



EXECUTIVE SUMMARY

TO: Board of Directors, Columbia 9-1-1 CD
CC: Mike Fletcher
FROM: Michael W. Peterkin, General Counsel
DATE: September 18, 2023
RE: Meissner Shelter Construction Defect

ATTORNEY-CLIENT PRIVILEGED COMMUNICATION

I. INTRODUCTION

This Executive Summary provides background facts and a recommendation regarding the resolution of a construction defect involving a public improvement of the District.

II. THE PUBLIC IMPROVEMENT CONTRACT

The District's engineers, Cushing Civil Engineering, created plans and specifications for a replacement tower and shelter building near Lookout Road, Deer Island. This site is identified as "Meissner."

The District and Day Management Corporation, dba Day Wireless Systems ("DWS"), signed a Public Improvement Contract "to expand and upgrade an existing public safety communications site [Meissner] by constructing a repurposed 150' lattice tower, 11'x21' shelter, emergency power system, installing new fencing, removal of abandoned infrastructure." The Contract start date was January 2, 2023, and the anticipated final completion date was April 12, 2023. The District promised to pay DWS \$454,357.11 for the contract work.

DWS contracted to build the improvements and promised to "provide all labor, materials, equipment, and services necessary to complete the Work, all of which will be provided in full accord with the Contract Documents." See General Conditions, Section 3.1.2. DWS also promised to "provide efficient supervision [of] the Work, using its best skill and attention." See *id.* Section 3.5.1.

DWS is contractually required to repair or replace defective work: "At Agency's sole option, Contractor shall repair or replace any and all Work, together with any other Work that may be displaced in doing so that may prove defective in workmanship and/or materials within a one (1) year period from Substantial Completion of the Work without expense whatsoever to Agency." See Section 3.91.

Michael W. Peterkin ♦ *Megan K. Burgess* ♦ *Taylor Hale*

II. THE CONSTRUCTION DEFECT

Concrete must achieve the designed strength and durability. The Shelter concrete slab foundation achieved neither. Specifically, the Shelter foundation failed for inadequate compressive strength (average 2,200 psi) and air entrainment (1.7%). Thus, the foundation has an increased risk of fracture at the anchor bolt locations during an earthquake and an increased risk of spalling and deterioration due to freeze-thaw cycles. The approved concrete mix design was specified to achieve 4,500 psi with 4% air entrainment. The same concrete mix was used for the Shelter and Tower foundations, but the Tower foundations meet specifications.

DWS was required under the contract to provide a Shelter foundation that achieved 100% of the design strength. See Section 4.1.2.1. The Shelter foundation, as designed, required a minimum of 3,000 psi, and had to be durable against weather and “local anticipated aggressive actions” including seismic. For the above reasons, the Shelter foundation was rejected, and DWS was directed to replace the Shelter foundation at DWS’s sole expense.

III. PROPOSED CURE

DWS responded to the District’s rejection and replacement letter with an alternative cure proposal. DWS hired Miller Engineering who provided a cure plan and supporting engineering calculations. The Foundation Cure Plan is attached.

The District requested that its engineer, Kenny McManaway at Cushing, provide an opinion regarding the proposed cure. He concluded as follows:

I accept the alternative submitted design provided by Day Wireless’s engineer. Please note the Carlson’s average for 28 day break was including the 7 day break which skewed the average for 28 days.

Day Wireless’s engineer Miller Engineer addressed the current concrete strength in the calculations of 28 day and 56 day (2 breaks at 2700 plus) utilizing 2500 psi in the calculations for anchors, they added additional anchors total of 12 for the shelter. In regards to the durability of the concrete from freeze thaw I approve the closed cell foam and residing the walls and closed cell foam. The additional new siding and foundation insulation assembly will provide a solution equal to or better for the structure in whole as the siding will provide a longer life of the prefabricated shelter as typical the foundation will outlast the typical life of a prefabricated shelter.

I agree Day Wireless should provide an additional 10 year warranty and cover the associated costs of the modifications you mention below. (sic in passim.)

IV. RECOMMENDATION

Engineers at both Miller and Cushing have approved the cure. The cure is a better alternative to removal and replacement under the facts presented. Already the Meissner site activation has been delayed about five months.

As a condition of accepting the offered cure, the District should demand reimbursement of Cushing's time spent dealing with the defect and cure. In addition, the District should demand a 10-year warranty. (The contract imposes a one-year warranty.)

I considered delay damages, but such damages seem speculative. The District, however, can request reimbursement of this firm's fees under Section 18.1 of the Contract.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael W. Peterkin", with a large, stylized loop at the end.

Michael W. Peterkin

GENERAL

THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION AND CORRELATION OF ALL ITEMS AND WORK NECESSARY FOR COMPLETION OF THE PROJECT AS INDICATED BY THE CONTRACT DOCUMENTS. SHOULD ANY QUESTION ARISE REGARDING THE CONTRACT DOCUMENTS OR SITE CONDITIONS, THE CONTRACTOR SHALL REQUEST INTERPRETATION AND CLARIFICATION FROM THE ENGINEER BEFORE BEGINNING THE PROJECT. THE ABSENCE OF SUCH REQUEST SHALL SIGNIFY THAT THE CONTRACTOR HAS REVIEWED AND FAMILIARIZED HIMSELF WITH ALL ASPECTS OF THE PROJECT AND HAS COMPLETE COMPREHENSION THEREOF. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE TO ALL SAFETY REGULATIONS DURING CONSTRUCTION.

THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE SPECIFICALLY NOTED, THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION OR CONSTRUCTION LOADS. ONLY THE CONTRACTOR SHALL PROVIDE ALL METHODS, DIRECTION AND RELATED EQUIPMENT NECESSARY TO PROTECT THE STRUCTURE, WORKMEN AND OTHER PERSONS AND PROPERTY DURING CONSTRUCTION. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, ENGAGE PROPERLY QUALIFIED PERSONS TO DETERMINE WHERE AND HOW TEMPORARY PRECAUTIONARY MEASURES SHALL BE USED AND INSPECT SAME IN THE FIELD. ANY MATERIAL NOT AS SPECIFIED OR IMPROPER MATERIAL INSTALLATION OR WORKMANSHIP SHALL BE REMOVED AND REPLACED WITH SPECIFIED MATERIAL IN A WORKMANLIKE MANNER AT THE CONTRACTOR'S EXPENSE.

THESE PLANS, SPECIFICATIONS, ENGINEERING AND DESIGN WORK ARE INTENDED SOLELY FOR THE PROJECT SPECIFIED HEREIN. MILLER CONSULTING ENGINEERS DISCLAIMS ALL LIABILITY IF THESE PLANS AND SPECIFICATIONS OR THE DESIGN, ADVICE AND INSTRUCTIONS ATTENDANT THERETO ARE USED ON ANY PROJECT OR AT ANY LOCATION OTHER THAN THE PROJECT AND LOCATION SPECIFIED HEREIN. OBSERVATION VISITS TO THE JOB SITE AND SPECIAL INSPECTIONS ARE NOT PART OF THE STRUCTURAL ENGINEER'S RESPONSIBILITY UNLESS THE CONTRACT DOCUMENTS SPECIFY OTHERWISE.

NON STRUCTURAL PORTIONS OF PROJECT, INCLUDING BUT NOT LIMITED TO PLUMBING, FIRE PROTECTION, LAND USE, SITE PLANNING, EROSION CONTROL, ELECTRICAL, MECHANICAL, FLASHING AND WATER-PROOFING ARE BEYOND THE SCOPE OF THESE DRAWINGS AND ARE PROVIDED BY OTHERS. EXISTING STRUCTURAL ELEMENTS ARE DESIGNED BY OTHERS.

BUILDING CODE

ALL PHASES OF THE WORK SHALL CONFORM TO THE 2022 OREGON STRUCTURAL SPECIALTY CODE, INCLUDING ALL REFERENCE STANDARDS, UNLESS NOTED OTHERWISE.

DESIGN LOADS

STRUCTURAL DESIGN CRITERIA: RISK CATEGORY II
WIND DESIGN DATA: BASIC WIND SPEED (3 SEC GUST) = 120 MPH
EXPOSURE: C
SNOW LOAD: N/A

FOOTINGS

CONTRACTOR SHALL VERIFY SOIL CONDITIONS AT THE FOOTINGS AND MAKE ANY NECESSARY CORRECTIONS TO PLACE THEM ON FIRM NATIVE SOIL OR STRUCTURAL FILL COMPACTED TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT PER AMERICAN SOCIETY FOR TESTING AND MATERIALS, ASTM D698 (STANDARD PROCTOR), OR ASTM D1557 (MODIFIED PROCTOR). THE COMPACTION SHALL BE VERIFIED BY A QUALIFIED INSPECTOR APPROVED BY THE BUILDING OFFICIAL. COMPACTED STRUCTURAL FILL FOR DEPTHS GREATER THAN 12 INCHES SHALL COMPLY WITH PROVISIONS OF AN APPROVED GEOTECHNICAL REPORT. ASSUMED SOIL BEARING PRESSURE 1500 POUNDS PER SQUARE FOOT (PSF).

CONCRETE

MIXING, PLACING AND CURING OF CONCRETE SHALL BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE, ACI 318 AND IBC CHAPTER 19. CONCRETE SHALL BE 2,700 POUNDS PER SQUARE INCH (PSI) MINIMUM AT 28 DAYS, UNO. ALL CONCRETE WITH REINFORCEMENT SHALL HAVE NO CHLORINE OR CHLORIDES.

POST INSTALLED ANCHORS

ANCHORS SHALL BE AS SPECIFIED ON THE DRAWINGS. ANCHORS SHALL BE INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S INSTALLATION CRITERIA AND PER THE CURRENT ICC EVALUATION REPORT FOR THE ANCHOR. ANCHORS ARE NOT TO CUT THROUGH ANY EXISTING STEEL REINFORCING.

STRUCTURAL STEEL

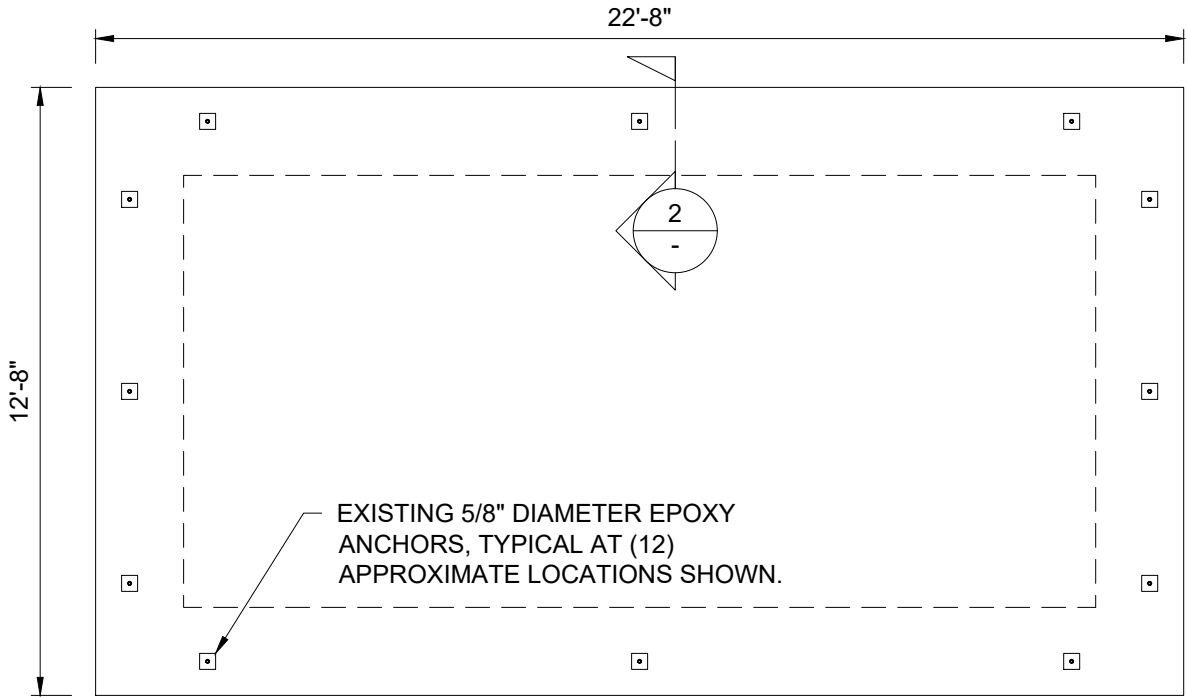
ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE ASTM A992 FOR W-SECTIONS AND ASTM A36 FOR ALL OTHER SECTIONS, PLATES AND BARS. ALL RECTANGULAR HSS SECTIONS SHALL BE ASTM A500, GRADE B, FY= 46000 PSI AND ALL ROUND HSS SECTIONS SHALL BE ASTM A500, GRADE B, FY = 42000 PSI. ALL STRUCTURAL STEEL PIPE SHALL BE ASTM A53, GRADE B, TYPE E OR S, FY= 35000 PSI.

UNLESS NOTED OTHERWISE, ALL BOLTS TO BE ASTM A307 AND ALL ANCHOR RODS TO BE ASTM F1554 GRADE 36, WITH MATCHING NUTS. ALL FASTENERS IN CONTACT WITH ALUMNIUM TO BE TYPE 304 STAINLESS STEEL WITH MATCHING

NUTS OR HAVE A PROTECTIVE BARRIER TO PREVENT CORROSION. NUTS SHALL BE TIGHTENED TO A SNUG TIGHT CONDITION PER RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC) SPECIFICATION FOR STRUCTURAL JOINTS, SECTION 8.1.

ALL STRUCTURAL STEEL SHALL HAVE ONE COAT OF PRIMER, EXCEPT SURFACES TO BE EMBEDDED IN CONCRETE OR MASONRY. EMBEDDED SURFACES SHALL BE FREE OF CONTAMINANTS. ALL ZINC (GALV.) COATINGS ON IRON AND STEEL PRODUCTS SHALL CONFORM TO ASTM A123. REPAIRS OF GALVANIZED COATINGS ARE TO CONFORM TO ASTM A780. ALL EXPOSED STRUCTURAL STEEL TO HAVE ONE FINISH COAT OF RUST INHIBITING PAINT, COLOR BY OWNER.

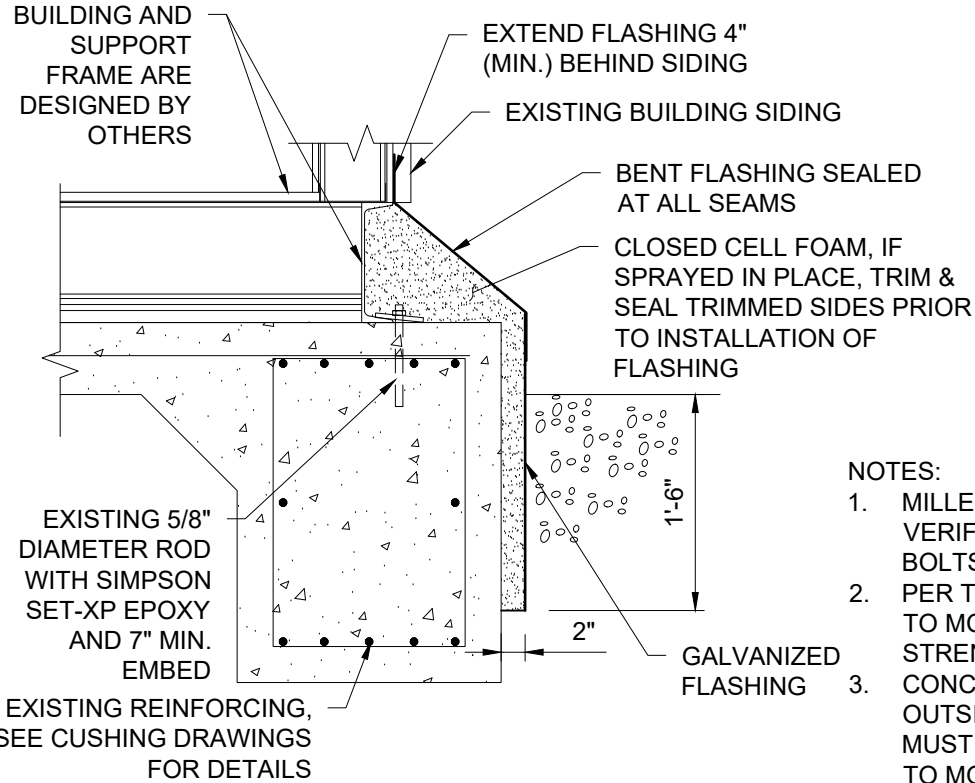
ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS) D1.1 USING E70XX ELECTRODES. WELD LENGTHS SHOWN ARE EFFECTIVE AS SPECIFIED PER THE SPECIFICATIONS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC). WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS FOR WELD TYPES SPECIFIED AND ALL SHOP WELDS TO BE PERFORMED IN AN APPROVED SHOP. WHERE WELD LENGTHS ARE NOT SHOWN, THE WELD SHALL BE FULL LENGTH OF MEMBERS BEING JOINED. ALL BUTT WELDS SHALL BE FULL PENETRATION WELDS UNLESS NOTED OTHERWISE ON STRUCTURAL DRAWINGS. ALL WELDS SHALL RECEIVE THE SAME FINISH COAT AS THE MEMBER BEING WELDED.



EXISTING 5/8" DIAMETER EPOXY ANCHORS, TYPICAL AT (12) APPROXIMATE LOCATIONS SHOWN.

FOUNDATION PLAN PROVIDED FOR REFERENCE ONLY. SEE CUSHING DRAWINGS DATED 04/07/2021 FOR SLAB DETAILING REQUIREMENTS.

1 FOUNDATION PLAN 1/4"=1'-0"



- NOTES:
- MILLER IS RESPONSIBLE FOR THE VERIFICATION OF THE EXISTING ANCHOR BOLTS AND FOUNDATION ONLY.
 - PER TESTING INFORMATINO PROVIDED TO MCE, EXISTING CONCRETE STRENGTH F'c=2700 PSI
 - CONCRETE FOUNDATION THAT IS OUTSIDE THE BUILDING FOOTPRINT MUST BE PROTECTED FROM EXPOSURE TO MOISTURE. FLASHING AND INSULATION SHOWN ON THIS DETAIL IS PROVIDED AS A RECOMMENDATION TO BE APPROVED BY OTHERS.

2 FOUDNATION SECT. 3/4"=1'-0"



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