



DRAWN:	RJA
DESIGN:	RJA
CHECKED:	RJA
APPROVED:	RJA

REVISIONS:

PROJECT TITLE:

Harbor Grove
Stormwater Detention Vault
9110 53rd Ave W
Mukilteo, WA

CLIENT:

Sea Pac Homes
120 SW Everett Mall Way
Everett, WA 98204

CIVIL:



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ISSUE:

Permit

SHEET TITLE:

General Notes

SCALE:	N/A
DATE:	September 8, 2023
PROJECT NO:	12791-2023-01
SHEET NO:	

S1.1

NO: OF SHEETS:

General Structural Notes

THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS

CODE REQUIREMENTS

1. ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE, 2018 EDITION.

REFERENCE DOCUMENTS

DETENTION DETAILS BY ATWELL DATED 8-25-23

GEOTECHNICAL REPORT BY EARTH SOLUTIONS NW DATED 7-28-22

GENERAL REQUIREMENTS

2. DESIGN LOADING CRITERIA

A. VERTICAL LOADS ON VAULT LIDS:

LIVE LOADS: HS25-44 PER AASHTO STANDARD SPECIFICATIONS*
150PSF TRAFFIC SURCHARGE*

* NOTE: THE LIVE LOAD CONDITIONS GIVEN ABOVE ARE TO BE APPLIED INDEPENDENT OF EACH OTHER, BUT IN COMBINATION WITH OTHER LOADS AS REQUIRED BY THE IBC. EACH LOAD MUST BE INCREASED BY ANY FACTORS REQUIRED BY THE IBC UNLESS SPECIFICALLY EXCEPTED.

DEAD LOADS:

SOIL COVER AND SUPERSTRUCTURE LOADING 1.0' MIN TO 3.0' MAX
VERIFY SOIL COVER DEPTH OVER THE PRECAST PLANKS WITH THE PERMITTED SET OF CIVIL DRAWINGS. NOTIFY THE PLANK MANUFACTURER AND ENGINEER OF ANY DISCREPANCY PRIOR TO CONSTRUCTION.

3. ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, THE SPECIFICATIONS, THESE GENERAL NOTES AND THE SITE CONDITIONS SHALL BE REPORTED TO THE CIVIL AND STRUCTURAL ENGINEERS, WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE GENERAL CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE GENERAL CONTRACTOR'S RISK.

4. SHOULD ANY DISCREPANCIES BE FOUND IN THE PROJECT DOCUMENTS, THE CONTRACTOR WILL BE DEEMED TO HAVE INCLUDED IN THE PRICE THE MOST EXPENSIVE WAY OF COMPLETING THE WORK, UNLESS PRIOR TO SUBMISSION OF THE PRICE THE CONTRACTOR ASKS FOR A DECISION FROM THE ENGINEER AS TO WHICH SHALL GOVERN.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE CONTRACTOR'S WORK. THE STRUCTURAL ENGINEER HAS NO OVERALL SUPERVISORY AUTHORITY OR ACTUAL AND/OR DIRECT RESPONSIBILITY FOR THE SPECIFIC WORKING CONDITIONS AT THE SITE AND/OR FOR ANY HAZARDS RESULTING FROM THE ACTIONS OF ANY TRADE CONTRACTOR. THE STRUCTURAL ENGINEER HAS NO DUTY TO INSPECT, SUPERVISE, NOTE, CORRECT, OR REPORT ANY HEALTH OR SAFETY DEFICIENCIES TO THE OWNER, CONTRACTORS, OR OTHER ENTITIES OR PERSONS AT THE PROJECT SITE.

6. CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF EXISTING STRUCTURES AND EXISTING GRADES IN THE FIELD AND SHALL NOTIFY THE ENGINEER OF ALL FIELD CHANGES PRIOR TO FABRICATION AND INSTALLATION OF ANY STRUCTURAL MEMBER.

7. CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE CIVIL ENGINEER AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

8. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE CIVIL ENGINEER AND THE STRUCTURAL ENGINEER. ALL TYPICAL AND NOTES SHOWN ON DRAWINGS SHALL APPLY, UNLESS NOTED OTHERWISE. TYPICAL DETAILS MAY NOT NECESSARILY BE INDICATED ON THE PLANS BUT SHALL STILL APPLY AS SHOWN OR DESCRIBED IN THE DETAILS. WHERE TYPICAL DETAILS ARE NOTED ON THE PLANS, THE SPECIFIED TYPICAL DETAIL SHALL BE USED. WHERE NO TYPICAL DETAIL IS NOTED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CHOOSE THE APPROPRIATE TYPICAL DETAIL FROM THOSE PROVIDED. THE CONTRACTOR SHALL SUBMIT ALL PROPOSED ALTERNATE TYPICAL DETAILS TO THOSE PROVIDED WITH RELATED CALCULATIONS TO THE ENGINEER FOR APPROVAL PRIOR TO SHOP DRAWING PRODUCTION AND FIELD USE.

9. DEFERRED SUBMITTALS: THE FOLLOWING ITEMS SHALL BE SUBMITTED IN WRITING FOR APPROVAL TO THE ENGINEER AND OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK OR THE FABRICATION OR INSTALLATION OF ANY STRUCTURAL ITEM. THE CONTRACTOR SHALL RETAIN ALL RESPONSIBILITY FOR MEANS AND METHODS OF CONSTRUCTION.

PRECAST CONCRETE PANELS

10. SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE CIVIL ENGINEER AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.

REINFORCING STEEL
GROUTS AND CONCRETES
METAL BAR GRATING

APPROVED SETS OF ALL SHOP DRAWINGS SHALL ALSO BE SUBMITTED TO THE BUILDING DEPARTMENT.

11. SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD. CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, AND ALL SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO. SUBMITTALS SHALL INCLUDE A

REPRODUCIBLE AND ONE COPY; REPRODUCIBLE WILL BE MARKED AND RETURNED WITHIN TWO WEEKS OF RECEIPT WITH A NOTATION INDICATING THAT THE SUBMITTAL HAS BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. THE SUBMITTED ITEMS SHALL NOT BE INSTALLED UNTIL THEY HAVE BEEN APPROVED BY THE DESIGN TEAM.

SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT, BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHODS.

12. BACKFILL MAY BE PLACED AGAINST THE VAULT WALLS 7-DAYS AFTER PLACEMENT OF THE CONCRETE IN THE PLANK VOID FILL AND PERIMETER CLOSURE OF THE HOLLOW-CORE PLANK. BACKFILL MAY BE PLACED PRIOR TO 7-DAYS IF CONCRETE CYLINDER BREAKS INDICATE A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 3,000 PSI.

13. UTILITY LOCATION: THE UTILITIES INFORMATION SHOWN ON THE PLANS MAY NOT BE COMPLETE. THE SHORING CONTRACTOR SHALL DETERMINE THE HORIZONTAL AND VERTICAL LOCATION OF ALL ADJACENT UNDERGROUND UTILITIES PRIOR TO DRIVING PILES, OR CUTTING OR DIGGING IN STREETS OR ALLEYS. THIS INCLUDES CALLING UTILITY LOCATE AT 1-800-424-5555 AND THEN POTHOLING ALL UTILITIES PRIOR TO CONSTRUCTION TO CONFIRM DEPTHS AND LOCATIONS AND TO VERIFY THAT THERE ARE NO CONFLICTS WITH THE PILE AND TIEBACK CROSSING ELEVATIONS. PILES SHALL MAINTAIN A MINIMUM OF 12" CLEARANCE TO ANY EXISTING UTILITIES TO REMAIN. CONTRACTOR SHALL NOTIFY THE ENGINEER OF CONFLICTS. CONFLICTS SHALL BE RESOLVED IN WRITING PRIOR TO PROCEEDING WITH CONSTRUCTION.

QUALITY ASSURANCE

14. SPECIAL INSPECTION SHALL BE PROVIDED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND SECTIONS 110 AND 1704 OF THE INTERNATIONAL BUILDING CODE BY A QUALIFIED TESTING AGENCY DESIGNATED BY THE CIVIL ENGINEER, AND RETAINED BY THE BUILDING OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ALL INSPECTIONS. THE CIVIL ENGINEER, STRUCTURAL ENGINEER, AND BUILDING DEPARTMENT SHALL BE FURNISHED WITH COPIES OF ALL INSPECTION AND TEST RESULTS WITHIN TWO WEEKS OF COMPLETION OF EACH PHASE OF WORK. SPECIAL INSPECTION OF THE FOLLOWING TYPES OF CONSTRUCTION IS REQUIRED

SOILS	SEE STATEMENT OF SPECIAL INSPECTION
STRUCTURAL STEEL	SEE STATEMENT OF SPECIAL INSPECTION
CONCRETE AND CONCRETE REINFORCING	SEE STATEMENT OF SPECIAL INSPECTION

PERIODIC INSPECTION ALLOWS INSPECTION AT INTERVALS NECESSARY TO CONFIRM THAT WORK REQUIRING SPECIAL INSPECTION IS IN COMPLIANCE WITH REQUIREMENTS. CONTINUOUS SPECIAL INSPECTION REQUIRES THAT THE INSPECTOR BE ONSITE AT ALL TIMES THAT WORK REQUIRING SPECIAL INSPECTION IS PERFORMED.

15. INSPECTORS SHALL BRING DEFICIENCIES TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED, THE INSPECTOR SHALL BRING THE UNCORRECTED DEFICIENCY TO THE ATTENTION OF THE BUILDING OFFICIAL AND THE STRUCTURAL ENGINEER IMMEDIATELY AND PRIOR TO COMPLETION OF THAT PHASE OF WORK.

16. SOILS INSPECTION: ALL PREPARED SOIL BEARING SURFACES SHALL BE INSPECTED BY THE SOILS ENGINEER PRIOR TO PLACEMENT OF FOUNDATIONS. SOIL COMPACTION SHALL BE SUPERVISED BY AN APPROVED TESTING LAB. THE GEOTECHNICAL ENGINEER SHALL ALSO ADVISE ON WATER CONTROL AND SLAB ON GRADE CONSTRUCTION.

17. WET WEATHER INSPECTION: A SITE VISIT FROM THE GEOTECHNICAL SPECIAL INSPECTOR SHALL OCCUR DURING EACH DAY OF ACTIVE GRADING AND IN THE EVENT OF SIGNIFICANT RAINFALL WHICH MIGHT COMPROMISE STABILIZATION MEASURES BETWEEN NOVEMBER 1 AND MARCH 31. THE DETERMINATION OF WHAT CONSTITUTES SIGNIFICANT RAINFALL IS SUBJECT TO THE DISCRETION OF THE GEOTECHNICAL SPECIAL INSPECTOR. HOWEVER, AS A MINIMUM STANDARD, THE GEOTECHNICAL SPECIAL INSPECTOR IS REQUIRED TO CONDUCT A SITE VISIT IF MORE THAN ONE HALF INCH OF PRECIPITATION OCCURS ON ANY GIVEN DAY. ANY RECOMMENDATIONS REQUIRED TO MAINTAIN STABILITY OF EXCAVATIONS AND PROPER FUNCTIONING OF THE SEDIMENT/EROSION CONTROL SYSTEM PROVIDED BY THE GEOTECHNICAL SPECIAL INSPECTOR SHALL BE IMPLEMENTED IMMEDIATELY. THE GEOTECHNICAL SPECIAL INSPECTOR SHALL PROVIDE COPIES OF FIELD REPORTS NO LATER THAN 48 HOURS AFTER EACH INSPECTION. THE GEOTECHNICAL SPECIAL INSPECTOR SHALL PROVIDE WRITTEN NOTICE THAT THE SITE HAS BEEN STABILIZED FOLLOWING COMPLETION OF GRADING.

18. EACH SET OF MONITORING DATA MUST BE PROVIDED TO THE GEOTECHNICAL ENGINEER FOR REVIEW. IT MAY BE NECESSARY TO INSTALL ADDITIONAL MONITORING POINTS IF WARRANTED BY THE DATA. RECOMMENDATIONS WILL BE PROVIDED BY THE GEOTECHNICAL ENGINEER DURING CONSTRUCTION IF ADDITIONAL MONITORING POINTS BECOME NECESSARY.

GEOTECHNICAL INFORMATION AND CRITERIA

19. SUBGRADE PREPARATION INCLUDING DRAINAGE, EXCAVATION, COMPACTION AND FILLING REQUIREMENTS SHALL BE AS DIRECTED BY THE GEOTECHNICAL ENGINEER.

20. VAULT FOOTINGS SHALL BEAR ON SOLID UNDISTURBED EARTH OR STRUCTURAL FILL. FOOTING DEPTHS/ELEVATIONS SHOWN ON PLANS (OR IN DETAILS) ARE MINIMUM AND FOR GUIDANCE ONLY; THE ACTUAL ELEVATIONS OF FOOTINGS MUST BE ESTABLISHED BY THE CONTRACTOR IN THE FIELD WORKING WITH THE TESTING LAB AND GEOTECHNICAL ENGINEER. BACKFILL BEHIND ALL VAULT WALLS WITH FREE DRAINING GRANULAR FILL AND PROVIDE FOR SUBSURFACE DRAINAGE.

21. EXCAVATIONS FOR FOUNDATIONS SHALL BE PER PLAN DOWN TO UNDISTURBED NATIVE MATERIAL PER THE GEOTECHNICAL ENGINEERING RECOMMENDATIONS. OVER EXCAVATED AREAS SHALL BE BACKFILLED WITH LEAN CONCRETE OR PER GEOTECHNICAL RECOMMENDATIONS AT THE CONTRACTOR'S EXPENSE. EXCAVATION SLOPES SHALL BE SAFE AND SHALL NOT BE GREATER THAN THE LIMITS SPECIFIED BY LOCAL, STATE, AND NATIONAL SAFETY REGULATIONS. CONTRACTOR SHALL PROTECT CUT SLOPES AS NECESSARY IF CONSTRUCTION OCCURS DURING WET WEATHER, AND SHALL CONTROL AND MANAGE RUNOFF TO MINIMIZE EFFECTS ON CONSTRUCTION.

22. DESIGN SOIL CAPACITIES ARE DETERMINED BY THE GEOTECHNICAL ENGINEER. THE SOIL PRESSURES INDICATED ON THE SOIL PRESSURE DIAGRAM WERE USED FOR DESIGN, IN ADDITION TO THE DEAD AND LIVE LOADS.

23. SOIL DESIGN PARAMETERS ARE DERIVED FROM THE GEOTECHNICAL REPORT BY EARTH SOLUTIONS NW. ALL VALUES SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION AND THE ENGINEER OF RECORD NOTIFIED OF ANY DISCREPANCIES:

AT-REST EARTH PRESSURE	55 PCF EFD
SEISMIC SURCHARGE PRESSURE	8H PSF UNIFORM
ALLOWABLE BEARING PRESSURE	5,000 PSF
COEFFICIENT OF FRICTION	0.40 (FS = 1.5)
PASSIVE RESISTANCE	300 PCF (FS = 1.5)

CONCRETE

24. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED AND PLACED IN ACCORDANCE WITH IBC SECTION 1905, 1906, AND ACI 301. STRENGTHS AT 28 DAYS AND MIX CRITERIA SHALL BE AS FOLLOWS:

f'c (psi)	Minimum Cement Per Cubic Yard	Max. Water Per 94 LB Cement	Use
3,500	5-1/2 sacks	.5 w/c	foundations and walls
3,500		.5 w/c	exposed curb
3,500*		.53 w/c*	plank void fill

* STRENGTH AND W/C RATIO LISTED ARE A MINIMUM. MIX SHALL MEET PLANK MANUFACTURERS SPECIFICATIONS.

25. THE MINIMUM AMOUNTS OF CEMENT MAY BE CHANGED IF A CONCRETE PERFORMANCE MIX IS SUBMITTED TO THE STRUCTURAL ENGINEER AND THE BUILDING DEPARTMENT FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE. THE PERFORMANCE MIX SHALL INCLUDE THE AMOUNTS OF CEMENT, FINE AND COARSE AGGREGATE, WATER AND ADMIXTURES AS WELL AS THE WATER CEMENT RATIO, SLUMP, CONCRETE YIELD AND SUBSTANTIATING STRENGTH DATA IN ACCORDANCE WITH IBC 1905.6. THE USE OF A PERFORMANCE MIX REQUIRES BATCH PLANT INSPECTION, THE COST OF WHICH SHALL BE PAID BY THE GENERAL CONTRACTOR. REVIEW OF MIX SUBMITTALS BY THE ENGINEER OF RECORD INDICATES ONLY THAT INFORMATION PRESENTED CONFORMS GENERALLY WITH CONTRACT DOCUMENTS. CONTRACTOR OR SUPPLIER MAINTAINS FULL RESPONSIBILITY FOR SPECIFIED PERFORMANCE.

26. CONCRETE STRENGTHS SHALL BE VERIFIED BY STANDARD CYLINDER TESTS, UNLESS APPROVED OTHERWISE.

27. REINFORCING STEEL SHALL CONFORM TO ASTM A615 (INCLUDING SUPPLEMENT S1), GRADE 60, fy = 60,000 PSI.

28. ALL CONCRETE WITH SURFACES EXPOSED TO WEATHER OR STANDING WATER SHALL BE AIR-ENTRAINED WITH AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260, C494, AND C618. TOTAL AIR CONTENT FOR FROST-RESISTANT CONCRETE SHALL BE IN ACCORDANCE WITH ACI 318-14, TABLE 19.3.2.1 MODERATE EXPOSURE, F1.

29. DETAILING OF REINFORCING STEEL (INCLUDING HOOKS AND BENDS) SHALL BE IN ACCORDANCE WITH ACI 315R-18 AND 318-14. LAP ALL CONTINUOUS REINFORCEMENT #5 AND SMALLER 40 BAR DIAMETERS OR 2'-0" MINIMUM. PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. LAP CORNER BARS #5 AND SMALLER 40 BAR DIAMETERS OR 2'-0" MINIMUM. LAPS OF LARGER BARS SHALL BE MADE IN ACCORDANCE WITH ACI 318-14, CLASS B. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.

NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.

30. CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

FOOTINGS AND OTHER UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
FORMED SURFACES EXPOSED TO EARTH OR WEATHER (#6 BARS OR LARGER). . . 2"
FORMED SURFACES EXPOSED TO EARTH OR WEATHER (#5 BARS OR SMALLER). . 1-1/2"
4" SLAB ON GRADE 1-1/2"

31. CAST-IN-PLACE CONCRETE: VERIFY WITH CIVIL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF OPENINGS IN ALL CONCRETE WALLS.

32. PLANK JOINT GROUT SHALL BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. GROUT STRENGTH SHALL MEET PLANK MANUFACTURER'S SPECIFICATIONS.

PRECAST HOLLOW CORE CONCRETE PLANKS

33. PRECAST HOLLOW CORE PLANKS TO BE DESIGNED AND MANUFACTURED BY CONCRETE TECHNOLOGY CORPORATION (OR APPROVED MANUFACTURER).

34. PRECAST HOLLOW CORE PLANKS SHALL BE CONSIDERED A DEFERRED SUBMITTAL. PLANK DESIGN SHOP DRAWINGS AND CALCULATIONS, INCLUDING DIMENSIONS, DESIGN LOADS, AND DETAILS SHALL BE STAMPED BY AN ENGINEER REGISTERED IN THE STATE OF WASHINGTON AND SUBMITTED FOR APPROVAL PRIOR TO FABRICATION.

35. THE MANUFACTURER SHALL INSTALL ALL BLOCKOUTS REQUIRED FOR STRUCTURAL CONNECTIONS AS INDICATED ON THESE DRAWINGS. NO OTHER PENETRATIONS ARE PERMITTED WITHOUT PRIOR APPROVAL OF THE PLANK MANUFACTURER. ALL JOINTS SHALL BE GROUTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

36. PRECAST HOLLOW CORE PLANKS SHALL BE DESIGNED TO CARRY THE DESIGN LOADS ONLY

AFTER VAULT CONSTRUCTION IS COMPLETE, ALL DESIGN CONCRETE AND GROUT STRENGTHS HAVE BEEN ACHIEVED AND ALL COVER HAS BEEN PLACED OVER THE VAULT WITHIN THE SPECIFIED LIMITS. ALLOWABLE UNIFORM LOADS ON THE BARE PLANK MAY BE OBTAINED FROM THE PLANK MANUFACTURER.

METAL BAR GRATING

37. METAL BAR GRATING AND SUPPORT BEAM DESIGN SHALL BE PROVIDED BY THE SUPPLIER. SHOP DRAWINGS, AND MATERIAL SPECIFICATIONS SHALL BE PROVIDED FOR REVIEW PRIOR TO INSTALLATION.

38. DESIGN REQUIREMENTS
A. LOADING: SEE DESIGN CRITERIA FOR LIVE LOADING REQUIREMENTS
B. FINISH: ALL STEEL EXPOSED TO WEATHER SHALL BE GALVANIZED
C. END BEARING: DESIGN OF BEARING ANGLE AND EMBED SHALL BE PROVIDED BY THE GRATING SUPPLIER

STATEMENT OF SPECIAL INSPECTIONS

SOILS			
VERIFICATION AND INSPECTION TASK	CONTINUOUS	PERIODIC	REFERENCES
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY		X	IBC 1705.6
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X	
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS		X	
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X		
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		X	

STRUCTURAL STEEL

VERIFICATION AND INSPECTION TASK	CONTINUOUS	PERIODIC	REFERENCE
1. FABRICATED AND ERECTED STEEL:			
a. COMPLIANCE WITH DETAILS SHOWN ON CONSTRUCTION DOCUMENTS		X	ATSC 360, SECTION N5
b. APPLICATION OF JOINT DETAILS AT EACH CONNECTION		X	

CONCRETE AND CONCRETE REINFORCING

VERIFICATION AND INSPECTION TASK	CONTINUOUS	PERIODIC	REFERENCE
1. INSPECTION OF REINFORCING STEEL		X	IBC 1908.4 ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3
2. VERIFYING USE OF REQUIRED DESIGN MIX		X	IBC 1904.1 IBC 1904.2 IBC 1908.2 IBC 1908.3 ACI 318: Ch. 19, 26.4.3, 26.4.4
3. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X		IBC 1908.10 ASTM C 172 ASTM C 31 ACI 318: 26.5, 26.12
4. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		X	IBC 1908.9 ACI 318: 26.5.3-26.5.5
5. INSPECT FORMWORK FOR GENERAL CONFORMITY TO APPROVED PLANS FOR SIZE, SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		X	ACI 318: 26.11.1,2(b)

RECEIVED
9/8/2023



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DESIGN:	RJA
CHECKED:	RJA
APPROVED:	RJA

REVISIONS:	

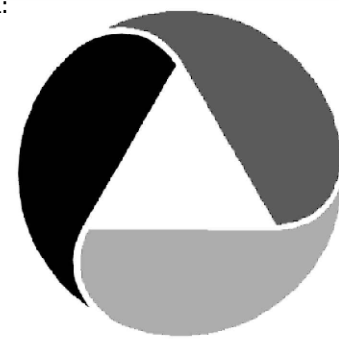
PROJECT TITLE:

Harbor Grove
Stormwater Detention Vault
9110 53rd Ave W
Mukilteo, WA

CLIENT:

Sea Pac Homes
120 SW Everett Mall Way
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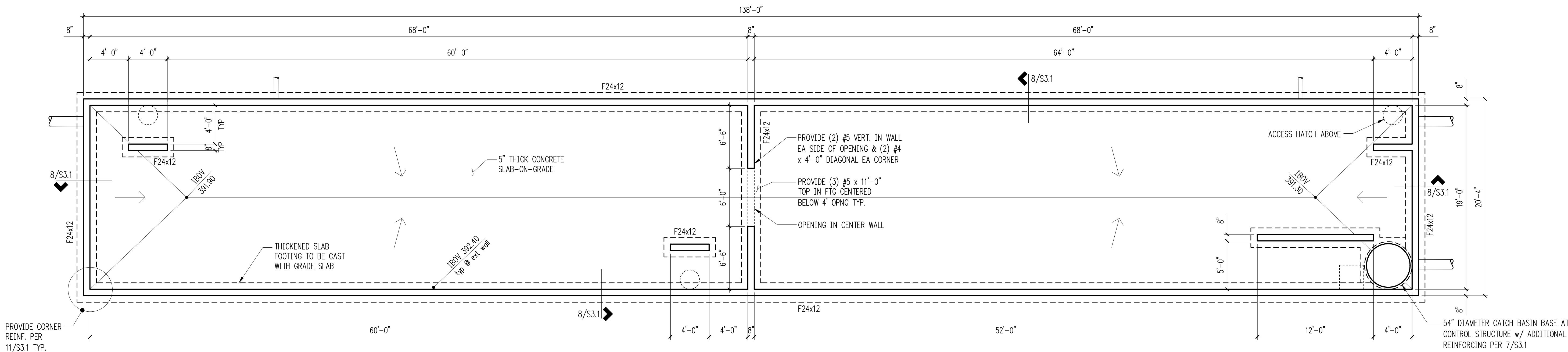
SHEET TITLE:

**Detention Vault
Lid & Foundation Plans**

SCALE: 3/16" = 1'-0" U.N.O.
DATE: September 8, 2023
PROJECT NO: 12791-2023-01
SHEET NO:

S2.1

NO: OF SHEETS:



Plan Notes

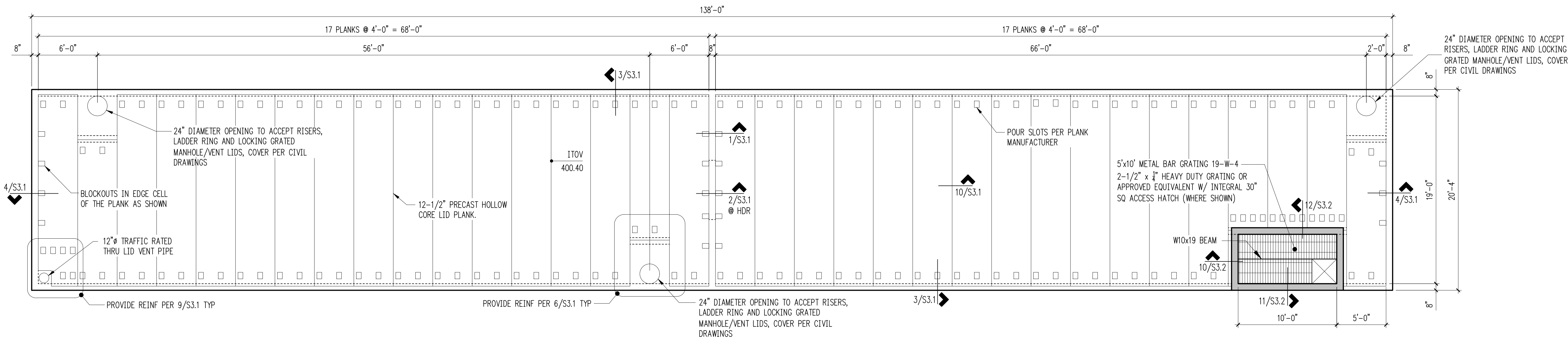
- SEE CIVIL DRAWINGS FOR PIPE INLET DIAMETERS, LOCATIONS AND INVERTS. SEE 12/S3.1 FOR ADDITIONAL WALL REINFORCING AROUND PIPE PENETRATIONS.
- REINFORCE GRADE SLAB WITH #4 @ 18"oc PLACED AT THE MID-DEPTH OF THE SLAB.
- ALL FOOTING SHALL BEAR ON DENSE UNDISTURBED SOILS OR ON STRUCTURAL FILL PLACED AND COMPACTED PER GEOTECHNICAL RECOMMENDATIONS. ALLOWABLE BEARING PRESSURES SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

LEGEND

- IBOV INSIDE BOTTOM OF VAULT/TOP OF SLAB ELEVATION
- VAULT INLET OR OUTLET PER CIVIL DRAWINGS
- F24x12 FOOTING WIDTH (IN) FOOTING DEPTH (IN)

Stormwater Detention Vault Foundation Plan

Scale: 3/16" = 1'-0"



Plan Notes

- SEE PLANK MANUFACTURER PLACEMENT PLAN FOR INSTALLATION REQUIREMENTS.

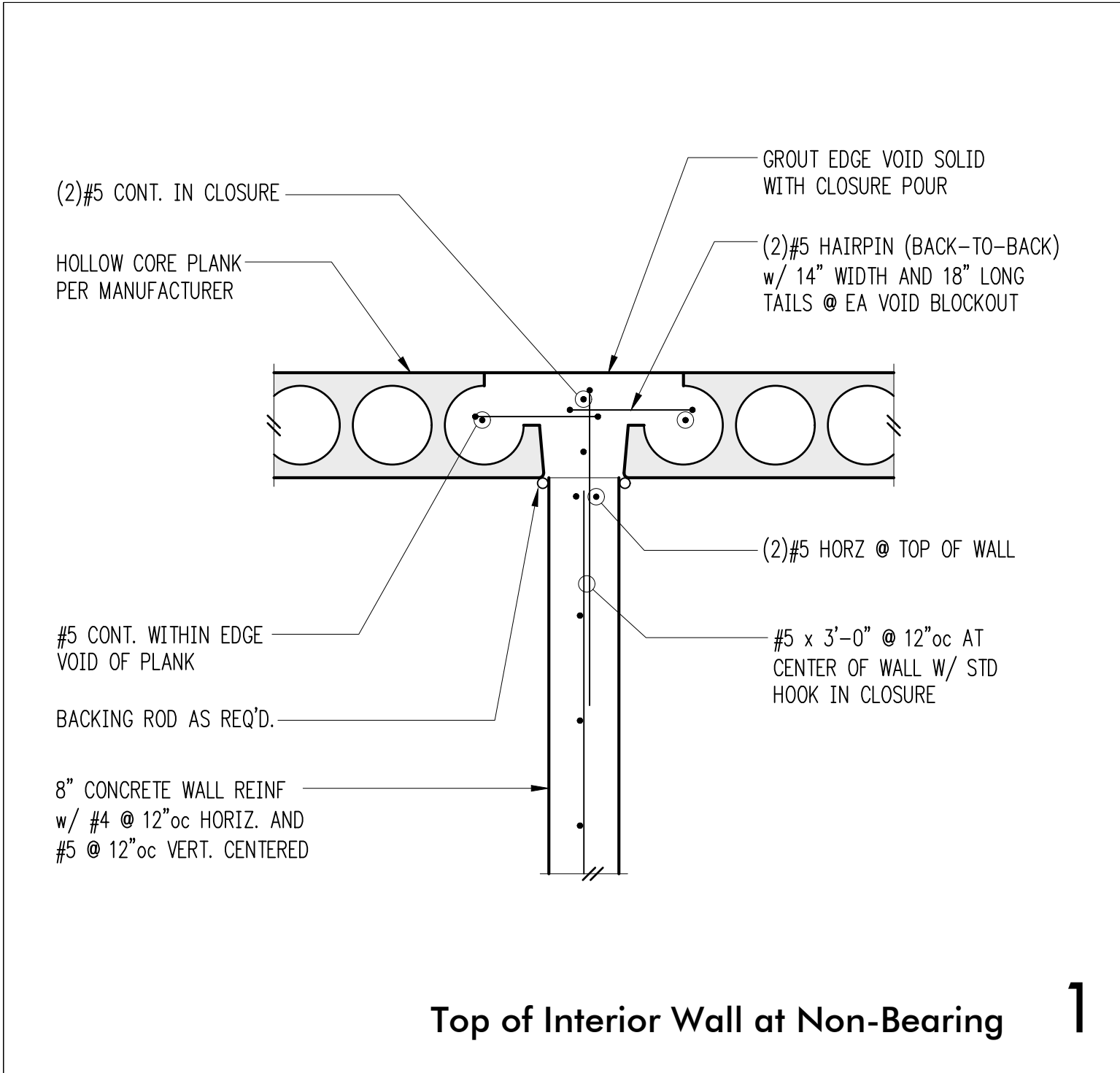
LEGEND

- ITOV INSIDE TOP OF VAULT/BOTTOM OF LID PLANK ELEVATION
- 8" WIDE CURB EXTENDING TO FINISHED GRADE

Stormwater Detention Vault Lid Plan

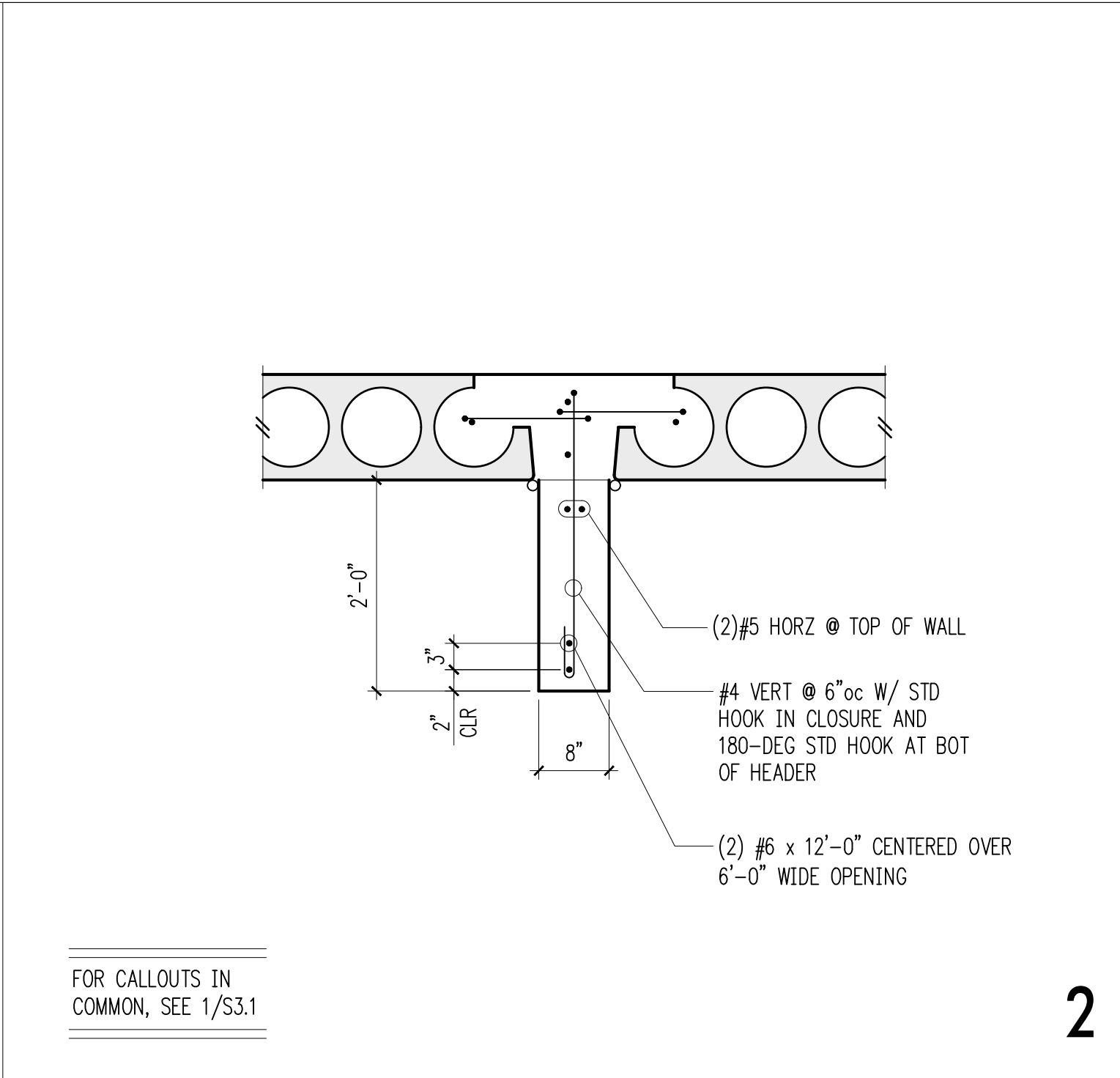
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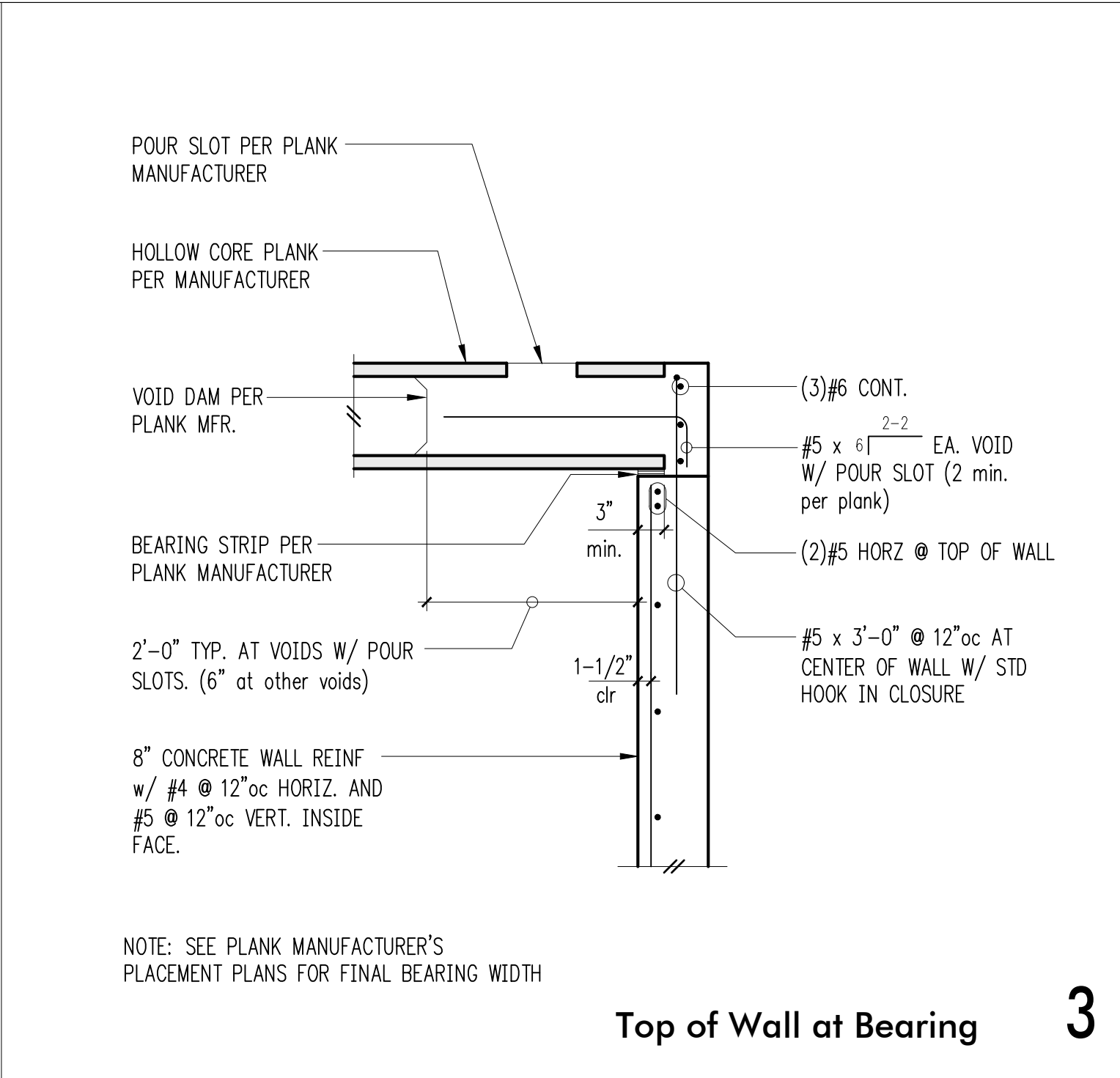


Top of Interior Wall at Non-Bearing

1

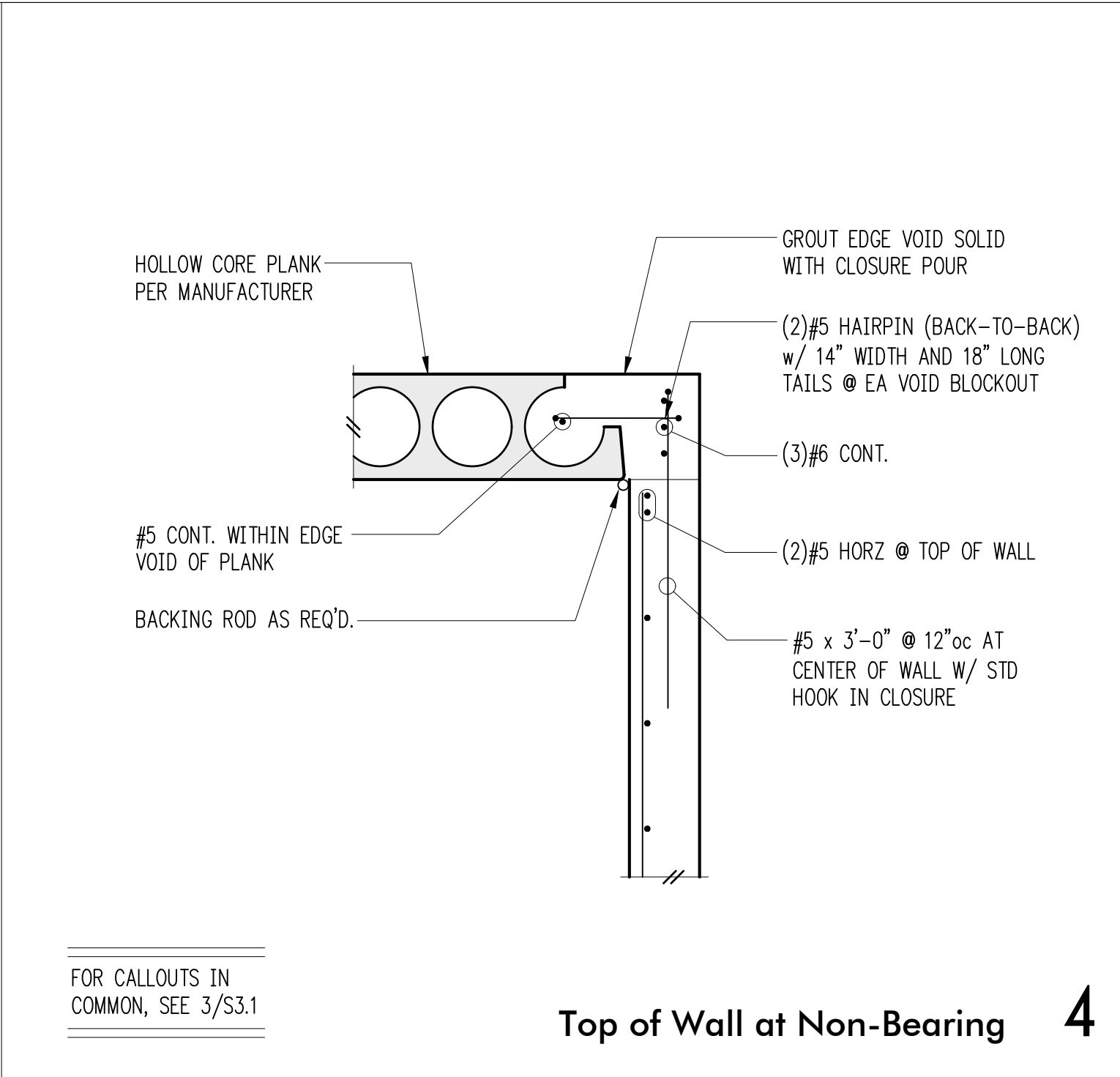


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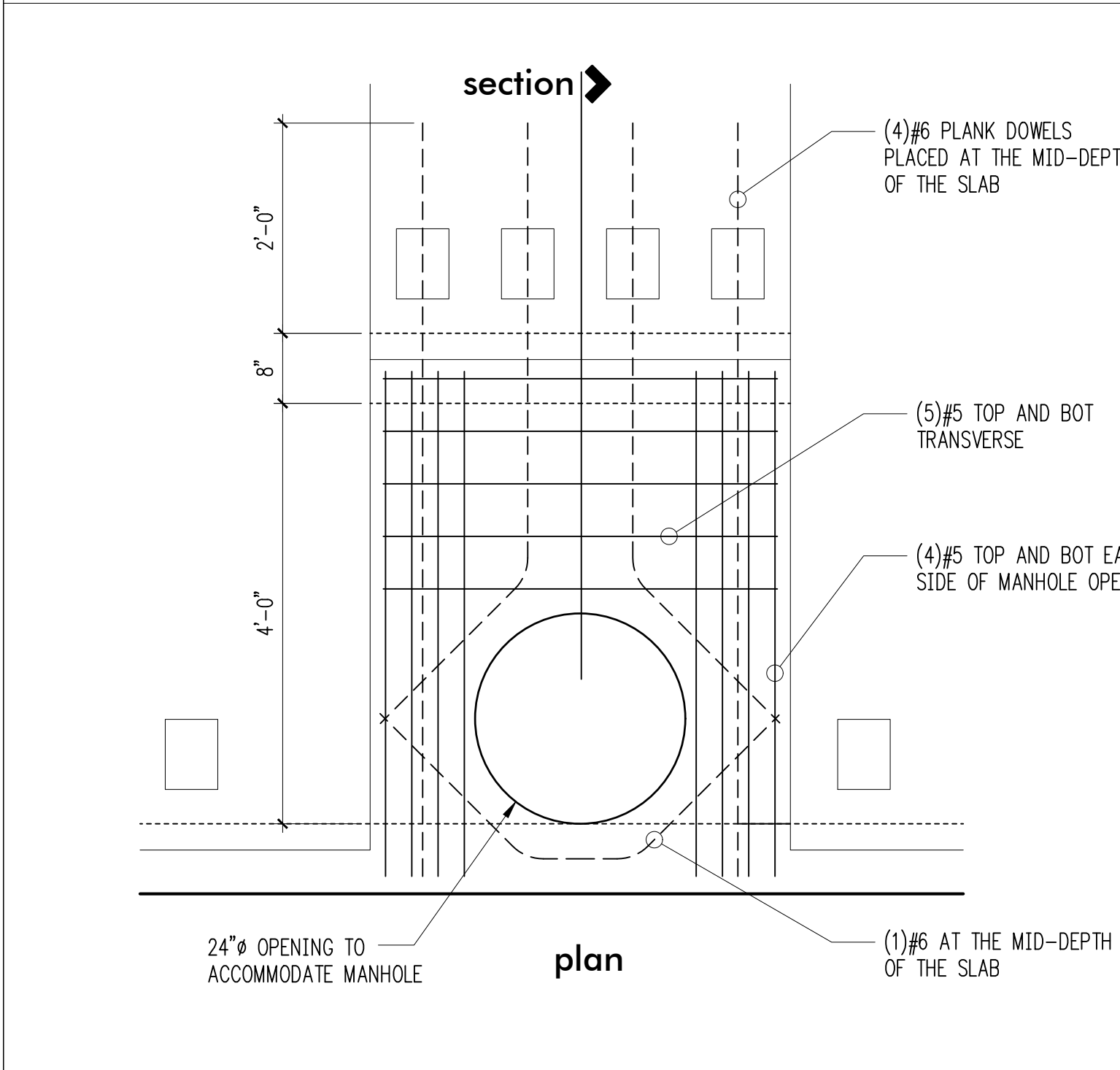
Top of Wall at Bearing

3



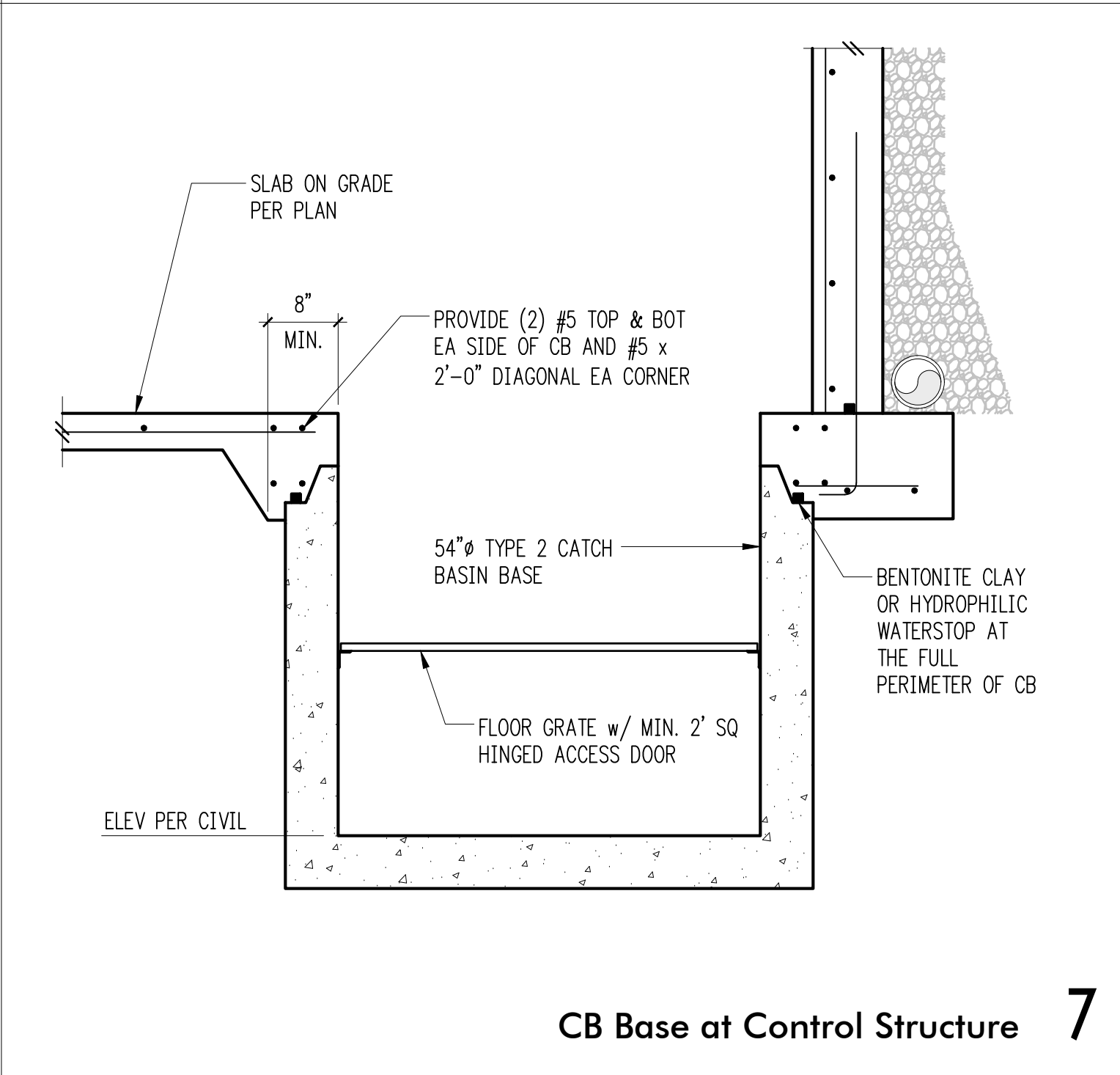
Top of Wall at Non-Bearing

4



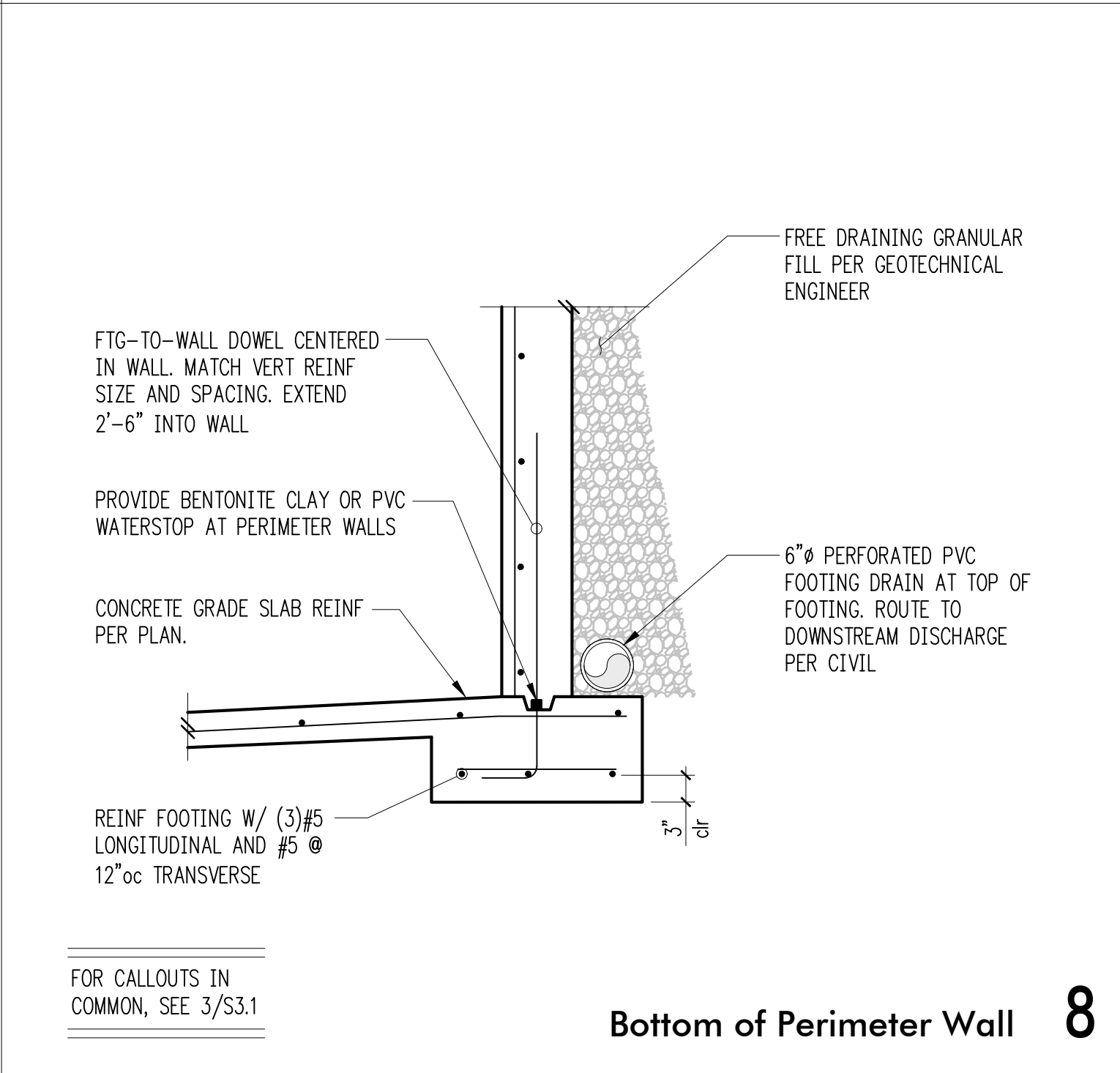
Cast-in-Place Slab and Knee Wall at Manhole

6



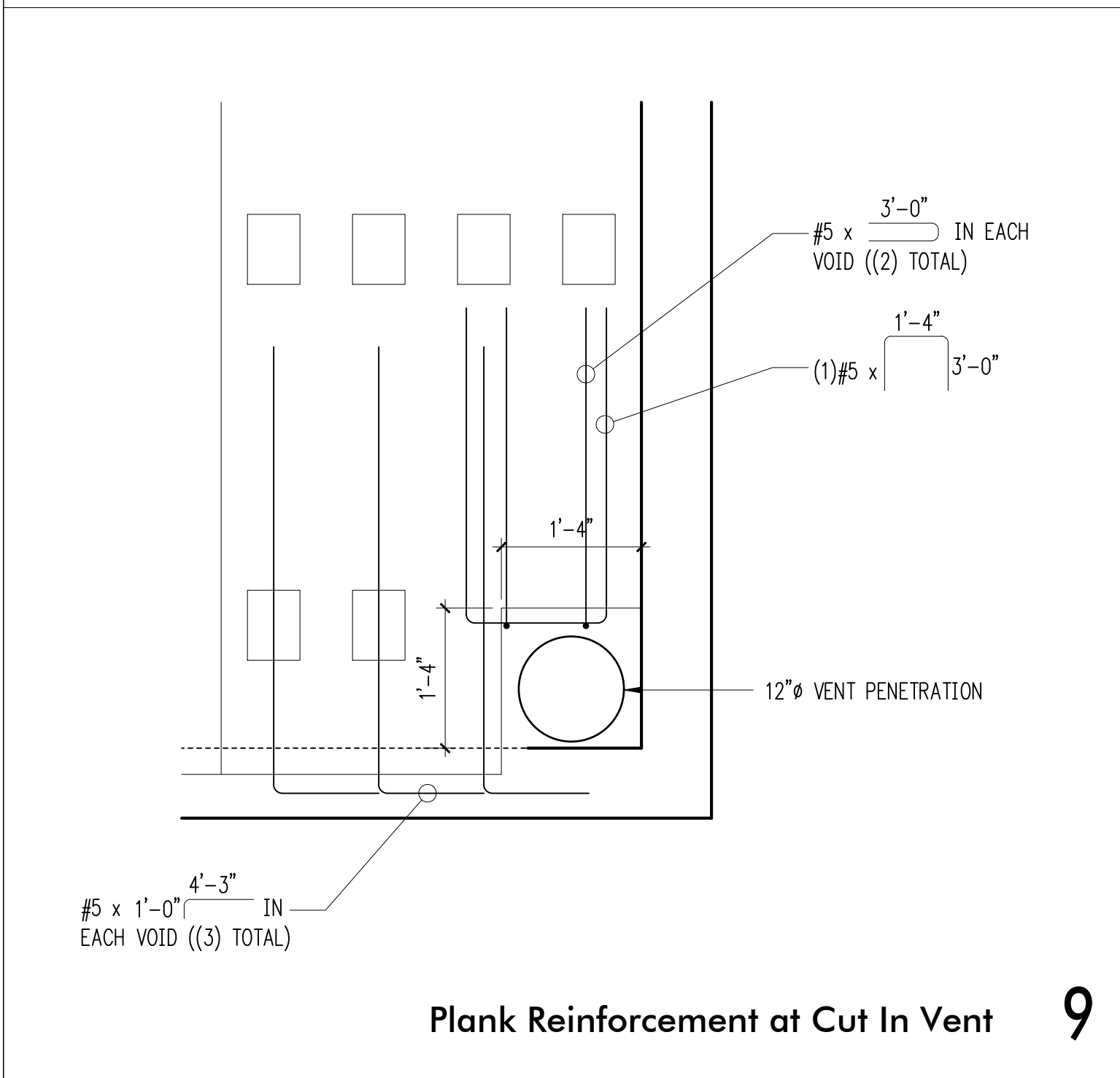
CB Base at Control Structure

7



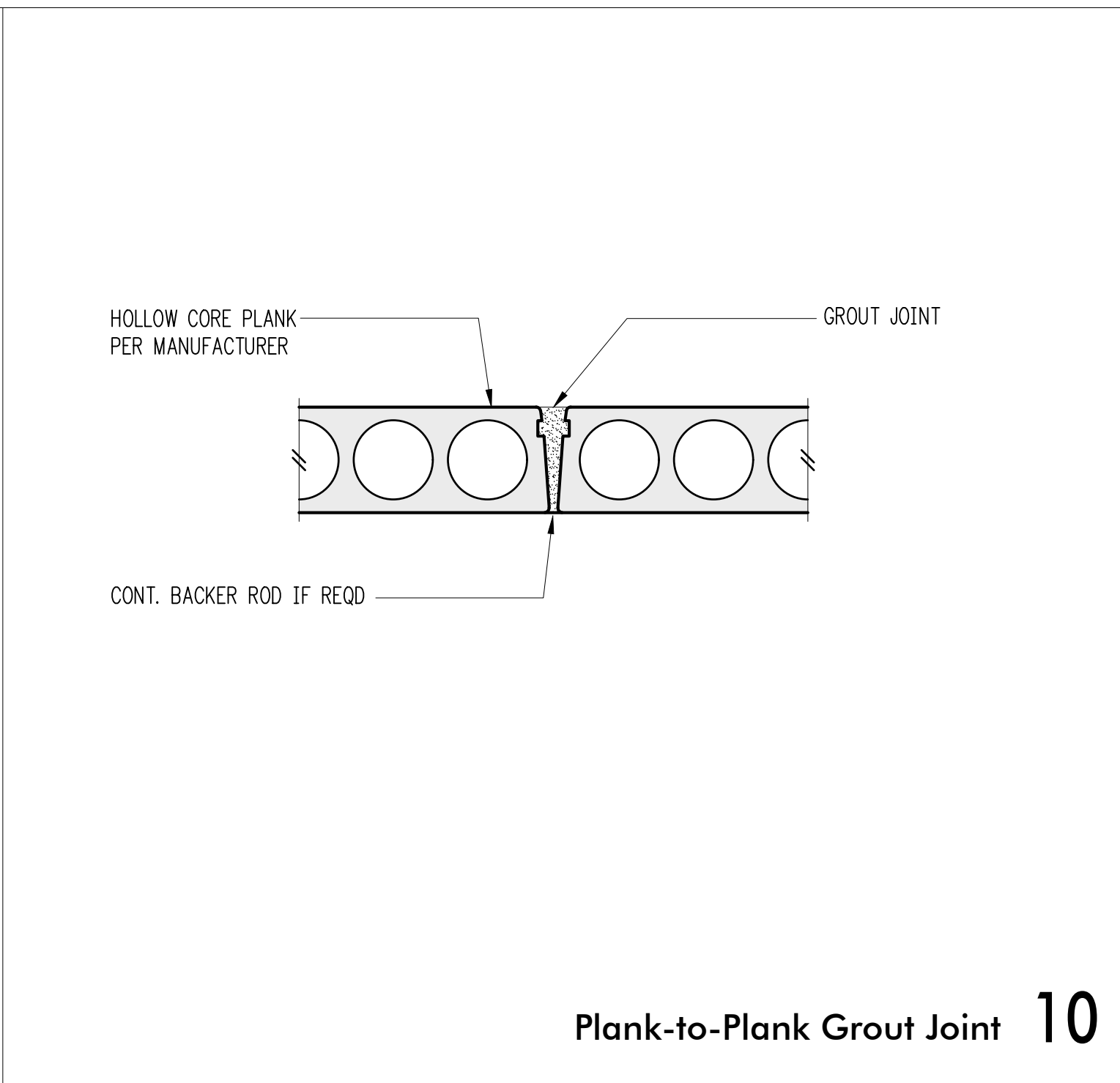
Bottom of Perimeter Wall

8



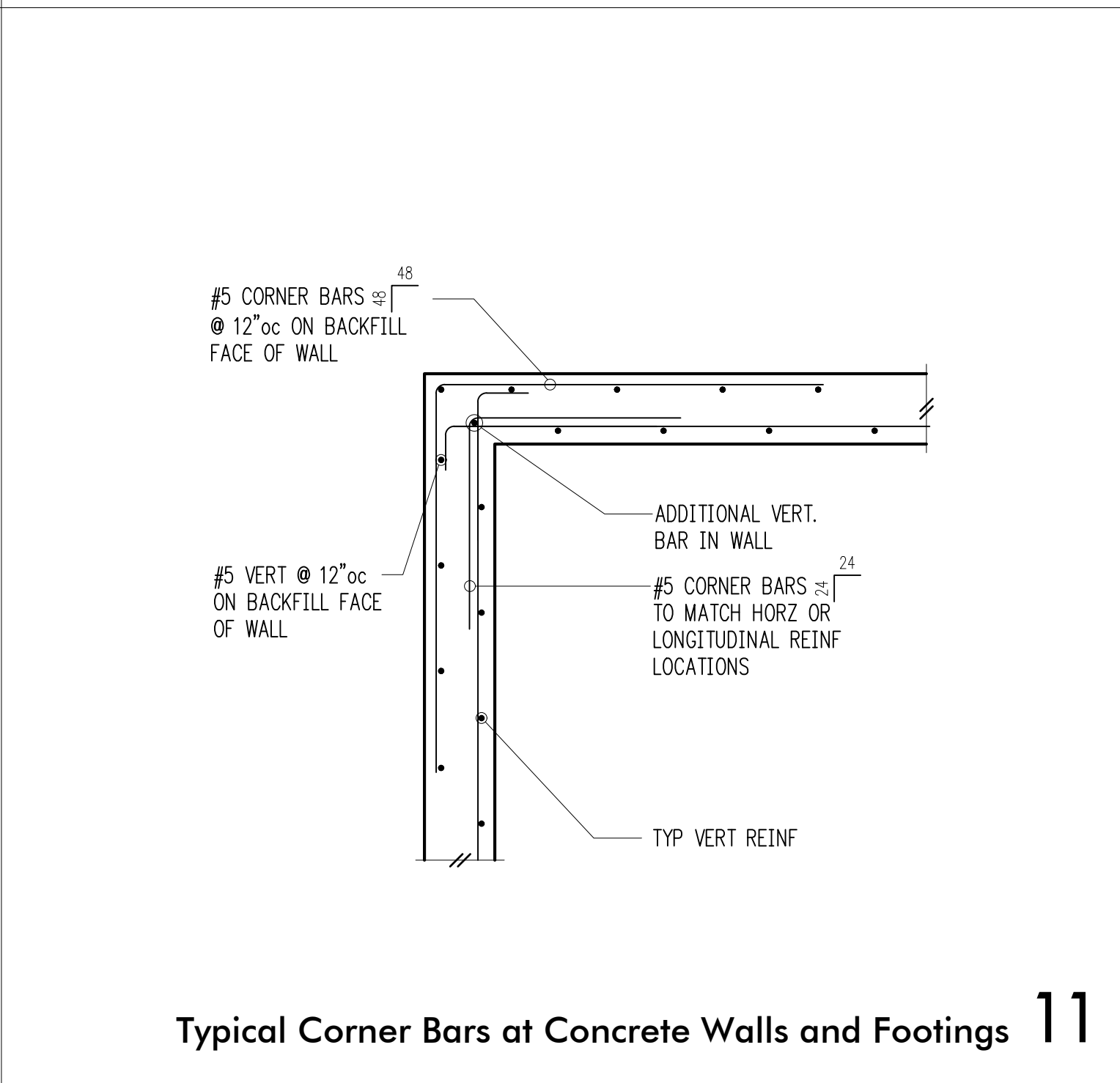
Plank Reinforcement at Cut In Vent

9



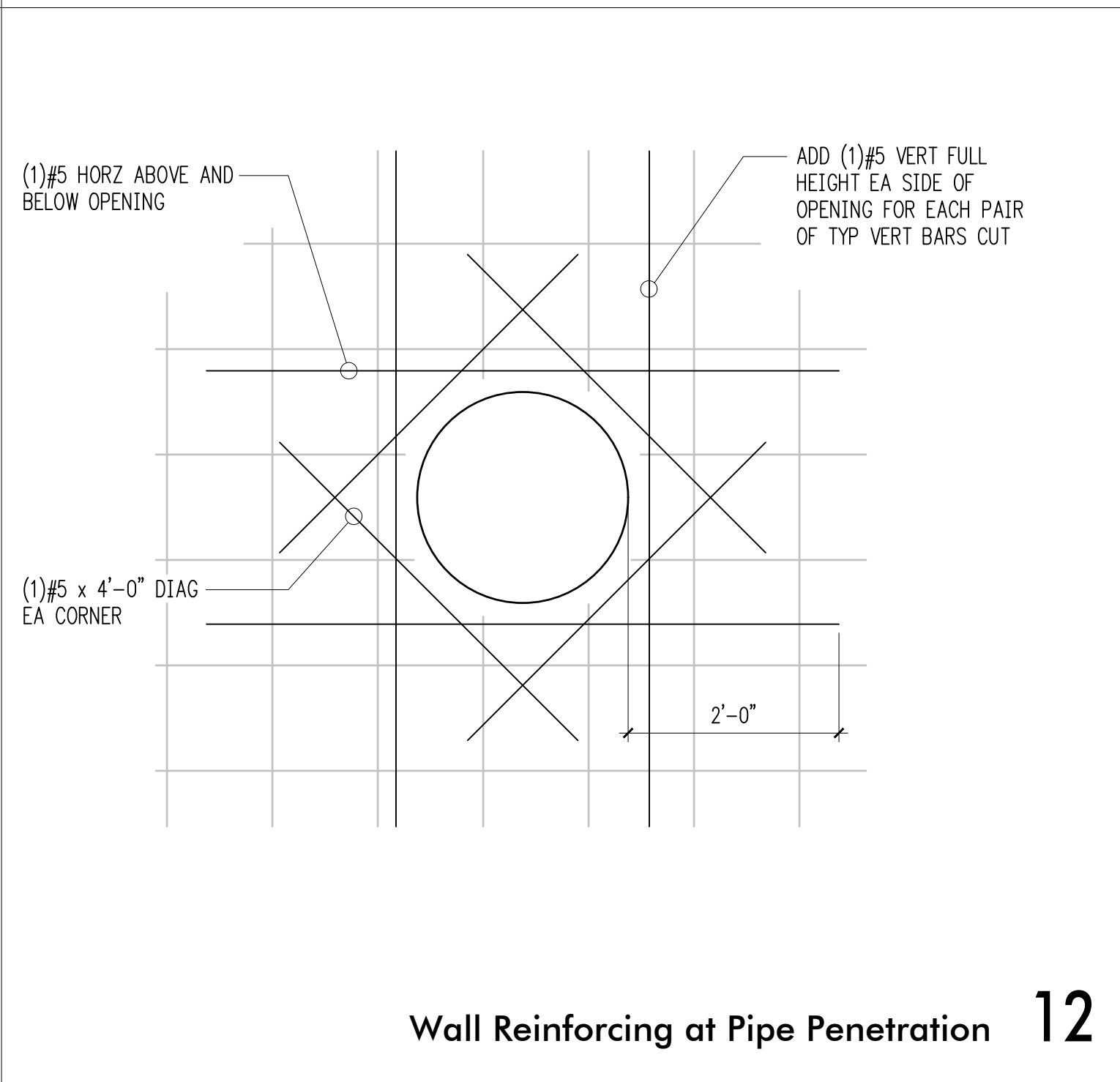
Plank-to-Plank Grout Joint

10



Typical Corner Bars at Concrete Walls and Footings

11



Wall Reinforcing at Pipe Penetration

12

2124 Third Avenue • Suite 100 • Seattle, WA 98121
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9-8-23

DRAWN:	RJA
DESIGN:	RJA
CHECKED:	RJA
APPROVED:	RJA

REVISIONS:

PROJECT TITLE:

Harbor Grove
Stormwater Detention Vault
9110 53rd Ave W
Mukilteo, WA

CLIENT:

Sea Pac Homes
120 SW Everett Mall Way
Everett, WA 98204

CIVIL:

ATWELL
25 Central Way, Suite 400
Kirkland, WA 98033
PH 425.216.4051
FX 425.216.4052
www.atwell-group.com

ISSUE:

Permit

SHEET TITLE:

Detention Vault
Details

SCALE:

3/4" = 1'-0" U.N.O.

DATE:

September 8, 2023

PROJECT NO:

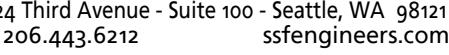
12791-2023-01

SHEET NO:

S3.1

NO: OF SHEETS:

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VISIONS:

PROJECT TITLE:

IENT:

WIL:



SUE:

EET TITLE:

3/4" = 1'-0" U.N.O.

PROJECT NO: 12791-2023-01

EFFECT NO:

OF SHEETS:

3



SC
DA
PR
SH
NO