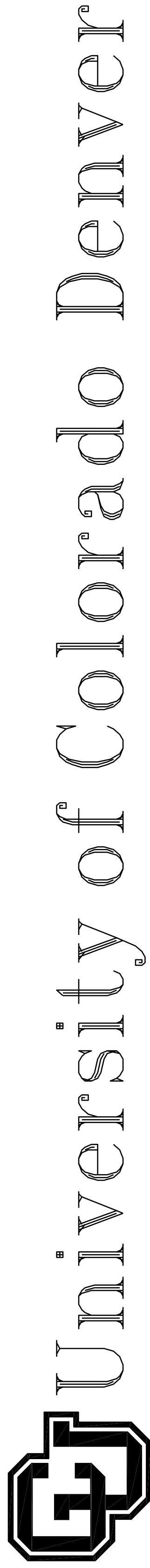


# UNIVERSITY OF COLORADO DENVER

## BUSINESS SCHOOL – LEVEL P2 DRAIN REPLACEMENT

1475 Lawrence St.

Denver, Colorado 80202



PROJECT NO. 220004

100% CONSTRUCTION DOCUMENTS – MAY 27, 2022

### PROJECT DESCRIPTION

THE SCOPE OF WORK INCLUDES REMOVAL AND REPLACEMENT OF STORY DRAINAGE PIPING AND AREA DRAINS SERVING LEVEL P2 OF THE EXISTING GARAGE. ADDITIONAL SCOPE INCLUDES DISCONNECTION OF EXISTING AREA DRAINS AND ADDITION OF WATER DETECTION SENSORS IN ELEVATOR SHAFTS. ENTRY RAMP FRENCH DRAIN REPLACEMENT AND CLEANING OF EXISTING AREA DRAINS ON LEVEL P1.

### PROJECT TEAM

**OWNER:**

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### BUILDING CODE REFERENCES

- IBC INTERNATIONAL BUILDING CODE (2018 EDITION)
- IFC INTERNATIONAL FIRE CODE (2018 EDITION)
- IMC INTERNATIONAL MECHANICAL CODE (2018 EDITION)
- IPC INTERNATIONAL PLUMBING CODE (2018 EDITION)
- FGC INTERNATIONAL FUEL GAS CODE (2018 EDITION)
- NEC NATIONAL ELECTRIC CODE (2020 EDITION)
- IECC INTERNATIONAL ENERGY CONSERVATION CODE (2018 EDITION)

### DRAWING INDEX

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PD-102	LEVEL P2 – PLUMBING DEMOLITION PLAN
P-101	LEVEL P2 – PLUMBING PLAN
P-500	PLUMBING DETAILS
STRUCTURAL	PARTIAL PLANS DETAILS AND NOTES
S-100	PARTIAL PLANS DETAILS AND NOTES







PLUMBING LEGEND					
(Not all symbols listed below are used on these drawings)					
ABBR.	SYMBOL	DESCRIPTION	ABBR.	SYMBOL	DESCRIPTION
CW	— — — — —	DOMESTIC COLD WATER PIPING	G	— G (X4 PIP) (X" W.C.)	NATURAL GAS PIPING
HW	— — — — —	DOMESTIC HOT WATER PIPING	RDL	— — — — —	ROOF DRAIN PIPING
HWC	— — — — —	DOMESTIC HOT WATER CIRC. PIPING	OIL	— — — — —	OVERFLOW DRAIN PIPING
C-SW	— — — — — SW — — — — —	SOFTENED DOMESTIC COLD WATER PIPING	SCO	⊕	SURFACE CLEANOUT
H-SW	— — — — — SW — — — — —	SOFTENED DOMESTIC HOT WATER PIPING	FCO	⊙	FLOOR CLEANOUT
140° HW	— — — — — 140° — — — — —	DOM. HOT WATER PIPING @ TEMP. SHOWN	WCO	○ — H —	WALL CLEANOUT
V	— — — — —	VENT PIPING	COT	○ — I —	CLEANOUT TEE
AV	— — — — — AV — — — — —	ACID RESISTANT VENT PIPING	LCO	— — — — —	LINE CLEANOUT
HPCW	— — — — — WP — — — — —	NON-POTABLE DOMESTIC COLD WATER PIPING	OC	— — — — —	FIXTURE OR DRAIN P-TRAP
W	— — — — — WL — — — — —	WASTE PIPING (ABOVE FLOOR IN BUILDING)	AO	⊙	AREA DRAIN
AW	— — — — — WL — — — — —	ACID RESISTANT WASTE PIPING (ABOVE FLOOR IN BUILDING)	FD	⊙	FLOOR DRAIN (ROUND GRATE)
ABO	— — — — — ABO — — — — —	ACID RESISTANT BUILDING SEWER PIPING (BELOW FLOOR IN BUILDING)	FS	⊞	FLOOR SINK (SQUARE GRATE)
ABS	— — — — — ABS — — — — —	ACID RESISTANT BUILDING SEWER PIPING (BELOW GRADE OUTSIDE BUILDING)	RO/POD	⊙	ROOF DRAIN OR OVERFLOW DRAIN
BO	— — — — — BO — — — — —	BUILDING SEWER (BELOW FLOOR IN BUILDING)	GP	— — — — —	GAS PRESSURE REDUCING VALVE
BS	— — — — — BS — — — — —	BUILDING SEWER (BELOW GRADE OUTSIDE BUILDING)	SA	↓	SHOCK ABSORBER
SD	— — — — — SD — — — — —	STORM DRAIN PIPING (BELOW FLOOR IN BUILDING)	GC	— — — — —	GAS SHUT-OFF VALVE
ST	— — — — — ST — — — — —	STORM SEWER PIPING (BELOW GRADE OUTSIDE BUILDING)	H <sub>2</sub>	⊞	STOP AND DRAIN VALVE
S	— — — — — S — — — — —	SANITARY SEWER PIPING (BELOW GRADE OUTSIDE BUILDING)	H <sub>2</sub> /NH	→	HOSE EBBY/ WALL HYDRANT
D	— — — — — DL — — — — —	INDIRECT DRAIN PIPING	YH	⊞	YARD HYDRANT
HW	— — — — — WL — — — — —	INDIRECT WASTE PIPING	BFP	— — — — —	ATMOSPHERIC BACKFLOW PREVENTER
PWD	— — — — — PWD — — — — —	PUMP WASTE DISCHARGE PIPING	BFP	— — — — —	PRESSURE DIFFERENTIAL BACKFLOW PREVENTER
GO	— — — — — GO — — — — —	GREASE DRAIN (WASTE LINE TO GREASE INTERCEPTOR)	U	U	WATER METER
SSD	— — — — — SSD — — — — —	SUB-SURFACE DRAIN PIPING	N	N	GAS METER

ABBREVIATIONS					
AFF	ABOVE FINISHED FLOOR	QC	GENERAL CONTRACTOR	(R)	RELOCATED
AFG	ABOVE FINISHED GRADE	E	INVERT ELEVATION	RH	RETURN AIR
AVTR	ACID RESISTANT VENT THRU ROOF	KEC	KITCHEN EQUIPMENT CONTRACTOR	RH	RADIUS/ROPE FUME HOOD
BOD	BOTTOM OF DUCT	KW	KILN/WATTS	(RS)	REMOVE & RELOCATE
BOP	BOTTOM OF PIPE	MC	MECHANICAL CONTRACTOR	SA	SUPPLY AIR
BSC	BIO-SAFETY CABINET	MH	MANHOLE	SOI	SAND-OIL INTERCEPTOR
CB	CATCH BASIN	(N)	NEW	SS	STAINLESS STEEL
CPH	CHEMICAL FUME HOOD	NC	NORMALLY CLOSED	TCC	TEMPERATURE CONTROLS CONTRACTOR
CI	CAST IRON	NIC	NOT IN CONTRACT	(TYP)	TYPICAL
(O)	DEMOLISH & REMOVE	NO	NORMALLY OPEN	UF	UNDER FLOOR
DAO	DUCT ACCESS DOOR	NTS	NOT TO SCALE	UC	UNDER GROUND
(E)	EXISTING	OA	OUTSIDE AIR	V	VALVES
EA	EXHAUST AIR	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED	VP	VITRIFIED CLAY PIPE
EC	ELECTRICAL CONTRACTOR	PC	PLUMBING CONTRACTOR	WDF	VARIABLE FREQUENCY DRIVE
(F)	FUTURE	PVC	POLYVINYL CHLORIDE	VTR	VENT THRU ROOF
				WAO	WALL ACCESS DOOR

GENERAL LEGEND					
(Not all symbols listed below are used on these drawings)					
ABBR.	SYMBOL	DESCRIPTION	ABBR.	SYMBOL	DESCRIPTION
		CAP END OF PIPE	EJ		EXPANSION JOINT
		SLOPED PIPE IN DIRECTION OF ARROW	BJ		BALL JOINT EXPANSION COMPENSATOR
		PIPE ANCHOR			SOLENOID VALVE
		PIPE ALIGNMENT GUIDE			HOSE END DRAIN VALVE
		UNION OR FLANGE	P/T		PRESSURE/TEMPERATURE TAP
		CONCENTRIC PIPE REDUCER			STRAINER
		ECCENTRIC PIPE REDUCER			STRAINER W/ BLOWDOWN VALVE
PRV		PRESSURE REDUCING VALVE			FLEXIBLE PIPE CONNECTOR
PRV		PRESSURE AND/OR TEMP. RELIEF VALVE			THERMOMETER
BC		BALANCING VALVE			CEILING ACCESS PANEL
GV		GATE VALVE			PUMP
GV		GLOBE VALVE			PRESSURE GAUGE
BPV		BUTTERFLY VALVE	TB		THRUST BLOCK
BV		BALL VALVE			DIRECTION OF FLOW IN PIPE
CV		CHECK VALVE			DIAMETER
FM		FLOW METER			POINT OF CONNECTION, NEW TO EXISTING
CBV		CALIBRATED BALANCE VALVE			(E) MECHANICAL TO BE REMOVED
		PIPE UP AND PIPE DN.			VALVE IN RISER (UP/DN)
		BRANCH TEE TOP TAKE-OFF			BRANCH TEE BOTTOM TAKE-OFF

REFERENCE SYMBOLS			
(Not all symbols listed below are used on these drawings)			
①	KEY NOTE DESIGNATION		RISER DIAGRAM NUMBER SHEET RISER IS DRAWN ON
△	REVISION TAG DESIGNATION		SECTION DESIGNATION SECTION DRAWN ON THIS SHEET
ⓂP-1	ELECTRICALLY FINISHED MECHANICAL EQUIPMENT DESIGNATION		
XX-#	MECHANICAL EQUIPMENT DESIGNATION		SECTION CUT ON THIS SHEET
SUPPLEMENTARY SYMBOLS			
(Not all symbols listed below are used on these drawings)			
_____	EXISTING CONDITION UNDERWRIGHT		
_____	NEW WORK UNDERWRIGHT		

PLUMBING DRAWING INDEX	
SHEET NO.	SHEET TITLE
P-001	LEGENDS AND GENERAL NOTES
P-002	PLUMBING SCHEDULES
PD-101	LEVEL P1 – PLUMBING DEMOLITION PLAN
PD-102	LEVEL P2 – PLUMBING DEMOLITION PLAN
P-101	LEVEL P1 – PLUMBING PLAN
P-102	LEVEL P2 – PLUMBING PLAN
P-500	PLUMBING DETAILS

PLUMBING LEGEND

(Not all symbols listed below are used on these drawings)

ABBR.	SYMBOL	DESCRIPTION	ABBR.	SYMBOL	DESCRIPTION
CW	— — — — —	DOMESTIC COLD WATER PIPING	G	— G (X4 PIP) — (X" W.C.)	NATURAL GAS PIPING
HW	— — — — —	DOMESTIC HOT WATER PIPING	RDL	— — — — —	ROOF DRAIN PIPING
HWC	— — — — —	DOMESTIC HOT WATER CIRC. PIPING	OIL	— — — — —	OVERFLOW DRAIN PIPING
C-SW	— — — — — SW — — — — —	SOFTENED DOMESTIC COLD WATER PIPING	SCO	⊕	SURFACE CLEANOUT
H-SW	— — — — — SW — — — — —	SOFTENED DOMESTIC HOT WATER PIPING	FCO	⊙	FLOOR CLEANOUT
140° HW	— — — — — 140° — — — — —	DOM. HOT WATER PIPING @ TEMP. SHOWN	WCO	○ — H —	WALL CLEANOUT
V	— — — — —	VENT PIPING	COT	○ — I —	CLEANOUT TEE
AV	— — — — — AV — — — — —	ACID RESISTANT VENT PIPING	LCO	— — — — —	LINE CLEANOUT
HPCW	— — — — — WP — — — — —	NON-POTABLE DOMESTIC COLD WATER PIPING	OC	— — — — —	FIXTURE OR DRAIN P-TRAP
W	— — — — — WL — — — — —	WASTE PIPING (ABOVE FLOOR IN BUILDING)	AO	○	AREA DRAIN
AW	— — — — — WL — — — — —	ACID RESISTANT WASTE PIPING (ABOVE FLOOR IN BUILDING)	FD	○	FLOOR DRAIN (ROUND GRATE)
ABO	— — — — — ABO — — — — —	ACID RESISTANT BUILDING SEWER PIPING (BELOW GRADE OUTSIDE BUILDING)	FS	⊞	FLOOR SINK (SQUARE GRATE)
ABS	— — — — — ABS — — — — —	ACID RESISTANT BUILDING SEWER PIPING (BELOW GRADE OUTSIDE BUILDING)	RO/POD	⊙	ROOF DRAIN OR OVERFLOW DRAIN
BO	— — — — — BO — — — — —	BUILDING SEWER (BELOW GRADE OUTSIDE BUILDING)	GP	— — — — —	GAS PRESSURE REDUCING VALVE
BS	— — — — — BS — — — — —	BUILDING SEWER (BELOW GRADE OUTSIDE BUILDING)	SA	↓	SHOCK ABSORBER
SD	— — — — — SD — — — — —	STORM DRAIN PIPING (BELOW GRADE OUTSIDE BUILDING)	GC	— — — — —	GAS SHUT-OFF VALVE
ST	— — — — — ST — — — — —	STORM SEWER PIPING (BELOW GRADE OUTSIDE BUILDING)	H <sub>2</sub>	⊞	STOP AND DRAIN VALVE
S	— — — — — S — — — — —	SANITARY SEWER PIPING (BELOW GRADE OUTSIDE BUILDING)	H <sub>2</sub> /NH	→	HOSE EBBY/ WALL TIRANT
D	— — — — — DL — — — — —	INDIRECT DRAIN PIPING	YH	⊞	YARD TIRANT
HW	— — — — — WL — — — — —	INDIRECT WASTE PIPING	BFP	— — — — —	ATMOSPHERIC BACKFLOW PREVENTER
PWD	— — — — — PWD — — — — —	PUMP WASTE DISCHARGE PIPING	BFP	— — — — —	PRESSURE DIFFERENTIAL BACKFLOW PREVENTER
GO	— — — — — GO — — — — —	GREASE DRAIN (WASTE LINE TO GREASE INTERCEPTOR)	U	U	WATER METER
SSD	— — — — — SSD — — — — —	SUB-SURFACE DRAIN PIPING	N	N	GAS METER

DEMOLITION GENERAL NOTES

- TAG AND RETURN ALL (E) FIXTURES AND TRIM TO THE OWNER IN GOOD CONDITION.
- REPORT ANY (E) DAMAGED EQUIPMENT AND/OR DEVICES TO THE OWNER IN WRITING PRIOR TO STARTING ANY WORK.
- COORDINATE EXTENT OF DEMOLITION WITH (N) WORK. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO DEMOLITION.

GENERAL PLUMBING NOTES

- CONTRACTOR SHALL NOT SHUT-OFF PUT OUT OR SERVICE ANY SYSTEM/ SERVICES WITHOUT FIRST COORDINATING WITH OWNER.
- CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS AND DISCREPANCIES PRIOR TO DEMOLITION. SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES FOR RESOLUTION.
- THE CONTRACTOR SHALL COORDINATE LOCATIONS OF PIPING WITH OTHER TRADES AND ADVISE ARCHITECT/ENGINEER OF ANY POSSIBLE CONFLICTS. VERIFY EXACT LOCATIONS, ELEVATIONS AND DIMENSIONS OF STRUCTURAL MEMBERS AND OPENINGS.
- SEE PLUMBING FIXTURE CONNECTION SCHEDULE FOR PIPING SIZES TO INDIVIDUAL PLUMBING FIXTURES.
- COORDINATE ALL WALL CLEANOUT (WCO) LOCATIONS WITH ARCHITECT FINISHES AND EQUIPMENT.
- SEAL ALL PIPE PENETRATIONS THROUGH FIRE RATED WALLS AND CEILING WITH APPROVED FIRE PROOF MATERIALS AS SPECIFIED.

GENERAL CONSTRUCTION NOTES

- CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING OF WORK AREAS PRE-CONSTRUCTION AND POST-CONSTRUCTION.
- PRIOR TO START OF WORK, CONTRACTOR SHALL LOCATE AND VERIFY ALL STRUCTURAL AND MEP SYSTEMS BELOW SLABS AND IN AFFECTED WALLS. PROVIDE GPR SCANNING, ETC. PRIOR TO CONCRETE DEMOLITION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF ALL EXISTING CONSTRUCTION MATERIALS AND DEBRIS TO NEAREST DUMPSTERS, ETC. AS NEEDED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING COORDINATE AND SCHEDULE ALL REQUIRED SHUT-DOWNS OR OUTAGES OF ELEVATOR SYSTEMS WITH OJ-GENER FACILITY MANAGER AND ELEVATOR VENDOR. — THYSSENKRUPP, ANDREW GRAM — (720) 274-2420
- COORDINATE NEW CONCRETE FINISHES TO MATCH EXISTING.
- PROVIDE RE-STRIPE OF PARKING AREAS AS NEEDED.
- REPLACE ALL INTERIOR FINISHES INCLUDING FLOOR COVERINGS, PAINT, DRY-WALL, ETC. THAT ARE DAMAGED DURING CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL PROVIDE ALL TRAFFIC CONTROL MANAGEMENT (VEHICLE AND PEDESTRIAN) AS NEEDED, INCLUDING BUT NOT LIMITED TO PERMITTING, FEES, TRAFFIC CONTROL DEVICES, ETC. TO COORDINATE CONSTRUCTION ACTIVITIES.
- CAREFULLY COORDINATE ALL CONSTRUCTION ACTIVITIES WITH ALL CITY, COUNTY AND JUDICIAL AGENCIES AND DENVER POLICES PERTAINING TO OUTAGE REQUESTS, ETC.

BUSINESS SCHOOL - LEVEL P2 DRAIN REPLACEMENT  
1475 LAWRENCE STREET, DENVER, CO

SBEC Project #: 220004  
Scale: AS SHOWN  
Drawn By: THADRP  
Designed By: DH  
Checked By: GS

Issued For: 10/24/2022  
Date: 10/24/2022  
\_\_\_\_\_

LEGENDS AND GENERAL NOTES  
P-001

NOTE:  
EXISTING CONDITIONS ARE SHOWN WITH LIGHT LINE WEIGHT.  
NEW WORK INCLUDED IN THIS CONTRACT IS SHOWN WITH HEAVY LINE WEIGHT.

NOTE:  
EXISTING CONDITIONS SHOWN AS EXISTING CONDITIONS WAS TAKEN FROM OWNER FURNISHED DRAWINGS BY SHAFER BAUMCOM ENGINEERING & CONSULTING. THE CONTRACTOR SHALL VERIFY THE ACCURACY OF ANY INFORMATION OF THE ADEQUACY, SAFETY AND CONFORMANCE TO THE PROJECT. ANY DISCREPANCIES SHALL BE SHOWN AS EXISTING ON THE DOCUMENTS.

THE ORIGINAL OF THIS DRAWING IS 36" X 48". IF THIS COPY IS ANY OTHER SIZE, IT HAS EITHER BEEN REDUCED OR ENLARGED.



PLUMBING FIXTURE SCHEDULE

DESC.	DESCRIPTION	MANUFACTURER	MODEL #	COLOR OR MATERIAL	FITTINGS	MANUFACTURER	MODEL #	MATERIAL OR FINISH	ROUGH-IN CONNECTIONS					CPM/GSF	ICC/ANSI 117.1 COMPLIANT	REMARKS
									P-TRAP	WASTE	VENT	CW	HW			

AD-1	AREA DRAIN	J.R. SMITH	FIG. 2142	CAST IRON	TRAFFIC RATED GRATING	J.R. SMITH	----	CAST-IRON	---	4"	---	---	---	---	---	
TD-1	TRENCH DRAIN	J.R. SMITH	FIG. 2710	CAST IRON	TRAFFIC RATED GRATING	J.R. SMITH	----	CAST-IRON	---	4"	---	---	---	---	---	
SOD-1	SURFACE CLEAN OUT	J.R. SMITH	4253-U	CAST IRON	TRAFFIC RATED COVER	J.R. SMITH	----	CAST-IRON	---	4"	---	---	---	---	---	

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

BUSINESS SCHOOL - LEVEL P2 DRAIN REPLACEMENT  
1475 LAWRENCE STREET, DENVER, CO

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SBEC Project #: 220004  
Scale: AS SHOWN  
Drawn By: TMH/DRP  
Designed By: DH  
Checked By: GS

Issued For: \_\_\_\_\_  
Date: 05/27/2022  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_

PLUMBING SCHEDULES

P-002

NOTE: THE WORK SHOWN AS EXISTING CONDITIONS WAS TAKEN FROM OWNER FURNISHED DRAWINGS BY SHAFER BAUCOM ENGINEERING & CONSULTING. THE CONTRACTOR SHALL VERIFY THE ACCURACY OF ANY INFORMATION OF THE ADEQUACY, SAFETY AND CONFORMANCE TO THE LOCAL CODES AND REGULATIONS. THE WORK SHOWN AS EXISTING ON THE DOCUMENTS.

NOTE: EXISTING CONDITIONS ARE SHOWN WITH LIGHT LINE WEIGHT. NEW WORK INCLUDED IN THIS CONTRACT IS SHOWN WITH HEAVY LINE WEIGHT.

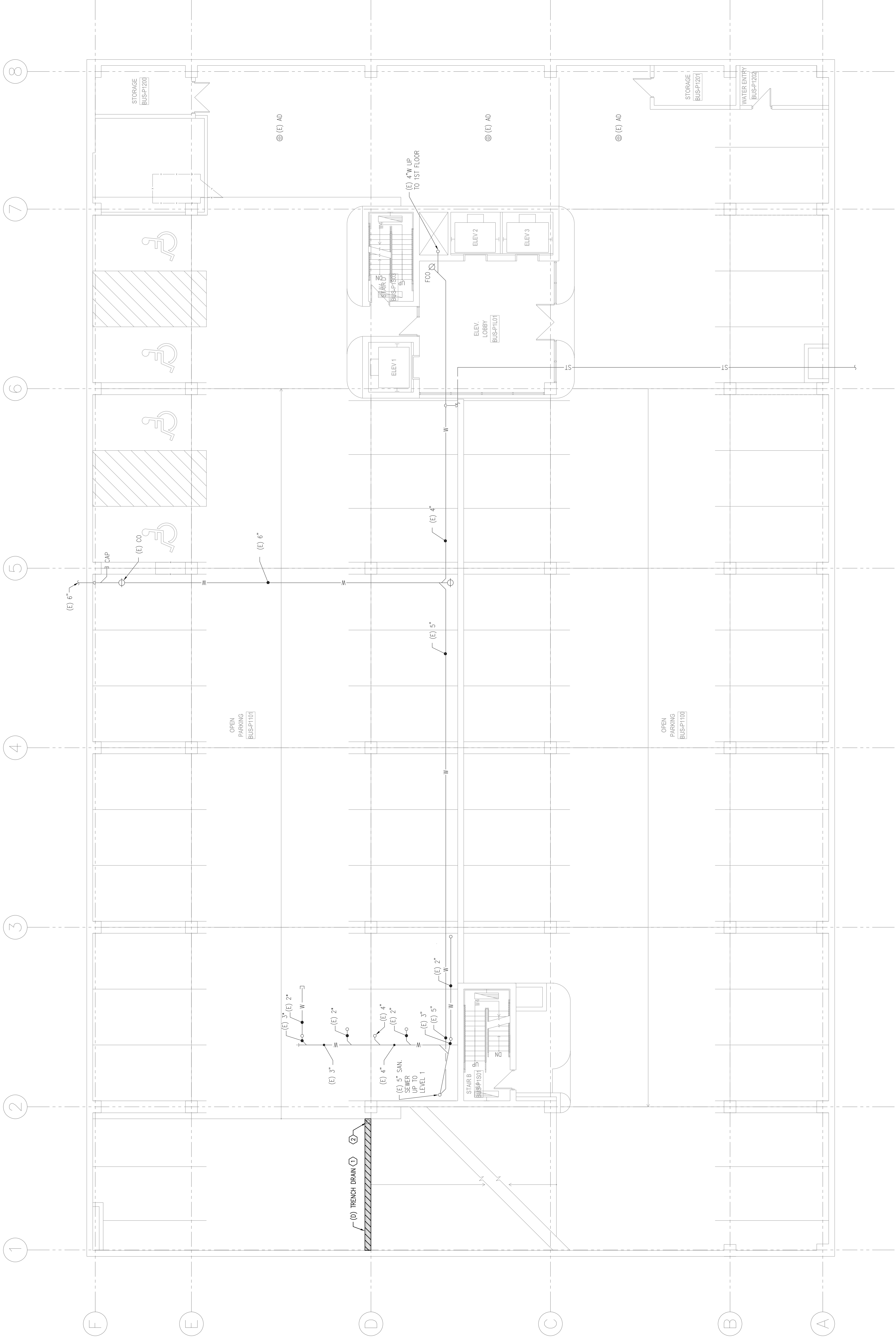
THE ORIGINAL OF THIS DRAWING IS 8 1/2" X 4 1/2". IF THIS COPY IS ANY OTHER SIZE, IT HAS EITHER BEEN REDUCED OR ENLARGED.

GENERAL PLUMBING NOTES

1. FOR GENERAL NOTES REFER TO SHEET P-001.

KEY NOTES

- ① REMOVE (E) TRENCH DRAIN IN LOCATION INDICATED. MAKE (E) ROUGH-IN READY FOR RE-USE IN (N) WORK.  
② REMOVE (E) 4" SD PIPING RISER IN LOCATION INDICATED. RE: P100Z FOR CONTINUATION.



LEVEL P1 - PLUMBING DEMOLITION PLAN  
SCALE: 1/8" = 1'-0"

SBEC Project #:	22004
Scale:	AS SHOWN
Drawn By:	THDRP
Designed By:	DH
Checked By:	GS

Issued For:	Date:
10/1/20	05/27/2022

LEVEL P1 - PLUMBING  
DEMOLITION PLAN

PD-101

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NOTE: EXISTING CONDITIONS ARE SHOWN WITH LIGHT LINE WEIGHT. NEW WORK INCLUDED IN THIS CONTRACT IS SHOWN WITH HEAVY LINE WEIGHT.

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THE ORIGINAL OF THIS DRAWING IS 8" X 42". IF THIS COPY IS ANY OTHER SIZE, IT HAS EITHER BEEN REDUCED OR ENLARGED.



1. FOR GENERAL NOTES REFER TO SHEET P-001.



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12499 West Colfax Avenue  
Lakewood, CO 80215  
303-431-8100

1475 LAWRENCE STREET, DENVER, CO

Scale:  
Drawn By:  
Designed By:  
Checked By:

Issued For:  
100% CD

<p><b>NOTE:</b></p> <p>EXISTING CONDITIONS ARE SHOWN WITH LIGHT LINE WEIGHT.</p>	<p><b>NOTE:</b></p> <p>THIS WORK SHOWN AS EXISTING CONDITIONS WAS TAKEN FROM OWNER FURNISHED DRAWINGS FOR CONSULTING. (SHEQ) IS NOT RESPONSIBLE FOR THE ACCURACY OF ANY INFORMATION OR THE ADEQUACY, SAFETY, AND PERFORMANCE TO CURRENT PREVAILING CODES OF ANY WORK SHOWN AS EXISTING ON THE DOCUMENTS.</p>
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GENERAL PLUMBING NOTES

1. FOR GENERAL NOTES REFER TO SHEET P-001.

KEY NOTES

- ① ROUTE (N) 4" SD DN. RE. P102 FOR CONTINUATION.  
② REPAIR AND REFINISH (E) AD IN LOCATION SHOWN. PROVIDE 1/2" CLEAN (E) PIPING. VERIFY FULL FLOW OF PIPE UPON COMPLETION. (E) AD SHALL BE REFINISHED TO MATCH EXISTING. REPLACE (E) DRAIN WITH (N) AD-1 IF DRAIN IS FOUND TO BE DAMAGED OR UNSUITABLE FOR REUSE.  
③ PROVIDE (N) TD-1 IN LOCATION SHOWN. MODIFY (E) ROUGH-IN AS REQUIRED TO ACCOMMODATE (N) FIXTURE. COORDINATE PATCH AND REPAIR OF (E) CONCRETE SLAB WITH G.C.



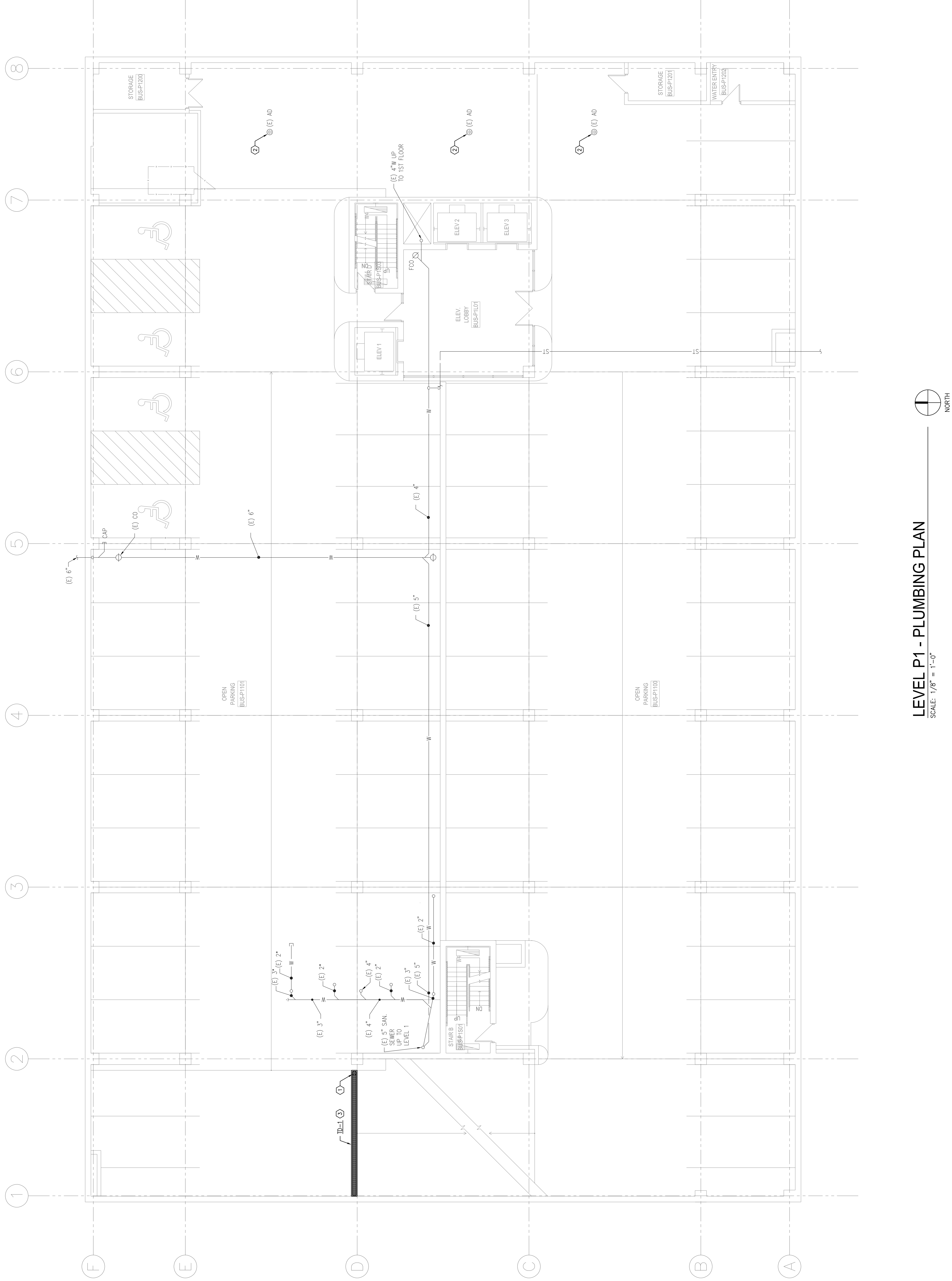
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BUSINESS SCHOOL - LEVEL P2 DRAIN REPLACEMENT  
1475 LAWRENCE STREET, DENVER, CO

SBEC Project #: 220004  
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Issued For: 10/24/23  
Date: 05/27/2023

LEVEL P1 - PLUMBING PLAN  
P-101  
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1. FOR GENERAL NOTES REFER TO SHEET P-001.



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**ELECTRICAL:**  
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Lakewood, CO 80215  
303-431-8100

1475 LAWRENCE STREET, DENVER, CO

SBEC Project #:  
Scale:  
Drawn By:  
Designed By:  
Checked By:

Issued For: 100% CD  
Date: 05/27/2022

P-102

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- ① ELEVATION (M) AD-1 IN LOCATION SHOWN. COORDINATE INVERT. SLOPE TO BE SHOWN. VERIFY FLOW THROUGH TO START OF WORK. SLOPE TO BE SHOWN.
- ② ROUTE (N) SD PIPING IN (E) TRENCH. RE- DEMOLITION PLANS. COORDINATE (N) PIPE ROUTING WITH (E) STRUCTURE. TERMINATE AT (E) SD IN LOCATION SHOWN.
- ③ EXTEND AND CONNECT (N) 4" SD PIPING TO (E) SD PIPING IN LOCATION SHOWN. VERIFY FLOW THROUGH PIPING.
- ④ EXTEND AND CONNECT (N) 4" SD PIPING TO (E) SD PIPING ENTER IN LOCATION SHOWN. ROUTE PIPING AS INDICATED.
- ⑤ LOCATION OF (N) SD CONVECT TO (N) SD PIPING AND ROUTE AS INDICATED. COORDINATE INVERT ELEVATION WITH POINT OF CONNECTION PRIOR TO START OF WORK. PROVIDE UNIT PRICING FOR REPLACEMENT OF (E) DRAIN WITH (N) SD PIPING. PIPING TO BE DUMPED ON UNSUITABLE FOR REUSE.
- ⑥ PROVIDE (N) 16" X 16" X 4" DEPRESSION IN (E) CONCRETE SLAB TO ACCOMMODATE (N) SD CONVECT. PROVIDE (N) SD CONVECT CONDITIONS. PROVIDE (N) WATER DETECTION SENSOR AND 1/2" CONDITON (RE. SPEC'S) ROUTE (N) SIGNAL CABLE TO (E) TO CONVECT. PROVIDE (N) 1/2" CONDITON (RE. SPEC'S) PROVIDE (N) 1/2" CONDITON (RE. SPEC'S) SYSTEM PER SUB-DOWNER CONSTRUCTION GUIDELINES. COORDINATE ELEVATION SUB-DOWNER WITH (N) SUB-DOWNER AND THYSENKORPPI (ELEVATOR VENDOR) REPRESENTATIVES.
- ⑦ CLEAN AND SERVICE (E) SD IN LOCATION SHOWN. VERIFY FLOW THROUGH TO START OF WORK. SLOPE TO BE SHOWN. REPAIR OR REPLACE EQUIPMENT AS REQUIRED.
- ⑧ APPROPRIATE EVID OF SNAI CUTTING REQUIRED. VERIFY ROUTING WITH GPS SURVEYING PRIOR TO START OF WORK.
- ⑨ GENERAL CONTRACTOR SHALL PROVIDE ROUGH-IN FOR MOISTURE SENSORS TO (E) CONTROL PANELS IN LOCATION INDICATED IN (E) TRENCH. PROVIDE (N) SIGNAL WIRING AND CONNECTIONS TO BAS SYSTEM AS REQUIRED. PROVIDE (N) SIGNAL WIRING AND CONNECTIONS TO BAS SYSTEM NECESSARY TO ACCOMMODATE (N) CONNECTIONS.



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



**NOTE:**  
EXISTING CONDITIONS ARE SHOWN WITH LIGHT  
LINE WEIGHT.  
NEW WORK INCLUDED IN THIS CONTRACT IS  
SHOWN WITH HEAVY LINE WEIGHT.

THE ORIGINAL OF THIS DRAWING IS 20" X 12". IF THIS COPY IS ANY OTHER SIZE IT HAS EITHER BEEN REDUCED OR ENLARGED



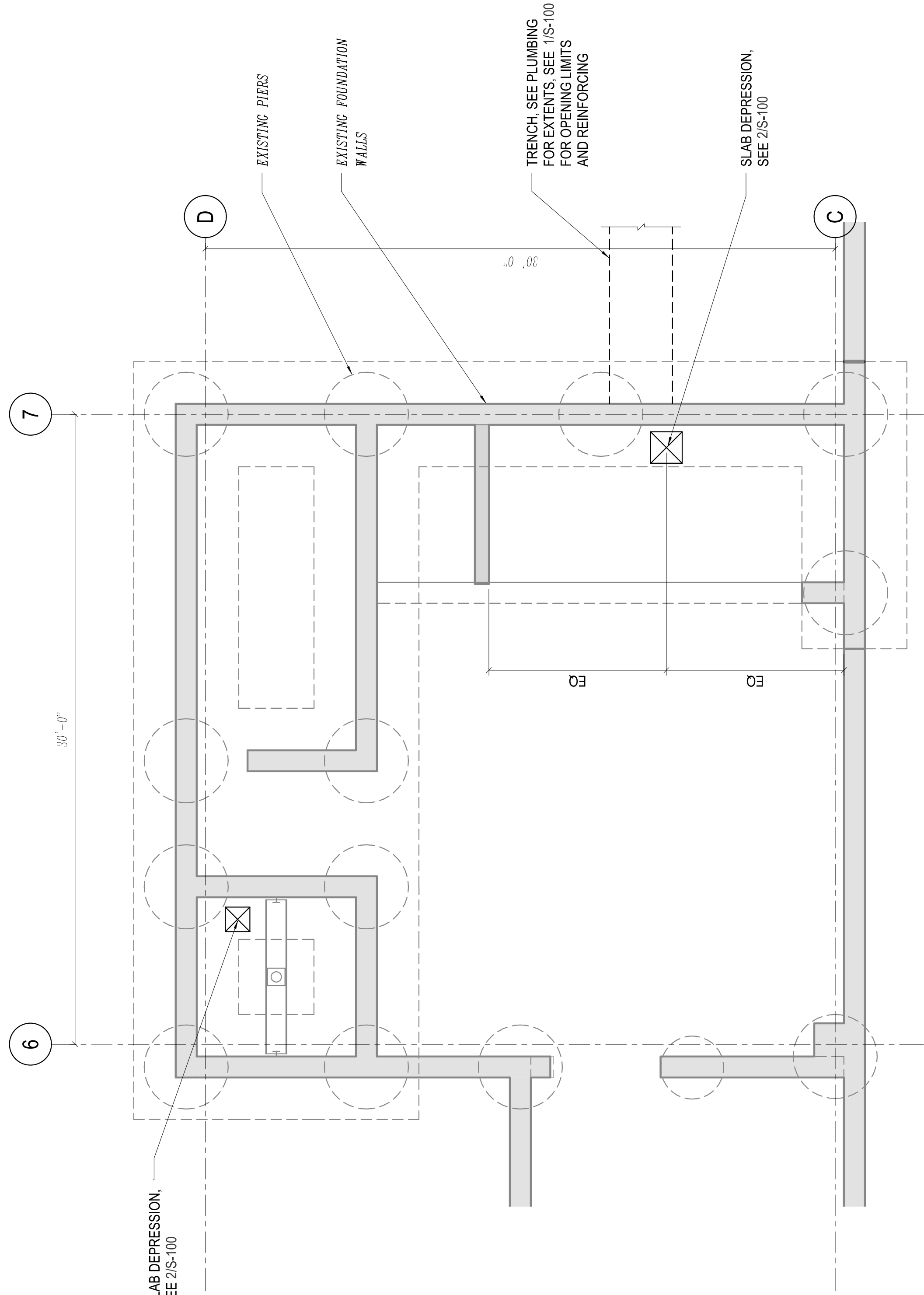




DESIGN CRITERIA																																		
1. CODES AND STANDARDS: 1A) GENERAL DESIGN <ul style="list-style-type: none"><li>- INTERNATIONAL BUILDING CODE 2018 WITH 2019 CITY AND COUNTY OF DENVER AMENDMENTS</li></ul>																																		
2. SEISMIC LOADS <ul style="list-style-type: none"><li>- THE WORK SHOWN ON THESE DRAWINGS DOES NOT INCREASE THE EXISTING LATERAL LOADS ACTING ON THE STRUCTURE OR ALTER THE EXISTING LATERAL SYSTEM.</li></ul>																																		
3. WIND LOADS <ul style="list-style-type: none"><li>- THE WORK SHOWN ON THESE DRAWINGS DOES NOT INCREASE THE EXISTING LATERAL LOADS ACTING ON THE STRUCTURE OR ALTER THE EXISTING LATERAL SYSTEM.</li></ul>																																		
4. GRAVITY LOADS 4A) SEE GRAVITY LOADS TABLE																																		
<table><tr><th colspan="5">GRAVITY LOADS</th></tr><tr><th>LOCATION</th><th>SUPERIMPOSED DEAD LOAD (PSF)</th><th>LIVE LOAD (PSF)</th><th>PARTITION LOAD (PSF)</th><th>POINT LOAD (LB)</th></tr><tr><td>CONSTRUCTION LOAD</td><td>[+]</td><td>20</td><td>NO</td><td>-</td></tr><tr><td>GARAGE (PASSENGER VEHICLES)</td><td>[+]</td><td>40</td><td>NO</td><td>-</td></tr><tr><td></td><td></td><td></td><td></td><td>2000</td></tr><tr><td></td><td></td><td></td><td></td><td>3000</td></tr></table>					GRAVITY LOADS					LOCATION	SUPERIMPOSED DEAD LOAD (PSF)	LIVE LOAD (PSF)	PARTITION LOAD (PSF)	POINT LOAD (LB)	CONSTRUCTION LOAD	[+]	20	NO	-	GARAGE (PASSENGER VEHICLES)	[+]	40	NO	-					2000					3000
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CONCRETE NOTES																																		
1. GENERAL: 1A) ALL WORK SHALL CONFORM WITH ACI 301, LATEST EDITION UNLESS NOTED OTHERWISE IN DRAWINGS OR PROJECT SPECIFICATIONS. 1B) DETAIL BARS IN ACCORDANCE WITH THE DRAWINGS, PROJECT SPECIFICATIONS, AND ACI PUBLICATION SP-66 (2004); "ACI DETAILING MANUAL."																																		
2. REINFORCING MATERIALS: - TYPICAL REINFORCING: ASTM A615, Fy = 60 ksi, Fu = 90 ksi - WELDED AND FIELD BENT REINFORCING: ASTM A706, Fy = 60 ksi, Fu = 80 ksi - WELDED WIRE REINFORCING, SMOOTH: ASTM A1064, Fy = 65 ksi, Fu = 75 ksi																																		
3. REINFORCING FABRICATION: 3A) NO SPLICING OF REINFORCEMENT IS PERMITTED EXCEPT AS NOTED ON DRAWINGS. MAKE BARS CONTINUOUS AROUND CORNERS. WHERE PERMITTED, SPLICES MAY BE MADE BY CONTACT LAPS. 3B) MISCELLANEOUS REINFORCING REQUIREMENTS: <ul style="list-style-type: none"><li>- PROVIDE ADDITIONAL BARS OR STIRRUPS REQUIRED TO SECURE REINFORCING IN PLACE DURING CONCRETE PLACEMENT.</li><li>- MAKE ALL REINFORCING BAR BENDS IN THE FABRICATOR'S SHOP UNLESS NOTED.</li><li>- NO WELDING OF REINFORCING PERMITTED UNLESS NOTED ON DRAWINGS. WHERE PERMITTED, PERFORM WELDING IN ACCORDANCE WITH AWS D1.4, LATEST EDITION.</li></ul>																																		
4. STRUCTURAL CONCRETE MIX REQUIREMENTS: 4A) NORMAL WEIGHT CONCRETE, % (B67 AGGREGATE) MAXIMUM. 4B) 28 DAY COMPRESSIVE STRENGTH: 4,500 KSI. 4C) MAXIMUM WATER/CEMENTITIOUS RATIO: 0.40. 4D) TOTAL AIR CONTENT INCLUDING ENTRAINED AND ENTRAPPED AIR: 5% MINIMUM, 7.5% MAXIMUM. 4E) MAXIMUM CHLORIDE ION LIMIT: 0.15. 4F) MAXIMUM FLY ASH CONTENT: 25% BY WEIGHT OF CEMENTITIOUS MATERIALS. 4G) PROVIDE 1.5 BAGS (7.5 POUNDS) PER CUBIC YARD OF NOVOMESH 950 FIBERS, AS MANUFACTURED BY PROPEX, CHATTANOOGA, TN OR APPROVED EQUAL CORPORATION, RICHMOND, BC, CANADA OR APPROVED EQUAL. 4H) PROVIDE 2%-3% BY WEIGHT OF CEMENT CONTENT OF XYPEX/ADMIX C-500/C-500 NF OR C-1000/C-1000 NF, AS MANUFACTURED BY XYPEX CHEMICAL CORPORATION, RICHMOND, BC, CANADA OR APPROVED EQUAL. 4I) MUST HAVE WORKABILITY AND CONSISTENCY TO PERMIT CONCRETE TO BE WORKED READILY INTO FORMS AND AROUND REINFORCEMENT UNDER CONDITIONS OF PLACEMENT TO BE EMPLOYED, INCLUDING PUMPING, WITHOUT SEGREGATION OR EXCESSIVE BLEEDING. CONTRACTOR SHALL SELECT APPROPRIATE SLUMP. USE ADMIXTURES AS REQUIRED TO OBTAIN DESIRED RESULTS. 4J) USE TYPE III PORTLAND CEMENT.																																		
5. PLACING REINFORCEMENT: 5A) REINFORCEMENT PROTECTION: SEE REBAR COVER TABLE. 5B) SEE ACI 318-05 7.5 FOR REINFORCEMENT PLACING TOLERANCES AND ACI 117 FOR ADDITIONAL REQUIREMENTS 5C) PROVIDE ACCESSORIES NECESSARY TO PROPERLY SUPPORT REINFORCING AND WELDED WIRE FABRIC AT POSITIONS SHOWN ON PLANS. ALL REINFORCING, DOWELS, BOLTS, AND EMBEDDED PLATES SHALL BE SET AND TIED IN PLACE BEFORE THE CONCRETE IS POURED. "STABBING" INTO PREVIOUSLY PLACED CONCRETE IS NOT PERMITTED. 5D) CONSTRUCTION JOINTS: - ALL REPAIR SURFACES SHALL BE MECHANICALLY ROUGHENED TO A 1/4" AMPLITUDE AND THOROUGHLY CLEANED. EXPOSE THE COARSE AGGREGATE IN THE HARDENED CONCRETE AND REMOVE ALL LOOSE MATERIAL.																																		
SPECIAL INSPECTION NOTES																																		
1. SPECIAL INSPECTION: 1A) SPECIAL INSPECTION AND TESTING SHALL BE PROVIDED PER IBC 2018 SECTIONS 110 AND 1704. THE LIST BELOW IS A SUMMARY OF REQUIRED TESTS. 2. CONCRETE: 2A) STRUCTURAL CONCRETE <ul style="list-style-type: none"><li>- REINFORCING STEEL PLACEMENT</li><li>- FIELD BENDING OF REINFORCING STEEL</li><li>- REBAR AND ANCHORS INSTALLED INTO HARDENED CONCRETE</li><li>- COMPRESSIVE STRENGTH TESTS PER ASTM C31 AND C39</li></ul>																																		

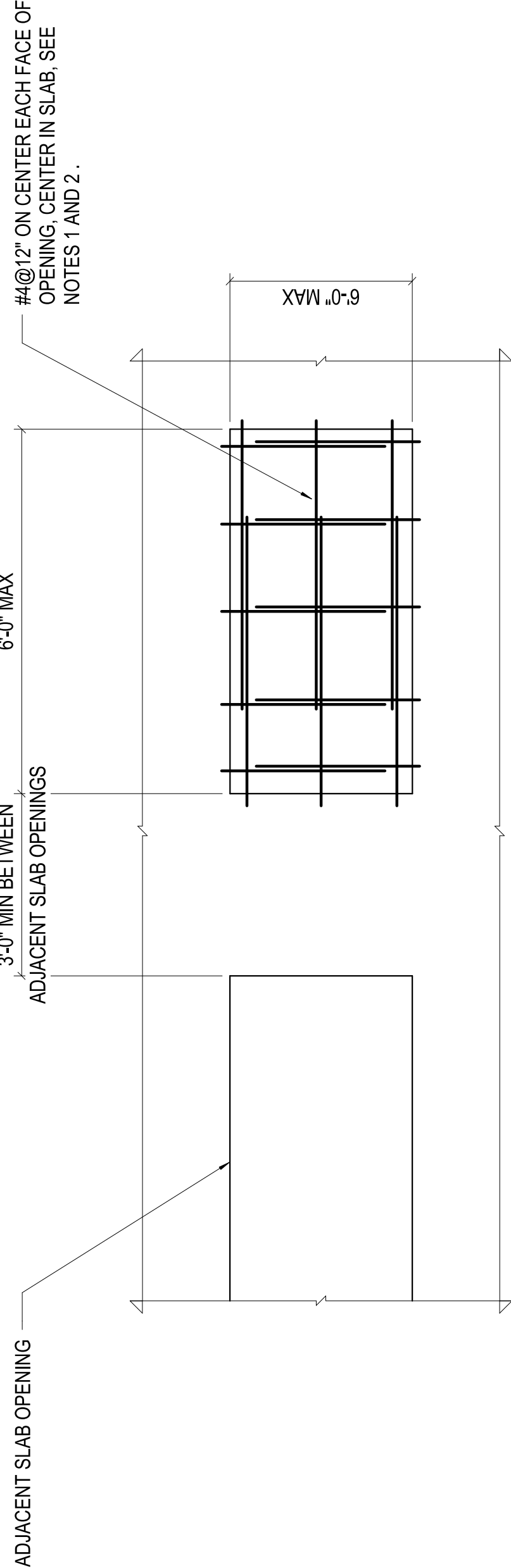
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DATE PRINTED: 6/11/2022 12:51 PM  
FILE PATH: G:\PROJECTS\22-0469.S\1-1475 Lawrence Street Parking Garage Drainage Improvements\BIM\22-0469.S\01-1475 Lawrence Street Parking Garage Drainage Improvements.dwg  
PROJECT MANAGER: Matt Schneider  
EPOCH: KWH, Matt Schneider

MM JOB # 22-0469.S\01  
PROJECT MANAGER: Matt Schneider  
EPOCH: KWH, Matt Schneider



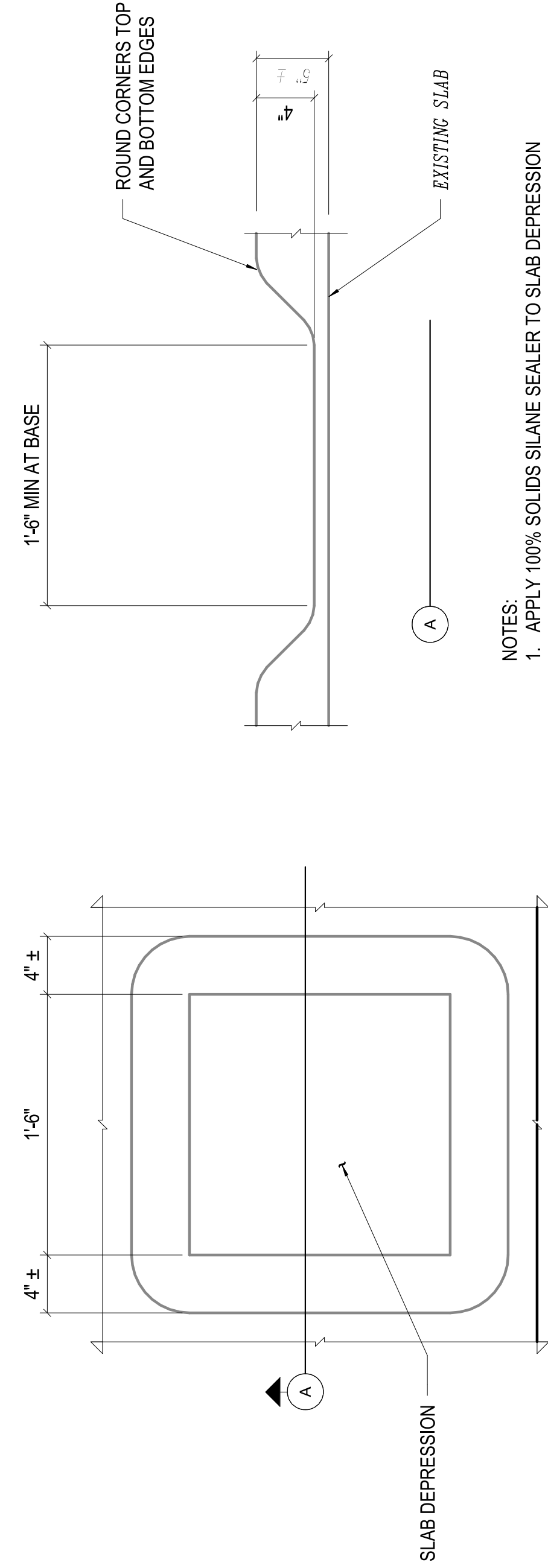
LEVEL P-2 - PARTIAL PLAN

1/4" = 1'-0"



- NOTES:
1. ANCHOR REINFORCING TO SLAB, USING HLT EPOXY ADHESIVE. PROVIDE 2" MINIMUM EMBEDMENT INTO EXISTING SLAB.
  2. LAP REINFORCING 1.5' MINIMUM.
  3. INFILL SLAB WITH CONCRETE. SEE CONCRETE NOTES ON THIS SHEET.

1 NO SCALE SLAB REMOVAL AND INFILL



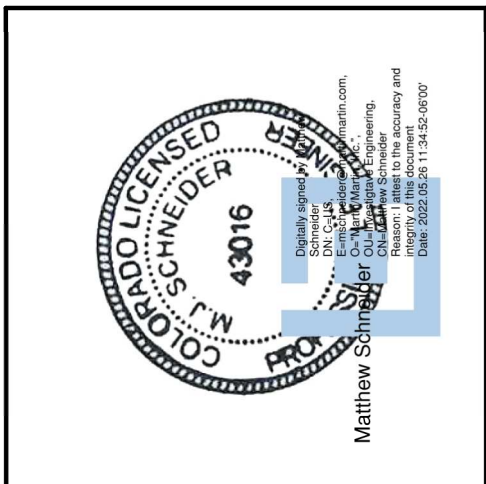
- NOTES:
1. APPLY 100% SOLIDS SILANE SEALER TO SLAB DEPRESSION

2 1 1/2" = 1'-0" SLAB DEPRESSION

NOTE:  
EXISTING CONDITIONS ARE SHOWN WITH LIGHT LINE WEIGHT.  
NEW WORK INCLUDED IN THIS CONTRACT IS SHOWN WITH HEAVY LINE WEIGHT.

NOTE:  
THIS WORK SHOWN AS EXISTING CONDITIONS WAS TAKEN FROM OWNER FURNISHED DRAWINGS BY SHAFFER BALCOM ENGINEERING. AS SHOWN FOR INFORMATION ONLY. FOR THE ADEQUACY, SAFETY AND PERFORMANCE, THE USER SHALL CONSULT THE ORIGINAL WORK SHOWN AS EXISTING ON THE DOCUMENTS.

THE ORIGINAL OF THIS DRAWING IS 39" X 42". IF THIS COPY IS ANY OTHER SIZE, IT HAS EITHER BEEN REDUCED OR ENLARGED.



MECHANICAL: Shaffer + Balcom Engineering & Consulting  
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ARCHITECT:

STRUCTURAL:

PARKING GARAGE DRAINAGE IMPROVEMENTS  
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SBEC Project #:  
Scale: As Indicated  
Drawn By: SD  
Designed By: MS  
Checked By: KD

Issued For:  
Project Status: 100% CD's  
Issue Date: 05/27/2022

PARTIAL PLANS, DETAILS AND NOTES

S-100