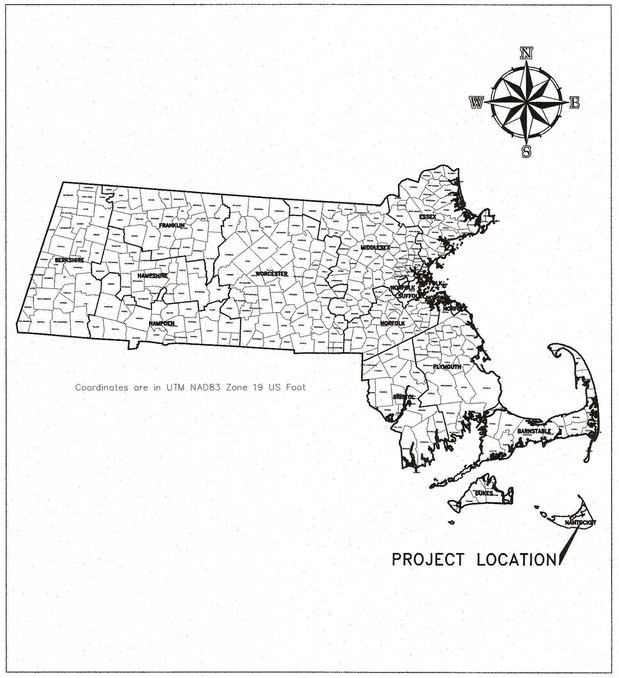
TOWN OF NANTUCKET, MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES



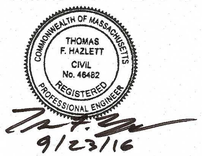
PROJECT LOCATION MAP

50 0 50 100
scale mile

W&C PROJECT NO. 229123.00
MASS DEP PROJECT NO. CWSRF-4034

SEPTEMBER 2016

ISSUED FOR BID



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COMMITMENT & INTEGRITY DRIVE RESULTS

SOURCE: USGS TOPOGRAPHIC MAP

SITE LOCATION MAP

½ 0 ½ 1
scale mile

2000 0 2000 4000
scale feet

SHEET INDEX

SHEET #	SHEET TITLE
GENERAL	
G-000	COVER SHEET
G-001	GENERAL NOTES, INDEX, AND ABBREVIATIONS
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C-001	WWTF EXISTING CONDITIONS PLAN
C-002	WWTF EXISTING YARD PIPING PLAN
CD-001	WWTF SITE DEMOLITION PLAN
C-003	WWTF PROPOSED SITE PLAN
C-004	WWTF PROPOSED YARD PIPING PLAN
C-801	CIVIL DETAILS 1
C-802	CIVIL DETAILS 2
ARCHITECTURAL	
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A-101	BID ALTERNATE #1 HEADWORKS BUILDING ARCHITECTURAL ELEVATIONS
A-102	BID ALTERNATE #1 HEADWORKS BUILDING ARCHITECTURAL FLOOR PLAN & NOTES
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A-801	ARCHITECTURAL SCHEDULES & DETAILS
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STRUCTURAL	
S-001	STRUCTURAL GENERAL NOTES
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S-102	BID ALTERNATE #1 HEADWORKS BUILDING STRUCTURAL ROOF FRAMING PLAN
S-103	BID ALTERNATE #1 HEADWORKS BUILDING STRUCTURAL FOUNDATION SECTIONS & DETAILS 1
S-104	BID ALTERNATE #1 HEADWORKS BUILDING STRUCTURAL FOUNDATION SECTIONS & DETAILS 2
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S-106	HEADWORKS EXISTING CONDITIONS 1
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S-301	ADVANCED TREATMENT BUILDING OVERALL LOWER LEVEL PLAN
S-302	ADVANCED TREATMENT BUILDING OVERALL UPPER LEVEL PLAN
S-303	GRAVITY THICKENERS LOWER LEVEL PLAN
S-304	GRAVITY THICKENERS UPPER LEVEL PLAN
S-305	GRAVITY THICKENERS SECTIONS & DETAILS 1
S-306	GRAVITY THICKENERS SECTIONS & DETAILS 2
S-307	GRAVITY THICKENERS DISTRIBUTION BOX & SCUM WELL PLAN, SECTIONS, & DETAILS
S-308	IMLR TANK PLANS, SECTIONS, & DETAILS
S-309	ANOXIC TANK MIXER SUPPORTS, SECTIONS, & DETAILS
S-310	RAS DISTRIBUTION BOX PLANS, SECTIONS, & DETAILS
S-801	CONCRETE TANK DETAILS
S-802	CONCRETE WALL AND FLOOR PENETRATION DETAILS
S-803	CONCRETE FLOOR SLAB AND WALL FOOTING DETAILS
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PROCESS	
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E-051	PRIMARY TREATMENT BUILDING MCC4 & DP4A ONE-LINE DIAGRAMS
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I-302	ADVANCED TREATMENT BUILDING EXISTING CONTROL PANEL (ATBCP) PLC I/O MODIFICATIONS (SHEET 2 OF 4)
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I-304	ADVANCED TREATMENT BUILDING EXISTING CONTROL PANEL (ATBCP) PLC I/O MODIFICATIONS (SHEET 4 OF 4)
I-401	SLUDGE PROCESSING CONTROL PANEL (SPBCP) PLC I/O MODIFICATIONS (SHEET 1 OF 1)

LEGEND

EXISTING LIGHT POLE	EXISTING MISC. UNDERGROUND UTILITIES
EXISTING SIGN	EXISTING DRAIN
EXISTING HYDRANT	EXISTING SEWER MAIN
EXISTING UTILITY POLE	EXISTING FORCE MAIN
EXISTING GATE VALVE	EXISTING CITY WATER
BORING	EXISTING PLANT WATER
EXISTING CATCH BASIN	EXISTING SLUDGE
EXISTING MONUMENT	EXISTING SCUM
IRON PIN FOUND	EXISTING ODOR
EXISTING SEWER MANHOLE	PROPOSED SEWER MAIN
EXISTING DRAIN MANHOLE	STONE WALL
EXISTING ELECTICAL MANHOLE	EDGE OF ROAD
EXISTING BENCH MARK	PROPERTY LINE
EXISTING PAVING	EXISTING CONTOUR
PROPOSED MANHOLE	PROPOSED CONTOUR
PROPOSED CLEAN OUT	EDGE OF GRAVEL DRIVE
PROPOSED CONCRETE	EXISTING CURB
PROPOSED PAVING	EXISTING GUARDRAIL
	WETLAND BOUNDARY
	HAYBALES AND SILT FENCE

ABBREVIATIONS

*THESE ARE GENERAL ABBREVIATIONS. NOT ALL APPEAR ON THESE DRAWINGS.

AB	ANCHOR BOLTS
ACC	ACCESS
AFF	ABOVE FINISHED FLOOR
AGGR	AGGREGATE
ALT	ALTERNATE
ALUM	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APA	AMERICAN PLYWOOD ASSOCIATION
APPROX; ±	APPROXIMATELY
AR	AIR RELEASE
AS	ACTIVATED SLUDGE
BIS	SODIUM BISULFITE
BLDG	BUILDING
BM	BENCH MARK
BOF	BOTTOM OF FOOTING
BLO	BOLLARD
BOT	BOTTOM
B.O.T.	BOTTOM OF TANK
BTM	BOTTOM
BS	BLENDED SLUDGE
℄	CENTERLINE
CB	CATCH BASIN
CCTSD	CHLORINE CONTACT TANK SAMPLE DISCHARGE
CCTSR	CHLORINE CONTACT TANK SAMPLE RETURN
CCTSS	CHLORINE CONTACT TANK SAMPLE SUCTION
CH	CHLORINE SOLUTION
CI	CAST IRON
CL RD	CENTER LINE OF ROAD
CLF	CHAIN LINK FENCE
CLG	CEILING
CLR	CLEAR
CL_2	CHLORINATION
CMP	CORRUGATED METAL PIPE
C CURB	CONCRETE CURB
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
CAOG	COAGULANT
COL	COLUMN
CON	CONCRETE
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CP	CONCRETE PAD
CRW	CONCRETE REINFORCED WALL
CTRSK	COUNTERSINK
CU	COPPER
CVR	COVER
CW	WATER–POTABLE
D	DRAIN
DBC	DIRECT BURIAL CABLE
DI	DUCTILE IRON
DIA; ø	DIAMETER
DISCH	DISCHARGE
DN	DOWN
DR	DRAIN
DW	DOMESTIC WATER
E	MODULES OF ELASTICITY
EA	EACH
EF	EACH FACE
EFF	EFFLUENT
EJEC	EJECTER
EL; ELEV	ELEVATION
ELEC COND	ELECTRICAL CONDUIT
EOA	EDGE OF ASPHALT
EOP	END OF PIPE
EQUIP	EQUIPMENT
EW	EACH WAY
EX	EXCEPT
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
EXTEN	EXTENSION
Fb	BENDING STRESS
Fc	COMPRESSIVE STRESS
Ft	TENSILE STRESS
FC	FIRE CODE
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FES	FLARED END SECTION
FF; FIN FLR	FINISH FLOOR
FH	FIRE HYDRANT
FIN	FINISHED
FIN GR	FINISH GRADE
FLR	FLOOR
FLR'G	FLOORING
FM	FORCE MAIN
FOS	FACE OF STUD
FRP	FIBERGLASS REINFORCED PLASTIC
GAL	GALLON
GALV	GALVANIZED
GS	GROUND SURFACE
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GWB	GYPSUM WALLBOARD
HC	HOSE CLEANOUT
HH	HANDHOLE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
H P	HIGH POINT
HP	HORSEPOWER
HT	HEIGHT
ID	INSIDE DIAMETER
IMLR	INTERNAL MIXED LIQUOR RECYCLE
IN	INCHES
INF	INFLUENT
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
KD	KILN DRIED
LG	LONG
LLV	LONG LEG VERTICAL
LP	LOW POINT
MAX	MAXIMUM
MC	MOISTURE CONTENT
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MFG	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
MTL	METAL
ML	MIXED LIQUOR
NO	NUMBER
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OPER	OPERATOR
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PD	PROCESS DRAIN
PEN	PENETRATION
PESD	PLANT EFFLUENT SAMPLE DISCHARGE
PESS	PLANT EFFLUENT SAMPLE SUCTION
PL	PLATE
PLYWD	PLYWOOD
PRW	PROCESS WATER
PS	PRIMARY SLUDGE
PSD	PRIMARY SLUDGE DISCHARGE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PTD	PAINTED
PVC	POLYVINYL CHLORIDE
PW	PLANT WATER
PWR	PROCESS WASTE RETURN
R	RADIUS
RAS	RETURN ACTIVATED SLUDGE
RCEP	REINFORCED CONCRETE ELLIPTICAL PIPE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAINS
REINF	REINFORCED
REQ'D	REQUIRED
RESIL	RESILIENT
R.O.	ROUGH OPENING
RS	RECIRCULATED SLUDGE
R/W	RIGHT OF WAY
RWW	RAW WASTEWATER
S	EXISTING MANHOLE
SCM	SCUM
SE	SECONDARY EFFLUENT
SD	SLUDGE DRAWOFF
SECT	SECTION
STP	STEP
SHT	SHEET
SMH	SEWER MANHOLE
SPEC	SPECIAL
SPEC'S	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
ST	SLUDGE TRANSFER
STA	STATION
STD	STANDARD
SUSP	SUSPENDED
TARW	THICKENER AUXILIARY RECYCLE WATER
TBM	TEMPORARY BENCH MARK
TCW	TOP OF CONCRETE WALL
TED	THICKENER EFFLUENT DRAIN
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOP	TOP OF PLATE
TOW	TOP OF WALL
TS	THICKENED SLUDGE
TWAS	THICKENED WASTE ACTIVATED SLUDGE
TYP	TYPICAL
VFD	VARIABLE FREQUENCY DRIVE
W/	WITH
WAS	WASTE ACTIVATED SLUDGE
WC	WATER CLOSET
WH	WATER HEATER
WR	WATER RESISTANT
WS	WATER STOP
W'STRIPPING	WEATHER STRIPPING
WWTF	WASTEWATER TREATMENT FACILITY

GENERAL NOTES

1. THE SURFSIDE WASTEWATER TREATMENT FACILITY IS AN OPERATIONAL FACILITY AND SHALL REMAIN FULLY OPERATIONAL DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE THE SEQUENCE OF CONSTRUCTION WITH THE OWNER AND THE ENGINEER TO MINIMIZE OPERATIONAL IMPACTS THROUGHOUT THE CONSTRUCTION PERIOD. THE COST OF ANY ADDITIONAL WORK REQUIRED TO MINIMIZE OPERATIONAL IMPACTS THROUGHOUT THE CONSTRUCTION PERIOD WILL BE CONSIDERED AS INCIDENTAL TO THE PROJECT. ALSO, THE NECESSITY TO COORDINATE CONSTRUCTION ACTIVITIES WITH THE OWNER AND ENGINEER WILL NOT BE CONSIDERED A VALID OR MERITORIOUS REASON FOR A DELAY CLAIM OR TIME EXTENSION ON THIS PROJECT.
2. THE LOCATIONS OF EXISTING PIPE, STRUCTURES, ELECTRICAL, AND ALL OTHER FACILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION BY THE CONTRACTOR.
3. CONTRACTOR SHALL REMOVE FROM THE PROJECT SITE AND LEGALLY DISPOSE OF ALL MATERIALS SUBJECT TO DEMOLITION WORK UNLESS OTHERWISE NOTED.
4. THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO ORIGINAL FINISH (GRAVEL, PAVEMENT, GRASS, ETC.) INCLUDING THE CONSTRUCTION STAGING AND PARKING AREAS UNLESS OTHERWISE NOTED ON THE PLANS OR AS DIRECTED OTHERWISE BY THE ENGINEER.
5. PROTECT AND DO NOT DISTURB PROPERTY IRONS AND MONUMENTS. IF DISTURBED, RESET AT THE CONTRACTOR'S EXPENSE, BY A LICENSED PROFESSIONAL LAND SURVEYOR REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS.
6. THE CONTRACTOR SHALL OBTAIN ALL STATE, LOCAL, AND UTILITY PERMITS REQUIRED FOR THE COMPLETION OF WORK UNDER THIS CONTRACT AND NOT INCLUDED IN THE CONTRACT DOCUMENTS, AS WELL AS ANY ADDITIONAL PERMITS REQUIRED FOR COMPLETION OF THE WORK. ANY AND ALL FEES ASSOCIATED WITH THIS WORK ARE THE RESPONSIBILITY OF THE CONTRACTOR.
7. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT EQUIPMENT FLUIDS FROM REACHING ANY WATER COURSE. ANY INADVERTENT FLUID DISCHARGES SHALL BE IMMEDIATELY CLEANED FROM THE WATERS USING WHATEVER MEANS NECESSARY, AS DETERMINED BY THE ENGINEER.
8. EXISTING FACILITIES SHALL BE PROTECTED AS REQUIRED DURING CONSTRUCTION. THE ASSOCIATED COSTS ARE INCIDENTAL TO THE PROJECT. ANY DAMAGE TO EXISTING FACILITIES CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
9. CONTRACTOR SHALL NOTIFY ALL UTILITIES PRIOR TO COMMENCING WORK TO ALLOW SUFFICIENT TIME TO LOCATE AND MARK THE LOCATION OF ALL BURIED UTILITIES. REPAIR OF ANY DAMAGED UTILITY WILL BE INCIDENTAL.
10. ALL DIMENSIONS AND ELEVATIONS ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL DIMENSIONS AND ELEVATIONS SHOWN ON DRAWINGS PRIOR TO THE START OF DEMOLITION WORK AND CONSTRUCTION OF NEW WORK.
11. ANY UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL FIELD LOCATE ALL EXISTING UTILITIES THAT MAY AFFECT HIS WORK PRIOR TO START OF WORK. ANY UTILITIES DAMAGED WHILE PERFORMING THE WORK OF THIS CONTRACT SHALL BE REPAIRED OR REPLACED AS DIRECTED BY ENGINEER AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL ALSO CONFIRM THE LOCATION OF ANY OTHER UTILITIES WITHIN THE LIMITS OF WORK NOT SHOWN ON DRAWINGS AS REQUIRED TO COMPLETE THE WORK OF THIS CONTRACT.
12. ANY UTILITIES REQUIRING RELOCATION TO ALLOW PERFORMANCE OF THE WORK OF THIS CONTRACT SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER, WHETHER SHOWN ON DRAWINGS OR NOT.
13. CONTRACTOR SHALL FURNISH CONTROL PANELS AS SPECIFIED. ELECTRICAL SUBCONTRACTOR SHALL INSTALL CONTROL PANELS FURNISHED BY GENERAL CONTRACTOR.
14. CONTRACTOR SHALL NOTE THAT DURING WET WEATHER CONDITIONS (RAINFALL, SUDDEN SNOW MELT, ETC.) FLOW TO THE TREATMENT FACILITY MAY INCREASE SIGNIFICANTLY. DURING AND IMMEDIATELY FOLLOWING WET WEATHER CONDITIONS FLOW MAY BACK UP INTO WORK AREAS. CONTRACTOR SHALL MONITOR LOCAL WEATHER FORECASTS AND TAKE ALL PRECAUTIONS REQUIRED TO PROTECT THE WORK. THE NECESSITY TO STOP WORK AND REMOVE EQUIPMENT AND MATERIALS FROM WORK AREAS AS A RESULT OF INCREASED FLOW AND POTENTIAL FLOODING SHALL NOT BE CONSIDERED A VALID OR MERITORIOUS REASON FOR A DELAY CLAIM OR TIME EXTENSION ON THIS PROJECT. THE OWNER SHALL NOT PAY FOR EQUIPMENT OR MATERIALS DAMAGED AS A RESULT OF FLOODING OF WORK AREAS.
15. THE OWNER SHALL BE RESPONSIBLE FOR DRAINING AND HOSING DOWN TANKS WITH NORMAL POTABLE WATER PRESSURE TO ALLOW THE CONTRACTOR TO PERFORM THE WORK OF THIS CONTRACT. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH ANY REQUEST FOR TANK DRAINING AND/OR HOSE DOWN A MINIMUM OF TWO (2) WEEKS PRIOR TO THE START OF WORK IN THAT TANK. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ANY LARGE DEBRIS AND PREPARATION OF SURFACE FOR SPECIFIED WORK.
16. BASE PLANS ARE FROM A SET OF PLANS GENERALLY TITLED "UPGRADES TO THE SURFSIDE WASTEWATER TREATMENT FACILITY – CONTRACT No. 2005–01, NANTUCKET, MASSACHUSETTS" PREPARED BY EARTH TECH. DATED JUNE 2012.
17. ALL ACTION ITEMS FROM THE BASE PLANS SHOWN IN GRAY SCALE, GENERALLY DO NOT APPLY TO THE WORK OF THIS PROJECT.
18. VERTICAL ELEVATIONS BASED ON NGVD29 DATUM.
19. GENERAL CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL, CONCRETE AND REBAR FOR ALL BURIED ELECTRICAL CONDUITS AND DUCTBANKS SHOWN ON THE ELECTRICAL DRAWINGS, (E SHEETS).
20. GENERAL CONTRACTOR SHALL PROVIDE CORING AND/OR CUTTING OF ALL PENETRATIONS 4–INCHES DIAMETER OR 4" x 4" SQUARE AND GREATER FOR ALL PENETRATIONS SHOWN ON ALL DRAWINGS, INCLUDING THE MECHANICAL, HVAC, PLUMBING, ELECTRICAL, AND INSTRUMENTATION AND CONTROLS SHEETS. PENETRATIONS SMALLER THAN 4" DIAMETER OR 4" x 4" SQUARE SHALL BE PROVIDED BY THE FILED SUB–CONTRACTOR.
21. THE SURFSIDE WWTF IS STAFFED MONDAY–FRIDAY FROM 7:00AM–3:30PM. ALL WORK MUST BE COMPLETED DURING NORMAL WORKING HOURS, UNLESS AFTER HOURS SHUT DOWN OF EQUIPMENT IS NECESSARY. IN GENERAL, CONTRACTOR ACCESS TO SITE IS LIMITED TO 7:00AM–3:30PM.
22. PROPERTY AND TOPOGRAPHIC INFORMATION IS APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY UTILIZING BASELINE AND CONTROL POINTS BEFORE COMMENCING CLEARING OR SITE GRADING ACTIVITIES.
23. ALL NEW WATER AND PROCESS PIPING SHALL HAVE A MINIMUM OF 5 FEET OF COVER. ALL NEW BURIED PRESSURE PIPING AND FITTINGS SHALL BE RESTRAINED AS SPECIFIED.
24. CONTRACTOR SHALL DIG TEST PITS AS NECESSARY TO VERIFY ALL EXISTING UTILITIES.
25. PRESSURE LINES SHALL CONTINUOUSLY SLOPE BETWEEN ELEVATIONS GIVEN ON THE DRAWINGS WITHOUT HIGH OR LOW POINTS.
26. NOT ALL PIPE BENDS AND FITTINGS ARE SHOWN OR LABELED ON THE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY FITTINGS TO COMPLETE PIPE LAYOUT AS SHOWN.
27. ALL PIPING LOCATED UNDERNEATH STRUCTURES SHALL BE ENCASED IN CONCRETE.
28. PAVEMENT LIMITS, CLEARING LIMITS, AND LOCATIONS OF STRUCTURES, GUARDRAIL, SIGNAGE, BOLLARDS, PLANT MATERIALS, AND PAVEMENTS ARE APPROXIMATE. FINAL LOCATIONS SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER AFTER STAKING BY THE CONTRACTOR BASED ON ACTUAL SITE CONDITIONS.
29. ALL DISTURBED AREAS NOT COVERED WITH PAVEMENT, DENSE GRADED CRUSHED STONE, OR MULCH SHALL RECEIVE LOAM AND SEED AS SPECIFIED.
30. TO ESTABLISH PROPER GRADES, CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF GRADE STAKES. THE NUMBER AND LOCATION SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR A FINAL FIELD CHECK OF FINISHED GRADES ACCEPTABLE TO THE OWNER AND ENGINEER PRIOR TO LOAMING AND SEEDING ACTIVITIES.
31. EXISTING UNSUITABLE EXCESS FILL AS SPECIFIED BY THE ENGINEER SHALL BE REMOVED AND SATISFACTORILY DISPOSED OF OFF–SITE BY THE CONTRACTOR.
32. ALL AREAS DISTURBED OUTSIDE THE LIMIT OF WORK SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE IN A MANNER APPROVED BY THE ENGINEER
33. REGRADED SLOPES SHALL NOT EXCEED 3:1 EXCEPT AS SHOWN ON THE DRAWINGS.
34. REFER TO M DRAWINGS FOR ALL EQUIPMENT TO BE SALVAGED FOR OWNER.

ISSUED FOR BID

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980 Washington Street, Suite 325
Dedham, Massachusetts 02026
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COMMITMENT & INTEGRITY DRIVE RESULTS

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 45482
REGISTERED PROFESSIONAL ENGINEER
9/23/16

REV	DESCRIPTION	DATE
DESIGNED BY: KF	CHECKED BY: MB	
DRAWN BY: DMB	22912300-G-001.dwg	

GENERAL NOTES, INDEX, AND ABBREVIATIONS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 1 OF 116

G-001

22x34 SHEET 1:1

22x34 SHEET
1:1

ADMINSTRATION BUILDING

ENTRANCE TO WWTF

EQUIPMENT STORAGE BUILDING

PROCESS ANALYSIS BUILDING

EXISTING PAVED AREA

SOLIDS PROCESSING BUILDING

B-1

B-2

PRIMARY TREATMENT BUILDING

HEADWORKS T-0101

ADVANCED TREATMENT BUILDING

SLUDGE HOLDING T-0602

SLUDGE HOLDING T-0601

BM-1

IN-PLANT PUMP STATION

PRIMARY CLARIFIERS T-0201, T-0202, T-0203

CEPT BUILDING

MBR T-0331

MBR T-0332

MBR T-0333

MBR T-0334

AERATION T-0311

AERATION T-0312

AERATION T-0313

BM-2

B-3

INFILTRATION BASIN #10

INFILTRATION BASIN #11

INFILTRATION BASIN #12

WWTF BENCHMARKS		
BENCHMARK	DESCRIPTION	ELEVATION (FT.)
BM #1	NORTHERN CORNER OF IN-PLANT PUMP STATION HATCH	21.33'
BM #2	SOUTHWEST CORNER OF ADVANCED TREATMENT BUILDING	25.68'
NOTE: ELEVATIONS AREA BASED ON NGVD29 DATUM.		

NOTE:

BASE PLAN BASED ON AERIAL SURVEY COMPLETED BY KUCERA INTERNATIONAL INC., 38133 WESTERN PARKWAY, WILLONGHBY, OH 44094, AND CONTRACT DRAWINGS FOR CONTRACT NO. 2005-01 – UPGRADE TO THE SURFSIDE WASTEWATER TREATMENT FACILITY BY EARTH TECH AND DATED JUNE 2012. SPOT ELEVATIONS SURROUNDING WWTF TANKS AND BUILDINGS COMPLETED BY FRANK HOLDGATE IN APRIL 2016.

40' 0 40' 80'

BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HALLETT
CIVIL
No. 44482
REGISTERED PROFESSIONAL ENGINEER

9/22/16

REV.	DESCRIPTION	DATE

DESIGNED BY: KF
DRAWN BY: PF
CHECKED BY: KF
229123\00-C-001.dwg

WWTF EXISTING CONDITIONS PLAN

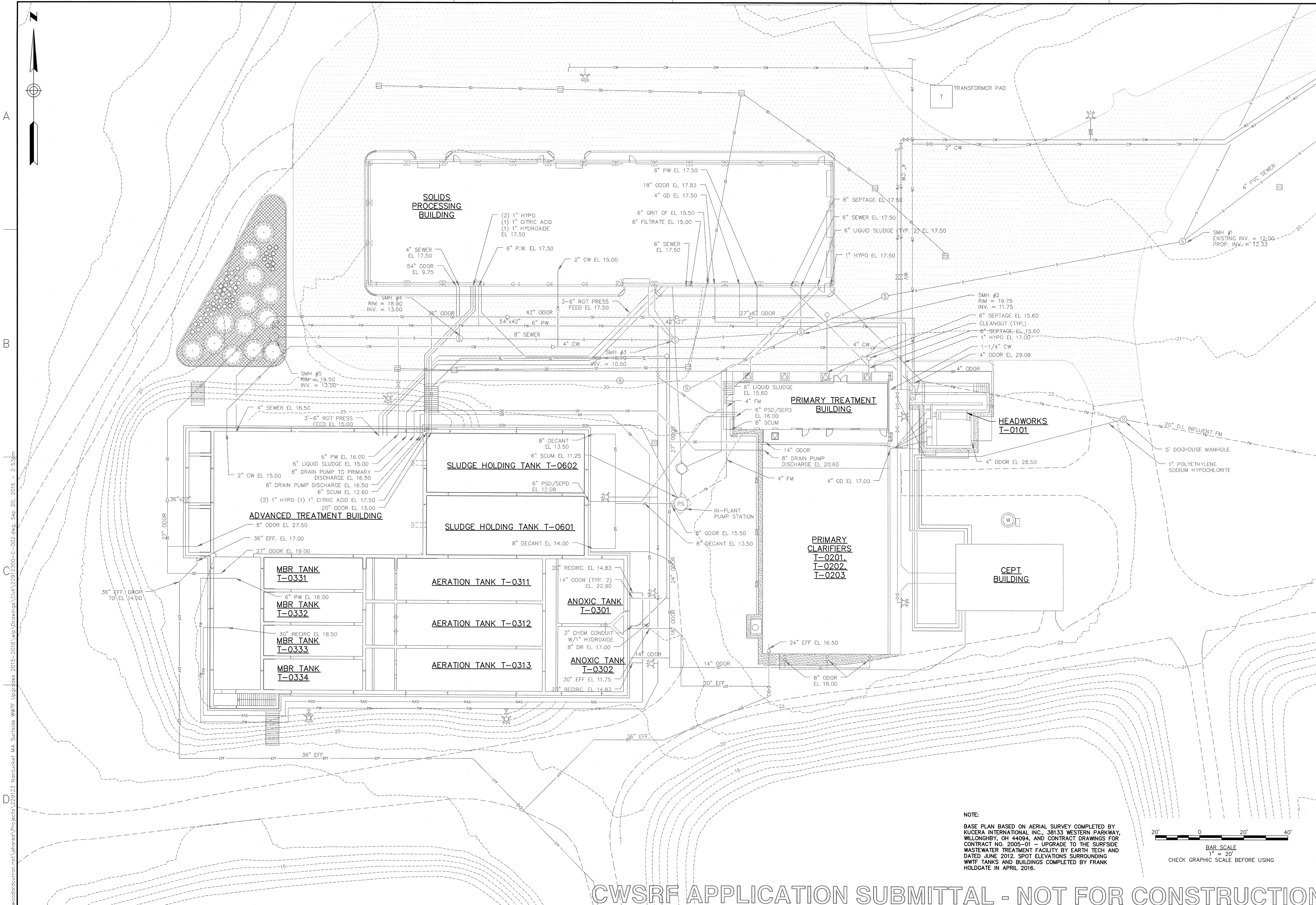
DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: JUNE 2016
SCALE: AS NOTED
SHEET: 2 OF 113

C-001

\\woodardcurran.net\shared\Projects\229123 Nantucket MA Surfside WWTF Upgrades 2015-2016\wip\Drawings\Civil\229123\00-C-001.dwg, Sep 20, 2016 - 2:52pm



NOTE:

BASE PLAN BASED ON AERIAL SURVEY COMPLETED BY KUCERA INTERNATIONAL INC., 38133 WESTERN PARKWAY, WILLOUGHBY, OH 44094, AND CONTRACT DRAWINGS FOR CONTRACT NO. 2005-01 – UPGRADE TO THE SURFSIDE WASTEWATER TREATMENT FACILITY BY EARTH TECH AND DATED JUNE 2012. SPOT ELEVATIONS SURROUNDING WWTF TANKS AND BUILDINGS COMPLETED BY FRANK HOLDGATE IN APRIL 2016.

BAR SCALE 1" = 20'
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COMMITMENT & INTEGRITY DRIVE RESULTS

COMMONWEALTH OF MASSACHUSETTS — THOMAS F. MALLET — CIVIL — No. 45482 — REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE
DESIGNED BY: KF	CHECKED BY: KF	
DRAWN BY: PF	22912300-C-002.dwg	

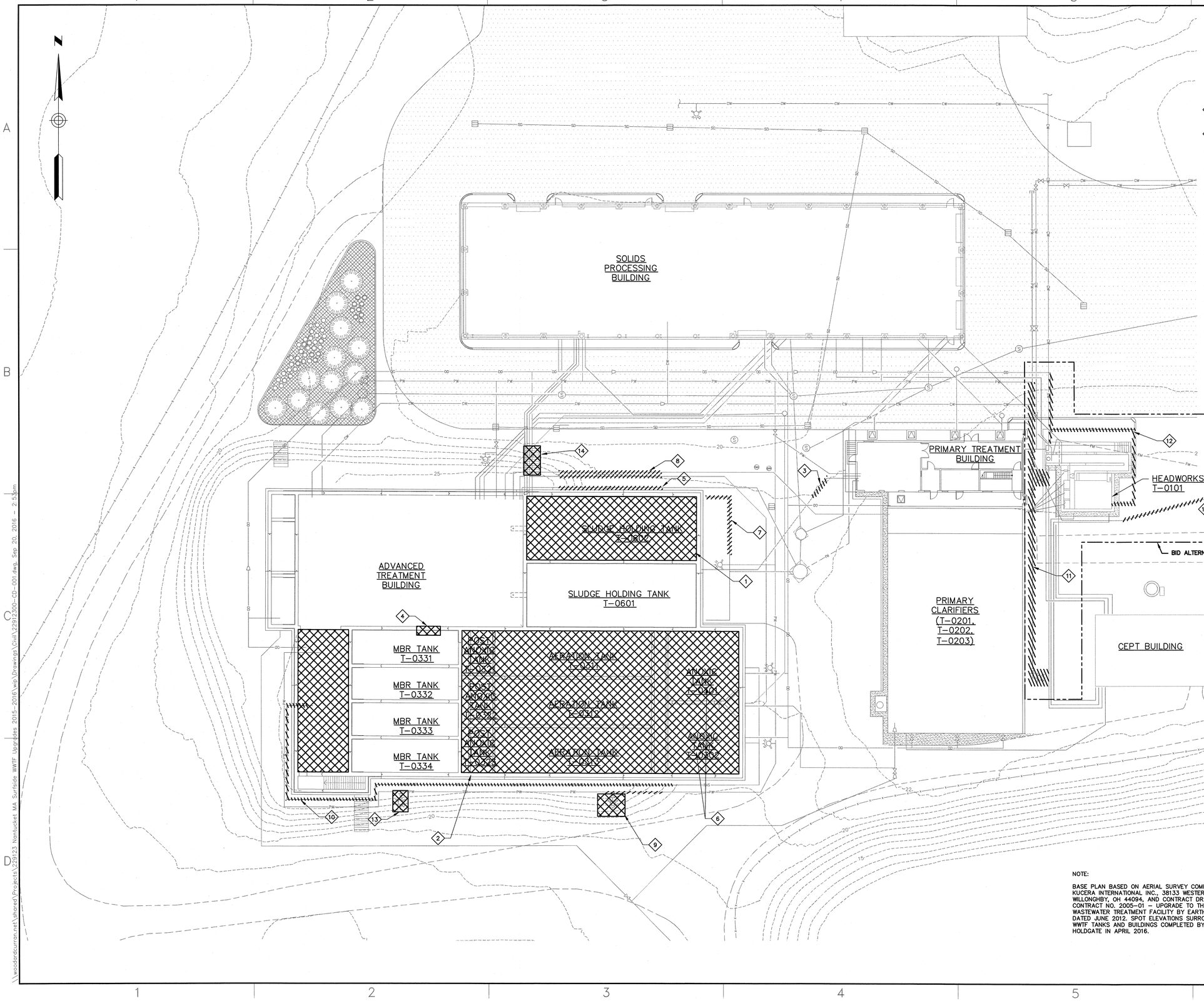
WWTF EXISTING YARD PIPING PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: JUNE 2016
SCALE: AS NOTED
SHEET: 3 OF 113

C-002



DEMOLITION KEYED NOTES

1. DEMOLISH EXISTING DIFFUSED AERATION SYSTEM IN SLUDGE HOLDING TANK #2 FROM THE TANK WALLS TO THE PVC AERATION PIPING, STAINLESS STEEL DROP LEGS, DIFFUSERS, SUPPORTS, AND APPURTENANCES.
2. DEMOLISH EXISTING STAINLESS STEEL BUTTERFLY VALVES AND STAINLESS STEEL AERATION DISTRIBUTION PIPING CONNECTED UPSTREAM OF EACH DROP-LEG IN THE AERATION AND POST ANOXIC TANKS.
3. DEMOLISH EXISTING 6" PRIMARY SLUDGE DISCHARGE/SEPTAGE DISCHARGE PIPE AND DOWNSTREAM PIPING TO ACCOMMODATE A NEW VALVE. REFER TO C-004.
4. DEMOLISH EXISTING BLOWER INTAKE PIPING, REFER TO M-SERIES DRAWINGS.
5. DEMOLISH EXISTING 6" SCUM PIPE.
6. DEMOLISH EXISTING SUBMERSIBLE ANOXIC MIXERS (TYPICAL OF 4), AND DRAFT PUMPS (TYPICAL OF 4) INCLUDING ALL ELECTRICAL AND CONTROL APPURTENANCES.
7. DEMOLISH EXISTING 8" DRAIN PIPE FROM THE SLUDGE HOLDING TANK #2 AND CAP AT EXISTING TEE.
8. DEMOLISH EXISTING 8" ANOXIC DRAIN PIPE AND, 8" PRIMARY DRAIN PIPE.
9. DEMOLISH HYDRANT, VALVE AND ASSOCIATED PLANT WATER PIPING TO ACCOMMODATE NEW DISTRIBUTION BOX.
10. DEMOLISH EXISTING SUBMERSIBLE RAS PUMPS (TYPICAL OF 4), INCLUDING ALL ELECTRICAL AND CONTROL APPURTENANCES. REFER TO M-SERIES DRAWINGS. DEMOLISH 20" RAS LINE FROM PUMP DISCHARGE AND ALONG THE SOUTH SIDE OF AERATION TANKS.
11. DEMOLISH 6" PLANT WATER PIPING, VALVES, AND HYDRANT AS SHOWN. REFER TO C-004 FOR RELOCATION.
12. DEMOLISH AND CAP 4" ODOR CONTROL PIPING AS SHOWN.
13. DEMOLISH EXISTING HYDRANT AND VALVE.
14. DEMOLISH EXISTING CONCRETE STAIRS AND ASSOCIATED SIDEWALK AS REQUIRED TO ACCOMMODATE INSTALLATION OF PROPOSED PROCESS PIPING. REFER TO DRAWING C-004.
15. DEMOLISH EXISTING 1" PVC HYPO LINE TO ACCOMMODATE PROPOSED ODOR CONTROL UNIT, REFER TO C-004.

DEMOLITION GENERAL NOTES:

1. LIMITS OF DEMOLITION SHOWN ARE APPROXIMATE.
2. CONTRACTOR IS RESPONSIBLE FOR EXCAVATION, DEMOLITION, BEDDING AND BACKFILL ASSOCIATED WITH DEMOLITION OF ELECTRICAL CONDUIT AND DUCTBANK REQUIRED TO FACILITATE WORK.
3. DEMOLITION OF ALL EQUIPMENT LOCATED INSIDE EXISTING BUILDINGS NOT SHOWN ON THIS SHEET. REFER TO M-SERIES DRAWINGS.

NOTE:

BASE PLAN BASED ON AERIAL SURVEY COMPLETED BY KUCERA INTERNATIONAL INC., 38133 WESTERN PARKWAY, WILLONGHBY, OH 44094, AND CONTRACT DRAWINGS FOR CONTRACT NO. 2005-01 – UPGRADE TO THE SURFSIDE WASTEWATER TREATMENT FACILITY BY EARTH TECH AND DATED JUNE 2012. SPOT ELEVATIONS SURROUNDING WWTF TANKS AND BUILDINGS COMPLETED BY FRANK HOLDGATE IN APRIL 2016.

20' 0 20' 40'
BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

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800.446.5518 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HALLETT
CIVIL
No. 49452
REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE

DESIGNED BY: KF
DRAWN BY: PF
CHECKED BY: KF
2291200-CD-001.dwg

WWTF SITE DEMOLITION PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

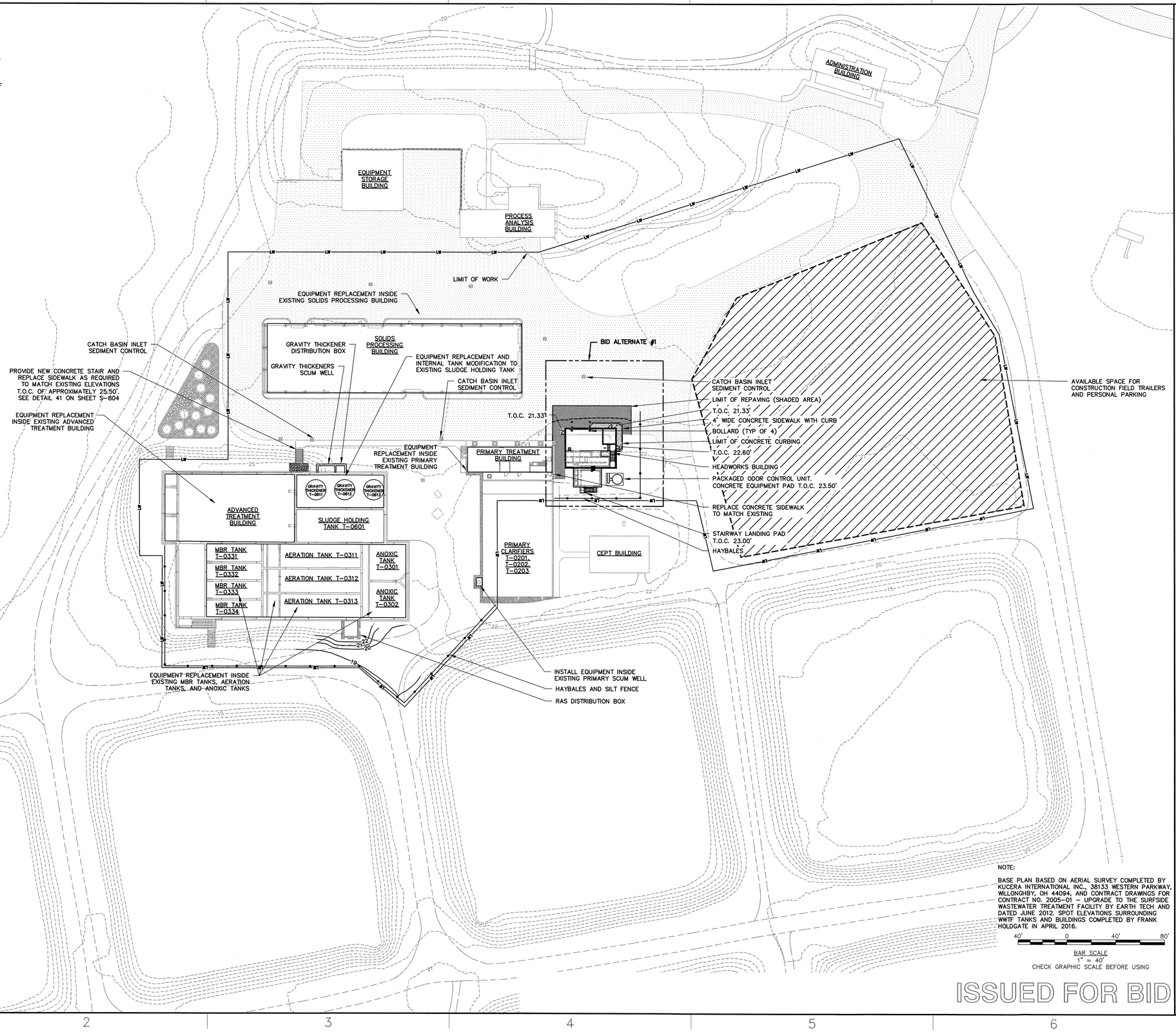
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 4 OF 116

CD-001

GENERAL NOTES:

1. RESERVED PARKING SPACES FOR WWTF PERSONNEL ONLY. ALL CONTRACTORS SHALL PARK PERSONNEL AND UNUSED VEHICLES AND EQUIPMENT IN DESIGNATED AREAS.
2. STOCKPILING OF SMALL QUANTITIES OF MATERIAL SHALL BE PERMITTED WITHIN THE LIMIT OF WORK, PROVIDED IT DOES NOT INTERRUPT THE OPERATION OF THE FACILITY.
3. STOCKPILING OF LARGE QUANTITIES OF MATERIAL WITHIN THE LIMITS OF WORK WILL NOT BE PERMITTED. A LIMITED STOCKPILING AREA WILL BE AVAILABLE FOR USE TO THE NORTH OF THE PROPOSED FIELD TRAILER LOCATION.
4. TIMELY RELOCATION OF STORED MATERIAL REQUIRED FOR THE SMOOTH OPERATION OF THE FACILITY SHALL OCCUR IMMEDIATELY UPON THE REQUEST OF THE OWNER OR ENGINEER. RELOCATION OF MATERIALS IN THIS MANNER SHALL OCCUR THROUGHOUT THE DURATION OF THE WORK AND SHALL NOT BE CONSIDERED A MERITORIOUS DELAY CLAIM.



NOTE:

BASE PLAN BASED ON AERIAL SURVEY COMPLETED BY KUCERA INTERNATIONAL INC., 38133 WESTERN PARKWAY, WILLONGHBY, OH 44094, AND CONTRACT DRAWINGS FOR CONTRACT NO. 2005-01 – UPGRADE TO THE SURFSIDE WASTEWATER TREATMENT FACILITY BY EARTH TECH AND DATED JUNE 2012. SPOT ELEVATIONS SURROUNDING WWTF TANKS AND BUILDINGS COMPLETED BY FRANK HOLDGATE IN APRIL 2016.

40' 0 40' 80'

BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 46462
REGISTERED PROFESSIONAL ENGINEER
9/23/16

REV	DESCRIPTION	DATE
DESIGNED BY: KF	CHECKED BY: KF	2291230O-C-003.dwg
DRAWN BY: PF		

WWTF PROPOSED SITE PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

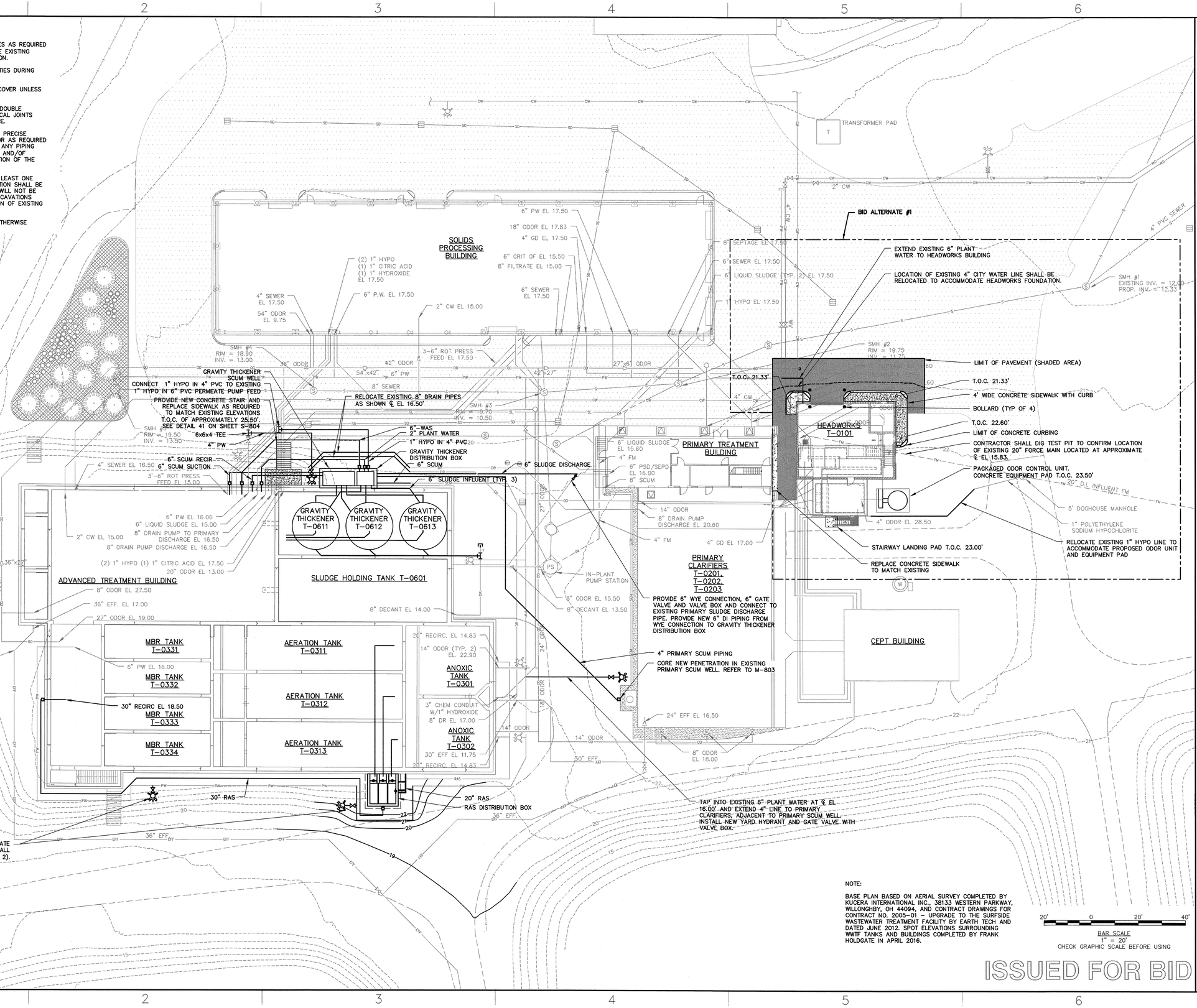
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.:	229123.00
DATE:	SEPTEMBER 2016
SCALE:	AS NOTED
SHEET:	5 OF 116

C-003

GENERAL NOTES:

1. THE CONTRACTOR SHALL PROVIDE TEMPORARY FACILITIES AS REQUIRED TO FACILITATE OWNER'S CONTINUING OPERATION OF THE EXISTING WASTEWATER TREATMENT FACILITY DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL PROTECT ALL EXISTING FACILITIES DURING CONSTRUCTION.
3. ALL PIPING SHALL HAVE A MINIMUM OF FIVE FEET OF COVER UNLESS OTHERWISE SHOWN AND/OR APPROVED BY ENGINEER.
4. ALL PIPING FROM OR INTO A STRUCTURE SHALL HAVE DOUBLE FLEXIBLE COUPLINGS WITHIN FIVE FEET OF OR MECHANICAL JOINTS LESS THAN TWO FEET APART AT THE STRUCTURAL FACE.
5. LOCATIONS OF EXISTING PIPING ARE APPROXIMATE. THE PRECISE ELEVATIONS SHALL BE DETERMINED BY THE CONTRACTOR AS REQUIRED FOR CONNECTION TO OR CROSSING OF EXISTING LINES. ANY PIPING DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED AND/OF REPLACED IN ORDER TO MAINTAIN CONTINUOUS OPERATION OF THE EXISTING FACILITY.
6. EXPERIMENTAL EXCAVATIONS SHALL BE COMPLETED AT LEAST ONE WEEK PRIOR TO COMMENCEMENT OF ANY WORK, ELEVATION SHALL BE REPORTED TO HE ENGINEER IMMEDIATELY, SUBMITTALS WILL NOT BE APPROVED FOR ANY MATERIAL UNTIL EXPERIMENTAL EXCAVATIONS HAVE BEEN COMPLETED WITH LOCATIONS AND ELEVATION OF EXISTING PIPING NOTED IN THE SUBMITTAL.
7. ALL PIPE ELEVATIONS REFER TO CENTERLINE UNLESS OTHERWISE STATED.



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20' 0 20' 40'
BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 45481
REGISTERED PROFESSIONAL ENGINEER

REV.	DESCRIPTION	DATE

DESIGNED BY: KF | CHECKED BY: KF
DRAWN BY: PF | 2291230-C-004.dwg

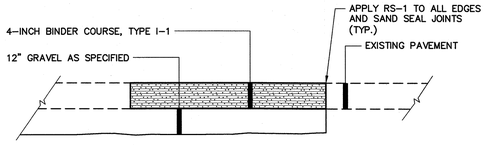
WWTF PROPOSED YARD PIPING PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 6 OF 116

C-004

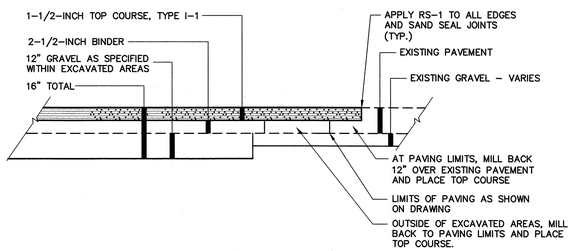


NOTES:

1. TEMPORARY PAVEMENT SHALL BE MIN. 4" OF BINDER COURSE TYPE I–1 PLACED IN TWO EQUAL LAYERS.

TEMPORARY PAVEMENT SECTION

N.T.S.

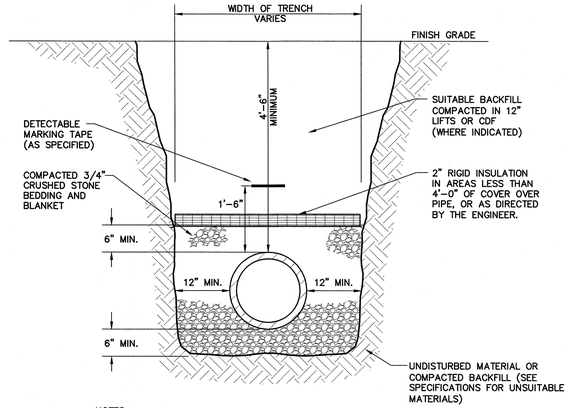


NOTES:

1. FINAL PAVEMENT SHALL TAKE PLACE NO SOONER THAN 6 MONTHS AFTER ALL EXCAVATION WORK IS COMPLETE, AND WITHIN 12 MONTHS. SEE TEMPORARY TRENCH PAVEMENT DETAIL FOR TEMPORARY PAVING.
2. CONTRACTOR SHALL REPAIR ANY AREAS OF SETTLEMENT PRIOR TO INSTALLING PERMANENT PAVEMENT AS DIRECTED BY THE ENGINEER.
3. MILL TOP 1–1/2" BINDER FROM TEMPORARY PAVEMENT AND LEAVE BOTTOM 2–1/2" BINDER FOR PERMANENT PAVEMENT.

PERMANENT PAVEMENT SECTION & BUTT JOINT DETAIL

N.T.S.

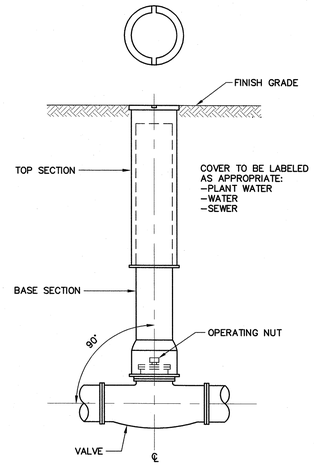


NOTES:

1. MAINTAIN UNIFORM TRENCH WIDTH TO 6" OVER PIPE.
2. IF SHEETING IS REQUIRED TO REMAIN, CUT OFF TWO (2) FEET BELOW FINISH GRADE.
3. SEE PAVEMENT REPAIR DETAILS FOR PAVED AREAS.
4. A 2" RIGID INSULATION WILL BE REQUIRED IN AREAS WHERE LESS THAN 4'–0" OF COVER OVER TOP OF PIPE OR WHERE REQUIRED BY ENGINEER.

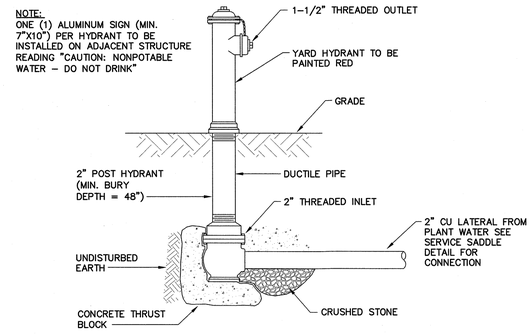
TYPICAL PIPE TRENCH DETAIL

N.T.S.



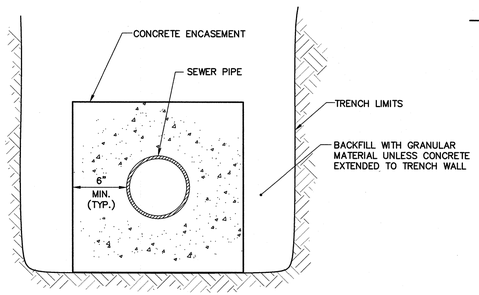
GATE VALVE WITH VALVE BOX

N.T.S.



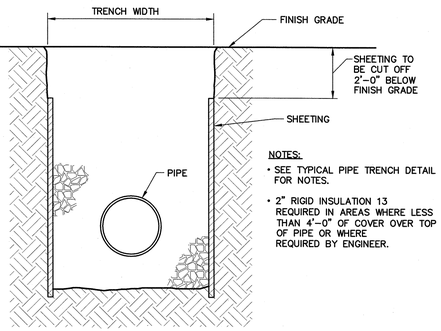
TYPICAL YARD HYDRANT

N.T.S.



CONCRETE ENCASEMENT FOR SEWER MAINS

N.T.S.

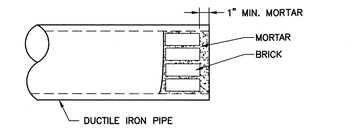


NOTES:

- SEE TYPICAL PIPE TRENCH DETAIL FOR NOTES.
- 2" RIGID INSULATION 13 REQUIRED IN AREAS WHERE LESS THAN 4'–0" OF COVER OVER TOP OF PIPE OR WHERE REQUIRED BY ENGINEER.

SHEETED TRENCH DETAIL

N.T.S.

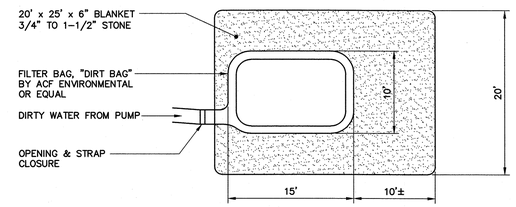


NOTES:

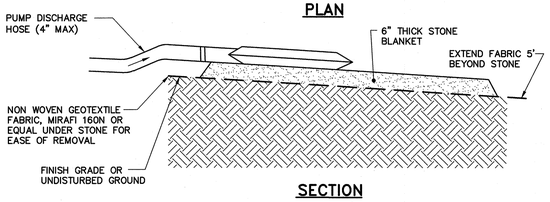
1. FOR PIPE SIZES LESS THAN 18" IN DIAMETER.
2. FOR PIPE SIZES GREATER THAN 18" USE 2 ROWS OF BRICK.
3. MORTAR TO BE MIXED STIFF TO PREVENT SLUMPING.

PIPE PLUG

N.T.S.



PLAN



SECTION

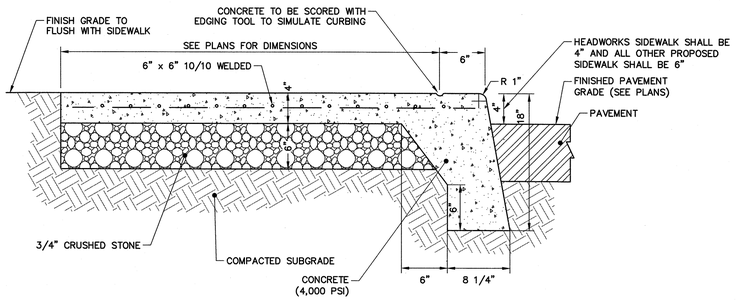
DEWATERING DISCHARGE "DIRT BAG" SEDIMENT CONTROL DEVICE

DIRTBAG DETAIL

N.T.S.

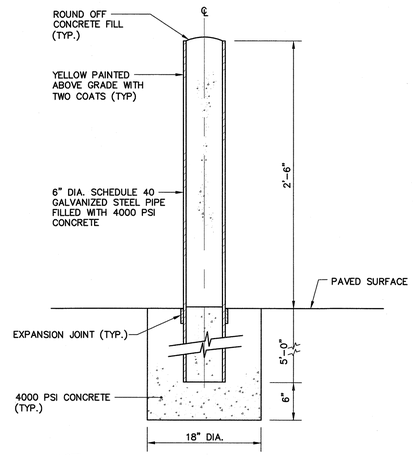
NOTES:

1. WATER FROM DEWATERING OPERATIONS SHALL NOT BE DISCHARGED TO CATCH BASINS.
2. INSTALL DIRTBAG® OR APPROVED EQUAL ON A SLOPE SO INCOMING WATER FLOWS DOWNHILL THROUGH DIRTBAG® WITHOUT CREATING MORE EROSION. STRAP THE NECK OF DIRTBAG® TIGHTLY TO THE DISCHARGE HOSE. TO INCREASE THE EFFICIENCY OF FILTRATION, PLACE THE BAG ON AN AGGREGATE OR HAYBALE BED TO MAXIMIZE WATER FLOW THROUGH THE SURFACE AREA OF THE BAG.
3. DIRTBAG® IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE. FLOW RATES WILL VARY DEPENDING ON THE SIZE OF DIRTBAG®, THE TYPE AND AMOUNT OF SEDIMENT DISCHARGED INTO DIRTBAG®, THE TYPE OF GROUND, ROCK OR OTHER SUBSTANCE UNDER THE BAG AND THE DEGREE OF THE SLOPE ON WHICH THE BAG LIES. UNDER MOST CIRCUMSTANCES DIRTBAG® WILL ACCOMMODATE FLOW RATES OF 1100 GALLONS PER MINUTE. USE OF EXCESSIVE FLOW RATES OR OVERFILLING DIRTBAG® WITH SEDIMENT WILL CAUSE THE BAG TO RUPTURE OR FAILURE OF THE HOSE ATTACHMENT STRAPS.
4. DISPOSE DIRTBAG® AS DIRECTED BY THE SITE ENGINEER. IF ALLOWED, DIRTBAG® MAY BE CUT OPEN AND THE CONTENTS SEEDED AFTER REMOVING VISIBLE FABRIC. DIRTBAG® IS STRONG ENOUGH TO BE LIFTED WITH OPTIONAL STRAPS IF IT MUST BE HAULED AWAY FOR OFF–SITE DISPOSAL.



CONCRETE CURB AND SIDEWALK

N.T.S.



NOTE:

- ALL BOLLARDS SHALL BE PAINTED.

BOLLARD (EXTERIOR)

N.T.S.

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HALEY
CIVIL
No. 49482
REGISTERED PROFESSIONAL ENGINEER

REV.	DESCRIPTION	DATE

DESIGNED BY: KF
DRAWN BY: PF
CHECKED BY: KF
2291230-C-801.dwg

CIVIL DETAILS 1

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 7 OF 116

C-801

ISSUED FOR BID

EROSION AND SEDIMENT CONTROL NOTES

EROSION AND SEDIMENT CONTROL DURING THE CONSTRUCTION OF THIS PROJECT WILL BE CARRIED OUT UTILIZING THE FOLLOWING MEASURES AND IN ACCORDANCE WITH THE ENVIRONMENTAL QUALITY HANDBOOK.

1. CONSTRUCTION OPERATIONS WILL BE SCHEDULED IN SUCH A MANNER THAT THE LEAST PRACTICAL AMOUNT OF SOIL IS DISTURBED THAT CANNOT HAVE PERMANENT EROSION CONTROL MEASURES APPLIED IMMEDIATELY.
2. ALL DISTURBED SURFACES WHICH ARE NOT BEING PAVED WILL BE LOAMED AND SEEDED IMMEDIATELY AFTER FINAL GRADING IS ACHIEVED.
3. ALL DISTURBED SURFACES NOT BEING FINAL GRADED WILL BE TREATED WITH TEMPORARY EROSION CONTROL MEASURES:
   MULCH WITH HAY OR STRAW AT 46 LBS. PER 1000 SQ. FT.
   (2 TONS PER ACRE) OR PROVIDE EROSION CONTROL MESH.
4. HAY BALES AND/OR SILT FENCE WILL BE UTILIZED TO PREVENT EROSION OF ANY STOCKPILES OF EXCAVATED MATERIALS.
5. ANY DEWATERING OF THE SITE, WILL BE DONE IN SUCH A MANNER TO AVOID A VISIBLE SEDIMENT DISCHARGE TO SURROUNDING AREA. ALL DISCHARGE HOSES WILL BE DIRECTED TO A SEDIMENT CONTROL STRUCTURE OR A NATURAL FEATURE WHICH WILL PREVENT NOTICEABLE SEDIMENTATION DISCHARGE.
6. A REPRESENTATIVE OF THE OWNER WILL INSPECT ALL EROSION CONTROL MEASURES AFTER EVERY RAINFALL OR A MINIMUM OF ONCE A WEEK AND DIRECT ANY NECESSARY MAINTENANCE OF THESE MEASURES. MAINTENANCE PROCEDURES FOR EROSION CONTROL MEASURES INCLUDE:
   A. REPAIRING ANY BARRIERS WHICH HAVE BECOME INEFFECTIVE OR DISLODGED.
   B. REPLACING ANY BARRIER WHICH HAS DETERIORATED OR BECOME TOTALLY INEFFECTIVE.
   C. REMOVING SEDIMENT DEPOSITS FROM THE BARRIERS WHEN THE DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

EROSION CONTROL NOTES

1. PRIOR TO THE START OF GRADING, SEDIMENT BARRIERS WILL BE INSTALLED AS SHOWN ALONG ALL AREAS TO BE DISTURBED.
2. ALL DISTURBED AREAS WILL BE STABILIZED WITHIN 15 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF SOIL.
3. ALL AREAS GRADED OR OTHERWISE DISTURBED OUTSIDE PAVED, OR GRAVELED AREAS WILL BE MULCHED AND SEEDED FOR PERMANENT GRASS COVER. SEED MIX AS LISTED BELOW, SHALL BE USED.

SEED	lb/acre	lb/1000ft2
Creeping Red Fescue	32.67	0.75
Tall Fescue	32.67	0.75
Perennial Rye	52.27	1.20
White Clover	6.53	0.15
Birdsfoot Trefoil	3.92	0.09
Red Top	2.61	0.06
Total	130.68	3.00

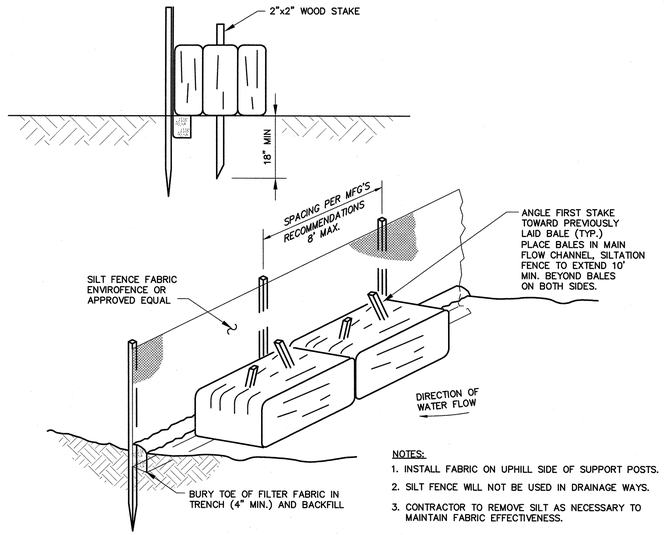
4. ANY AREA NOT SEEDED BY SEPTEMBER 1 SHOULD BE DORMANT SEEDED AFTER THE FIRST KILLING FROST. SEEDING RATES SHOULD BE DOUBLED FOR DORMANT SEEDING. IF ANY SEEDING CANNOT BE ACCOMPLISHED BY OCTOBER 15, TEMPORARY MULCHING WILL BE APPLIED UNTIL THE NEXT GROWING SEASON. HAY OR STRAW MULCH ANCHORED WITH NETTING WILL BE APPLIED AT A RATE OF 90-100 BALES PER ACRE.
5. NO FLOW SHALL BE ALLOWED IN ANY SWALES UNTIL SOIL IS STABILIZED WITH VEGETATION.
6. AFTER THE ENTIRE AREA IS STABILIZED WITH PERMANENT VEGETATION, ALL TEMPORARY EROSION CONTROL MEASURES WILL BE REMOVED.
7. ALL PAVED AREAS WILL BE SWEPT AS NECESSARY TO REDUCE DUST AND TRACKING. ALL TEMPORARY EROSION MEASURES, INCLUDING SEDIMENT BARRIERS, STONE CHECK DAMS AND MULCH WILL BE INSPECTED AND REPAIRED AS NECESSARY AFTER EVERY SIGNIFICANT RAINFALL. PERMANENT MEASURES WILL BE INSPECTED AFTER SIGNIFICANT RAINFALL UNTIL THEY ARE FULLY STABILIZED.

Temporary Erosion Control:

Measure	Dates for use	Timing, Activity, and Location
Silt Fence	All	Before site clearing and soil disturbance, install downhill of disturbed areas.
Silt Fence w/ Filter Berm	All	Before site clearing and soil disturbance, nearby protected natural resources, install downhill of disturbed areas.
Stone Check Dams	All	Immediately following construction of drainage channel install in drainage channel.
Hay Bales	All	Short term protection of catch basin inlets, and to add support to silt fences or check dams.
Dust Control	All	During dry weather, apply water and calcium chloride to control dust.
Temporary Seeding	April 15 to Oct. 1	Soil stockpiles and disturbed land soils which will not be disturbed again withIn 21 days. If grass growth provides less than 95% soil coverage by Nov. 1, apply mulch and anchor with netting.
Mulch	April 15 to Sept. 15	On all areas of exposed soil which will not be disturbed again within 21 days, apply 70 to 90 lbs. mulch (2 bales) per 1,000 sq. ft. within the 21 day period.
Winter Mulch	Sept. 16 to Oct. 31	On all areas of exposed soil which will not be disturbed again within 7 days, apply 150 to 170 lbs. mulch (4 bales) per 1,000 sq. ft. within the 7 day period. Erosion control blanket may be used as a substitute for winter mulch.
	Nov. 1 to April 14	On all areas of exposed soil, apply 150 to 170 lbs. mulch (4 bales) per 1,000 sq. ft. and anchor with netting, at the end of each working day. Erosion control blanket may be used as a substitute for winter mulch.
Erosion Control Blanket	All	Install immediately following seeding, within drainage channels and on all exposed soil slopes which are 25% or steeper grade, and locations shown on plan. ECB may also be substituted for winter mulch.
Inspections	Until site is permanently stabilized	Inspect the erosion and sedimentation control measures at least once a week and after significant storm events.

Permanent Erosion Control:

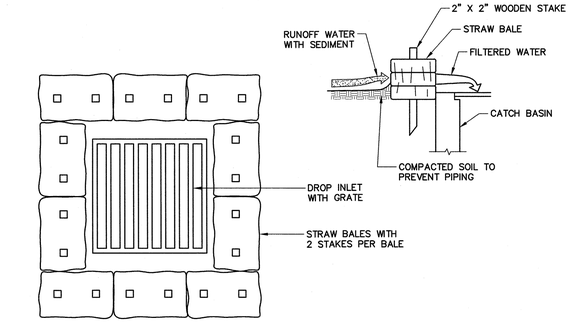
Measure	Dates for use	Timing, Activity, and Location
Riprap Protection	All	Install riprap immediately following culvert installation or final channel grading at locations shown on plans.
Pavement – Base Course – Final Course	When no frost is in ground	Install only in areas shown on the plan, shortly after pavement base is brought to final grade. Install near completion of project.
Permanent Seeding	April 15 to Sept. 15	On final grade areas, within 7 days of grade preparation. prepare topsoil, followed with seeding and mulch application.
Dormant Seeding	Sept. 16 to April 15	On final grade areas, with prepared topsoil. Apply seed at double the specified rate, on bare soil, and follow with an application of winter mulch.
Ground Cover, Trees, Shrubs	April 15 to Nov. 1	Install with final landscaping.
Permanent Mulch	All	Install with final landscaping.



NOTES:
1. INSTALL FABRIC ON UPHILL SIDE OF SUPPORT POSTS.
2. SILT FENCE WILL NOT BE USED IN DRAINAGE WAYS.
3. CONTRACTOR TO REMOVE SILT AS NECESSARY TO MAINTAIN FABRIC EFFECTIVENESS.

TYPICAL SILTATION FENCE/HAYBALE BARRIER DETAIL

N.T.S.

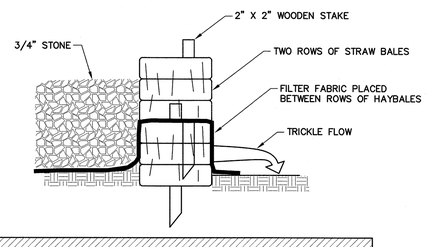


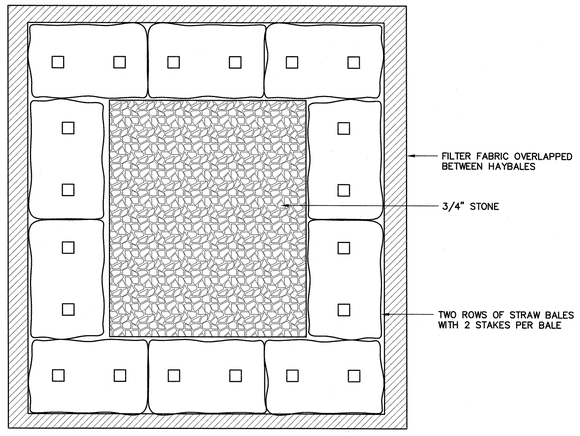
BARRIER MAINTENANCE NOTES:

1. ALL BARRIERS SHOULD BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHOULD BE MADE IMMEDIATELY.
2. SHOULD THE BARRIER DECOMPOSE OR BECOME INEFFECTIVE BEFORE THE END OF THE EXPECTED LIFE AND THE BARRIER IS STILL NECESSARY, IT SHOULD BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN THE DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIER IS NO LONGER REQUIRED SHOULD BE SMOOTHED TO CONFORM WITH THE EXISTING GRADE, PREPARED, AND SURFACED AS DETAILED.

STRAW BALE DROP INLET SEDIMENT FILTER

N.T.S.



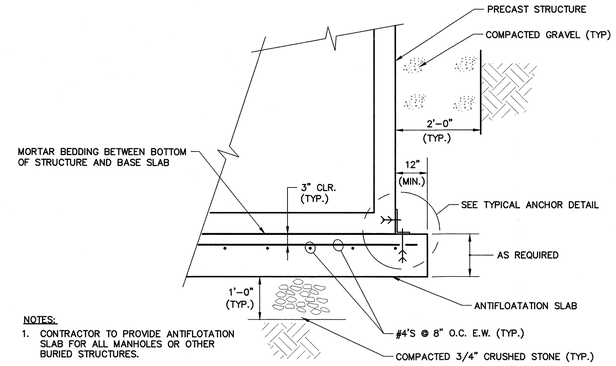


DETENTION BASIN NOTES:

1. ALL BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY, AT NO ADDITIONAL COST TO THE OWNER.
2. SHOULD THE BARRIER DECOMPOSE OR BECOME INEFFECTIVE BEFORE THE END OF THE EXPECTED LIFE AND THE BARRIER IS STILL NECESSARY, IT SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN THE DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIER IS NO LONGER REQUIRED SHALL BE REMOVED AND DISPOSED.
5. WWTF DEWATERING SYSTEM SHALL INCLUDE A "RAIN-FOR-RENT" TYPE SEDIMENTATION TANK PRIOR TO DETENTION BASIN.

DEWATERING BASIN DETAIL

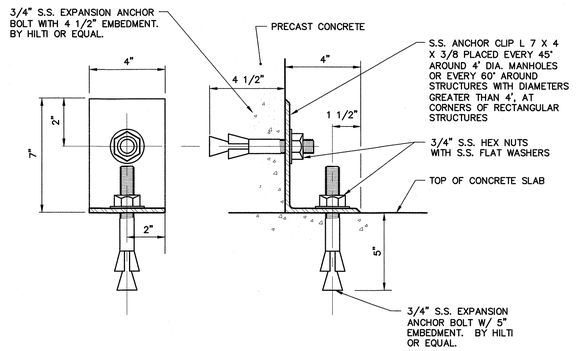
N.T.S.



NOTES:
1. CONTRACTOR TO PROVIDE ANTIFLOTATION SLAB FOR ALL MANHOLES OR OTHER BURIED STRUCTURES.

ANTIFLOATATION SLAB DETAIL

N.T.S.



ANCHOR DETAIL

N.T.S.

ISSUED FOR BID

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 46462
REGISTERED PROFESSIONAL ENGINEER
9/12/16

REV	DESCRIPTION	DATE

DESIGNED BY: KF
DRAWN BY: PF
CHECKED BY: KF
2291200-C-802.dwg

CIVIL DETAILS 2

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 8 OF 116

C-802

22x34 SHEET
1:1

ABBREVIATIONS

&	AND
∠	ANGLE
@	AT
[	CHANNEL
ø	DIAMETER
°	DEGREES
AB	ANCHOR BOLT
ABV	ABOVE
ACI	AMERICAN CONCRETE INSTITUTE
ACMU	ACOUSTICAL MASONRY UNIT
ACT	ACOUSTICAL CEILING TILE
ADH	ADHESIVE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALUM	ALUMINUM
ANOD	ANODIZED
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS STANDARDS
AWS	AMERICAN WELDING SOCIETY
BD	BOARD
BLDG	BUILDING
BLK	BLOCK, BLOCKING
BM	BEAM
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BRG	BEARING
BRK	BRICK
BS	BOTH SIDES
C TO C	CENTER TO CENTER
CABT	CABINET
CEM	CEMENT
CEM F	CEMENTITIOUS FINISH
CF	COMPRESSIBLE FILLER
CGFB	CEMENTITIOUS GLASS FIBER BOARD
CH	CONCRETE HARDENER
CHAM	CHAMFER
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CL – ℄	CENTER LINE
CLG	CEILING
CLKG	CAULKING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMP	COMPRESSIBLE
CONC	CONCRETE
CONT	CONTINUOUS, CONTINUE
CPT	CARPET
CRS	COURSES
CT	CERAMIC TILE
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DN	DOWN
DPRG	DAMPPROOFING
DPS	DUST PROOF SEALER
DR	DRAIN
DWG	DRAWING
EA	EACH
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EQ	EQUAL(LY)
EQP	EQUIPMENT
EXG	EXISTING
EXP	EXPANSION, EXPOSED
EWC	ELECTRIC WATER COOLER
FA	FIRST AID KIT
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FF	FACTORY FINISH, FINISHED FLOOR
FGL	FIBERGLASS
FIN	FINISH(ED)
FL	FLOOR
FND	FOUNDATION
FR	FRAME
FRP	FIBER REINFORCED PLASTIC
FRT	FIRE RETARDANT TREATED
DLR	FILLER
FT	FOOT, FEET
FV	FIELD VERIFY
FXD	FIXED
GA	GAUGE
GALV	GALVANIZED
GL	GLASS
GR	GRADE
GRTG	GRATING
GYP	GYPSUM
H	HEIGHT
HD	HEAVY DUTY
HDR	HAND RAIL
HDW	HARDWARE
HDWD	HARDWOOD
HGR	HANGER
HGT	HEIGHT
HM	HOLLOW METAL
HOR	HORIZONTAL
HP	HIGH POINT
IN	INCH(ES)
INSUL	INSULATE, INSULATION
JC	JANITOR'S CLOSET
JT	JOINT
LAB	LABORATORY
LAD	LADDER
LAV	LAVATORY
LKR	LOCKER
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LTL	LINTEL
LP	LOW POINT
M	METERS
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MGR	MANAGER
MIN	MINIMUM
MISC	MISCELLANEOUS
MM	MILLIMETERS
MMB	MEMBRANE
MO	MASONRY OPENING
MR	MOISTURE RESISTANT
MTD	MOUNTED, MOUNTING
MTL	METAL
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OCEF	ON CENTER EACH FACE
OCEW	ON CENTER EACH WAY
OFF	OFFICE
OPNG	OPENING
OPP	OPPOSITE
OPP HD	OPPOSITE HAND
OVHD	OVERHEAD
PERIM	PERIMETER
PL	PLATE, PROPERTY LINE
PLK	PLANK
PM	PRESSED METAL
PR	PAIR
PRC	PRECAST
PREFAB	PREFABRICATED
PRMLD	PREMOLDED
PSF	PER SQUARE FOOT
PSI	PER SQUARE INCH
PT	PRESSURE TREATED
PTD	PAINTED
PWD	PLYWOOD
R	RISERS
RB	RUBBER BASE
RD	ROOF DRAIN
REC	RECORD
REINF	REINFORCE, REINFORCING
REQ'D	REQUIRED
REV	REVISION, REVISED
RFG	ROOFING
RGH	ROUGH
RJ	RUSTICATION JOINT
RLG	RAILING
RM	ROOM
RO	ROUGH OPENING
R+S	BACKER ROD AND SEALANT
RT	RUBBER TILE
RWL	RAIN WATER LEADER
SAT	SUSPENDED ACOUSTIC TILE
SB	SEAMLESS BASE
SCHED	SCHEDULE
SCRN	SCREEN(ED)
SEC	SECTION
SF	SEAMLESS FLOORING, SQUARE FOOT
SGFT	STRUCTURAL GLAZED FACING TILE
SHT	SHEET
SIM	SIMILAR
SK	SINK
SLNT	SEALANT
SLR	CLEAR SEALER
SPEC	SPECIFIED, SPECIFICATION
SS	STAINLESS STEEL
SSK	SERVICE SINK
STA	STATION
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRU	STRUCTURE, STRUCTURAL
STWY	STAIRWAY
SUPT	SUPERINTENDENT
SUSP	SUSPEND(ED)
SUPV	SUPERVISOR
T	TREADS
TB	TERRAZZO BASE
T+B	TOP AND BOTTOM
T+G	TONGUE AND GROOVE
TEMP	TEMPERED, TEMPERATURE
TERR	TERRAZZO
THK	THICK(NESS)
THR	THRESHOLD
TKBD	TACK BOARD
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TOW	TOP OF WALL
TOIL	TOILET
TPG	TOPPING
TSL	TOP OF SLAB
TWF	THROUGH WALL FLASHING
TYP	TYPICAL
UC	UNDERCUT
U/D	UNDERDRAIN
UNO	UNLESS NOTED OTHERWISE
UNPTD	UNPAINTED
UR	URINAL
VB	VAPOR BARRIER
VCT	VINYL COMPOSITION TILE
VENT	VENTILATE
VERT	VERTICAL
VTR	VENT THROUGH ROOF
W	WIDTH, WIDE
W/	WITH
W/A	WHERE APPLICABLE
WC	WATER CLOSET
WD	WOOD
WDW	WINDOW
WF	STEEL WIDE FLANGE
W/O	WITHOUT
WPRG	WATERPROOFING
WWF	WELDED WIRE FABRIC

NOTE: THIS IS A GENERAL LIST OF SYMBOLS AND ABBREVIATIONS. NOT ALL ITEMS SHOWN HERE APPEAR ON THE CONTRACT DOCUMENTS

MATERIALS

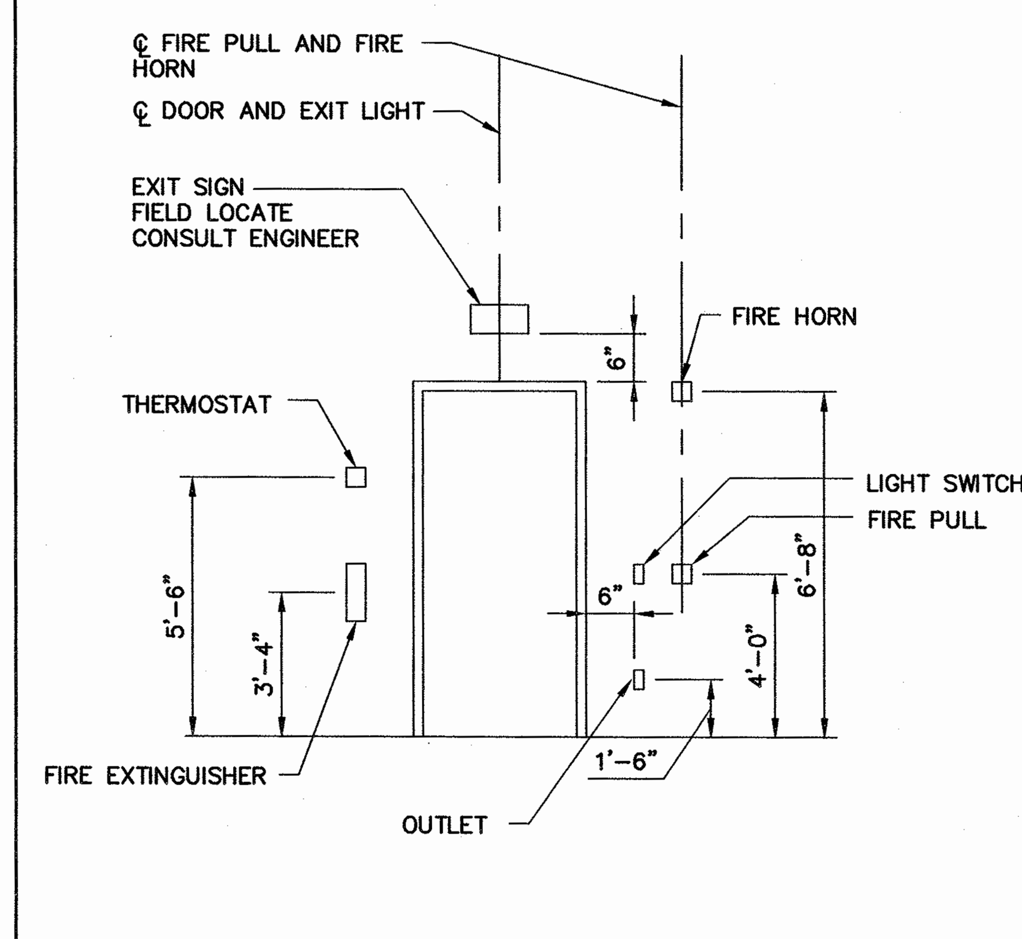
- EARTH, SOIL
- CRUSHED STONE
- SELECT FILL/GRAVEL
- BRICK
- CONCRETE MASONRY UNIT
- PRECAST CONCRETE
- CONC CAST IN PLACE
- WOOD–BLOCKING
- WOOD–FINISH
- PLYWOOD
- RIGID INSULATION
- BLANKET INSULATION
- STEEL
- ALUMINUM
- GROUT
- CAULK
- GLASS
- STRUCTURAL MEMBER

SYMBOLS

- (1 / A–101) SECTION NO / DWG NO — SECTION
- (A / A–101) DETAIL NO / DWG NO — PLAN OR SECTION DETAIL
- (E) — COLUMN CENTER LINE
- [101] — ROOM NUMBER

OPENINGS

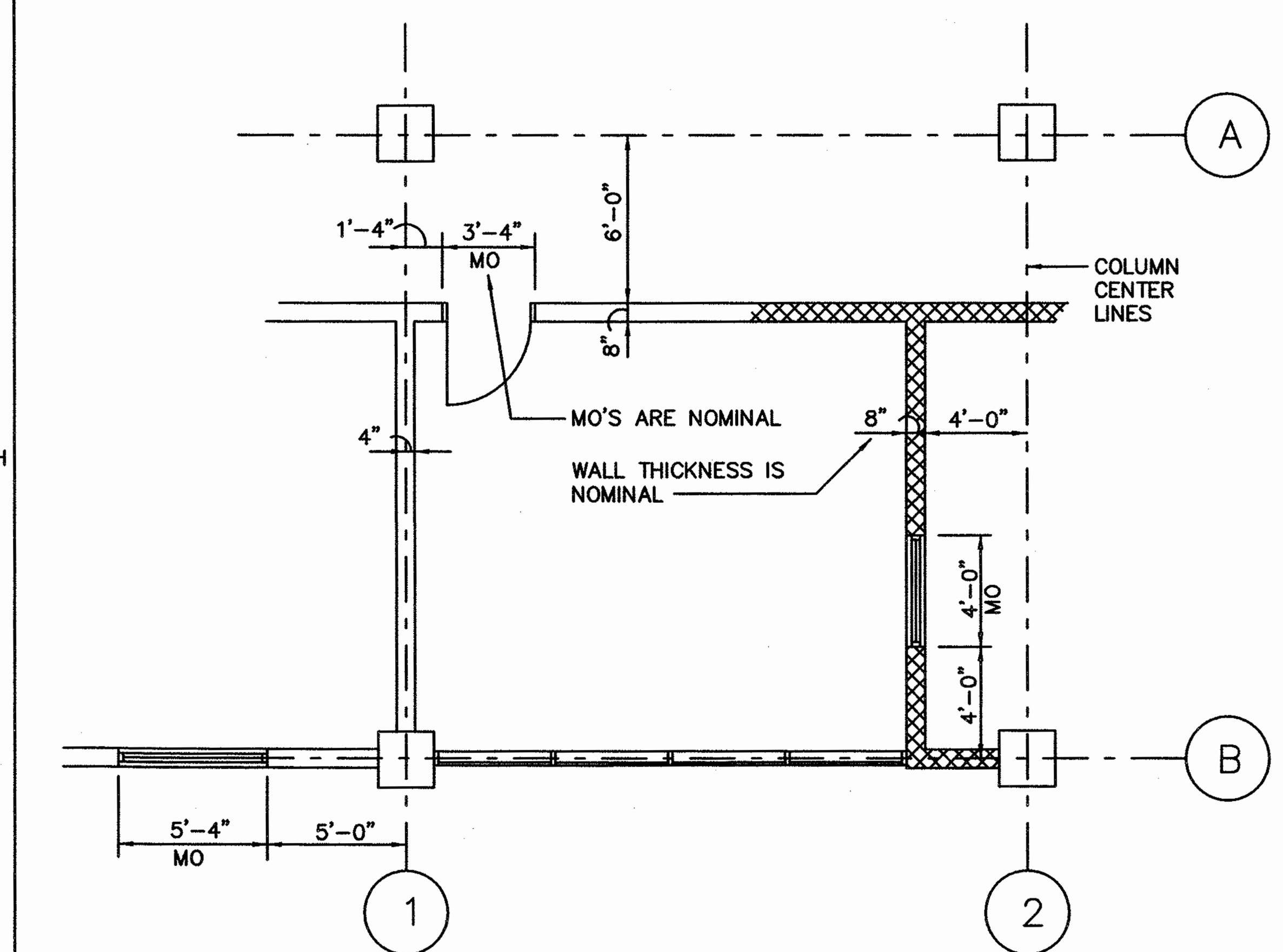
- (D001) — DOOR NUMBER
- [L01] — LOUVER NUMBER
- (W1) — WINDOW NUMBER



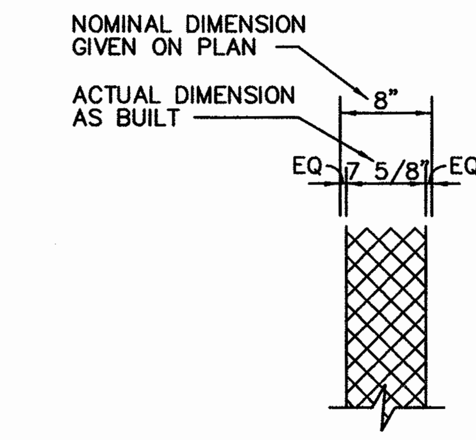
TYPICAL MOUNTING HEIGHTS

MODULAR DIMENSIONING SYSTEM

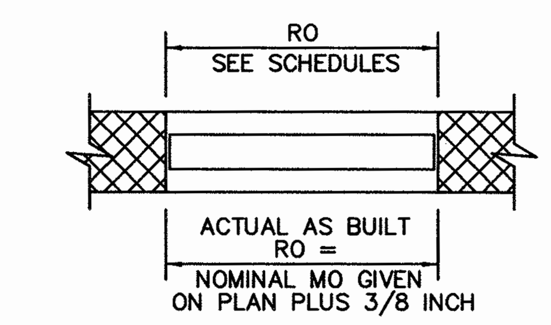
(USED ON SMALL SCALE PLANS ONLY)



AS BUILT DIMENSIONS



WINDOW OR LOUVER OPENING IN PLAN

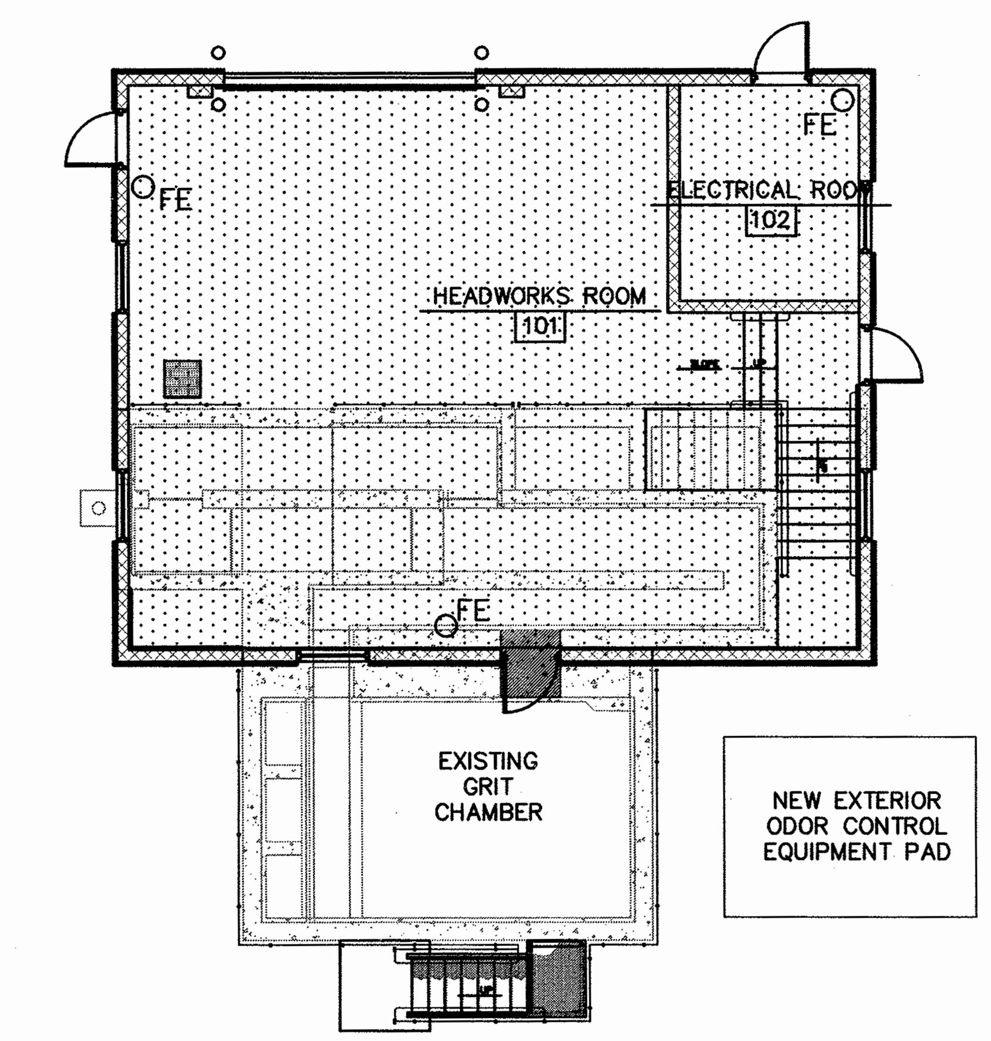


CODE SUMMARY: COMMONWEALTH OF MASSACHUSETTS 780 CMR STATE BUILDING CODE – EIGHTH EDITION/IBC 2009	
CODE REFERENCE	HEADWORKS BUILDING (BID ALTERNATE #1)
BUILDING OCCUPANCY CLASSIFICATION (306.3)	USE GROUP F–2, LOW HAZARD INDUSTRIAL
CONSTRUCTION TYPE (TABLE 601)	TYPE 5B
MAX ALLOWABLE HEIGHT/STORY AREA LIMIT (TABLE 503)	2 STORIES, 40 FEET HIGH, 13,000 SQUARE FEET PER STORY
ACTUAL STORY AREA	1410 SQUARE FEET
OCCUPANT LOAD PER STORY (TABLE 1004.1.1)	15
MAX TRAVEL DISTANCE TO EXIT ALLOWED/PROPOSED (TABLE 1021.2)	300 FT/40 FT
# EXITS REQUIRED/PROPOSED (TABLE 1015.1)	1/3
REQUIRED FIRE RATING FOR BUILDING ELEMENTS (TABLE 601)	0 HOURS
FIRE SUPPRESSION	NO

CODE SUMMARY LEGEND

'F–2' (FACTORY–INDUSTRIAL) USE GROUP

FIRE EXTINGUISHER LOCATION — O FE



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COMMITMENT & INTEGRITY DRIVE RESULTS
WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS — JAMES P. STURGIS — STRUCTURAL — No. 43268 — REGISTERED PROFESSIONAL ENGINEER
9-23-16

REV	DESCRIPTION	DATE

DESIGNED BY: JPS — CHECKED BY: JPS
DRAWN BY: DMB

ARCHITECTURAL NOTES, LEGEND, & ABBREVIATIONS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

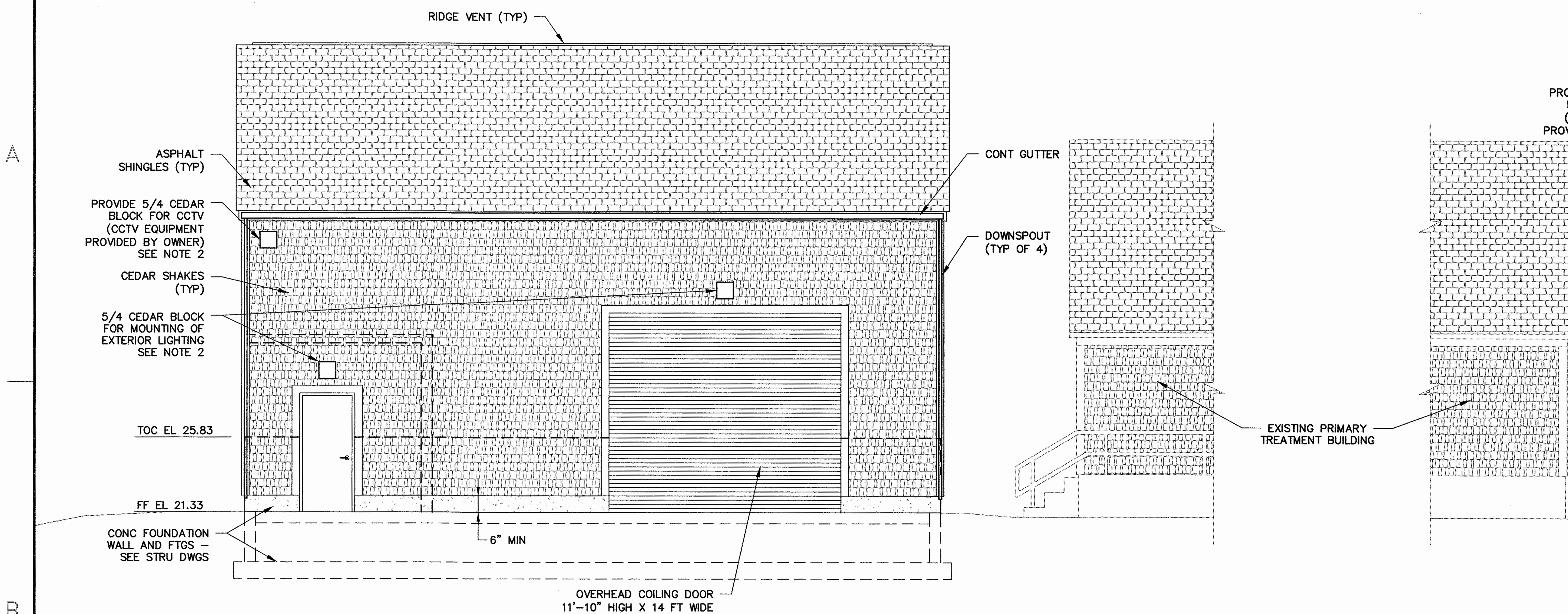
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 9 OF 116

ISSUED FOR BID

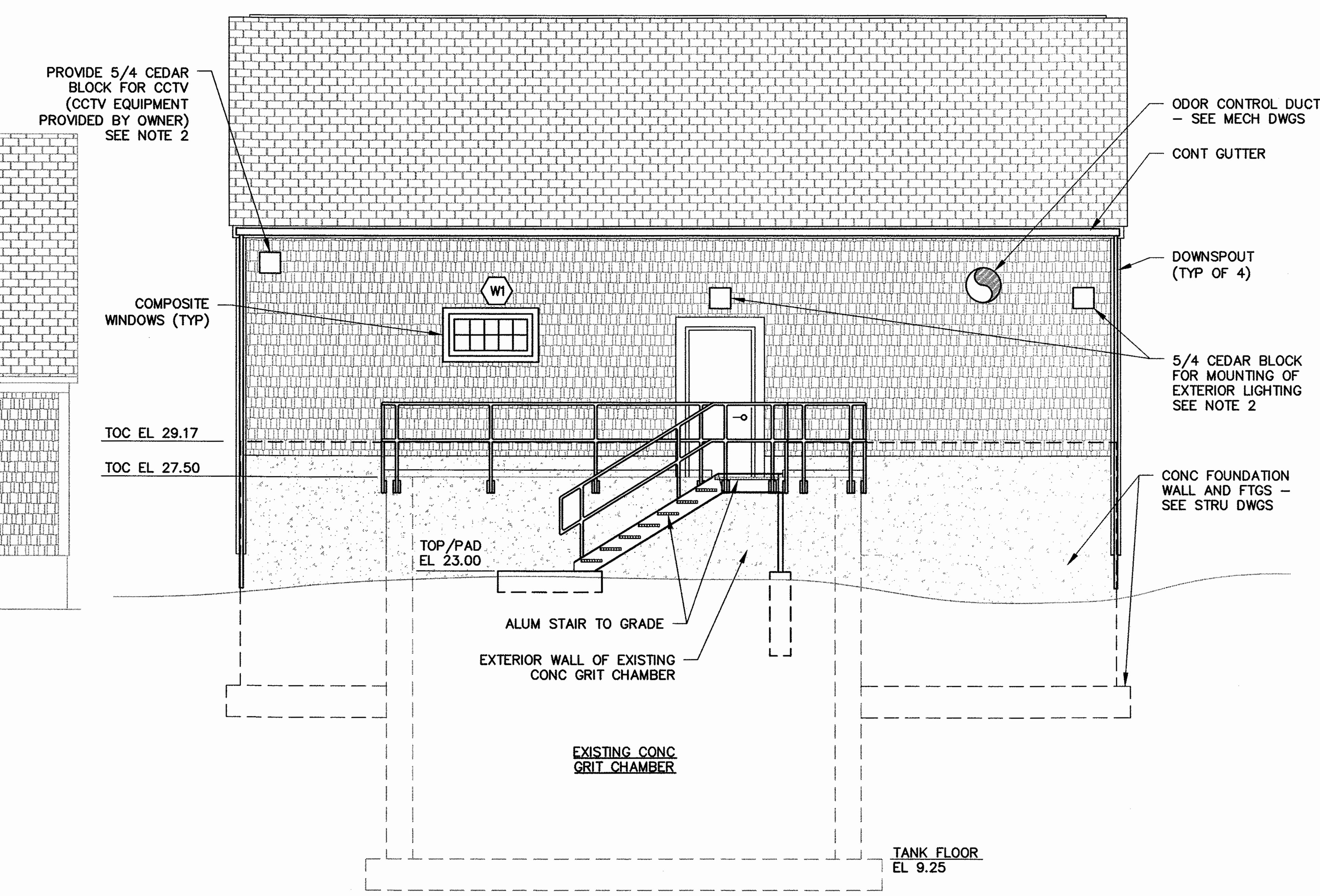
A-001

22x34 SHEET
1:1



NORTH ELEVATION

SCALE: 3/16" = 1'–0"



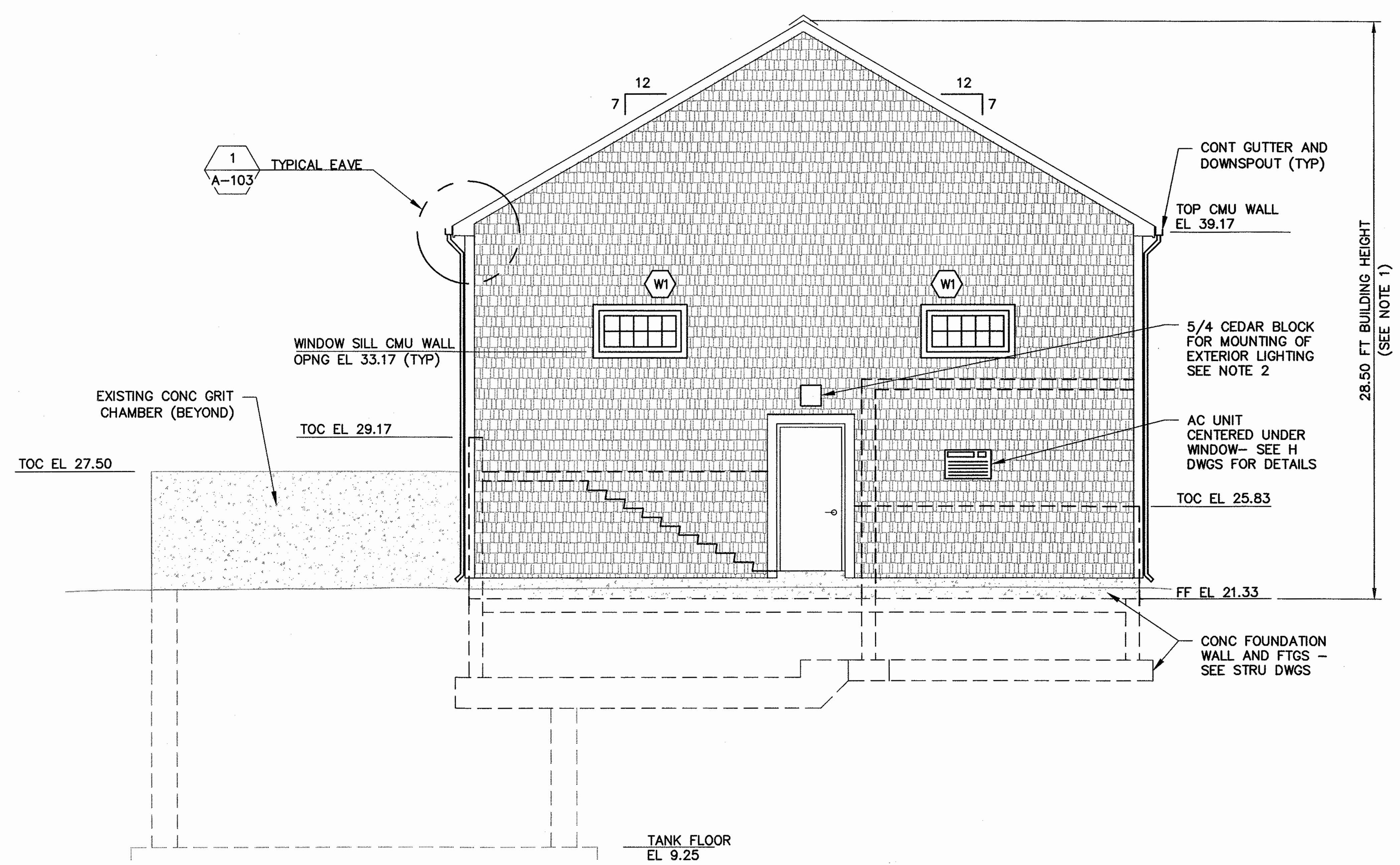
SOUTH ELEVATION

SCALE: 3/16" = 1'–0"

ARCHITECTURAL NOTES:

1. 30 FEET MAXIMUM BUILDING HEIGHT PER TOWN OF NANTUCKET BYLAWS, CHAPTER 139–17.
2. GC TO COORDINATE SIZE OF CEDAR TRIM BLOCKS WITH EC.

NOTE:
ALL WORK ON THIS SHEET IS PART OF BID ALTERNATE #1.

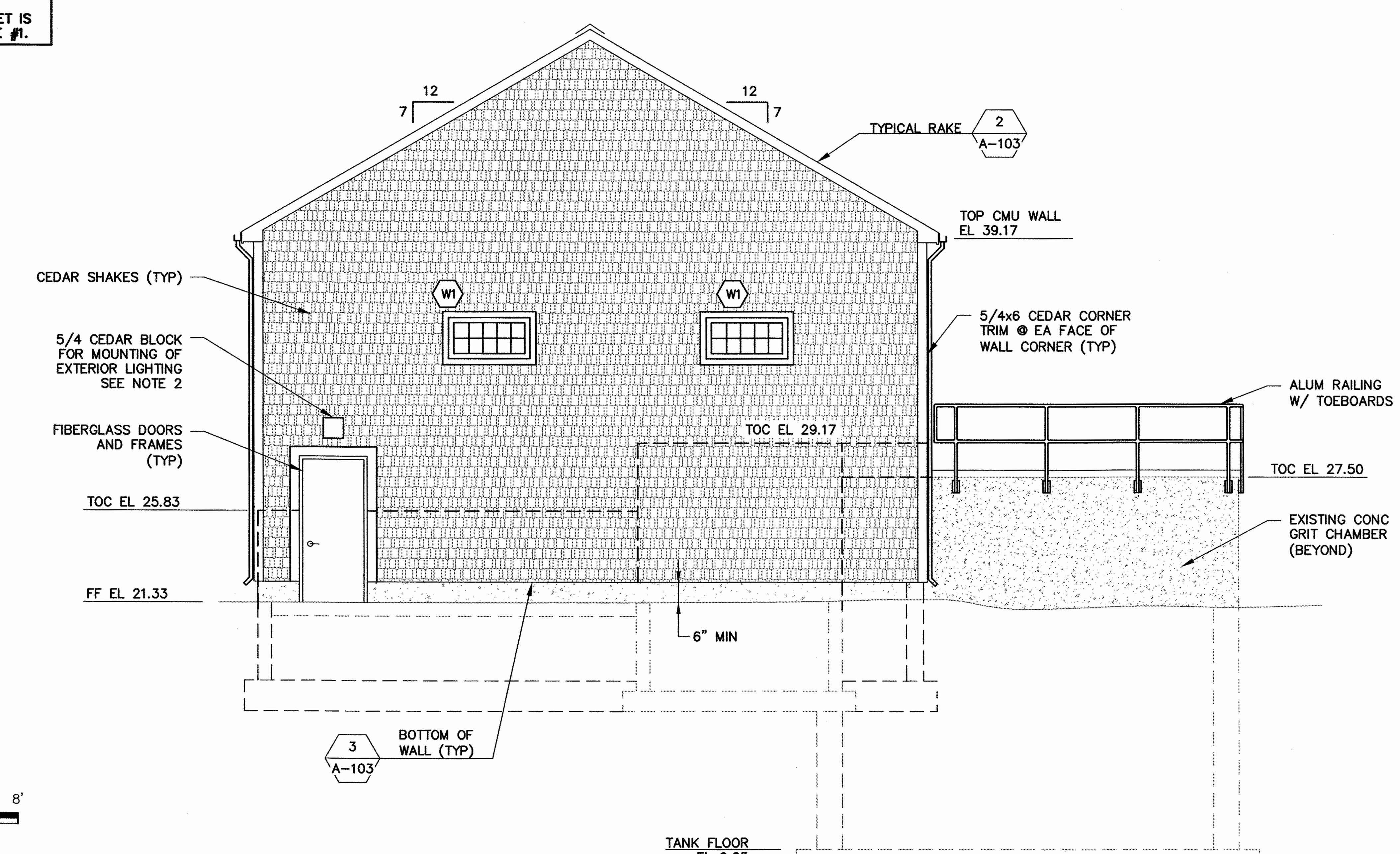


EAST ELEVATION

SCALE: 3/16" = 1'–0"

6' 4' 2' 0 4' 8'

BAR SCALE
3/16" = 1'–0"
CHECK GRAPHIC SCALE BEFORE USING



WEST ELEVATION

SCALE: 3/16" = 1'–0"

ISSUED FOR BID

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COMMITMENT & INTEGRITY DRIVE RESULTS

COMMONWEALTH OF MASSACHUSETTS — JAMES P. SHANNON — STRUCTURAL No. 43088 — REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE

DESIGNED BY: JPS | CHECKED BY: JPS
DRAWN BY: DMB | 22912300-A-101.dwg

BID ALTERNATE #1
HEADWORKS BUILDING
ARCHITECTURAL ELEVATIONS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 10 OF 116

A-101

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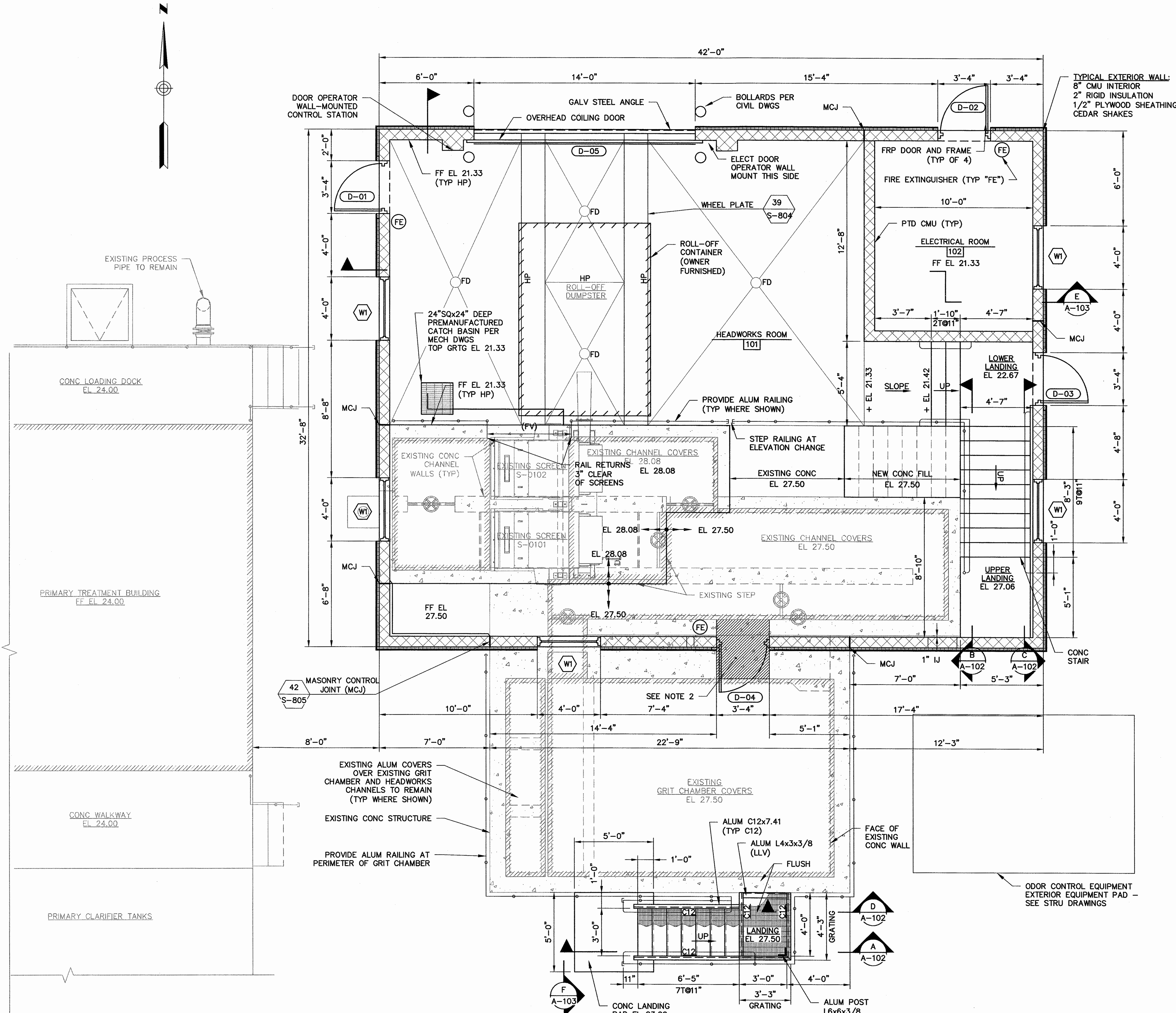
22x34 SHEET
1:1



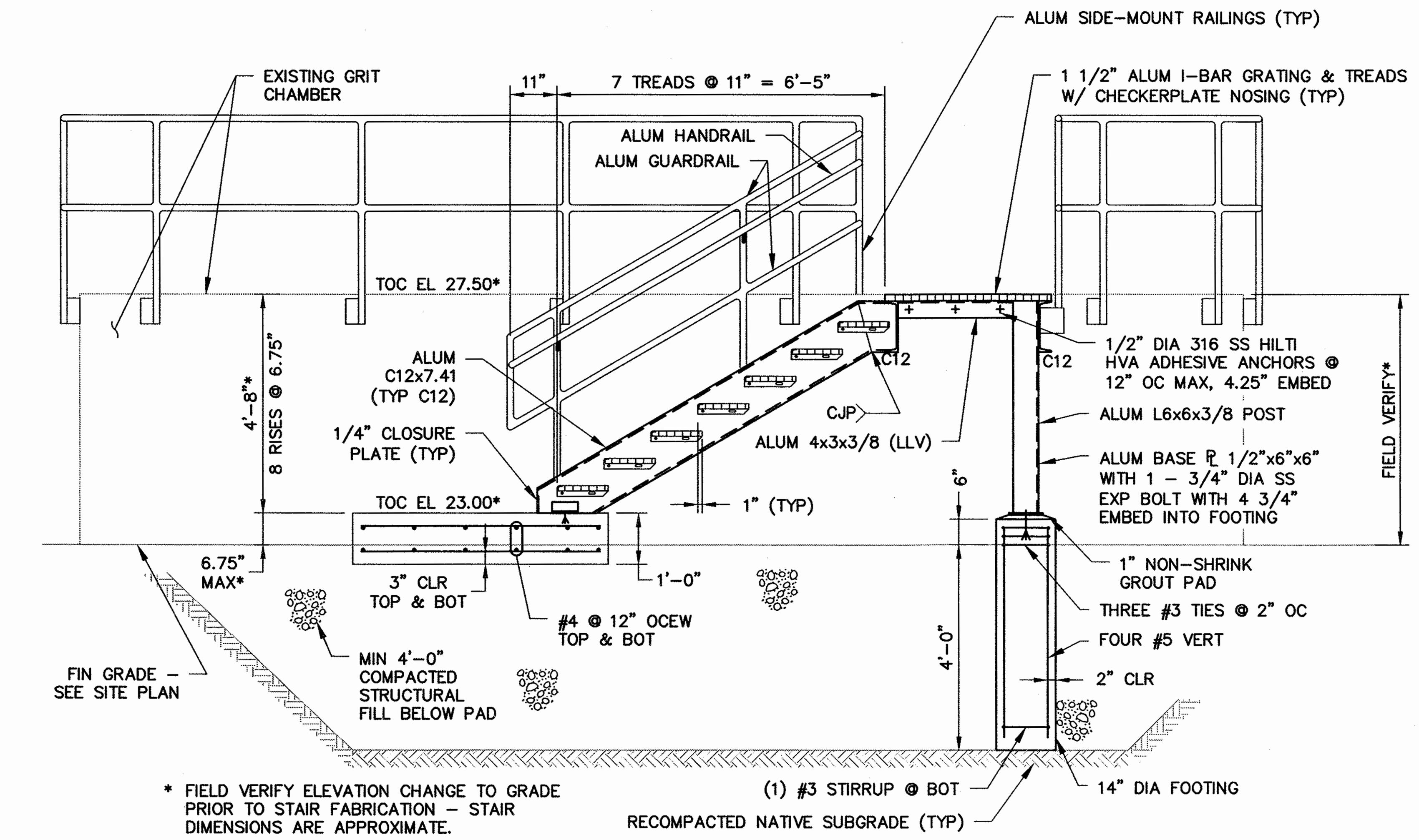
HEADWORKS BUILDING – ARCHITECTURAL FLOOR PLAN

SCALE: 1/4" = 1'-0"

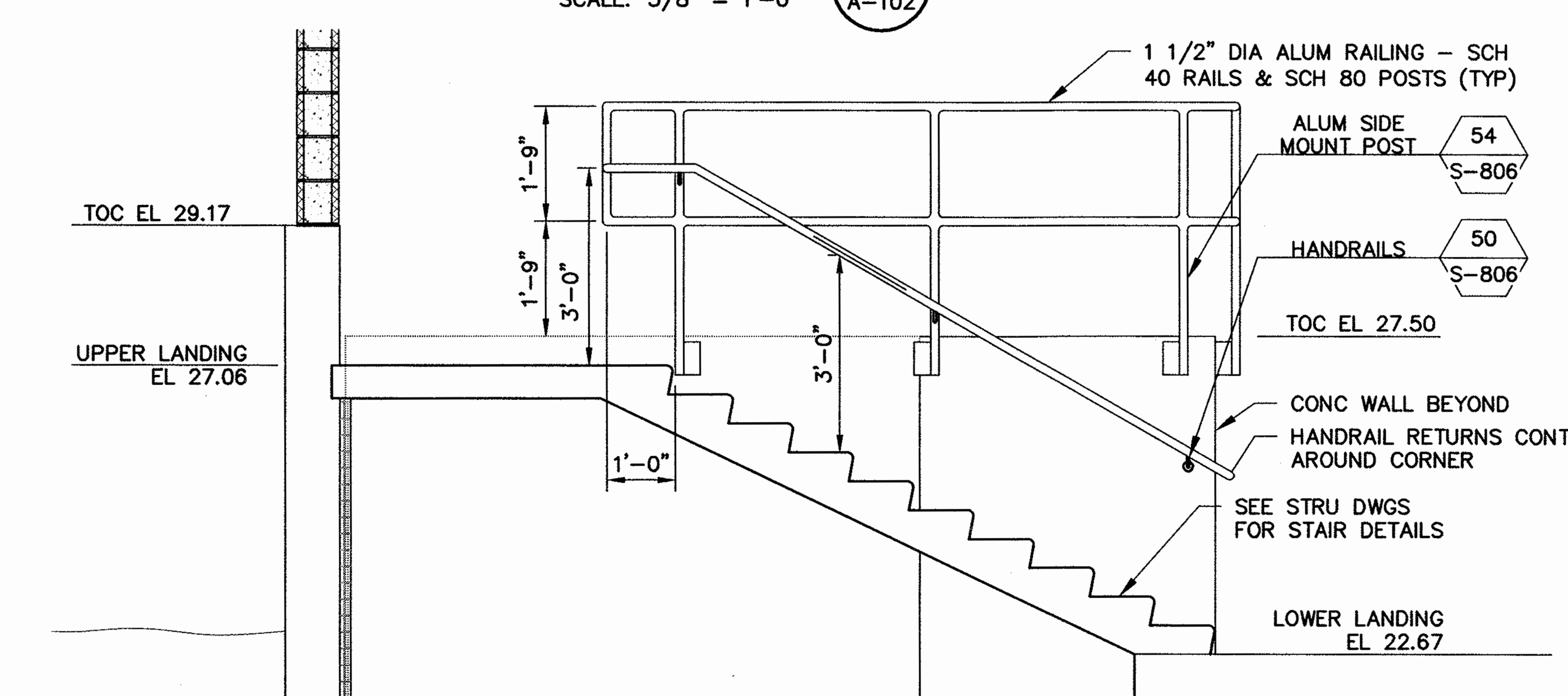
NOTES:

1. REFER TO STRUCTURAL DRAWINGS FOR FURTHER INFORMATION.
2. PROVIDE ALUMINUM COVER PLATE ON CONCRETE THROUGH DOORWAY OF DEPTH AND MATERIAL TO MATCH EXISTING. NEW COVER PLATE SHALL INFILL BETWEEN EXISTING COVERS OVER SCREEN CHANNEL AND GRIT CHAMBER. INSTALLATION SHALL RESULT IN FLUSH WALKING SURFACES THROUGH DOORWAYS WITH NO TRIP HAZARDS. DOOR BOTTOM SHALL BE TRIMMED AS REQUIRED TO FIT COVER PLATE THICKNESS.
3. ALUMINUM RAILINGS: PROVIDE ALUMINUM RAILINGS AT PERIMETER OF ALL UNPROTECTED AREAS FOR HEADWORKS CHANNELS AND GRIT CHAMBER, AND ALONG NEW STAIR. LIMITS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO FABRICATION.
4. WALL PATCHING: FILL/PATCH (W/ NON-SHRINK GROUT) ALL HOLES/DEFECTS IN EXISTING EXPOSED-TO-VIEW EXTERIOR FACES OF CONCRETE SCREEN/GRIT STRUCTURES.

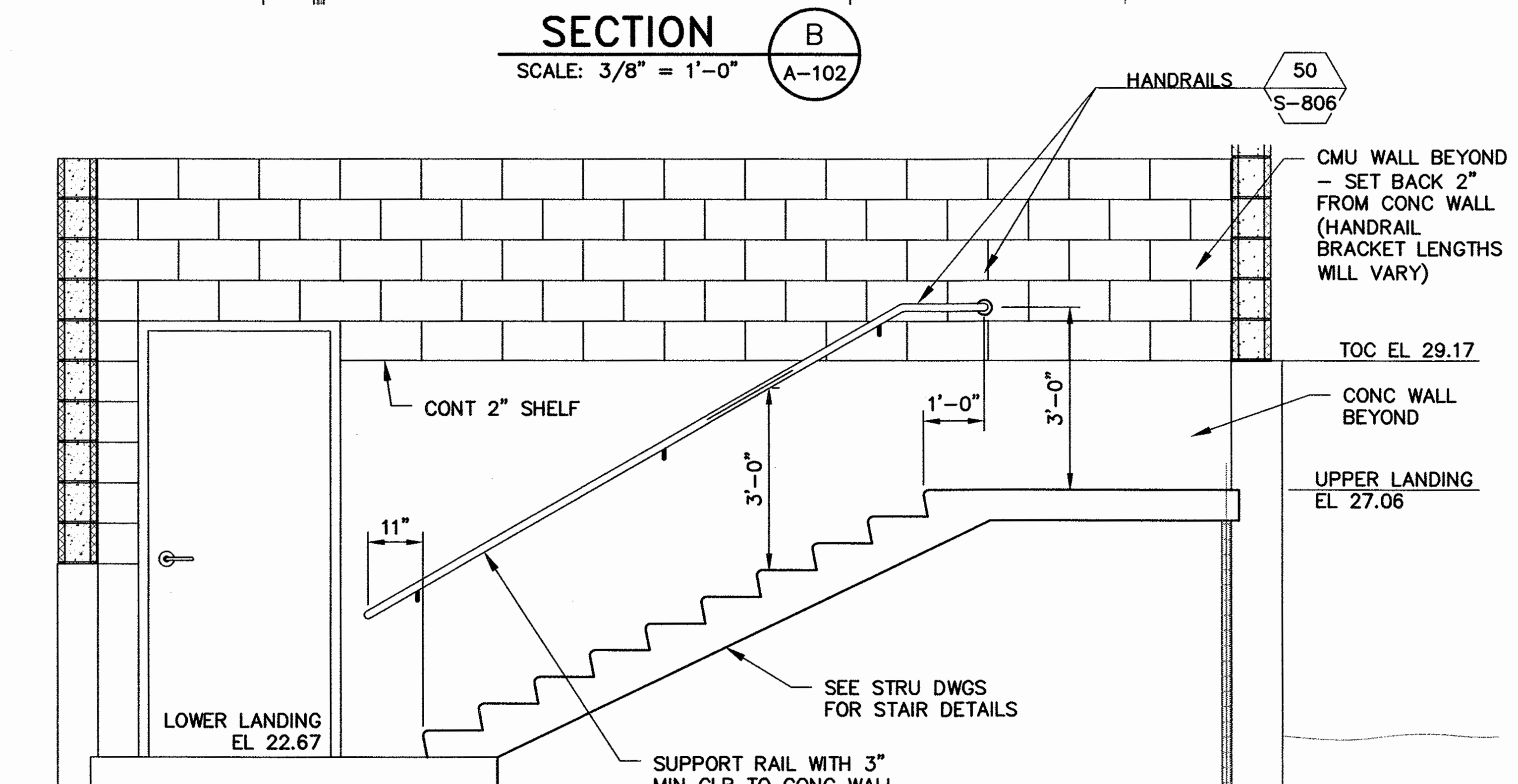
NOTE:
ALL WORK ON THIS SHEET IS PART OF BID ALTERNATE #1.



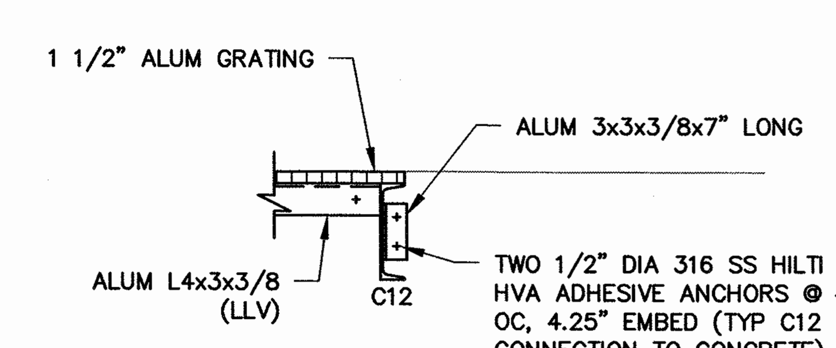
SECTION A (A-102)
SCALE: 3/8" = 1'-0"



SECTION B (A-102)
SCALE: 3/8" = 1'-0"



SECTION C (A-102)
SCALE: 3/8" = 1'-0"



SECTION D (A-102)
SCALE: 1/2" = 1'-0"

BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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BID ALTERNATE #1
HEADWORKS BUILDING
ARCHITECTURAL
FLOOR PLAN & NOTES

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

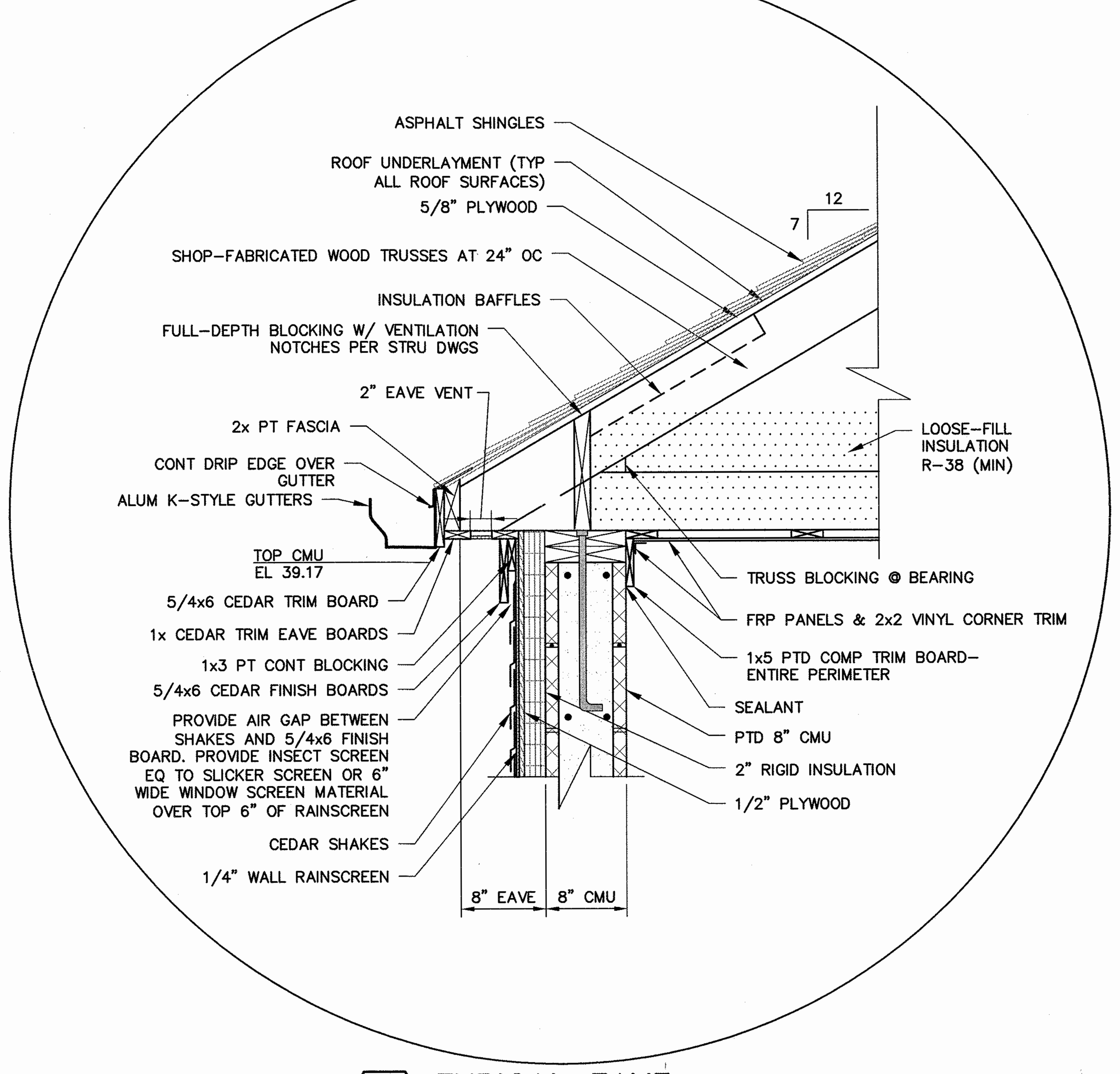
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

REV	DESCRIPTION	DATE
DESIGNED BY: JPS	CHECKED BY: JPS	
DRAWN BY: DMB	22912300-A-102.dwg	

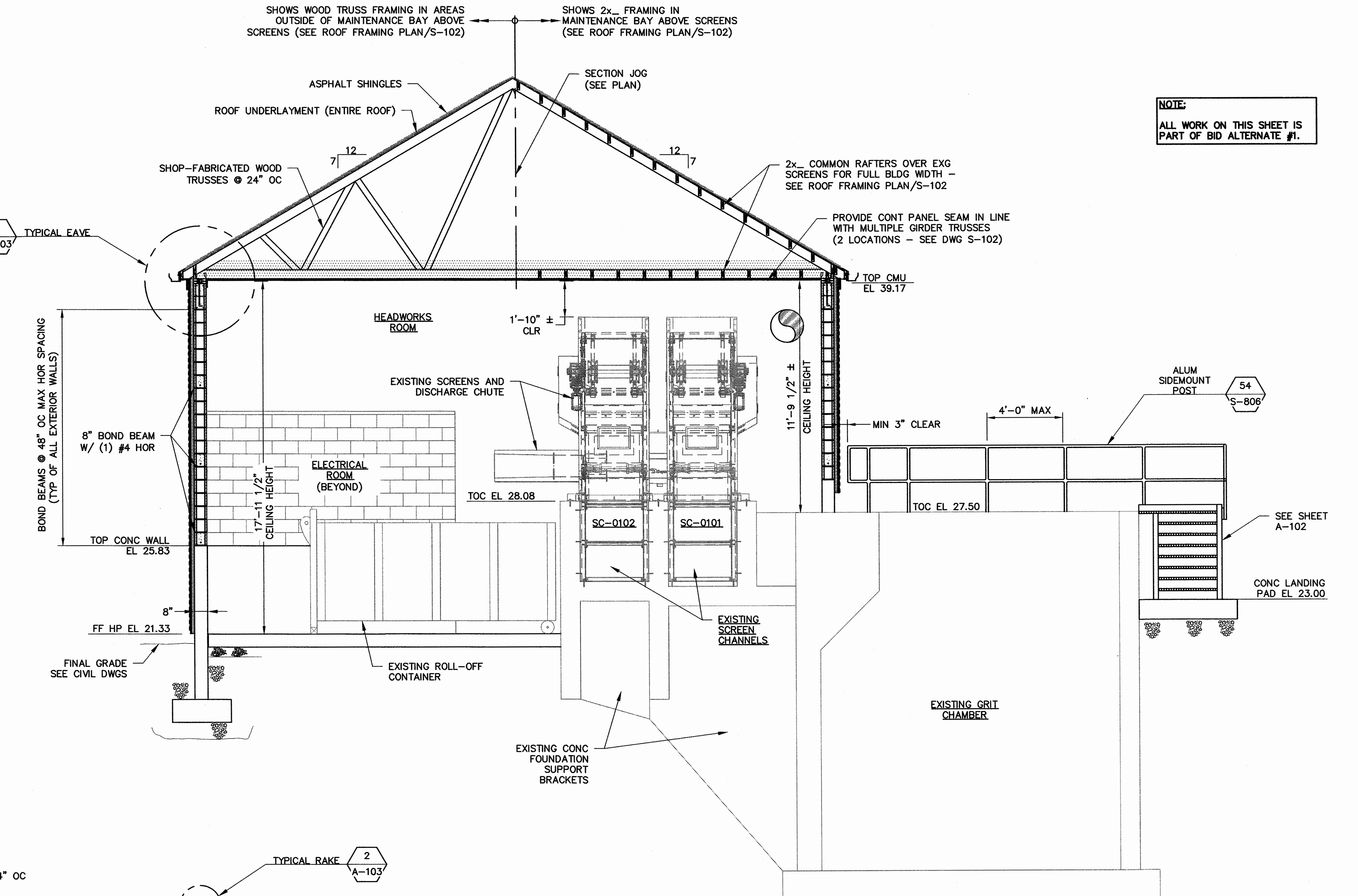
JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 11 OF 116

A-102

22x34 SHEET
1:1

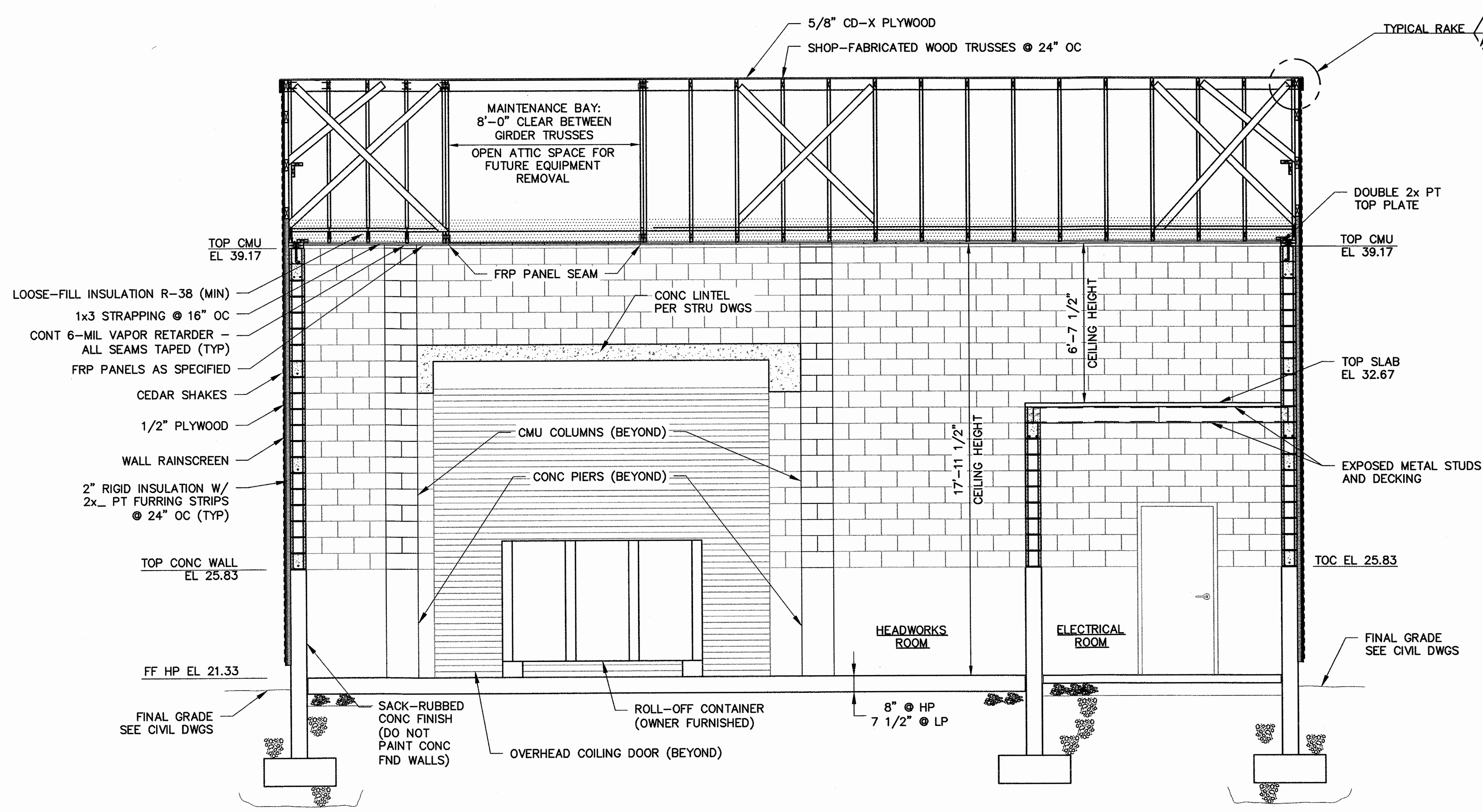


1 TYPICAL EAVE (A-101 / A-103)
SCALE: 1" = 1'-0"



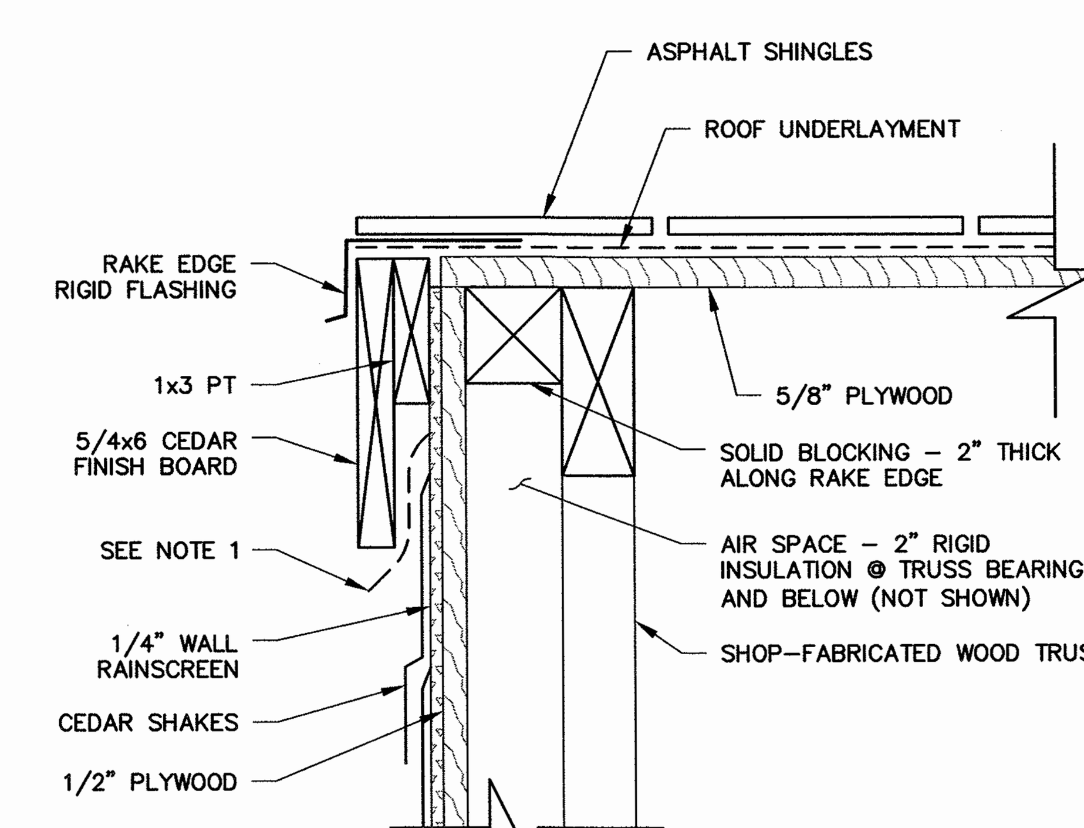
SECTION F (A-102)
SCALE: 1/4" = 1'-0"

NOTE:
ALL WORK ON THIS SHEET IS PART OF BID ALTERNATE #1.



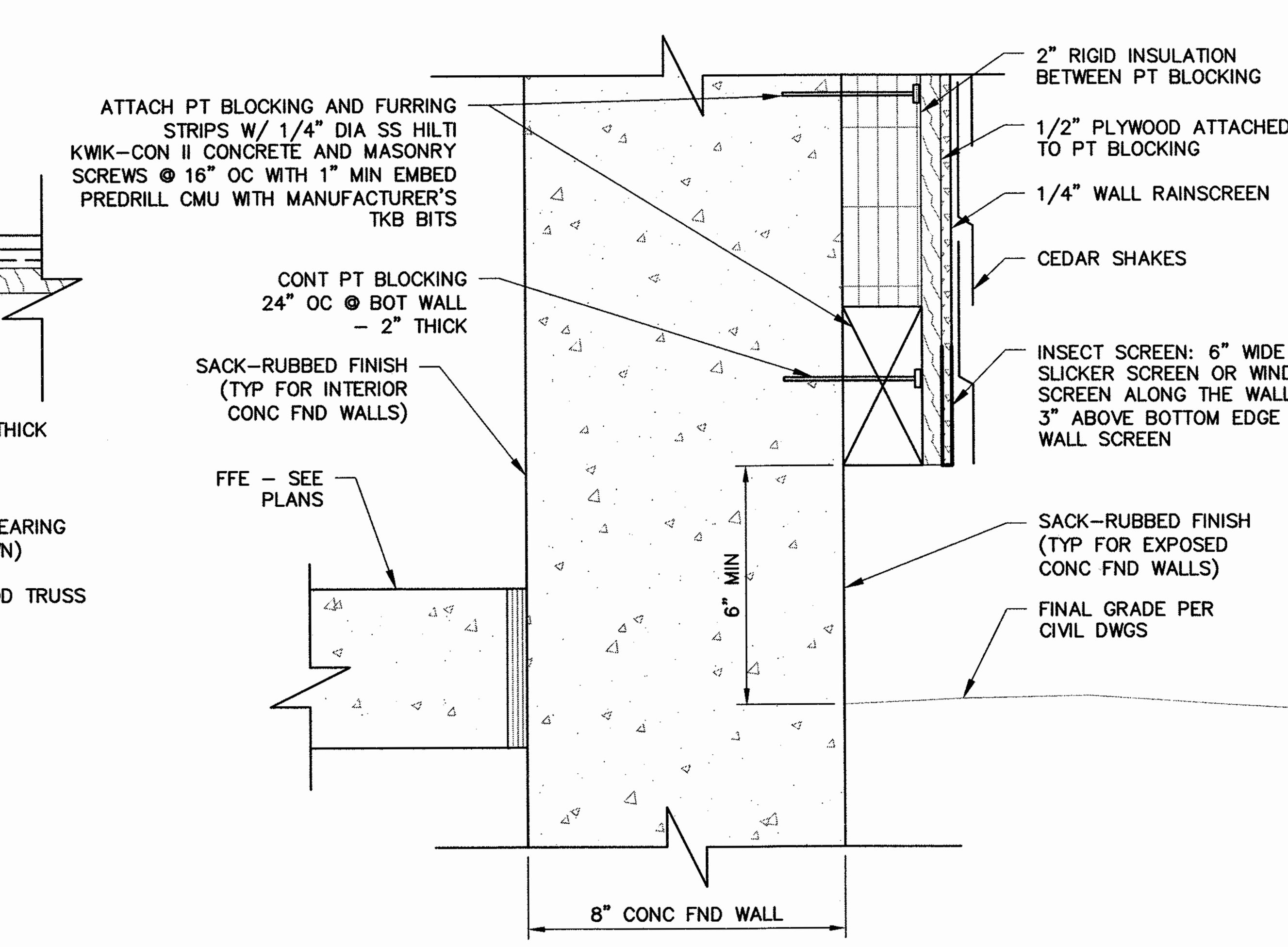
SECTION E (A-102)
SCALE: 1/4" = 1'-0"

6' 4' 2' 0 4' 8'
BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING



NOTE:
1. PROVIDE AIR GAP BETWEEN SHAKES AND 5/4x6 FINISH BOARD WITH INSECT SCREEN EQUAL TO SLICKER SCREEN OR 6" WIDE WINDOW SCREEN MATERIAL OVER TOP 6" OF RAINSCREEN.

2 TYPICAL RAKE (A-101 / A-103)
SCALE: 3" = 1'-0"



3 BOTTOM OF WALL (A-101 / A-103)
SCALE: 3" = 1'-0"

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BID ALTERNATE #1
HEADWORKS BUILDING
ARCHITECTURAL SECTIONS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 12 OF 116

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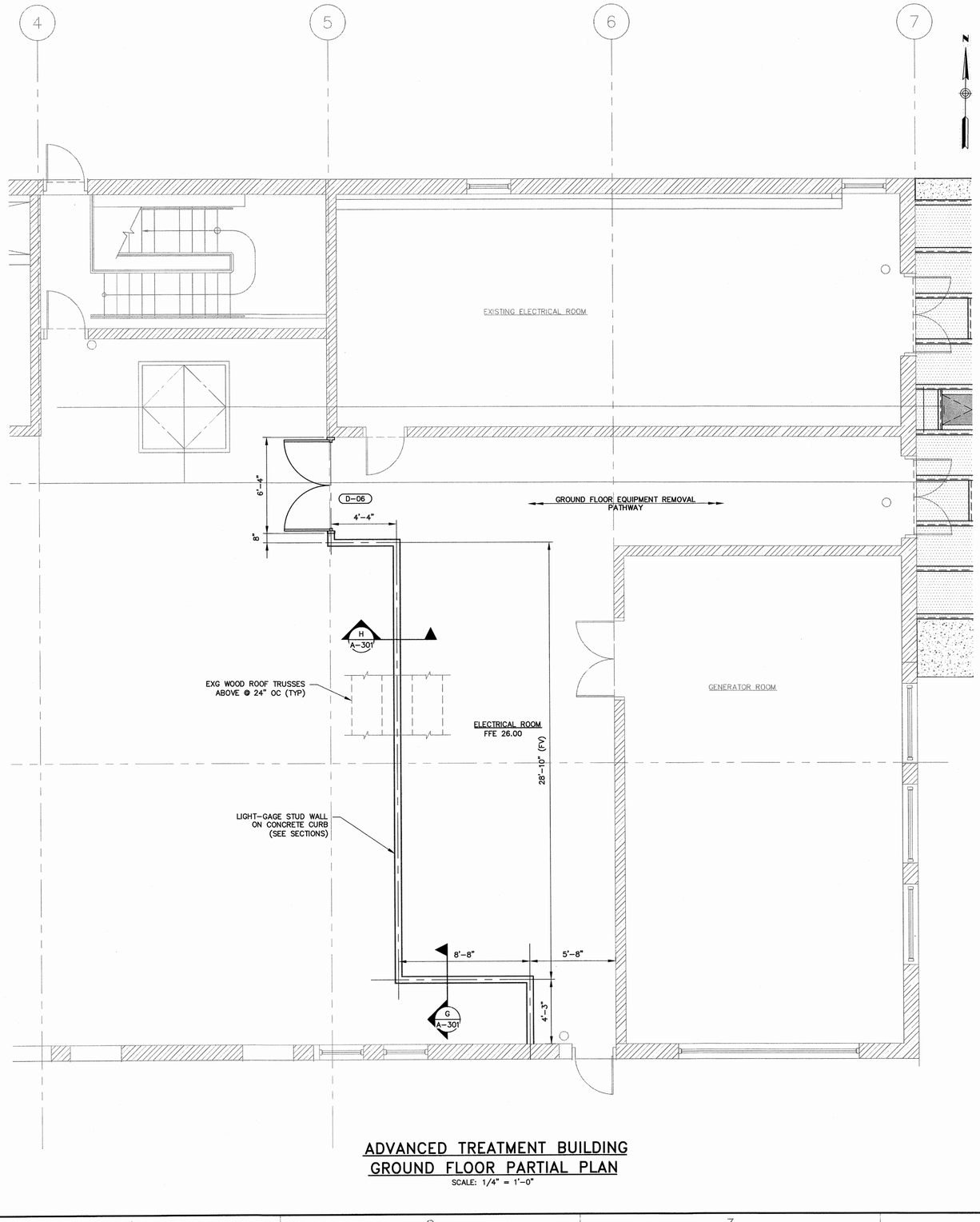
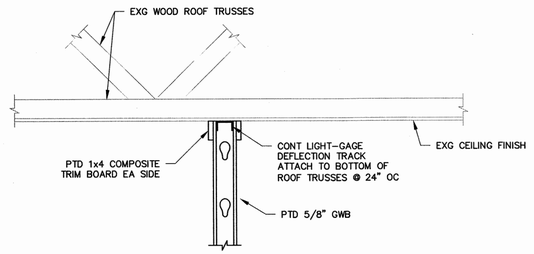
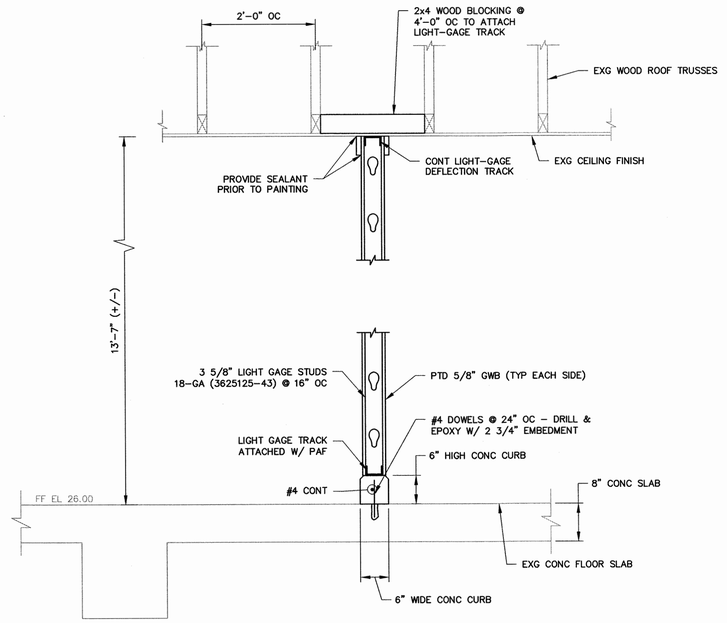
A-103



ADVANCED TREATMENT BUILDING
GROUND FLOOR PARTIAL PLAN
SCALE: 1/4" = 1'-0"



TYPICAL WALL SECTION (G / A-301)
SCALE: 3/4" = 1'-0"



TYPICAL WALL SECTION (H / A-301)
SCALE: 3/4" = 1'-0"

6' 4' 2' 0 4' 8'

BAR SCALE
1/4" = 1'-0"
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COMMONWEALTH OF MASSACHUSETTS — JAMES P. CROSS — PROFESSIONAL ENGINEER — No. 43268 — REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE
DESIGNED BY: SMH	CHECKED BY: JPS	
DRAWN BY: DMB	229123\300-A-301.dwg	

ADVANCED TREATMENT BUILDING
ELECTRICAL ROOM PLAN AND SECTIONS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 13 OF 116

A-301

22x34 SHEET
1:1

DOOR SCHEDULE												
DOOR #	ROOM NAME	DOORS				FRAME		HDW SET	DETAILS			REMARKS
		TYPE	WIDTH	HEIGHT	MATL	TYPE	MATL		HEAD	JAMB	SILL	
HEADWORKS BUILDING												
D-01	HEADWORKS	D1	3'-0"	7'-0"	FRP	F1	FRP	1	H-1	J-1	S-1	
D-02	ELECTRICAL ROOM	D1	3'-0"	7'-0"	FRP	F1	FRP	1	H-1	J-1	S-1	
D-03	HEADWORKS	D1	3'-0"	7'-0"	FRP	F1	FRP	1	H-1	J-1	S-1	
D-04	HEADWORKS	D1	3'-0"	7'-0"	FRP	F1	FRP	1	H-1	J-1	S-1	
D-05	HEADWORKS	D2	14'-0"	11'-10"	ALUM	–	–	–	–	–	–	
ADVANCED TREATMENT BUILDING												
D-06	ELECTRICAL ROOM	D3	(2) 3'-0"	(2) 7'-0"	FRP	F2	FRP	2	H-2	J-2	S-1	

DOOR SCHEDULE NOTES:

1. THE SPECIFIED DOOR AND HARDWARE SETS SHALL BE FIELD VERIFIED FOR EACH OPENING PRIOR TO SUBMITTAL PREPARATION AND MATERIAL SHIPMENT. COORDINATE ALL KEYING REQUIREMENTS WITH OWNER.
2. EXTERIOR DOORS AND PENETRATIONS SHALL HAVE WEATHER STRIPPING, AS SPECIFIED AND AS RECOMMENDED BY THE DOOR SUPPLIER. ALL EXTERIOR DOORS SHALL BE INSULATED.
3. ALL DOOR HARDWARE AND ACCESSORIES SHALL MEET ALL APPLICABLE CODE REQUIREMENTS FOR HANDICAP ACCESSIBILITY.

DOOR HARDWARE SCHEDULE							
HARDWARE SET #	HINGES (S.S.)	LOCKSET (S.S.)	WEATHER STRIPPING	DOOR SWEEP	THRES HOLD	KICK PLATES	KICK DOWN DOOR HOLDER
1	3	MORTISE	X	X	X	X	X
2	6	MORTISE				X	X

DOOR HARDWARE SCHEDULE NOTES:

1. PROVIDE ALL HARDWARE DENOTED BY 'X'.
2. PROVIDE MARINE GRADE HARDWARE PER SPECIFICATION 08 71 00.

NOTE:
ALL WORK ON THIS SHEET ASSOCIATED WITH THE HEADWORKS BUILDING IS PART OF BID ALTERNATE #1.

ROOM FINISH SCHEDULE								
ROOM #	ROOM NAME	WALL FINISH				CEILING	FLOOR	REMARKS
		NORTH	SOUTH	EAST	WEST			
HEADWORKS BUILDING								
101	HEADWORKS	PTD CMU SACK-RUBBED FINISH	PTD CMU SACK-RUBBED FINISH	PTD CMU SACK-RUBBED FINISH	PTD CMU SACK-RUBBED FINISH	FRP	FLOOR HARDENER	
102	ELECTRICAL ROOM	PTD CMU SACK-RUBBED CONC FINISH	PTD CMU SACK-RUBBED CONC FINISH	PTD CMU SACK-RUBBED CONC FINISH	PTD CMU SACK-RUBBED CONC FINISH	GALV MTL	FLOOR HARDENER	
ADVANCED TREATMENT BUILDING								
401	ELECTRICAL ROOM	PTD GWB	PTD GWB	PTD GWB	PTD GWB	EXG	EXG	

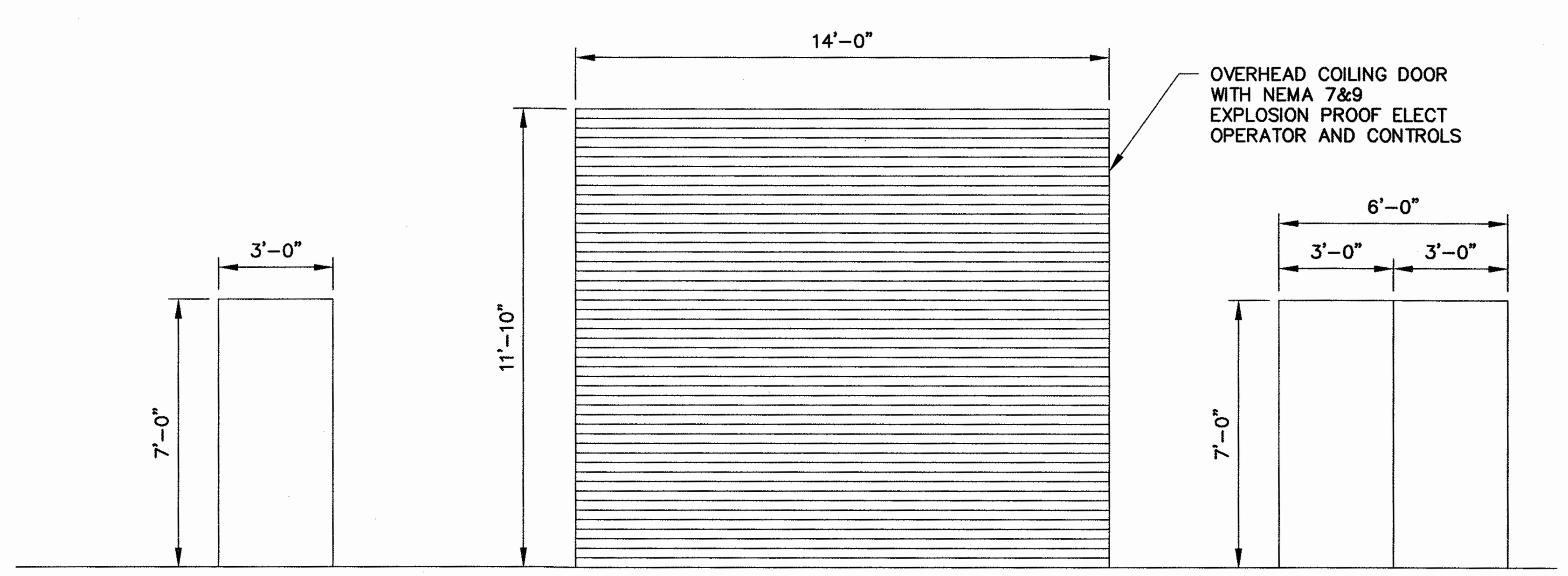
ROOM FINISH SCHEDULE NOTES:

1. ALL PREVIOUSLY-PAINTED OR NEW METAL ITEMS (INCLUDING BUT NOT LIMITED TO: BOLLARDS, PIPING, VALVES, CONDUIT, SUPPORTS, ETC.) SHALL BE PAINTED AS SPECIFIED IN SECTION 09 90 00.
2. FRP DOORS ARE SHOP COATED.
3. SACK-RUBBED CONCRETE FINISH IS NOT REQUIRED FOR ANY EXISTING CONCRETE SURFACES.

COMPOSITE WINDOW SCHEDULE				
NO.	LOCATION	M.O. (W x H) FV	WINDOW TYPE	REMARKS
W1	HEADWORKS BUILDING	4'-0" x 2'-0"	FIXED	SEE NOTE 2

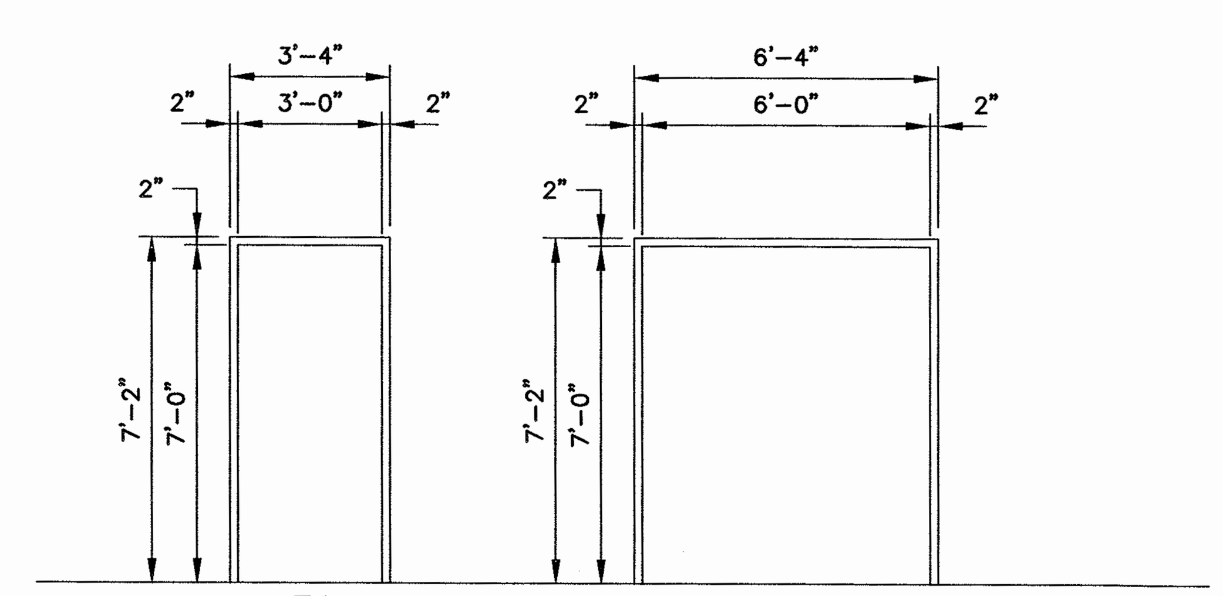
WINDOW SCHEDULE NOTES:

1. REFER TO SPECIFICATION SECTION 08 54 00 FOR FURTHER REQUIREMENTS.
2. SIZES INDICATED ARE CMU WALL OPENING – COORDINATE WINDOW FRAME DIMENSIONS WITH DETAILS SHOWN ON SHEET A-802



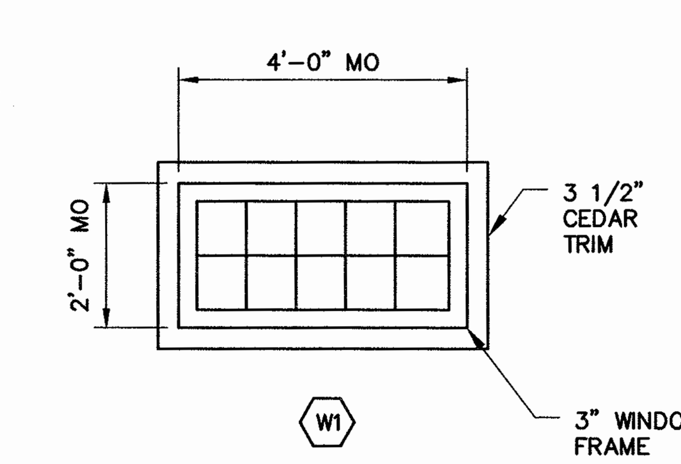
D1 D2 D3

DOOR TYPES



F1 F2

FRAME TYPES



WINDOW TYPES

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ARCHITECTURAL SCHEDULES & DETAILS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

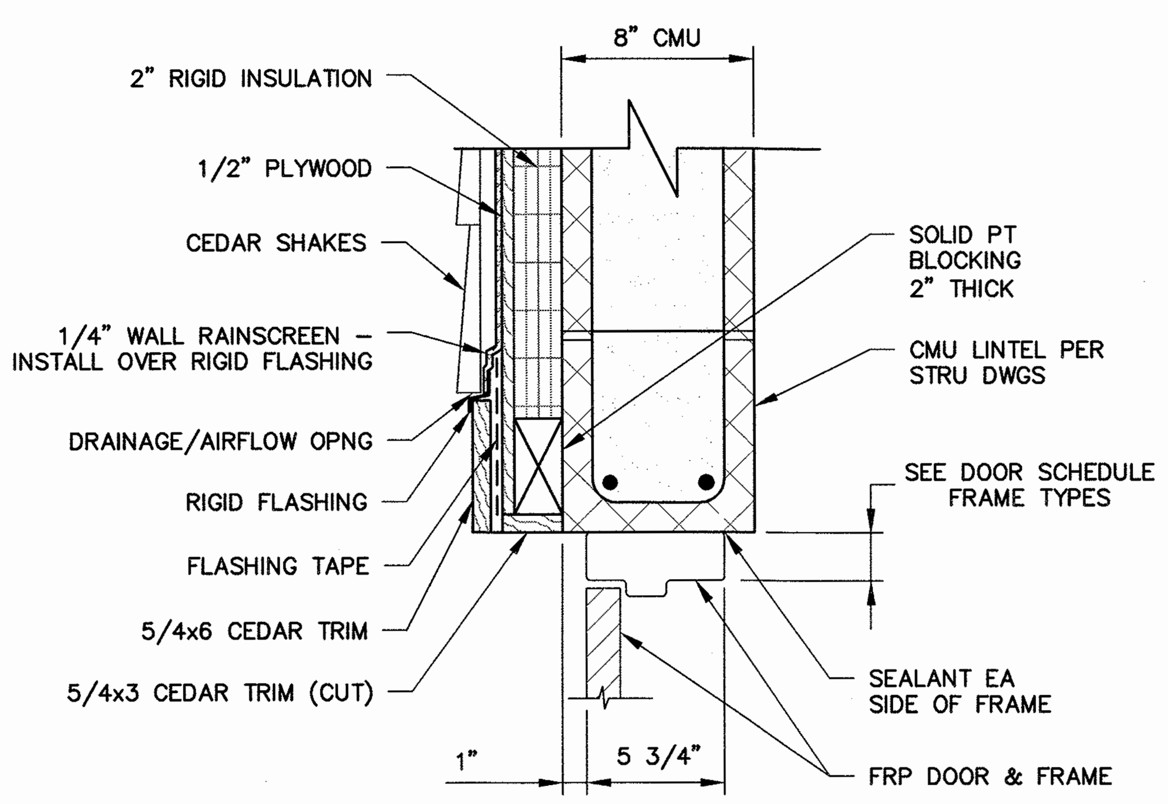
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 14 OF 116

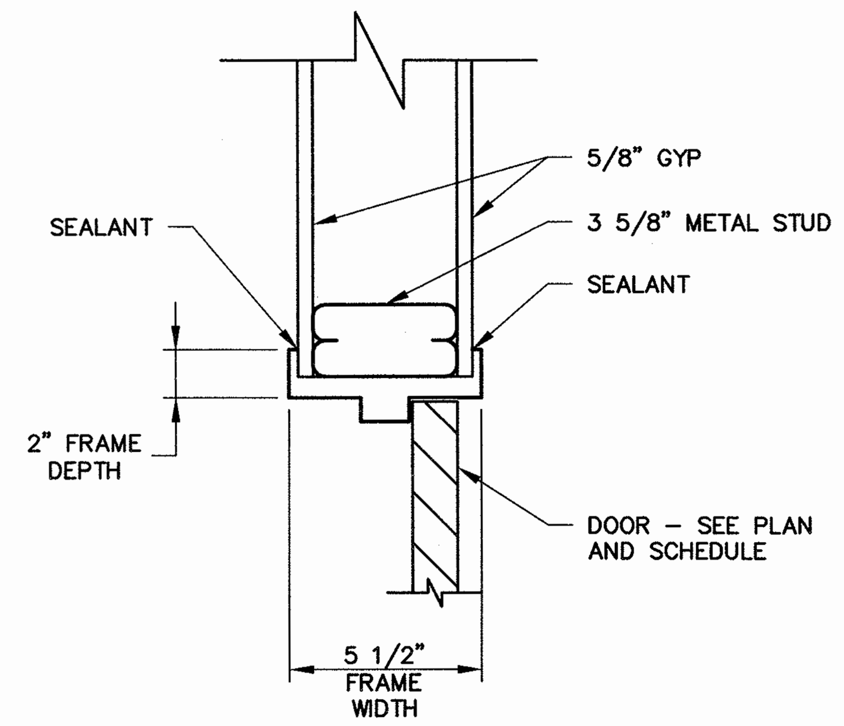
ISSUED FOR BID

A-801

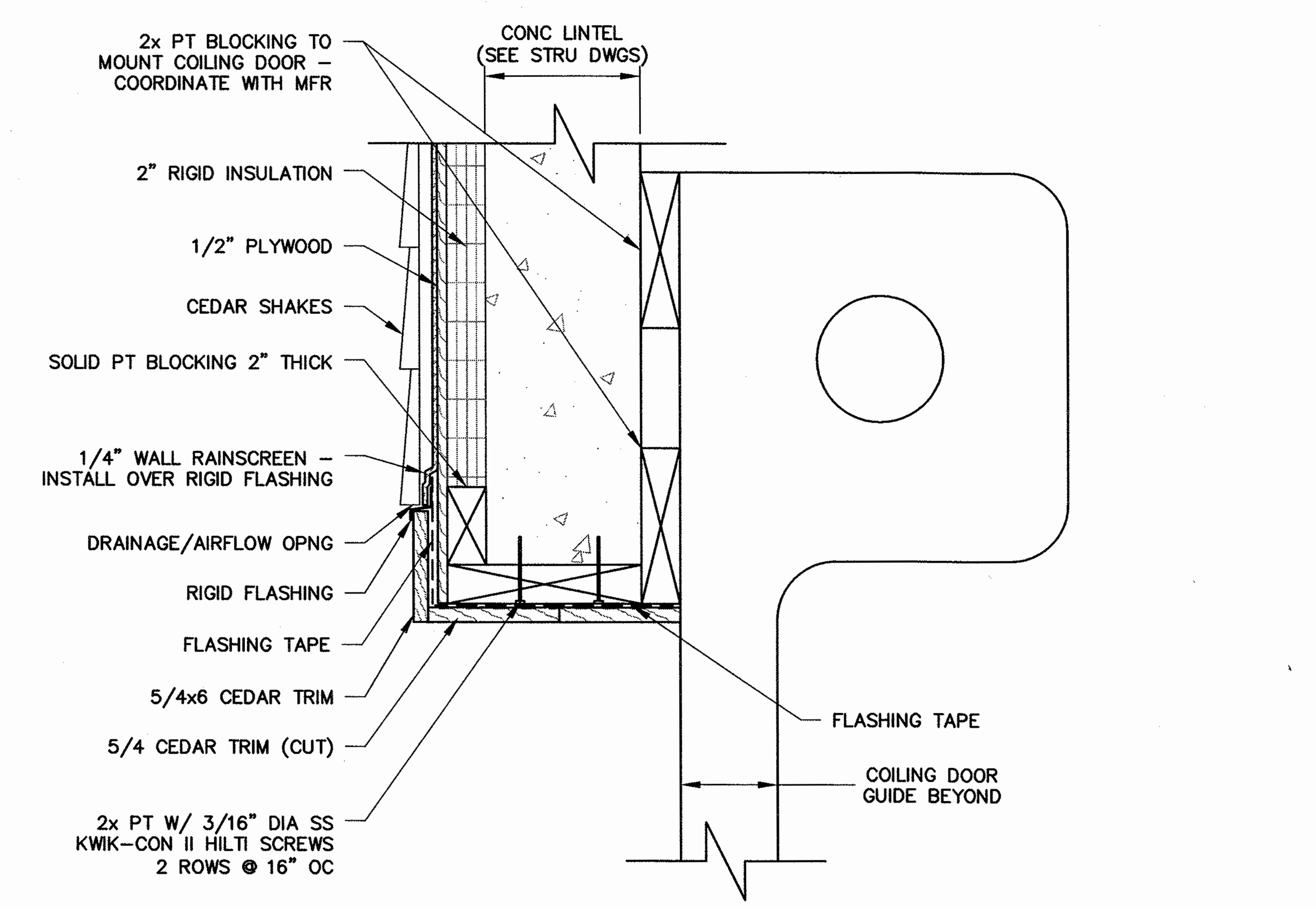
22x34 SHEET
1:1



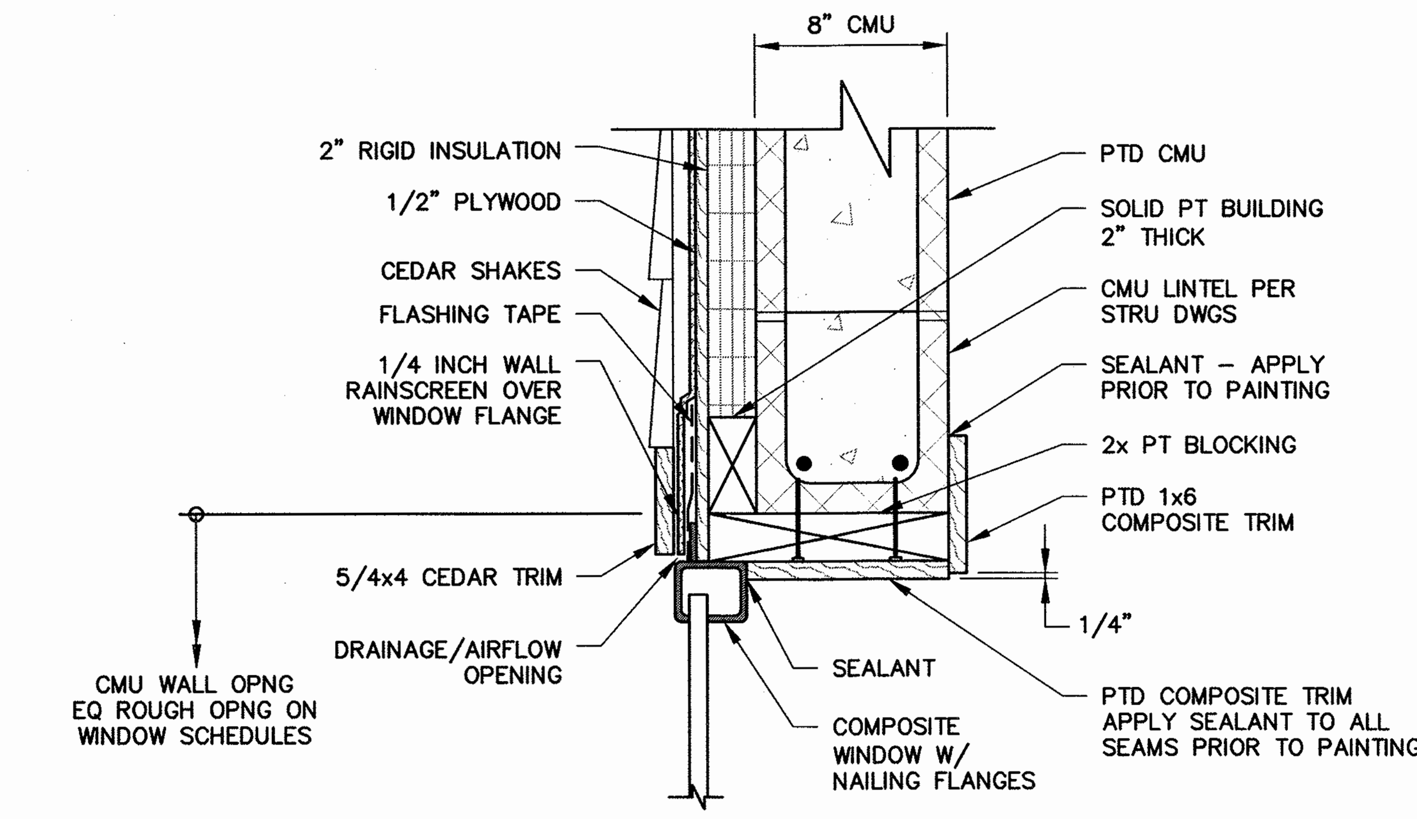
H-1 A-801 DOOR HEAD
SCALE: 1 1/2" = 1'-0"



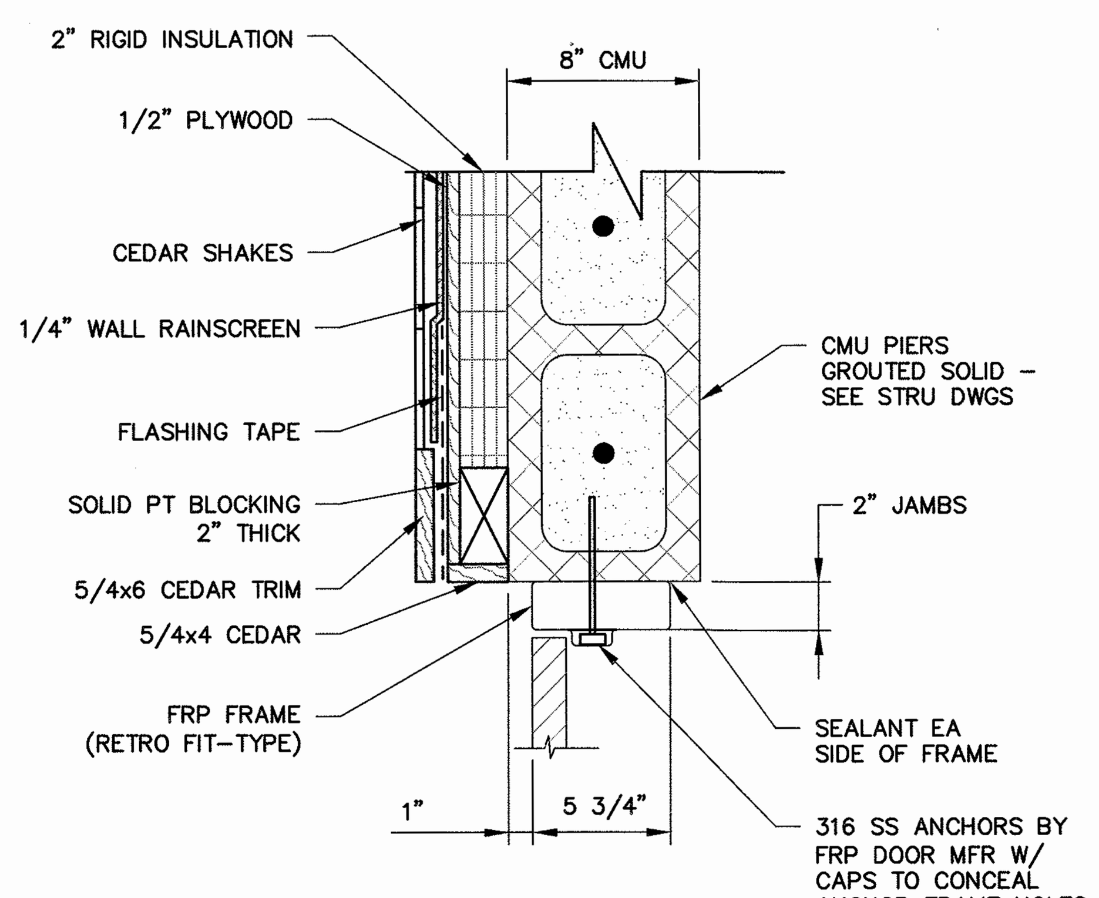
H-2 A-801 DOOR HEAD
SCALE: 1 1/2" = 1'-0"



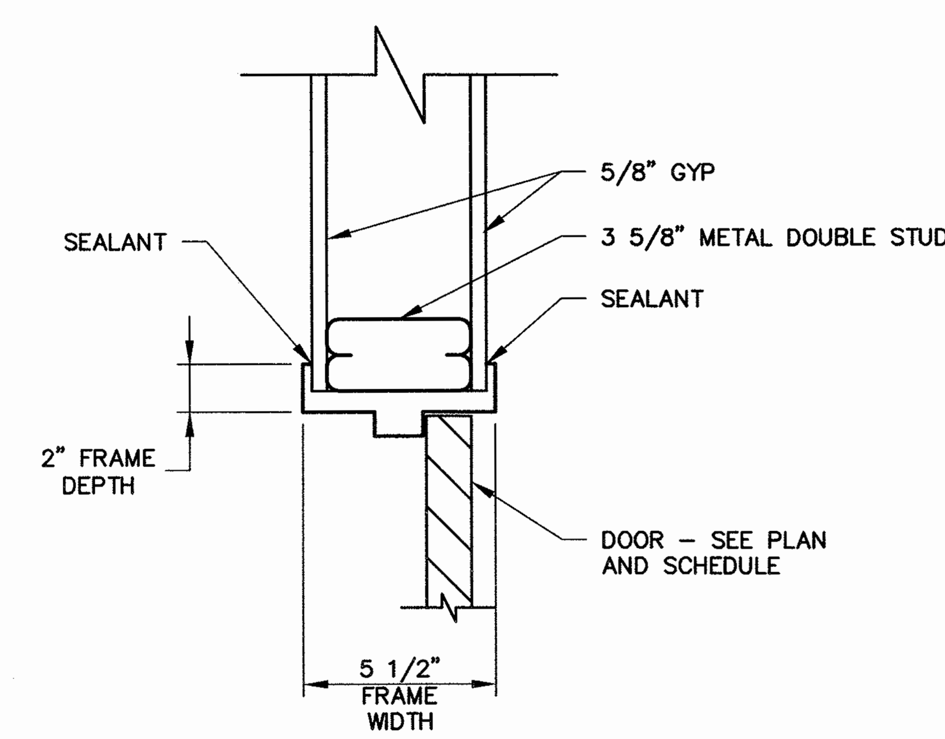
H-3 A-801 OVERHEAD COILING DOOR HEAD
SCALE: 1 1/2" = 1'-0"



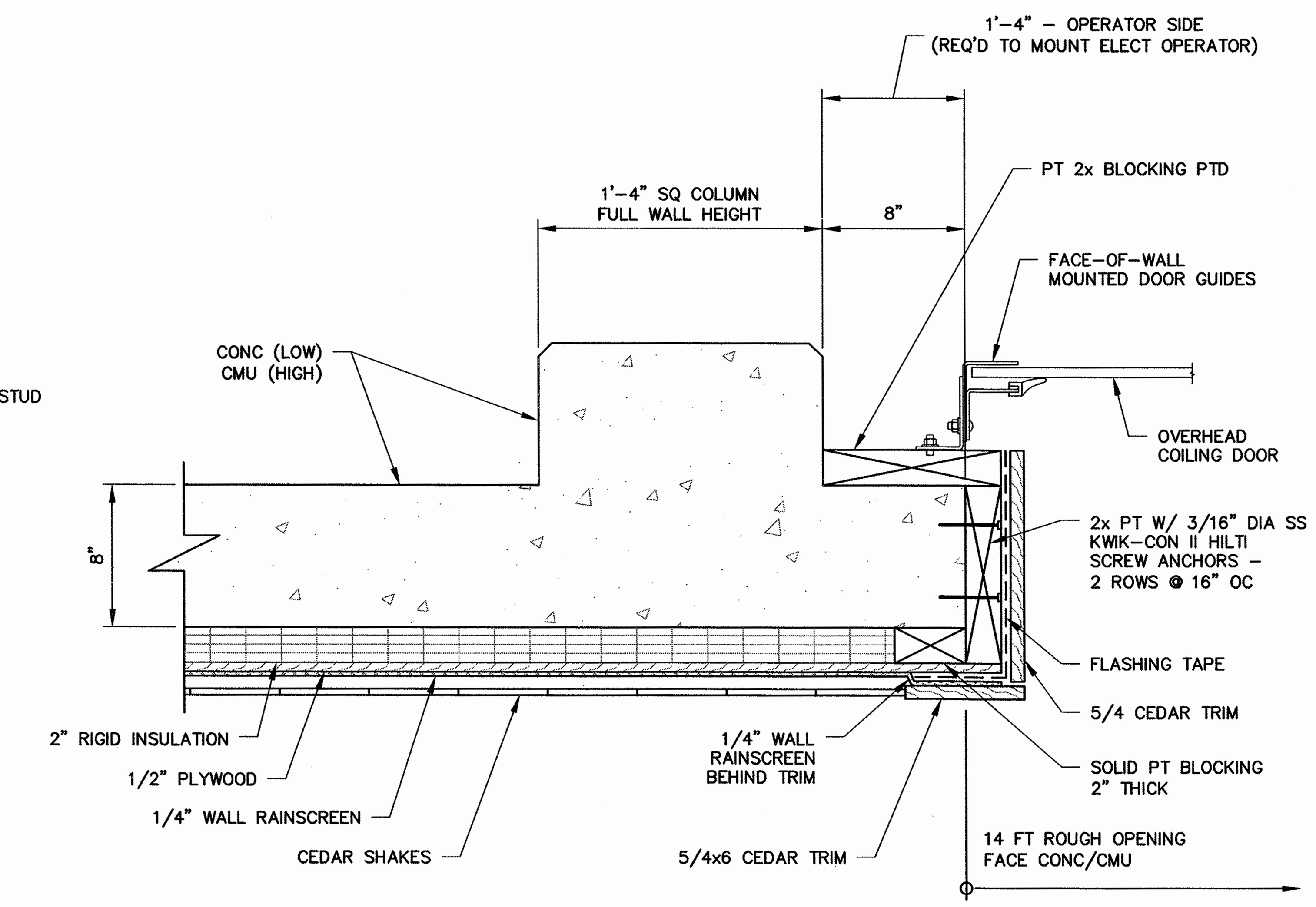
H-4 A-801 COMPOSITE WINDOW HEAD
SCALE: 1 1/2" = 1'-0"



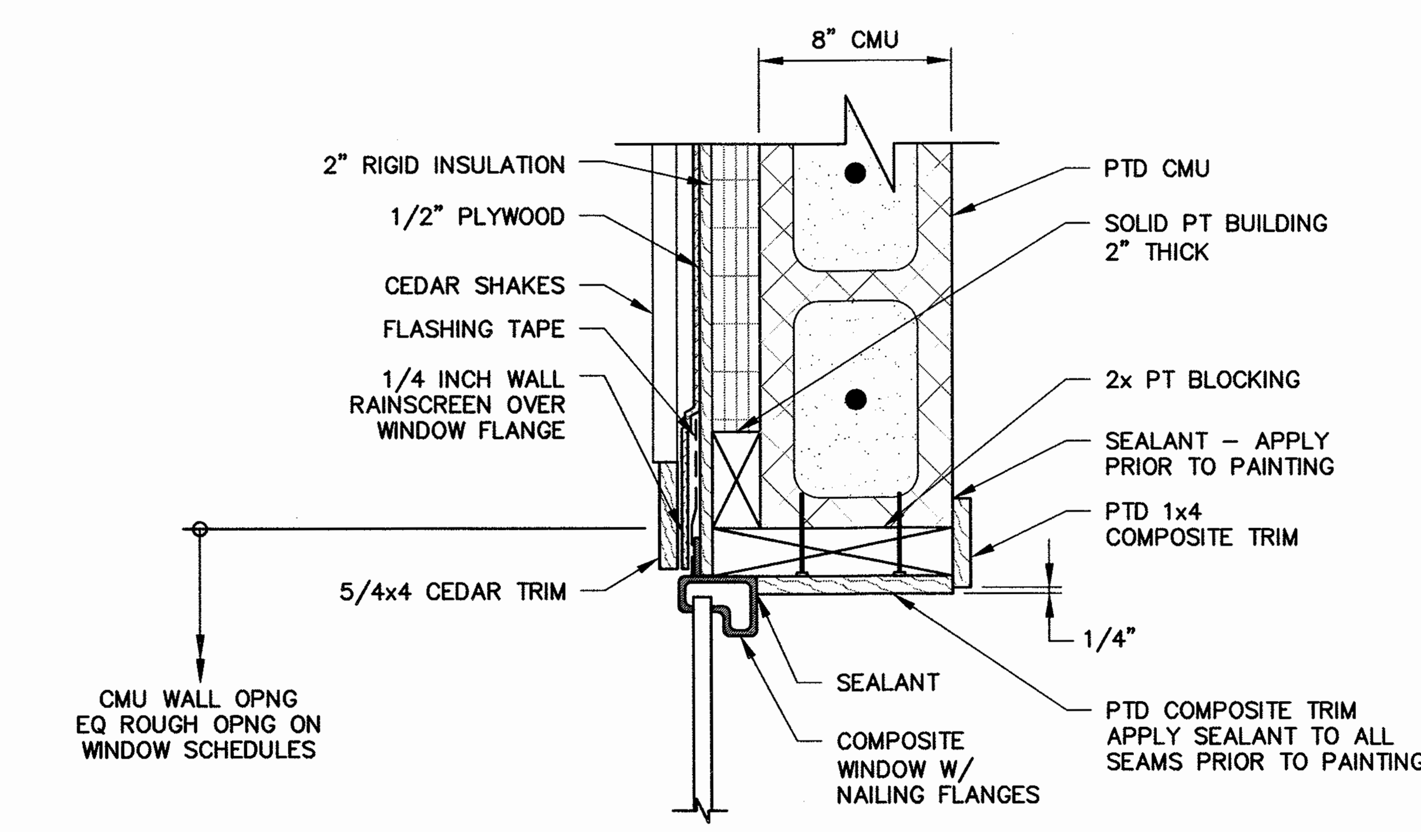
J-1 A-801 DOOR JAMB
SCALE: 1 1/2" = 1'-0"



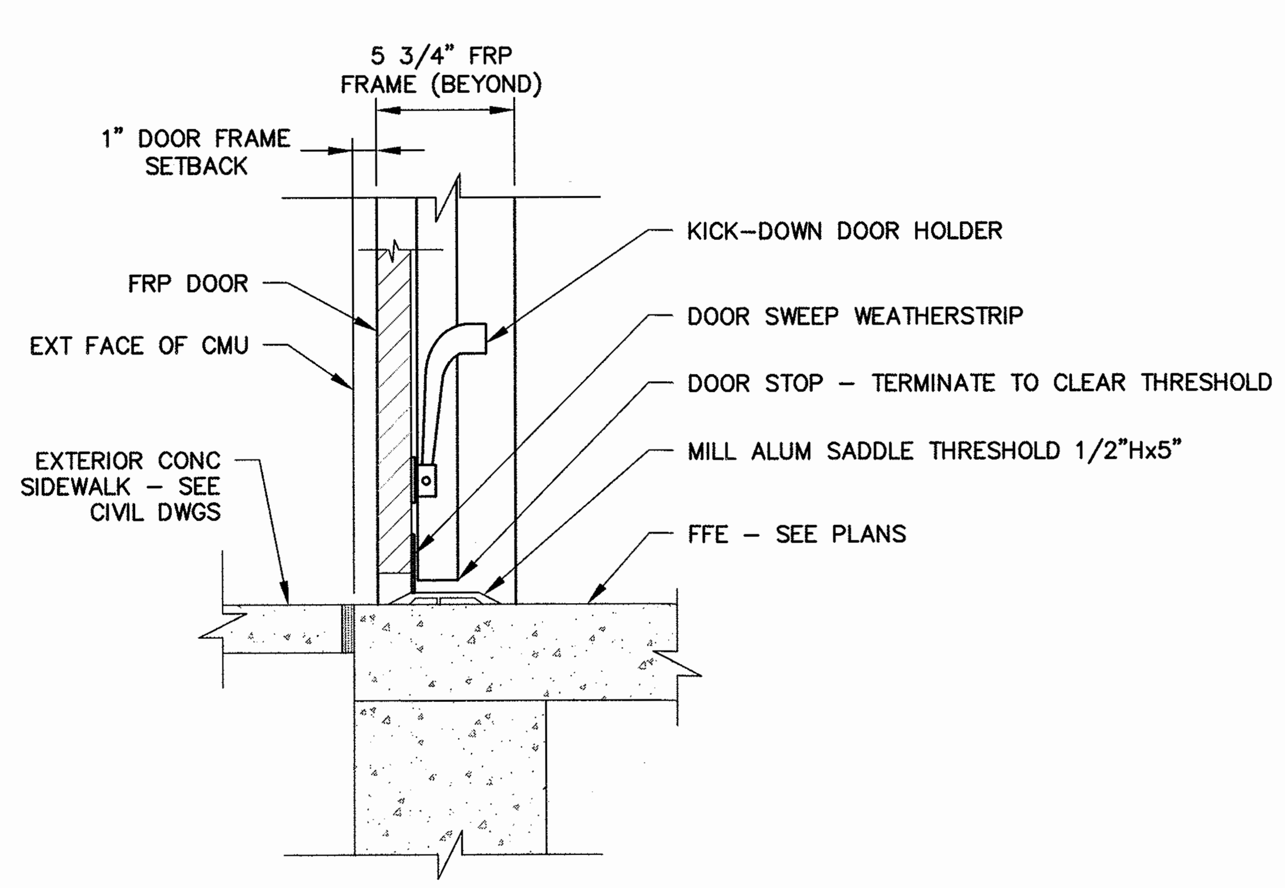
J-2 A-801 DOOR JAMB
SCALE: 1 1/2" = 1'-0"



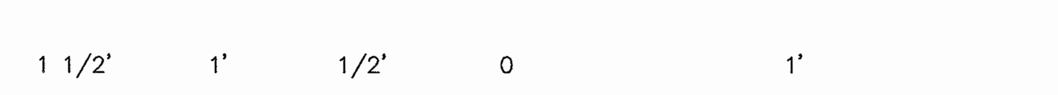
J-3 A-801 OVERHEAD COILING DOOR JAMB
SCALE: 1 1/2" = 1'-0"



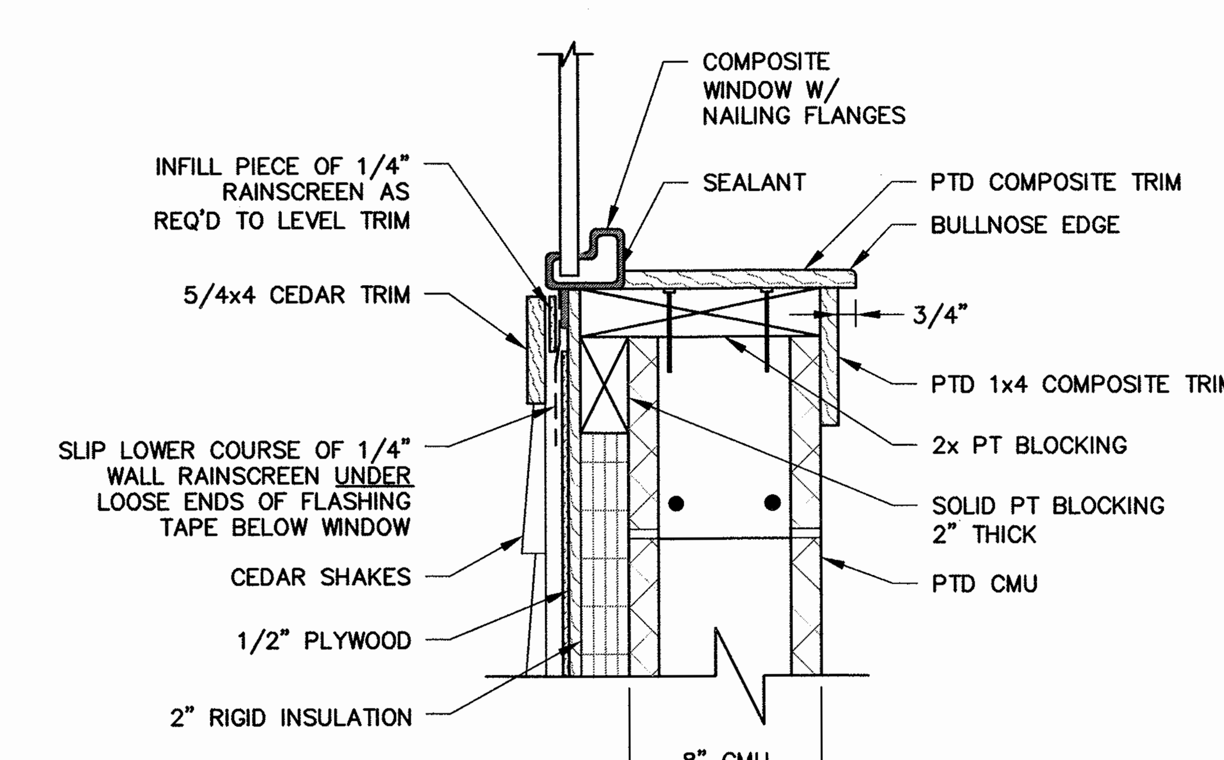
J-4 A-801 COMPOSITE WINDOW JAMB
SCALE: 1 1/2" = 1'-0"



S-1 A-801 EXTERIOR DOOR SILL
SCALE: 1 1/2" = 1'-0"



BAR SCALE
1 1/2" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING



S-4 A-801 COMPOSITE WINDOW SILL
SCALE: 1 1/2" = 1'-0"

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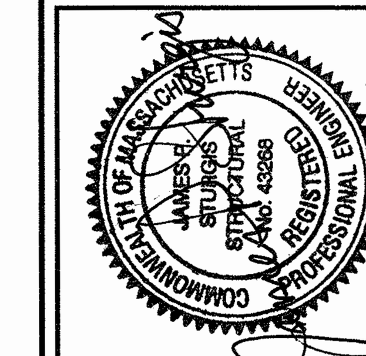

REV	DESCRIPTION	DATE

DESIGNED BY: JPS
CHECKED BY: JPS
DRAWN BY: DMB
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ARCHITECTURAL DETAILS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 15 OF 116

A-802

22x34 SHEET 1:1

STRUCTURAL NOTES AND DESIGN LOADS

A. GENERAL STRUCTURAL NOTES:

1. DESIGN IS IN ACCORDANCE WITH THE 8th EDITION 780 CMR MASSACHUSETTS STATE BUILDING CODE AND THE 2009 INTERNATIONAL BUILDING CODE.
2. THESE NOTES SHALL APPLY TO ALL WORK, EXCEPT AS NOTED OTHERWISE.
3. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE DRAWINGS AND SPECIFICATIONS OF ALL DISCIPLINES WHICH SHALL BE REFERRED TO FOR SIZES AND LOCATIONS OF ALL OPENINGS, PENETRATIONS, DRAINS, CONDUIT, ALL EQUIPMENT AND PIPE SUPPORTS, ETC.

B. SITE CONDITIONS, EXCAVATING, SHORING, AND DEWATERING:

1. FOR GEOTECHNICAL INFORMATION, REFER TO GEOTECHNICAL ENGINEERING REPORT PREPARED BY **SW COLE**, DATED **MAY 24 2016**, LOCATED IN THE APPENDIX OF THE PROJECT SPECIFICATIONS.
2. IN GENERAL, THE SUBSURFACE SOIL CONDITIONS THROUGHOUT THE SITE GENERALLY CONSIST OF LOOSE TO MEDIUM DENSE SANDS WITH TRACE TO SOME SILT AND VARYING AMOUNTS OF GRAVEL.
3. TEST BORINGS PERFORMED ON MAY 3RD AND 4TH, 2016 ENCOUNTERED GROUNDWATER AT 13 FEET BELOW EXISTING GRADE. WHILE GROUNDWATER IS EXPECTED TO BE BELOW PROPOSED EXCAVATION DEPTHS, THE CONTRACTOR SHOULD ANTICIPATE THE NEED FOR DEWATERING EXCAVATIONS, PARTICULARLY DURING AND FOLLOWING PERIODS OF PRECIPITATION.
4. EXCAVATIONS MUST BE PROPERLY SHORED AND/OR SLOPED IN ACCORDANCE WITH ALL OSHA, STATE, AND LOCAL REGULATIONS.
5. EXCAVATION SHORING DESIGN, INSTALLATION, MAINTENANCE, AND REMOVAL IS THE FULL RESPONSIBILITY OF THE CONTRACTOR. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT SHORING DESIGN PLANS AND CALCULATIONS SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER FOR REVIEW.
6. EXCAVATIONS SHALL BE MADE WITH A SMOOTH-EDGE BUCKET TO LIMIT DISTURBANCE TO THE BEARING SURFACE.
7. EXISTING UTILITIES: CONTRACTOR IS FULLY RESPONSIBLE TO LOCATE EXISTING UNDERGROUND UTILITIES IN AREAS OF WORK AND PROVIDE ADEQUATE MEANS OF PROTECTION DURING EARTHWORK OPERATIONS.

C. SUBGRADE PREPARATION, BACKFILL, AND COMPACTION:

1. SUBGRADE PREPARATION: PRIOR TO CONSTRUCTION, ALL SUBGRADES SHALL BE COMPACTED WITH AT LEAST 3 PASSES OF A VIBRATORY DRUM ROLLER HAVING A STATIC WEIGHT OF AT LEAST 10-TONS OR AT LEAST 3 PASSES OF A VIBRATORY PLATE COMPACTOR HAVING A STATIC WEIGHT OF AT LEAST 500 POUNDS.
2. BUILDING WALL SPREAD FOOTINGS: EXCAVATE SUBGRADES USING SMOOTH-EDGED BUCKET AND PROOF COMPACT WITH A MINIMUM OF 3 PASSES OF VIBRATORY PLATE COMPACTOR AS SPECIFIED.
3. CONCRETE TANK BASE SLABS: EXCAVATE SUBGRADES USING SMOOTH-EDGED BUCKET AND PROOF COMPACT WITH A MINIMUM OF 3 PASSES OF VIBRATORY PLATE COMPACTOR OR A VIBRATORY DRUM ROLLER AS SPECIFIED.
4. BUILDING FLOOR SLABS AND EQUIPMENT PADS: EXCAVATE SUBGRADES USING SMOOTH-EDGED BUCKET AND PROOF COMPACT WITH A MINIMUM OF 3 PASSES OF VIBRATORY PLATE COMPACTOR OR A VIBRATORY DRUM ROLLER AS SPECIFIED
5. BACKFILL: EXCAVATIONS FOR BASEMENT WALLS, FOUNDATION WALLS, RETAINING WALLS, AND CONCRETE TANKS SHALL BE BACKFILLED WITH STRUCTURAL FILL PLACED IN 12-INCH MAX LIFTS AND COMPACTED TO 95% OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557. PLACE BACKFILL AGAINST WALLS SIMULTANEOUSLY ON BOTH SIDES OF WALL TO PREVENT DIFFERENTIAL PRESSURE WHERE APPLICABLE.
6. SOIL REUSE: ON-SITE MATERIAL ARE ANTICIPATED TO BE SUITABLE FOR USE AS STRUCTURAL FILL IF THE EXISTING SOILS COMPLY WITH THE FOLLOWING REQUIREMENTS
   - NOT MORE THAN 10% OF THE MATERIAL PASSES No 200 SIEVE
   - MATERIAL IS STOCKPILED, PROTECTED, MAINTAINED, OR CONDITIONED AT +/- 2% OF ITS OPTIMAL MOISTURE TO ACHIEVE ADEQUATE COMPACTION.
   - MATERIAL DOES NOT CONTAIN ORGANICS
   - PARTICLES LARGER THAN 4-INCHES ARE REMOVED WHEN PLACED WITHIN 2-FT OF STRUCTURE AND IN ALL CASES PARTICLES LARGER THAN 6-INCHES ARE REMOVED.
   - CONTRACTOR SHALL LABORATORY TEST SITE SOILS TO VERIFY THE MATERIAL'S GRADATION, AND OPTIMAL MOISTURE CONTENT.

D. FOUNDATION AND SLAB DESIGN CRITERIA:

1. ALL EXTERIOR FOOTINGS AND FOOTINGS WITHIN UNHEATED PORTIONS OF STRUCTURES SHALL BE CONSTRUCTED BELOW THE FROST DEPTH OF AT LEAST 4 FEET BELOW THE LOWEST ADJACENT FINAL GRADE.
2. ALLOWABLE SOIL BEARING CAPACITY = **3,000** PSF (FOR ALL FOOTINGS AND BASE SLABS)
3. MODULUS OF SUBGRADE REACTION = **125** PCI

E. EMBEDDED CONDUITS AND PIPES:

1. ALL ELECTRICAL AND INSTRUMENTATION CONDUIT EMBEDDED IN CONCRETE SHALL BE INSTALLED, ARRANGED, AND SPACED AS PER THE REQUIREMENTS OF SPECIFICATION **03 11 00** AND AS FOLLOWS:

1.1. OUTSIDE DIAMETER OF CONDUIT SHALL NOT EXCEED 1/3 OF CONCRETE THICKNESS.

1.2. CONDUITS SHALL NOT BE PLACED CLOSER THAN 3 OUTSIDE DIAMETERS ON CENTER.

1.3. CONDUITS SHALL NOT BE EMBEDDED IN CONCRETE SLABS LESS THAN 4 INCHES THICK.

1.4. ONLY 2 CONDUITS MAY CROSS AT ANY POINT AND THE SUM OF THE OUTSIDE DIAMETER OF THE CROSSING CONDUITS SHALL NOT EXCEED 1/3 OF THE CONCRETE THICKNESS.

1.5. PROVIDE MINIMUM 1-1/2 INCH CONCRETE COVER OVER CONDUITS.

1.6. CONDUITS SHALL NOT BE LOCATED BETWEEN BOTTOM OF REINFORCING STEEL AND BOTTOM OF SLAB.

1.7. ALUMINUM CONDUIT SHALL NOT BE EMBEDDED IN CONCRETE AND NO CONDUIT IS PERMITTED IN BEAMS, COLUMNS, OR GIRDERS.

F. GENERAL REINFORCED CONCRETE REQUIREMENTS:

1. UNLESS NOTED OTHERWISE, COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS = **4,500 PSI**.
2. REINFORCEMENT: ASTM A615 GRADE 60.
3. CONCRETE DESIGN IS PER AMERICAN CONCRETE INSTITUTE "**318-08** BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE."
4. REINFORCEMENT SHALL BE DETAILED, FABRICATED, AND PLACED AS PER ACI 315 DETAILING MANUAL.
5. PROVIDE 3/4", 45 DEGREE CHAMFER ON EXPOSED EDGES OF CONCRETE, UNO.
6. PROVIDE SACK-RUBBED FINISH PER SPECIFICATION **03 30 20** FOR THE FOLLOWING SURFACES:
   - ALL INTERIOR CONCRETE TANK FORMED SURFACES
   - ALL EXTERIOR TANK SURFACES EXPOSED TO VIEW THAT ARE ABOVE GRADE
   - HEADWORKS BUILDING INTERIOR FACE OF EXPOSED CONCRETE FOUNDATION WALLS
   - HEADWORKS BUILDING EXTERIOR FACE OF EXPOSED CONCRETE FOUNDATION WALLS
   - EXPOSED SIDES OF ALL CONCRETE EQUIPMENT PADS
   - SACK-RUBBED FINISH NOT REQUIRED FOR ANY EXISTING CONCRETE SURFACES
   - SACK-SUBBED FINISH NOT REQUIRED FOR EXTERIOR FORMED SURFACES OF (3) NEW GRAVITY THICKENER TANKS
7. ALL CONCRETE TESTING FOR TEMPERATURE, ENTRAINED AIR, SLUMP, AND COMPRESSIVE STRENGTH TEST CYLINDERS SHALL BE **PAID FOR BY CONTRACTOR**. CONTRACTOR SHALL COORDINATE AND SCHEDULE ALL CONCRETE PLACEMENTS WITH TESTING AGENCY AS REQUIRED TO PROVIDED FIELD TESTING SERVICES FOR EVERY CONCRETE PLACEMENT.

G. REINFORCED CONCRETE TANK, SECONDARY CONTAINMENT TANKS, TIGHTNESS TESTING, AND REPAIRS:

6. TANKS AND CONTAINMENT AREAS, COMPRESSIVE STRENGTH OF REINFORCED CONCRETE AT 28 DAYS = **4500 PSI**.
7. REINFORCEMENT: ASTM A615 GRADE 60.
8. CONCRETE DESIGN IS PER AMERICAN CONCRETE INSTITUTE "**350-06** CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES."
9. PROVIDE SACK-RUBBED FINISH PER SPECIFICATION **03 30 20** FOR ALL INTERIOR FORMED SURFACES OF CONCRETE TANKS AND AS SPECIFICALLY INDICATED IN SPECIFICATIONS OR AS NOTED ON DRAWINGS.
10. WATERSTOPS SHALL BE CONTINUOUS THROUGHOUT, AND INTERSECTIONS SHALL BE FACTORY FABRICATED. WATERSTOPS AT VERTICAL JOINTS SHALL EXTEND TO WITHIN 6 INCHES OF THE TOP OF THE STRUCTURE, UNLESS NOTED OTHERWISE.
11. ALL PROPOSED CONCRETE TANKS SHALL BE TIGHTNESS TESTED, AND REPAIRED AT CONTRACTOR'S OWN EXPENSE INCLUDING:
    - -EACH OF THE (3) GRAVITY THICKENER TANKS PER SHEETS S-303 AND S-306
    - -SCUM WELL AND DISTRIBUTION BOX PER SHEET S-307
    - -RAS DISTRIBUTION BOX PER SHEET S-310
12. TIGHTNESS TESTING SHALL BE IN ACCORDANCE WITH ACI-350.1-10 "SPECIFICATION FOR TIGHTNESS TESTING OF ENVIRONMENTAL ENGINEERING CONCRETE CONTAINMENT STRUCTURES" CHAPTER 2, PART 1 QUALITATIVE CRITERIA AND PART 2 QUANTITATIVE CRITERIA. THE ENGINEER WILL PROVIDE FIELD TESTING FORMS FOR EACH TANK TO BE COMPLETED BY CONTRACTOR AND FILED FOR RECORD TO DOCUMENT THE TESTING REQUIREMENTS.

H. SEQUENCE OF WORK:

1. CONCRETE FOR TANK WALLS SHALL NOT BE PLACED UNTIL CONCRETE BASE SLABS HAVE ACHIEVED 75 PERCENT OF THE SPECIFIED 28-DAY COMPRESSIVE STRENGTH AND NO SOONER THAN 7-DAYS AFTER THE FINAL TANK SLAB PLACEMENT.
2. CONCRETE TANK WALLS SHALL OBTAIN 100 PERCENT OF THE SPECIFIED 28-DAY CONCRETE COMPRESSIVE STRENGTH BEFORE COMMENCEMENT OF FILLING STRUCTURE WITH WATER TO COMPLETE TIGHTNESS TESTING. CONTRACTOR'S CONSTRUCTION SCHEDULE MUST INCLUDE TIME TO PERFORM TIGHTNESS TEST AND TIME TO PERFORM ALL TANK LEAK REPAIRS.
3. TANK WALLS SHALL NOT BE BACKFILLED UNTIL CONCRETE TANK IS TIGHTNESS TESTED AND ALL LEAKS IDENTIFIED DURING THE TIGHTNESS TEST ARE REPAIRED TO THE SATISFACTION OF THE ENGINEER, OWNER, AND OWNER'S REPRESENTATIVE.

I. MASONRY:

1. ALL MASONRY MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH ACI **530-08**.
2. HOLLOW CONCRETE MASONRY UNITS: **NORMAL** WEIGHT CONFORMING TO ASTM C90 WITH A MINIMUM NET AREA COMPRESSIVE STRENGTH OF **1,900 PSI** MEASURED IN ACCORDANCE WITH ASTM C140.
3. FIRE RATED CMU: MASONRY MANUFACTURER TO SUBMIT UL CERTIFICATION FOR EACH COMBINATION OF FIRE RATED HOURLY RATING AND CMU WIDTH USED THROUGHOUT THE PROJECT.
4. THE MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF MASONRY, **F'm = 1,500 PSI** AS MEASURED ON THE NET SECTION AT 28-DAYS.
5. MORTAR: ASTM C270, TYPE S, PROPORTION SPECIFICATION, UNO. MORTAR FOR VENEER SHALL CONFORM TO ASTM C270, TYPE N, PROPORTION SPECIFICATION.
6. CEMENT: ASTM C150, TYPE 1 OR TYPE II. ALTERNATIVELY, FOR MORTAR, THE CEMENT MAY BE MORTAR CEMENT PER SPECIFICATIONS.
7. GROUT: ASTM C476 FOR FINE GROUT ND MEET EITHER THE SPECIFIED COMPRESSIVE STRENGTH OR PROPORTION REQUIREMENTS.
8. REINFORCEMENT: ASTM A615 GRADE 60. LAP SPLICES NOT PERMITTED. PROVIDE MECHANICAL SPLICES (DBS/DI) FOR ALL VERTICAL REINFORCEMENT BARS.
9. MORTAR SHALL NOT BE USED WHERE GROUT IS SPECIFIED.
10. MASONRY SHALL BE LAID IN RUNNING BOND AND ALL MORTAR JOINTS TOOLED CONCAVE.
11. PROVIDE CONTINUOUS HORIZONTAL BOND BEAMS AT 4'-0" OC MAXIMUM VERTICAL SPACING FOR ALL EXTERIOR BUILDING WALLS AS REQUIRED BY THE MASSACHUSETTS STATE BUILDING CODE FOR MASONRY SHEAR WALLS. REFER TO DRAWINGS FOR DETAILS.

J. STRUCTURAL STEEL:

1. STEEL SHALL COMPLY WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) AISC 360-05 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, AISC 303-05 CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES AND THE 13TH EDITION OF STEEL CONSTRUCTION MANUAL. ALL STEEL SHALL BE DESIGNED ACCORDING TO LOAD AND RESISTANCE FACTOR DESIGN (LRFD).
2. ALL STEEL SHALL BE NEW CARBON STEEL AND SHALL, AS A MINIMUM, CONFORM TO ASTM A992 FOR ALL ROLLED WIDE FLANGE SHAPES, ASTM A36 FOR OTHER ROLLED SHAPES AND PLATES, AND ASTM A500, GRADE B, FOR STRUCTURAL TUBING AND ASTM A53, GRADE B, FOR STEEL PIPE.
3. BOLTS: UNLESS NOTED OTHERWISE, 3/4" DIA ASTM A325 HIGH-STRENGTH BOLTS. BOLTS TO SUPPORT STAIR TREADS MAY BE ASTM A307. ALL BOLTS AND HARDWARE SHALL BE HOT-DIP GALVANIZED, UNO.
6. BOLTED CONNECTIONS SHALL BE BEARING TYPE (N) WITH BOLT THREADS INCLUDED IN THE SHEAR PLANE. FIELD CONNECTIONS OF MISCELLANEOUS STEEL SHALL BE SNUG TIGHT, UNO.
7. ALL ASSEMBLY, TIGHTENING AND INSPECTION FOR HIGH STRENGTH BOLTING SHALL BE IN ACCORDANCE WITH THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
8. ADHESIVE ANCHORS AND EXPANSION BOLTS PER SPECIFICATIONS.
9. ELECTRODES FOR ALL FIELD AND SHOP WELDING SHALL CONFORM TO **AWS E70** SERIES LOW HYDROGEN UNLESS NOTED OTHERWISE.
10. WELDING SHALL CONFORM TO THE STRUCTURAL WELDING CODE - STEEL, AWS D1.1, LATEST EDITION AND ALL WELDERS SHALL BE AWS-CERTIFIED. WELDING SHALL ALSO COMPLY WITH ALL LOCAL LAWS AND ORDINANCES, WHERE THERE MAY BE CONFLICTING REQUIREMENTS, THE MORE STRINGENT REQUIREMENT SHALL APPLY.
11. TEMPORARY BRACING IS THE RESPONSIBILITY OF THE CONTRACTOR.
12. CUTTING OR DRILLING IN STRUCTURAL MEMBERS BY THE CONTRACTOR IS PROHIBITED UNLESS APPROVED BY THE ENGINEER OF RECORD.

K. MISCELLANEOUS METALS:

1. GRATING: LIGHT-DUTY 19-SGI-4 EXTRUDED I-BAR GRATING WITH STRIATED TOP AND BOTTOM FLANGES FOR BUILT-IN SKID RESISTANCE. DEPTH PER DRAWINGS. FACTORY BANDED ALL SIDES AND ALL PENETRATIONS. MAXIMUM GAP BETWEEN PANELS AND ABUTTING SURFACES IS 1/4-INCH. GRATING SPAN PER DRAWINGS.
2. GRATING ATTACHMENT: 316 SS ATTACHMENT CLIPS AT FOUR CORNERS AND (1) CLIP MIDDLE OF EACH PANEL AT ALL INTERMEDIATE SUPPORTS.
3. RAILS: PER SPECIFICATIONS.

L. ALUMINUM CONSTRUCTION:

1. PROVIDE ALUMINUM STAIRS, LADDERS, HANDRAILS, GRATING, AND SUPPORTS AS INDICATED ON THE DRAWINGS.
2. MATERIAL: ALUMINUM TYPE 6061-T6, UNLESS NOTED OTHERWISE.
3. ALL ALUMINUM ITEMS EMBEDDED OR IN CONTACT WITH CONCRETE SHALL BE COATED WITH BITUMASTIC PAINT.
4. ALUMINUM STRUCTURAL MEMBER CONNECTIONS: 316 SS BOLTS, NUTS, AND WASHERS. PROVIDE SS WASHERS UNDER ALL BOLT HEADS AND NUTS. PROVIDE MINIMUM OF TWO 5/8-INCH DIAMETER BOLTS PER EACH END CONNECTION, UNLESS NOTED OTHERWISE.

M. EXISTING CONDITIONS:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AS THEY RELATE TO NEW CONSTRUCTION. REPORT TO THE ENGINEER OF RECORD ALL OBSERVATIONS AND ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.
2. WHERE DETAILS FOR SPECIFIC CONDITIONS ARE NOT SHOWN ON THESE PLANS, USE DETAILS FOR THE MOST NEARLY SIMILAR CONDITIONS SHOWN ON THE STRUCTURAL DRAWINGS AS DETERMINED BY THE STRUCTURAL ENGINEER. REPORT ANY COORDINATION ISSUES IMMEDIATELY TO THE ENGINEER.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE FOR A SAFE AND EFFICIENT METHOD OF SHORING AND/OR BRACING THE STRUCTURE DURING ALL CONSTRUCTION PHASES. SUBMIT AN OUTLINE OF PROPOSED PROCEDURE BEFORE CONSTRUCTION COMMENCES.
4. STRUCTURAL MEMBERS SHALL NOT BE MODIFIED IN THE FIELD WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER. IN THE EVENT OF A CONSTRUCTION OR FABRICATION ERROR, THE CONTRACTOR SHALL PREPARE A SKETCH WITH A PROPOSED REPAIR, AND SUBMIT IT TO THE ENGINEER FOR APPROVAL PRIOR TO PERFORMING ANY CORRECTIVE WORK.
5. VERIFY ALL FIELD DIMENSIONS AND LOCATIONS AND GEOMETRY OF EXISTING STRUCTURES PRIOR TO CONSTRUCTION. ALL EXISTING DIMENSIONS ARE APPROXIMATE. NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCY BETWEEN THE FIELD CONDITIONS AND THE CONTRACT DRAWINGS.
6. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PROTECT THE EXISTING BUILDING ELEMENTS TO REMAIN DURING DEMOLITION. DO NOT CUT OR ALTER ANY OF THE EXISTING STRUCTURE OR ARCHITECTURAL ELEMENTS TO REMAIN WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER. PROVIDE PROTECTION FOR EXISTING WALLS, COLUMNS, BRACES, AND OTHER BUILDING ELEMENTS TO REMAIN FROM FALLING DEBRIS. ANY DAMAGE TO EXISTING ELEMENTS TO REMAIN SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR OWN EXPENSE.

N. PENETRATIONS AND EQUIPMENT PADS:

1. CONTRACTOR TO VERIFY THE NUMBER, SIZE, AND LOCATIONS OF ALL EQUIPMENT PADS AND PENETRATIONS THROUGH FLOOR SLABS, WALLS, CEILINGS AND ROOF PRIOR TO CONCRETE PLACEMENT (REFER TO MECHANICAL, HVAC, PLUMBING, AND ELECTRICAL DRAWINGS). ALL PENETRATIONS AND EQUIPMENT PADS ARE NOT SHOWN ON THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
2. PROVIDE WATERTIGHT SEAL FOR ALL PIPE PENETRATIONS IN WALLS AND FLOORS.
3. PROVIDE ADDITIONAL REINFORCEMENT AT WALL AND SLAB OPENINGS PER STANDARD DETAILS.
4. ALL PENETRATIONS THROUGH FIRE-RATED WALL SHALL BE FIRESTOPPED WITH APPROVED SEALANT TO MEET GIVEN FIRE RATING.
5. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND SEALING PENETRATIONS WHICH ARE 4" DIAMETER/4"X4" SQUARE OR LARGER, INCLUDING PENETRATIONS REQUIRED BY FILED SUB-BID WORK.

O. DESIGN LOADS (PER MASSACHUSETTS STATE BUILDING CODE):

1. GENERAL LOAD INFORMATION:
   BUILDING OCCUPANCY CATEGORY = 3
   EXPOSURE CATEGORY = C
2. SNOW LOADS:
   GROUND SNOW LOAD (Pg) = 25 PSF
   EXPOSURE FACTOR (Ce) = 1.0
   THERMAL FACTOR (Ct) = 1.1
   IMPORTANCE FACTOR (I) = 1.1
   MIN FLAT ROOF SNOW LOAD (Pf) = 25 PSF (PER STATE CODE)
   UNBALANCED SNOW LOAD = PER ASCE 7-05
3. WIND LOADS:
   BASIC WIND SPEED V = 120 MPH
   IMPORTANCE FACTOR I = 1.15
   WIND DIRECTIONALITY FACTOR Kd = 0.85
4. SEISMIC LOADS:
   Ss = 0.15 S1 = 0.047 (Ss AND S1 PER STATE CODE)
   SITE CLASS = E (PER GEOTECHNICAL REPORT)
   IMPORTANCE FACTOR I = 1.15
   Sds= 0.25 Sd1= 0.11
   SEISMIC DESIGN CATEGORY = B
5. HEADWORKS BUILDING SEISMIC DESIGN (PER ASCE 7-05):
   SEISMIC FORCE RESISTING SYSTEM: INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
   ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE
   RESPONSE MODIFICATION FACTOR: R=3 1/2
   SEISMIC RESPONSE COEFFICIENT: Cs = 0.089
6. HEADWORKS BUILDING DESIGN LOADS (**100** DWG SERIES):
   SLAB SLAB-ON-GRADE LL = 400 PSF
   ELECTRICAL ROOM CONC CEILING LL = 125 PSF
7. GRAVITY THICKENER FRP COVERS (**300** DWG SERIES):
   1" ALUM PLANK DESIGN LIVE LOAD, UNLESS NOTED OTHERWISE = 50 PSF
   2" ALUM COVER DESIGN LOAD CASES AT DESIGNATED EQUIPMENT REMOVAL PATHWAY
   LL =150 PSF UNIFORM LOAD (LOAD CASE 1)
   LL = (4) 1,500 POUND CONCENTRATED WHEEL LOADS * 4FT OCEW (LOAD CASE 2)

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DRAWN BY: SMH	229123.00-S-001.dwg	

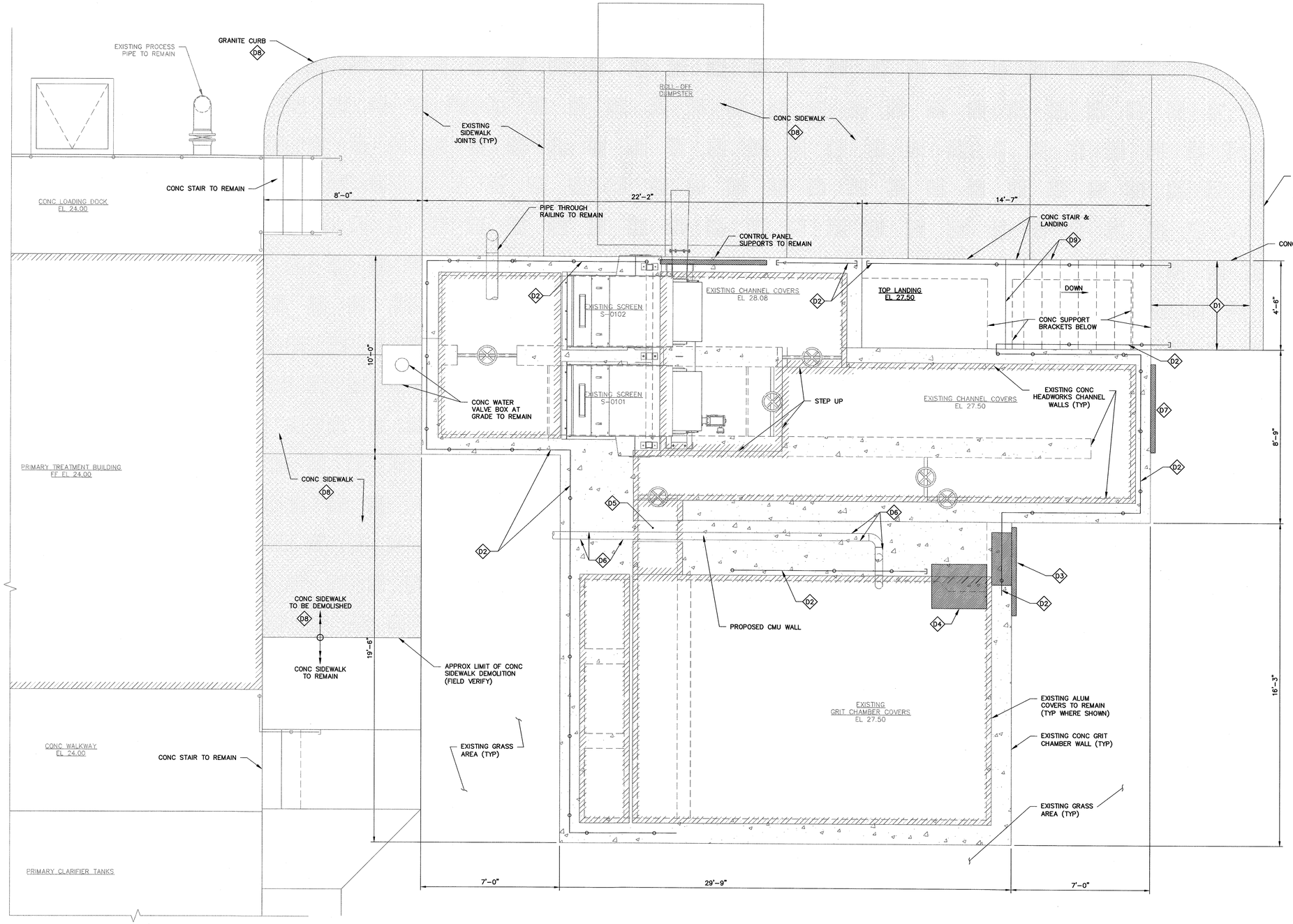
STRUCTURAL GENERAL NOTES

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 16 OF 116

S-001



STRUCTURAL DEMOLITION PLAN

SCALE: 3/8" = 1'-0"

NOTE:
ALL WORK ON THIS SHEET IS PART OF BID ALTERNATE #1.

DEMOLITION KEYED NOTES:

D1 LOWER LANDING PAD FOR STAIR: DEMOLISH 6"± THICK CONCRETE PAD AT BASE OF CONCRETE STEPS (TO REMAIN). PAD RESTS ON TOP OF CONCRETE SIDEWALK TO BE DEMOLISHED (SEE NOTE D8).

D2 RAILINGS: DEMOLISH ALUMINUM RAILINGS – TRIM ALUMINUM POSTS DOWN A MINIMUM OF 1" BELOW TOP OF CONCRETE. INFILL ALL POST HOLES SOLID FULL DEPTH WITH NON-SHRINK GROUT TROWELED FLUSH WITH ADJACENT CONCRETE SURFACES.

D3 CONTROL PANEL: EXISTING GRIT SCREW CONVEYOR CONTROL PANEL SHALL BE REMOVED AND RELOCATED TO THE SOUTH AS REQUIRED TO ACCOMMODATE THE NEW BUILDING CONSTRUCTION. PANEL, UNI-STRUT SUPPORTS, AND ALL ASSOCIATED ELECTRICAL SHALL BE REMOVED AND RELOCATED USING NEW STAINLESS STEEL EXPANSION ANCHORS TO REMOUNT THE SUPPORTS TO MATCH EXISTING. NEW LOCATION SHALL BE APPROVED BY THE OWNER.

D4 GRIT SCREW AUGER DRIVE – BOX COVER: REMOVE HINGE ON NORTH SIDE OF BOX COVER ALONG PROPOSED CMU WALL; PROVIDE ALUMINUM HANDLE ON TOP OF BOX.

D5 ALUMINUM CHANNEL COVER MODIFICATIONS: AT LOCATIONS WHERE PROPOSED CMU WALL CROSSES EXISTING CHANNEL COVERS, CONTRACTOR SHALL SAW-CUT OR OTHERWISE MODIFY COVERS TO TERMINATE ON EITHER SIDE OF PROPOSED CMU WALL. COORDINATE WITH SECTION **F** AND SHEET **S-103**

D6 DEMOLISH AIR PIPING EMBEDDED IN CONCRETE: EXISTING 4" DIAMETER D.I. AIR PIPING FROM GRIT CHAMBER IS CURRENTLY EMBEDDED INTO THE EXISTING CONCRETE IN SAME LOCATION AS PROPOSED CMU WALL RUNNING EAST TO WEST. THE TOP OF THIS PIPE APPEARS TO BE APPROXIMATELY 4" BELOW THE CONCRETE SURFACE. THIS ENTIRE PIPE SHALL BE CUT OUT IN ITS ENTIRETY AND REPLACED WITH REINFORCED CONCRETE AS DETAILED. THE EDGES OF THE PIPE TRENCH SHALL BE SAW-CUT ON BOTH SIDES, USING CAUTION NOT TO CUT ANY EXISTING REBAR IN CONCRETE FILL. RELOCATE AIR PIPING AS SHOWN ON M DRAWINGS.

D7 DEMOLISH WOOD BLOCKING: DEMOLISH 5-FOOT SECTION OF WOOD BLOCKING ATTACHED TO CONCRETE WALL. CUT OFF ANY ANCHORS AND PATCH HOLES WITH GROUT FLUSH WITH ADJACENT CONCRETE.

D8 DEMOLISH CONCRETE SIDEWALK: DEMOLISH EXISTING CONC SLAB-ON-GRADE TO THE WEST AND NORTH OF EXISTING HEADWORKS AND GRIT CHAMBER AND ALL GRANITE CURBING TO THE NORTH. APPROXIMATE SLAB THICKNESS IS 4" WITH 6x6 – W2.9xW2.9 WWF PER RECORD DRAWINGS, BUT SHALL BE FIELD VERIFIED.

D9 SAWCUT CHAMFER: SAWCUT EXISTING WALL CHAMFERS PER SECTIONS **J** AND **K** ON SHEET **S-104**.

4' 3' 2' 1' 0 3' 6'

BAR SCALE
3/8" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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9/23/16

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BID ALTERNATE #1
HEADWORKS AREA
STRUCTURAL DEMOLITION
PLAN & NOTES

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

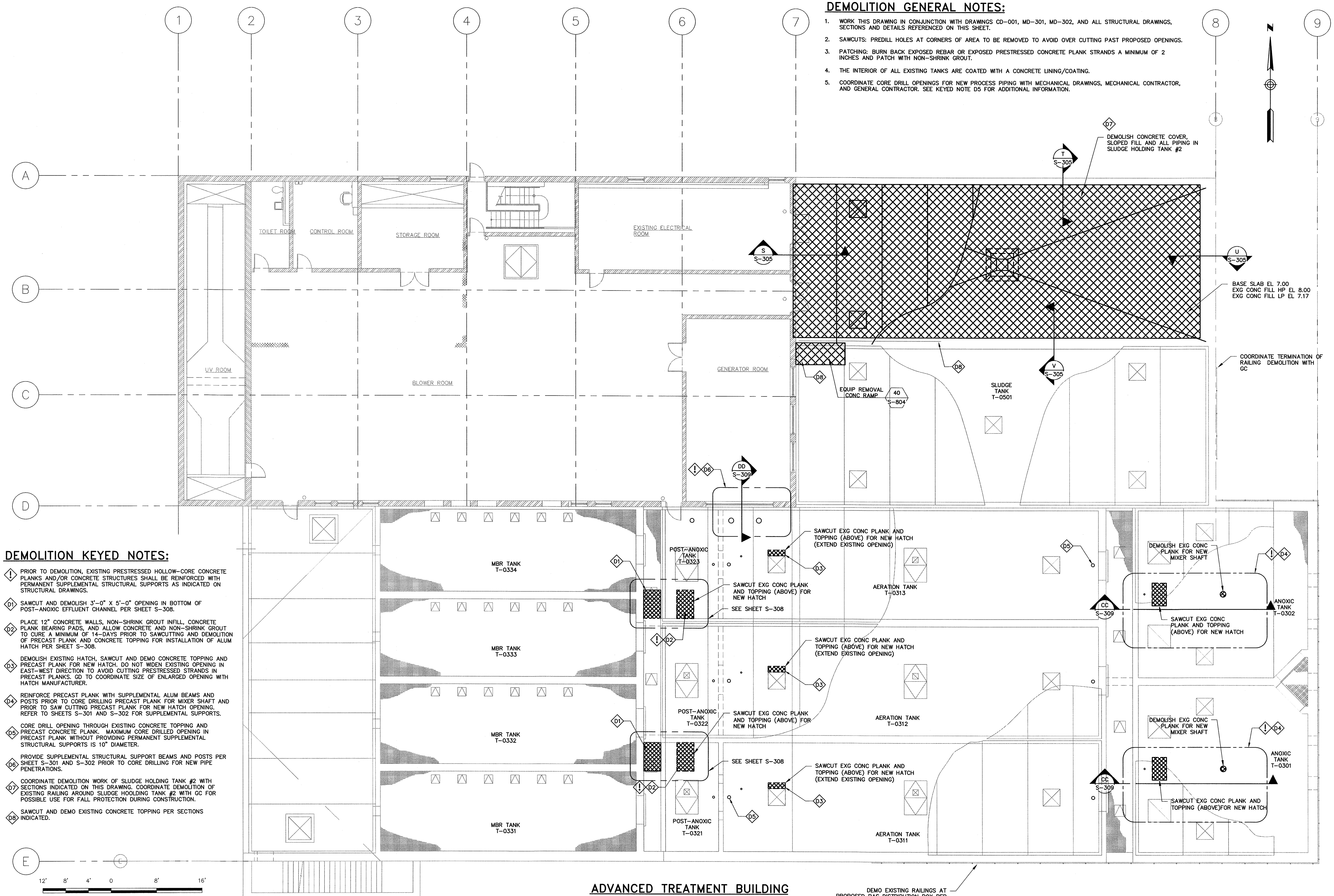
SURFSIDE WASTEWATER
TREATMENT FACILITY
UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 17 OF 116

SD-101

DEMOLITION GENERAL NOTES:

1. WORK THIS DRAWING IN CONJUNCTION WITH DRAWINGS CD-001, MD-301, MD-302, AND ALL STRUCTURAL DRAWINGS, SECTIONS AND DETAILS REFERENCED ON THIS SHEET.
2. SAWCUTS: PREDILL HOLES AT CORNERS OF AREA TO BE REMOVED TO AVOID OVER CUTTING PAST PROPOSED OPENINGS.
3. PATCHING: BURN BACK EXPOSED REBAR OR EXPOSED PRESTRESSED CONCRETE PLANK STRANDS A MINIMUM OF 2 INCHES AND PATCH WITH NON-SHRINK GROUT.
4. THE INTERIOR OF ALL EXISTING TANKS ARE COATED WITH A CONCRETE LINING/COATING.
5. COORDINATE CORE DRILL OPENINGS FOR NEW PROCESS PIPING WITH MECHANICAL DRAWINGS, MECHANICAL CONTRACTOR, AND GENERAL CONTRACTOR. SEE KEYED NOTE D5 FOR ADDITIONAL INFORMATION.



TOILET ROOM
CONTROL ROOM
STORAGE ROOM
EXISTING ELECTRICAL ROOM
UV ROOM
BLOWER ROOM
GENERATOR ROOM
DEMOLISH CONCRETE COVER, SLOPED FILL AND ALL PIPING IN SLUDGE HOLDING TANK #2
BASE SLAB EL 7.00
EXG CONC FILL HP EL 8.00
EXG CONC FILL LP EL 7.17
COORDINATE TERMINATION OF RAILING DEMOLITION WITH GC
EQUIP REMOVAL CONC RAMP
SLUDGE TANK T-0501
MBR TANK T-0334
MBR TANK T-0333
MBR TANK T-0332
MBR TANK T-0331
POST-ANOXIC TANK T-0323
POST-ANOXIC TANK T-0322
POST-ANOXIC TANK T-0321
AERATION TANK T-0313
AERATION TANK T-0312
AERATION TANK T-0311
ANOXIC TANK T-0302
ANOXIC TANK T-0301
SAWCUT EXG CONC PLANK AND TOPPING (ABOVE) FOR NEW HATCH (EXTEND EXISTING OPENING)
SAWCUT EXG CONC PLANK AND TOPPING (ABOVE) FOR NEW HATCH
SEE SHEET S-308
DEMOLISH EXG CONC PLANK FOR NEW MIXER SHAFT
SAWCUT EXG CONC PLANK AND TOPPING (ABOVE) FOR NEW HATCH
DEMO EXISTING RAILINGS AT PROPOSED RAS DISTRIBUTION BOX PER SHEETS S-302 AND S-310 (COORDINATE WITH GC)

DEMOLITION KEYED NOTES:

- (!) PRIOR TO DEMOLITION, EXISTING PRESTRESSED HOLLOW-CORE CONCRETE PLANKS AND/OR CONCRETE STRUCTURES SHALL BE REINFORCED WITH PERMANENT SUPPLEMENTAL STRUCTURAL SUPPORTS AS INDICATED ON STRUCTURAL DRAWINGS.
- D1 SAWCUT AND DEMOLISH 3'-0" X 5'-0" OPENING IN BOTTOM OF POST-ANOXIC EFFLUENT CHANNEL PER SHEET S-308.
- D2 PLACE 12" CONCRETE WALLS, NON-SHRINK GROUT INFILL, CONCRETE PLANK BEARING PADS, AND ALLOW CONCRETE AND NON-SHRINK GROUT TO CURE A MINIMUM OF 14-DAYS PRIOR TO SAWCUTTING AND DEMOLITION OF PRECAST PLANK AND CONCRETE TOPPING FOR INSTALLATION OF ALUM HATCH PER SHEET S-308.
- D3 DEMOLISH EXISTING HATCH, SAWCUT AND DEMO CONCRETE TOPPING AND PRECAST PLANK FOR NEW HATCH. DO NOT WIDEN EXISTING OPENING IN EAST-WEST DIRECTION TO AVOID CUTTING PRESTRESSED STRANDS IN PRECAST PLANKS. GD TO COORDINATE SIZE OF ENLARGED OPENING WITH HATCH MANUFACTURER.
- D4 REINFORCE PRECAST PLANK WITH SUPPLEMENTAL ALUM BEAMS AND POSTS PRIOR TO CORE DRILLING PRECAST PLANK FOR MIXER SHAFT AND PRIOR TO SAW CUTTING PRECAST PLANK FOR NEW HATCH OPENING. REFER TO SHEETS S-301 AND S-302 FOR SUPPLEMENTAL SUPPORTS.
- D5 CORE DRILL OPENING THROUGH EXISTING CONCRETE TOPPING AND PRECAST CONCRETE PLANK. MAXIMUM CORE DRILLED OPENING IN PRECAST PLANK WITHOUT PROVIDING PERMANENT SUPPLEMENTAL STRUCTURAL SUPPORTS IS 10" DIAMETER.
- D6 PROVIDE SUPPLEMENTAL STRUCTURAL SUPPORT BEAMS AND POSTS PER SHEET S-301 AND S-302 PRIOR TO CORE DRILLING FOR NEW PIPE PENETRATIONS.
- D7 COORDINATE DEMOLITION WORK OF SLUDGE HOLDING TANK #2 WITH SECTIONS INDICATED ON THIS DRAWING. COORDINATE DEMOLITION OF EXISTING RAILING AROUND SLUDGE HOOLDING TANK #2 WITH GC FOR POSSIBLE USE FOR FALL PROTECTION DURING CONSTRUCTION.
- D8 SAWCUT AND DEMO EXISTING CONCRETE TOPPING PER SECTIONS INDICATED.

BAR SCALE
1/8" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

ADVANCED TREATMENT BUILDING DEMOLITION PLAN

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

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DRAWN BY: XXX	22912300-SD-301.dwg	

SLUDGE HOLDING TANKS DEMOLITION PLAN

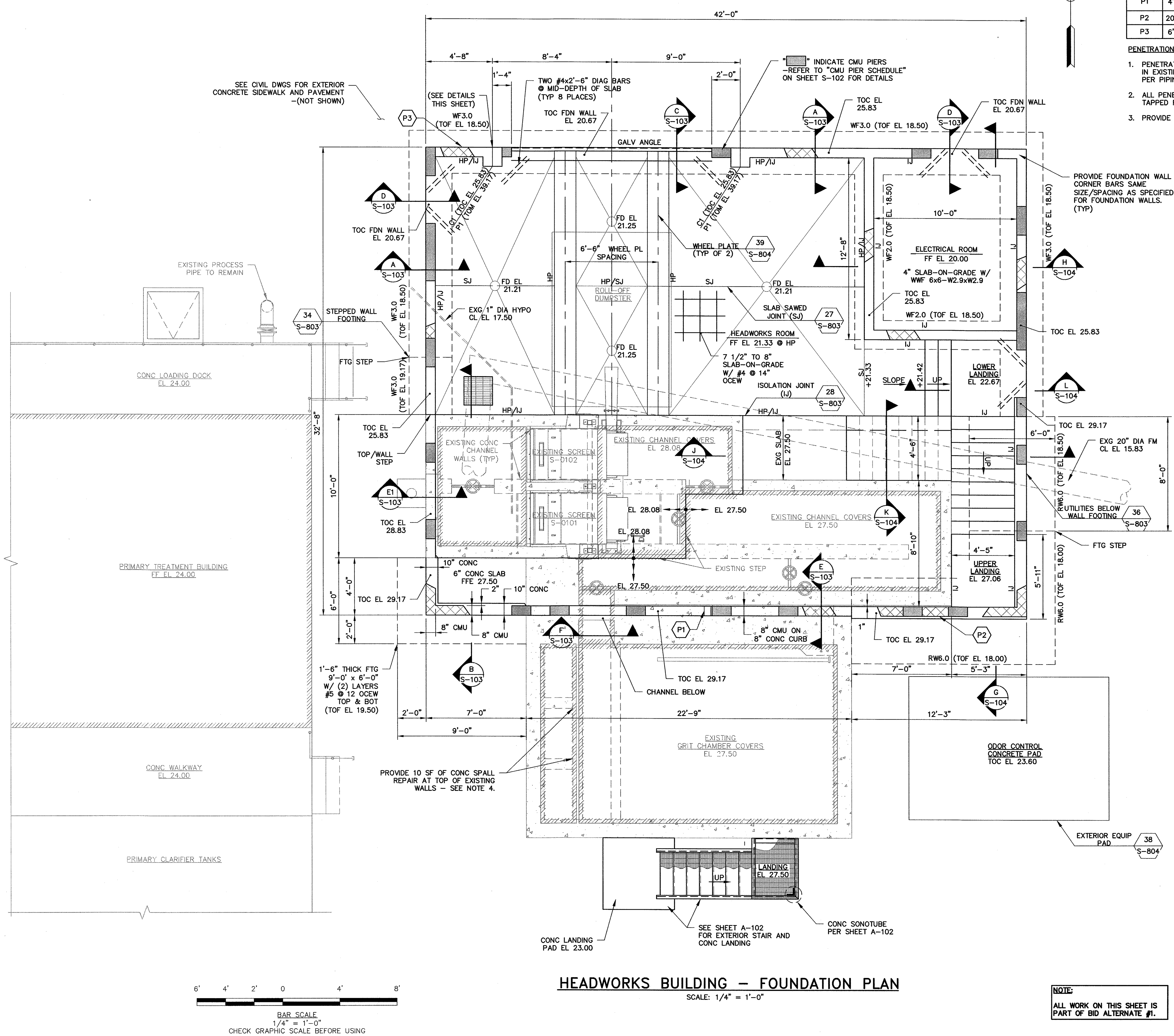
DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: XXX
SHEET: 18 OF 116

SD-301

22x34 SHEET 1:1



PENETRATION SCHEDULE – 100 DRAWING SERIES

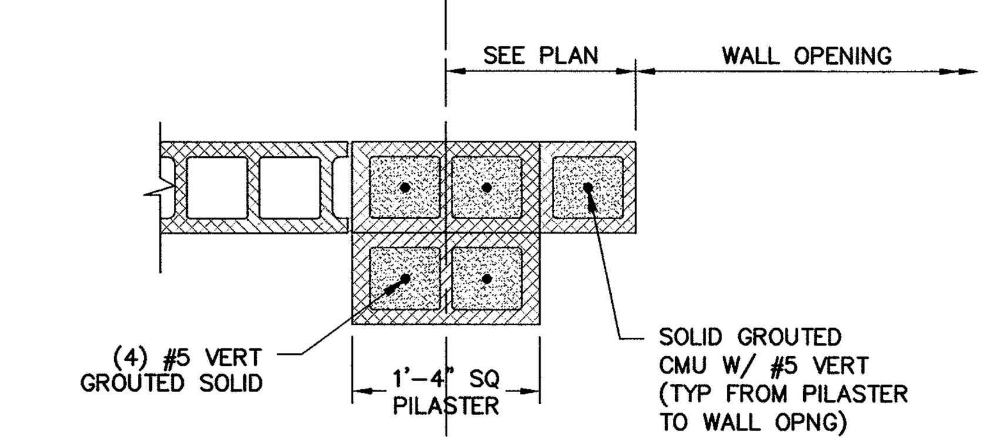
MARK (P#)	SIZE	TYPE	APPROX EL	DESCRIPTION	DETAIL
P1	4" DIA PIPE	FLxPE	INV **28.00**	4" SS AIR PIPE	**26**/S-802
P2	20" DIA PIPE	PExPE	INV **37.83**	20" FRP ODOR CONTROL SUCTION PIPE	**44**/S-805
P3	6" DIA PIPE	PExFL	INV **16.17**	6" DI PLANT WATER	**36**/S-803

PENETRATION SCHEDULE NOTES:

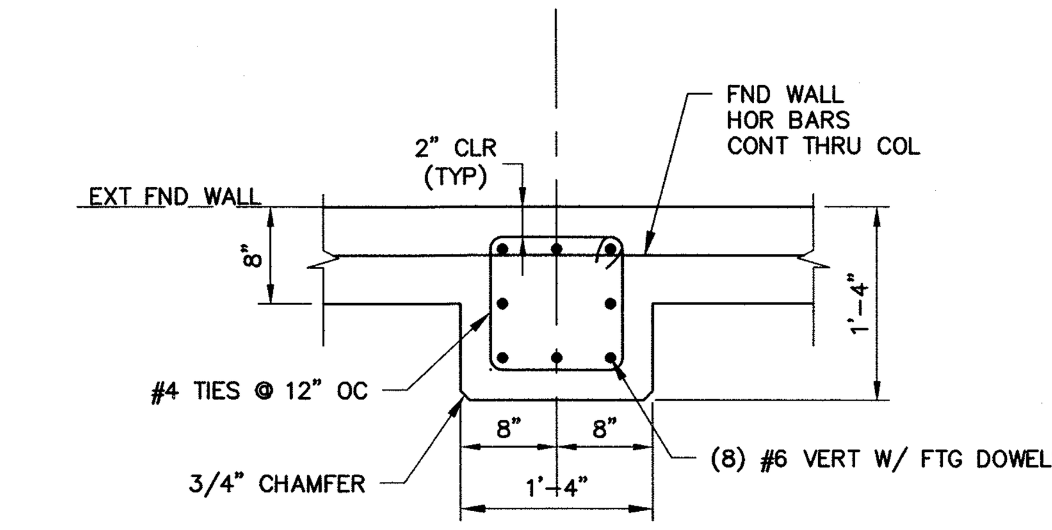
1. PENETRATION SCHEDULE INCLUDES PENETRATIONS IN NEW WALL CONSTRUCTION ONLY. PENETRATIONS IN EXISTING WALLS ARE EXCLUDED FROM SCHEDULE AND SHALL BE FIELD LOCATED BY CONTRACTOR PER PIPING LAYOUT AS INDICATED ON MECHANICAL DRAWINGS.
2. ALL PENETRATIONS SHALL HAVE WALL PIPE TYPES SPECIFIED, PROTECT, PLUG, AND OR TAPE ALL TAPPED FLANGE HOLES AS REQUIRED TO PREVENT CONCRETE BOND.
3. PROVIDE ADDITIONAL REINFORCEMENT AROUND ALL WALL OPENINGS PER DETAIL **30** ON SHEET **S-803**

NOTES:

1. EXISTING HEADWORKS: REFER TO SHEETS S-106 AND S-107 FOR EXISTING HEADWORKS RECORD DRAWINGS INCLUDING PLANS, SECTIONS, AND DETAILS OF EXISTING STRUCTURE.
2. HEADWORKS ROOM SLAB-ON-GRADE: CONSTRUCT SLAB ON LEVEL SUBGRADE WITH 8" MAX CONCRETE SLAB AT HP AND 7 1/2" MIN AT FLOOR DRAINS (SEE PLANS FOR FFE AT FD). REINFORCE SLAB WITH LEVEL REBAR MAT PLACED 5 1/2" CLEAR ABOVE LEVEL SUBGRADE.
3. ELECTRICAL ROOM SLAB-ON-GRADE: 4" CONCRETE SLAB REINFORCED WITH (1) LAYER OF WELDED WIRE FABRIC, WWF6x6-W2.9xW2.9, SUPPORTED ON CHAIRS WITH 3/4" CLEAR FROM TOP OF SLAB.
4. CONCRETE SPALL REPAIR: WHERE SHOWN, PROVIDE CONCRETE REPAIR TO FOUNDATION WALLS. SAW-CUT PERIMETER OF EACH REPAIR AREA TO A MINIMUM DEPTH OF 1/4" AND REMOVE ALL CRACKED, DELAMINATED, UNSOUND CONCRETE WITHIN SAWCUT TO A MINIMUM DEPTH OF 1/2" AS PER SPECIFICATION SECTION 03 01 05. PROVIDE 3/16" X 3 1/4" TAPCON SCREWS @ 4" OC WITH MIN 2" COVER OVER REPAIR AREA AND 2" MIN EMBEDMENT FOR MECHANICAL ATTACHMENT TO EXISTING SUBSTRATE. ASSUMED QUANTITY IS 30 SF AT AN AVERAGE REPAIR DEPTH OF 2". PAYMENT SHALL BE MADE ON A UNIT-PRICE BASIS AS LISTED IN THE BID FORM. ALL CONCRETE SPALL REPAIR WORK SHALL BE THE GENERAL CONTRACTOR'S RESPONSIBILITY.
5. "WF3.0" INDICATES A 3'-0" WIDE SPREAD FOOTING.
   "WF2.0" INDICATES A 2'-0" WIDE SPREAD FOOTING
   "RW6.0" INDICATES A 6'-0" WIDE RETAINING WALL FOOTING.
6. SEE SHEET S-805 FOR CMU DETAILS.



1 / S-101 **P1-CMU PILASTER**
SCALE: 1 1/2" = 1'-0"



2 / S-101 **C1-CONC COLUMN**
SCALE: 1 1/2" = 1'-0"

HEADWORKS BUILDING – FOUNDATION PLAN

SCALE: 1/4" = 1'-0"

BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

NOTE:
ALL WORK ON THIS SHEET IS PART OF BID ALTERNATE #1.

ISSUED FOR BID

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REV	DESCRIPTION	CHECKED BY: JPS	DATE
DESIGNED BY: SMH	DRAWN BY: SMH	229123.00-S-101.dwg	

BID ALTERNATE #1
HEADWORKS BUILDING
STRUCTURAL
FOUNDATION PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
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SCALE: AS NOTED
SHEET: 19 OF 116

S-101

STRUCTURAL ROOF NOTES:

A. ROOF CONSTRUCTION SHALL BE 5/8" CD-X PLYWOOD SHEATHING ON WOOD TRUSSES AS SHOWN.

B. UNLESS NOTED OTHERWISE, ALL ROOF SHEATHING SHALL BE FULLY BLOCKED WITH LONG (STRONG) DIMENSION PERPENDICULAR TO ROOF TRUSSES/RAFTERS AND ALL END JOINTS STAGGERED. ATTACH WITH 8d COMMON NAILS AT 6" OC ALL EDGES AND 12" OC FIELD.

C. ALL ROOF SURFACES SHALL BE COVERED WITH ROOF UNDERLAYMENT PER SPECIFICATION 07 31 13.

D. WOOD TRUSS:

1. DESIGN WOOD TRUSSES FOR THE LOADS LISTED ON DRAWING S-001.
2. TRUSS CONNECTION – USE (1) H10ASS SIMPSON CONNECTOR ON EACH END OF ALL ROOF TRUSSES AND (1) MGT GIRDER TIEDOWN FOR EACH END OF MULTI-PLY GIRDER TRUSSES.
3. DESIGN LOADS AT EACH BEARING REACTION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. TRUSS ANCHORAGE TIES MAY REQUIRE MODIFICATION BASED ON SHOP DRAWING REVIEW.
4. SEE "PERMANENT TRUSS BRACING SCHEDULE" FOR MINIMUM TRUSS BRACING REQUIREMENTS. TEMPORARY ERECTION BRIDGING SHALL BE DESIGNED AND PROVIDED BY CONTRACTOR.

D. ATTIC ACCESS PANEL IN PROCESS ROOM CEILING:

1. PROVIDE 30-INCH (CLEAR) x 24" ATTIC ACCESS PANEL AS SHOWN ON THE ROOF FRAMING PLAN.
2. PANEL SHALL BE A "PUSH-UP" PANEL CONSTRUCTED OF 1/2" A-C PLYWOOD TOP AND BOTTOM THRU-BOLTED TOGETHER WITH 2" RIGID POLYSTYRENE INSULATION IN BETWEEN. PROVIDE A GALVANIZED STEEL GRAB HANDLE ON THE EXPOSED SIDE. PROVIDE FINISH ON UNDERSIDE TO MATCH CEILING.
3. WITHIN ATTIC, PROVIDE A 4'-0" WIDE PERIMETER PLATFORM WITH 3/4" PLYWOOD ON TWO SIDES OF OPENING. SUPPORT PLYWOOD ON WOOD FRAMING ABOVE BOTTOM JOIST CHORDS OF SUFFICIENT DEPTH AS REQUIRED TO STAY ABOVE INSULATION.

PERMANENT TRUSS BRACING SCHEDULE

TYPE	DESCRIPTION	REMARKS
'A'	LATERAL BOTTOM CHORD BRACING: CONTINUOUS 2x4 ON TOP OF BOTTOM CHORD AT 10-FT OC MAX HORIZONTAL SPACING	ANCHOR TO EACH TRUSS AND END WALL WITH MIN. 2-16d NAILS. LAP BRACING OVER MIN. 2 TRUSSES.
'B'	DIAGONAL BOTTOM CHORD BRACING: 2x4 DIAGONAL BRACING ON TOP OF BOTTOM CHORD AT EACH END OF BUILDING	ANCHOR TO EACH TRUSS BOTTOM CHORD WITH MIN. 2-16d NAILS. INSTALL BRACING AT APPROX. 45° TO TRUSSES.
'C'	VERTICAL WEB PLANE X-BRACING: 2x4 X-BRACING AT EACH GIRDER TRUSS. (TYP. ALONG EACH TYPE 'A' BRACING LINE AT VERTICAL TRUSS WEBS).	ANCHOR TO EACH VERTICAL TRUSS WEB MEMBER WITH MIN. 2-16d NAILS. INSTALL BRACING AT APPROX. 45° TO TRUSSES.

NOTE:
THE BRACING SHOWN ON THE DRAWINGS AND IN THE ABOVE TABLE SHALL BE PERMANENT BRACING. ALL BRACING SHALL BE PROVIDED AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH WTCA SUMMARY SHEET BCSI-B3. TEMPORARY BRACING SHALL BE THE CONTRACTOR'S RESPONSIBILITY. ADDITIONAL PERMANENT BRACING SHALL BE PROVIDED IF REQUIRED BY TRUSS MANUFACTURER.

STRUCTURAL KEYED NOTES:

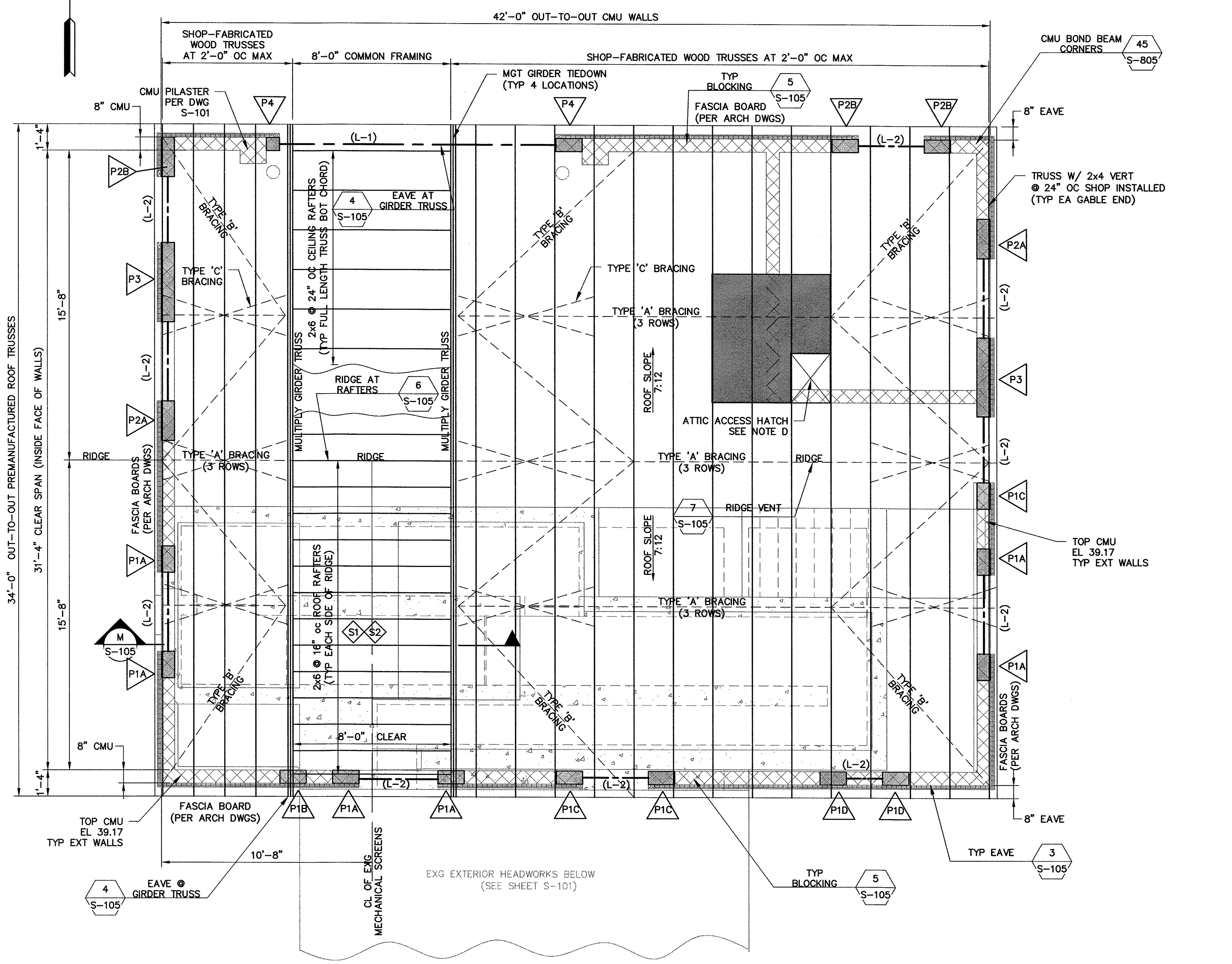
S1 COMMON FRAMING REQUIRED FOR FUTURE REMOVAL OF MECHANICAL SCREENS THROUGH ROOF BY CRANE. ROOF COMMON FRAMING SHALL BE DESIGNED BY SHOP-FABRICATED WOOD TRUSS MANUFACTURER. MINIMUM SIZE SHALL 2x6 @ 16" OC.

S2 SHOP-FABRICATED WOOD TRUSS MANUFACTURER MAY SUBMIT AN ALTERNATIVE ROOF FRAMING LAYOUT FOR ENGINEER'S REVIEW AND APPROVAL.

S3 LIGHT-GAGE CEILING STUDS SHALL BEAR ON CMU POCKETS AT EACH END. CMU BEARING POCKETS SHALL BE INFILLED SOLID WITH NON-SHRINK GROUT PRIOR TO PLACING CONCRETE LID OR CONTRACTOR SHALL PROVIDE BEARING STIFFENERS AT EACH END OF LIGHT-GAGE STUDS. ALL LIGHT-GAGE STUDS SHALL BE BRACED AT MID-SPAN BY FULL-DEPTH LIGHT-GAGE BLOCKING.

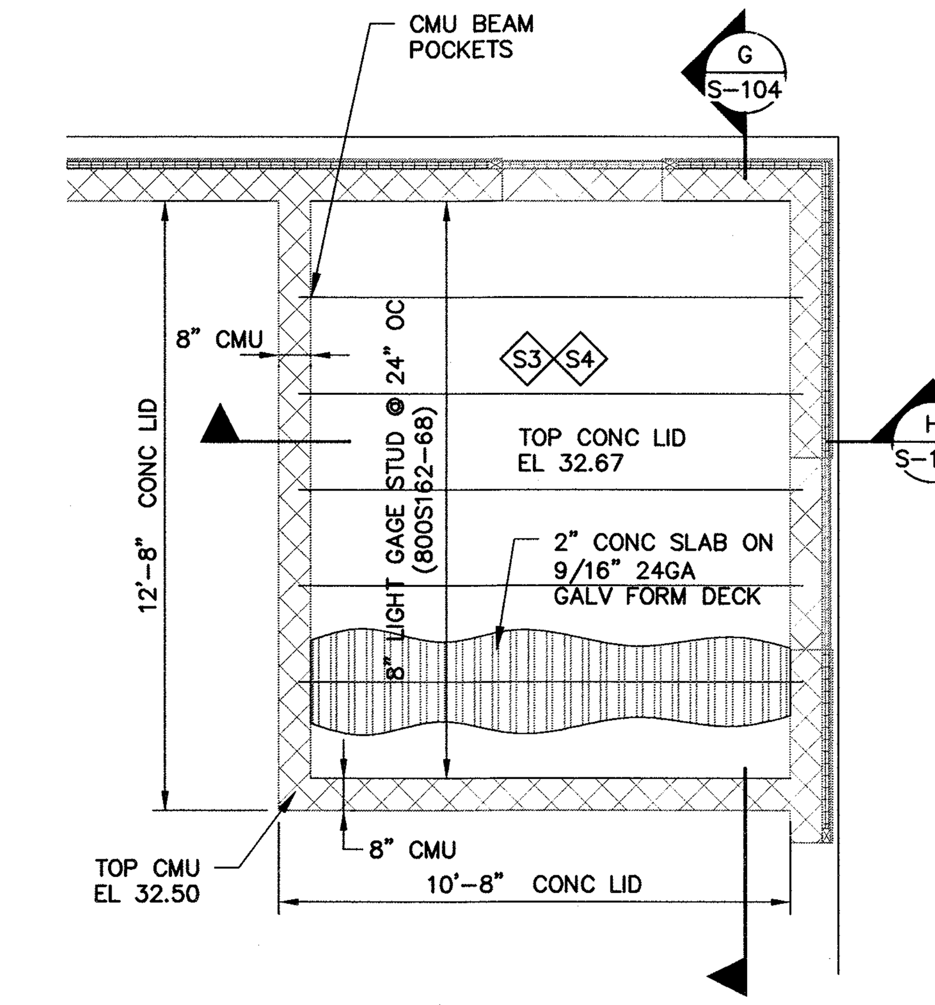
S4 ELECTRICAL ROOM SHALL BE CONSTRUCTED AIR-TIGHT FROM ALL OTHER INTERIOR SPACES. ALL PENETRATION INTO AND OUT OF ELECTRICAL ROOM SHALL BE SEALED TO SATISFACTION OF ENGINEER AND OWNER'S REPRESENTATIVE.

S5 "(L-X)" INDICATED WALL LINTEL. REFER TO LINTEL SCHEDULE ON SHEET S-805 FOR SIZE, REINFORCEMENT, AND DETAILS.



HEADWORKS BUILDING – ROOF PLAN

SCALE: 1/4" = 1'-0"



ELECTRICAL ROOM CONC LID (PARTIAL PLAN)

SCALE: 1/4" = 1'-0"

NOTE:
ALL WORK ON THIS SHEET IS PART OF BID ALTERNATE #1.

CMU PIER SCHEDULE

PIER	SIZE	REINFORCEMENT	NOTES
P1A	8" WIDE x 16" LONG	(2) #5 VERT AT 8" OC	PROVIDE AT WINDOW JAMBS
P1B	8" WIDE x 16" LONG	(2) #5 VERT AT 8" OC	PROVIDE AT GIRDER TRUSS BEARING
P1C	8" WIDE x 16" LONG	(2) #5 VERT AT 8" OC	PROVIDE AT DOOR JAMBS
P1D	8" WIDE x 16" LONG	(2) #5 VERT AT 8" OC	PROVIDE AT SIDES OF ODOR DUCT PEN
P2A	8" WIDE x 24" LONG	(3) #7 VERT AT 8" OC	PROVIDE AT WINDOW JAMB
P2B	8" WIDE x 24" LONG	(3) #7 VERT AT 8" OC	PROVIDE AT DOOR JAMB(S)
P3	8" WIDE x 48" LONG	(6) #7 VERT AT 8" OC	PROVIDE BETWEEN DOOR AND WINDOW JAMBS
P4	SEE PLANS	#5 VERT AT 8" OC	PROVIDE BETWEEN CMU PILASTER AND EDGE OF OVERHEAD DOOR OPENING

CMU PIER SCHEDULE NOTES:

1. CMU PIERS ARE DENOTED "P1" ON PLANS.
2. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION OF MASONRY OPENINGS.
3. PROVIDE VERTICAL WALL DOWELS INTO CONCRETE FOUNDATION WALL AT CMU PIER VERTICAL REINFORCEMENT, SAME SIZE AS DOWELS SHOWN ON SHEETS S-103 AND S-104 FOR CMU VERTICAL WALL REINFORCEMENT.
4. CMU PIER REINFORCEMENT SHALL EXTEND FULL WALL HEIGHT IN SOLID GROUTED CMU CORES. PROVIDE MECHANICAL SPLICES.

6' 4' 2' 0 4' 8'
BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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22x34 SHEET 1:1

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COMMONWEALTH OF MASSACHUSETTS JAMES P. STURGIS STRUCTURAL No. 43268 REGISTERED PROFESSIONAL ENGINEER 9-23-16

REV	DESCRIPTION	DATE

DESIGNED BY: SMH | CHECKED BY: JPS
DRAWN BY: SMH | 22912300-S-102.dwg

BID ALTERNATE #1 HEADWORKS BUILDING STRUCTURAL ROOF FRAMING PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
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SHEET: 20 OF 116

S-102

NOTE:
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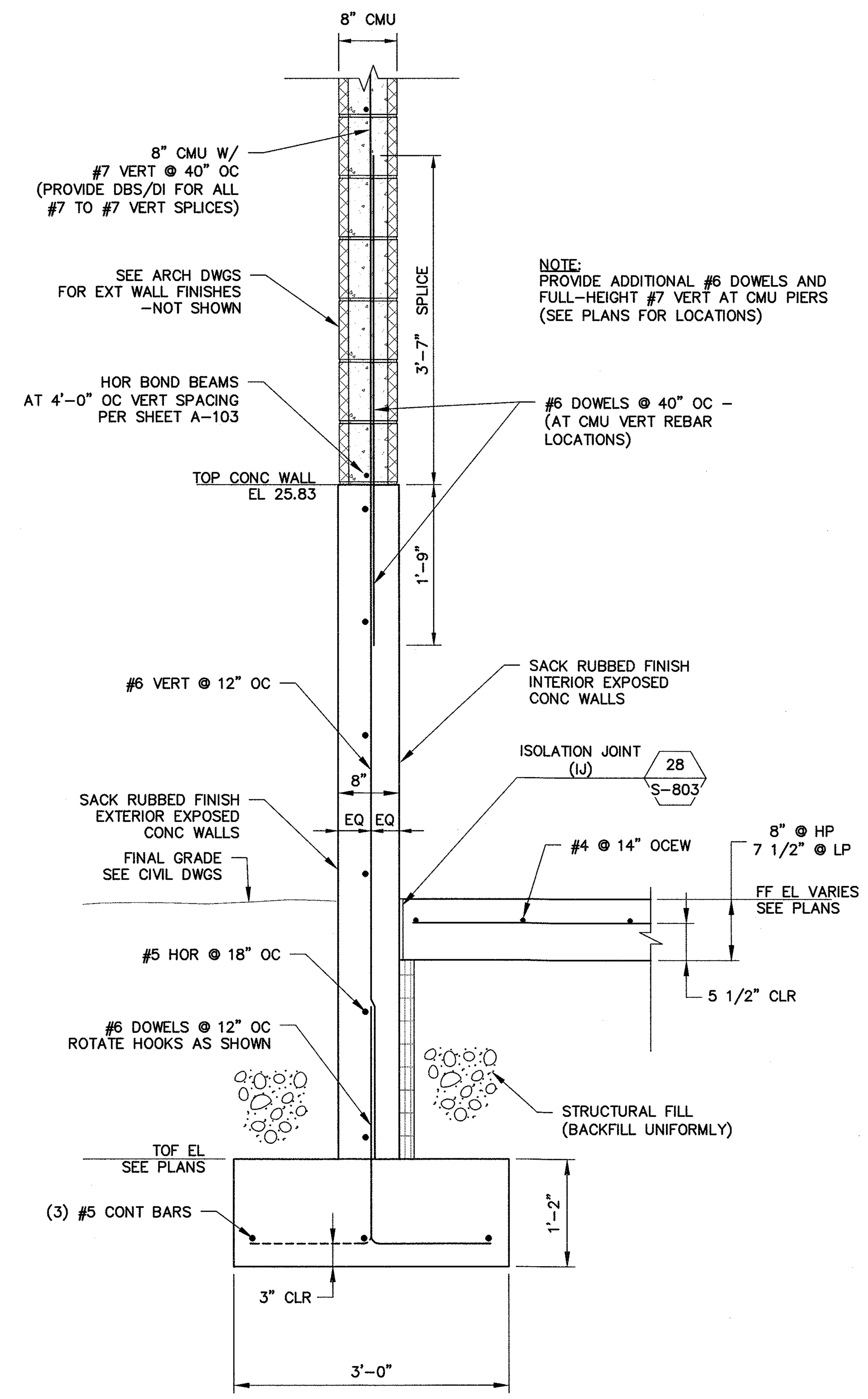
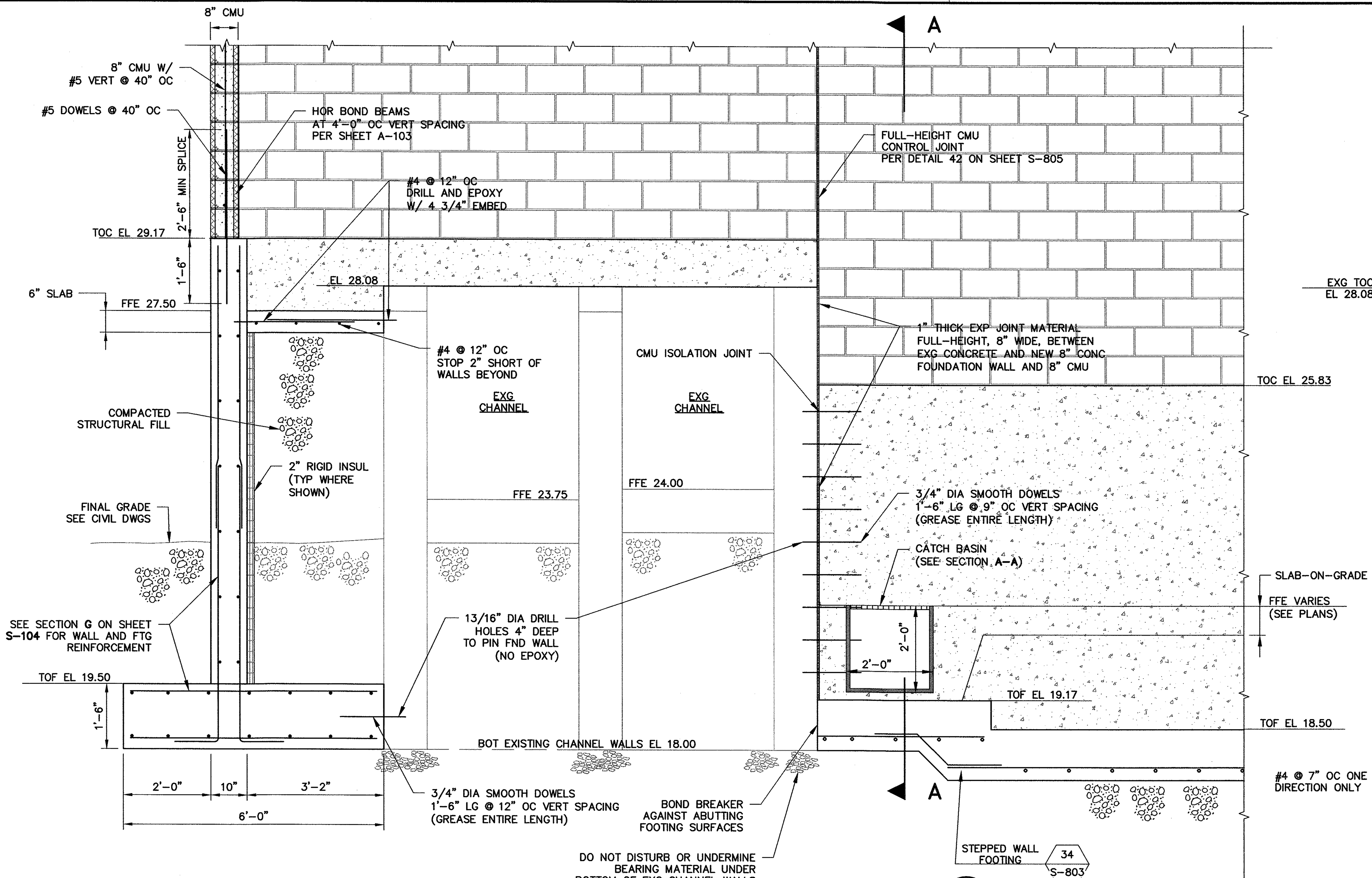
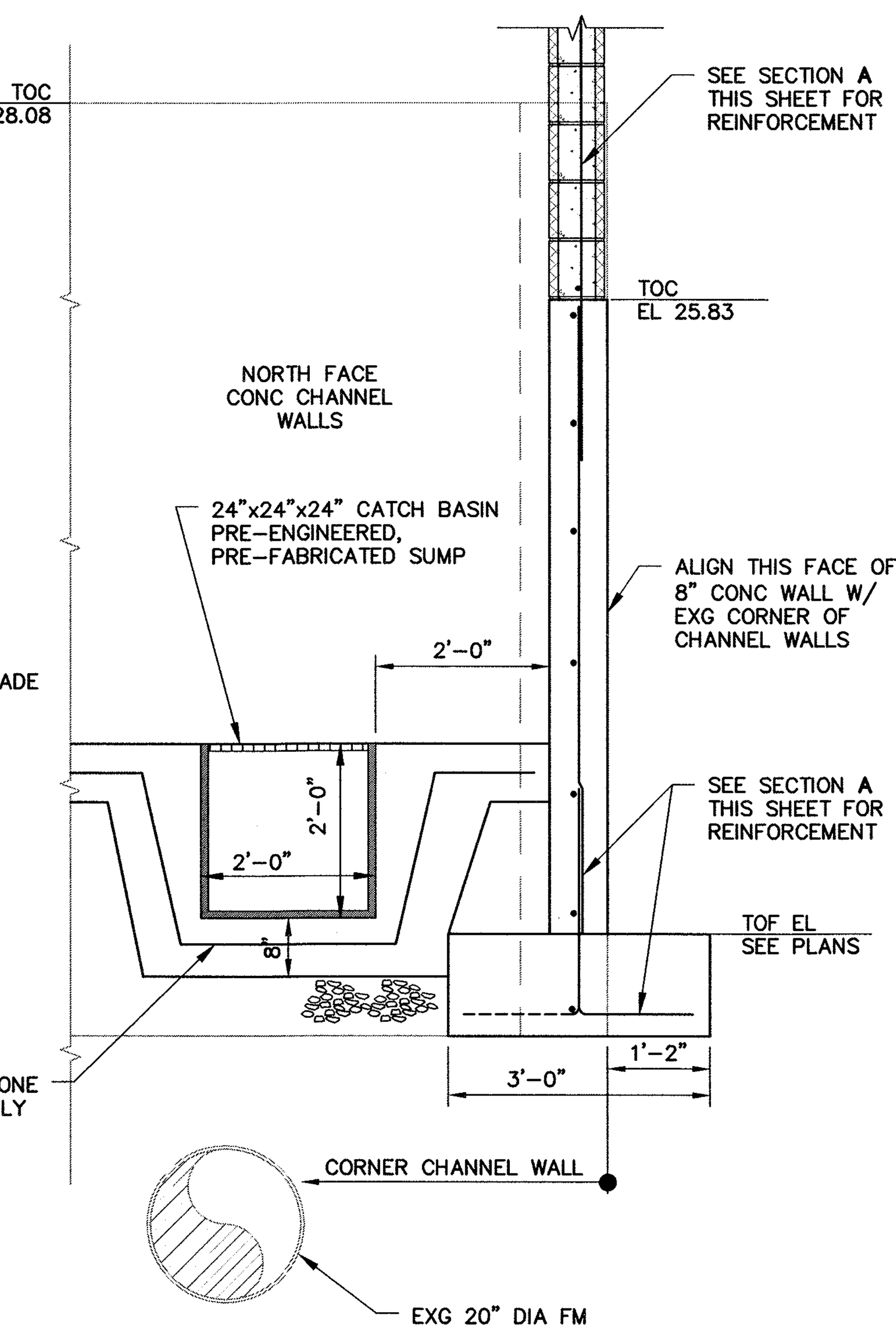


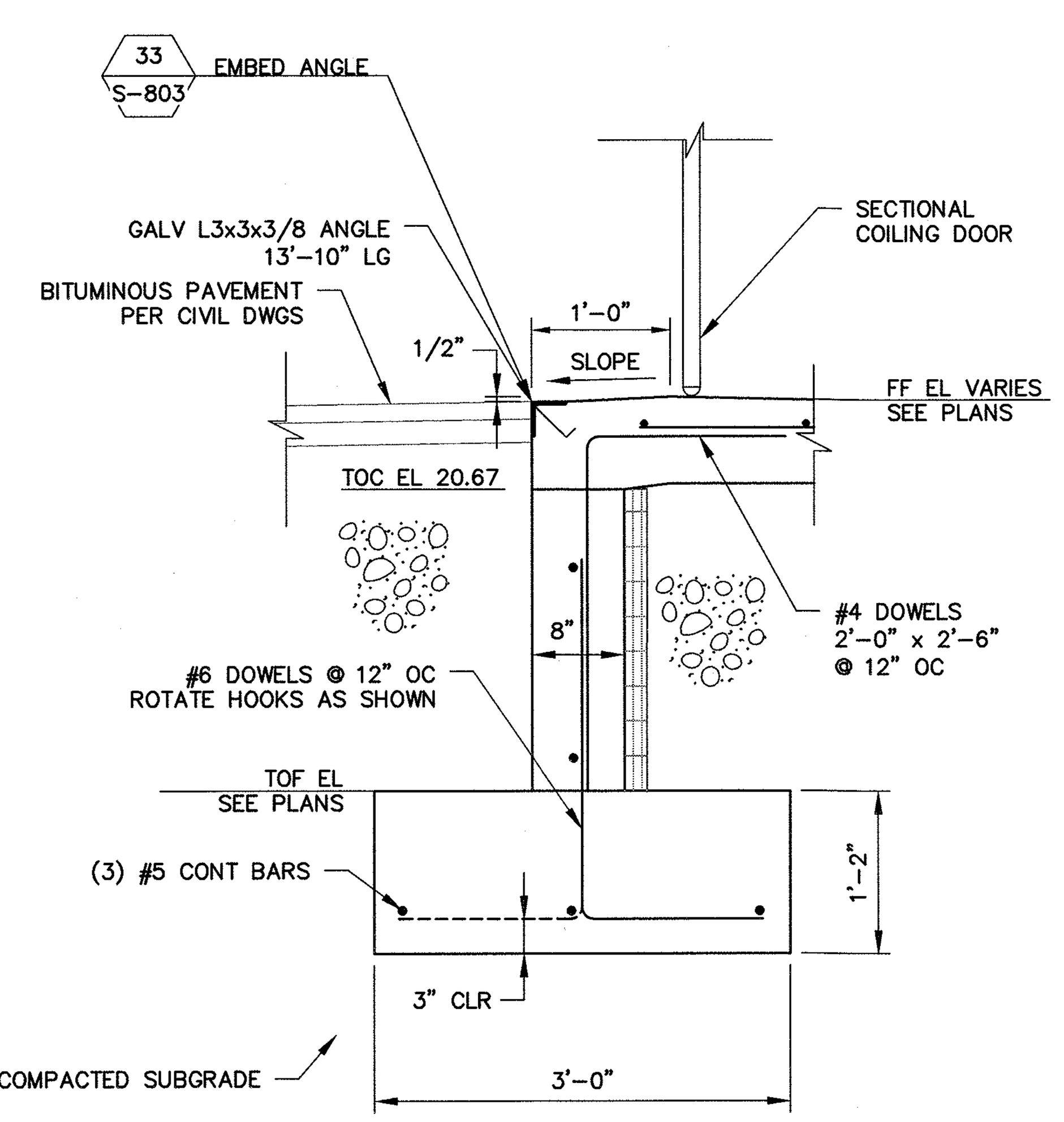
WALL FOOTING (A / S-101)
SCALE: 3/4" = 1'-0"
S-104



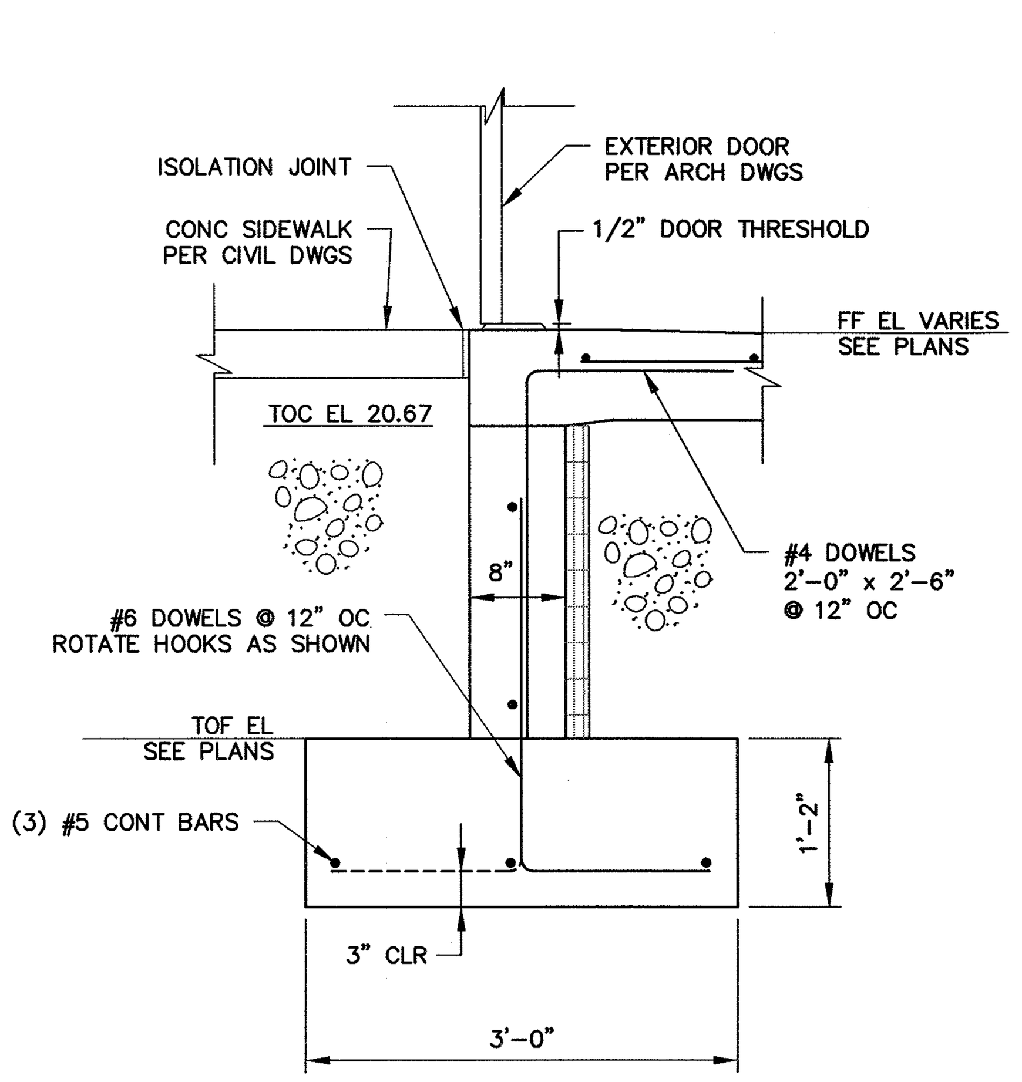
SECTION (B / S-101)
SCALE: 1/2" = 1'-0"



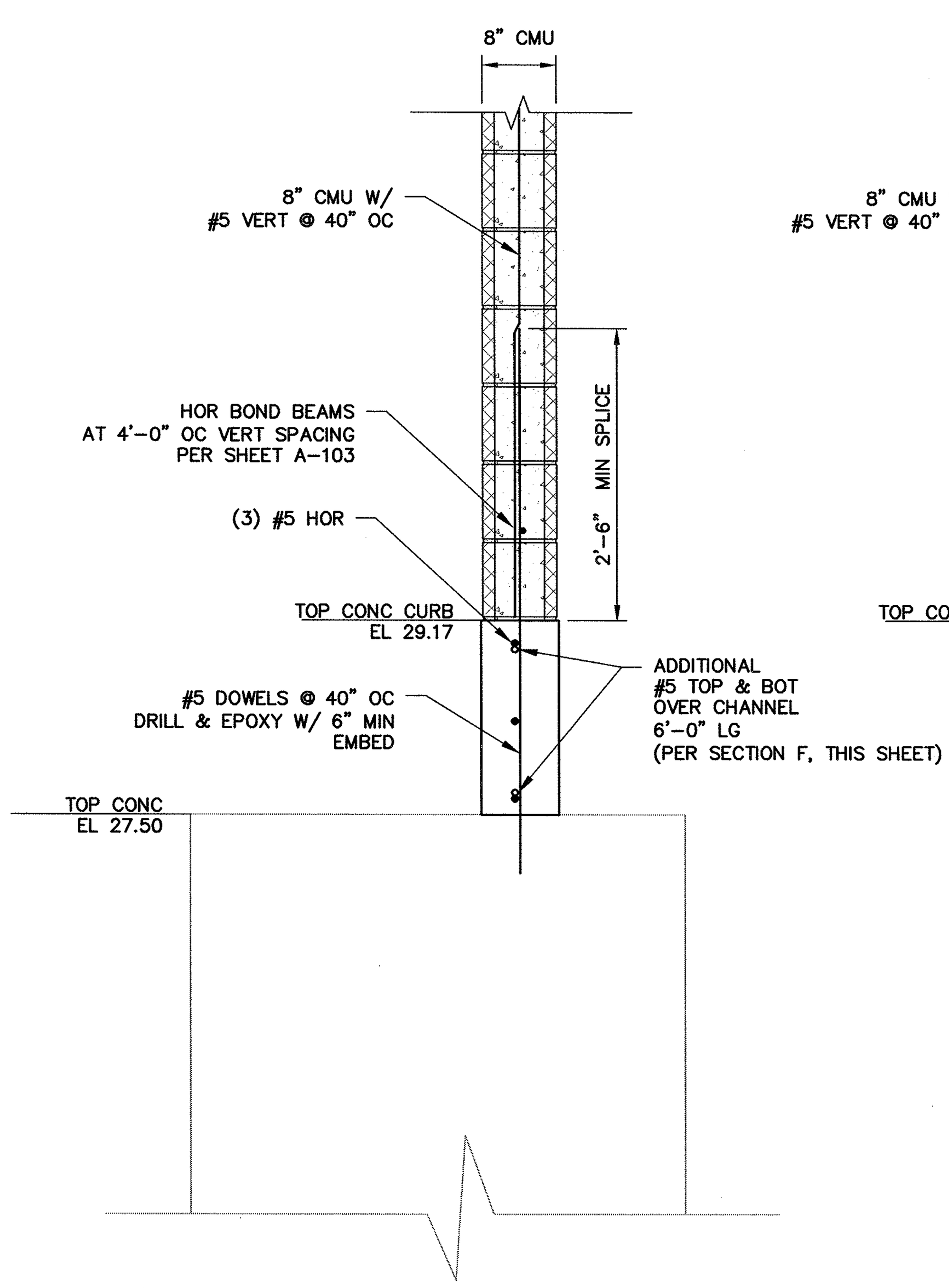
SECTION A–A



COILING DOOR ENTRANCE (C / S-101)
SCALE: 3/4" = 1'-0"



DOOR ENTRANCE (D / S-101)
SCALE: 3/4" = 1'-0"



CONC CURB WALL (E / S-101)
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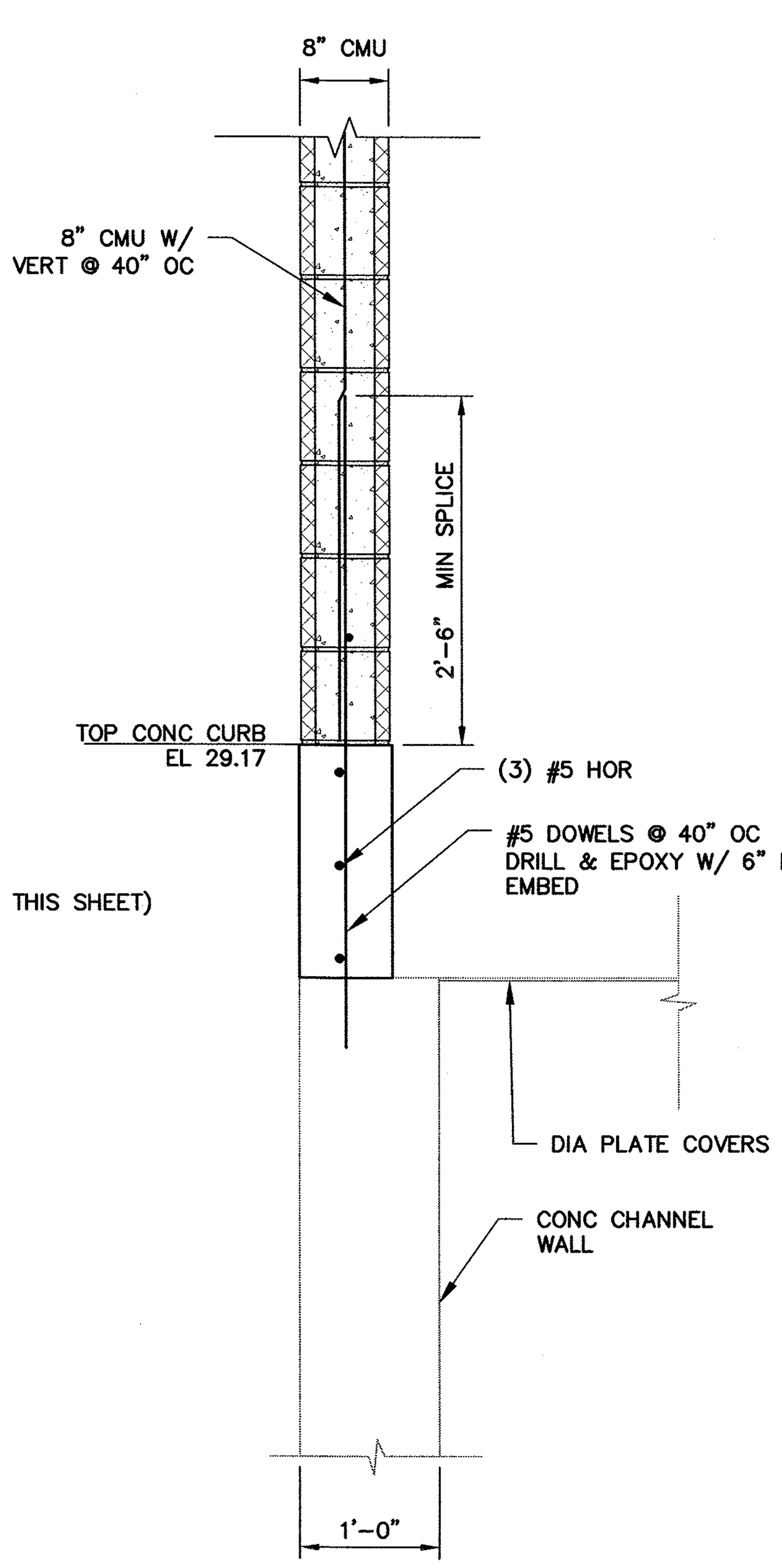
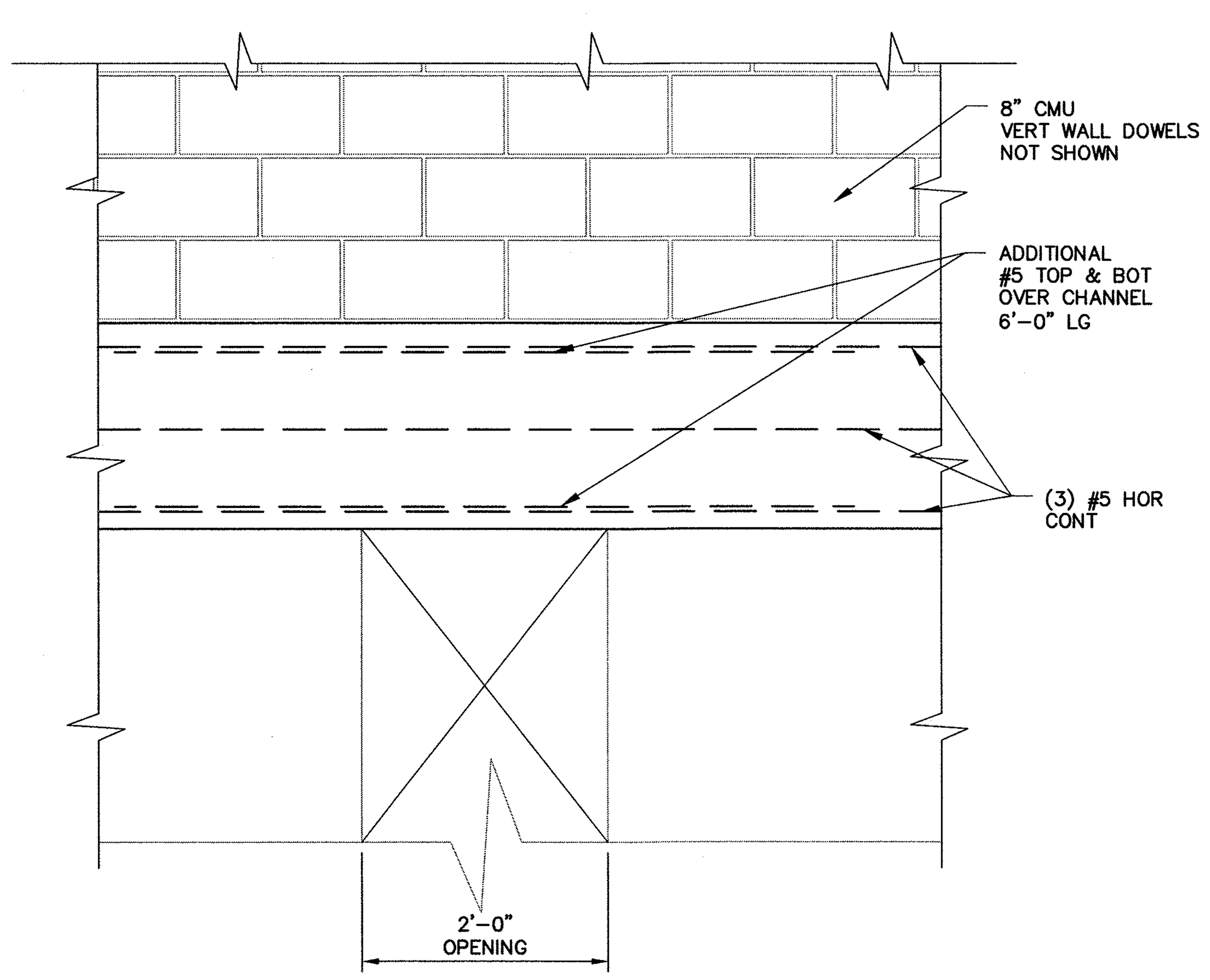


CONC CURB WALL (E1 / S-101)
SCALE: 3/4" = 1'-0"



CURB OVER CHANNEL (F / S-101)
SCALE: 3/4" = 1'-0"
SD-101

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BID ALTERNATE #1
HEADWORKS BUILDING
STRUCTURAL FOUNDATION
SECTIONS & DETAILS 1

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
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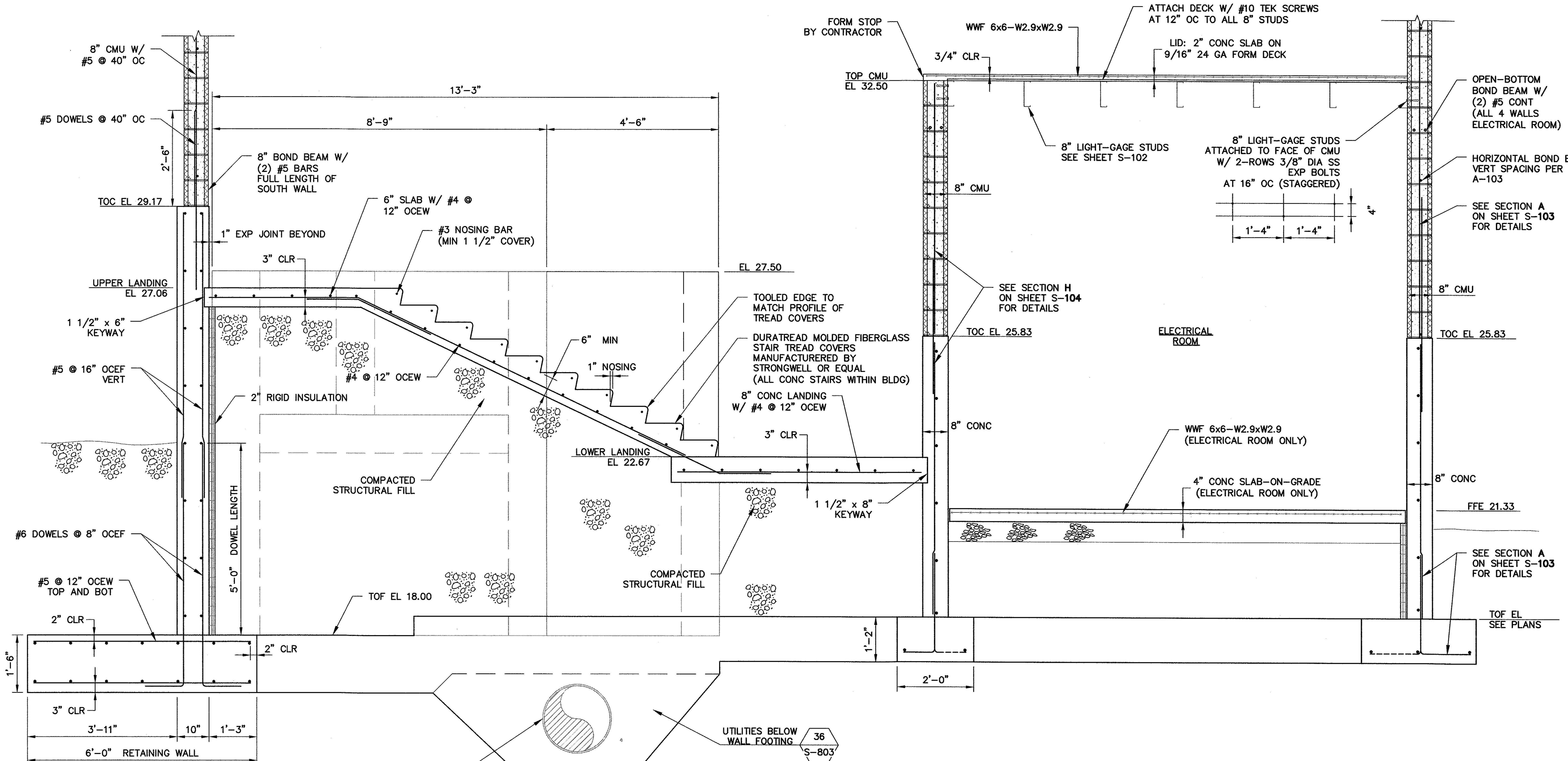
SHEET: 21 OF 116

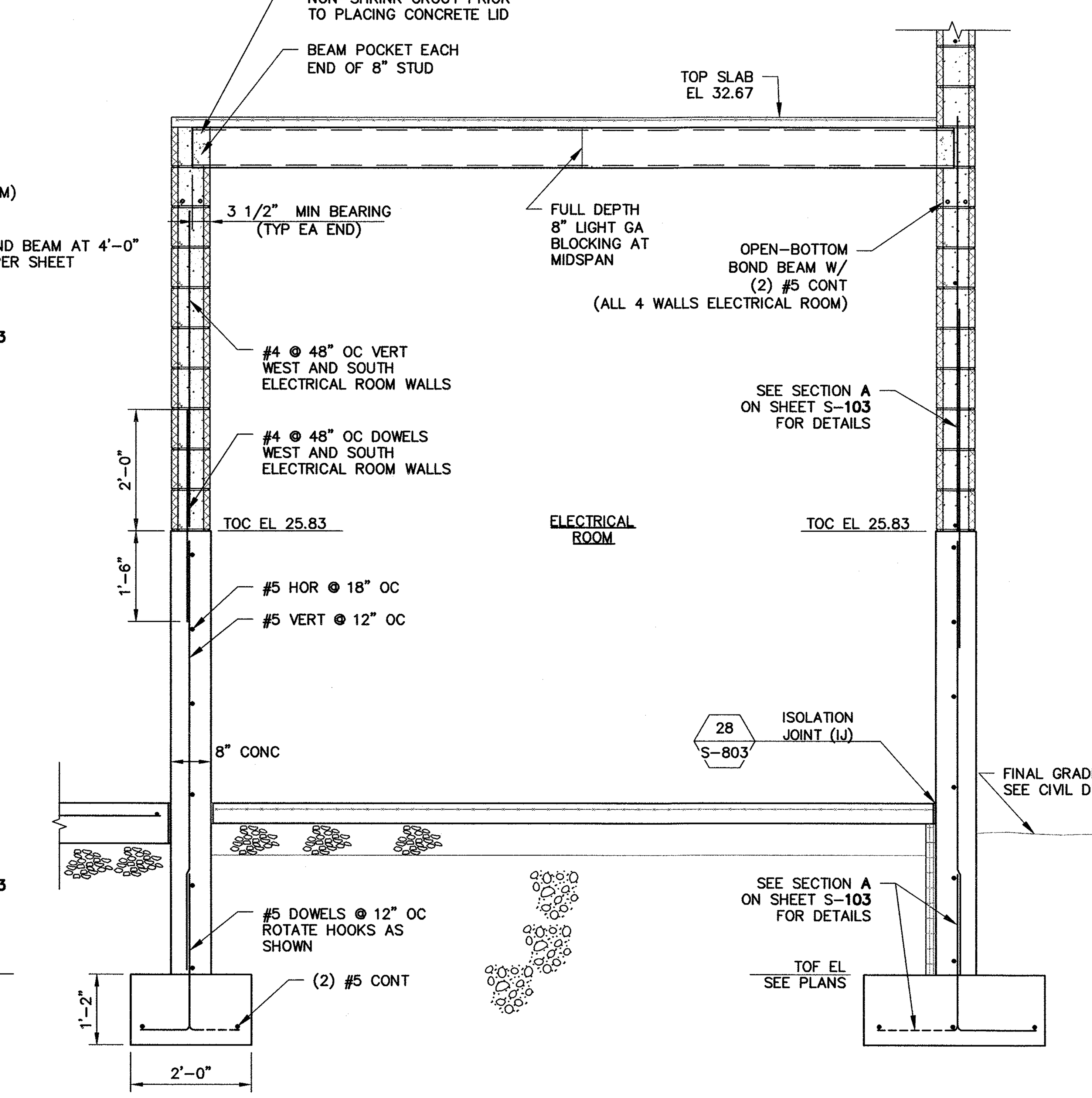
S-103



NORTH-SOUTH BUILDING SECTION (G / S-101)

SCALE: 1/2" = 1'-0"

S-102
S-103



ELECTRICAL ROOM (H / S-101)

SCALE: 1/2" = 1'-0"

S-102

NOTE:

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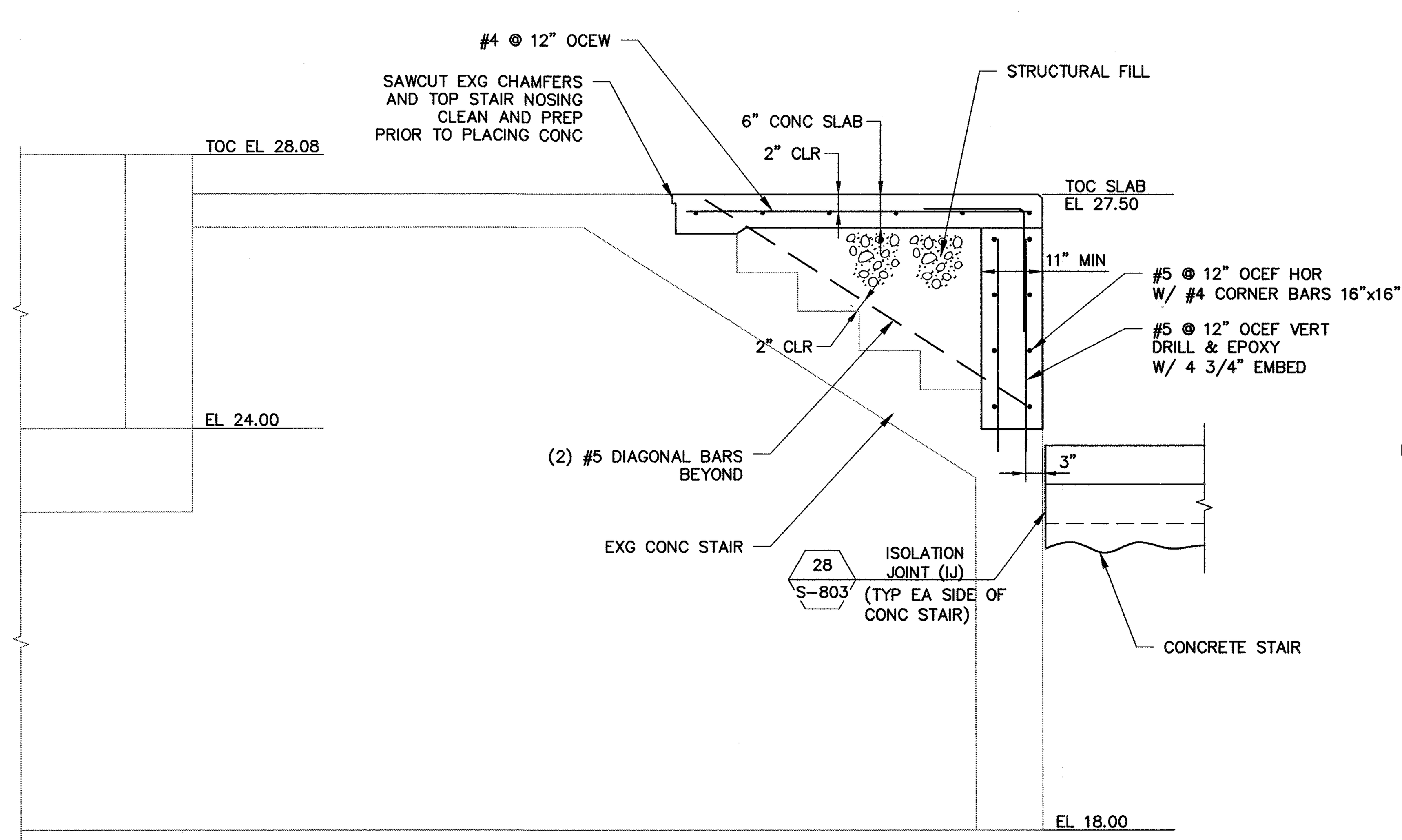
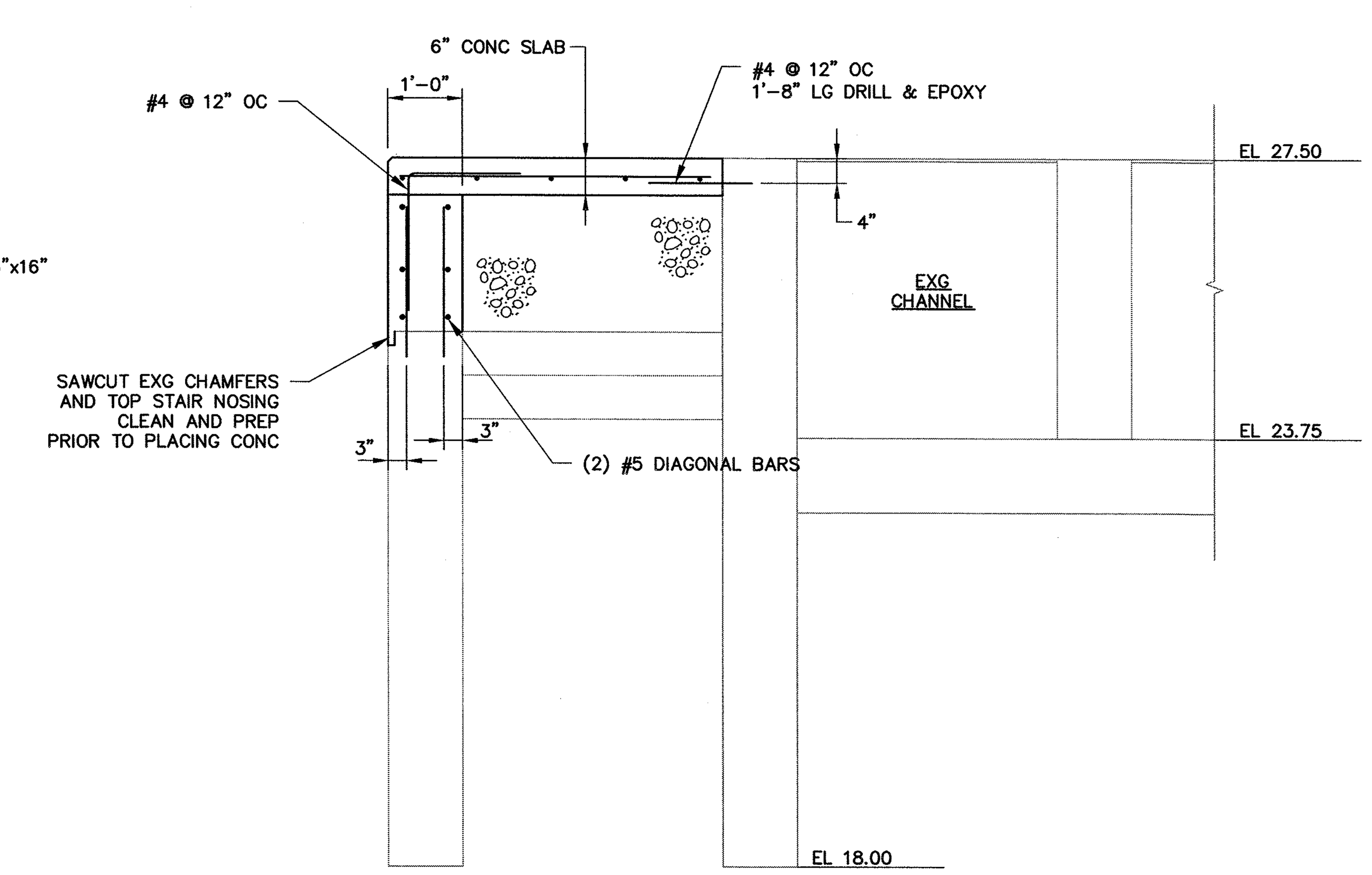


EXG STAIR INFILL (J / S-101)

SCALE: 1/2" = 1'-0"

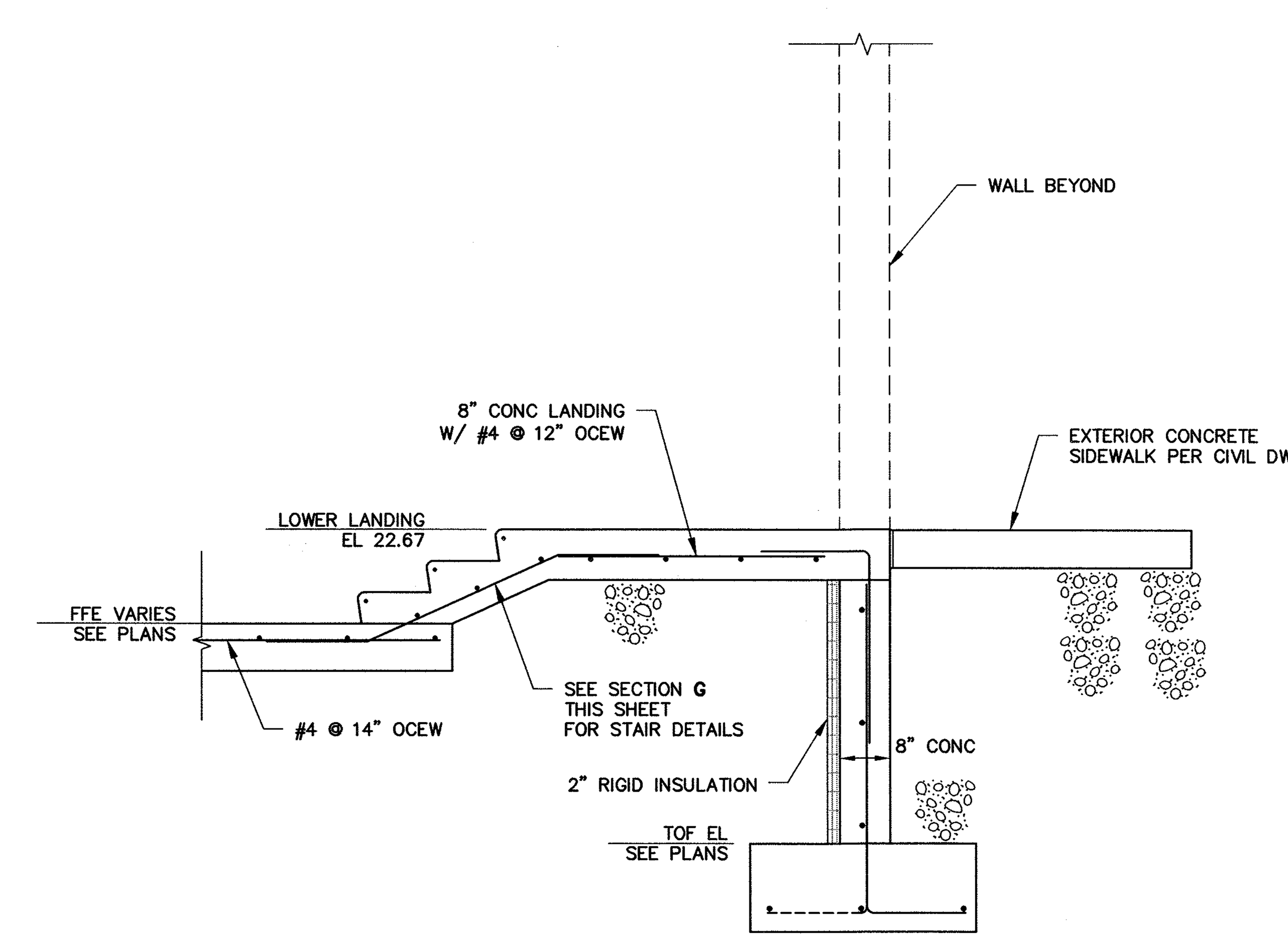
SD-101



EXG STAIR INFILL (K / S-101)

SCALE: 1/2" = 1'-0"

SD-101



STAIR LOWER LANDING (L / S-101)

SCALE: 1/2" = 1'-0"

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BID ALTERNATE #1
HEADWORKS BUILDING
STRUCTURAL FOUNDATION
SECTIONS & DETAILS 2

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
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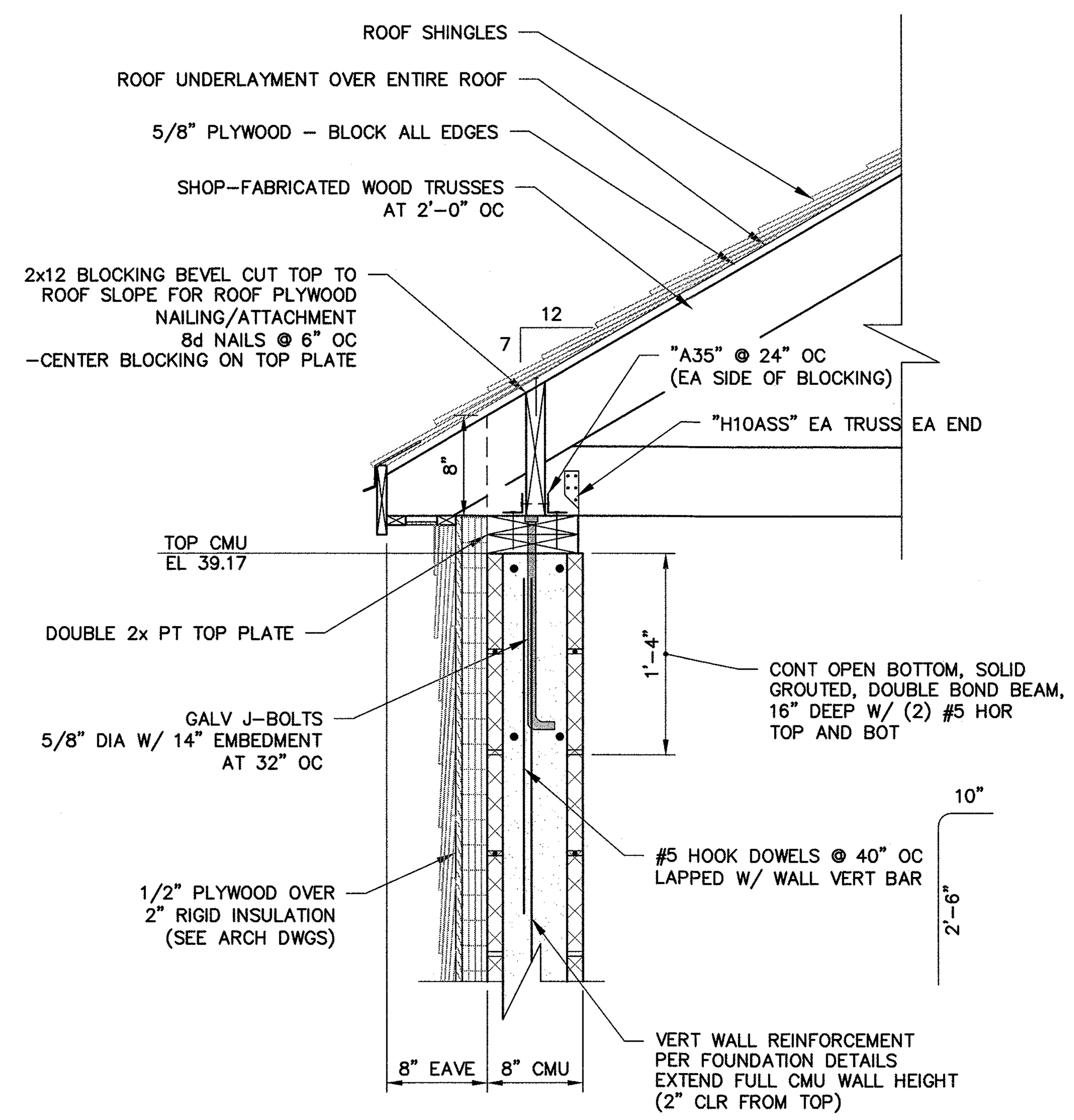
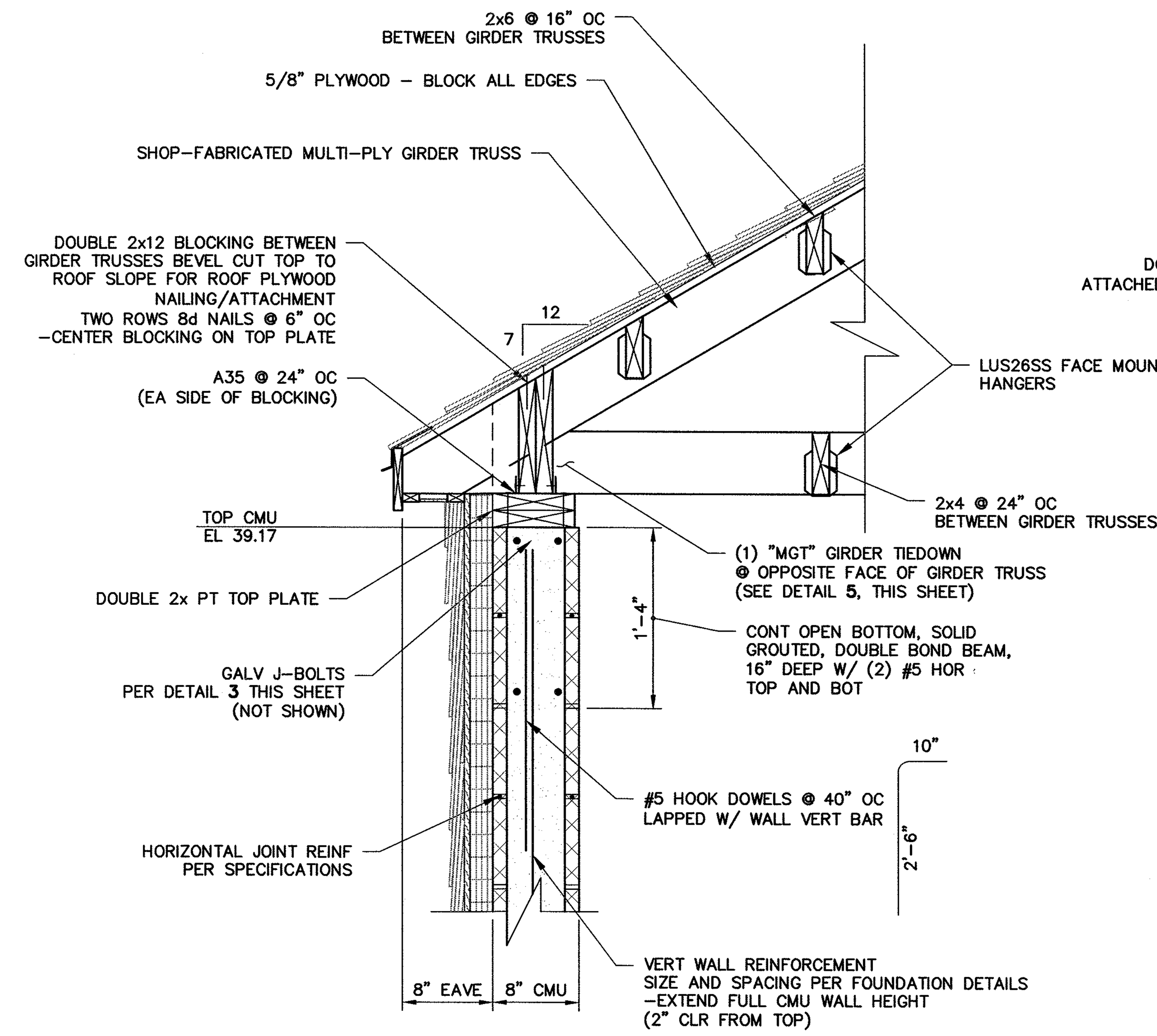
SHEET: 22 OF 116

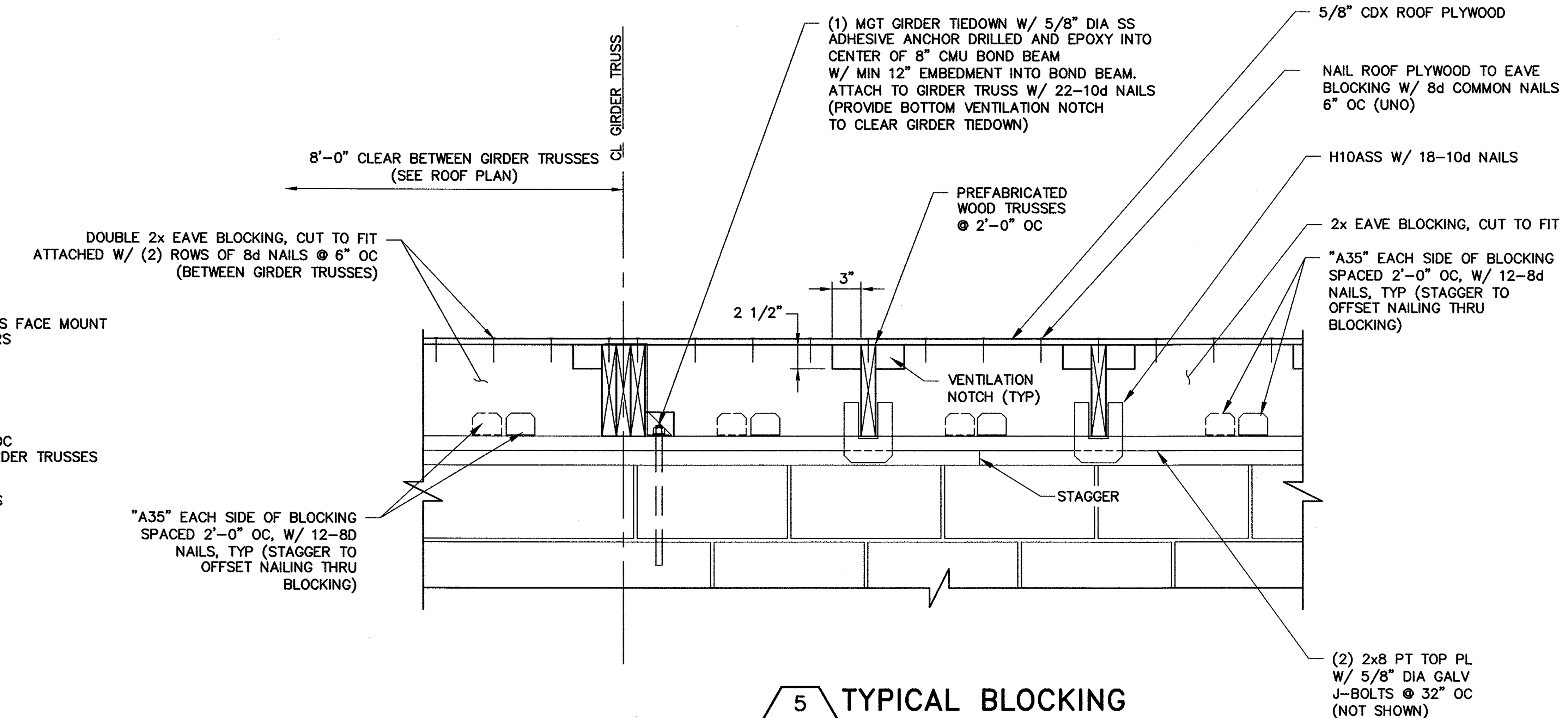
S-104



3 TYP EAVE
S-102
SCALE: 1" = 1'-0"



4 EAVE AT GIRDER TRUSS
S-102
SCALE: 1" = 1'-0"



5 TYPICAL BLOCKING
S-102
SCALE: NTS

(AS VIEWED FROM INTERIOR SIDE OF WALL)

ROOF FRAMING NOTES:

1. FASTEN ROOF SHEATHING TO SUPPORTS WITH 8d COMMON NAILS (2½"x0.131") AT 6" OC AT ALL PANEL EDGES AND AT 12" OC AT INTERMEDIATE SUPPORTS, UNLESS NOTED OTHERWISE.

2. EXACT TRUSS LAYOUT SHALL BE PER APPROVED TRUSS SHOP DRAWINGS.

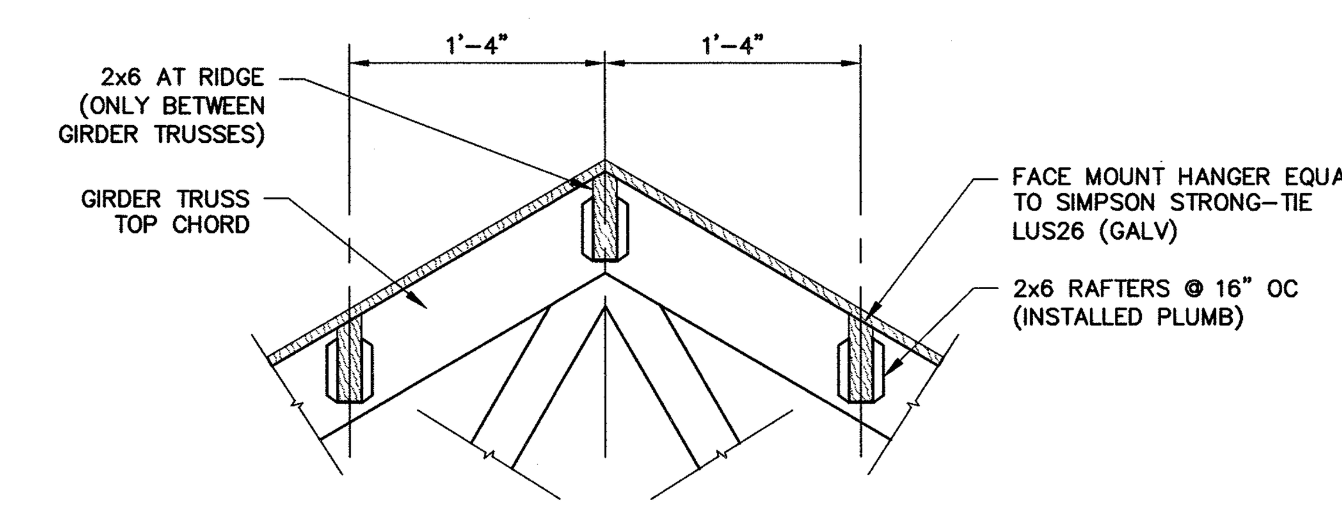
3. ALL METAL FRAMING ANCHORS LISTED ON DRAWINGS REFER TO SIMPSON STRONG-TIE PRODUCT NUMBERS. METAL FRAMING COATINGS SHALL BE:

H10ASS: STAINLESS STEEL
A35: STAINLESS STEEL
MGT: G90 GALVANIZED
MSTCM40: G90 GALVANIZED
LUS26SS: STAINLESS STEEL

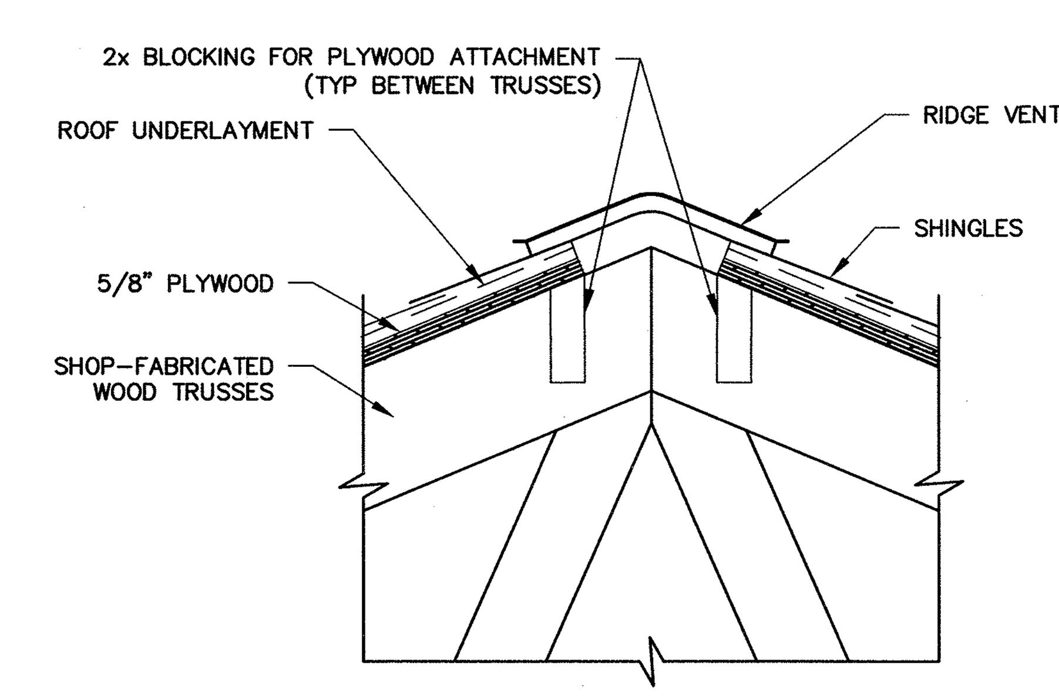
4. ALL NAILS SHALL BE 316 SS.

5. PROVIDE RIDGE VENT ARCHITECTURAL DRAWINGS FOR ATTIC VENTILATION.

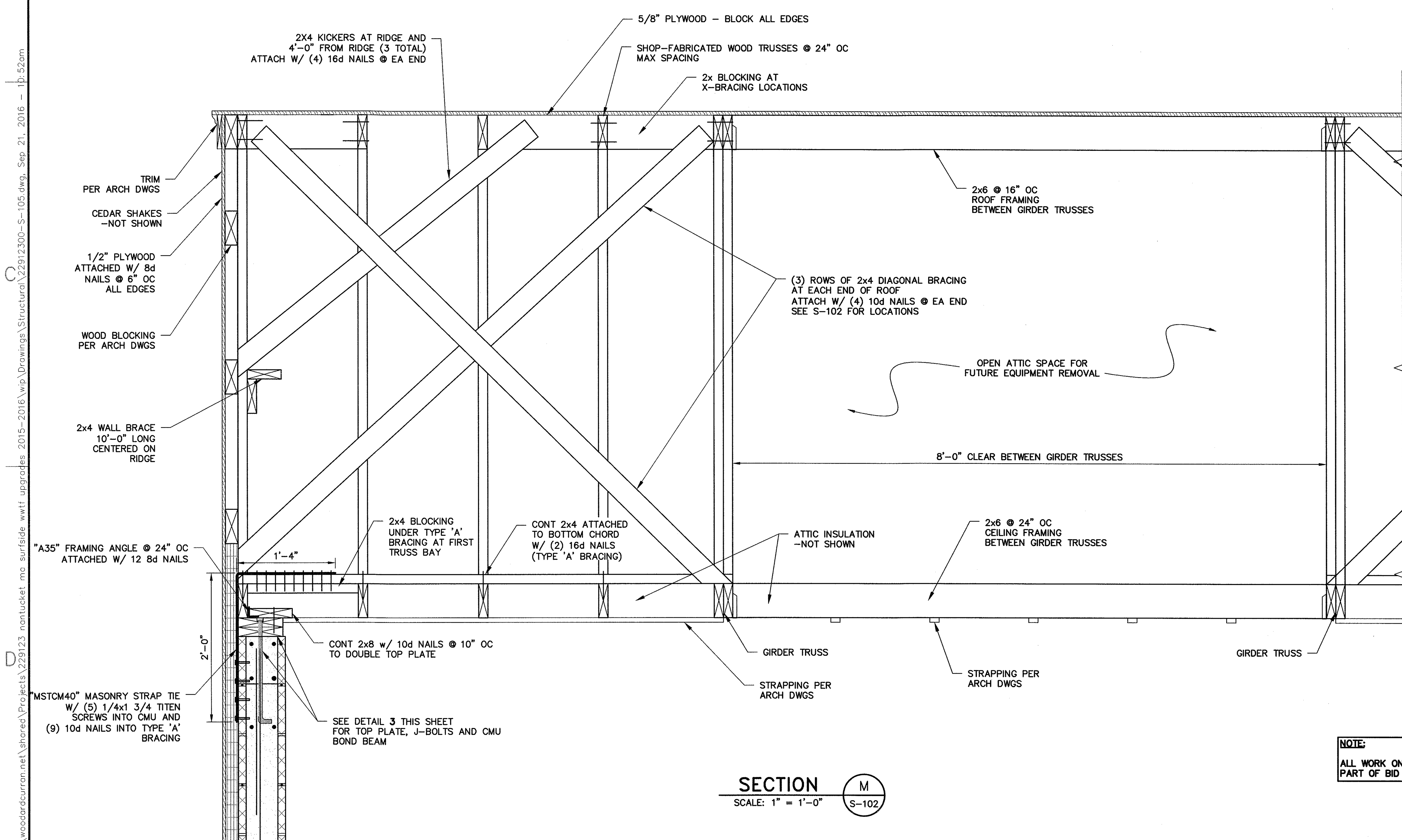
6. PERMANENT TRUSS DIAGONAL WEB BRACING TO BE COORDINATED WITH WEB LATERAL BRACING AS REQUIRED BY TRUSS MANUFACTURER. ALL TRUSS BRACING SHALL BE PROVIDED AT NO ADDITIONAL COST TO OWNER.



6 RIDGE AT RAFTERS
S-102
SCALE: NTS



7 RIDGE VENT
S-102
SCALE: NTS



SECTION M
S-102
SCALE: 1" = 1'-0"

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DESIGNED BY: SMH | CHECKED BY: JPS
DRAWN BY: SMH | 229123.00-S-105.dwg

BID ALTERNATE #1
HEADWORKS BUILDING
STRUCTURAL ROOF
SECTIONS & DETAILS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
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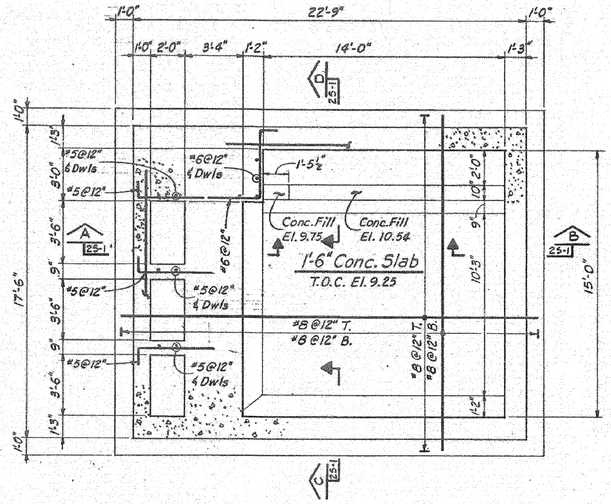
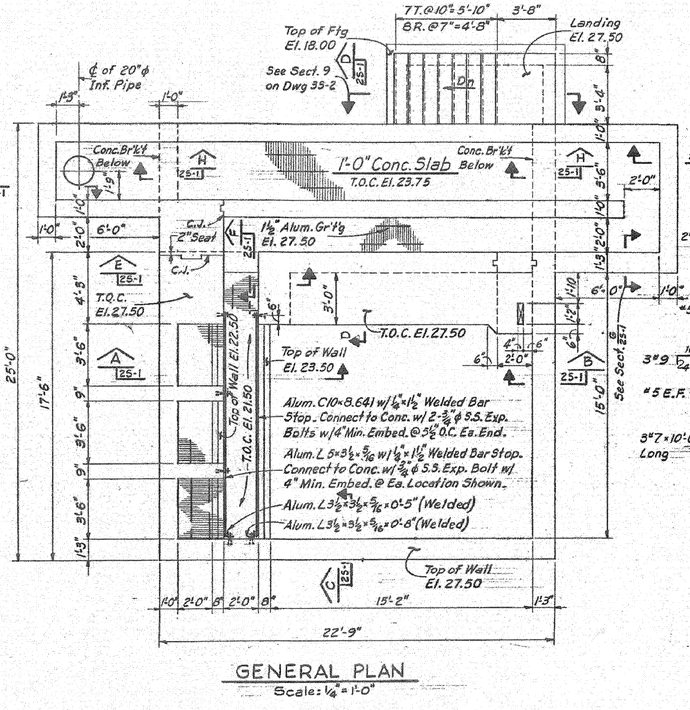
SCALE: AS NOTED
SHEET: 23 OF 116

S-105

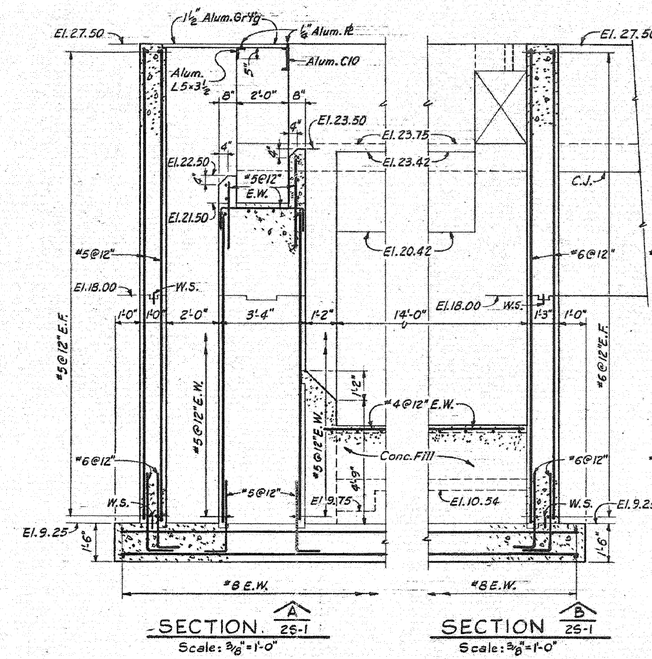
22x34 SHEET
1:1



FOUNDATION PLAN
Scale: ¼"=1'-0"

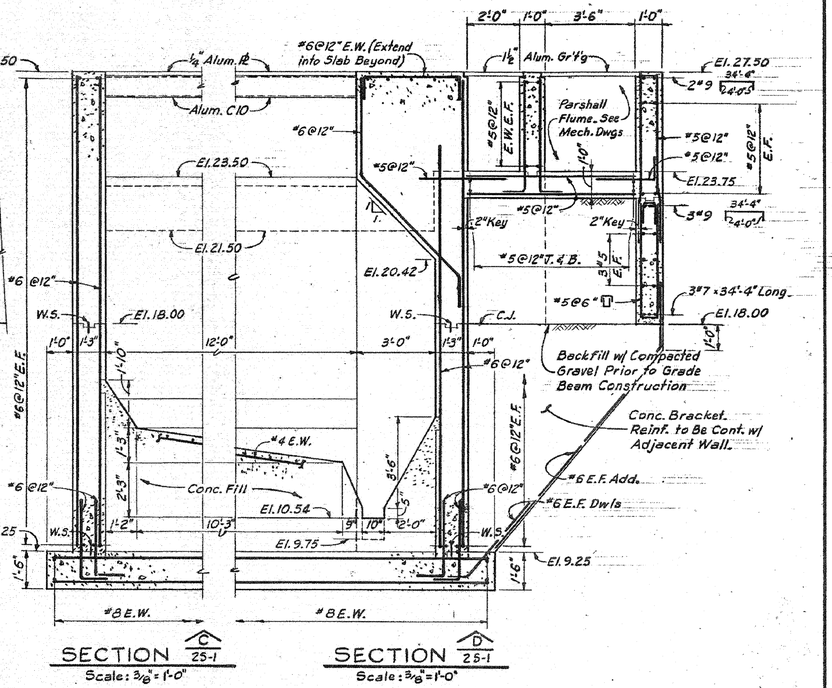


GENERAL PLAN
Scale: ¼"=1'-0"



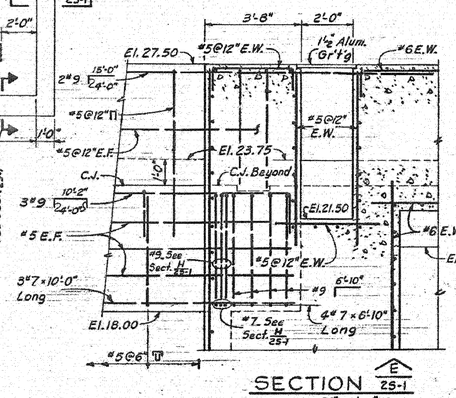
SECTION A 25-1
Scale: ⅜"=1'-0"

SECTION B 25-1
Scale: ⅜"=1'-0"

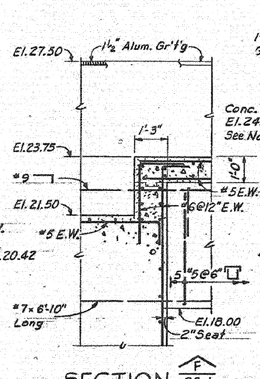


SECTION C 25-1
Scale: ⅜"=1'-0"

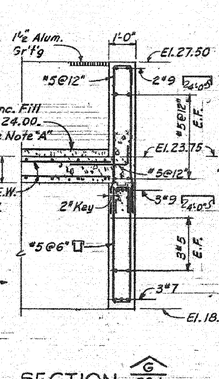
SECTION D 25-1
Scale: ⅜"=1'-0"



SECTION E 25-1
Scale: ⅜"=1'-0"

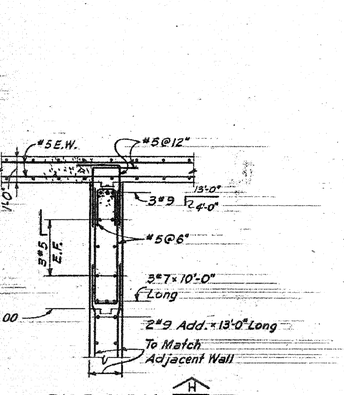


SECTION F 25-1
Scale: ⅜"=1'-0"



SECTION G 25-1
Scale: ⅜"=1'-0"

NOTE "A"
Conc. Fill Req'd Only in Portion of Channel Between Influent Pipe and Parshall Flume.



SECTION H 25-1
Scale: ⅜"=1'-0"

RECORD PLAN

For General Notes and Typical Details See Dwg GS-1.

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS — DAVID S. HOWARD — No. 42008 — REGISTERED PROFESSIONAL ENGINEER
9-23-16

REV	DESCRIPTION	DATE
	DESIGNED BY: SMH	CHECKED BY: JPS
	DRAWN BY: SMH	2291200-S-106.dwg

HEADWORKS EXISTING CONDITIONS 1

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: NOT TO SCALE
SHEET: 24 OF 116

S-106

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.

DESIGNED
DRAWN
CHECKED A.C.

APPROVED

NO.	DATE	REVISION
2	2/92	REVISED TO RECORD PLANS
1	1/89	REVISED AS PER STATE COMMENTS

TOWN OF
NANTUCKET, MASSACHUSETTS

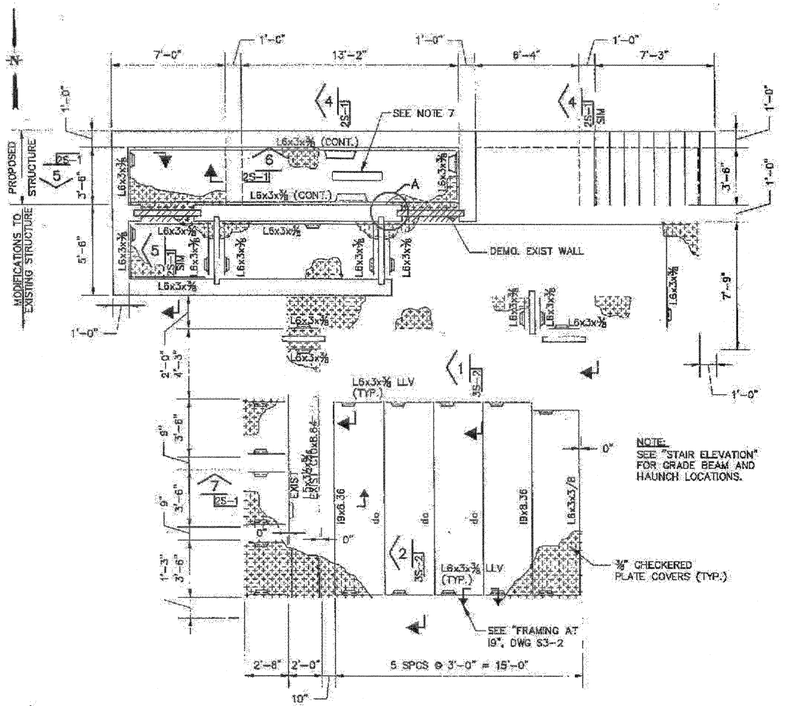
SURFSIDE WASTEWATER
TREATMENT FACILITIES

HEADWORKS
PLANS AND DETAILS

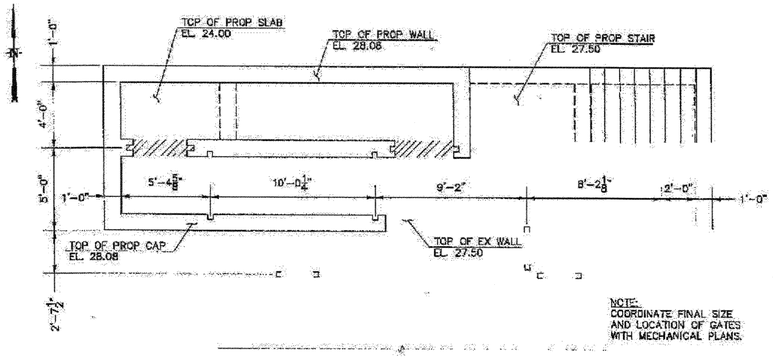
2S-1

DATE JUNE 1988
PROJECT NO. 88-020
SHEET 30 OF 83

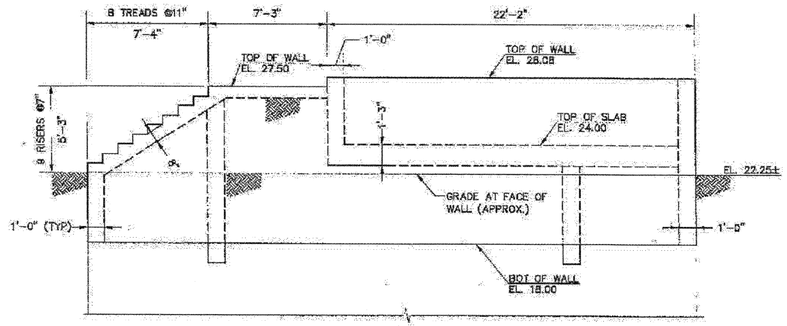
FOR REFERENCE ONLY



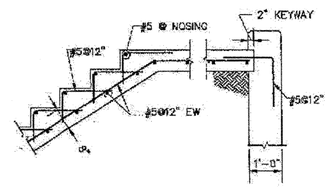
GENERAL PLAN
SCALE: 1/4" = 1'-0"



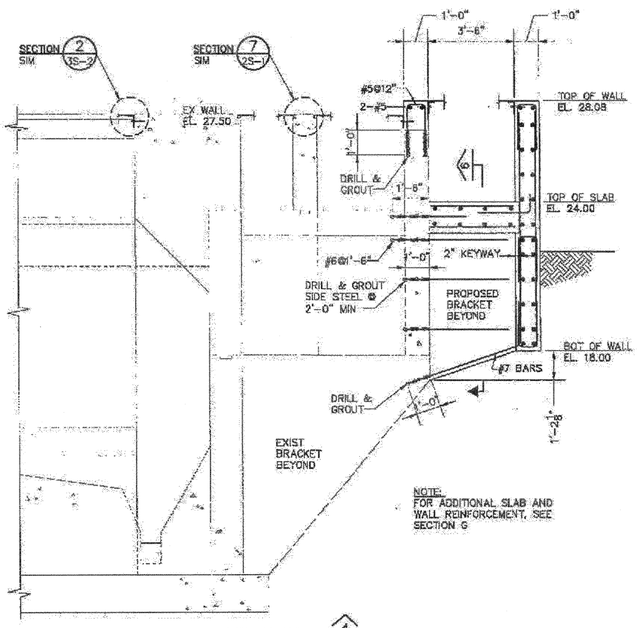
GATE LOCATION PLAN
SCALE: 1/4" = 1'-0"



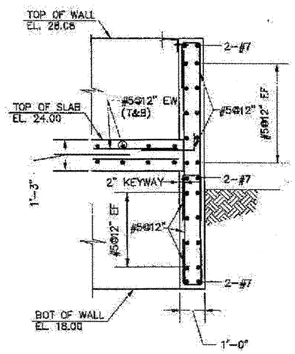
STAIR ELEVATION
SCALE: 1/4" = 1'-0"



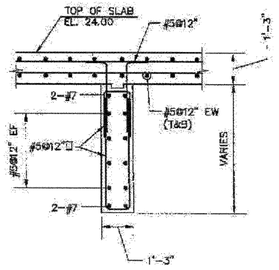
STAIR REINFORCEMENT
SCALE: 1/2" = 1'-0"



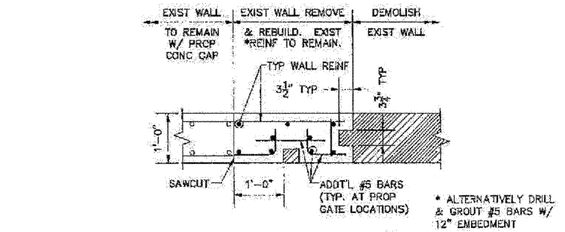
SECTION 4 2S-1
SCALE: 3/8" = 1'-0"



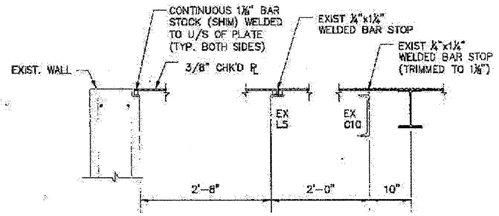
SECTION 5 2S-1
SCALE: 3/8" = 1'-0"



SECTION 6 2S-1
SCALE: 3/8" = 1'-0"



DETAIL A 2S-1
SCALE: 3/4" = 1'-0"



SECTION 7 2S-1
SCALE: 3/4" = 1'-0"

NOTES:

1. ALL SUPPORT FRAMING AND COVERS SHALL BE OF ALUMINUM CONSTRUCTION. COVER PLATES SHALL BE DIAMOND PLATE ALUMINUM ALLOY 6061-T6.
2. ALL HARDWARE TO BE STAINLESS STEEL TYPE 316, U.O.N.
3. ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL BE COATED WITH BITUMASTIC ASPHALTIC MASTIC.
4. FOR DEMOLITION OF EXISTING STAIRS AND OTHER DEMOLITION WORK, SEE DRAWING 2M-1.
5. FOR ANCHORAGE OF THE 3/8" CHECKERED PLATE TO THE I9 BEAMS, SEE "PLATE DETAIL AT I9 SUPPORT," DRAWING S3-2.
6. FOR TYPICAL CHECKERED PLATE DETAILS, STIFFENER REQUIREMENTS AND SPLICE DETAILS, SEE "TYPICAL PLAN" AND "TYPICAL SECTION", DRAWING 3S-2.
7. COORDINATE THE SIZE AND LOCATION OF THE CHECKER PLATE OPENING FOR THE CHANNEL MONSTER WITH MECHANICAL DRAWINGS. FOR STIFFENER REQUIREMENTS AROUND OPENINGS, SEE "TYPICAL PLAN" DETAIL ON 3S-2.
8. 3/8" ALUM. TREAD PLATE PANELS SHALL NOT EXCEED 10 SQUARE FEET IN AREA.
9. REINFORCE PANELS WITH STIFFENERS TO SUPPORT 100 PSF LIVE LOAD WITH A MAXIMUM DEFLECTION OF 1/360 TIMES THE SPAN OF THE PLATE.
10. PROVIDE TWO RECESSED LIFT HANDLES PER PLATE.
11. PRE-DRILL HOLES IN PLATES AND FASTEN TO SUPPORT FRAMES WITH 1/4" S.S FLAT HEAD SCREWS 1'-0" O.C.. FIELD TAP HOLES IN SUPPORTS TO MATCH PLATE HOLE LOCATIONS.
12. COORDINATE OPENINGS REQUIRED FOR PIPING AND OTHER PENETRATIONS WITH MECHANICAL DRAWINGS AND FIELD-MEASURED LOCATIONS.
13. DESIGN LOADS:

    200 PSF = MAXIMUM LIVE LOAD
    100 PSF = LIVE LOAD WITH DEFL. LESS THAN SPAN/360

14. U.N.O. = UNLESS NOTED OTHERWISE

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WOODARD & CURRAN
COMMITMENT & INTEGRITY DRIVE RESULTS

NO.	DESCRIPTION	DATE	BY
2	RELEASED FOR CIP	4/06	
1	REVISED PER RFI/FW COMMENTS	11/05	

FULL SIZE DRAWING = 4"

RECORD DRAWING

NANTUCKET, MASSACHUSETTS
UPGRADES TO THE SURFSIDE WASTEWATER TREATMENT FACILITY
HEADWORKS
SECTIONS AND DETAILS

DESIGNED BY APL	DWG SCALE AS SHOWN
DRAWN BY APL	CONTRACT NO 78062
CHECKED BY RJG	DATE JUNE 2016

2S-1

SHEET 25 OF 116

HEADWORKS EXISTING CONDITIONS 2

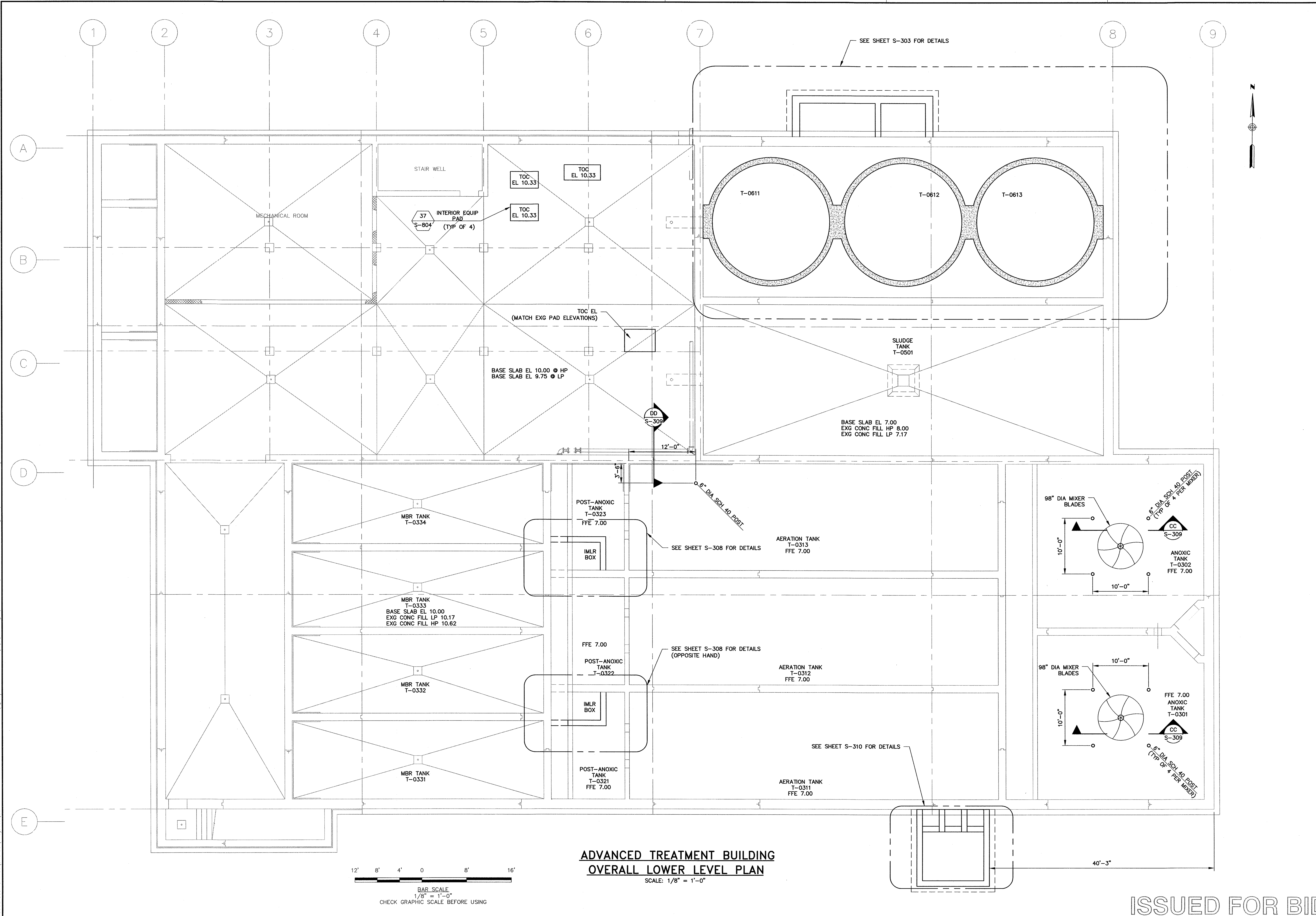
DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

DESIGNED BY: SMH	CHECKED BY: JPS
DRAWN BY: SMH	2291230-S-107.dwg

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: NOT TO SCALE
SHEET: 25 OF 116

S-107



SEE SHEET S-303 FOR DETAILS
STAIR WELL
MECHANICAL ROOM
TOC EL 10.33
TOC EL 10.33
TOC EL 10.33
37 S-804
INTERIOR EQUIP PAD (TYP OF 4)
T-0611
T-0612
T-0613
TOC EL (MATCH EXG PAD ELEVATIONS)
SLUDGE TANK T-0501
BASE SLAB EL 10.00 @ HP
BASE SLAB EL 9.75 @ LP
DD S-309
BASE SLAB EL 7.00
EXG CONC FILL HP 8.00
EXG CONC FILL LP 7.17
12'-0"
3'-6"
6" DIA SCH 40 POST
MBR TANK T-0334
POST-ANOXIC TANK T-0323 FFE 7.00
IMLR BOX
SEE SHEET S-308 FOR DETAILS
AERATION TANK T-0313 FFE 7.00
98" DIA MIXER BLADES
6" DIA SCH 40 POST (TYP OF 4 PER MIXER)
CC S-309
10'-0"
ANOXIC TANK T-0302 FFE 7.00
MBR TANK T-0333
BASE SLAB EL 10.00
EXG CONC FILL LP 10.17
EXG CONC FILL HP 10.62
FFE 7.00
POST-ANOXIC TANK T-0322
SEE SHEET S-308 FOR DETAILS (OPPOSITE HAND)
AERATION TANK T-0312 FFE 7.00
MBR TANK T-0332
FFE 7.00 ANOXIC TANK T-0301
IMLR BOX
SEE SHEET S-310 FOR DETAILS
MBR TANK T-0331
POST-ANOXIC TANK T-0321 FFE 7.00
AERATION TANK T-0311 FFE 7.00
40'-3"
12' 8' 4' 0 8' 16'
BAR SCALE 1/8" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

ADVANCED TREATMENT BUILDING OVERALL LOWER LEVEL PLAN
SCALE: 1/8" = 1'-0"

22x34 SHEET 1:1

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REV	DESCRIPTION	DATE

DESIGNED BY: SMH | CHECKED BY: JPS
DRAWN BY: SMH | 229123-S-301.dwg

ADVANCED TREATMENT BUILDING OVERALL LOWER LEVEL PLAN

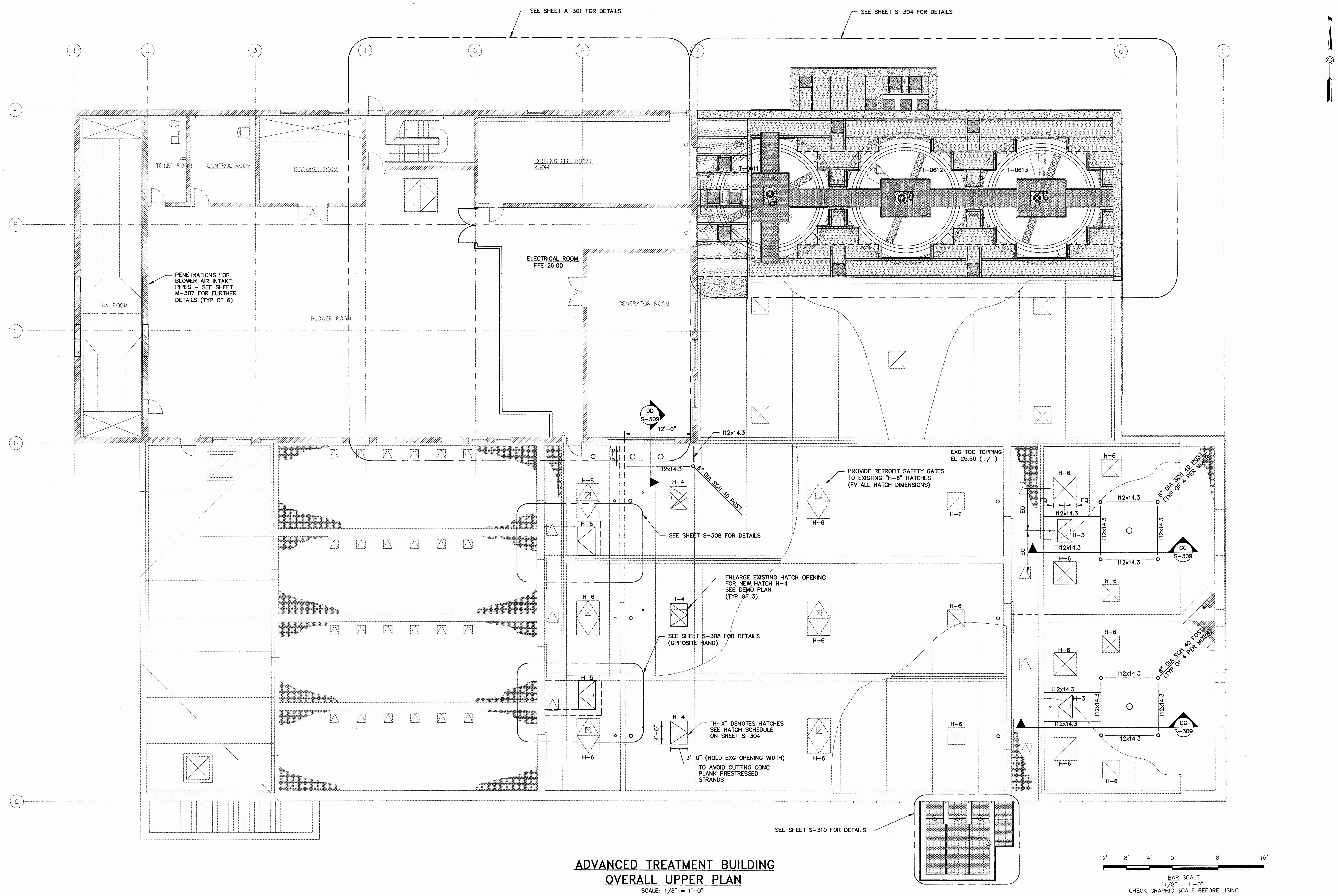
DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 26 OF 116

ISSUED FOR BID

S-301



ADVANCED TREATMENT BUILDING OVERALL UPPER PLAN

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

ISSUED FOR BID

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REV	DATE	DESCRIPTION
DESIGNED BY: SMH	CHECKED BY: JPS	
DRAWN BY: DMB	229123.00-S-302.dwg	

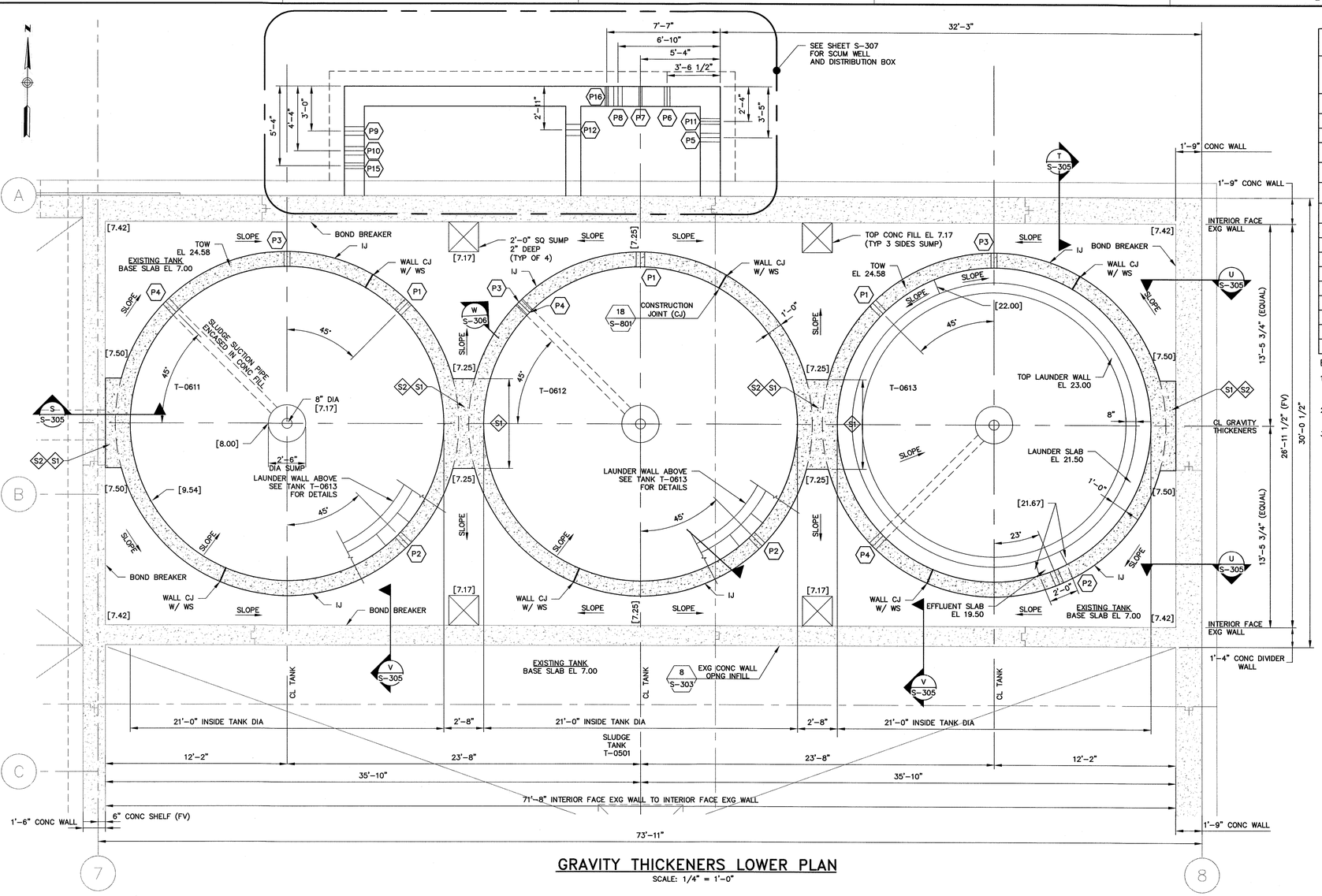
ADVANCED TREATMENT BUILDING OVERALL UPPER LEVEL PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 27 OF 116

S-302



GRAVITY THICKENERS LOWER PLAN

SCALE: 1/4" = 1'-0"

PENETRATION SCHEDULE – 300 DRAWING SERIES

MARK (P#)	SIZE	TYPE	APPROX EL	DESCRIPTION	DETAIL
P1	6" DIA PIPE	FExFE	INV **19.58**	6" DI INFLUENT	**26**/S-802
P2	6" DIA PIPE	PExFE	INV **19.67**	6" DI EFFLUENT	**26**/S-802
P3	4" DIA PIPE	FExFE	CL **18.57**	4" DI SCUM	**26**/S-802
P4	6" DIA PIPE	FExFE	CL **7.85**	6" DI THICKENED SLUDGE	**26**/S-802
P5	6" DIA PIPE	MJxFE	CL **16.00**	6" DI PRIMARY SLUDGE	**26**/S-802
P6	4" DIA PIPE	MECH SEAL	CL **15.50**	4" PVC CARRIER PIPE FOR CHLORINE LINE	**26**/S-802
P7	2" DIA PIPE	MECH SEAL	CL **15.50**	2" PVC PLANT WATER	**26**/S-802
P8	6" DIA PIPE	MJxFE	CL **14.50**	6" DI WAS	**26**/S-802
P9	6" DIA PIPE	MJxFE	CL **13.70**	6" DI SCUM RECIRCULATION	**26**/S-802
P10	6" DIA PIPE	MJxPE	CL **8.00**	6" DI SCUM	**26**/S-802
P11	4" DIA PIPE	MJxFE	CL **17.50**	4" DI PRIMARY SCUM	**26**/S-802
P12	8" DIA PIPE	PExPE	INV **24.08**	8" SCUM OVERFLOW	**26**/S-802
P13	30" DIA PIPE	MJxFE	CL **18.50**	30" RAS D-BOX INFLUENT	**26**/S-802
P14	20" DIA PIPE	MJxPE	CL **18.00**	20" RAS TO ANOXIC TANKS	**26**/S-802
P15	4" DIA PIPE	MECH SEAL	CL **21.00**	4" PVC AIR/VACUUM RELEASE	**26**/S-802
P16	1" DIA PIPE	MECH SEAL	CL **15.50**	1" PVC PLANT WATER	**26**/S-802

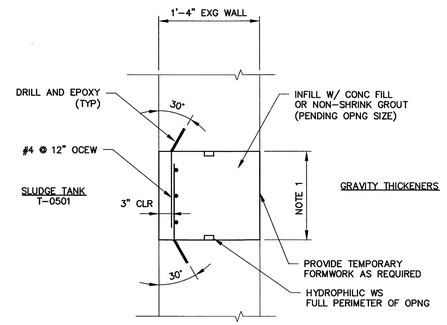
PENETRATION SCHEDULE NOTES:

1. PENETRATION SCHEDULE INCLUDES PENETRATIONS IN NEW WALL CONSTRUCTION ONLY. PENETRATIONS IN EXISTING WALLS ARE EXCLUDED FROM SCHEDULE AND SHALL BE FIELD LOCATED BY CONTRACTOR PER PIPING LAYOUT AS INDICATED ON MECHANICAL DRAWINGS.
2. ALL PENETRATIONS SHALL HAVE WALL PIPE TYPES SPECIFIED, PROTECT, PLUG, AND OR TAPE ALL TAPPED FLANGE HOLES AS REQUIRED TO PREVENT CONCRETE BOND.
3. PROVIDE ADDITIONAL REINFORCEMENT AROUND ALL WALL OPENINGS PER DETAIL **30** ON SHEET **S-803**

STRUCTURAL KEYED NOTES:

S1 GENERAL CONTRACTOR SHALL COORDINATE CONCRETE INFILL DIMENSIONAL REQUIREMENTS BETWEEN CIRCULAR CONCRETE TANKS WITH CONCRETE FORMWORK SUPPLIER AND SUBCONTRACTOR.

S2 BLOCK-OUT TOP OF WALL AS REQUIRED FOR MECHANISM SUPPORT BEAMS PER MECHANISM MANUFACTURER'S CERTIFIED SHOP DRAWINGS. REFER TO SECTION Q ON SHEET S-304,



NOTE 1: CONTRACTOR SHALL FIELD VERIFY QUANTITY, LOCATION, AND SIZE OF POSSIBLE CONCRETE WALL OPENING(S) BETWEEN EXISTING CONCRETE TANKS WHICH SHALL BE INFILLED PER THIS DETAIL. INCLUDE IN BID PRICE THE COST TO INFILL (3) OPENINGS EACH 2-FT WIDE x 4-FT LONG.

8/S-303 EXG CONC WALL OPNG INFILL

SCALE: NTS

STRUCTURAL NOTES:

1. CONSTRUCT (3) NEW GRAVITY THICKENER CIRCULAR CONCRETE TANKS INSIDE EXISTING RECTANGULAR SLUDGE HOLDING TANK #2 AS INDICATED ON PLANS.
2. REFER TO SHEET S-306 FOR TYPICAL GRAVITY THICKENER DETAILS AND REINFORCEMENT.
3. ANNUAL FLOOR SPACE AROUND (3) NEW GRAVITY THICKENER TANKS SHALL BE SLOPED TO (4) SUMPS WITH CONCRETE FILL. APPLY EPOXY BONDING COMPOUND TO EXISTING CONCRETE PRIOR TO PLACING CONCRETE FILL. ROUGHENED TOP SURFACE OF EXISTING BASE SLAB RESULTING FROM DEMOLITION OF EXISTING CONCRETE FILL DOES NOT ELIMINATE THE REQUIREMENT FOR EPOXY BONDING COMPOUND.
4. [XX.XX] INDICATES ELEVATION OF CONCRETE FILL. EXISTING TANK BASE SLAB TOC EL= 7.00.
5. IJ DENOTED ISOLATION JOINT PER DETAIL 28 ON SHEEET S-803. PROVIDE ISOLATION JOINT AROUND EXTERIOR WALLS OF ALL GRAVITY THICKENER TANKS.
6. PROVIDE BOND BREAKER BETWEEN EXISTING CONCRETE TANK WALLS AND CONCRETE FILL.

6' 4' 2' 0 4' 8'

BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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REV	DESCRIPTION	DATE

DESIGNED BY: SMH | CHECKED BY: JPS
DRAWN BY: DMB | 22912300-S-303.dwg

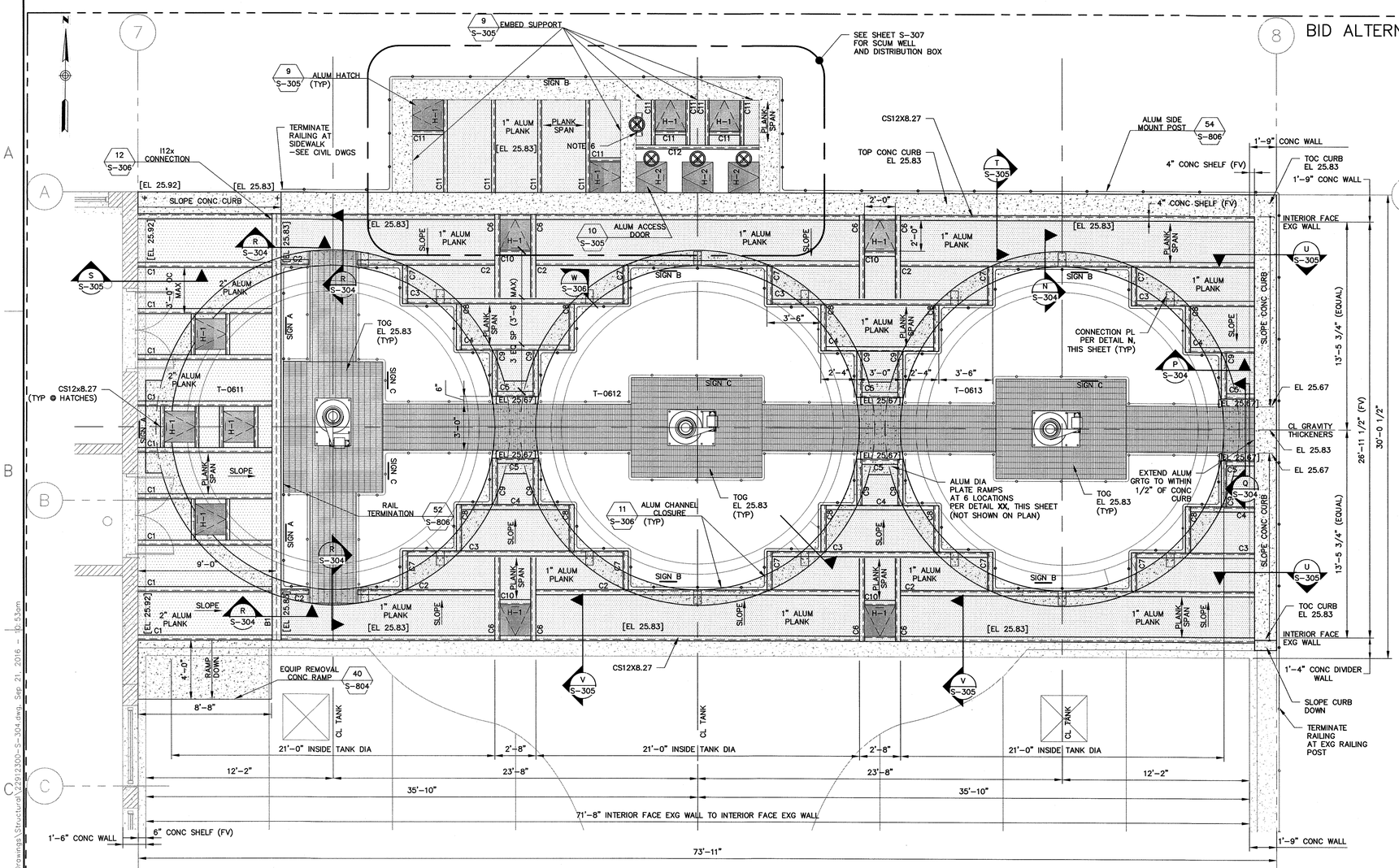
GRAVITY THICKENERS LOWER LEVEL PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

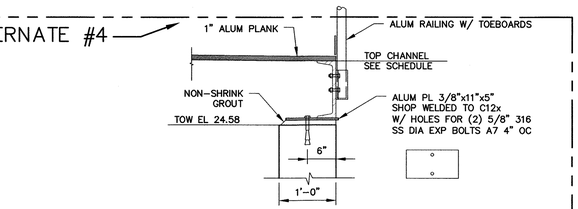
JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 28 OF 116

S-303

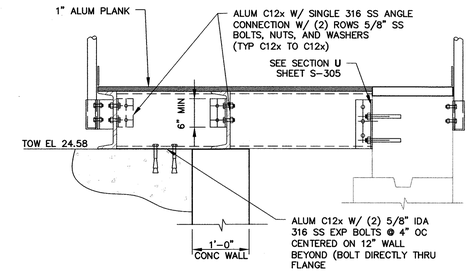


GRAVITY THICKENERS UPPER PLAN

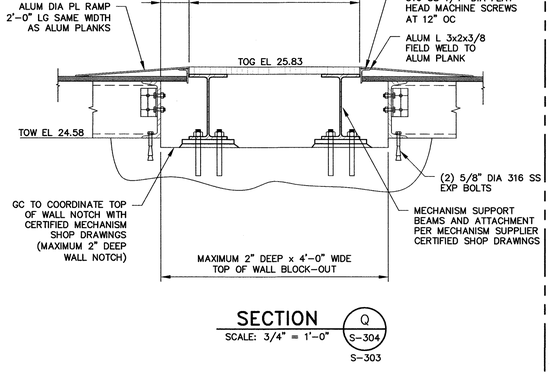
SCALE: 1/4" = 1'-0"



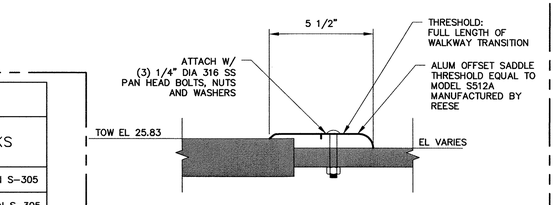
SECTION N S-304
SCALE: 3/4" = 1'-0"



SECTION P S-304
SCALE: 3/4" = 1'-0"



SECTION Q S-304
SCALE: 3/4" = 1'-0"
S-303



SECTION R S-304
SCALE: 3/4" = 1'-0"

BID ALTERNATE #4

ALUM FRAMING SCHEDULE

MARK	SIZE	SHAPE	FLANGE WIDTH	TOP FRAMING MEMBER ELEVATION	CONNECTION DETAIL
B1	I 12 x 14.3	WIDE FLANGE BEAM	7"	25.67	12/S-306
C1	CS12x8.27	CHANNEL	4"	SLOPED: 25.75-25.67	S/S-305
C2	CS12x8.27	CHANNEL	4"	25.70	N/S-304 P/S-304
C3	CS12x8.27	CHANNEL	4"	25.67	N/S-304 P/S-304
C4	CS12x8.27	CHANNEL	4"	25.63	P/S-304
C5	CS12x8.27	CHANNEL	4"	25.58	Q/S-304
C6	CS12x8.27	CHANNEL	4"	SLOPED: 25.75-25.70	U/S-305 P/S-304
C7	CS12x8.27	CHANNEL	4"	SLOPED: 25.70-25.67	P/S-304
C8	CS12x8.27	CHANNEL	4"	SLOPED: 25.67-25.63	P/S-304
C9	CS12x8.27	CHANNEL	4"	SLOPED: 25.63-25.58	P/S-304
C10	CS8x4.15	CHANNEL	3"	25.72	P/S-304
C11	CS12x8.27	CHANNEL	4"	25.75	9/S-305
C12	CS8x4.15	CHANNEL	3"	25.75	10/S-305

STRUCTURAL NOTES:

1. ALUM PLANK COVER SYSTEM IS INTENDED TO PROVIDE ACCESS TO GRAVITY THICKENER LAUNDER CHANNELS FOR MAINTENANCE/WASHDOWN AND TO LIMIT STORMWATER, SNOW, AND ICE FROM ACCUMULATING IN THE EXISTING TANK BASIN BELOW.
2. COORDINATE ALUM PLANK SYSTEM AND RAILS WITH MECHANISM MANUFACTURER'S CERTIFIED SHOP DRAWINGS.
3. [XX.XX] INDICATES TOP OF ALUM PLANK ELEVATIONS.
4. CONCRETE CURB AT TOP OF EXISTING TANK WALLS, AROUND THE PERIMETER OF THE ALUM PLANKS SHALL BE PLACED FLUSH WITH ALUMINUM PLANKS.
5. PROVIDE SIGNAGE AS SHOWN BELOW AND WHERE INDICATED ON PLANS PERMANENTLY MOUNTED TO ALUM RAILING OR WALL SURFACE.
6. FACTORY BAND ALUM PLANK FOR MECHANICAL SLIDE GATE OPENING. APPROXIMATE OPENING SIZE IS 5-INCH WIDE x 1'-6" LONG (GC TO CONFIRM).

NOTICE — PLANK LIVE — LOAD CAPACITY: 150 LBS. PER SQ FT
SIGN A

NOTICE — PLANK LIVE LOAD CAPACITY: 50 LBS. PER SQ FT
SIGN B

NOTICE — GRATING LIVE LOAD CAPACITY: 50 LBS. PER SQ FT
SIGN C

SIGN SHALL BE MCMASTER-CARR 14"X10" ALUMINUM CAUTION SIGNS, EACH CUSTOMIZED AS SHOWN, OR APPROVED EQUAL

GENERAL NOTES:

1. THE BASE BID OF THIS PROJECT INCLUDES THE INSTALLATION OF ALUMINUM COVERS AND HATCHES AS IDENTIFIED ON THIS SHEET. AS INDICATED IN SECTION 00 41 02, ALTERNATE #4 INCLUDES THE DEDUCTION OF THE ALUMINUM COVERS AND HATCHES AND THE INSTALLATION OF FRP COVERS AS IDENTIFIED ON SHEET M-312. ALL WORK IDENTIFIED ON THIS PAGE AS BID ALTERNATE #4 IS WORK TO BE DEDUCTED IF ALTERNATE #4 IS INCLUDED AS PART OF THIS CONTRACT.

HATCH SCHEDULE

HATCH NO.	QUANTITY	HATCH SIZE (WxL)	LL CAPACITY	NEW OR EXISTING	REMARKS
H-1	12	2'-0" x 2'-0"	300 PSF	NEW	SEE DETAIL 9 ON S-305
H-2	3	2'-0" SQ CUSTOM ACCESS DOOR	N/A	NEW	SEE DETAIL 10 ON S-305
H-3	2	2'-6" x 4'-0"	300 PSF	NEW	SEE SHEET S-302
H-4	3	3'-0" (FV) x 4'-0"	300 PSF	NEW	SEE SHEET S-302
H-5	2	3'-0" x 5'-0"	300 PSF	NEW	SEE SHEET S-302
H-6	17	FV EXISTING HATCHES SIZES: PROVIDE RETROFIT SAFETY GATES	N/A	EXISTING HATCHES	SEE SHEET S-302

HATCH NOTES:

1. REFER TO SPECIFICATION SECTION 05500 FOR HATCH REQUIREMENTS.
2. HATCH DIMENSIONS SHOWN ON PLANS AND HATCH SCHEDULE ARE BASED ON CLEAR OPENING ONLY. ACTUAL HATCH DIMENSIONS TO OUTER HATCH FRAME PERIMETER IS LARGER.
3. ALL HATCH COVERS SHALL BE ALUMINUM DIAMOND PATTERN PLATE AND ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
4. SEE PLAN FOR HATCH LAYOUT. HINGE SIDE SHALL CORRESPOND TO THE "LENGTH" DIMENSION IN ABOVE SCHEDULE AND SHALL BE DEFINED AS SHOWN

THE ALUMINUM COVERS AND HATCHES SHOWN ON THIS DRAWING SHALL BE PROVIDED ONLY IF BID ALTERNATE NO. 3 IS NOT ACCEPTED. REFER TO THE CONTRACT SPECIFICATIONS FOR ADDITIONAL INFORMATION.

(WIDTH)
HINGE SIDE (LENGTH)

6' 4' 2' 0 4' 8'
BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMONWEALTH OF MASSACHUSETTS — STEPHEN M. HOWARD — No. 43266 — REGISTERED PROFESSIONAL ENGINEER — STRUCTURAL

REV	DESCRIPTION	DATE
DESIGNED BY: SMH	CHECKED BY: JPS	
DRAWN BY: DMB	229123\S-304.dwg	

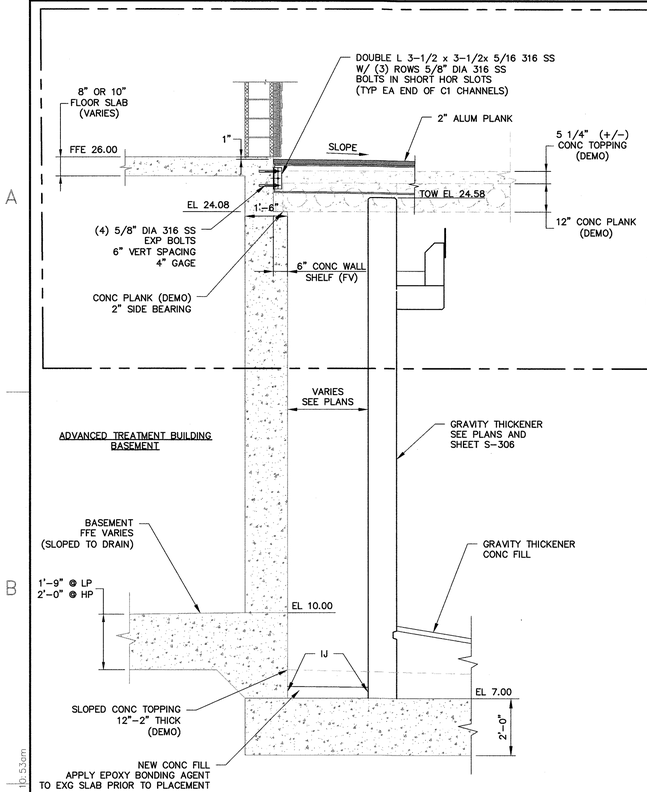
GRAVITY THICKENERS UPPER LEVEL PLAN

DEPARTMENT OF PUBLIC WORKS NANTUCKET, MASSACHUSETTS

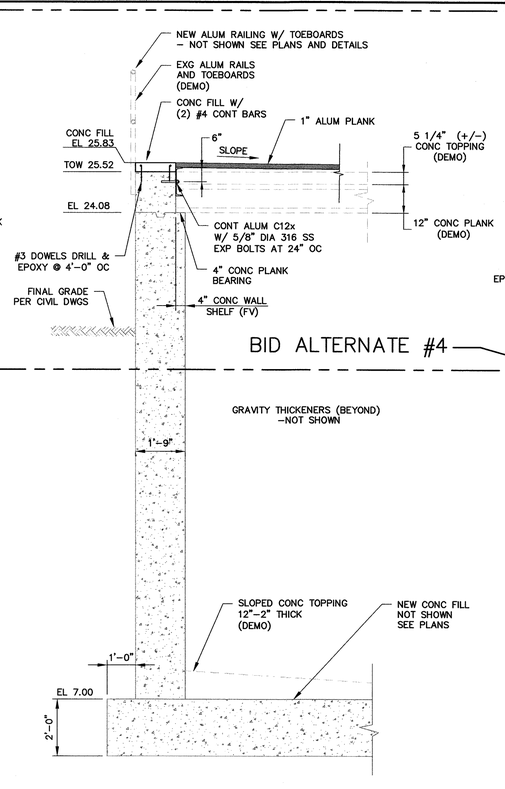
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 29 OF 116

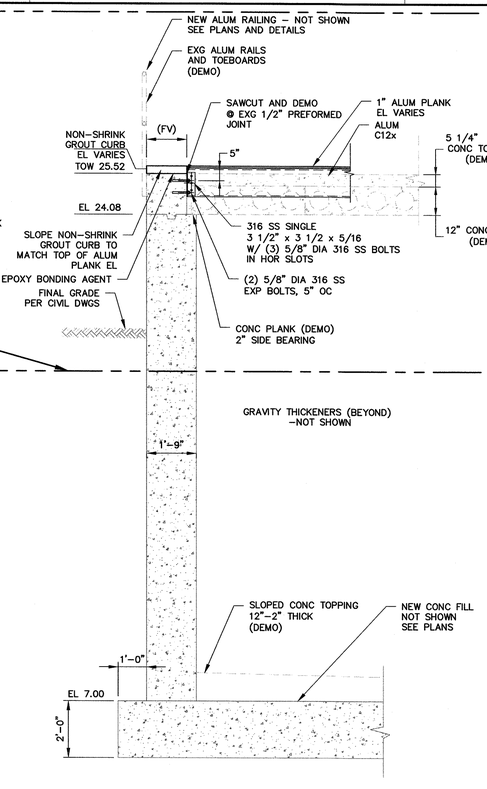
S-304



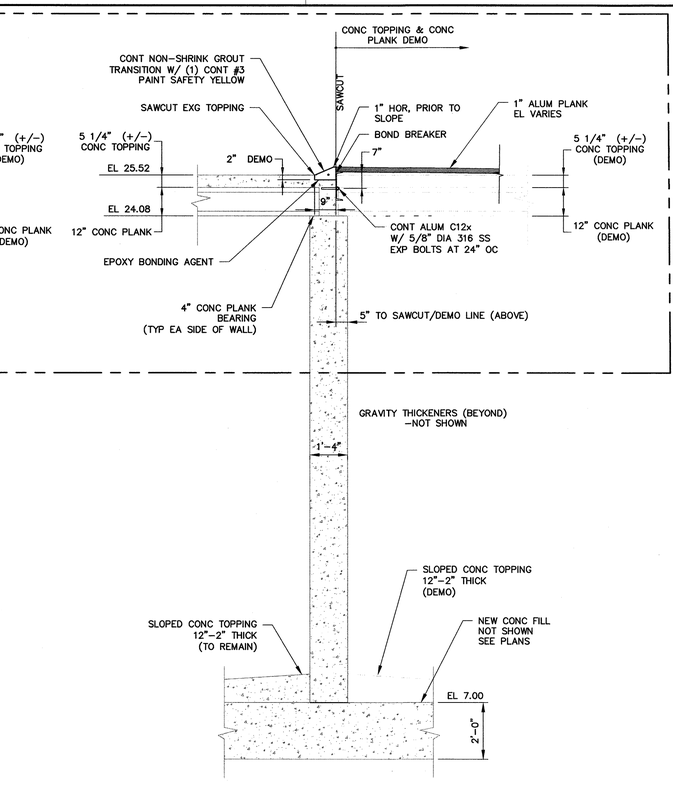
SECTION S
SCALE: 3/8" = 1'-0"
S-303
S-304
SD-301



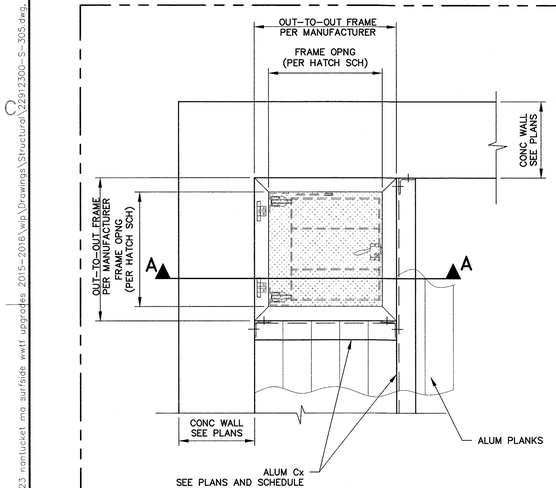
SECTION T
SCALE: 3/8" = 1'-0"
S-303
S-304
SD-301



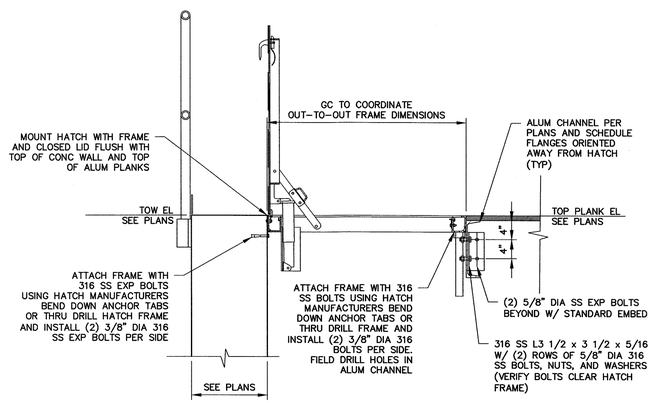
SECTION U
SCALE: 3/8" = 1'-0"
S-303
S-304
SD-301



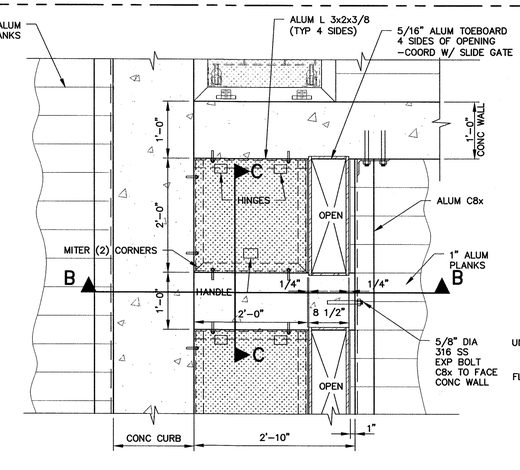
SECTION V
SCALE: 3/8" = 1'-0"
S-303
S-304
SD-301



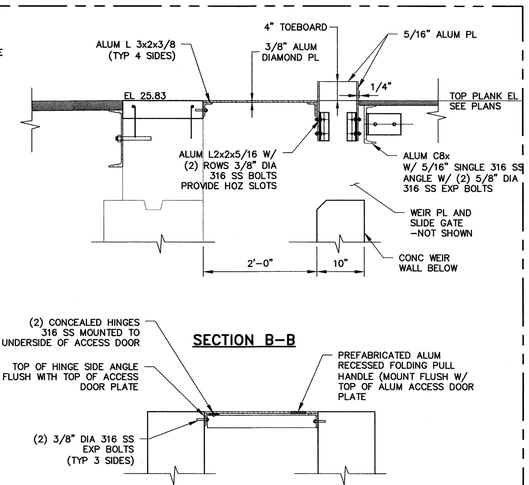
PLAN VIEW



SECTION A–A



PLAN VIEW



9 S-304 ALUM HATCH
SCALE: 3/4" = 1'-0"

BID ALTERNATE #4

10 S-304 ALUM ACCESS DOOR
SCALE: 3" = 1'-0"

GENERAL NOTES:

1. THE BASE BID OF THIS PROJECT INCLUDES THE INSTALLATION OF ALUMINUM COVERS AND HATCHES AS IDENTIFIED ON THIS SHEET. AS INDICATED IN SECTION 00 41 02, ALTERNATE #4 INCLUDES THE DEDUCTION OF THE ALUMINUM COVERS AND HATCHES AND THE INSTALLATION OF FRP COVERS AS IDENTIFIED ON SHEET M-312. ALL WORK IDENTIFIED ON THIS PAGE AS BID ALTERNATE #4 IS WORK TO BE DEDUCTED IF ALTERNATE #4 IS INCLUDED AS PART OF THIS CONTRACT.

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WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
REGISTERED PROFESSIONAL ENGINEER
STEPHEN M. HOWARD
No. 43068
STRUCTURAL

REV	DESCRIPTION	DATE
DESIGNED BY: SMH	CHECKED BY: JPS	
DRAWN BY: DMB	229123300-S-305.dwg	

GRAVITY THICKENERS SECTIONS & DETAILS 1

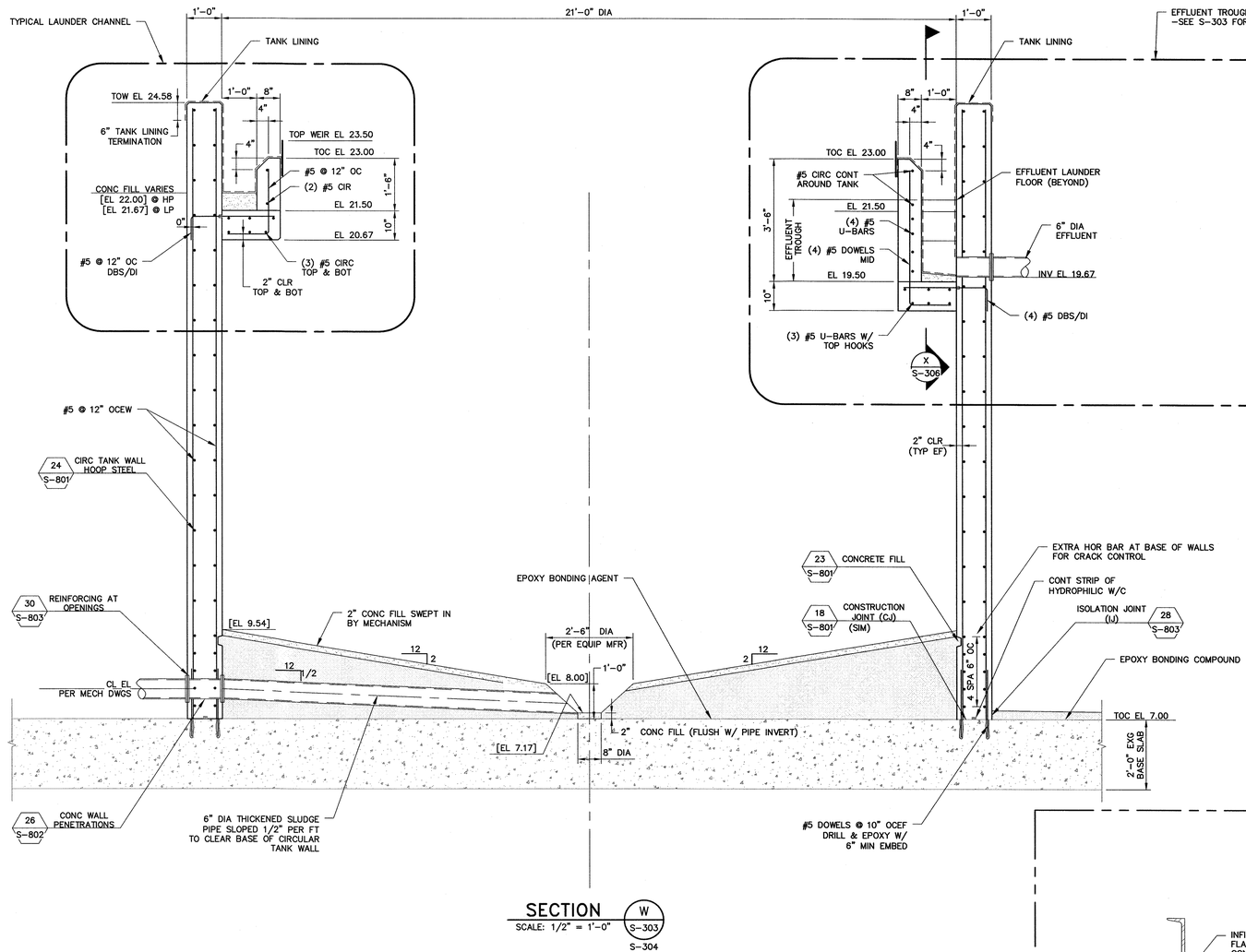
DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER
TREATMENT FACILITY
UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 30 OF 116

S-305

22x34 SHEET
1:1

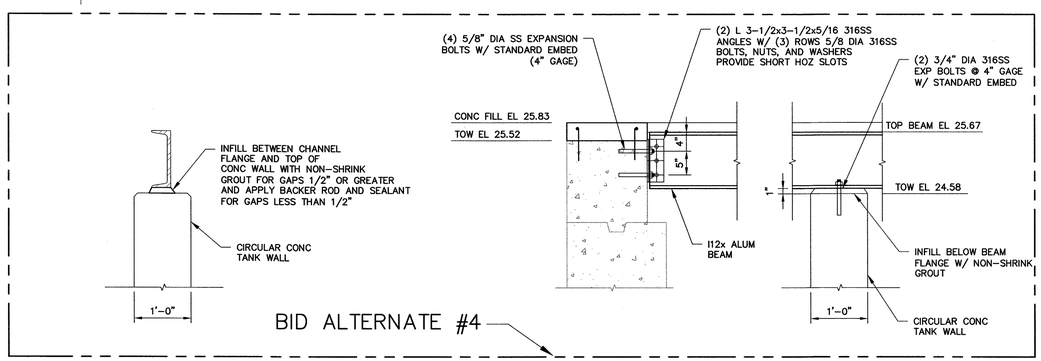


STRUCTURAL NOTES:

1. TANK SECTIONS SHOWN ARE TYPICAL FOR ALL (3) GRAVITY THICKENER TANKS. ADJACENT EXISTING TANK WALLS AND ADJACENT GRAVITY THICKENER TANKS ARE NOT SHOWN. REFER TO SHEET **S-303** FOR OVERALL PLAN VIEWS.
2. SEE PLANS FOR TANK MECHANISM, MECHANISM WALKWAYS, AND TANK COVERS. NOT SHOWN ON THIS DRAWING.
3. PROVIDE TANK LINING PER SPECIFICATION **09 97 00** ALONG ALL INSIDE SURFACES OF LAUNDER CHANNELS, EFFLUENT TROUGH, AND INTERIOR TANK WALLS ABOVE LAUNDER CHANNEL AND EFFLUENT TROUGH FLOORS. EXTENT OF TANK LINING AS INDICATED ON THIS SHEET.
4. [XX.XX] INDICATES ELEVATION OF CONCRETE FILL.
5. SEE SHEET **S-303** FOR TANK WALL CONSTRUCTION JOINTS LOCATIONS.
6. INDIVIDUALLY TIGHTNESS TEST EACH OF THE (3) GRAVITY THICKENERS PER SPECIFICATION **03 30 20**. FILL TANKS WITH TEST WATER TO EL **24.00**.

GENERAL NOTES:

1. THE BASE BID OF THIS PROJECT INCLUDES THE INSTALLATION OF ALUMINUM COVERS AND HATCHES AS IDENTIFIED ON THIS SHEET. AS INDICATED IN SECTION 00 41 02, ALTERNATE #4 INCLUDES THE DEDUCTION OF THE ALUMINUM COVERS AND HATCHES AND THE INSTALLATION OF FRP COVERS AS IDENTIFIED ON SHEET M-312. ALL WORK IDENTIFIED ON THIS PAGE AS BID ALTERNATE #4 IS WORK TO BE DEDUCTED IF ALTERNATE #4 IS INCLUDED AS PART OF THIS CONTRACT.



11 S-304 **ALUM CHANNEL CLOSURE**
SCALE: 3/4" = 1'-0"

12 S-304 **I12x CONNECTION**
SCALE: 3/4" = 1'-0"

3' 2' 1' 0 2' 4'
BAR SCALE
1/2" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMONWEALTH OF MASSACHUSETTS
JAMES P. SULLIVAN
No. 43868
REGISTERED PROFESSIONAL ENGINEER
STRUCTURAL
9-23-16

REV	DESCRIPTION	DATE
DESIGNED BY: SMH	CHECKED BY: JPS	
DRAWN BY: DMB	229123\00-S-306.dwg	

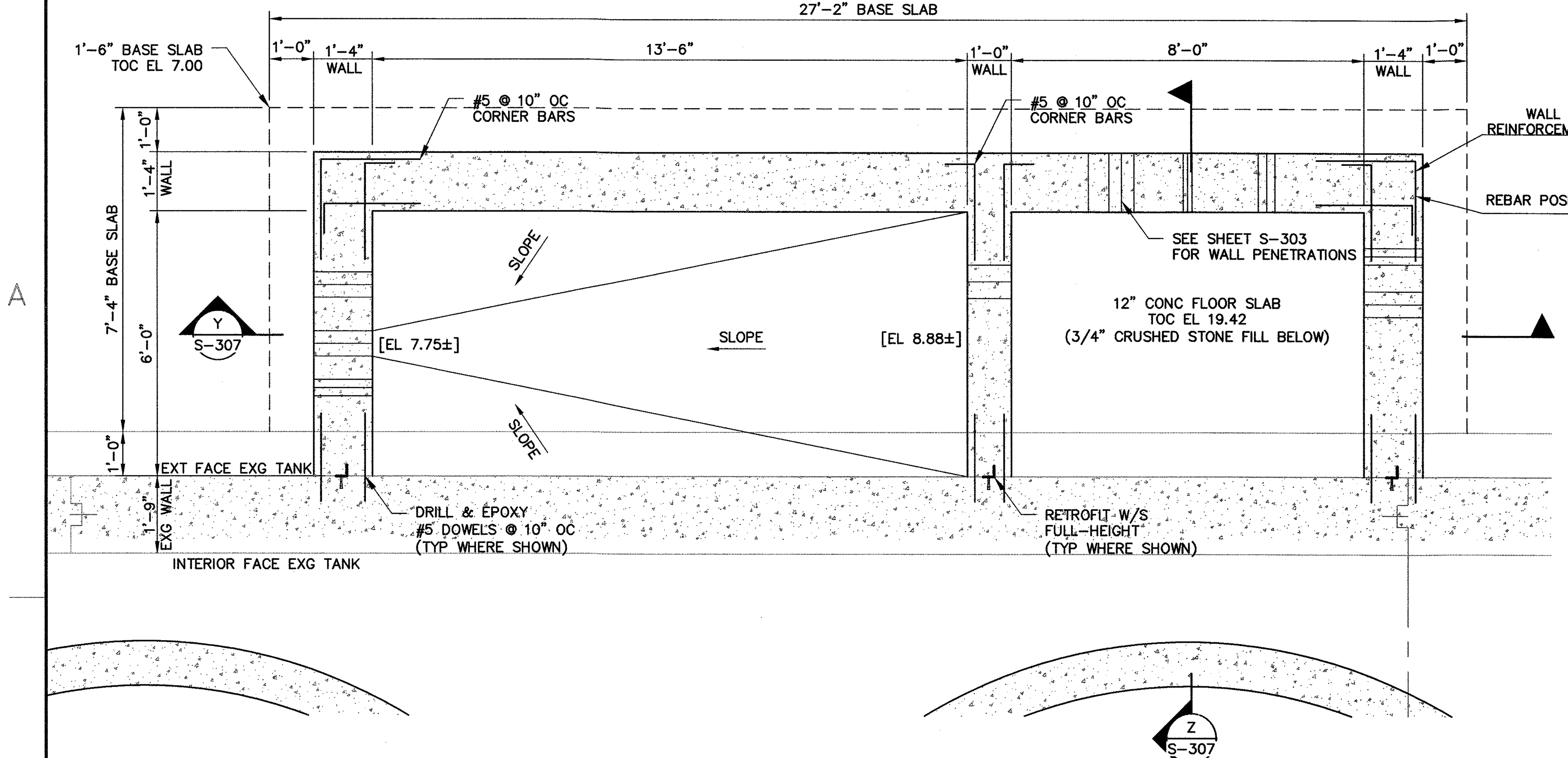
GRAVITY THICKENERS SECTIONS & DETAILS 2

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

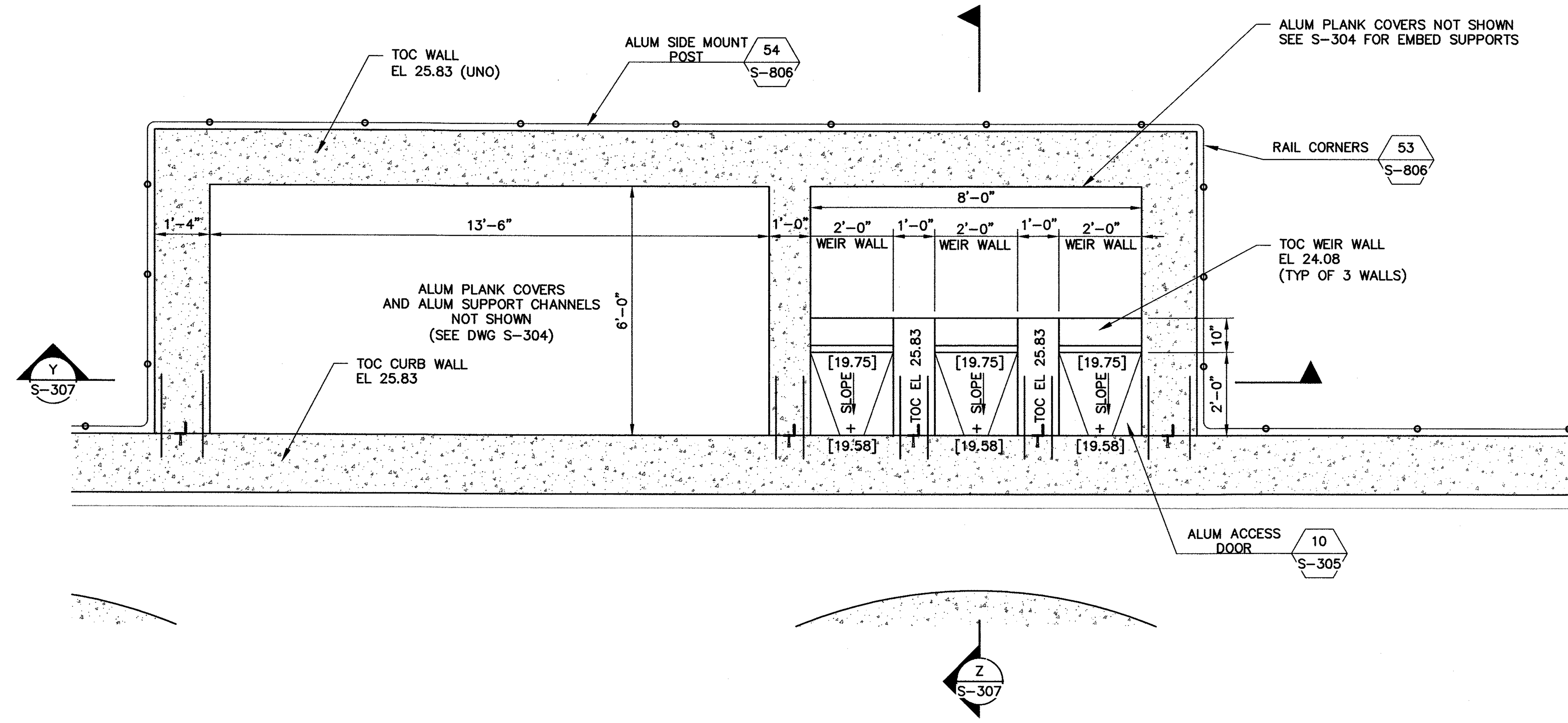
JOB NO.:	229123.00
DATE:	SEPTEMBER 2016
SCALE:	AS NOTED
SHEET:	31 OF 116

S-306



SCUM WELL & DISTRIBUTION BOX PLAN
LOWER LEVEL PLAN

SCALE: 3/8" = 1'-0"

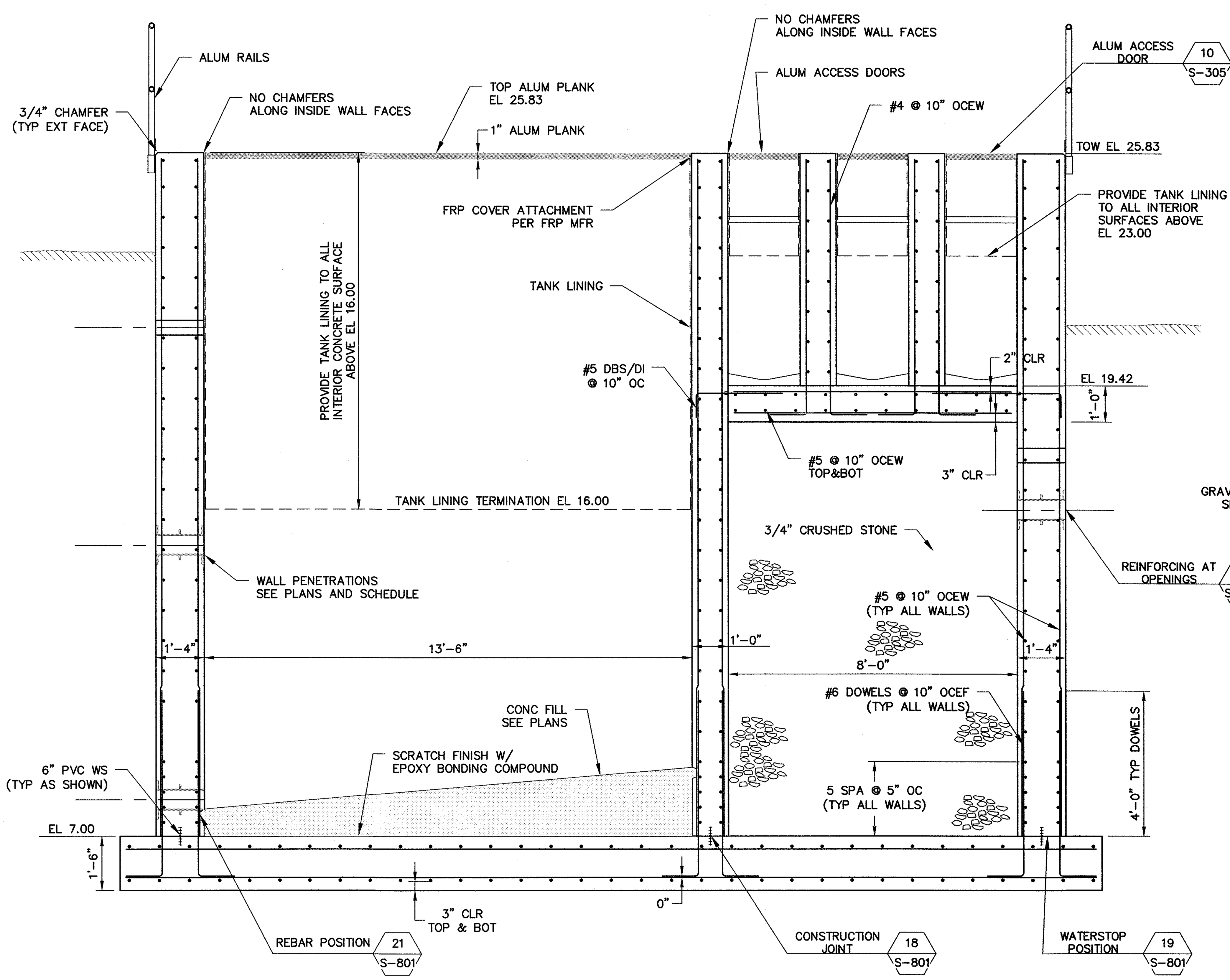


SCUM WELL & DISTRIBUTION BOX PLAN
UPPER LEVEL PLAN

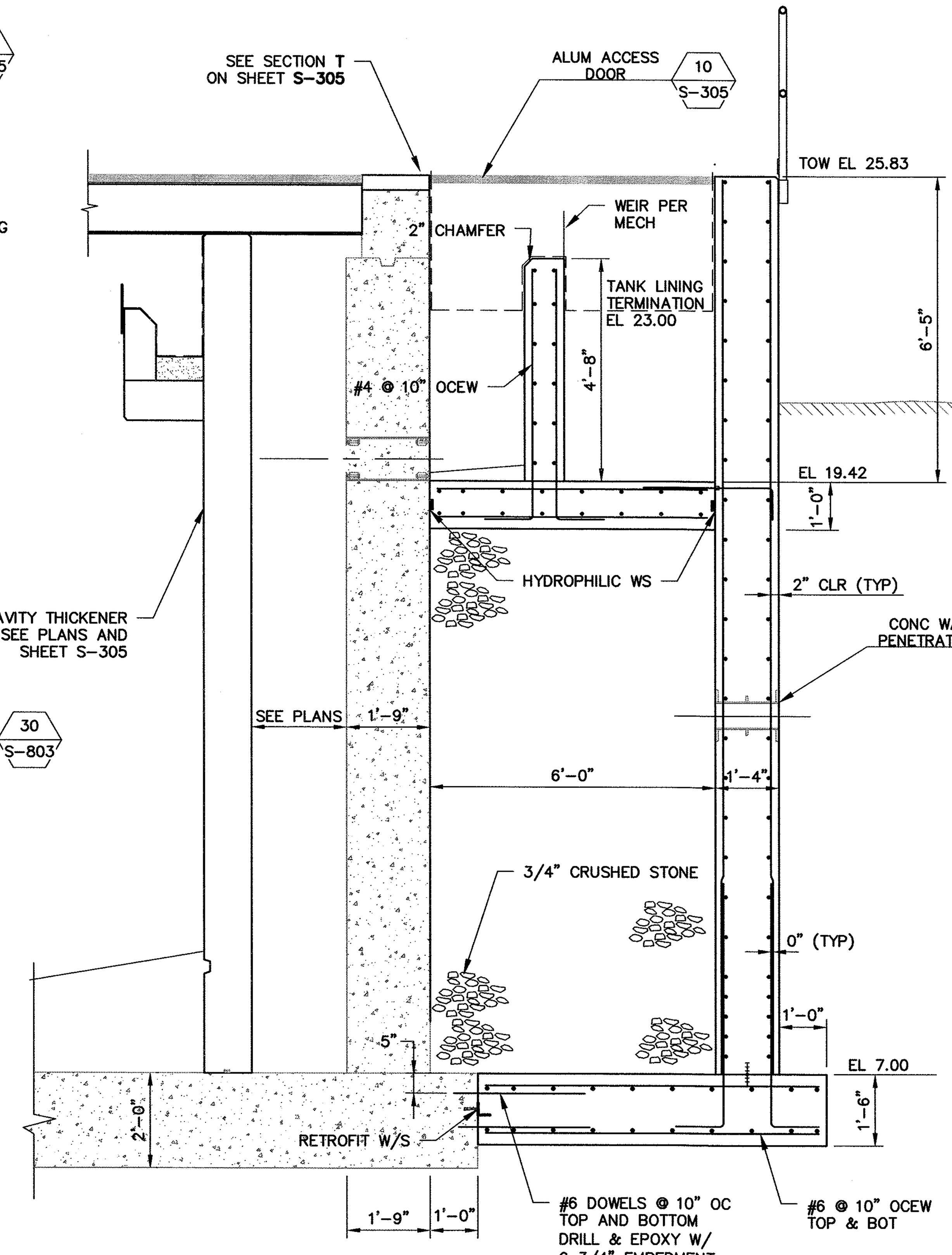
SCALE: 3/8" = 1'-0"

STRUCTURAL NOTES:

1. SEE PLAN S-304 FOR TANK MECHANISM, MECHANISM WALKWAYS, AND ALUM PLANK COVERS
2. PROVIDE TANK LINING PER SPECIFICATION **09 97 00** AS INDICATED ON SECTIONS.
3. [XX.XX] INDICATES ELEVATION OF CONCRETE FILL.
4. INDIVIDUALLY TIGHTNESS TEST THE SCUM WELL AND DISTRIBUTION BOX PER SPECIFICATION **03 30 20.** FILL TANKS WITH TEST WATER TO MAXIMUM WSE INDICATED ON MECHANICAL SHEET **M-311.**



SECTION Y
SCALE: 3/8" = 1'-0" (S-307)



SECTION Z
SCALE: 3/8" = 1'-0" (S-307)

4' 3' 2' 1' 0 3' 6'
BAR SCALE
3/8" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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JAMES P. STURGIS
STRUCTURAL
No. 42936
REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE

DESIGNED BY: SMH | CHECKED BY: JPS
DRAWN BY: DMB | 229123.00-S-307.dwg

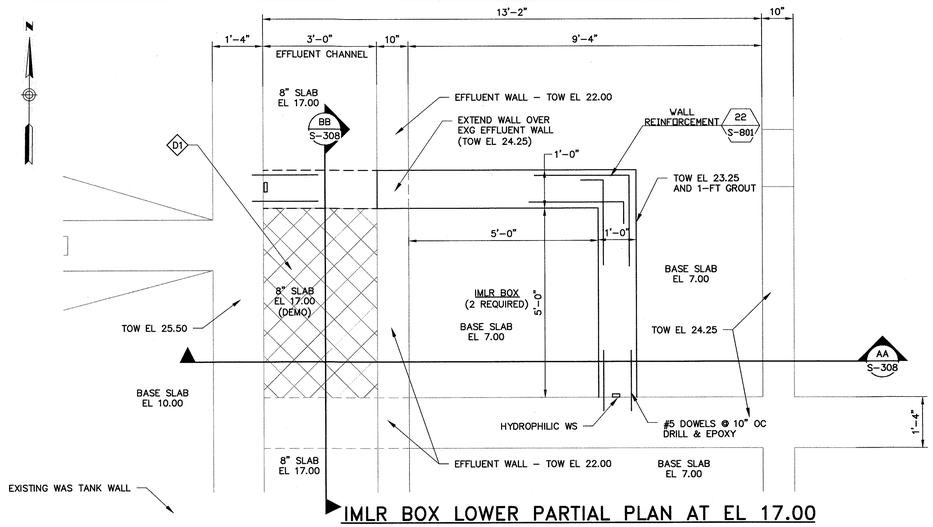
GRAVITY THICKENERS DISTRIBUTION BOX & SCUM WELL PLAN, SECTIONS, & DETAILS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

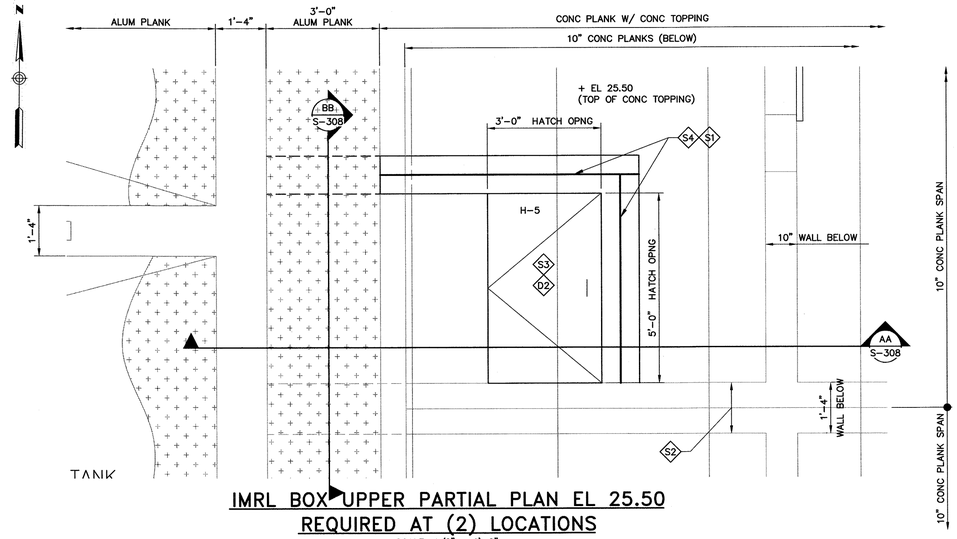
JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 32 OF 116

S-307



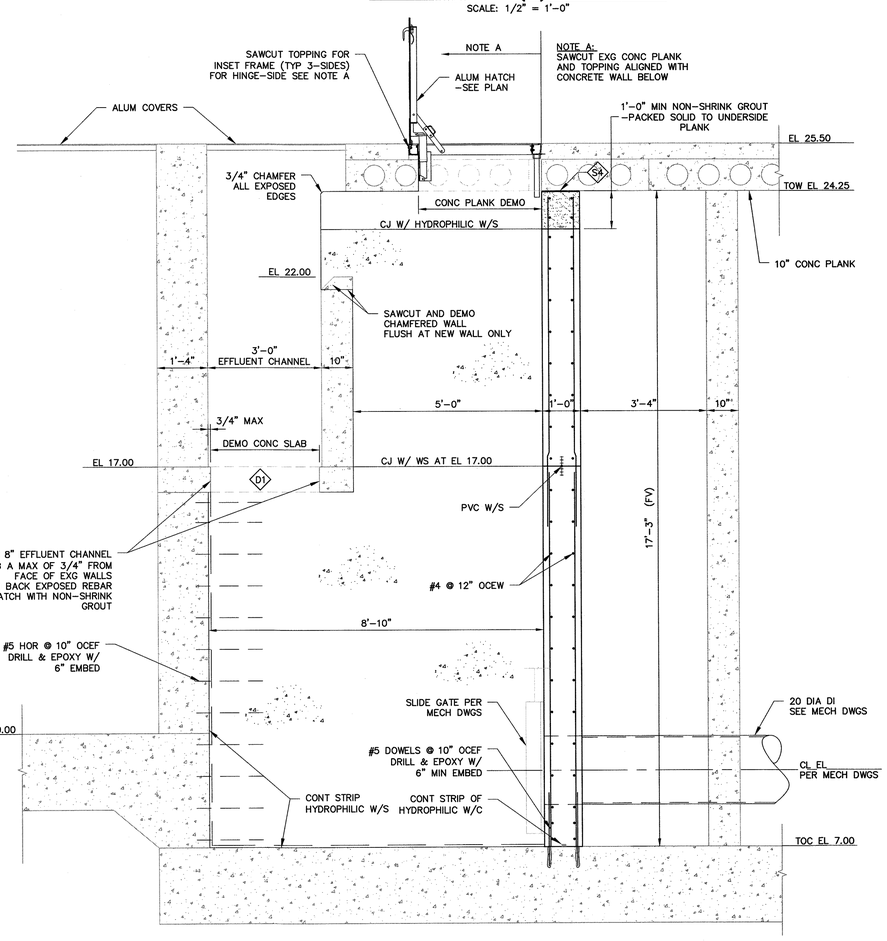
IMLR BOX LOWER PARTIAL PLAN AT EL 17.00 REQUIRED AT (2) LOCATIONS

SCALE: 1/2" = 1'-0"



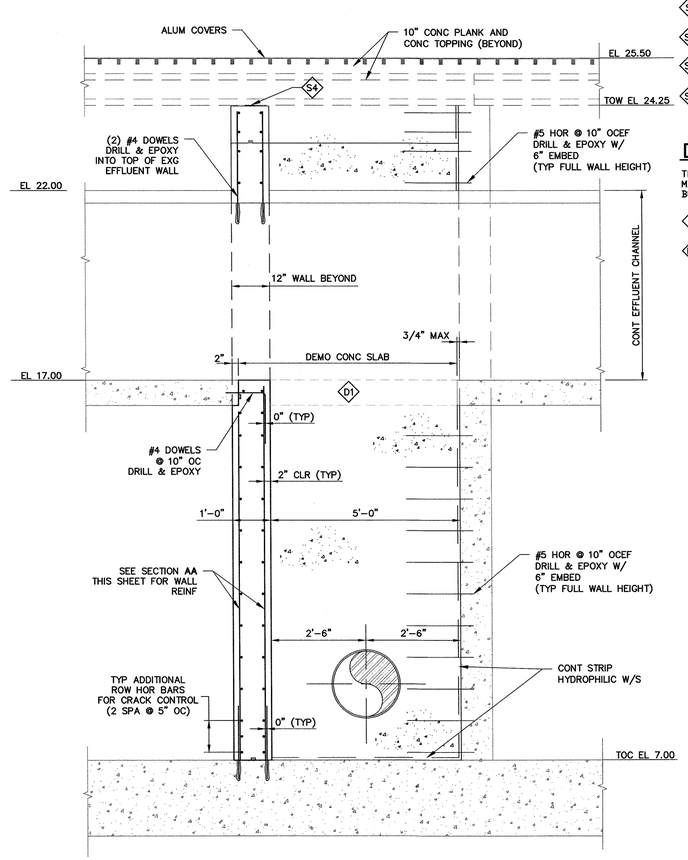
IMRL BOX UPPER PARTIAL PLAN EL 25.50 REQUIRED AT (2) LOCATIONS

SCALE: 1/2" = 1'-0"



SECTION AA

SCALE: 1/2" = 1'-0"



SECTION BB

SCALE: 1/2" = 1'-0"

STRUCTURAL KEYED NOTES:

S1 NEW 12" CONCRETE WALLS WILL SUPPORT EXISTING CONCRETE PLANKS THAT ARE PARTIALLY DEMOLISHED FOR INSTALLATION OF NEW ALUM HATCH

S2 EXISTING 1'-4" BEARING WALL SUPPORTING ENDS OF 10" CONC PLANK SPANNING NORTH AND SOUTH

S3 3'-0" WIDE X 5'-0" LONG TYPE J ALUM HATCH PER SCHEDULE ON SHEET S-304 AND SPEC 05 50 00

S4 PROVIDE CONTINUOUS KORDLATH BEARING STRIPS 1/4" THICK x 3" WIDE x 48" LENGTHS TEMPORARILY ATTACHED TO BOTTOM-SIDE OF EXISTING PRECAST PLANKS AND CENTERED ABOVE NEW 12" CONCRETE WALLS. INFILL TOP OF 12" CONCRETE WALLS WITH NON-SHRINK GROUT PACKED SOLID TO UNDER-SIDE OF KORDLATH BEARING STRIPS.

DEMOLITION KEYED NOTES:

THIS DRAWING SHALL BE USED IN CONJUNCTION WITH SHEETS SD-301, MD-301, MD-302 FOR DEMOLITION REQUIREMENTS THROUGHOUT THE ADVANCEMENT TREATMENT BUILDING AND TANKAGE AREA.

D1 SAWCUT AND DEMOLISH 3'-0" x 5'-0" OPENING IN BOTTOM OF POST-ANOXIC EFFLUENT CHANNEL.

D2 PLACE 12" CONCRETE WALLS, NON-SHRINK GROUT INFILL, CONCRETE PLANK BEARING PADS, AND ALLOW CONCRETE AND NON-SHRINK GROUT TO CURE A MINIMUM OF 14-DAYS PRIOR TO SAWCUTTING AND DEMOLITION OF PRECAST PLANK AND CONCRETE TOPPING FOR INSTALLATION OF ALUM HATCH.

3' 2' 1' 0 2' 4'

BAR SCALE
1/2" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMONWEALTH OF MASSACHUSETTS
JAMES P. SULLIVAN
STRUCTURAL
No. 43656
REGISTERED PROFESSIONAL ENGINEER

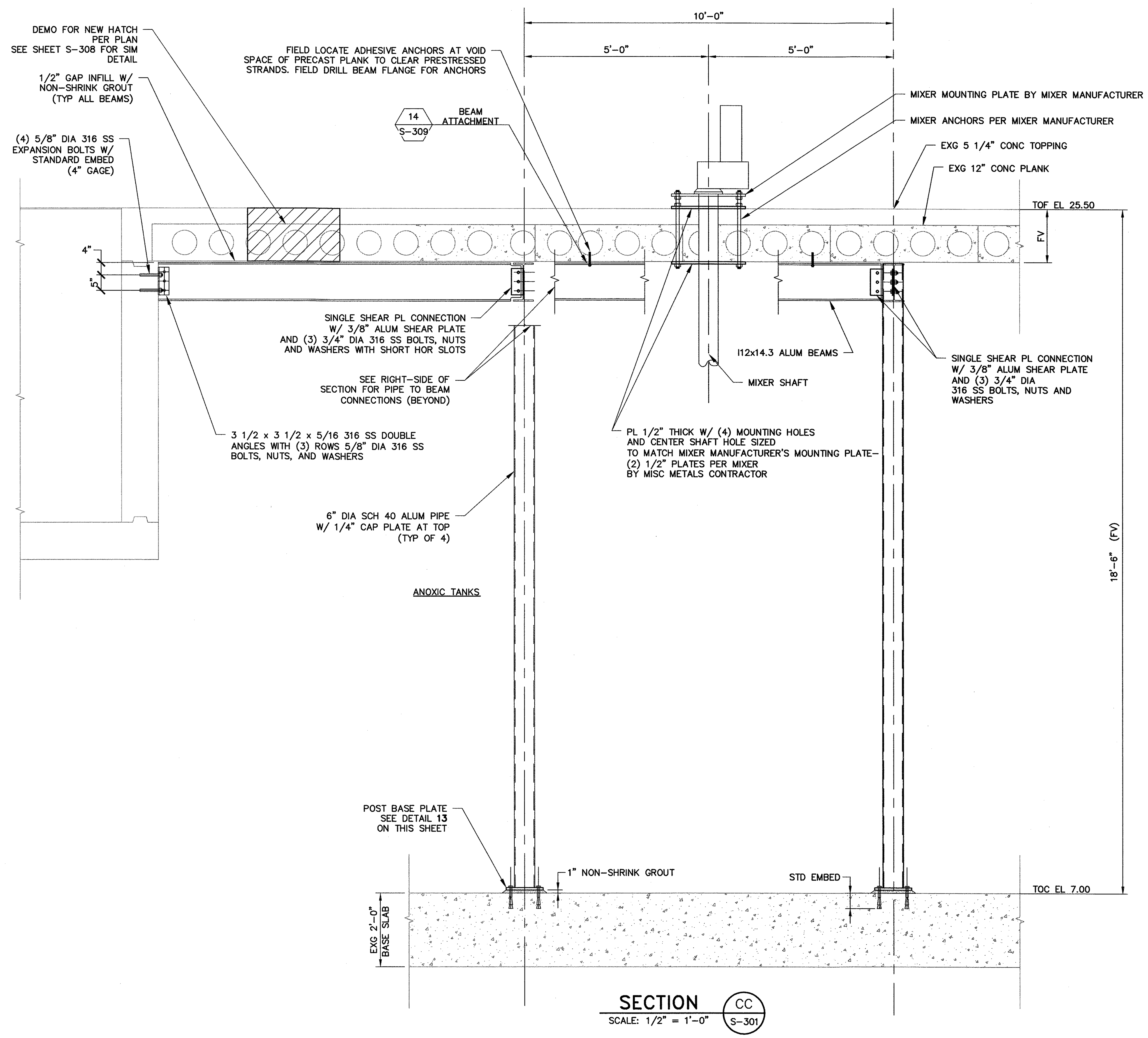
IMLR TANK PLANS, SECTIONS, & DETAILS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

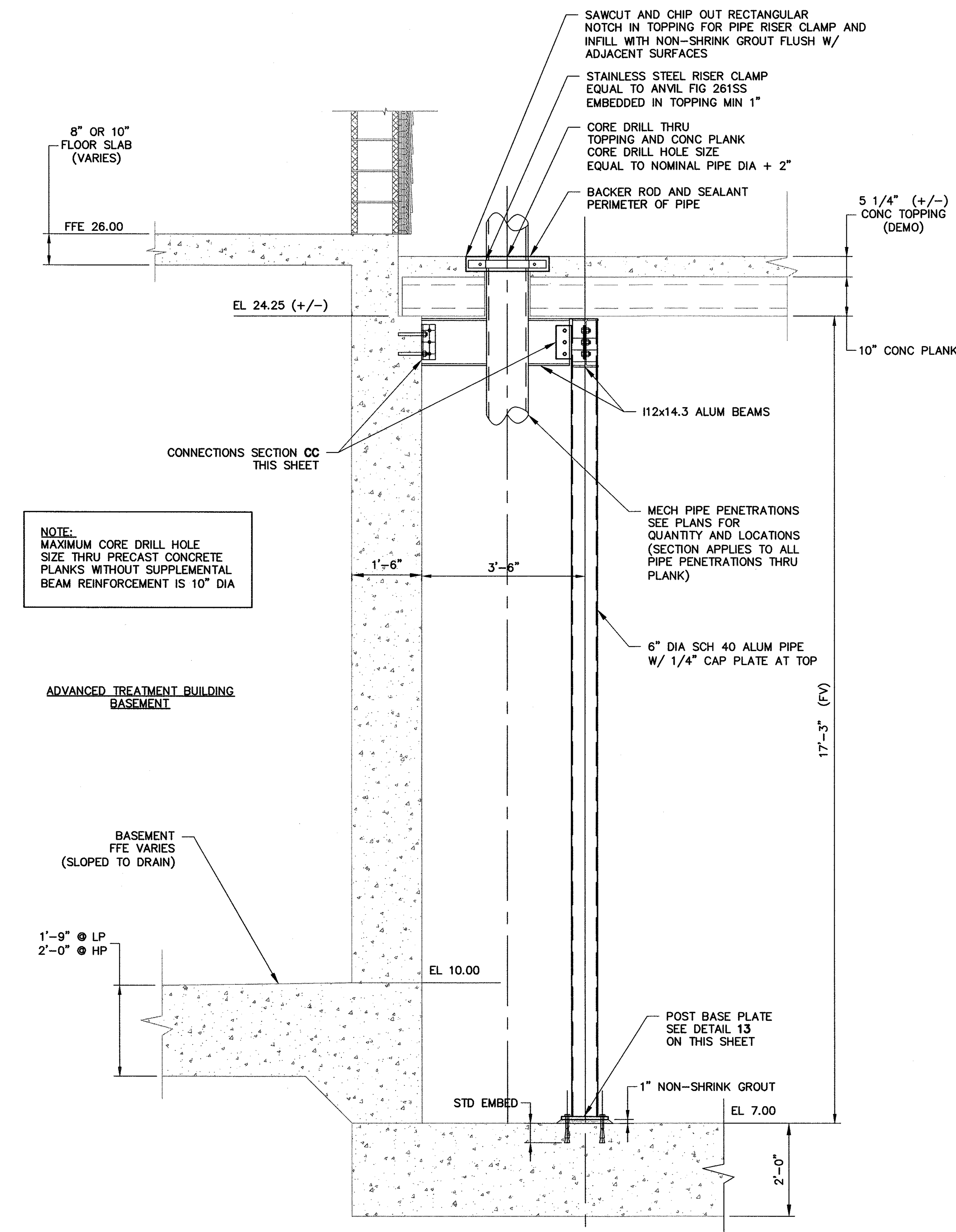
SURFSIDE WASTEWATER
TREATMENT FACILITY
UPGRADES

JOB NO.: 229123.00	
DATE: SEPTEMBER 2016	
SCALE: AS NOTED	
SHEET: 33 OF 116	

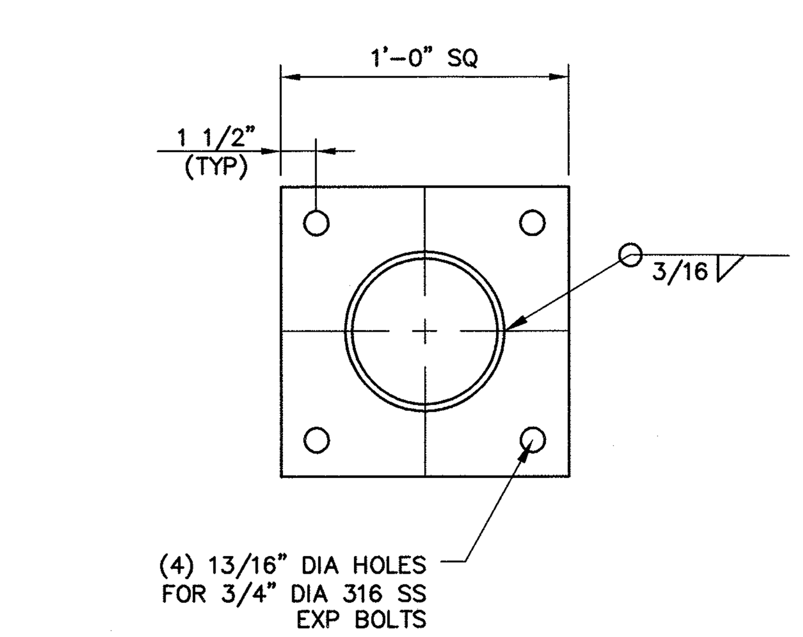
S-308



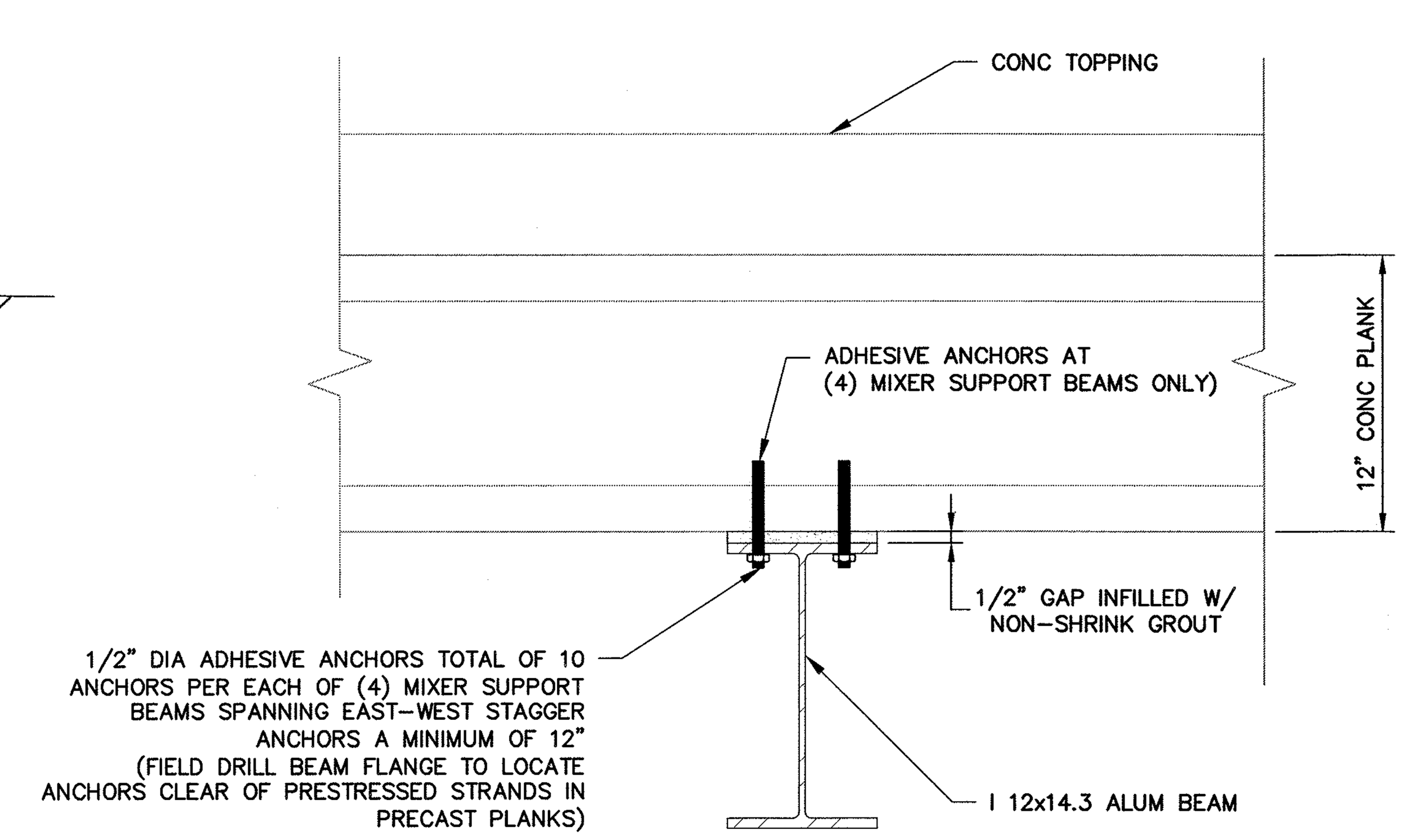
SECTION CC (S-301)
SCALE: 1/2" = 1'-0"
S-302
SD-301



SECTION DD (S-301)
SCALE: 1/2" = 1'-0"
S-302
SD-301



13 S-309 BASE PLATE
SCALE: 1-1/2" = 1'-0"



14 S-309 BEAM ATTACHMENT
SCALE: 1-1/2" = 1'-0"

ISSUED FOR BID

22x34 SHEET 1:1

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REV	DESCRIPTION	DATE

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DRAWN BY: DMB | 229123.00-S-309.dwg

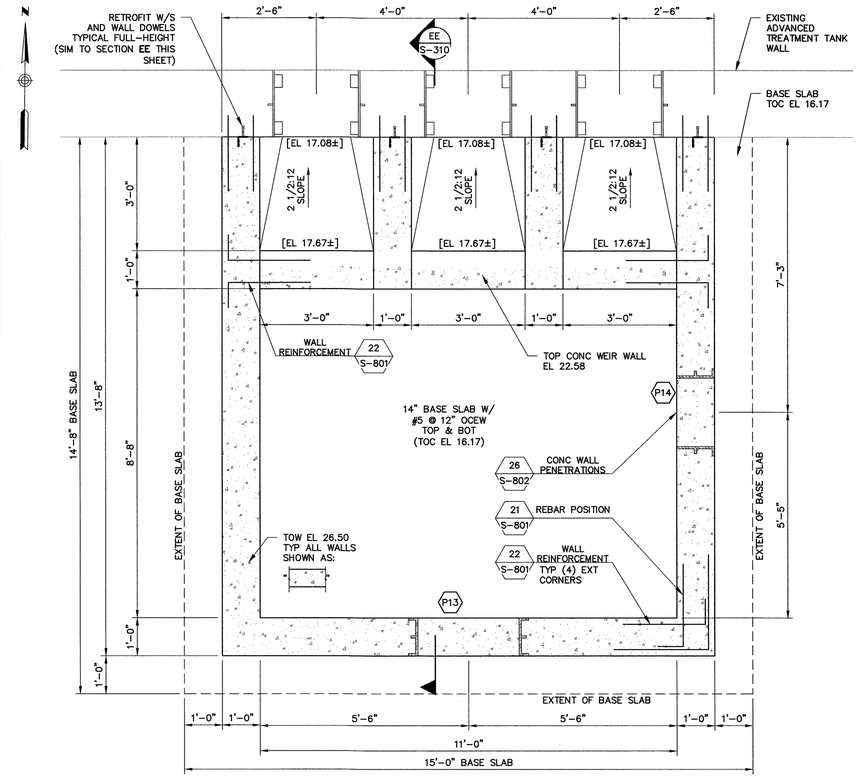
ANOXIC TANK MIXER SUPPORTS, SECTIONS, & DETAILS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

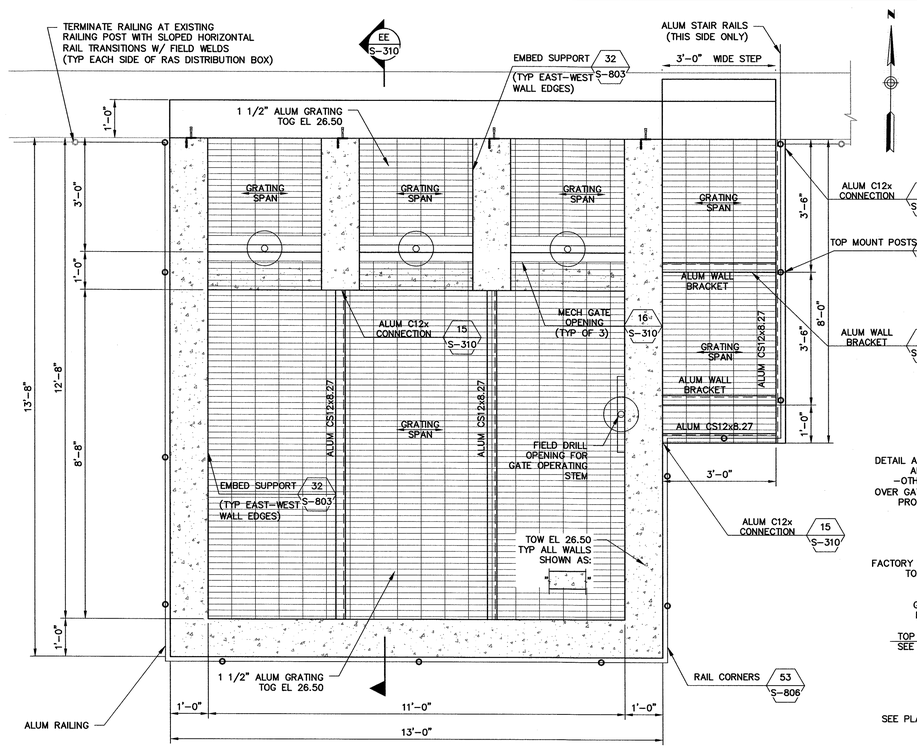
JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 34 OF 116

S-309



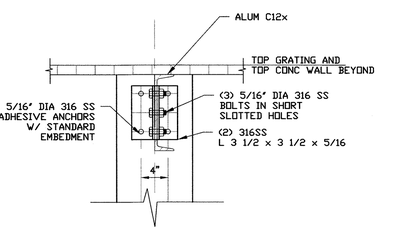
RAS DISTRIBUTION BOX FOUNDATION PLAN

SCALE: 1/2" = 1'-0"



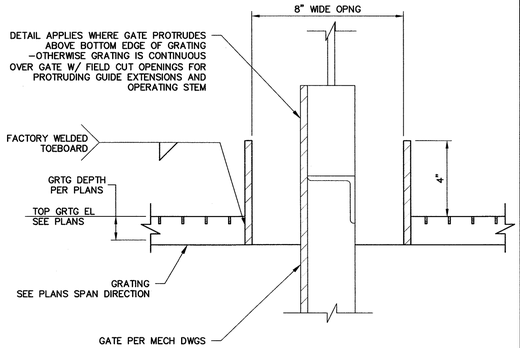
RAS DISTRIBUTION BOX UPPER PLAN

SCALE: 1/2" = 1'-0"



15 S-310 ALUM C12x CONNECTION

SCALE: 1" = 1'-0"

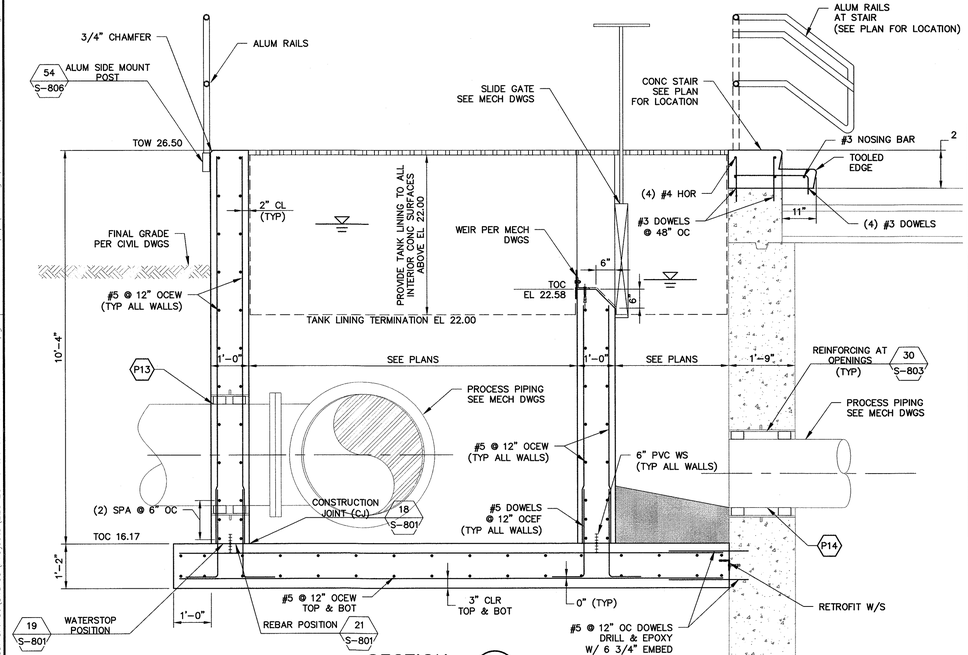


16 S-310 MECH GATE OPENING

SCALE: NTS

STRUCTURAL NOTES:

1. PROVIDE TANK LINING PER SPECIFICATION **09 97 00** ALONG ALL INSIDE CONCRETE SURFACES OF THE RAS DISTRIBUTION BOX AS INDICATED ON SECTION EE OF THIS SHEET.
2. [XX.XX] INDICATES ELEVATION OF CONCRETE FILL.
3. TIGHTNESS TEST EXTERIOR WALLS OF RAS DISTRIBUTION TANK PER SPECIFICATION **03 30 20**. FILL TANK WITH TEST WATER TO EL **25.00**. INDIVIDUALLY TESTING EACH INTERIOR TANK CELL IS NOT REQUIRED FOR THIS STRUCTURE.



SECTION EE S-310

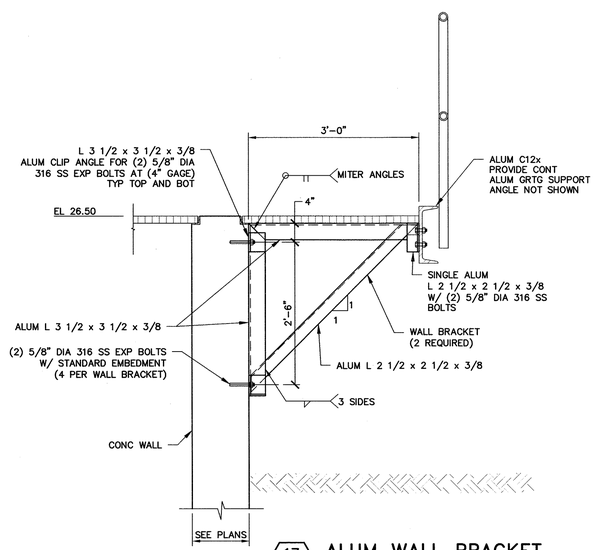
SCALE: 1/2" = 1'-0"

PENETRATION SCHEDULE – 300 DRAWING SERIES

MARK (P#)	SIZE	TYPE	APPROX EL	DESCRIPTION	DETAIL
P1	6" DIA PIPE	FExFE	INV **19.58**	6" DI INFLUENT	**26**/S-802
P2	6" DIA PIPE	PExFE	INV **19.67**	6" DI EFFLUENT	**26**/S-802
P3	4" DIA PIPE	FExFE	CL **18.57**	4" DI SCUM	**26**/S-802
P4	6" DIA PIPE	FExFE	CL **7.85**	6" DI THICKENED SLUDGE	**26**/S-802
P5	6" DIA PIPE	MJxFE	CL **16.00**	6" DI PRIMARY SLUDGE	**26**/S-802
P6	4" DIA PIPE	MECH SEAL	CL **15.50**	4" PVC CARRIER PIPE FOR CHLORINE LINE	**26**/S-802
P7	2" DIA PIPE	MECH SEAL	CL **15.50**	2" PVC PLANT WATER	**26**/S-802
P8	6" DIA PIPE	MJxFE	CL **14.50**	6" DI WAS	**26**/S-802
P9	6" DIA PIPE	MJxFE	CL **13.70**	6" DI SCUM RECIRCULATION	**26**/S-802
P10	6" DIA PIPE	MJxPE	CL **8.00**	6" DI SCUM	**26**/S-802
P11	4" DIA PIPE	MJxFE	CL **17.50**	4" DI PRIMARY SCUM	**26**/S-802
P12	8" DIA PIPE	PExPE	INV **24.08**	8" SCUM OVERFLOW	**26**/S-802
P13	30" DIA PIPE	MJxFE	CL **18.50**	30" RAS D-BOX INFLUENT	**26**/S-802
P14	20" DIA PIPE	MJxPE	CL **18.00**	20" RAS TO ANOXIC TANKS	**26**/S-802
P15	4" DIA PIPE	MECH SEAL	CL **21.00**	4" PVC AIR/VACUUM RELEASE	**26**/S-802
P16	1" DIA PIPE	MECH SEAL	CL **15.50**	1" PVC PLANT WATER	**26**/S-802

PENETRATION SCHEDULE NOTES:

1. PENETRATION SCHEDULE INCLUDES PENETRATIONS IN NEW WALL CONSTRUCTION ONLY. PENETRATIONS IN EXISTING WALLS ARE EXCLUDED FROM SCHEDULE AND SHALL BE FIELD LOCATED BY CONTRACTOR PER PIPING LAYOUT AS INDICATED ON MECHANICAL DRAWINGS.
2. ALL PENETRATIONS SHALL HAVE WALL PIPE TYPES SPECIFIED, PROTECT, PLUG, AND OR TAPE ALL TAPPED FLANGE HOLES AS REQUIRED TO PREVENT CONCRETE BOND.
3. PROVIDE ADDITIONAL REINFORCEMENT AROUND ALL WALL OPENINGS PER DETAIL **30** ON SHEET **S-803**



17 S-310 ALUM WALL BRACKET

SCALE: NTS

3' 2' 1' 0 2' 4'

BAR SCALE
1/2" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMITMENT & INTEGRITY DRIVE RESULTS
WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS JAMES P. SMH No. 43268 REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE
DESIGNED BY: SMH	CHECKED BY: JPS	
DRAWN BY: DBM	229123\00-S-310.dwg	

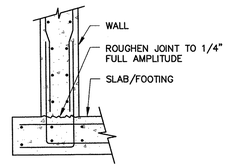
RAS DISTRIBUTION BOX PLANS, SECTIONS, & DETAILS

DEPARTMENT OF PUBLIC WORKS NANTUCKET, MASSACHUSETTS

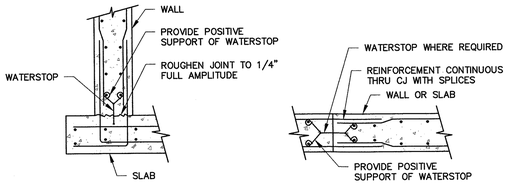
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 35 OF 116

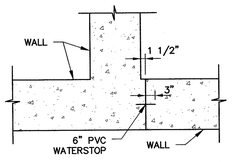
S-310



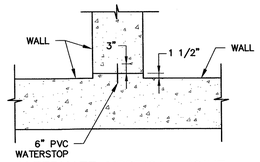
JOINTS WITHOUT WATERSTOP



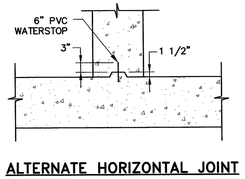
JOINTS WITH WATERSTOP



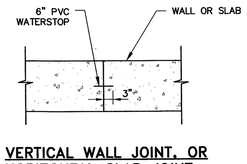
ALTERNATE VERTICAL JOINT



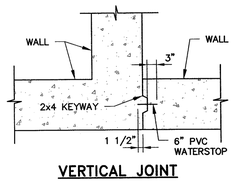
ALTERNATE VERTICAL JOINT



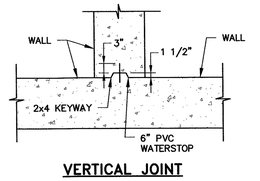
ALTERNATE HORIZONTAL JOINT



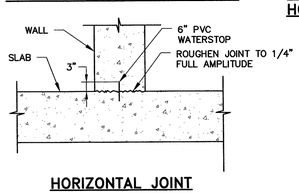
VERTICAL WALL JOINT, OR HORIZONTAL SLAB JOINT



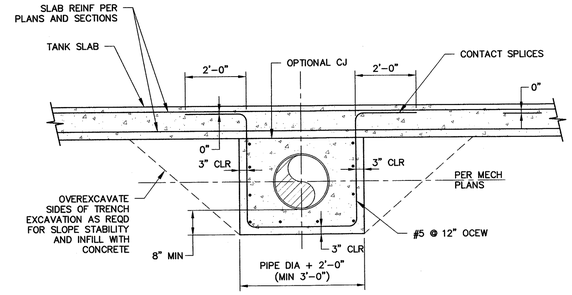
VERTICAL JOINT



VERTICAL JOINT



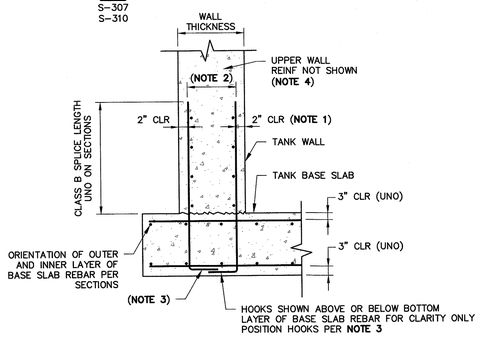
HORIZONTAL JOINT



18 CONSTRUCTION JOINT (CJ)

S-303
S-307
S-310

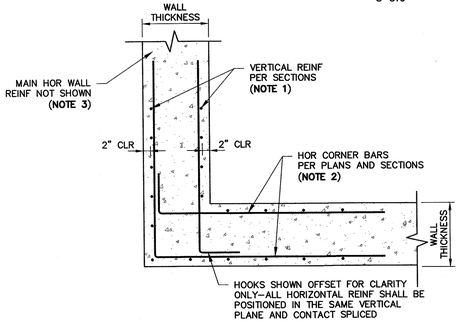
SCALE: NTS



19 WATERSTOP POSITION

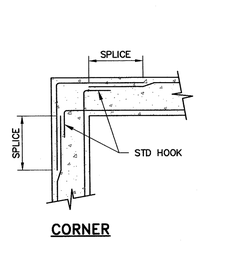
S-307
S-310

SCALE: NTS

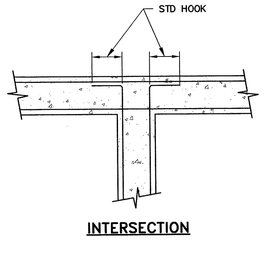


20 PIPE ENCASEMENT

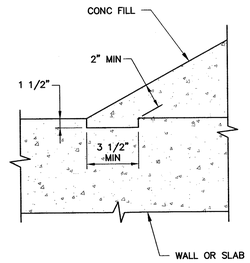
SCALE: NTS



CORNER



INTERSECTION



NOTES:

1. PROVIDE CLASS B SPLICE LENGTHS UNO
2. VERTICAL REINFORCING NOT SHOWN
3. FOR SIZE AND SPACING OF REINFORCING, SEE SECTIONS

22 WALL REINFORCEMENT

S-307
S-308
S-310

SCALE: NTS

23 CONCRETE FILL

S-306

SCALE: NTS

VERTICAL WALL DOWELS (SECTION VIEW)

NOTES:

1. VERTICAL WALL DOWELS SHALL BE PLACED 2" CLEAR FROM SIDES OF WALL, UNO
2. OUT-TO-OUT DISTANCE OF VERTICAL WALL DOWELS SHALL EQUAL WALL THICKNESS MINUS 4-INCHES. FIELD VERIFY OUT-TO-OUT DISTANCE OF VERTICAL WALL DOWELS PRIOR TO PLACING BASE SLAB CONCRETE
3. BOTTOM HOOKS OF VERTICAL WALL DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE BASE SLAB BOTTOM LAYER OF REBAR THAT IS PARALLEL TO THE VERTICAL DOWEL HOOKS
4. UPPER WALL VERTICAL REINFORCEMENT SHALL BE POSITIONED IN THE SAME PLANE AND CONTACT SPLICED TO VERTICAL WALL DOWELS

WALL HORIZONTAL CORNER BARS (PLAN VIEW)

NOTES:

1. VERTICAL WALL DOWELS SHALL BE PLACED 2" CLEAR FROM SIDES OF WALL
2. HORIZONTAL CORNER BARS POSITIONED AND TIED TO INSIDE FACES OF VERTICAL REBAR. ALL HORIZONTAL REINFORCEMENT HOOKS AND HORIZONTAL REINFORCEMENT SHALL BE CONTACT SPLICED
3. HORIZONTAL CORNER BARS AND HOOKS SHALL BE PLACED IN THE SAME VERTICAL PLANE AND CONTACT SPLICED TO THE MAIN HORIZONTAL WALL REINFORCEMENT
4. CORNER REINFORCEMENT SPLICED PER **"WALL REINFORCEMENT"** DETAIL THIS SHEET AND SPLICE LENGTHS AS INDICATED ON PLANS

21 REBAR POSITION

S-307
S-310

SCALE: NTS

CONCRETE PROTECTION FOR REINFORCEMENT (A)					
MEMBER		EXPOSED TO			
		AIR	WEATHER & AIR OVER LIQUID	EARTH & LIQUID	SALT WATER
FOOTING		—	—	2"(B)	4"
WALL COLUMN BEAM		1 1/2"	2"	2"(B)	3"(B)
SLAB	TOP	1 1/2"(C)	2"	2"	3"
	BOTTOM	1" (D)	2"	2"(B)	3"(B)

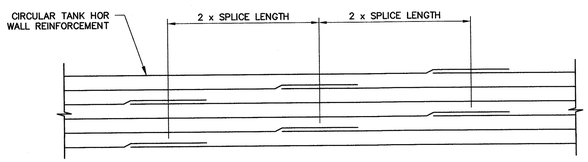
NOTES:

A. APPLICABLE TO ALL CAST-IN-PLACE CONCRETE, UNO
B. INCREASE 1 INCH WHEN CAST AGAINST EARTH
C. 3/4 INCH WHEN MEMBRANE OR WEARING SURFACE IS USED
D. 1-1/2 INCH WHERE REQUIRED TO CLEAR WATERSTOP

MINIMUM REINFORCING BAR SPLICE LENGTHS (IN.) fy=60,000 f'c=4,500		
BAR SIZE	TOP BARS	OTHER BARS
4	20	16
5	23	17
6	27	21
7	40	31
8	45	35
9	51	39
10	58	44
11	64	49

NOTES:

A. TABLE IS BASED ON NORMAL WEIGHT CONCRETE, UNCOATED BARS, CLEAR SPACING NOT LESS THAN FOUR BAR DIAMETERS, AND CLEAR COVER NOT LESS THAN TWO BAR DIAMETERS
B. WHERE SPACING BETWEEN BARS IS LESS THAN FOUR BAR DIAMETERS, OR CLEAR COVER IS LESS THAN TWO BAR DIAMETERS, INCREASE SPLICE LENGTHS SHOWN BY 67%
C. TOP BARS = HORIZONTAL SLAB BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BARS. NOT APPLICABLE TO HORIZONTAL WALL REINFORCING
D. FOR CONCRETE COMPRESSIVE STRENGTH, F'c, OTHER THAN 4,500 PSI, MULTIPLE THE VALUES BY THE SQUARE ROOT OF 4,500 DIVIDED BY THE SQUARE ROOT OF F'c.



NOTES:

1. SPLICES OF HORIZONTAL WALL REINFORING, ALONG EACH FACE OF WALL, SHALL BE STAGGERED AS SHOWN
2. SPLICES CAN, BUT NEED NOT, OCCUR AT THE SAME LOCATIONS AT BOTH FACES OF THE WALL.

24 CIRC TANK WALL HOOP STEEL

S-306

SCALE: NTS

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COMMITTMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
JAMES P. STILLINGS
No. 43268
REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE
DESIGNED BY: SMH	CHECKED BY: JPS	
DRAWN BY: SMH	229123005-801.dwg	

CONCRETE TANK DETAILS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

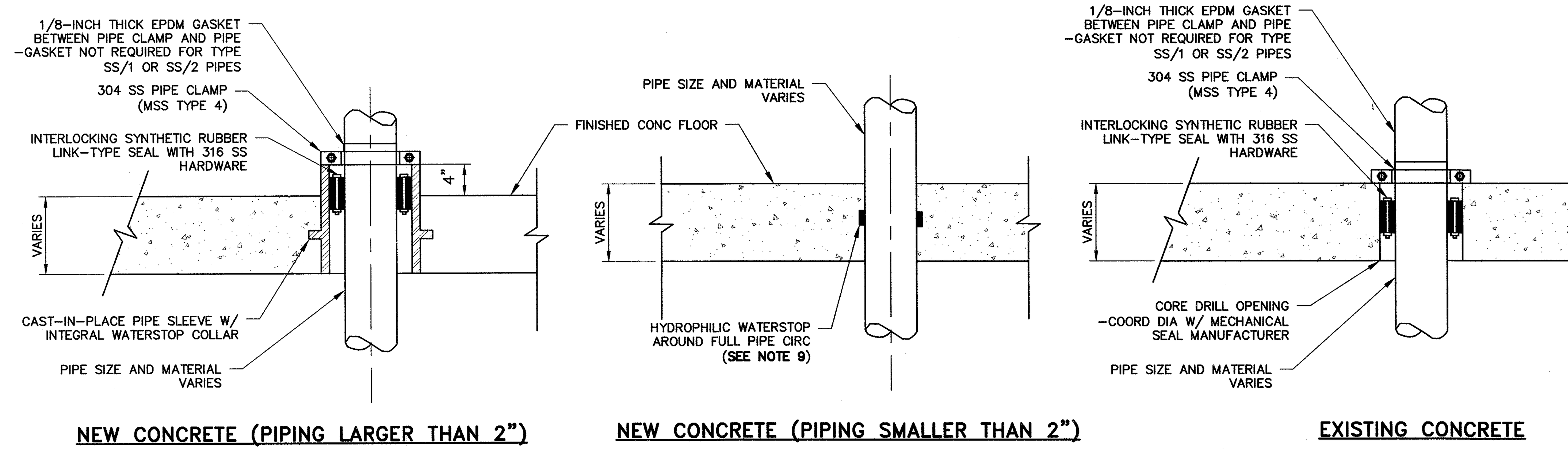
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 36 OF 116

S-801

ISSUED FOR BID

22x34 SHEET
1:1

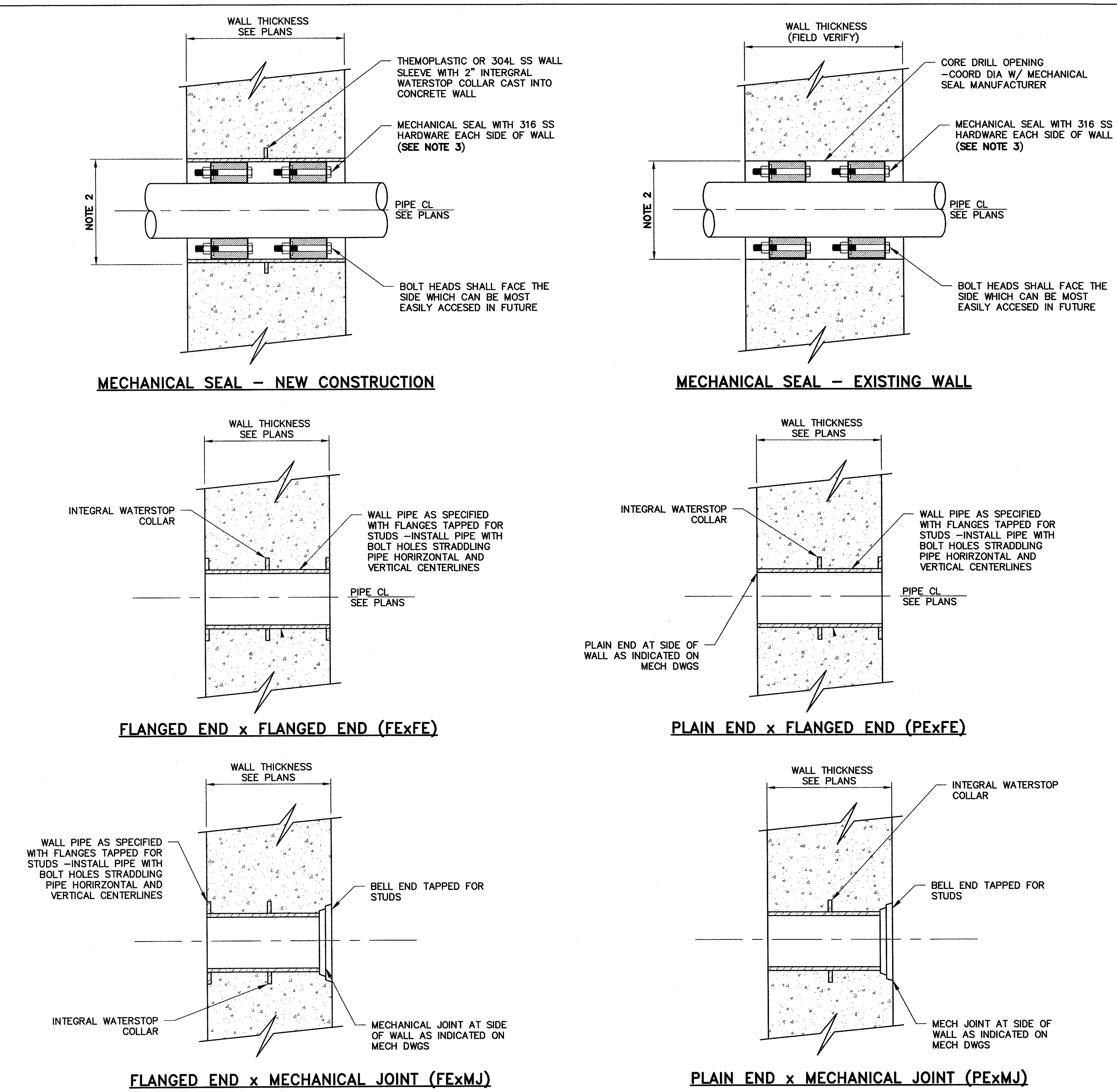


25 – BUILDING FLOOR PENETRATIONS

SCALE: NTS

NOTES:

1. FOR PIPE PENETRATIONS WITH INSULATION, THE ANCILLARY SPACE BETWEEN THE TOP OF THE SLEEVE AND THE SEAL SHALL BE FILLED WITH BACKER ROD AND SEALANT TO THE TOP SURFACE OF THE SLEEVE.
2. PIPE SLEEVE MATERIAL FOR USE WITH BACKER ROD AND SEALANT (INSULATED PIPE CONDITIONS) SHALL BE SCHEDULE 10S 304L STAINLESS STEEL OR HDPE, WITH I.D. EQUAL TO THE PIPE O.D. PLUS ONE INCH.
3. FLOOR SLEEVES FOR UNINSULATED PIPE SHALL BE SCH. 10S 304L SS OR HDPE WITH CONTINUOUS A WATERSTOP COLLAR AS FOLLOWS:
   PIPE DIA 10" OR LESS: 1/4" x 2"
   PIPE DIA > 10": 3/8" x 2"
4. PROVIDE SCH. 10S 304L SS PIPE SLEEVES FOR PIPING LARGER THAN 24".
5. REFER TO THE DRAWINGS FOR PIPE SIZES AND MATERIALS.
6. ALL HARDWARE SHALL BE 316 SS.
7. MECHANICAL SEALS SHALL BE FIRE-RATED TO MATCH FIRE RATING OF PENETRATED SPACE. REFER TO THE DRAWINGS FOR THE LOCATION OF FIRE RATED AREAS. PROVIDE 304L SS WALL SLEEVES FOR FIRE RATED WALL PENETRATIONS.
8. REFER TO SPECIFICATION 40 05 17 "PROCESS PIPE SLEEVES AND SEALS" FOR ADDITIONAL DETAILS AND REQUIREMENTS.
9. PROVIDE SLEEVE AND MECHANICAL SEALS FOR ALL PLUMBING PIPING THROUGH SLABS ON GRADE IN ACCORDANCE WITH STATE PLUMBING CODE REQUIREMENTS.
10. FOR INSULATED PIPING, INSTALL INSULATION CONTINUOUS THROUGH PENETRATIONS AND PROVIDE 304 S.S. PROTECTION SHIELDS WITH 360° COVERAGE BETWEEN SEALS AND INSULATION.



26 S-101 CONC WALL PENETRATIONS

SCALE: NTS

S-101 S-303 S-306 S-307 S-308 S-310 M-101

NOTES:

1. REFER TO DRAWINGS FOR PIPE PENETRATION LOCATIONS, TYPES, AND SIZES.
2. MECHANICAL SEAL AND WALL SLEEVE SIZE SHALL BE SIZED AS RECOMMENDED BY MANUFACTURER FOR EACH APPLICATION.
3. SINGLE MECHANICAL SEAL MAY BE USED FOR PENETRATIONS WHERE BOTH SIDES OF WALL ARE DRY.
4. MECHANICAL SEAL SHALL BE FIRE-RATED TO MATCH FIRE-RATING OF WALLS. SEE DRAWINGS FOR LOCATIONS OF FIRE-RATED WALLS.
5. PROVIDE SCH. 10S, 304L S.S. WALL SLEEVES FOR FIRE RATED WALL PENETRATIONS.
6. FOR INSULATED PIPING, INSTALL INSULATION CONTINUOUS THROUGH PENETRATIONS AND PROVIDE 304 S.S. PROTECTION SHIELDS WITH 360 DEGREE COVERAGE BETWEEN SEALS AND INSULATION.
7. REFER TO SPECIFICATION 40 05 17 "PROCESS PIPE SLEEVES AND SEALS" FOR ADDITIONAL DETAILS AND REQUIREMENTS.

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REV	DESCRIPTION	DATE
DESIGNED BY: SMH	CHECKED BY: JPS	
DRAWN BY: SMH	229123.00-S-802.dwg	

CONCRETE WALL AND FLOOR PENETRATION DETAILS

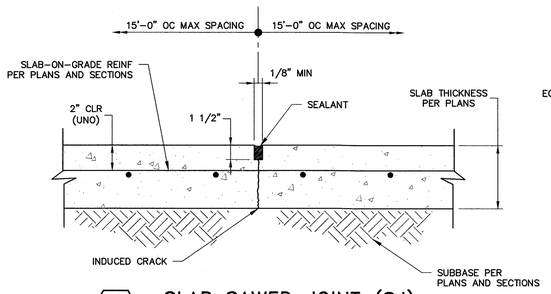
DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

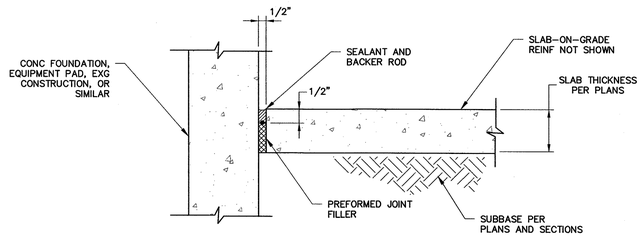
JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 37 OF 116

ISSUED FOR BID

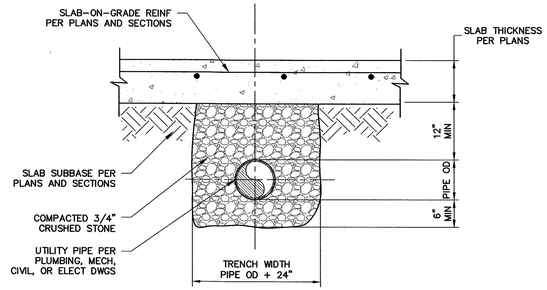
S-802



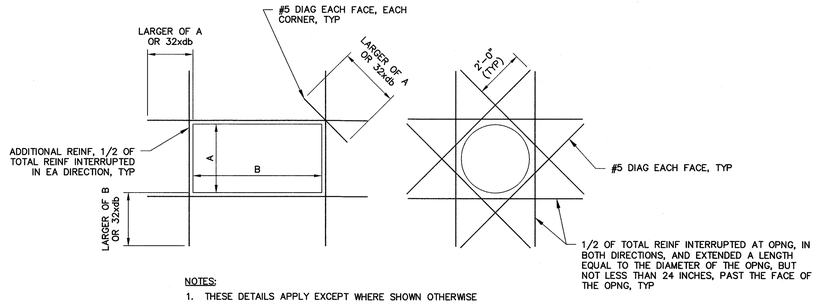
27 / S-101 — SLAB SAWED JOINT (SJ)
SCALE: NTS



28 / S-101 — ISOLATION JOINT (IJ)
SCALE: NTS
S-103
S-104
S-303
S-306

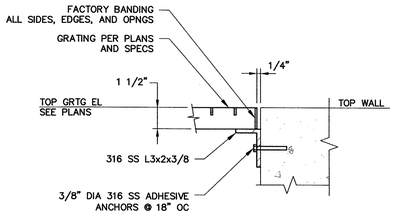


29 / – — UNDERSLAB UTILITY TRENCH
SCALE: NTS

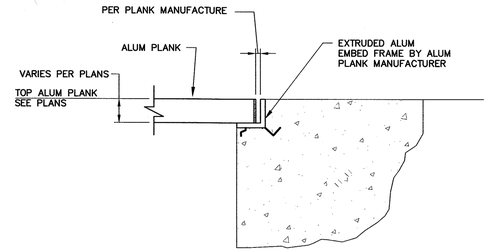


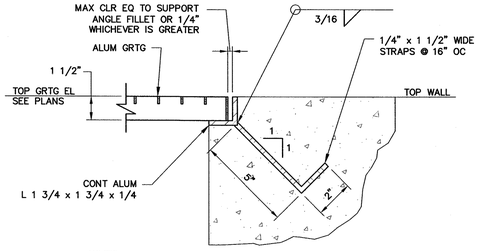
NOTES:
1. THESE DETAILS APPLY EXCEPT WHERE SHOWN OTHERWISE
2. ADDITIONAL BARS NOT REQUIRED WERE EDGE OF OPENING IS WITHIN 6 INCHES OF A BEAM OR WALL, AND PARALLEL THERETO
3. DIAGONAL BARS NOT REQUIRED AT OPENINGS SMALLER THAN 12 INCHES
4. PROVIDE HOOKED BAR WHERE EXTENSION SHOWN IS NOT POSSIBLE
5. FOR OPENING AT OR NEAR BASE OF WALL, ADDITIONAL BOWELS ARE REQUIRED AS INDICATED

30 / S-101 — REINFORCING AT OPENINGS
SCALE: NTS
S-303
S-306
S-307
S-310



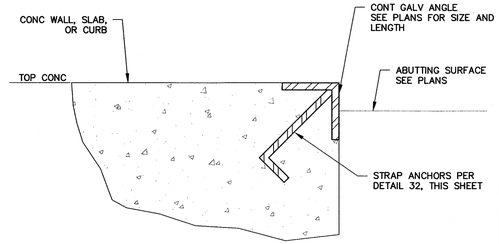
31 / – — GRATING SUPPPORT
SCALE: NTS



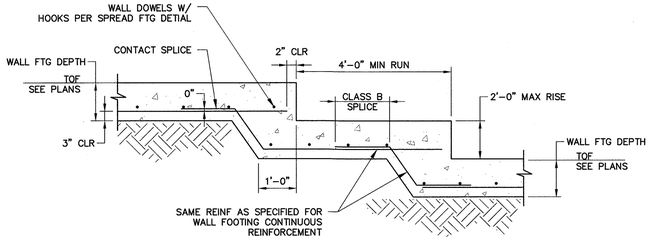


NOTES:
1. COAT ALL PORTIONS OF ALUM IN CONTACT WITH CONCRETE WITH BITUMINOUS PAINT

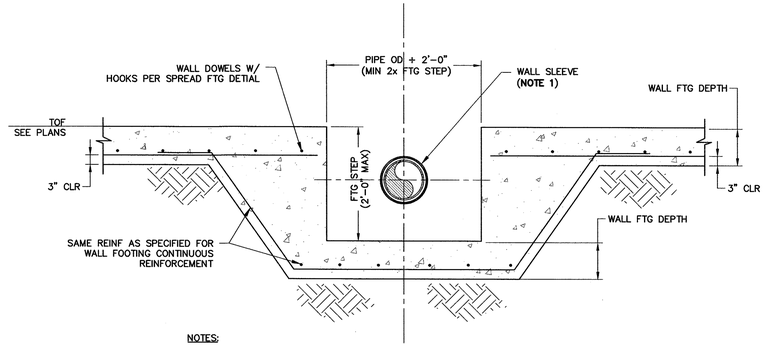
32 / S-304 — EMBED SUPPPORT
SCALE: NTS
S-310



33 / S-103 — EMBED ANGLE
SCALE: NTS

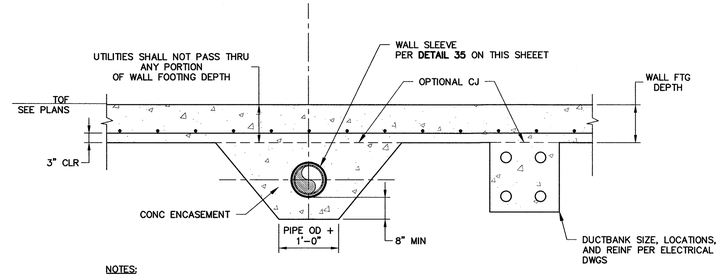


34 / S-101 — STEPPED WALL FOOTING
SCALE: NTS
S-103



NOTES:
1. BUILDING FOUNDATION WALLS WITH WALL PENETRATION ABOVE GROUNDWATER ELEVATION PROVIDE SCH 80 PVC SIZED TO ALLOW INSTALLATION OF UTILITY THROUGH FOUNDATION WALL AFTER WALL PLACEMENT.
2. BUILDING FOUNDATION WALLS WITH WALL PENETRATION BELOW GROUNDWATER AND ALL BASEMENT WALL PENETRATIONS SHALL HAVE THEMOPLASTIC SLEEVE WITH LINK-SEALS AND 316 SS HARDWARE.
3. PROVIDE SIMILAR DETAIL FOR ELECTRICAL DUCTBANK PENETRATIONS. GC TO COORDINATE WITH ELECTRICAL CONTRACTOR FOR DUCTBANK SIZE AND CONDUIT INSTALLATION THROUGH FOUNDATION WALL.
4. DETAIL DOES NOT APPLY TO CONCRETE TANK CONSTRUCTION

35 / – — STEPPED WALL FTG AT UTILITY
SCALE: NTS



NOTES:
1. UTILITIES SHALL NOT BE PLACED UNDER COLUMN FOOTINGS. SEE FOUNDATION PLANS FOR COLUMN FOOTING LOCATIONS.
2. UTILITIES SHALL NOT PASS THROUGH WALL FOOTING. UTILITIES SHALL PASS UNDER FOOTING AS SHOWN OR WALL FOOTING SHALL BE STEPPED DOWN PER **DETAIL 35** ON THIS SHEET.

36 / S-101 / S-104 — UTILITIES BELOW WALL FOOTING
SCALE: NTS

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COMMONWEALTH OF MASSACHUSETTS — JAMES M. STILPHEN — STRUCTURAL — No. 42568 — REGISTERED PROFESSIONAL ENGINEER
9/13/16

REV	DESCRIPTION	DATE
DESIGNED BY: SMH	CHECKED BY: JPS	
DRAWN BY: SMH	2291230-S-803.dwg	

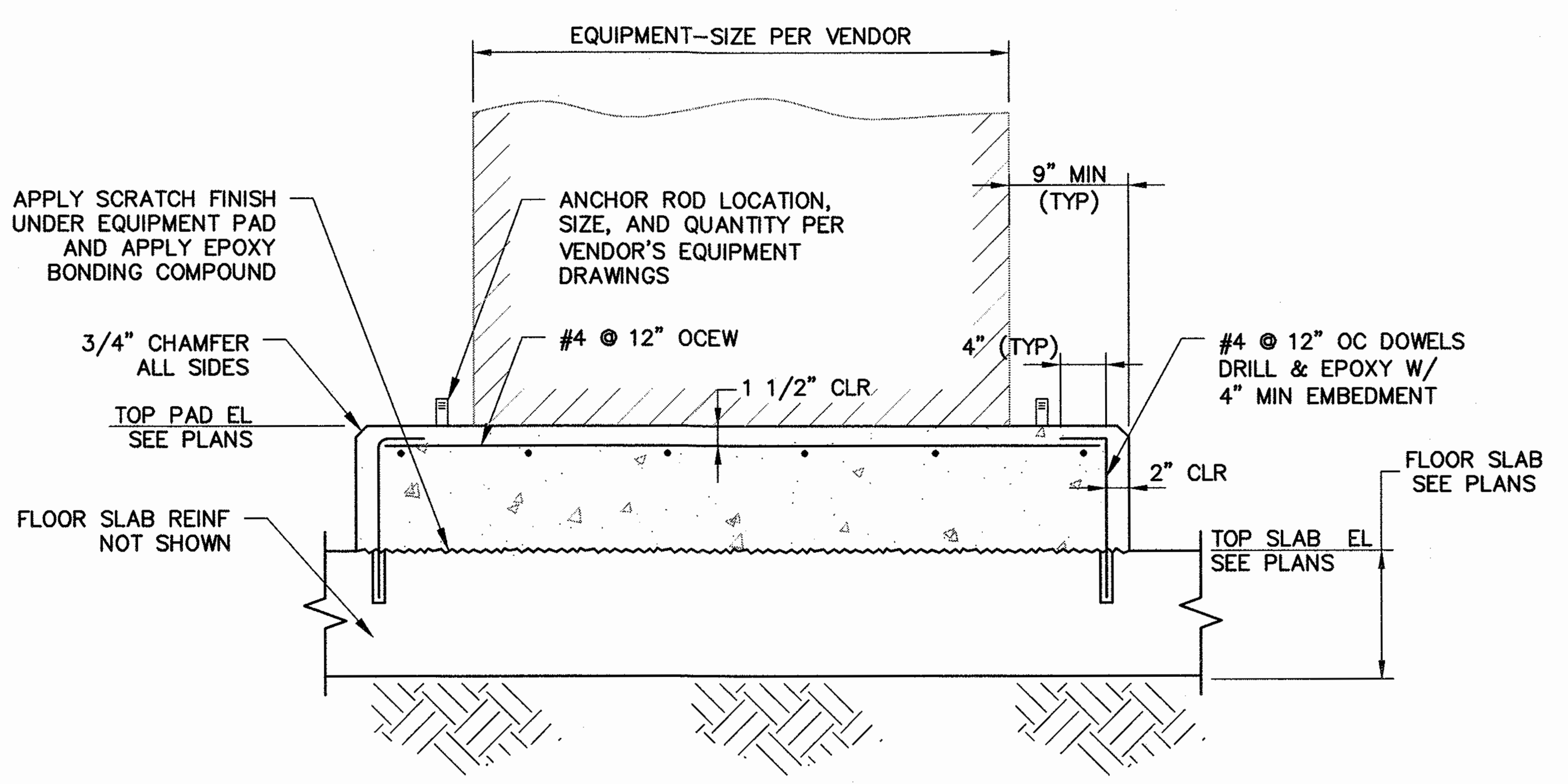
CONCRETE FLOOR SLAB AND WALL FOOTING DETAILS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

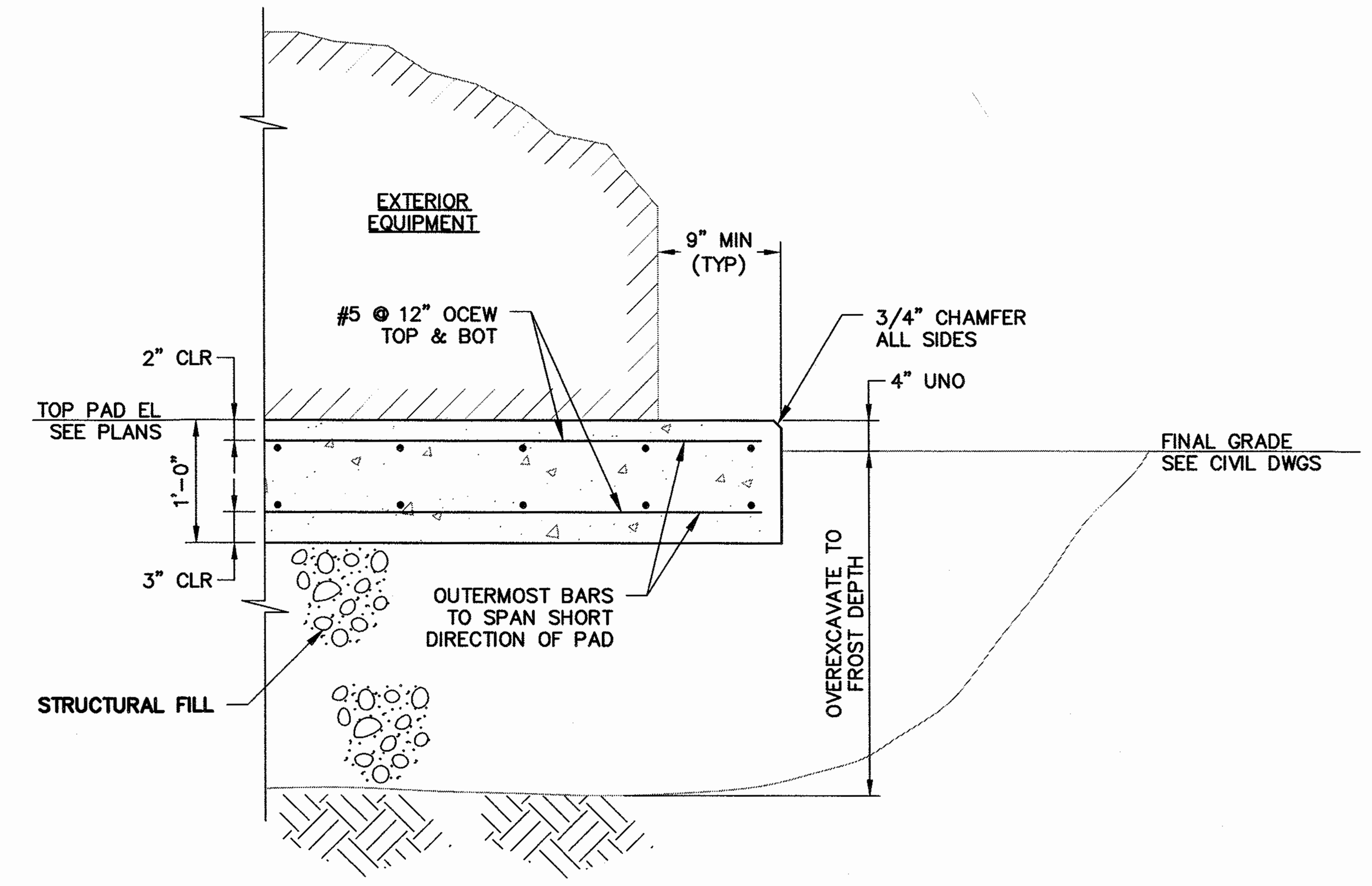
JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 38 OF 116

S-803



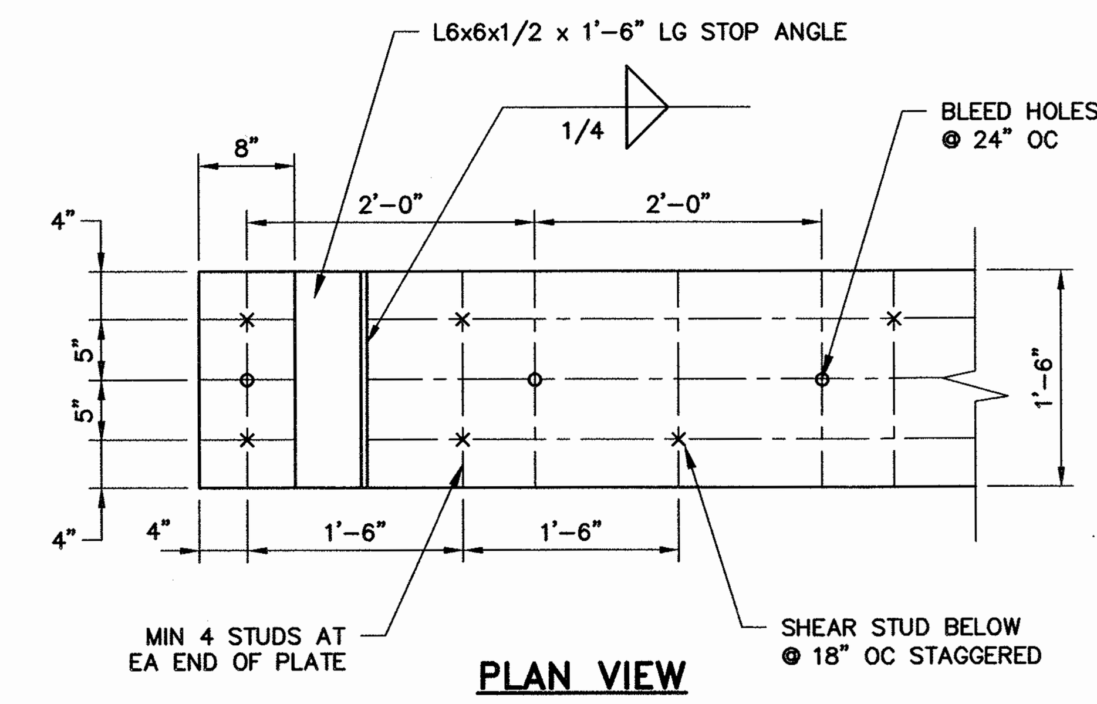
NOTES:
1. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR EQUIPMENT LOCATIONS, QUANTITIES, AND LAYOUT.
2. PAD SHALL PROJECT A MINIMUM OF 9" BEYOND EQUIPMENT FOOTPRINT UNO.
3. TOP OF PAD SHALL BE LEVEL WITHIN 1/8–INCH.
4. PROVIDE SACK–RUBBED FINISH TO ALL EXPOSED SIDES OF EQUIPMENT PAD AND A TROWEL FINISH TO THE TOP SURFACE.
5. MECHANICAL EQUIPMENT PADS SHALL BE 6–INCH THICK AND ELECTRICAL EQUIPMENT PADS SHALL BE 4" THICK, UNO.
6. PROVIDE SAWED JOINT (SJ) IN EQUIPMENT PADS, IF SHOWN AND NOTED ON PLANS.
7. APPLY CURE AND SEAL COMPOUND OR WATERPROOFING TO EQUIPMENT PAD SURFACES PRIOR TO EQUIPMENT INSTALLATION.

37 / S-301 **INTERIOR EQUIP PAD**
SCALE: NTS

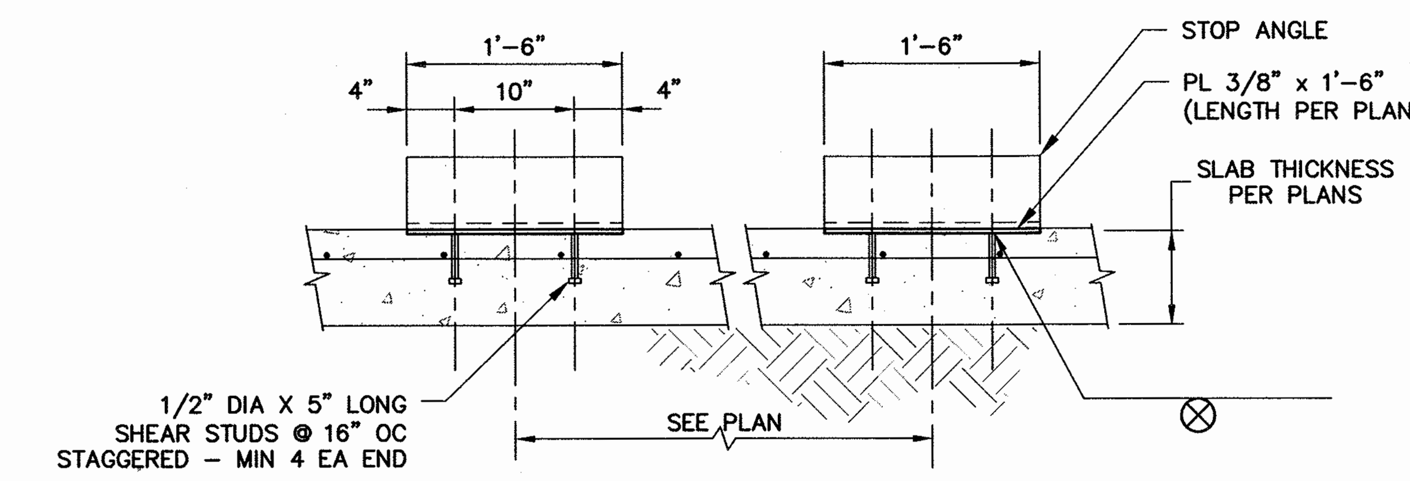


NOTES:
1. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR EQUIPMENT LOCATIONS, QUANTITIES, AND LAYOUT.
2. PAD SHALL PROJECT A MINIMUM OF 9" BEYOND EQUIPMENT FOOTPRINT UNO.
3. TOP OF PAD SHALL BE LEVEL WITHIN 1/8–INCH.
4. PROVIDE SACK–RUBBED FINISH TO ALL EXPOSED SIDES OF EQUIPMENT PAD AND A TROWEL FINISH TO THE TOP SURFACE.
5. PROVIDE COMPACTED **STRUCTURAL FILL** UNDER PAD FOOTPRINT TO FROST DEPTH TO PREVENT FROST HEAVE
6. PROVIDE SAWED JOINT (SJ) IN EQUIPMENT PADS, IF SHOWN AND NOTED ON PLANS.
7. SEAL CONCRETE WITH CURE AND SEAL COMPOUND OR WATERPROOFING COMPOUND TO EQUIPMENT PAD SURFACES PRIOR TO EQUIPMENT INSTALLATION.

38 / S-101 **EXTERIOR EQUIP PAD**
SCALE: NTS



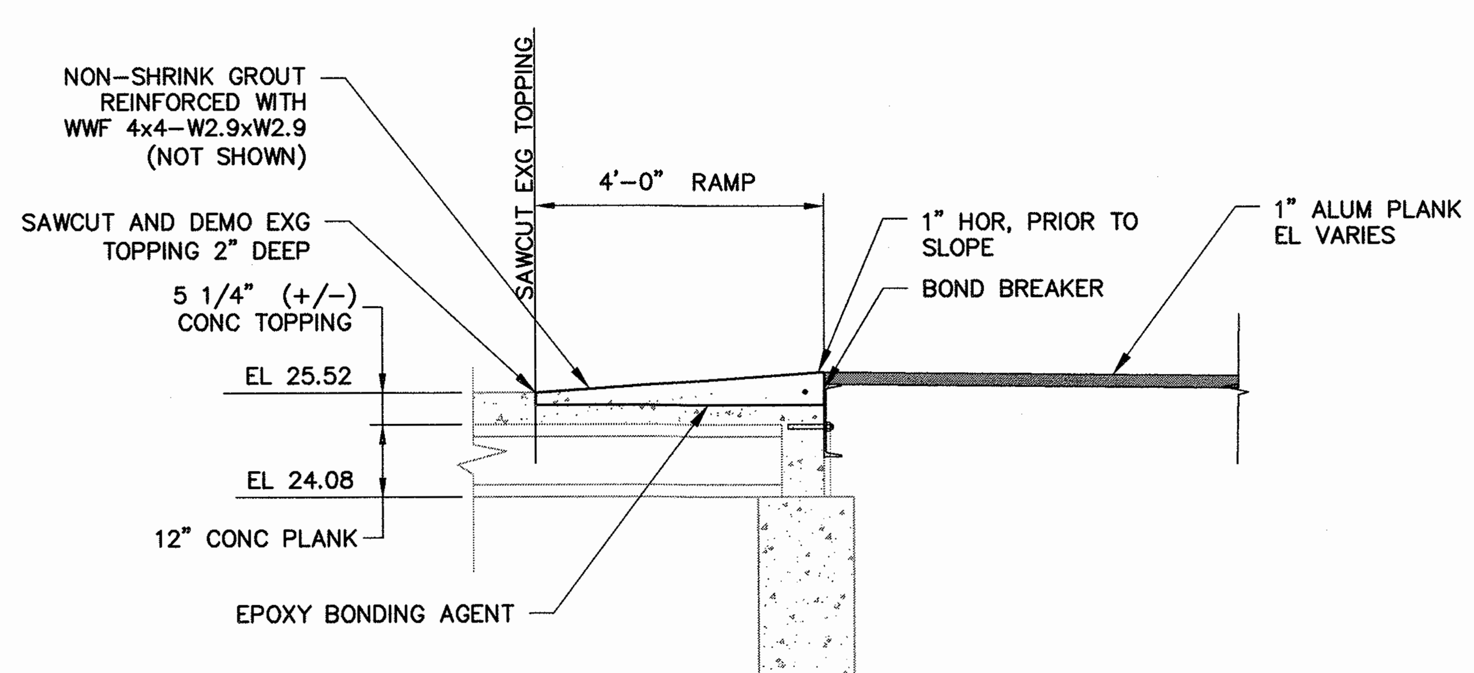
PLAN VIEW



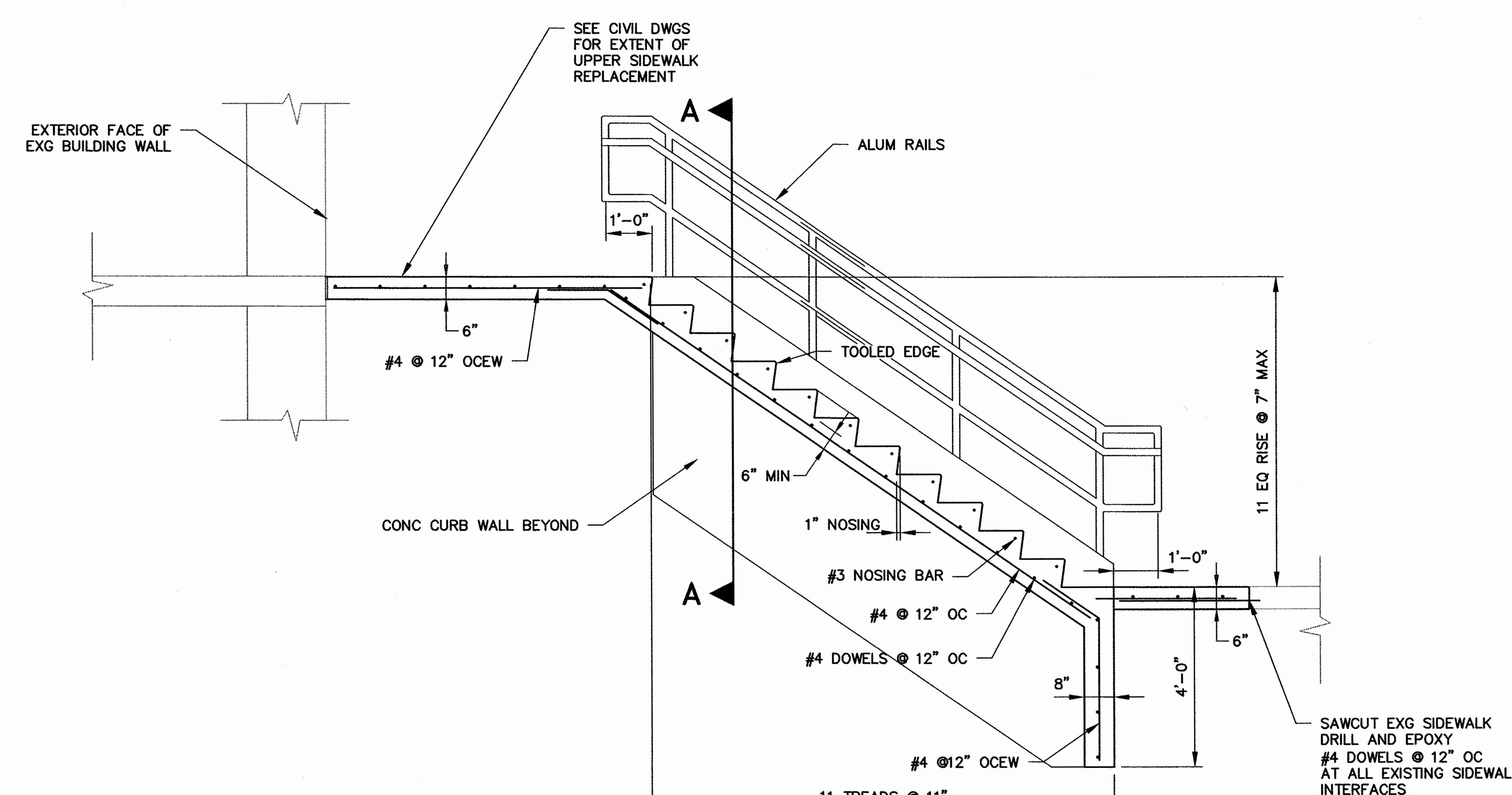
SECTION VIEW

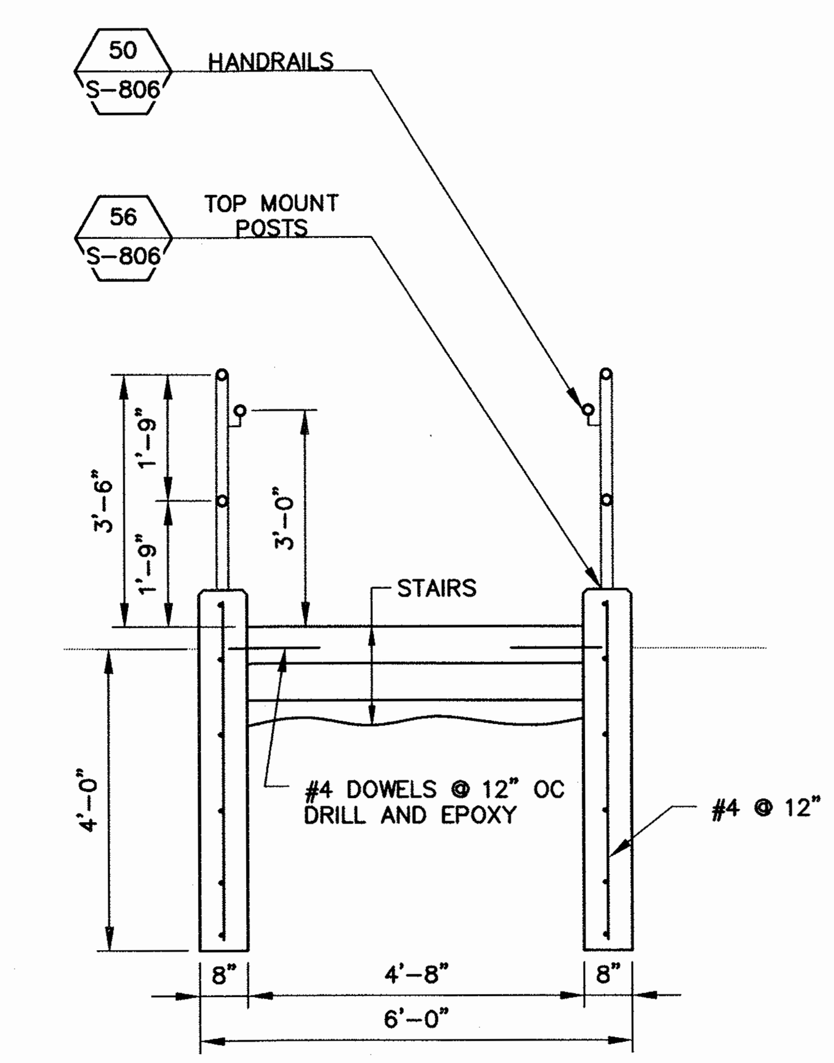
NOTES:
1. WHEEL PLATES ASSEMBLY SHALL BE HOT–DIP GALVANIZED
2. WHEEL PLATE MAY BE SPLIT IN TWO PIECES FOR AT FLOOR SAWED JOINTS FOR EASE OF HANDLING. SEE PLAN FOR SLAB JOINT LOCATIONS.

39 / S-101 **WHEEL PLATE**
SCALE: NTS
A-102



40 / S-304 **EQUIP REMOVAL CONC RAMP**
SCALE: 3/8" = 1'–0"





SECTION A–A

NOTES:
1. REFER TO CIVIL PLANS FOR STAIR LOCATION, ELEVATIONS, AND DIMENSIONS.
2. GC FIELD SURVEY EXISTING CONDITIONS AFTER DEMOLITION OF EXISTING STAIR AND SITE WALKS AND ADJUST THIS DETAIL ACCORDINGLY.
3. ALL STAIR CONCRETE SURFACES SHALL BE SEALED WATER REPELLENT.

41 / S-304 **CONCRETE SITE STAIR**
SCALE: NTS
C-003
C-004

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REV	DESCRIPTION	DATE
DESIGNED BY: SMH	CHECKED BY: JPS	
DRAWN BY: SMH	22912300-S-804.dwg	

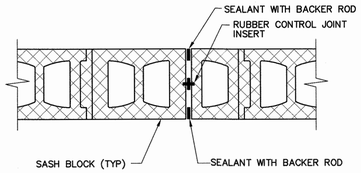
CONCRETE EQUIPMENT PAD & MISC CONCRETE DETAILS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 39 OF 116

S-804



NOTES:

1. HORIZONTAL JOINT REINFORCEMENT NOT SHOWN.

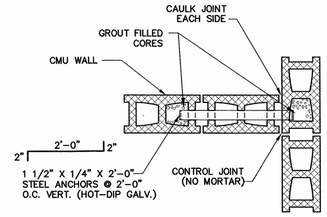
CONTROL JOINTS SHALL BE LOCATED AS FOLLOWS:

1. AS INDICATED ON DRAWINGS
2. AT 30 FOOT MAXIMUM SPACING
3. AT ALL CHANGES IN WALL HEIGHT

42 MASONRY CONTROL JOINT (MCJ)

A-102, S-103

SCALE: NTS



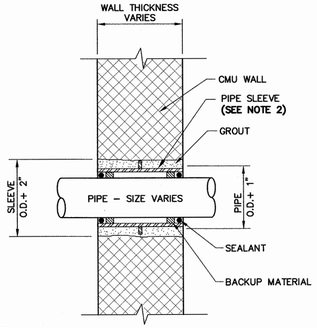
NOTES:

1. VERTICAL WALL REINFORCEMENT AND JOINT REINFORCEMENT NOT SHOWN.

43 CMU WALL ANCHORAGE

S-101

SCALE: NTS



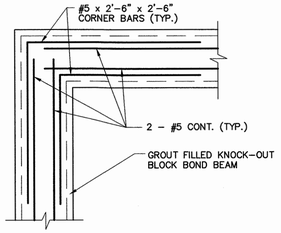
NOTES:

1. REFER TO MECHANICAL, HVAC, AND PLUMBING DRAWINGS FOR LOCATIONS, TYPES, AND SIZES OF ALL PIPE PENETRATIONS.
2. WALL SLEEVES: HDPE OR SCH 10 304L SS WALL SLEEVES WITH 2" INTEGRAL WATERSTOP, UNLESS NOTED OTHERWISE.
3. FOR INSULATED PIPE, INSTALL INSULATION CONTINUOUS THROUGH WALL AND PROVIDE 304 SS PROTECTION SHIELDS WITH 360 DEGREE COVERAGE BETWEEN PIPE INSULATION AND WALL SLEEVES.

44 CMU WALL SLEEVES

S-101, M-307

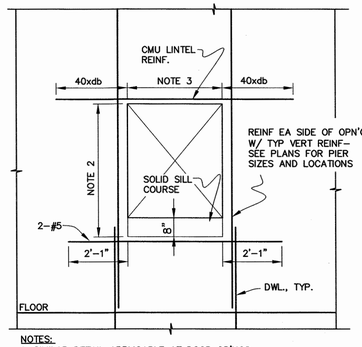
SCALE: NTS



45 CMU BOND BEAM CORNER BARS

S-102

SCALE: NTS



NOTES:
1. SIMILAR DETAIL APPLICABLE AT DOOR OP'NGS.
2. 2–#5 BOT. BARS REQ'D WHEN DIMENSION EXCEEDS 16".
3. REINF. SIDES OF OP'NG WHEN DIMENSION EXCEEDS 16".

46 CMU WALL OPENING

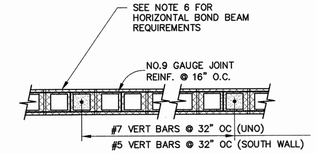
S-101

SCALE: NTS

LINTEL SCHEDULE						
MARK	H (IN)	WIDTH (IN)	REINFORCING			LINTEL TYPE
			BOT BAR	TOP BAR	STIRRUP	
L-1	24	8	(2) – #6	(2) – #4	#3 @ 10" OC	CONCRETE BEAM
L-2	16	8	(2) – #4	–	–	CMU BOND BEAM

LINTEL SCHEDULE NOTES:

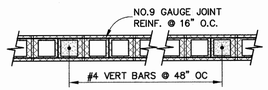
1. PROVIDE LINTEL TYPE "L-2" FOR ANY HVAC, MECHANICAL, ELECTRICAL, OR PLUMBING WALL OPENINGS GREATER THAN 8" IN DIAMETER.
2. REFER TO STRUCTURAL DRAWING S-102 FOR LINTELS AND REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF WALL OPENINGS.
3. PROVIDE A MINIMUM OF 8" BEARING FOR ALL LINTELS WITH GROUTED/REINFORCED CORE BELOW BEARING.
4. PROVIDE BOND BEAM LINTELS FOR ALL MASONRY WALL OPENINGS LARGER THAN 8" IN WIDTH.



47 8" EXTERIOR WALL REINF

S-101

SCALE: NTS



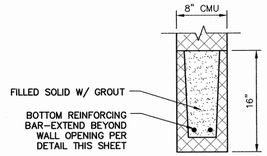
48 8" CMU INTERIOR WALLS

S-101

SCALE: NTS

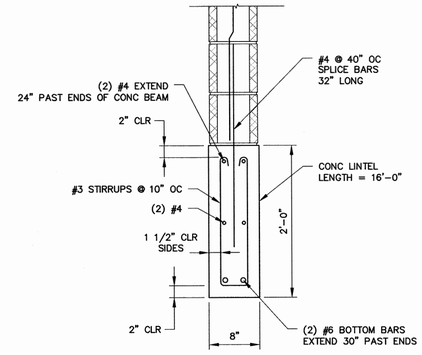
NOTES:

1. VERTICAL REINFORCING SHALL BE LAID OUT SUCH THAT CORNERS, INTERSECTIONS, WITHIN 8" OF WALL ENDS, AND WITHIN 8" OF EACH SIDE OF CONTROL JOINTS ARE REINFORCED. EACH SIDE OF OPENINGS WIDER THAN 16" SHALL BE REINFORCED WITHIN 16" OF EACH FACE OF OPENING.
2. VERTICAL REINFORCING AT SIDES OF OPENINGS SHALL EXTEND UP TO THE NEXT FLOOR OR ROOF LEVEL.
3. PROVIDE 2–#5 HORIZONTAL BARS AT BOTTOM OF OPENINGS TALLER THAN 16". EXTEND BOTTOM BARS 25" PAST, AND LINTEL BARS 40 BAR DIAMETERS PAST, EACH FACE OF OPENING, EXCEPT AT CONTROL JOINTS AND ISOLATION JOINTS.
4. SEE "CMU WALL OPENING" DETAIL FOR WALL REINFORCING AT LINTELS.
5. PROVIDE 2–#5 HORIZONTAL BARS AT KNOCK-OUT BLOCK BOND BEAM AT TOP OF ALL WALLS, CONTINUOUS AT CONTROL JOINTS.
6. PROVIDE CONTINUOUS HORIZONTAL BOND BEAMS AT 4'–0" OC MAXIMUM VERTICAL SPACING FOR ALL EXTERIOR CMU WALLS PER MASSACHUSETTS STATE BUILDING CODE REQUIREMENTS FOR SHEAR WALLS.



CMU LINTEL

N.T.S.



CONCRETE LINTEL

N.T.S.

49 WALL LINTELS

S-102

SCALE: NTS

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COMMONWEALTH OF MASSACHUSETTS — JAMES P. SMITH — STRUCTURAL — No. 42088 — REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE

DESIGNED BY: SMH | CHECKED BY: JPS
DRAWN BY: SMH | 2291230-S-805.dwg

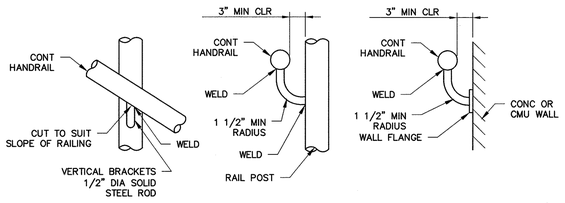
DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

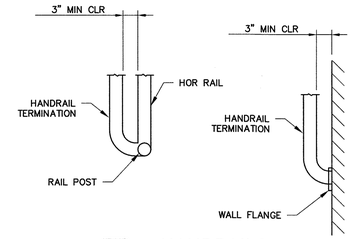
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

MASONRY WALL DETAILS AND LINTEL SCHEDULE

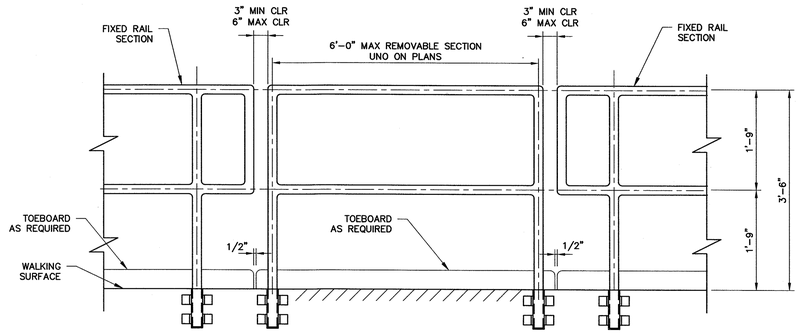
JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 40 OF 116

S-805



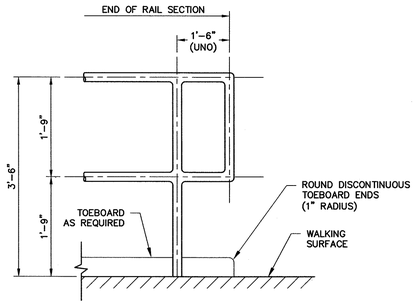


50 A-102 **HANDRAILS**
SCALE: NTS



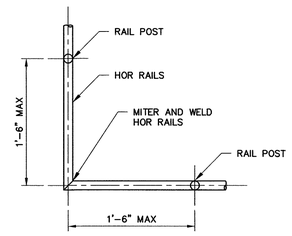
(ELEVATION VIEW)

51 – **REMOVABLE RAILS**
SCALE: NTS



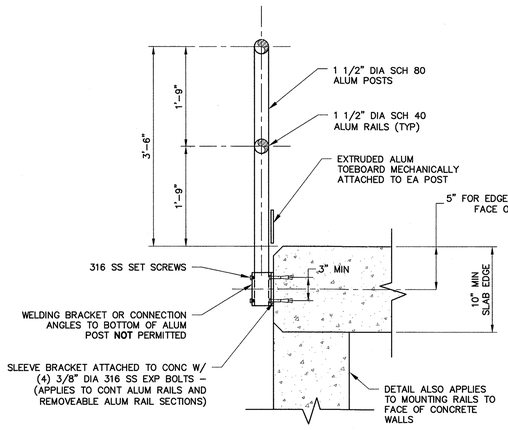
(ELEVATION VIEW)

52 S-304 **RAIL TERMINATION**
SCALE: NTS



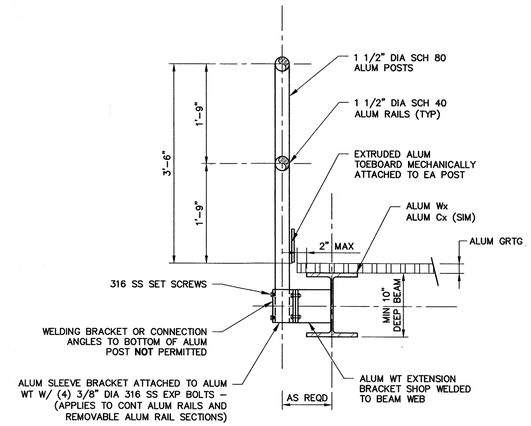
(PLAN VIEW)

53 S-307 S-310 **RAIL CORNERS**
SCALE: NTS

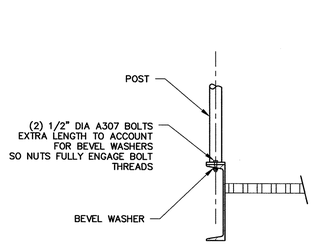


54 A-102 **ALUM SIDE MOUNT POST**
SCALE: NTS

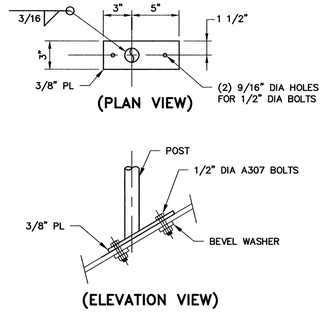
A-103 S-304 S-307 S-310



55 – **ALUM SIDE MOUNT POST**
SCALE: NTS

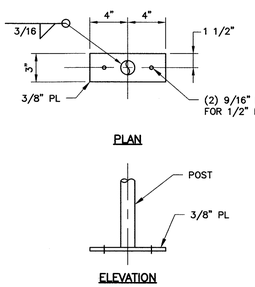


(SECTION VIEW)



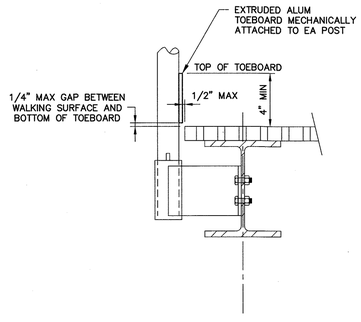
(PLAN VIEW)

(ELEVATION VIEW)

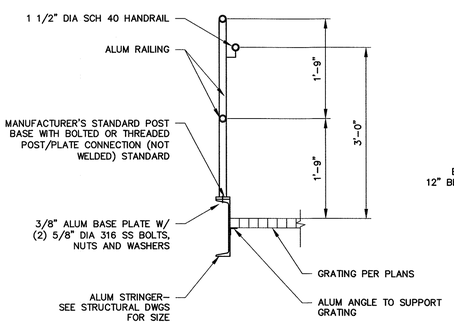


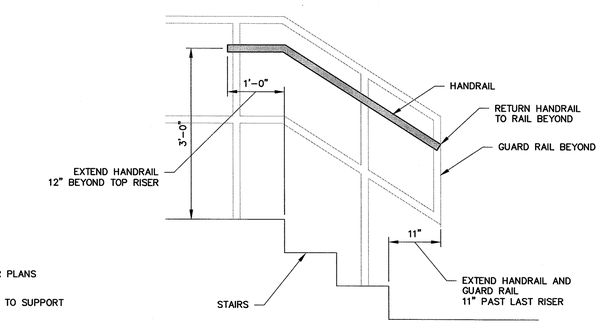
NOTES:
1. DETAILS ABOVE ARE FOR STEEL RAILING.
2. FOR ALUMINUM RAILING: SUBSTITUTE BOTTOM POST CONNECTION WITH CAST ALUM POST BASE BRACKET ATTACHED WITH 316 SS HARDWARE.
3. WELDING PLATES TO BOTTOM OF ALUM RAIL POSTS IS NOT PERMITTED.

56 S-310 S-804 **TOP MOUNT POSTS**
SCALE: NTS



57 – **TOEBOARD LOCATION**
SCALE: NTS





58 – **STAIR RAILING**
SCALE: NTS

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COMMONWEALTH OF MASSACHUSETTS JAMES P. STAPLES No. 42389 REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE

DESIGNED BY: SMH
DRAWN BY: SMH
CHECKED BY: JPS
2291230-S-806.dwg

ALUMINUM RAILING DETIALS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 41 OF 116

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FUNCTIONAL DESCRIPTION OF INSTRUMENT IDENTIFICATION

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS	ANALOG	ALARM		
B	BURNER FLAME		USERS CHOICE	USERS CHOICE	USERS CHOICE
C	CHLORINE	CONTROL		CONTROL	CLOSED
D	TURBIDITY	DIFFERENTIAL OR DIGITAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GAGING (DIMENSIONAL)		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOISTURE OR HUMIDITY	MOTOR			MIDDLE OR INTERMEDIATE
N	PARTICLE		USERS CHOICE	USERS CHOICE	RUN
O	CHLORINE DIOXIDE	OPERATED	ORIFICE (RESTRICTION)		OPEN
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY OR EVENT	INTEGRATE OR TOTALIZE			
R	RADIO	REGULATE	RECORD OR PRINT		RECEIVER
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED	GEN FAULT	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	RUN			RELAY OR COMPUTE	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

INSTRUMENT FUNCTION IDENTIFIERS

I/P	—	CURRENT TO PNEUMATIC CONVERTER
E/I	—	VOLTAGE TO CURRENT CONVERTER
Σ	—	ADD OR TOTALIZE
√	—	SQUARE ROOT
X	—	MULTIPLY
÷	—	DIVIDE
>	—	HIGH SELECT
PV	—	PROCESS VARIABLE
<	—	LOW SELECT
S.P.	—	SET POINT
∫	—	INTEGRATE
f(x)	—	CHARACTERISTIC
P	—	PROPORTIONAL CONTROL MODE
D	—	DERIVATIVE
∫	—	INTEGRAL CONTROL MODE
pH	—	HYDROGEN ION CONCENTRATION
TSS	—	TOTAL SUSPENDED SOLIDS
ORP	—	OXIDATION REDUCTION POTENTIAL
DO	—	DISSOLVED OXYGEN

PLC INPUT/OUTPUT

- DISCRETE INPUT
- ANALOG INPUT
- DISCRETE OUTPUT
- ANALOG OUTPUT

HAND SWITCH POSITION SYMBOLS
(UNLABELED SWITCHES ARE ON-OFF)

A	AUTOMATIC	L	LOCAL
C	CLOSE	M	MANUAL
H	HAND	O	OPEN OR OFF
J	JOG	R	REMOTE
E/S	EMERGENCY STOP		
HOA	HAND-OFF-AUTO, HAND SWITCH UNLESS NOTED ON/OFF ONLY		
HOR	HAND-OFF-REMOTE		
LD	LOCAL DISCONNECT		
LOR	LOCAL-OFF-REMOTE		
OCA	OPEN-CLOSE-AUTO, HAND SWITCH		
S/S	START/STOP		
S/R	FORWARD/REVERSE		

LINES

- PLC SIGNAL
- HYDRAULIC CONTROL LINE
- PNEUMATIC SIGNAL
- PROCESS FLOW – MINOR
- PROCESS FLOW – MAJOR
- SOFTWARE OR DATA LINK
- MECHANICAL LINK
- CAPILLARY TUBE
- OPTICAL SIGNAL
- MAGNETIC SIGNAL
- UNDEFINED SIGNAL
- TELEPHONE LINE
- ELECTRICAL CONNECTION

EQUIPMENT SYMBOLS

- CENTRIFUGAL PUMP
- PERISTALTIC PUMP
- MULTI-STAGE CENTRIFUGAL BLOWER
- BLOWER
- METERING PUMP
- AIR DIAPHRAGM PUMP
- SEQUENTIAL SAMPLER
- DECANTER
- PROGRESSIVE CAVITY PUMP
- PLUNGER PUMP
- MIXER
- BAG FILTER
- AIR DIFFUSER
- GEAR PUMP
- GRINDER
- RECIPROCATING AIR COMPRESSOR
- CONVEYOR
- SUBMERSIBLE PUMP
- SEPTAGE SCREEN
- FLOATING AERATOR
- DISK FILTER
- DOUBLE DISC PUMP
- ROTARY DRUM THICKENER
- UV DISINFECTION SKID
- MACERATOR
- 6MM BAND SCREEN
- CENTRIFUGE
- WASHER COMPACTOR
- EXHAUST FAN

PIPING AND MISCELLANEOUS SYMBOLS

- SILENCER
- REDUCER
- INTAKE AIR FILTER
- PULSATION DAMPENER
- IN-LINE STATIC MIXER
- BACKFLOW PREVENTOR
- CALIBRATION TUBE
- WYE STRAINER
- FLARE END FITTING
- FLEXIBLE COUPLING
- ROTAMETER
- PIPE SIZE / FLUID / MATERIAL
- 6"-DRN-PVC-X — DENOTES EXISTING PIPING
- PRESSURE GAUGE
- WEIR
- QUICK DISCONNECT
- IN-LINE AIR FILTER
- HOSE CONNECTION
- EXPANSION COUPLING
- PIPE CAP
- HOSE BIBB
- UNION
- DISC STRAINER
- BLIND FLANGE
- FLEXIBLE HOSE
- DRAIN W/INTEGRAL TRAP
- PIPE INSULATION
- INJECTION RING
- DIAPHRAGM SEAL
- DRAIN

VALVES

- NEEDLE VALVE
- SOLENOID VALVE
- STOP COCK
- THREE WAY VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- GATE VALVE
- BALL CHECK VALVE
- PLUG VALVE (NORMALLY OPEN)
- PLUG VALVE (NORMALLY CLOSED)
- GLOBE VALVE
- SLIDE GATE/SLUICE GATE
- BALL VALVE (NORMALLY OPEN)
- BALL VALVE (NORMALLY CLOSED)
- BACKPRESSURE VALVE
- PINCH VALVE
- OVERPRESSURE RELIEF VALVE
- TELESCOPING VALVE
- AIR RELEASE VALVE
- MOTOR OPERATED VALVE
- DIAPHRAGM VALVE
- PRESSURE REDUCING VALVE
- VENTURI MIXING VALVE
- PNEUMATIC CONTROL VALVE
- SLIDE GATE

VALVE AND PIPE DESIGNATIONS/ABBREVIATIONS

FLUID DESIGNATION
AA – ACETIC ACID
AP – PROCESS AIR
AL – ALUMINUM SULFATE
AS – ACTIVATED SLUDGE
BIS – SODIUM BISULFATE
BS – BLENDED SLUDGE
CH – CHLORINE SOLUTION
CHM – CHEMICAL
COAG – COAGULANT
CW – CITY WATER (POTABLE WATER)
D – DECANT
DR – DRAIN
DS – DEWATERED SLUDGE (CAKE)
EW – EQUALIZED WASTEWATER
FBW – FILTER BACKWASH
FC – FERRIC CHLORIDE
FE – FINAL EFFLUENT
H – FLEXIBLE HOSE
HYP – SODIUM HYPOCHLORITE
HW – HAULED WASTE
IA – INSTRUMENT AIR
IMLR – INTERNAL MIXED LIQUOR RECYCLE
ML – MIXED LIQUOR
OA – ODOROUS AIR
OV – OVERFLOW
PI – PRIMARY INFLUENT
PE – PRIMARY EFFLUENT
PL – POLYMER SOLUTION
PS – PRIMARY SLUDGE
PSC – PRIMARY SCUM
PW – PLANT WATER (NON-POTABLE WATER)
PRW – PROCESS WATER
PWR – PROCESS WASTE RETURN
RAS – RETURN ACTIVATED SLUDGE
REC – RECIRCULATION
RWW – RAW WASTEWATER
SA – SULFURIC ACID
SAS – SECONDARY ACTIVATED SLUDGE
SC – SCUM
SE– SECONDARY EFFLUENT
SF – SLUDGE FILTRATE
SH – SODIUM HYDROXIDE
SP – SEPTAGE
SPF – SEPTAGE FILTRATE
SS – SECONDARY SLUDGE
SW – SEAL WATER
SWW – SECONDARY TREATED WASTEWATER
TPS – THICKENED PRIMARY SLUDGE
TS – THICKENED SLUDGE
TSS – THICKENED SECONDARY SLUDGE
TWAS – THICKENED WASTE ACTIVATED SLUDGE
V – VENTED AIR
WAS– WASTE ACTIVATED SLUDGE

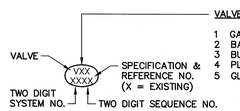
EQUIPMENT DESIGNATION
AC – AIR COMPRESSOR
AG – AGITATOR
AS – AUTOMATIC SAMPLER
B – BLOWER
BF – BAG FILTER
BFP – BELT FILTER PRESS
BS – BAR SCREEN
C – CLARIFIER
CP – CONTROL PANEL
CS – CURB STOP
CV – CONVEYOR
D – DECANTER
DF – DIFFUSED AERATION SYSTEM
E – GENERAL EQUIPMENT
F – EXHAUST FAN
FG – FLOCCULATOR
FLG – FLAP GATE
G – GRINDER
GS – GRIT SYSTEM
GT – GRAVITY THICKENER
M – MIXER
MAU – MAKEUP AIR UNIT
MCC – MOTOR CONTROL CENTER
P – PUMP
PS – POLYMER FEED SYSTEM
R – ROCK TRAP
RT – ROTARY DRUM THICKENER
S – SCREEN
SG – SLIDE GATE
SLG – SLUICE GATE
T – TANK
WP – WASH PRESS
X – EXISTING EQUIPMENT, VALVE, AND PIPING

GENERAL ABBREVIATIONS
ACFM – ACTUAL CUBIC FEET PER MINUTE
AFF – ABOVE FINISHED FLOOR
ALGNMT – ALIGNMENT
BF – BLIND FLANGE
ECC – ECCENTRIC
EL – ELEVATION
EX – EXISTING
FF – FINISHED FLOOR
FLG – FLANGE
FL – FLOOR
FS – FLOW SWITCH
GPD – GALLONS PER DAY
GPH – GALLONS PER HOUR
GPM – GALLONS PER MINUTE

GENERAL ABBREVIATIONS (CON'T)
HB – HOSE BIB
HWL – HIGH WATER LEVEL
IDFM – INLET CUBIC FEET PER MINUTE
IMFO – INTEGRALLY MOLDED FLANGED OUTLET
INCL – INCLUDED WITH PURCHASED EQUIPMENT
INV – INVERT
LWL – LOW WATER LEVEL
MGD – MILLION GALLONS PER DAY
MG/L – MILLIGRAMS PER LITER
MHW – MEAN HIGH WATER
MJ – MECHANICAL JOINT
MLW – MEAN LOW WATER
MSL – MEAN SEA LEVEL
N – NEW
NTS – NOT TO SCALE
O.L. – OVERLOAD
OC – ON CENTER
PE – PLAIN END
PLC – PROGRAMMABLE LOGIC CONTROLLER
PPD – POUND PER DAY
PSIA – POUNDS PER SQUARE INCH ABSOLUTE
PSIG – GAUGE POUNDS PER SQUARE INCH
RED – REDUCER
SCFM – CUBIC FEET PER MINUTE (STANDARD CONDITIONS)
SP – SET POINT (TYPICAL)
STDBY – STANDBY
TDH – TOTAL DYNAMIC HEAD
TYP – TYPICAL
UNO – UNLESS NOTED OTHERWISE
VCP – VENDOR SUPPLIED CONTROL PANEL
WS – WATER SURFACE
mA – MILLIAMP

PIPE MATERIAL
AC – ASBESTOS CONCRETE
CI – CAST IRON
CPVC – CHLORINATED POLYVINYL CHLORIDE
CS – CARBON STEEL
CU – COPPER
DI – DUCTILE IRON
DI/GE – DUCTILE IRON – GROOVED END
HDPE – HIGH DENSITY POLYETHYLENE
FRP – FIBERGLASS REINFORCED PLASTIC
PVC – POLYVINYL CHLORIDE
RC – REINFORCED CONCRETE
SS – STAINLESS STEEL
V – VINYL
VC – VITRIFIED CLAY
WRH – WIRE REINFORCED HOSE

VALVE TAG SYMBOL LEGEND



1 GATE
2 BALL
3 BUTTERFLY
4 PLUG
5 GLOBE
6 CHECK
7 ANGLE
8 PINCH OR DIAPHRAGM
9 3-WAY OR 4-WAY
0 SPECIAL (SEE SPECIFICATIONS)

SPECIALTY VALVE TYPES & DESCRIPTIONS
V01 – METALLIC PRESSURE REDUCING VALVE
V02 – PVC PRESSURE REDUCING VALVE
V03 – BACKFLOW PREVENTOR
V04 – METALLIC PRESSURE RELIEF VALVE
V05 – PVC PRESSURE RELIEF VALVE
V06 – AIR RELEASE VALVE
V07 – PVC BACKPRESSURE VALVE
V08 – METALLIC BACKPRESSURE VALVE
V09 – SOLENOID VALVE

KNIFE GATE & GATE VALVE TYPES & DESCRIPTIONS
V10 – KNIFE GATE VALVE
V12 – GATE VALVE
V15 – BURIED GATE VALVE
V16 – PVC GATE VALVE

BALL VALVE TYPES & DESCRIPTIONS
V20 – PVC BALL VALVE
V23 – METALLIC BALL VALVE
V24 – STAINLESS STEEL BALL VALVE

BUTTERFLY VALVE TYPES & DESCRIPTIONS
V30 – METALLIC LIQUID SERVICE BUTTERFLY VALVE
V32 – METALLIC AIR SERVICE BUTTERFLY VALVE
V33 – PVC LIQUID SERVICE BUTTERFLY VALVE
V34 – PVC AIR SERVICE BUTTERFLY VALVE
V35 – BURIED LIQUID SERVICE BUTTERFLY VALVE
V36 – BURIED AIR SERVICE BUTTERFLY VALVE

PLUG VALVE TYPES & DESCRIPTIONS
V40 – METALLIC PLUG VALVE
V41 – BURIED PLUG VALVE
V42 – MUD VALVE (PLUG DRAIN VALVE)

GLOBE VALVE TYPES & DESCRIPTIONS
V50 – METALLIC GLOBE VALVE
V51 – PVC GLOBE VALVE
V52 – METALLIC NEEDLE VALVE

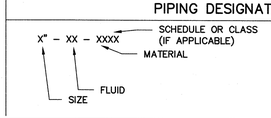
CHECK VALVE TYPES & DESCRIPTIONS
V60 – PVC BALL CHECK VALVE
V61 – PVC SWING CHECK VALVE
V62 – METALLIC SWING CHECK VALVE
V63 – METALLIC FLAP CHECK VALVE
V64 – DOUBLE DISC SWING CHECK VALVE
V65 – SLANTING DISC CHECK VALVE
V66 – WAFER STYLE SILENT CHECK VALVE
V67 – GLOBE STYLE SILENT CHECK VALVE
V68 – METALLIC BALL CHECK VALVE
V69 – DUCK BILL CHECK VALVE
V70 – NEAT POLYMER CHECK VALVE
V71 – DUCK BILL CHECK VALVE

PINCH & DIAPHRAGM VALVE TYPES & DESCRIPTIONS
V80 – PVC DIAPHRAGM VALVE
V81 – METALLIC PINCH VALVE

MISCELLANEOUS VALVE TYPES & DESCRIPTIONS
V90 – TELESCOPING VALVE

STRAINER TYPES & DESCRIPTIONS
S01 – PVC Y-TYPE STRAINER
S02 – METALLIC Y-TYPE STRAINER
S03 – PVC SIMPLEX BASKET STRAINER
S04 – METALLIC SIMPLEX BASKET STRAINER
S05 – PVC DUPLEX BASKET STRAINER
S06 – METALLIC DUPLEX BASKET STRAINER

PIPING DESIGNATION LEGEND



INSTRUMENTATION AND CONTROL SYMBOLS

- PI 0101 — FUNCTIONAL IDENTIFICATION (SEE LEGEND TABLE); IDENTIFICATION NO.
- YLAH 0101 — DISCRETE COMPUTER CONTROL SYSTEM CONFIGURABLE FUNCTION (DISPLAYED)
- PI 0101 (CP–X) — LOCATION REFERENCE OR DESCRIPTOR (IF DESIRED); PRIMARY LOCATION (NORMALLY ACCESSIBLE TO OPERATOR)
- LI 0101 — ANALOG COMPUTER CONTROL SYSTEM CONFIGURABLE FUNCTION (DISPLAYED)
- PI 0101 — FIELD MOUNTED
- LI 0101 — COMPUTER CONTROL SYSTEM CONFIGURABLE FUNCTION (NOT DISPLAYED)
- PI 0101 — AUXILIARY LOCATION
- CP 01 — PROGRAMMABLE LOGIC CONTROL, PRIMARY LOCATION (LOCATION IDENTIFICATION LETTERS OPTIONAL)
- PI 0101 — LOCAL INDICATION
- CP 02 — PROGRAMMABLE LOGIC CONTROL, FIELD MOUNTED (LOCATION IDENTIFICATION LETTERS OPTIONAL)
- PI X01 — INCLUDED WITH PURCHASED EQUIPMENT
- LA ALT — LEAD/LAG ALTERNATOR (MOTOR/PUMP CONTROL)

INSTRUMENTATION AND CONTROL SYMBOLS

- M — MAGNETIC FLOW METER
- EX N — EXISTING TO NEW LEADER
- 120 V SP — POWER SUPPLY (VOLTAGE, PHASE)
- X — UNDEFINED INTERLOCK LOGIC (SEE SPECIFICATIONS FOR DESCRIPTION)
- 5 — MOTOR (NUMBER INDICATES HP)
- FLOAT SWITCH
- ULTRASONIC LEVEL ELEMENT
- S — SAMPLER
- VFD — VARIABLE FREQUENCY DRIVE
- HORN
- R — ALARM LIGHT
- SUBMERSIBLE PRESSURE TRANSDUCER
- MS — MOTOR STARTER
- ORIFICE PLATE FLOW METER
- TURBINE FLOW METER
- PITOT TUBE FLOW METER

GENERAL NOTES

1. THIS IS A GENERALIZED LEGEND SHEET. THIS CONTRACT MAY NOT USE ALL INFORMATION SHOWN.
2. ALL PIPING SHALL BE FIELD ROUTED.

ISSUED FOR BID

980 Washington Street, Suite 325
Dedham, Massachusetts 02026
800.446.5518 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS — THOMAS F. HAZLETT — CIVIL — No. 49482 — REGISTERED PROFESSIONAL ENGINEER — 9/23/16

REV.	DESCRIPTION	DATE

DESIGNED BY: KF/KR
DRAWN BY: DWB
CHECKED BY: KF
2291200-PR-001.DWG

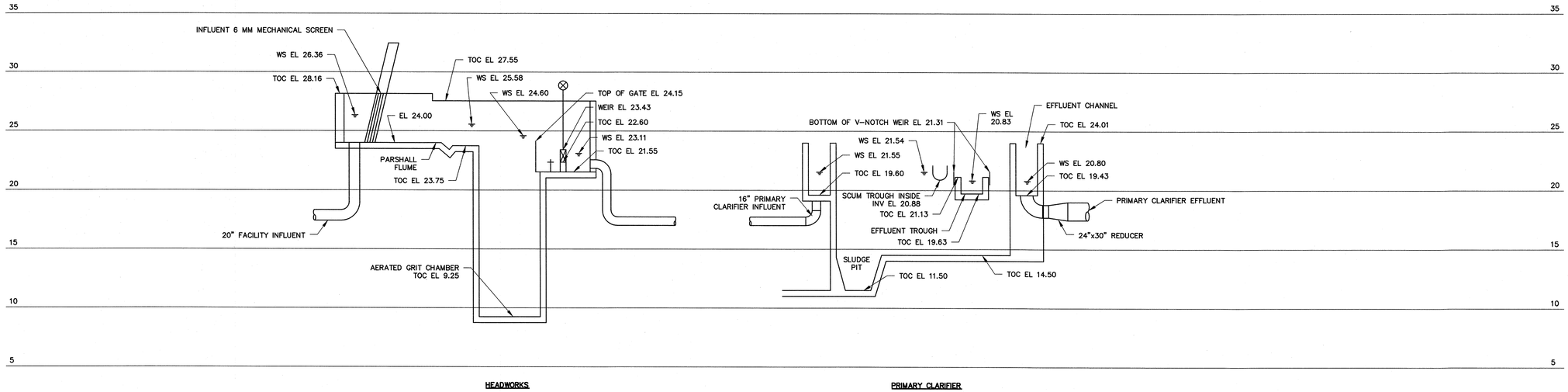
PIPING AND INSTRUMENTATION ABBREVIATIONS AND SYMBOLS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

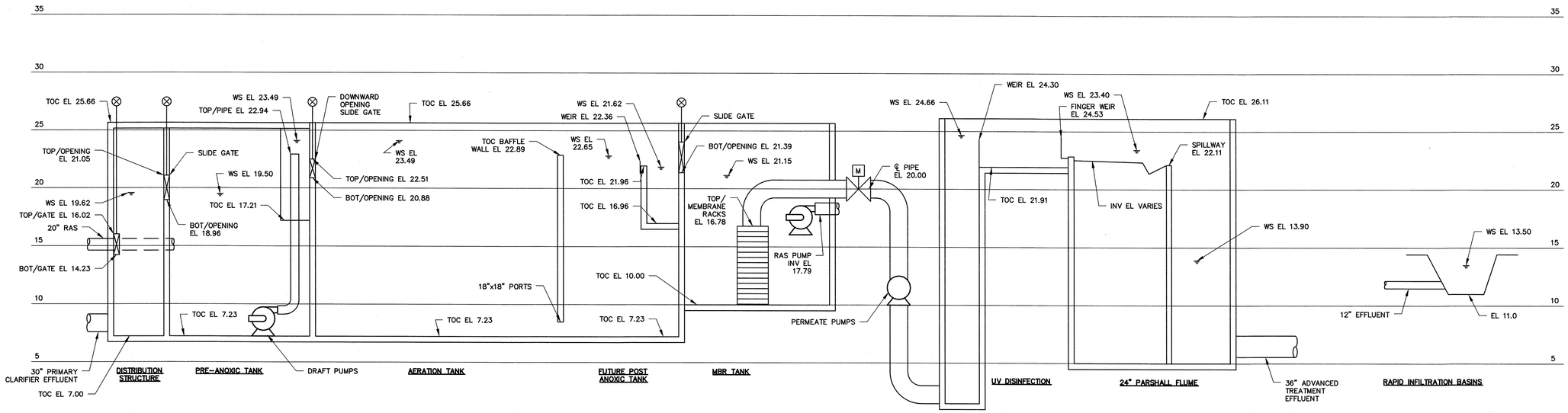
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 42 OF 116

PR-001



HEADWORKS **PRIMARY CLARIFIER**



ADVANCED TREATMENT BUILDING

NOTES:

1. STRUCTURES SHOWN IN BOLD ARE EXISTING AND WILL BE MODIFIED AS PART OF THE WORK.
2. FEMA 100 YEAR FLOOD ELEVATION IS 9.0 FEET.
3. HYDRAULIC PROFILE REPRESENTS HYDRAULIC GRADE LINE OCCURING DURING A FUTURE PEAK FLOW OF 7.7 MGD WITH ALL UNITS ONLINE AND A WORST CASE MAXIMUM WATER LEVEL OF 13.5 FEET IN INFILTRATION BED #15.
4. VERTICAL ELEVATIONS BASED ON NAVD29 DATUM.

ISSUED FOR BID

980 Washington Street, Suite 325
Dedham, Massachusetts 02026
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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 44642
REGISTERED PROFESSIONAL ENGINEER

REV.	DESCRIPTION	DATE
DESIGNED BY: KF/KR	CHECKED BY: KF	
DRAWN BY: DMB	2291230-PR-002.DWG	

EXISTING HYDRAULIC PROFILE

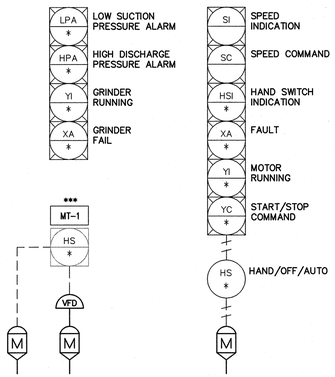
DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 43 OF 116

PR-002

MOTOR CONTROL DETAIL TYPE: MT-1 (SCUM/SEPTAGE/ ROTARY PRESS PUMPS & GRINDERS)

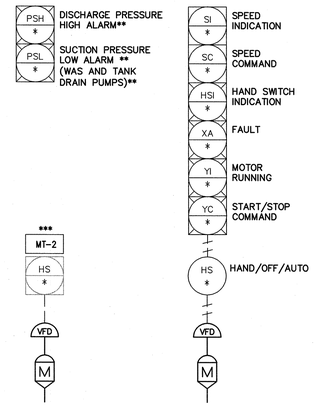


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

MOTOR CONTROL DETAIL TYPE: MT-2 (VFD)

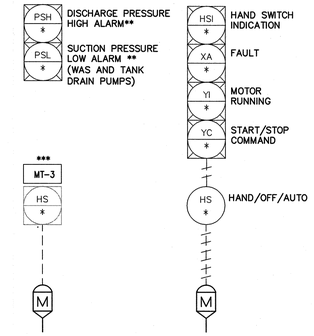


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

MOTOR CONTROL DETAIL TYPE: MT-3 (ACROSS THE LINE STARTER)

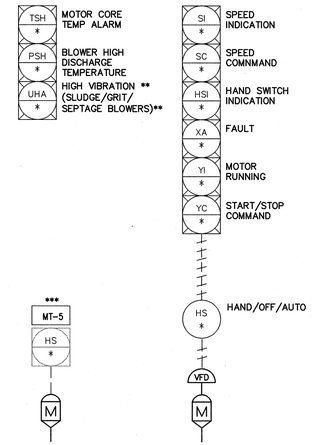


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

MOTOR CONTROL DETAIL TYPE: MT-5 (AERATION BLOWERS)

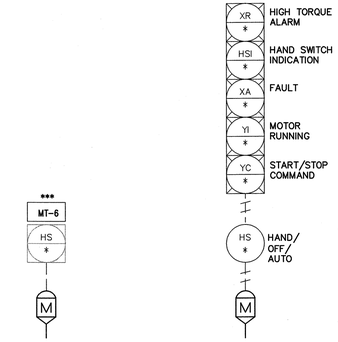


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

MOTOR CONTROL DETAIL TYPE: MT-6 (GRAVITY THICKENER/PRIMARY CLARIFIER MIXER)

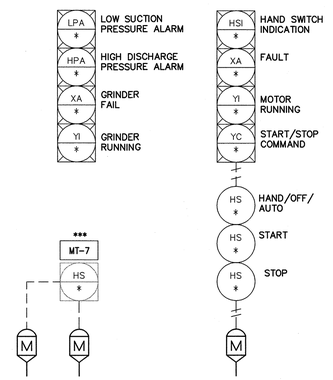


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

MOTOR CONTROL DETAIL TYPE: MT-7 (PRIMARY SLUDGE PUMPS/GRINDERS)

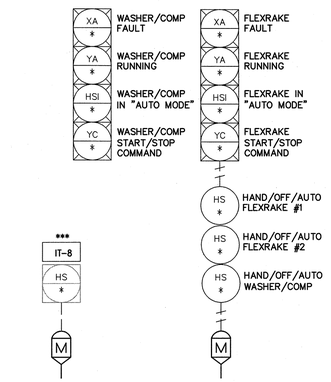


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

MOTOR CONTROL DETAIL TYPE: MT-8 (FLEXRAKE SCREENS #1&#2/WASHER COMPACTOR PACKAGE)

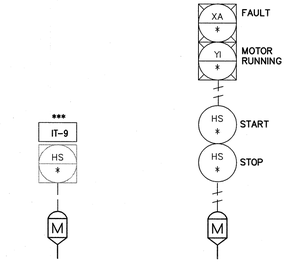


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

MOTOR CONTROL DETAIL TYPE: MT-9 (ODOR CONTROL FAN)

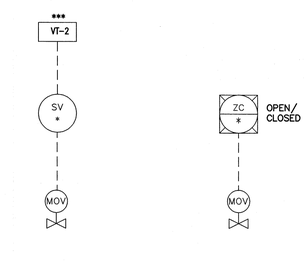


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

VALVE CONTROL DETAIL TYPE: VT-2 (OPEN/CLOSED)

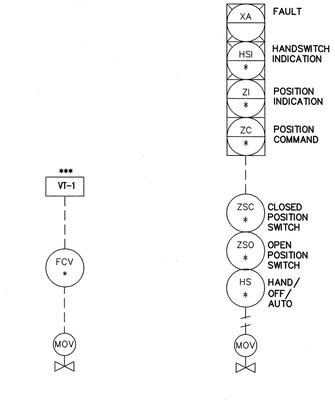


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE VALVE SIGNALS ARE CONNECTED.

VALVE CONTROL DETAIL TYPE: VT-1 (MOV-AERATION VALVE CONTROL)

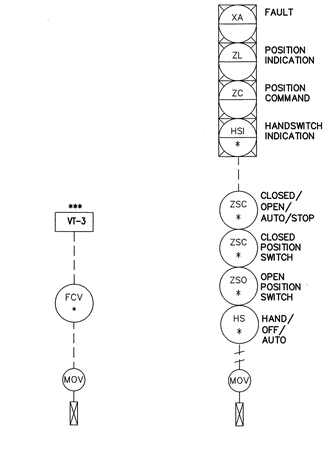


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE VALVE SIGNALS ARE CONNECTED.

VALVE CONTROL DETAIL TYPE: VT-3 (MOV-SLUICE GATE CONTROL)

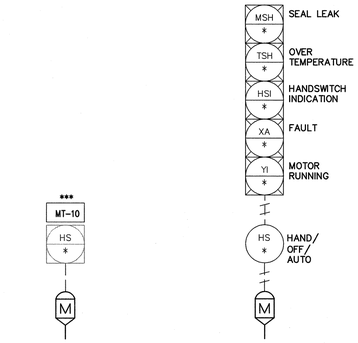


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE VALVE SIGNALS ARE CONNECTED.

MOTOR CONTROL DETAIL TYPE: MT-10 (PRIMARY SCUM PUMP PACKAGE)



P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HALEY
CIVIL
No. 45482
REGISTERED PROFESSIONAL ENGINEER

REV.	DESCRIPTION	DATE

DESIGNED BY: KF/ KR | CHECKED BY: KF
DRAWN BY: DMB | 2291230-PR-003.dwg

PIPING & INSTRUMENTATION GENERAL
INSTRUMENTATION LEGEND 1

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

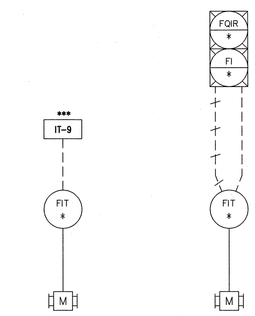
SURFSIDE WASTEWATER
TREATMENT FACILITY
UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 44 OF 116

PR-003

ISSUED FOR BID

INSTRUMENT CONTROL DETAIL TYPE: IT-1 (MAGNETIC FLOW METER)

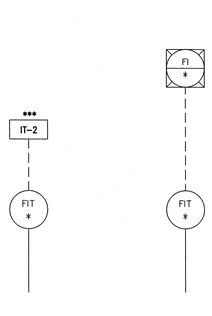


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

INSTRUMENT CONTROL DETAIL TYPE: IT-2 (THERMAL MASS/INSERTION STYLE FLOWMETER)

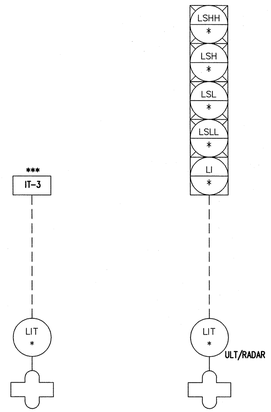


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

INSTRUMENT CONTROL DETAIL TYPE: IT-3 (LEVEL TRANSMITTER, ULTRASONIC OR RADAR)



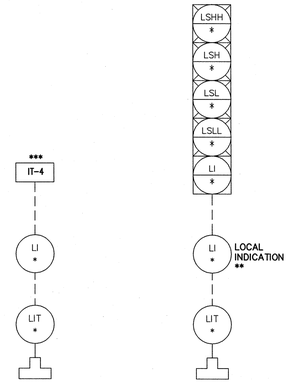
P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

** = INCLUDE LOCAL INDICATION ONLY WHEN INDICATED. REFERENCE P&ID FOR REQUIRMENTS.

*** = DESIGNATION OF CONTROL PANEL WHERE INSTRUMENT SIGNALS ARE CONNECTED.

INSTRUMENT CONTROL DETAIL TYPE: IT-4 (SUBMERSIBLE LEVEL TRANSDUCER)



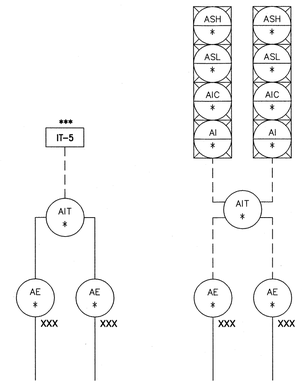
P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

** = INCLUDE LOCAL INDICATION ONLY WHEN INDICATED. REFERENCE P&ID FOR REQUIRMENTS.

*** = DESIGNATION OF CONTROL PANEL WHERE INSTRUMENT SIGNALS ARE CONNECTED.

INSTRUMENT CONTROL DETAIL TYPE: IT-5 (ANALYTICAL INSTRUMENT W/ MULTIPLE PROBES)



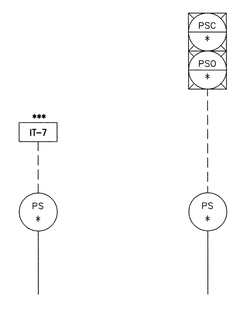
P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

xxx = DESIGNATION OF PROBE TYPE.
NH_3 = AMMONIA
N_3 = NITRATE
ORP = ORTHOPHOSPHATE
D.O. = DISSOLVED OXYGEN

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

INSTRUMENT CONTROL DETAIL TYPE: IT-7 (PRESSURE SWITCH)

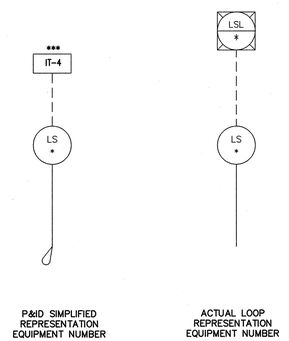


P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

INSTRUMENT CONTROL DETAIL TYPE: IT-8 (FLOAT SWITCH)



P&ID SIMPLIFIED REPRESENTATION EQUIPMENT NUMBER

ACTUAL LOOP REPRESENTATION EQUIPMENT NUMBER

*** = DESIGNATION OF CONTROL PANEL WHERE MOTOR SIGNALS ARE CONNECTED.

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COMMITMENT & INTEGRITY DRIVE RESULTS

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HALLETT
CIVIL
No. 45482
REGISTERED PROFESSIONAL ENGINEER
9/15/16

REV	DESCRIPTION	DATE
DESIGNED BY: XXX	CHECKED BY: XXX	
DRAWN BY: XXX	2291200-PR-004.dwg	

PIPING & INSTRUMENTATION GENERAL
INSTRUMENTATION LEGEND 2

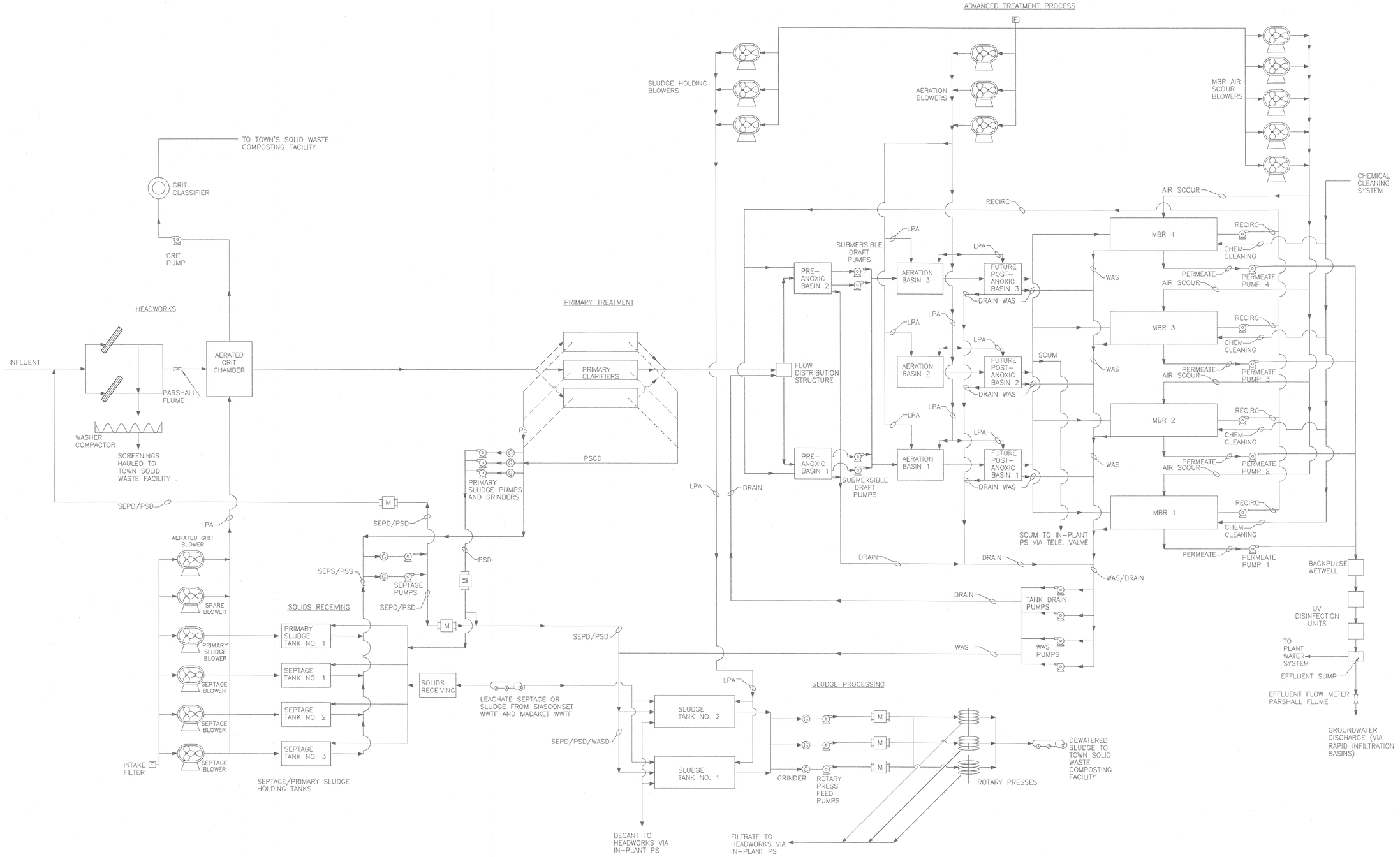
DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER
TREATMENT FACILITY
UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: XXX
SHEET: 45 OF 116

PR-004

22x34 SHEET
1:1



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COMMITMENT & INTEGRITY DRIVE RESULTS

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 49421
REGISTERED PROFESSIONAL ENGINEER
9/21/16

REV	DESCRIPTION	DATE

DESIGNED BY: KF/KR | CHECKED BY: KF
DRAWN BY: DMB | 2291200-PR-101.dwg

EXISTING PROCESS & INSTRUMENTATION DIAGRAM

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 46 OF 116

PR-101

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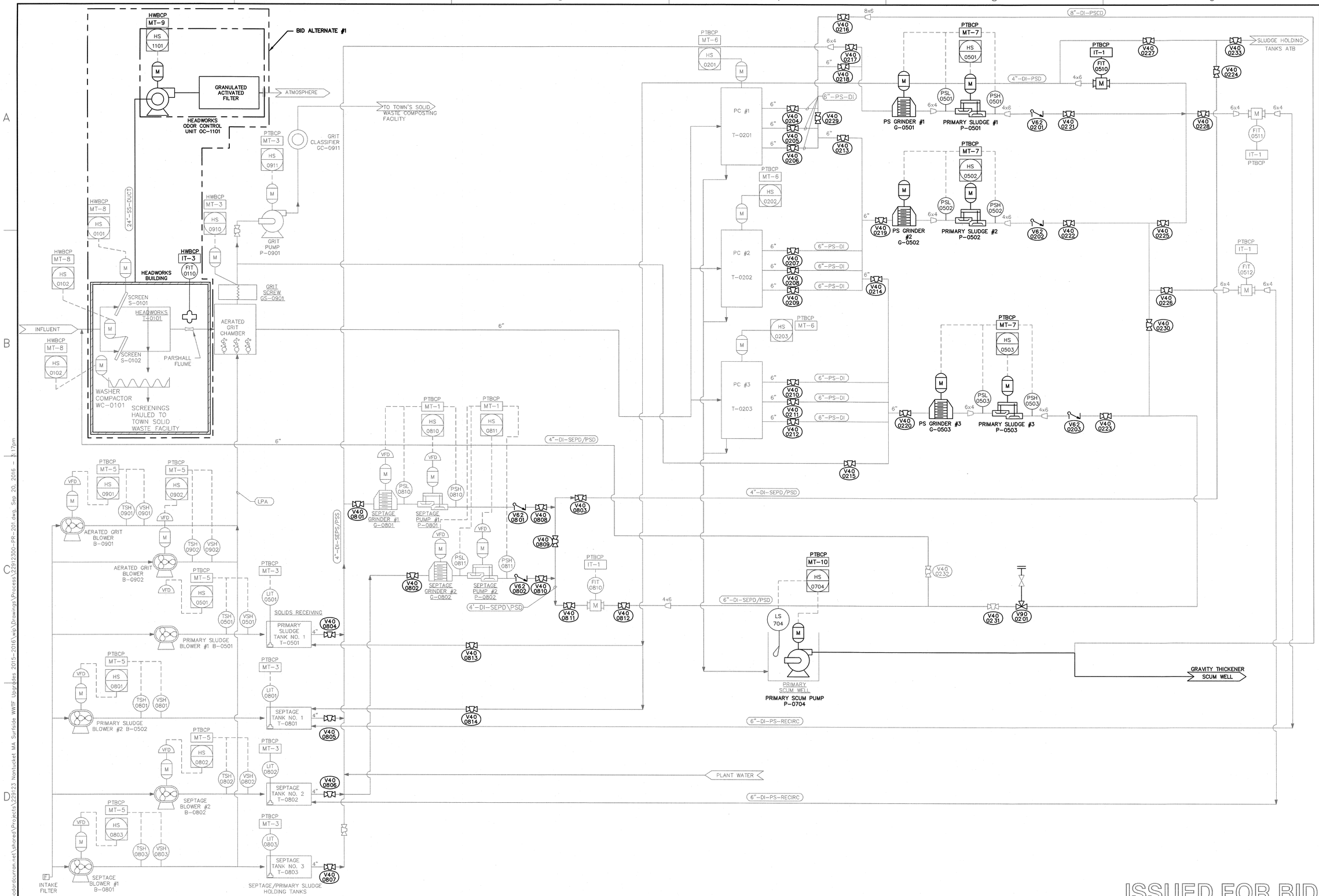

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\\woodardcurran.net\shares\Projects\229123 Nantucket MA Surfside WWTF Upgrades 2015-2016\wip\Drawings\Process\229123OO-PR-201.dwg, Sep 20, 2016 - 5:17pm

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COMMITMENT & INTEGRITY DRIVE RESULTS

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COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HALEY
CIVIL
No. 49482
REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE

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PROCESS & INSTRUMENTATION DIAGRAM HEADWORKS/PRIMARY TREATMENT

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 47 OF 116

PR-201

30"-RAS

20" SLIDE GATE

30" SLIDE GATE (TYP OF 3)

RAS DISTRIBUTION BOX

IMLR

DISTRIBUTION CHANNEL NO 1

DISTRIBUTION CHANNEL NO 2

20" ELECTRIC ACTUATED SLIDE GATE (TYP OF 2)

AERATION BASIN 3 T-0313

AERATION BASIN 2 T-0312

AERATION BASIN 1 T-0311

10"-AP-SS

12"-AP-SS

6" BUTTERFLY VALVE (TYP OF 6)

4" BUTTERFLY VALVE (TYP OF 3)

FUTURE POST ANOXIC BASIN 3 T-0323

FUTURE POST ANOXIC BASIN 2 T-0322

FUTURE POST ANOXIC BASIN 1 T-0321

TELESCOPING VALVE (TYP OF 3)

SCUM & WAS

DRAIN

PRIMARY CLARIFIER EFFLUENT

FLOW DISTRIBUTION STRUCTURE

PRE-ANOXIC TANK 2 T-0302

PRE-ANOXIC TANK 1 T-0301

MIXER 2 M-0302

MIXER 1 M-0301

DRAFT PUMP 4 P-0304

DRAFT PUMP 3 P-0303

DRAFT PUMP 2 P-0302

DRAFT PUMP 1 P-0301

TELESCOPING VALVE (TYP OF 2)

MBR 4 T-0334

MBR 3 T-0333

MBR 2 T-0332

MBR 1 T-0331

PERMEATE PUMP 4 P-0334

PERMEATE PUMP 3 P-0333

PERMEATE PUMP 2 P-0332

PERMEATE PUMP 1 P-0331

RAS PUMP 4 P-0604

RAS PUMP 3 P-0603

RAS PUMP 2 P-0602

RAS PUMP 1 P-0601

10" PNEUMATIC BUTTERFLY VALVE (TYP OF 4)

10"-AP-SS (TYP OF 4)

TANK DRAIN PUMP #2 P-0624

TANK DRAIN PUMP #1 P-0623

WAS PUMP #2 P-0622

WAS PUMP #1 P-0621

TO SLUDGE HOLDING TANK NO 2 WAS

TO PRIMARY CLARIFIERS WAS

TO GRAVITY THICKENERS WAS

AERATION BLOWER #3 B-0316

AERATION BLOWER #2 B-0315

AERATION BLOWER #1 B-0314

AERATION BLOWER B-0312

AERATION BLOWER B-0313

AERATION BLOWER B-0311

B-0335

B-0334

B-0333

B-0332

B-0331 MBR AIR SCOUR BLOWERS

TO SLUDGE HOLDING TANK NO 2 AP

INTAKE AIR FILTER NO 1

INTAKE AIR FILTER NO 2

INTAKE AIR FILTER NO 3

BACKPULSE WETWELL

UV DISINFECTION UNITS

TO PLANT WATER SYSTEM

EFFLUENT SUMP

EFFLUENT FLOW METER PARSHALL FLUME

GROUNDWATER DISCHARGE (VIA RAPID INFILTRATION BASINS)

18"x8" REDUCING TEE (TYP OF 5)

BLIND FLANGE

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HALEY
CIVIL
No. 49482
REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE

DESIGNED BY: KF/KR
DRAWN BY: DMB
CHECKED BY: KF
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PROCESS & INSTRUMENTATION DIAGRAM ADVANCED TREATMENT

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 48 OF 116

PR-301

22x34 SHEET
1:1

PLANT WATER PUMPS
1 1/2" PW
4" RPF
RPCP VT-2 SV 0631
RPCP VT-2 SV 0632
RPCP VT-2 SV 0633
RPCP MT-1 HS 0634
ROTARY SLUDGE PRESS NO.1 RP-0601
ROTARY SLUDGE PRESS NO.2 RP-0602
ROTARY SLUDGE PRESS NO.3 RP-0603
HORIZONTAL SLUDGE CONVEYOR
INCLINED SLUDGE CONVEYOR
RPCP MT-1 HS 0636
INCLINED SCREW CONVEYOR DRIVE
HORIZONTAL SLUDGE CONVEYOR
RPCP MT-1 HS 0637
HORIZONTAL SCREW CONVEYOR DRIVE
LOCATION OF DEWATERED SLUDGE (TO BE HAULED OFFSITE)

BID ALTERNATE #2
LIMIT OF VENDOR POLYMER FEED SKID
RPCD MT-2 HS 1001
RPCD MT-2 HS 1002
RPCD MT-2 HS 1003
CALIBRATION COLUMN TO BE GRADUATED 0.1 GAL/10ML
VFD 1/6
POLYMER PUMP 1 P-1001
POLYMER PUMP 2 P-1002
POLYMER PUMP 3 P-1003
POLYMER TOTE
POLYMER TOTE
1 1/2"-PL-PVC80
2 1/2"
MIXER 1 M-1001
MIXER 2 M-1002
MIXER 3 M-1003
PRESSURE RELIEF RANGE 50-175 PSI (TYP OF 3)
1 1/2"-PVC
ROTAMETER FLOW RANGE TO BE 0 - 20 GPM (TYP OF 3)
PLANT WATER
4"-PW-CU
ODOR CONTROL SCRUBBER
EXHAUST
TO DRAIN
4" RPF
RPCP MT-2 HS 0621 FLOCCULATOR NO 1
RPCP MT-2 HS 0622 FLOCCULATOR NO 2
RPCP MT-2 HS 0623 FLOCCULATOR NO 3
4"-SC-DI
ATBCP MT-1 HS 0636 SCUM GRINDER #1 G-0701
SCUM PUMP #1 P-0701
ATBCP MT-1 HS 0702 SCUM GRINDER #2 G-0702
SCUM PUMP #2 P-0702
ATBCP MT-1 HS 0703 SCUM RECIRC PUMP P-0703
ATBCP IT-1 FIT 0710
ATBCP VT-1 FCV 0711 MOV
ATBCP VT-1 FCV 0712 MOV
TO IN-PLANT PS
ATBCP IT-4 LIT 0701
SCUM WELL T-0711
6"-SC-DI
ATBCP MT-6 HS 0631
ATBCP MT-6 HS 0632
ATBCP MT-6 HS 0633
14"-OC-FRP
20"-OC-FRP
4"-OC-FRP
DRIVE M-0611
DRIVE M-0612
DRIVE M-0613
SCUM
GRAVITY THICKENER #1 T-0611
GRAVITY THICKENER #2 T-0612
GRAVITY THICKENER #3 T-0613
6"-GTI-DI
6"-TS-DI52
6"-GTE-DI52
6"-GTI-DI
DISTRIBUTION BOX
4"-HYPO-PVC SODIUM HYPOCHLORITE FEED PUMPS
6"-PS-DI PRIMARY SLUDGE PUMPS
6"-WAS-DI PR-301 WASTE ACTIVATED SLUDGE
2"-PW-PVC PLANT WATER
ATBCP IT-1 FIT 0641
ATBCP IT-1 FIT 0642
ATBCP IT-1 FIT 0643
ATBCP IT-1 FIT 0644
6"-RPF-DI53
ATBCP MT-1 HS 0611 GRINDER G-0611 PRESS FEED PUMP 1 P-0611
ATBCP MT-1 HS 0612 GRINDER G-0612 PRESS FEED PUMP 2 P-0612
ATBCP MT-1 HS 0613 GRINDER G-0613 PRESS FEED PUMP 3 P-0613
PRESS FEED PUMPS
ATBCP MT-1 HS 0614 GRINDER G-0614 PRESS FEED PUMP 4 P-0614
6"-TS-DI53
8"-GTE-DI
BID ALTERNATE #3

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS THOMAS F. HAZLETT CIVIL No. 46482 REGISTERED PROFESSIONAL ENGINEER
9/23/16

REV.	DESCRIPTION	DATE
	DESIGNED BY: KF/KR CHECKED BY: KF	
	DRAWN BY: DMB 229123\00-PR-401.dwg	

PROCESS & INSTRUMENTATION DIAGRAM
SOLIDS PROCESSING

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

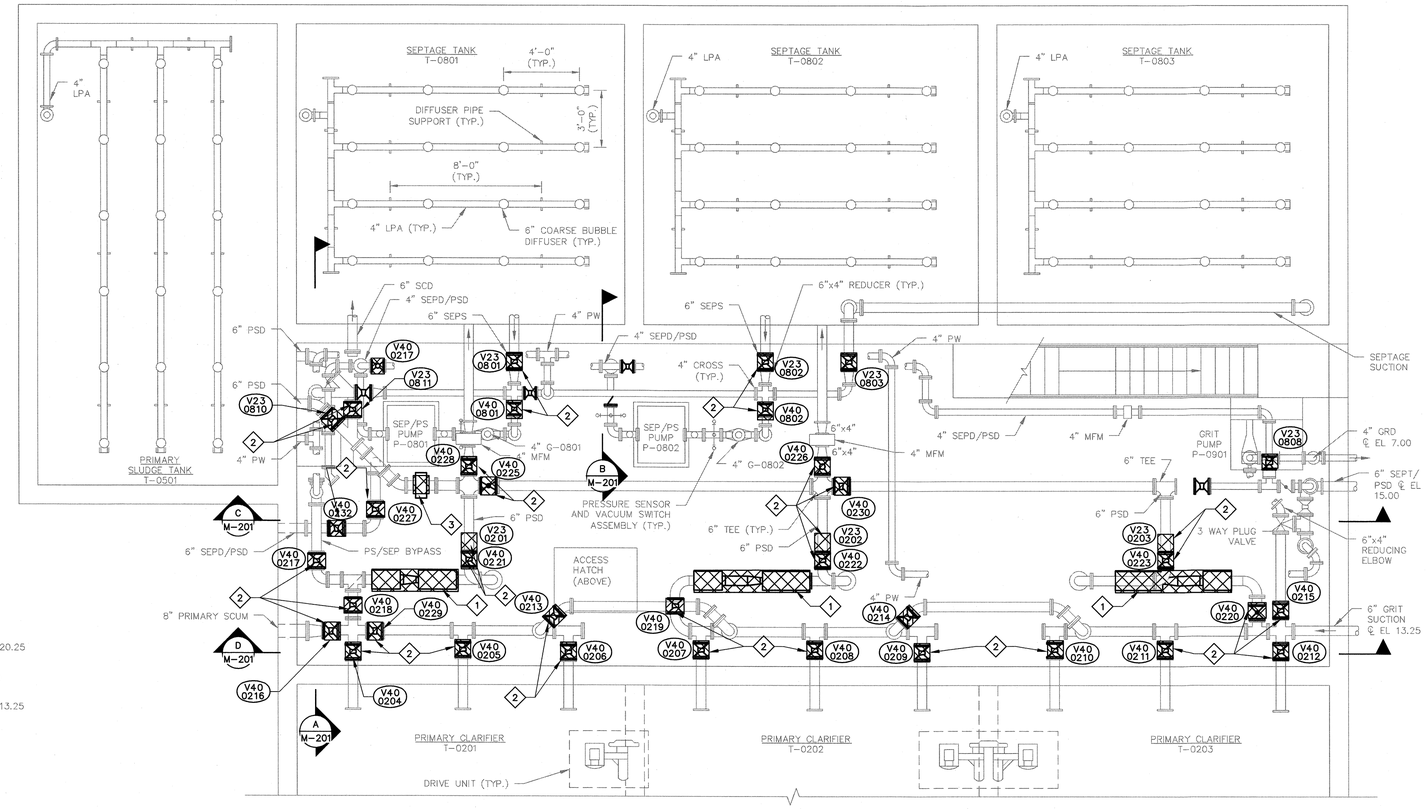
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 49 OF 116

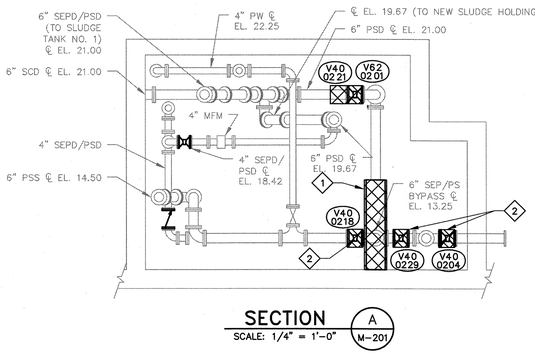
PR-401

KEYED NOTES

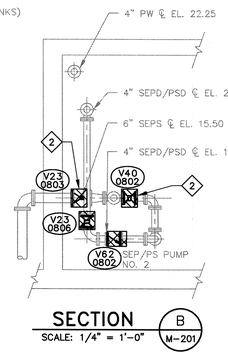
1. REMOVE, DISCONNECT AND SALVAGE PRIMARY SLUDGE PUMP P-0501. DEMOLISH EXISTING (2) PRIMARY SLUDGE PUMPS, (P-0502 AND P-0503) PRIMARY SLUDGE GRINDERS (G-0501, G-0502, AND G-0503), AND ALL ASSOCIATED INSTRUMENTATION. DEMOLISH ALL PIPING BETWEEN GRINDER AND PUMP. DEMOLISH PUMP AND GRINDER EQUIPMENT PADS (TYP OF 6). RESURFACE AND SMOOTH FLOOR TO MATCH EXISTING.
2. DEMOLISH EXISTING BALL AND PLUG VALVES ASSOCIATED WITH THE PRIMARY SLUDGE PIPING AS SHOWN.
3. DEMOLISH EXISTING 6" FLOW METER AND ALL ASSOCIATED APPURTENANCES.



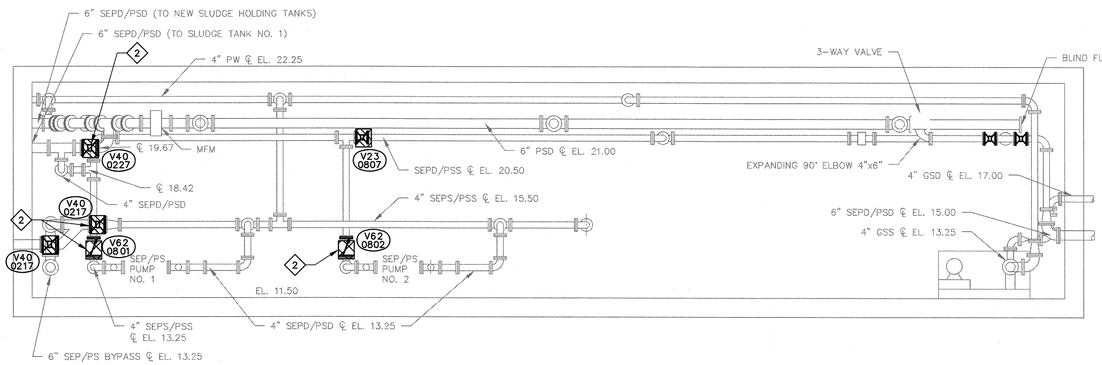
PRIMARY TREATMENT BUILDING PLAN
SCALE: 1/4" = 1'-0"



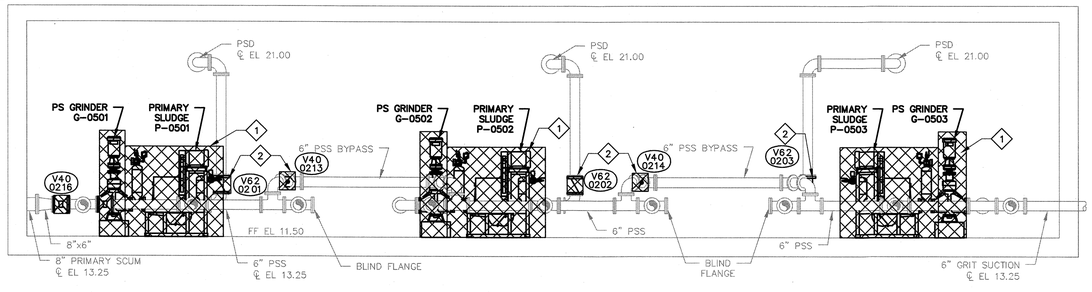
SECTION A
SCALE: 1/4" = 1'-0" (M-201)



SECTION B
SCALE: 1/4" = 1'-0" (M-201)



SECTION C
SCALE: 1/4" = 1'-0" (M-201)



SECTION D
SCALE: 1/4" = 1'-0" (M-201)

BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMONWEALTH OF MASSACHUSETTS — THOMAS F. HAZLETT — CIVIL — No. 49442 — REGISTERED PROFESSIONAL ENGINEER — 9/23/16

REV	DESCRIPTION	DATE

DESIGNED BY: KF | CHECKED BY: MB
DRAWN BY: DMB | 229123\00-MD-201.dwg

PRIMARY TREATMENT DEMOLITION PLANS & SECTIONS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: JULY 2016
SCALE: AS NOTED
SHEET: 50 OF 116

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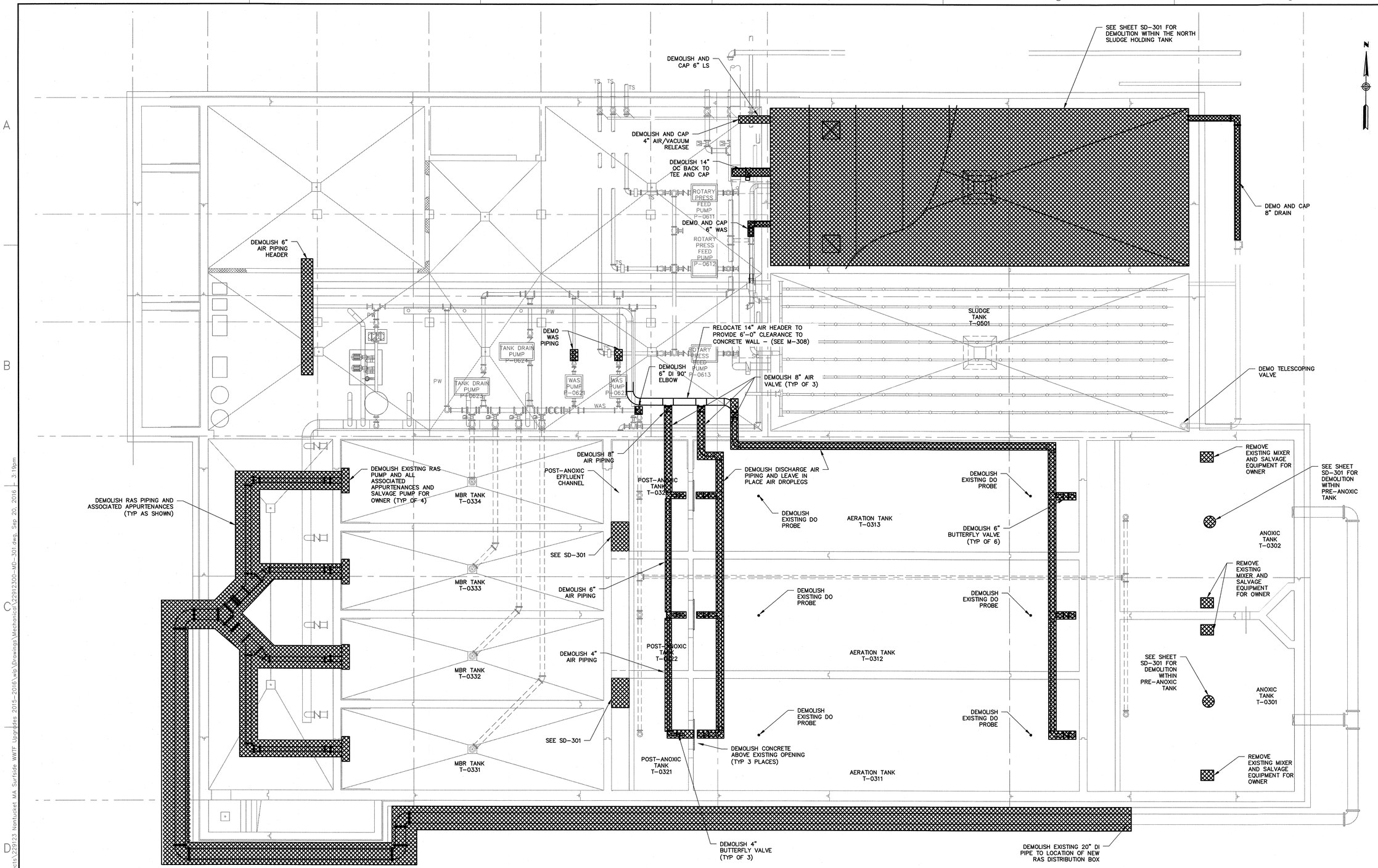

12' 8' 4' 0 8' 16'

BAR SCALE
1/8" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

ADVANCED TREATMENT BUILDING BASEMENT DEMOLITION PLAN

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

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COMMITMENT & INTEGRITY DRIVE RESULTS

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COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 46482
REGISTERED PROFESSIONAL ENGINEER
9/23/16

REV.	DESCRIPTION	DATE
	DESIGNED BY: AH/AGB	CHECKED BY: MB
	DRAWN BY: DMB	22912300-MD-301.dwg

ADVANCED TREATMENT BUILDING BASEMENT DEMOLITION PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.:	229123.00
DATE:	JULY 2016
SCALE:	XXX
SHEET:	50 OF 113

MD-301

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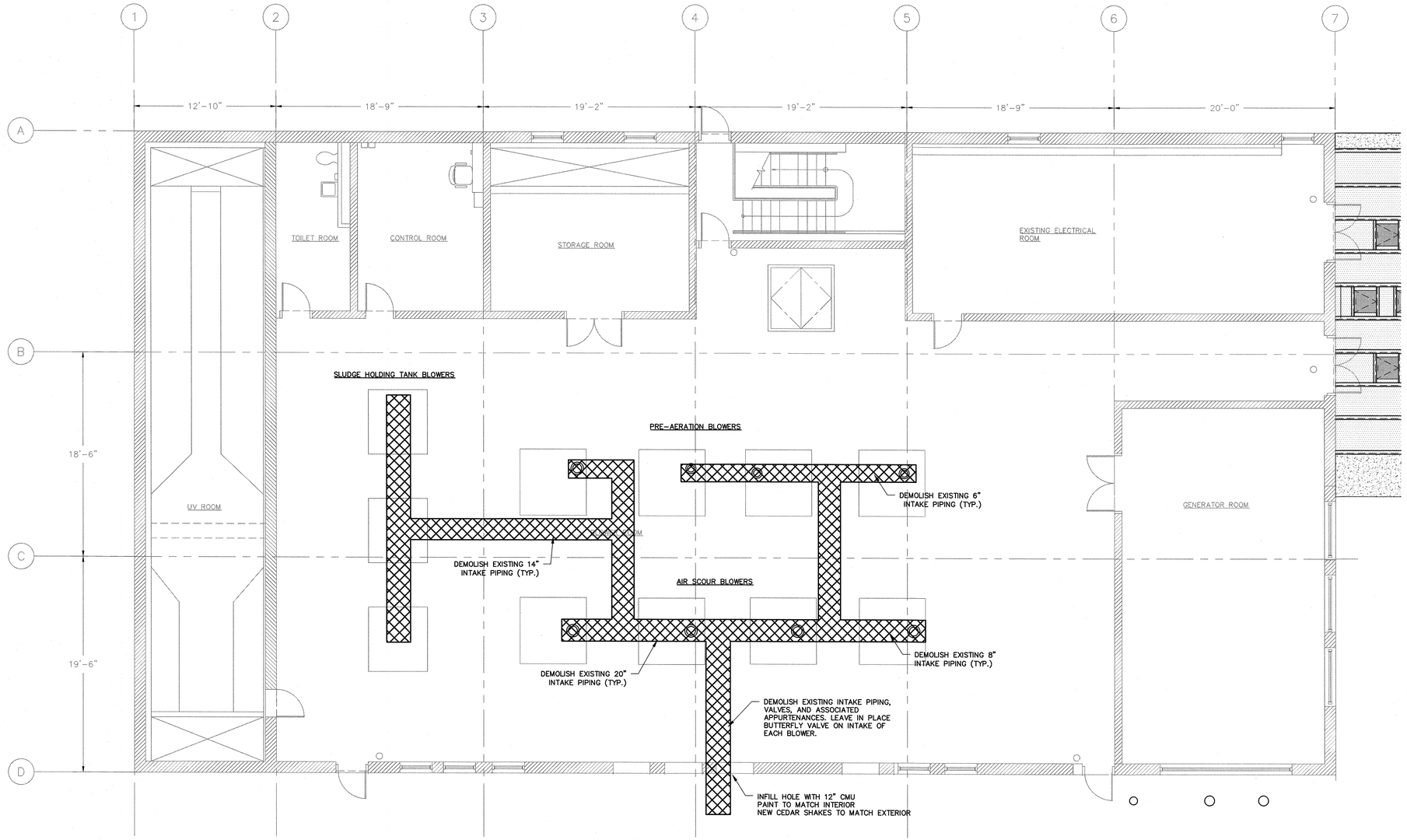

ADVANCED TREATMENT BUILDING
GROUND FLOOR DEMOLITION PLAN

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

6' 4' 2' 0 4' 8'

BAR SCALE
3/16" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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THOMAS F. HAZLETT
CIVIL
No. 49482
REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE

DESIGNED BY: AH/ACB | CHECKED BY: MB
DRAWN BY: DMB | 229123\00-MD-302.dwg

ADVANCED TREATMENT BUILDING
GROUND FLOOR DEMOLITION PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER
TREATMENT FACILITY
UPGRADES

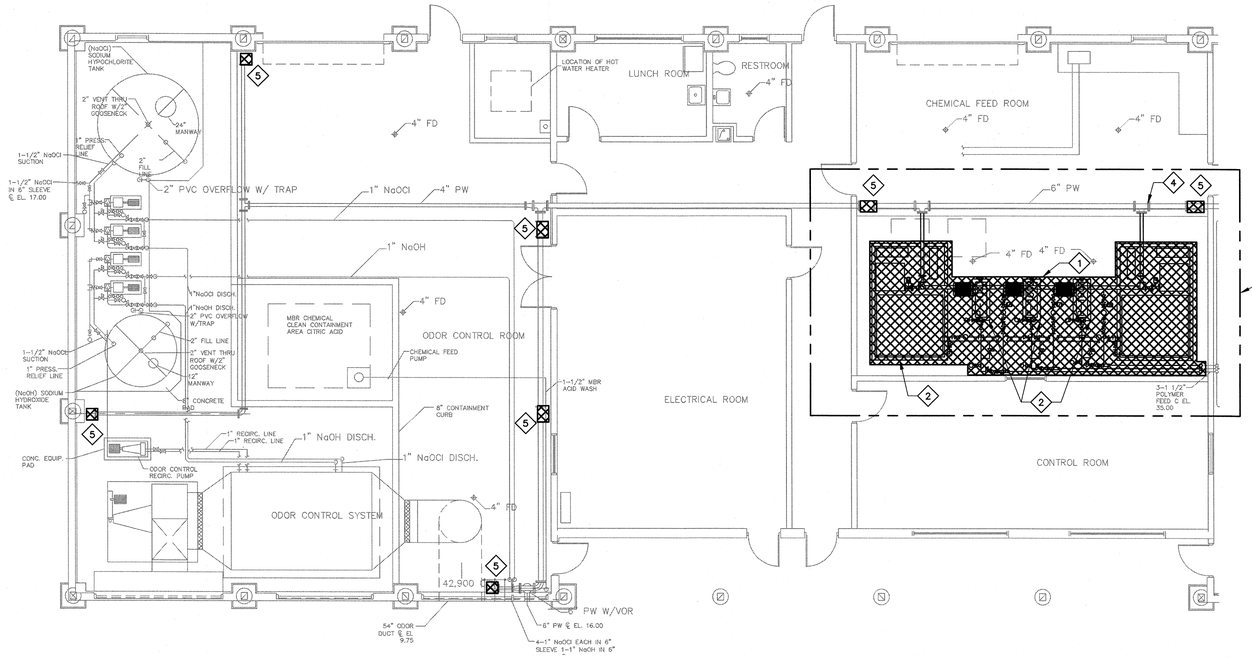
JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 52 OF 116

MD-302

KEYED NOTES

1. DISCONNECT AND REMOVE EXISTING POLYMER FEED PUMPS, MIX TANKS, AND AGE TANKS AND SALVAGE EQUIPMENT FOR OWNER. DEMOLISH ALL ASSOCIATED POLYMER PIPING, VALVES, INSTRUMENTATION AND CONTROLS, AND APPURTENANCES. RETAIN SALVAGED EQUIPMENT FOR OWNER. DEMOLISH POLYMER PIPING UP TO WALL PENETRATION.
2. DEMOLISH CONCRETE EQUIPMENT PADS FOR ALL EXISTING PUMPS AND TANKS SUCH THAT THE ENTIRE FLOOR WITHIN THE CONTAINMENT AREA IS SMOOTH. FLOOR SHALL MAINTAIN SLOPE TOWARD EXISTING FLOOR DRAIN.
3. DEMOLISH EXISTING PLANT WATER PIPING FROM HEADER TO CONNECTION TO POLYMER PUMPS AND ASSOCIATED EQUIPMENT AS SHOWN.
4. EXISTING 6" PLANT WATER HEADER TO REMAIN.
5. DEMOLISH COPPER PLANT WATER VERTICAL DROPS BACK TO FLANGED FITTING (TYP. OF 7 LOCATIONS).

BID ALTERNATE #3



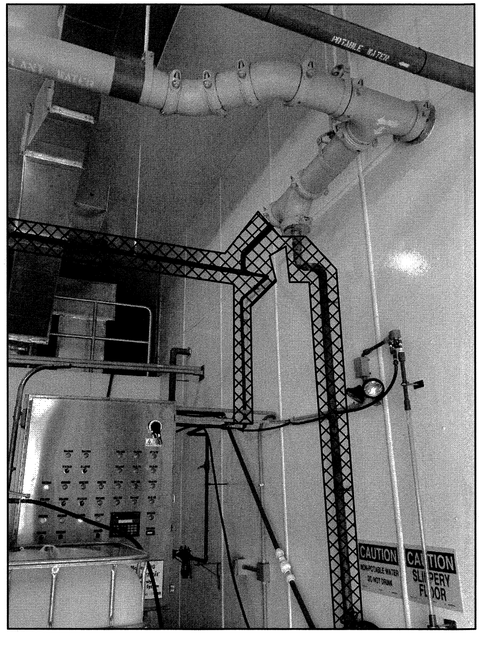
SOLIDS PROCESSING BUILDING DEMOLITION PLAN

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

3

3

3



12' 8' 4' 0 8' 16'

BAR SCALE
1/8" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMITMENT & INTEGRITY DRIVE RESULTS

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 45485
REGISTERED PROFESSIONAL ENGINEER
9/23/16

REV	DESCRIPTION	DATE

DESIGNED BY: KF
DRAWN BY: DMB
CHECKED BY: MB
229230-MD-401.dwg

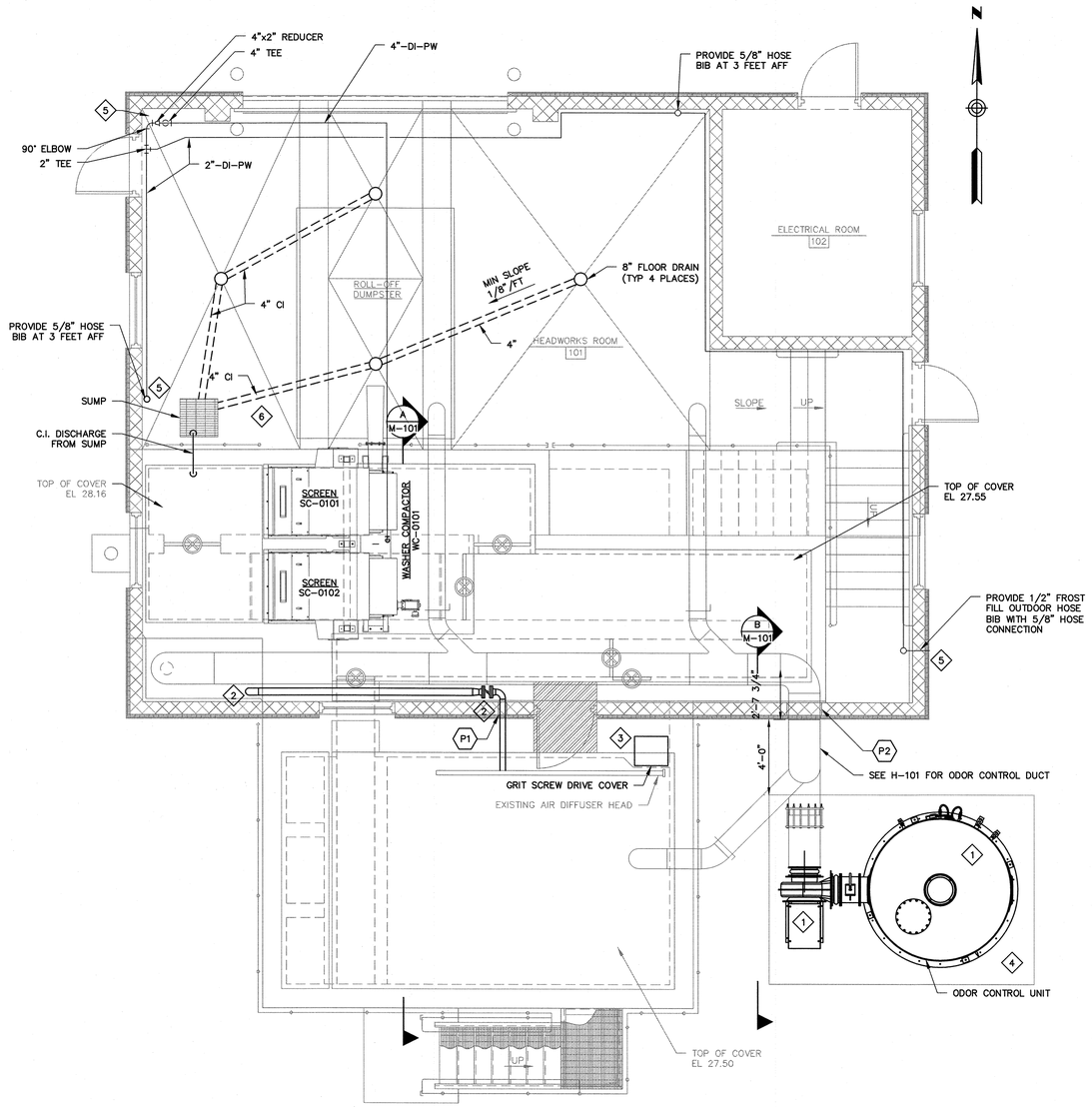
SOLIDS PROCESS BUILDING DEMOLITION PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 53 OF 116

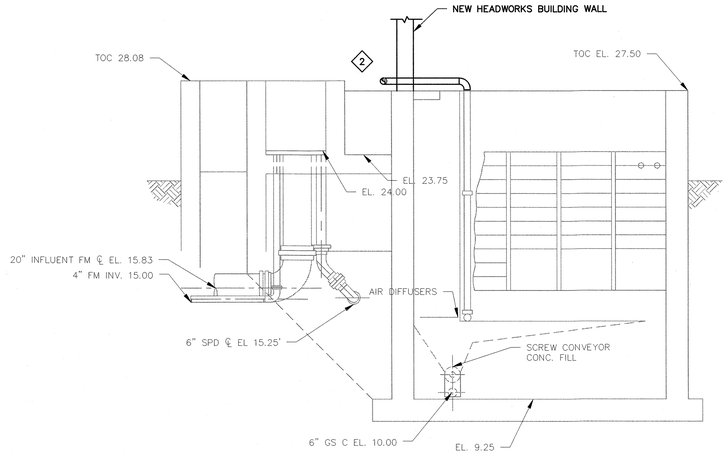
MD-401



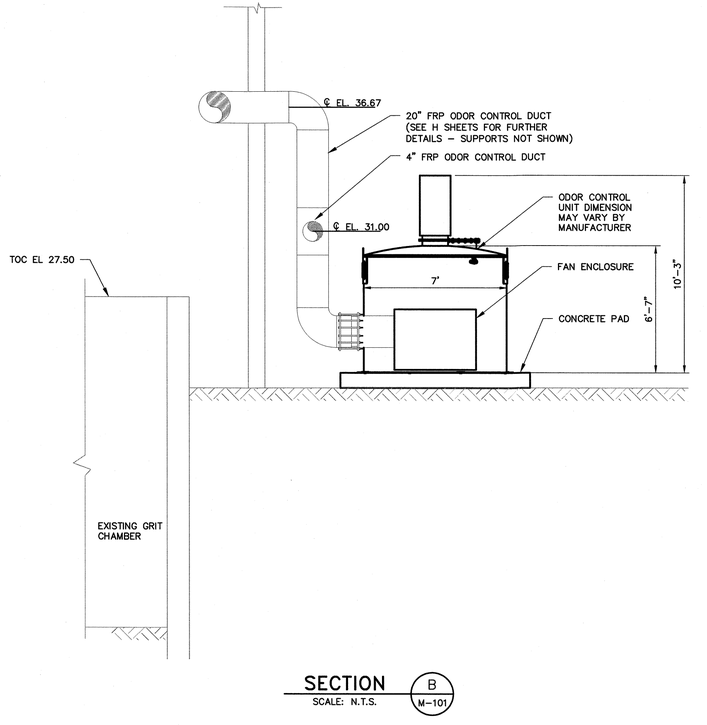
HEADWORKS MECHANICAL PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES

1. PROVIDE PACKAGED ODOR CONTROL SYSTEM SIZED TO TREAT 6 AIR CHANGES PER HOUR THAT INCLUDES CARBON DRUM UNIT, FAN AND ENCLOSURE, AND ALL ASSOCIATED CONTROLS AND APPURTENANCES AS DESCRIBED IN THE SPECIFICATIONS. INSTALLATION OF THE ODOR CONTROL UNIT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. REFER TO H-101 FOR ODOR CONTROL DUCT TO BE PROVIDED AND INSTALLED BY THE HVAC SUB CONTRACTOR.
2. DEMOLISH AND REPLACE EXISTING 4" STAINLESS STEEL AIR PIPE FROM BURIED ELBOW LOCATED AT APPROXIMATE ELEVATION 10.0 TO THE CONNECTION TO THE EXISTING AIR DROP LEG. THE REPLACEMENT PIPE SHALL RUN ALONG THE FLOOR OF THE SOUTHERN WALL OF THE FINISHED HEADWORKS BUILDING (APPROXIMATE ℄ ELEVATION 28.00'). REPLACE THE EXISTING 4"x3" REDUCER IN KIND. REPLACE THE EXISTING 3" ANGLE VALVE WITH A 3" BUTTERFLY VALVE AND 90° ELBOW.
3. REMOVE HINGE ON NORTH SIDE OF GRIT SCREW DRIVE COVER ALONG PROPOSED CMU BUILDING WALL AND PROVIDE ALUMINUM HANDLE ON TOP OF BOX.
4. PROVIDE 10'x14' CONCRETE PAD (SEE STRUCTURAL DETAIL) 4' AWAY FROM NEW AND EXISTING HEADWORKS STRUCTURES.
5. PROVIDE 6" DI PLANT WATER FROM FINISH FLOOR TO APPROXIMATELY ℄ EL 37.50'. PROVIDE 6"x4" REDUCER AND 4" TEE. PROVIDE 4" PLANT WATER LINE ALONG CEILING AS SHOWN TO CONNECT TO THE EXISTING WASHER COMPACTOR WC-0101. RUN 2" DI PLANT WATER ALONG CEILING TO EACH HOSE BIB LOCATION AND PROVIDE 1" COPPER DROP LEG TO EACH HOSE BIB. PROVIDE SIGNS AT ALL HOSE BIBS THAT READ "NON POTABLE WATER – DO NOT DRINK"
6. PROVIDE 4" CI FLOOR DRAIN PIPE AS SHOWN. PROVIDE SUMP PUMP AS SPECIFIED IN SECTION 22 00 00 AND EXTEND EFFLUENT PIPE FROM PUMP AT APPROXIMATE EL 21.00' TO INFLUENT CHANNEL (BELOW COVER) AT APPROXIMATE EL 28.16'.



SECTION
SCALE: N.T.S.
A M-101



SECTION
SCALE: N.T.S.
B M-101

PENETRATION SCHEDULE – 100 DRAWING SERIES					
MARK ⟨P#⟩	SIZE	TYPE	APPROX EL	DESCRIPTION	DETAIL
P1	4" DIA PIPE	FLxPE	INV **28.00**	4" SS AIR PIPE	**26**/S-802
P2	20" DIA PIPE	PExPE	INV **37.83**	20" FRP ODOR CONTROL SUCTION PIPE	**44**/S-805
P3	6" DIA PIPE	PExFL	INV **16.17**	6" DI PLANT WATER	**36**/S-803

NOTE:
ALL WORK ON THIS SHEET IS PART OF BID ALTERNATE #1.

6' 4' 2' 0 4' 8'
BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HICKEY
CIVIL
No. 46462
REGISTERED PROFESSIONAL ENGINEER
9/19/16

REV	DESCRIPTION	DATE

DESIGNED BY: KF
DRAWN BY: DMB
CHECKED BY: MB
229123\00-M-101.dwg

BID ALTERNATE #1
HEADWORKS PLAN AND SECTION

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 54 OF 116

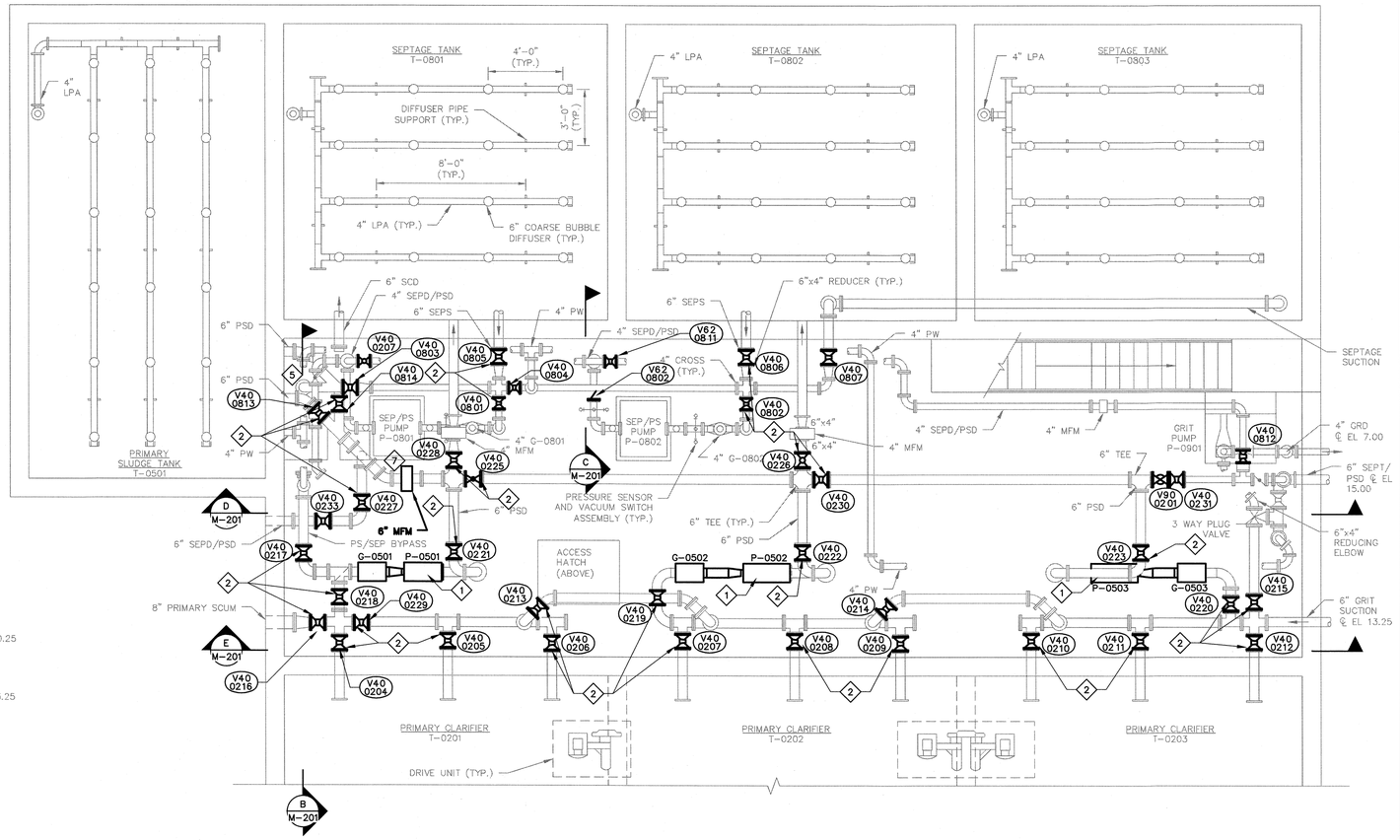
M-101

KEYED NOTES

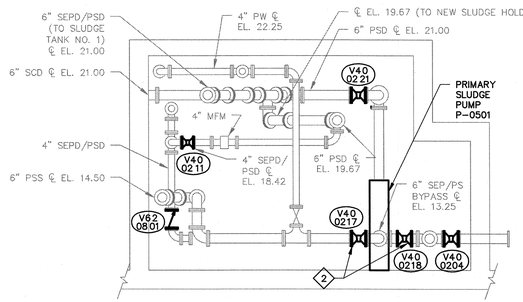
1. PROVIDE NEW PRIMARY SLUDGE PUMPS AND PRIMARY SLUDGE GRINDERS (TYP OF 3). PROVIDE NEW PIPING BETWEEN EACH PUMP AND GRINDER.
2. PROVIDE NEW PLUG VALVES FOR THE PRIMARY SLUDGE PIPING. CONNECT NEW VALVES TO EXISTING PIPING.
3. PROVIDE FOUR (4) NEW 4"X6"X4" CONCRETE PADS PER PUMP TO SUPPORT EACH LEG OF THE NEW PUMP FRAME. PUMP FRAME SHALL BE MOUNTED SUCH THAT A MINIMUM CLEARANCE OF 20 INCHES IS PROVIDED UNDER THE PUMP FOR MAINTENANCE ACCESS. CONTRACTOR SHALL REPLACE SUCTION AND DISCHARGE PIPING AS REQUIRED TO ACCOMMODATE THE NEW PUMP ELEVATION.
4. PROVIDE NEW CONCRETE EQUIPMENT PADS FOR EACH GRINDER (TYP OF 3) SUCH THAT THE CENTERLINE OF THE PUMP SUCTION ALIGNS WITH THE DISCHARGE OF THE GRINDER.
5. VALVE V40-0808 TO BE REPLACED BUT NOT SHOWN IN THIS VIEW. REFER TO PR-201.
6. VALVE V40-0224 TO BE REPLACED BUT NOT SHOWN IN THIS VIEW. REFER TO PR-201.
7. PROVIDE NEW 6" MAGNETIC FLOW METER AND ALL ASSOCIATED CONTROLS APPURTENANCES AND CONNECT TO EXISTING PIPING.

GENERAL NOTES

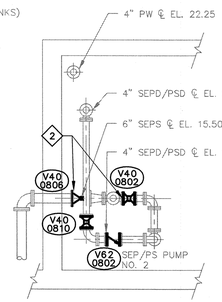
1. BASE PLAN FROM "UPGRADES TO THE SURFSIDE WASTEWATER TREATMENT FACILITY – CONTRACT NO 2008-07, NANTUCKET, MASSACHUSETTS" RECORD PLANS, DATED JUNE 2012, FROM EARTH TECH.
2. ALL ACTION ITEMS FROM THE BASE PLAN CITED IN NOTE 1 AND SHOWN IN BACKGROUND DO NOT APPLY TO THE WORK OF THIS PROJECT UNLESS NOTED OTHERWISE.
3. LAYOUT OF PIPING AND EQUIPMENT MAY VARY DUE TO ACTUAL DIMENSIONS OF EQUIPMENT FURNISHED. SUBMIT MECHANICAL LAYOUT FOR APPROVAL PRIOR TO COMMENCING WORK. LAYOUT SHALL BE AN ENGINEERING DRAWING IN AUTOCAD FORMAT.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING FLANGED DUCTILE IRON PIPING AS REQUIRED TO ACCOMMODATE THE NEW VALVES AT NO ADDITIONAL COST TO THE OWNER.



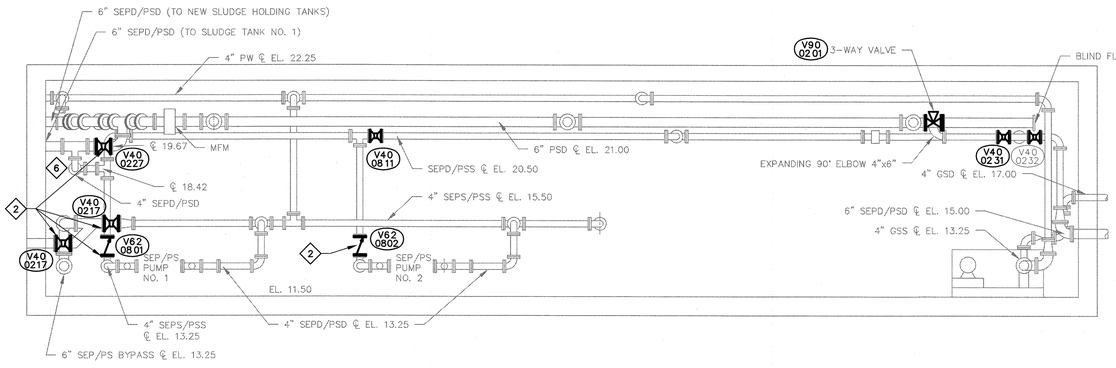
PRIMARY TREATMENT BUILDING PLAN
SCALE: 1/4" = 1'-0"



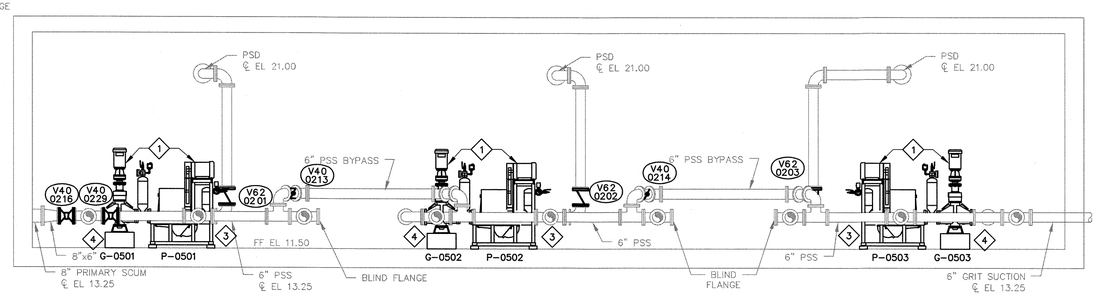
SECTION B
SCALE: 1/4" = 1'-0" (M-201)



SECTION C
SCALE: 1/4" = 1'-0" (M-201)



SECTION D
SCALE: 1/4" = 1'-0" (M-201)



SECTION E
SCALE: 1/4" = 1'-0" (M-201)

6' 4' 2' 0 4' 8'

BAR SCALE
1/4" = 1'-0"
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COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 49482
REGISTERED PROFESSIONAL ENGINEER
7/29/16

REV	DESCRIPTION	DATE

DESIGNED BY: KF
DRAWN BY: DMB
CHECKED BY: MB
2291230O-M-201.dwg

PRIMARY TREATMENT PLANS & SECTIONS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: JULY 2016
SCALE: AS NOTED
SHEET: 55 OF 116

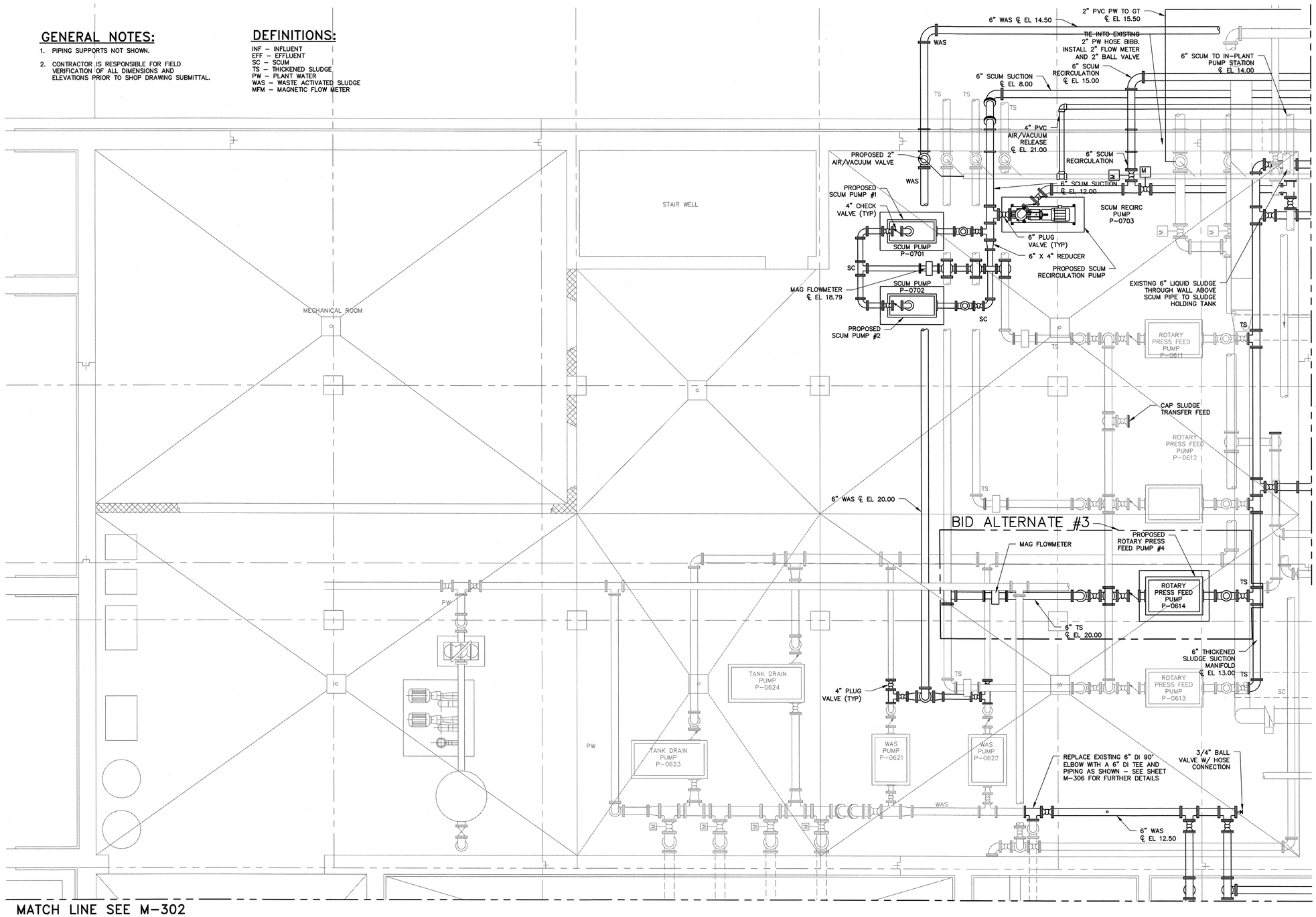
M-201

GENERAL NOTES:

1. PIPING SUPPORTS NOT SHOWN.
2. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL DIMENSIONS AND ELEVATIONS PRIOR TO SHOP DRAWING SUBMITTAL.

DEFINITIONS:

INF – INFLUENT
EFF – EFFLUENT
SC – SCUM
TS – THICKENED SLUDGE
PW – PLANT WATER
WAS – WASTE ACTIVATED SLUDGE
MFM – MAGNETIC FLOW METER



ADVANCED TREATMENT BUILDING BASEMENT PLAN

SCALE: 1/4" = 1'-0"

6' 4' 2' 0 4' 8'

BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 48462
REGISTERED PROFESSIONAL ENGINEER
9/23/16

REV.	DESCRIPTION	DATE

DESIGNED BY: AH/AGB
DRAWN BY: DMB
CHECKED BY: MB
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ADVANCED TREATMENT BUILDING
BASEMENT LAYOUT

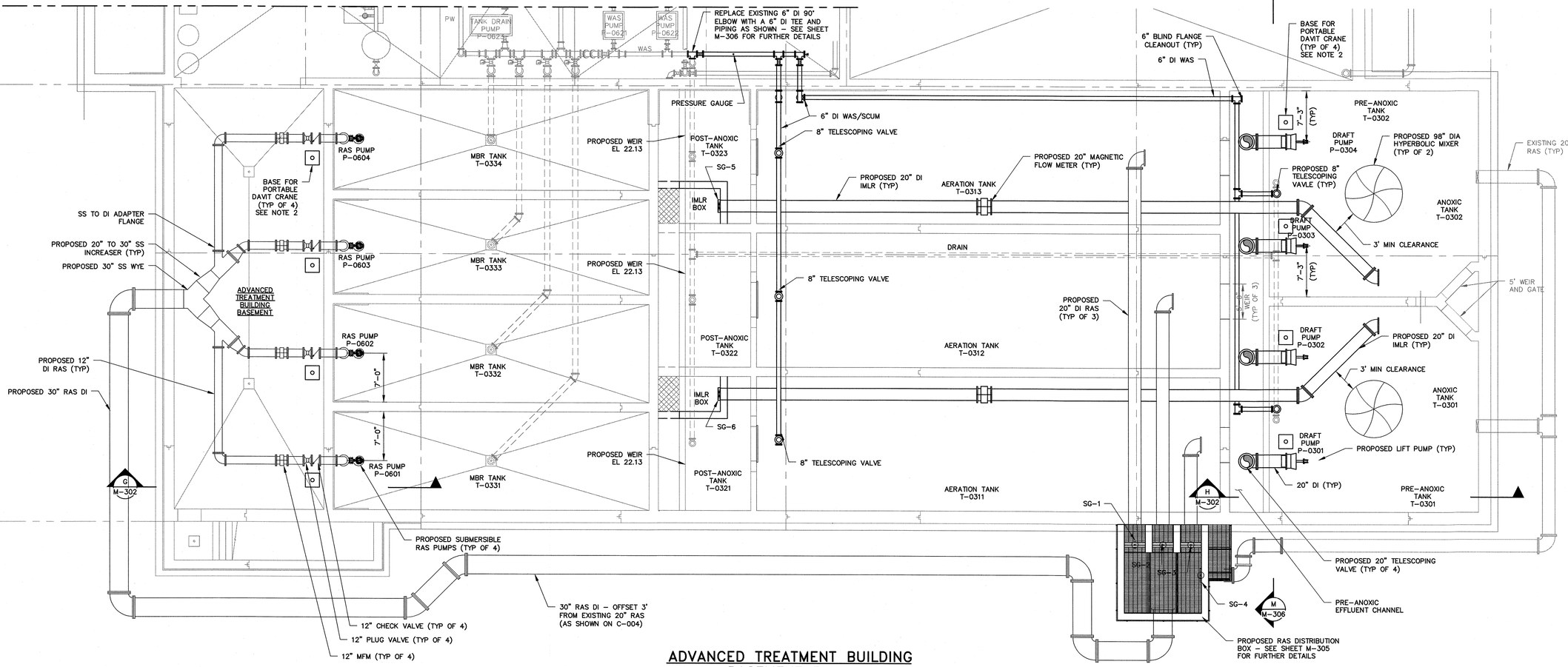
DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER
TREATMENT FACILITY
UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 56 OF 116

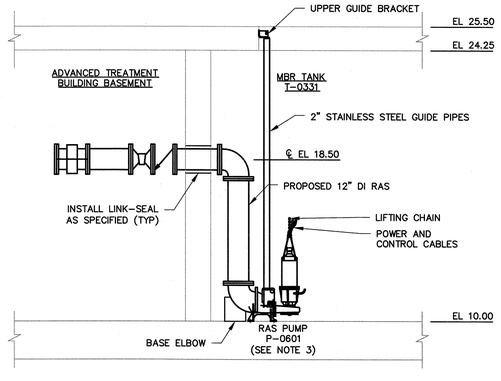
M-301

MATCH LINE SEE M-301



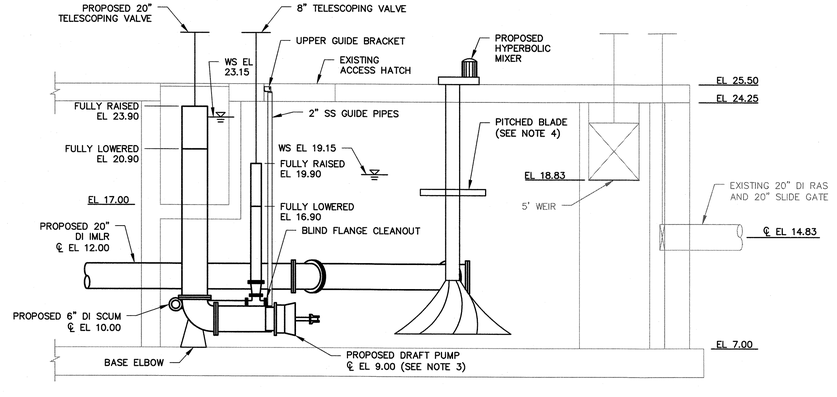
ADVANCED TREATMENT BUILDING BASEMENT PLAN

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



SECTION G M-302

SCALE: 1/4" = 1'-0"



SECTION H M-302

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

1. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL DIMENSIONS & ELEVATIONS PRIOR TO SHOP DRAWING SUBMITTAL.
2. CONTRACTOR SHALL FIELD LOCATE CRANE BASE AS REQUIRED TO ENSURE EASY/NON-BINDING REMOVAL OF RAS AND DRAFT PUMPS.
3. PUMP EXACT LOCATION AS REQUIRED BY PUMP MANUFACTURER.
4. PITCHED BLADE SUBMERGENCE TO BE DETERMINED IN THE FIELD ACCORDING TO MANUFACTURER'S RECOMMENDATIONS

12' 8' 4' 0 8' 16'

BAR SCALE
1/8" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 46462
REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE

DESIGNED BY: AH/ACB
DRAWN BY: DMB
CHECKED BY: MB
22912300-M-302.dwg

ADVANCED TREATMENT BUILDING RAS/IMLR MECHANICAL PIPING PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: JULY 2016
SCALE: AS NOTED
SHEET: 56 OF 113

M-302

6" SCUM TO IN-PLANT PUMP STATION
EXISTING TANK DISCHARGE OUT THROUGH WALL ABOVE SCUM PIPE
6" SCUM RECIRCULATION
6" WAS
WAS
6" SCUM SUCTION
2" PW
SEE SHEET M-310 FOR DETAILS
INLET BOX
SCUM WELL
DOWN
4" CHECK VALVE (TYP)
STAIR WELL
SCUM PUMP P-0701
SCUM GRINDER (TYP)
SCUM RECIRC PUMP P-0703
TIE INTO EXISTING SCUM LINE
6" PLUG VALVE (TYP)
6" X 4" REDUCER
SCUM PUMP P-0702
MECHANICAL ROOM
T-0611
T-0612
T-0613
T-0613
6" WAS
CAP SLUDGE TRANSFER FEED
ROTARY PRESS FEED PUMP P-0614
SLUDGE TANK T-0501
4" PLUG VALVE (TYP)
CONNECT 2" CU PW TO EXISTING PW SYSTEM
2" CU PW ℄ EL 23.00
PW
SEE SHEET M-306 FOR FURTHER DETAILS
WAS
SPRAY MANIFOLD DETAIL 1 M-305
REPLACE EXISTING 8" DI TELESCOPING VALVE
6" DI WAS
1" CU PW ℄ EL 24.08
8" TELESCOPING VALVE (TYP OF 5)
6" DI WAS/SCUM
POST-ANOXIC TANK T-0323
MBR TANK T-0334
IMLR BOX
1" CU PW ℄ EL 24.08
AERATION TANK T-0313
ANOXIC TANK T-0302
MBR TANK T-0333
SPRAY NOZZLE DETAIL (TYP) 2 M-305
1" CU PW SPRAY NOZZLE MANIFOLD ℄ EL 24.08 (TYP OF 3)
POST-ANOXIC TANK T-0322
AERATION TANK T-0312
MBR TANK T-0332
IMLR BOX
ANOXIC TANK T-0301
1" CU PW SPRAY NOZZLE MANIFOLD ℄ EL 20.65 (TYP OF 2)
8" TELESCOPING VALVE (TYP)
POST-ANOXIC TANK T-0321
MBR TANK T-0331
AERATION TANK T-0311

ADVANCED TREATMENT BUILDING BASEMENT PLAN
SCALE: 1/8" = 1'-0"

12' 8' 4' 0 8' 16'
BAR SCALE
1/8" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HALLET
CIVIL
No. 45482
REGISTERED PROFESSIONAL ENGINEER

REV.	DESCRIPTION	DATE

DESIGNED BY: AH/ACB | CHECKED BY: MB
DRAWN BY: DMB | 2291230-M-303.dwg

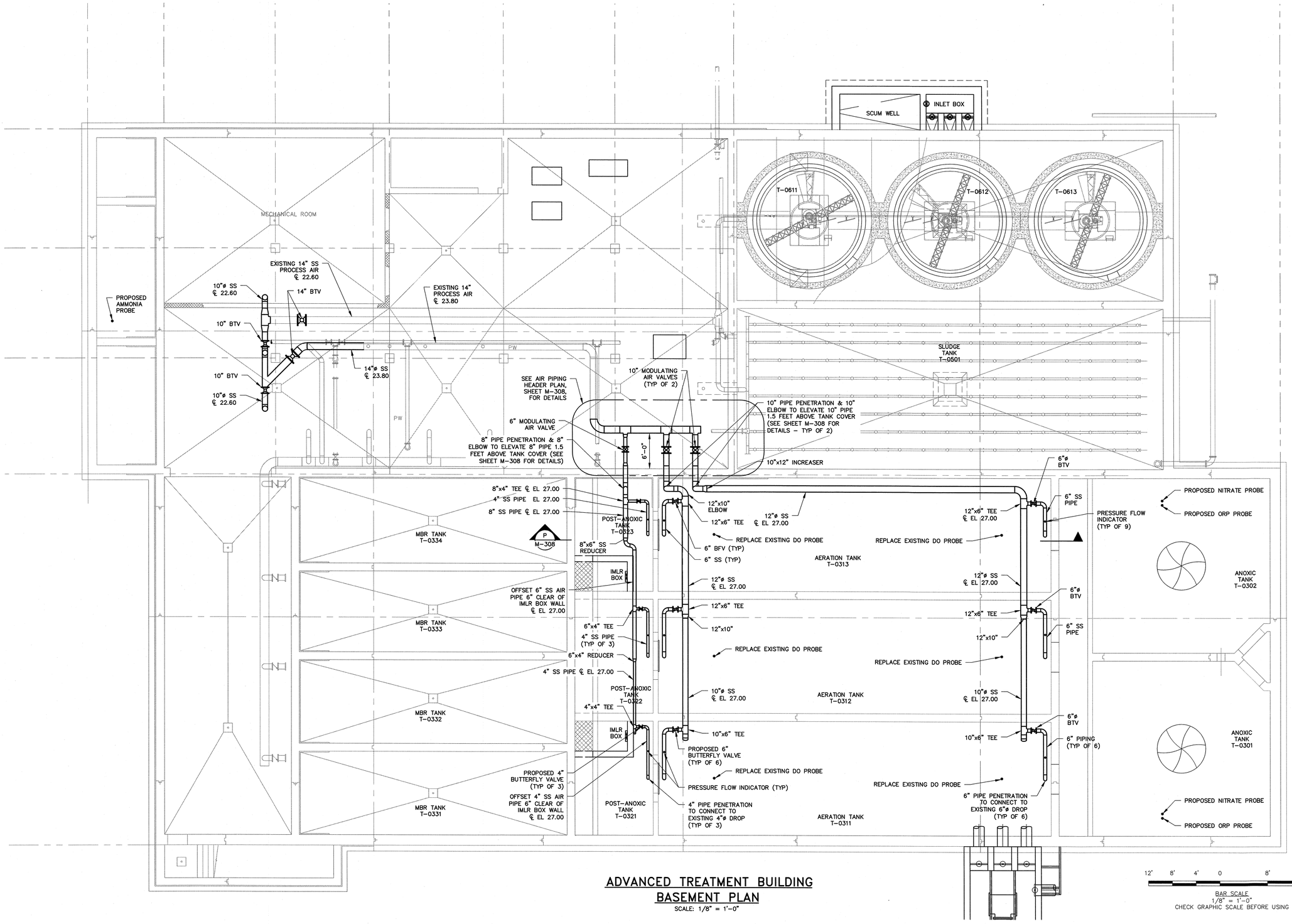
ADVANCED TREATMENT BUILDING WAS/SCUM MECHANICAL PIPING PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 58 OF 116

M-303



ADVANCED TREATMENT BUILDING
BASEMENT PLAN
SCALE: 1/8" = 1'-0"

12' 8' 4' 0 8' 16'

BAR SCALE
1/8" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
No. 49432
REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE
DESIGNED BY: AH/ACB	CHECKED BY: MB	
DRAWN BY: DMB	229123300-M-304.dwg	

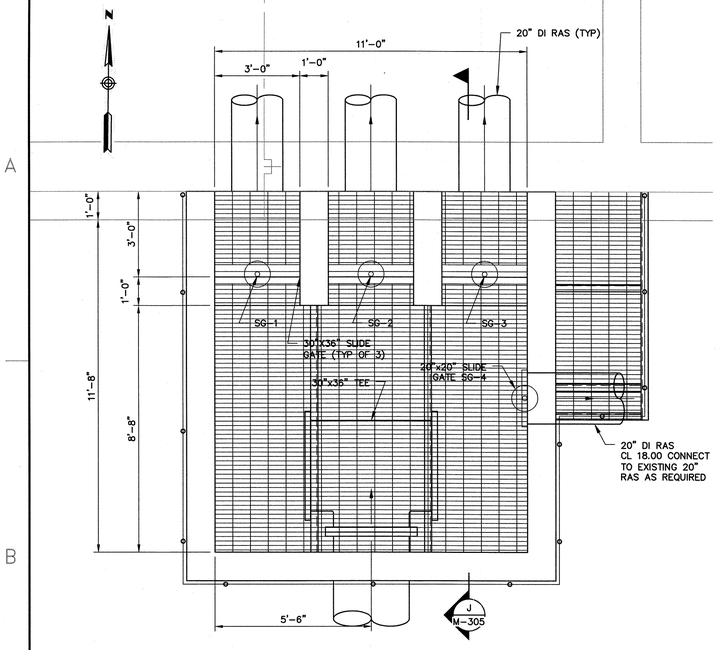
ADVANCED TREATMENT BUILDING
PROCESS AIR MECHANICAL PIPING

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

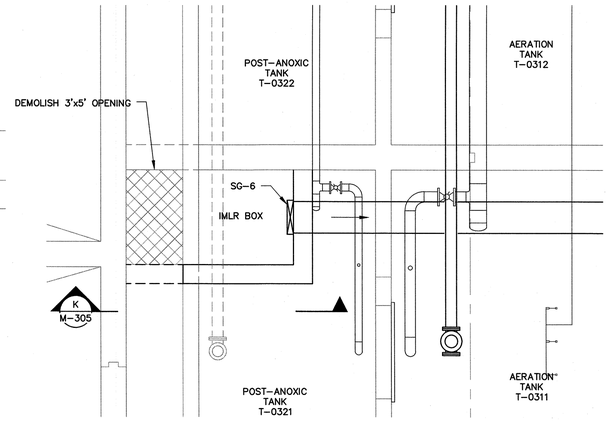
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.:	229123.00
DATE:	JULY 2016
SCALE:	AS NOTED
SHEET:	58 OF 113

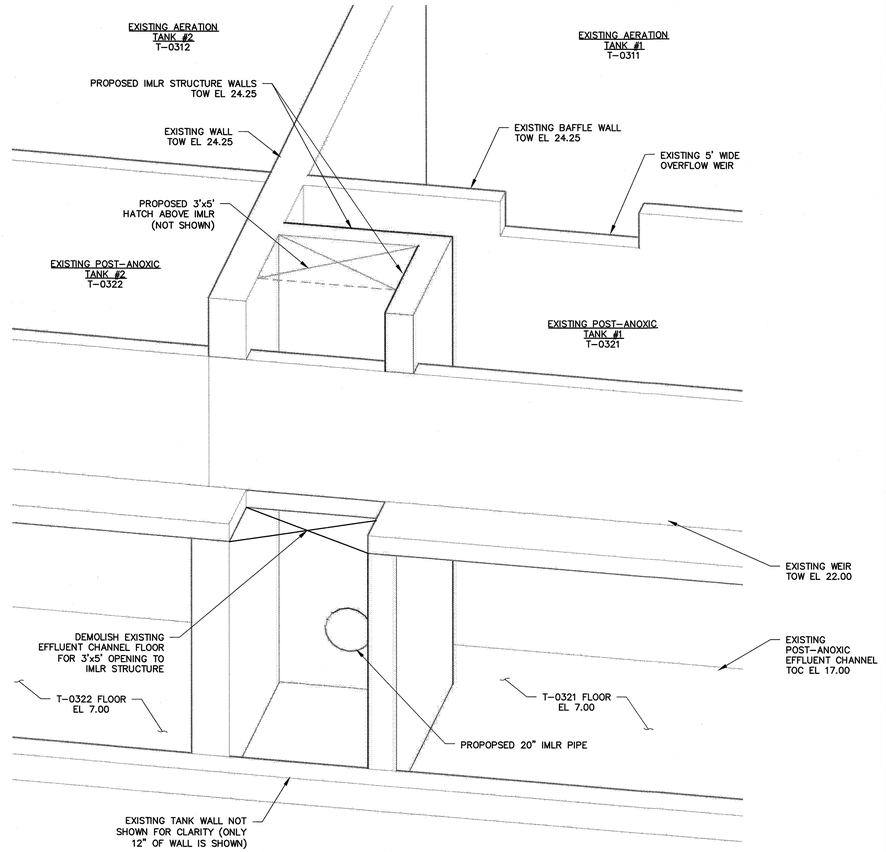
M-304



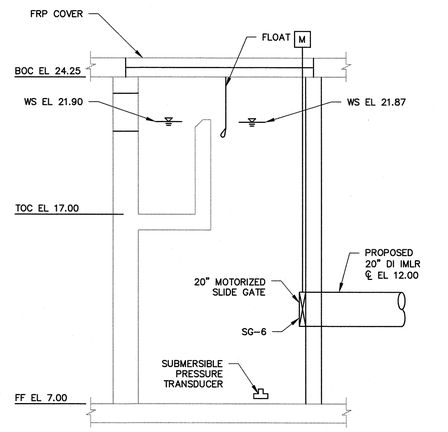
RAS DISTRIBUTION BOX PLAN
SCALE: 3/8" = 1'-0"



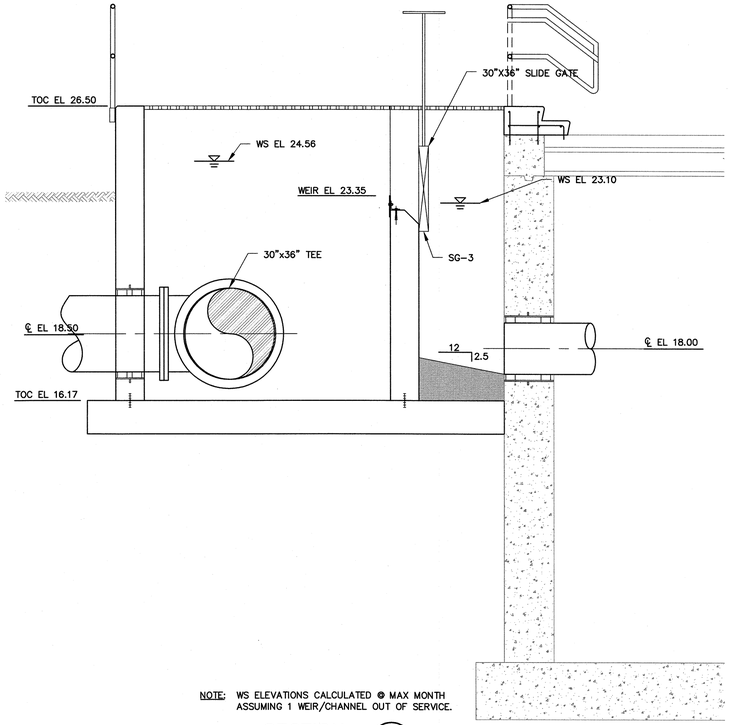
AERATION IMLR BOX PLAN
SCALE: 1/4" = 1'-0"



AERATION IMLR ISO VIEW
SCALE: 3/8" = 1'-0"

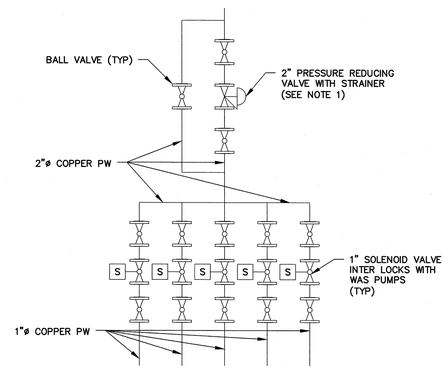


SECTION
SCALE: 1/4" = 1'-0"
K / M-305

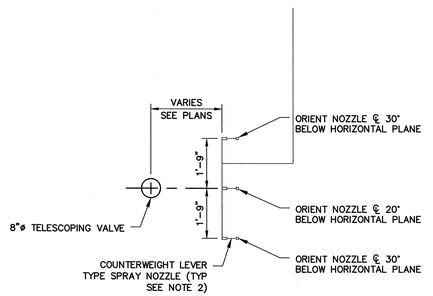


NOTE: WS ELEVATIONS CALCULATED @ MAX MONTH ASSUMING 1 WEIR/CHANNEL OUT OF SERVICE.

SECTION
SCALE: 3/8" = 1'-0"
J / M-305



1 / M-303 **SPRAY MANIFOLD DETAIL**
SCALE: 1" = 1'-0"



2 / M-303 **SPRAY NOZZLE DETAIL**
SCALE: 3/8" = 1'-0"

NOTE:
1. 2" PRESSURE REDUCING VALVE SHALL MAINTAIN FLOW IN THE RANGE OF 35 TO 45 GPM. PRESSURE DROP SHALL BE FROM 80 PSI TO A RANGE OF 8 TO 12 PSI.
2. SPRAY NOZZLE FLOW SHALL BE DIRECTED TOWARD TELESCOPING VALVE.

4' 3' 2' 1' 0 3' 6'
BAR SCALE
3/8" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

6' 4' 2' 0 4' 8'
BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 45482
REGISTERED PROFESSIONAL ENGINEER
7/29/16

REV	DESCRIPTION	DATE
DESIGNED BY: AH/ACB	CHECKED BY: MB	229123\00-M-305.dwg
DRAWN BY: DMB		

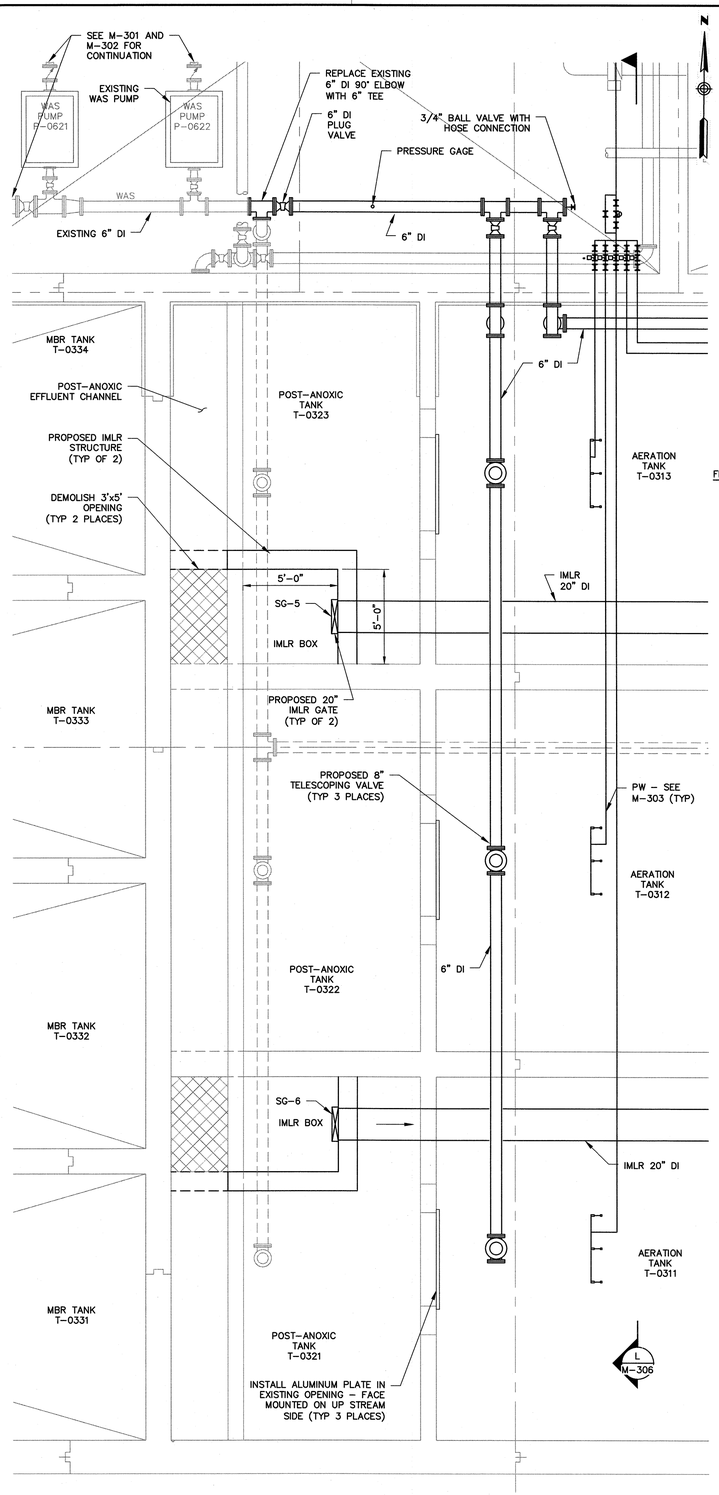
ADVANCED TREATMENT BUILDING RAS/IMLR MECHANICAL PIPING SECTIONS & DETAILS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

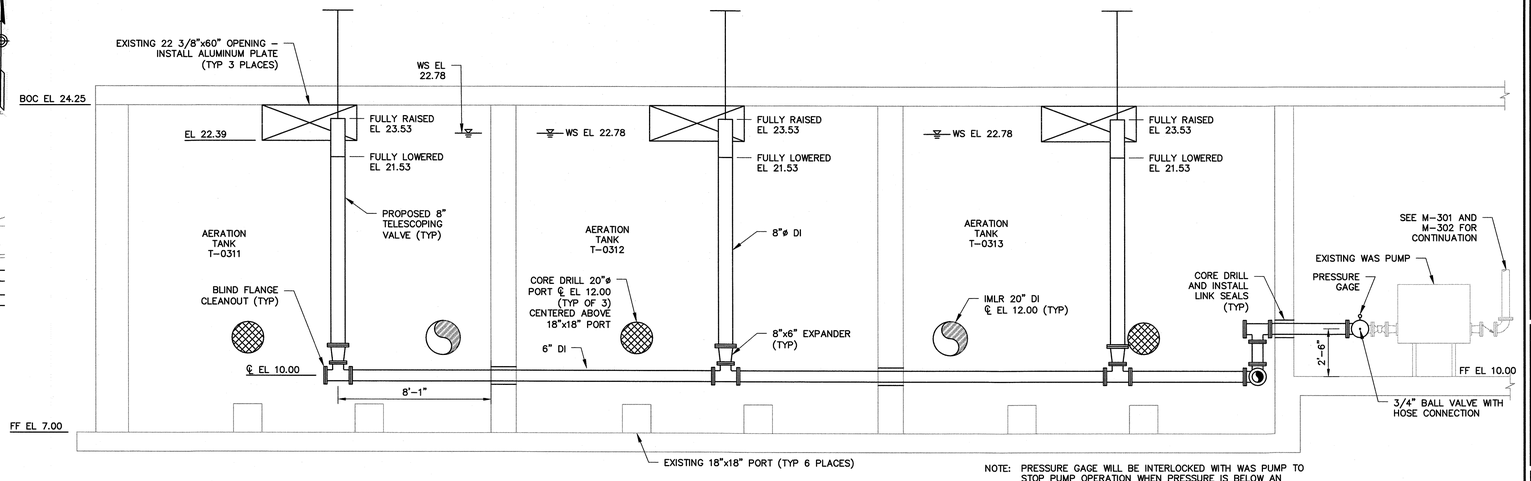
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: JULY 2016
SCALE: AS NOTED
SHEET: 59 OF 113

M-305

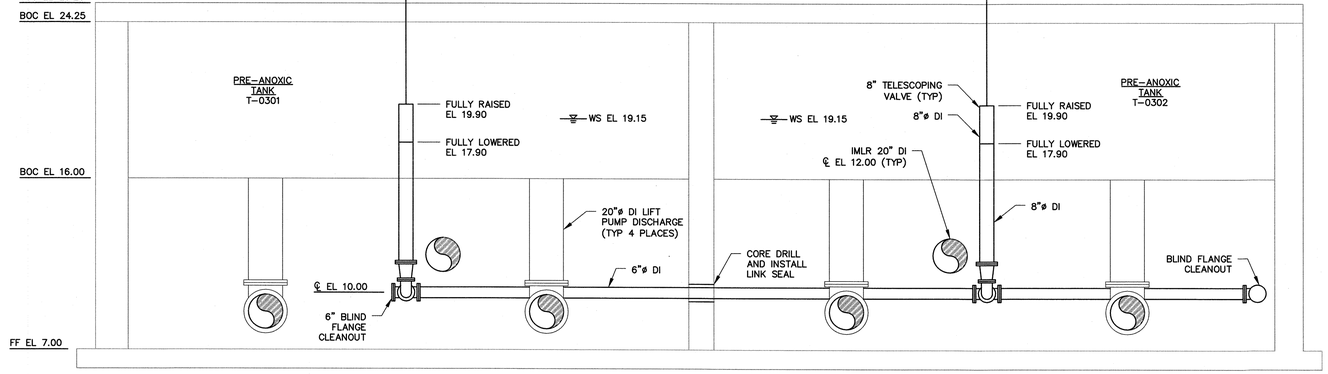


AERATION WAS AND SCUM PLAN
SCALE: 1/4" = 1'-0"



SECTION
SCALE: 1/4" = 1'-0"
L / M-306

NOTE: PRESSURE GAGE WILL BE INTERLOCKED WITH WAS PUMP TO STOP PUMP OPERATION WHEN PRESSURE IS BELOW AN OPERATOR ADJUSTABLE SET POINT.



SECTION
SCALE: 1/4" = 1'-0"
M / M-302

NOTE: PIPE SUPPORTS NOT SHOWN.

6' 4' 2' 0 4' 8'
BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
TYCHAS F. HAZLETT
CIVIL
No. 49485
REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE

DESIGNED BY: AH/ACB
DRAWN BY: DMB
CHECKED BY: MB
2291200-M-306.dwg

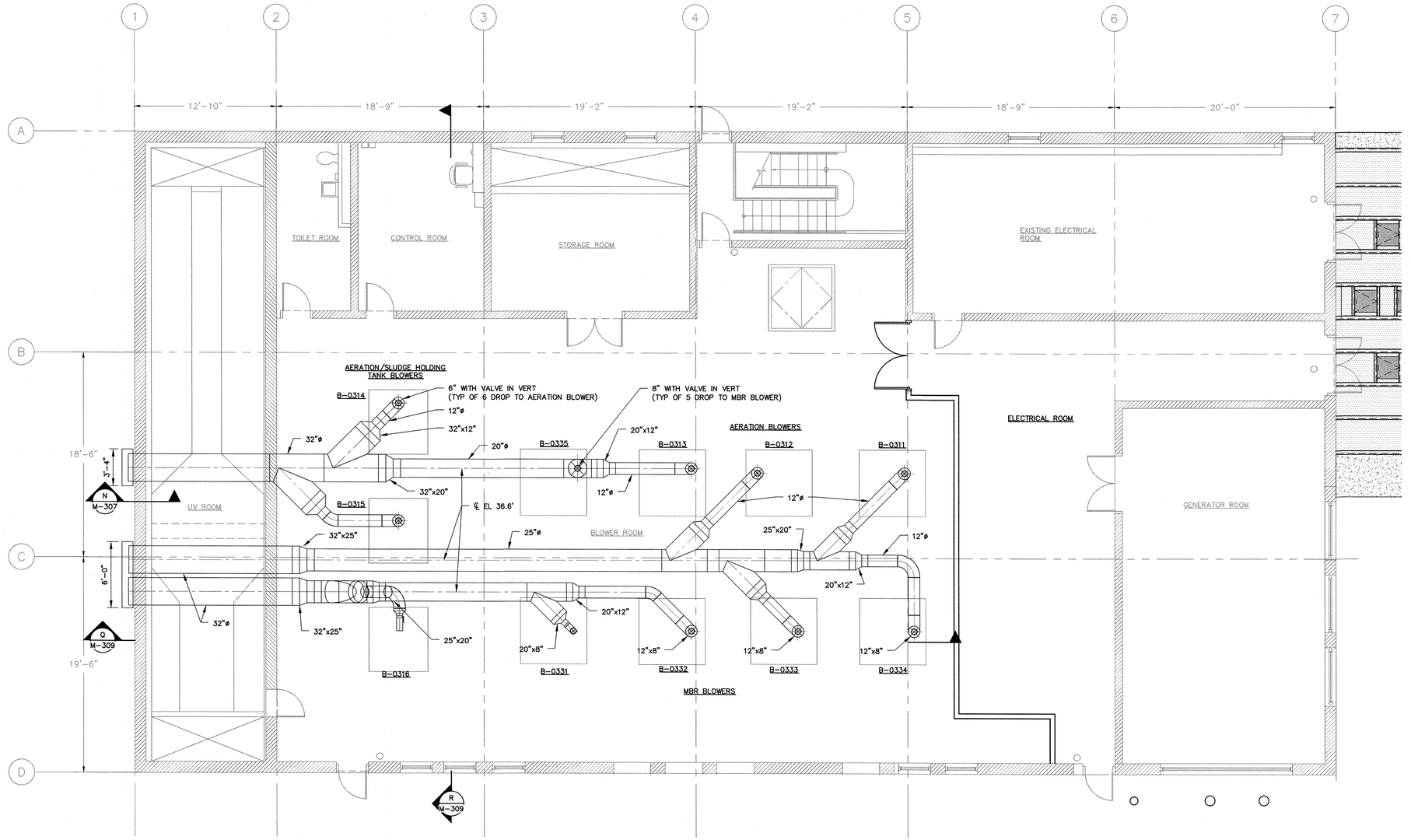
ADVANCED TREATMENT BUILDING WAS/SCUM MECHANICAL PIPING SECTIONS & DETAILS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

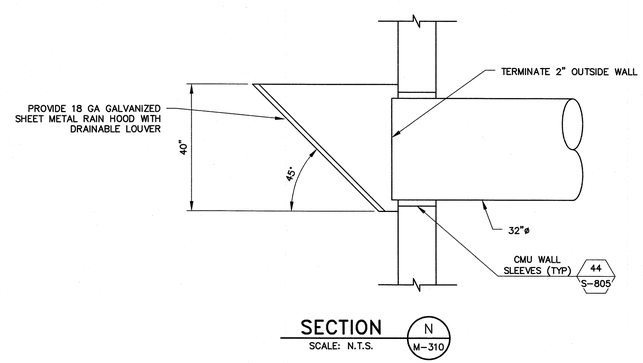
JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 61 OF 116

M-306



ADVANCED TREATMENT BUILDING GROUND FLOOR INTAKE AIR PLAN

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



SECTION (N M-310)

SCALE: N.T.S.

GENERAL NOTES

1. CONTRACTOR TO FIELD VERIFY ELEVATIONS PRIOR TO CONSTRUCTION.
2. NOT ALL PIPING PRESENT IN THE BLOWER ROOM IS SHOWN IN THE DRAWING.
3. BLOWER INLET AND DISCHARGE PIPING CONNECTIONS SHOWN ARE APPROXIMATE. CONNECTION POINTS SHALL BE ADJUSTED AS REQUIRED TO ACCOMMODATE EXISTING BLOWER LOCATION AND ORIENTATION.
4. ALL NEW BLOWER PIPING SHALL BE 316L STAINLESS STEEL.
5. A FLEX JOINT SHALL BE CONNECTED TO EACH BLOWER SUCTION PIPING AT THE BLOWER INTAKE.

6' 4' 2' 0 4' 8'

BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. PICKETT
No. 49482
REGISTERED PROFESSIONAL ENGINEER
10/21/16

REV	DESCRIPTION	DATE
DESIGNED BY: AH/ACB	CHECKED BY: MB	
DRAWN BY: DMB	229123\00-M-307.dwg	

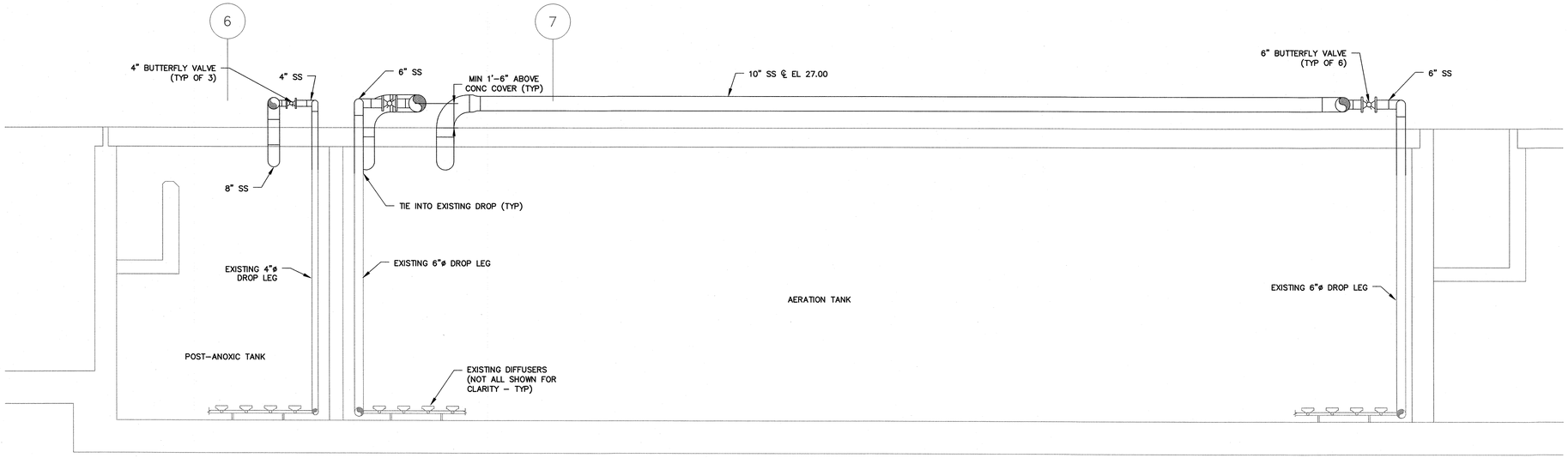
ADVANCED TREATMENT BUILDING GROUND FLOOR PROCESS AIR MECHANICAL PIPING PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

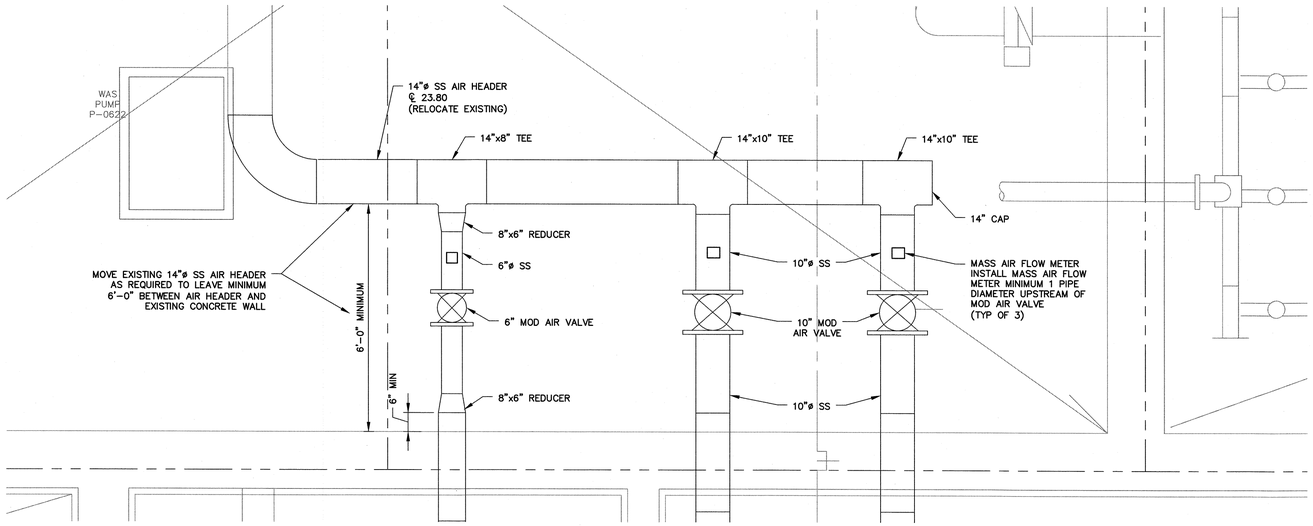
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00	
DATE: JULY 2016	
SCALE: AS NOTED	
SHEET:	61 OF 113

M-307



SECTION
SCALE: 1/4" = 1'-0"
P
M-304



SEE SHEET M-304 FOR CONTINUATION AND FURTHER DETAILS.

AIR PIPING HEADER PLAN
SCALE: 1/2" = 1'-0"

3' 2' 1' 0 2' 4'
BAR SCALE
1/2" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

6' 4' 2' 0 4' 8'
BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 49482
REGISTERED PROFESSIONAL ENGINEER

REV.	DESCRIPTION	DATE

DESIGNED BY: AH/ACB | CHECKED BY: MB
DRAWN BY: DMB | 229123\00-M-308.dwg

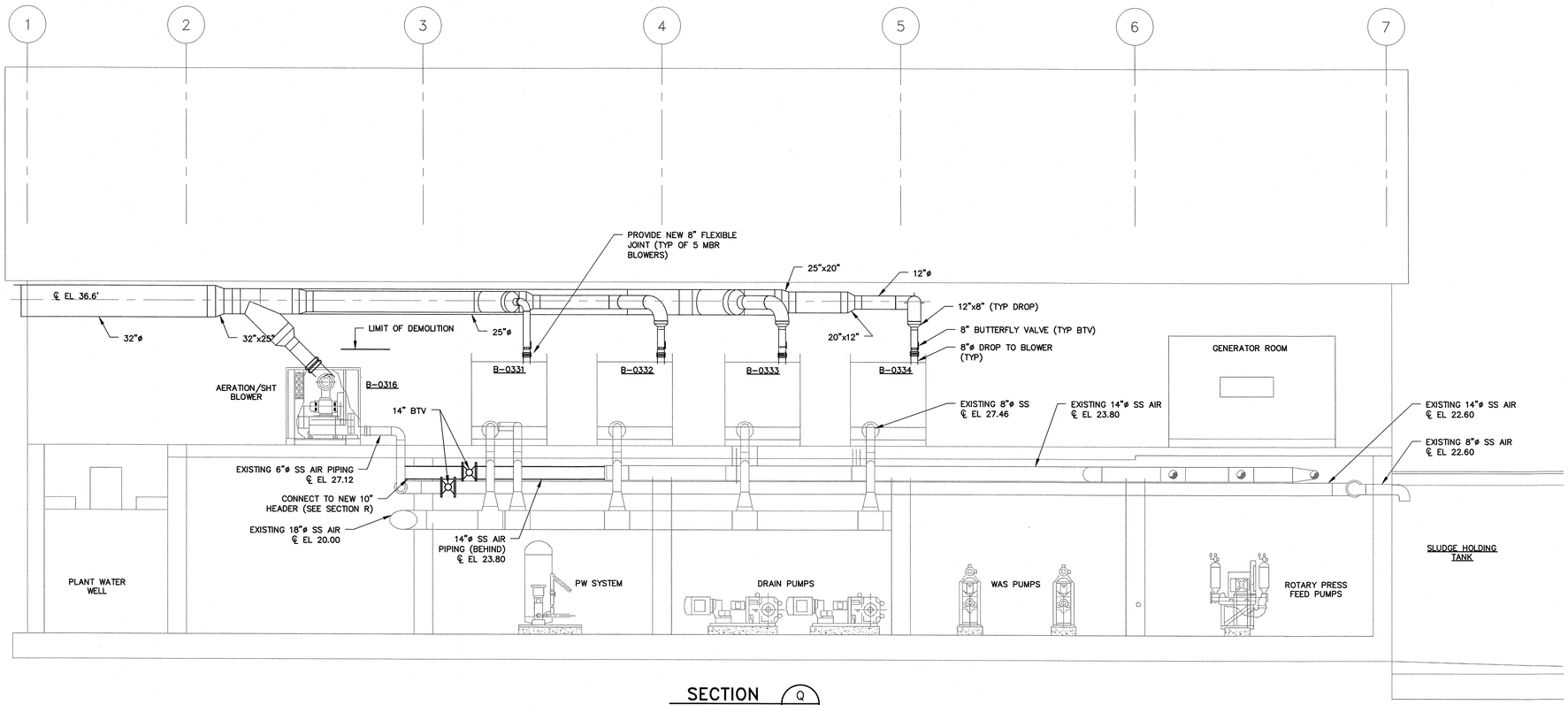
ADVANCED TREATMENT BUILDING PROCESS AIR DISCHARGE MECHANICAL PIPING SECTIONS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

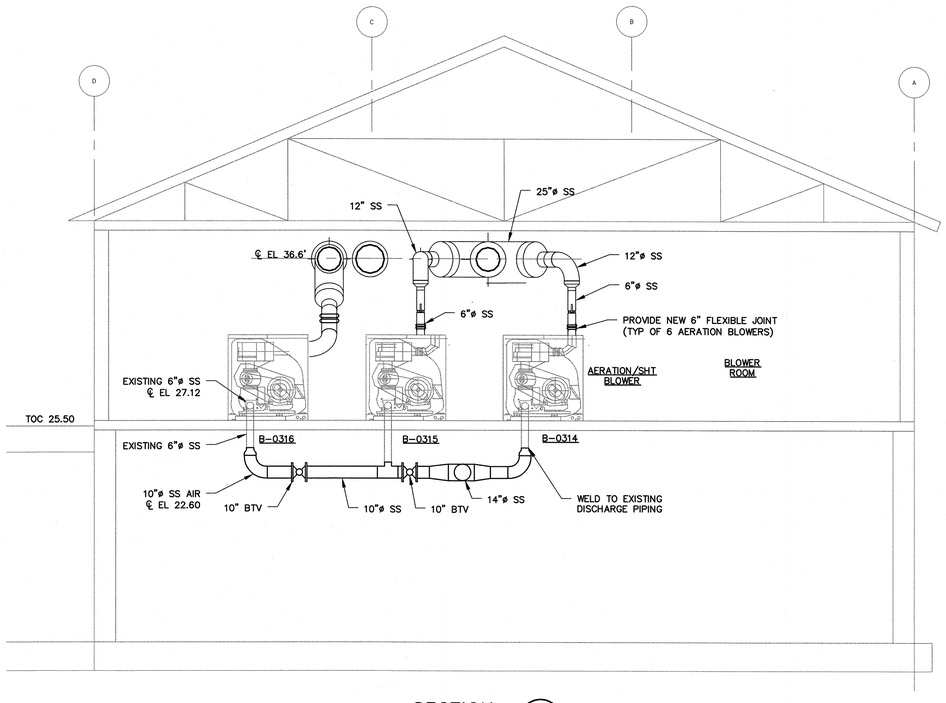
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: JULY 2016
SCALE: XXX
SHEET: 62 OF 113

M-308



SECTION (Q / M-307)
SCALE: 3/16" = 1'-0"



SECTION (R / M-307)
SCALE: 3/16" = 1'-0"

GENERAL NOTES

1. CONTRACTOR TO FIELD VERIFY ELEVATIONS PRIOR TO CONSTRUCTION.
2. NOT ALL PIPING PRESENT IN THE BLOWER ROOM IS SHOWN IN THE DRAWING.
3. BLOWER INLET AND DISCHARGE PIPING CONNECTIONS SHOWN ARE APPROXIMATE. CONNECTION POINTS SHALL BE ADJUSTED AS REQUIRED TO ACCOMMODATE EXISTING BLOWER LOCATION AND ORIENTATION.
4. ALL NEW BLOWER PIPING SHALL BE 316L STAINLESS STEEL.
5. A FLEX JOINT SHALL BE CONNECTED TO EACH BLOWER SUCTION PIPING AT THE BLOWER INTAKE.

6' 4' 2' 0 4' 8'
BAR SCALE
3/16" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
No. 44542
REGISTERED PROFESSIONAL ENGINEER
9/21/16

REV.	DESCRIPTION	DATE
DESIGNED BY: AH/ACB	CHECKED BY: MB	
DRAWN BY: DMB	229123\00-M-309.dwg	

ADVANCED TREATMENT BUILDING PROCESS AIR INTAKE MECHANICAL PIPING SECTIONS

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.:	229123.00
DATE:	SEPTEMBER 2016
SCALE:	AS NOTED
SHEET:	64 OF 116

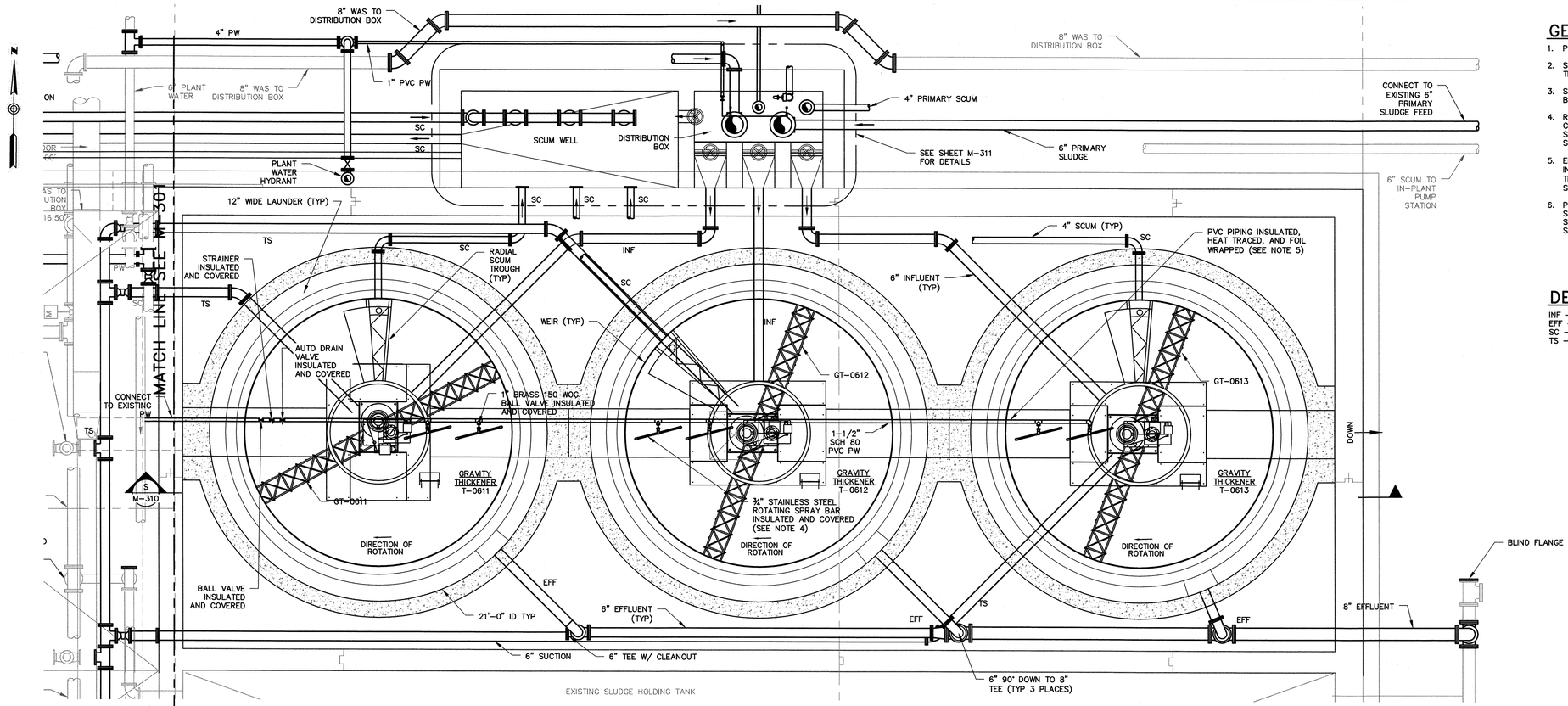
M-309

GENERAL NOTES:

1. PIPING SUPPORTS NOT SHOWN
2. SEE SHEETS M-312 AND S-304 FOR GRAVITY THICKENER COVER DETAILS.
3. SEE SHEETS M-312 AND S-304 FOR DISTRIBUTION BOX AND SCUM WELL COVER DETAILS.
4. ROTATING SPRAY BAR ELEVATIONS AND CONFIGURATION AS REQUIRED BY SURFACE SPRAY SYSTEM MANUFACTURER. SEE SPECIFICATIONS SECTION 40 05 35.
5. ENCLOSE ALL PVC PIPING IN 1/2" CLOSED FOAM INSULATION, FROST KING SOLID STATE HEAT TRACED FOIL FOAM COVERING WITH 1/4" STAINLESS STEEL BANDS.
6. PROVIDE STAINLESS STEEL PLATE ATTACHED TO SKIMMER ARM AS REQUIRED BY SURFACE SPRAY SYSTEM MANUFACTURER. SEE SPECIFICATION SECTION 40 05 35.

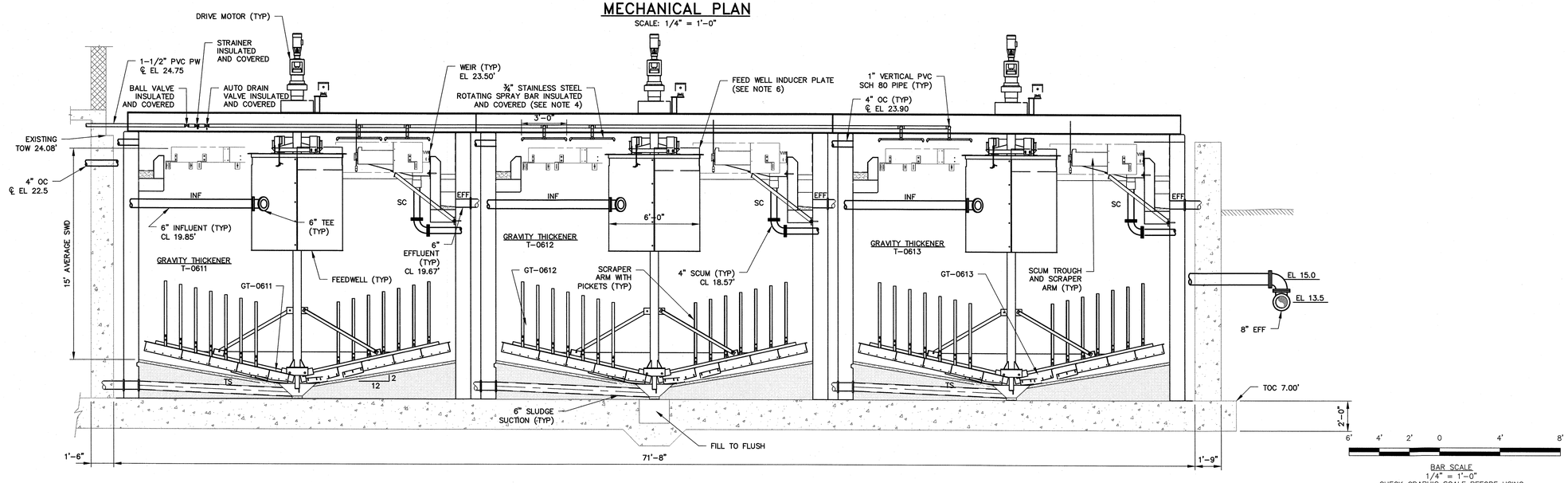
DEFINITIONS:

INF – INFLUENT
EFF – EFFLUENT
SC – SCUM
TS – THICKENED SLUDGE



GRAVITY THICKENERS MECHANICAL PLAN

SCALE: 1/4" = 1'-0"



SECTION

SCALE: 1/4" = 1'-0"

S M-310

BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 46462
REGISTERED PROFESSIONAL ENGINEER
10/23/16

REV	DESCRIPTION	DATE
DESIGNED BY: AH/ACB	CHECKED BY: MB	2291230O-M-310.dwg
DRAWN BY: DMB		

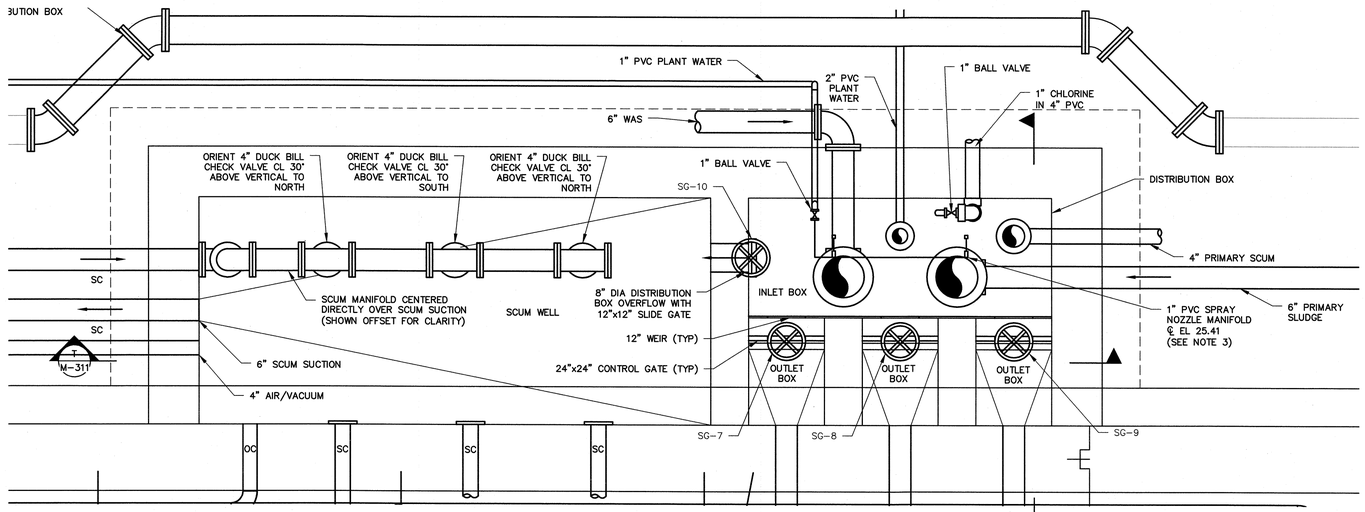
GRAVITY THICKENERS MECHANICAL PLAN AND SECTION

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

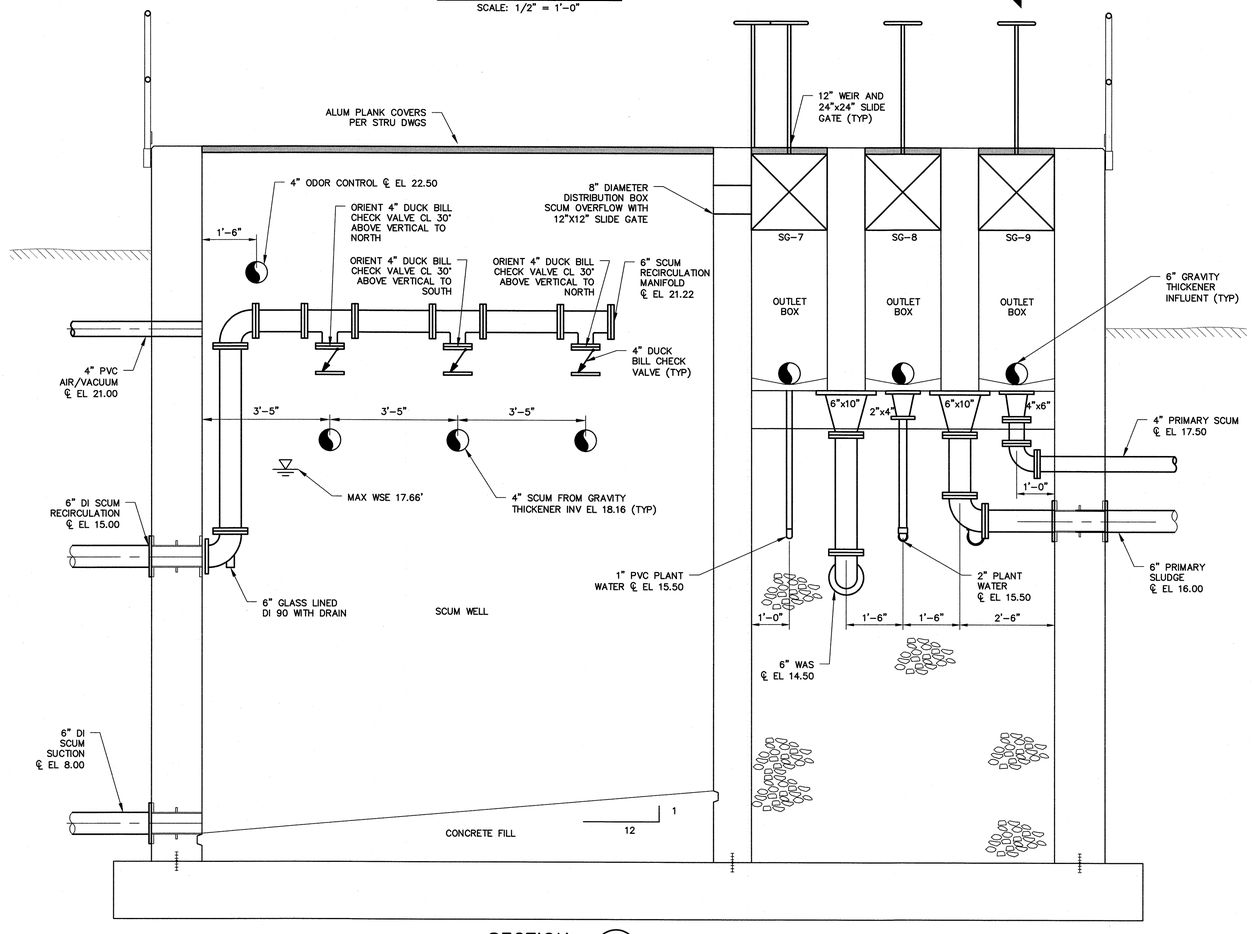
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.:	229123.00
DATE:	JULY 2016
SCALE:	AS NOTED
SHEET:	65 OF 116

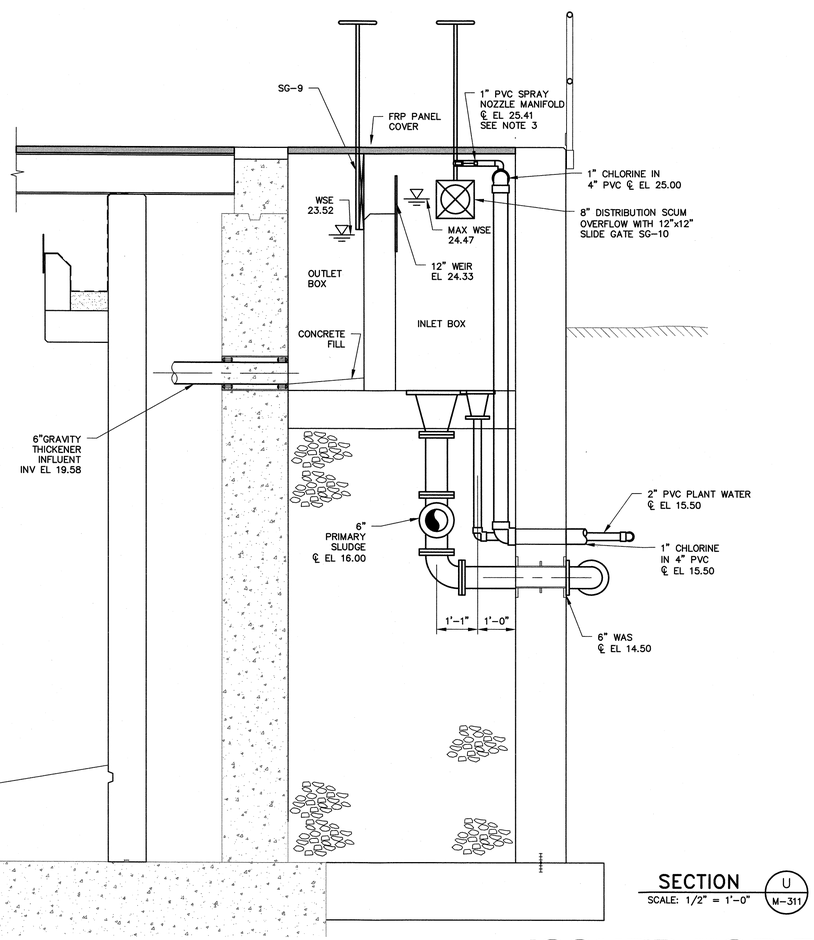
M-310



SCUM WELL PLAN
SCALE: 1/2" = 1'-0"



SECTION
SCALE: 1/2" = 1'-0"
T / M-311



SECTION
SCALE: 1/2" = 1'-0"
U / M-311

GENERAL NOTES:

1. PIPING SUPPORTS NOT SHOWN
2. DISTRIBUTION BOX AND SCUM WELL FRP COVERS NOT SHOWN ON PLAN FOR CLARITY.
3. INSTALL SPRAY NOZZLES IN DISTRIBUTION BOX AS SPECIFIED IN SECTION 40 05 23

DEFINITIONS:

INF – INFLUENT
EFF – EFFLUENT
SC – SCUM
TS – THICKENED SLUDGE
PW – PLANT WATER
WAS – WASTE ACTIVATED SLUDGE

WOODARD & CURRAN
COMMITMENT & INTEGRITY DRIVE RESULTS
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COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 44462
REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE
	DESIGNED BY: AH/ACB	CHECKED BY: MB
	DRAWN BY: DMB	229123\00-M-311.dwg

GRAVITY THICKENERS DISTRIBUTION BOX AND SCUM WELL SECTIONS

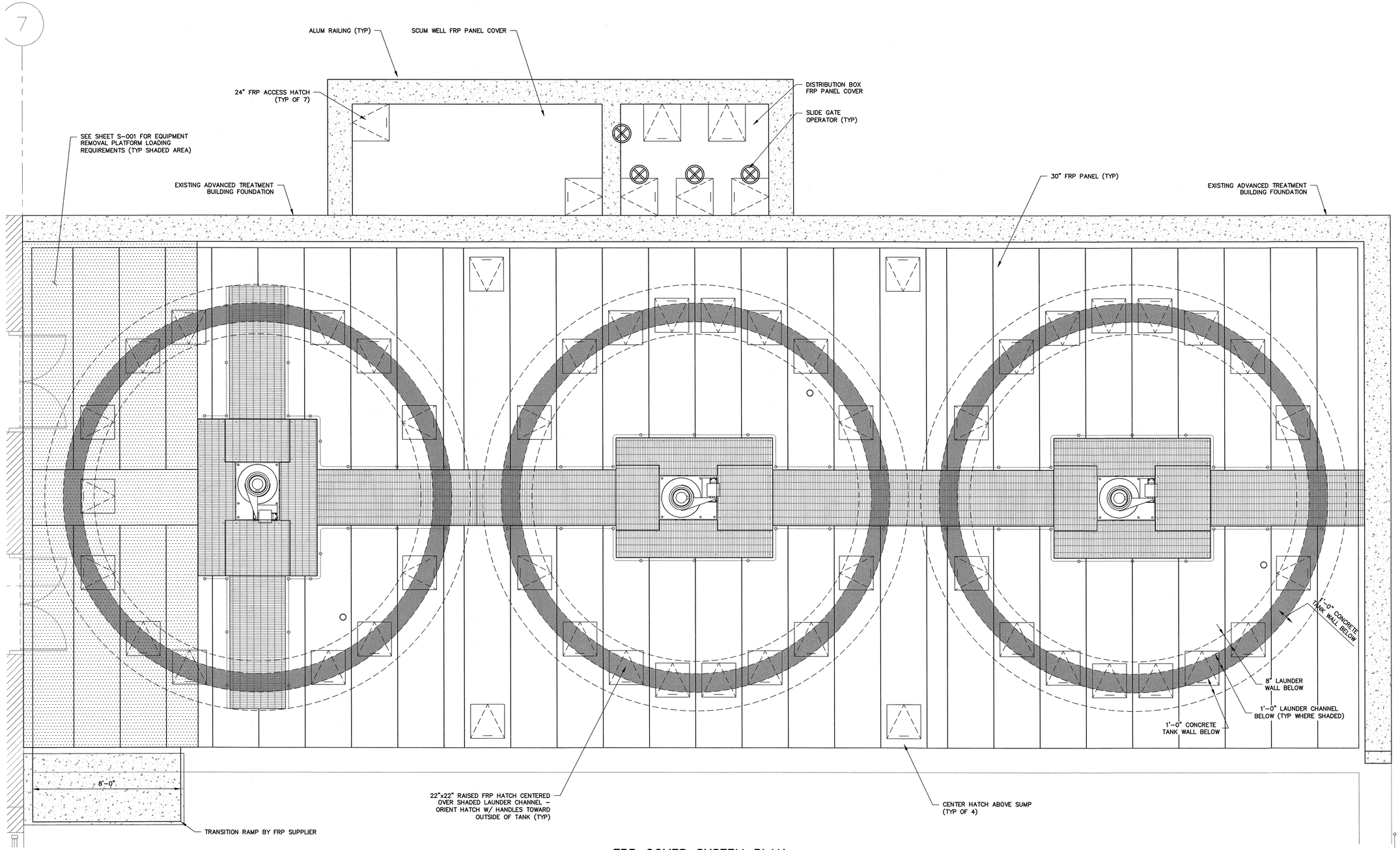
DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.:	229123.00
DATE:	JULY 2016
SCALE:	AS NOTED
SHEET:	65 OF 113

M-311

ISSUED FOR BID



FRP COVER SYSTEM PLAN

SCALE: 3/8" = 1'-0"

4' 3' 2' 1' 0 3' 6'

BAR SCALE
3/8" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

NOTES:

1. ALL WORK ON THIS SHEET IS PART OF BID ALTERNATE #4.
2. MOUNTING AND SUPPORT OF ALL FRP COVERS SHALL BE THE RESPONSIBILITY OF THE FRP MANUFACTURER. REFER TO SECTION 06 70 00, STRUCTURAL COMPOSITES.

BID ALTERNATE #4

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COMMITMENT & INTEGRITY DRIVE RESULTS

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COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 45484
REGISTERED PROFESSIONAL ENGINEER

REV.	DESCRIPTION	DATE

DESIGNED BY: MB
DRAWN BY: DMB
CHECKED BY: MB
229123300-M-312.dwg

BID ALTERNATE #4
ADVANCED TREAMTENT BUILDING GRAVITY THICKENER FRP COVER SYSTEM PLAN

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

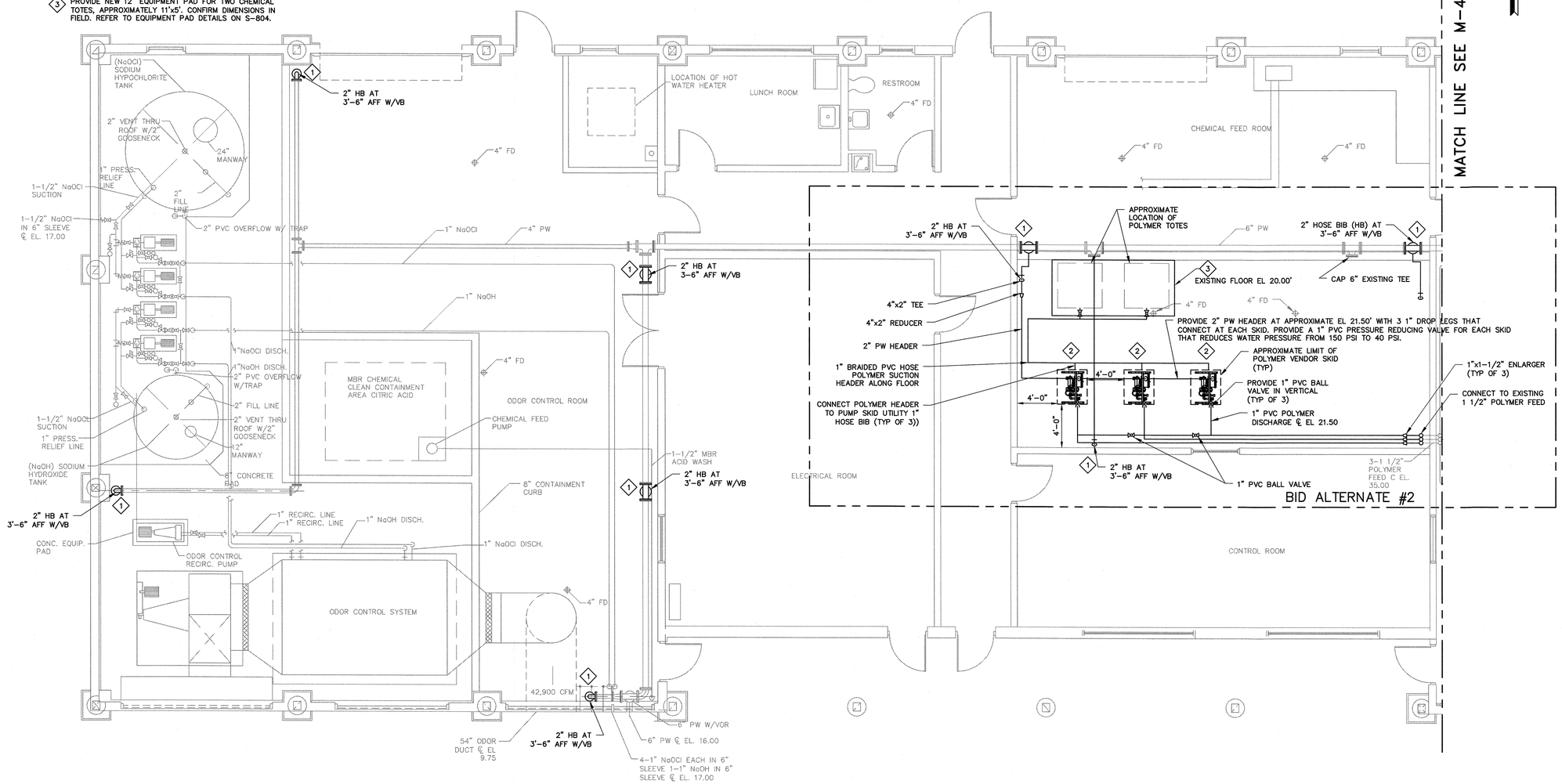
JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 67 OF 116

M-312

22x34 SHEET
1:1

KEYED NOTE

1. REPLACE COPPER PLANT WATER LINE BACK TO FLANGED FITTING. PROVIDE SCHEDULE 80 PVC DROP SAME SIZE AS EXISTING (2" ID) TO SAME HEIGHT ABOVE FINISH FLOOR AS EXISTING (TYP 8 LOCATIONS). TOUCH UP PAINT ON ALL EXPOSED METALLIC PLANT WATER PIPING. PAINT AS SPECIFIED IN DIVISION 09.
2. PROVIDE NEW POLYMER FEED SYSTEM SKID (TYP OF 3) THAT EACH INCLUDE PUMP, MIXING MECHANISM, AND ALL ASSOCIATED CONTROLS, PIPING, VALVES AND APPURTENANCES AS DESCRIBED IN THE SPECIFICATIONS.
3. PROVIDE NEW 12" EQUIPMENT PAD FOR TWO CHEMICAL TOTES, APPROXIMATELY 11'x5'. CONFIRM DIMENSIONS IN FIELD. REFER TO EQUIPMENT PAD DETAILS ON S-804.



SOLIDS PROCESSING BUILDING PLAN

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

BAR SCALE
3/16" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

ISSUED FOR BID

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 49482
REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE
DESIGNED BY: KF	CHECKED BY: MB	
DRAWN BY: DMB	229123\00-M-401.dwg	

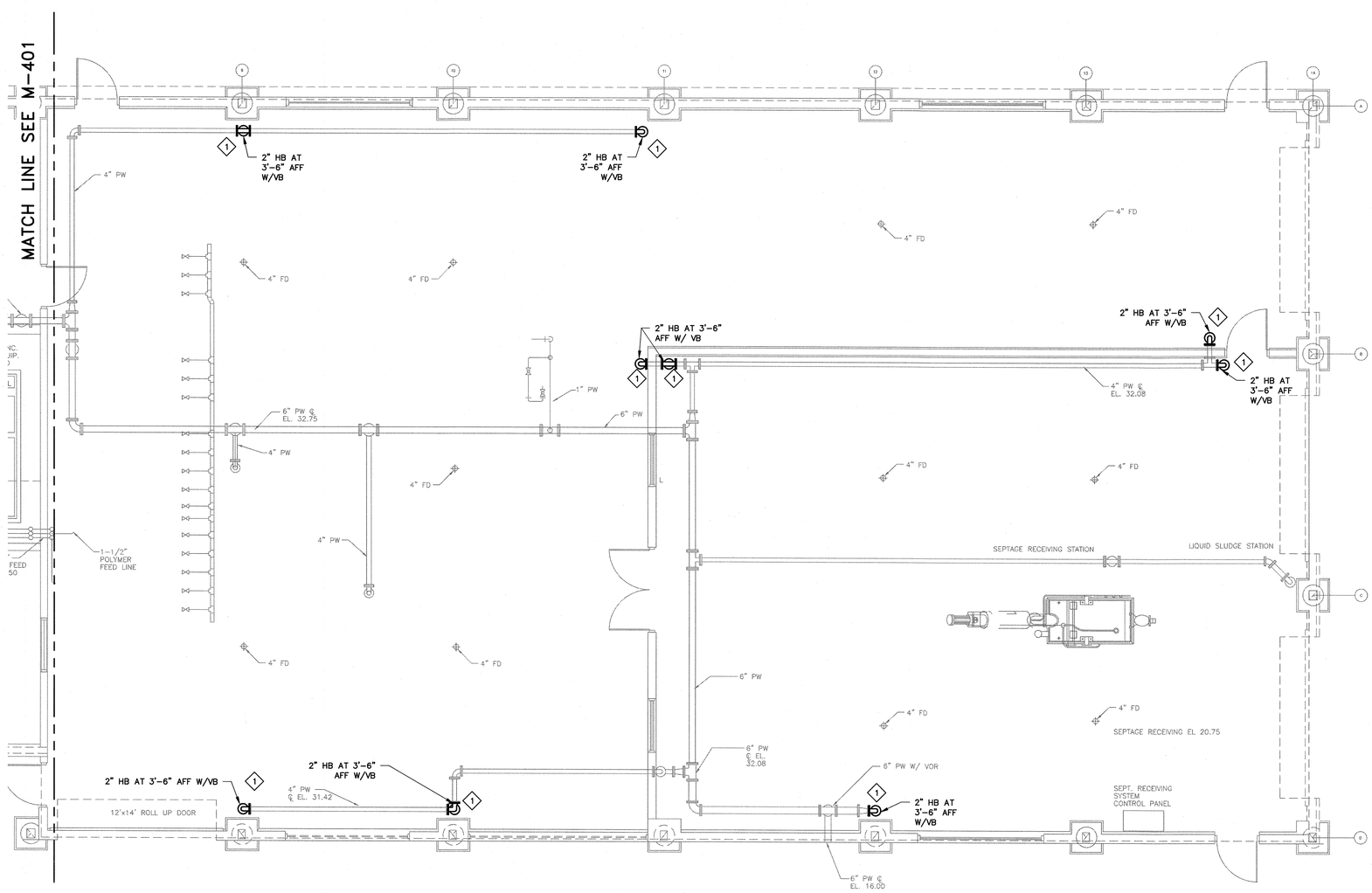
SOLIDS PROCESSING BUILDING
PROPOSED PLAN 1

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.:	229123.00
DATE:	SEPTEMBER 2016
SCALE:	AS NOTED
SHEET:	68 OF 116

M-401



SOLIDS PROCESSING BUILDING PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTE:

1. REPLACE COPPER PLANT WATER LINE BACK TO FLANGED FITTING. PROVIDE SCHEDULE 80 PVC DROP SAME SIZE AS EXISTING (2" ID) TO SAME HEIGHT ABOVE FINISH FLOOR AS EXISTING (TYP 9 PLACES). TOUCH UP PAINT ON ALL EXPOSED METALLIC PLANT WATER PIPING. PAINT AS SPECIFIED IN DIVISION 09.

6' 4' 2' 0 4' 8'

BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

ISSUED FOR BID

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 45462
REGISTERED PROFESSIONAL ENGINEER
9/23/16

REV	DESCRIPTION	DATE
DESIGNED BY: KF	CHECKED BY: MB	
DRAWN BY: DMB	229123\00-M-402.dwg	

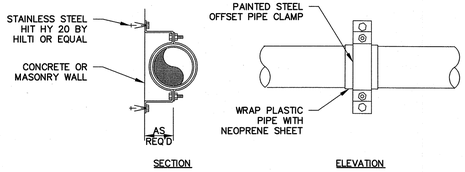
SOLIDS PROCESSING BUILDING
PROPOSED PLAN 2

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

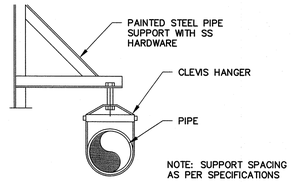
SURFSIDE WASTEWATER
TREATMENT FACILITY
UPGRADES

JOB NO.:	229123.00
DATE:	SEPTEMBER 2016
SCALE:	AS NOTED
SHEET:	69 OF 116

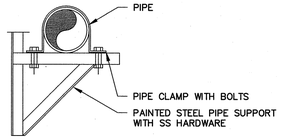
M-402



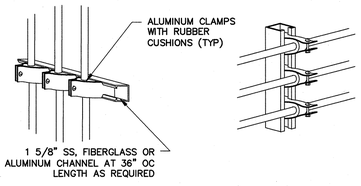
WALL PIPE SUPPORT
N.T.S.



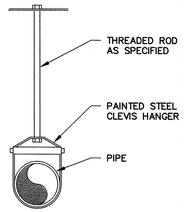
WALL, PIPE SUPPORT DETAIL
N.T.S.



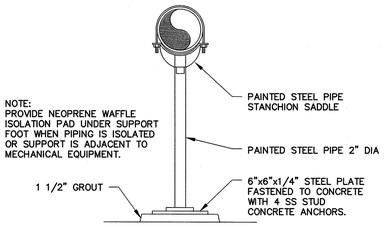
WALL PIPE SUPPORT DETAIL
N.T.S.



MULTIPLE PIPE SUPPORT DETAIL
N.T.S.

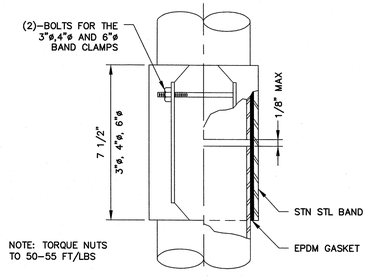


ROOF TRUSS PIPE SUPPORT DETAIL
(FOR PIPING LESS 4" IN DIAMETER)
N.T.S.

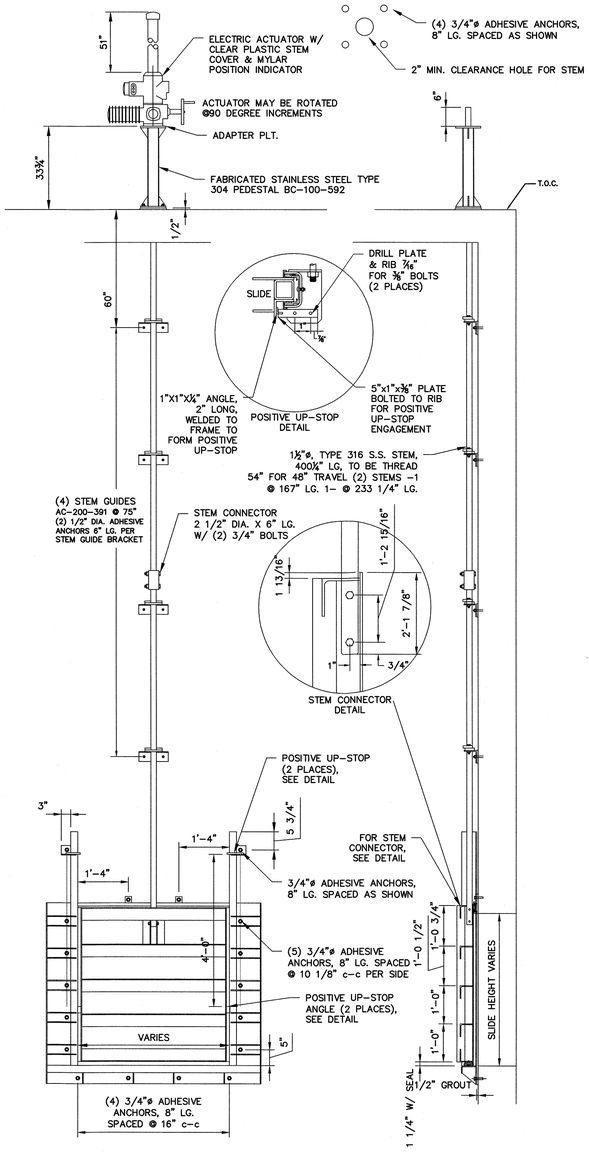


PIPE, FLOOR SUPPORT DETAIL
N.T.S.

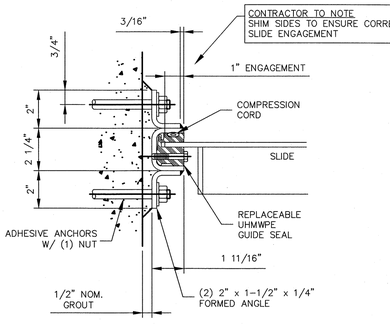
1 / M-801 — PIPE SUPPORT DETAILS
SCALE: N.T.S.



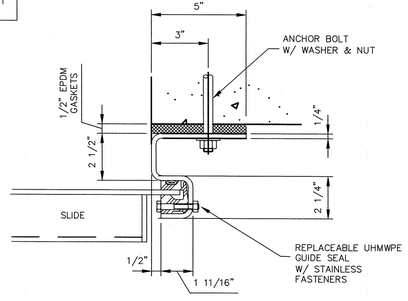
4 / M-803 — CLAMP COUPLING DETAIL
SCALE: N.T.S.



NON–SELF–CONTAINED SLIDE GATE DETAIL
SCALE: N.T.S.

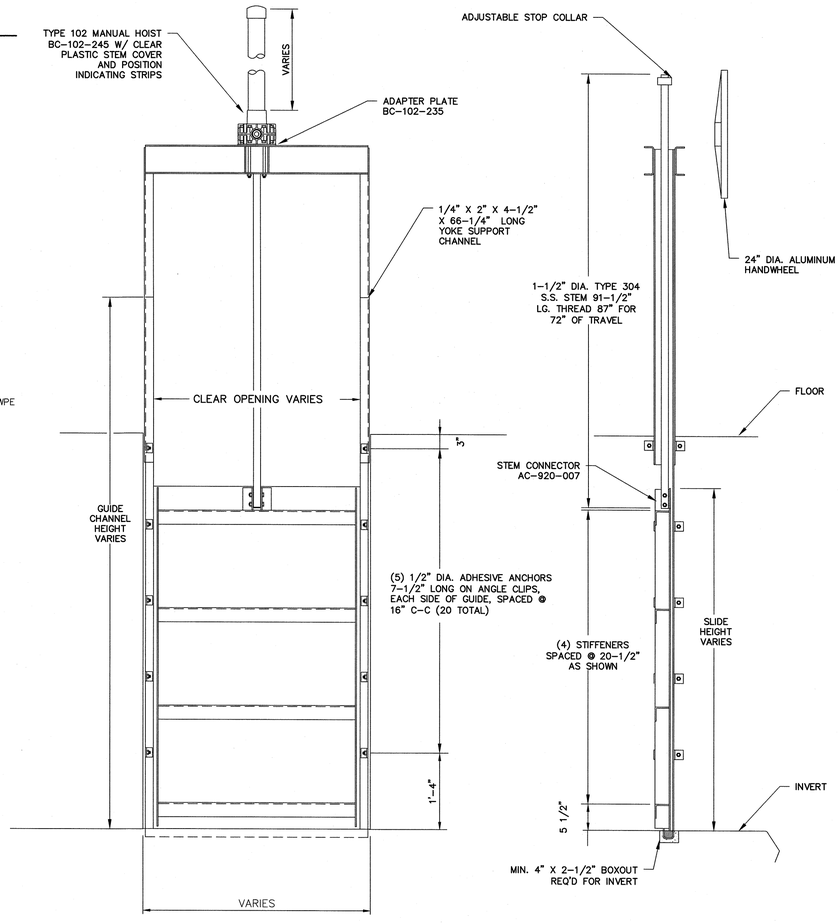


CHANNEL MOUNTED GUIDE SECTION
SCALE: N.T.S.



FACE MOUNTED GUIDE SECTION
SCALE: N.T.S.

Slide Gate Schedule									
Gate ID	DWG Ref.	Gate Material	Gate Size (in) (WxH)	Mounting Style	Frame Type	Actuator Style	Operator Floor El. (ft)	Invert El. (ft)	Min Seating/Unseating Head Rating (ft)
SG-1	M-305	304 SS	30"x36"	Channel Mount Sides/Face Mount Bottom	Self-Contained	Handwheel	26.50	22.10	
SG-2	M-305	304 SS	30"x36"	Channel Mount Sides/Face Mount Bottom	Self-Contained	Handwheel	26.50	22.10	
SG-3	M-305	304 SS	30"x36"	Channel Mount Sides/Face Mount Bottom	Self-Contained	Handwheel	26.50	22.10	
SG-4	M-305	304 SS	20"x20"	Face Mount	Self-Contained	Handwheel	26.50	17.17	8/8
SG-5	M-305	304 SS	20"x20"	Face Mount	Non-Self Contained	Electric	25.25	11.17	10/10
SG-6	M-305	304 SS	20"x20"	Face Mount	Non-Self Contained	Electric	25.25	11.17	10/10
SG-7	M-311	316 SS	24"x24"	Channel Mount Sides/Face Mount Bottom	Self-Contained	Handwheel	25.91	23.66	
SG-8	M-311	316 SS	24"x24"	Channel Mount Sides/Face Mount Bottom	Self-Contained	Handwheel	25.91	23.66	
SG-9	M-311	316 SS	24"x24"	Channel Mount Sides/Face Mount Bottom	Self-Contained	Handwheel	25.91	23.66	
SG-10	M-311	316 SS	12"x12"	Face Mount	Self-Contained	Handwheel	25.91	23.96	



SELF–CONTAINED SLIDE GATE DETAIL
SCALE: N.T.S.

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS — THOMAS F HAZLETT — CIVIL — No. 49462 — REGISTERED PROFESSIONAL ENGINEER — 9/23/16

REV	DESCRIPTION	DATE

DESIGNED BY: KF | CHECKED BY: MB
DRAWN BY: DMB | 2291230-M-801.dwg

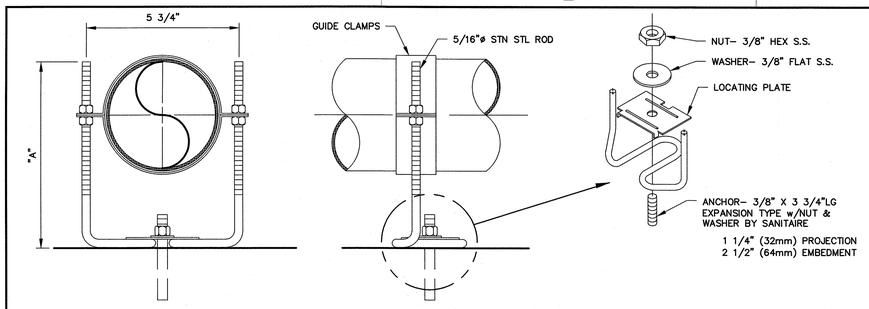
MECHANICAL DETAILS 1

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

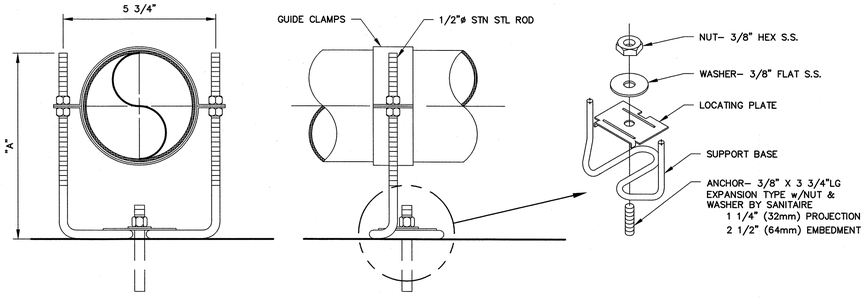
JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 70 OF 116

M-801



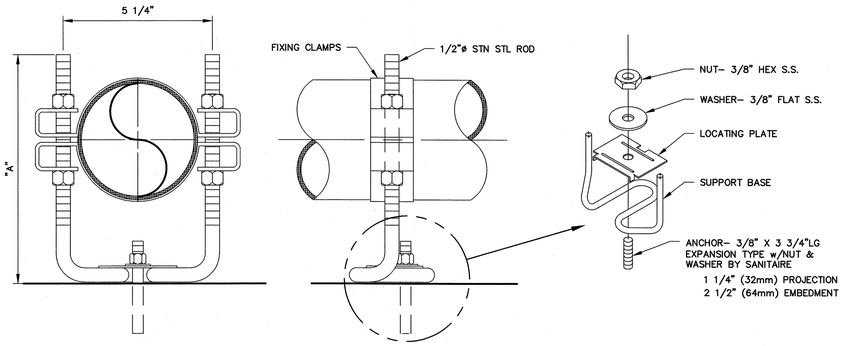
10 M-802 **GUIDE SUPPORT DETAIL 1**

SCALE: N.T.S.



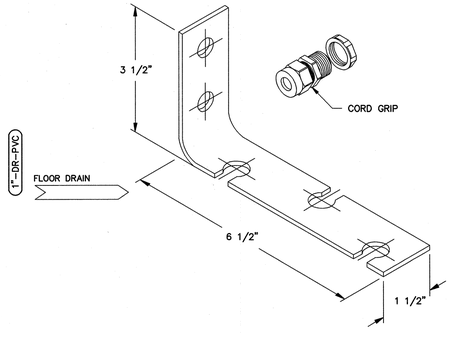
11 M-802 **GUIDE SUPPORT DETAIL 2**

SCALE: N.T.S.



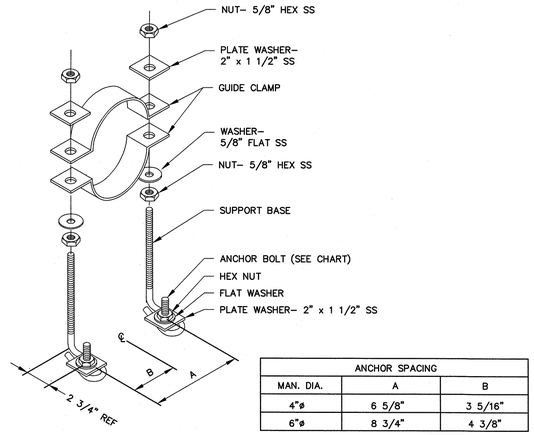
12 M-802 **ANCHOR SUPPORT DETAIL**

SCALE: N.T.S.



16 M-802 **FLOAT BRACKET DETAIL**

SCALE: N.T.S.
NOTE: BRACKETS AND FITTINGS VARY BY MANUFACTURER

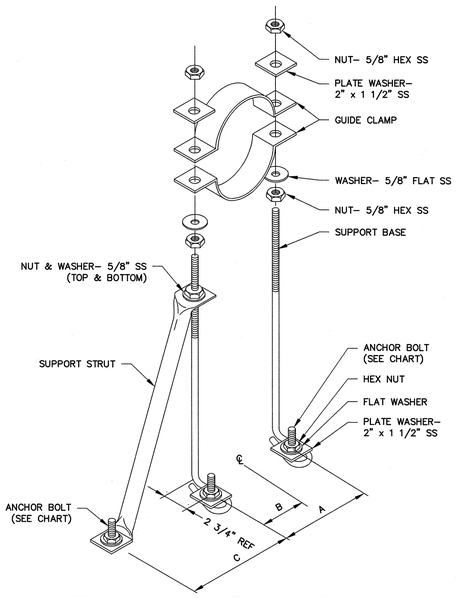


ANCHOR SPACING		
MAN. DIA.	A	B
4"ø	6 5/8"	3 5/16"
6"ø	8 3/4"	4 3/8"

MAN. IDENT	MAN. DIA.	SUPPORT BASE	GUIDE STRAP		PLATE WASHER	
			304	316	304	316
FB–4	4"	SEE DRAWINGS	CG4500–4	CG4500–6	2278–1W4	2278–1W6
FB–6	6"		CG6625–4	CG6625–6	2278–1W4	2278–1W6

13 M-802 **SIMPLE SUPPORT DETAIL 1**

SCALE: N.T.S.



ANCHOR SPACING		
MAN. DIA.	A	B
4"ø	6 5/8"	3 5/16"
6"ø	8 3/4"	4 3/8"
SUPPORT BASE		C
RSP–18S4 or RSP–18S6		5"
RSP–24S4 or RSP–24S6		9"
RSP–30S4 or RSP–30S6		1'–0"
RSP–36S4 or RSP–36S6		1'–4"
RSP–42S4 or RSP–42S6		1'–8"

IDENT MAN.	MAN. DIA.	SUPPORT BASE	SUPPORT STRUT	GUIDE STRAP		PLATE WASHER	
				304	316	304	316
FBS–4	4"	SEE DRAWINGS	SEE DRAWINGS	CG4500–4	CG4500–6	2278–1W4	2278–1W6
FBS–6	6"			CG6625–4	CG6625–6	2278–1W4	2278–1W6

17 M-802 **SIMPLE SUPPORT DETAIL 2**

SCALE: N.T.S.

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. HAZLETT
CIVIL
No. 49462
REGISTERED PROFESSIONAL ENGINEER
9/23/16

REV	DESCRIPTION	DATE
DESIGNED BY: KF	CHECKED BY: MB	
DRAWN BY: DMB	229123\00-M-802.dwg	

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

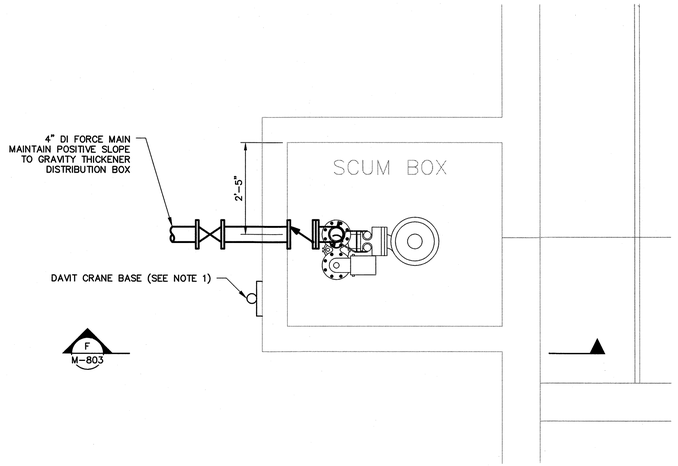
SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

MECHANICAL DETAILS 2

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 71 OF 116

M-802

22x34 SHEET
1:1



PRIMARY SCUM BOX PLAN VIEW

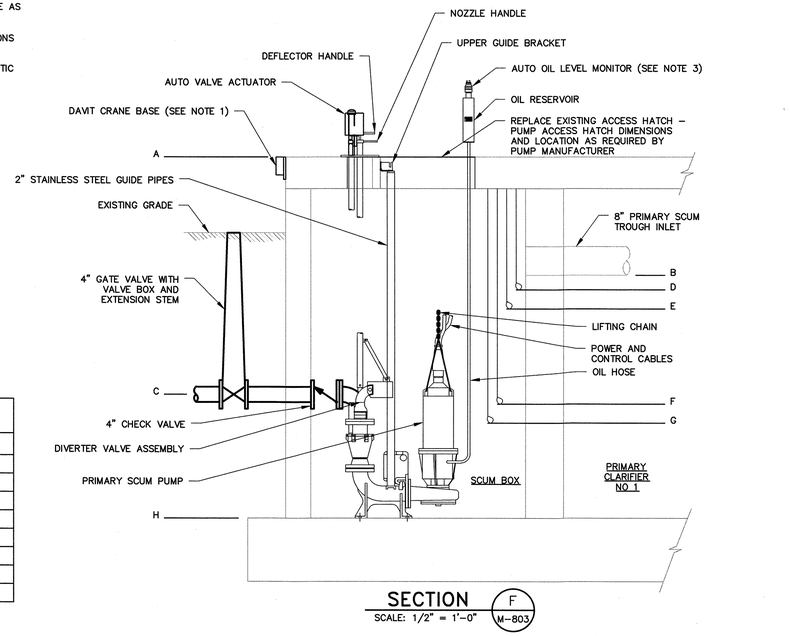
SCALE: 1/2" = 1'-0"

NOTES:

1. CONTRACTOR SHALL FIELD LOCATE WALL MOUNTED DAVIT CRANE BASE AS REQUIRED TO ENSURE EASY/NON-BINDING REMOVAL OF SCUM PUMP.
2. CONTRACTOR SHALL FIELD VERIFY EXISTING ELEVATIONS AND DIMENSIONS PRIOR TO SHOP DRAWING SUBMITTAL.
3. PROVIDE STAINLESS STEEL UNISTRUT ASSEMBLY TO SUPPORT AUTOMATIC OIL LEVEL MONITOR.
4. PUMP DOWN, PRESSURE WASH, AND CLEAN SCUM WELL PRIOR TO CONDUCTING MODIFICATIONS.

ELEVATION SCHEDULE	
PRIMARY SCUM PUMP SET POINTS	ELEVATION
TOP SLAB ELEVATION (A)	24.00
PRIMARY SCUM TROUGH INLET (B)	20.88
DISCHARGE CENTERLINE ELEVATION (C)	17.50
HIGH WATER ALARM ELEVATION (D)	20.50
PUMP ON ELEVATION (E)	20.00
PUMP OFF ELEVATION (F)	17.50
LOW WATER ALARM ELEVATION (G)	17.00
BASE ELEVATION (H)	14.50

NOTE: CONTRACTOR SHALL FIELD VERIFY EXISTING ELEVATIONS.



SECTION (F / M-803)

SCALE: 1/2" = 1'-0"

3' 2' 1' 0 2' 4'

BAR SCALE
1/2" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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COMMITMENT & INTEGRITY DRIVE RESULTS

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THOMAS F. HALLETT
CIVIL
No. 45482
REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE

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DRAWN BY: DMB | 229123M-803.dwg

MECHANICAL DETAILS 3

DEPARTMENT OF PUBLIC WORKS
NANTUCKET, MASSACHUSETTS

SURFSIDE WASTEWATER TREATMENT FACILITY UPGRADES

JOB NO.: 229123.00
DATE: SEPTEMBER 2016
SCALE: AS NOTED
SHEET: 72 OF 116

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22x34 SHEET
1:1