

DATE: MARCH 27, 2024

PROJECT

AIR CITY GARAGE
27 S. JEFFERSON STREET
DAYTON, OH 45402

PREPARED BY :
STRUCTURAL ENGINEER

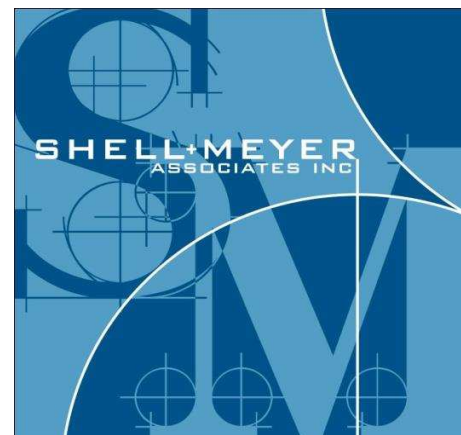


SHELL + MEYER
ASSOCIATES INC
STRUCTURAL ENGINEERS
2202 S PATTERSON BLVD
DAYTON, OH 45409.1930
PH. 937.298.4631
GREG.KLOSTERMAN@SHELLANDMEYER.COM
RICHARD.MEYER@SHELLANDMEYER.COM

PREPARED FOR:
model group
1826 RACE STREET
CINCINNATI, OH 45202



SMA JOB NUMBER : 24.200.020 (ORIGINAL 19.200.154)



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ORIGINAL REPORT – To Obtain Original Report

Email: richard.meyer@shellandmeyer.com or
greg.klosterman@shellandmeyer.com

AIR CITY GARAGE
UPDATED STRUCTURAL CONDITION STUDY
Dayton, Ohio
March 27, 2024

Introduction

In February 2024, Shell + Meyer, Associates, Inc. (S+M) was asked by Lasserrie Bradley III of Model Group to make a walk-through review of the Air City Garage structure in order to update our opinion of probable costs for repairs that were determined in 2020 for Crest Realty.

On February 7, 2024, Dick Meyer and Greg Klosterman of S+M walked thru the garage with representatives of Model Group to discuss the general overall structural condition of the garage. We were authorized by Lasserrie Bradley III to update our report from August 31, 2020.

Our study was of the structure only and did not include the review of MEP systems, the elevator, or the roofing for the overhanging sidewalk canopies on the south and east exterior sides of the garage. However, we made some general observations regarding some of these systems and these are discussed in the Findings and the Discussion & Recommendations Sections. The costs for the Repair Options discussed in the following sections are given for planning purposes and are based on our experience with the restoration of garage structures of similar age, type and levels of deterioration. More accurate pricing can be achieved when repair schemes are refined and thoroughly reviewed by a qualified Concrete Restoration Contractor.

Executive Summary

The cast-in-place concrete Air City Garage is over fifty years old. And, like many garage structures of this age, in this part of the country, it has suffered significant deterioration as the result of highway deicing salt-induced corrosion of the reinforcing steel within the concrete. However, it is our opinion that the structure can be safely restored for long-term continued use. We have developed three proposed repair schemes which we recommend be considered. All of the options call for the repair of all damaged or deteriorated structural elements but differ in waterproofing treatment and the resulting aesthetics of such. The three Repair Options are as follows.

- Repair Option 1 – Repair all deteriorated structural elements. Remove all existing asphalt, or asphaltic-epoxy, surface treatments (except for the recently installed Heavy Duty treatments at the Top Level and at the circular exit ramp); and install a new traffic-bearing waterproof urethane membrane system. Estimated project cost (including engineering fees and a contingency allowance) is
- Repair Option 2 – Repair all deteriorated structural elements. Remove only the portion of existing asphalt, or asphaltic-epoxy, treatment which is currently deteriorated or de-bonded and replace all removed asphaltic material (that removed to make structural concrete repairs and that removed because of deterioration or disbondment) with similar material. Estimated project cost (including engineering fees and a contingency allowance) is
- Repair Option 3 – Perform all work of Repair Option 2. Clean existing, and new, asphalt, or asphaltic-epoxy, treatment and add a thin coating of similar material over the entire supported floor system (except for the Top Level and exit ramp). Estimated project cost (including engineering fees and a contingency allowance) is

All three Repair Options restore all damaged and deteriorated structural elements and put the structure on the road to safe continued long-term use. Aside from the project costs, the differences between the three options are in the level of waterproofing protection that is provided, and therefore the level of long-term protection of the structure from continued future deterioration. And, in the level of aesthetic appearance of the finished project. The following further compares the three Repair Options.

- Repair Option 1 will provide good aesthetic appearance of the repaired floor system. It will also provide the best long-term waterproofing solution and, therefore, will provide the best long-term protection of the structure. It is, however, the most expensive of the three Repair Options.
- Repair Option 2 will provide an adequate waterproofing condition but likely not as effective long-term protection as Option 1. It is also the option which will produce the least appealing appearance of the finished project. It has the advantage, however, of being the least expense of the three options.
- Repair Option 3 will provide essentially the same level of waterproofing protection as Option 2 (possibly a little better) but should offer an aesthetic appearance on the level with, or possibly superior to, that of Option 1. The estimated project cost is between that of Options 1 & 2. Option 3 offers the additional advantage in that the acceptance of the final step of installation of a thin finish-coating may be deferred until the end of the project when the appearance of repairs (essentially an Option 2 scheme at that point) can be reviewed and judged.

Subject Structure & Conduct of the Investigation

The Air City Garage is a cast-in-place concrete structure approximately 155'-3" in the north-south direction by approximately 175'-4" in the east-west. There were no existing original Structural, or Architectural Design Drawings available but it is our understanding that the structure was constructed circa mid-1960's. There are six supported, and two (partial) on-grade, parking levels. (The on-grade floor is split into two levels, with the higher portion consisting of the entrance ramp, and the lower portion consisting of the building exit lanes and the area adjacent to the commercial space below the garage.) The parking levels are named, in ascending order, Grade Level, 1st Floor, 2nd Floor, 3rd Floor, 4th Floor, 5th Floor & 6th Floor (the Top Level).

The main part of the parking facility is a single helix system of pan-joist construction, where 3" thick pan- slabs are supported by 5" wide x 10" deep (below slab) joists spaced at 3'-0" on center. The joists span from 15'-0" to 16'-10" and are supported by concrete beams which are supported by rectangular-shaped concrete columns. At the exterior perimeter of the main parking deck are concrete parapet walls topped with steel cable guardrails.

At the center of the garage is a circular exit ramp which presently goes from the south side of the north bay of Level 5 to the lowest part of the slab-on-grade area. However, it appears that there may have been one additional level to the circular ramp system (starting from the east side of the highest parking deck (Level 6) that was removed at some point in the past. The ramp structure consists of an approximately 8" thick flat concrete slab which spans the width of the ramp (14'-0" to 17'-0") and is supported by concrete parapet walls/beams at each side of the ramp's perimeter. The parapet walls/beams span to concrete columns. The guardrail system on the parapet walls at the garage interior perimeter surrounding the circular exit ramp is steel pipe, as is also the rail system at the circular ramp interior.

Overall, the main parking area consists of approximately 115,000 square feet of supported floor area (approximately 21,500 square feet per full level) and 3,200 square feet of on-grade parking area. The circular exit ramp has approximately 5,800 square feet of supported area and about 1,000 square feet on- grade. Overall, then, there is approximately 120,800 square of supported floor area, and approximately 4,200 square feet of on-grade area throughout the entire parking facility, exclusive of retail area.

The supported floor area of both the main portion of the garage, and the circular exit ramp, has been coated with an asphaltic-epoxy treatment. It is likely that this coating was not part of the original garage construction but was added remedially after the garage had been in service for some time. From our review, there appears to be at least three generations of coating on the floors.

Vehicles enter the garage from Jefferson Avenue of the east side and exit to East 4th Street on the south side. The facility has two stair towers, one at the northwest corner, and one at the southeast corner of the structure. Also, on the west side, just south of the northwest stair, is a patron elevator.

The garage is built over one-story high commercial retail space on the south and east sides. Over much of the sidewalk area along the garage on East 4th Street and Jefferson Avenue is a canopy structure, approximately 10' wide, suspended from the garage. The canopy (which also supports HVAC equipment) has an EPDM roof.

Our Condition Study consisted of the following elements.

- A delamination (chain-drag) survey of representative portions of the supported parking decks and circular exit ramp. Within the surveyed areas instances of audibly detectable delamination's were identified, outlined, mapped and measured. Overall, approximately 51% of the supported parking deck area, and 100% of the non-curbed supported area of the circular ramp, was surveyed.
- Visual review, supplemented by bar sounding, of all accessible joist and beam soffit areas and estimation of quantities of deterioration.
- Visual review, supplemented by bar sounding, of all pan-slab soffits at the underside of the Top Level, and estimation of quantities of deterioration. Note, this was performed only at the Top Level because this level appeared to have recently undergone a series of floor repairs, and re- application of asphaltic-epoxy coating. At typical floors soffit damage at pan-slabs will likely need to be remedied by full-depth repairs. (Generally, soffit deterioration is coincident with top surface deterioration at the same location.) At typical floors the estimation of top surface deterioration by a chain-drag survey accounts for pan-slab soffit deterioration.
- Visual review, supplemented by hammer sounding, of accessible column areas and estimation of quantities of deterioration.
- Visual review of all accessible floor and soffit areas for signs of structural distress not caused by corrosion-induced concrete deterioration. And general visual review of overall conditions effecting the state of the structure and the potential for its restoration.

Findings

Overall, the Air City Garage structure is in fair condition and has many repair needs throughout all areas of the parking facility. Road salt-induced corrosion of the reinforcing steel has caused significant deterioration to concrete slab, joist, beam, wall and column

members at all supported floor levels. This deterioration, however, is not uniform across all structural members or at all levels. At the parking deck areas (not the circular exit ramp) typically, the pan-slabs, and the tops of joist and beam elements, have suffered the most widespread, and significant, deterioration. After that (listed in the order of most significantly deteriorated to least) joist bottoms, walls, columns and beam bottoms have all suffered from varying degrees of deterioration. Please refer to Appendix B, and B.1, for a complete tabulation of the deteriorated elements. However, the following is a summary of the estimated percentages of each supported deck, and the circular exit ramp, that has top surface delamination or open spalls.

- Grade Level to 1st Level 22%
- 1st Level to 2nd Level 14%
- 2nd level to 3rd Level 23%
- 3rd Level to 4th Level 12%
- 4th Level to 5th Level 7.5%
- 5th Level to 6th Level 0.7%
- Circular Exit Ramp 2.3%

The Top Level parking deck, 5th to 6th levels, is in significantly better apparent condition than the lower floors likely for several reasons. Unless an exposed top level is intentionally salted during winter snow events by the Owner It is typical for the top parking level to be significantly less severely damaged than lower levels, within the same parking facility. This is because the top deck benefits from rain wash-offs and from the drying effects of the sun. However, the more likely cause of the apparent good condition of the Top Level of this facility is that it appears that significant restoration work has occurred at that floor within the past few years. The asphaltic- epoxy wearing coat on the deck looks new and in good condition. Further, it is our understanding that there has been no parking on this level for some time. (The garage is closed to all parking above the 3rd level.)

We estimate that overall, the following are the total amounts of damaged concrete repairs that will be required throughout the structure. These are extrapolations of the raw field data shown in Appendix A and B.

- Full Depth Soffit Repair 8,179 SF
- Full Depth Parking Deck Repair 11,315 SF
- Joist Rib Bottom Repair 3,406 LF
- Beam & Sides Repair 492 SF
- Vertical Surface Column Repair 767 SF
- Vertical Black CMU Surface Wall Repair ... 1,584 SF
- Ramp Slab Floor Partial Depth Repair 135 SF

- Ramp Slab Soffit Partial Depth Repair 551 SF & partial replacement

There appears to have been several generations of floor and soffit repairs throughout both the main parking decks and at the circular exit ramp. Some of these repairs have performed well but many have not. Similarly, the floor treatment at the supported areas also has undergone several repairs and/or replacement cycles. Of significant note in that regard is the parking deck area directly over the retail space on the south and east sides of the facility. This area was likely waterproofed, and covered by asphalt topping, as part of the original construction. The original

topping has now been removed but the area appears to retain waterproofing protection. As a result, the structural system below is in generally good condition with only occasional localized damage.

Overall, the distressed conditions throughout the garage structure have resulted almost exclusively from chloride (from highway deicing salts) induced corrosion of reinforcing steel within the concrete. (Please refer to the Discussion and Recommendations Section for a more in- depth explanation of the chloride-induced corrosion process and its affect on exposed concrete structures.) However, we also observed limited amounts of localized freeze-thaw damage at some areas, primarily at the Top-Level slab. This is indicative of concrete which may not have been originally placed with sufficient amounts of entrained air to allow the concrete to withstand repeated wintertime freeze-thaw cycles. The few areas where this was observed were at localized breaches in the asphaltic-epoxy coating. Keeping the areas waterproofed, particularly at the upper exposed level, is important to limiting the amount of freeze-thaw damage which will occur in the future.

We did not observe areas that appeared to be distressed by conditions of overload or by conditions other than extensive corrosion-induced deterioration, or localized freeze-thaw damage.

The guardrail system on top of the parapet walls typically consists of steel pipe rails at interior parapets around the circular exit ramp (and, at the perimeter of the circular ramp). These are in generally good condition with only spot repairs, and overall painting, required. The guardrail system on top of the parapet walls around the exterior perimeter of the garage consists of twisted steel wire cables.

At both guardrail systems (steel pipe and steel cables) the rail system is less than the 42" above the deck as the current Building Codes require for such situations. It is likely that the pipe rails will not be required by the Building Authority to be raised because the system does not otherwise require replacement. The cable rails at the outside parapet walls must, however, be replaced with a new system that is compliant with the requirements of the current Building Code.

At portions of the south and east building elevations, suspended canopies hang over

portions of the public sidewalks. On the east side the canopies support numerous pieces of HVAC equipment. From the underside we observed signs of past water leakage. The canopies are covered by EPDM roofing material which appears to be relatively new and in good condition.

Although review of mechanical, electrical and plumbing (MEP) systems was not part of our scope of work we did observe that many elements of the cast metal drainage lines have badly corroded and need to be replaced. Where the concrete drainage box below the slab is deteriorated from

corrosion (as many of them are) we have included the deteriorated quantity as part of the line item for "Beam Bottom Repair".

Discussion & Recommendations

The Air City Garage is now approximately 50+ years old and is in fair condition. It has suffered significant corrosive deterioration damage but is restorable for long-term continued safe use. It was designed and constructed during a time when the severe effects of chloride containing highway deicing agents on parking structures was not widely appreciated and before Building Code provisions to minimize this affect were implemented.

The major cause of concrete parking structure deterioration in this part of the country is the corrosive effects on internal reinforcing steel of the chloride component within most commercially available highway deicing agent. Concrete is normally a very alkaline material. However, when concrete becomes sufficiently contaminated with chloride the pH level of the contaminated concrete is lowered. This destroys the passive oxide layer on the surface of the steel which normally protects it from corrosion. Once this protective layer has been removed corrosion of the steel will begin if it is exposed to sufficient amounts of moisture and oxygen.

The corrosion process begins when chloride-contaminated snow and ice is tracked into the garage in the wheel-wells of vehicles during winter snow events. The contaminated runoff absorbs directly into the pores of the concrete and also, much more quickly, at areas of cracks or unsealed construction joints. As the chloride-contaminated water penetrates to the depth of the unprotected reinforcing steel corrosion begins. As the steel corrodes, the rust product expands by a factor of eight, or more. This expansion causes large tensile stresses in the concrete causing it to crack. As the process continues a "delamination" plane can form. With time and the effects of gravity and vehicle loading the cracked, and delaminated, concrete can loosen causing an open "spall". After the concrete has cracked (and especially after a delamination or spall has occurred) chloride contaminated runoff can quickly access the exposed reinforcing steel and the deterioration process accelerates.

For the garage structure to be restored for long-term continuous use, it is our opinion that it will be necessary to properly repair all known instances of concrete deterioration. And, to provide, and/or maintain, effective waterproofing of the top surface of all supported decks (including the circular exit ramp). We have developed three alternate repair schemes to accomplish these goals. Each of the three repair options have as their basis the complete restoration of all deteriorated concrete conditions. The three options differ only in how water-proofing, and aesthetic, conditions are addressed. All three repair schemes have the following elements.

- All deteriorated concrete at all supported parking decks, and at the circular exit ramp, will be repaired. (Localized concrete repairs will be made at slab-on-grade garage areas as needed to provide safe and serviceable surfaces for vehicles and pedestrians, and to maintain a good aesthetic appearance.)
- The steel cable guards on the parapet walls at the garage exterior perimeter will be removed and replaced. The steel pipe rails on the interior parapet walls (and at ramp perimeter) will be repaired, as needed, and repainted.
- The Top Level of the circular exit ramp, which appears to have been removed at some point in the past, will not be reconstructed as part of any of the Repair Options.
- At the exposed Top Level, the asphaltic-epoxy wearing coat appears to be relatively new and in generally good condition. For all three Repair Options this material will be left in place and touched up as necessary. Likewise, the same type of coating on the circular exit ramp also appears to be new and in good condition and will not be removed and replaced but will be repaired as needed. Similarly, the coating on slab-on-grade (SOG) areas will not be removed but will be repaired as needed.

The three Repair Options, and their estimated project costs to implement, are as follows.

- Option 1 – This option provides the best long-term waterproofing and aesthetic appearance of the three options. It involves removing the existing asphaltic-epoxy coating where indicated, cleaning the concrete decks and applying a waterproof urethane membrane. Option 1 consists of the following elements.
 1. Delaminated Concrete Surface per sq. ft. 3" max. depth -----
 2. Ribs Bottom 4" to 6" up per lin ft.-----
 3. Beams bottom or sides per sq. ft. 3" max. depth -----
 4. Columns per sq. ft. max. 3" deep -----
 5. Soffit Pans 3" full thickness per sq. ft. -----

Lines 1 thru 5 above includes cleaning and replacing mesh or rebar if needed.

6. CMU walls per sq. ft. 8" CMU -----
 7. Shoring for column repair. An allowance for shore based.
 8. Vertical surface concrete wall repair -----
 9. Ramp slab partial depth floor repair -----
 10. Ramp slab partial depth soffit repair -----
 11. An allowance for drains & piping based on replacing per floor level & repairing concrete around then about 48 sq. ft. of concrete repair per drain -----
 12. Demo ½ half of a bay -----
 13. Erect 7 steel beams in one bay -----
 14. Repair & paint pipe guards and replace cable guards
 15. Repair coating at top level, exit ramp, and SOG
- At remaining areas, remove coating and apply membrane
- General conditions -----

Total estimated construction cost
Contingency allowance & engineering fees -----

The sum of repair Items 1 through 11 is . This value will also be used for Options 2 & 3. Note, Coating Repairs shown in Options 2 & 3 are repairs at affected areas in addition to those indicated by Item 11 in Option 1.

- Option 2 – This option provides the least amount of long-term waterproofing protection and aesthetics of the three options. Option 2 consists of the following elements.

1. Repair Items. (Same as Items 1 thru 11 for Option 1.)
 2. Coating Repairs, at Concrete Excavations and Disbondments ...
 3. General Conditions
- Total Estimated Construction Cost
 - Contingency Allowance and Engineering Fees

Recommended Budget.....

- Option 3 – This option is between Options 2 and 3 in cost and in long-term waterproofing protection. It has the potential, however, to provide an aesthetic appearance equal, or superior, to that of Option 1. Option 3 consists of the following elements.

1. Repair Items. (Same as Items 1 thru 11 for Option 1.)
 2. Coating Repairs. (Same as Opt. 2 plus Cover Coat throughout.).
 3. General Conditions
- Total Estimated Construction Cost
 - Contingency Allowance and Engineering Fees

Recommended Budget

The costs shown in the three foregoing Repair Options are all given for planning purposes and to set a good general course of direction. After the overall scope is better defined and in-depth input from a qualified Concrete Restoration Contractor is gotten the total costs can be refined. The costs shown are 2024 based and have not been escalated for inflation beyond that point. They are based on our experience with concrete structures of similar age, type and level of deterioration. The Recommended Budget values are intended to be conservative but not excessively so. As stated in the Report, our study did not include the review of MEP systems and, therefore, the foregoing costs do not include any funds for their repairs. However, it seems apparent to us that, in particular, the storm drainage line system will require repair and we recommend that such be budgeted for. Painting of the structure (except for pipe rails as needed for corrosion protection) has not been included in the foregoing costs.

The costs assume that all work will be performed over one normal construction season (typically March through November) and money has not been included to enclose, and heat, the garage so that cold weather work can be performed. The costs assume that at least half of the structure can be made free of parking, and accessible to the contractor, for the duration of the project.

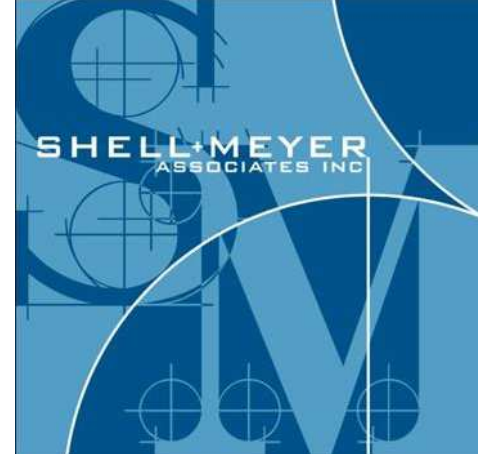
Please contact us if you have any questions or comments or if you would like to discuss any of this further.

Appendix

- Appendix A – Plans - Field Notes
- Appendix B – Tabulated Quantities
- Appendix C – Photos

ORIGINAL REPORT – To Obtain Original Report

Email: richard.meyer@shellandmeyer.com or
greg.klosterman@shellandmeyer.com

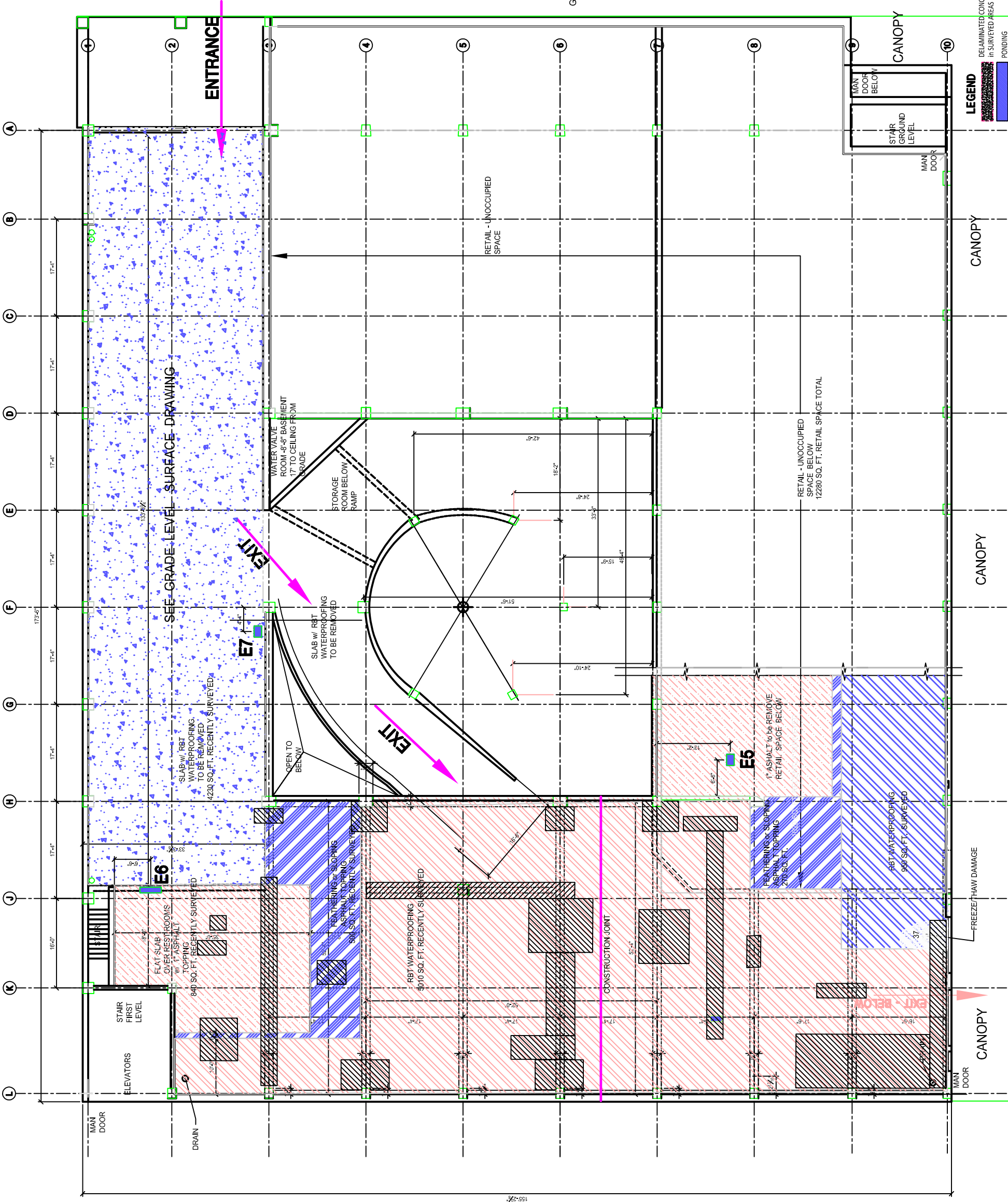


APPENDIX A

PLANS – FIELD NOTES

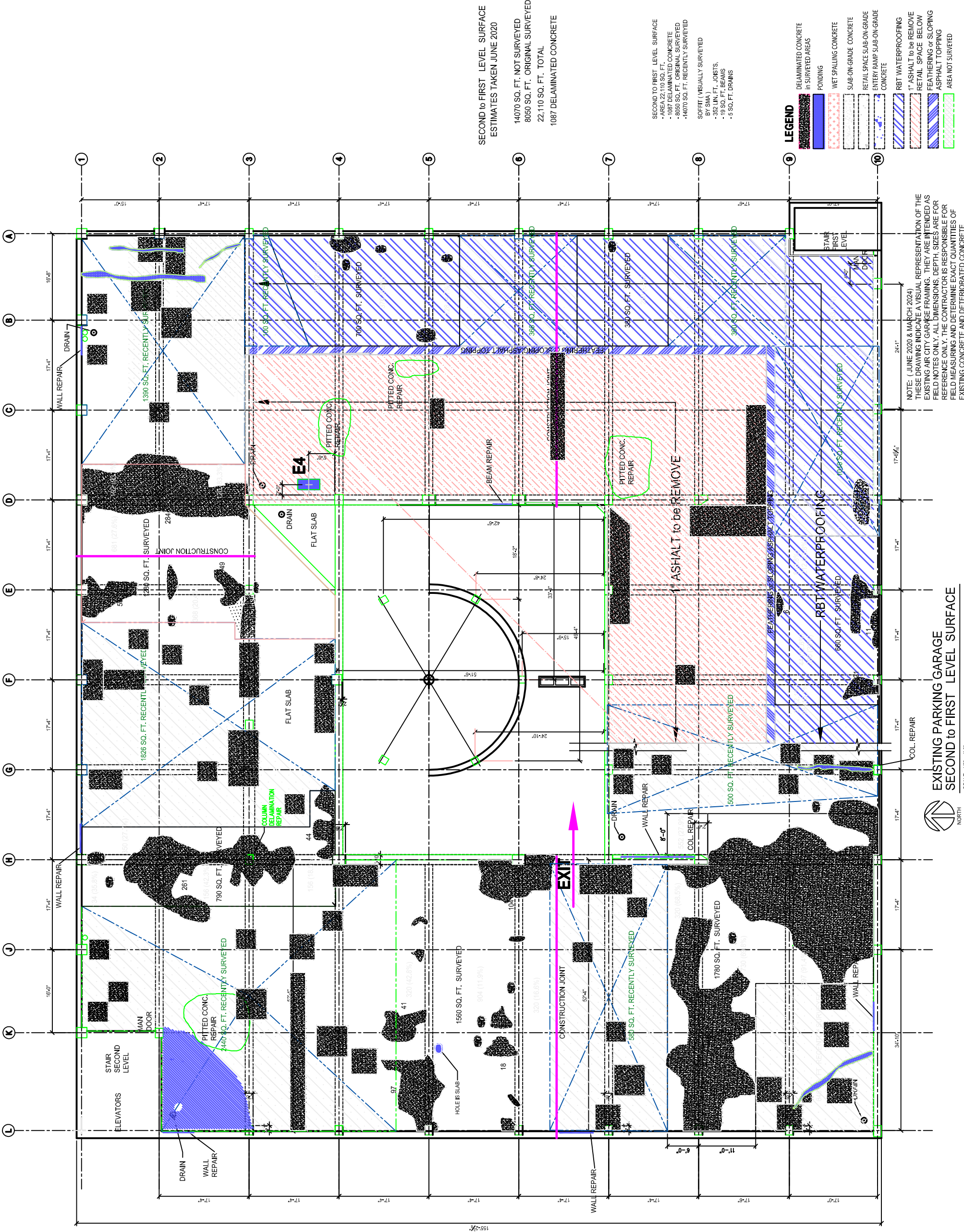
Project No.24.200.020

NOTE: (JUNE 2020 & MARCH 2024)
THESE DRAWING INDICATE A VISUAL
REPRESENTATION OF THE EXISTING
AIR CITY GARAGE FRAMING. THEY
ARE INTENDED AS FIELD NOTES
ONLY. ALL DIMENSIONS, DEPTH, SIZES
ARE FOR REFERENCE ONLY. THE
CONTRACTOR IS RESPONSIBLE FOR
FIELD MEASURING AND DETERMINE
EXACT QUANTITIES OF EXISTING
CONCRETE AND DETERIORATED
CONCRETE.



GRADE LEVEL to FIRST LEVEL SURFACE
ESTIMATES TAKEN JUNE 2020
950 SQ. FT. ORIGINAL SURVEYED
4 FREEZE - THAW CONCRETE
107 DELAMINATED CONCRETE
AREA 23,020 SQ. FT.

ORIGINAL



SECOND TO FIRST LEVEL SURFACE
ESTIMATES TAKEN JUNE 2020

14070 SQ. FT. NOT SURVEYED
8050 SQ. FT. ORIGINAL SURVEYED
22,110 SQ. FT. TOTAL
1087 DELAMINATED CONCRETE

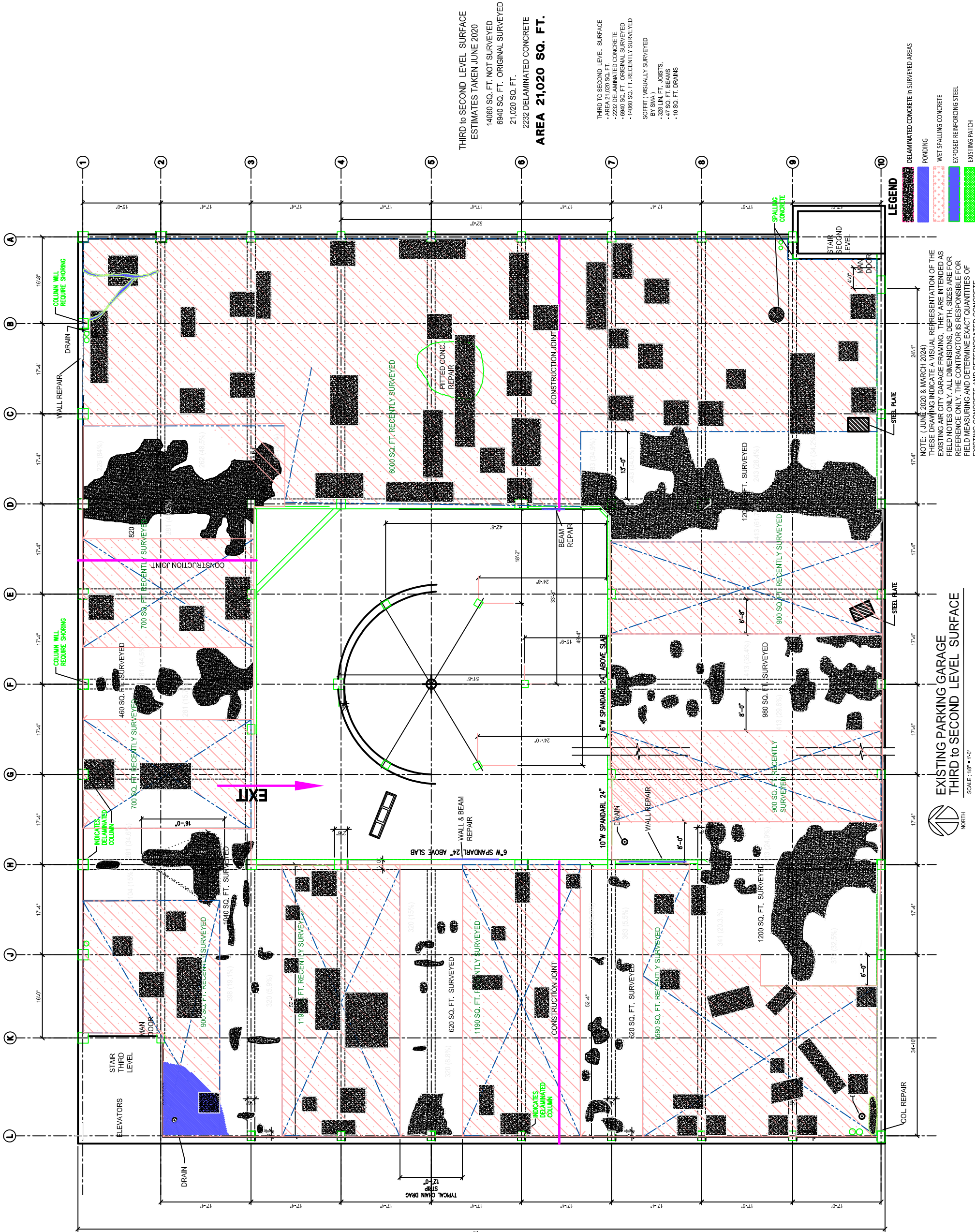
SECOND TO FIRST LEVEL SURFACE
- AREA 22,110 SQ. FT.
- 1087 DELAMINATED CONCRETE
- 8050 SQ. FT. ORIGINAL SURVEYED
- 14070 SQ. FT. RECENTLY SURVEYED

SOEFTT (VISUALLY SURVEYED
- 5' DIA.
- 322 IN. FT. JOISTS,
- 18 SQ. FT. BEAMS
- 5 SQ. FT. DRAINS

LEGEND

	DELAMINATED CONCRETE in SURVEYED AREAS
	PONDING
	WET SPALLING CONCRETE
	SLAB-ON-GRADE CONCRETE
	RETAIL SPACE SLAB-ON-GRADE CONCRETE
	ENTRY RAMP SLAB-ON-GRADE CONCRETE
	RBT WATERPROOFING
	1" ASPHALT to be REMOVE RETAIL SPACE BELOW
	FEATHERING or SLOPING ASPHALT TOPPING
	AREA NOT SURVEYED

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THIRD TO SECOND LEVEL SURFACE
ESTIMATES TAKEN JUNE 2020

14060 SQ. FT. NOT SURVEYED
6940 SQ. FT. ORIGINAL SURVEYED
21,020 SQ. FT.
2232 DELAMINATED CONCRETE

AREA 21,020 SQ. FT.

THIRD TO SECOND LEVEL SURFACE

- AREA 21,020 SQ. FT.
- 2232 DELAMINATED CONCRETE
- 6940 SQ. FT. ORIGINAL SURVEYED
- 14060 SQ. FT. RECENTLY SURVEYED

SOFFIT (VISUALLY SURVEYED)

- 28 IN. FT. JOISTS
- 47 SQ. FT. BEAMS
- 10 SQ. FT. DRAINS

LEGEND

- DELAMINATED CONCRETE in SURVEYED AREAS
- PONDING
- WET SPALLING CONCRETE
- EXPOSED REINFORCING STEEL
- EXISTING PATCH

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**EXISTING PARKING GARAGE
THIRD TO SECOND LEVEL SURFACE**

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

NORTH

FOURTH TO THIRD LEVEL SURFACE

- AREA 22,110 SQ. FT.
- 906 DELAMINATED CONCRETE
- 8990 SQ. FT. ORIGINAL SURVEYED
- 13090 SQ. FT. RECENTLY SURVEYED

SOFFIT (VISUALLY SURVEYED
BY SMA)

- 565 LIN. FT. JOISTS,
- 33Q. FT. BEAMS

EXISTING PARKING GARAGE
FOURTH to THIRD LEVEL SURFACE

NORTH

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

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

TCH

DELAMINATED CONCRETE in SURVEYED AREAS

PONDING

WET SPALLING CONCRETE

EXPOSED REINFORCING STEEL

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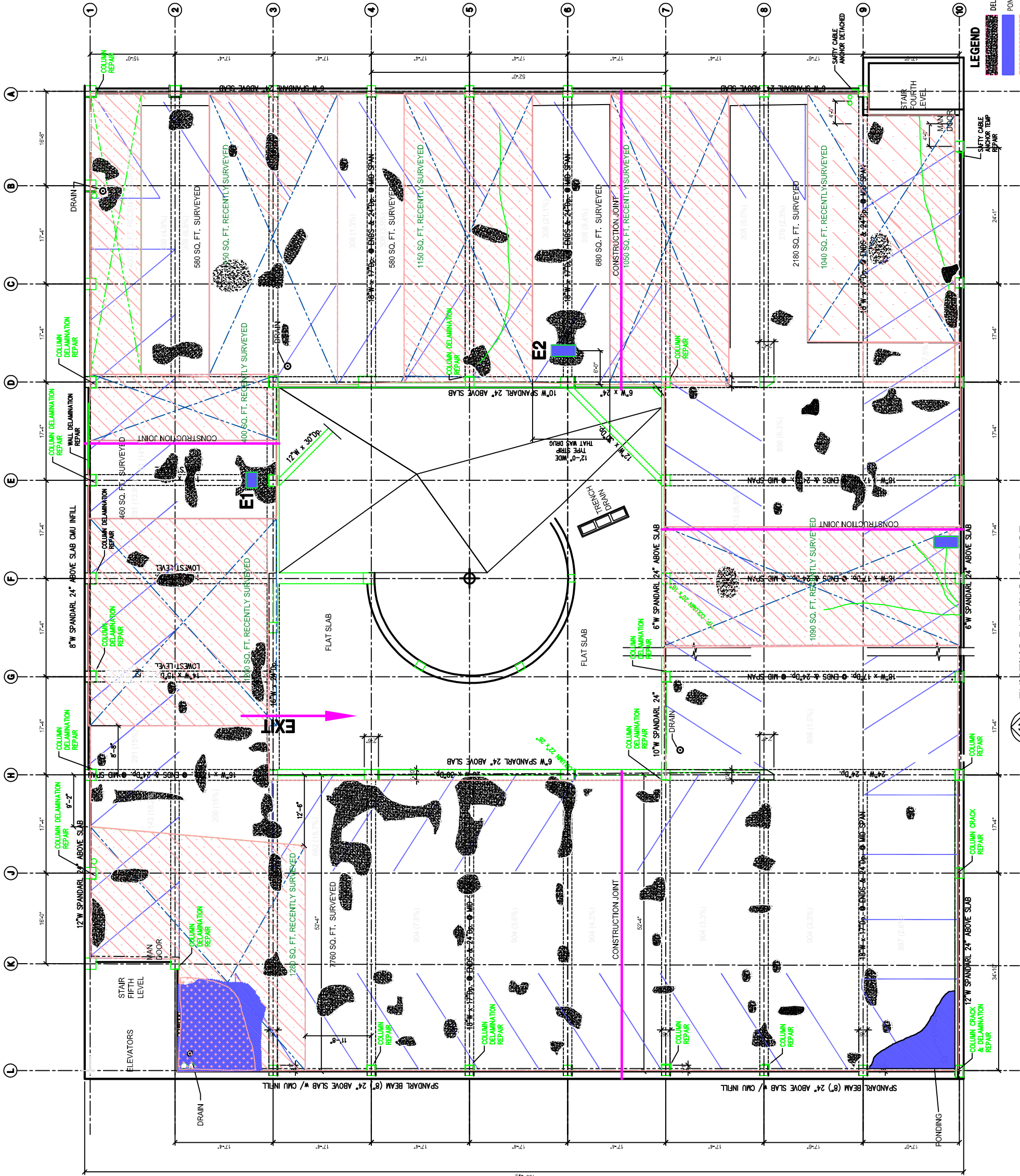
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EXACT QUANTITIES OF EXISTING
CONCRETE AND DETERIORATED
CONCRETE.

FIFTH TO FOURTH LEVEL SURFACE
ESTIMATES TAKEN JUNE 2020
8850 SQ. FT. RECENTLY SURVEYED
12,240 SQ. FT. ORIGINAL SURVEYED
21,090 SQ. FT.
893 DELAMINATED CONCRETE
AREA 21,020 SQ. FT.

FIFTH TO FOURTH LEVEL SURFACE
• AREA 21,020 SQ. FT.
• 893 DELAMINATED CONCRETE
• 12,240 SQ. FT. ORIGINAL SURVEYED
• 8850 SQ. FT. RECENTLY SURVEYED
SOFFIT (VISUALLY SURVEYED
BY SMA)
• 593 LIN. FT. JOISTS,
• 26 SQ. FT. BEAMS
• 8 SQ. FT. DRAINS

LEGEND

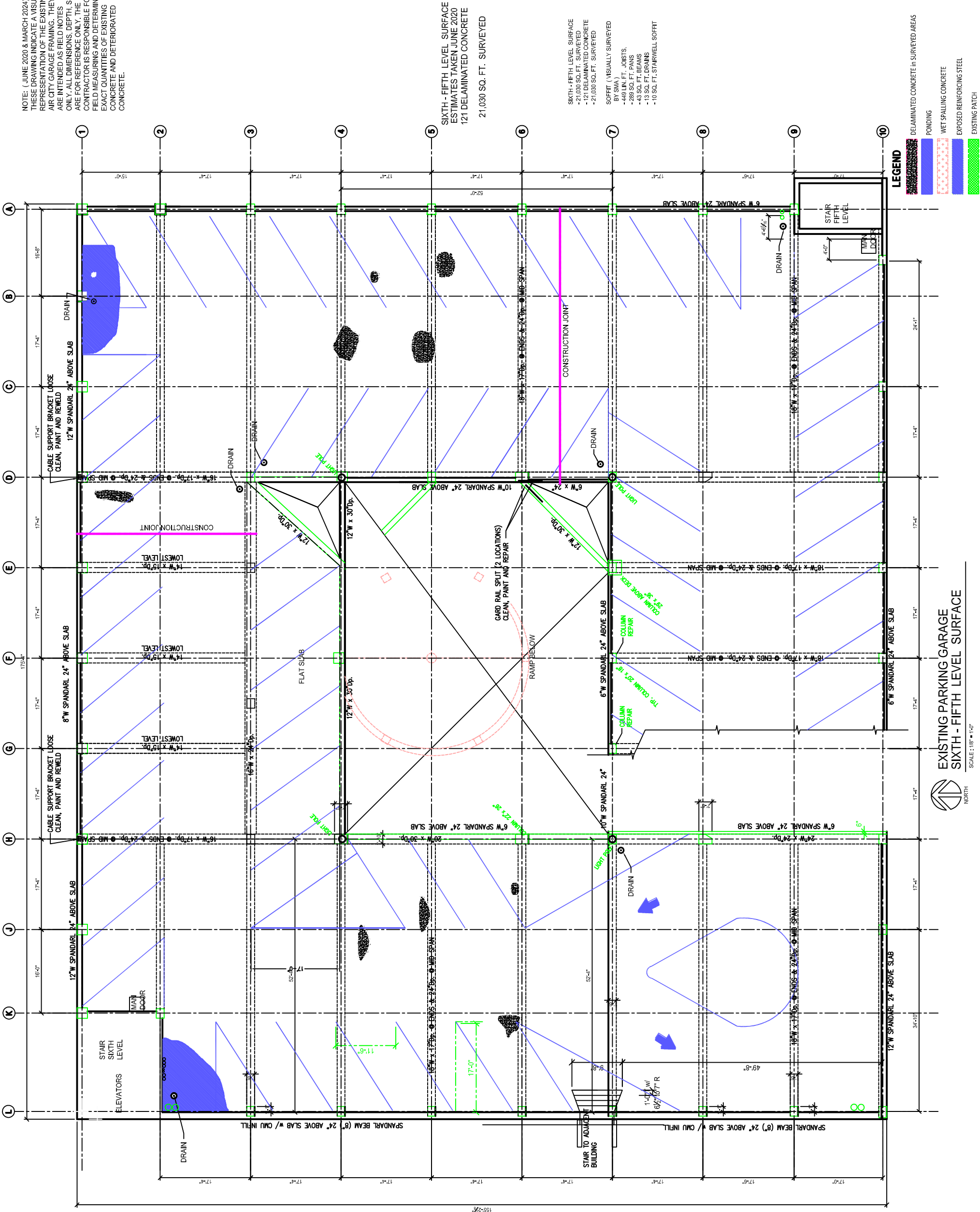
- DELAMINATED CONCRETE in SURVEYED AREAS
- PONDING
- WET SPALLING CONCRETE
- EXPOSED REINFORCING STEEL
- CRACKING DATA



**EXISTING PARKING GARAGE
FIFTH TO FOURTH LEVEL SURFACE**

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

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CONTRACTOR IS RESPONSIBLE FOR
FIELD MEASURING AND DETERMINE
EXACT QUANTITIES OF EXISTING
CONCRETE AND DETERIORATED
CONCRETE.



SIXTH - FIFTH LEVEL SURFACE
ESTIMATES TAKEN JUNE 2020
121 DELAMINATED CONCRETE
21,030 SQ. FT. SURVEYED

- SIXTH - FIFTH LEVEL SURFACE
- 21,030 SQ. FT. SURVEYED
 - 121 DELAMINATED CONCRETE
 - 21,030 SQ. FT. SURVEYED
- SOFFIT (VISUALLY SURVEYED
BY SNA)
- 48 LIN. FT. JOISTS,
 - 286 SQ. FT. FANS
 - 43 LIN. FT. BEAMS
 - 13 SQ. FT. DRAINS
 - 10 SQ. FT. STARWELL SOFFIT

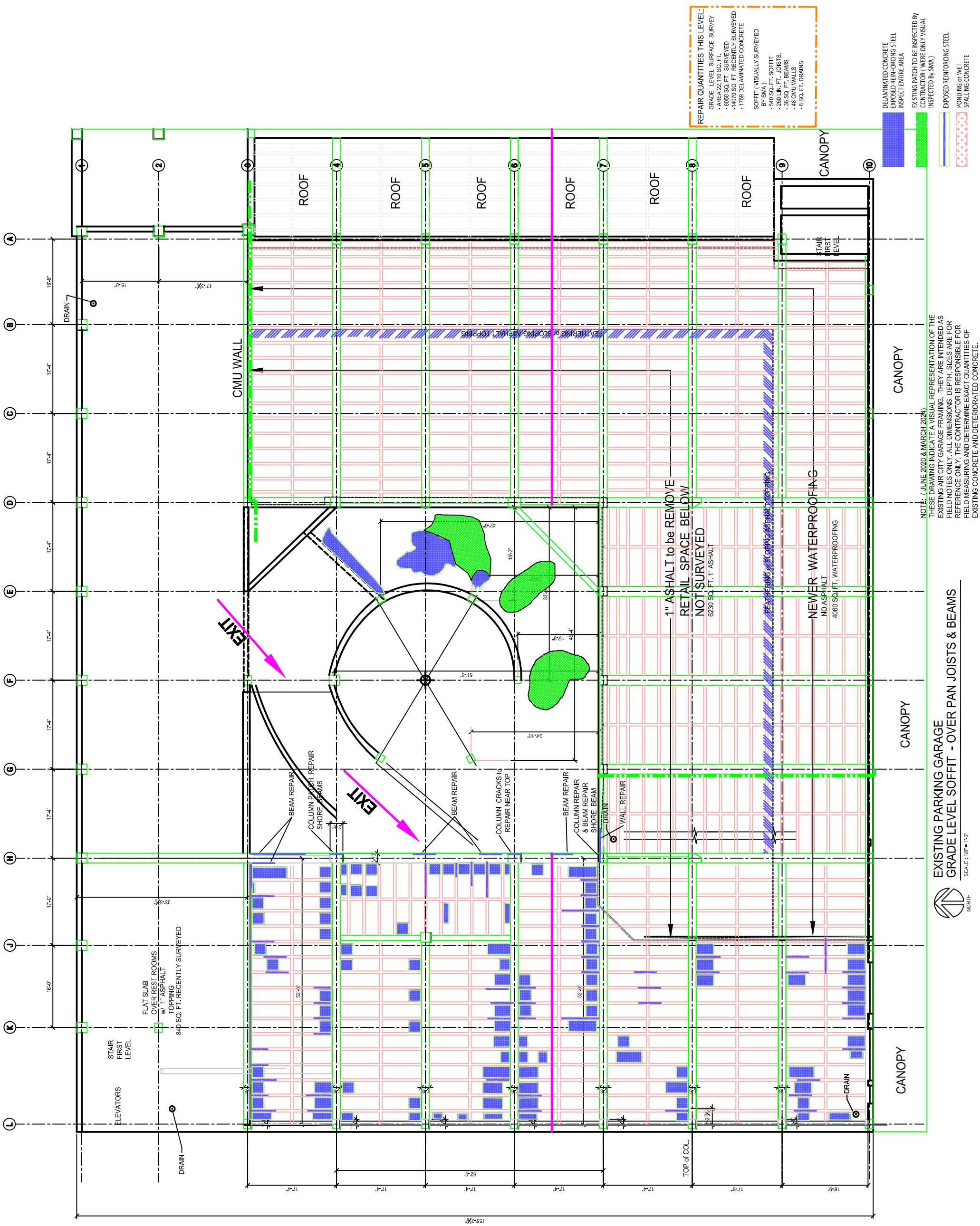
LEGEND

- DELAMINATED CONCRETE in SURVEYED AREAS
- PONDING
- WET SPALLING CONCRETE
- EXPOSED REINFORCING STEEL
- EXISTING PATCH

**EXISTING PARKING GARAGE
SIXTH - FIFTH LEVEL SURFACE**

NORTH

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

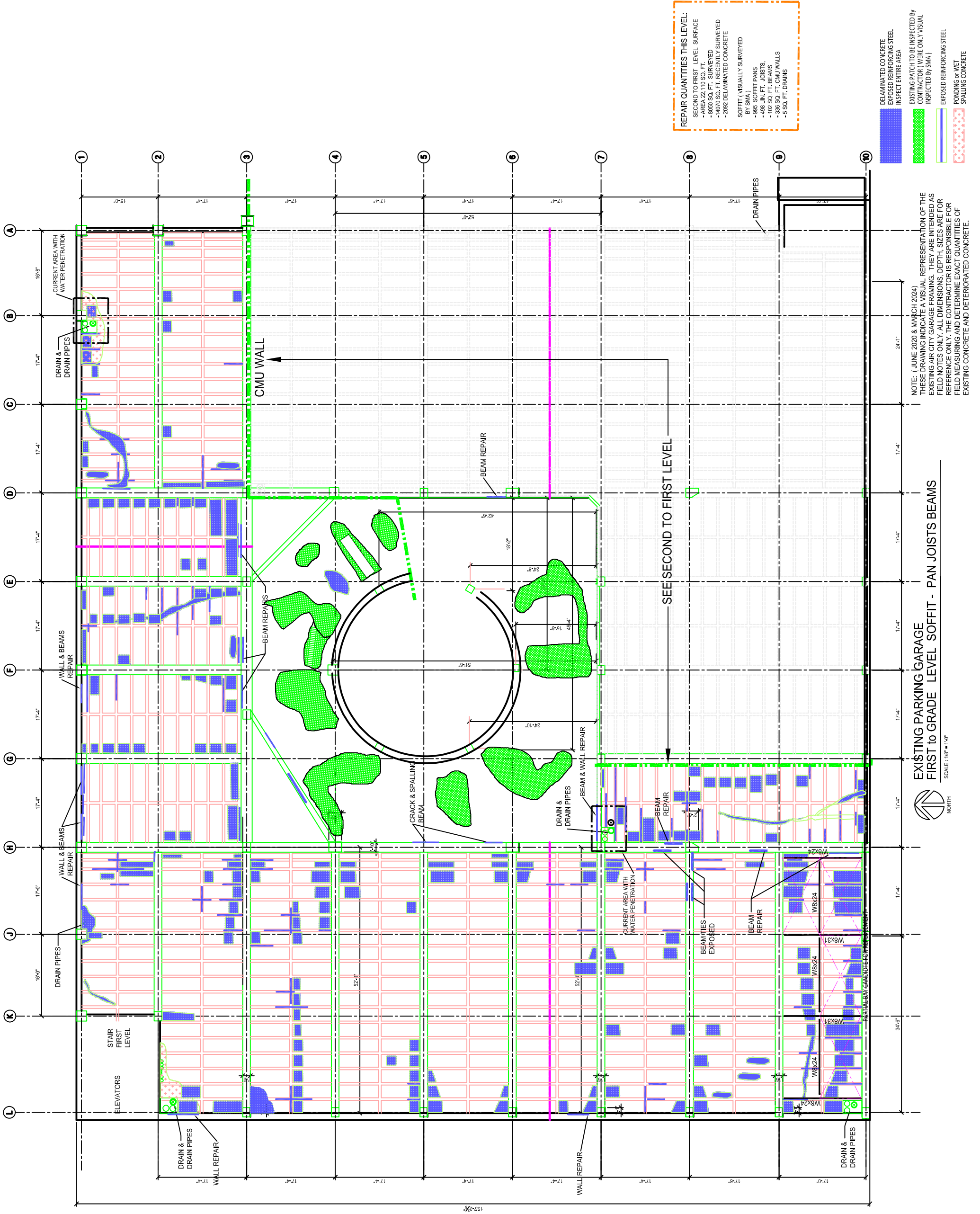


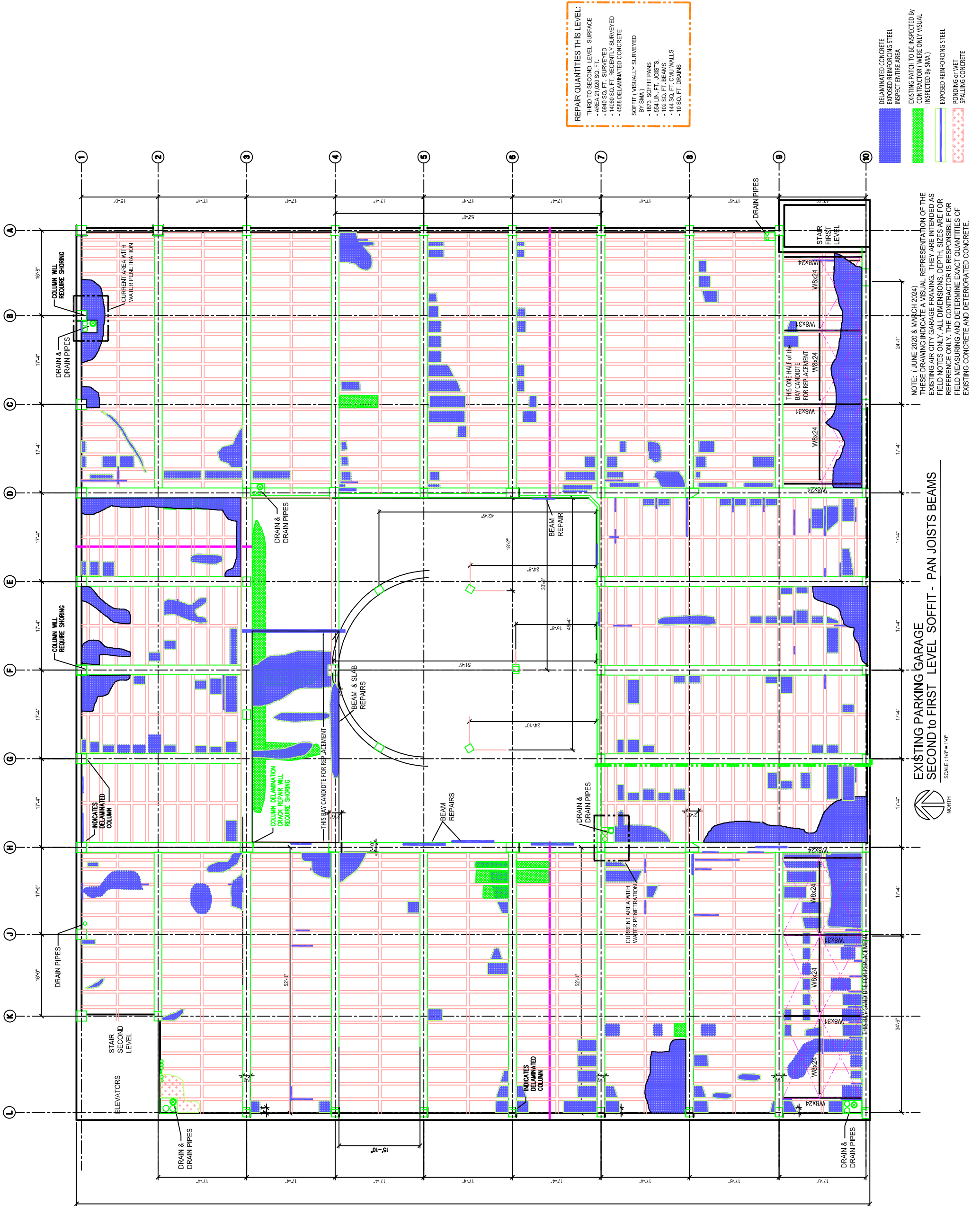
NOTE: (JUNE 2020 & MARCH 2024)
THESE DRAWING INDICATE A VISUAL REPRESENTATION OF THE EXISTING AIR CITY GARAGE FRAMING. THEY ARE INTENDED AS FIELD NOTES ONLY. ALL DIMENSIONS, DEPTH, SIZES ARE FOR REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR FIELD MEASURING AND DETERMINE EXACT QUANTITIES OF EXISTING CONCRETE AND DETERIORATED CONCRETE.

EXISTING PARKING GARAGE
GRADE LEVEL SOFFIT - OVER PAN JOISTS & BEAMS

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







REPAIR QUANTITIES THIS LEVEL:

THIRD TO SECOND LEVEL SURFACE

- AREA 21,020 SQ. FT.
- 6940 SQ. FT. SURVEYED
- 14000 SQ. FT. RECENTLY SURVEYED
- 4988 DELAMINATED CONCRETE

SOFFIT (VISUALLY SURVEYED)

- 157 SQ. FT. SOFFIT
- 1873 SOFFIT PANS
- 554 LIN. FT. JOISTS
- 102 SQ. FT. BEAMS
- 144 SQ. FT. CMU WALLS
- 10 SQ. FT. DRAINS

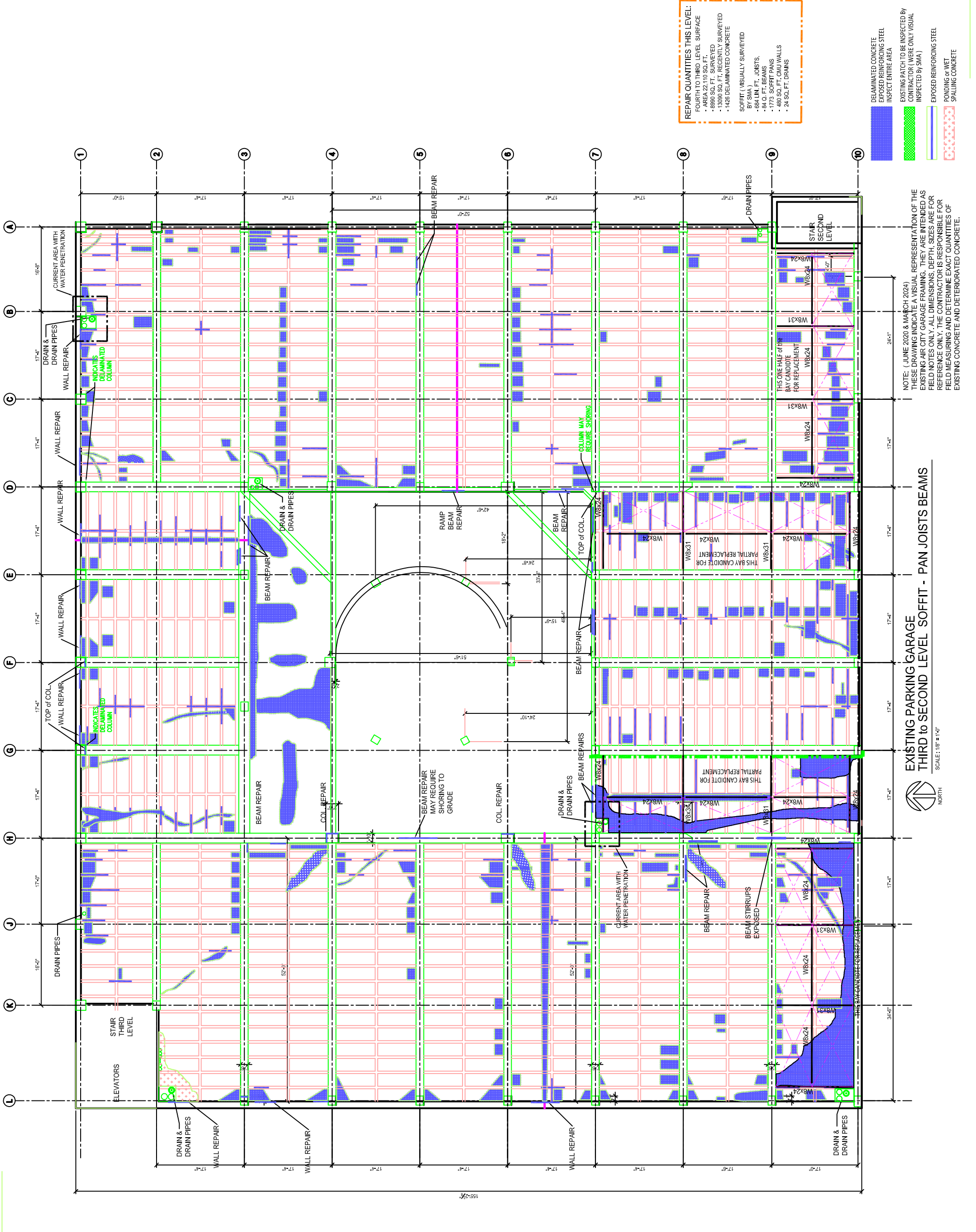
- DELAMINATED CONCRETE
- EXPOSED REINFORCING STEEL
- EXISTING ENTIRE AREA
- EXISTING PATCH TO BE INSPECTED BY CONTRACTOR (WERE ONLY VISUAL INSPECTED BY SNA)
- EXPOSED REINFORCING STEEL
- PONDING or WET
- SPALLING CONCRETE

NOTE: (JUNE 2020 & MARCH 2024)
THESE DRAWING INDICATE A VISUAL REPRESENTATION OF THE EXISTING AIR CITY GARAGE FRAMING. THEY ARE INTENDED AS REFERENCE ONLY. ALL DIMENSIONS, DEPTH, SIZES ARE FOR FIELD MEASURING AND DETERMINE EXACT QUANTITIES OF EXISTING CONCRETE AND DETERIORATED CONCRETE.

EXISTING PARKING GARAGE
SECOND TO FIRST LEVEL SOFFIT - PAN JOISTS BEAMS



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



REPAIR QUANTITIES THIS LEVEL:
FOURTH TO THIRD LEVEL SURFACE
• AREA 22,110 SQ. FT.
• 8890 SQ. FT. SURVEYED
• 13090 SQ. FT. RECENTLY SURVEYED
• 1426 DELAMINATED CONCRETE

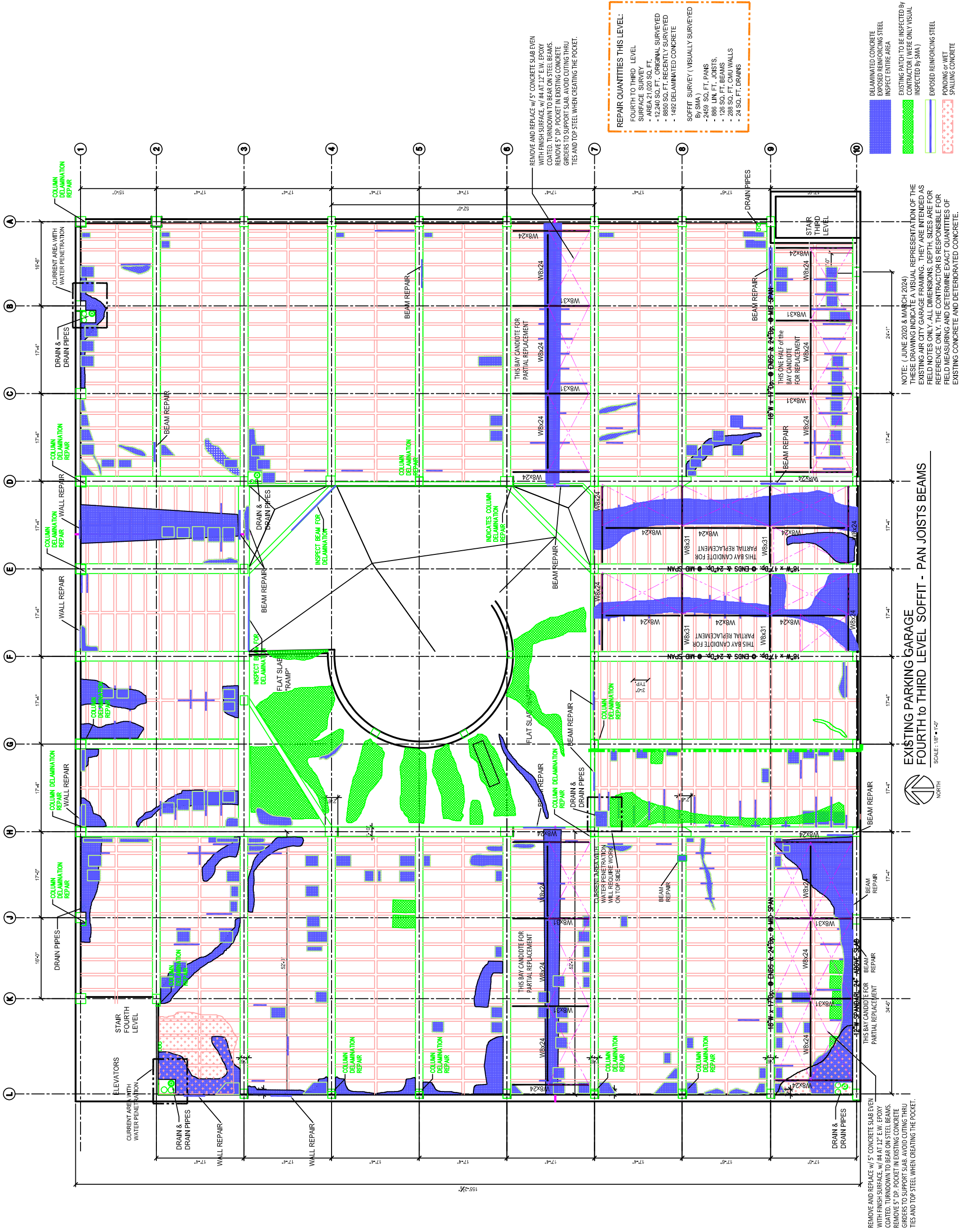
SOFFIT (VISUALLY SURVEYED BY SMA)
• 84 LIN. FT. JOISTS
• 84 Q. FT. BEAMS
• 1773 SOFFIT PANS
• 480 SQ. FT. CHU WALLS
• 24 SQ. FT. DRAINS

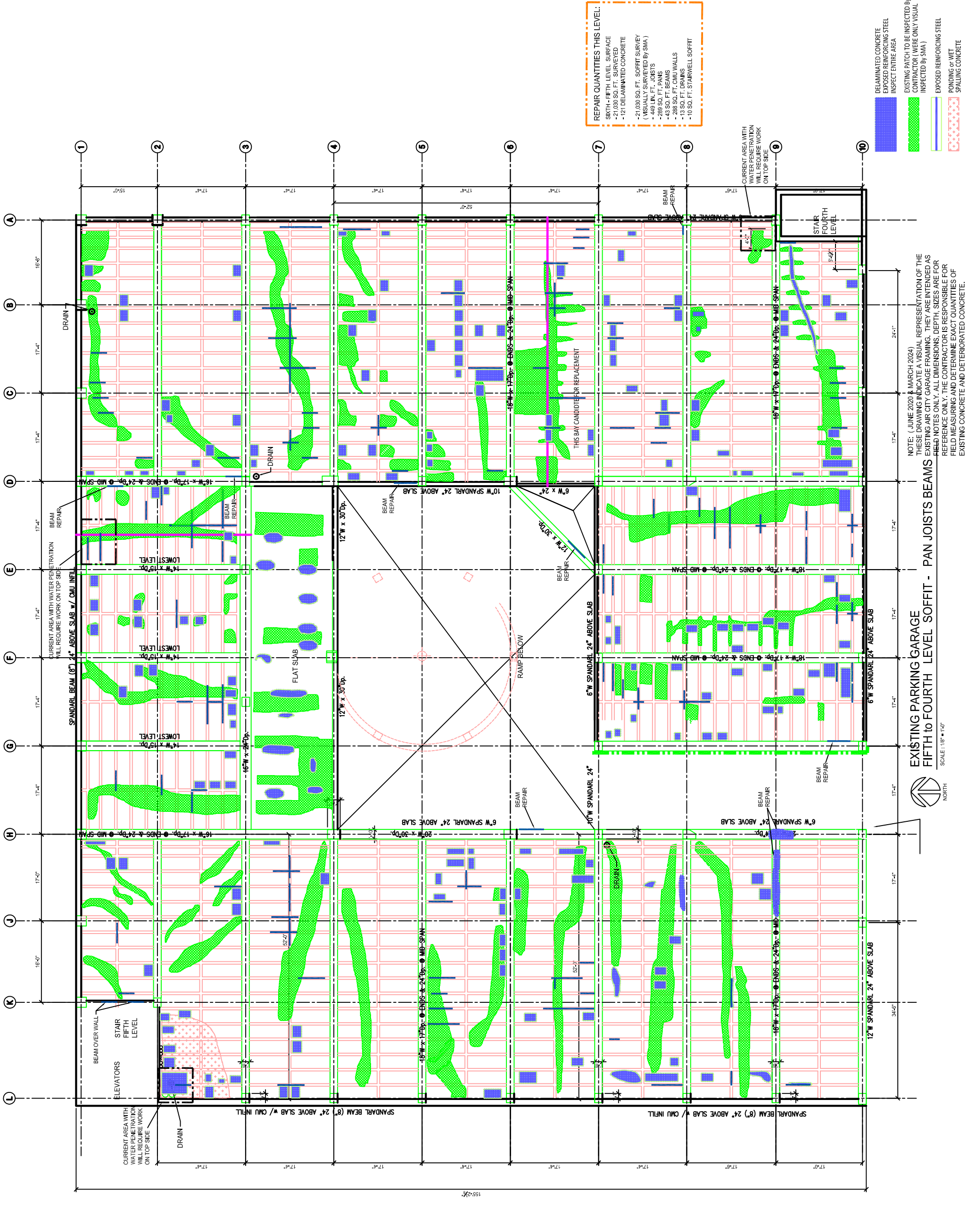
- DELAMINATED CONCRETE
- EXPOSED REINFORCING STEEL
- INSPECT ENTIRE AREA
- EXISTING PATCH TO BE INSPECTED BY CONTRACTOR (WERE ONLY VISUAL INSPECTED BY SMA)
- EXPOSED REINFORCING STEEL
- PONDING or WET
- SPALLING CONCRETE

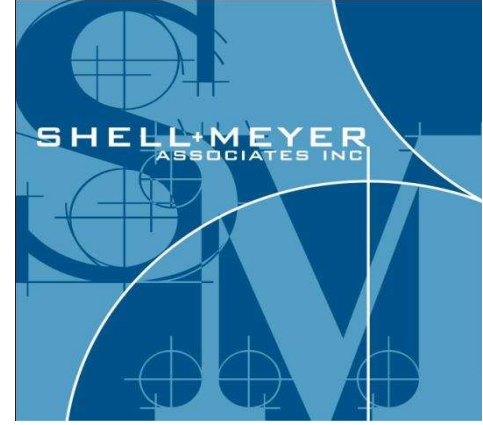
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EXISTING PARKING GARAGE
THIRD TO SECOND LEVEL SOFFIT - PAN JOISTS BEAMS
SCALE: 1/8" = 1'-0"









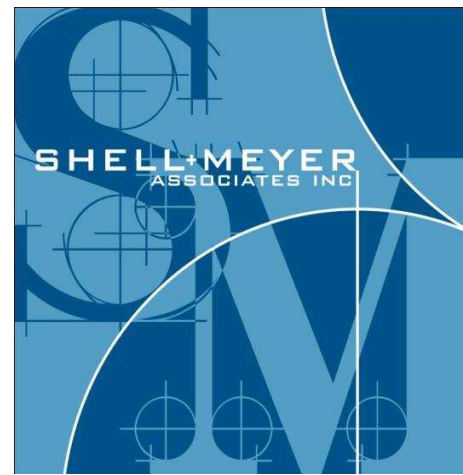
APPENDIX B

TABULATED QUANTITIES

Project No.24.200.020

Per LEVEL and TOTALS (Not Included Stairs , Slab On Grade)									
LEVEL	AREA of LEVEL TOTAL SUPPORTED = 114,960	DELAMINATED CONCRETE FOUND on SURFACE SURVEY 3" Max. Depth TOTAL = 11,315	RIBS (BOTTOM 4" to 6") LIN. FT. TOTAL = 3406	BEAMS 3" MAX. DEPTH SQ. FT. TOTAL = 492	DRAINS REPLACE (4) Per LEVEL, w/ SQ. FT. of CONCRETE REPAIR TOTAL = 48 Sq. Ft.	COLUMNS 3" Deep Max. SQ. FT. TOTAL = 767	COLUMNS SHORE USED per LEVEL TOTAL = 14	SOFFIT PANS 3" SLAB SQ. FT. TOTAL= 8179	CMU WALL REPAIRS 8" CMU SQ. FT. TOTAL = 1584
GRADE LEVEL to FIRST LEVEL	AREA 7670 SQ. FT.	1759 DELAMINATED CONCRETE	260	36	8	131	2	540	48
SECOND LEVEL to FIRST LEVEL	AREA 22,110 SQ. FT.	2092 DELAMINATED CONCRETE	498	102	5	168	1	995	336
THIRD LEVEL to SECOND LEVEL	AREA 21,020 SQ. FT.	4588 DELAMINATED CONCRETE	554	102	10	197	6	1873	144
FOURTH LEVEL to THIRD LEVEL	AREA 22,110 SQ. FT.	1492 DELAMINATED CONCRETE	684	84	4	133	4	1773	480
FIFTH LEVEL to FOURTH LEVEL	AREA 21,020 SQ. FT.	1238 DELAMINATED CONCRETE	886	126	8	118	1	2459	288
SIXTH LEVEL to FIFTH LEVEL	AREA 21,030 SQ. FT.	146 DELAMINATED CONCRETE	524	43	13	20 Tops South	-	539	288
PITTED CONCRETE TOTAL	806 SQ. FT.		N.A.	N.A.	N.A.		N.A.		
RAMP TOTAL	5,000 SQ. FT.	135 SQ. FT.	N.A.	N.A.	N.A.	31 SQ. FT.	N.A.	551 SQ. FT.	
RAMP CURB TOTAL	800 SQ. FT.	NOT SURVEYED	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	

TOTALS (Slab On Grade ONLY)		
SLAB-ON-GRADE TOTAL	12,880 SQ. FT.	1851 SQ. FT. DELAMINATED CONCRETE
SLAB-ON-GRADE RETAIL TOTAL	12,500 SQ. FT.	NOT SURVEYED



APPENDIX C

PHOTOS

Project No.24.200.020

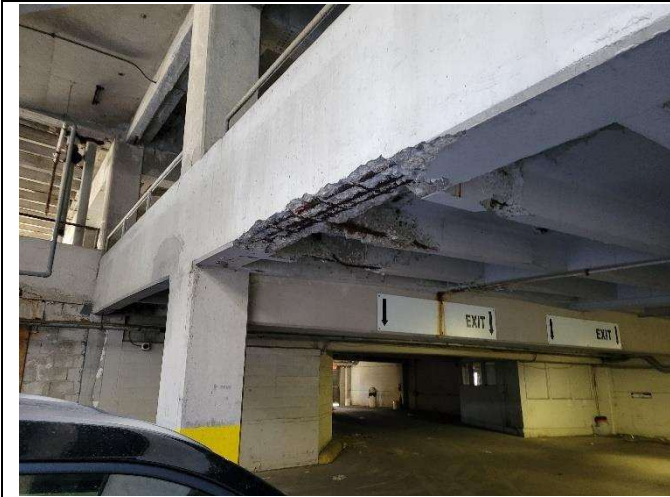


Photo 1 - Beam Joists 1st



Photo 2 - Beam Joists Drain Pans



Photo 3 - Beam Ties Bot Bar

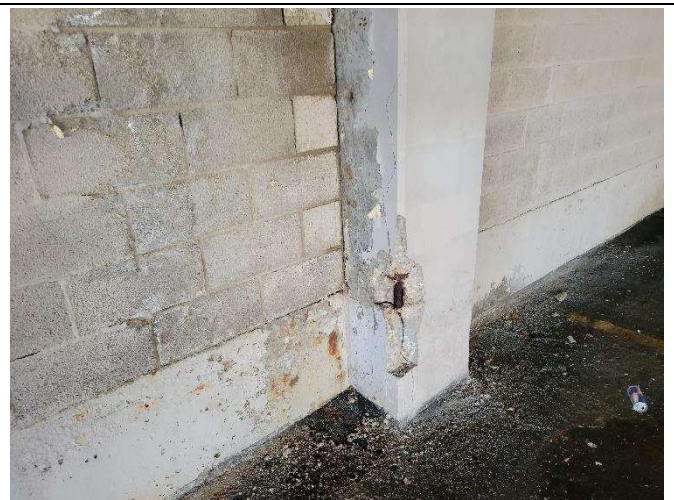


Photo 4 - CMU Wall Conc Wall Column

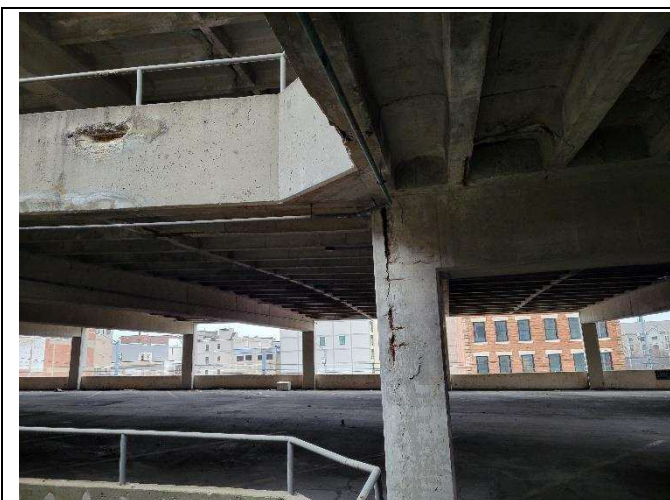


Photo 5 - Col Beams Joists

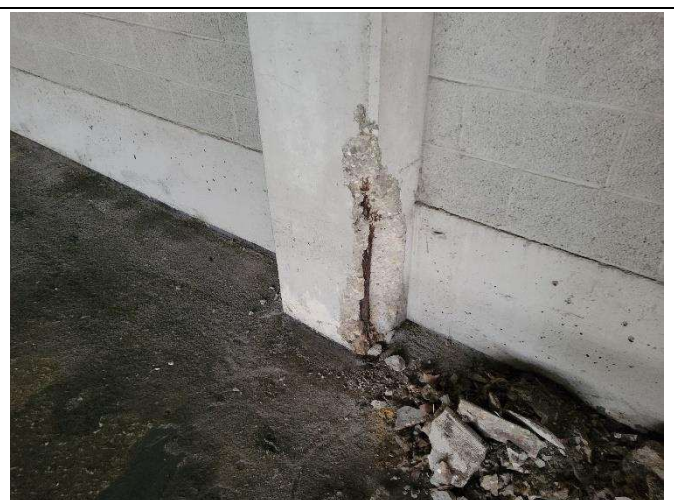


Photo 6 - Column to be Repaired

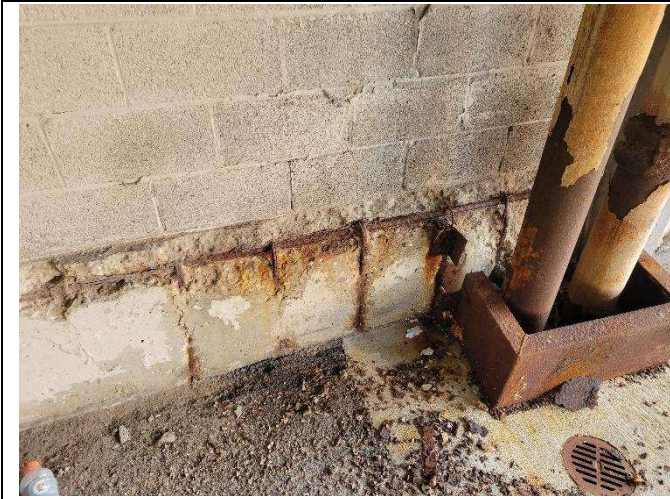


Photo 7 – Conc Blk Wall at Drain



Photo 8 – Divider Wall Repair



Photo 9 – Divider Wall Topping Repair



Photo 10 – Drains



Photo 11 – Holes to be Repaired



Photo 12 – Joist and Bridging



Photo 13 – Joist Pan Beam Repairs



Photo 14 – Joist Pan Wall Repairs



Photo 15 – Joist w Truss Bar



Photo 16 – Joists and Pans



Photo 17 – Joists Pans Replace



Photo 18 – Pan Deteriorated



Photo 19 – Pan Joists



Photo 20 – Pond



Photo 21 – Ponding at Elevators Wall Damage



Photo 22 – Ponding Wall Damage

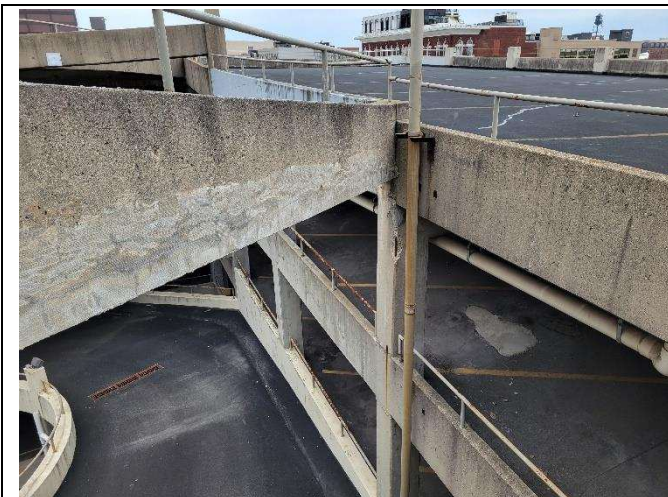


Photo 23 – Previous Repairs Beam Column



Photo 24 – Ramp Beam Repair



Photo 25 – Ramp Lowest Level



Photo 26 – Ramp Previous Repairs to be Inspected



Photo 27 – Replace Flat Slab Section



Photo 28 – Replace Flat Slab Spandrel Beam



Photo 29 – Replace Section of Bay



Photo 30 – Replacement Candidate



Photo 31 – Shear Crack Add Steel Repair



Photo 32 – Slab on Grade Opening Wood Cover



Photo 33 – Wall Beams Column



Photo 34 – Wall Spandrel Joist Pan

