

GENERAL NOTES

1. THE CURRENT STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (ODOTCMS) INCLUDING ALL SUPPLEMENTS THERETO, IN FORCE ON THE DATE OF THE CONTRACT, SHALL GOVERN ALL MATERIALS AND WORKMANSHIP INVOLVED IN THE IMPROVEMENTS SHOWN ON THESE PLANS. WHEN THERE IS OR APPEARS TO BE A CONFLICT BETWEEN THE ABOVE REFERENCED SPECIFICATIONS AND THESE PLANS, THE MOST STRINGENT REQUIREMENT SHALL GOVERN. UNLESS OTHERWISE SPECIFIED ALL ITEM NUMBERS REFER TO ODOT CMS.
2. PROJECT LIMITS: THE CONTRACTOR SHALL CONFINE HIS ACTIVITIES TO THE PROJECT SITE UNDER DEVELOPMENT, THE EXISTING RIGHTS-OF-WAY, CONSTRUCTION EASEMENTS AND PERMANENT EASEMENTS, AND SHALL NOT TRESPASS UPON PRIVATE PROPERTY WITHOUT WRITTEN CONSENT OF THE PROPERTY OWNER.
3. MISCELLANEOUS WORK: ALL ITEMS CALLED OUT ON THE PLANS FOR WHICH NO SPECIFIC METHOD OF PAYMENT IS PROVIDED SHALL BE PERFORMED BY THE CONTRACTOR AND THE COST OF SAME SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS RELATED WORK.
4. EXISTING UTILITIES: THE INFORMATION SHOWN CONCERNING EXISTING UTILITIES IS APPROXIMATE. THE LOCATION, SIZES AND OTHER INFORMATION SHOWN IS ONLY AS ACCURATE AS THAT PROVIDED BY THE OWNERS OF THE UTILITY. THIS INFORMATION IS NOT REPRESENTED, WARRANTED OR GUARANTEED TO BE COMPLETE OR ACCURATE. THE ENGINEER DOES NOT INDEPENDENTLY VERIFY NOR FIELD LOCATE UTILITIES. THE CONTRACTOR IS RESPONSIBLE TO PHYSICALLY LOCATE AND VERIFY, IN THE FIELD, THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO BEGINNING OF CONSTRUCTION. THE CONTRACTOR SHALL SUPPORT, PROTECT AND RESTORE ALL EXISTING UTILITIES AND THEIR ASSOCIATED ITEMS. THE CONTRACTOR SHALL NOTIFY THE REGISTERED UTILITY PROTECTION SERVICE AND ALL UTILITY OWNERS HAVING FACILITIES IN THE CONSTRUCTION AREA WHO ARE NOT MEMBERS OF A REGISTERED UNDERGROUND PROTECTION SERVICE. THE CONTRACTOR SHALL ADHERE TO SECTION 153.64, OHIO REVISED CODE. THE CONTRACTOR SHALL GIVE NOTIFICATION AS REQUIRED BY OHIO REVISED CODE, AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, AND SHALL COORDINATE HIS WORK WITH THE UTILITY OWNERS UNTIL HIS WORK IS COMPLETED. THE CONTRACTOR SHALL KEEP THE UTILITY OWNERS APPRISED OF HIS SCHEDULE AND REQUIREMENTS AND SHALL PROVIDE THE PROJECT OWNER WITH EVIDENCE OF HAVING NOTIFIED THE UTILITIES AND PROVIDED THEM WITH HIS WORK SCHEDULE PRIOR TO BEGINNING ANY WORK.

CONTRACTORS REQUIRING MORE INFORMATION REGARDING EXISTING UTILITIES SHOULD CONDUCT THEIR OWN FIELD INVESTIGATIONS OR OTHERWISE LOCATE THE UTILITIES PRIOR TO SUBMITTING A BID FOR THE CONSTRUCTION. NOTICE SHALL BE GIVEN TO THE OHIO UTILITIES PROTECTION SERVICE (800-362-2764) FOR THE MEMBER UTILITIES.
5. PERMANENT PAVEMENT: WHERE DAMAGED OR REMOVED, THE PAVEMENT SHALL BE REPLACED BY FIRST REMOVING THE EXISTING PAVEMENT DOWN TO CLEAN GRANULAR MATERIAL. PAVEMENT TO BE REMOVED SHALL BE NEATLY SAWED NOT MORE THAN 72 HOURS PRIOR TO THE PLACING OF PERMANENT PAVEMENT MATERIALS. PERMANENT PAVEMENT REPLACEMENT MATERIALS AND WORKMANSHIP SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS.
6. SAFETY OF CONSTRUCTION: THE CONTRACTOR SHALL COMPLY WITH THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (OSHA) AND ALL OTHER APPLICABLE FEDERAL, STATE AND LOCAL LAWS, REGULATIONS, FINDINGS AND ORDERS RELATING TO SAFETY AND HEALTH CONDITIONS ON THE WORK SITE. CONSTRUCTION METHODS FOR COMPLETING THE WORK DESCRIBED IN THESE CONTRACT DOCUMENTS SHALL BE CONSISTENT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AMENDED CONSTRUCTION STANDARDS FOR EXCAVATIONS, 29 CFR PART 1926, SUB-PART P, EFFECTIVE MARCH 5, 1990.
7. FINAL GRADING AND CLEAN-UP: THE CONTRACTOR SHALL CLEAN UP ALL DEBRIS AND MATERIALS RESULTING FROM HIS OPERATION AND RESTORE ALL SURFACES, STRUCTURES, DITCHES, SIGNS, FENCES, GUARDRAILS, OR OTHER PHYSICAL FEATURES OR PROPERTY DISTURBED OR DAMAGED DURING WORK UNDER THIS CONTRACT TO THEIR ORIGINAL CONDITION TO THE SATISFACTION OF THE ENGINEER. THE COST OF ALL SUCH WORK SHALL BE INCLUDED WITH VARIOUS RELATED ITEMS.

8. SEEDING AND MULCHING: ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND ELEVATION OR TO THE PROPOSED ELEVATIONS SHOWN ON THE DRAWINGS, AND PROPER DRAINAGE SHALL BE PROVIDED. AFTER FINAL GRADING, THE SEED BED SHALL BE RAKED AND ALL STONES, CLODS, LUMPS AND OTHER FOREIGN MATERIAL GREATER THAN 1" IN DIAMETER SHALL BE REMOVED PRIOR TO SEEDING AND MULCHING. ALL AREAS SHALL BE SEEDDED PER THE URBAN SEED MIX OF ITEM 659.09. THE CONTRACTOR SHALL WATER, RE-SEED AND MULCH AS NECESSARY UNTIL AN ACCEPTABLE STAND OF GRASS IS ACHIEVED.
9. EXISTING INFORMATION SHOWN IN THESE DRAWINGS HAS BEEN OBTAINED FROM A LICENSED SURVEYOR IN THE STATE OF OHIO AND HAVE BEEN DEEMED ACCURATE. THE CONTRACTOR AT HIS DISCRETION CAN HAVE THIS SURVEY VERIFIED AT NO ADDITIONAL COST TO THE STATE.
10. ALL ELEVATIONS ARE FOR PROJECT USE ONLY AND ARE BASED ON VERTICAL DATUM NAVD 1988 HORIZONTAL COORDINATES ARE IN ACCORDANCE WITH NAD 83 (2011).
11. CONSTRUCTION LAYOUT STAKES ESTABLISHING LINES AND GRADES SHALL BE PROVIDED BY THE CONTRACTOR. CONTROL POINTS WITH COORDINATES ARE PROVIDED IN PLANS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO RE-ESTABLISH NECESSARY CONTROL STAKES AND MARKS OUTSIDE PROJECT GRADING LIMITS IN ORDER TO PRESERVE PROJECT CONTROL.
12. THE CONTRACTOR SHALL MAKE PROVISIONS TO MAINTAIN UTILITIES WHEN EXECUTING NEW WORK. UTILITY SERVICE TO ADJACENT FACILITIES SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT.
13. THE ODOT SPECIFICATIONS CAN BE FOUND AT THE WEB PAGE: <http://www.dot.state.oh.us/Divisions/ConstructionMgt/OnlineDocs/Pages/2016-Online-Spec-Book.aspx>
14. THE ODOT STANDARDS CAN BE FOUND AT THIS WEB PAGE: <http://www.dot.state.oh.us/drrc/Pages/default.aspx#S>
15. SURFACE WATER CONTROL MEASURES SHALL BE INSTALLED ACCORDING TO PLAN.
16. EROSION AND SEDIMENT CONTROL CAN BE FOUND ON SHEET 7/25. A STORM WATER POLLUTION PREVENTION PLAN HAS BEEN DESIGNED TO CONTROL THE EFFECTS OF EROSION AND SEDIMENTATION. INSTALLATION IS TO BE PER CONTRACTOR AND MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
17. ALL SIGNS USED ON SITE SHALL MEET OMUTCD AS WELL AS ODOT DESIGN GUIDE STANDARDS.
18. DIMENSIONS AND NORTHINGS/EASTINGS ARE TO FACE OF CURB/EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
19. WHERE APPLICABLE TOPSOIL SHALL BE STRIPPED TO A DEPTH OF 6". THIS SOIL SHALL BE STOCKPILED. SOIL SHALL BE STABILIZED AS DESCRIBED ON THE PLANS AND SHALL HAVE SILT FENCE INSTALLED AROUND THE PERIMETER.

ITEM 614, MAINTAINING TRAFFIC

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND TYPE III BARRICADES OF THE TYPE AND LOCATION AS FOLLOWS:

TYPE 3 BARRICADES SHALL BE PROVIDED AS PER STANDARD DRAWING 101.60 AND SHALL INCLUDE TYPE B FLASHING (YELLOW) WARNING LIGHTS FOR EACH BARRICADE. REFER TO SHEET 6 FOR PLACEMENT LOCATIONS.

ITEM 950 SPECIAL - 240 DISCONNECT SWITCH FOR OVERHEAD DOOR

DISCONNECT SWITCH SHALL BE INSTALLED AS SHOWN IN THE PLANS AND SHALL BE 240V AND INSTALLED IN A NEMA 3R ENCLOSURE. THE UNIT BID PRICE SHALL INCLUDE THE COST FOR ALL THE LABOR, MATERIAL AND EQUIPMENT NEEDED TO COMPLETE THE WORK.

ITEM 950 SPECIAL - LED EXIT SIGN

LED EXIT SIGN SHALL BE INSTALLED AS SHOWN IN THE PLANS AND SHALL BE 120V AND INSTALLED ABOVE THE DOOR INSIDE THE LOADER STORAGE BUILDING. THE UNIT BID PRICE SHALL INCLUDE THE COST FOR ALL THE LABOR, MATERIAL AND EQUIPMENT NEEDED TO COMPLETE THE WORK.

STATE WATERS:

1. NO WASTE MATERIALS WILL BE DISCHARGED INTO STORM WATER INLETS OR TO WATERS OF THE STATE.

ITEM 616 - DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

(0.002 M. GAL WATER PER CY OF EMBANKMENT/EXCAVATION)
(0.002 * 637CY = 1.27 M. GAL; 2 M. GAL)
ITEM 616, WATER 2 M. GAL

UTILITY NOTES:

1. SEE SHEET 24/25 FOR LOCATIONS OF LIGHT POLE AND CONDUIT ROUTING.

GENERAL STORM WATER NOTES:

1. STORM WATER ITEMS SHALL MEET THE STATE OF OHIO THE STATE OF OHIO RAINWATER AND LAND DEVELOPMENT GUIDE.

2. DISTURBED AREA WILL BE PROTECTED USING APPLICABLE EROSION CONTROL MEASURES. SEE SHEET 7 FOR PLACEMENT OF EROSION CONTROL MEASURES. CONTRACTOR SHALL ADJUST EROSION CONTROL MEASURES AS REQUIRED DURING CONSTRUCTION.

ITEM 625 - LIGHTING, MISC.: DISCONNECT SWITCH

DISCONNECT SWITCH SHALL BE INSTALLED AS SHOWN IN THE PLANS AND SHALL BE 120V AND INSTALLED IN A NEMA 3R ENCLOSURE. THE UNIT BID PRICE SHALL INCLUDE THE COST FOR ALL THE LABOR, MATERIAL AND EQUIPMENT NEEDED TO COMPLETE THE WORK.

ITEM 625 - LIGHTING, MISC.: GFCI RECEPTACLE

THE GFI RECEPTACLE SHALL BE INSTALLED AS SHOWN IN THE PLANS. THE GFI RECEPTACLE SHALL BE TAMPER RESISTENT, 120V, WATERPROOF, AND MOUNTED 36 INCHES ABOVE FINISHED FLOOR. THE UNIT BID PRICE SHALL INCLUDE THE COST FOR ALL THE LABOR, MATERIAL AND EQUIPMENT NEEDED TO COMPLETE THE WORK.

ITEM 690 SPECIAL - BOLLARD

NEW BOLLARDS ARE TO BE INSTALLED AS SHOWN ON SHEET 15, AND SHALL BE MADE OF GALVANIZED SCHEDULE 40 STEEL PIPE AND FILLED WITH CONCRETE. THE EXTERIOR SHALL BE PAINTED YELLOW. BOLLARDS SHALL BE 6" IN DIAMETER AND 4 FEET IN HEIGHT ABOVE GROUND LEVEL. THE UNIT BID PRICE SHALL INCLUDE THE COST FOR ALL THE LABOR, MATERIAL AND EQUIPMENT NEEDED TO COMPLETE THE WORK.

ITEM 950 SPECIAL - FACILITIES, MISC.: FABRIC COVERED ROOF STRUCTURE

FABRIC COVERED ROOF STRUCTURE SHALL BE INSTALLED AS INDICATED IN THE PLANS. THE HEIGHT AND MATERIAL OF THE FABRIC SHALL BE DETERMINED BY THE ROOF MANUFACTURER. THE UNIT BID PRICE SHALL INCLUDE THE COST FOR ALL THE LABOR, MATERIAL AND EQUIPMENT NEEDED TO COMPLETE THE WORK.

ITEM 950 SPECIAL - FACILITIES, MISC.: RED EPOXY STRIPE, 6"

EPOXY STRIPE SHALL BE INSTALLED AS SHOWN IN THE PLANS. THE EPOXY STRIPE IS TO BE RED AND 6 INCHES. THE UNIT BID PRICE SHALL INCLUDE THE COST FOR ALL THE LABOR, MATERIAL AND EQUIPMENT NEEDED TO COMPLETE THE WORK.

ITEM 625 - LIGHTING, MISC.: 4' LED STRIP FIXTURE

4' LED STRIP FIXTURE SHALL BE INSTALLED INSIDE THE LOADER STORAGE BUILDING AS SHOWN IN THE PLANS AND SHALL BE 120V. THE UNIT BID PRICE SHALL INCLUDE THE COST FOR ALL LABOR, MATERIAL AND EQUIPMENT NEEDED TO PROVIDE A COMPLETE AND USABLE SYSTEM.

ITEM 625 - LIGHTING, MISC.: LED WALL PACK FLOOD LIGHT

LED WALL PACK FLOOD LIGHT SHALL BE INSTALLED AS SHOWN IN THE PLANS AND SHALL BE 120V. WALL PACKS SHALL BE INSTALLED AT A MINIMUM OF 9' ABOVE FINISH GRADE OR ABOVE MANDOORS AS INDICATED. THE UNIT BID PRICE SHALL INCLUDE THE COST FOR ALL LABOR, MATERIAL AND EQUIPMENT NEEDED TO PROVIDE A COMPLETE AND USABLE SYSTEM.

REFER TO SHEET 25 FOR ADDITIONAL ELECTRICAL NOTES.

UTILITY CONTACT INFORMATION:

GUERNSEY-MUSKINGUM ELECTRIC:
MR. BOB CAMPBELL
17 SOUTH LIBERTY STREET
NEW CONCORD, OH 43762
PHONE: (740) 826-7661
E-MAIL: bcampbell@gmenergy.com

ODOT - ROADWAY SERVICE:
MR. RON MILLER
9600 JACKSONTOWN ROAD
JACKSONTOWN, OH 43030
PHONE: (740) 323-5236
E-MAIL: Ron.Miller@dot.state.oh.us

LEGEND

— UE —	EXISTING ELECTRIC	— E —	NEW UNDERGROUND ELECTRIC	→	FLOW ARROW	⊕	EXISTING WATER VALVE
— S —	EXISTING SANITARY SEWER	— SAN —	NEW SANITARY SEWER	■	PARKING BLOCK	⊙	EXISTING SANITARY MANHOLE
— W —	EXISTING DOMESTIC WATER	— T —	NEW TELECOMMUNICATIONS	+	SIGN	⊗	EXISTING GAS VALVE
— G —	EXISTING NATURAL GAS	— W —	NEW DOMESTIC WATER	-	NEW LIGHT POLE	⊕	EXISTING LIGHT POLE
— T —	EXISTING TELECOMMUNICATIONS	— G —	NEW NATURAL GAS	Ⓢ	EXISTING COMMUNICATIONS VAULT	⊕	EXISTING POWER POLE
				Ⓢ	EXISTING FIRE HYDRANT	—	PROPOSED EDGE OF PAVEMENT

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GENERAL NOTES
FACD05 GUE 70 WEIGH STATION 0Y

CALCULATED
NPW
CHECKED
BAA

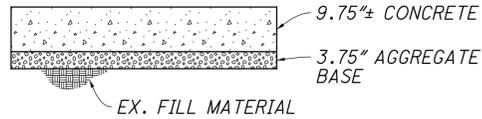
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SHEET NUM.											PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
2	5	6	7	10	18	22	25				01/NFP/0 T		EXT	TOTAL			
																ROADWAY	
	LS 1,809										LS	201	11000	LS		CLEARING AND GRUBBING	
											1,809	202	23000	1,809	SY	PAVEMENT REMOVED	
											200	203	10000	200	CY	EXCAVATION	
											1,196	203	20000	1,196	CY	EMBANKMENT	
											1,749	204	10000	1,749	SY	SUBGRADE COMPACTION	
	2										2	630	84900	2	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
																EROSION CONTROL	
											20	659	00300	20	CY	TOPSOIL	
											181	659	10000	181	SY	SEEDING AND MULCHING	
											0.04	659	20000	0.04	TON	COMMERCIAL FERTILIZER	
											1	659	35000	1	MGAL	WATER	
											2,000	832	30000	2,000	EACH	EROSION CONTROL	
																PAVEMENT	
											77	304	20000	77	CY	AGGREGATE BASE	
											458	452	13010	458	SY	9" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1	
											492	510	09950	492	EACH	DOWEL HOLES WITH CEMENT GROUT	
																LIGHTING	
											1,801	625	23304	1,801	FT	NO. 8 AWG 600 VOLT DISTRIBUTION CABLE	
											200	625	25001	200	FT	CONDUIT, 3/4", 725.04, AS PER PLAN	
											542	625	25501	542	FT	CONDUIT, 3", 725.04, AS PER PLAN	
											9	625	26252	9	EACH	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED)	
											390	625	29002	390	FT	TRENCH, 24" DEEP	
											80	625	29400	80	FT	TRENCH IN PAVED AREA	
											9	625	75506	9	EACH	LUMINAIRE REMOVED	
											6	625	98000	6	EACH	LIGHTING, MISC.: 4' LED STRIP FIXTURE	
											4	625	98000	4	EACH	LIGHTING, MISC.: GFCI RECEPTACLE	
											4	625	98000	4	EACH	LIGHTING, MISC.: LED WALLPACK FLOOD LIGHT	
											1	625	98000	1	EACH	LIGHTING, MISC.:240V DISCONNECT SWITCH FOR OVERHEAD DOOR	
											2	625	98000	2	EACH	LIGHTING, MISC.:DISCONNECT SWITCH	
											2	625	98000	2	EACH	LIGHTING, MISC.:MARINE GRADE LED EXTERIOR FLOOD LIGHT	
																MISCELLANEOUS STRUCTURE	
											186	21	20001	207	CY	AGGREGATE BASE, AS PER PLAN	
											671	503	21100	710	CY	UNCLASSIFIED EXCAVATION	
											LS	503	21301	LS		UNCLASSIFIED EXCAVATION, AS PER PLAN	
											1,200	509	10000	89,300	LB	EPOXY COATED REINFORCING STEEL	
											253	511	53010	280	CY	CLASS QC1 CONCRETE, MISC.: FLOOR SLABS	
											21	511	53010	21	CY	CLASS QC1 CONCRETE, MISC.: FOUNDATION WALLS & PIERS	
											580	511	53010	597	CY	CLASS QC1 CONCRETE, MISC.: WALLS & FOOTINGS	
											220	516	13600	220	SF	1" PREFORMED EXPANSION JOINT FILLER	
											LS	SPECIAL	53000200	LS		STRUCTURES AGGREGATE PIERS	
											8	SPECIAL	69050600	8	EACH	BOLLARD	
											LS	SPECIAL	95050000	LS		FACILITIES FABRIC COVERED ROOF STRUCTURE	
											LS	SPECIAL	95050000	LS		FACILITIES MISC.: ARMOR STEEL ANGLE L6X6X1/2 W/ ANCHOR PLATE ATTACHMENT	
											LS	SPECIAL	95050000	LS		FACILITIES MISC.: BUILDING WALLS AND FINISHES	
											LS	SPECIAL	95050000	LS		FACILITIES MISC.: GUTTERS AND DOWNSPOUTS (APPROX 108 LF)	
											LS	SPECIAL	95050000	LS		FACILITIES MISC.: MAN DOOR 3'X7' NOMINAL, STEEL WITH LOCKS, COMPLETE	
											LS	SPECIAL	95050000	LS		FACILITIES MISC.: MISC. METAL ROOF ON PLYWOOD DECK	
											LS	SPECIAL	95050000	LS		FACILITIES MISC.: MISC. ROOF STRUCTURE W/ WOOD TRUSS	
											LS	SPECIAL	95050000	LS		FACILITIES MISC.: OVERHEAD STEEL DOOR 14'X16' WITH LOCKS, COMPLETE (1 TOTAL) + MOTOR	
											LS	SPECIAL	95050000	LS		FACILITIES RED EPOXY STRIPE, 6"	
											1	SPECIAL	95051000	1	EACH	FACILITIES LED EXIT SIGN	
											1	SPECIAL	95051000	1	EACH	FACILITIES MISC.: FIRE EXTINGUISHER AND HANGER	
											2	616	10000	2	MGAL	MAINTENANCE OF TRAFFIC	
											LS	103	06000	LS		INCIDENTALS	
											LS	624	10000	LS		PREMIUM FOR CONTRACT PERFORMANCE BOND, PAYMENT BOND AND MAINTENANCE BOND	
											LS	614	11000	LS		MOBILIZATION	
											LS	623	10000	LS		MAINTAINING TRAFFIC	
											LS	624	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
											LS	624	10000	LS		MOBILIZATION	

GENERAL SUMMARY

FACD05 GUE 70 WEIGH STATION 0Y

CALCULATED
NPW
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EXISTING PAVEMENT TYPICAL SECTION 01

NOTE: REFER TO SHEET BORING LOGS FOR EX. SOIL AND PAVEMENT INFORMATION.

BORING LOCATIONS

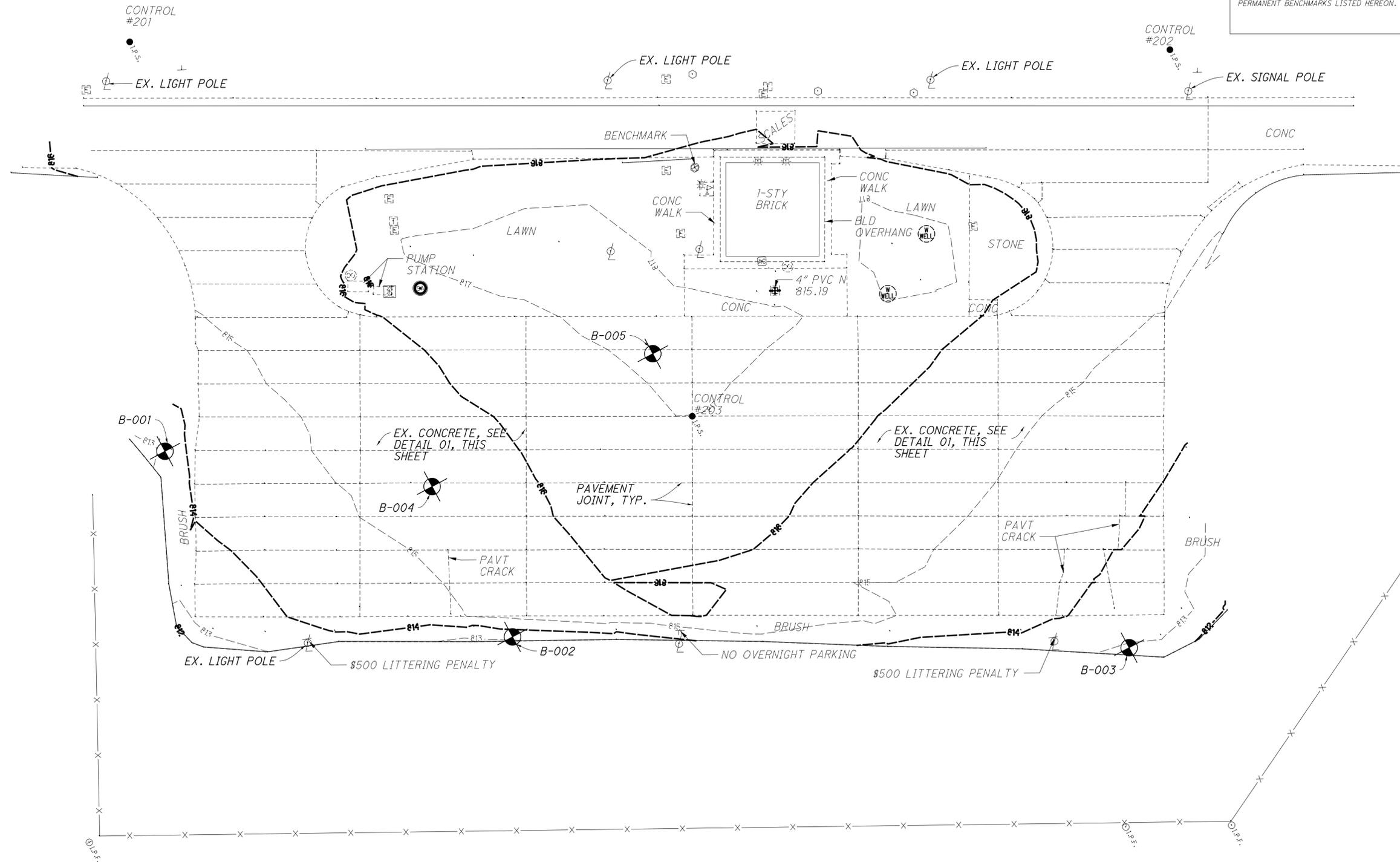
BORING NUMBER	NORTHING	EASTING
B-001	727929.37	2201958.83
B-002	728008.56	2202077.28
B-003	728203.39	2202186.11
B-004	728008.56	2202015.71
B-005	728101.59	2202011.19

PROJECT CONTROL

POINT NUMBER	NORTHING	EASTING	ELEVATION
CONTROL PT. 201	727987.93	2201822.61	814.58
CONTROL PT. 202	728318.33	2202002.90	813.92
CONTROL PT. 203	728103.52	2202037.82	816.99
BENCHMARK	728146.85	2201959.07	817.97

OPUS/NGS HORIZONTAL
 THE COORDINATES SHOWN ON THIS MAP ARE BASED ON THE OHIO STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83 (2011). SAID COORDINATES ARE BASED UPON POSITIONAL SOLUTIONS DERIVED FROM RTK GPS OBSERVATIONS USING THE OHIO DEPARTMENT OF TRANSPORTATION VIRTUAL REFERENCE SYSTEM EQUIPMENT AND SOFTWARE AT TRAVERSE CONTROL POINTS NUMBERED 201, 202, AND 203. THE GRID TO GROUND COMBINED SCALE FACTOR (1.0000408022) WAS APPLIED AT THE LOCATION OF 0, 0, 0 AND CALCULATED AT POINT NUMBER 201 (FIELDWORK COMPLETED 11/2015).

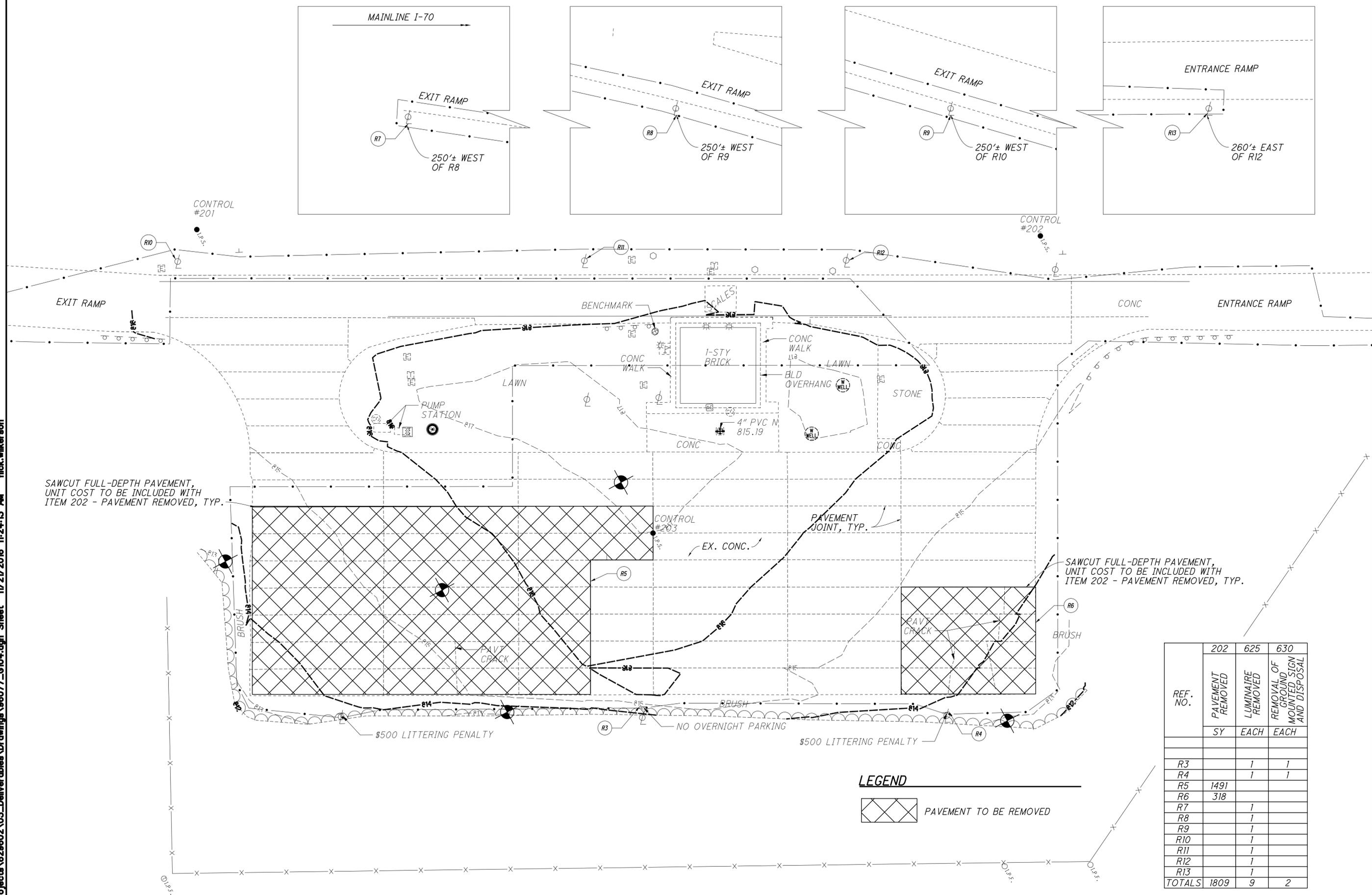
OPUS/NGS VERTICAL
 THE ELEVATIONS SHOWN ON THIS MAP ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988. SAID ELEVATIONS ARE BASED UPON POSITIONAL SOLUTIONS DERIVED FROM RTK GPS OBSERVATIONS USING THE OHIO DEPARTMENT OF TRANSPORTATION VIRTUAL REFERENCE SYSTEM EQUIPMENT AND SOFTWARE AND THE NATIONAL GEODETIC SURVEY'S GEOID12A MODEL AT TRAVERSE CONTROL POINTS NUMBERED 201, 202 AND 203. ELEVATIONS FROM SAID TRAVERSE CONTROL POINTS WERE THEN TRANSFERRED BY CONVENTIONAL LEVELING PROCEDURES TO THE PERMANENT BENCHMARKS LISTED HEREON. (FIELDWORK COMPLETE 11/2015).



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SITE SURVEY

FACD05 GUE 70 WEIGH STATION 0Y



SAWCUT FULL-DEPTH PAVEMENT,
UNIT COST TO BE INCLUDED WITH
ITEM 202 - PAVEMENT REMOVED, TYP.

SAWCUT FULL-DEPTH PAVEMENT,
UNIT COST TO BE INCLUDED WITH
ITEM 202 - PAVEMENT REMOVED, TYP.

LEGEND

 PAVEMENT TO BE REMOVED

REF. NO.	202	625	630
	PAVEMENT REMOVED SY	LUMINAIRE REMOVED EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH
R3		1	1
R4		1	1
R5	1491		1
R6	318		
R7		1	
R8		1	
R9		1	
R10		1	
R11		1	
R12		1	
R13		1	
TOTALS	1809	9	2



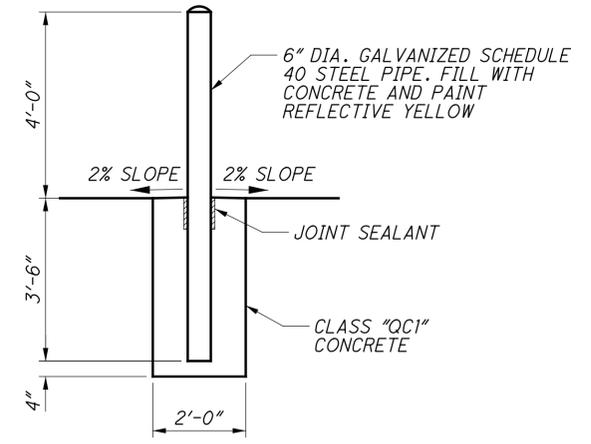
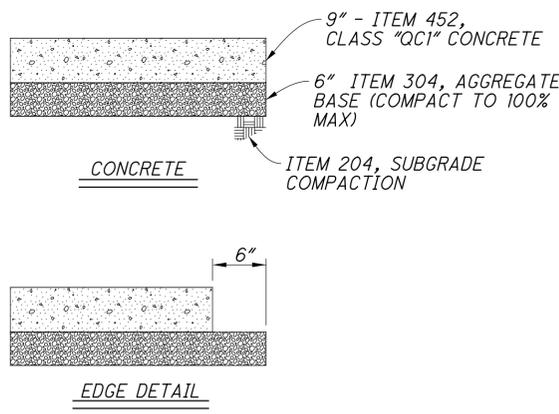
0 20 40
 HORIZONTAL SCALE IN FEET

CALCULATED NPW
 CHECKED BAA

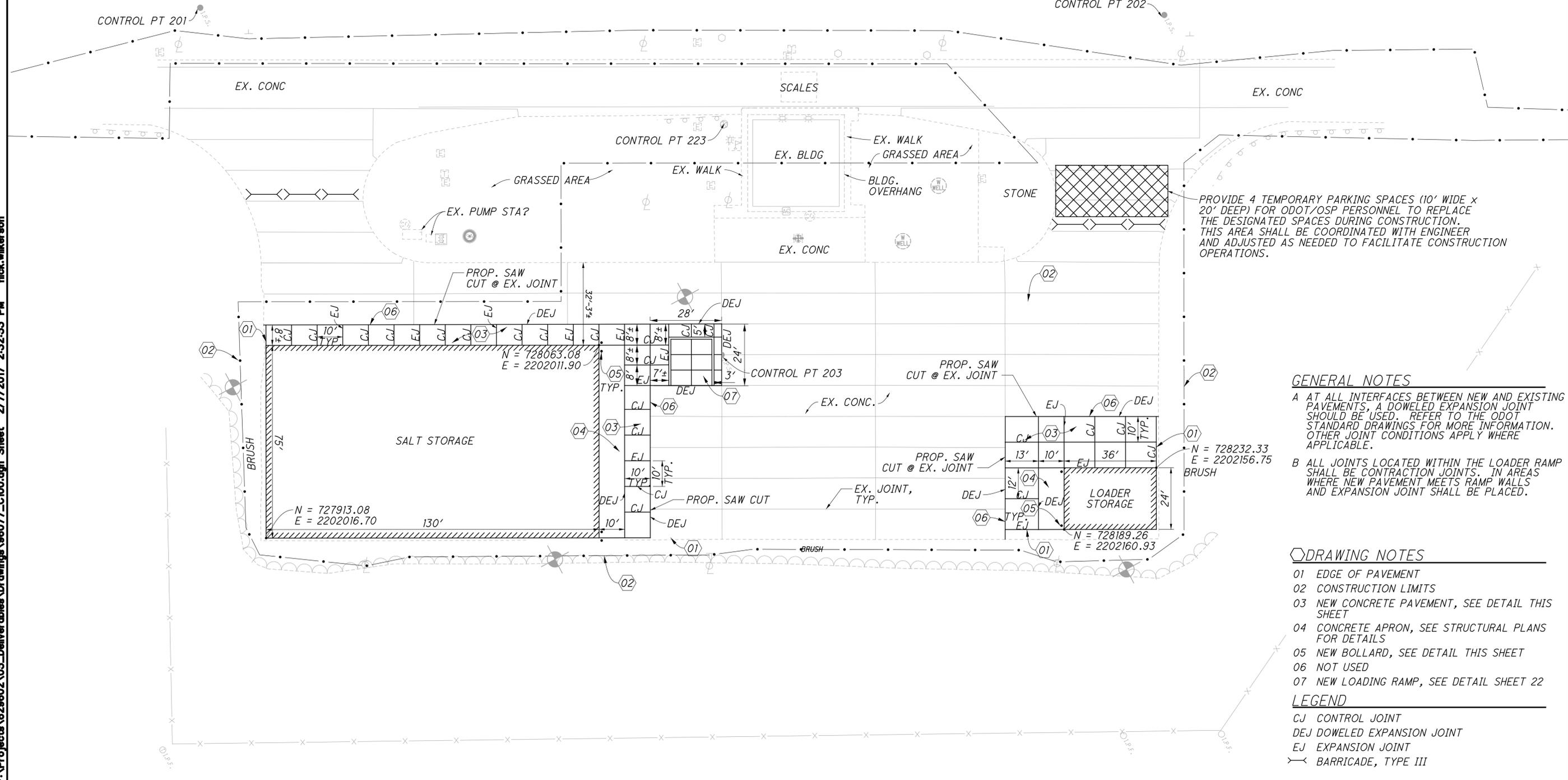
SITE LAYOUT PLAN

FACD05 GUE 70 WEIGH STATION 0Y

	204	304	452	509	510	690
REF. AREA	SUBGRADE COMPACTION	6" AGGREGATE BASE	9" NON-REINFORCED CONCRETE PAVEMENT, CLASS OC1	EPOXY COATED REINFORCING STEEL	DOWELS HOLES WITH CEMENT GROUT	SPECIAL - MISC.: BOLLARD
	SY	CY	SY	LB	EACH	EACH
SALT BUILDING/LOADER RAMP	1459.2	48.7	292.2	285.75	127	4
LOADER BUILDING	289.2	27.6	165.6	821.25	365	4
SUB-TOTAL	1748.4	76.3	457.8	1107	492	8
TOTAL TO GENERAL SUMMARY	1749	77	458	1200	492	8



PAVEMENT DETAILS 04 BOLLARD DETAIL 03 NOT USED 02 SUBSUMMARY 01



GENERAL NOTES

A AT ALL INTERFACES BETWEEN NEW AND EXISTING PAVEMENTS, A DOWELED EXPANSION JOINT SHOULD BE USED. REFER TO THE ODOT STANDARD DRAWINGS FOR MORE INFORMATION. OTHER JOINT CONDITIONS APPLY WHERE APPLICABLE.

B ALL JOINTS LOCATED WITHIN THE LOADER RAMP SHALL BE CONTRACTION JOINTS. IN AREAS WHERE NEW PAVEMENT MEETS RAMP WALLS AND EXPANSION JOINT SHALL BE PLACED.

DRAWING NOTES

01 EDGE OF PAVEMENT
 02 CONSTRUCTION LIMITS
 03 NEW CONCRETE PAVEMENT, SEE DETAIL THIS SHEET
 04 CONCRETE APRON, SEE STRUCTURAL PLANS FOR DETAILS
 05 NEW BOLLARD, SEE DETAIL THIS SHEET
 06 NOT USED
 07 NEW LOADING RAMP, SEE DETAIL SHEET 22

LEGEND

CJ CONTROL JOINT
 DEJ DOWELED EXPANSION JOINT
 EJ EXPANSION JOINT
 X BARRICADE, TYPE III

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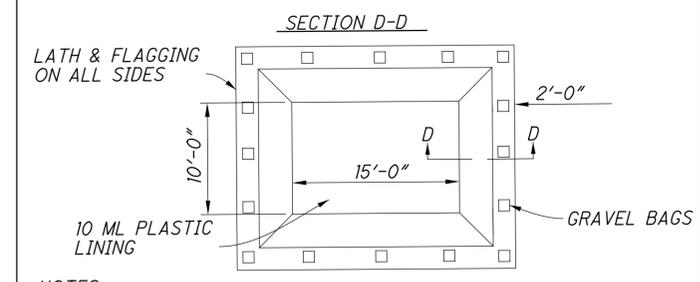
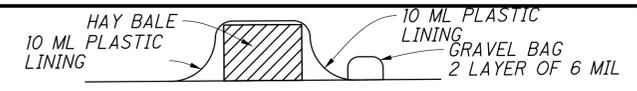
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10' HORIZONTAL SCALE IN FEET

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SITE GRADING PLAN

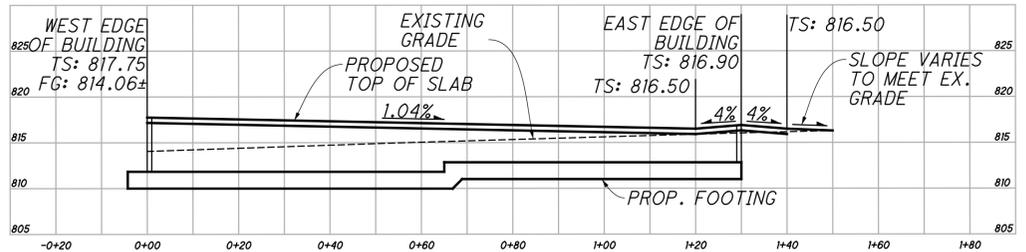
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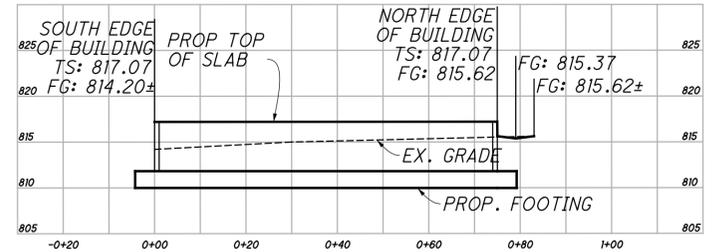


NOTES:
PLAN
1. ACTUAL LOCATION/LAYOUT TO BE DETERMINED IN FIELD. ALTERNATE SYSTEMS MAY BE PROPOSED AT TIME OF CONSTRUCTION.
2. THE CONCRETE WASHOUT AREA SHALL BE CLEARLY IDENTIFIED ON SITE. ADEQUATE SIGNAGE/PROTECTION SHALL ALSO BE EMPLOYED TO ENSURE NO DAMAGE TO THE CONCRETE WASHOUT AREA IS INCURRED.

CONCRETE WASHOUT PIT DETAIL 02

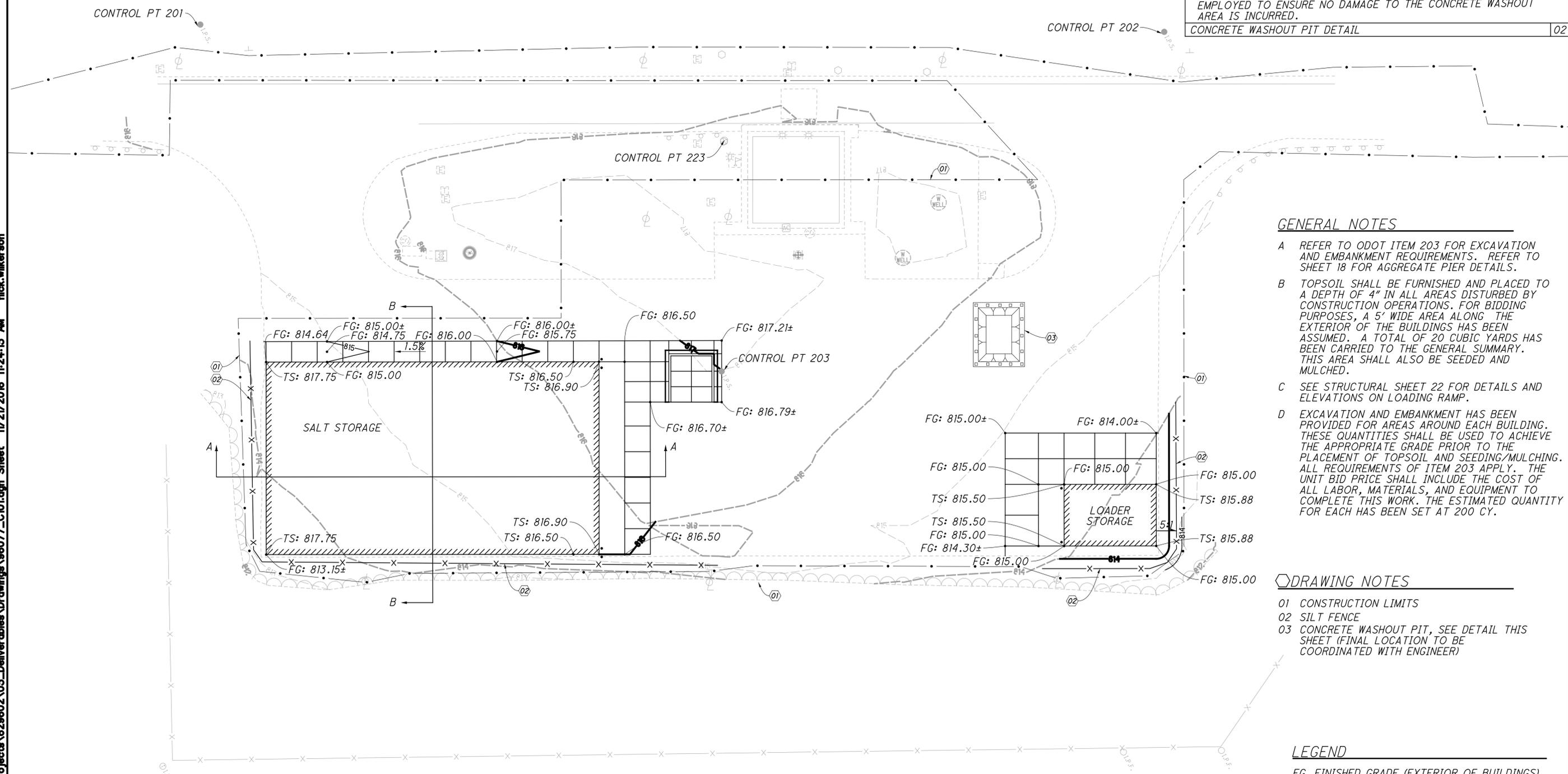


SECTION A-A



SECTION B-B

SALT STORAGE BUILDING SECTIONS



GENERAL NOTES

- A REFER TO ODOT ITEM 203 FOR EXCAVATION AND EMBANKMENT REQUIREMENTS. REFER TO SHEET 18 FOR AGGREGATE PIER DETAILS.
- B TOPSOIL SHALL BE FURNISHED AND PLACED TO A DEPTH OF 4" IN ALL AREAS DISTURBED BY CONSTRUCTION OPERATIONS. FOR BIDDING PURPOSES, A 5' WIDE AREA ALONG THE EXTERIOR OF THE BUILDINGS HAS BEEN ASSUMED. A TOTAL OF 20 CUBIC YARDS HAS BEEN CARRIED TO THE GENERAL SUMMARY. THIS AREA SHALL ALSO BE SEEDED AND MULCHED.
- C SEE STRUCTURAL SHEET 22 FOR DETAILS AND ELEVATIONS ON LOADING RAMP.
- D EXCAVATION AND EMBANKMENT HAS BEEN PROVIDED FOR AREAS AROUND EACH BUILDING. THESE QUANTITIES SHALL BE USED TO ACHIEVE THE APPROPRIATE GRADE PRIOR TO THE PLACEMENT OF TOPSOIL AND SEEDING/MULCHING. ALL REQUIREMENTS OF ITEM 203 APPLY. THE UNIT BID PRICE SHALL INCLUDE THE COST OF ALL LABOR, MATERIALS, AND EQUIPMENT TO COMPLETE THIS WORK. THE ESTIMATED QUANTITY FOR EACH HAS BEEN SET AT 200 CY.

DRAWING NOTES

- 01 CONSTRUCTION LIMITS
- 02 SILT FENCE
- 03 CONCRETE WASHOUT PIT, SEE DETAIL THIS SHEET (FINAL LOCATION TO BE COORDINATED WITH ENGINEER)

LEGEND

- FG FINISHED GRADE (EXTERIOR OF BUILDINGS)
- TS TOP OF SLAB (INTERIOR OF BUILDINGS)

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GENERAL NOTES

DESIGN CRITERIA:

USE GROUP S-2
CONSTRUCTION TYPE II-B
FABRIC TYPE NFPA 701

OCCUPANCY CATEGORY, TABLE 1604.5 - II

1. GRAVITY LOADS
 - A. SALT STORAGE LOADS (SECTION 1607):

ROOF LIVE LOADS	5.0 PSF
FIRST FLOOR-SLAB ON GRADE	2000 PSF
ROOF DEAD LOAD	1.5 PSF
ROOF COLLATERAL LOAD	2.0 PSF
 - B. LOADER STORAGE LOADS (SECTION 1607):

ROOF LIVE LOAD	20 PSF
ROOF DEAD LOAD	15 PSF
2. SNOW LOAD (OHIO BUILDING CODE-2011, SECTION 1609):

GROUND SNOW LOAD, Pg = 20 PSF
3. WIND LOAD (OBC-2011, SECTION 1609):
 - i. BASIC WIND SPEED (3 SECOND GUST, 90 MPH)
 - ii. WIND IMPORTANCE FACTOR, Iw = 1.0
 - iii. BUILDING OCCUPANCY CATEGORY = II
 - iv. WIND EXPOSURE CATEGORY = C
 - v. INTERNAL PRESSURE COEFFICIENT, Gcpi = +/-0.18
4. EARTHQUAKE DESEIGN DATA (SECTION 1613): SEISMIC LOADS
 - i. OCCUPANCY CATEGORY = II
 - ii. MAPPED SPECTRAL RESPONSE: Ss = 0.124, S1 = 0.053
 - iii. SITE CLASS = D
 - iv. SPECTRAL RESPONSE COEFFICIENTS: SDS = 0.132, SD1 = 0.085
 - v. SEISMIC DESIGN CATEGORY = B
 - vi. BASIC SEISMIC FORCE RESISTING SYSTEM = ORDINARY REINFORCED CONCRETE SHEAR WALLS
 - vii. SEISMIC RESPONSE COEFFICIENT, Cs = 0.033
 - viii. RESPONSE MODIFICATION FACTOR, R = 4

GENERAL

THE CONTRACTOR IS RESPONSIBLE FOR ACCURATE, GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN CONFORMANCE WITH THE DRAWINGS, DETAILS REFERENCED IN THE DRAWINGS AND INDUSTRY STANDARDS PERTAINING TO THE PROPER ERECTION INCLUDING THE PROPER USE OF TEMPORARY BRACING.

CONCRETE FOUNDATIONS:

1. SALT STORAGE BUILDING - ASSUMED ALLOWABLE SOIL BEARING 4,000 KSF, WITH 1" TOTAL SETTLEMENT, FOLLOWING AGGREGATE PIER INSTALLATION
2. LOADER STORAGE BUILDING - ASSUMED ALLOWABLE SOIL BEARING 2,000 KSF.

DIVISION 13 - SPECIAL CONSTRUCTION

- 1.2 SUMMARY: THIS SECTION INCLUDES FRAME STRUCTURE WITH TENSION MEMBRANE FOR SALT STORAGE.
 - A. THE FABRIC MEMBRANE SHALL BE TENSIONED OVER THE FRAMEWORK TO FORM A WATER TIGHT SEAL. AT NO TIME SHALL THE MEMBRANE COME INTO CONTACT WITH THE STEEL FRAMING SYSTEM.
 - B. THE BUILDINGS SYSTEM SHALL ALSO INCLUDE ACCESSORIES AND ITEMS REQUIRED AND NECESSARY FOR THE SCOPE AND INTENDED USE AND AS SPECIFIED; INCLUDING VENTILATION LOUVERS AND SUPPORT AND SUPPORT FOR LIGHTING.
- 1.3 PERFORMANCE REQUIREMENTS
 - A. STRUCTURAL PERFORMANCE: PROVIDE STRUCTURES CAPABLE OF WITHSTANDING THE EFFECTS OF GRAVITY AND LATERAL LOADS IN ACCORDANCE WITH THE OHIO BUILDING CODE.
 - B. THERMAL MOVEMENTS: PROVIDE STRUCTURES THAT ALLOW FOR THERMAL MOVEMENTS REACHING FROM THE MAXIMUM CHANGE (RANGE) OF 100 °F IN AMBIENT AND 120 °F IN SURFACE TEMPERATURES BY PREVENTING BUCKLING, OPENING OF JOINTS, OVERDRESS RIG OF COMPONENTS, FAILURE OF JOINT SEALANTS, FAILURE OF CONNECTIONS, AND OTHER DETRIMENTAL EFFECTS. BASE ENGINEERING CALCULATION ON SURFACE TEMPERATURES OF MATERIALS DUE TO BOTH SOLAR HEAT GAIN AND NIGHTTIME-SKY HEAT LOSS.
 - C. MEMBRANE PERFORMANCE: THE MEMBRANE SHALL NOT BE DESIGNED TO FUNCTION AS A STRUCTURAL MEMBER SUCH THAT, SHOULD ANY DAMAGE TO OR PENETRATIONS OF THE MEMBRANE OCCUR, THE INTEGRITY OF THE STRUCTURAL FRAMEWORK WOULD BE AFFECTED.

1.4 SUBMITTALS

- A. SHOP DRAWINGS: INCLUDE SPECIFICATIONS AND ERECTION NOTES, PLANS, ELEVATIONS, SECTIONS AND DETAILS OF ANCHORAGE TO WALLS.
 1. IN ACCORDANCE WITH THE BUREAU OF BUILDING CODE COMPLIANCE AND THE OBC, THE TENSION FABRIC STRUCTURE SHALL BE SUBMITTED FOR PERMIT APPROVAL AS A DEFERRED SUBMITTAL. THE CONTRACTOR SHALL SUBMIT A "FINAL APPROVED" SUBMITTAL TO THE BUREAU OF BUILDING CODE COMPLIANCE. SUBMITTALS CONTAINING REVIEW COMMENTS, CORRECTIONS OR OTHER EXCEPTIONS ARE NOT ACCEPTABLE TO THE BUILDING DEPARTMENT. DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE ENGINEER OF RECORD AND THE BUREAU OF BUILDING CODE COMPLIANCE HAVE APPROVED THEIR DESIGN AND SUBMITTAL DOCUMENTS.
 2. FOR INSTALLED PRODUCTS INDICATED TO COMPLY WITH DESIGN LOADS, INCLUDE STRUCTURAL ANALYSIS DATA SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION
 3. FOR INSTALLED PRODUCTS THAT VARY FROM DESIGN, SUBMIT COMPLETE INFORMATION TO FACILITATE CONSTRUCTION OF CONCRETE RETAINING WALLS AND BASE.
 4. DESIGN AND CONSTRUCTION SHALL CONFORM TO OHIO BUILDING CODE SECTION 3102. CONSTRUCTION DOCUMENTS SHALL SHOW COMPLIANCE, IN ACCORDANCE WITH SECTION 106.1.1, 106.1.1(12), AND 106.2.

1.5 QUALITY ASSURANCE

- A. SOURCE LIMITATIONS: OBTAIN TENSIONED FABRIC STRUCTURE COMPONENTS THROUGH ONE SOURCE FROM A SINGLE MANUFACTURER
- B. WELDING: QUALITY PROCEDURES AND PERSONNEL ACCORDING TO THE FOLLOWING:
 1. AWS D1.1, "STRUCTURAL WELDING CODE - STEEL."
 2. AWS D1.2, "STRUCTURAL WELDING CODE - ALUMINUM."
 3. AWS D1.3, "STRUCTURAL WELDING CODE - SHEET STEEL."

1.6 WARRANTY

- A. SPECIAL WARRANTY ON BUILDING SYSTEM: MANUFACTURER AGREES TO REPAIR OR REPLACE BUILDING COMPONENTS THAT SHOW EVIDENCE OF DETERIORATION OF FACTORY OR FIELD APPLIED FINISHES WITHIN SPECIFIED WARRANTY PERIOD.
 1. WARRANTY PERIOD FROM DATE OF CONTRACT COMPLETION
 - a. MEMBRANE: MINIMUM 15 YEARS INCLUDING ALL EQUIPMENT AND LABOR
 - b. STEEL CORROSION: 4 YEARS FULL COVERAGE AGAINST CORROSION ON ALL MAIN TRUSS COMPONENTS INCLUDING END WALLS, NUTS, AND BOLTS.

2.1 MATERIALS

- ALL MATERIALS USED IN THE STRUCTURE SHALL BE NEW, WITHOUT DEFECTS AND FREE OF REPAIRS. THE QUALITY OF THE MATERIALS USED SHALL BE SUCH THAT THE STRUCTURE IS IN CONFORMANCE WITH THE PERFORMANCE REQUIREMENTS SPECIFIED HEREIN.
- A. CLADDING MEMBRANE: THE STRUCTURE SHALL BE CLAD WITH A HDPE COATED POLYESTER FABRIC MANUFACTURED BY AN APPROVED AND REPUTABLE SUPPLIER WITH DEMONSTRATED LONG TERM PERFORMANCE. LAMINATED MATERIALS ARE NOT ACCEPTABLE FOR USE ON THE OUTER WEATHER MEMBRANE. THE HDPE COATED MEMBRANE FABRIC SHALL BE WATERPROOF AND FREE FROM DEFECTS. ALL ROOFS, END WALLS AND CONNECTING SECTIONS SHALL BE WEATHER TIGHT. THE MATERIAL WILL BE SELECTED FROM THE MANUFACTURER'S STANDARD COLORS FOR THE SIDE WALLS AND WILL BE TRANSLUCENT WHITE ON THE ROOF.
 - B. THE MATERIAL MUST BE UV STABILIZED AND FLAME RETARDANT, MUST CARRY A MINIMUM FIFTEEN YEAR MANUFACTURER'S WARRANTY (STANDARD MANUFACTURER'S WARRANTY PLUS ADDITIONAL WARRANTY FOR A TOTAL OF 15 YEAR WARRANTY) AND MUST HAVE LIFE EXPECTANCY OF 15 TO 20 YEARS. THE MINIMUM FABRIC SPECIFICATION IS AS FOLLOWS:
 - C. PROVIDE SINGLE PIECE TENSION MEMBRANE: FABRIC SPECIFICATIONS:

1. BASE SCRIM	HDPE (600 DARNIER YARN) HIGH DENSITY POLYETHYLENE	
2. COATING THICKNESS	4 MIL EACH SIDE	MINIMUM 4 TO 8 MIL EXTERIOR
	COATING EACH SIDE OF BASE SCRIM	
3. SURFACE TYPE	MODIFIED LDPE C/W UV	MODIFIED LOW DENSITY
	POLYETHYLENE COATING WITH UV INHIBITORS	
4. WEIGHT	12.6 OZ./SY	MINIMUM 12.6 OZ./SY
5. GRAB TENSILE STRENGTH	360 LB.	ASTM D-5034
6. TEAR TORQUE STRENGTH	120 LB.	ASTM D-2261
7. STRIP TENSILE STRENGTH	250 LB.	ASTM D-5035
8. MULLEN BURST	690 LB.	ASTM D-3786
9. THICKNESS	23 MILS	ASTM D-5199
10. HYDROSTATIC RESISTANCE	171 PSI	ASTM D-7514
11. COLD CRACK	-60 DEGREES F	ASTM E-403
12. LIGHT TRANSMISSION	13%	ASTM D-4399
13. UV & WEATHERING	90% RET. 2000 HR.	ASTM D-4399
14. PERMEABILITY	2.5 X 10E	ASTM D-1491
15. SCALE FLAME SPREAD	PASS CHAR 6.5 FS 10 SD 58	ASTM E-64
 - D. EXTERIOR FABRIC IS NOT AN INTEGRAL PART OF THE STRUCTURAL SYSTEM. EXTERIOR FABRIC WILL DEFLECT UNDER LOAD, THEREFORE, ALL BUILDING ACCESSORIES MUST BE LOCATED BENEATH THE INNER CHORD OF THE TRUSS. ANYTHING ABOVE THE INNER CHORD MUST BE REVIEWED AND APPROVED IN WRITING BY THE BUILDING MANUFACTURER. SEVERE DAMAGE TO THE BUILDING AND ACCESSORIES MAY RESULT FROM FAILURE TO COMPLY WITH THIS REQUIREMENT.
 - E. FOR SALT STORAGE, END WALL FABRIC SHALL HAVE AT LEAST TWO LOUVERS (EACH 2 FEET BY 2 FEET MINIMUM) OR MESH FABRIC AS AN ALTERNATE.
 - F. ANCHOR BOLTS
 1. ANCHOR BOLT DIAMETERS ARE DETERMINED IN ACCORDANCE WITH ASTM F-1554 STANDARD STAINLESS STEEL.
 2. ANCHOR BOLT PROJECTIONS BASED ON NO GROUT ARE AS FOLLOWS: 2" MINIMUM
 3. THE FOUNDATION MUST BE LEVEL, SQUARE (AT RIGHT ANGLES); AND SMOOTH. ANCHOR BOLTS MUST BE ACCURATELY PLACED AS SHOWN ON THE ROOF MANUFACTURER'S DRAWINGS.
 4. DRILL-IN EXPANSION ANCHORS ARE PERMITTED.

G. STRUCTURAL BOLTS

1. BOLTS IN CONNECTIONS NOT SUBJECT TO TENSION LOADS OR WHERE LOOSENING DUE TO VIBRATION OR LOAD FLUCTUATIONS ARE NOT DESIGN CONSIDERATIONS NEED ONLY BE SNUG TIGHTENED, WHICH IS DEFINED AS THE TIGHTNESS THAT OCCURS WHEN ALL PIECES IN A JOINT ARE IN FIRM CONTACT.
2. ALL BOLTS LARGER THAN 1" DIAMETER CONFORM TO ASTM A325.
3. ALL OTHER BOLTS CONFORM TO SAE GR5 OR EQUIVALENT.
4. ALL BOLTS SHALL BE PLATED WITH GALVANIZED COATING.
5. ALL BOLT REFERENCES REQUIRE BOTH BOLT, WASHER, AND NUT.
6. BOLTS IN CONNECTIONS WITH TENSION LOADS REQUIRE PRE-TENSIONING TO MINIMUM TENSION.

H. STEEL SPECIFICATIONS

1. STRUCTURAL PLATE CONFORMS TO THE FOLLOWING SPECIFICATIONS: ASTM A5721 GR 44
2. HSS (HOLLOW STEEL SECTION) A572 GR 44
3. COATINGS OF STRUCTURAL PLATES ARE DONE IN-LINE, HOT DIPPED GALVANIZED TO A NOMINAL COATING ZINC WEIGHT 2.0 OZ./SF.
4. COATINGS OF TUBES ARE DONE IN-LINE, HOT DIPPED GALVANIZED TO A NOMINAL ZINC WEIGHT 0.6 OZ./SF.
5. STEEL FINISHING - POST FABRICATION, HOT DIPPED GALVANIZED.
6. DIAGONAL BRACE STEEL CABLE EXTRA HIGH STRENGTH PER ASTM A475.
7. CROSS CABLES - 1/2" DIAMETER.
8. SWAY CABLES - 3/4" DIAMETER
9. STRUCTURAL COMPONENTS ARE AS FOLLOWS:
 - a. 4" TUBES - 32" C-C USING 1.9" WEB.
 - b. 1" X 14 GA & 5" X 7 GA GA/8 - MIN. YIELD STRENGTH - 50 KSI
 - c. ALL OTHER SIZE/GAUGES - MIN. YIELD STRENGTH - 55 KSI

10. MISCELLANEOUS STEEL::

- d. STEEL POSTS A 500 GRADE B
- e. STEEL COLUMNS AND BEAMS A 500 GRADE B
- f. HOT DIPPED GALVANIZED
- i. STRUCTURAL SUPPORTS SHALL NOT BE SPACED MORE THAN 12 FEET ON CENTER MAX

3.1 INSTALLATION

- A. SET STRUCTURAL FRAME PLUMB AND ALIGNED. LEVEL BASE PLATES TRUE TO PLANE WITH FULL BEARING ON CONCRETE BASES.
- B. FASTEN FRAME SYSTEM TO CONCRETE BASES PER MANUFACTURER'S STANDARD DESIGN UTILIZING STAINLESS STEEL COMPONENTS ONLY.

BUILDING NOTES

1. CONCRETE

ODOT CLASS QC1 CONCRETE

REINFORCED CONCRETE FLOOR:
F'c = 4000 PSI, ODOT CLASS 'QC1'
CONCRETE, 2.5% AIR ENTRAINMENT, 40 LB/CY
SILICA FUME, ODOT 511

REINFORCED CONCRETE WALLS:
F'c = 4000 PSI, ODOT CLASS 'QC1'
CONCRETE, 5% AIR ENTRAINMENT, 40 LB/CY
SILICA FUME, ODOT 511

FOOTINGS, WALLS AND SLAB-ON-GRADE WITH
EPOXY-COATED REBAR
2. REINFORCING REQUIREMENTS:
STEEL BARS: ODOT 709 - GRADE 60 EPOXY COATED

CONTRACTION AND/OR EXPANSION JOINTS:

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN CONTRACTION AND EXPANSION JOINTS HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. IN ALL CASES, THE PROVISION OF EXPANSION JOINTS AT ALL MAJOR STRUCTURES INCLUDING THE MAXIMUM SPACING BETWEEN CONTRACTION JOINTS IS IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP-2.2 AND THE SPECIFICATIONS.

SPECIFICATION REFERENCE

REINFORCED CONCRETE	ODOT 511
AGGREGATE BASE	ODOT 304
ITEM 204 SUB-GRADE COMPACTION	ODOT 203.07, 204
REINFORCING EPOXY COATED	ODOT 709
STAINLESS STEEL	ODOT 730
CONCRETE FORMS	ODOT 508
ANCHOR BOLTS	ODOT 516.07
CONCRETE FURNISHING	ODOT 451.09
METAL FABRICATION	ODOT 501.03
JOINT SEALANT	ODOT 516.06
PAINT	ODOT 708
EARTH MOVING & GRADING	ODOT 203

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STRUCTURAL DESIGN NOTES AND SPECIFICATIONS - 1

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DEFERRED SUBMITTAL

1. IN ACCORDANCE WITH THE BUREAU OF BUILDING CODE COMPLIANCE AND THE OBC SECTION 2303-4-1-1, PREFABRICATED WOOD ROOF TRUSSES SHALL BE SUBMITTED FOR PERMIT APPROVAL AS A DEFERRED SUBMITTAL.
2. SEE "PREFABRICATED WOOD TRUSSES" SECTION ON THIS PAGE FOR ITEMS REQUIRED ON SHOP DRAWINGS.
3. THE CONTRACTOR SHALL SUBMIT A "FINAL APPROVED" SUBMITTAL TO THE BUREAU OF BILDING CODE COMPLIANCE. SUBMITTALS CONTAINING REVEIW COMMENTS, CORRECTIONS OR OTHER EXCEPTIONS ARE NOT ACCEPTABLE TO THE BUILDING DEPARTMENT.
4. DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE ENGINEER OF RECORD AND THE BUREAU OF BUILDING CODE COMPLIANCE HAVE APPROVED THEIR DESIGN AND SUBMITTAL DOCUMENTS.

LUMBER:

1. COMPLY WITH THE AMERICAN TIMBER CONSTRUCTION MANUAL FOR CONNECTIONS, INSTALLATION, JOINTS AND BEARING REQUIREMENTS.
2. LUMBER GRADE FOR ALL 2"-4" THICK AND 2" OR WIDER SHALL BE AS FOLLOWS WITH A MAXIMUM MOISTURE CONTENT OF 19%
 - DOUGLAS FIRE-LARCH #2 OR SOUTHERN PINE #2
 - SPRUCE-PINE-FIR #1 OR HEM-FIR #1
3. ALL ROOF RAFTERS AND FLOOR JOISTS SHALL BE OF MINIMUM 1200 PSI FB LUMBER. ALL BEAMS SHALL BE OF MINIMUM 1500 PSI FB LUMBER.
4. THE FOLLOWING FASTENING SCHEDULE OUTLINES THE MINIMUM REQUIREMENTS AND SHALL BE USED IN CONJUNCTION WITH THE COMPLETE FASTENING SCHEDULE IN 1995 CABO R-602.3A (RSN = RING SHANK NAIL, CWN = COMMON WIRE NAIL)
 - 7.1 ROOF SHEATHING TO TRUSSES: 8D CWN @ 4" O.C.
 - 7.2 ROOF TRUSSES TO WALLS: SIMPSON STRONG-TIE ANCHOR H2.5 OR EQUAL.
 - 7.3 MULTIPLE 2X LINTELS: G & N WITH 16D CWN'S AS REQUIRED.
 - 7.4 MULTIPLE LVL BEAMS: FASTEN PER MANUFACTURER RECOMMENDATIONS.
 - 7.5 ROOF TRUSSES TO LVL: SIMPSON ANCHOR HU210 OR EQUAL.
5. WHERE "LVL" OR "LSL" ARE NOTED ON THE DRAWINGS THE PRODUCTS USED MUST MEET THE FOLLOWING CRITERIA:
 - M.O.E. = 2,000,000 PSI
 - FB = 2,000 PSI
6. ALL BUILT-UP BEAMS AND MEMBERS SHALL BE MADE BY NAILING AND GLUING THE PIECES TOGETHER.
7. BRACE ALL FRAMING. PROVIDE CORNER BRACING AND PLYWOOD SHEATHING FOR ALL CORNERS, AND AS NOTED.
8. ALL SILL PLATES CONNECTED TO MASONRY AND CONCRETE SHALL BE ANCHORED BY 1/2"/12" A.B. AT 4" O.C. UNLESS OTHERWISE NOTED.
9. FURNISH AND INSTALL SIMPSON STRONG TIE (HEAVY DUTY) OR APPROVED EQUAL CONNECTORS FOR ALL POST TO BEAM AND POST BASE SUPPORTS.
10. FURNISH AND INSTALL GLUE LAMINATED STRUCTURAL BEAMS AND COLUMNS WHERE INDICATED (FB-2200 PSI). IF CLEARANCE IS AVAILABLE, THE CONTRACTOR MAY SUBSTITUTE EQUIVALENT PRE-ENGINEERED GIRDER TRUSS IN LIEU OF GLUE LAM BEAM.
11. PROVIDE 12 GA. JOIST HANGERS WHERE EVER FRAME MEMBERS ABUT TO THE SUPPORTING MEMBERS.
12. UNLESS OTHERWISE SPECIFICALLY NOTED, ANY COLUMNS MAY BE BUILT-UP MEMBERS OF 1200 PSI 2x6 CONSTRUCTED BY GLUING & NAILING PIECES TOGETHER. BRACE ALL COLUMNS AT ALL FLOORS & ROOF WITH APPLICABLE FRAMING MEMBERS.

PREFABRICATED ROOF TRUSSES:

1. WOOD TRUSSES SHALL BE PRE-MANUFACTURED, PRE-ENGINEERED TRUSSES, CONFORMING TO THE PROFILE AND SPACING INDICATED AND DESIGNED FOR UNIFORM AND CONCENTRATED LOADS IDENTIFIED ON THE DRAWING. SEE GENERAL NOTES.
 - TOP CHORD SNOW LOAD = SEE GENERAL NOTES
 - TOP CHORD LIVE LOAD = 20 PSF
 - TOP CHORD DEAD LOAD = 6.0 PSF
 - BOTTOM CHORD DEAD LOAD = 5.0 PSF
2. WOOD TRUSS SHOP DRAWINGS AND CALCULATIONS BEARING A REGISTERED PROFESSIONAL ENGINEER LICENSED IN OHIO SHALL BE SUBMITTED FOR REVIEW AND SHALL CONTAIN THE FOLLOWING INFORMATION FOR EACH TRUSS TO BE PROVIDED.
 - DETAIL OF TRUSS SHOWING SIZE OF MEMBERS
 - SPECIES AND WORKING STRESS OF LUMBER USED
 - LOADING CONDITIONS USED IN DESIGN
 - CALCULATED FORCES IN EACH MEMBER
 - CONNECTION SIZES, CAPACITIES AND LOCATIONS
 - LAYOUT AND PROFILE OF TRUSSES
 - MISC. ITEMS PROVIDED BY SUPPLIER
3. DESIGN OF WOOD TRUSSES SHALL COMPLY WITH NDS, NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION CURRENT EDITION.
4. TOP CHORD, BOTTOM CHORD, AND WEB MEMBERS SHALL BE OF WOOD. THE SPECIES OF LUMBER SHALL BE AS REQUIRED PER DESIGN CONSIDERATIONS.
5. THE TRUSS SHALL BE DESIGNED FOR A MAXIMUM DEFLECTION OF L/360.
6. BEARING DEPTH SHALL BE AS INDICATED. IT SHALL BE THE RESPONSIBILITY OF THE TRUSS MANUFACTURER TO REINFORCE THE TRUSS AS REQUIRED FOR THE AVAILABLE BEARING DEPTH.
7. TRUSS BRACING, BRIDGING, AND INSTALLATION SHALL BE AS PER THE TRUSS MANUFACTURER'S AND TRUSS PLATE INSTITUTE RECOMMENDATION WHICHEVER IS STRICTER.
8. PANEL POINT FOR CONCENTRATED LOAD SHALL BE PROVIDED WHERE INDICATED. ALL OTHER CONCENTRATED LOADS ARE FIELD ADJUSTED TO FALL ON PANEL POINTS. ALL CONCENTRATED LOADS SHOWN ARE LIVE LOADS.
9. NAILING OF SHEATHING SHALL BE WITH 8d GALVANIZED NAILS 9 INCHES ON CENTER AT INTERMEDIATE TRUSSES AND 6 INCHES ON CENTER FOR EDGE NAILING.
10. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD ADJUST AND PROVIDE REQUIRED FRAMING TO TRANSFER ALL APPLICABLE LOADS ON THE PANEL POINTS OF THE JOIST.
11. ALL CONNECTION AND BEARING OF TRUSSES TO RESIST MINIMUM OF 10 PSF NEW UPLIFT. CONNECTIONS SHALL BE AS PER THE MANUFACTURER'S RECOMMENDATIONS. AS A MINIMUM, PROVIDE HURRICANE TIES AT ALL BEARING POINTS.
12. TOP CHORD SHALL BE MINIMUM OF 2x6.
13. BOTTOM CHORD SHALL BE MINIMUM OF 2x6.
14. FURNISH GIRDER TRUSS AS REQUIRED AND IS INDICATED FOR ROOF FRAMING. PROVIDE JOIST HANGERS AS REQUIRED BY TRUSS SUPPLIER.
15. PROVIDE OVERHANG/CANTILEVER AS SHOWN. THE OVERHANG/CANTILEVER SHALL BE OF CONTINUOUS CONSTRUCTION TO THE TRUSS MEMBERS.
16. THE TRUSS SHALL NOT IMPOSE ANY HORIZONTAL LOAD AT THE POINT OF BEARING UNLESS SPECIFICALLY APPROVED BY THE ARCHITECT. THE SUPPORT MEMBERS/WALLS ARE NOT DESIGNED TO TAKE ANY HORIZONTAL THRUST IMPOSED BY THE LIVE AND DEAD LOAD OF THE TRUSSES.

DIVISION 6 - WOOD & PLASTICS

WOOD & PLASTICS

1. PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO COMPLETE ALL CARPENTRY WORK SHOWN AND SPECIFIED INCLUDING BUT NOT LIMITED TO:
 - A. ALL BLOCKING, FURRING, NAILERS, PLYWOOD, FRAMING, LUMBER, AND ANY OTHER ROUGH LUMBER.
 - B. TREATED WOOD BLOCKING AND NAILERS AT ROOF.
 - C. WOOD DOORS.
 - D. SETTING HOLLOW METAL WORK.
 - E. INSTALLATION OF FINISH HARDWARE.
 - F. MISCELLANEOUS ROUGH HARDWARE.
2. IMMEDIATELY UPON DELIVERY TO JOB SITE, PLACE MATERIALS IN AREA PROTECTED FROM WEATHER.
3. PROTECT SHEET MATERIALS FROM CORNERS BREAKING AND DAMAGING SURFACES WHILE UNLOADING.

DIVISION 7 - ROOF

METAL ROOF

1. EXPOSED-FASTENER, LAP-SEAM, METAL ROOF PANELS. ALUMINUM-ZINC ALLOY-COATED STEEL SHEET, 0.034" (22 GA.) THICK, WITH TWO-COAT FLUOROPOLYMER FINISH. PANEL HEIGHT SHALL BE 3". CONFORM TO UL90 UPLIFT RATING.

DIVISION 8 - DOORS AND WINDOWS

METAL DOORS & FRAMES

1. METAL DOORS AND FRAMES SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI A250.8-SDI RECOMMENDED SPECIFICATIONS FOR STANDARD STEEL DOORS AND FRAMES.

METAL DOORS AND FRAMES SHALL BE INSTALLED IN ACCORDANCE WITH ANSI A115.16 INSTALLATION GUIDE FOR DOORS AND HARDWARE.

- A. ERECTION TOLERANCES SHALL INCLUDE:
 1. LIMIT VARIATION FROM TRUE LOCATION AND PLANE TO 1/8" IN 12 FT.; 1/4" OVER TOTAL LENGTH.
 2. ALIGNMENT: WHERE SURFACES ABUT IN LINE, LIMIT OFFSET FROM TRUE ALIGNMENT TO 1/16". WHERE SURFACES MEET AT CORNERS, LIMIT OFFSET FROM TRUE TO 1/32".
- B. THE INSTALLATION SHALL BE WARRANTED FOR 5 YEARS AFTER SUBSTANTIAL COMPLETION. THE MATERIALS AND FINISHES SHALL BE WARRANTED FOR 5 YEARS. ALL WARRANTIES SHALL BE MANUFACTURER'S FULL WARRANTIES AND SHALL NOT BE PRO-RATED AND MANUFACTURER WILL REPAIR OR REPLACE ALL FAILED PRODUCTS/ASSEMBLIES.

DOOR HARDWARE

1. ALL DOOR HARDWARE SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH BHMA GRADE I AND INDUSTRY TYPICAL STANDARDS.
2. DOOR HARDWARE AND MANUFACTURERS
 - A. BUTTS: HAGER
 - B. CLOSERS AND HOLD OPENS: LCN
 - C. LOCKSETS AND LATCHSETS:
 - BRAND: SCHLAGE
 - SERIES: ND CYLINDRICAL
 - LEVER: 'ATHENS'
 - FINISH: SATIN CHROMIUM PLATED 626
 - ACTION: ENTRANCE/OFFICE LOCK
 - D. KEY CORES: BEST
 - E. THRESHOLDS & WEATHERSTRIPPING: NATIONAL GUARD
 - F. FLOORS AND WALL STOPS: GLYNN JOHNSTON
3. ALL DOORS TO HAVE LEVER HOLDERS.
4. ALL THRESHOLDS TO BE 1/2" HIGH ADA COMPLIANT
5. OWNER TO COORDINATE DOOR SPECIFICATIONS AND INSTALLATION WITH CONTRACTOR.
6. COORDINATE LOCATION OF WOOD JAMBS AND HEADERS WITH DOOR SUPPLIER.

OVERHEAD DOOR

1. OVERHEAD DOOR SIZE IS 16 FT WIDE / 14 FT HIGH WITH CHAIN PULLS AND GALVANIZED TRACKS AND HARDWARE. TOTAL ONE OVERHEAD DOOR AT FRONT OF BUILDING
2. PROVIDE ELECTRICALLY OPERATED SECTIONAL DOOR WITH CHAIN PULL BACKUP. COMPLY WITH NFPA 70.

DIVISION 10 - SPECIALTIES

FIRE EXTINGUISHERS

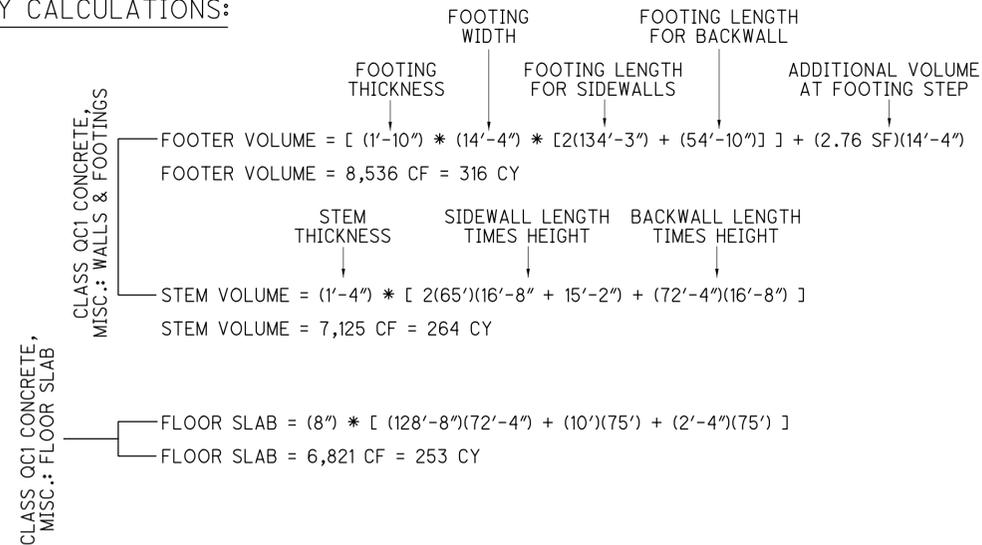
1. CONTRACTOR SHALL PROVIDE THE FOLLOWING:
 - A. FIRE EXTINGUISHERS SHALL BE BY ONE OF THE FOLLOWING:
 1. J.L. INDUSTRIES
 2. LARSEN'S MANUFACTURING CO.
 3. MUCKLE (MODERN METAL PRODUCTS)
 4. POTTER-ROEMER, INC.
 5. NOTOROUS, INC.
2. UNITS SHALL BE TEN POUNDS CAPACITY, UL RATING 4A-60 BC. MULTIPURPOSE DRY CHEMICAL FIRE EXTINGUISHERS, FIRE MARSHALL APPROVED.
3. WALL HANGER MOUNTING BRACKET. MOUNTING HEIGHT SHALL COMPLY WITH LOCAL CODES UT NO MORE THAN 59" FROM FLOOR TO TOP OF HANDLE.
4. INCLUDE SIGNS READING "FIRE EXTINGUISHER", RED LETTERS WITH WHITE BACKGROUND, AT EACH FIRE EXTINGUISHER.

METAL SIDING

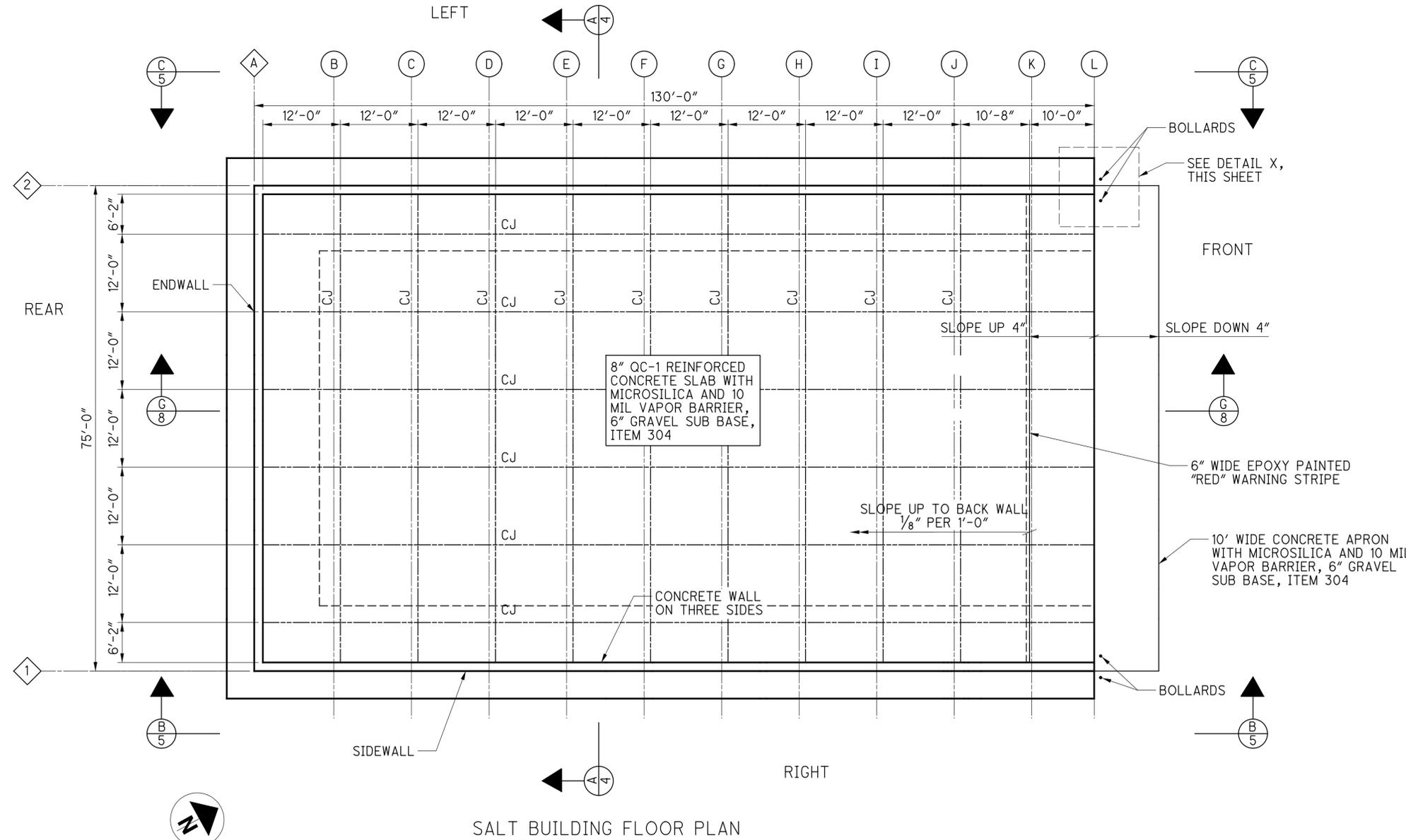
1. EXPOSED-FASTENER METAL WALL PANELS: ZINC-COATED GALVANIZED STEEL SHEET, 24 GA., 50,000 PSI MIN., FORMED WITH RAISED TRAPEZOIDAL RIBS, DESIGNED TO BE INSTALLED BY LAPPING SIDE EDGES OF PANELS AND MECHANICALLY ATTACHING TO SUPPORTS USING EXPOSED FASTENERS IN SIDE LAPS, WITH FLUOROPOLYMER FINISH AND 1.5" RIBS.
2. PROVIDE PERFORATED, FLAT PROFILE METAL SOFFIT PANELS, DESIGNED TO BE INSTALLED BY LAPPING AND INTERCONNECTING SIDE EDGES AND MECHANICALLY ATTACHING THROUGH PANEL TO SUPPORTS USING CONCEALED FASTENERS AND FACTORY-APPLIED SEALANT INSIDE LAPS. INCLUDE ACCESSORIES REQUIRED FOR WEATHERTIGHT INSTALLATION.

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QUANTITY CALCULATIONS:



SALT BUILDING ESTIMATED QUANTITIES				
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION
203	20000	970	CY	EMBANKMENT
304	20001	186	CY	AGGREGATE BASE, AS PER PLAN
503	21100	671	CY	UNCLASSIFIED EXCAVATION
509	10000	85700	LB	EPOXY COATED REINFORCING STEEL
511	53010	580	CY	CLASS QC1 CONCRETE, MISC.: WALLS & FOOTINGS
511	53010	253	CY	CLASS QC1 CONCRETE, MISC.: FLOOR SLAB
516	13600	220	SF	1" PREFORMED EXPANSION JOINT FILLER
SPECIAL	53000200	LS		STRUCTURE, MISC.: AGGREGATE PIERS
SPECIAL	95050000	LS		FACILITIES, MISC.: RED EPOXY STRIPE, 6"
SPECIAL	95050000	LS		FACILITIES, MISC.: FABRIC COVERED ROOF STRUCTURE

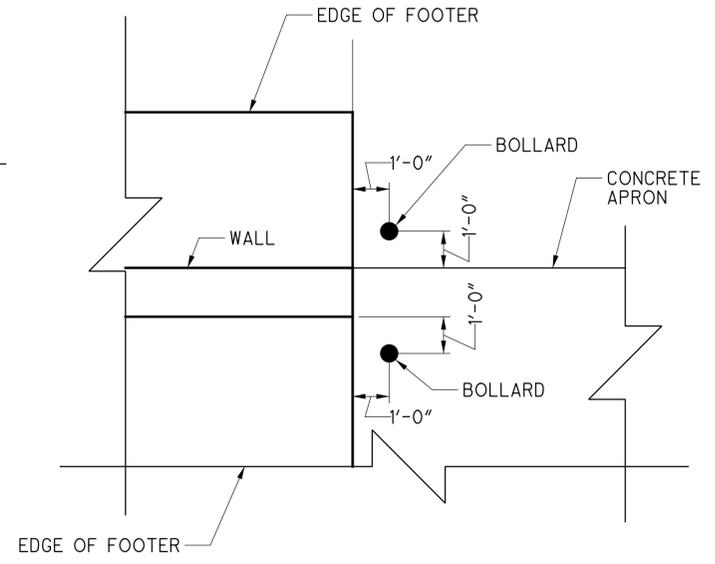


ITEM 304 - AGGREGATE BASE, AS PER PLAN

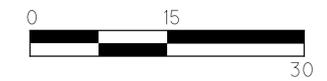
AGGREGATE BASE TO BE PLACED BENEATH FLOOR SLAB OF SALT STORAGE BUILDING. THE UNIT BID PRICE SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT NEEDED TO COMPLETE THE WORK.

ITEM 203 - EMBANKMENT

EMBANKMENT IS TO BE PLACED BENEATH THE BUILDING FLOOR SLAB AS SPECIFIED BELOW. A SUITABLE MATERIAL AS DETERMINED BY THE ENGINEER SHALL BE PLACED ABOVE THE EXISTING GRADE AND BELOW THE 304 AGGREGATE BASE REQUIRED FOR FLOOR SLAB CONSTRUCTION. ALL ASPECTS OF ITEM 203 - EMBANKMENT APPLY. THE UNIT BID PRICE FOR THIS ITEM SHALL INCLUDE ALL LABOR MATERIALS AND EQUIPMENT NEEDED TO COMPLETE THIS WORK.



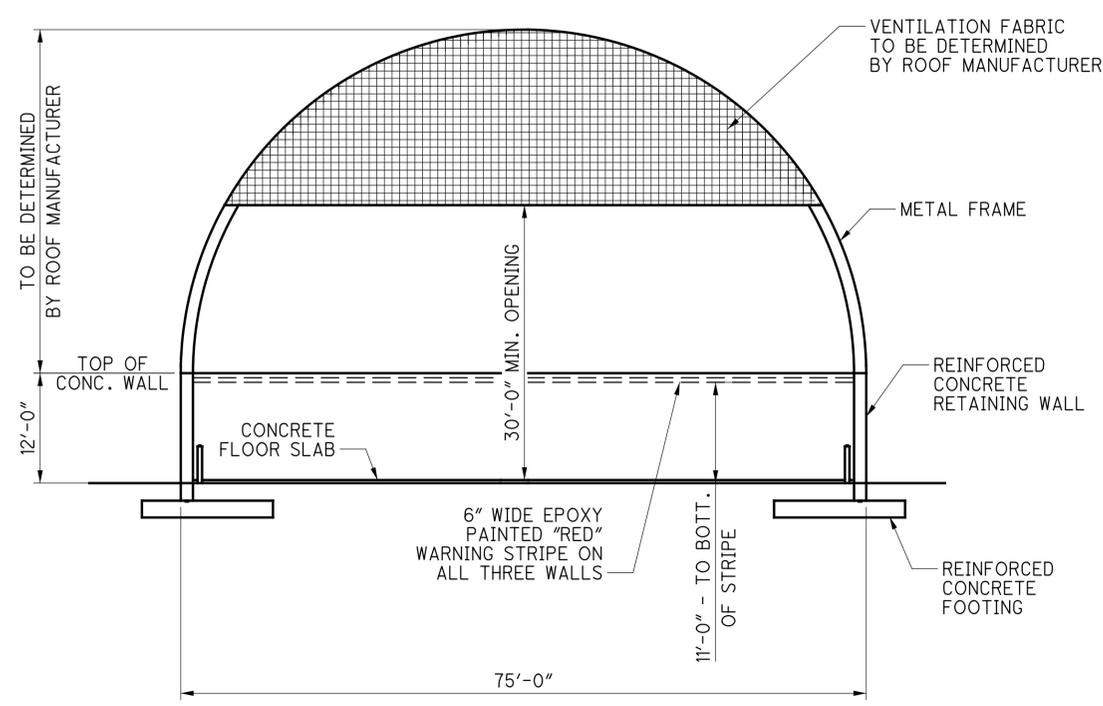
SALT BUILDING FLOOR PLAN



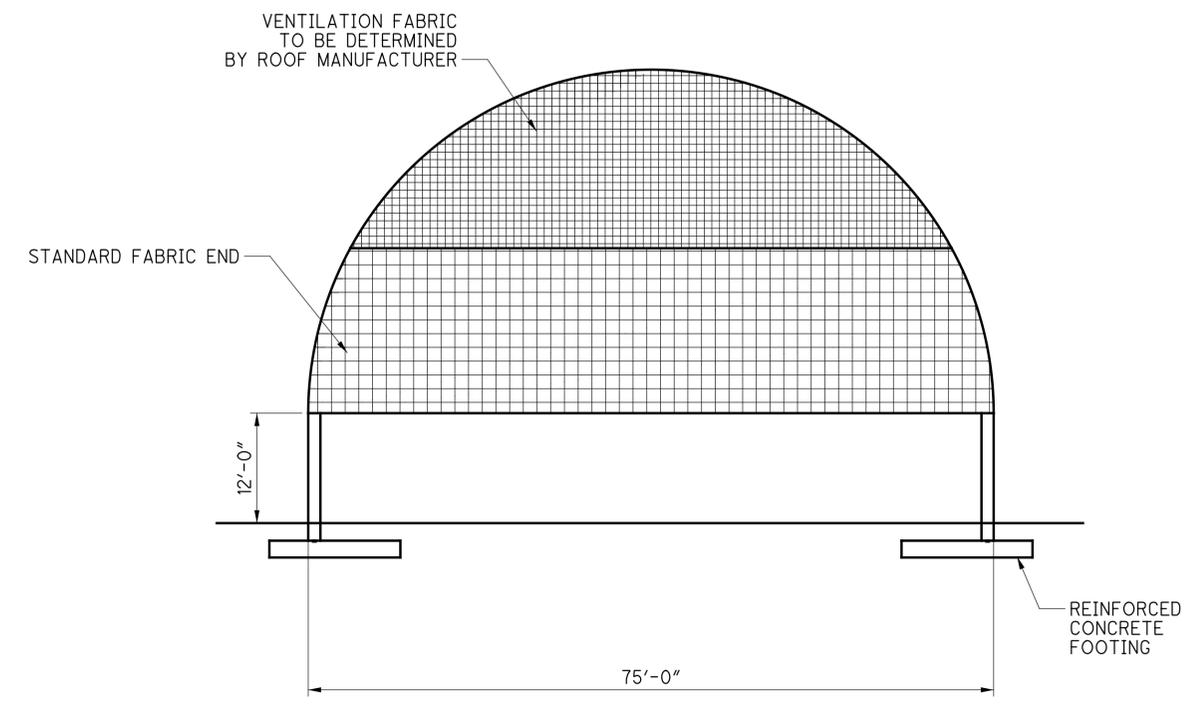
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SALT BUILDING ELEVATIONS

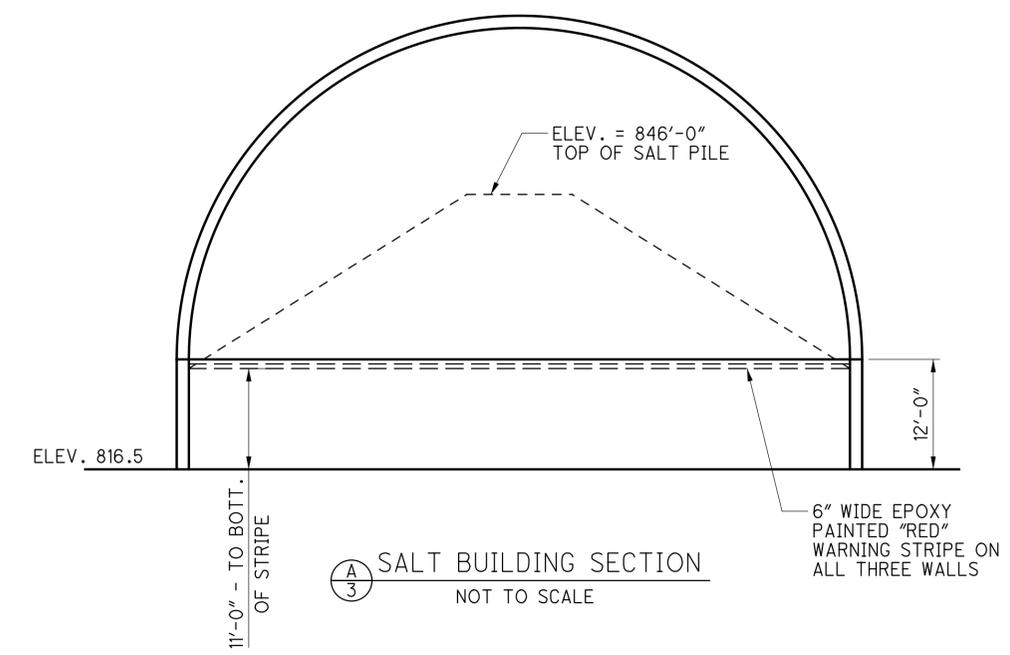
**FACD05 GUE 70
WEIGH STATION 0Y**



FRONT ELEVATION
NOT TO SCALE



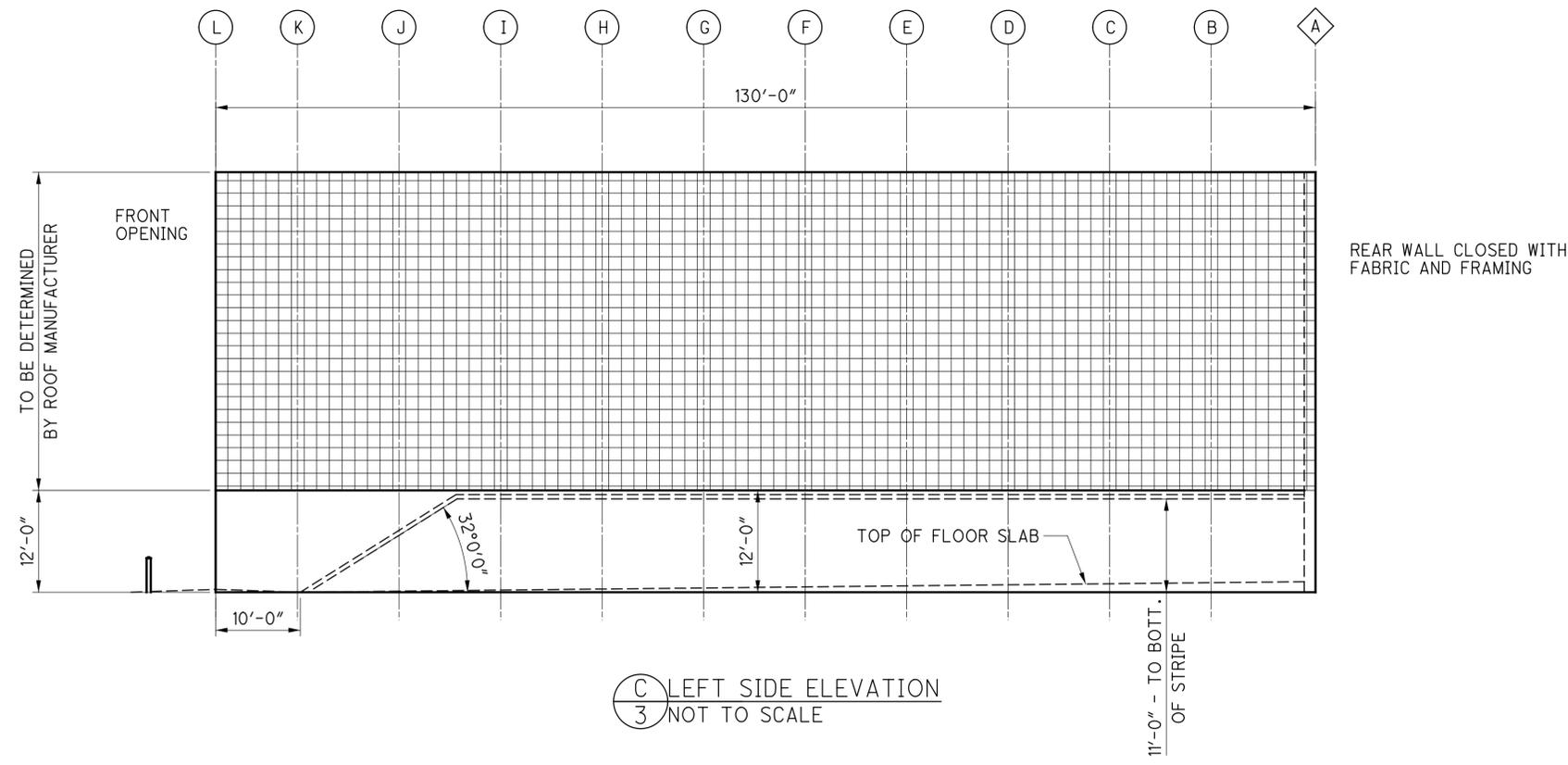
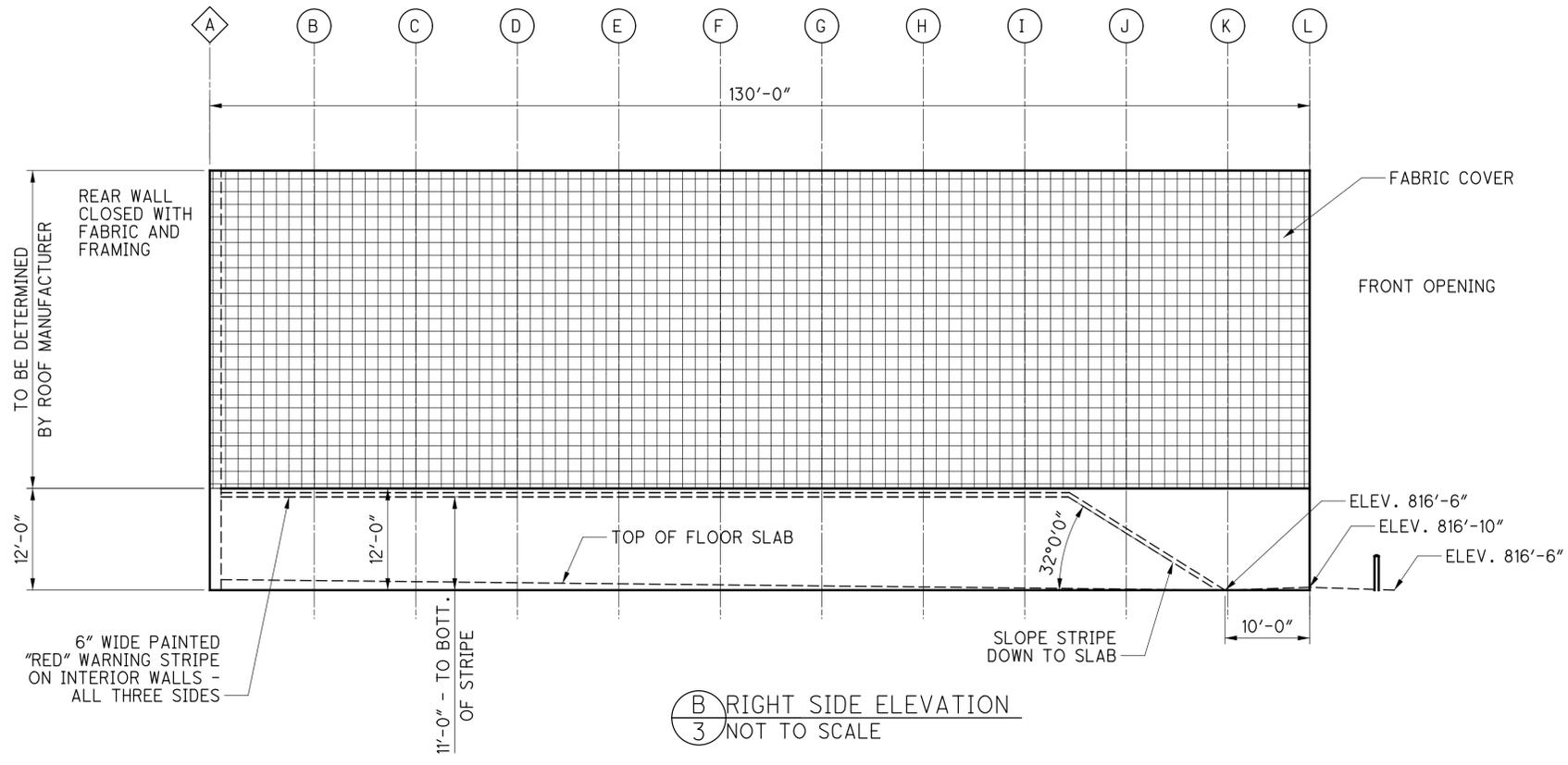
REAR ELEVATION
NOT TO SCALE



SALT BUILDING SECTION
NOT TO SCALE

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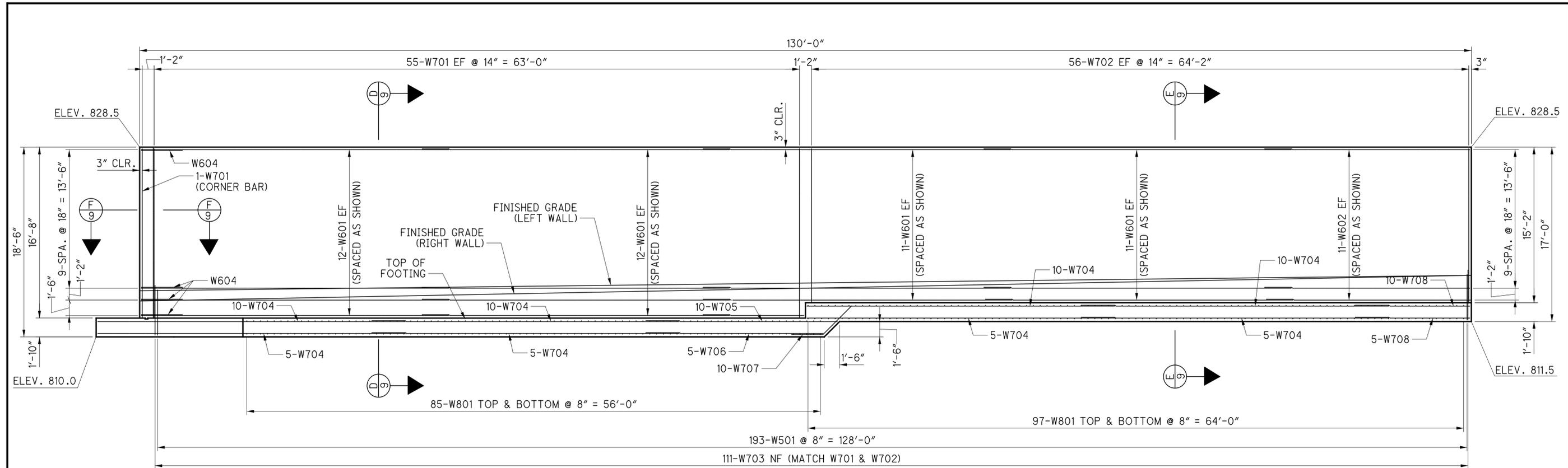
CALCULATED
TLC
CHECKED
MAB

STRUCTURAL RIGHT AND LEFT ELEVATION

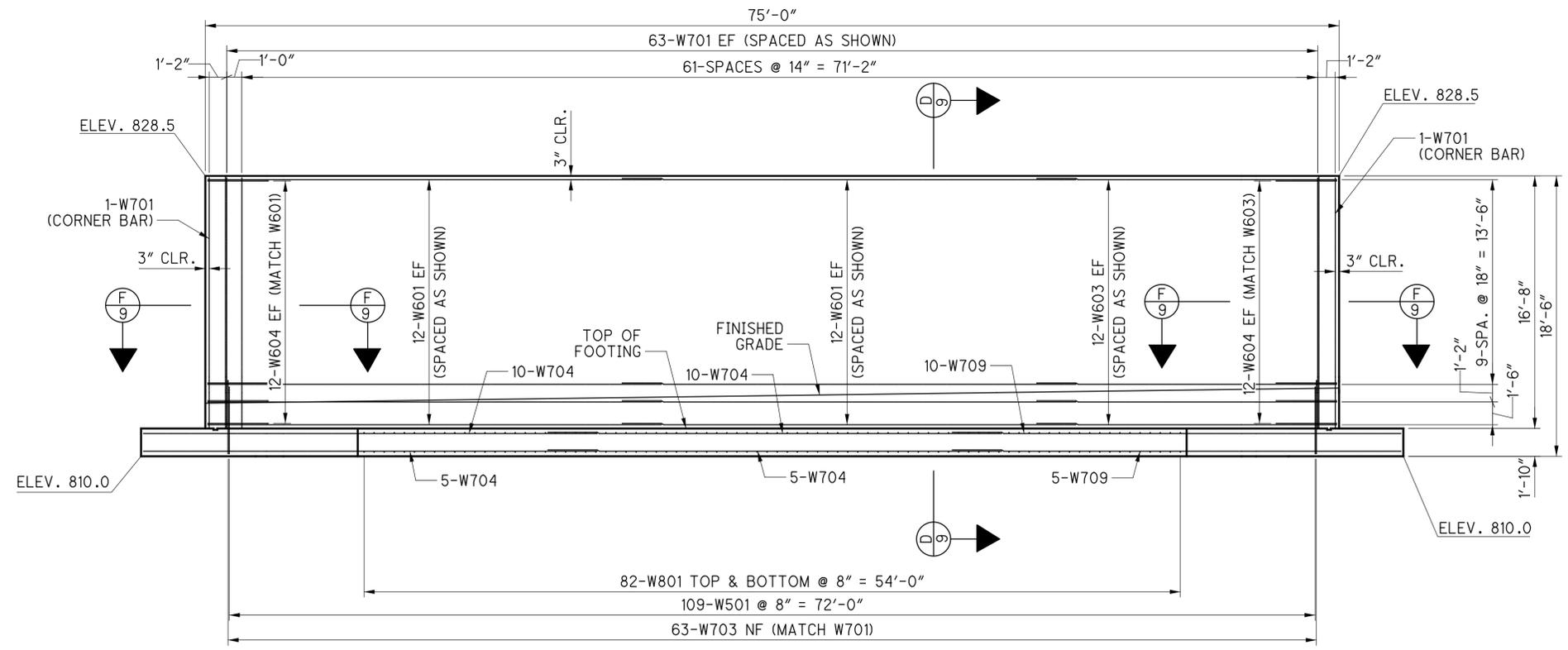
FACD05 GUE 70
WEIGH STATION 0Y

5 / 16

12
25



SALT BUILDING SIDE WALL ELEVATION
(RIGHT WALL SHOWN, LEFT WALL OPPOSITE HAND)



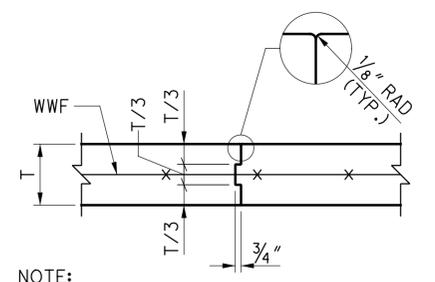
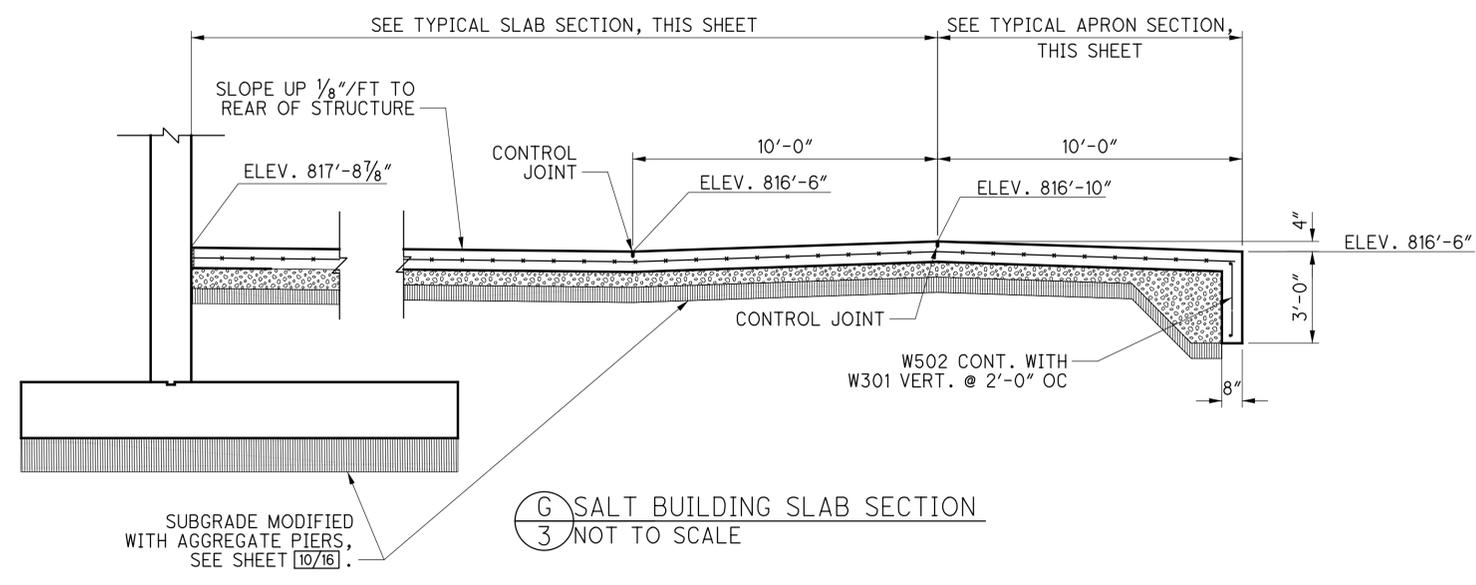
SALT BUILDING REAR WALL ELEVATION

LAP SPLICE LENGTHS	
BAR SIZE	LENGTH
#5	2'-5"
#6	2'-10"
#7	3'-7"

LEGEND
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE

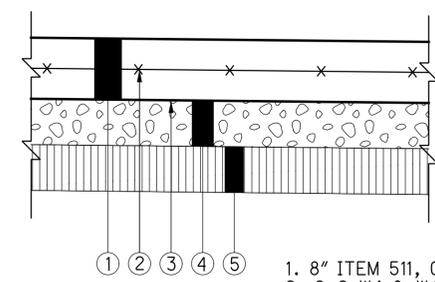
NOTES:
1. FOR REINFORCING STEEL LIST SEE SHEET 16/16

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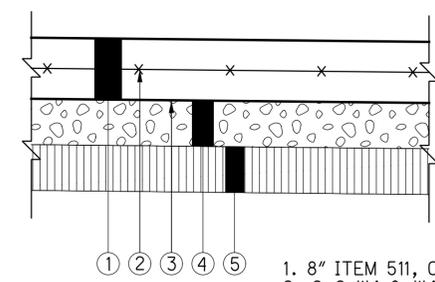
NOTE:
PERMANENT FORMS MAY BE USED ONLY WITH THE WRITTEN PERMISSION OF THE ENGINEER.

CONSTRUCTION JOINT
NOT TO SCALE



1. 8" ITEM 511, CLASS QC1 CONCRETE, MISC.: FLOOR SLABS
2. 6x6-W4.0xW4.0 AT MID-DEPTH
3. 10 MIL VAPOR BARRIER
4. 6" ITEM 304, AGGREGATE BASE COURSE
5. ITEM 204, COMPACTED SUBGRADE

SALT AND LOADER BUILDING APRON TYPICAL SECTION
NOT TO SCALE



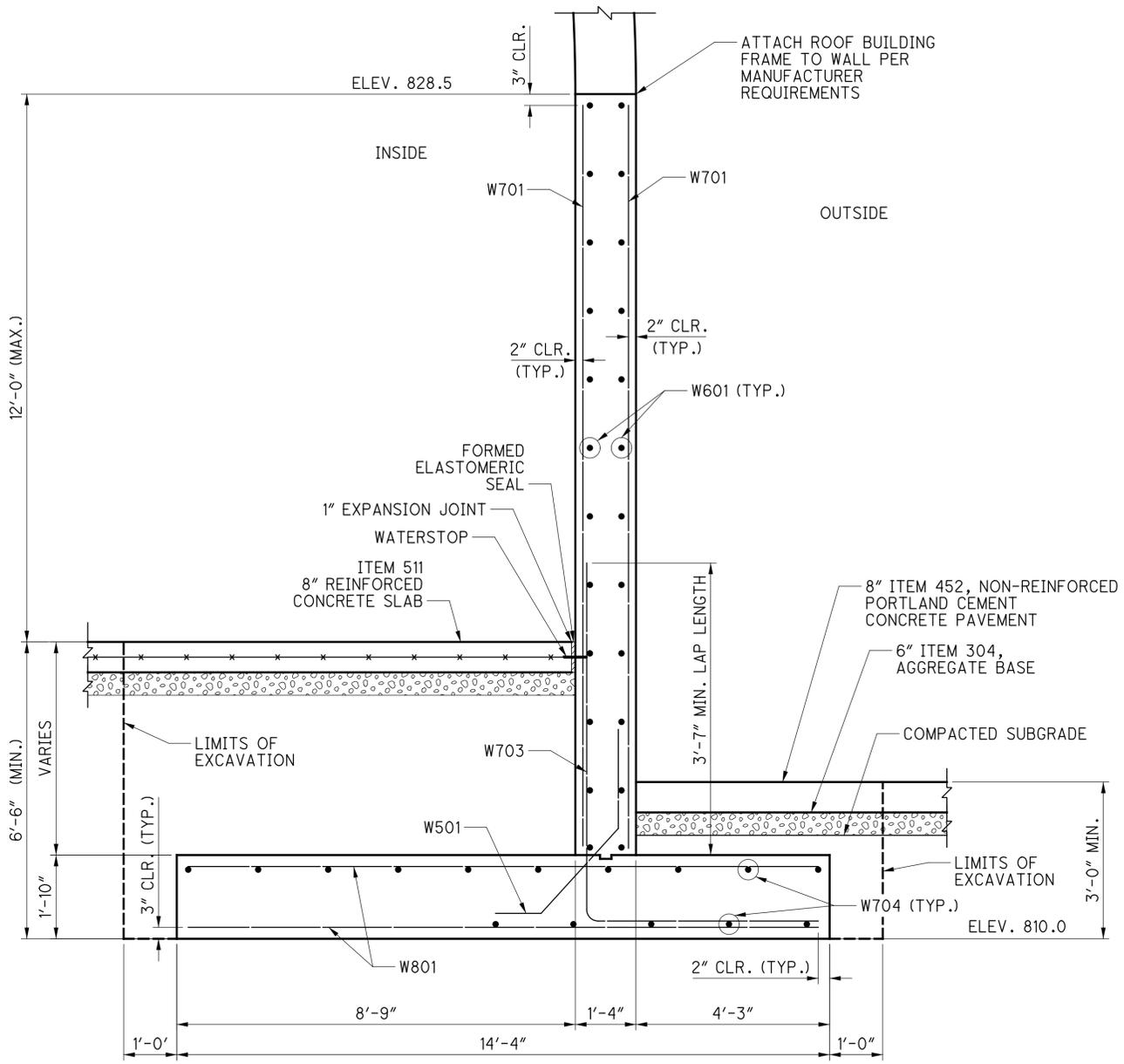
1. 8" ITEM 511, CLASS QC1 CONCRETE, MISC.: FLOOR SLABS
2. 6x6-W4.0xW4.0 AT MID-DEPTH
3. 10 MIL VAPOR BARRIER
4. 6" ITEM 304, AGGREGATE BASE COURSE
5. ITEM 204, COMPACTED SUBGRADE

SALT AND LOADER BUILDING SLAB TYPICAL SECTION
NOT TO SCALE

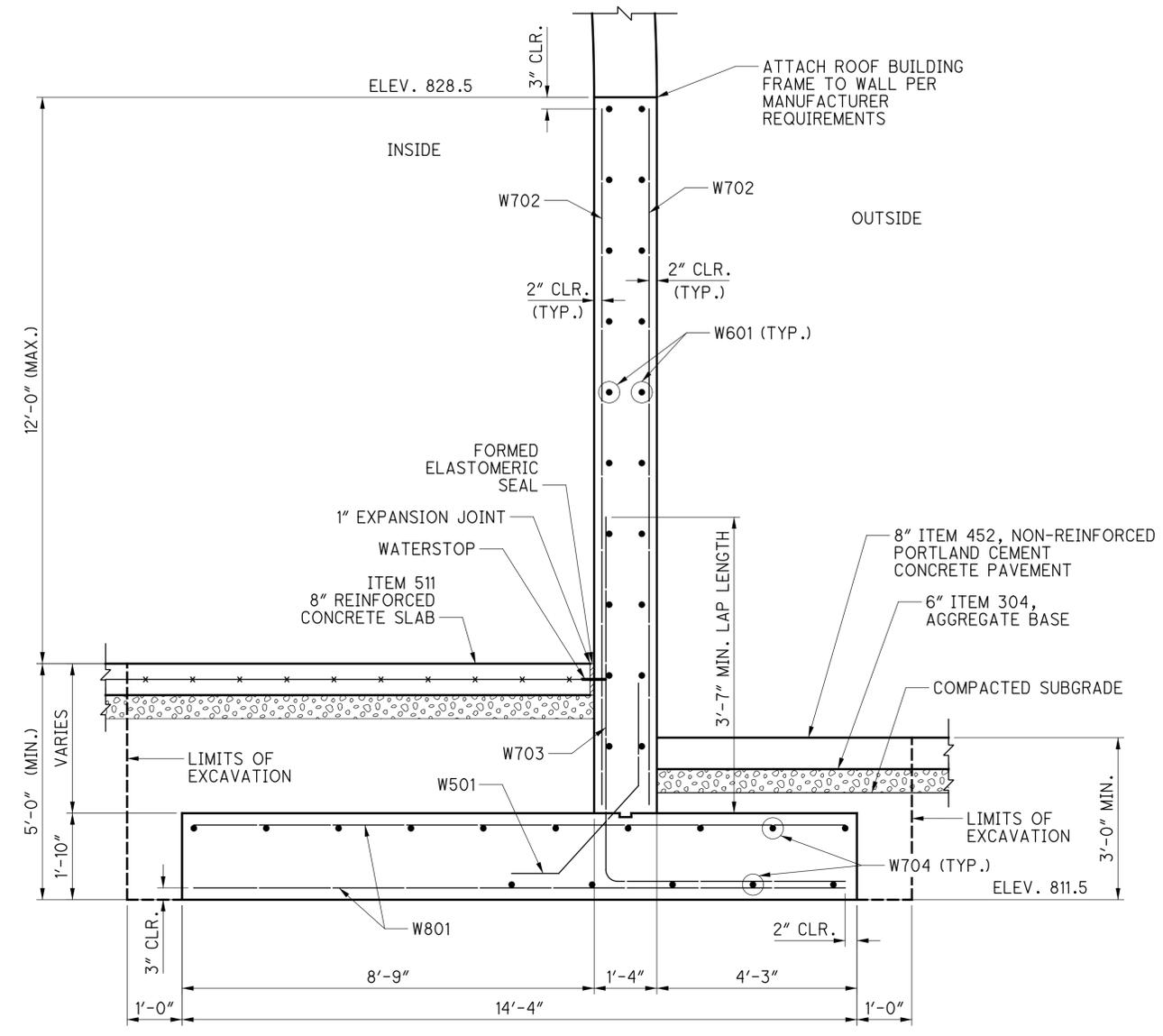
ITEM 511 - CLASS QC1 CONCRETE, MISC: FLOOR SLABS

CLASS QC1 CONCRETE SHALL BE INSTALLED AS INDICATED ON PLANS. PRIOR TO PLACEMENT OF CONCRETE, A 10 MIL VAPOR BARRIER, APPROVED BY THE ENGINEER SHALL BE PLACED OVER THE 304 AGGREGATE BASE. THE VAPOR BARRIER SHALL BE INCLUDED AS PART OF THE UNIT PRICE OF THIS ITEM. THE UNIT PRICE SHALL INCLUDE THE COST FOR ALL THE LABOR, MATERIAL AND EQUIPMENT NEEDED TO COMPLETE THE WORK.

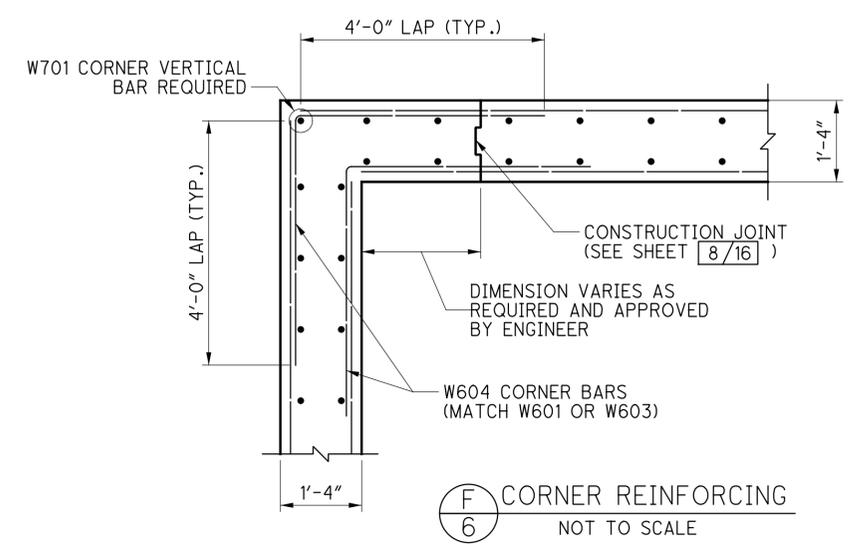
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D
6 **D**
7 SALT BUILDING WALL SECTION
NOT TO SCALE



E
6 **E**
7 SALT BUILDING WALL SECTION
NOT TO SCALE



F
6 CORNER REINFORCING
NOT TO SCALE

NOTES:

- FOR REINFORCING STEEL LIST SEE SHEET 16/16

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ITEM 530 - STRUCTURE MISC.: AGGREGATE PIERS

PART 1 - GENERAL

- 1.1 DESCRIPTION: WORK SHALL CONSIST OF DESIGNING, FURNISHING AND INSTALLING MATERIALS, AND CONSTRUCTING A GROUND IMPROVEMENT SYSTEM AT THE LOCATIONS NOTED ON THE DRAWINGS AND AS SPECIFIED HEREIN. GROUND IMPROVEMENT SYSTEM SHALL BE EITHER VIBRO STONE COLUMNS OR RAMMED PIERS. "AGGREGATE PIERS" REFERENCED IN THESE SPECIFICATIONS REFER TO BOTH VIBRO STONE COLUMNS AND RAMMED PIERS.
- 1.2 WORK INCLUDED:
 - A. PROVISION OF ALL EQUIPMENT, MATERIAL, LABOR, AND SUPERVISION TO DESIGN AND INSTALL AGGREGATE PIER ELEMENTS. DESIGN SHALL RELY ON SUBSURFACE INFORMATION PRESENTED IN THE PROJECT GEOTECHNICAL REPORT.
- 1.3 APPROVED INSTALLERS:
 - A. INSTALLERS OF AGGREGATE PIER FOUNDATION SYSTEMS SHALL HAVE A MINIMUM OF 5 YEARS OF EXPERIENCE WITH THE INSTALLATION OF AGGREGATE PIERS AND SHALL HAVE COMPLETED AT LEAST 100 PROJECTS.
- 1.4 REFERENCE STANDARDS:
 - A. DESIGN: THE GROUND IMPROVEMENT INSTALLER SHALL BE RESPONSIBLE FOR DESIGN OF A VIBRO STONE COLUMN OR RAMMED PIER GROUND IMPROVEMENT SYSTEM THAT MEETS THE GLOBAL STABILITY, ALLOWABLE BEARING CAPACITY, AND SETTLEMENT REQUIREMENTS STATED ON THE CONTRACT PLANS. INDUSTRY RECOGNIZED STANDARDS OR DESIGN METHODS SPECIFIC TO THE INSTALLER'S EQUIPMENT AND CONSTRUCTION METHODS SHALL BE USED.
- 1.5 CERTIFICATIONS AND SUBMITTALS:
 - A. THE INSTALLER SHALL SUBMIT DETAILED DESIGN CALCULATIONS AND CONSTRUCTION DRAWINGS TO THE ARCHITECT AND TO THE GEOTECHNICAL ENGINEER OF RECORD FOR APPROVAL AT LEAST THREE (3) WEEKS PRIOR TO THE START OF CONSTRUCTION. ALL PLANS SHALL BE SEALED BY A PROFESSIONAL ENGINEER IN THE STATE IN WHICH THE PROJECT IS CONSTRUCTED (REFERRED IN THIS SPECIFICATION AS "THE DESIGNER").
- 1.6 BASIS OF PAYMENT:
 - A. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR ITEM 530 - STRUCTURE MISC.: AGGREGATE PIERS.
- 1.7 STONE COLUMN AND AGGREGATE PIER DESIGN:
 - A. THE AGGREGATE PIER DESIGN STIFFNESS MODULUS VALUE SHALL BE VERIFIED BY THE RESULTS OF THE MODULUS TEST, DESCRIBED IN THIS SPECIFICATION.
 - B. STONE COLUMNS OR AGGREGATE PIERS SHALL BE DESIGNED IN ACCORDANCE WITH GENERALLY-ACCEPTED ENGINEERING PRACTICE AND THE METHODS DESCRIBED IN SECTION 1 OF THESE SPECIFICATIONS. THE DESIGN SHALL MEET THE FOLLOWING CRITERIA.
 - 1. MINIMUM ALLOWABLE BEARING PRESSURE WITH AGGREGATE PIER REINFORCED SOILS: 4,000 PSF.
 - 2. MINIMUM AGGREGATE PIER AREA COVERAGE (FOR SPREAD FOOTINGS): 30%.
 - 3. ESTIMATED TOTAL LONG-TERM SETTLEMENT FOR FOOTINGS: LESS THAN OR EQUAL TO 1-INCH.
 - 4. ESTIMATED LONG-TERM DIFFERENTIAL SETTLEMENT OF ADJACENT FOOTINGS: LESS THAN OR EQUAL TO 1/2-INCH.
 - C. THE DESIGN SUBMITTED BY THE INSTALLER SHALL CONSIDER THE BEARING CAPACITY AND SETTLEMENT OF ALL FOOTINGS SUPPORTED BY AGGREGATE PIERS, AND SHALL BE IN ACCORDANCE WITH ACCEPTABLE ENGINEERING PRACTICE AND THESE SPECIFICATIONS. TOTAL AND DIFFERENTIAL SETTLEMENT SHALL BE CONSIDERED. THE DESIGN LIFE OF THE STRUCTURE SHALL BE 50 YEARS.
 - D. THE STONE COLUMN OR AGGREGATE PIER SYSTEM SHALL BE DESIGNED TO PRECLUDE PLASTIC BULGING DEFORMATIONS AT THE TOP-OF-PIER DESIGN STRESS AND TO PRECLUDE SIGNIFICANT TIP STRESSES AS DETERMINED FROM THE SHAPE OF THE TELLTALE TEST CURVE FROM TELLTALES INSTALLED IN MODULUS TEST PIERS. THE RESULTS OF THE MODULUS TEST SHALL BE USED TO VERIFY THE DESIGN ASSUMPTIONS.
 - E. DESIGN SUBMITTAL: THE INSTALLER SHALL SUBMIT DETAILED DESIGN CALCULATIONS, CONSTRUCTION DRAWINGS, AND SHOP DRAWINGS, (THE DESIGN SUBMITTAL), FOR APPROVAL. A DETAILED EXPLANATION OF THE DESIGN PARAMETERS FOR SETTLEMENT CALCULATIONS SHALL BE INCLUDED IN THE DESIGN SUBMITTAL. ADDITIONALLY, THE QUALITY CONTROL TEST PROGRAM FOR STONE COLUMNS OR AGGREGATE PIERS, MEETING THESE DESIGN REQUIREMENTS, SHALL BE SUBMITTED. ALL CALCULATIONS AND DRAWINGS SHALL BE PREPARED AND SEALED BY A PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF OHIO.

PART 2 - PRODUCTS

- 2.1 MATERIALS:
 - A. AGGREGATE USED FOR PIERS CONSTRUCTED ABOVE THE WATER TABLE SHALL BE TYPE I GRADE B IN ACCORDANCE WITH ASTM D-1241-68, OR SHALL BE OTHER GRADED AGGREGATE SELECTED BY THE INSTALLER

AND SUCCESSFULLY USED IN THE MODULUS TEST. IT SHALL BE COMPACTED TO A DENSIFICATION AND STRENGTH, WHICH PROVIDES RESISTANCE TO THE DYNAMIC PENETRATION TEST (ASTM STP 399) OF A MINIMUM AVERAGE OF 15 BLOWS PER 1.75-INCH VERTICAL MOVEMENT.

- B. FOR AGGREGATE USED FOR PIERS CONSTRUCTED BELOW THE WATER TABLE, THE GRADATION SHALL BE THE SAME AS TYPE I GRADATION B, EXCEPT THAT PARTICLES PASSING THE NO. 40 SIEVE SHALL BE ELIMINATED. ALTERNATIVELY, NO.57 STONE OR OTHER STONE SELECTED BY THE STONE COLUMNS OR AGGREGATE PIER INSTALLER MAY BE USED. DYNAMIC PENETRATION RESISTANCE TESTING IS INAPPROPRIATE FOR THIS MATERIAL.

PART 3 - EXECUTION

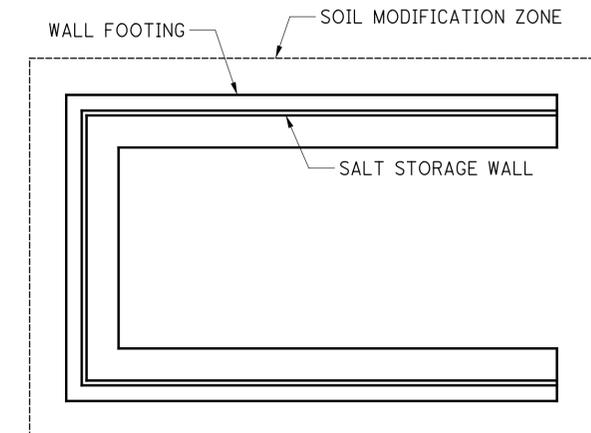
- 3.1 STONE COLUMNS
 - A. INSTALL STONE COLUMNS WITH A DOWN-HOLE VIBRATOR CAPABLE OF DENSIFYING THE AGGREGATE BY FORCING IT RADIALLY INTO THE SURROUNDING SOIL. THE VIBRATOR SHALL BE OF SUFFICIENT SIZE AND CAPACITY TO CONSTRUCT STONE COLUMNS TO THE DIAMETERS AND LENGTHS SHOWN ON THE INSTALLER'S APPROVED CONSTRUCTION DRAWINGS.
 - B. THE PROBE AND FOLLOWER TUBES SHALL BE OF SUFFICIENT LENGTH TO REACH THE ELEVATIONS SHOWN ON THE INSTALLER'S APPROVED CONSTRUCTION DRAWINGS. THE PROBE, USED IN COMBINATION WITH THE AVAILABLE PRESSURE TO THE TIP JET, SHALL BE CAPABLE OF PENETRATION TO THE REQUIRED TIP ELEVATION. PREBORING SHALL BE PERMITTED IF IT IS SPECIFIED IN THE INSTALLER'S APPROVED CONSTRUCTION PROCEDURE SUBMITTAL.
 - C. THE PROBE AND FOLLOWER SHALL HAVE VISIBLE MARKINGS AT REGULAR INCREMENTS TO ENABLE MEASUREMENT OF PENETRATION AND REPENETRATION DEPTHS.
 - D. PROVIDE METHODS FOR SUPPLYING TO THE TIP OF THE PROBE A SUFFICIENT QUALITY OF AIR OR WATER TO WIDEN THE PROBE HOLE TO ALLOW ADEQUATE SPACE FOR STONE BACKFILL PLACEMENT AROUND THE PROBE.
 - E. THE PROBE SHALL PENETRATE INTO THE FOUNDATION SOIL LAYER TO THE MINIMUM DEPTHS REQUIRED IN THE INSTALLER'S CONSTRUCTION PLANS.
 - F. LIFT THICKNESS SHALL NOT EXCEED 4 FEET. AFTER PENETRATION TO THE TREATMENT DEPTH, SLOWLY RETRIEVE THE VIBRATOR IN 12-INCH TO 18-INCH INCREMENTS TO ALLOW BACKFILL PLACEMENT.
 - G. COMPACT THE BACKFILL IN EACH LIFT BY REPENETRATING IT AT LEAST TWICE WITH THE VIBRATING PROBE TO DENSIFY AND FORCE THE STONE INTO THE SURROUNDING SOIL.
 - H. INSTALL STONE COLUMNS SO THAT EACH COMPLETED COLUMN IS CONTINUOUS THROUGHOUT ITS LENGTH.
- 3.2 RAMMED PIERS:
 - A. ALL AGGREGATE PIER ELEMENTS SHALL BE PRE-AUGERED USING MECHANICAL DRILLING OR EXCAVATION EQUIPMENT. INSTALLATION OF PIERS WITHOUT PRE-AUGERING SHALL NOT BE ALLOWED BECAUSE THIS TECHNIQUE RESULTS IN SIGNIFICANT DISTURBANCE AND REMOLDING OF THE MATRIX SOILS SURROUNDING THE PIERS.
 - B. IF CAVE-INS OCCUR DURING EXCAVATION SUCH THAT THE SIDEWALLS OF THE HOLE ARE DEEMED TO BE UNSTABLE, STEEL CASING OR A DRILLING SLURRY SHALL BE USED TO STABILIZE THE EXCAVATION.
 - C. IF CAVE-INS OCCUR ON TOP OF A LIFT OF AGGREGATE SUCH THAT THE VOLUME OF THE CAVED SOILS IS GREATER THAN 10 PERCENT OF THE VOLUME OF THE AGGREGATE IN THE LIFT, THEN THE AGGREGATE SHALL BE CONSIDERED CONTAMINATED AND SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED AGGREGATE.
 - D. SPECIAL HIGH-ENERGY IMPACT DENSIFICATION APPARATUS SHALL BE EMPLOYED TO DENSIFY THE AGGREGATE PIER ELEMENTS DURING INSTALLATION. THE APPARATUS SHALL APPLY DIRECT DOWNWARD IMPACT ENERGY TO EACH LIFT OF AGGREGATE.
 - E. A MINIMUM TAMPER ENERGY LEVEL OF 250,000 FOOT-POUNDS OF FORCE PER MINUTE SHALL BE APPLIED BY THE ENERGY SOURCE.
 - F. THE BOTTOM OF THE EXCAVATION SHALL BE DENSIFIED PRIOR TO THE PLACEMENT OF THE AGGREGATE. IF WET, SOFT OR SENSITIVE SOILS ARE PRESENT, OPEN-GRADED AGGREGATE, SUCH AS ASTM NO.57 STONE OR OTHER, SHALL BE PLACED AT THE BOTTOM OF THE EXCAVATION AND COMPACTED TO STABILIZE THE ELEMENT BOTTOM AND MAY SERVE AS THE INITIAL LIFT.
 - G. DENSIFICATION SHALL BE PERFORMED USING A BEVELED TAMPER. THE BEVELED TAMPER FOOT IS REQUIRED TO ADEQUATELY INCREASE THE LATERAL EARTH PRESSURE IN THE MATRIX SOIL DURING INSTALLATION.
 - H. DOWNWARD PRESSURE SHALL BE APPLIED TO THE TAMPER SHAFT DURING TAMPING.
 - I. EACH LIFT OF AGGREGATE SHALL BE TAMPED FOR A MINIMUM OF 15 SECONDS.
- 3.3 PLAN LOCATION AND ELEVATION OF AGGREGATE PIER ELEMENTS: THE CENTER OF EACH PIER SHALL BE WITHIN SIX INCHES OF THE PLAN LOCATIONS INDICATED. THE FINAL MEASUREMENT OF THE TOP OF PIERS SHALL BE THE LOWEST POINT ON THE AGGREGATE IN THE LAST COMPACTED LIFT. PIERS INSTALLED OUTSIDE OF THE ABOVE TOLERANCES AND DEEMED NOT ACCEPTABLE SHALL BE REBUILT AT NO ADDITIONAL EXPENSE TO THE OWNER.
 - A. OBSTRUCTIONS: A 15 INCH MAXIMUM HORIZONTAL DEVIATION FROM INDICATED COLUMN LOCATION WILL BE ALLOWED WITHOUT PRIOR AUTHORIZATION FROM THE ENGINEER WHEN AN OBSTRUCTION IS ENCOUNTERED. REPORT THE PRESENCE OF ANY OBSTRUCTION TO THE ENGINEER AND DESCRIBE IN THE RECORDS. WHEN A DEVIATION GREATER THAN 15 INCH IS CAUSED BY AN OBSTRUCTION, STOP WORK, MOVE TO ANOTHER COMPACTION POINT AND IMMEDIATELY NOTIFY THE ENGINEER. THE ENGINEER MAY AT HIS OPTION AUTHORIZE ONE OR SEVERAL OF THE FOLLOWING:
 - 1. POSITION THE COMPACTION POINT A SHORT DISTANCE AWAY FROM THE ORIGINAL POSITION

- 2. ADDITIONAL COMPACTION POINTS TO BRIDGE THE OBSTRUCTION
- 3. REMOVE THE OBSTRUCTION, REPLACE REMOVED SOILS, AND AGAIN INSTALL THE COLUMN HOLE IN THE INDICATED LOCATION
- 4. PERFORM OTHER REMOVAL OR RELOCATION OPERATIONS.

THE OWNER WILL PAY THE CONTRACTOR FOR AUTHORIZED WORK TO REMOVE OBSTRUCTIONS OR FOR PERFORMING DIRECTED RELOCATION AND OPERATIONS, EXCEPT SHIFTING THE COMPACTION POINT, BASED ON ACCEPTED CONTRACT UNIT PRICES.

- 3.4 REJECTED AGGREGATE PIER ELEMENTS: AGGREGATE PIER ELEMENTS IMPROPERLY LOCATED OR INSTALLED BEYOND THE MAXIMUM ALLOWABLE TOLERANCES SHALL BE ABANDONED AND REPLACED WITH NEW PIERS, UNLESS THE DESIGNER APPROVES OTHER REMEDIAL MEASURES. ALL MATERIAL AND LABOR REQUIRED TO REPLACE REJECTED PIERS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

- 3.5 QUALITY CONTROL
 - A. QUALITY CONTROL REPRESENTATIVE: THE INSTALLER SHALL HAVE A FULL-TIME QUALITY CONTROL (QC) REPRESENTATIVE TO VERIFY AND REPORT ALL QC INSTALLATION PROCEDURES. THE INSTALLER SHALL IMMEDIATELY REPORT ANY UNUSUAL CONDITIONS ENCOUNTERED DURING INSTALLATION TO THE DESIGN ENGINEER, THE GENERAL CONTRACTOR, AND TO THE TESTING AGENCY. THE QC PROCEDURES SHALL INCLUDE THE PREPARATION OF AGGREGATE PIER PROGRESS REPORTS COMPLETED DURING EACH DAY OF INSTALLATION AND CONTAINING THE FOLLOWING INFORMATION:
 - 1. FOOTING AND AGGREGATE PIER LOCATION.
 - 2. AGGREGATE PIER LENGTH AND DRILLED DIAMETER.
 - 3. PLANNED AND ACTUAL AGGREGATE PIER ELEVATIONS AT THE TOP AND BOTTOM OF THE ELEMENT.
 - 4. AVERAGE LIFT THICKNESS FOR EACH AGGREGATE PIER.
 - 5. SOIL TYPES ENCOUNTERED AT THE BOTTOM OF THE AGGREGATE PIER AND ALONG THE LENGTH OF THE ELEMENT.
 - 6. DEPTH TO GROUNDWATER, IF ENCOUNTERED.
 - 7. DOCUMENTATION OF ANY UNUSUAL CONDITIONS ENCOUNTERED.
 - 8. TYPE AND SIZE OF DENSIFICATION EQUIPMENT USED.
 - B. QUALITY CONTROL VERIFICATION PROGRAM: THE INSTALLER SHALL BE RESPONSIBLE FOR DESIGN OF A VERIFICATION PROGRAM TO ASSURE THE QUALITY OF THE CONSTRUCTION. THE PROGRAM SHALL VERIFY THAT THE INSTALLED GROUND IMPROVEMENT SYSTEM SATISFIES THE PERFORMANCE REQUIREMENTS NOTED ON THE CONTRACT PLANS AND THE DESIGN REQUIREMENTS DETERMINED BY THE GROUND IMPROVEMENT SYSTEM DESIGNER. AS A MINIMUM, THE VERIFICATION PROGRAM SHALL INCLUDE THE FOLLOWING:
 - 1. PROGRAM TO MONITOR PERFORMANCE OF THE GROUND IMPROVEMENT SYSTEM DURING AND A MINIMUM OF 21 DAYS AFTER CONSTRUCTION OF THE PROPOSED STRUCTURE OR EMBANKMENT TO BE SUPPORTED. THIS PROGRAM MAY INCLUDE INSTALLATION OF SETTLEMENT PLATES, MONITORING POINTS, INCLINOMETERS, PIEZOMETERS, OR OTHER INSTRUMENTATION.
 - 2. STONE COLUMN INSTALLATION SHALL BE MONITORED BY AN ON BOARD COMPUTER MONITORING SYSTEM. MONITORING SYSTEM SHALL LOG STONE COLUMN NUMBER, TIME OF INSTALLATION, DEPTH, HYDRAULIC PRESSURE APPLIED DURING THE BORING PROCESS AND DURING THE COMPACTING PROCESS. RECORDED DATA FOR EACH STONE COLUMN SHALL BE PLOTTED DEPTH/PRESSURE VERSUS TIME. INSTALLATION RECORDS FOR EACH SHALL BE MADE AVAILABLE UPON REQUEST IN ELECTRONIC FORMAT WITHIN 24 HOURS OF INSTALLATION.
 - 3. PROPOSED MEANS AND METHODS FOR VERIFICATION THAT THE INSTALLED AGGREGATE PIERS MEET THE STRENGTH AND/OR STIFFNESS CRITERIA REQUIRED BY THE DESIGN. THIS MAY INCLUDE, BUT SHALL NOT BE LIMITED TO, MODULUS OR LOAD TESTS ON INDIVIDUAL ELEMENTS AND/OR GROUPS, SOIL BORINGS, AND OTHER METHODS AS APPROVED BY THE ENGINEER.
 - 4. QUALITY CONTROL PROGRAM TO VERIFY THAT THE GROUND IMPROVEMENT SYSTEM IS INSTALLED IN ACCORDANCE WITH THE DESIGNER'S SPECIFICATIONS AND THE REQUIREMENTS IN THIS SPECIAL PROVISION. THE QUALITY CONTROL PROGRAM SHALL INCLUDE TESTING AND OBSERVATIONS BY QUALIFIED PERSONNEL EMPLOYED BY THE GROUND IMPROVEMENT INSTALLER OR AN INDEPENDENT TESTING LABORATORY.



SOIL MODIFICATION PLAN

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SOIL MODIFICATION NOTES AND PLAN	CALCULATED TLC CHECKED MAB
FACD05 GUE 70 WEIGH STATION 0Y	10 / 16
17 25	

LOADER BUILDING ESTIMATED QUANTITIES

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION
203	20000	11	CY	EMBANKMENT
304	20000	21	CY	AGGREGATE BASE
503	21301	LS		UNCLASSIFIED EXCAVATION, AS PER PLAN
509	10000	1800	LB	EPOXY COATED REINFORCING STEEL
511	53010	21	CY	CLASS QC1 CONCRETE, MISC.: FOUNDATION WALLS & PIERS
511	53010	27	CY	CLASS QC1 CONCRETE, MISC.: FLOOR SLAB
SPECIAL	95050000	LS		FACILITIES, MISC.: OVERHEAD STEEL DOOR 14'x16' WITH LOCKS, COMPLETE (1 TOTAL) + MOTOR
SPECIAL	95050000	LS		FACILITIES, MISC.: MAN DOOR 3'x7' NOMINAL, STEEL WITH LOCKS, COMPLETE
SPECIAL	95050000	LS		FACILITIES, MISC.: ARMOR STEEL ANGLE L6x6x1/2 W/ ANCHOR PLATE ATTACHMENT
SPECIAL	95050000	LS		FACILITIES, MISC.: GUTTERS AND DOWNSPOUTS (APPROX 108 LF)
SPECIAL	95050000	LS		FACILITIES, MISC.: MISC. METAL ROOF ON PLYWOOD DECK
SPECIAL	95050000	LS		FACILITIES, MISC.: MISC. ROOF STRUCTURE W/ WOOD TRUSS
SPECIAL	95050000	LS		FACILITIES, MISC.: BUILDING WALLS AND FINISHES

ITEM-503: UNCLASSIFIED EXCAVATION, AS PER PLAN

THIS ITEM IS TO INCLUDE ALL ITEMS REQUIRED BY THE CONTRACTOR TO EXCAVATE AS NECESSARY IN ORDER TO CONSTRUCT REINFORCED CONCRETE PIERS, FOUNDATION WALLS, AND ALL OTHER ITEMS ASSOCIATED WITH THE FOUNDATION SHOWN IN PLANS

ITEM-950 SPECIAL: FACILITIES, MISC.: ARMOR STEEL ANGLE L6x6x1/2W / ANCHOR PLATE ATTACHMENT

THIS ITEM IS TO INCLUDE ALL ITEMS REQUIRED BY THE CONTRACTOR TO OBTAIN AND INSTALL ARMOR STEEL ANGLE AND ANCHOR PLATE ATTACHMENT

ITEM-950 SPECIAL: FACILITIES, MISC.: BUILDING WALLS AND FINISHES

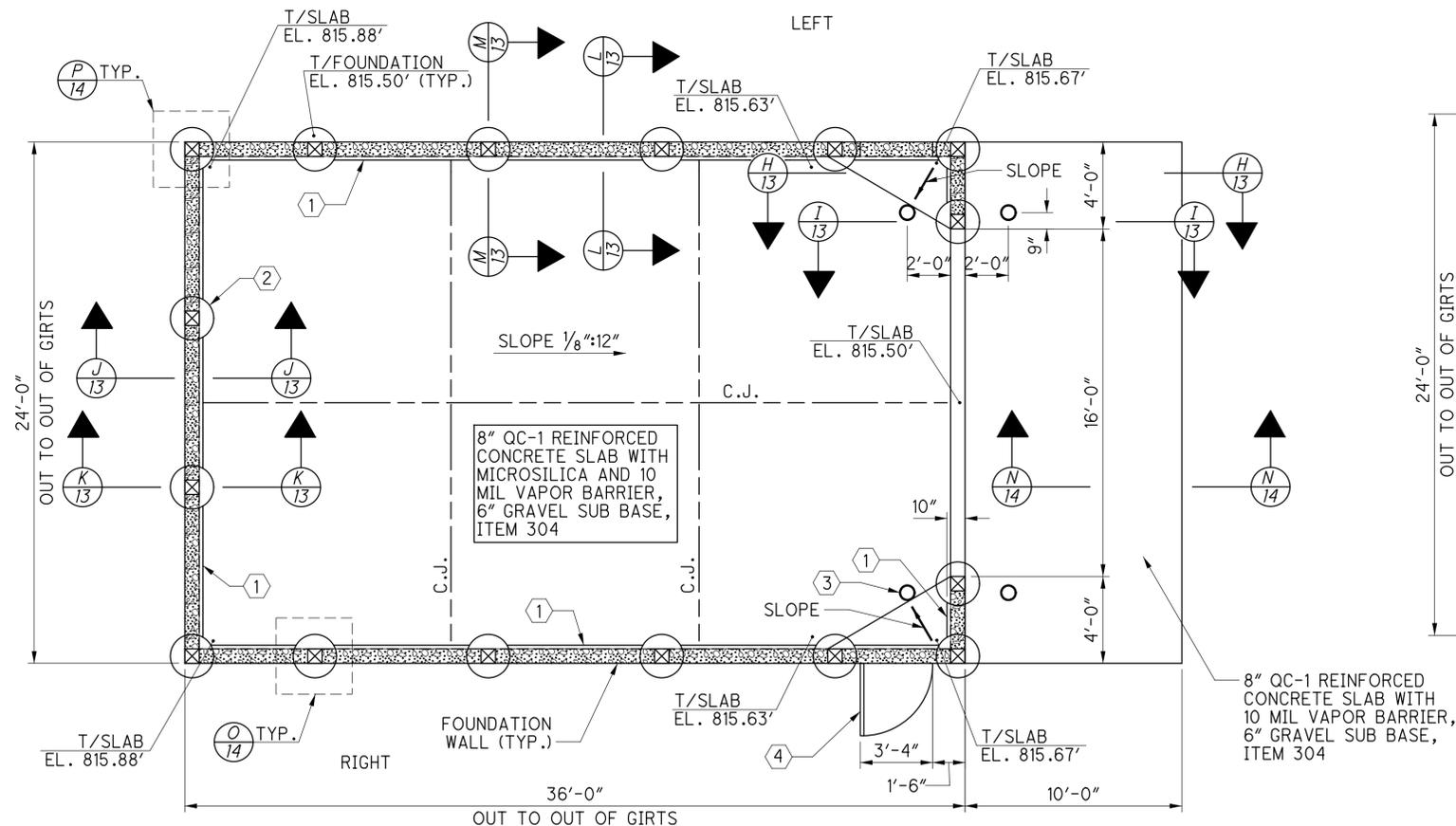
METAL SIDING, INSULATION, MASONRY AND GROUT, COLUMNS, WALLS, GIRTS, SUPPORTING BRACING, AND ALL MATERIAL NECESSARY TO CONSTRUCT THE BUILDING SHALL BE INSTALLED AS INDICATED IN THE PLANS. THE UNIT BID PRICE SHALL INCLUDE THE COST FOR ALL THE LABOR, MATERIAL AND EQUIPMENT NEEDED TO COMPLETE THE WORK.

GENERAL NOTES

- PRE-ENGINEERED WOOD TRUSSES TO SUPPORT 20 PSF LIVE LOAD, 15 PSF DEAD LOAD AND SNOW DRIFT LOAD WHERE APPLICABLE MINIMUM. MAXIMUM TOTAL LOAD DEFLECTION L/240. MAXIMUM LIVE LOAD DEFLECTION L/360. MAXIMUM STORY DRIFT L/480.
- WALL FRAMING 2x6 GIRTS @ 4'-0" O.C. (TYP. ALL WALLS)
- 3/4" EXTERIOR PLYWOOD SHEATHING. RIGID INSULATION ON 2x6 PURLINS @ 4'-0" O.C. ON ROOF.
- FOR FINISH FLOOR ELEVATIONS, REFER TO SHEET 7/25.

CLASS QC1 CONCRETE, MISC.: FLOOR SLAB QUANTITY CALCULATION

FLOOR SLAB = (8") * [(34'-4")(22'-4") + (10')(24') + (3'-4')(24')]
 FLOOR SLAB = 725 CF = 27 CY



LOADER BUILDING FOUNDATION PLAN

CODED NOTES FOR FOUNDATION PLAN

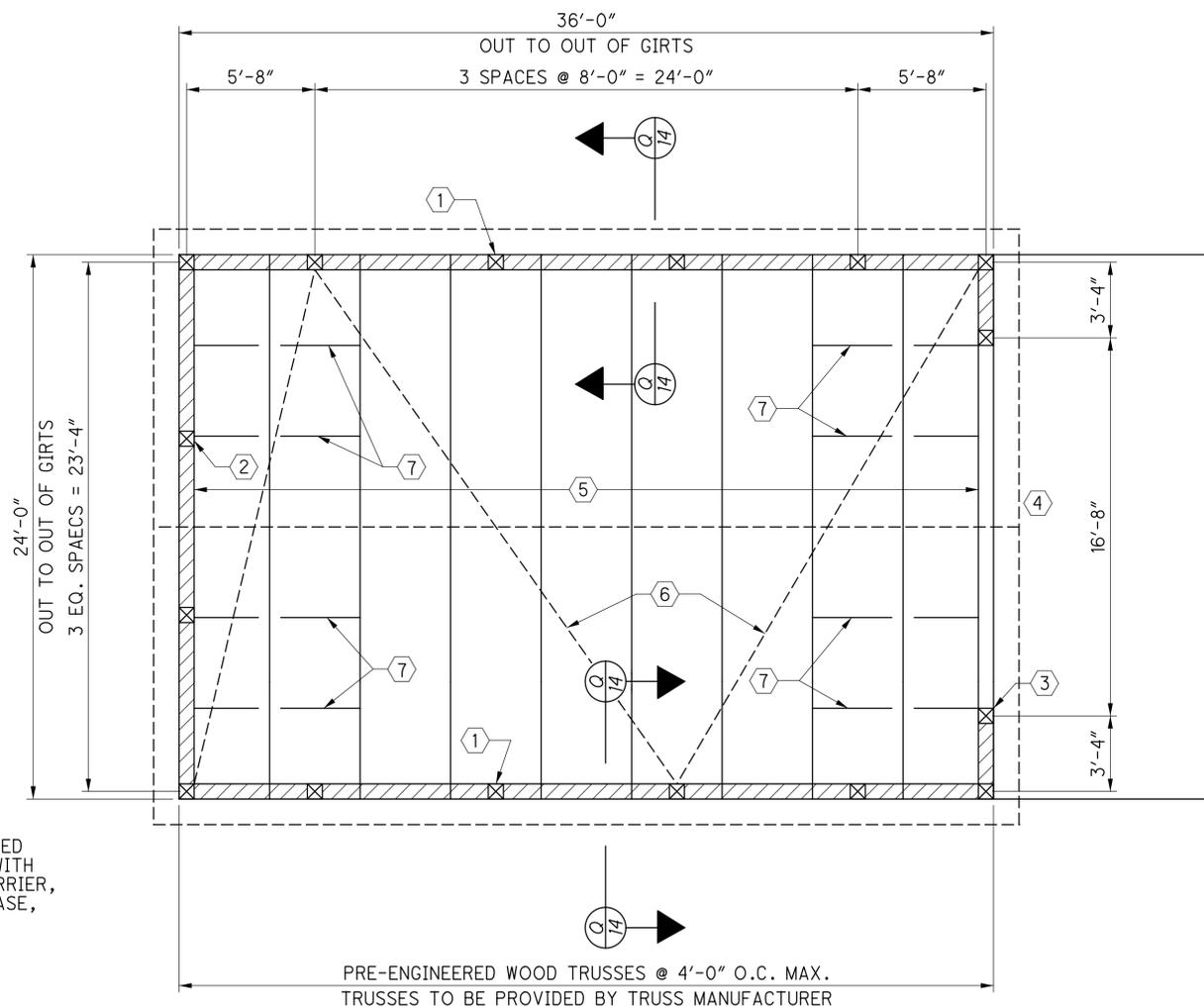
- 10" WIDE FOUNDATION. BOTTOM OF FOUNDATION TO BE 3'-0" BELOW FINISHED GRADE MIN. w/1 COURSE CMU STEM WALL.
- 2'-0" DIA. CONCRETE PIER. BOTTOM OF PIER TO EXTEND 6'-0" BELOW GRADE MIN.
- 8" DIA. BOLLARD (TYP. OF 4).
- 3'-0" x 7'-0" METAL DOOR IN HOLLOW MTL FRAME. SEE SPECIFICATION ON SHEET 2/16

ITEM-304: AGGREGATE BASE, AS PER PLAN

AGGREGATE BASE TO BE PLACED BENEATH FLOOR SLAB OF THE LOADER BUILDING. THE UNIT BID PRICE SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT NEEDED TO COMPLETE THE WORK.

ITEM 203 - EMBANKMENT

EMBANKMENT IS TO BE PLACED BENEATH THE BUILDING FLOOR SLAB AS SPECIFIED BELOW. A SUITABLE MATERIAL AS DETERMINED BY THE ENGINEER SHALL BE PLACED ABOVE THE EXISTING GRADE AND BELOW THE 304 AGGREGATE BASE REQUIRED FOR FLOOR SLAB CONSTRUCTION. ALL ASPECTS OF ITEM 203 - EMBANKMENT APPLY. THE UNIT BID PRICE FOR THIS ITEM SHALL INCLUDE ALL LABOR MATERIALS AND EQUIPMENT NEEDED TO COMPLETE THIS WORK.

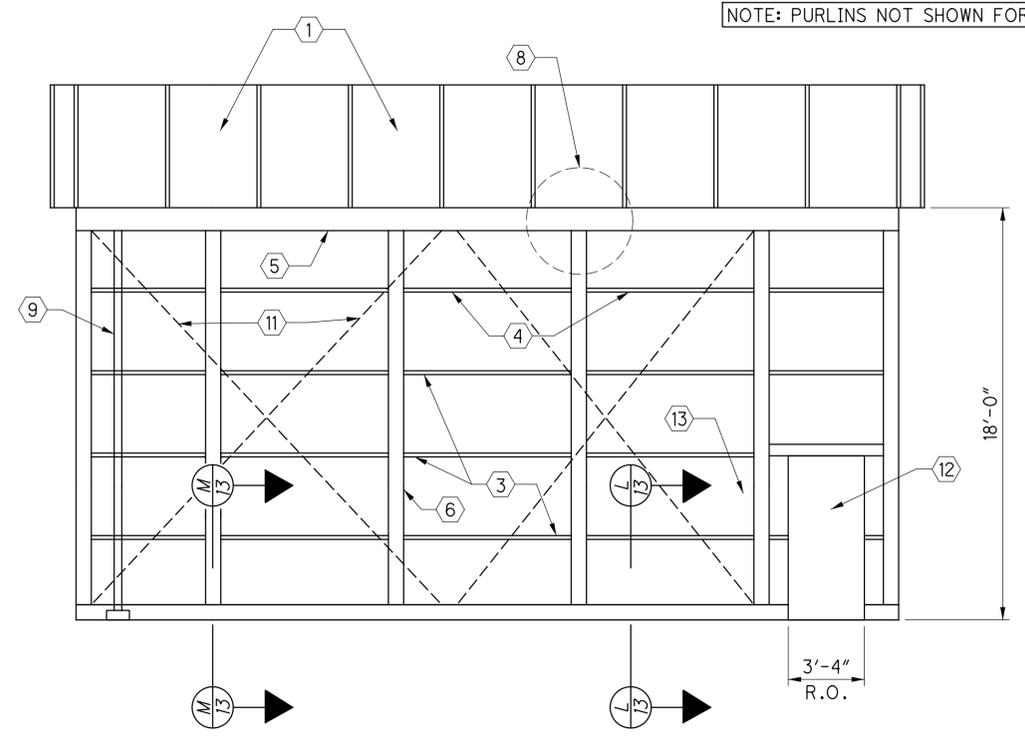


LOADER BUILDING ROOF FRAMING PLAN

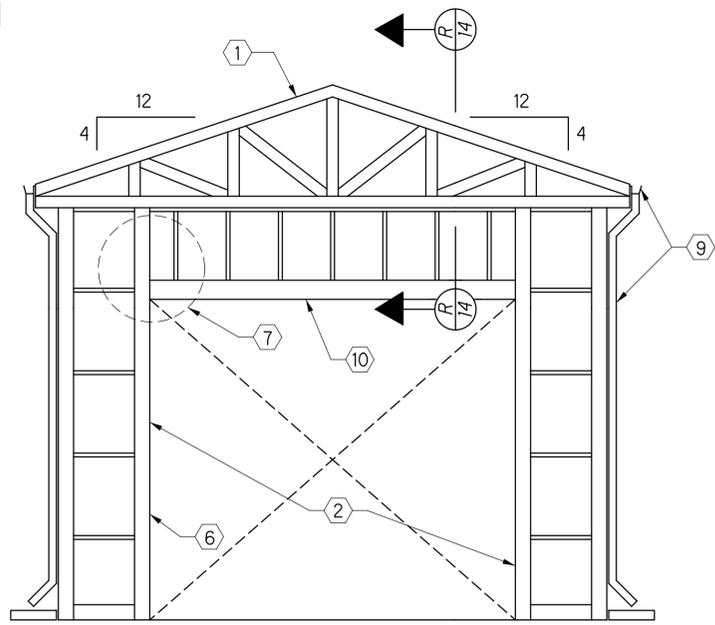
CODED NOTES FOR ROOF FRAMING PLAN

- SIDEWALL COLUMNS 8x8 POSTS (TYP. OF 12).
- REAR WALL COLUMNS 8x8 POSTS (TYP. OF 2).
- FRONT WALL COLUMNS 8x8 POSTS (TYP. OF 2).
- 16'-0"Wx14'-0"H OVERHEAD DOOR.
- 2x6 GABLE TRUSSES @ 4'-0" O.C. w/ 2x6 SLEEPERS @ 2'-0" O.C.
- 2x6 BRACING LAID FLAT ON BOTTOM CHORD. NAIL 2x6 TO B.C. WITH 2-16d AT EACH TRUSS OVERLAP.
- 2x6 KICKER BRACE FROM COLUMN/GIRT TO FIRST TRUSS BOTTOM CHORD TO SECOND TRUSS TOP CHORD.

NOTE: PURLINS NOT SHOWN FOR CLARITY



RIGHT SIDE WALL ELEVATION
NOT TO SCALE

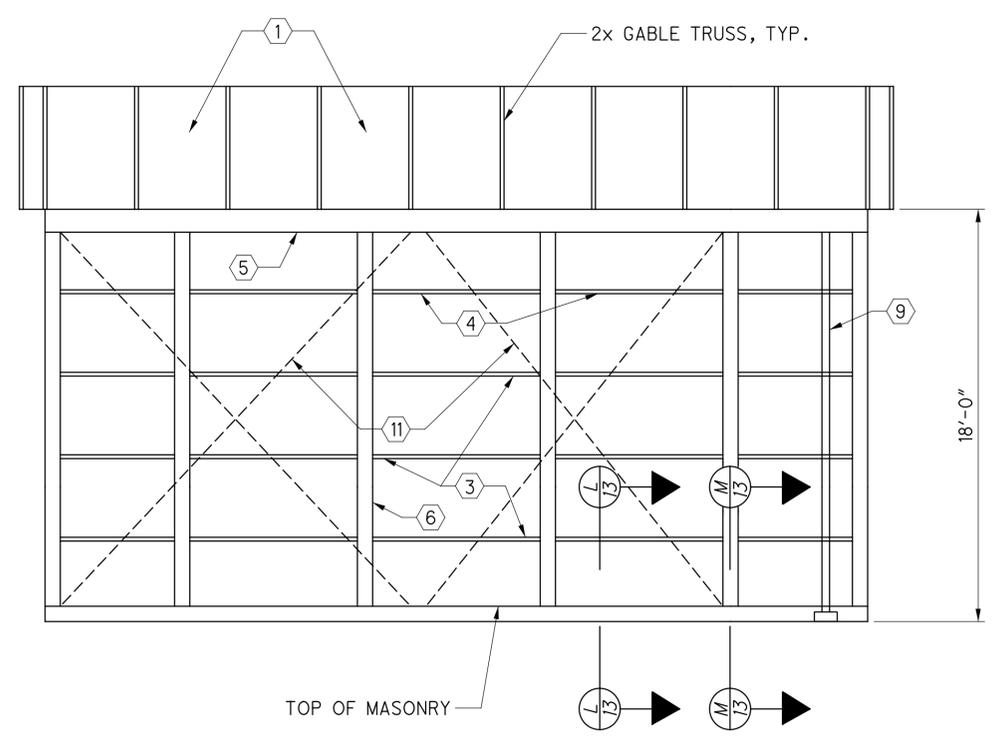


FRONT WALL ELEVATION
NOT TO SCALE

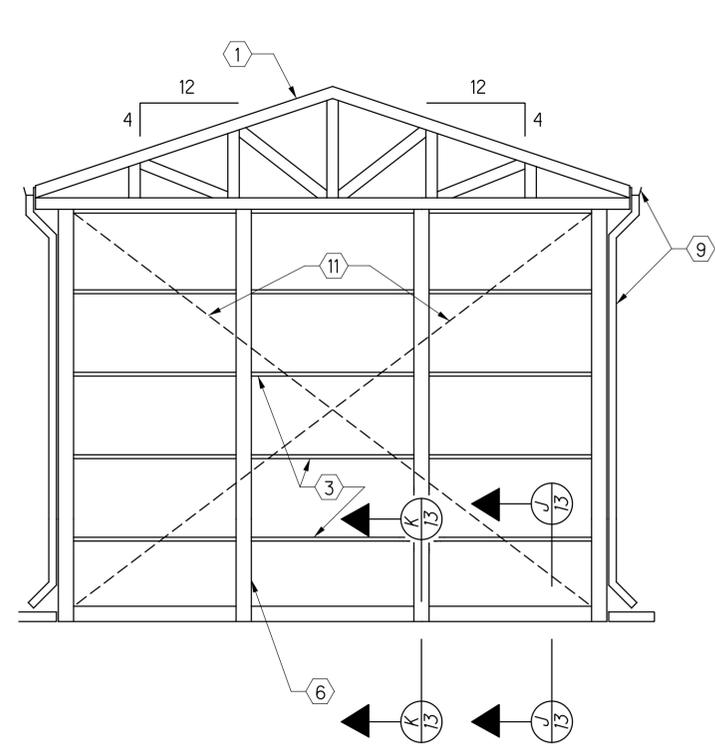
CODED NOTES:

1. ROOF SHEATHING ON WOOD PURLINS OVER WOOD TRUSSES, SEE ROOF FRAMING PLAN ON SHEET 11/16 FOR MORE INFORMATION, SEE METAL ROOF MATERIAL ON SHEET 2/16
2. 16'-0" Wx14'-0" H OVERHEAD DOOR.
3. 2x6 HORIZ. GIRTS @ 4'-0" O.C. (MAX.). ATTACH GIRTS TO 2x4 CLEAT WITH (3) 12d NAILS. ATTACH CLEAT (7" LONG) TO WOOD POST WITH (3) 12d NAILS. SEE DETAIL 7 ON SHEET 14/16
4. DOUBLE 2x8 GIRTS @ KICKER BRACE LEVEL
5. (2) 12" DEEP LVL CARRIER BEAMS. ATTACH WITH (8) 16d NAILS AT EACH COLUMN, AND EACH FACE. (BOTH SIDES)
6. 8x8 WOOD POSTS. SEE FRAMING PLAN.
7. HEADER BEARING CONNECTION, SEE DETAIL 4 ON SHEET 14/16
8. LVL BEARING CONNECTION, SEE DETAIL 1 ON SHEET 14/16
9. GUTTER AND DOWN SPOUT.
10. 2x10 BOXED HEADER AT OPENING, SEE DETAIL 3 ON SHEET 14/16
11. 16 GA. x 4" (GALV.) "X" BRACE AT EACH SIDE OF WALL SECURE WITH LAG SCREWS (4) AT EACH COLUMN.
12. 7'-2" MAN DOOR OPENING AS SHOWN. PROVIDE (2) 2x10 HDR. USE SIMPSON HUSC JOIST HANGER WITH CONCEALED FLANGES OR EQUAL AND (2) 2x8 TREATED JAMBS
13. FIRE EXTINGUISHER LOCATED NEAR SERVICE DOOR.

NOTE: PURLINS NOT SHOWN FOR CLARITY

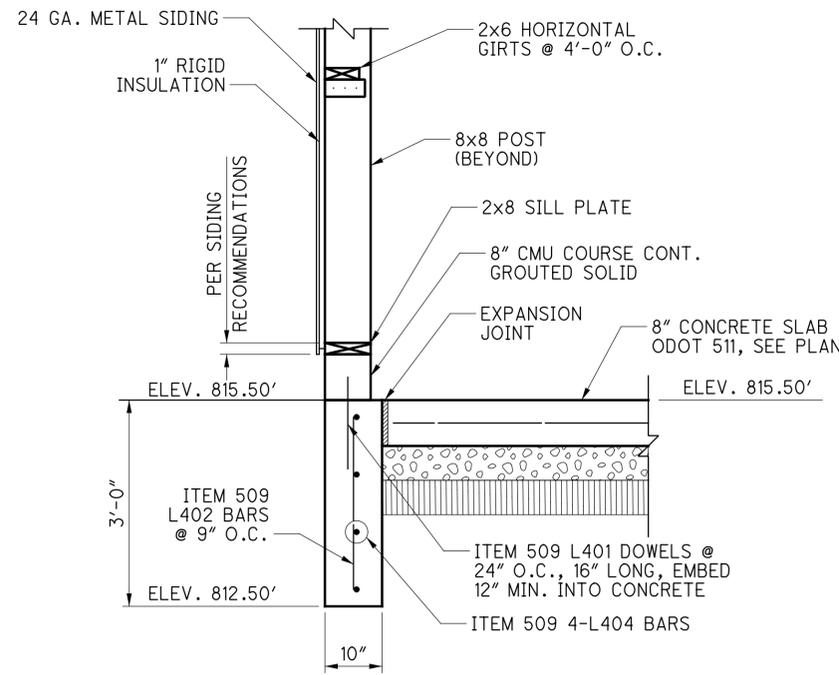


LEFT SIDE WALL ELEVATION
NOT TO SCALE

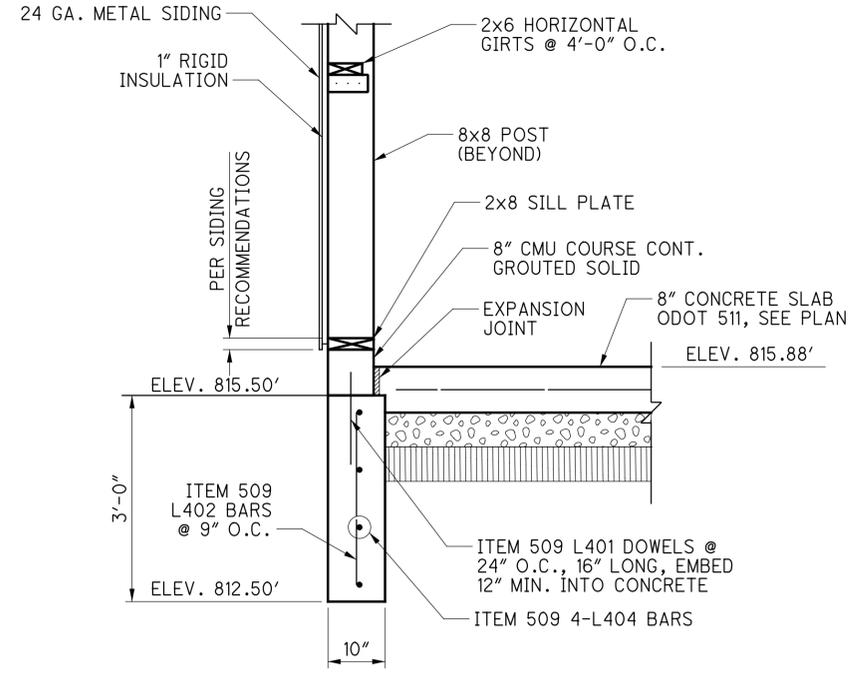


BACK WALL ELEVATION
NOT TO SCALE

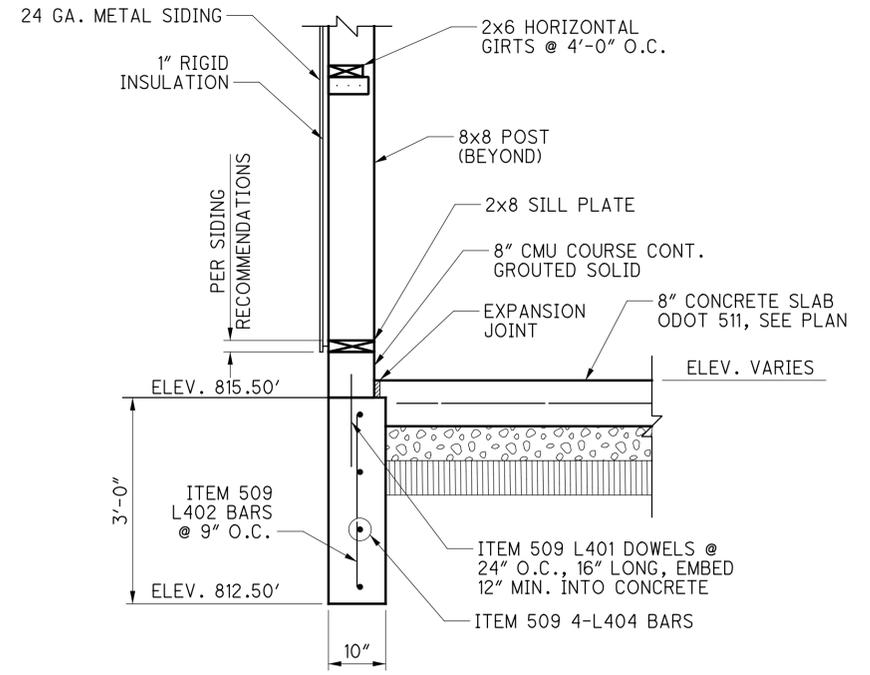
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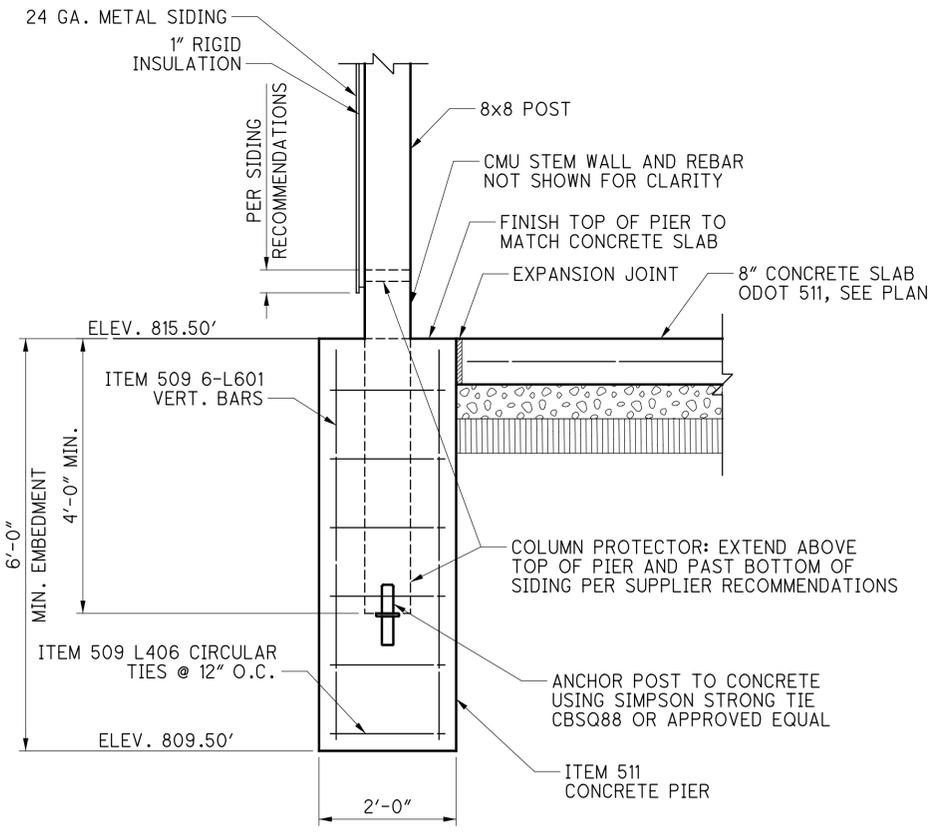
H FRONT WALL SECTION @ FOUNDATION WALL
11 NOT TO SCALE



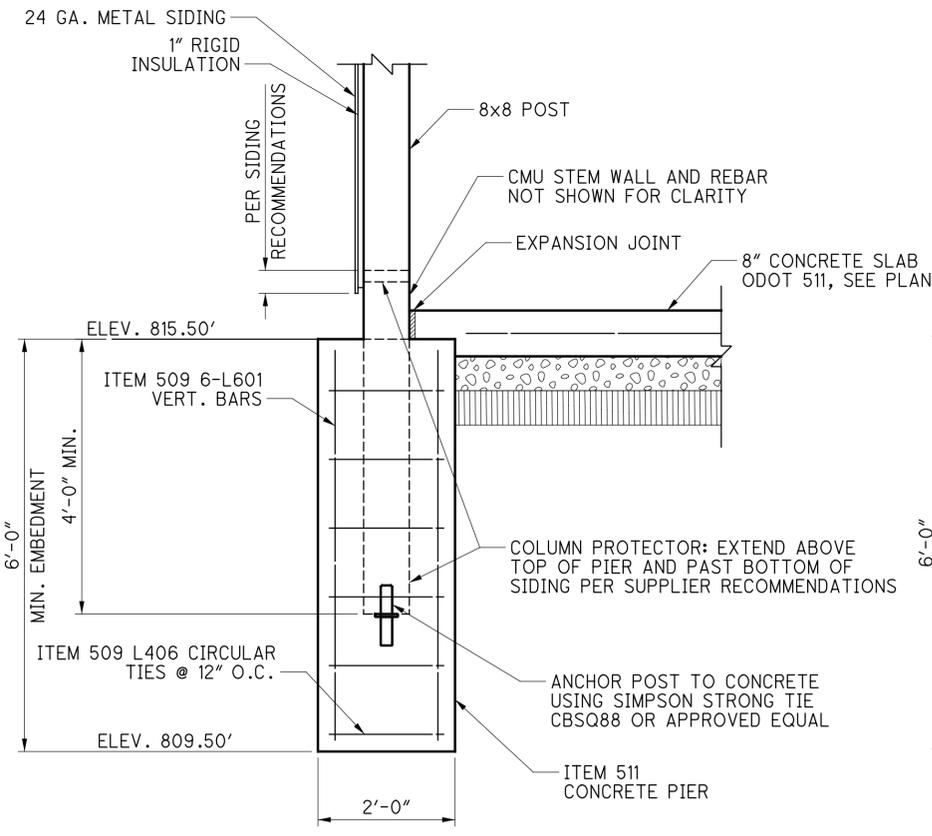
J BACK WALL SECTION @ FOUNDATION WALL
11 NOT TO SCALE



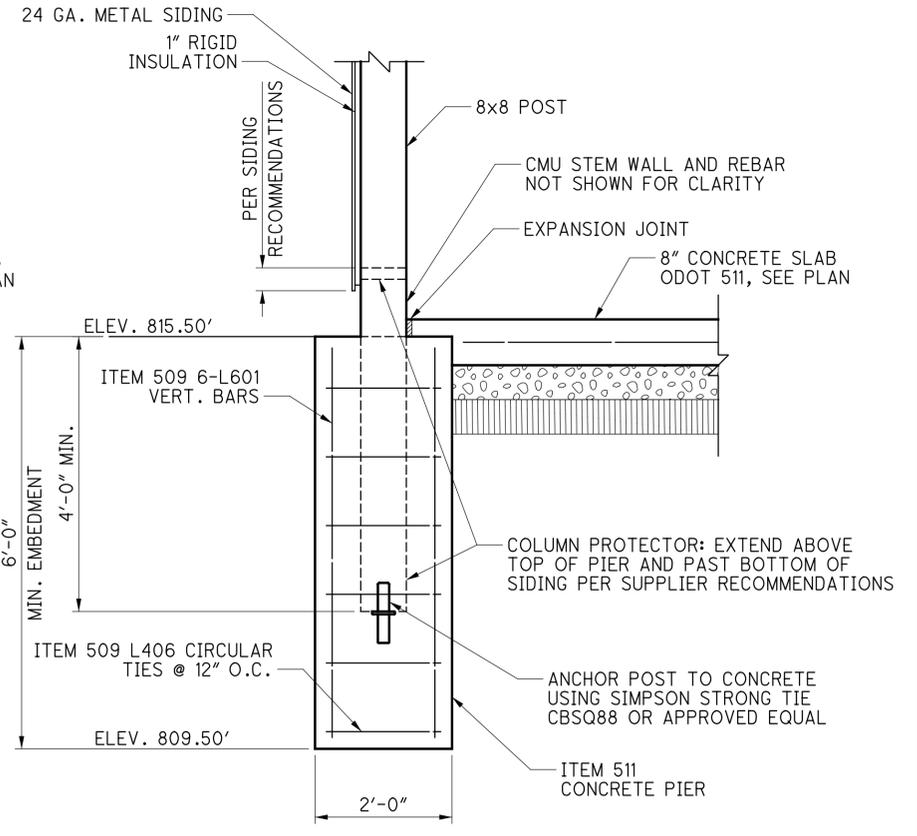
L SIDE WALL SECTION @ FOUNDATION WALL
11 12 14 NOT TO SCALE



I FRONT WALL SECTION @ PIER
11 NOT TO SCALE



K BACK WALL SECTION @ PIER
11 NOT TO SCALE

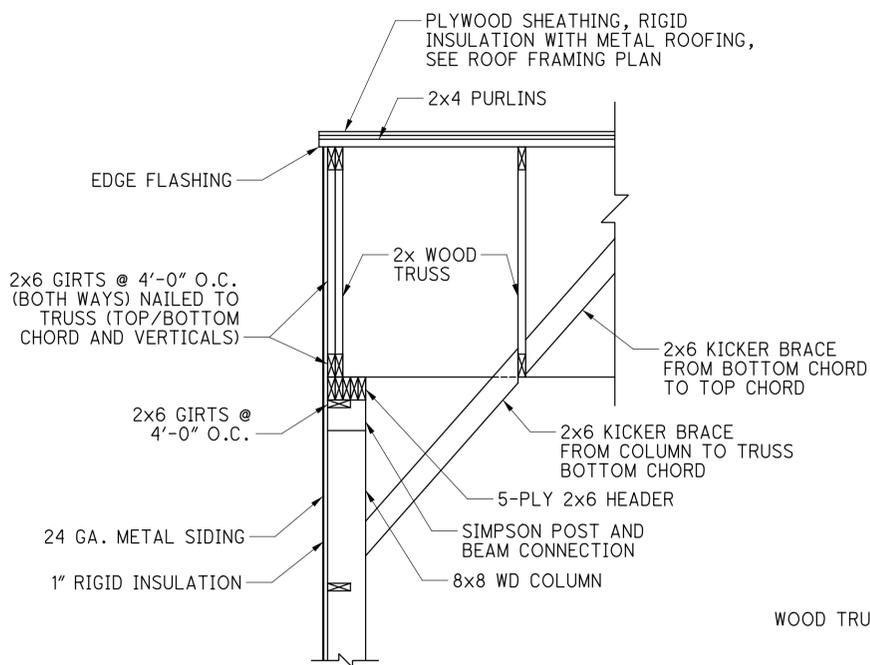


M SIDE WALL SECTION @ PIER
11 12 14 NOT TO SCALE

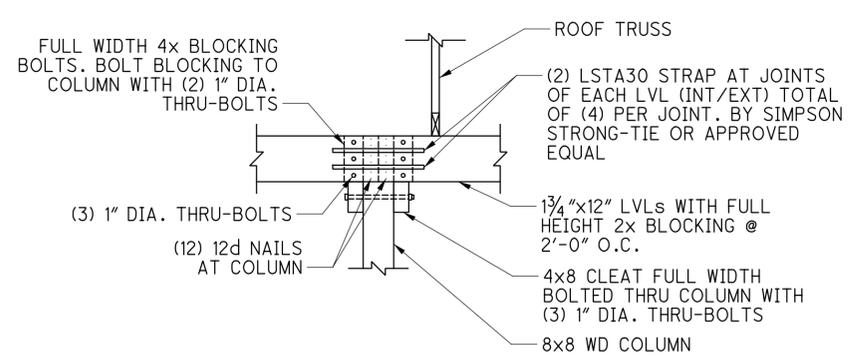
NOTES:

1. FOR REINFORCING STEEL LIST SEE SHEET 16/16

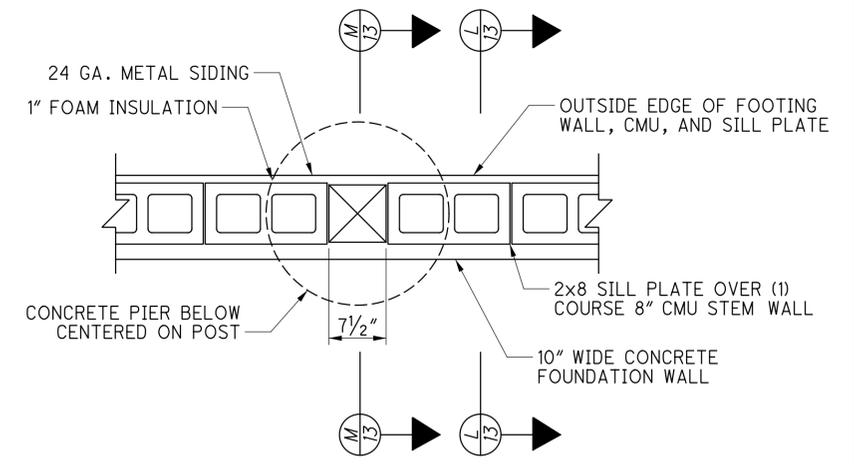
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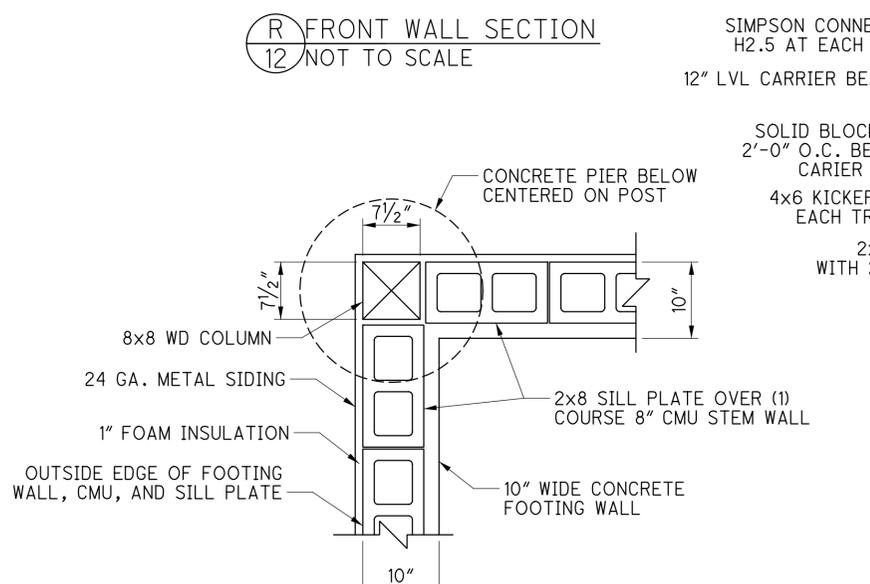
R FRONT WALL SECTION
12 NOT TO SCALE



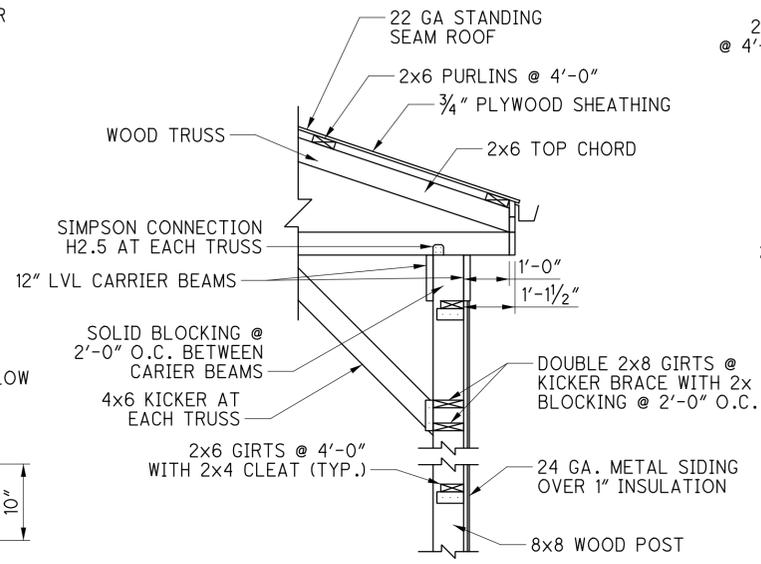
1 LVL SPLICE DETAIL AT BEARING ELEVATION
NOT TO SCALE



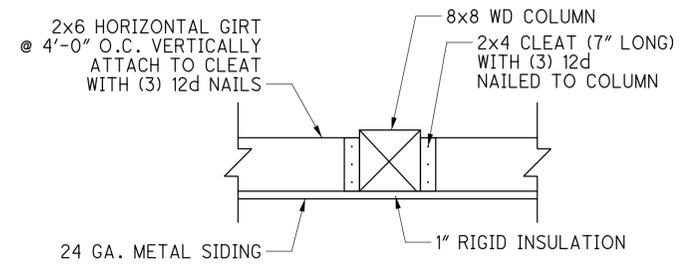
10 SIDE WALL COLUMN PLAN DETAIL
11 NOT TO SCALE



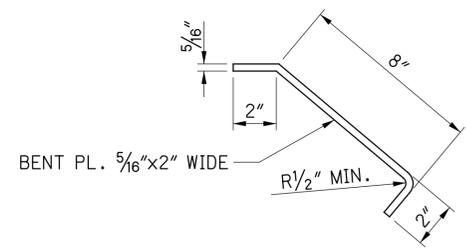
P CORNER COLUMN PLAN DETAIL
11 NOT TO SCALE



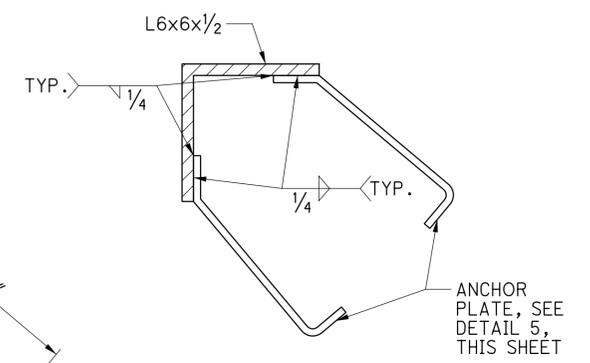
Q SIDE WALL SECTION AT COLUMN
11 NOT TO SCALE



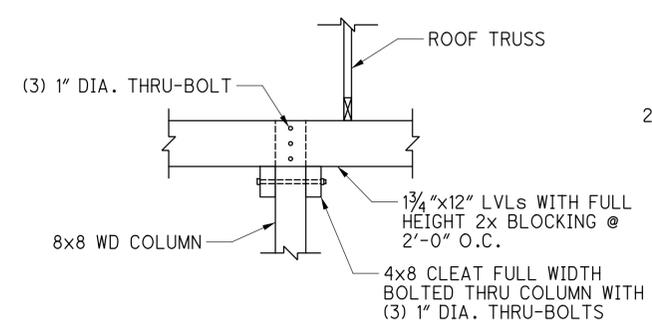
7 GIRT TO COLUMN CONNECTION
NOT TO SCALE



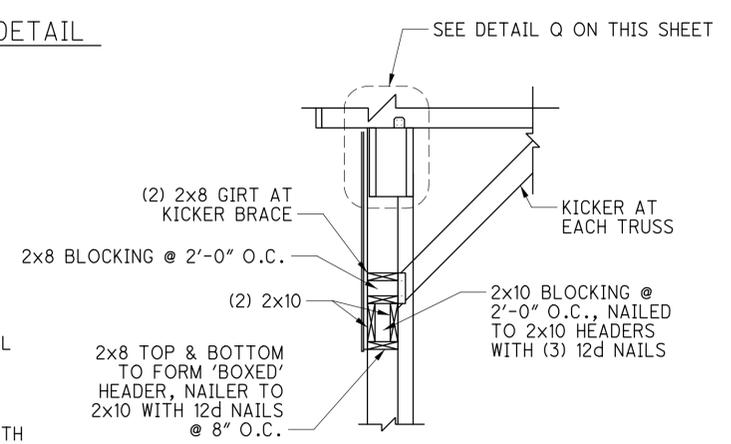
5 ANCHOR PLATE
NOT TO SCALE



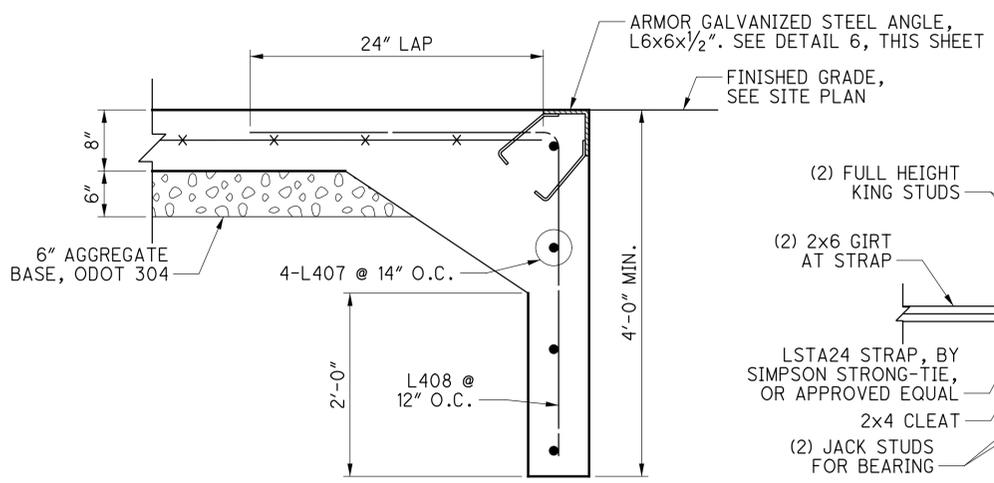
6 ANCHOR DETAIL
NOT TO SCALE



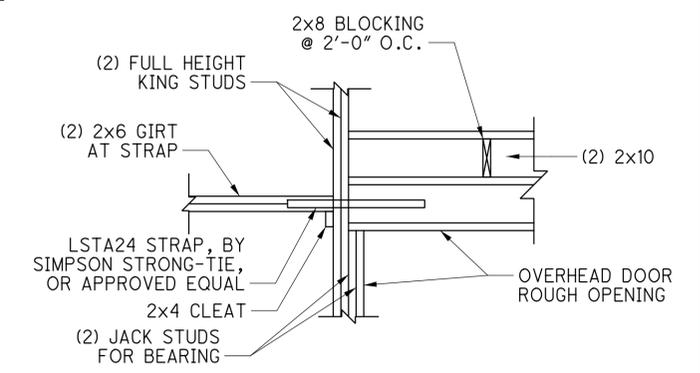
2 LVL BEARING ELEVATION
NOT TO SCALE



3 DETAIL AT HEADER
NOT TO SCALE



N CONCRETE APRON SECTION
11 NOT TO SCALE

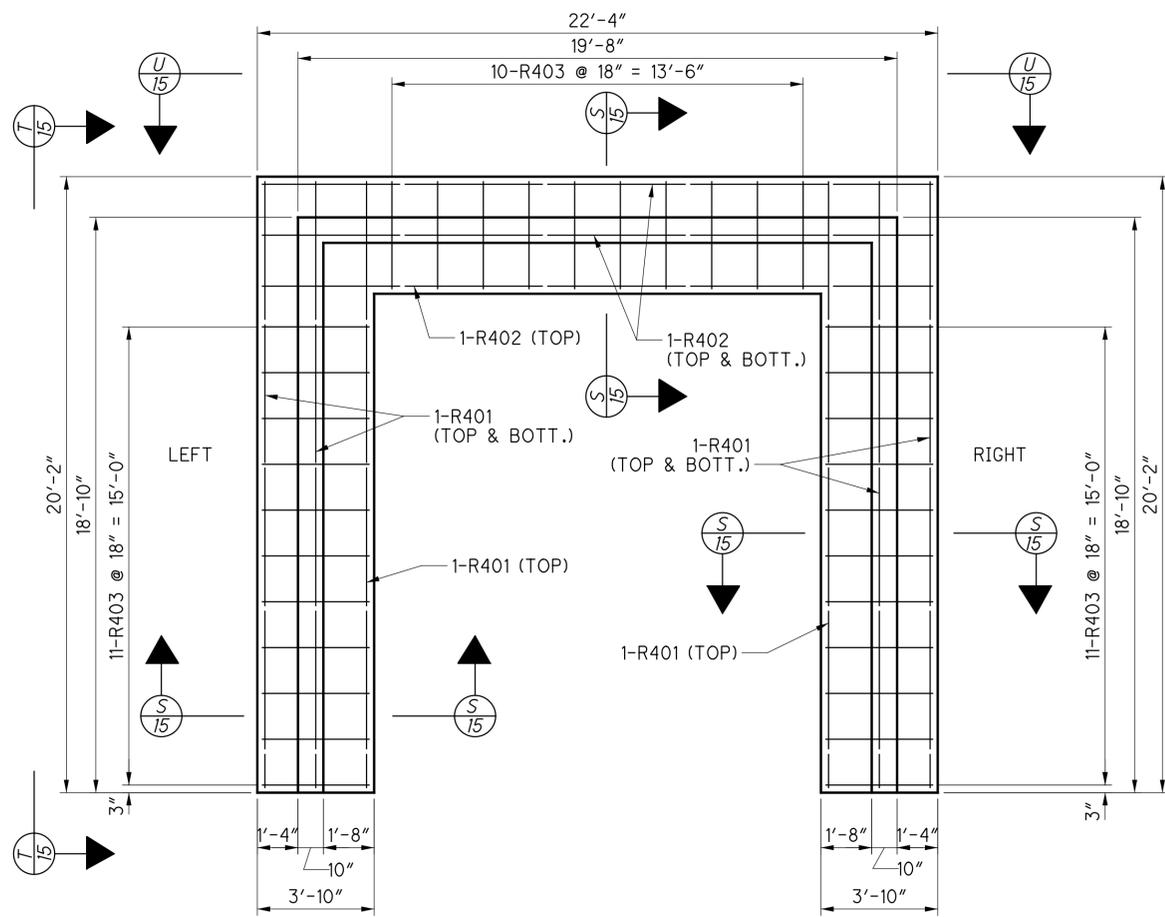


3 HEADER BEARING
NOT TO SCALE

NOTES:
1. UNLESS OTHERWISE NOTED, ALL DIMENSIONS FOR THE WOOD AND STEEL ARE IN INCHES

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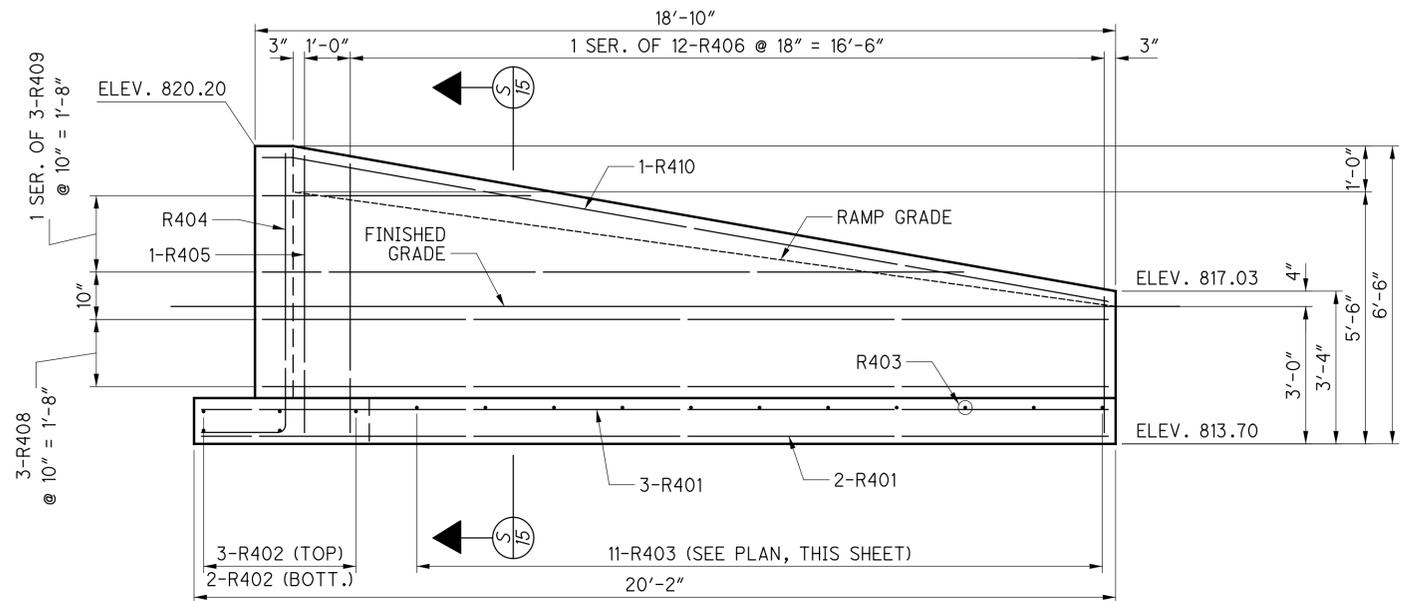


LOADING RAMP FOOTING PLAN

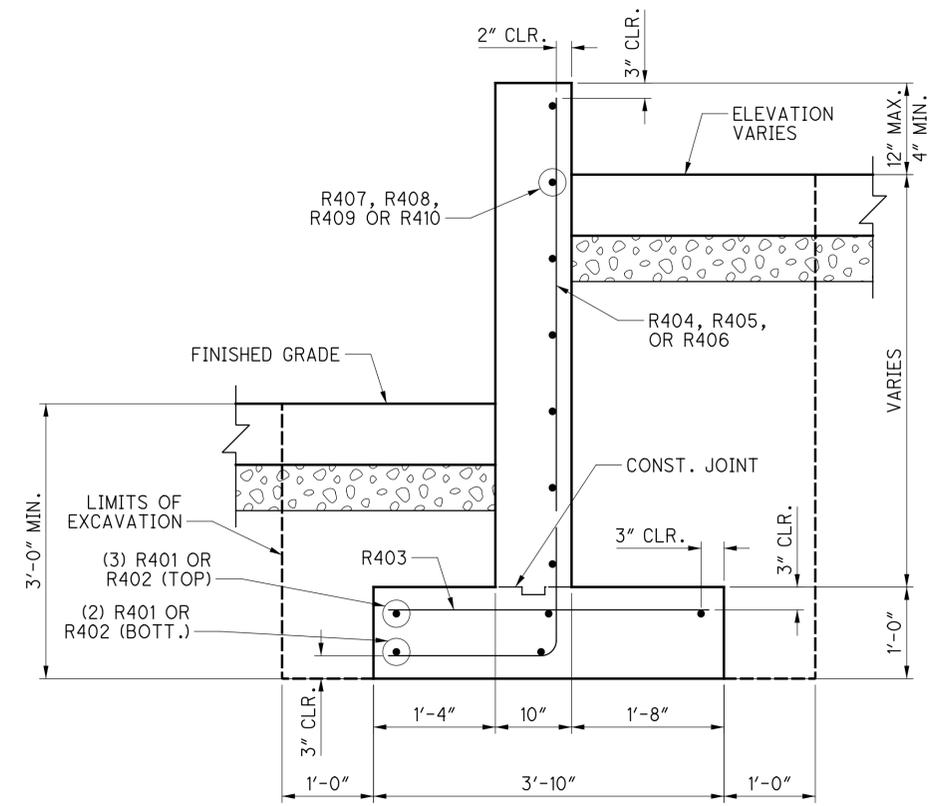
ITEM 203 - EMBANKMENT
 EMBANKMENT IS TO BE PLACED BENEATH THE BUILDING FLOOR SLAB AS SPECIFIED BELOW. A SUITABLE MATERIAL AS DETERMINED BY THE ENGINEER SHALL BE PLACED ABOVE THE EXISTING GRADE AND BELOW THE 304 AGGREGATE BASE REQUIRED FOR FLOOR SLAB CONSTRUCTION. ALL ASPECTS OF ITEM 203 - EMBANKMENT APPLY. THE UNIT BID PRICE FOR THIS ITEM SHALL INCLUDE ALL LABOR MATERIALS AND EQUIPMENT NEEDED TO COMPLETE THIS WORK.

LOADER RAMP ESTIMATED QUANTITIES				
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION
203	20000	15	CY	EMBANKMENT
503	21100	39	CY	UNCLASSIFIED EXCAVATION
509	10000	600	LB	EPOXY COATED REINFORCING STEEL
511	53010	17	CY	CLASS QC1 CONCRETE, MISC.: WALLS & FOOTINGS

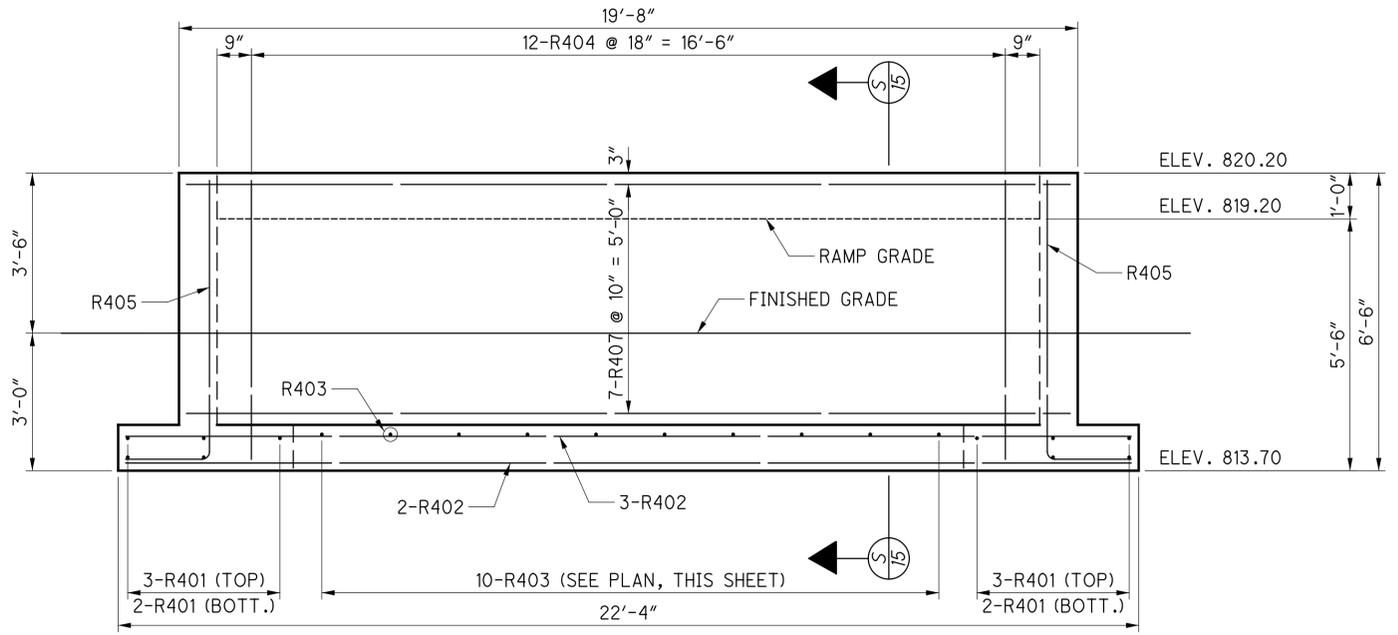
FOR PAVEMENT REMOVAL QUANTITIES SEE SHEET 5
 FOR PAVEMENT QUANTITIES SEE SHEET 6



LOADING RAMP SIDE WALL ELEVATION
 (LEFT WALL SHOWN, RIGHT WALL OPPOSITE HAND)

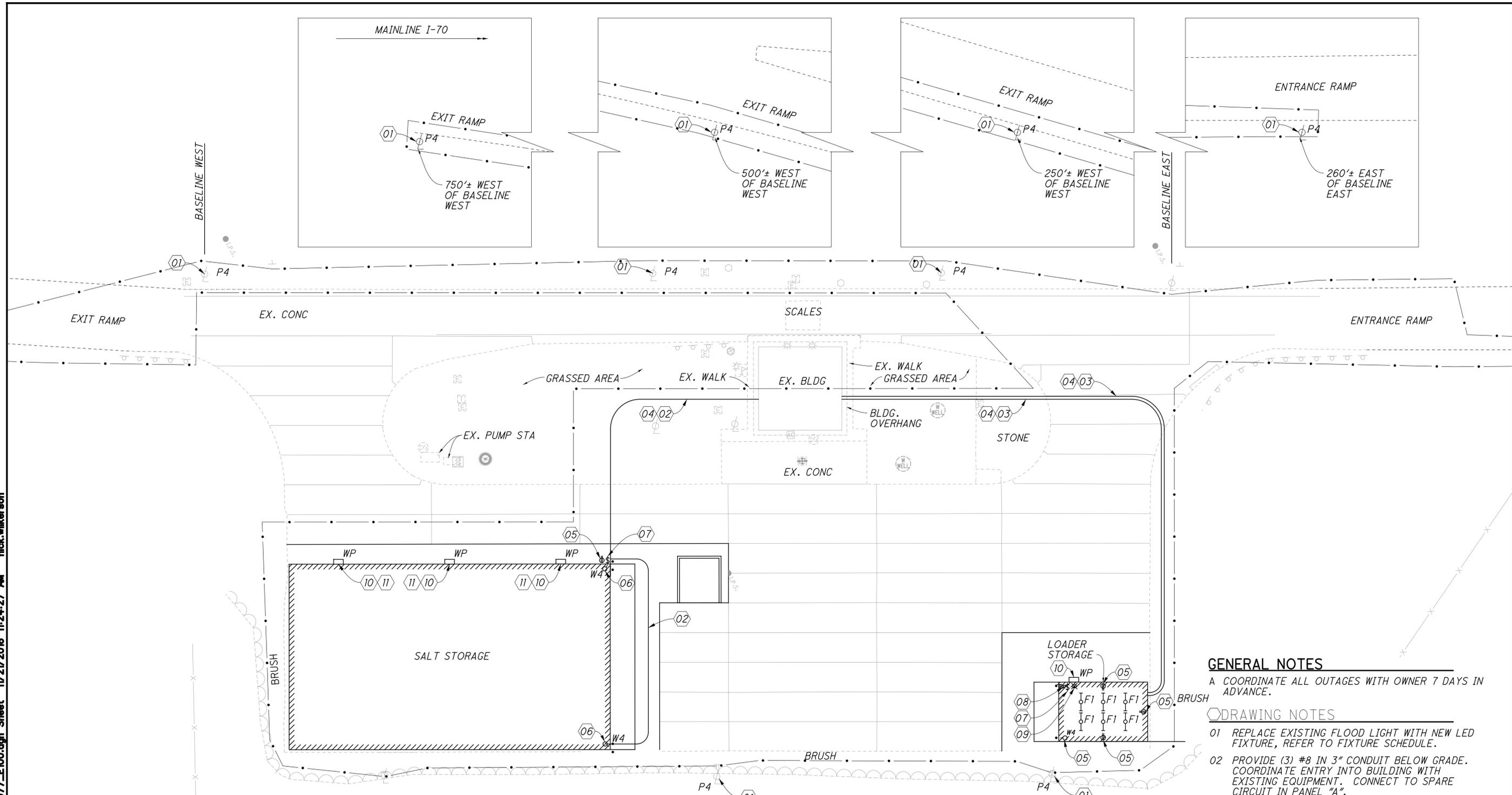


LOADING RAMP WALL SECTION



LOADING RAMP BACK WALL ELEVATION

NOTES:
 1. FOR REINFORCING STEEL LIST SEE SHEET 16/16



GENERAL NOTES

A COORDINATE ALL OUTAGES WITH OWNER 7 DAYS IN ADVANCE.

DRAWING NOTES

- 01 REPLACE EXISTING FLOOD LIGHT WITH NEW LED FIXTURE, REFER TO FIXTURE SCHEDULE.
- 02 PROVIDE (3) #8 IN 3" CONDUIT BELOW GRADE. COORDINATE ENTRY INTO BUILDING WITH EXISTING EQUIPMENT. CONNECT TO SPARE CIRCUIT IN PANEL "A".
- 03 PROVIDE (3) #8 IN 3" CONDUIT BELOW GRADE. COORDINATE ENTRY INTO BUILDING WITH EXISTING EQUIPMENT. CONNECT TO SPARE CIRCUIT IN PANEL "A".
- 04 FIELD VERIFY ROUTING OF UNDERGROUND FEEDER.
- 05 PROVIDE WATERPROOF RECEPTACLE MOUNTED AT 36" AFF.
- 06 MOUNT LUMINAIRE AT 3'-0" ABOVE CONCRETE WALL. AIM PER OWNERS REPRESENTATIVE.
- 07 PROVIDE 20A 1P NEMA 3R DISCONNECT SWITCH FOR LIGHTING.
- 08 PROVIDE 240V 30A DISCONNECT SWITCH FOR OVERHEAD DOOR
- 09 PROVIDE LED EXIT SIGN MOUNTED ABOVE DOOR
- 10 MOUNT FLOOD LIGHT AT 9' MIN. ABOVE GRADE. CONNECT TO CIRCUIT AS INDICATED (3/4" C 725.04)
- 11 PROVIDE 1 PHOTOCELL FOR CONTROL OF ALL WALLPACKS ALONG THE SALT STORAGE BLDG.

LUMINAIRE SCHEDULE

SYMBOL	CALLOUT	DESCRIPTION	MODEL	VOLTS	INPUT WATTS	LAMP	BALLAST	MOUNTING	NOTES
	P4	LED AREA LIGHT TYPE IV W/SPILL CONTROL DISTRIBUTION	McGRAW EDISON GLEON SERIES LITHONIA	480	213	(4) LED SQUARES, 22,000 TOTAL LUMENS, 70 CRI, 4000K	DRIVER	EX. POLE	7" ARM BRONZE FINISH INTEGRAL PHOTOCELL
	W4	MARINE GRADE EXTERIOR LED FLOOD LIGHT	LARSON ELECTRONICS LED-BL SERIES	120	150	(1) 150W LED, 14790 LUMENS,	DRIVER	YOKE MOUNTED	WET LABEL IP68 RATED
	F1	4' LED STRIP FIXTURE	LITHONIA COLUMBIA	120	50	3,000 LUMENS 4,000K, 80 CRI	DRIVER	SURFACE	IP65 NEMA 4X
	WP	LED WALLPACK FLOOD LIGHT	LITHONIA COLUMBIA	120	39	3,600 LUMENS 4,000K	DRIVER	SURFACE	PHOTOCELL CONTROL

- A. PROVIDE MINIMUM #8 AWG SIZE CONDUCTORS TO ALL EXTERIOR LUMINAIRES UNLESS NOTED OTHERWISE.
- B. OWNER REPRESENTATIVE SHALL BE PRESENT FOR ALL LUMINAIRES DURING FINAL AIMING. SCHEDULE AND COORDINATE WITH OWNER'S REPRESENTATIVE PRIOR. PROVIDE FINAL AIMING OF ADJUSTABLE LUMINAIRES ONE HOUR AFTER SUNSET OR ONE HOUR BEFORE SUN RISE PRIOR TO COMPLETION OF PROJECT.
- C. ALL LIGHT FIXTURE SHALL BE U.L. LISTED AND LABELED. INSTALL FIXTURES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

SECTION 260500

BASIC MATERIALS AND METHODS

PART 1 - GENERAL

1.01 GENERAL

A. PRODUCTS

1. MATERIAL AND EQUIPMENT BUILT INTO THE WORK FOR WHICH EXAMINATION SERVICE IS PROVIDED SHALL BEAR THE UNDERWRITER'S LABEL.
2. MATERIALS AND EQUIPMENT PROVIDED UNDER THIS CONTRACT SHALL BE NEW AND OF THE QUALITY HEREIN SPECIFIED. EACH CLASS OF MATERIALS SHALL BE OF THE SAME TYPE AND MAKE THROUGHOUT THE BUILDING.

PART 2 - PRODUCTS AND EXECUTION

2.01 CONDUITS

A. MATERIALS

1. ALL CONDUITS SHALL BE ELECTRICAL METALLIC TUBING (E.M.T.) EXCEPT WHERE OTHERWISE NOTED.
2. NON-METALLIC CONDUIT SHALL BE POLYVINYL CHLORIDE TYPE, SCHEDULE 80, 90 DEGREES C. U.L. RATED, HEAVY WALL APPROVED NON-METALLIC CONDUIT. MANUFACTURERS ARE CARLON, OLIN, ROBROY INDUSTRIES, OR TRIANGLE CONDUIT AND CABLE COMPANY.
3. ALL THIN WALL FITTINGS SHALL BE OF THE STEEL SET SCREW TYPE.

B. EXECUTION

1. CONDUITS SHALL BE CONTINUOUS AND BE SECURED TO ALL BOXES IN A MANNER THAT EACH SYSTEM SHALL BE ELECTRICALLY CONTINUOUS FROM POINT OF SERVICE TO ALL OUTLETS. TERMINALS OF ALL CONDUITS SHALL BE PROVIDED WITH LOCKNUTS AND BUSHINGS. PLUG ENDS OF EACH CONDUIT WITH AN APPROVED CAP OR DISC TO PREVENT THE ENTRANCE OF FOREIGN MATERIALS DURING CONSTRUCTION.
2. ALL CONDUITS TERMINATING IN SHEET STEEL ENCLOSURES SHALL HAVE DOUBLE LOCKNUTS AND A BUSHING. LOCKNUTS SHALL BE A TYPE WHICH WILL "BITE" INTO THE METAL OF THE BOX. ALL BUSHINGS SHALL BE OF THE INSULATING TYPE.
3. CONDUIT SHALL BE RUN CONCEALED WHEREVER POSSIBLE IN FINISHED AREAS. THE ROUTING OF SURFACE RACEWAYS SHALL BE APPROVED BY THE ENGINEER PRIOR TO ROUGH-IN.
4. HOMERUNS TO PANELS SHALL BE 2" MINIMUM.
5. CONDUIT SUPPORTING SYSTEMS SHALL BE ATTACHED TO THE DECK, SLAB, OR STRUCTURAL FRAMING ONLY AND NOT TO ANY OTHER APPURTENANCES AT THE CEILING SUCH AS MECHANICAL DUCTS, PIPES, AND SUSPENDED CEILING HANGER WIRES OR FRAMING MEMBERS.
6. CONDUITS OR OTHER RACEWAY SYSTEMS THAT PENETRATE DECKS, PARTITIONS, ETC., SHALL BE CONSTRUCTED SO AS TO MAINTAIN THE INTEGRITY OF THE FIRE OR SMOKE RATED AREAS.

2.02 WIRE AND CABLE

A. MATERIALS

1. WIRE AND CABLE FOR FEEDERS SHALL BE 600-VOLT TYPE THHW OR XHHW COPPER.
2. WIRE AND CABLE FOR POWER AND LIGHTING BRANCH CIRCUITS SHALL BE THHN COPPER FOR #10 AND SMALLER AND THHW OR XHHW COPPER FOR #8 AND LARGER.
3. JOINTS IN #10 AND SMALLER WIRE SHALL BE MADE WITH MINNESOTA MINING AND MANUFACTURING COMPANY INSULATED "SCOTCH LOCKS", IDEAL COMPANY "WING-NUT", T & B COMPANY "PIGGY" CONNECTORS, OR WITH MECHANICALLY CRIMPED SLEEVES AS MANUFACTURED BY T & B COMPANY, OR IDEAL COMPANY CONNECTOR SLEEVES SHALL BE INSULATED WITH PRESSURE SENSITIVE ELECTRICAL TAPE EQUAL TO MINNESOTA MINING AND MANUFACTURING COMPANY SCOTCH NO. 33 "PLUS" OR RAYCHEM CORPORATION HEAT SHRINKABLE TAPE.
4. COLOR CODE WIRE AND CABLE FOR CIRCUITS AS CALLED FOR IN THE NATIONAL ELECTRIC CODE.

SECTION 262000

SERVICE AND DISTRIBUTION

PART 1 - GENERAL

1.01 GROUNDING

A. GROUND ALL CONDUITS, CABINETS, PANELS AND OTHER EXPOSED NONCURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ALL PROVISIONS OF NATIONAL ELECTRIC CODE AND LOCAL CODES.

B. GROUNDING OF THE ELECTRICAL SYSTEM SHALL BE BY MEANS OF AN INSULATED GROUNDING CONDUCTOR INSTALLED WITH CIRCUIT CONDUCTORS IN ALL CIRCUITS. GROUNDING CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH N.E.C. 250-95 AND SHALL RUN FROM GROUNDING BUS OF SERVING PANEL TO GROUND BUS OF SERVED PANEL, LIGHTING FIXTURE HOUSINGS, LIGHT OR METAL ENCLOSURES OF SERVED EQUIPMENT OR METAL ENCLOSURES OF SERVED EQUIPMENT.

2.01 CIRCUIT BREAKER ENCLOSURE

A. ENCLOSURE SHALL BE NEMA 1 TYPE SUITABLE FOR SURFACE MOUNTING.

B. CIRCUIT BREAKER SHALL BE QUICK-MAKE, QUICK BREAK, BOLT-ON TYPE WITH THERMAL-MAGNETIC TRIPS. CIRCUIT BREAKER SHALL BE 10,000 AMPERE SYMMETRICAL SHORT CIRCUIT CAPACITY MINIMUM

C. PROVIDE TYPEWRITTEN LABEL INDICATING PANELBOARD SERVED.

D. CIRCUIT BREAKER ENCLOSURE SHALL MATCH EXISTING.

SECTION 265000

LIGHTING

PART 1 - GENERAL

1.01 GENERAL

- A. REFER TO THE LIGHTING FIXTURE SCHEDULE ON DRAWINGS.

PART 2 - EXECUTION

2.01 EXECUTION

- A. ALL FIXTURES SHALL BE SECURELY SUPPORTED WITH APPROVED HANGERS.
- B. FEED INDIVIDUALLY MOUNTED LIGHTING FIXTURES WITH 1/2-INCH FLEXIBLE METALLIC CONDUIT AS APPLICABLE. FACTORY INSTALLED OR SUPPLIED WHIPS ARE ACCEPTABLE.

ITEM 625 - CONDUIT, 3/4", 725.04, AS PER PLAN

ALL REQUIREMENTS OF ITEM 625 - CONDUIT, 3/4" APPLY, EXCEPT AS NOTED. IN AREAS WHERE CONDUIT IS REQUIRED TO RUN ALONG THE BUILDING WALL, THE CONDUIT SHALL BE FASTENED TO WALL USING FASTENERS AS RECOMMENDED BY THE SUPPLIER. THE UNIT BID PRICE SHALL INCLUDE THE COST FOR ALL LABOR, MATERIALS AND EQUIPMENT NEEDED TO COMPLETE THE WORK.

ITEM 625 - CONDUIT, 3", 725.04, AS PER PLAN

ALL REQUIREMENTS OF ITEM 625 - CONDUIT, 3" APPLY, EXCEPT AS NOTED. IN AREAS WHERE CONDUIT IS REQUIRED TO RUN ALONG THE BUILDING WALL, THE CONDUIT SHALL BE FASTENED TO WALL USING FASTENERS AS RECOMMENDED BY THE SUPPLIER. THE COST FOR PENETRATING THE EXISTING BUILDING AND CONNECTION INTO THE EXISTING PANEL SHALL ALSO BE INCLUDED. THE UNIT BID PRICE SHALL INCLUDE THE COST FOR ALL LABOR, MATERIALS AND EQUIPMENT NEEDED TO COMPLETE THE WORK.

F:\Projects\629602\05_Deliverables\Drawings\96077_E01.dgn Sheet 11/21/2016 11:24:28 AM nick.wilkerson

REF. AREA	625	625	625	625	625	625	625	625	625	625	950	950	950
	NO. 8 AWG 600 VOLT DISTRIBUTION CABLE	CONDUIT, 3/4", 725.04, AS PER PLAN	CONDUIT, 3", 725.04, AS PER PLAN	LUMINAIRE, CONVENTIONAL SOLID STATE (LED)	TRENCH, 24" DEEP	TRENCH IN PAVED AREA	LIGHTING, MISC.: 4' LED STRIP FIXTURE	LIGHTING MISC.: DISCONNECT SWITCH	LIGHTING MISC.: GFCT RECEPTACLE	LIGHTING MISC.: MARINE GRADE LED EXTERIOR FLOOD LIGHT	LIGHTING MISC.: LED WALLPACK FLOOD LIGHT	FACILITIES, MISC.: 240V DISCONNECT SWITCH FOR OVERHEAD DOOR	FACILITIES, MISC.: LED EXIT SIGN
	FT	FT	FT	EACH	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH
SALT BUILDING/ LOADER RAMP	723	100	266		195	25		1	1	2	3		
LOADER BUILDING	1078	100	276		195	55	6	1	3		1	1	1
SITE LIGHTING				9									
SUB-TOTAL	1801	200	542	9	390	80	6	2	4	2	4	1	1
TOTAL TO GENERAL SUMMARY	1801	200	542	9	390	80	6	2	4	2	4	1	1

NOTE: FOR LIGHTING REMOVALS REFER TO SHEET 5.

CALCULATED N/P/W CHECKED BAA
ELECTRICAL SPECIFICATIONS AND DETAIL
FACD05 GUE 70 WEIGH STATION 0Y
25
25

PROJECT: IR-70 EB SALT YARD		DRILLING FIRM / OPERATOR: TERRACON / CALEB		DRILL RIG: CME 45B TRUCK		STATION / OFFSET:		EXPLORATION ID	
TYPE: SALT SHED STRUCTURE		SAMPLING FIRM / LOGGER: TERRACON / CALEB		HAMMER: CME AUTOMATIC		ALIGNMENT:		B-004-0-15	
PID: 98990 SFN		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 4/15/15		ELEVATION: 815.0 (MSL) EOB: 25.0 ft		PAGE	
START: 11/25/15 END: 11/25/15		SAMPLING METHOD: SPT		ENERGY RATIO (%): 82		LAT / LONG: 39.995543 -81.667069		1 OF 1	
MATERIAL DESCRIPTION AND NOTES									
TOPSOIL (2")									
FILL: STIFF, MOTTLED, SILTY CLAY, SOME FINE TO COARSE SAND, TRACE FINE GRAVEL, DAMP									
FILL: SOFT, BROWN, SILTY CLAY, SOME FINE TO COARSE SAND, TRACE TO SOME FINE GRAVEL, DAMP									
MEDIUM STIFF TO STIFF, GRAY, SILTY CLAY, SOME FINE TO COARSE SAND, TRACE FINE GRAVEL, DAMP									
MEDIUM DENSE, DARK GRAY, SILTY CLAY, TRACE FINE TO COARSE SAND, WET									
MEDIUM STIFF, GRAY, SILTY CLAY, TRACE FINE TO COARSE SAND, MOIST									
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING									
ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH SOIL CUTTINGS									

EXHIBIT A-4

PROJECT: IR-70 EB SALT YARD		DRILLING FIRM / OPERATOR: TERRACON / CALEB		DRILL RIG: CME 45B TRUCK		STATION / OFFSET:		EXPLORATION ID	
TYPE: SALT SHED STRUCTURE		SAMPLING FIRM / LOGGER: TERRACON / CALEB		HAMMER: CME AUTOMATIC		ALIGNMENT:		B-003-0-15	
PID: 98990 SFN		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 4/15/15		ELEVATION: 816.0 (MSL) EOB: 25.0 ft		PAGE	
START: 11/25/15 END: 11/25/15		SAMPLING METHOD: SPT		ENERGY RATIO (%): 82		LAT / LONG: 39.995761 -81.666642		1 OF 1	
MATERIAL DESCRIPTION AND NOTES									
TOPSOIL (8")									
FILL: SOFT TO MEDIUM STIFF, MOTTLED, SILTY CLAY, SOME FINE TO COARSE SAND, LITTLE FINE GRAVEL, DAMP									
-COAL AND WOOD FRAGMENTS PRESENT THROUGHOUT									
MEDIUM STIFF, BROWN, SILTY CLAY, LITTLE FINE GRAVEL, TRACE FINE TO COARSE SAND, DAMP									
STIFF TO VERY STIFF, BROWN, SILTY CLAY, LITTLE FINE TO COARSE SAND, TRACE FINE GRAVEL, DAMP									
MEDIUM STIFF, BROWN, SILTY AND CLAY, LITTLE FINE TO COARSE SAND, TRACE FINE GRAVEL, MOIST									
MEDIUM DENSE, DARK GRAY, SILTY CLAY, TRACE FINE TO COARSE SAND, WET									
MEDIUM STIFF, GRAY, SILTY CLAY, TRACE FINE TO COARSE SAND, MOIST									
NOTES: GROUNDWATER ENCOUNTERED AT 21' DURING DRILLING. BOREHOLE DRY AT COMPLETION									
ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH SOIL CUTTINGS									

EXHIBIT A-5

PROJECT: IR-70 EB SALT YARD		DRILLING FIRM / OPERATOR: TERRACON / CALEB		DRILL RIG: CME 45B TRUCK		STATION / OFFSET:		EXPLORATION ID	
TYPE: SALT SHED STRUCTURE		SAMPLING FIRM / LOGGER: TERRACON / CALEB		HAMMER: CME AUTOMATIC		ALIGNMENT:		B-003-0-15	
PID: 98990 SFN		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 4/15/15		ELEVATION: 814.0 (MSL) EOB: 20.0 ft		PAGE	
START: 11/25/15 END: 11/25/15		SAMPLING METHOD: SPT		ENERGY RATIO (%): 82		LAT / LONG: 39.996292 -81.666259		1 OF 1	
MATERIAL DESCRIPTION AND NOTES									
TOPSOIL (10")									
FILL: SOFT TO MEDIUM STIFF, BROWN, SILTY CLAY, LITTLE FINE TO COARSE SAND, LITTLE FINE GRAVEL, DAMP									
SOFT, DARK GRAY, SILTY CLAY, LITTLE FINE TO COARSE SAND, TRACE FINE GRAVEL, DAMP									
SOFT, DARK BROWN TO BROWN, SILTY CLAY, LITTLE FINE TO COARSE SAND, TRACE FINE GRAVEL, MOIST TO WET									
NOTES: GROUNDWATER ENCOUNTERED AT 16' DURING DRILLING. GROUNDWATER LEVEL AT 17' AT COMPLETION									
ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH SOIL CUTTINGS									

EXHIBIT A-6

PROJECT: IR-70 EB SALT YARD		DRILLING FIRM / OPERATOR: TERRACON / SCOTT		DRILL RIG: CME 550X ATV		STATION / OFFSET:		EXPLORATION ID	
TYPE: SALT SHED STRUCTURE		SAMPLING FIRM / LOGGER: TERRACON / SCOTT		HAMMER: CME AUTOMATIC		ALIGNMENT:		B-004-0-15	
PID: 98990 SFN		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 4/28/16		ELEVATION: 816.0 (MSL) EOB: 20.0 ft		PAGE	
START: 6/3/16 END: 6/3/16		SAMPLING METHOD: SPT		ENERGY RATIO (%): 95		LAT / LONG: 39.995760 -81.666660		1 OF 1	
MATERIAL DESCRIPTION AND NOTES									
0.8" - CONCRETE (9.75')									
0.3" - AGGREGATE BASE (3.75')									
FILL: SOFT, BROWN, SILTY CLAY, SOME FINE TO COARSE SAND, TRACE FINE GRAVEL, MOIST									
FILL: VERY STIFF TO HARD, BROWN, SILTY CLAY, LITTLE FINE TO COARSE SAND, TRACE FINE GRAVEL, MOIST									
-SANDSTONE FRAGMENTS PRESENT THROUGHOUT									
FILL: SOFT TO MEDIUM STIFF, BROWN TO GRAY, SILTY CLAY, LITTLE TO SOME FINE TO COARSE SAND, LITTLE FINE GRAVEL, MOIST									
-SANDSTONE FRAGMENTS PRESENT THROUGHOUT									
FILL: VERY DENSE, GRAY, GRAVEL, TRACE FINE TO COARSE SAND, DAMP									
-PROBABLE COBBLE/BOULDER ZONE ENCOUNTERED @ 11.0'									
SOFT TO MEDIUM STIFF, BROWN TO GRAY, SILTY CLAY, TRACE FINE TO COARSE SAND, MOIST									
-SANDSTONE FRAGMENTS PRESENT THROUGHOUT									
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING									
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED CONCRETE PATCH; BACKFILLED WITH SOIL CUTTINGS									

EXHIBIT A-7

PROJECT: IR-70 EB SALT YARD		DRILLING FIRM / OPERATOR: TERRACON / SCOTT		DRILL RIG: CME 550X ATV		STATION / OFFSET:		EXPLORATION ID	
TYPE: SALT SHED STRUCTURE		SAMPLING FIRM / LOGGER: TERRACON / SCOTT		HAMMER: CME AUTOMATIC		ALIGNMENT:		B-005-0-15	
PID: 98990 SFN		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 4/28/16		ELEVATION: 818.0 (MSL) EOB: 20.0 ft		PAGE	
START: 6/3/16 END: 6/3/16		SAMPLING METHOD: SPT		ENERGY RATIO (%): 95		LAT / LONG: 39.996012 -81.666877		1 OF 1	
MATERIAL DESCRIPTION AND NOTES									
0.8" - CONCRETE (9.75')									
0.3" - AGGREGATE BASE (4')									
FILL: STIFF, BROWN AND GRAY, SILTY CLAY, SOME FINE TO COARSE SAND, TRACE FINE GRAVEL, MOIST									
-SANDSTONE FRAGMENTS PRESENT THROUGHOUT									
FILL: HARD, BROWN, SILTY CLAY, SOME FINE TO COARSE SAND, TRACE FINE GRAVEL, MOIST									
-SANDSTONE FRAGMENTS PRESENT THROUGHOUT									
FILL: STIFF, BROWN, SILTY CLAY, SOME FINE TO COARSE SAND, TRACE FINE GRAVEL, DAMP									
-SANDSTONE FRAGMENTS PRESENT THROUGHOUT									
FILL: HARD, BROWN, SILTY CLAY, SOME FINE TO COARSE SAND, LITTLE FINE GRAVEL, DAMP									
-SANDSTONE FRAGMENTS PRESENT THROUGHOUT									
FILL: MEDIUM STIFF, BROWN, SILTY CLAY, SOME FINE TO COARSE SAND, LITTLE FINE GRAVEL, DAMP									
-PROBABLE COBBLE/BOULDER ZONE ENCOUNTERED @ 14.0'									
SOFT TO MEDIUM STIFF, BROWN, SILTY CLAY, LITTLE FINE TO COARSE SAND, TRACE FINE GRAVEL, MOIST									
-TRACE ORGANIC MATERIAL PRESENT THROUGHOUT									
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING									
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED CONCRETE PATCH; BACKFILLED WITH SOIL CUTTINGS									

EXHIBIT A-8

NOTE:
ALL EARTH MOVING/FILL OPERATIONS SHALL CONFORM TO THE GEOTECHNICAL REPORT PROVIDED AS PART OF THESE DOCUMENTS. REPORT DATED JULY 11, 2016.