GENERAL

G 1 SCOPE
THE GENERAL NOTES AND TYPICAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY. ALL DETAILS SHOWN ON DRAWINGS S4 THROUGH S7 MAY NOT BE REQUIRED TO COMPLETE THE WORK.

G 2 PRECEDENCE
PROJECT SPECIFICATIONS SUPERSEDE THESE GENERAL NOTES, SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. SPECIFIC NOTES AND DETAILS ON DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.

G 3 DIMENSIONS
STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO THE MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION DIMENSIONS AND NOTIFYING OWNER'S REPRESENTATIVE OF DISCREPANCIES IN A TIMELY FASHION.

G 4 PROVISIONS FOR EQUIPMENT
MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DRAWINGS SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.

G 5 MEANS, METHODS & CONSTRUCTION LOADS
CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. CONTRACTOR IS RESPONSIBLE FOR MEANS, METHODS AND SEQUENCE OF CONSTRUCTION, AND SHALL MAKE ADEQUATE PROVISION TO MAINTAIN THE INTEGRITY OF ALL STRUCTURES AT ALL STAGES OF CONSTRUCTION. DETERMINATION OF AND PROVISIONS FOR CONSTRUCTION LOADING SHALL BE PROVIDED BY THE CONTRACTOR.

G 6 SAFETY
CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO ENSURE THE SAFETY OF WORKERS AND VISITORS TO THE SITE, INCLUDING BUT NOT LIMITED TO SHORING, BRACING AND ACCESS RESTRICTION. COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY CODES AND STANDARDS.

G 7 LIVE LOAD SIGNS
LIVE LOAD SIGNS SHALL BE PROVIDED IN AREAS DESIGNATED BY THE ENGINEER OR REQUIRED BY THE BUILDING OFFICIAL. SIGNS SHALL BE AS REQUIRED IN THE SPECIFICATIONS.

G 8 DRAINAGE SURFACES
SLOPE DRAINAGE SURFACES UNIFORMLY TO DRAIN. SLOPE SHALL BE 1/8" TO 1/4" PER FOOT EXCEPT WHERE NOTED OTHERWISE ON THE PLANS

G 9 FLOOR DRAINS
SEE MECHANICAL DRAWINGS FOR LOCATIONS AND SIZES.

G 10 OPENINGS
OPENINGS THROUGH NEW AND EXISTING WALLS AND SLABS FOR PIPES, DUCTS, CONDUITS, ETC., ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL PROVIDE THESE OPENINGS IN ACCORDANCE WITH THE OTHER CONTRACT DRAWINGS. REINFORCEMENT AROUND OPENINGS FOR NEW WALLS AND SLABS SHALL BE PER DETAIL A AND B/S5. UNLESS OTHERWISE SHOWN, SEE NOTE M10 FOR CONSTRUCTION OF OPENINGS IN EXISTING WALLS AND SLABS.

DESIGN CRITERIA

D 1 GOVERNING BUILDING CODE
2007 OREGON STRUCTURAL SPECIALTY CODE. THE ABOVE SHALL GOVERN EXCEPT WHERE OTHER APPLICABLE CODES OR CONTRACT PROVISIONS ARE MORE RESTRICTIVE.

D 2 GRAVITY LIVE LOADS
1. EQUIPMENT AREA.....150 PSF
.....OR EQUIPMENT PLUS 50 PSF
2. GRATING, CHECKERED PLATES AND HATCHES.....SAME LOADINGS
.....AS ADJACENT FLOOR AREAS
3. TRUCK TRAFFIC AREAS.....250 PSF
.....OR H-20 LOADING
4. STAIRS.....100 PSF

D 3 ROOF SNOW LOAD

FLAT ROOF SNOW LOAD	Pf = 25PSF (MIN)
GROUND SNOW LOAD	Pg = 10 PSF
SNOW EXPOSURE FACTOR	Ce = 1.00
SNOW IMPORTANCE FACTOR	Is = 1.10
THERMAL FACTOR	Ct = 1.00

D 4 WIND, BASIC WIND SPEED (3 - SEC GUST) .....110 MPH

EXPOSURE	B
WIND IMPORTANCE FACTOR	I = 1.15
ENCLOSURE CLASSIFICATION	ENCLOSED

D 5 SEISMIC (OSCC):

MCE ACCELERATION, SHORT PERIOD	Ss = 0.69
MCE ACCELERATION, 1-SEC PERIOD	S1 = 0.34
SITE CLASS	D
SITE COEFFICIENT, SHORT PERIOD	Fa = 1.25
SITE COEFFICIENT, 1-SEC PERIOD	Fv = 1.72
DESIGN ACCEL, SHORT PERIOD	Sds = 0.57
DESIGN ACCEL, 1-SEC PERIOD	Sd1 = 0.39
SEISMIC DESIGN CATEGORY	D
SEISMIC IMPORTANCE FACTOR	I_E=1.25, Ip=1.0

FOUNDATION

F 1 DESIGN BASIS
FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS CONTAINED IN A GEOTECHNICAL REPORT DATED MARCH 21, 2008 BY GEODESIGN, PROJECT NUMBER BROWNCALD-42-01. CONTRACTOR SHALL FOLLOW THE PROJECT SPECIFICATIONS AND TAKE INTO CONSIDERATION RECOMMENDATIONS CONTAINED IN THE REPORT. NOTIFY THE ENGINEER OF CONFLICTS BETWEEN SPECIFICATIONS AND THE REPORT RECOMMENDATIONS FOR RESOLUTION.

F 2 ALLOWABLE BEARING PRESSURE
SHALLOW FOUNDATIONS ESTABLISHED IN THE INTERBEDDED CLAY, SILT, SAND, AND GRAVEL HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 2,500 PSF. OTHER SOIL LOADING AND BEARING CHARACTERISTICS ARE DESCRIBED IN THE REPORT.

F 3 DIFFERING CONDITIONS
FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION WHICH DIFFER FROM THOSE INDICATED IN THE REPORT SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. CONTRACTOR IS RESPONSIBLE FOR REPLACING WORK CONDUCTED AFTER SUCH NOTIFICATION BUT BEFORE OWNER'S REPRESENTATIVE PROVIDES ADDITIONAL DIRECTIONS.

F 4 EXCAVATION, DEWATERING & SAFETY
CONTRACTOR SHALL PROVIDE FOR ALL DE-WATERING OF EXCAVATIONS, AND DESIGN / PROVIDE ALL CRIBBING, SHORING AND BRACING REQUIRED FOR SAFETY AND TO ALLOW CONSTRUCTION OF THE WORK PRESENTED HEREIN.

ALUMINUM

A 1 APPLICABLE CODES
ALUMINUM CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE ALUMINUM CONSTRUCTION MANUAL OF THE ALUMINUM ASSOCIATION.

A 2 MATERIAL
UNLESS OTHERWISE INDICATED, STRUCTURAL ALUMINUM SHALL BE ALLOY 6061-T6 AS SPECIFIED IN ASTM B-221.

A 3 ALUMINUM IN CONTACT WITH CONCRETE
WHERE ALUMINUM IS IN CONTACT WITH CONCRETE OR MASONRY SURFACES, CONTACT SURFACE SHALL BE COATED WITH HEAVY ALKALI-RESISTANT BITUMINOUS PAINT.

A 4 FALL PROTECTION DEVICES
PROVIDE RETRACTABLE WEBBED SAFETY NET COMPLYING WITH OSHA AND LOCAL CODES AT ACCESS HATCHES WITH 5 FEET CLEAR TO FLOOR OR LANDING BELOW. HATCH NET 121 BY SAFE APPROACH, INC.; HATCH SAFETY NET BY USF FABRICATION; OR EQUAL.

CONCRETE

C 1 APPLICABLE CODE AND MIX DESIGN
CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE ACI BUILDING CODE(ACI 318 BUILDINGS AND ACI 350 LIQUID RETAINING). MIX DESIGNS SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OREGON.

C 2 REINFORCING STEEL DETAILS
ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI-315), LATEST EDITION.

C 3 DESIGN STRENGTH
1. CONCRETE.....f'c=4,500 PSI
ULTIMATE COMPRESSIVE STRESS AT 28 DAYS
2. REINFORCING STEEL.....ASTM A-615, GRADE 60
DEFORMED BARS UNLESS OTHERWISE NOTED

C 4 CONCRETE COVER
CONCRETE COVER FOR REINFORCING BARS SHALL CONFORM TO ACI 350 AND AS FOLLOWS WITH MINIMUM COVER OF ONE BAR DIAMETER.
1. FOOTING AND FOUNDATION MATS CAST ON GROUND.....3"
2. CONCRETE IN CONTACT WITH SEWAGE OR WATER
PRINCIPAL REINFORCEMENT.....2-1/2"
STIRRUPS & TIES.....2"
3. CONCRETE IN CONTACT WITH GROUND OR WEATHER
a. SLAB AND JOISTS
BARS GREATER THAN #5.....2"
BARS #5 OR LESS.....1-1/2"
b. BEAMS AND COLUMNS
STIRRUPS AND TIES.....2"
PRINCIPAL REINFORCEMENT.....2-1/2"
4. CONCRETE NOT TO BE EXPOSED TO GROUND, WEATHER OR LIQUID
BEAMS AND COLUMNS.....1-1/2"
SLABS, WALLS AND JOISTS.....1"

C 5 MINIMUM REINFORCING
CONCRETE CONSTRUCTION SHALL BE REINFORCED CONCRETE EXCEPT WHERE PLAIN CONCRETE IS INDICATED ON THE DRAWINGS. UNLESS OTHERWISE NOTED, MINIMUM REINFORCING STEEL SHALL BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING SCHEDULES:

SLAB THICKNESS	SIZE	SPACING E.W.	LOCATION
4"	#3	12"	CENTERED
5"	#4	12"	CENTERED
6"	#4	12"	CENTERED
8"	#4	12"	T & B
9"	#4	12"	T & B
10"	#4	12"	T & B
12"	#5	12"	T & B

WALL THICKNESS	SIZE	SPACING E.W.	LOCATION
6"	#4	12"	CENTERED
8"	#5	12"	CENTERED
10"	#4	12"	E F
12"	#5	12"	E F
14"	#5	12"	E F
16"	#6	12"	E F
18"	#6	12"	E F

MASS CONCRETE SHALL BE REINFORCED WITH #6 @ 12" E.W. MINIMUM IN ALL FACES. HIGHER MINIMUM STEEL IS PROVIDED IN WATER CONTAINING STRUCTURES.

C 6 EXTRA ACCESSORY BARS
IN ADDITION TO NORMAL ACCESSORIES USED TO HOLD REINFORCING STEEL FIRMLY IN POSITION, EXTRA ACCESSORY BARS SHALL BE USED AS FOLLOWS:
1. IN SLABS, #5 RAISER BARS AT 36" ON CENTER MAXIMUM TO SUPPORT TOP REINFORCING STEEL.
2. IN WALLS WITH TWO CURTAINS #3 U OR Z-SHAPE SPACERS AT 6'-0 " ON CENTER EACH WAY.

C 7 BAR DEVELOPMENT AND LAP SPLICE LENGTH
ALL DEVELOPMENT AND SPLICE LENGTHS SHALL BE PER ACI 318-02. MINIMUMS FOR f'c=4,500 PSI, fy=60,000 PSI, CLEAR SPACING GREATER OR EQUAL TO 3 BAR DIAMETER, MINIMUM COVER PER NOTE C4, AND CLASS B SPLICES, UNCOATED, SHALL BE AS IN TABLE BELOW:

BAR SIZE	DEVELOPMENT LENGTH		SPLICE LENGTH	
	TOP BARS	OTHER	TOP BARS	OTHER
#3 - #6	47 DIA	36 DIA	61 DIA	47 DIA
#7	4'-3"	3'-4"	5'-6"	4'-4"
#8	4'-11"	3'-9"	6'-4"	4'-10"
#9	5'-6"	4'-3"	7'-1"	5'-6"
#10	6'-1"	4'-8"	7'-10"	6'-0"
#11	6'-8"	5'-2"	8'-8"	6'-8"

C 8 WELDING REINFORCING BARS
IF APPROVED BY THE CONSTRUCTION MANAGER, REINFORCING MAY BE WELDED IN ACCORDANCE WITH WITH AWS SPECIFICATION D1.4 AND DETAIL F/S-05. ALL REINFORCING TO BE WELDED SHALL CONFORM TO ASTM A706.

C 9 STANDARD HOOKS
BARS ENDING IN RIGHT ANGLE BENDS OR HOOKS SHALL CONFORM TO THE REQUIREMENTS OF PARAGRAPH 7.1, ACI-318. PROVIDE STANDARD HOOK IN BARS WHICH TERMINATE AT WALL OR SLAB INTERSECTIONS THAT PROVIDE LESS THAN THE SPECIFIED DEVELOPMENT LENGTH.

C 10 GROUND SUPPORTED SLABS & FOUNDATIONS
UNLESS OTHERWISE SPECIFIED OR NOTED ON THE DRAWINGS, CONFORM TO THE FOLLOWING:
1. CONCRETE SLABS SUPPORTED BY GROUND SHALL BE 6" THICK REINFORCED WITH #5 @ 12 E.W. CENTERED AT THE MID-DEPTH OF SLAB. PROVIDE ½" PREMOLDED JOINT FILLER AT WALLS AND COLUMNS TO PROVIDE SEPARATION BETWEEN THE SLAB AND WALLS AND COLUMNS.
2. CONCRETE SLABS SUPPORTING PROCESS EQUIPMENT, PREFABRICATED BUILDINGS AND OTHER MINOR STRUCTURES SHALL BE 8" THICK WITH #5 @ 12 E.W. CENTERED, WITH EDGES THICKENED TO BELOW FROST DEPTH GRADE AS SET BY THE LOCAL BUILDING JURISDICTION. PROVIDE (2) #5 x CONTINUOUS IN TURNED DOWN SECTION, ALL AROUND.

C 11 CHAMFERS
EXCEPT AS OTHERWISE REQUIRED, EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE ¾" CHAMFERS. RE-ENTRANT CORNERS SHALL NOT HAVE FILLETS.

C 12 ANCHOR BOLTS
ANCHOR BOLTS SHALL BE ASTM A320 TYPE 316 MATERIAL UNLESS OTHERWISE NOTED. EMBEDMENT, EDGE DISTANCES AND ALLOWABLE LOADS SHALL CONFORM TO OSCC TABLE 1912.2 OR AS NOTED ON THE DRAWINGS.

C 13 COMPATIBLE FINISHES
CURING COMPOUNDS AND OTHER SURFACE TREATMENTS, CONCRETE ADMIXTURES AND SUB-SLAB DRAINAGE SHALL BE REVIEWED BY CONTRACTOR AND CERTIFIED COMPATIBLE WITH FINISHES TO BE APPLIED LATER IN THE CONSTRUCTION SEQUENCE.

C 14 CONDUITS AND PIPES EMBEDDED IN CONCRETE
ALL CONDUITS AND PIPES EMBEDDED WITHIN A CONCRETE SLAB OR WALL SHALL BE PER DETAIL C/S6.

BROWN AND CALDWELL
PORTLAND, OREGON
SUBMITTED: _____ DATE: _____ PROJECT MANAGER
APPROVED: _____ DATE: _____ BROWN AND CALDWELL

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)
DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS

EXTERNAL REFERENCE FILES

RECORD DRAWING
THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWING TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	RECORD DRAWING	REK	06-10	

Metropolitan Wastewater Management Commission
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ODOROUS AIR TREATMENT EXPANSION
STRUCTURAL
GENERAL NOTES

FILENAME 133842-S-001
BC PROJECT NUMBER 133842
SCALE AS SHOWN
DRAWING NUMBER S1
SHEET NUMBER 35 OF 100

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June 18, 2010 27.93

MASONRY

MA 1 MASONRY STRENGTH
MASONRY UNITS, MORTAR AND GROUT SHALL CONFORM TO SPECIFICATIONS AND OSSC TABLE 2105.2.2.1.2, AND ACHIEVE f'm = 1,500 PSI MINIMUM. DESIGN UTILIZES FULL STRESSES. SPECIAL INSPECTION IS REQUIRED.

MA 2 QUALITY CONTROL
IN ADDITION TO SPECIFICATIONS, CONTRACTOR SHALL CONFORM MASONRY WORK TO OSSC SECTION 2104 "CONSTRUCTION" AND 2105 "QUALITY ASSURANCE."

MA 3 REINFORCING
REINFORCING SHALL CONFORM TO CONCRETE REINFORCING SPECIFICATIONS. MINIMUM LAPS (40) BAR DIAMETERS.

MA 4 MASONRY PROTECTION
PROTECT ALL MASONRY UNITS, AGGREGATE, MORTAR, AND EMBEDDED ITEMS STORED AT THE JOBSITE FROM THE ELEMENTS.

MA 5 MASONRY WALL DIMENSIONING
DIMENSIONS SHOWN FOR MASONRY WALL LOCATIONS ARE NOMINAL DIMENSIONS. DIMENSIONS SHOWN FOR MASONRY WALL OPENINGS ARE MODULAR DIMENSIONS WITH ACTUAL ROUGH OPENING DIMENSION BEING MODULAR DIMENSION PLUS 3/8 INCH (JOINT WIDTH).

MISCELLANEOUS METALWORK

ST 1 APPLICABLE CODE
STEEL CONSTRUCTION SHALL CONFORM TO SPECIFICATIONS AND STANDARDS PRESENTED IN THE 13TH EDITION OF THE AISC STEEL CONSTRUCTION MANUAL.

ST 2 MATERIALS
1. SUBMIT CERTIFIED MILL TEST REPORTS TO OWNER'S REPRESENTATIVE FOR REVIEW.
2. STEEL WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992. OTHER SHAPES AND PLATES SHALL CONFORM TO ASTM A36.
3. STRUCTURAL PIPE SHALL CONFORM TO ASTM A53 TYPES E OR S GRADE B, OR A500 GRADE A. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.
4. ALL STAINLESS STEEL SHALL BE TYPE 316 MEETING ASTM A276 UNLESS OTHERWISE SPECIFIED.

ST 3 WELDING
1. WELDING SHALL CONFORM TO AWS D1.1-1 AND AISC 341-02.
2. ELECTRODES FOR SHOP AND FIELD WELDS SHALL CONFORM TO AWS A5.1 OR A5.5 , CLASS E70XX.
3. SUBMIT WELD PROCEDURES AND WELDER CERTIFICATIONS TO CONSTRUCTION MANAGER FOR REVIEW.
4. STAINLESS STEEL WELDING SHALL CONFORM TO AWS D1.6 WITH A5.4 OR A5.9 ELECTRODES.

ST 4 BOLTS
STRUCTURAL BOLTS SHALL CONFORM TO ASTM A325N UNLESS MACHINE BOLTS, A-307, ARE NOTED ON THE DRAWINGS. HIGH STRENGTH BOLTS SHALL BE FULLY TENSIONED UNLESS CONNECTING HSS SHAPES OR OTHERWISE NOTED.

ST 5 PAINTING
STRUCTURAL STEEL SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATIONS. SHOP PRIMER SHALL BE COMPATIBLE WITH FINISH COATINGS.

MODIFICATION OF EXISTING STRUCTURES

M 1 BONDING NEW CONCRETE TO EXISTING
EXISTING CONCRETE SURFACES TO BE JOINED WITH NEW CONCRETE SHALL BE THOROUGHLY CLEANED BY SANDBLASTING AND COATED WITH EPOXY BONDING COMPOUND JUST PRIOR TO PLACEMENT OF NEW CONCRETE.

M 2 EXPOSED EDGES AT REMOVED CONCRETE
SURFACES EXPOSED TO VIEW SHALL BE NEATLY SAW CUT TO A DEPTH OF 1" PRIOR TO REMOVING THE EXISTING CONCRETE. HIDDEN SURFACES SHALL RECEIVE A TOOLED JOINT BETWEEN NEW AND EXISTING CONCRETE.

M 3 ADHESIVE DOWELED REINFORCING
DOWELS SHALL BE ANCHORED USING ADHESIVE PER DETAIL E/S4. WHEN THE HOLES ARE IN HORIZONTAL DIRECTION THEY SHALL BE DRILLED SLIGHTLY DOWNWARD (APPROX 15deg). WHEN OVERHEAD HOLES ARE REQUIRED, CAPSULE ANCHOR BOLTS SHALL BE USED.

M 4 OPENINGS TO REMAIN OPEN
NEW OPENINGS IN EXISTING CONCRETE SHALL BE CUT 2" OVERSIZE AND FINISHED TO THE REQUIRED FINISH SIZE WITH PROFILING MORTAR.

M 5 WATERSTOP AT EXISTING CONCRETE
WHERE WATERSTOP BETWEEN NEW AND EXISTING CONCRETE IS REQUIRED, CONTRACTOR SHALL CUT SUITABLE GROOVE IN THE EXISTING CONCRETE AND INSTALL WATERSTOP WITH NON-SHRINK EPOXY GROUT PRIOR TO CONCRETE WORK. HYDROPHYLLIC WATERSTOPS SHALL ONLY BE USED WHERE SPECIFICALLY DETAILED ON THE DRAWINGS.

M 6 RESTORATION OF EXISTING CONCRETE FLOORS
WHERE CURBS, EQUIPMENT PADS, OR OTHER CONCRETE ARE REMOVED FROM SLABS TO REMAIN EXPOSED FINISH AS FOLLOWS. NEATLY SAWCUT PERIMETER 3/8 INCH DEEP ALL AROUND. GRIND REINFORCING STEEL BACK 1/2 INCH FROM FINAL SURFACE LINE AND CHIP BACK CONCRETE 1/4 INCH FROM SAME, LEAVE SURFACE ROUGH. APPLY PROFILING MORTAR PER MANUFACTURER'S RECOMMENDATIONS AND FINISH TO MATCH ADJACENT BUT WITH TOOLED EDGE AT ORIGINAL SAWCUT ADJACENT TO EXISTING SURFACE WHICH REMAINS.

CIRCULAR FLAT ALUMINUM COVERS

AC 1 EACH OVER SHALL BE DESIGNED FOR FULL DEAD-LOAD (INCLUDING DUCT WORK) PLUS THE FOLLOWING LIVE-LOAD CONDITIONS:

1. SYMMETRICAL LOADING OF 40 PSF OVER THE TOTAL ENCLOSED AREA, INCLUSIVE OF AN INTERNAL NEGATIVE PRESSURE OF 0.2 INCH WATER COLUMN.

2. ASYMMETRICAL LOADING OF 30 PSF OVER THE PROJECTED AREA OF ONE-HALF THE COVER, ANYWHERE AROUND THE COVER.

3. AN ISOLATED LOAD OF 400 POUNDS APPLIED TO ONE SQUARE FOOT AT ANY POINT ON THE COVER.

4. SEE SPECIFICATION 05601 FOR ADDITIONAL STRUCTURAL REQUIREMENTS/ DESIGN CRITERIA.

SPECIAL INSPECTIONS

SI 1 GENERAL AND NON-STRUCTURAL ITEMS

1. SPECIFICATION SECTION 01431 DESCRIBES OWNER-FURNISHED TESTING LABORATORY SAMPLING, TESTING AND REPORTING FOR SPECIAL INSPECTION.
2. CONTRACTOR SHALL TIMELY NOTIFY CONSTRUCTION MANAGER REQUESTING SPECIAL INSPECTION, AND SHALL PROVIDE REASONABLE AND CUSTOMARY ACCESS TO THE WORK AND ASSISTANCE TO FACILITATE SAMPLING.
3. MECHANICAL AND ELECTRICAL COMPONENTS, PERIODIC SPECIAL INSPECTION FOR:
   A. ANCHORAGE OF ELECTRICAL EQUIPMENT.
   B. EMERGENCY AND STANDBY POWER SYSTEMS.
   C. INSTALLATION OF COMPONENTS WHERE THE COMPONENT IMPORTANCE FACTOR IS 1.5 IN ACCORDANCE WITH SECTION 9.6.1 OF ASCE 7.
   D. ELECTRICAL MOTORS AND MOTOR CONTROL CENTERS.
   E. PIPING DISTRIBUTION SYSTEMS 3 INCHES AND LARGER.
   F. TANKS, HEAT EXCHANGERS AND PRESSURE VESSELS.

SI 2 STRUCTURE FILL

PROVIDE SPECIAL INSPECTION OF FILL MATERIALS, PLACING AND COMPACTION ONLY AS NOTED ON THE DRAWINGS. OTHER INSPECTIONS, INCLUDING MATERIAL VERIFICATION AND COMPACTION TESTING ARE SPECIFIED IN SECTION 02200.

SI 3 CAST IN PLACE ANCHOR BOLTS

PERIODIC, VISUAL INSPECTION AS TO SIZE, NUMBER, SPACING GENERALLY, ATTACHMENT, AND MATERIAL TYPE. INSPECT ALL ANCHOR BOLTS FOR BUILDING STRUCTURAL COMPONENTS AND INSTALLED EQUIPMENT FOR SEISMIC AND LATERAL FORCE RESISTANCE.

SI 4 POST-INSTALLED CONCRETE ANCHORS

1. VERIFY THAT A REVIEWED AND ACCEPTED ICBO EVALUATION REPORT FOR EACH ANCHOR TYPE IS ON SITE PRIOR TO INSTALLATION.
2. PERIODIC, VISUAL INSPECTION AS TO SIZE, SPACING AND ATTACHMENT PER THE DRAWINGS AND SPECIFICATIONS, AND AS REQUIRED BY ICBO EVALUATION REPORTS.

STRUCTURAL OBSERVATION

COORDINATE STRUCTURES TO RECEIVE STRUCTURAL OBSERVATION WITH OWNER'S REPRESENTATIVE. NOTIFY ENGINEER AT LEAST 48 HOURS BEFORE A DESIGNATED WORK IS TO BE COVERED.

ITEM	DESCRIPTION
1. FOUNDATIONS	- REINFORCING STEEL
2. SLABS	- REINFORCING STEEL
3. CONCRETE WALLS	- REINFORCING STEEL
4. FINAL	- SUBSTANTIAL COMPLETION

STRUCTURAL DEFERRED SUBMITTALS

CONTRACTOR TO SUBMIT DRAWINGS AND CALCULATIONS BEARING THE SEAL OF A PROFESSIONAL ENGINEER LICENSED IN OREGON TO OWNER'S REPRESENTATIVE BEFORE SUBMITTING TO JURISDICTION FOR REVIEW AND PERMITTING.

ITEM
1. CONCRETE MIX DESIGN
2. SHEETING, SHORING, AND BRACING
3. ALUMINUM COVER SYSTEM
4. ATTACHMENT OF MECHANICAL UNITS TO SUPPORT

BROWN AND CALDWELL
PORTLAND, OREGON

SUBMITTED: _____ DATE: _____ (PROJECT MANAGER)
APPROVED: _____ DATE: _____ (BROWN AND CALDWELL)

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS

EXTERNAL REFERENCE FILES

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REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	RECORD DRAWING	REK	06-10	

Metropolitan Wastewater Management Commission
partners in wastewater management

ODOROUS AIR TREATMENT EXPANSION
STRUCTURAL
GENERAL NOTES, STRUCTURAL OBSERVATIONS, AND SPECIAL INSPECTIONS

FILENAME 133842-S-002
BC PROJECT NUMBER 133842
SCALE AS SHOWN
DRAWING NUMBER **S2**
SHEET NUMBER 36 OF 100

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June 18, 2010 25.38

STRUCTURAL STEEL

Verification and Inspection[1]	Continuous	Periodic	Referenced standard	IBC Reference
1. Material verification of high-strength bolts, nuts and washers:				
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	-	X	Applicable ASTM material specifications; AISC 360, Section A3.3	-
b. Manufacturer's certificate of compliance required.	-	X	-	-
2. Inspection of high strength bolting:				
a. Bearing-type connections.	-	X	AISC 360, Section M2.5	1704.3.3
b. Slip-critical connections.	X	X		
3. Material verification of structural steel:				
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	-	-	ASTM A6 or ASTM A568	1708.4
b. Manufacturers' certified mill test reports.	-	-	ASTM A 6 or ASTM A 568	
4. Material verification of weld filler materials:				
a. Identification markings to conform to AWS specification in the approved construction documents.	-	-	AISC 360 Section A3.5	-
b. Manufacturer's certificate of compliance required.	-	-	-	-
5. Inspection of welding: a. structural welding:	-	-		
1) Complete and partial penetration groove welds.	X	-	AWS D1.1	1704.3.1
2) Multipass fillet welds.	X	-		
3) Single-pass fillet welds > 5/16”	X	-		
4) Single-pass fillet welds < 5/16”	-	X		

[1] reference IBC Table 1704.3. Required Verification and Inspection of Steel Construction.

GROUTED AND REINFORCED MASONRY

Level 1 - Inspection Task[1]	Frequency of inspection: Continuous during task listed	Frequency of inspection: Periodically during task listed	Reference for criteria: IBC section	Reference for criteria: ACI 530/ ASCE 5/ TMS 402[a]	Reference for criteria: ACI 530.1/ ASCE 6/ TMS 602[a]
1. As masonry construction begins, the following shall be verified to ensure compliance:					
a. Proportions of site-prepared mortar.	-	X	-	-	Art. 2.6A
b. Construction of mortar joints.	-	X	-	-	Art. 3.3B
c. Location of reinforcement, connectors, prestressing tendons and anchorages.	-	X	-	-	Art. 3.4, 3.6A
d. Prestressing technique.	-	X	-	-	Art. 3.6B
e. Grade and size of prestressing tendons and anchorages.	-	X	-	-	Art. 2.4B, 2.4H
2. The inspection program shall verify:					
a. Size and location of structural elements.	-	X	-	-	Art. 3.3G
b. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.	-	X	-	Sec. 1.2.2(e), 2.1.4, 3.1.6	-
c. Specified size, grade and type of reinforcement.	-	X	-	Sec. 1.13	Art. 2.4, 3.4
d. Welding of reinforcing bars.	X	-	-	Sec. 2.1.10.7.2, 3.3.3.4(b)	-
e. Protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F).	-	X	Sec. 2104.3, 2104.4	-	Art. 1.8C, 1.8D
f. Application and measurement of prestressing force.	-	X	-	-	Art. 3.6B
3. Prior to grouting, the following shall be verified to ensure compliance:					
a. Grout space is clean.	-	X	-	-	Art. 3.2D
b. Placement of reinforcement and connectors and prestressing tendons and anchorages.	-	X	-	Sec. 1.13	Art. 3.4
c. Proportions of site-prepared grout and prestressing grout for bonded tendons.	-	X	-	-	Art. 2.6B
d. Construction of mortar joints.	-	X	-	-	Art. 3.3B
4. Grout placement shall be verified to ensure compliance with code and construction document provisions.	X	-	-	-	Art.3.5
a. Grouting of prestressing bonded tendons.	X	-	-	-	Art. 3.6C
5. Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed.	X	-	Sec. 2105.2.2, 2105.3	-	Art. 1.4
6. Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified.	-	X	-	-	Art. 1.5

For SI: °C = (°F - 32)/1.8
[1] reference IBC Table 1704.5.1. Level 1 Special Inspection
a. The specific standards referenced are those listed in Chapter 35.

STRUCTURAL CONCRETE AND REINFORCING

Verification and Inspection[1]	Continuous	Periodic	Referenced standard	IBC reference
1. Inspection of reinforcing steel and placement.	-	X	ACI 318: 3.5, 7.1-7.7	1913.4
2. Inspection of reinforcing steel welding in accordance with Table 1704.3, Item 5B.	-	-	AWS D1.4 ACI 318: 3.5.2	-
3. Inspect bolts to be installed in concrete prior to and during placement of concrete.	X	-	-	1911.5
4. Verifying use of required design mix.	-	X	ACI 318: Ch. 4, 5.2-5.4	1904.2.2, 1913.2, 1913.3
5. At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	-	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1913.10
6. Inspection of concrete placement for proper application techniques.	X	-	ACI 318: 5.9, 5.10	1913.7, 1913.8
7. Inspection for maintenance of specified curing temperature and techniques.	-	X	ACI 318: 5.11 5.13	1913.9
8. Inspect form work for shape, location, and dimensions of the concrete member being formed.	-	X	ACI 318: 6.1.1	-

[1] Reference IBC Table 1704.4. Required Verification and Inspection of Concrete Construction

STRUCTURAL ALUMINUM

Verification and Inspection	Continuous	Periodic	Referenced standard	IBC reference
1. Material verification of bolts, nuts and washers:				
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	-	X	Applicable ASTM material specifications; AL-SPEC, Section 5	-
b. Manufacturer's certificate of compliance required.	-	X	-	-
2. Inspection of bolting:				
a. Bearing-type connections.	-	X	AL-SPEC and Section 5	Sim1704.3.3 for high-strength steel bolts
b. Slip-critical connections.	X	X		
3. Material verification of structural aluminum:				
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	-	X	AL-SPEC and Section 05505	Sim 1708.4
b. Manufacturers' certified mill test reports.	-	X	AL-SPEC and Section 05505	
4. Material verification of weld filler materials:				
a. Identification markings to conform to AWS specification in the approved construction documents.	-	X	AL-SPEC and AWS D1.2	-
b. Manufacturer's certificate of compliance required.	-	X	-	-
5. Inspection of structural aluminum welding:				
a. Complete and partial penetration groove welds.	X	-	AWS D1.2	Sim 1704.3.1
b. Multipass fillet welds.	X	-		
c. Single-pass fillet welds > 5/16”	X	-		
d. Single-pass fillet welds ? 5/16”	-	X		
e. Floor and deck welds.	-	X	AWS D1.3	
6. Inspection of aluminum frame joint details for compliance with approved construction documents:				
a. Details such as bracing and stiffening.	-	X	-	Sim 1704.3.2
b. Member locations.	-	-		
c. Application of joint details at each connection.	-	-		

BROWN AND CALDWELL
PORTLAND, OREGON
SUBMITTED: _____ DATE: _____ PROJECT MANAGER
APPROVED: _____ DATE: _____ BROWN AND CALDWELL

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)
DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS
–

EXTERNAL REFERENCE FILES

RECORD DRAWING

THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWING TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	RECORD DRAWING	REK	06-10	

Metropolitan Wastewater Management Commission
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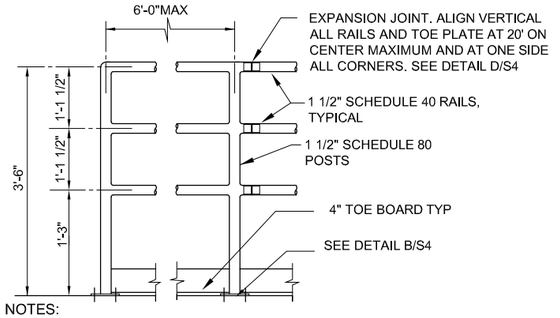
ODOROUS AIR TREATMENT EXPANSION

STRUCTURAL

SPECIAL INSPECTION REQUIREMENTS

FILENAME 133842-S-003
BC PROJECT NUMBER 133842
SCALE AS SHOWN
DRAWING NUMBER **S3**
SHEET NUMBER 37 OF 100

June 18, 2010 24.30

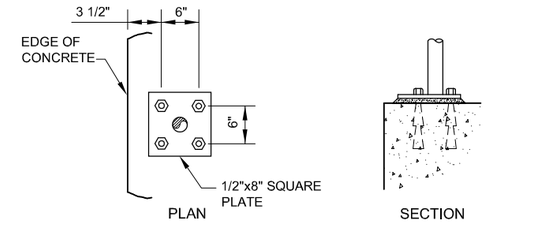


NOTES:

1. ALL GUARDRAIL FASTENERS SHALL BE STAINLESS STEEL.
2. GUARDRAIL SHALL BE INSTALLED SO AS NOT TO INTERFERE WITH ANY PIPING, EQUIPMENT OR OTHER PIPING ASSEMBLY.
3. RAILING POST LOCATION SHALL BE FIELD MEASURED AND RAILING FABRICATED TO FIT. NO FIELD CUTTING OR WELDING WILL BE PERMITTED. RAILING WHICH DOES NOT FIT MOUNTING PREVIOUSLY SET IN CONCRETE WILL BE REJECTED.
4. GUARDRAIL MANUFACTURERS STANDARD CONNECTION DETAILS MAY BE USED IF STAINLESS STEEL BOLTS ARE USED AND DETAIL IS IBC APPROVED.
5. THE SPACING OF EXPANSION JOINTS IN GUARDRAILS AND TOEBOARDS SHALL NOT EXCEED 20 FEET.

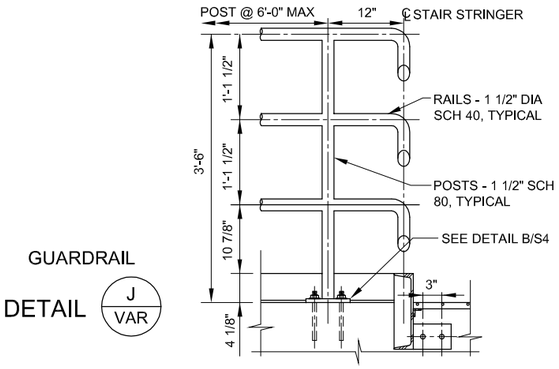
ALUMINUM GUARDRAIL

DETAIL A VAR



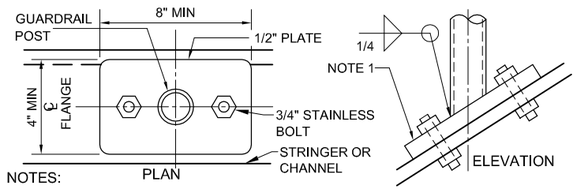
GUARDRAIL SURFACE MOUNTING

DETAIL B VAR



GUARDRAIL

DETAIL J VAR

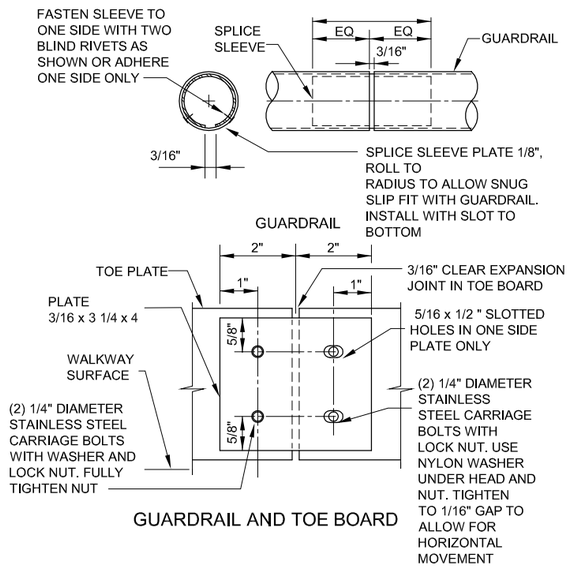


NOTES:

1. MANUFACTURER'S STANDARD, ICC APPROVED BRACKET MAY SUBSTITUTE FOR ASSEMBLY SHOWN.
2. SHIM MATERIAL SHALL MATCH BEAM MATERIAL AND SHALL BE FULL SIZE OF HANDRAIL MOUNTING BRACKET.

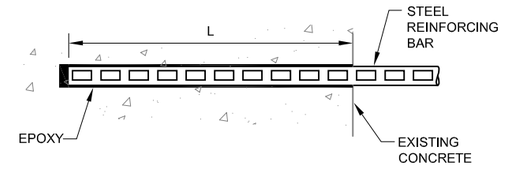
POST-FLANGE MOUNT

DETAIL C VAR



EXPANSION JOINTS

DETAIL D VAR



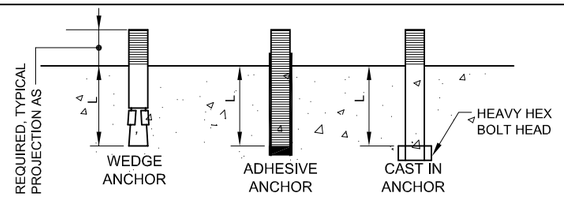
MINIMUM EMBEDMENT LENGTH, L					
SIZE	#3	#4	#5	#6	#7
L	6"	8"	10"	12"	14"
DRILL DIA	1/2"	5/8"	3/4"	7/8"	1"
SIZE	#8	#9	#10	#11	
L	15"	17"	19"	21"	
DRILL DIA	1 1/4"	1 3/8"	1 1/2"	1 3/4"	

ADHESIVE DOWELED STEEL REBAR NOTES:

1. MINIMUM EMBEDMENT LENGTH SHALL BE BY SCHEDULE UNLESS INDICATED OTHERWISE ON DRAWINGS.
2. CONFORM TO ICC REPORT REQUIREMENTS AND MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION.
3. DOWELS SHALL NOT BE CLOSER THAN 3 INCHES FROM CENTERLINE OF DOWEL TO FACE OF CONCRETE.
4. ADHESIVE ANCHOR VALUES BASED ON HILTI HY 150 AND HVU ADHESIVES IN 4500 PSI CONCRETE. SUBMIT ICC REPORT FOR ALTERNATE PRODUCTS.

ADHESIVE DOWELED STEEL REBAR

DETAIL E VAR



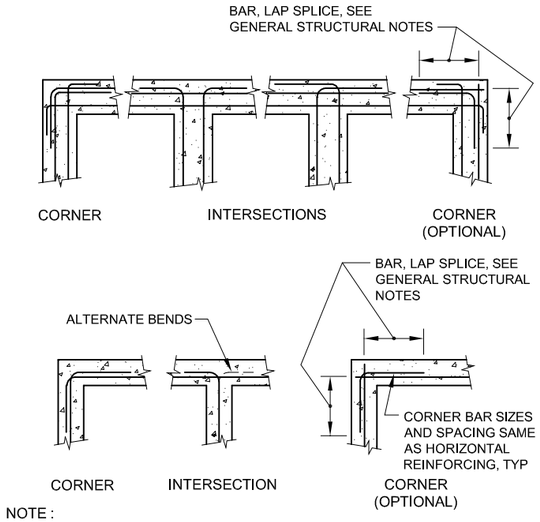
MINIMUM EMBEDMENT LENGTH, L			
DIAMETER	WEDGE ANCHOR	ADHESIVE ANCHOR	CAST IN ANCHOR
3/8"	4 1/4"	4 1/2"	4 1/2"
1/2"	6"	6"	6"
5/8"	7"	7 1/2"	7 1/2"
3/4"	8"	9"	9"
7/8"	8"	10 1/2"	10 1/2"
1"	9"	12"	12"
1 1/8"	-	-	13 1/2"
1 1/4"	-	-	15"
1 1/2"	-	-	18"

ANCHOR NOTES:

1. MINIMUM EMBEDMENT LENGTH PER SCHEDULE UNLESS INDICATED OTHERWISE ON DRAWINGS.
2. DO NOT TIGHTEN CAST IN ANCHOR UNTIL CONCRETE HAS ACHIEVED SPECIFIED 28 DAY STRENGTH.
3. CONFORM TO ICC REPORT REQUIREMENTS AND MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION.
4. DO NOT USE WEDGE ANCHORS AT CONCRETE MASONRY WALLS.
5. ALL ANCHORS SHALL BE STAINLESS STEEL UNLESS OTHERWISE NOTED.
6. ADHESIVE ANCHOR VALUES BASED ON HILTI HIT-RE 500SD AND HVU ADHESIVES IN 4500 PSI CONCRETE. SUBMIT ICC REPORT FOR ALTERNATE PRODUCTS.

ANCHORS

DETAIL F VAR

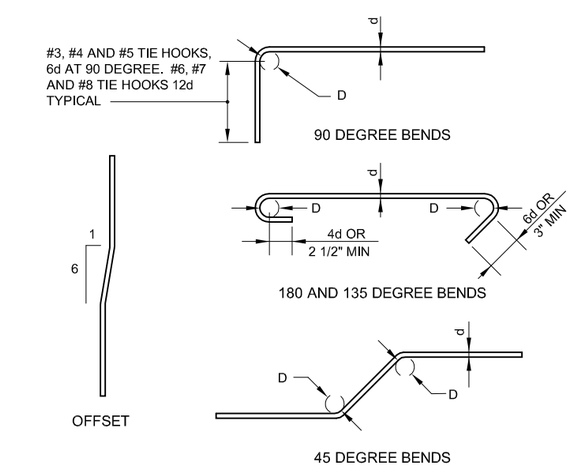


NOTE :

ALL 90 DEGREE BENDS SHALL BE STANDARD HOOKS PER ACI 315 UNLESS OTHERWISE SPECIFIED

REINFORCING STEEL AT WALL INTERSECTIONS

DETAIL G VAR



NOTE:

D = 6d FOR #3 THRU #8
D = 8d FOR #9 THRU #11
D = 10d FOR #14 THRU #18
D = 4d FOR TIES #3, #4 AND #5

TYPICAL REINFORCING BAR BENDS

DETAIL H VAR

BROWN AND CALDWELL

PORTLAND, OREGON

SUBMITTED: _____ DATE: _____ PROJECT MANAGER

APPROVED: _____ DATE: _____ BROWN AND CALDWELL

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS

EXTERNAL REFERENCE FILES

RECORD DRAWING

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REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	RECORD DRAWING	REK	06-10	

Metropolitan Wastewater Management Commission

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ODOROUS AIR TREATMENT EXPANSION

STRUCTURAL

STANDARD DETAILS 1

FILENAME 133842-S-004
BC PROJECT NUMBER 133842
SCALE AS SHOWN
DRAWING NUMBER S4
SHEET NUMBER 38 OF 100

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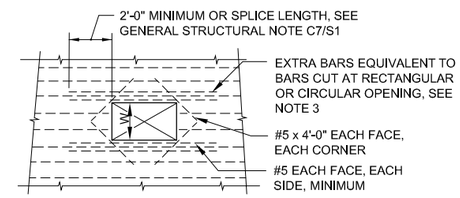
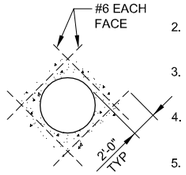
June 18, 2010



REINFORCEMENT AT RECTANGULAR SLAB AND WALL OPENINGS

OPENING STEEL NOTES:

1. W=DIMENSION OF OPENING PERPENDICULAR TO BARS CUT. FOR CIRCULAR OPENINGS W=DIAMETER.
2. THIS DETAIL IS FOR ISOLATED OPENINGS BETWEEN 1'-0" AND 4'-0". FOR LARGER OPENINGS, SEE DRAWINGS.
3. TRANSVERSE REINFORCEMENT NOT SHOWN BUT SHALL BE TREATED IN SAME MANNER AS BARS SHOWN.
4. SEE MECHANICAL DRAWINGS FOR SLAB AND WALL OPENINGS NOT SPECIFIED ON STRUCTURAL DRAWINGS.
5. SUPPLEMENTARY REINFORCEMENT MAY BE OMITTED ONLY WHERE OPENING IS FRAMED BY BEAMS OR WALLS.
6. SEE DETAIL B/S5 FOR MULTIPLE SMALL OPENINGS.

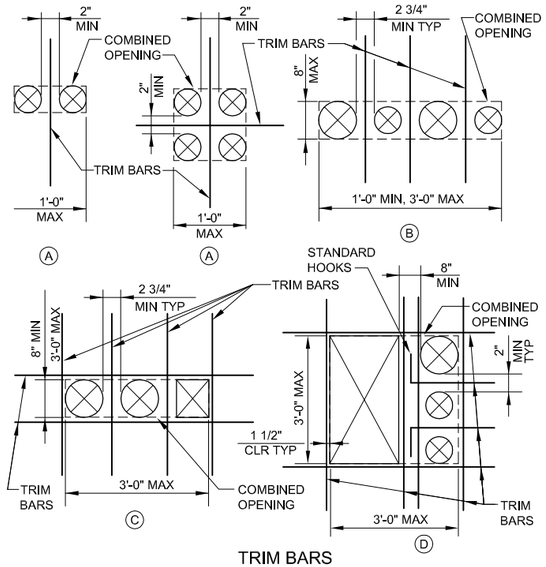


CORNER BAR FOR CIRCULAR OPENING

REINFORCEMENT AT SLAB AND WALL OPENINGS

DETAIL A/VAR

NOT TO SCALE



TRIM BARS

DETAIL B/VAR

NOT TO SCALE

TRIM BAR NOTES:

1. SLAB OPENINGS WHICH ARE CLOSER TO ONE ANOTHER THAN THE DIAMETER OR SHORTER SIDE OF THE LARGER OF THE TWO ARE CONSIDERED TO FORM A COMBINED OPENING.
2. THESE DIAGRAMS ARE FOR COMBINED OPENINGS WHOSE LARGER DIMENSION DOES NOT EXCEED 3'-0". SEE DRAWINGS FOR OPENINGS LARGER THAN 3'-0".
3. TRIM BAR EXTENSION PAST EDGES OF COMBINED OPENINGS SHALL BE 1'-0" FOR #4 BARS, 1'-6" FOR #5 BARS, AND ONE DEVELOPMENT LENGTH FOR LARGER BARS.
4. DISPLACE SLAB PRINCIPAL REINFORCEMENT TO EACH SIDE OF COMBINED OPENING OR PLACE BETWEEN INDIVIDUAL OPENINGS. DO NOT CUT SLAB PRINCIPAL REINFORCEMENT.
5. TENDONS MAY PASS BETWEEN SLAB OPENINGS WHEN THE DISTANCE BETWEEN OPENINGS IS GREATER THAN OR EQUAL TO THE SLAB THICKNESS PLUS (N-1) TIMES 3 INCHES, WHERE N IS THE NUMBER OF TENDONS IN A BUNDLE OR DUCT. TENDONS MUST FOLLOW A STRAIGHT ALIGNMENT (IN PLAN) THROUGH THE COMBINED OPENING AND FOR AT LEAST 24" ON EACH SIDE.
6. SEE DETAIL A/S5 FOR TRIM BARS FOR ISOLATED SLAB OPENINGS.
7. SUBMIT SPECIAL SITUATIONS TO ENGINEER FOR REVIEW.

TRIM BAR REQUIREMENTS:

(A) IF THE COMBINED OPENING IS SMALLER THAN 1'-0", PROVIDE (1) #4 TOP AND BOTTOM BETWEEN OPENINGS.

(B) IF THE LARGER DIMENSION OF A COMBINED OPENING EXCEEDS 1'-0" BUT THE SMALLER DIMENSION IS LESS THAN OR EQUAL TO 8", AND PROVIDED THE COMBINED OPENING IS ALIGNED WITH THE PRINCIPAL REINFORCEMENT, PROVIDE (1) #4 TOP AND BOTTOM BETWEEN OPENINGS.

(C) IN ALL OTHER CASES WHERE OPENINGS ARE ARRANGED IN A SINGLE LINE, PROVIDE (1) #4 TOP AND BOTTOM BETWEEN OPENINGS AND (1) #5 TOP AND BOTTOM AROUND PERIMETER OF COMBINED OPENING.

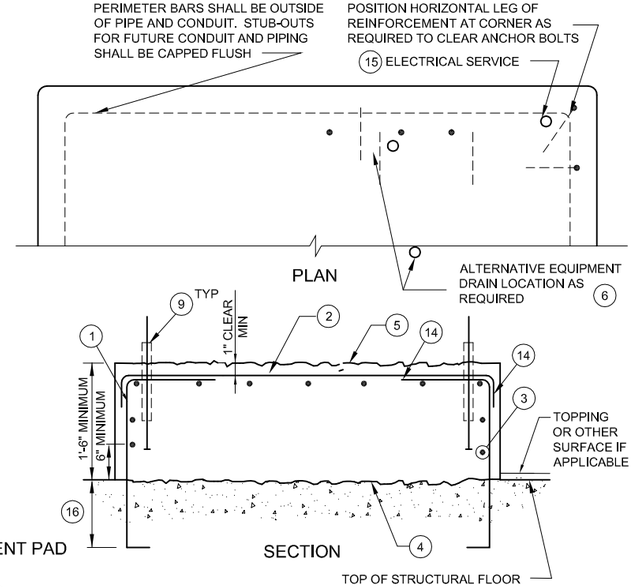
(D) WHERE INDIVIDUAL OPENINGS OF A COMBINED OPENING FORM TWO OR MORE ROWS, THE ROWS SHALL BE SEPARATED BY AT LEAST 8" OF CONCRETE. PROVIDE (2) #4 TOP AND BOTTOM BETWEEN ROWS OF OPENINGS, (1) #4 TOP AND BOTTOM BETWEEN OPENINGS IN THE PERPENDICULAR DIRECTION, AND (1) #5 TOP AND BOTTOM AROUND THE PERIMETER OF COMBINE OPENING. PROVIDE STANDARD HOOKS WHERE BARS TERMINATE WITHIN THE COMBINED OPENING.

KEY NOTES:

1. #5 AT 12" DOWEL WITH 90 DEGREE STANDARD HOOK. SEE DETAIL H/S4.
2. #5 AT 12" EACH WAY.
3. #5 AT 12" CLOSED TIES WITH 135° END HOOKS, (1) MINIMUM.
4. ROUGHEN SURFACE TO 1/4" AMPLITUDE. REMOVE ALL LAITANCE AND LOOSE MATERIAL. APPLY EPOXY BONDING AGENT 30 MINUTES OR LESS BEFORE PLACING CONCRETE.
5. AFTER THE CONCRETE IS FULLY CURED, THE TOP OF THE EQUIPMENT BASE SHALL BE ROUGHENED PER SPEC SECTION 11002. SEE MECHANICAL DRAWINGS FOR EQUIPMENT MOUNTING REQUIREMENTS.
6. THE CONTRACTOR SHALL COORDINATE LOCATION OF ELECTRICAL CONDUIT AND DRAINAGE PIPING PENETRATIONS WITHIN THE EQUIPMENT PAD. ALL PENETRATIONS SHALL STUB-UP ON THE SAME SIDE OF THE EQUIPMENT AS REQUIRED FOR CONNECTION TO EQUIPMENT. EQUIPMENT DRAINS SHALL BE LOCATED AS REQUIRED FOR DRAINAGE FROM EQUIPMENT. EQUIPMENT PAD SHALL BE CONFIGURED ACCORDINGLY.
7. EQUIPMENT ANCHOR EMBEDMENT, "H", SHALL BE AT LEAST THE MINIMUM LENGTH REQUIRED TO DEVELOP THE STRENGTH OF THE BOLTS, PER ACI 318 APPENDIX "D".
8. EQUIPMENT ANCHOR SLEEVE WITH INSIDE DIAMETER EQUAL TO EQUIPMENT ANCHOR DIAMETER PLUS 2 INCHES. FILL SLEEVE WITH SILICONE RUBBER OR WAX. PROTECT THREADS ABOVE SLEEVE FROM DAMAGE AND CONCRETE SPLATTER.
9. HEX NUT, WASHER AND EQUIPMENT ANCHOR SHALL BE TYPE 316 STAINLESS STEEL, DIAMETER, "D", AS REQUIRED BY EQUIPMENT MANUFACTURER.
10. 2 THREADS MINIMUM, 3/4" MAXIMUM.
11. FINISHED POSITION OF BASE PLATE, SOLE PLATE OR MOUNTING BLOCK. SEE MECHANICAL DRAWINGS FOR EQUIPMENT MOUNTING REQUIREMENTS.
12. EPOXY GROUT INSTALLED PER SPEC SECTION 11002 AFTER LEVELING OF BASE PLATE, SOLE PLATE OR MOUNTING BLOCK.
13. PRIOR TO CONCRETE PLACEMENT, EQUIPMENT ANCHORS SHALL BE ACCURATELY SET ACCORDING TO THE EQUIPMENT MANUFACTURER'S MOUNTING TEMPLATE AND FIRMLY SECURED TO PREVENT SHIFTING DURING CONCRETE PLACEMENT.
14. HOOK REINFORCING OR PROVIDE CLASS "B" LAP SPLICE.
15. IF CONDUIT FED FROM BELOW, SEE ELECTRICAL.
16. 8" EMBED WITH STANDARD HOOK. ADHESIVE DOWELS NOT ALLOWED.

NOTES FOR FAN MOUNTING:

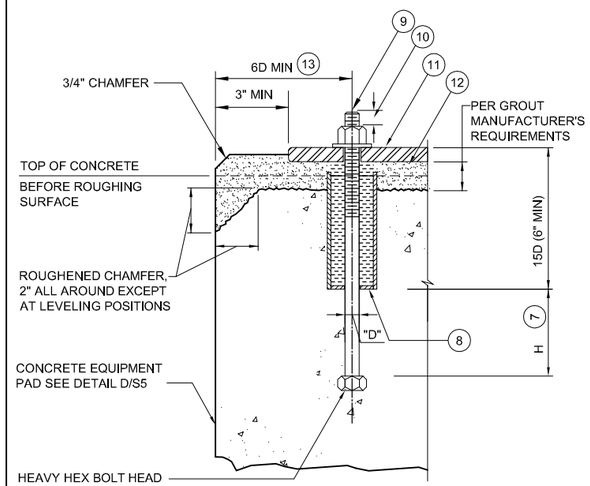
1. 100 HP FANS SHALL BE MOUNTED ON 8" CONCRETE PADS USING THIS DETAIL.
2. MOUNT ALL FANS CONFORMING TO THE GENERAL NOTES AND APPLICABLE KEYNOTES ON THIS DRAWING.



CONCRETE EQUIPMENT PAD

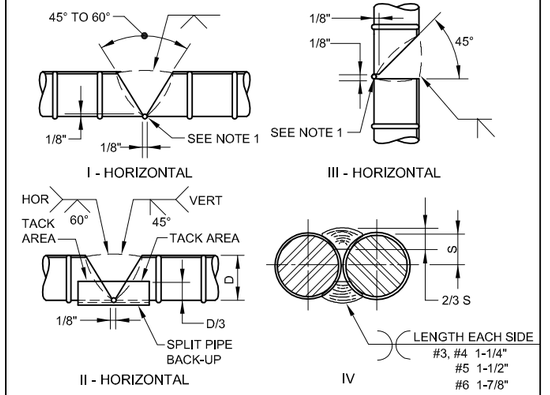
DETAIL D/VAR

NOT TO SCALE



GROUT TO EDGE OF EQUIPMENT PAD

DETAIL E/VAR



REINFORCING WELDING NOTES:

1. CHIP, GRIND OR GOUGE TO SOUND METAL BEFORE WELDING OTHER SIDE.
2. DETAIL I AND III FOR #9 AND LARGER. DETAIL II FOR #8 AND SMALLER. DETAIL IV FOR #6 AND SMALLER.
3. E70 ELECTRODE FOR GRADE 40. E90 ELECTRODE FOR GRADE 60.
4. SEE AWS D1.4 FOR WELDING PROCESS AND OTHER DETAILS.
5. CONTINUOUS SPECIAL INSPECTION REQUIRED EXCEPT DETAIL IV, #5 AND SMALLER.

REINFORCING WELD SPLICE

DETAIL F/VAR

BROWN AND CALDWELL

PORTLAND, OREGON

SUBMITTED: _____ DATE: _____ (PROJECT MANAGER)

APPROVED: _____ DATE: _____ (BROWN AND CALDWELL)

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS
--

EXTERNAL REFERENCE FILES

RECORD DRAWING

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REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	RECORD DRAWING	REK	06-10	

Metropolitan Wastewater Management Commission

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ODOROUS AIR TREATMENT EXPANSION

STRUCTURAL

STANDARD DETAILS 2

FILENAME 133842-S-005
BC PROJECT NUMBER 133842
SCALE AS SHOWN
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SHEET NUMBER 39 OF 100

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June 18, 2010

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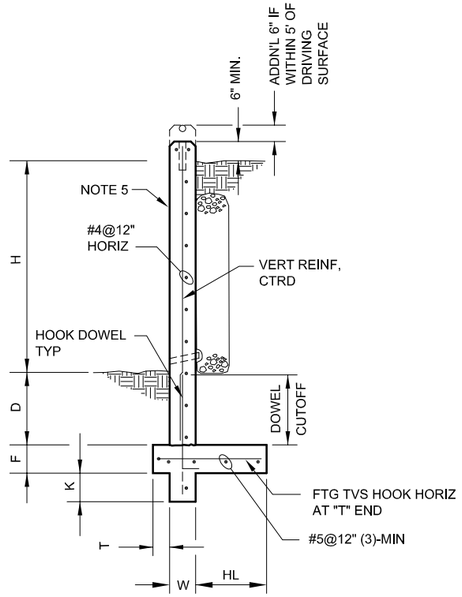
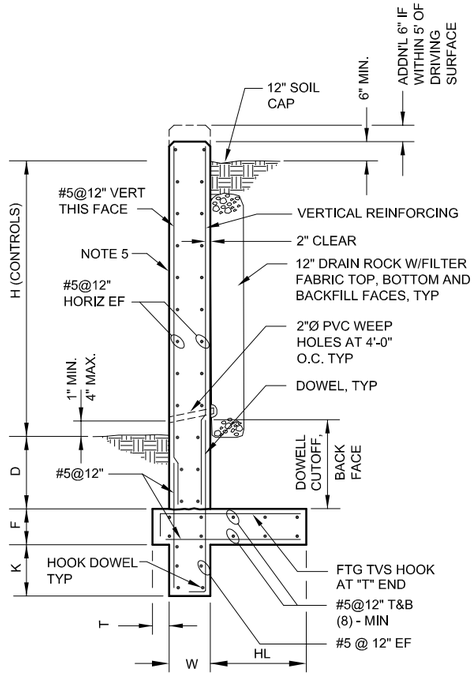


WALL H ≤ 5FT



WALL > 5FT - 10FT

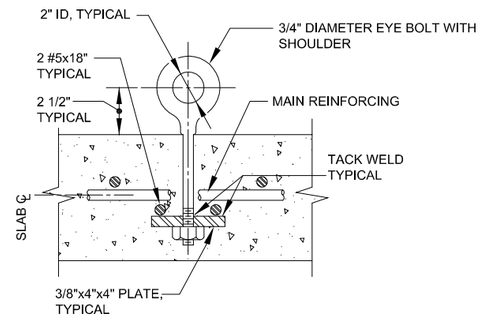
RETAINING WALL SCHEDULE & NOTES										
H	W	D	F	K	T	HL	REINFORCING			
GRADE HEIGHT (ft)	WALL & KEY THICKNESS (in)		(in)	(in)	(in)		DOWELS	CUTOFF (BACKFILL - FACE)	VERTICAL	FTG TVS
<= 5ft	8	1'-0"	15	0	6	3'-0"	#6 @ 6"	3'-0"	#6 @ 12"	#6 @ 12"
5 - 10ft	12	1'-0"	18	18	18	5'-0"	#7 @ 6"	4'-4"	#7 @ 12"	#8 @ 12"

NOTES:
1. FOR DRAIN ROCK, BACKFILL MATERIAL AND COMPACTION, SEE SPECIFICATIONS.
2. COMPACT BACKFILL ABOVE FOOTING ON WALL LOW SIDE, MINIMUM 95% ASTM D-1557.
3. FOOTING SHALL BEAR ON UNDISTURBED NATIVE MATERIAL OR 6 INCH MINIMUM COMPACTED CRUSHED ROCK PER SPECIFICATIONS.
4. ALL DOWELS SHALL TERMINATE IN A STANDARD, 90 DEGREE HOOK AT THE LOWER EXTREME OF KEY OR FOOTING AS APPLICABLE.
5. EXPOSED FACE: PROVIDE GROUT CLEAN FINISH, SPEC 03300. COAT TO MATCH EXISTING, ADJACENT PROCESS STRUCTURES.
6. WALL DESIGN CRITERIA: SOIL ACTIVE PRESSURE = 35PCF, DRAINED.
   SURCHARGE ABOVE WALL = 250PSF W/ K=0.5.
   SEISMIC SURCHARGE = 26PCF, INVERTED
   FACTOR OF SAFETY FOR SLIDING AND OVERTURNING
   GRAVITY = 1.5
   SEISMIC = 1.1

RETAINING WALL

DETAIL A/VAR

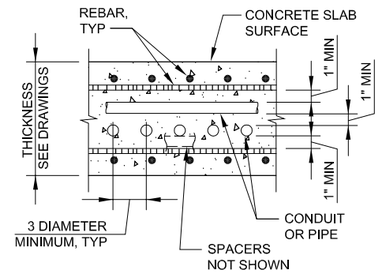
NO SCALE



NOTE:
LIFTING DEVICE SHALL BE GALVANIZED AFTER FABRICATION. MAXIMUM LOAD CAPACITY 500 POUNDS.

LIFTING DEVICE

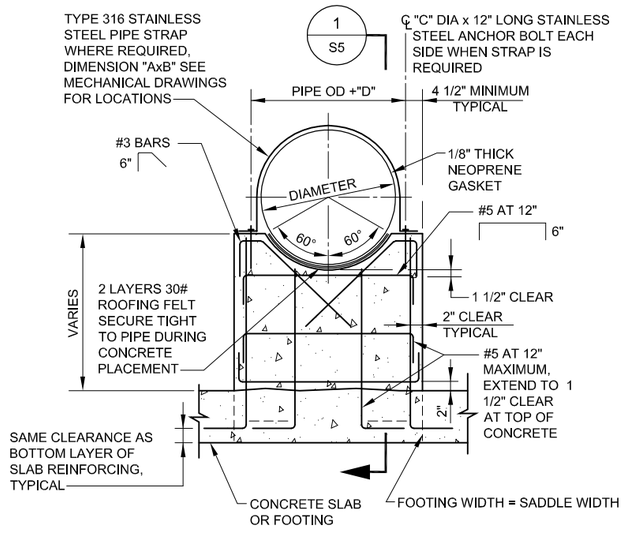
DETAIL B/VAR



NOTES:
1. CONTRACTOR SHALL SUBMIT PROPOSED EMBEDDED CONDUIT/PIPE LAYOUT TO THE OWNER'S REPRESENTATIVE FOR APPROVAL. NO CONDUIT OR PIPE SHALL BE INSTALLED WITHIN CONCRETE FORMWORK PRIOR TO CONSTRUCTION MANAGER'S APPROVAL OF LAYOUT. SUBMITTAL SHALL HAVE SUFFICIENT INFORMATION TO VERIFY CONCRETE COVERS AND CONDUIT/PIPE SPACINGS.
2. WHERE APPROVED BY THE OWNER'S REPRESENTATIVE FOR PLACEMENT WITHIN CONCRETE ELEMENTS, ALL CONDUITS AND PIPES EMBEDDED WITHIN A CONCRETE ELEMENT SHALL:
   A. NOT BE LARGER IN OUTSIDE DIAMETER THAN 1/3 THE OVERALL THICKNESS OF THE CONCRETE SLAB OR WALL THAT THEY ARE EMBEDDED IN;
   B. NOT BE SPACED CLOSER THAN 3 DIAMETERS OR WIDTHS ON CENTER;
   C. HAVE A MINIMUM OF 2 INCHES OF COVER FROM THE THE NEAREST CONCRETE SURFACE AND A MINIMUM OF 1 INCHES FROM THE NEAREST REBAR;
   D. NOT BE EMBEDDED IN CONCRETE BEAMS, STRUTS OR COLUMNS;
   E. NOT BE PIPE OR CONDUIT OF ALUMINUM CONSTRUCTION;
   F. NOT SIGNIFICANTLY IMPAIR THE STRENGTH OF CONSTRUCTION AS DETERMINED BY THE STRUCTURAL ENGINEER.
3. CONDUIT SHALL BE SUPPORTED WITH ALL PLASTIC CONDUIT SPACERS, REBAR SPACERS OR SOLID CONCRETE BRICK.

CONCRETE EMBEDDED CONDUITS OR PIPES

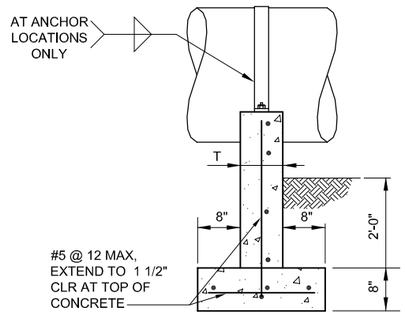
DETAIL C/VAR



CONCRETE PIPE SADDLE

DETAIL D/VAR

PIPE SIZE	DIMENSIONS				
	A	B	C	D	T
6"-12"	1/4"	2"	3/4"	3"	8"
14"-18"	1/4"	4"	3/4"	3"	8"
20"-36"	3/8"	5"	3/4"	3"	10"
42"-54"	3/8"	6"	1"	4"	12"
60"-72"	3/8"	6"	1 1/8"	4"	16"



CONCRETE PIPE SADDLE NOTE:
FOR THICKNESS GREATER THAN 10 INCHES, USE 2 LAYERS OF REINFORCING, TURN HORIZONTAL BARS 90 DEGREES TO HOOK AROUND VERTICAL BARS. 1 1/2" CLEARANCE ON CONCRETE.

SECTION 1/S5

BROWN AND CALDWELL
PORTLAND, OREGON

SUBMITTED: _____ DATE: _____ PROJECT MANAGER
APPROVED: _____ DATE: _____ BROWN AND CALDWELL

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS

EXTERNAL REFERENCE FILES

RECORD DRAWING

THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWING TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	RECORD DRAWING	REK	06-10	

Metropolitan Wastewater Management Commission
partners in wastewater management

ODOROUS AIR TREATMENT EXPANSION

STRUCTURAL

STANDARD DETAILS 3

FILENAME 133842-S-006
BC PROJECT NUMBER 133842
SCALE AS SHOWN
DRAWING NUMBER S6
SHEET NUMBER 40 OF 100

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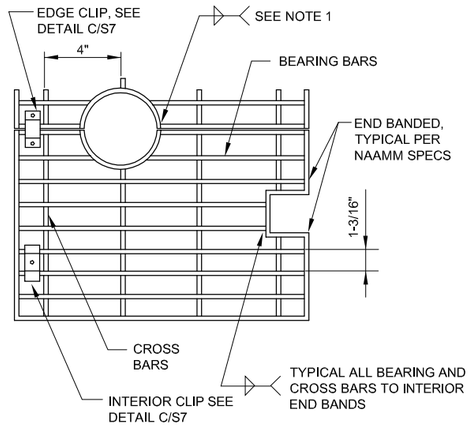


NOTES:

1. TYPICAL ALL BEARING AND CROSS BARS TO INTERIOR END BANDS
2. FOR ADDITIONAL INFORMATION, SEE DETAIL B/S7

ALUMINUM GRATING PLAN

DETAIL A/VAR

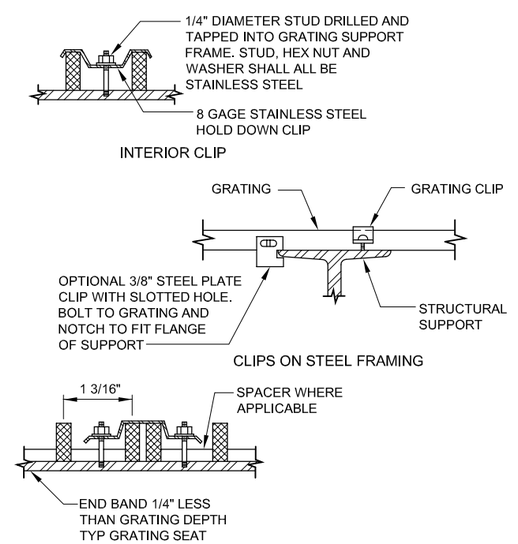
ALUMINUM GRATING SCHEDULE	
BEARING BAR SIZE	CLEAR SPAN
1 1/2 x 1/8	UP TO 3'-6"
2 x 3/16	4'-0"
2 1/2 x 3/16	5'-0"
SEE PLANS	> 5'-0"

GRATING NOTES:

1. UNLESS OTHERWISE SPECIFIED OR INDICATED ON THE DRAWINGS, ALL GRATINGS, COVERPLATE SUPPORT ANGLES, CHANNELS AND BEAMS SHALL BE ALUMINUM.
2. GRATING SHALL CONFORM TO THE METAL BAR GRATING MANUAL OF THE NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS, LATEST EDITION.
3. ALUMINUM GRATING SHALL BE SWAGED AND FORGED.
4. UNLESS OTHERWISE SPECIFIED, PROVIDE 4 GRATING CLIPS APPROXIMATELY 4" FROM THE CORNERS OF EACH PIECE. ADJACENT PIECES MAY BE ANCHORED WITH ONE CLIP AND TWO STUDS, SEE DETAIL C/S7.
5. GRATING SHALL BE REMOVABLE.
6. CLEAR SPAN SHALL BE PLAN DIMENSION, FACE TO FACE OF OPENING.

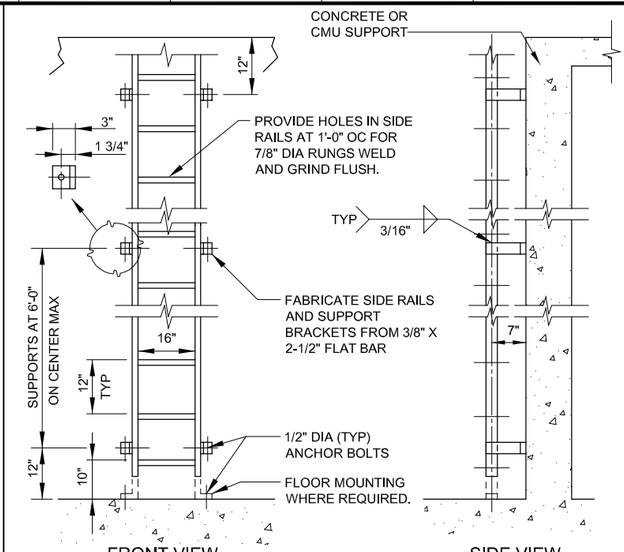
GRATING SCHEDULE AND NOTES

DETAIL B/VAR



GRATING CLIPS

DETAIL C/VAR

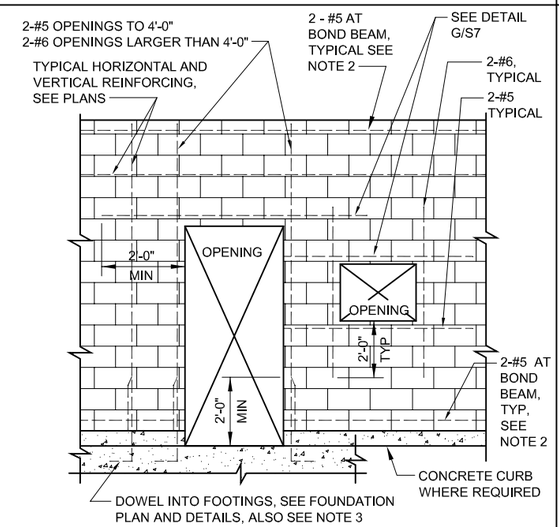


NOTES:

1. FABRICATE USING ALUMINUM UP TO ROOF.
2. PROVIDE STAINLESS STEEL HARDWARE, TYPICAL.

LADDER

DETAIL D/VAR



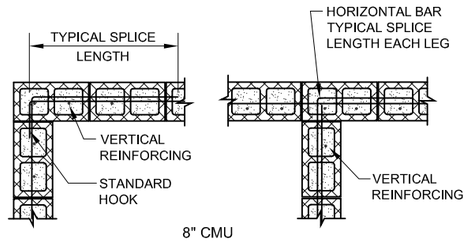
MASONRY REINFORCEMENT NOTES:

1. PROVIDE TRUSS-TYPE HORIZONTAL JOINT REINFORCING AT 16" ON CENTER, TYPICAL UNLESS OTHERWISE NOTED.
2. PROVIDE CONCRETE BOND BEAM WHERE NOTED ON DRAWINGS, REPLACING THIS TYPICAL DETAIL.
3. AT EXISTING CONCRETE, DOWEL SIMILAR TO DETAIL E/S4 EXCEPT THE EMBEDMENT SHALL BE 9".

TYPICAL MASONRY ELEVATION

DETAIL E/VAR

SCALE: NO SCALE

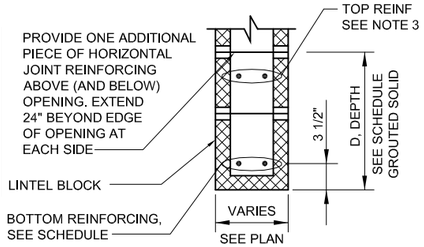


HORIZONTAL REINFORCING AT CMU WALL INTERSECTIONS

DETAIL F/VAR

SCALE: NO SCALE

LINTEL SCHEDULE			
MAXIMUM OPENING WIDTH	D	REINF	MINIMUM END BEARING
2'-8"	8"	1-#5	2'-0"
4'-0"	16"	2-#5	2'-0"
6'-8"	24"	2-#6	2'-0"
10'-8"	32"	2-#7	2'-0"
13'-4"	40"	2-#7	2'-0"



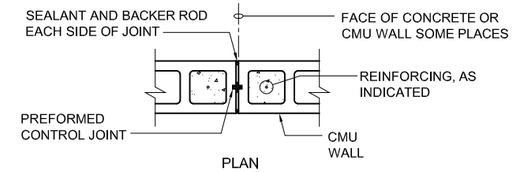
CMU WALL LINTEL NOTES:

1. REINFORCING CONTINUOUS TO WITHIN 2" OF LINTEL END (NOT OPENING) AT EACH END.
2. PROVIDE A LINTEL OVER ALL OPENINGS. LINTEL OVER OPENINGS 4'-0" OR LARGER SHALL HAVE TOP REINFORCING IDENTICAL TO BOTTOM REINFORCING.
3. AT 4" CMU, LINTEL TO BE L6x4x5/16 (LLV) WITH MINIMUM 8" BEARING AT EACH END (6'-8" MAXIMUM OPENING).
4. WHERE OPENING ABUTS CONCRETE COLUMN OR WALL, LINTEL SHALL BE CONCRETE KEYED 1 1/2" INTO COLUMN/WALL WITH ALL TOP AND BOTTOM REINFORCING EXTENDED 40 BAR DIAMETER (12") MINIMUM INTO COLUMN/WALL.

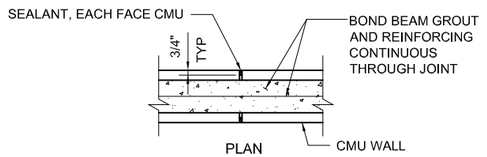
CMU WALL LINTEL

DETAIL G/VAR

SCALE: NO SCALE



TYPICAL EXCEPT AT BOND BEAMS



AT ROOF AND FLOOR LEVEL BOND BEAMS

NOTE:
ALL HORIZONTAL REINFORCING INCLUDING JOINT REINFORCING IS TO BE DISCONTINUOUS AT CONTROL JOINTS EXCEPT BOND BEAM REINFORCING AT ROOF LEVEL, FLOOR LEVEL(S), AND PARAPET LEVEL (IF APPLICABLE)

CMU WALL CONTROL JOINT

DETAIL H/VAR

SCALE: NO SCALE

BROWN AND CALDWELL

PORTLAND, OREGON

SUBMITTED: _____ DATE: _____ (PROJECT MANAGER)

APPROVED: _____ DATE: _____ (BROWN AND CALDWELL)

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS

EXTERNAL REFERENCE FILES

RECORD DRAWING

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REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	RECORD DRAWING	REK	06-10	

Metropolitan Wastewater Management Commission

partners in wastewater management

ODOROUS AIR TREATMENT EXPANSION

STRUCTURAL

STANDARD DETAILS 4

FILENAME	133842-S-007
BC PROJECT NUMBER	133842
SCALE	AS SHOWN
DRAWING NUMBER	S7
SHEET NUMBER	41 OF 100

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June 18, 2010

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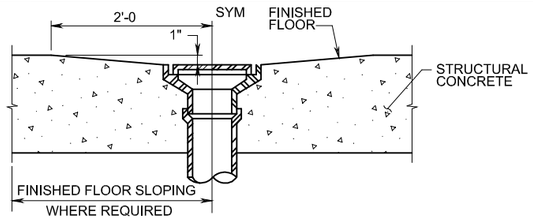
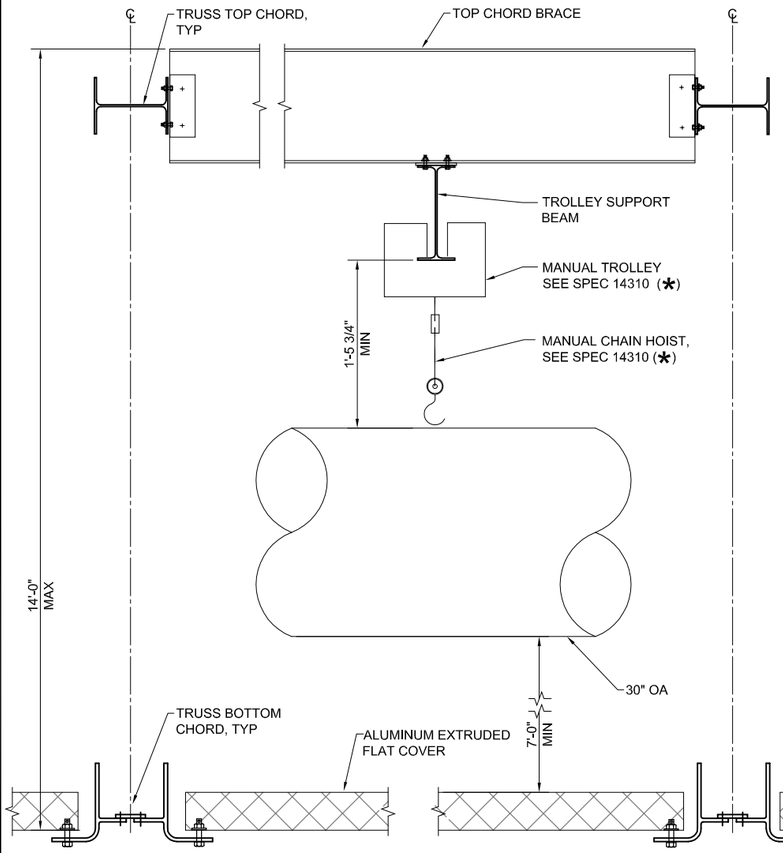


NOTES:
THIS DETAIL TYPICAL UNLESS DRAWINGS INDICATE SLOPE TO DRAIN AREAS AND ELEVATIONS/SLOPES.

SEE MECHANICAL FOR DRAIN TYPE AND SIZE

DETAIL A/VAR

SCALE: NO SCALE

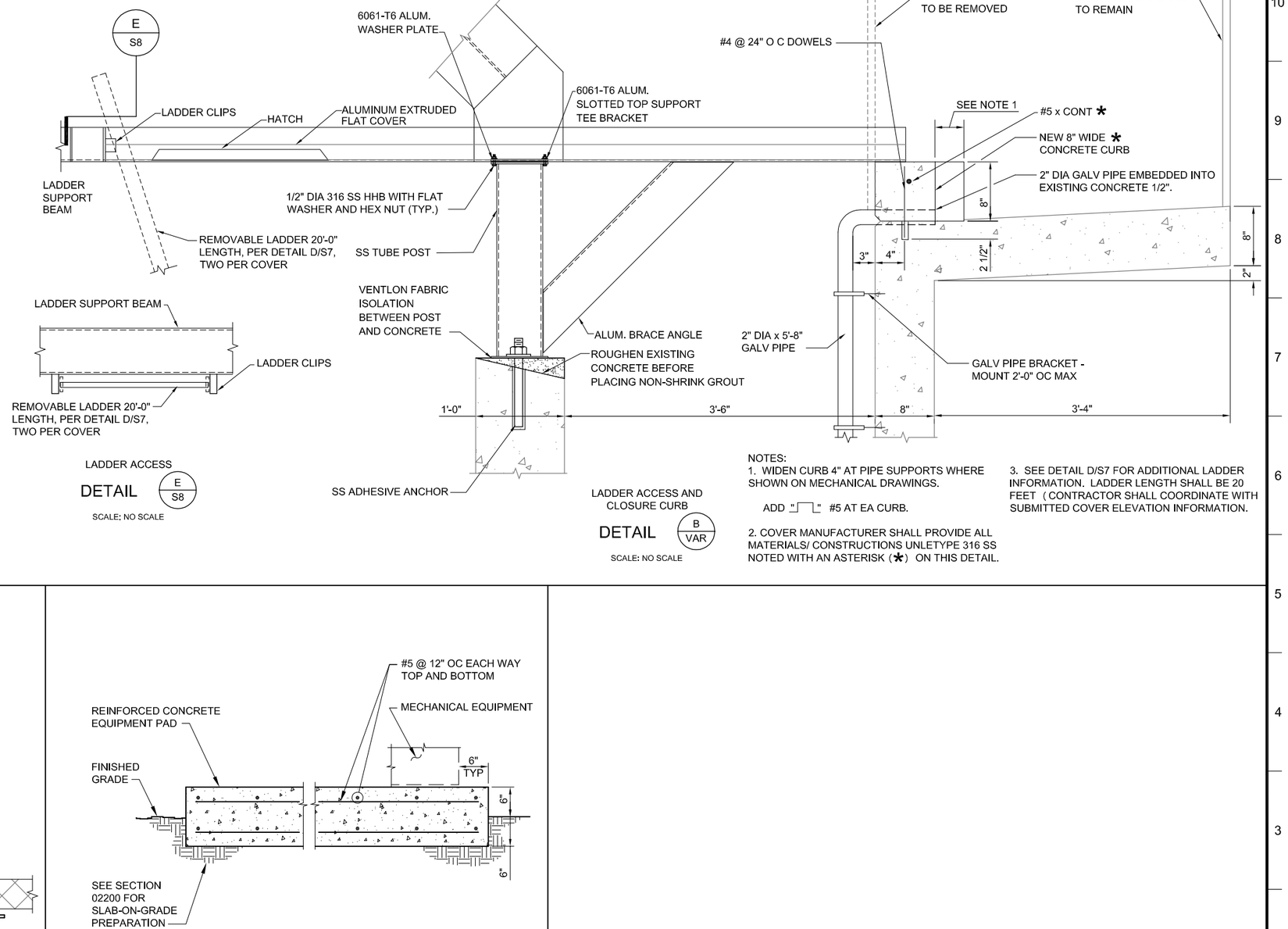


PRIMARY CLARIFIER COVER AND TROLLEY HOIST

DETAIL D/S10

SCALE: NO SCALE

NOTE:
1. COVER MANUFACTURER SHALL PROVIDE ALL MATERIALS/ CONSTRUCTION UNLESS NOTED WITH AN ASTERISK (✱) ON THIS DETAIL.



LADDER ACCESS DETAIL E/S8

SCALE: NO SCALE

LADDER ACCESS AND CLOSURE CURB DETAIL B/VAR

SCALE: NO SCALE

NOTES:
1. WIDEN CURB 4" AT PIPE SUPPORTS WHERE SHOWN ON MECHANICAL DRAWINGS.

ADD "⌐¬" #5 AT EA CURB.

2. COVER MANUFACTURER SHALL PROVIDE ALL MATERIALS/ CONSTRUCTIONS UNLETYPE 316 SS NOTED WITH AN ASTERISK (✱) ON THIS DETAIL.

3. SEE DETAIL D/S7 FOR ADDITIONAL LADDER INFORMATION. LADDER LENGTH SHALL BE 20 FEET (CONTRACTOR SHALL COORDINATE WITH SUBMITTED COVER ELEVATION INFORMATION.

CONCRETE EQUIPMENT PAD DETAIL F/VAR

SCALE: NO SCALE

BROWN AND CALDWELL

PORTLAND, OREGON

SUBMITTED: _____ DATE: _____ (PROJECT MANAGER)

APPROVED: _____ DATE: _____ (BROWN AND CALDWELL)

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: J HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS

EXTERNAL REFERENCE FILES

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REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	RECORD DRAWING	REK	06-10	

Metropolitan Wastewater Management Commission

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ODOROUS AIR TREATMENT EXPANSION

STRUCTURAL

MISC DETAILS

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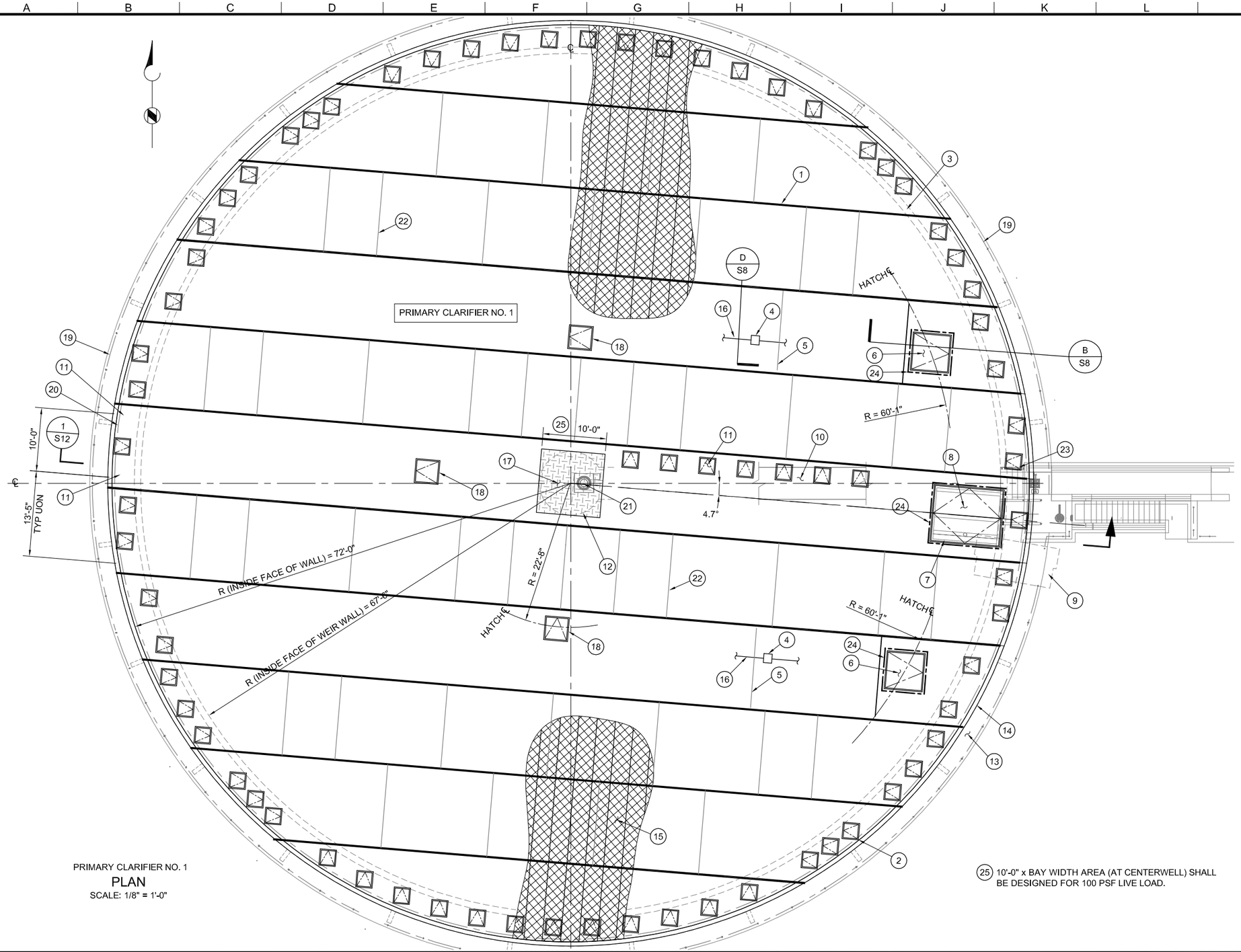
BC PROJECT NUMBER 133842
SCALE AS SHOWN
DRAWING NUMBER S8
SHEET NUMBER 42 OF 100



PRIMARY CLARIFIER NO. 1
PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. SEE MECHANICAL DRAWINGS FOR DUCT LAYOUT, CONNECTIONS, AND DETAILS.
2. CONTRACTOR IS RESPONSIBLE FOR REMOVAL/ STORAGE OF CATWALK/ GUARDRAIL (AS DIRECTED BY THE OWNER) AFTER DISASSEMBLY.
3. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. WHERE ACTUAL CONDITIONS CONFLICT WITH THE DRAWINGS, THEY SHALL BE REPORTED TO THE ENGINEER SO THAT THE PROPER REVISIONS MAY BE MADE.
4. COVER MANUFACTURER SHALL VERIFY ALL EXISTING CLARIFIER AND ASSOCIATED CONSTRUCTION DIMENSIONS PRIOR TO FABRICATION.
5. COVER MANUFACTURER SHALL PROVIDE (4) SAFETY SIGNS (12" x 18" MINIMUM) WHICH CAN ATTACH TO THE COVERS WARNING STAFF/ VISITORS OF DANGER WHEN THE COVER IS OPEN.
6. COVER SYSTEM SHALL BE ALIGNED AS SHOWN SO THAT TRUSSES DO NOT OBSTRUCT HATCH OPENING AT SCUM BEACH.
7. SEE E104 FOR RELOCATION AND INSTALLATION OF ELECTRICAL CONDUITS AND PULL BOXES.

KEY NOTES:

1. ALUMINUM TRUSS, TYPICAL (MAXIMUM OF10).
2. 2'-3" x 2'-3" ACCESS HATCH, TYPICAL (67).
3. WEIR WALL (TRUSS SUPPORT WALL).
4. HOIST.
5. HOIST SUPPORT FRAMING (BY COVER MANUFACTURER).
6. 6'-0" x 6'-0" ACCESS HATCH. TRUSS COVER SYSTEM SHALL BE DESIGNED TO WITHSTAND 5000 LB POINT LOAD (SAFETY RETRIEVAL LOAD) AT THIS LOCATION.
7. SCUM BEACH AND TROUGH, SHOWN DASHED BELOW.
8. 10'-8" x 8'-8" ACCESS HATCH DOUBLE DOOR.
9. REMOVE EXISTING ACCESS PLATFORM.
10. REMOVE EXISTING CATWALK/ PLATFORM. DISASSEMBLE AT MID-POINT AND RELOCATE 30'-1/2" SECTION AS SHOWN ON SHEET S14.
11. 2'-0" x 2'-0" ACCESS HATCHES AT EXISTING SPRAYERS, TYP OF (6).
12. AREA DEPRESSED 6" BELOW TOP OF COVER TO PROVIDE ACCESS TO EXISTING OIL PAN/ SUMP AREA FOR ROUTINE MAINTENANCE.
13. EXISTING WALKWAY.
14. EXISTING EXTERIOR WALL (BELOW).
15. ALUMINUM EXTRUDED FLAT COVER PANELS, TYP.
16. ALUMINUM MONORAIL BEAM (BY COVER MANUFACTURER). FULL LENGTH OF COVER.
17. SEAL AREA AROUND DRIVE MECHANISM AS REQUIRED TO MAINTAIN AIR TIGHTNESS CRITERIA WITH REMOVABLE ALUMINUM PLATES.
18. 3'-9" x 3'-9" ACCESS HATCH, TYP OF (3). LOCATE ABOVE ENERGY DISSIPATING INLETS.
19. EXISTING GUARDRAIL TO REMAIN.
20. REMOVE EXISTING GUARDRAIL (AT INSIDE FACE OF WALKWAY) TO PROVIDE ACCESS TO PERIMETER HATCHES.
21. EXISTING DRIVE GEARS, MOTOR, ENERGY DISSIPATING INLETS, AND HOPPER.
22. TYPICAL TRUSS TOP CHORD BRACING.
23. DEMO AND REMOVE EXISTING CONCRETE STAIRS.
24. NEW ALUMINUM GUARDRAIL WITH HINGED GATE AROUND HATCH AS SHOWN (BY COVER MANUFACTURER. SEE SHEET S4 FOR ADDITIONAL INFORMATION.
25. 10'-0" x BAY WIDTH AREA (AT CENTERWELL) SHALL BE DESIGNED FOR 100 PSF LIVE LOAD.

BROWN AND CALDWELL
PORTLAND, OREGON

SUBMITTED: _____ DATE: _____ (PROJECT MANAGER)
APPROVED: _____ DATE: _____ (BROWN AND CALDWELL)

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS
–

EXTERNAL REFERENCE FILES

RECORD DRAWING

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REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	RECORD DRAWING	REK	06-10	

Metropolitan Wastewater Management Commission
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ODOROUS AIR TREATMENT EXPANSION
STRUCTURAL
PRIMARY CLARIFIERS
CLARIFIER #1 COVER PLAN

FILENAME 133842-S-010
BC PROJECT NUMBER 133842
SCALE AS SHOWN
DRAWING NUMBER **S10**
SHEET NUMBER 43 OF 100

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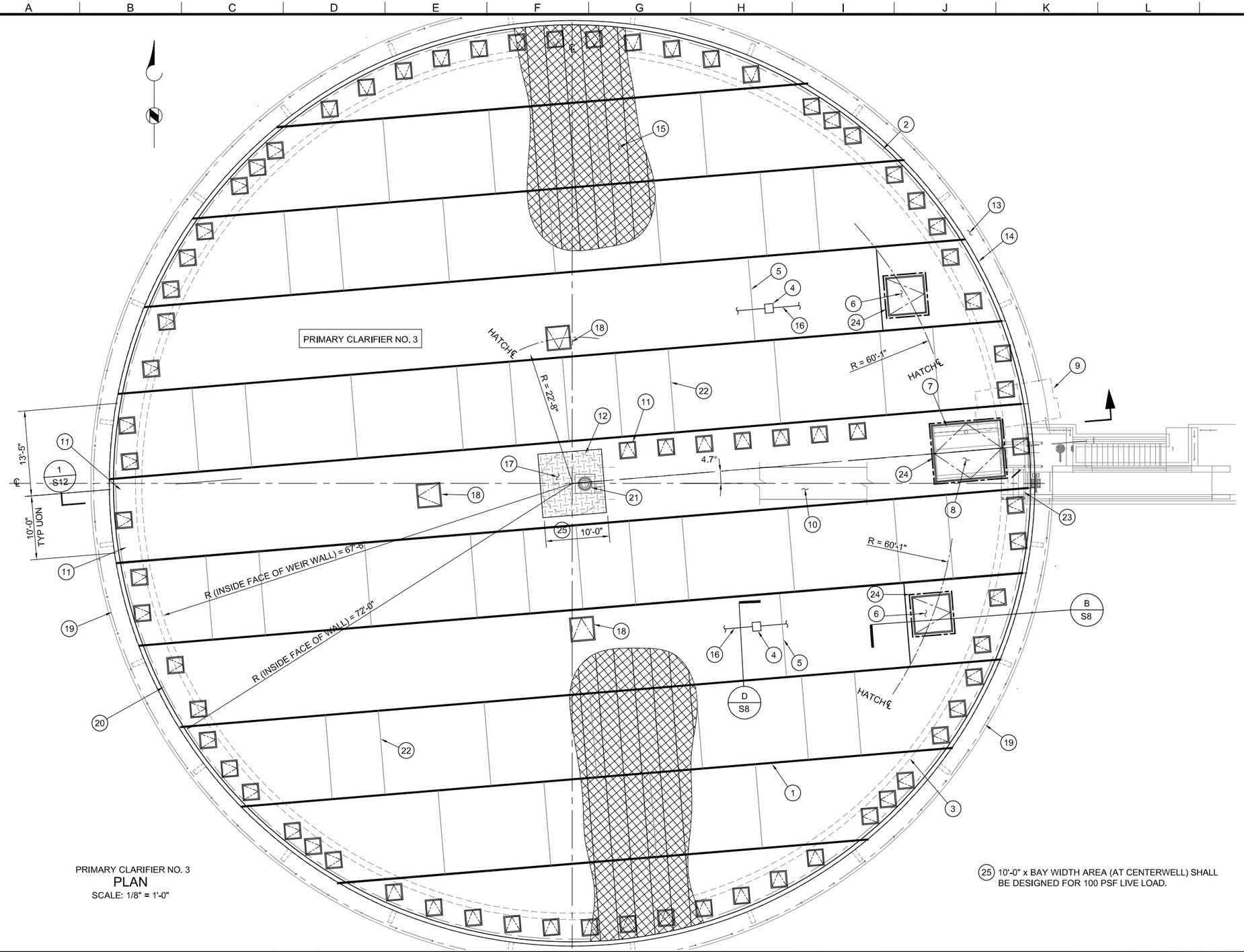
June 18, 2010 82.85



PRIMARY CLARIFIER NO. 3
PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. SEE MECHANICAL DRAWINGS FOR DUCT LAYOUT, CONNECTIONS, AND DETAILS.
2. CONTRACTOR IS RESPONSIBLE FOR REMOVAL/ STORAGE OF CATWALK/ GUARDRAIL (AS DIRECTED BY THE OWNER) AFTER DISASSEMBLY.
3. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. WHERE ACTUAL CONDITIONS CONFLICT WITH THE DRAWINGS, THEY SHALL BE REPORTED TO THE ENGINEER SO THAT THE PROPER REVISIONS MAY BE MADE.
4. COVER MANUFACTURER SHALL VERIFY ALL EXISTING CLARIFIER AND ASSOCIATED CONSTRUCTION DIMENSIONS PRIOR TO FABRICATION.
5. COVER MANUFACTURER SHALL PROVIDE (4) SAFETY SIGNS (12" x 18" MINIMUM) WHICH CAN ATTACH TO THE COVERS WARNING STAFF/ VISITORS OF DANGER WHEN THE COVER IS OPEN.
6. COVER SYSTEM SHALL BE ALIGNED AS SHOWN SO THAT TRUSSES DO NOT OBSTRUCT HATCH OPENING AT SCUM BEACH.
7. SEE E104 FOR RELOCATION AND INSTALLATION OF ELECTRICAL CONDUITS AND PULL BOXES.

KEY NOTES:

1. ALUMINUM TRUSS, TYPICAL (MAXIMUM OF10).
2. 2'-3" x 2'-3" ACCESS HATCH, TYPICAL (67).
3. WEIR WALL (TRUSS SUPPORT WALL).
4. HOIST.
5. HOIST SUPPORT FRAMING (BY COVER MANUFACTURER).
6. 6'-0" x 6'-0" ACCESS HATCH. TRUSS COVER SYSTEM SHALL BE DESIGNED TO WITHSTAND 5000 LB POINT LOAD (SAFETY RETRIEVAL LOAD) AT THIS LOCATION.
7. SCUM BEACH AND TROUGH, SHOWN DASHED BELOW.
8. 10'-8" x 8'-8" ACCESS HATCH DOUBLE DOOR.
9. REMOVE EXISTING ACCESS PLATFORM.
10. REMOVE EXISTING CATWALK/ PLATFORM. DISASSEMBLE AT MID-POINT AND RELOCATE 30'-1/2" SECTION AS SHOWN ON SHEET S14.
11. 2'-0" x 2'-0" ACCESS HATCHES AT EXISTING SPRAYERS, TYP OF (6).
12. AREA DEPRESSED 6" BELOW TOP OF COVER TO PROVIDE ACCESS TO EXISTING OIL PAN/ SUMP AREA FOR ROUTINE MAINTENANCE.
13. EXISTING WALKWAY.
14. EXISTING EXTERIOR WALL (BELOW).
15. ALUMINUM EXTRUDED FLAT COVER PANELS, TYP.
16. ALUMINUM MONORAIL BEAM (BY COVER MANUFACTURER). FULL LENGTH OF COVER.
17. SEAL AREA AROUND DRIVE MECHANISM AS REQUIRED TO MAINTAIN AIR TIGHTNESS CRITERIA WITH REMOVABLE ALUMINUM PLATES.
18. 3'-9" x 3'-9" ACCESS HATCH, TYP OF (3). LOCATE ABOVE ENERGY DISSIPATING INLETS.
19. EXISTING GUARDRAIL TO REMAIN.
20. REMOVE EXISTING GUARDRAIL (AT INSIDE FACE OF WALKWAY) TO PROVIDE ACCESS TO PERIMETER HATCHES.
21. EXISTING DRIVE GEARS, MOTOR, ENERGY DISSIPATING INLETS, AND HOPPER.
22. TYPICAL TRUSS TOP CHORD BRACING.
23. DEMO AND REMOVE EXISTING CONCRETE STAIRS.
24. NEW ALUMINUM GUARDRAIL WITH HINGED GATE AROUND HATCH AS SHOWN (BY COVER MANUFACTURER. SEE SHEET S4 FOR ADDITIONAL INFORMATION.
25. 10'-0" x BAY WIDTH AREA (AT CENTERWELL) SHALL BE DESIGNED FOR 100 PSF LIVE LOAD.

BROWN AND CALDWELL
PORTLAND, OREGON

SUBMITTED: _____ DATE: _____ (PROJECT MANAGER)
APPROVED: _____ DATE: _____ (BROWN AND CALDWELL)

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS

EXTERNAL REFERENCE FILES

RECORD DRAWING

THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWING TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	RECORD DRAWING	REK	06-10	

Metropolitan Wastewater Management Commission
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ODOROUS AIR TREATMENT EXPANSION
STRUCTURAL
PRIMARY CLARIFIERS
CLARIFIER #3 COVER PLAN

FILENAME 133842-S-011
BC PROJECT NUMBER 133842
SCALE AS SHOWN
DRAWING NUMBER **S11**
SHEET NUMBER **44** OF 100

Photo Image Filename:
Path: P:\13749 MWMC OA SDC_CAD\2-Sheets\S-Stru Filename: 133842-S-011 Plot date: Sep 07, 2010-12:30:52pm CAD User: rkingery

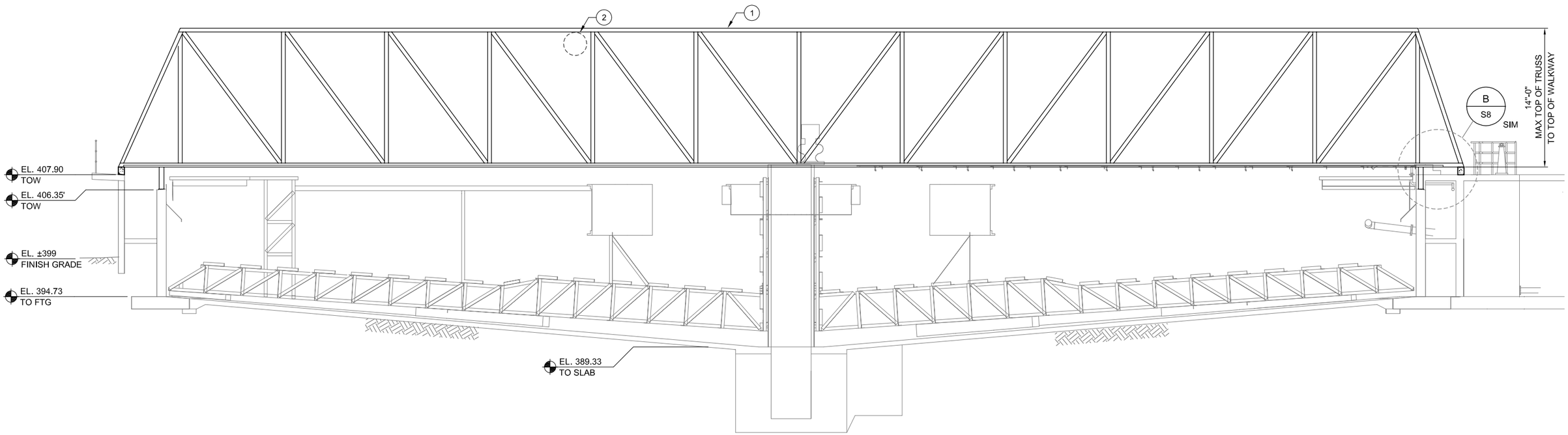
June 18, 2010 61.79

GENERAL NOTES:

1. SEE MECHANICAL DRAWINGS FOR DUCT LAYOUT.
2. CONTRACTOR IS RESPONSIBLE FOR REMOVAL/ STORAGE OF CATWALK/ GUARDRAIL (AS DIRECTED BY THE OWNER) AFTER DISASSEMBLY.

KEY NOTES:

(1) ALUMINUM TRUSS.
(2) SEE MECHANICAL DRAWINGS FOR DUCT LAYOUT.



SECTION 1/S10

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

133842-S-012

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BROWN AND CALDWELL
PORTLAND, OREGON

SUBMITTED: _____ DATE: _____ PROJECT MANAGER
APPROVED: _____ DATE: _____ BROWN AND CALDWELL

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS
–

EXTERNAL REFERENCE FILES

RECORD DRAWING

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REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	RECORD DRAWING	REK	06-10	

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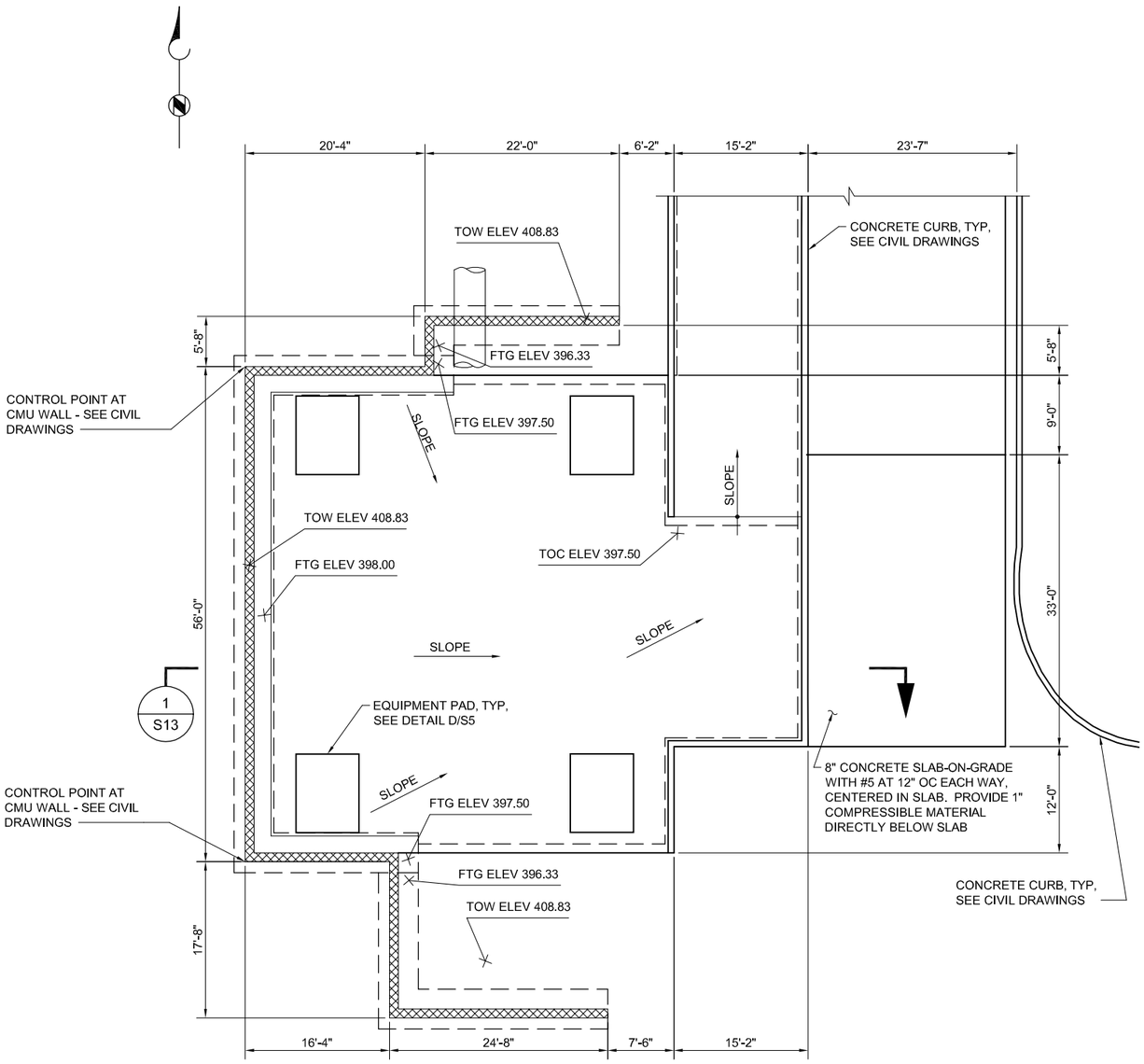
ODOROUS AIR TREATMENT EXPANSION

STRUCTURAL
PRIMARY CLARIFIERS

SECTIONS

FILENAME
BC PROJECT NUMBER 133842
SCALE AS SHOWN
DRAWING NUMBER **S12**
SHEET NUMBER 45 OF 100

June 18, 2010 36.85



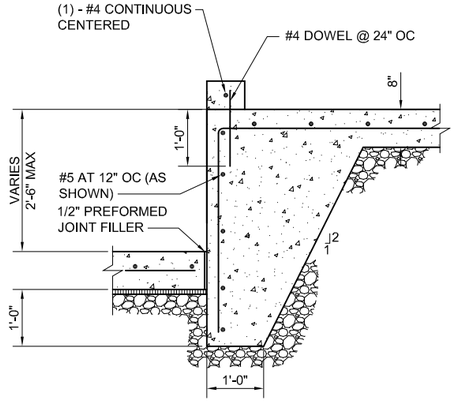
PRETREATMENT 2 AND PRIMARY CLARIFIER FANS

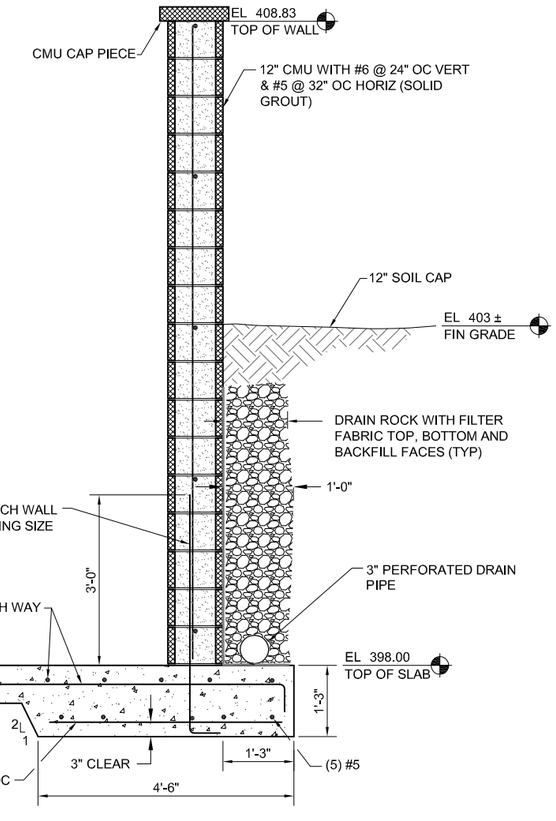
PLAN

SCALE: 1/8" = 1'

NOTES:

1. FOOTING SLAB SHALL BEAR ON UNDISTURBED NATIVE MATERIAL OR 6" MINIMUM COMPACTED CRUSHED ROCK.





SECTION 1/S13

SCALE: 3/4" = 1'

BROWN AND CALDWELL

PORTLAND, OREGON

SUBMITTED: _____ DATE: _____ (PROJECT MANAGER)

APPROVED: _____ DATE: _____ (BROWN AND CALDWELL)

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS

EXTERNAL REFERENCE FILES

RECORD DRAWING

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REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	RECORD DRAWING	REK	06-10	

Metropolitan Wastewater Management Commission

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ODOROUS AIR TREATMENT EXPANSION

STRUCTURAL
PRIMARY CLARIFIER AREA

PRETREATMENT 2 & PRIMARY CLARIFIER FANS

FILENAME 133842-S-013
BC PROJECT NUMBER 133842
SCALE AS SHOWN
DRAWING NUMBER **S13**
SHEET NUMBER 46 OF 100

June 18, 2010

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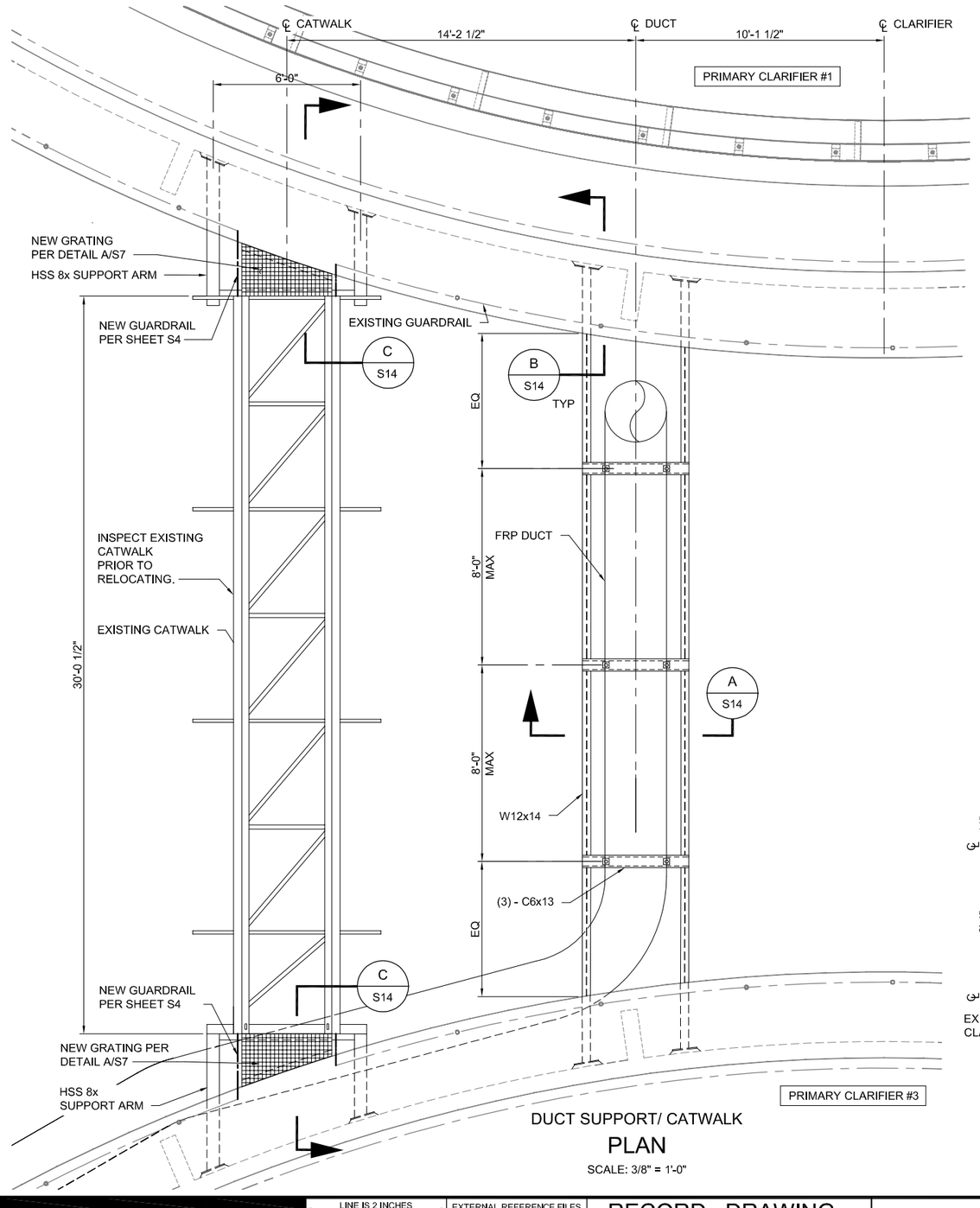
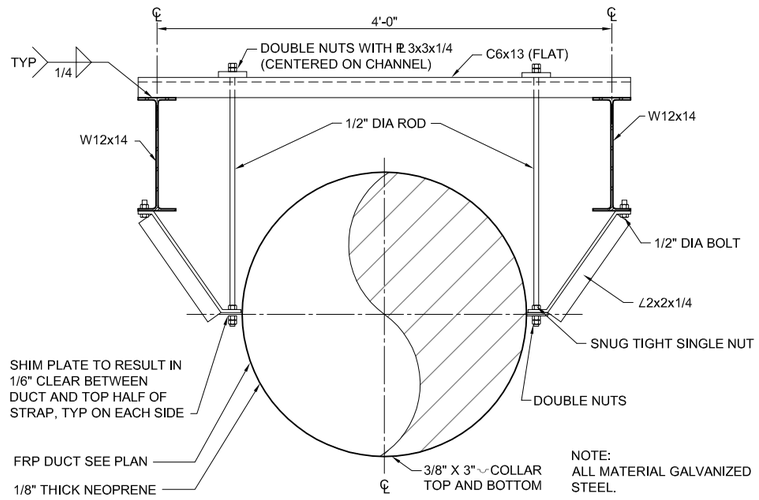


DUCT SUPPORT/ CATWALK

PLAN

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

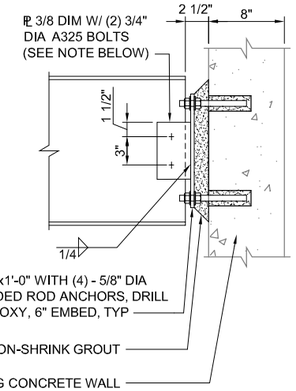


NOTE:
ALL MATERIAL GALVANIZED STEEL.

CATWALK CONNECTION

DETAIL A S14

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

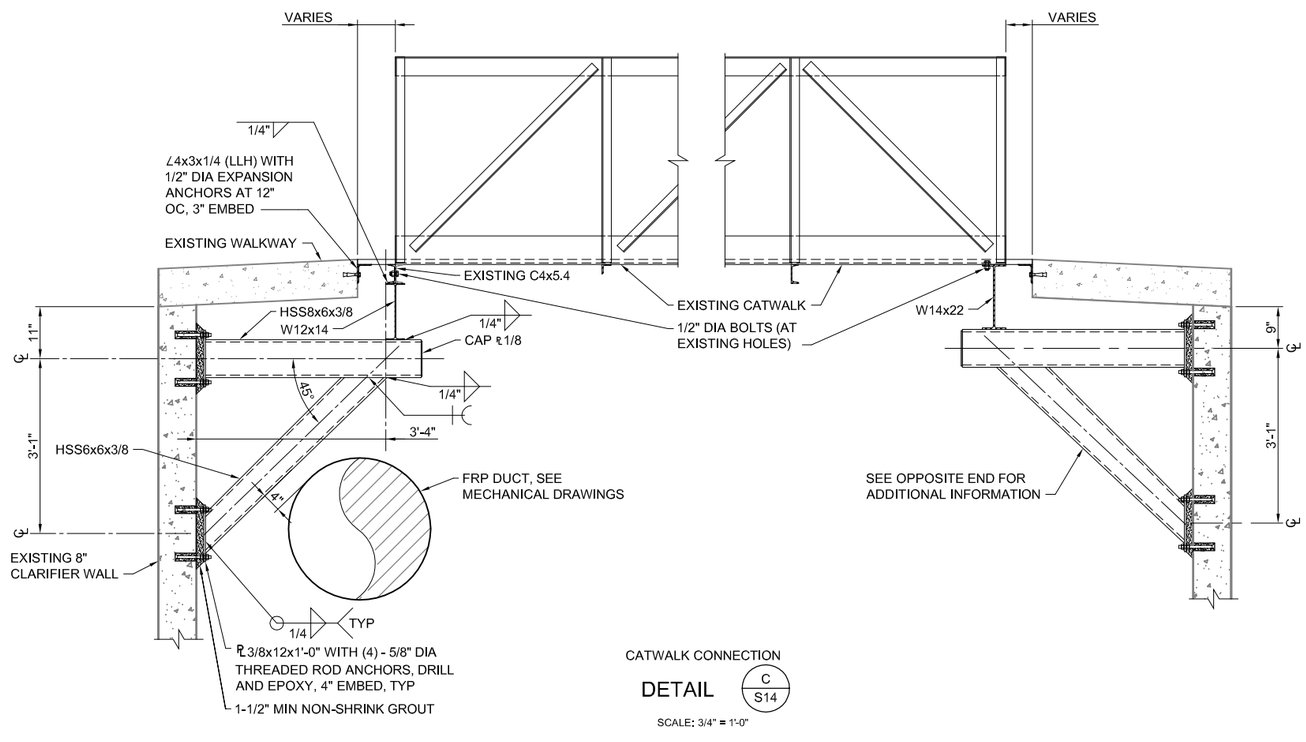


NOTE:
PROVIDE 1" LONG SLOTTED HOLES
AT SOUTH END CONNECTION

DUCT SUPPORT
CONNECTION

DETAIL B S14

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



CATWALK CONNECTION

DETAIL C S14

SCALE: 3/4" = 1'-0"

BROWN AND CALDWELL

PORTLAND, OREGON

SUBMITTED: _____ DATE: _____
PROJECT MANAGER

APPROVED: _____ DATE: _____
BROWN AND CALDWELL

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS

EXTERNAL REFERENCE FILES

RECORD DRAWING

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	1	RECORD DRAWING	REK	06-10	

Metropolitan Wastewater Management Commission

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ODOROUS AIR TREATMENT EXPANSION

STRUCTURAL
PRIMARY CLARIFIERS

CATWALK/ DUCT SUPPORT DETAILS

FILENAME 133842-S-014
BC PROJECT NUMBER 133842
SCALE AS SHOWN
DRAWING NUMBER **S14**
SHEET NUMBER 47 OF 100

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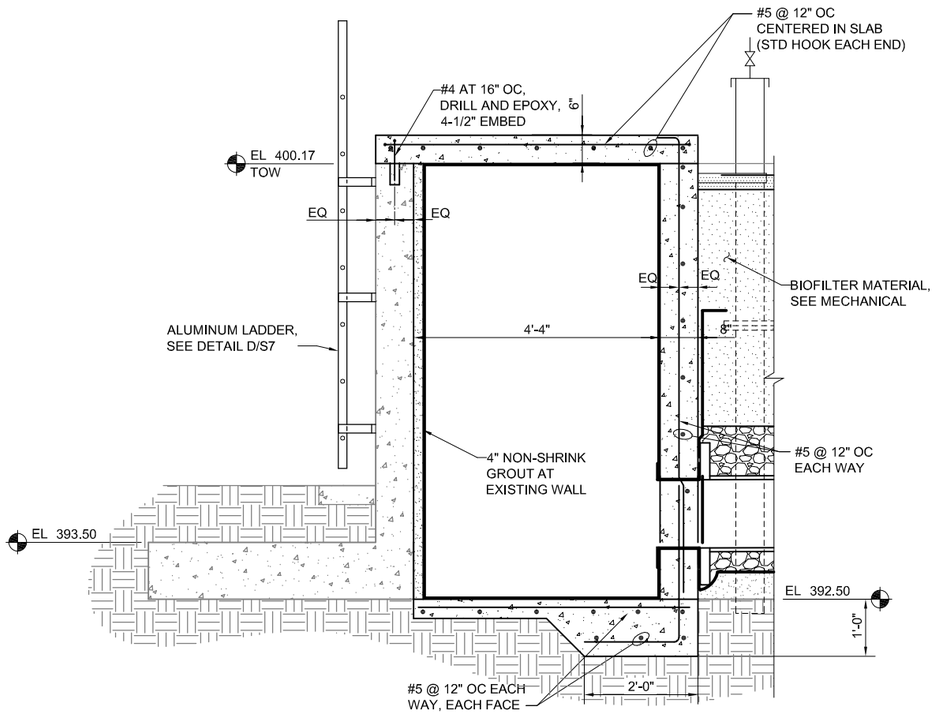
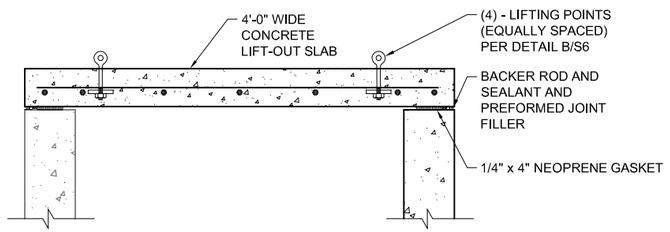
June 18, A10 55.35



NOTE:
1. WHERE NEW WALLS ARE ADJACENT TO EXISTING WALLS ATTACH WITH ADHESIVE ANCHORS PER DETAIL E/S4.

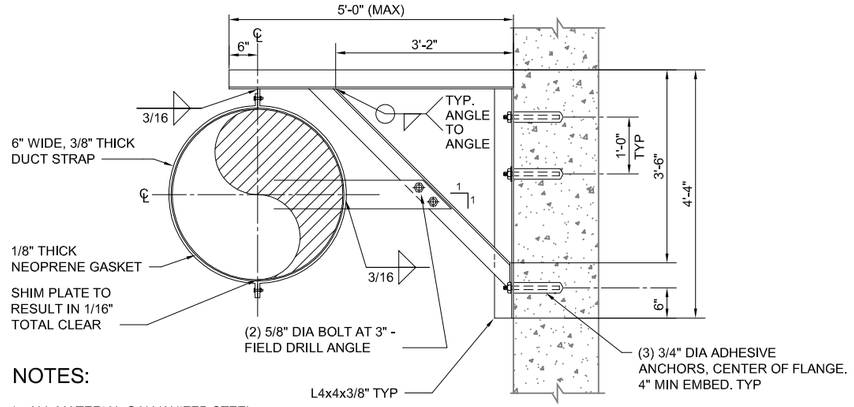
SECTION 3 / M501

SCALE: 3/4" = 1'-0"



DETAIL A / M501

SCALE: 1" = 1'-0"

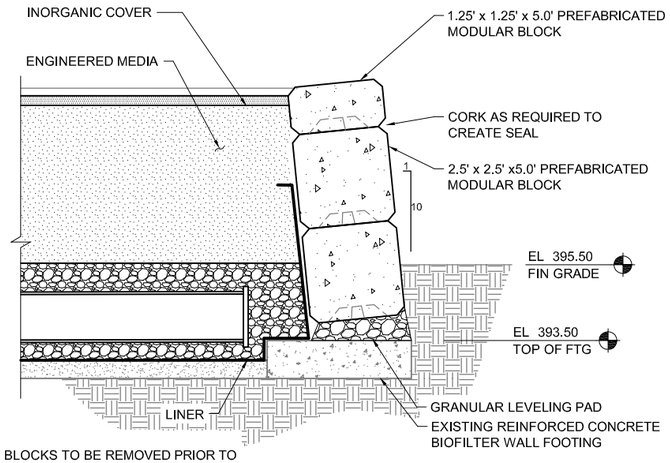


NOTES:

1. ALL MATERIAL GALVANIZED STEEL.
2. ALL HARDWARE STAINLESS STEEL TYPE 316.
3. MAINTAIN ELEVATION AND ALIGNMENT AROUND CLARIFIER. SEE MECHANICAL DRAWINGS.

DETAIL C / VAR

SCALE: 3/4" = 1'-0"



NOTES:

1. MODULAR BLOCKS TO BE REMOVED PRIOR TO ENGINEERED MEDIA (DURING FUTURE BIOFILTER MEDIA MAINTENANCE/ REPLACEMENT).
2. SEE DETAIL F/M505 FOR LINER ATTACHMENT INFORMATION.

DETAIL B / VAR

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

DETAIL D / VAR

SCALE: 3/4" = 1'-0"

BROWN AND CALDWELL

PORTLAND, OREGON

SUBMITTED: _____ DATE: _____ (PROJECT MANAGER)

APPROVED: _____ DATE: _____ (BROWN AND CALDWELL)

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED: T. MILLS

EXTERNAL REFERENCE FILES

RECORD DRAWING

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REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	RECORD DRAWING	REK	06-10	

Metropolitan Wastewater Management Commission

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ODOROUS AIR TREATMENT EXPANSION

STRUCTURAL
PRIMARY CLARIFIERS

MISC DETAILS

FILENAME 133842-S-015
BC PROJECT NUMBER 133842
SCALE AS SHOWN
DRAWING NUMBER S15
SHEET NUMBER 48 OF 100

Photo Image Filename:
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June 18, 2010

76.78