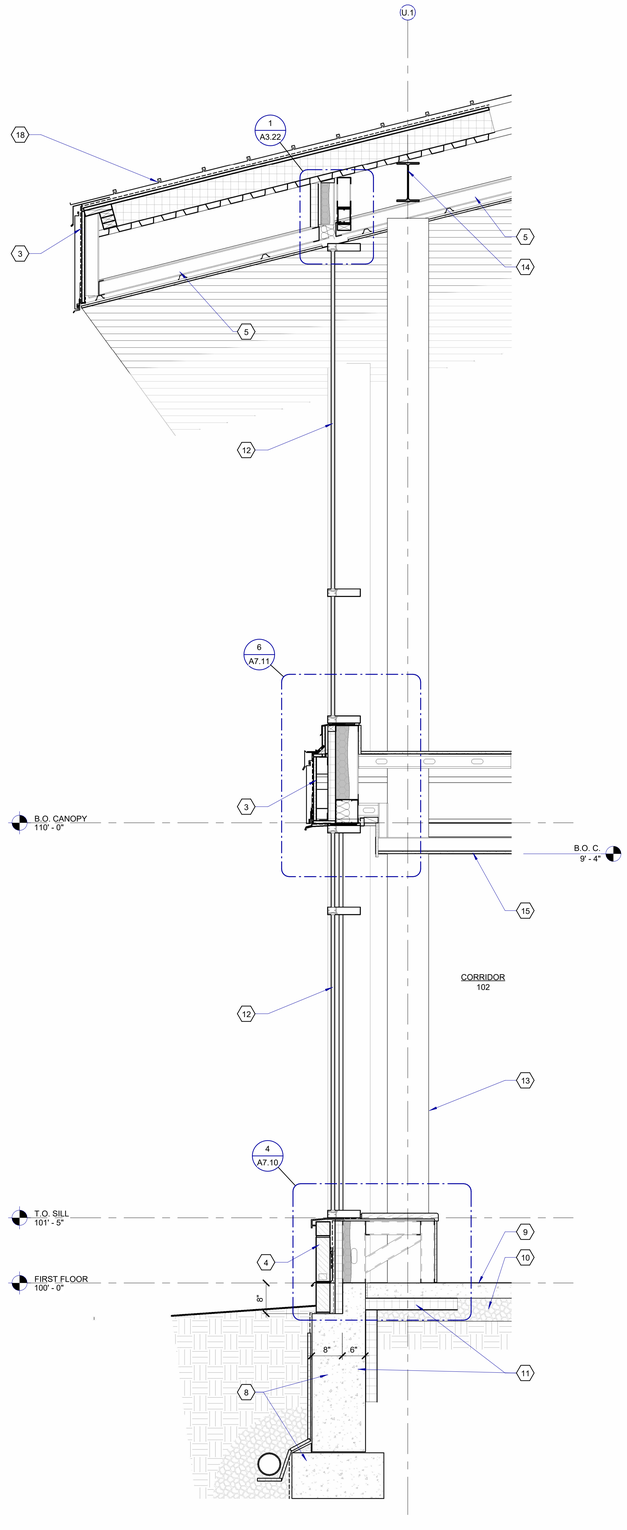

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REFERENCE: 1/ A2.12

MATERIAL KEYNOTES

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2 COPPER STANDING SEAM METAL ROOF
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21 LIMESTONE CAP; MATCH ST-1

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BID PACK NO.3
MIDLAND, MICHIGAN

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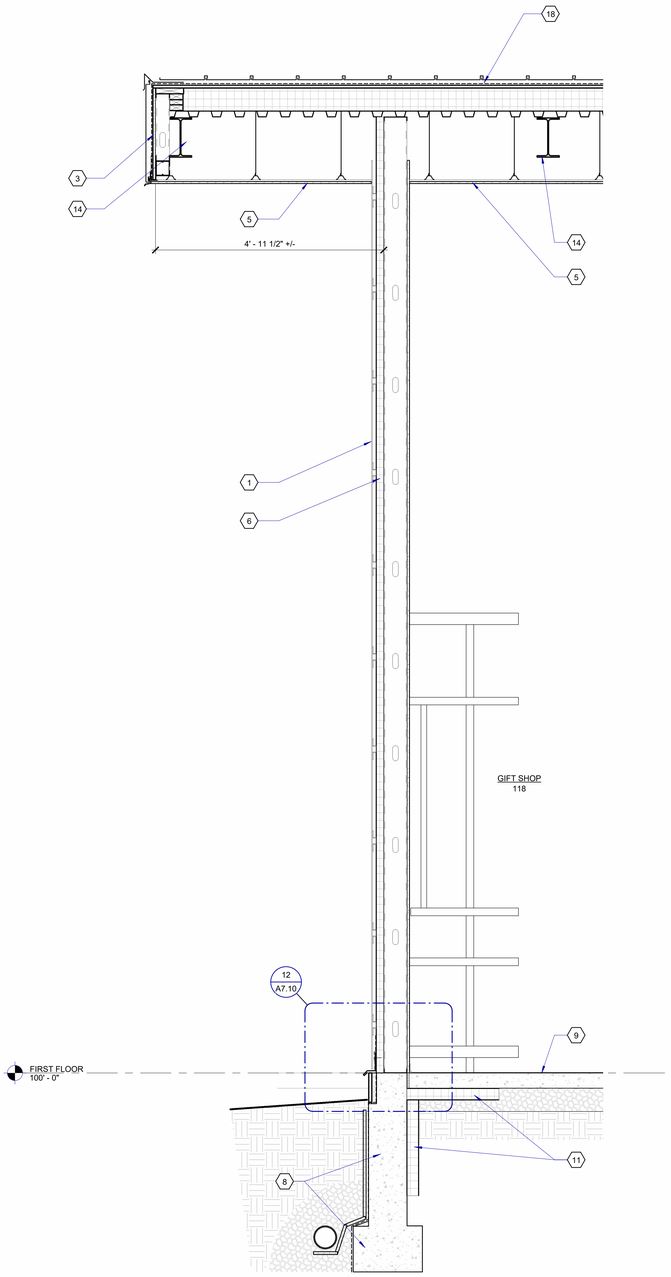

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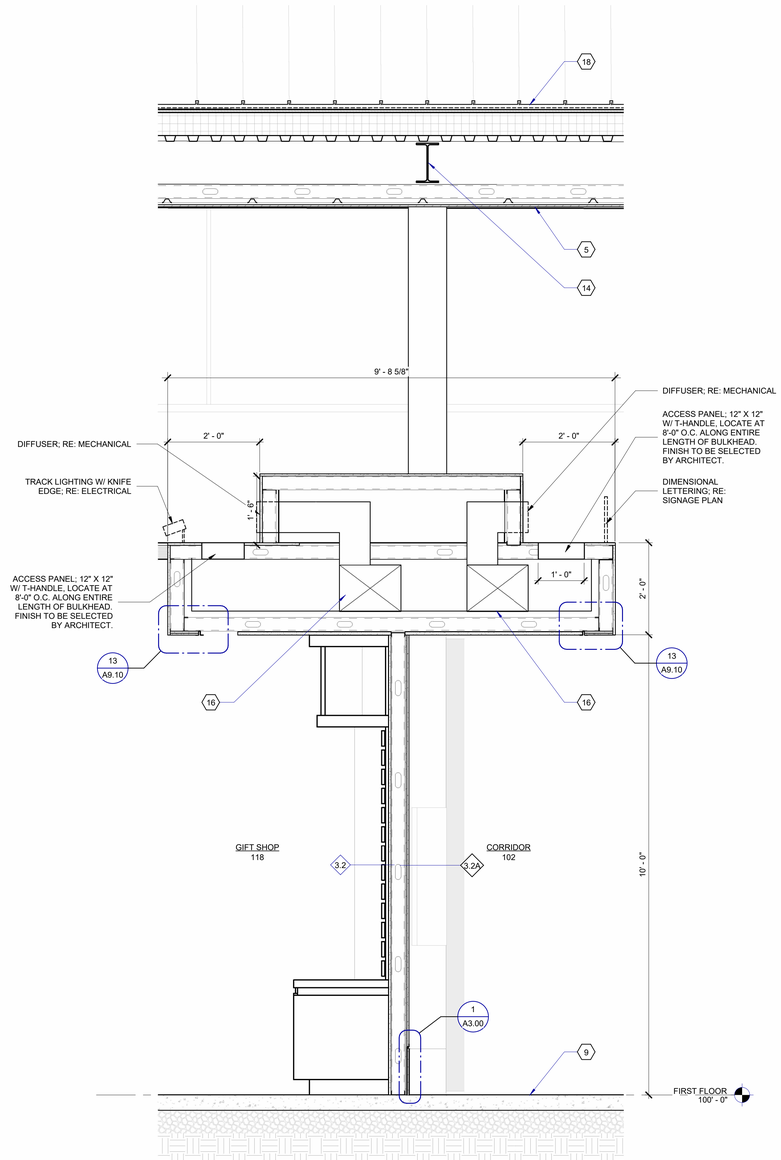

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BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
WALL SECTIONS

PROJECT NUMBER
2022022

PROJECT DATE
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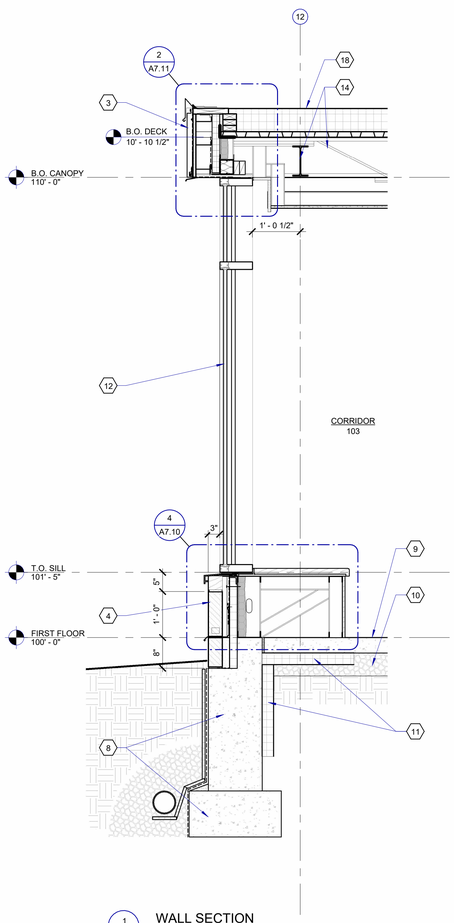

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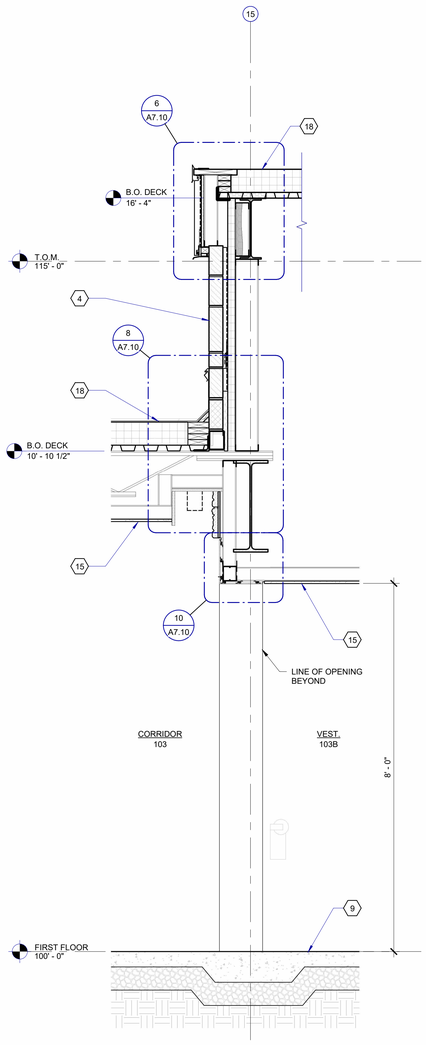

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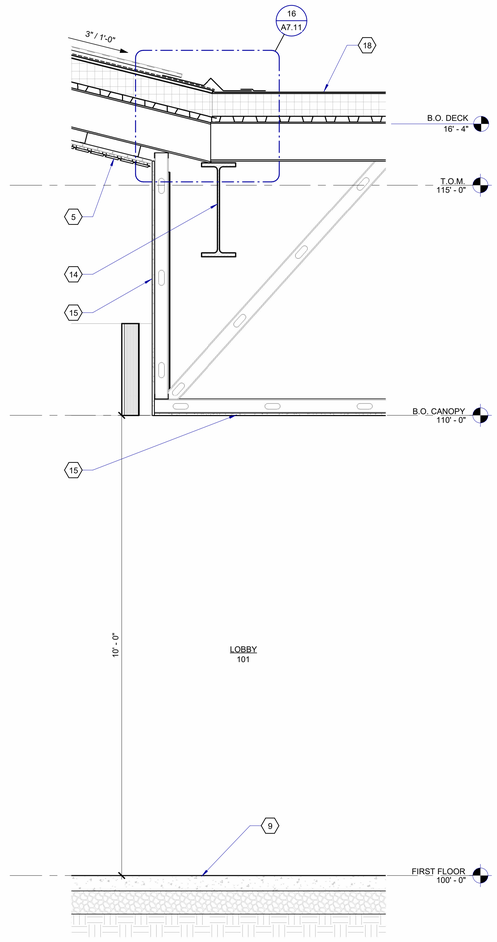

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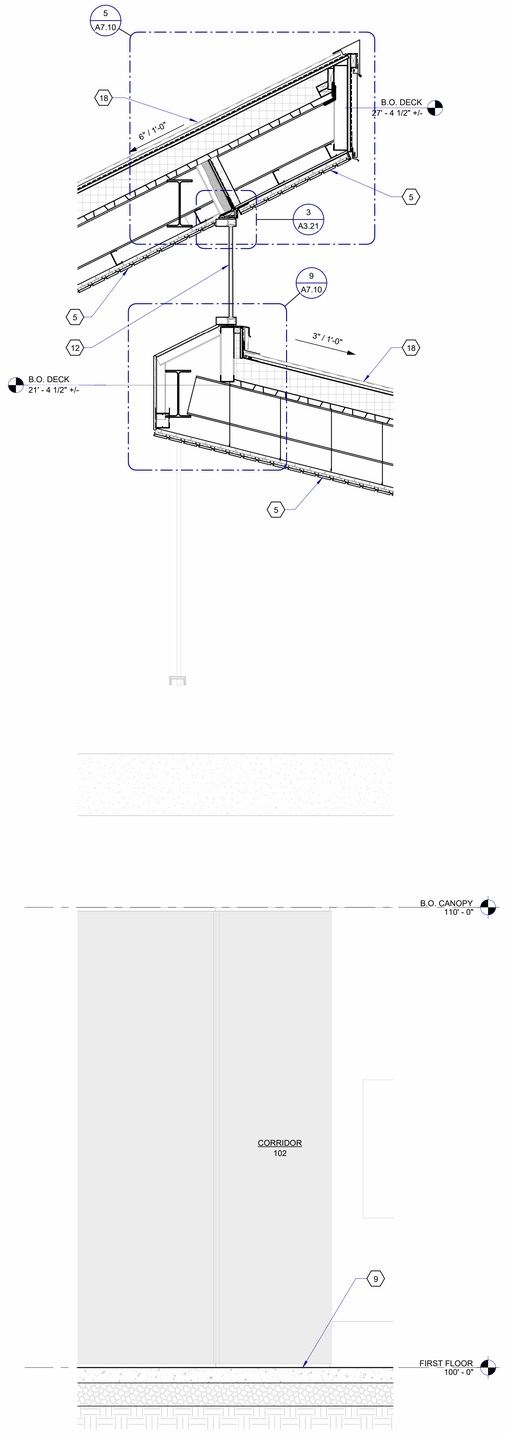
SCALE: 3/4" = 1'-0"
REFERENCE: 1/ A5.10



4 A7.04 WALL SECTION
SCALE: 3/4" = 1'-0"
REFERENCE: 1/ A5.10

MATERIAL KEYNOTES

1 CORTEN METAL PANEL
2 COPPER STANDING SEAM METAL ROOF
3 COPPER FACIA
4 LIMESTONE MASONRY, COURSING PATTERN TO MATCH WFT-5 REFER TO SHEET A3.00
5 LINEAR WOOD CEILING; LC-1
6 2" RIGID POLYISO CONTINUOUS INSULATION W ALUMINUM FACER MIN. R-13
7 SMOOTH DOLOMITE BASE COURSE ST-3
8 FOOTING & FOUNDATION (SEE STRUCTURAL)
9 CONCRETE SLAB w/ W.W.F. ON VAPOR BARRIER (SEE STRUCTURAL)
10 COMPACTED GRANULAR FILL
11 PERIMETER INSULATION (MIN. R-15)
12 GLASS AND GLAZING SYSTEM (SEE SPEC.)
13 STEEL COLUMN (SEE STRUCTURAL)
14 STEEL BEAM OR MISC. FRAMING (SEE STRUCTURAL)
15 CEILING SYSTEM (SEE RCP)
16 MECHANICAL DUCTWORK (SEE MECHANICAL)
17 STEEL TUBE, PAINTED WITH HIGH PERFORMANCE COATING. RE: SPEC.
18 ROOF SYSTEM
19 LIGHT FIXTURE; RE: ELECTRICAL
20 OVERFLOW NOZZLE W/ BIRD SCREEN. MIN. 12" A.F.F.
21 LIMESTONE CAP; MATCH ST-1

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS
WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
WALL SECTIONS

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 09, 2025

CHECKED BY
JMJ

SHEET NUMBER
A7.04

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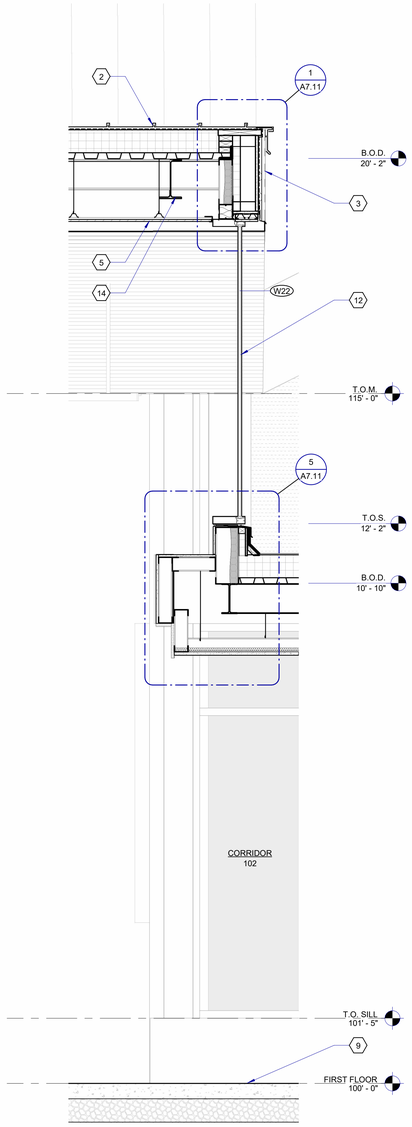

1 A7.05 WALL SECTION
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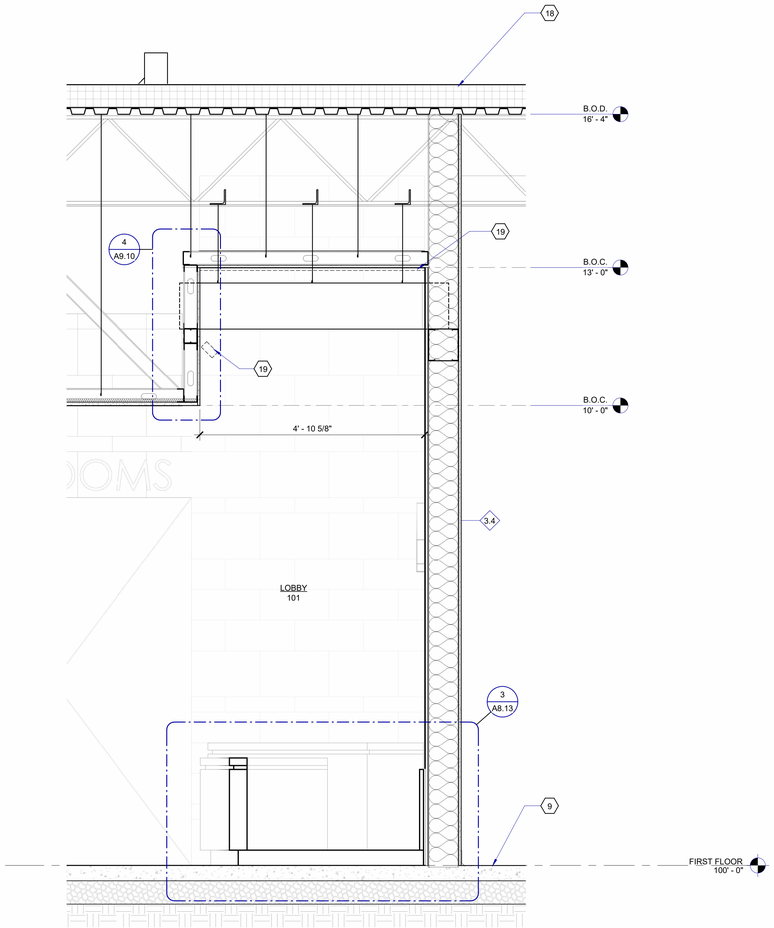
REFERENCE: 2/ A5.10



2 A7.05 WALL SECTION
SCALE: 3/4" = 1'-0"
REFERENCE: 3/ A5.11

3 A7.05 WALL SECTION
SCALE: 3/4" = 1'-0"
REFERENCE: 1/ A5.10

MATERIAL KEYNOTES

1 CORTEN METAL PANEL
2 COPPER STANDING SEAM METAL ROOF
3 COPPER FACIA
4 LIMESTONE MASONRY, COURSING PATTERN TO MATCH WFT-5 REFER TO SHEET A3.00
5 LINEAR WOOD CEILING; LC-1
6 2" RIGID POLYISO CONTINUOUS INSULATION W ALUMINUM FACER MIN. R-13
7 SMOOTH DOLOMITE BASE COURSE ST-3
8 FOOTING & FOUNDATION (SEE STRUCTURAL)
9 CONCRETE SLAB w/ W.W.F. ON VAPOR BARRIER (SEE STRUCTURAL)
10 COMPACTED GRANULAR FILL
11 PERIMETER INSULATION (MIN. R-15)
12 GLASS AND GLAZING SYSTEM (SEE SPEC.)
13 STEEL COLUMN (SEE STRUCTURAL)
14 STEEL BEAM OR MISC. FRAMING (SEE STRUCTURAL)
15 CEILING SYSTEM (SEE RCP)
16 MECHANICAL DUCTWORK (SEE MECHANICAL)
17 STEEL TUBE, PAINTED WITH HIGH PERFORMANCE COATING. RE: SPEC.
18 ROOF SYSTEM
19 LIGHT FIXTURE; RE: ELECTRICAL
20 OVERFLOW NOZZLE W/ BIRD SCREEN. MIN. 12" A.F.F.
21 LIMESTONE CAP; MATCH ST-1

NO.	REVISION	DATE
	ISSUED FOR BID	01/09/25
B1	BULLETIN NO.1	12/26/24

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
WALL SECTIONS

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 09, 2025

CHECKED BY
JMJ

SHEET NUMBER
A7.05

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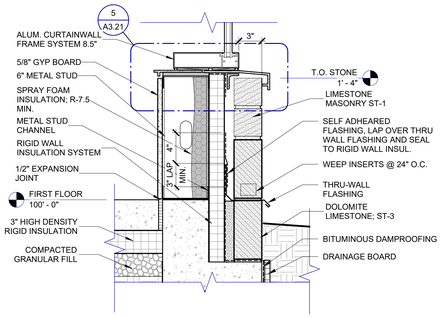
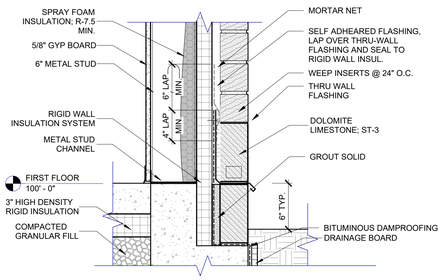


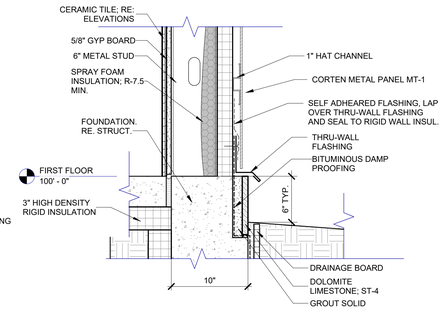
1 A7.10 WALL BASE W/ METAL SILL

SCALE: 1 1/2" = 1'-0"
REFERENCE: 2/ A7.01



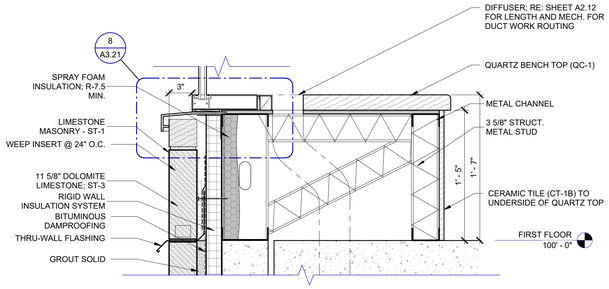
2 A7.10 TYP. WALL BASE @ MASONRY

SCALE: 1 1/2" = 1'-0"



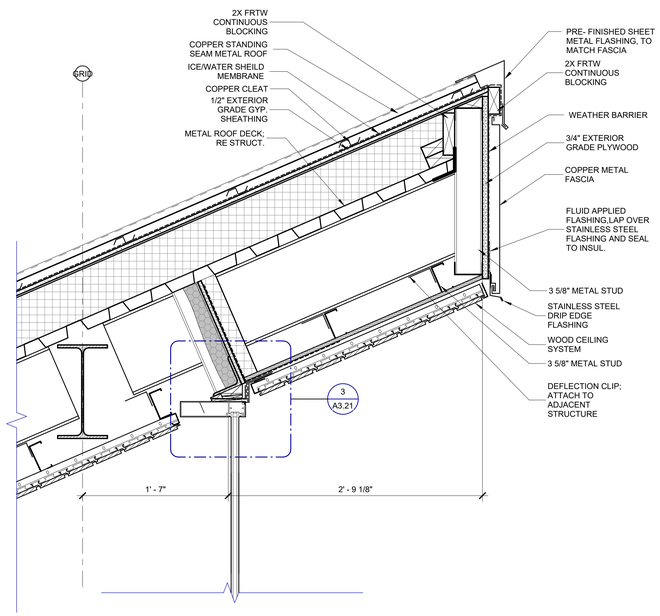
3 A7.10 TYP. WALL BASE @ MTL PANEL

SCALE: 1 1/2" = 1'-0"



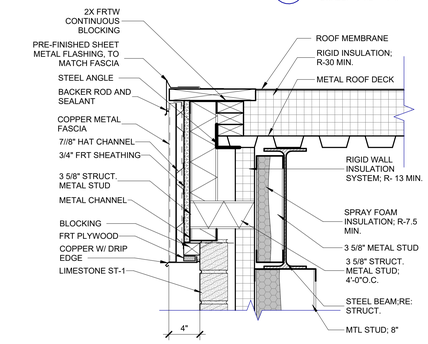
4 A7.10 WALL BASE W/ INTERIOR BENCH

SCALE: 1 1/2" = 1'-0"
REFERENCE: 3/ A7.02



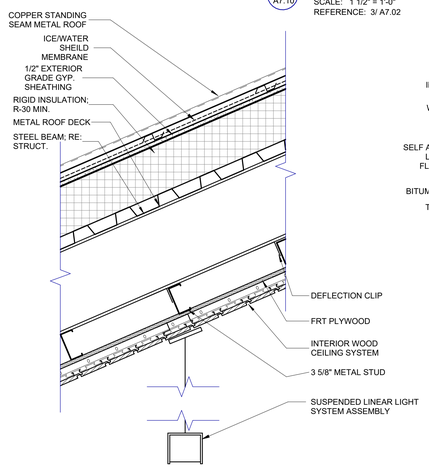
5 A7.10 CLERESTORY WINDOW HEAD AND HIGH ROOF

SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A6.01



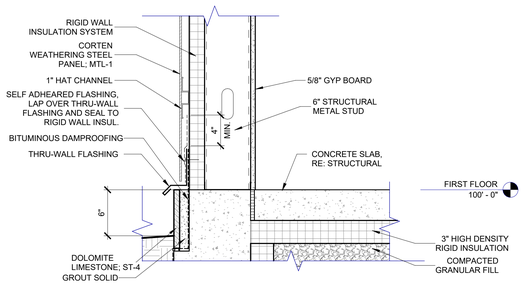
6 A7.10 FASCIA @ MASONRY OVER MULTIPURPOSE ENTRY

SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A6.01



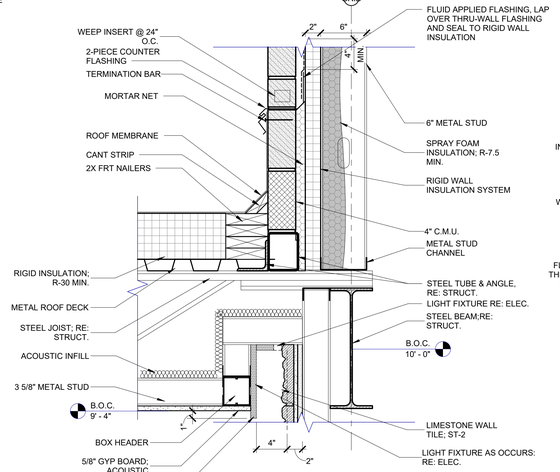
7 A7.10 HIGH ROOF SUSPENDED LINEAR LIGHT

SCALE: 1 1/2" = 1'-0"



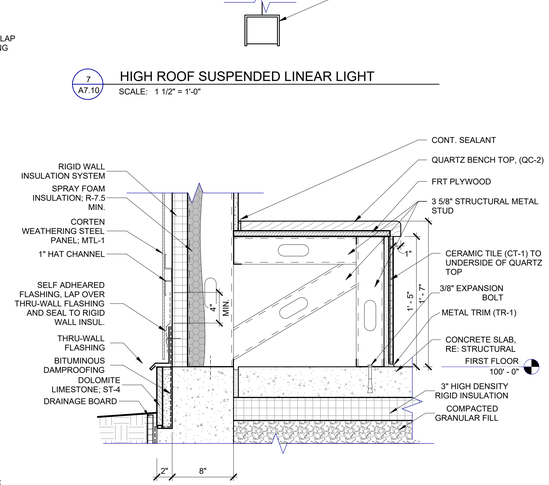
12 A7.10 WALL BASE @ MTL PANEL

SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A7.03



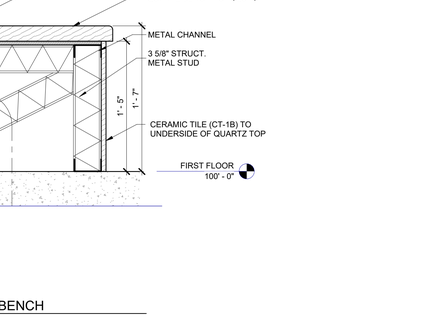
8 A7.10 CORRIDOR 103 @ MULTIPURPOSE ROOF DETAIL

SCALE: 1 1/2" = 1'-0"
REFERENCE: 2/ A7.04



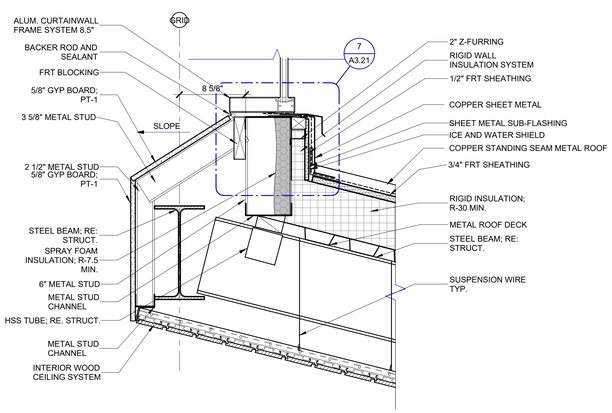
11 A7.10 WALL BASE @ MTL PANEL W/ INTERIOR BENCH

SCALE: 1 1/2" = 1'-0"
REFERENCE: 2/ A7.02



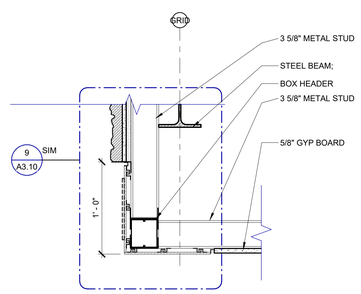
13 A7.10 WALL BASE W/ METAL SILL

SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A7.01



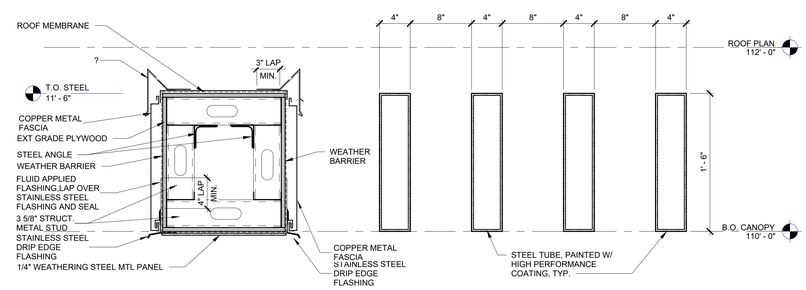
9 A7.10 CLERESTORY WINDOW SILL AND HIGH ROOF

SCALE: 1 1/2" = 1'-0"
REFERENCE: 4/ A7.04



10 A7.10 CORRIDOR TO MULTI PURPOSE SPACE

SCALE: 1 1/2" = 1'-0"
REFERENCE: 2/ A7.04



14 A7.10 SECTION @ STEEL SUNSHADE DETAIL

SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A7.01

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PROJECT TITLE
NEW CONSTRUCTION:
DOW GARDENS WELCOME CENTER
BID PACK NO.3
MIDLAND, MICHIGAN

SHEET TITLE
SECTION DETAILS

PROJECT NUMBER 2022022
PROJECT DATE JANUARY 09, 2025
CHECKED BY JMJ
SHEET NUMBER A7.10

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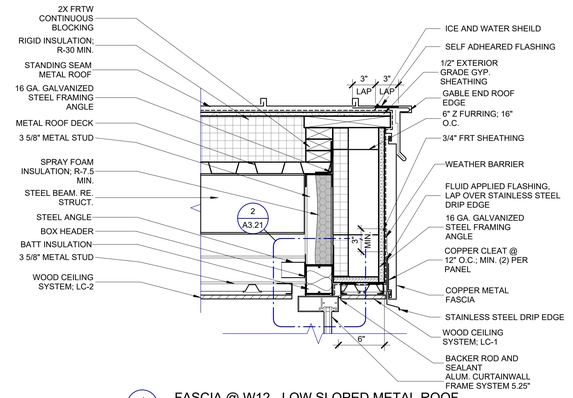
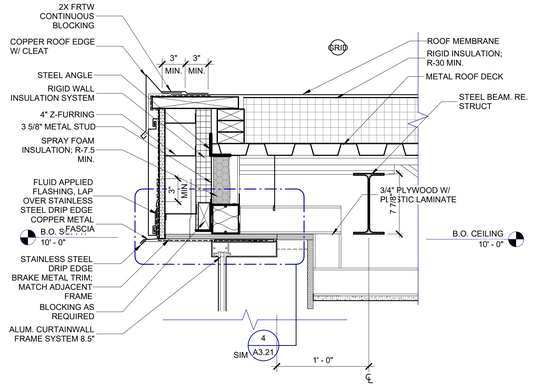
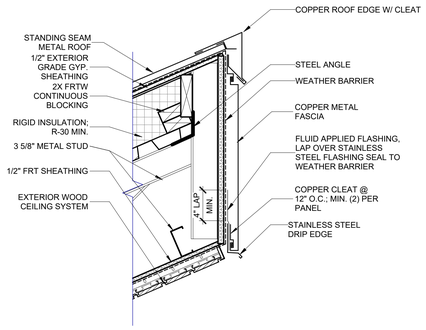


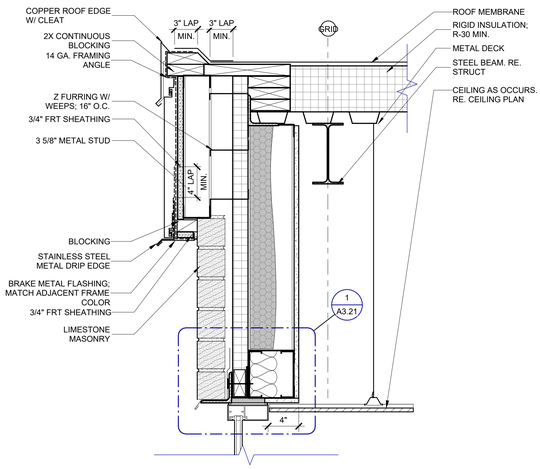
1 A7.11 FASCIA @ W12 - LOW SLOPED METAL ROOF
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A7.05



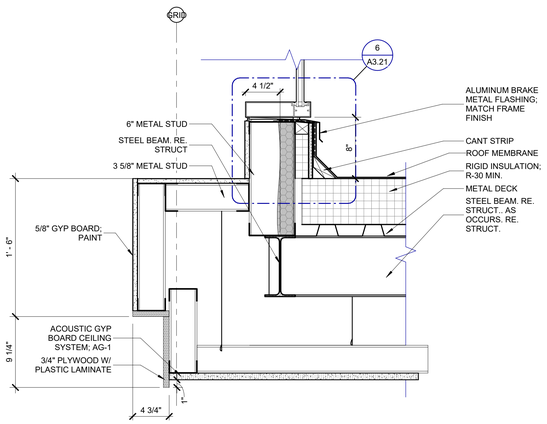
2 A7.11 FASCIA @ WINDOW HEAD
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A6.01



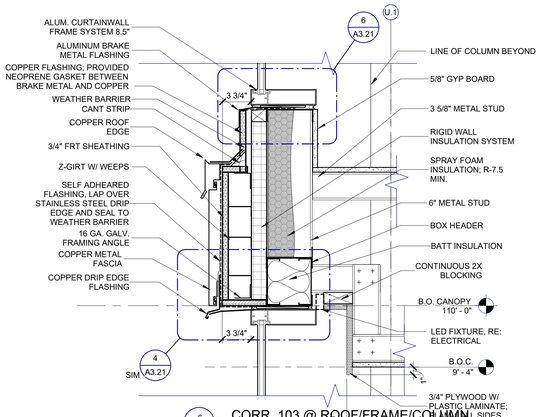
3 A7.11 HIGH ROOF FASCIA DETAIL
SCALE: 1 1/2" = 1'-0"



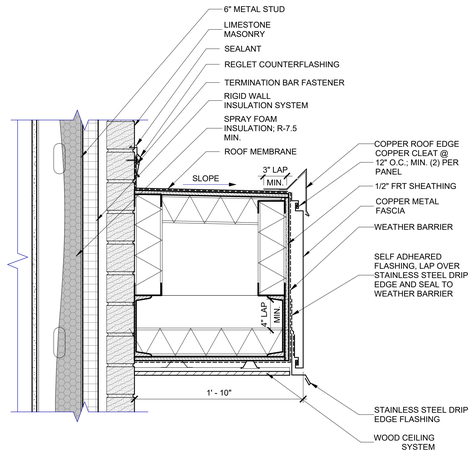
4 A7.11 FASCIA @ MASONRY
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A6.01



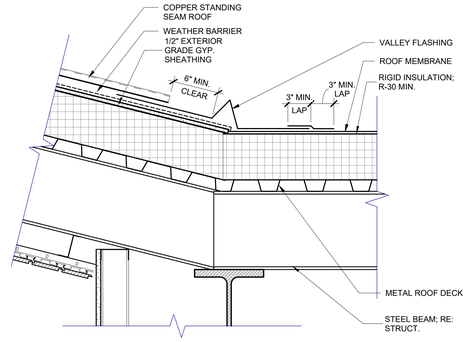
5 A7.11 CORR. 103 ROOF TO WINDOW SILL
SCALE: 1 1/2" = 1'-0"
REFERENCE: 1/ A7.05



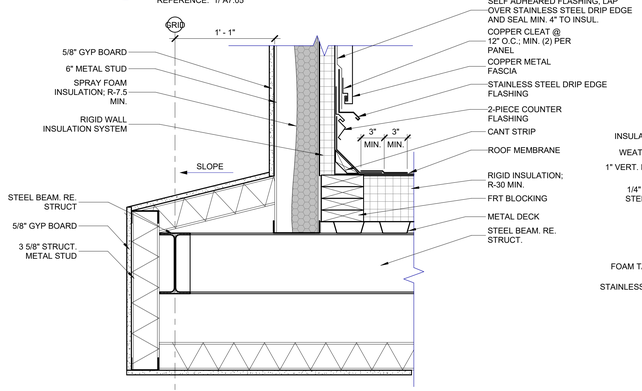
6 A7.11 CORR. 103 @ ROOF/FRAME/COLUMN
SCALE: 1 1/2" = 1'-0"
REFERENCE: 3/ A7.02



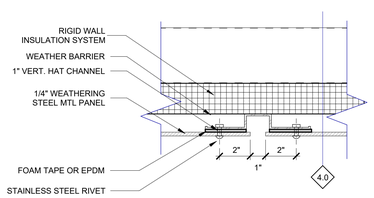
7 A7.11 ROOF LAP OVER STONE
SCALE: 1 1/2" = 1'-0"



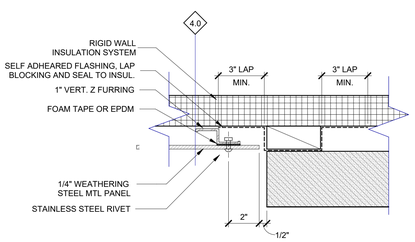
16 A7.11 VALLEY TRANSITION DETAIL
SCALE: 1 1/2" = 1'-0"
REFERENCE: 3/ A7.04



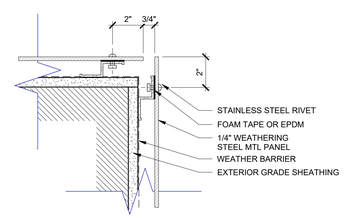
8 A7.11 COOR. 103 ROOF TO METAL PANEL
SCALE: 1 1/2" = 1'-0"



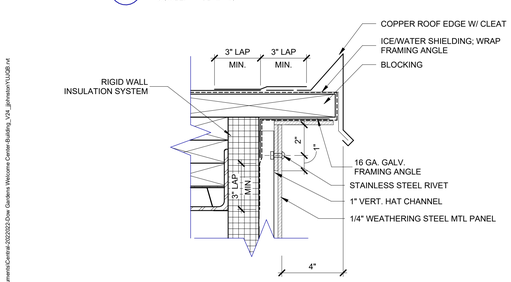
9 A7.11 METAL PANEL VERTICAL JOINT DETAIL
SCALE: 3" = 1'-0"



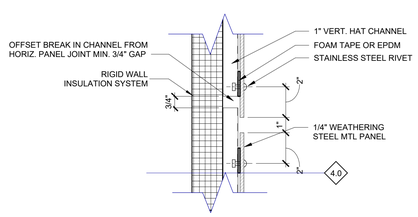
10 A7.11 METAL PANEL BUTT JOINT DETAIL
SCALE: 3" = 1'-0"
REFERENCE: 5/ A2.41



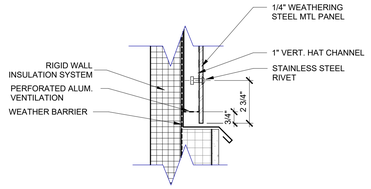
11 A7.11 TYP. METAL PANEL OUTSIDE CORNER DETAIL
SCALE: 3" = 1'-0"
REFERENCE: 7/ A2.41



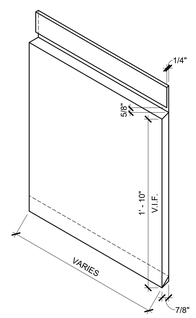
12 A7.11 METAL PANEL VERTICAL @ ROOF EDGE DETAIL
SCALE: 3" = 1'-0"



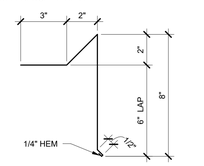
13 A7.11 METAL PANEL HORIZONTAL DETAIL
SCALE: 3" = 1'-0"



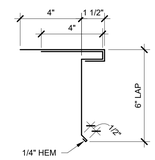
14 A7.11 METAL PANEL VERTICAL @ BASE DETAIL
SCALE: 3" = 1'-0"



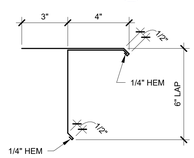
15 A7.11 COPPER FASCIA PROFILE
SCALE: 1 1/2" = 1'-0"



17 A7.11 COPPER ROOF EDGE PROFILE
SCALE: 3" = 1'-0"



19 A7.11 COPPER GABLE END EDGE PROFILE
SCALE: 3" = 1'-0"



18 A7.11 COPPER SCUPPER ROOF EDGE PROFILE
SCALE: 3" = 1'-0"

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MIDLAND, MICHIGAN

SHEET TITLE
SECTION DETAILS

PROJECT NUMBER
2022022

PROJECT DATE
JANUARY 09, 2025

CHECKED BY
JMJ

SHEET NUMBER
A7.11

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