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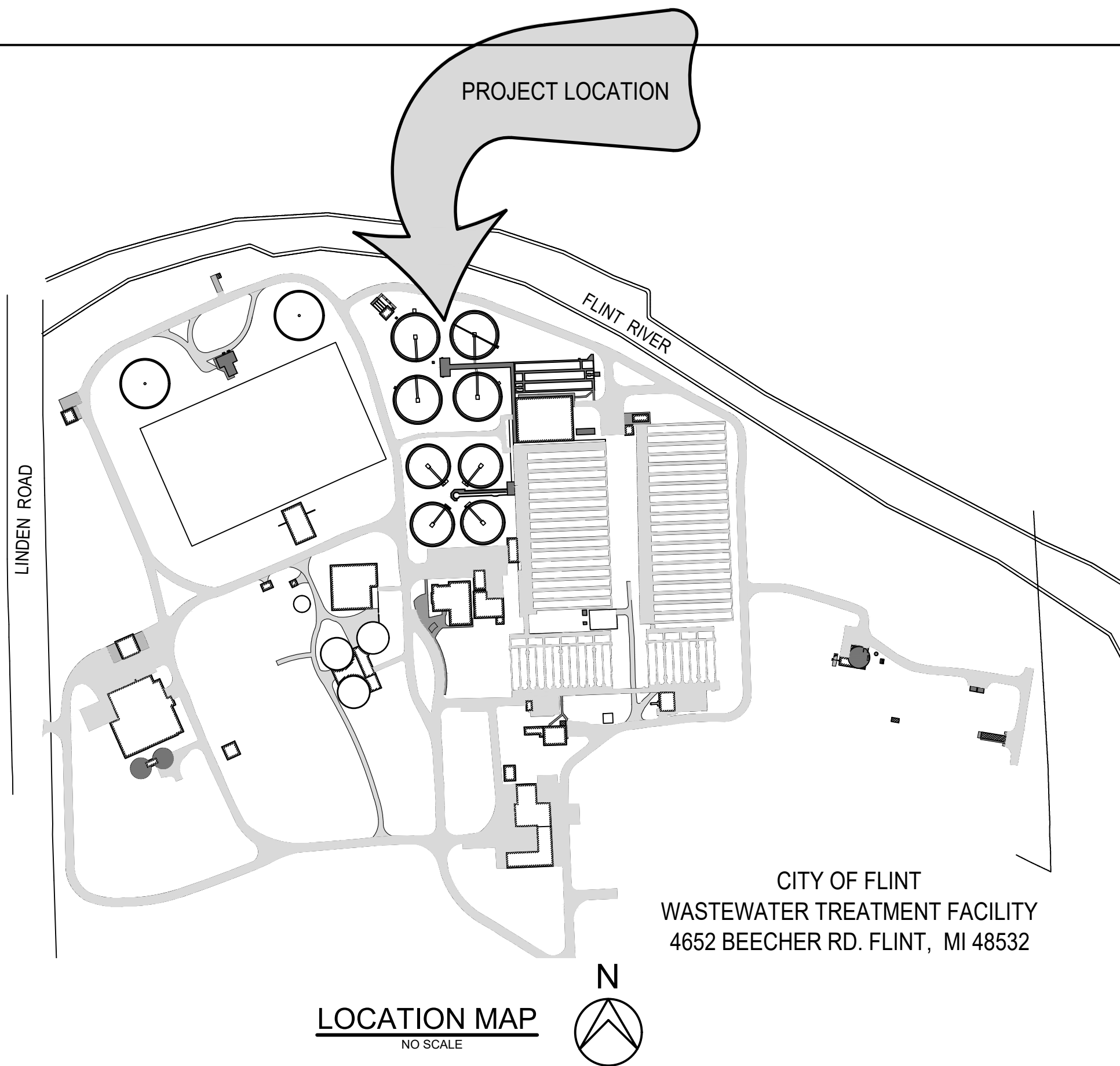
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Bergano, John

LIST OF DRAWINGS

SHEET NO.	SHEET TITLE	REFERENCE
COVER	COVER SHEET	R-1 THRU R-5 SECONDARY CLARIFIERS 1-4 REFERENCE
		R-6 THRU R-10 SECONDARY CLARIFIERS 5-8 REFERENCE
<u>DEMOLITION</u>		
D-1	SECONDARY CLARIFIERS 1-4 DEMOLITION	
D-2	SECONDARY CLARIFIERS 5-8 DEMOLITION	
<u>STRUCTURAL</u>		
S-1	SECONDARY CLARIFIERS STRUCTURAL NOTES	
S-2	SECONDARY CLARIFIERS 1-8 OVERALL STRUCTURAL SITE PLAN	
S-3	SECONDARY CLARIFIERS 1 & 2 STRUCTURAL REPAIR PLAN	
S-4	SECONDARY CLARIFIERS 3 & 4 STRUCTURAL REPAIR PLAN	
S-5	SECONDARY CLARIFIERS 5-8 STRUCTURAL REPAIR PLAN	
S-6	SECONDARY CLARIFIERS 1-4 SECTIONS	
S-7	SECONDARY CLARIFIERS 5-8 SECTIONS	
S-8	SECONDARY CLARIFIERS STRUCTURAL REPAIR DETAILS	
<u>PROCESS</u>		
P-1	SECONDARY CLARIFIERS 1-4 ORIENTATION AND BURIED PIPING PLAN	
P-2	SECONDARY CLARIFIERS 5-8 ORIENTATION AND BURIED PIPING PLAN	
P-3	SECONDARY CLARIFIERS 1-4 PLAN	
P-4	SECONDARY CLARIFIERS 1-4 SECTIONS	
P-5	SECONDARY CLARIFIERS 5-8 PLAN	
P-6	SECONDARY CLARIFIERS 5-8 SECTIONS	
P-7	SCUM BOX DETAILS	
P-8	DETAILS	



MICHIGAN DEPARTMENT
OF ENVIRONMENTAL QUALITY

PERMIT NO. _____

DATE _____

SEAL

HUBBELL, ROTH & CLARK, INC.
JOB NO. 20200783

PREPARED UNDER THE SUPERVISION OF:
TREVOR S. WAGENMAKER

REGISTERED PROFESSIONAL ENGINEER
MICHIGAN REGISTRATION NO. 6201040131

CITY OF FLINT

WATER POLLUTION CONTROL FACILITY SECONDARY CLARIFIER IMPROVEMENTS



CITY OF FLINT, MICHIGAN PUBLIC UTILITIES DEPARTMENT

JOB NO. 20200783
SRF NO. 5709-01

ISSUED FOR BIDS
JUNE 21, 2021

CITY ADMINISTRATION

JEANETTE BEST - WPCF SUPERINTENDENT
MICHAEL BROWN - PUBLIC WORKS DIRECTOR
INEZ M. BROWN - CITY CLERK

PREPARED BY:



555 HULET DRIVE
BLOOMFIELD HILLS, MICH.

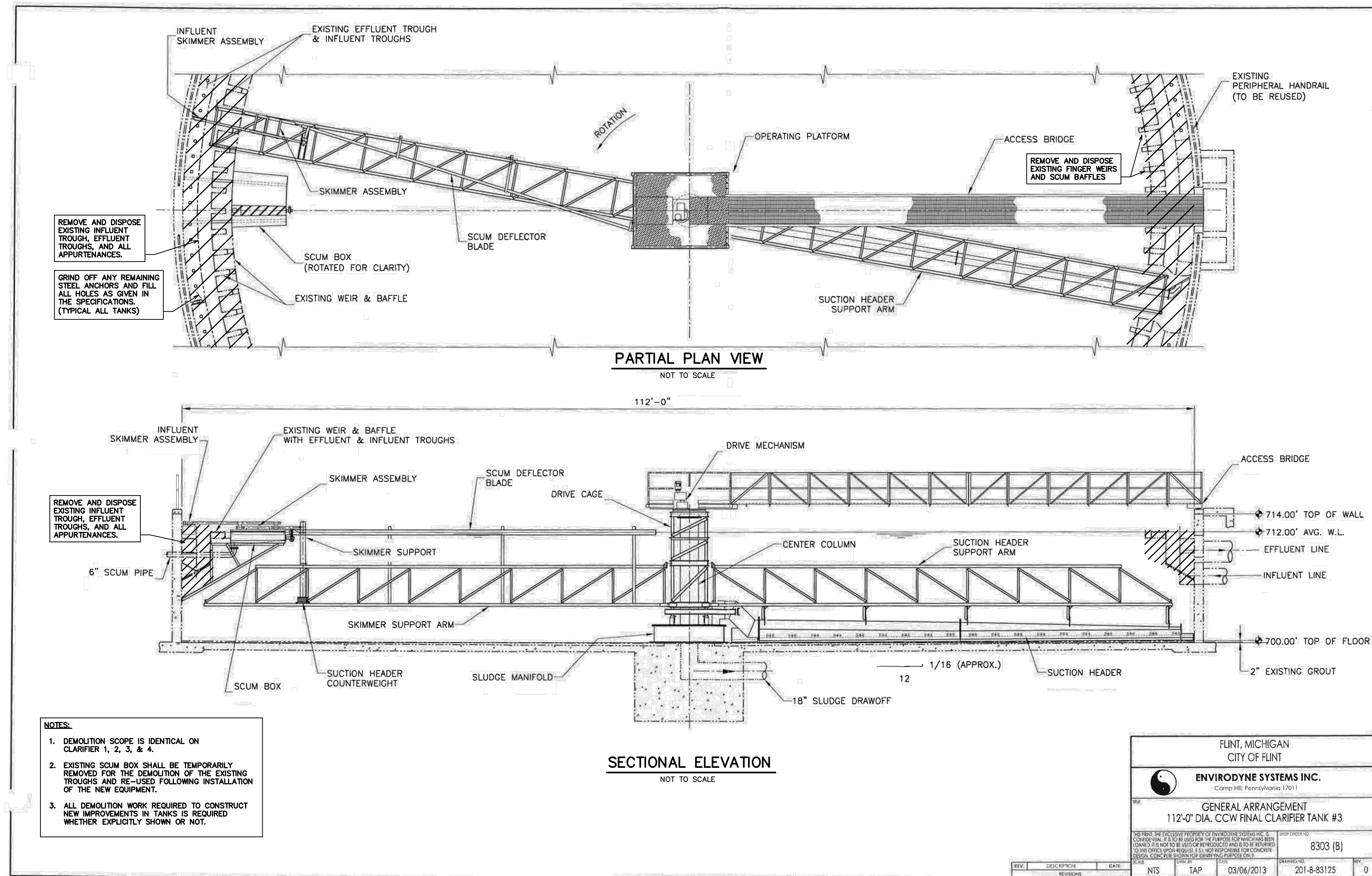
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WEB SITE: [http:// www.hrc-engr.com](http://www.hrc-engr.com)



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MAURICE DAVIS - SECOND WARD
SANTINO J. GUERRA - THIRD WARD
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JERRI WINFREY-CARTER - FIFTH WARD
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MONICA GALLOWAY - SEVENTH WARD
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EVA WORHTING - NINTH WARD



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CONSULTING ENGINEERS SINCE 1915

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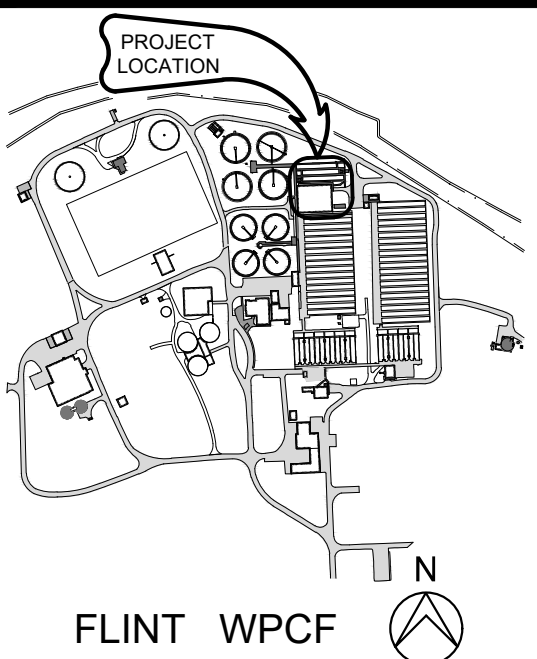
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6-17-21	ISSUED FOR BIDS
5-28-21	FINAL EGLE SUBMITTAL
4-30-21	DRAFT SUBMITTAL
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	
DRAWN	
CHECKED	
APPROVED	

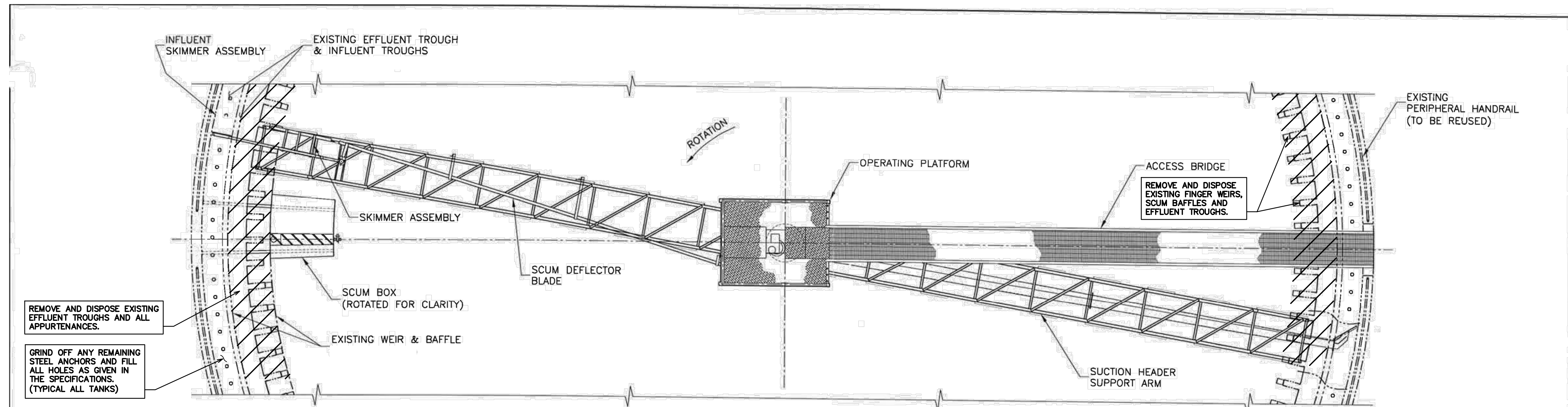


CITY OF FLINT

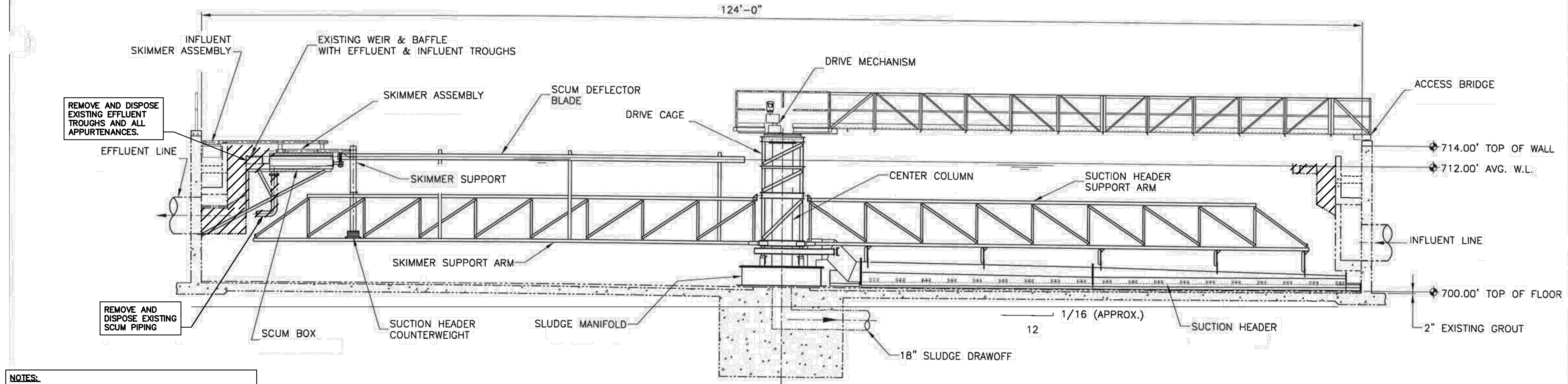
FLINT WPCF
SECONDARY
CLARIFIER
IMPROVEMENTS

SECONDARY CLARIFIERS 1-4
DEMOLITION

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. D-1 OF



PARTIAL PLAN VIEW



SECTIONAL ELEVATION

NOT TO SCALE

- NOTES:**
- DEMOLITION SCOPE IS IDENTICAL ON CLARIFIER 5, 6, 7, & 8.
 - EXISTING SCUM BOX SHALL BE TEMPORARILY REMOVED FOR THE DEMOLITION OF THE EXISTING TROUGHS AND RE-USED FOLLOWING INSTALLATION OF THE NEW EQUIPMENT.
 - ALL DEMOLITION WORK REQUIRED TO CONSTRUCT NEW IMPROVEMENTS IN TANKS IS REQUIRED WHETHER EXPLICITLY SHOWN OR NOT.

FLINT, MICHIGAN CITY OF FLINT	
ENVIRODYNE SYSTEMS INC. Camp Hill, Pennsylvania 17011	
GENERAL ARRANGEMENT 124'-0" DIA. CCW FINAL CLARIFIER TANK #6	
THIS DRAWING IS THE EXCLUSIVE PROPERTY OF ENVIRODYNE SYSTEMS INC. IF LOANED, IT IS TO BE USED FOR THE PURPOSE FOR WHICH IT HAS BEEN LOANED. IT IS NOT TO BE USED OR REPRODUCED AND IS TO BE RETURNED TO THIS OFFICE UPON REQUEST. E.S.I. NOT RESPONSIBLE FOR CONCRETE DESIGN. CONCRETE SHOWN FOR IDENTIFYING PURPOSE ONLY.	
REV.	DESCRIPTION
NTS	TAP
DATE	03/06/2013
SCALE	201-B-83137
REV.	0

NOTE:

SCUM BOX SHALL BE TEMPORARILY REMOVED FOR THE DEMOLITION OF THE EXISTING TROUGHS AND RE-USED FOLLOWING INSTALLATION OF THE NEW EQUIPMENT. PIPING SHALL BE REPLACED FOR RECONNECTION TO EXISTING SCUM DISPOSAL OUTLET STRUCTURE. SEE P-6 FOR DETAILS.

NOTICE:

THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT. NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION/DEMOLITION ACTIVITIES. WORK ITEMS ON THIS DRAWING ARE SHOWN THUS "□". THIS DRAWING IS NOT TO SCALE.

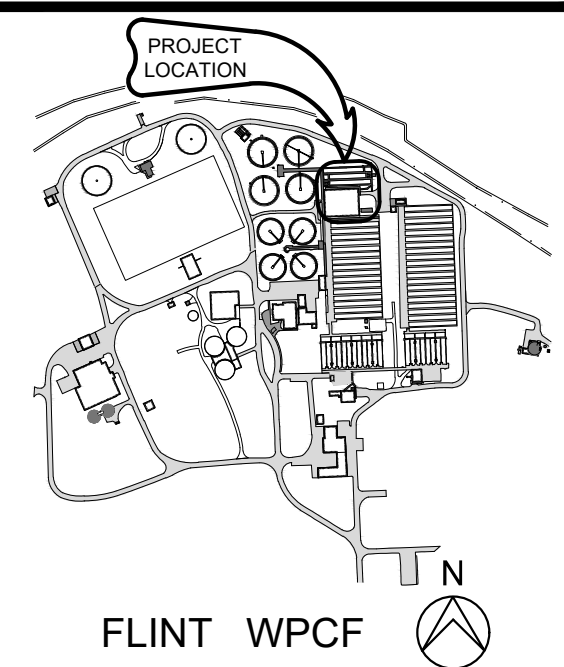


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CITY OF FLINT

**FLINT WPCF
SECONDARY
CLARIFIER
IMPROVEMENTS**

SECONDARY CLARIFIERS 5-8
DEMOLITION

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. D-2 OF

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Borkho, Tyler

GENERAL NOTES

1. DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES ARE BASED ON PREVIOUS CONTRACT DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING W/ FIELD MEASUREMENTS ALL DIMENSIONS AND ELEVATIONS FOR FABRICATION AND/OR MODIFICATIONS OR ADDITIONS BEING MADE UNDER THIS CONTRACT. ANY DISCREPANCIES SHALL BE PRESENTED TO THE OWNER PRIOR TO FABRICATIONS OR CONSTRUCTION OF IMPACTED ITEMS.
2. ALL EXISTING DIMENSIONS AND ELEVATIONS SHOWN WITH THE ± SYMBOL, ARE APPROXIMATE AND SHALL BE VERIFIED IN FIELD BY THE CONTRACTOR BEFORE FABRICATION AND CONSTRUCTION.
3. ALL DIMENSIONS OR ELEVATIONS MARKED WITH AN ASTERISK *** SHALL BE DETERMINED OR VERIFIED WITH EQUIP. MFR. CERTIFIED SHOP DRAWINGS OR FIELD MEASUREMENTS OF EXISTING CONSTRUCTION BEFORE FABRICATION AND CONSTRUCTION.
4. ALL ELEVATIONS ARE BASED ON NAVD 88.

DEMOLITION

1. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT DAMAGE TO EXITING STRUCTURES, WHICH ARE TO REMAIN DURING DEMOLITION WORK. ALL DAMAGE SHALL BE REPAIRED TO THE COMPLETE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
2. WHEN REMOVING EXISTING CONCRETE BY CUTTING OR CHIPPING THE CONTRACTOR SHALL ONLY REMOVE REINFORCING BARS WHICH CANNOT BE BENT INTO AREAS WHERE NEW CONCRETE WOULD COMPLETELY COVER THEM.
3. IF FRACTURE OF ADJACENT CONCRETE OCCURS DURING DEMOLITION/ ALTERATION WORK, THE REPAIR SHALL BE WITH AN ENGINEER APPROVED PRESSURE INJECTED EPOXY, TO THE COMPLETE SATISFACTION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.
4. CONTRACTOR SHALL PROVIDE WRITTEN PLAN AND DESCRIPTION OF ALL DEMOLITION, MODIFICATION, OR ALTERATION OF WORK ON EXISTING STRUCTURES FOR REVIEW AND ACCEPTANCE PRIOR TO BEGINNING WORK.

CONCRETE REPAIR

1. SEE SHEET S-8 FOR CONCRETE REHABILITATION AND REPAIR DETAILS.
2. FOR CONCRETE REHABILITATION MATERIAL, SEE SPECIFICATION SECTION 03 93 00.
3. NON-STRUCTURAL CONCRETE CRACK REPAIR SHALL BE PERFORMED USING A HYDROPHILIC POLYURETHANE INJECTION. STRUCTURAL CRACKS SHALL BE REPAIRED WITH AN APPROVED EPOXY INJECTION. DETERMINATION OF WHICH CRACKS ARE CONSIDERED STRUCTURAL AND NON-STRUCTURAL SHALL BE PERFORMED BY THE ENGINEER AND MARKED BY THE CONTRACTOR. THE QUANTITIES OF CRACK REPAIR FOR BIDDING PURPOSES ARE PRESENTED IN THE "STRUCTURAL REPAIR SCHEDULE" ON SHEET S-8.

HIGH PERFORMANCE COATINGS

1. THE HIGH PERFORMANCE COATING SYSTEM SHALL BE AS FOLLOWS:
- A - BASE COAT - EPOXY/CEMENTITIOUS FILLER AS REQUIRED (PER MANUFACTURERS RECOMMENDATIONS)
- B - INTERMEDIATE COAT - GLASS FLAKE FILLED AMINE EPOXY - 15 MILS
- C - TOP COAT - GLASS FLAKE FILLED AMINE EPOXY - 15 MILS

STRUCTURAL REPAIRS

BASE BID

1. THE QUANTITIES FOR CONCRETE REPAIRS INCLUDING CRACK REPAIRS, SPALL REPAIRS AND GROUT TOPPING REPLACEMENT, AND PRESSURE RELIEF VALVE REPAIRS ARE PRESENTED IN THE "CONCRETE REPAIR QUANTITIES" TABLE ON SHEET S-8. THESE QUANTITIES ARE BASED ON PREVIOUS INSPECTIONS FROM VARIOUS TIMES IN THE PAST. THESE QUANTITIES SHOULD BE INCLUDED IN THE BASE BID VALUES FOR THIS CONTRACT. UNIT COSTS FOR QUANTITIES GREATER THAN THOSE PRESENTED (ADDED COSTS) AND UNIT COSTS FOR QUANTITIES LESS THAN THOSE PRESENTED (DEDUCT COSTS) SHALL BE INCLUDED IN THE BID FORMS. FINAL QUANTITIES WILL BE DETERMINED IN THE FIELD AFTER AWARD OF THE CONTRACT WHEN THE TANKS ARE EMPTIED AND PROPERLY CLEANED.

BID ALTERNATE #1: SEE PROCESS DRAWINGS AND SPECIFICATIONS,

BID ALTERNATE #2: CONTRACTOR SHALL PROVIDE A COST TO APPLY THE HIGH PERFORMANCE COATING TO THE WALLS OF ALL 8 CLARIFIERS AS INDICATED ON THE DRAWINGS (SHEETS S-6 AND S-7). THIS INCLUDES COATING OF THE CONCRETE INFLUENT TROUGH FOR CLARIFIERS 5, 6, 7 AND 8 AS INDICATED.


BID ALTERNATE #3: CONTRACTOR SHALL PROVIDE A COST TO APPLY THE HIGH PERFORMANCE COATING TO THE FLOORS OF ALL 8 CLARIFIERS AS INDICATED ON THE DRAWINGS (SHEETS S-6 AND S-7).

STRUCTURAL ABBREVIATIONS


ALT ALUM	ALTERNATE ALUMINUM	HK HT	HOOK HEIGHT
B/ BLDG	BOTTOM BUILDING	ID IE	INSIDE DIAMETER INVERT ELEVATION
BM BOT	BEAM BOTTOM	IF IN	INSIDE FACE INCHES
BSMT	BASEMENT	INFL INT	INFLUENT INTERIOR
CHAN	CHANNEL	JT	JOINT
CIP	CAST-IN-PLACE	KIP	THOUSAND POUNDS
CJ	CONSTRUCTION JOINT	KB	KNEE BRACE
CL	CENTERLINE	LP	LOW POINT
CLR	CLEAR	LGTH	LENGTH
COL	COLUMN	MAX	MAXIMUM
CONC	CONCRETE	MFR	MANUFACTURER
CONST	CONSTANT	MIN	MINIMUM
CONSTR	CONSTRUCTION	MO	MASONRY OPENING
CONT	CONTINUOUS	NF	NEAR FACE
CLSM	CONTROLLED LOW STRENGTH MATERIAL	NS	NEAR SIDE
COR	CORNER	NTS	NOT TO SCALE
CY	CUBIC YARD	NIC	NOT IN CONTRACT
DET	DETAIL	OC	ON CENTER
DIA/Ø	DIAMETER	OD	OUTSIDE DIAMETER
DIAG	DIAGNOL	OF	OUTSIDE FACE
DISC	DISCONTINUOUS	OPNG	OPENING
DIST	DISTANCE	PEMB	PRE-ENGINEERED
DWG	DRAWING	PRV	PRESSURE RELIEF VALVE
DWGS	DRAWINGS	PSF	POUNDS PER SQ. FOOT
DWLS	DOWELS	PSI	POUNDS PER SQ. INCH
EJ	EXPANSION JOINT	REINF	REINFORCMENT
EE	EACH END	RE	REFER TO
EF	EACH FACE	SCHED	SCHEDULE
EFF	EFFLUENT	SET	SETTLING
ES	EACH SIDE	SHTS	SHEETS
EW	EACH WAY	SIM	SIMILAR
EA	EACH	SJ	SLAB CONTROL JOINT
EL/ELEV	ELEVATION	SS	STAINLESS STEEL
EX	EXISTING	STIR	STIRRUPS
EXT	EXTERIOR/EXTENSION	STRUCT	STRUCTURAL
FD	FLOOR DRAIN	TOS	ELEVATION TOP OF STRUCTURAL STEEL
FF	FAR FACE	T/ TYP	TOP TYPICAL
FS	FAR SIDE	UNO	UNLESS NOTED OTHERWISE
FIN	FINISH	V	VERTICAL
FL	FLOOR	WP	WORK POINT
FND	FOUNDATION		
FST	FINAL SETTLING TANK		
FT	FEET		
GALV	GALVANIZED		
GR	GRADE		
H/HORIZ	HORIZONTAL		
HP	HIGH POINT		

ADHESIVE ANCHORING SYSTEM MINIMUM EMBEDMENT DEPTH FOR DOWELS AND RODS		
REINFORCING BARS/DOWELS		
BAR SIZE	EMBED DEPTH	REMARKS
#3	5 1/2"	
#4	5 1/2"	
#5	7"	
#6	8 1/2"	
#7	10"	
#8	11 3/4"	
ANCHOR RODS		
BOLT DIA	EMBED DEPTH	
3/8"	3 1/2"	
1/2"	4 1/4"	
5/8"	5"	
3/4"	6 5/8"	
1"	8 1/4"	
NOTE 1. ALL ANCHORS INSTALLED WITH AN ADHESIVE ANCHORING SYSTEM SHALL, AT A MINIMUM, HAVE THE EMBEDMENT DEPTHS INDICATED IN THE TABLE ABOVE UNLESS SPECIFICALLY INDICATED OTHERWISE ON DRAWINGS. 2. CONFIRM REQUIRED EMBEDMENT DEPTHS WITH MANUFACTURERS REQUIREMENTS FOR DEVELOPING THE TENSION CAPACITY OF THE ANCHOR RODS (TYP).		





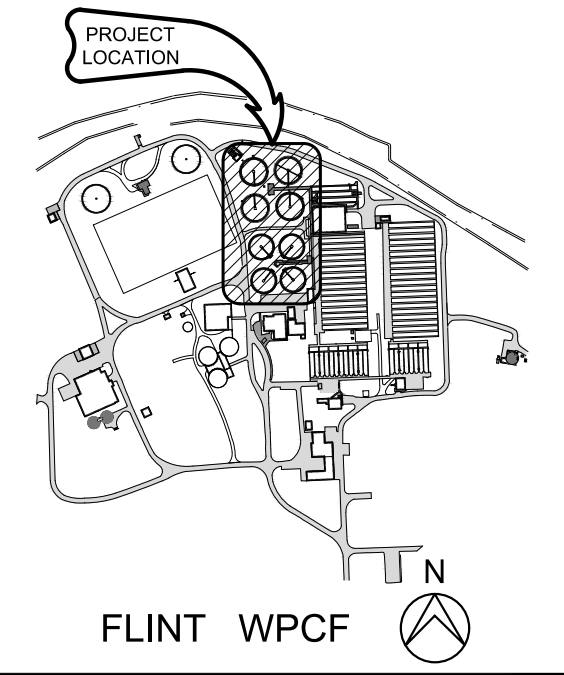
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5-28-21	FINAL EGLE SUBMITTAL
4-30-21	DRAFT SUBMITTAL
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	J.K.W.
DRAWN	T.S.B.
CHECKED	J.K.W.
APPROVED	



CITY OF FLINT

**FLINT WPCF
SECONDARY
CLARIFIER
IMPROVEMENTS**

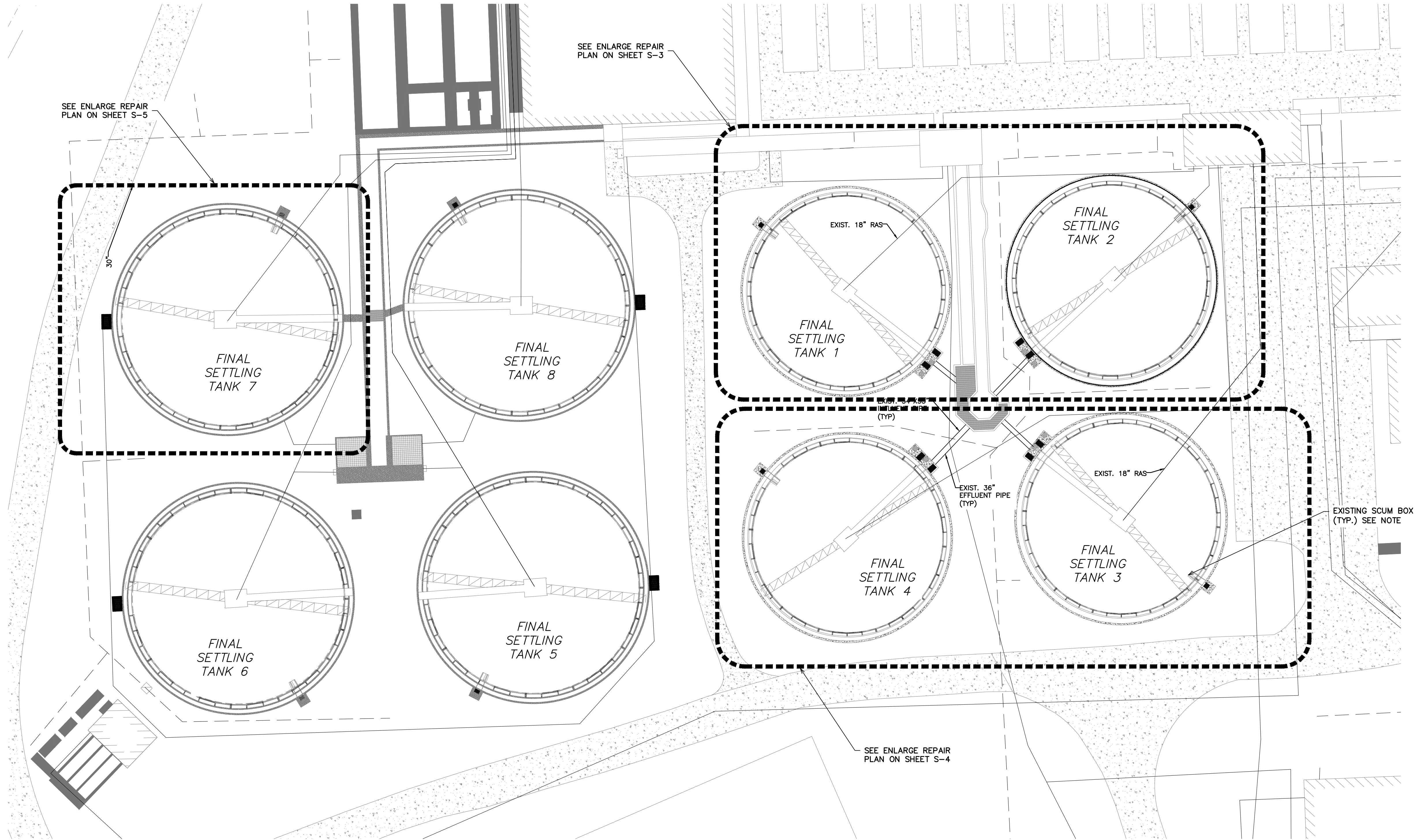
**SECONDARY CLARIFIERS
STRUCTURAL NOTES**

HRC JOB NO.
20200783

SCALE
AS NOTED

DATE
JUNE 2021

SHEET NO.
S-1 OF



SITE PLAN
SCALE: 1" = 30'-0"

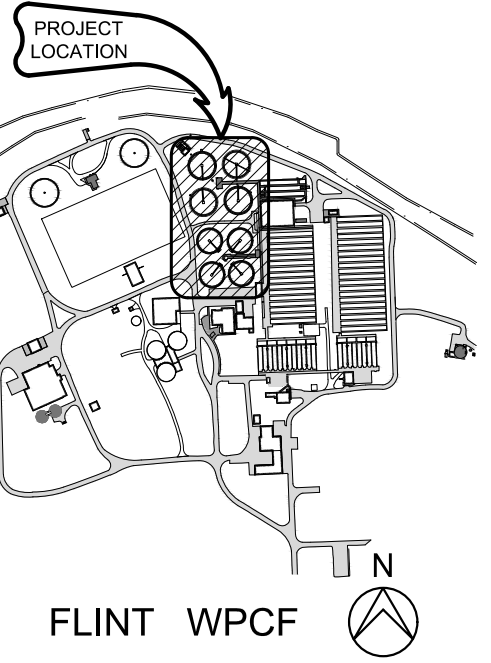


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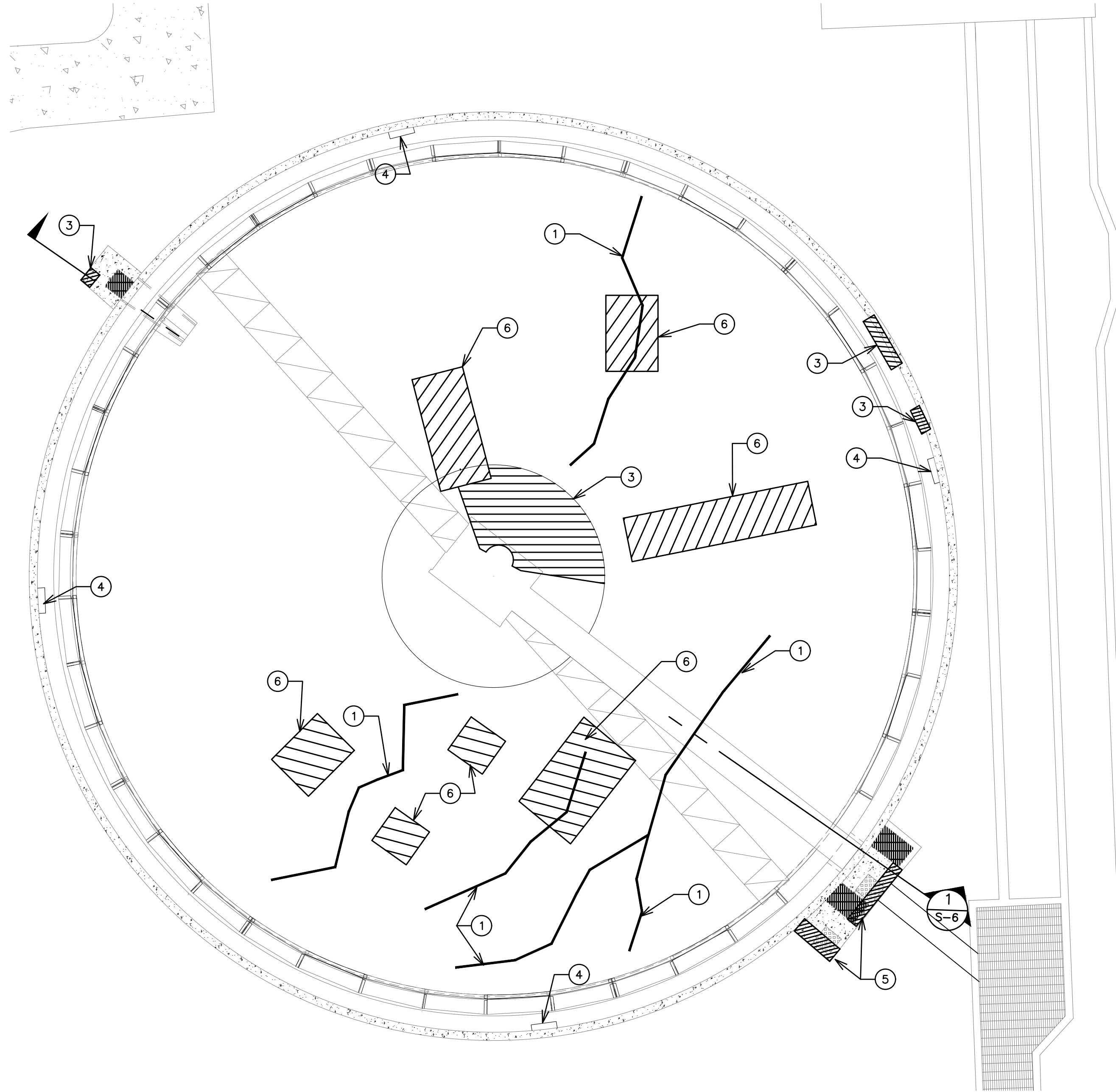
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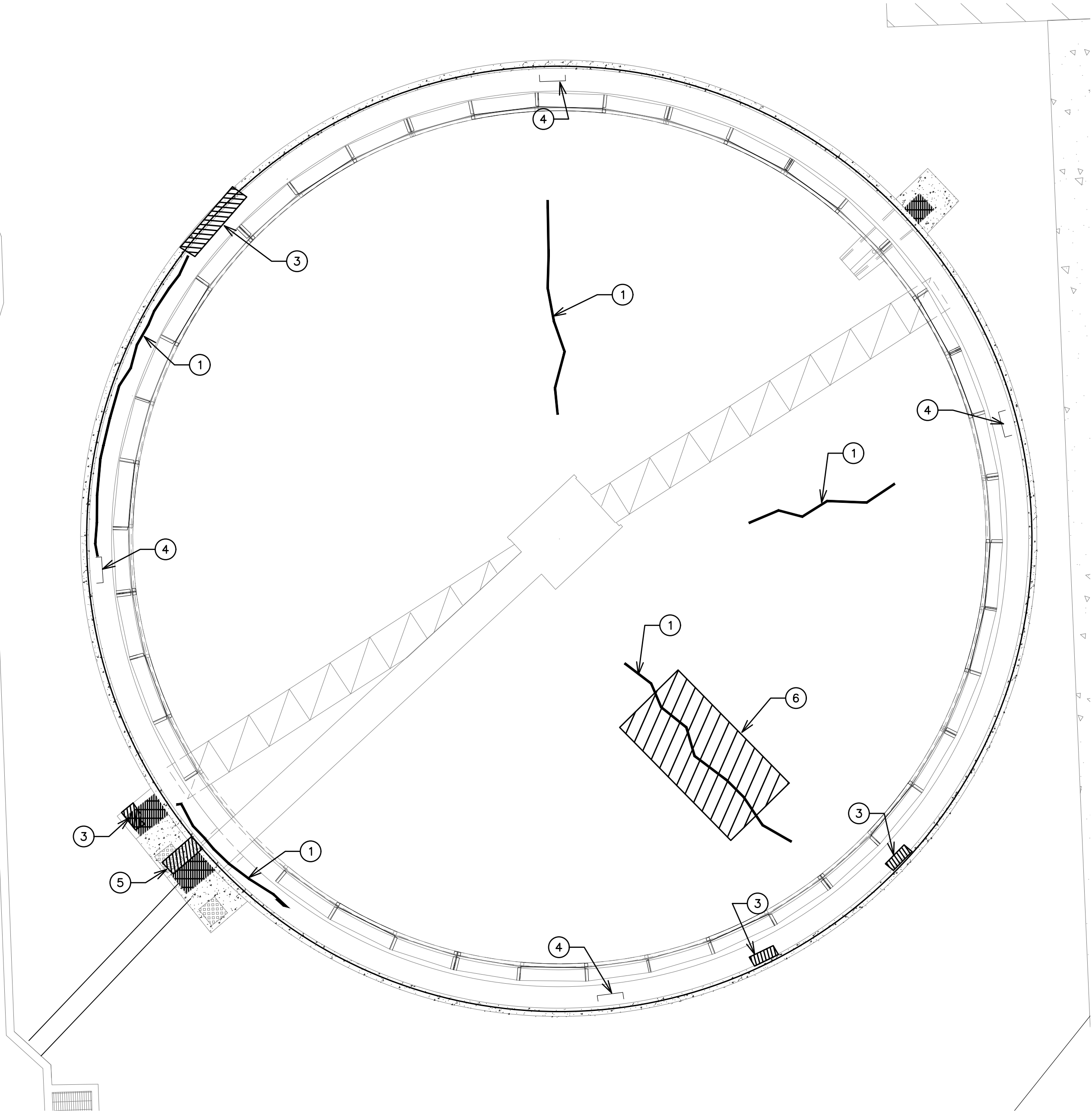
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SECONDARY
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IMPROVEMENTS**

SECONDARY CLARIFIERS 1-8
OVERALL STRUCTURAL SITE
PLAN

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. S-2 OF



CONCRETE REHAB – FINAL SETTLING TANK #1
SCALE: 1" = 10'-0"



CONCRETE REHAB – FINAL SETTLING TANK #2
SCALE: 1" = 10'-0"

KEY NOTES:

- ① NON-STRUCTURAL CRACK REPAIR
- ② STRUCTURAL CRACK REPAIR
- ③ SPALL REPAIR
- ④ PRESSURE RELIEF VALVE REPAIR
- ⑤ CONCRETE WALL / VAULT REPAIR
- ⑥ TOPPING REPAIR
- A APPLY HIGH PERFORMANCE COATING TO WALLS AND TROUGHS
- B APPLY HIGH PERFORMANCE COATING OVER GROUT TOPPING (FLOOR)

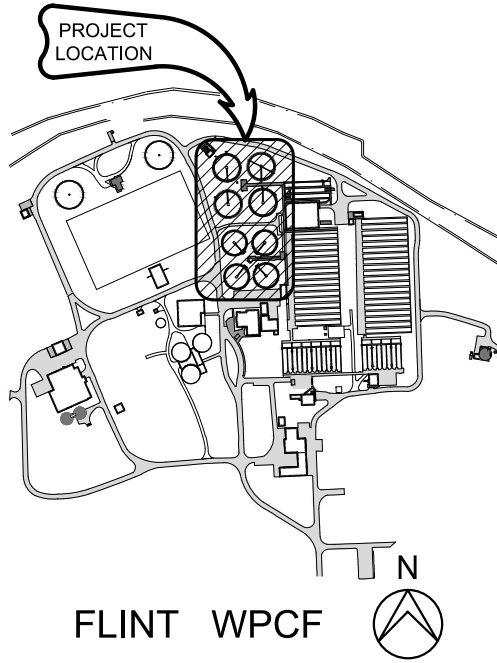


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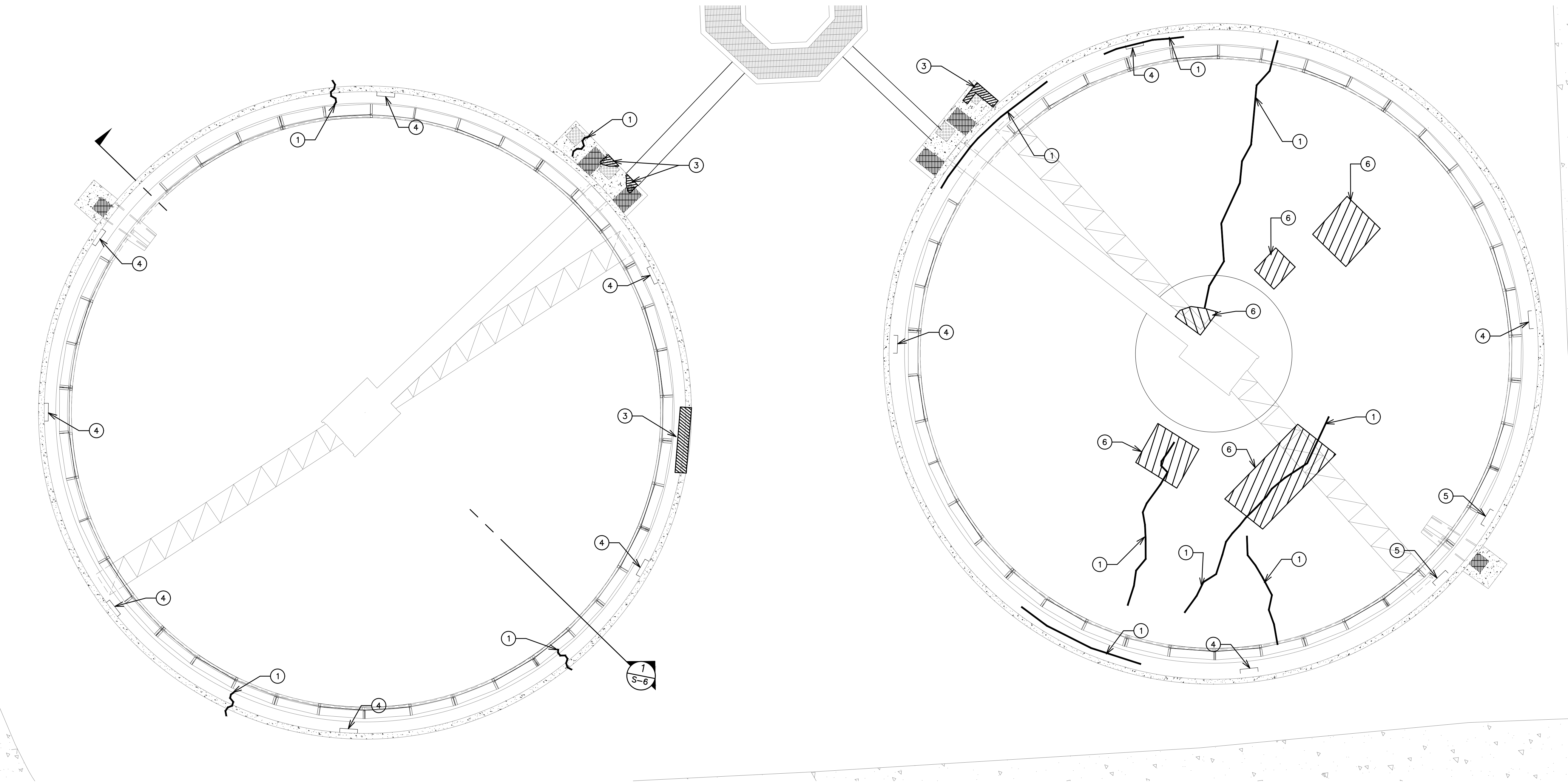
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CITY OF FLINT
**FLINT WPCF
SECONDARY
CLARIFIER
IMPROVEMENTS**

SECONDARY CLARIFIERS 1 & 2
STRUCTURAL
REPAIR PLAN

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. S-3 OF



KEY NOTES:

- ① NON-STRUCTURAL CRACK REPAIR
- ② STRUCTURAL CRACK REPAIR
- ③ SPALL REPAIR
- ④ PRESSURE RELIEF VALVE REPAIR
- ⑤ CONCRETE WALL / VAULT REPAIR
- ⑥ TOPPING REPAIR
- A APPLY HIGH PERFORMANCE COATING TO WALLS AND TROUGHS
- B APPLY HIGH PERFORMANCE COATING OVER GROUT TOPPING (FLOOR)

CONCRETE REHAB – FINAL SETTLING TANK #4
SCALE: 1" = 10'-0"

CONCRETE REHAB – FINAL SETTLING TANK #3
SCALE: 1" = 10'-0"

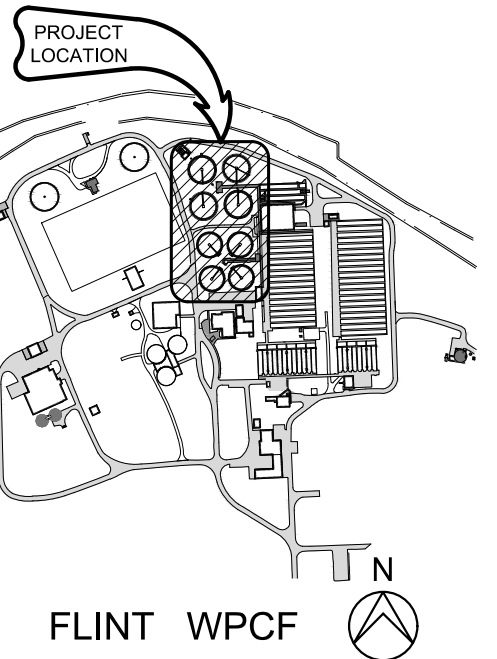


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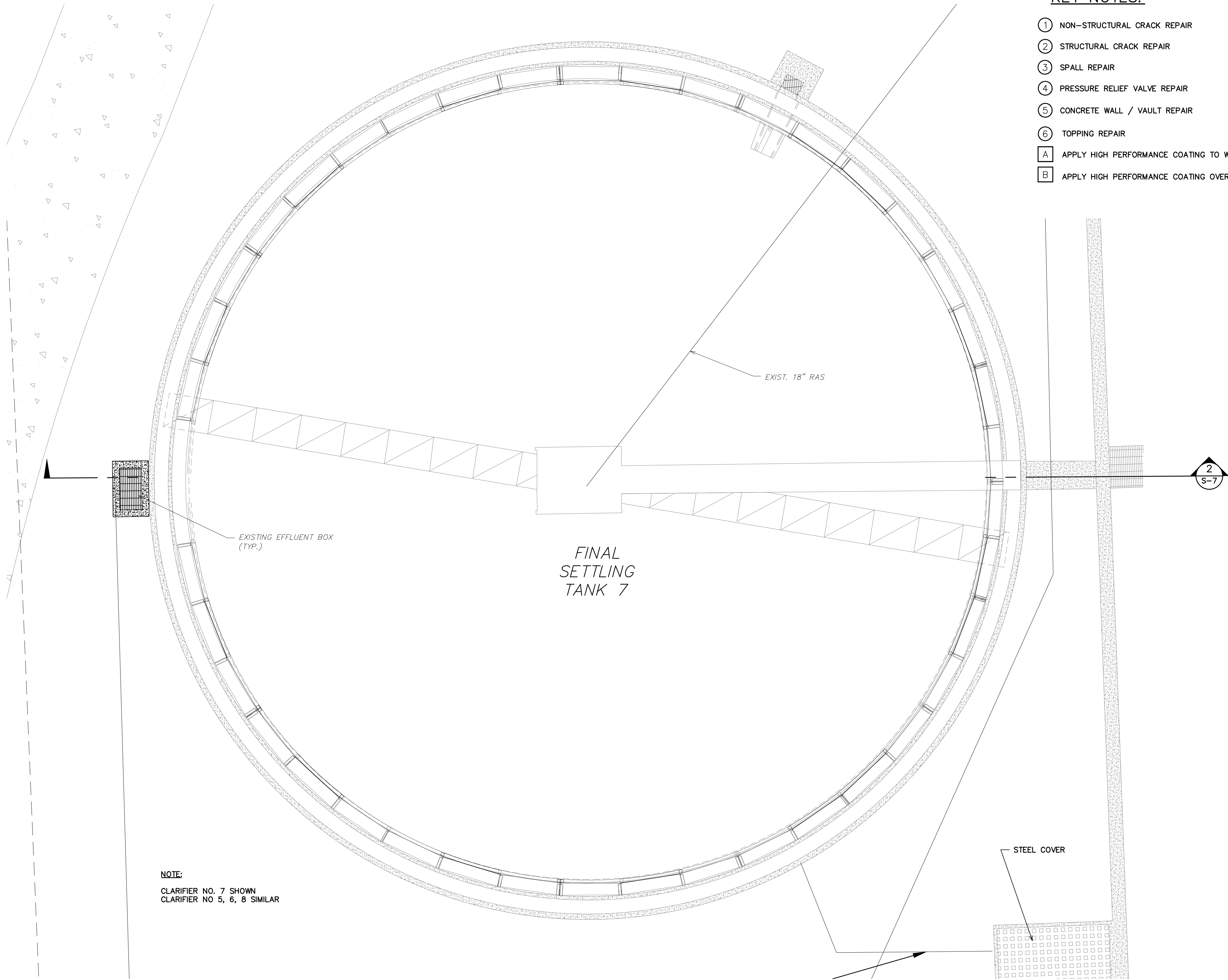
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SECONDARY
CLARIFIER
IMPROVEMENTS**

SECONDARY CLARIFIERS 3 & 4
STRUCTURAL
REPAIR PLAN

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. S-4 OF



NOTE:
CLARIFIER NO. 7 SHOWN
CLARIFIER NO 5, 6, 8 SIMILAR


CONCRETE REHAB – FINAL SETTLING TANK #7
SCALE: NONE




KEY NOTES:

- ① NON-STRUCTURAL CRACK REPAIR
- ② STRUCTURAL CRACK REPAIR
- ③ SPALL REPAIR
- ④ PRESSURE RELIEF VALVE REPAIR
- ⑤ CONCRETE WALL / VAULT REPAIR
- ⑥ TOPPING REPAIR
- A APPLY HIGH PERFORMANCE COATING TO WALLS AND TROUGHS
- B APPLY HIGH PERFORMANCE COATING OVER GROUT TOPPING (FLOOR)



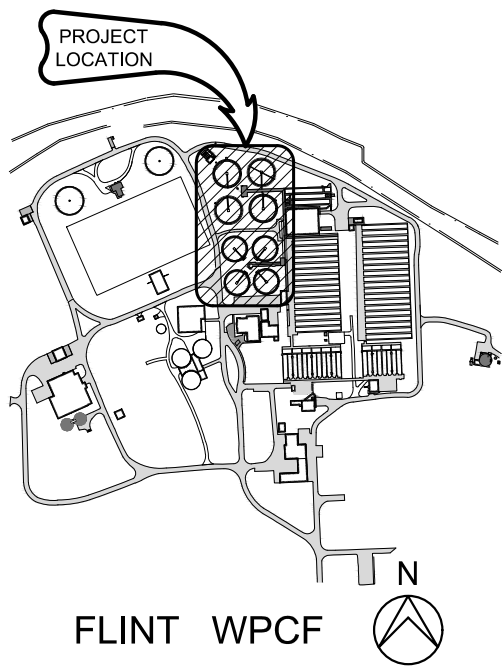


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810.235.2555/800.841.0342
FAX: 810.235.4975
www.wadetrim.com

6-17-21	ISSUED FOR BIDS
5-28-21	FINAL EGLE SUBMITTAL
4-30-21	DRAFT SUBMITTAL
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	J.K.W.
DRAWN	T.S.B.
CHECKED	J.K.W.
APPROVED	



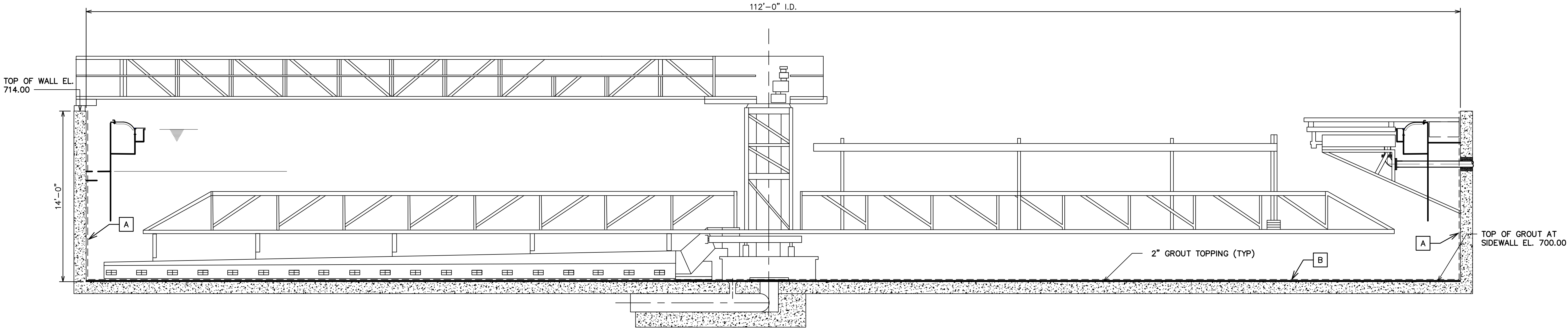
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**FLINT WPCF
SECONDARY
CLARIFIER
IMPROVEMENTS**

SECONDARY CLARIFIERS 5-8
STRUCTURAL
REPAIR PLAN

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. S-5 OF

KEY NOTES:

- ① NON-STRUCTURAL CRACK REPAIR
- ② STRUCTURAL CRACK REPAIR
- ③ SPALL REPAIR
- ④ PRESSURE RELIEF VALVE REPAIR
- ⑤ CONCRETE WALL / VAULT REPAIR
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- A APPLY HIGH PERFORMANCE COATING TO WALLS AND TROUGHS
- B APPLY HIGH PERFORMANCE COATING OVER GROUT TOPPING (FLOOR)




CLARIFIERS NO. 1, 2, 3 AND 4


SECTION 1
SCALE: NONE S-3



PRESSURE RELIEF VALVE
SCALE: NONE

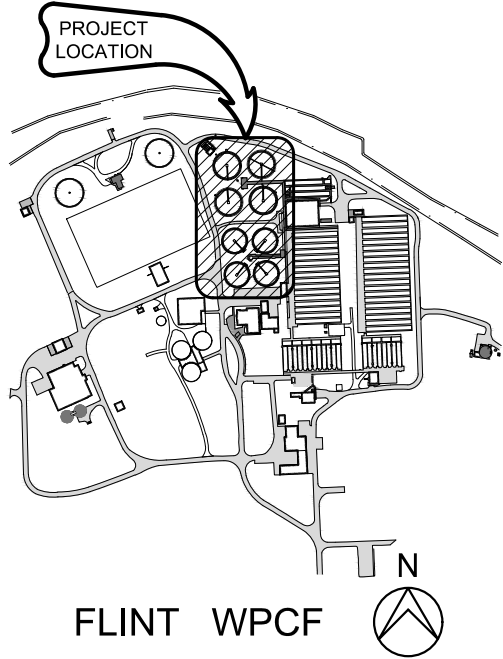


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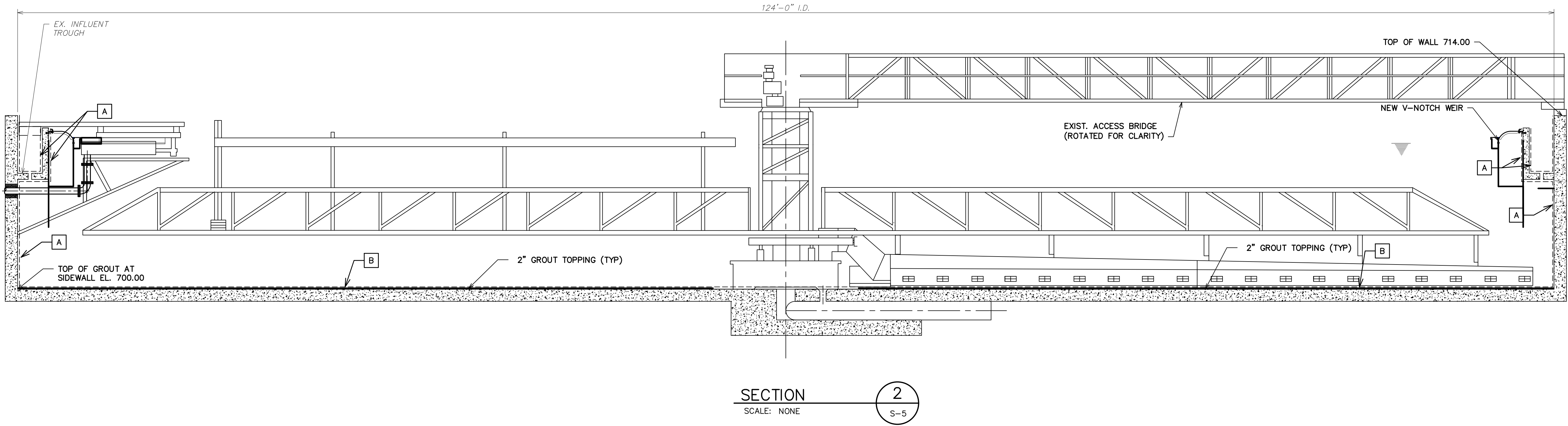
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CLARIFIER
IMPROVEMENTS**

FINAL CLARIFIERS 1-4
SECTIONS

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. S-6 OF

KEY NOTES:

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- ②STRUCTURAL CRACK REPAIR
- ③SPALL REPAIR
- ④PRESSURE RELIEF VALVE REPAIR
- ⑤CONCRETE WALL / VAULT REPAIR
- ⑥TOPPING REPAIR
- AAPPLY HIGH PERFORMANCE COATING TO WALLS AND TROUGHS
- BAPPLY HIGH PERFORMANCE COATING OVER GROUT TOPPING (FLOOR)



CLARIFIERS NO. 5, 6, 7 AND 8



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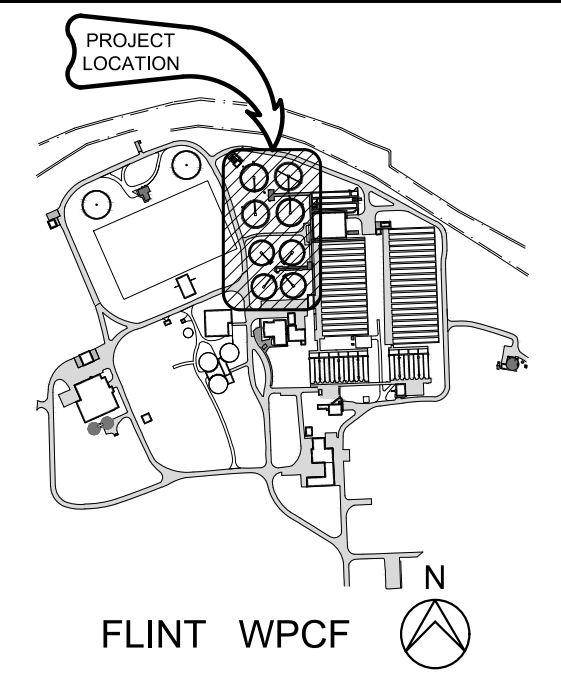
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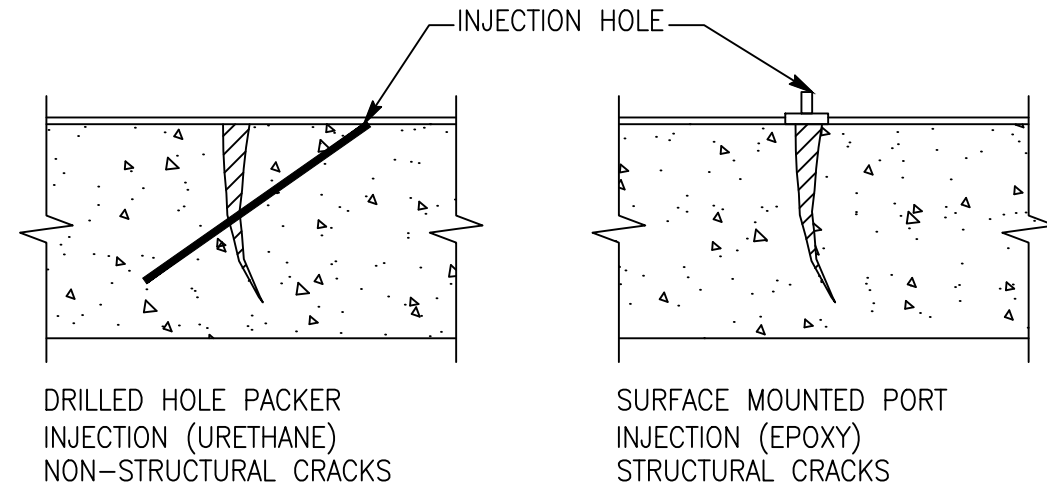
FLINT WPCF

SECONDARY

CLARIFIER

IMPROVEMENTS

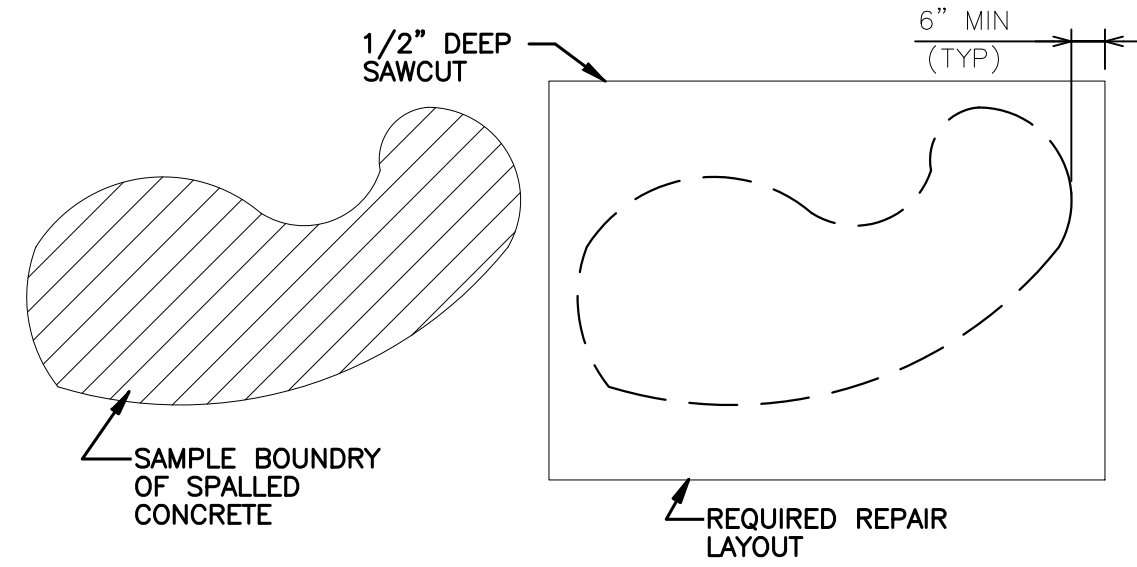
SECONDARY CLARIFIERS 5-8 SECTIONS	
HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. S-7 OF

**NOTES**

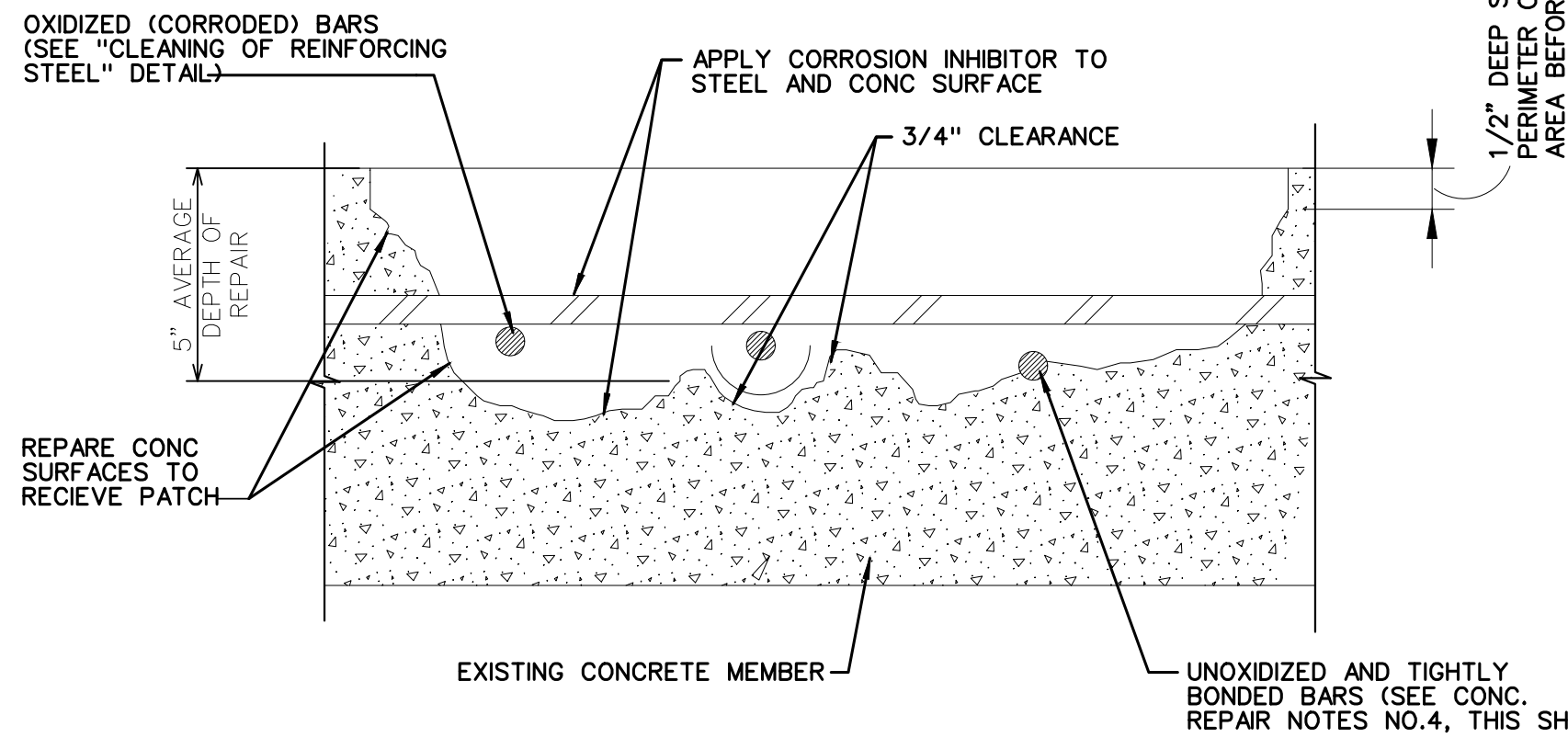
1. IDENTIFY CRACKS TO BE INJECTED. LOCATION AND QUANTITY OF CRACKS/FRACTURES TO BE INJECTED AND TYPE OF INJECTION MATERIAL ARE TO BE CONFIRMED AND APPROVED BY THE ENGINEER.
2. LOCATE REINFORCING STEEL IN CONCRETE STRUCTURE. LOCATE INJECTION HOLE POSITION AND WORK WITH CARE TO AVOID DAMAGE TO EXISTING REINFORCING STEEL. DRILL HOLES SIZED AS RECOMMENDED BY THE INJECTION MATERIAL MANUFACTURER, AT A 45° ANGLE TO THE SURFACE, AND BEGINNING AT A DISTANCE AWAY FROM THE CRACK SO THAT THE DRILLED HOLE INTERCEPTS THE CRACK AT APPROXIMATELY ONE-HALF THE CONCRETE DEPTH.
3. INSERT INJECTION PACKERS AS RECOMMENDED BY THE INJECTION MATERIAL MANUFACTURER, INTO THE DRILLED HOLES AND TIGHTEN.
4. CLEAN CONCRETE SURFACE IN ACCORDANCE WITH SPECIFICATIONS, SECTIONS 003 93 00.
5. PUMP INJECTION MATERIAL THROUGH THE INJECTOR PACKER UNTIL THE HOLE WILL NOT TAKE MORE MATERIAL, OR THE MATERIAL IS NO LONGER VISIBLY SEEPING OUT OF THE CRACKS.
6. INJECTION MAY BE HORIZONTAL, VERTICAL OR OVERHEAD.
7. INJECT USING AZO-GROUT 424 HYDROPHOBIC POLYURETHANE MATERIAL UNLESS OTHERWISE DIRECTED BY ENGINEER DUE TO CONDITIONS OF CRACK/FRACTURE.

1 2 CRACK INJECTION DETAIL

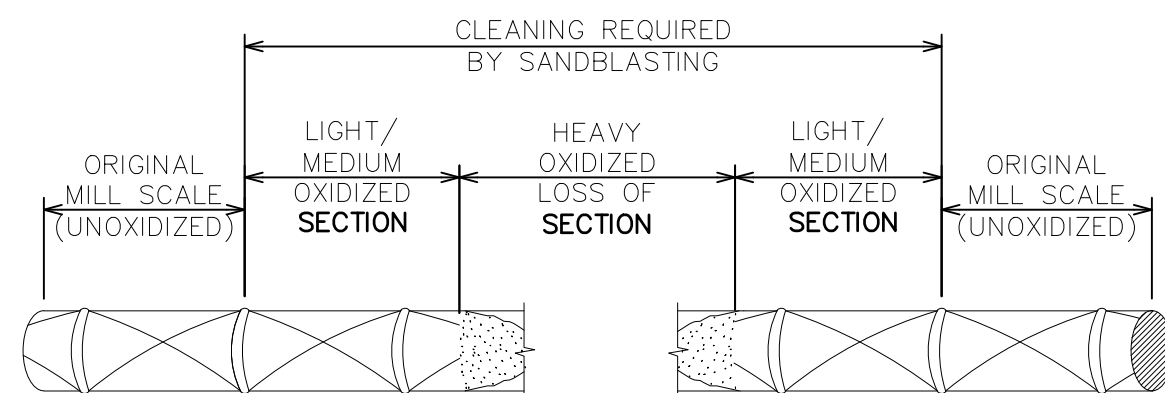
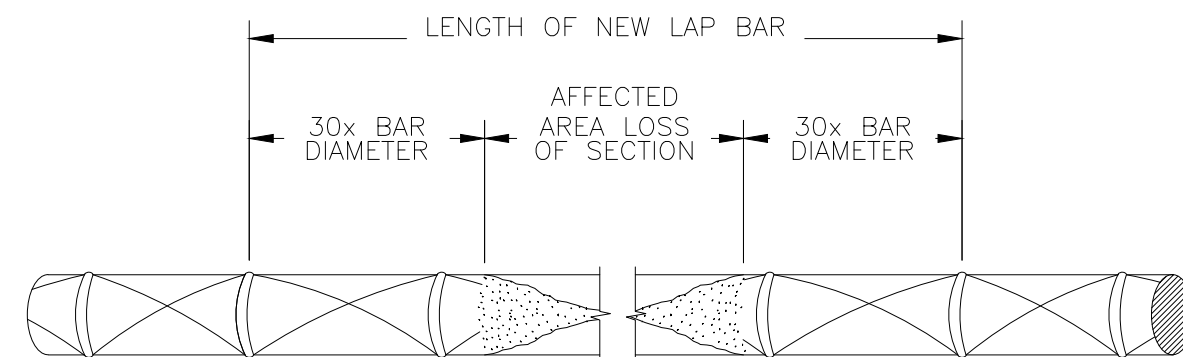
SCALE: NONE

**SPALL REPAIR LIMITS**

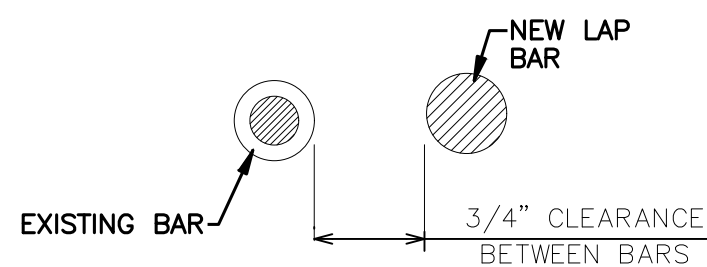
SCALE: NONE

**EXPOSING, UNDERCUTTING REINFORCING STEEL AND CONDITIONING CONCRETE FOR PATCHING**

SCALE: NONE

**CLEANING OF REINFORCING STEEL**

IF REBAR HAS LOST MORE THAN 25% OF ORIGINAL CROSS SECTION, PROVIDE NEW LAP BAR AS SHOWN

**REPAIR OF REINFORCING STEEL DUE TO LOSS OF SECTION**

SCALE: NONE

5 3 CONCRETE SPALL REPAIR

SCALE: NONE

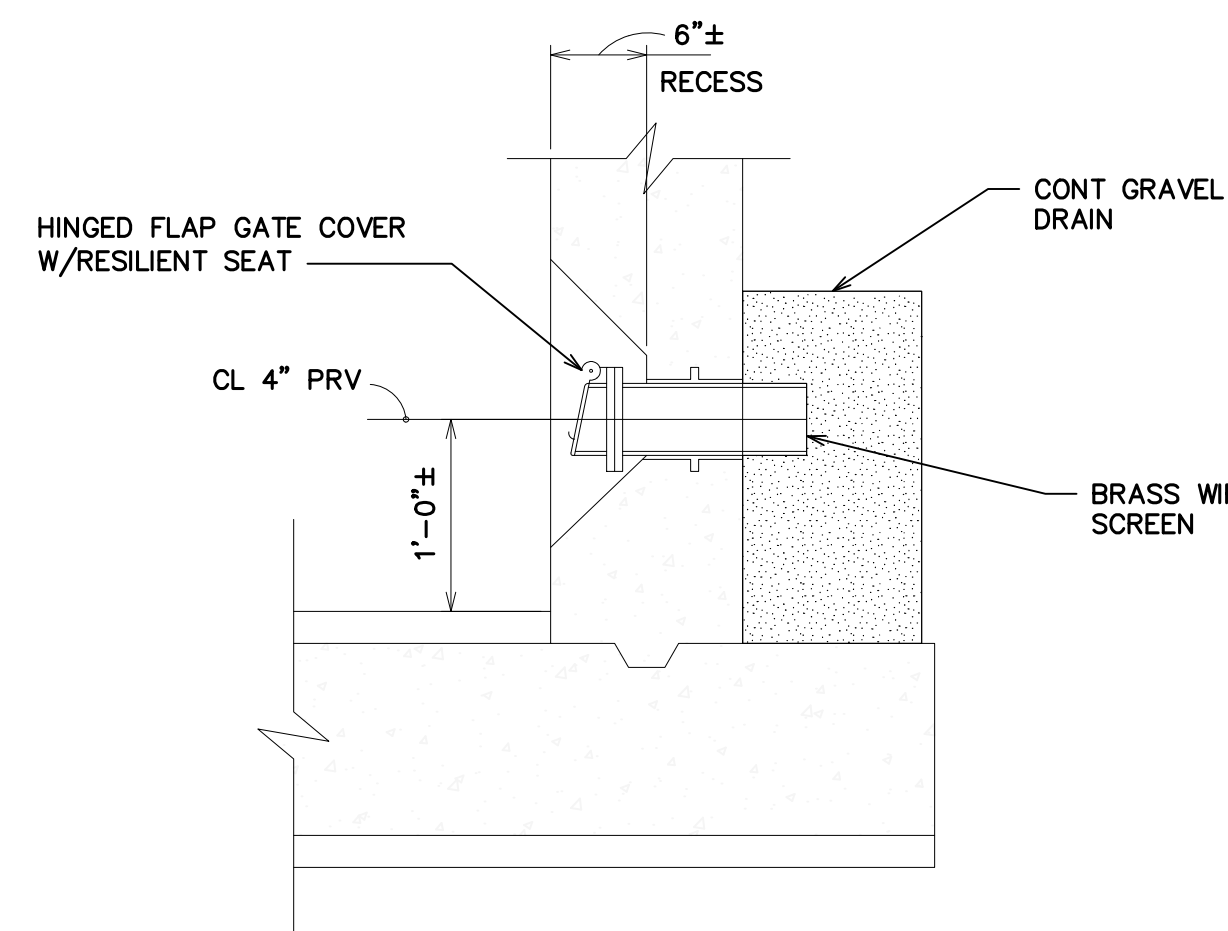
CONCRETE REPAIR NOTES

1. LOCATE AREAS OF CONCRETE WITH DELAMINATIONS, SPALLS, SCALING, AND UNSOUND CONCRETE. MARK ON SURFACE OF CONCRETE THE AREA TO BE REPAIRED AS SPECIFIED. PRIOR TO THE REMOVAL OF ANY CONCRETE, PROVIDE 24 HOURS NOTICE TO THE ENGINEER IN ORDER FOR THE ENGINEER AND CONTRACTOR TO VERIFY REPAIR LIMITS.
2. SAWCUT PERIMETER OF AREA TO BE REPAIRED TO DEPTH OF 1/2" AS SHOWN. THE REPAIRED AREAS SHALL BE IN A RECTANGULAR SHAPE, WITH SAW CUTS AT RIGHT ANGLES.
3. REMOVE LOOSE OR DELAMINATED CONCRETE ABOVE OXIDIZED REINFORCING STEEL. ONCE INITIAL REMOVALS ARE MADE, PROCEED WITH THE UNDERCUTTING OF ALL EXPOSED OXIDIZED (CORRODED) BARS. PROVIDE A MINIMUM OF 3/4" CLEARANCE BETWEEN EXPOSED REBARS AND SURROUNDING CONCRETE.
4. IF UNOXIDIZED REINFORCING BARS ARE EXPOSED DURING THE UNDERCUTTING PROCESS, CARE SHALL BE TAKEN NOT TO DAMAGE THE BARS BOND TO SURROUNDING CONCRETE. IF BOND BETWEEN BAR AND CONCRETE IS BROKEN, UNDERCUTTING OF THE BAR SHALL BE REQUIRED.
5. INSTALL NEW REINFORCING BARS TO SUPPLEMENT EXISTING BARS WHICH HAVE LOST MORE THAN 25% OF THEIR CROSS SECTIONAL AREA. THE NEW REINFORCING BARS SHALL BE THE SAME DIAMETER AS THE EXISTING BAR, AND SHALL EXTEND A DISTANCE OF 30 TIMES THE BAR DIAMETER (SEE "REPAIR OF REINFORCING STEEL" DETAIL THIS SHEET).
6. REMOVE ALL RUST AND LAITANCE FROM EXPOSED REINFORCING STEEL TO EXPOSED BARE METAL BY SANDBLASTING AS SPECIFIED. (SEE "CLEANING OF REINFORCING STEEL" DETAIL FOR EXTENT OF CLEANING REQUIRED).
7. REMOVE ALL BOND INHIBITING MATERIALS FROM CONCRETE INCLUDING BUT NOT LIMITED TO DIRT, CONCRETE SLURRY, AND LOOSELY BONDED AGGREGATE, BY ABRASIVE BLASTING OR HIGH PRESSURE WATERBLASTING. CHECK THE SURFACE AFTER CLEANING TO ENSURE THAT SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE AND THAT ADDITIONAL DELAMINATIONS ARE NOT PRESENT.
8. COAT ALL EXPOSED REINFORCING STEEL AND PREPARED CONCRETE SURFACES TO RECEIVE PATCHING MATERIAL WITH CORROSION INHIBITOR AND BONDING AGENT (PER SPECIFICATIONS) AND APPLY PATCH MATERIAL AS SPECIFIED.
9. PRIOR TO ANY PATCHING OF CONCRETE, PROVIDE 24 HOUR NOTICE TO THE ENGINEER FOR INSPECTION OF THE REPAIRED LIMITS AND TO QUANTIFY REPAIR AREAS WITH THE CONTRACTOR FOR PAYMENT.
10. CONCRETE REPAIR MORTAR SHALL BE AS SPECIFIED.

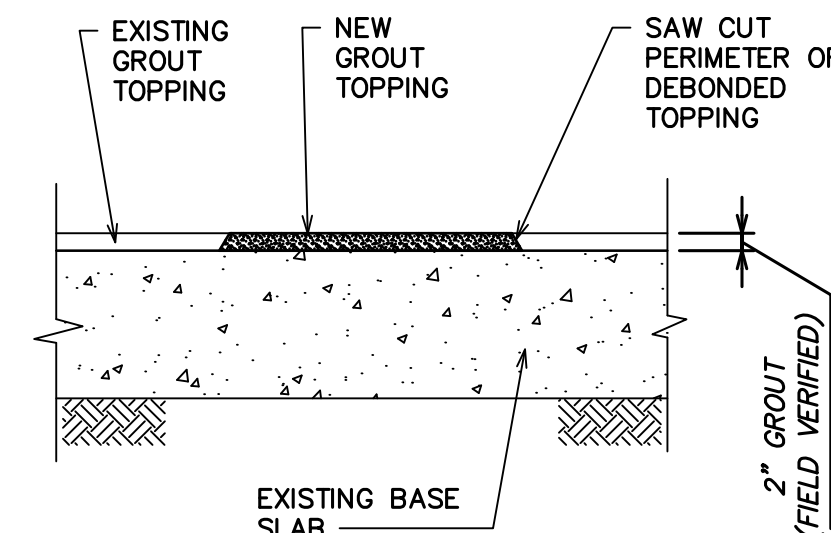
* CLARIFIERS 5 THROUGH 8 WERE NOT INDIVIDUALLY INSPECTED. QUANTITIES ARE ESTIMATED FROM PREVIOUS INSPECTIONS. ACTUAL LOCATIONS AND QUANTITIES OF ALL REPAIR ITEMS LISTED (FOR ALL 8 CLARIFIERS) SHALL BE DETERMINED DURING THE CONSTRUCTION OF THIS PROJECT AFTER TANKS ARE EMPTIED AND CLEANED. BASE BIDS SHALL BE BASED ON THE QUANTITIES INDICATED IN THE TABLE ABOVE. UNIT COSTS FOR ALL TYPES OF REPAIRS SHALL BE INCLUDED IN THE BID FORMS, AND FINAL VALUES WILL BE DETERMINED DURING PROJECT CONSTRUCTION.

CONCRETE REPAIR QUANTITIES (BASE BID)

REPAIR TYPE	CLARIFIER #1	CLARIFIER #2	CLARIFIER #3	CLARIFIER #4	CLARIFIER #5	CLARIFIER #6	CLARIFIER #7	CLARIFIER #8	TOTALS
TYPE 1- NON STRUCTURAL CRACK REPAIR (LINEAR FEET)	250	150	350	125	150	150	150	150	1470
TYPE 2 - STRUCTURAL CRACK REPAIR (LINEAR FEET)	10	10	10	10	10	10	10	10	80
TYPE 3 - SPALL REPAIR (SQUARE FEET)	50	20	30	25	20	20	20	20	205
TYPE 4 - PRESSURE RELIEF VALVE REPAIR (EACH)	4	4	4	8	8	8	8	8	47
TYPE 5 - WALL REPAIR (SQUARE FEET)	20	10	10	10	10	10	10	10	90
TYPE 6 - GROUT TOPPING REPLACEMENT (SQUARE FEET)	250	80	120	25	100	100	100	100	875

**NOTES:**

1. BLAST CLEAN EXISTING PRV CASTING AND REMOVE FLAP GATE COVER.
2. REMOVE DEBRIS FROM BODY OF CASTING AND FLUSH WITH WATER, TAKING CARE TO PROTECT EXISTING BRASS WIRE SCREEN ON EARTH SIDE OF WALL.
3. REPLACE HINGE AND COTTER PINS AND RESILIENT SEAT USING MANUFACTURER RECOMMENDED ADHESIVE.
4. REINSTALL FLAP GATE COVER.

4 PRESSURE RELIEF VALVE REHABILITATION REPAIR**NOTES**

1. LOCATE AREAS OF DEBONDED TOPPING. MARK ON SURFACE OF CONCRETE THE AREA TO BE REPAIRED. PRIOR TO THE REMOVAL OF ANY TOPPING, PROVIDE 24 HOURS NOTICE TO THE ENGINEER IN ORDER FOR THE ENGINEER AND THE CONTRACTOR TO VERIFY REPAIR LIMITS.
2. SAW CUT PERIMETER OF AREA TO BE REPAIRED (FULL DEPTH OF TOPPING). THE REPAIRED AREA SHALL BE IN A RECTANGULAR SHAPE WITH SAW CUT AS RIGHT ANGLES.
3. REMOVE ALL BOUND INHIBITING MATERIAL FROM CONCRETE, INCLUDING BUT NOT LIMITED TO DIRT, CONCRETE SLURRY, AND LOOSELY BONDED AGGREGATE, BY ABRASIVE BLASTING OR HIGH-PRESSURE WATER BLASTING.
4. COAT PREPARED CONCRETE SURFACES WITH BONDING AGENT (PER SPECIFICATION).
5. APPLY NEW GROUT TOPPING AS SPECIFIED.

6 GROUT TOPPING REPAIR/REPLACEMENT

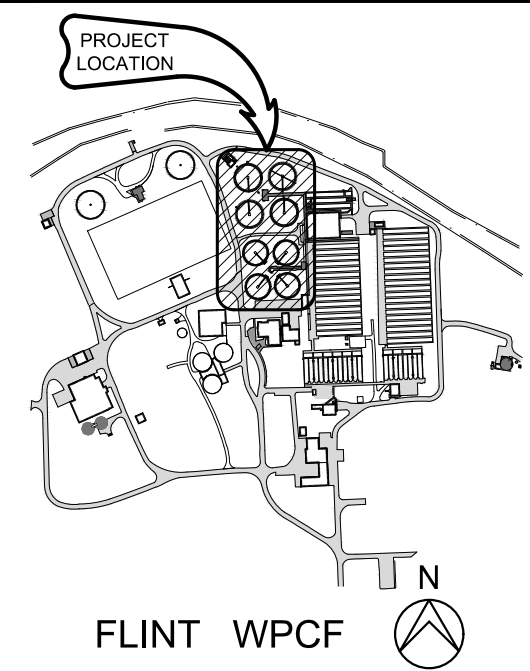
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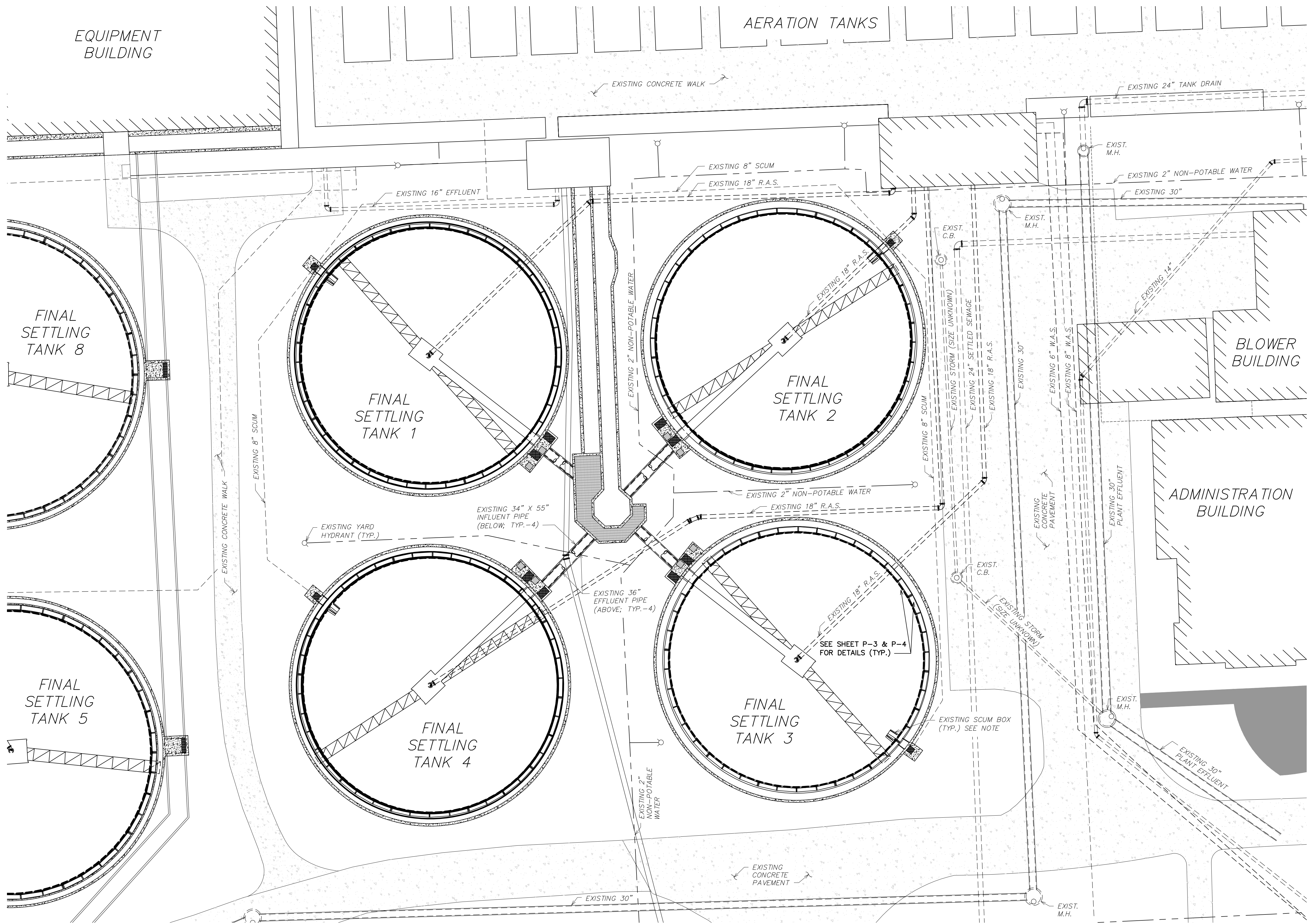
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APPROVED	



CITY OF FLINT

**FLINT WPCF
SECONDARY
CLARIFIER
IMPROVEMENTS****SECONDARY CLARIFIERS
STRUCTURAL REPAIRS
DETAILS-I**

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. S-8 OF



SITE PLAN
SCALE: 1" = 20'-0"



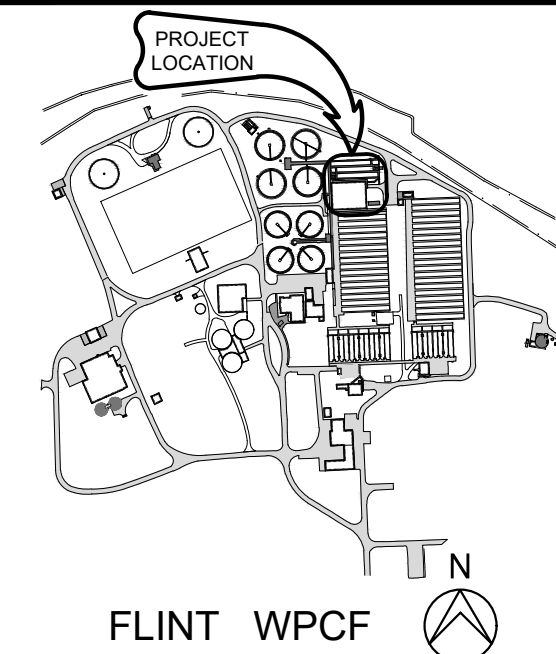
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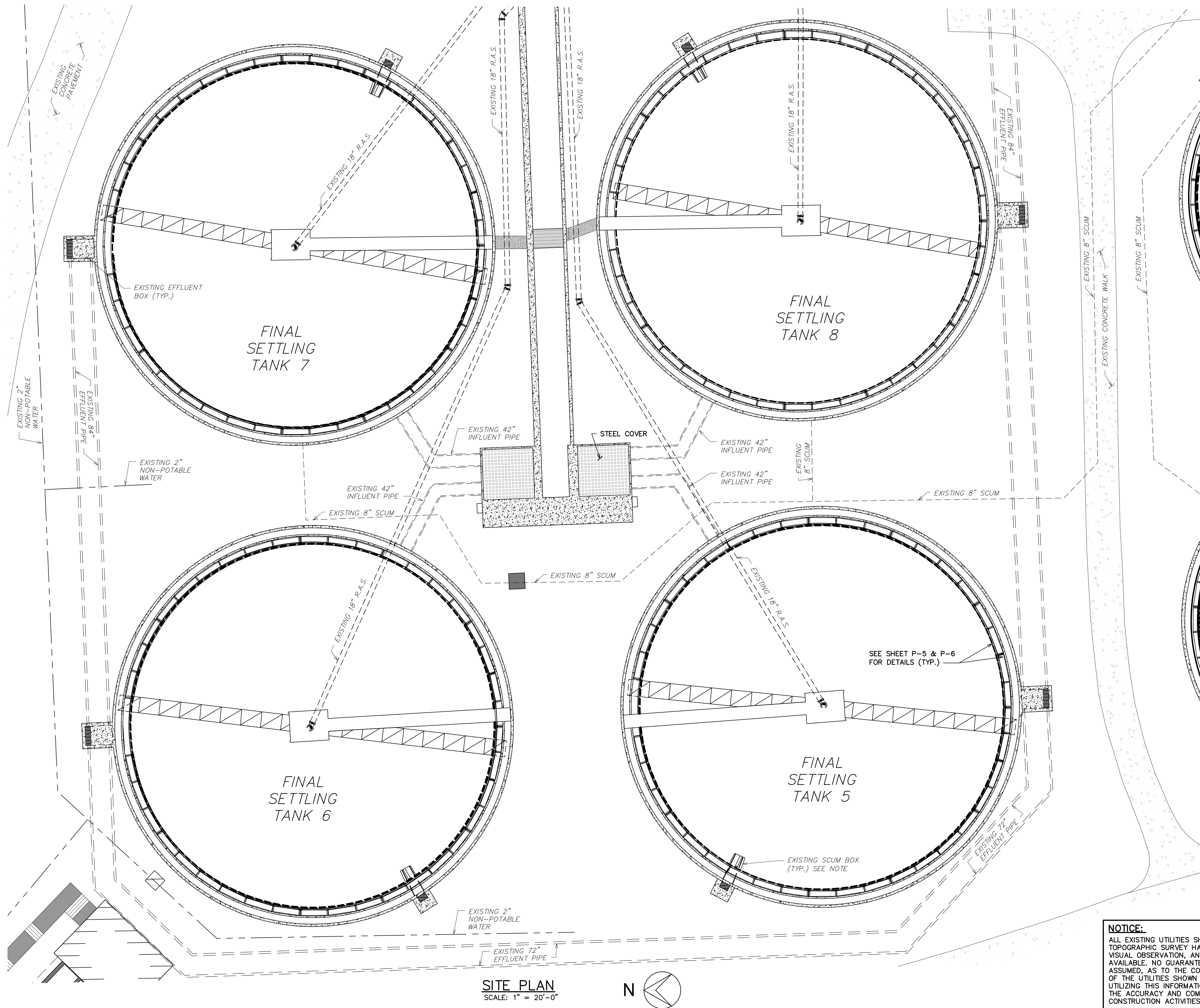
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SECONDARY CLARIFIERS 1-4
ORIENTATION
& BURIED PIPING PLAN

HRC JOB NO.	SCALE
20200783	AS NOTED
DATE	SHEET NO.
JUNE 2021	P-1 OF



SITE PLAN
SCALE: 1" = 20'-0"



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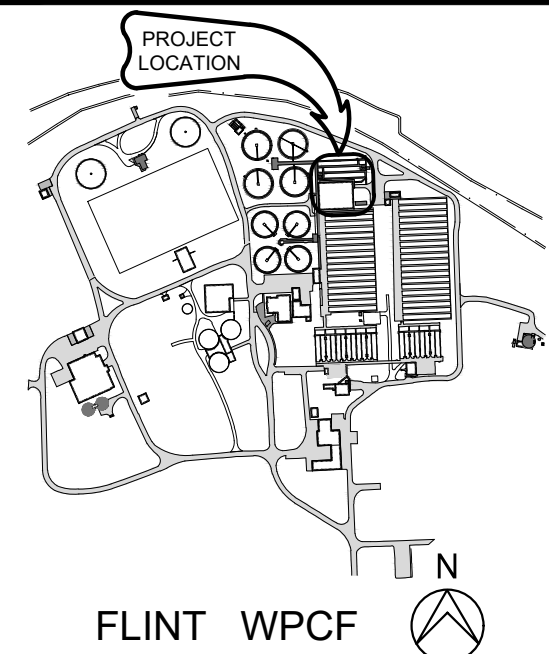


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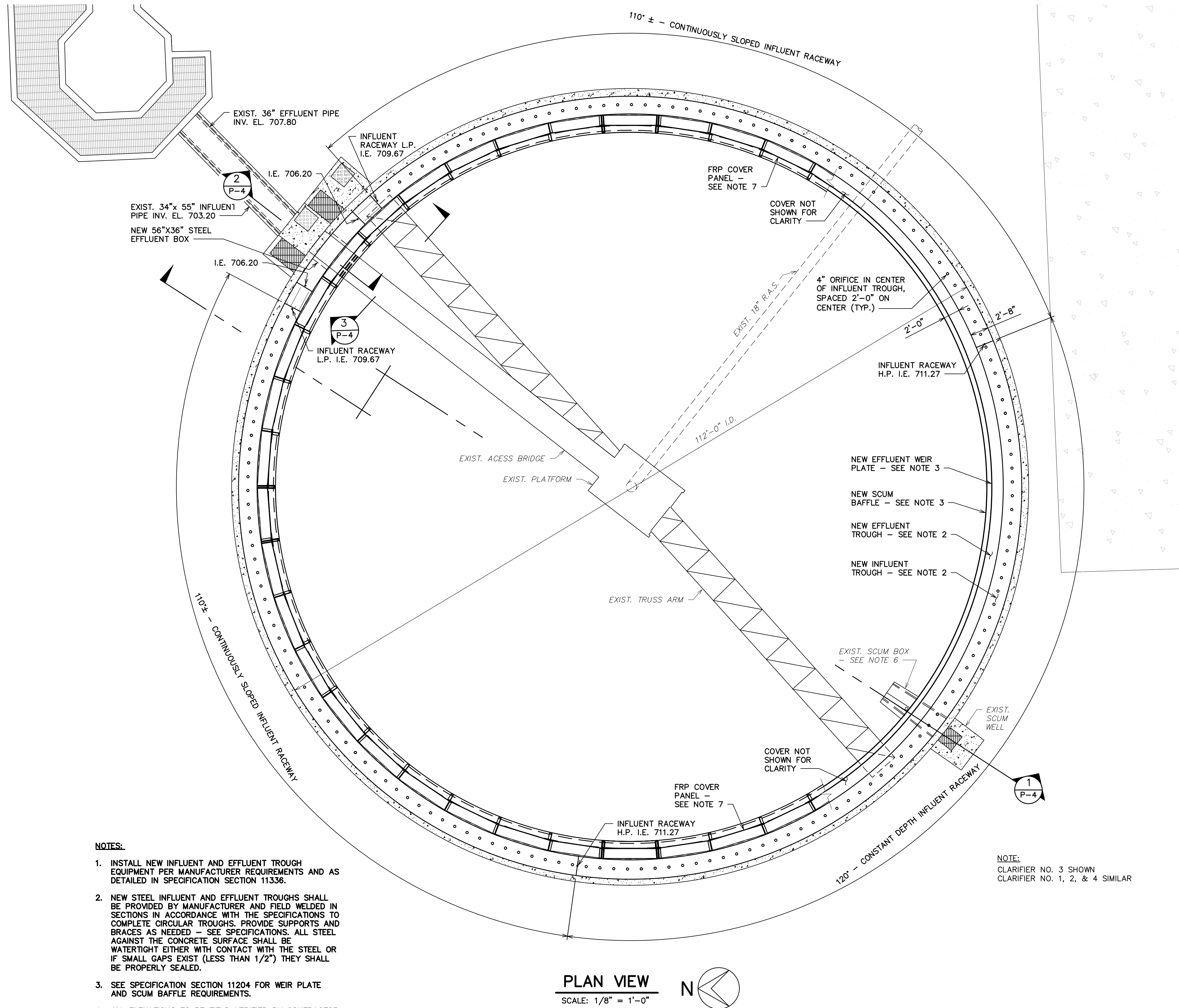
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SECONDARY CLARIFIERS 5-8
ORIENTATION
& BURID PIPING PLAN

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. P-2 OF



NOTES:

1. INSTALL NEW INFLUENT AND EFFLUENT TROUGH EQUIPMENT PER MANUFACTURER REQUIREMENTS AND AS DETAILED IN SPECIFICATION SECTION 11336.
2. NEW STEEL INFLUENT AND EFFLUENT TROUGHS SHALL BE PROVIDED BY MANUFACTURER AND FIELD WELDED IN SECTIONS IN ACCORDANCE WITH THE SPECIFICATIONS TO COMPLETE CIRCULAR TROUGHS. PROVIDE SUPPORTS AND BRACES AS NEEDED — SEE SPECIFICATIONS. ALL STEEL AGAINST THE CONCRETE SURFACE SHALL BE WATERTIGHT EITHER WITH CONTACT WITH THE STEEL OR IF SMALL GAPS EXIST (LESS THAN 1/2") THEY SHALL BE PROPERLY SEALED.
3. SEE SPECIFICATION SECTION 11204 FOR WEIR PLATE AND SCUM BAFFLE REQUIREMENTS.
4. ALL ELEVATIONS TO BE FIELD VERIFIED BY CONTRACTOR AND ADJUSTED AS NEEDED.
5. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATING EQUIPMENT.
6. EXISTING SCUM BOX SHALL BE TEMPORARILY REMOVED FOR THE DEMOLITION OF THE EXISTING TROUGHS AND RE-USED FOLLOWING INSTALLATION OF THE NEW EQUIPMENT.
7. INSTALL FRP COVER PANELS AROUND ENTIRE CIRCUMFERENCE OF EFFLUENT TROUGH PER MANUFACTURER REQUIREMENTS. SEE SPECIFICATION SECTION 11203 FOR DETAILS.

PLAN VIEW

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



NOTE:
CLARIFIER NO. 3 SHOWN
CLARIFIER NO. 1, 2, & 4 SIMILAR

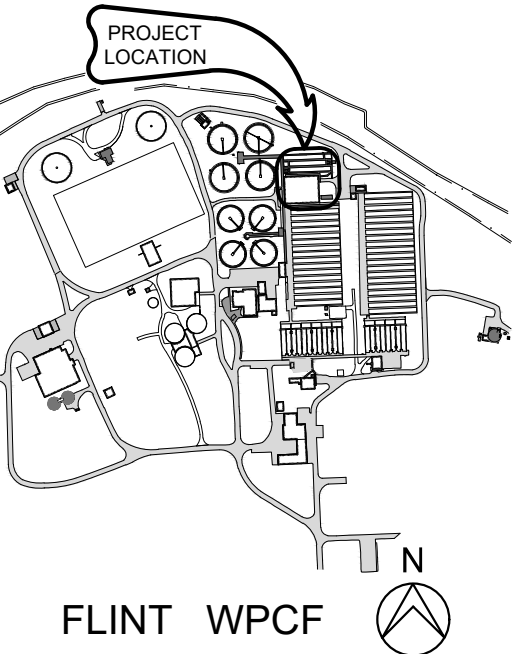


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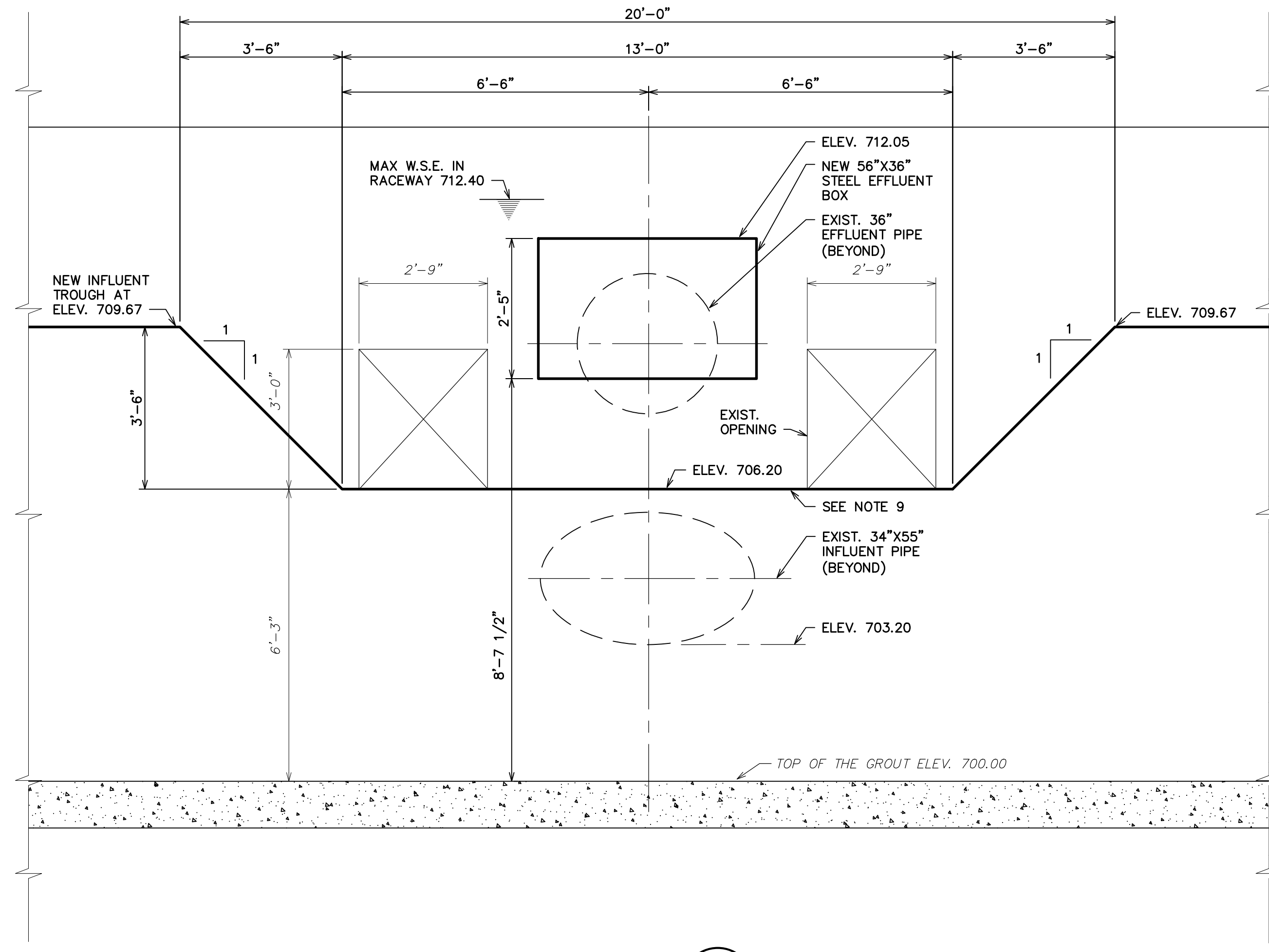
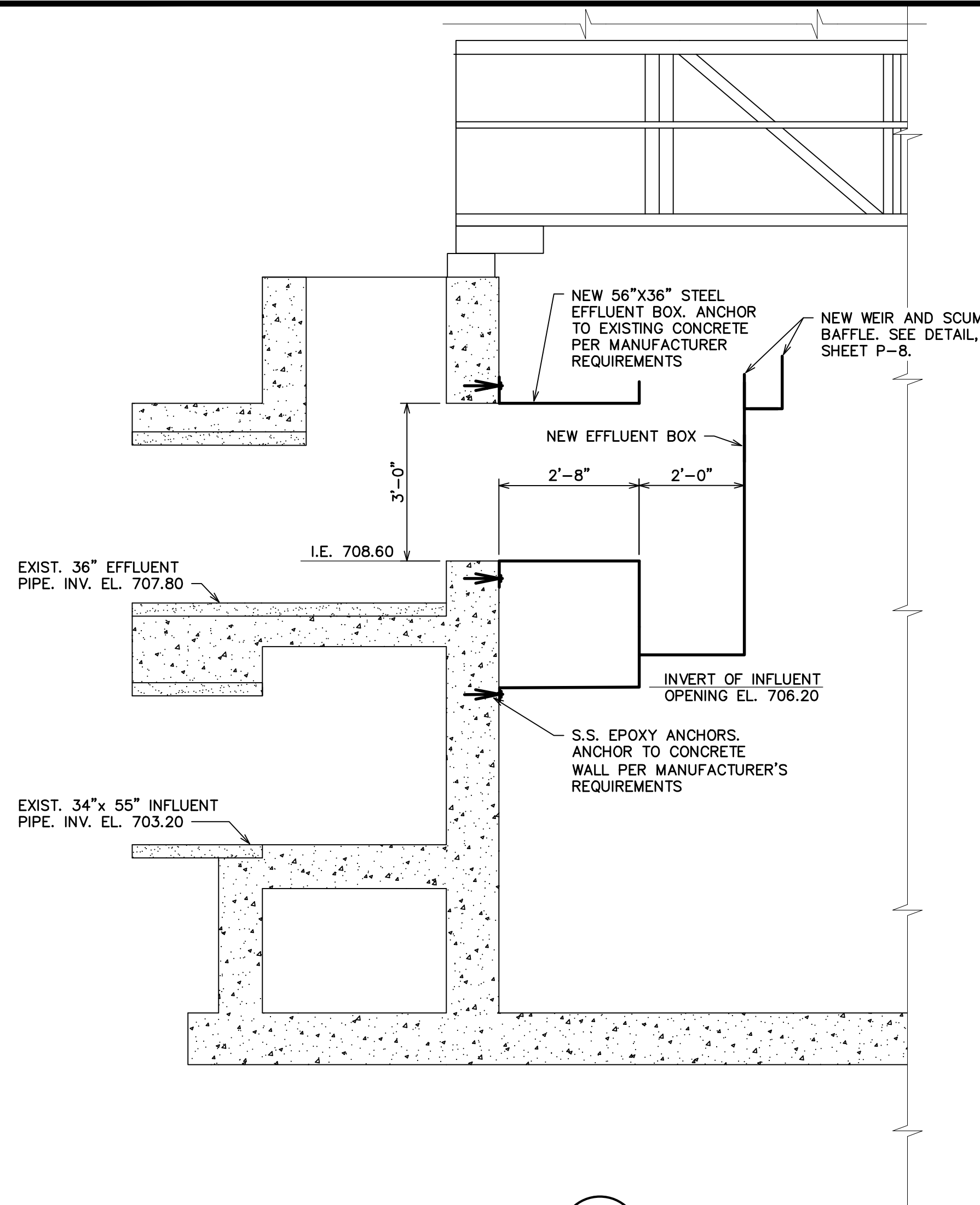
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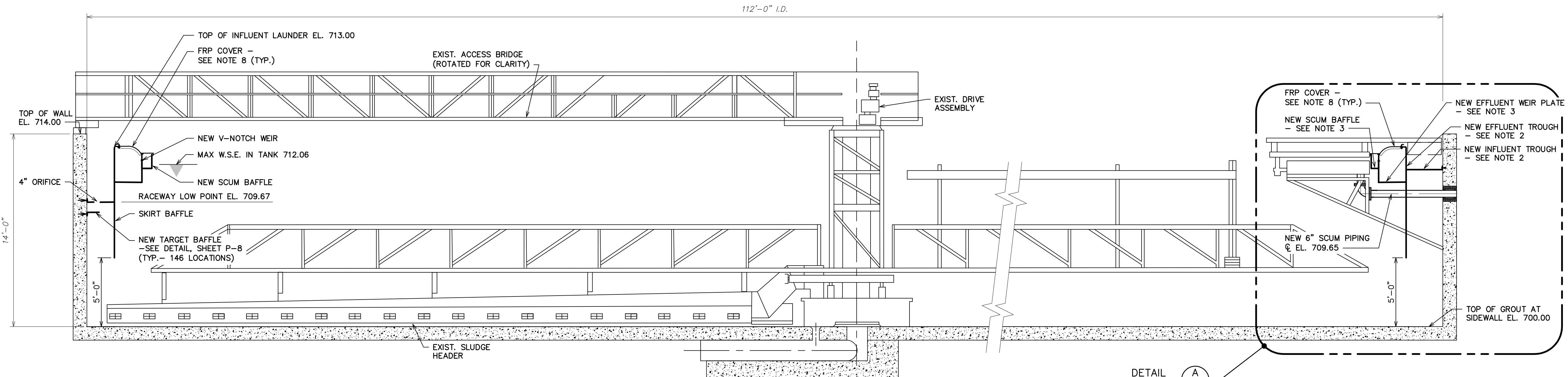
SECONDARY CLARIFIERS 1-4
PLAN

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. P-3 OF



NOTES:

1. INSTALL NEW INFLUENT AND EFFLUENT TROUGH EQUIPMENT PER MANUFACTURER REQUIREMENTS AND AS DETAILED IN SPECIFICATION SECTION 11336.
2. NEW STEEL INFLUENT AND EFFLUENT TROUGHS SHALL BE PROVIDED BY MANUFACTURER AND FIELD WELDED IN SECTIONS IN ACCORDANCE WITH THE SPECIFICATIONS TO COMPLETE CIRCULAR TROUGHS. PROVIDE SUPPORTS AND BRACES AS NEEDED - SEE SPECIFICATIONS. ALL STEEL AGAINST THE CONCRETE SURFACE SHALL BE WATERTIGHT EITHER WITH CONTACT WITH THE STEEL OR IF SMALL GAPS EXIST (LESS THAN 1/2") THEY SHALL BE PROPERLY SEALED.
3. SEE SPECIFICATION SECTION 11204 FOR WEIR PLATE AND SCUM BAFFLE REQUIREMENTS.
4. ALL ELEVATIONS TO BE FIELD VERIFIED BY CONTRACTOR AND ADJUSTED AS NEEDED.
5. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATING EQUIPMENT.
6. EXISTING SCUM BOX SHALL BE TEMPORARILY REMOVED FOR THE DEMOLITION OF THE EXISTING TROUGHS AND RE-USED FOLLOWING INSTALLATION OF THE NEW EQUIPMENT.
7. ANCHOR NEW INFLUENT AND EFFLUENT TROUGHS TO EXISTING CONCRETE PER MANUFACTURER REQUIREMENT.
8. ANCHOR FRP COVER PANELS TO THE NEW WEIR WALL AND NEW INFLUENT LAUNDER WALL PER MANUFACTURER REQUIREMENTS. SEE SPECIFICATION SECTION 11203 FOR DETAILS.
9. INSTALL DEPRESSED SECTION OF NEW INFLUENT TROUGH AT INVERT ELEVATION 706.20 TO MATCH EXISTING OPENINGS OF THE TANK.



TANKS 1-4

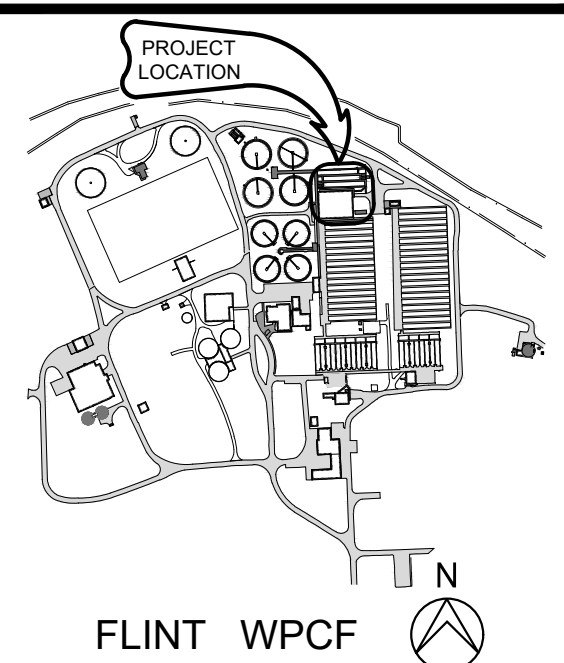
DETAIL A
P-7

HRC
HUBBELL, ROTH & CLARK, INC
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 Flint, MI 48502
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 FAX: 810.235.4975
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6-17-21	ISSUED FOR BIDS
5-28-21	FINAL EGLE SUBMITTAL
4-30-21	DRAFT SUBMITTAL
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	
DRAWN	
CHECKED	
APPROVED	

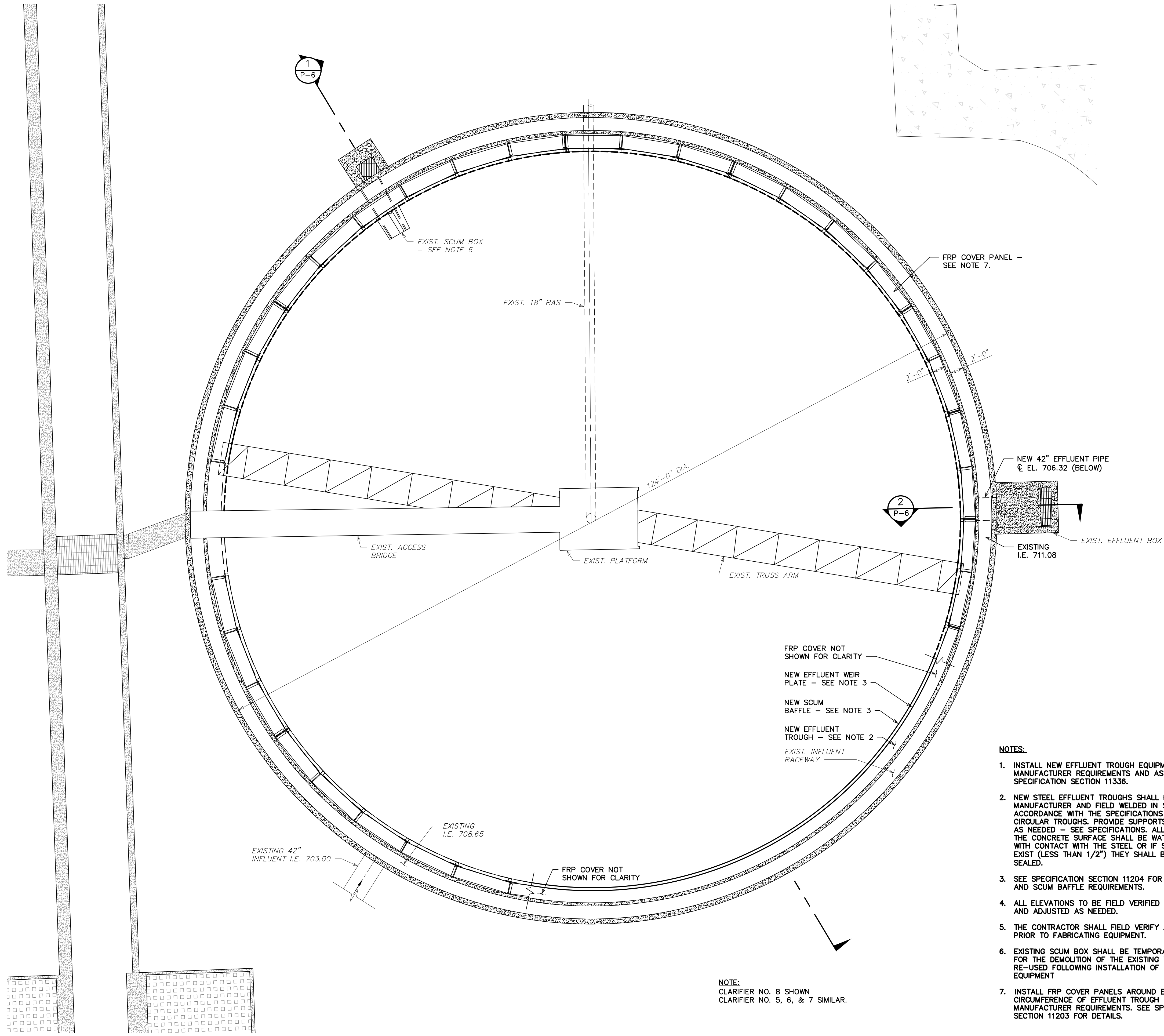


CITY OF FLINT

**FLINT WPCF
 SECONDARY
 CLARIFIER
 IMPROVEMENTS**

FINAL CLARIFIERS 1-4
 SECTIONS

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. P-4 OF

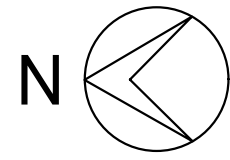


NOTE:
CLARIFIER NO. 8 SHOWN
CLARIFIER NO. 5, 6, & 7 SIMILAR.

NOTES:

1. INSTALL NEW EFFLUENT TROUGH EQUIPMENT PER MANUFACTURER REQUIREMENTS AND AS DETAILED IN SPECIFICATION SECTION 11336.
2. NEW STEEL EFFLUENT TROUGHS SHALL BE PROVIDED BY MANUFACTURER AND FIELD WELDED IN SECTIONS IN ACCORDANCE WITH THE SPECIFICATIONS TO COMPLETE CIRCULAR TROUGHS. PROVIDE SUPPORTS AND BRACES AS NEEDED - SEE SPECIFICATIONS. ALL STEEL AGAINST THE CONCRETE SURFACE SHALL BE WATERTIGHT EITHER WITH CONTACT WITH THE STEEL OR IF SMALL GAPS EXIST (LESS THAN 1/2") THEY SHALL BE PROPERLY SEALED.
3. SEE SPECIFICATION SECTION 11204 FOR WEIR PLATE AND SCUM BAFFLE REQUIREMENTS.
4. ALL ELEVATIONS TO BE FIELD VERIFIED BY CONTRACTOR AND ADJUSTED AS NEEDED.
5. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATING EQUIPMENT.
6. EXISTING SCUM BOX SHALL BE TEMPORARILY REMOVED FOR THE DEMOLITION OF THE EXISTING TROUGHS AND RE-USED FOLLOWING INSTALLATION OF THE NEW EQUIPMENT
7. INSTALL FRP COVER PANELS AROUND ENTIRE CIRCUMFERENCE OF EFFLUENT TROUGH PER MANUFACTURER REQUIREMENTS. SEE SPECIFICATION SECTION 11203 FOR DETAILS.

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

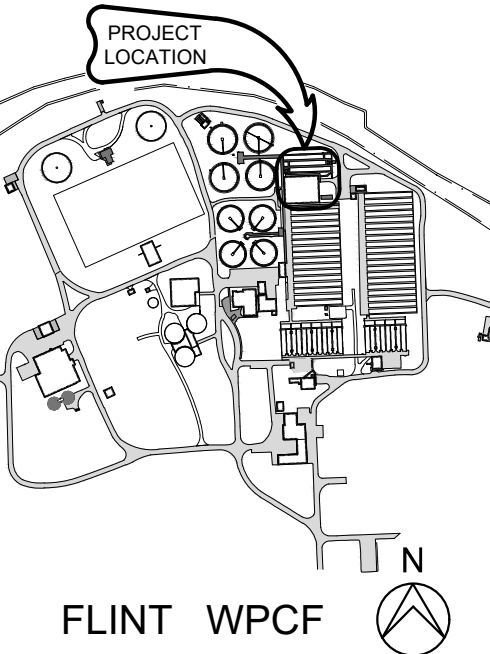


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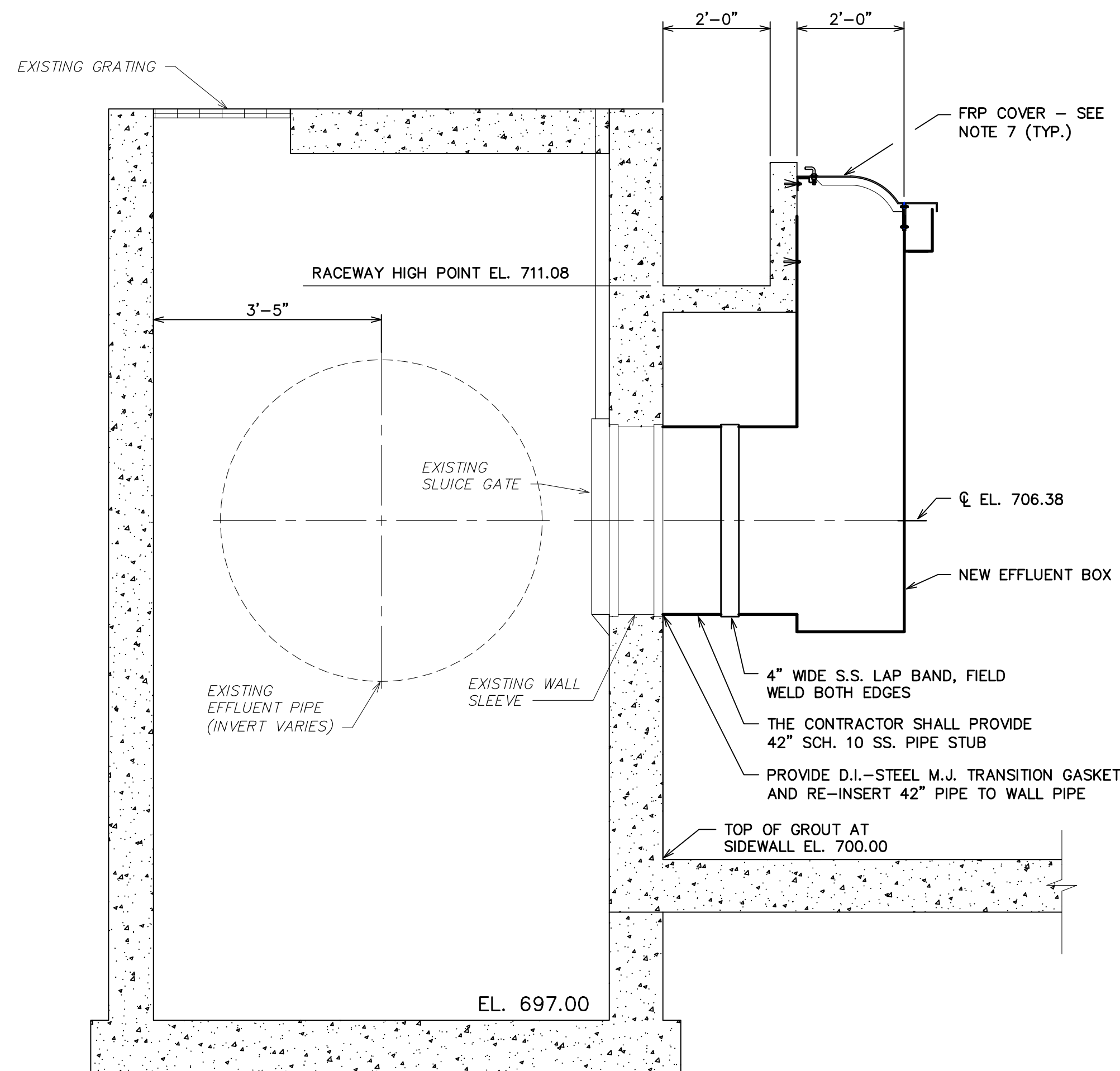
6-18-21	ISSUED FOR BIDS
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APPROVED	



CITY OF FLINT
**FLINT WPCF
SECONDARY
CLARIFIER
IMPROVEMENTS**

SECONDARY CLARIFIERS 5-8
PLAN

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. P-5 OF

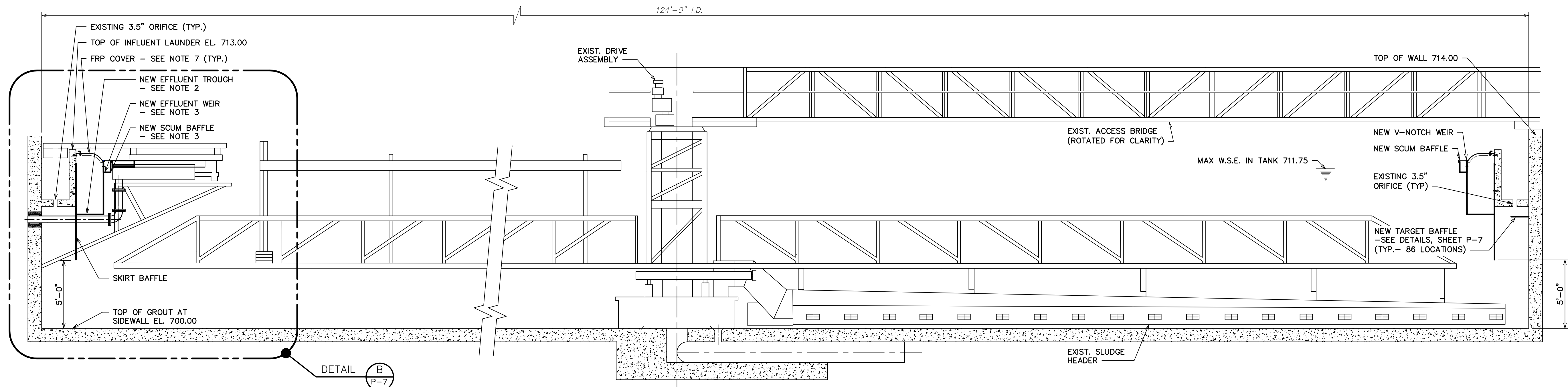


SECTION
SCALE: 1/2"=1'-0"

2
P-5

NOTES:

1. INSTALL NEW EFFLUENT TROUGH EQUIPMENT PER MANUFACTURER REQUIREMENTS AND AS DETAILED IN SPECIFICATION SECTION 11336.
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3. SEE SPECIFICATION SECTION 11204 FOR WEIR PLATE AND SCUM BAFFLE REQUIREMENTS.
4. ALL ELEVATIONS TO BE FIELD VERIFIED BY CONTRACTOR AND ADJUSTED AS NEEDED.
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7. ANCHOR FRP COVER PANELS TO THE NEW WEIR WALL AND EXISTING CONCRETE INFLUENT LAUNDER WALL PER MANUFACTURER REQUIREMENTS. SEE SPECIFICATION SECTION 11203 FOR DETAILS.



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

1
P-5

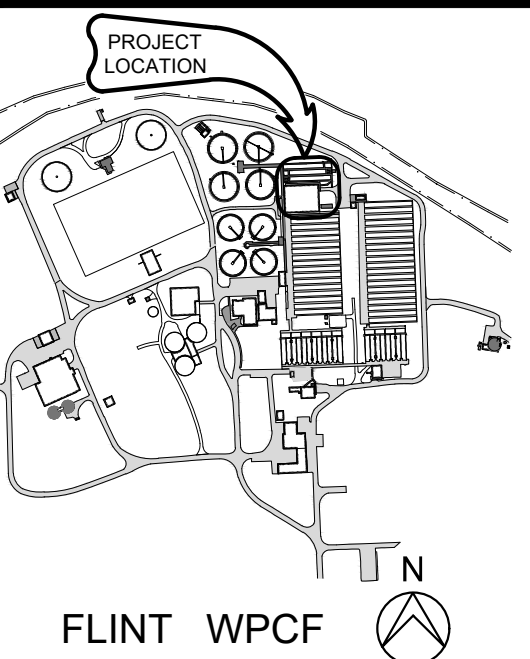


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4-30-21	DRAFT SUBMITTAL
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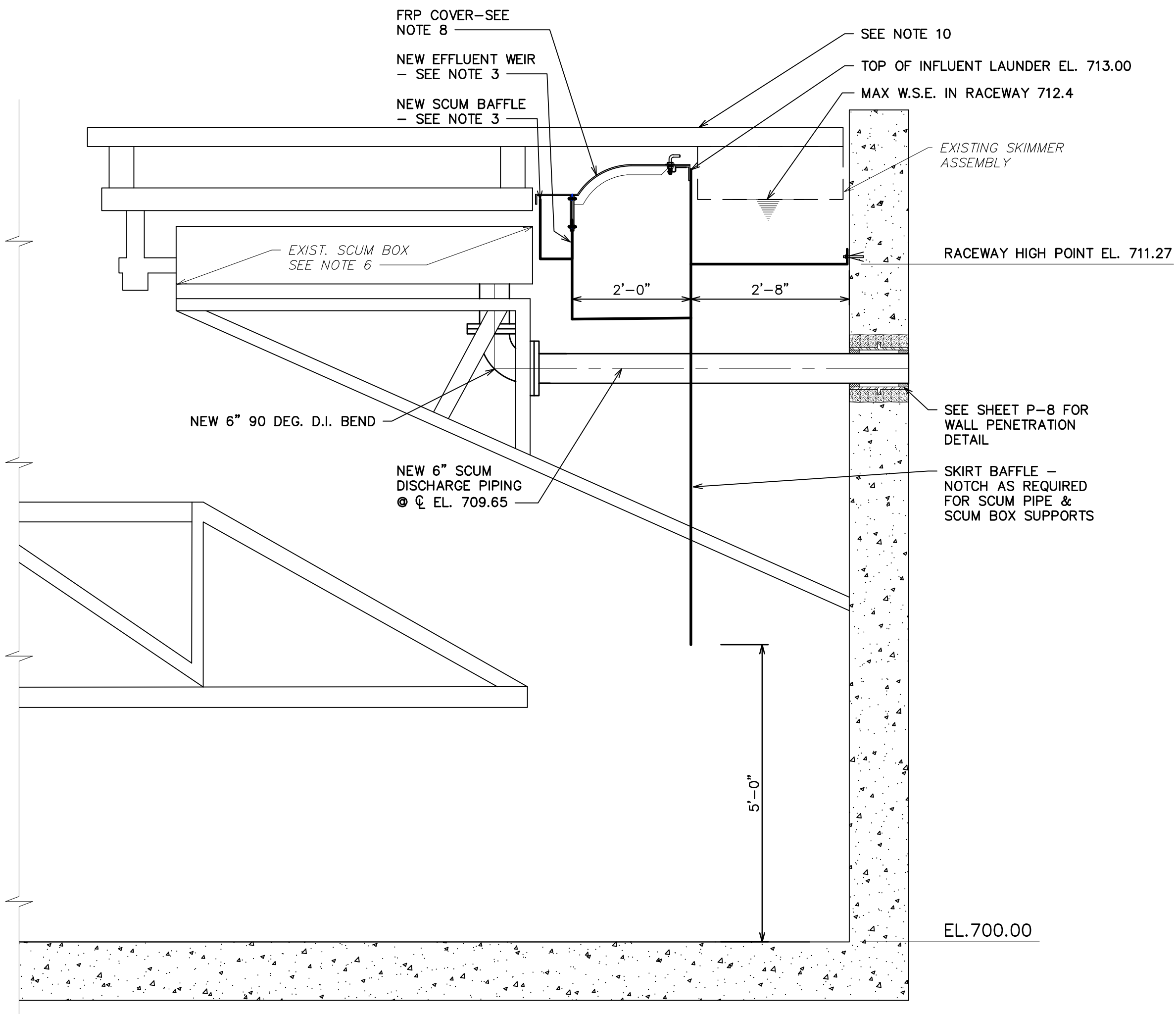


CITY OF FLINT

**FLINT WPCF
SECONDARY
CLARIFIER
IMPROVEMENTS**

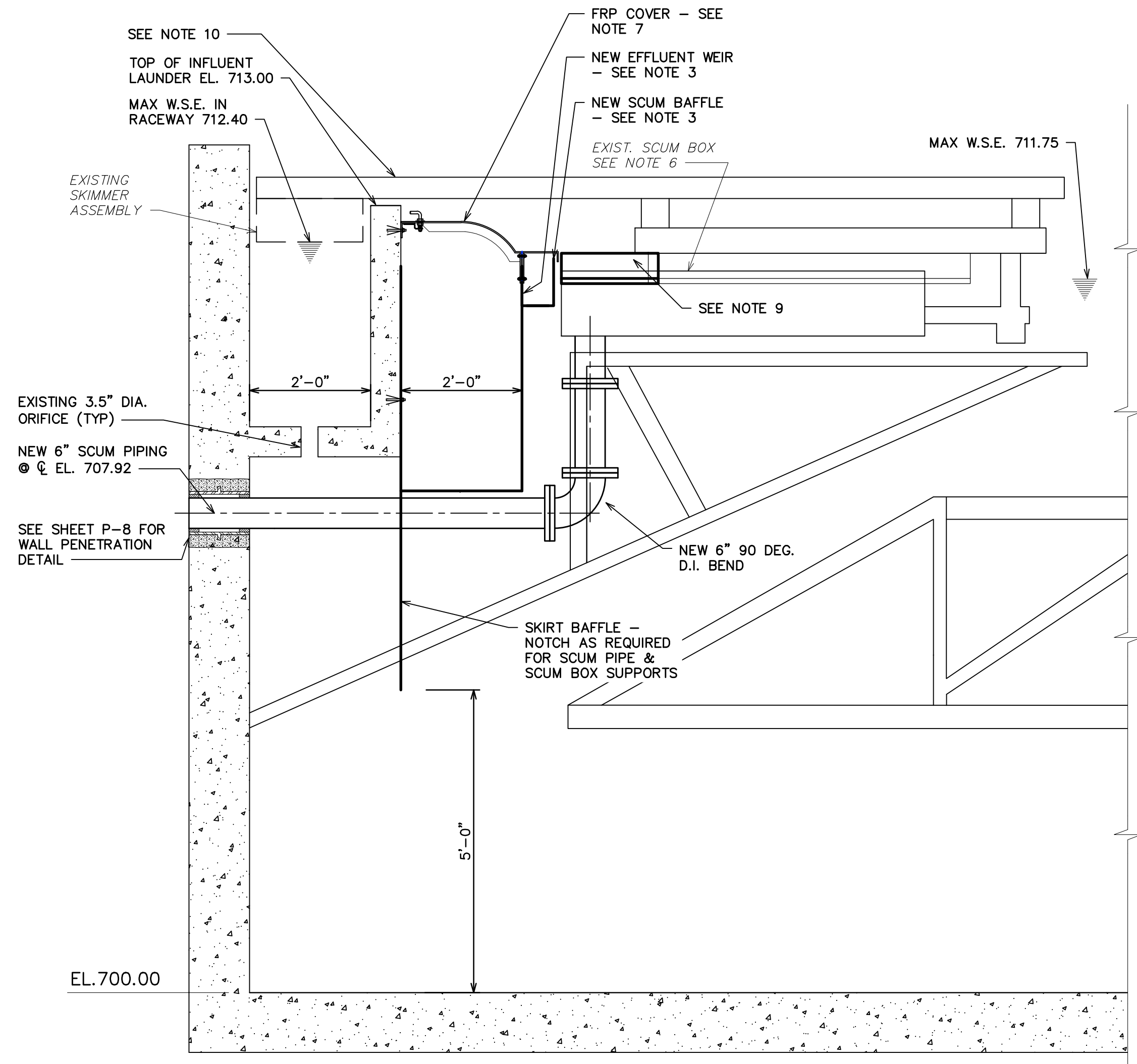
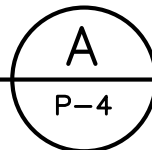
SECONDARY CLARIFIERS 5-8
SECTIONS

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. P-6 OF



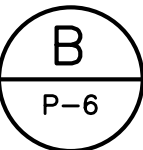
SCUM BOX DETAIL - TANKS 1-4

SCALE: 5/8"=1'-0"



SCUM BOX DETAIL - TANKS 5-8

SCALE: 5/8"=1'-0"

**NOTES:**

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7. ANCHOR FRP COVER PANELS TO THE NEW WEIR WALL AND EXISTING CONCRETE INFLUENT LAUNDER WALL PER MANUFACTURER REQUIREMENTS. SEE SPECIFICATION SECTION 11203 AND SHEET P-8 FOR DETAILS.
8. ANCHOR FRP COVER PANELS TO THE NEW WEIR WALL AND NEW STEEL INFLUENT LAUNDER WALL PER MANUFACTURER REQUIREMENTS. SEE SPECIFICATION SECTION 11203 AND SHEET P-8 FOR DETAILS.
9. ATTACH 6" ALUMINUM EXTENSION PLATE TO EXISTING SKIMMER BLADE ASSEMBLY. THE CONTRACTOR SHALL COORDINATE WITH EXISTING CLARIFIER MECHANISM MANUFACTURER FOR CONNECTION DETAILS.
10. RAISE SKIMMER ASSEMBLY IF REQUIRED TO PROVIDE CLEARANCE ABOVE FRP COVER LATCH. THE CONTRACTOR SHALL COORDINATE WITH EXISTING CLARIFIER MECHANISM MANUFACTURER IF NEEDED.



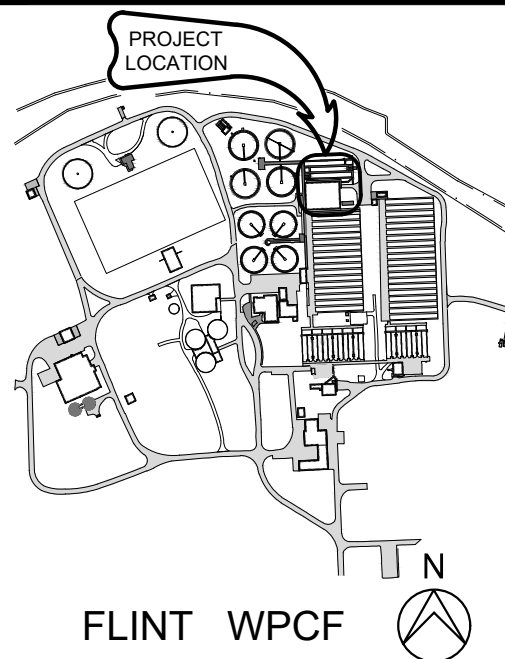
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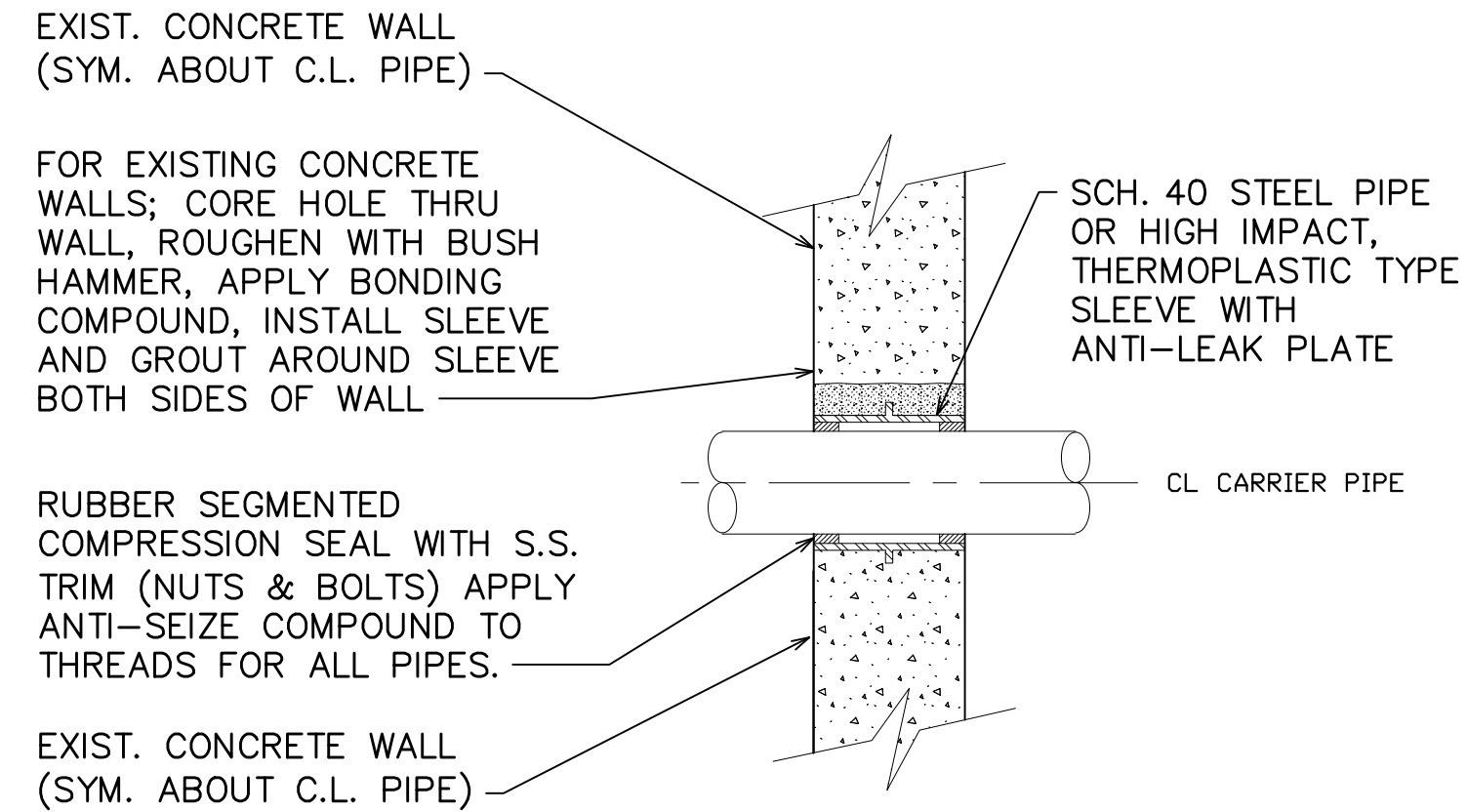


CITY OF FLINT

**FLINT WPCF
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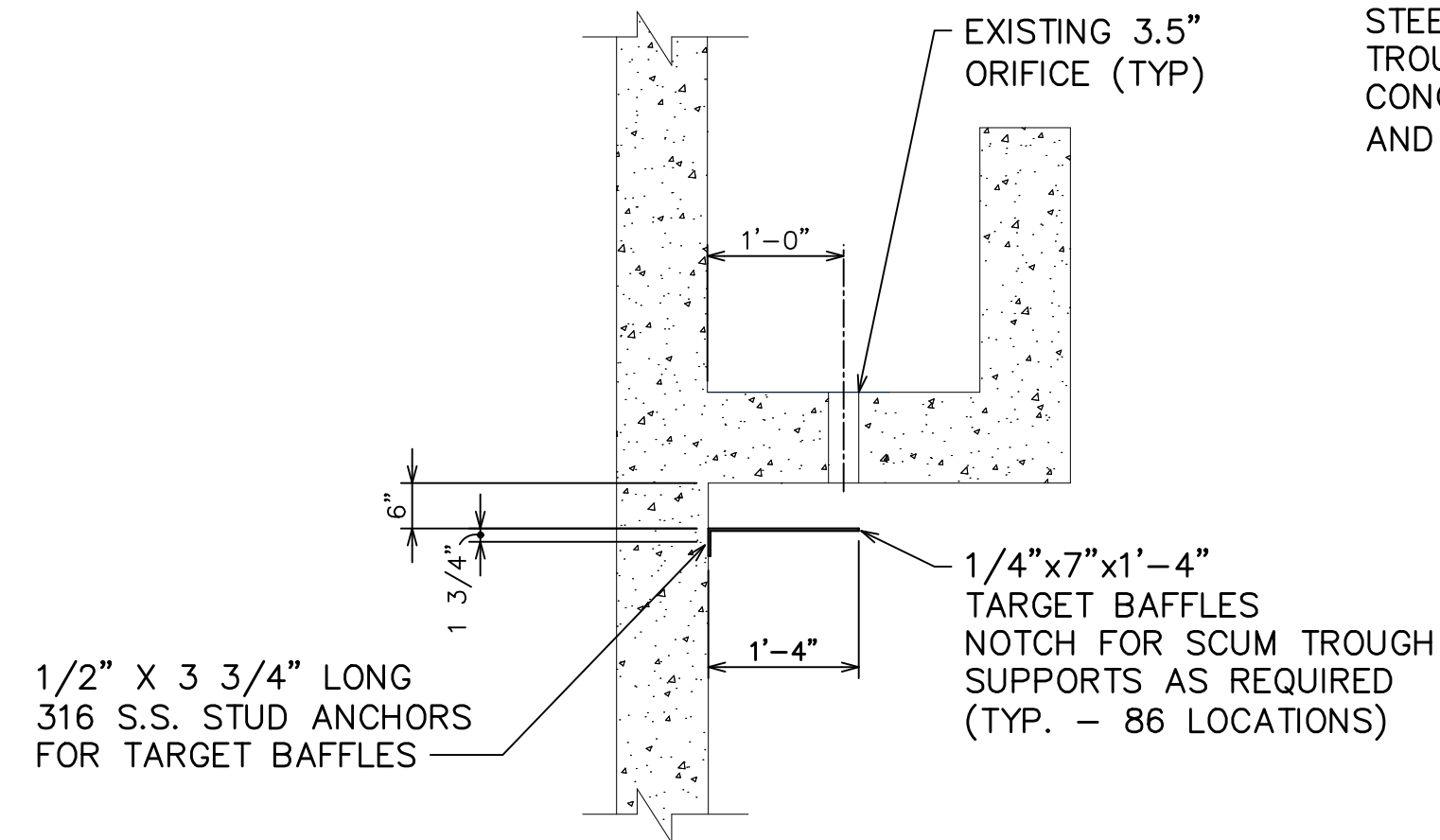
SCUM BOX DETAILS

HRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. P-7 OF



**TYPICAL PIPING AND
WALL SLEEVE DETAIL**

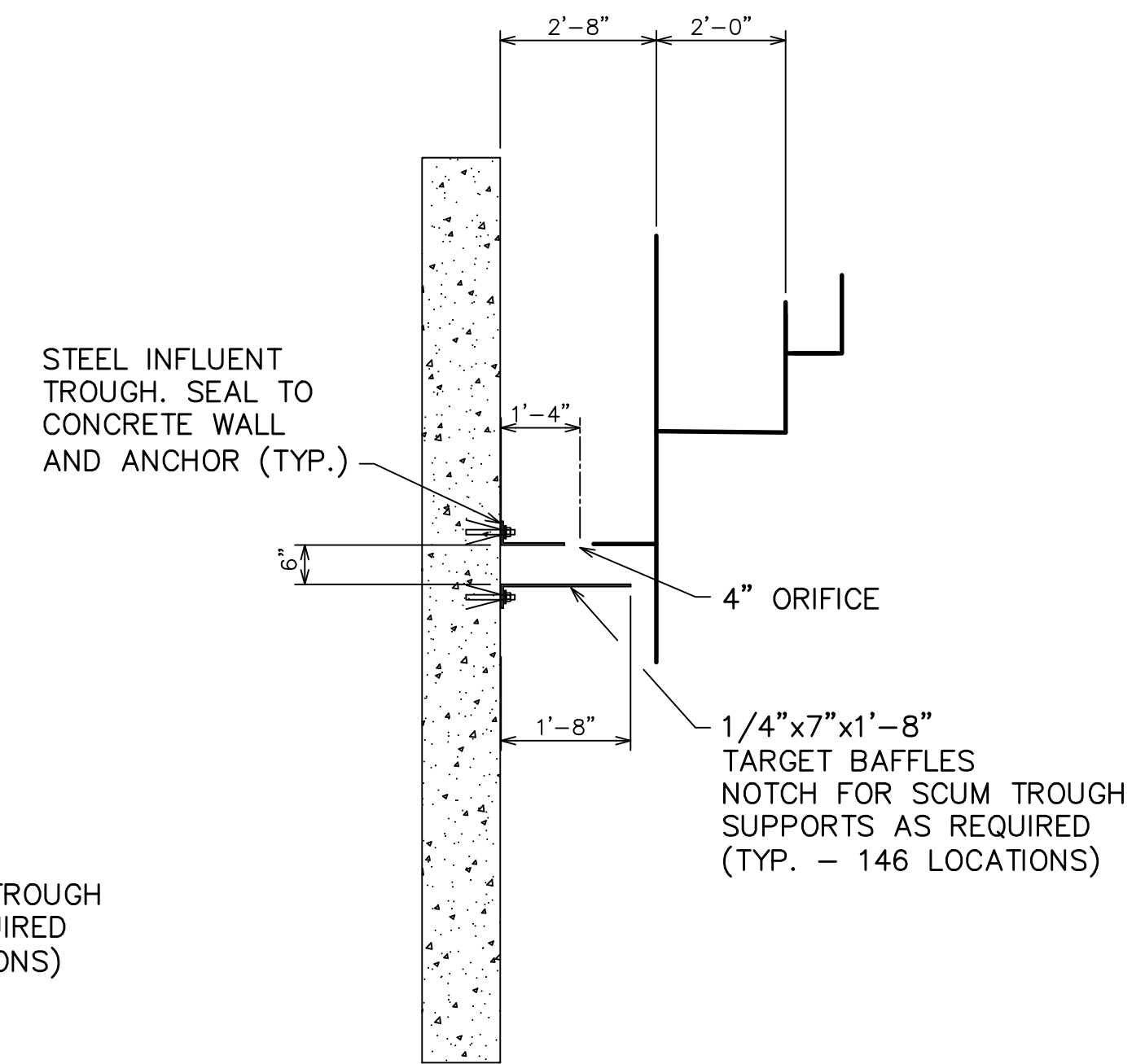
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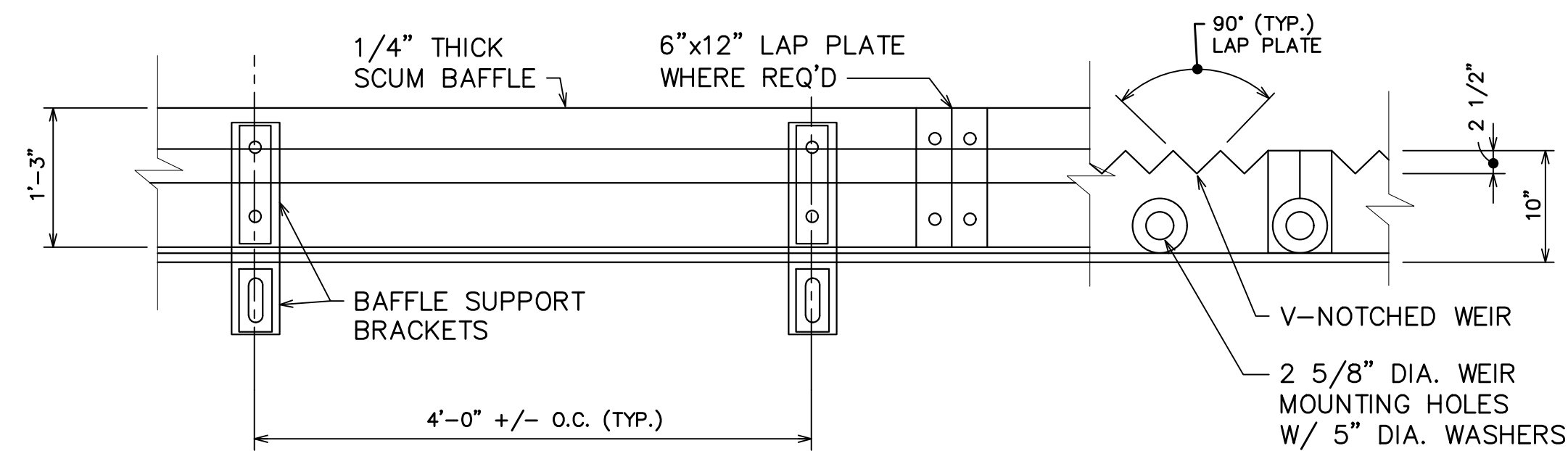
TARGET BAFFLE DETAIL

TANKS 5-8

NOT TO SCALE

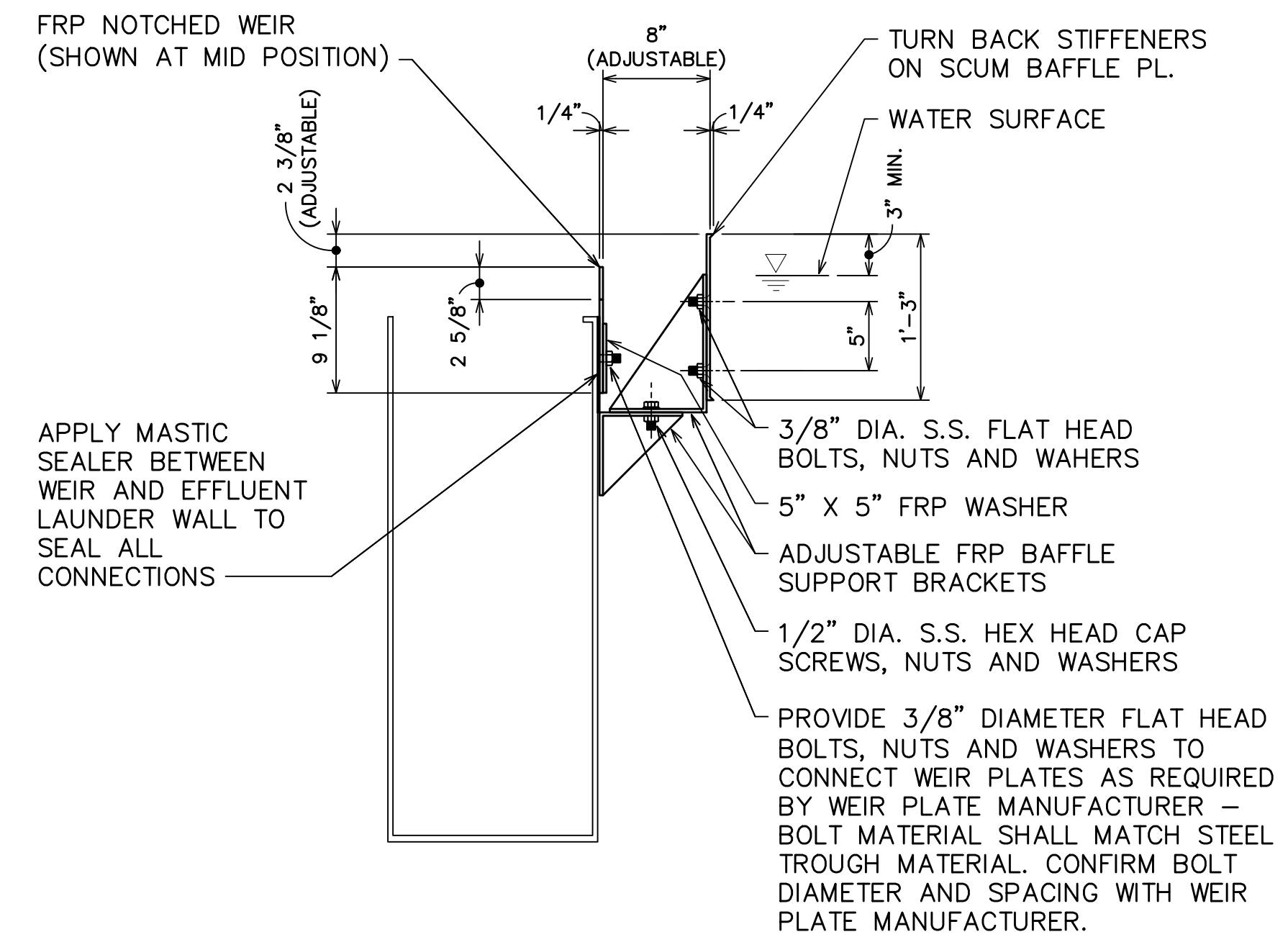


TARGET BAFFLE DETAIL
TANKS 1-4
NOT TO SCALE



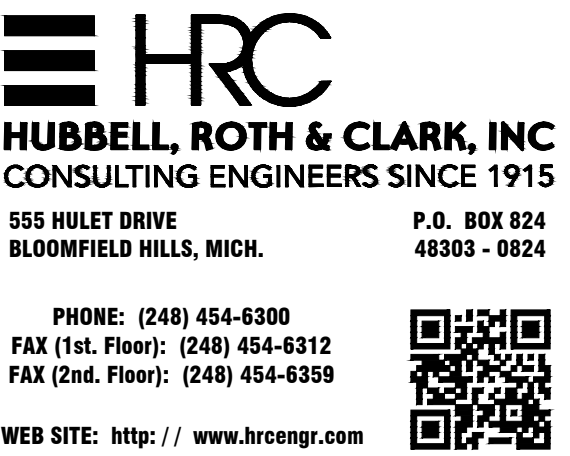
WEIR, FACE PLATE, AND BAFFLE ARRANGEMENT

SCALE: 1" = 1'-0"



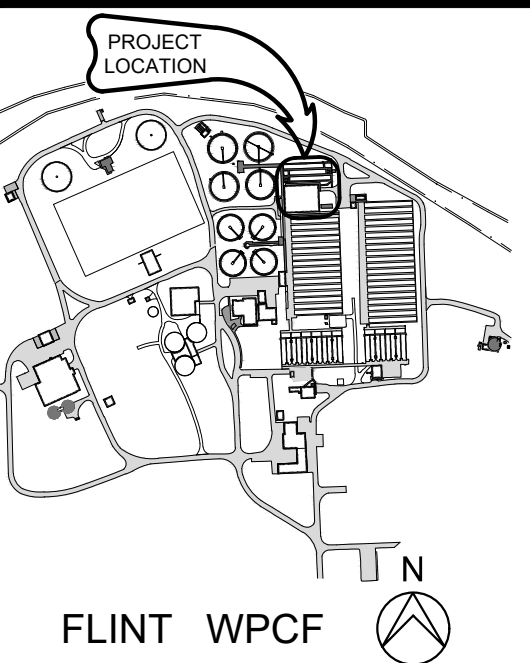
WEIR BAFFLE PLATE MOUNTING DETAIL

SCALE: 1" = 1'-0"



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4-30-21	DRAFT SUBMITTAL
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DESIGNED	
DRAWN	
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APPROVED	



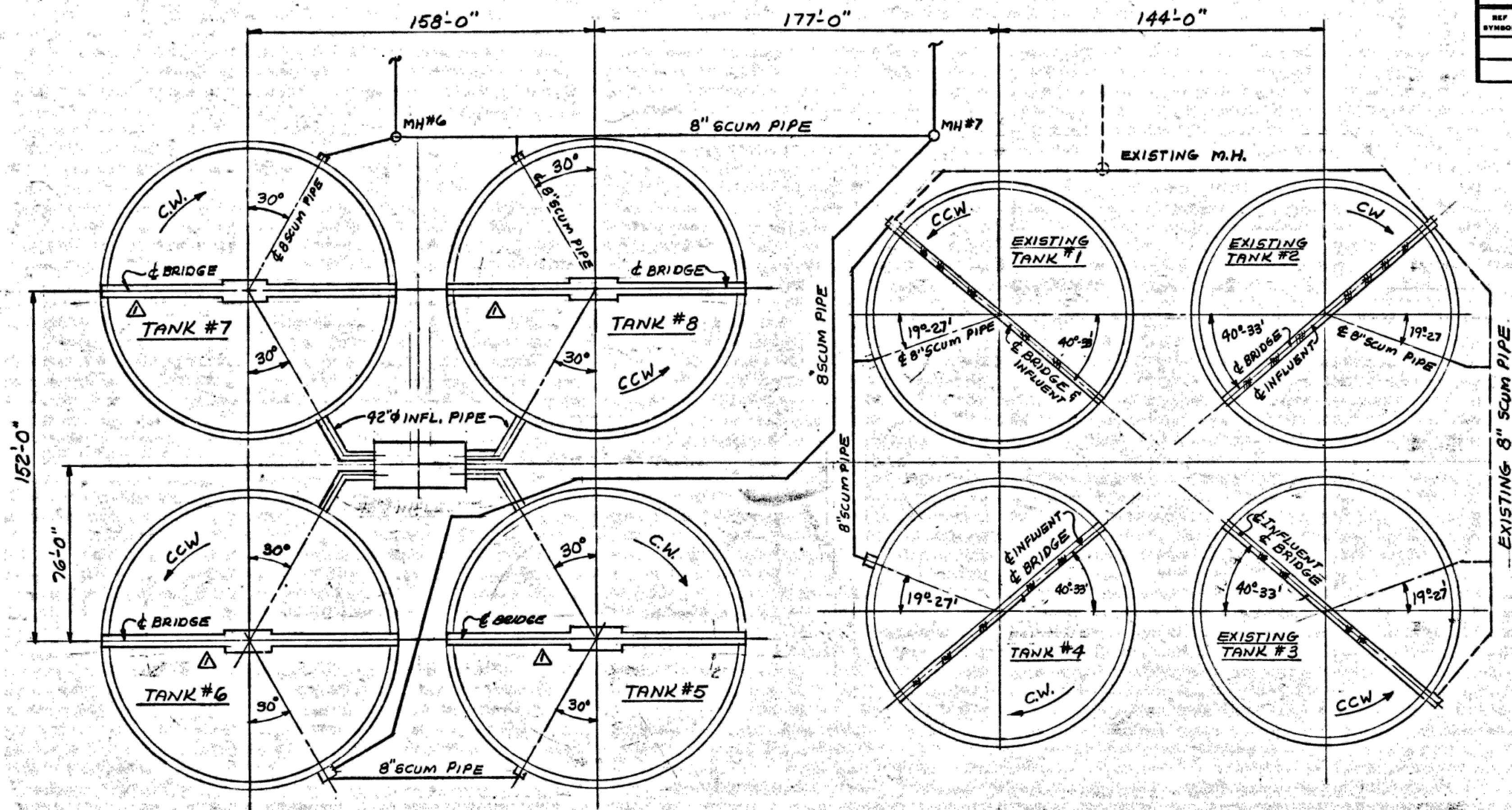
CITY OF FLINT

FLINT WPCF SECONDARY CLARIFIER IMPROVEMENTS

DETAILS

IRC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. P-8 OF

0001-98LEBH
ON DELIVERY



UNIT 11
(4) PROPOSED 124'-0" DIAMETER
RIM FLO-TOW BRO

UNIT 10
(3) EXISTING & 1- PROPOSED
112'-0" DIAMETER RIM FLO TOW BRO

LIST OF COMPONENTS

TITLE: PROPOSED SCUM PIPING FOR FINAL TANKS
UNIT: 11&12

WEIGHT: H83786-1000
DRAWING NO.: H83786
ORDER NO.: H83786

NOTE: REFERENCE SYMBOLS, WHERE SHOWN, ARE TO ASSIST IN LOCATING COMPONENTS IN DIFFERENT VIEWS OF THIS DRAWING. ONLY ALL LENGTHS ARE FINAL LENGTHS UNLESS SPECIFIED AS ROUGH ("RGM").

REF SYMBOL	QUANTITY	PART NUMBER	PART NAME OR MATERIAL SIZE AND DESCRIPTION	MATERIAL SPEC.	LENGTH
					FEET INCHES

FOR LIST OF COMPONENTS SEE H-83786-1020,1021,1022,1023,1030,1031,1129,1130,1131,1132

WORK THIS DRAWING WITH H-83786-1001,1002,1007,1008,1100,1101,1102,1103

CUSTOMER: LIMBACH CO.		SCALE: 1"=40'-0"		TITLE: GENERAL ARRANGEMENT OF PROPOSED SCUM PIPING FOR NEW AND EXISTING FINAL TANKS	
LOCATION: FLINT MICHIGAN		CUST. ORDER NO.: 24-E-8		DIM. IN INCHES IF NOT SPECIFIED	
ENG'R. OR MAT'L. SPEC.: CONSOER, TOWNSEND & ASSOC.		DR'N.: DK		CK'D.: C.H.	
PROC. SPEC.: SET-51500		APP'D.: [Signature]		UNIT: 10&11	
CONFIDENTIAL - ALL RIGHTS RESERVED - PROPERTY OF Envirex a Rexnord Company		Water Quality Control Division Waukesha, WI 53186		PART OR ORDER NO.: H83786	
DIST'N.:		MADE FROM:		DRAWING NO.: H83786-1000	
DATE ISSUED: 6/15/24		PROD. CODE:			

ENG. CHANGE NOTICE NO.	REV. NO.	MICRO FILMED	DESCRIPTION OF REVISION	REV. BY	DATE
	1		Changes made to E of TANK	RJ	6/24/24

FORM NO. 18-18D

FORM NO. 18-12C

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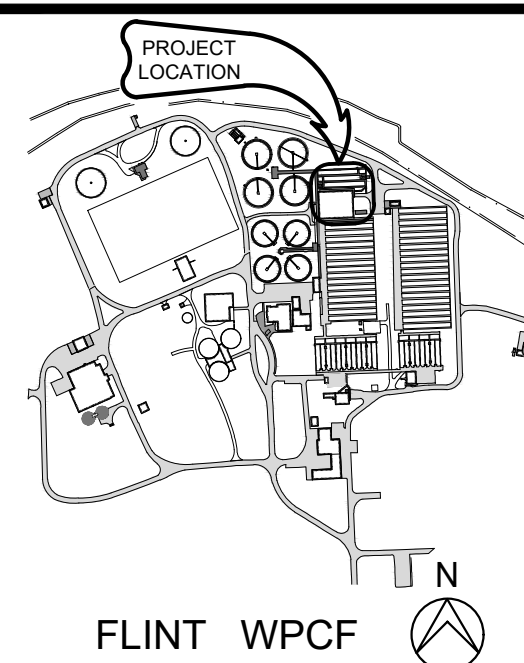
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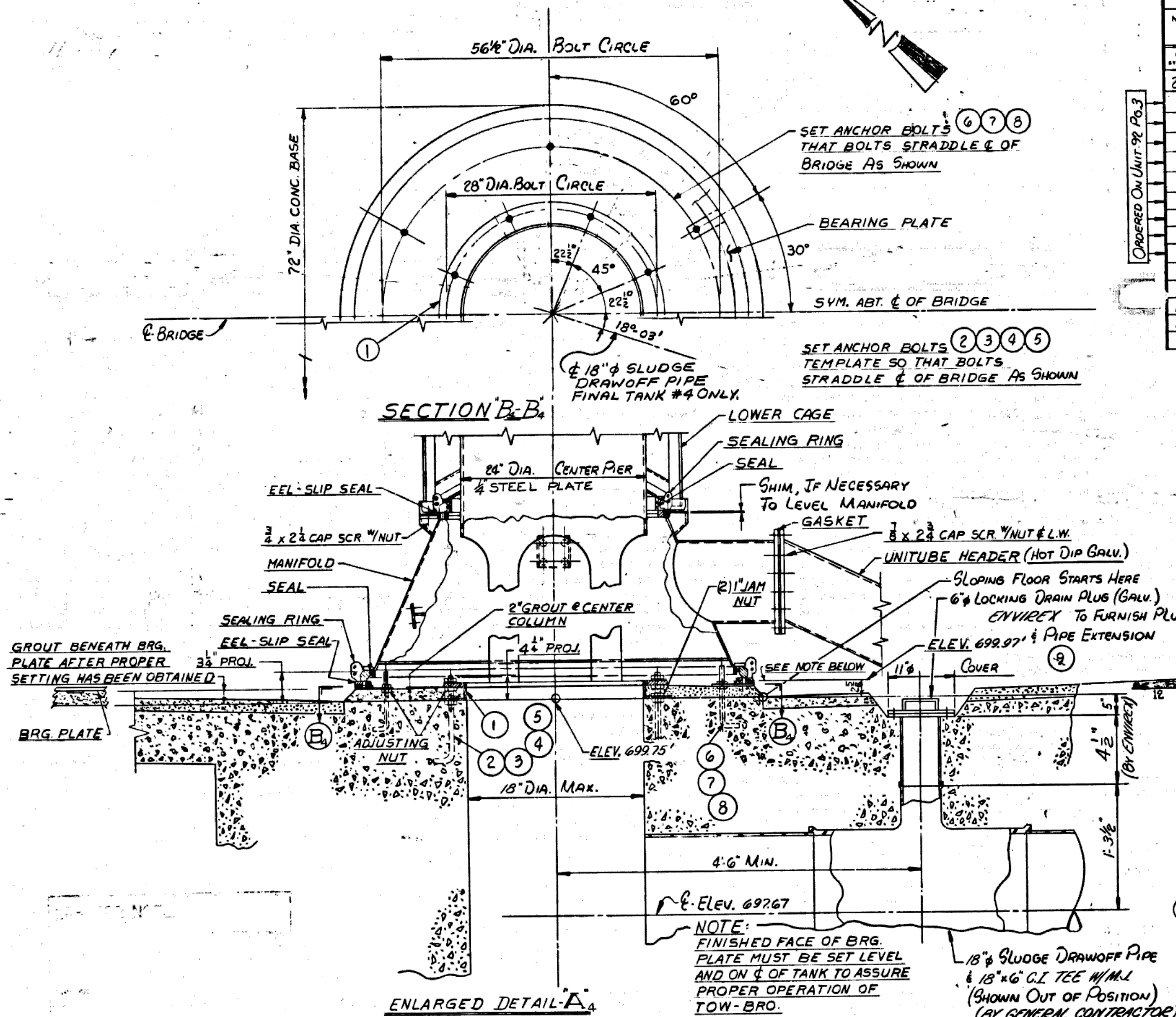
6-17-21	ISSUED FOR BIDS
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4-30-21	DRAFT SUBMITTAL
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	J.M.B.
DRAWN	T.W.R.
CHECKED	T.S.W.
APPROVED	



CITY OF FLINT
FLINT WPCF
SECONDARY
CLARIFIER
IMPROVEMENTS

REFERENCE
FINAL CLARIFIERS 1-4

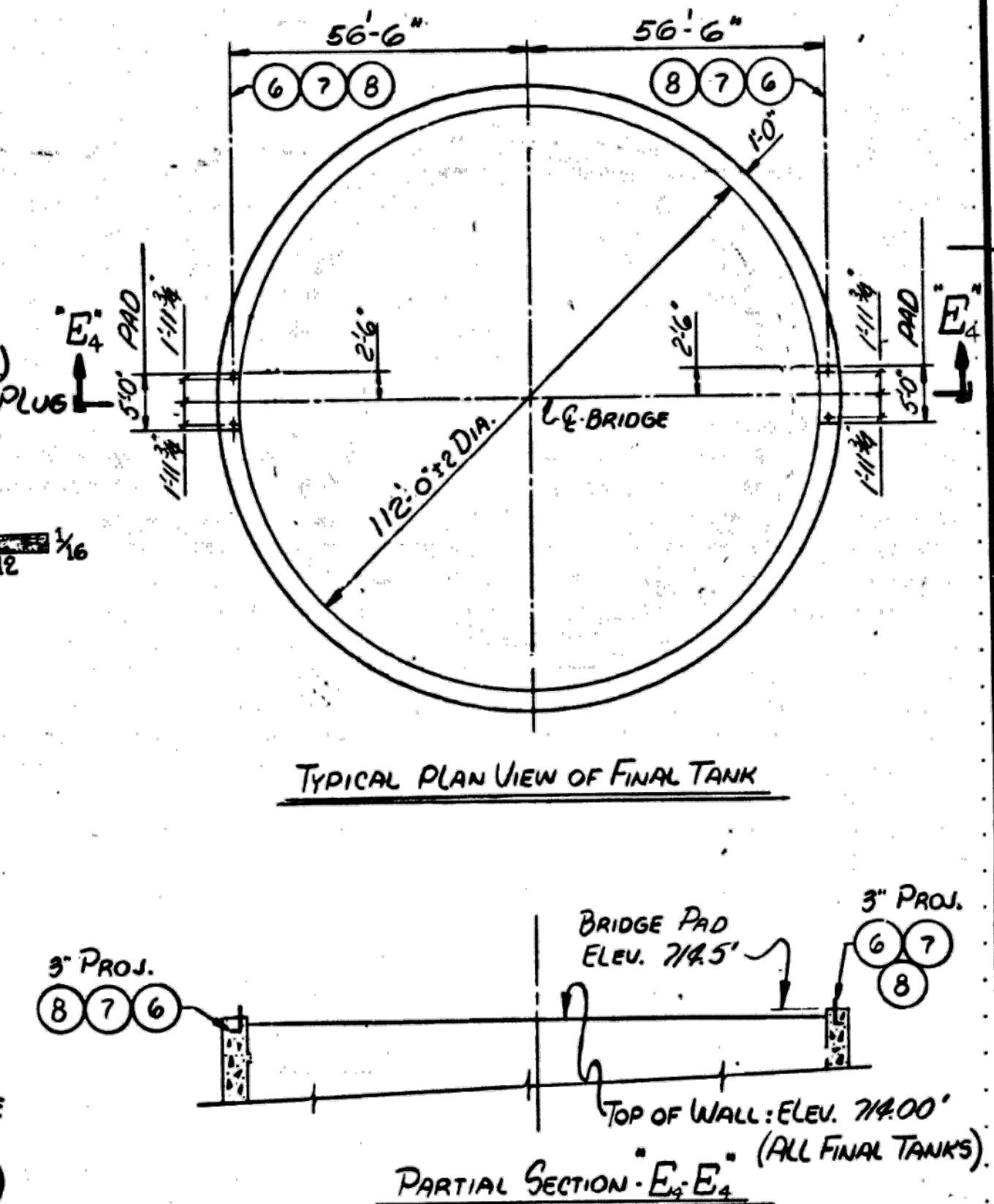
HRC JOB NO.	SCALE
20200783	AS NOTED
DATE	SHEET NO.
JUNE 2021	REF-1 OF

8001-98788-H
ON PLANS

LIST OF COMPONENTS

TITLE CENTER COLUMN & BRIDGE ANCHOR BOLT LOCATIONS			UNIT 10	ITEM	REV.	ORDER NO. H-83786
NOTE: REFERENCE SYMBOLS, WHERE SHOWN, ARE TO ASSIST IN LOCATING COMPONENTS IN DIFFERENT VIEWS OF THIS DRAWING. ONLY ALL LENGTHS ARE FINAL LENGTHS UNLESS SPECIFIED AS ROUGH ("RQH").					REFERENCE DRAWING NO.	
REF SYMBOL	QUANTITY	PART NUMBER	PART NAME OR MATERIAL SIZE AND DESCRIPTION	MATERIAL SPEC. ENGR STD NO	LENGTH FEET INCHES	
ZINC PL. ANCHOR BOLTS FURNISHED BY "DEX" & SET BY OTHERS (MATERIAL FOR 6" TANKS)						
1	4	365592-104	ANCHOR BOLT TEMPLATE			
2	32	103-50377-12	1" Ø HOOKED ANCHOR BOLT (ZINC PL.)			
3	64		1" Ø HEX FULL NUT	4-220	BRONZE	
4	64		1" Ø HEX JAM NUT	4-220	BRONZE	
5	64		1" Ø CUT WASHER (ZINC PL.)			
6	40	103-50377-8	3/8" Ø HOOKED ANCHOR BOLT (ZINC PL.)			
7	64		3/8" Ø HEX FULL NUT	4-220	BRONZE	
8	64		3/8" Ø CUT WASHER (ZINC PL.)			
9	4	471968 107 MARK	6" Ø LOCKING DRAIN PLUG (GALV.)			
10						
11						
12						
13						
14						

ORDERED ON UNIT 98 P.O. 3



				PAINT SPECIFICATION: ALL STRUCTURAL ITEMS TO RECEIVE COATS		SCALE: NONE	ESTIMATE NO. 31500	CUSTOMER LIMBACH CO.		REX CHAINBELT INC.		
						DIMENSIONS IN INCHES IF NOT SPECIFIED	CUST. ORDER NO. 24-E-8	LOCATION FLINT, MICHIGAN		CONVEYOR & PROCESS EQUIP'T DIV.		
				CONFIDENTIAL-ALL RIGHTS RESERVED		DATE 7-12-74		ENGINEER CONSOER, TOWNSEND & ASSOC.		MILWAUKEE, WISCONSIN 53201		
				MAT'L SPEC.		DR'N D.K.	APP'D (Signature)	TITLE GENERAL ARRANGEMENT		UNIT 10	ORDER NO. H-83786	DRAWING NO. H-83786-1008
				ORIGINAL ISSUE		CHK'D R. JONES	APP'D (Signature)	CENTER COLUMN ANCHOR & BRIDGE				
				ENGR. CHANGE NOTICE NO. 1 (INCL. FILMED SPEC)		IN CHARGE C. Hines		ANCHOR LOCATIONS: (4) 12" O DIA. HS-36 RIA FLO. TOW BRO				

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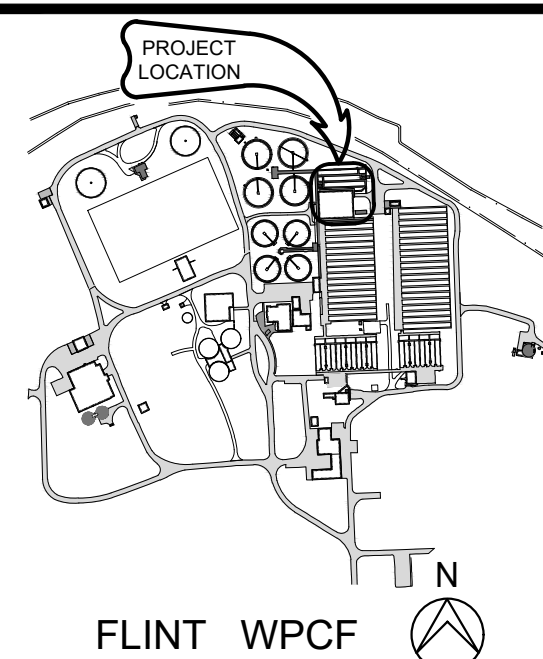
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APPROVED	

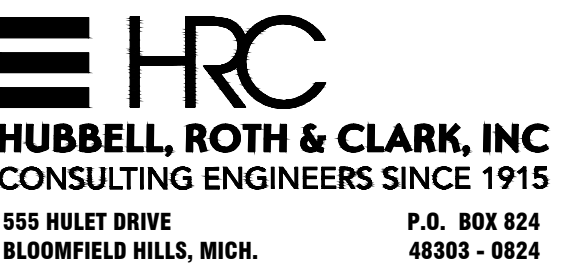
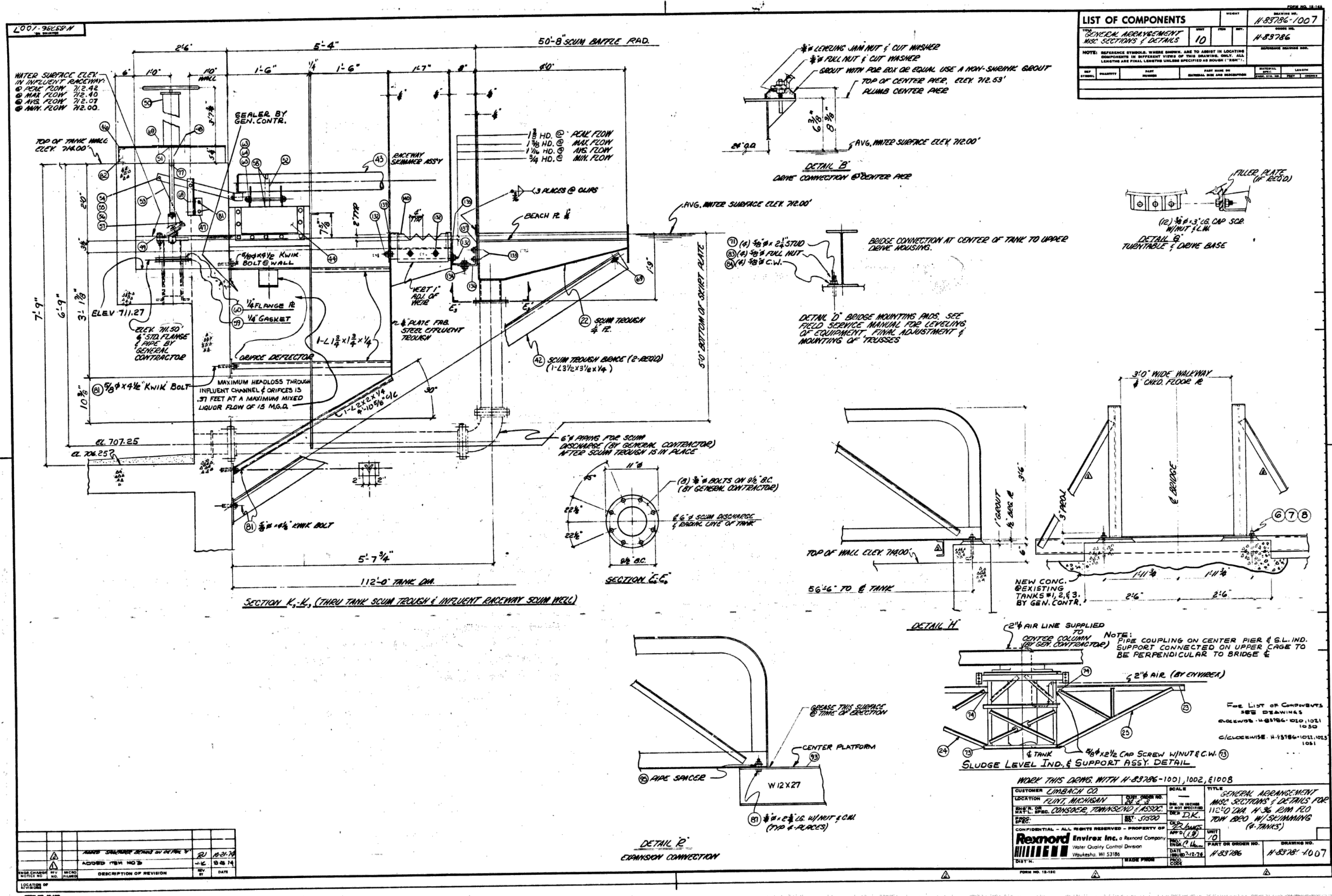


CITY OF FLINT

FLINT WPCF SECONDARY CLARIFIER IMPROVEMENTS

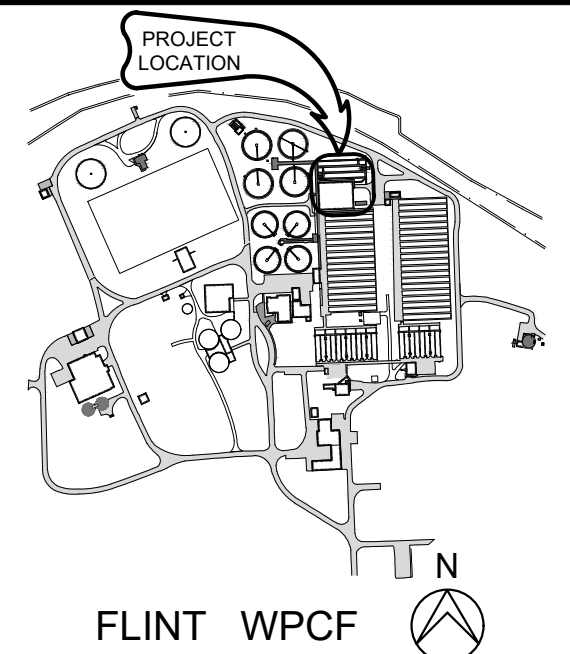
REFERENCE
FINAL CLARIFIERS 1-4

HRC JOB NO.	SCALE
20200783	AS NOTED
DATE	SHEET NO.
JUNE 2021	REF-2 OF 6



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6-17-21	ISSUED FOR BIDS
5-28-21	FINAL EGLE SUBMITTAL
4-30-21	DRAFT SUBMITTAL
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	J.M.B.
RAWN	T.W.R.
CHECKED	T.S.W.
APPROVED	



CITY OF FLINT

FLINT WPCF SECONDARY CLARIFIER IMPROVEMENTS

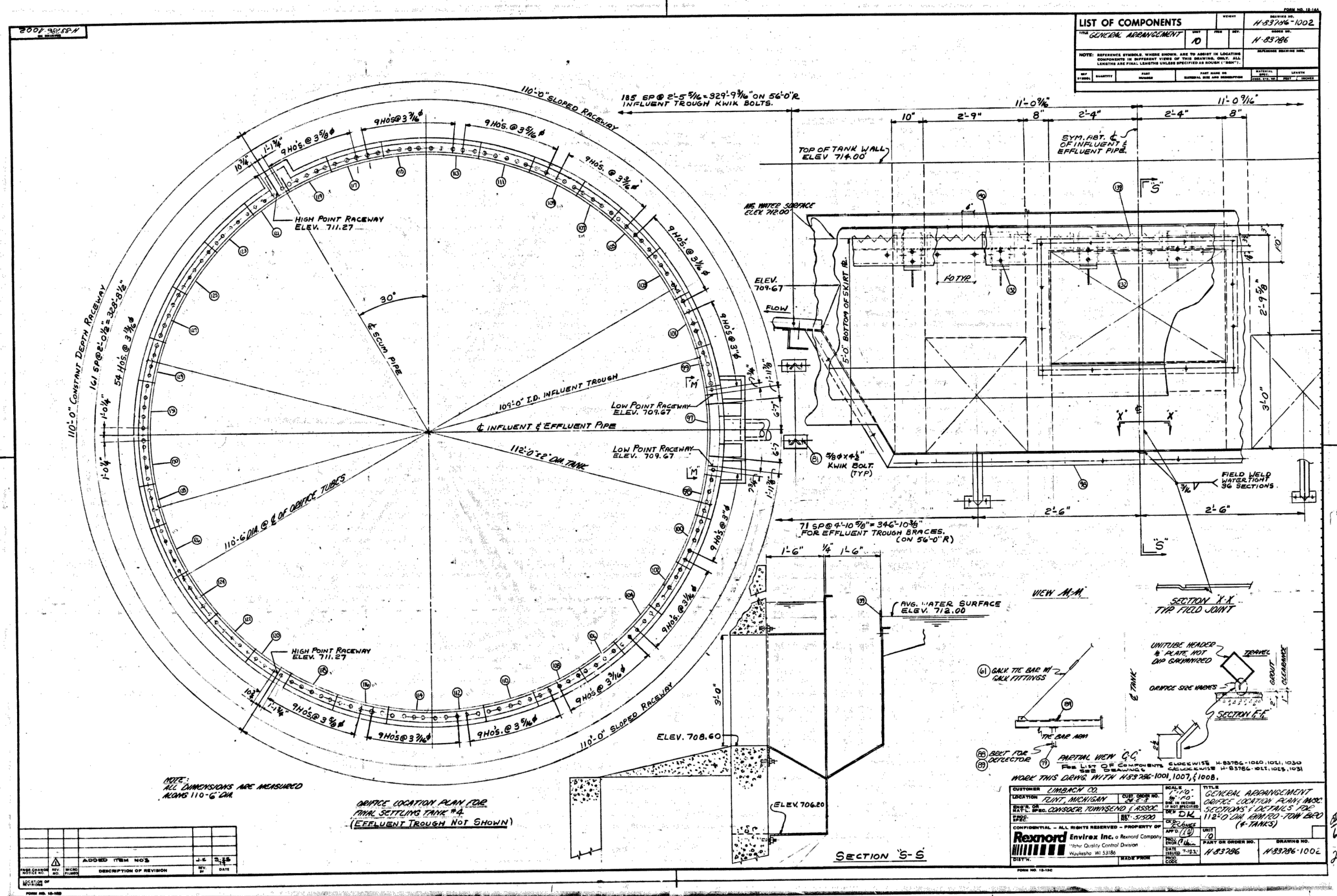
REFERENCE
FINAL CLARIFIERS 1-4

RC JOB NO. 20200783	SCALE AS NOTED
DATE JUNE 2021	SHEET NO. REF-3 OF

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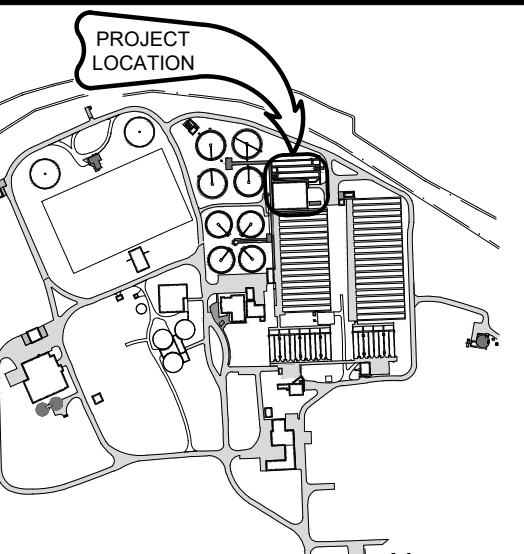
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4-30-21	DRAFT SUBMITTAL
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APPROVED	

FLINT WPCF 

CITY OF FLINT

FLINT WPCF SECONDARY CLARIFIER IMPROVEMENTS

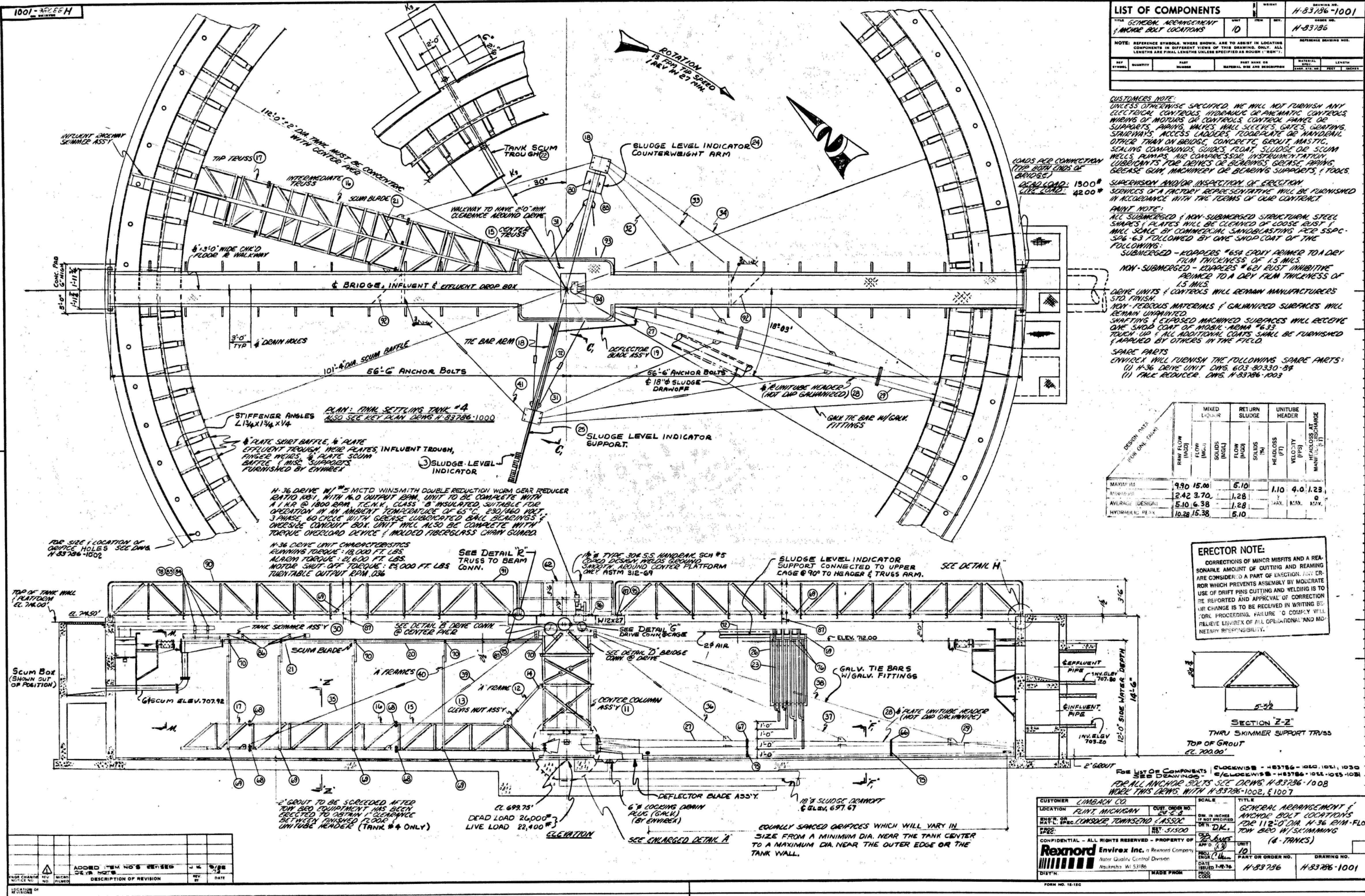
REFERENCE
FINAL CLARIFIERS 1-4

RC JOB NO. 20200783	SCALE AS NOTED
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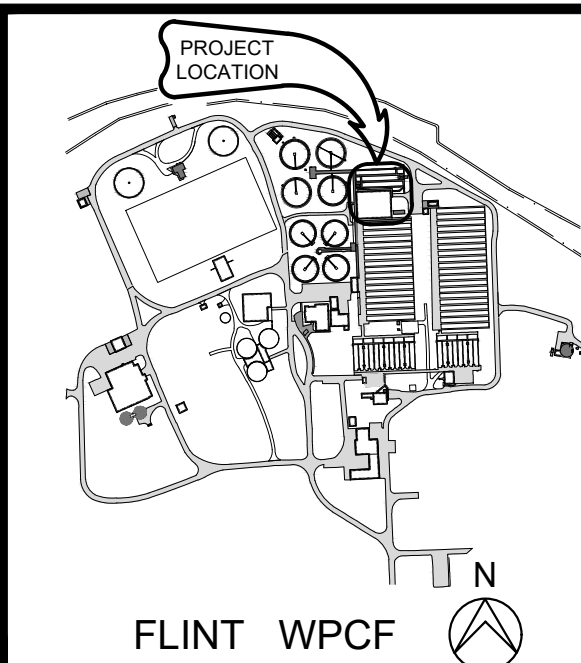
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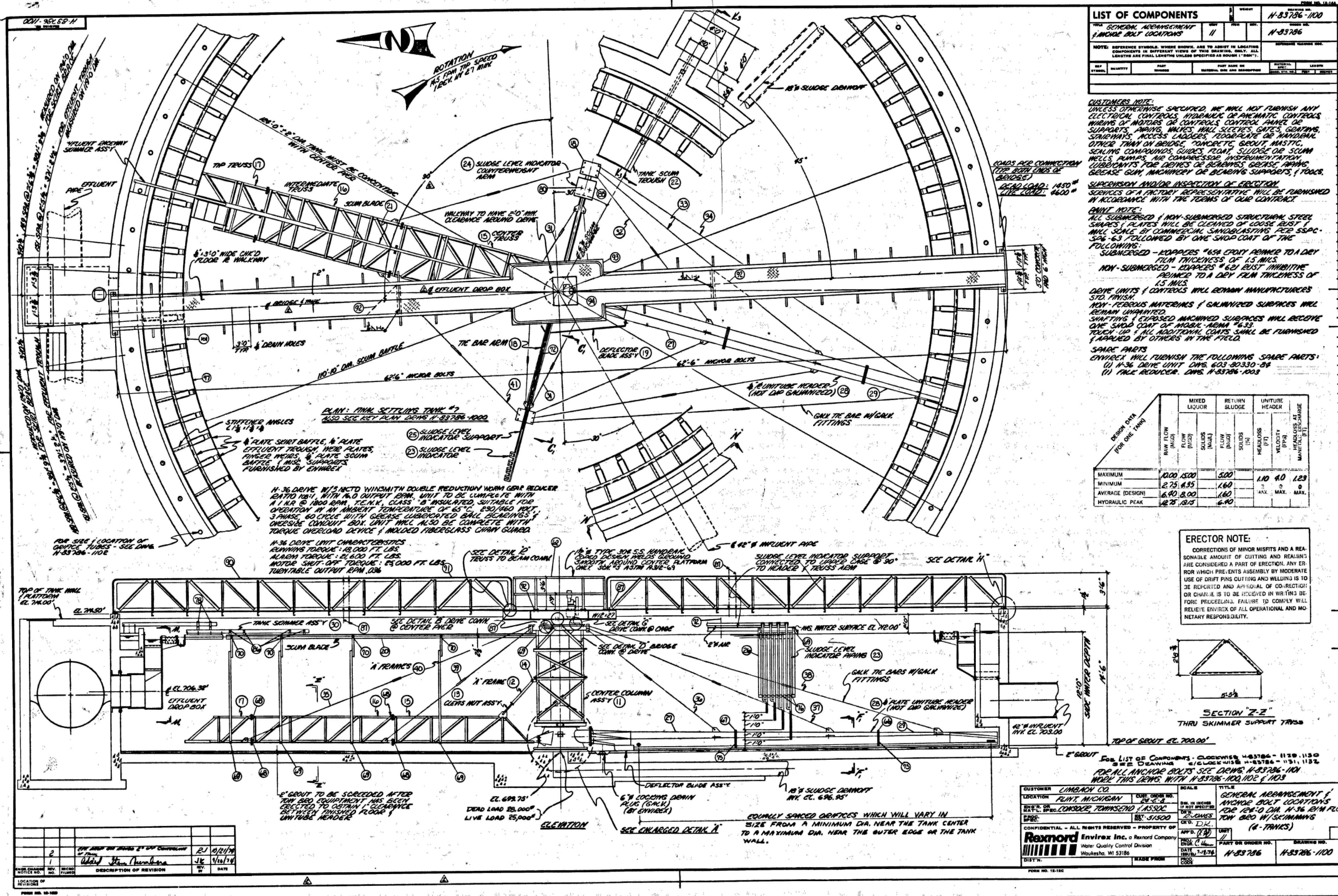


CITY OF FLINT

**FLINT WPCF
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IMPROVEMENTS**

REFERENCE
FINAL CLARIFIERS 1-4

HRC JOB NO.	SCALE
20200783	AS NOTED
DATE	SHEET NO.
JUNE 2021	REF-5 OF

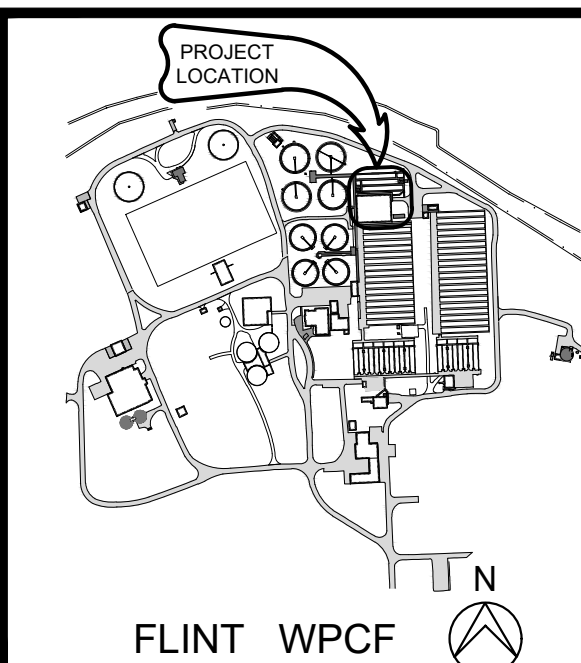


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IMPROVEMENTS

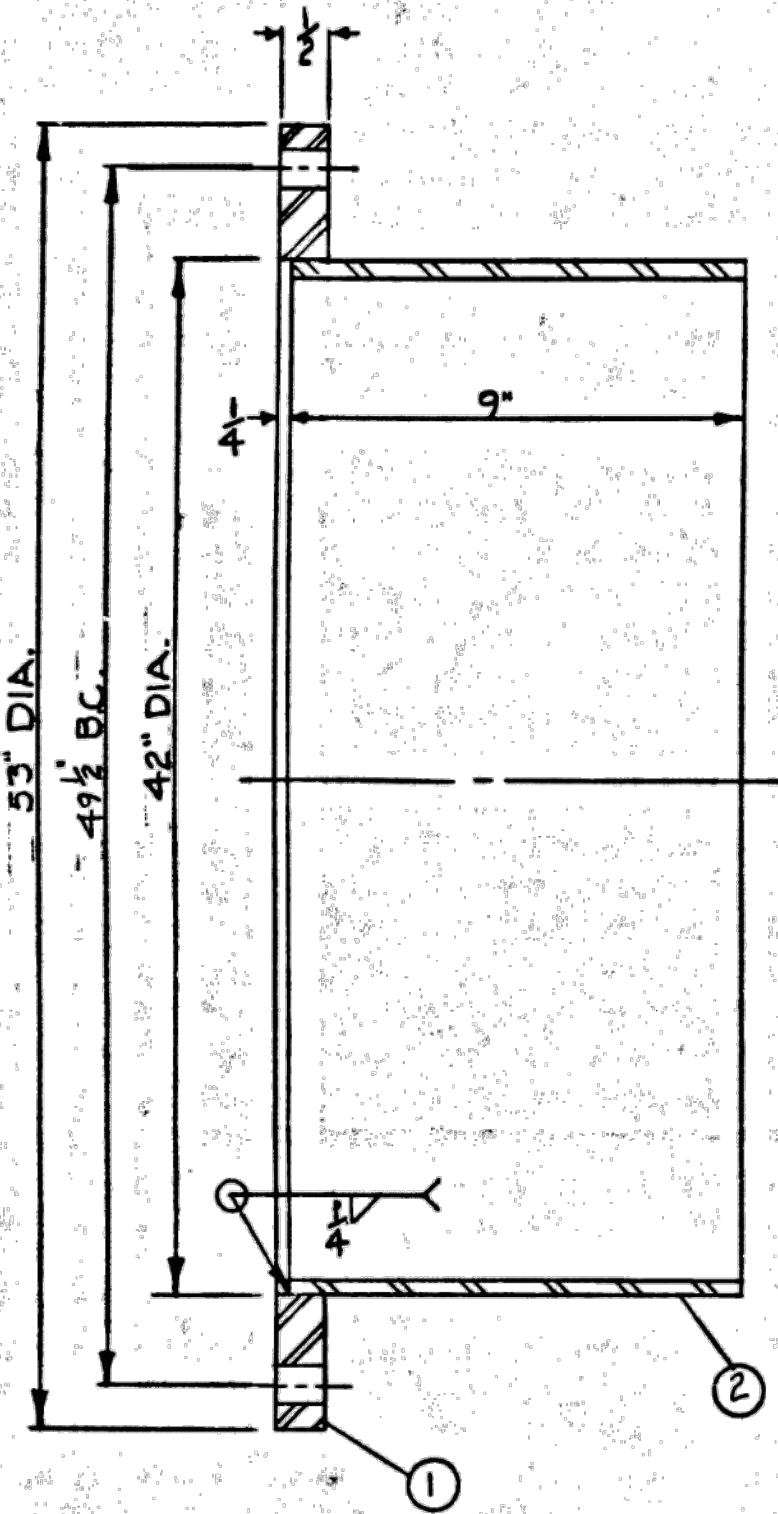
REFERENCE
FINAL CLARIFIERS 5-8

HRC JOB NO.	SCALE
20200783	AS NOTED
DATE	SHEET NO.
JUNE 2021	REF-6 OF

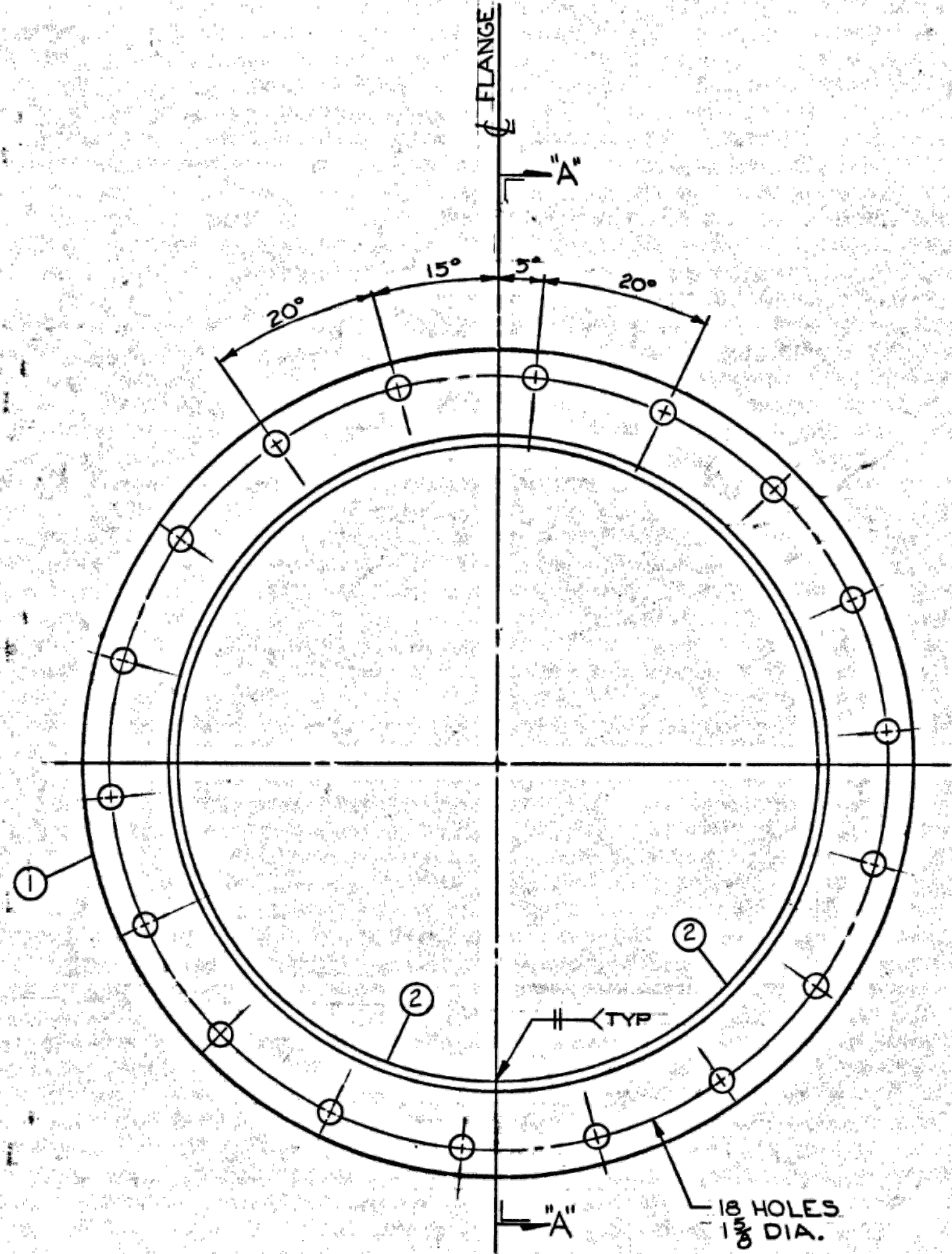
H-83786-1137

ENG. CHANGE NOTICE NO.	REV. NO.	MICRO FILMED	DESCRIPTION OF REVISION	REV. BY	DATE

FORM NO. 12-14A



SECTION "A-A"



MK-100

LIST OF COMPONENTS

TITLE	UNIT	ITEM	REV.	ORDER NO.
EFFLUENT FLANGE	11			H-83786

NOTE: REFERENCE SYMBOLS, WHERE SHOWN, ARE TO ASSIST IN LOCATING COMPONENTS IN DIFFERENT VIEWS OF THIS DRAWING. ONLY ALL LENGTHS ARE FINAL LENGTHS UNLESS SPECIFIED AS ROUGH ("RSH").

ADVANCE ORDER	REP SYMBOL	QUANTITY	PART NUMBER	PART NAME OR MATERIAL SIZE AND DESCRIPTION	MATERIAL SPEC.	LENGTH FEET	INCHES
90-101	1	1		R 2 X 53" DIA.			
90-100	2	2		R 3/8 X 9		5	5 3/8

* SANDBLAST PER SSPC-SP-63

CUSTOMER	LIMBACH CO.	SCALE	1 1/2" = 1'-0"	TITLE	EFFLUENT TROUGH PIPE
LOCATION	FLINT MICHIGAN	CUST. ORDER NO.	24-E-8	DRAWN	BY
ENG'N. OR MAT'L. SPEC.	CONSOER, TOWNSEND & ASSOC.	DATE	1/16/21	PROJ. ENGR.	DATE
PROJ. SPEC.	SEE NOTES & L/M	NO.	51500	ISSUED	1/16/21
CONFIDENTIAL - ALL RIGHTS RESERVED - PROPERTY OF				APP'D.	UNIT
Envirex Water Quality Control Division				11	
a Rexnord Company Waukesha, WI 53186				DATE	
DIST'N.				MADE FROM	
				PROD. CODE	
				PART OR ORDER NO.	DRAWING NO.
				H-83786	H-83786-1137

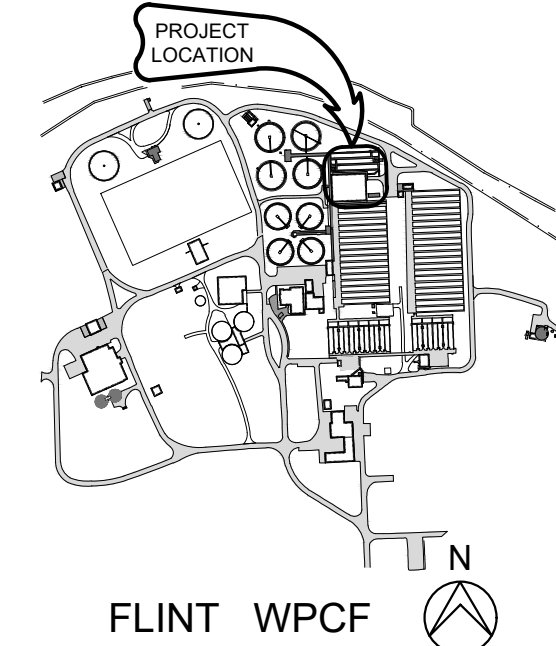
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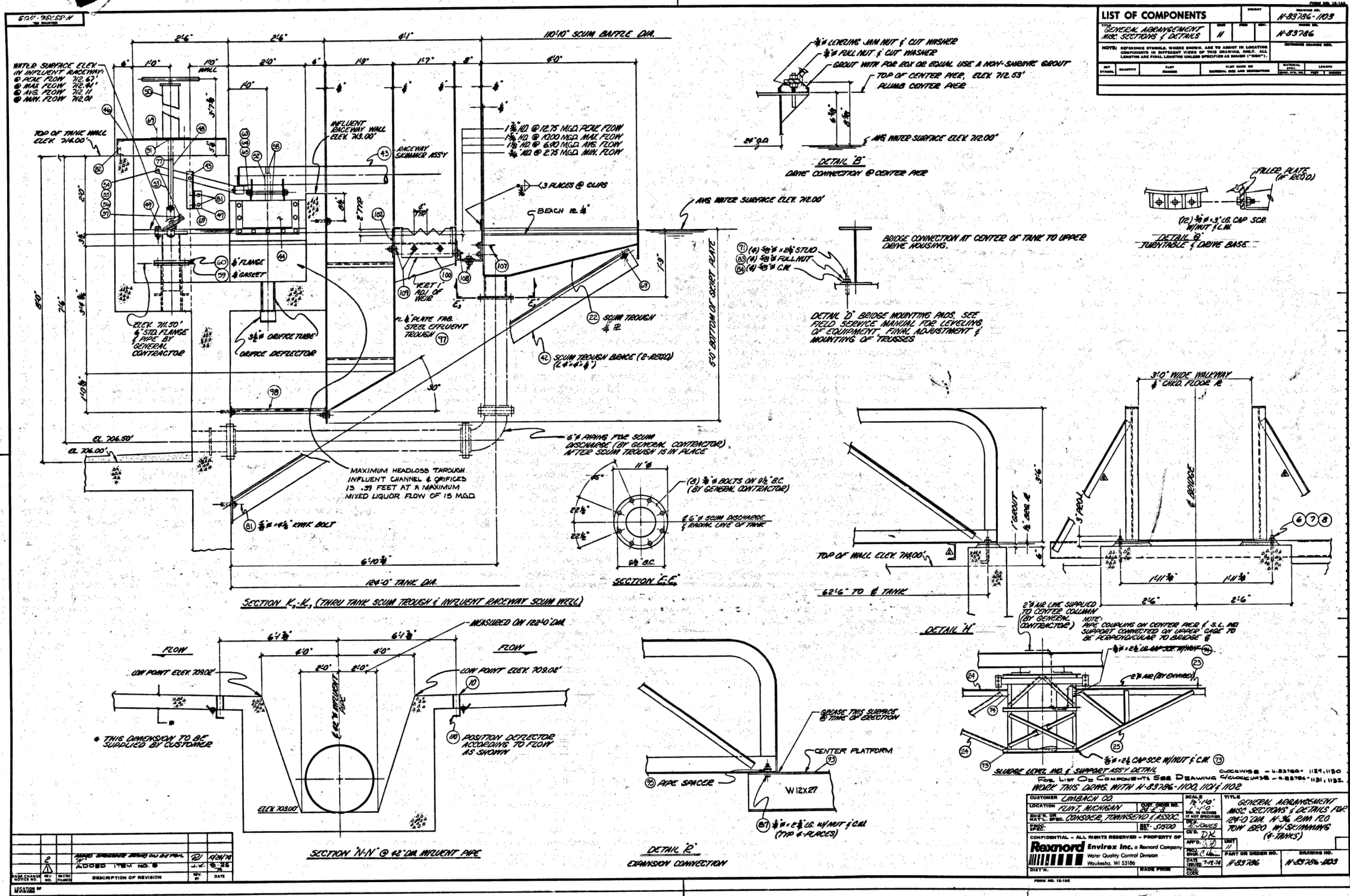
6-17-21	ISSUED FOR BIDS
5-28-21	FINAL EGLE SUBMITTAL
4-30-21	DRAFT SUBMITTAL
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	J.M.B.
DRAWN	T.W.R.
CHECKED	T.S.W.
APPROVED	



CITY OF FLINT
**FLINT WPCF
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IMPROVEMENTS**

REFERENCE
FINAL CLARIFIERS 5-8

HRC JOB NO.	SCALE
20200783	AS NOTED
DATE	SHEET NO.
JUNE 2021	REF-7 OF



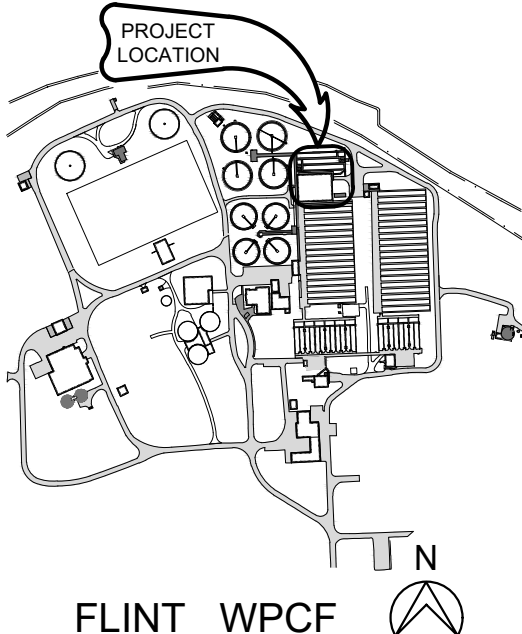
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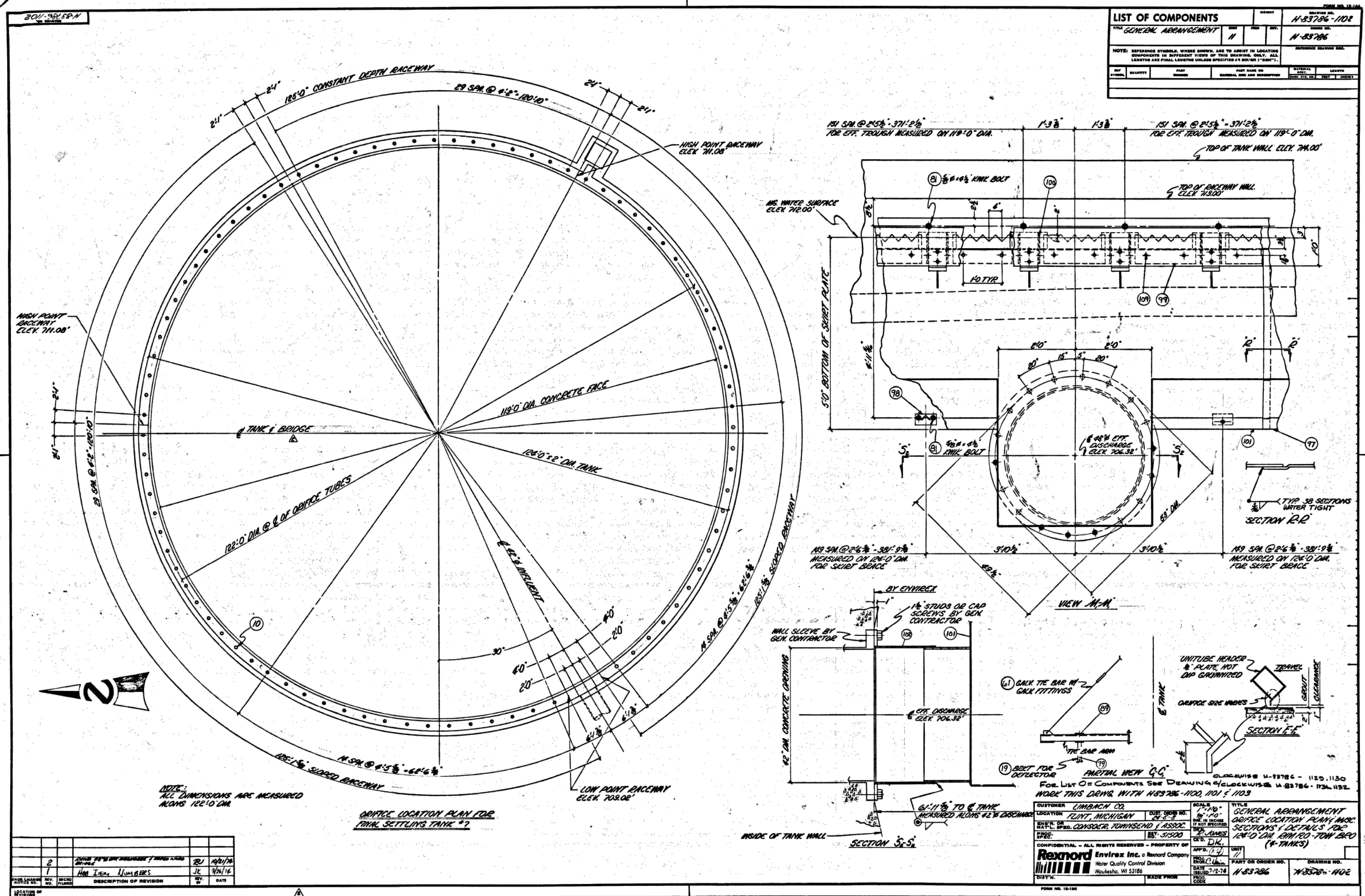
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HRC JOB NO.	SCALE
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JUNE 2021	REF-8 OF

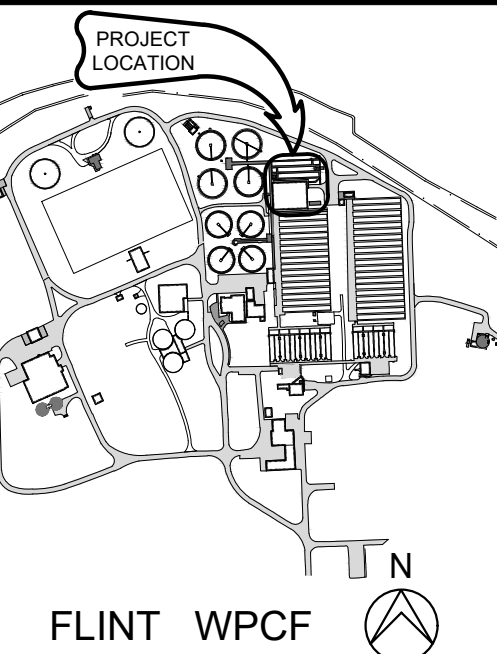


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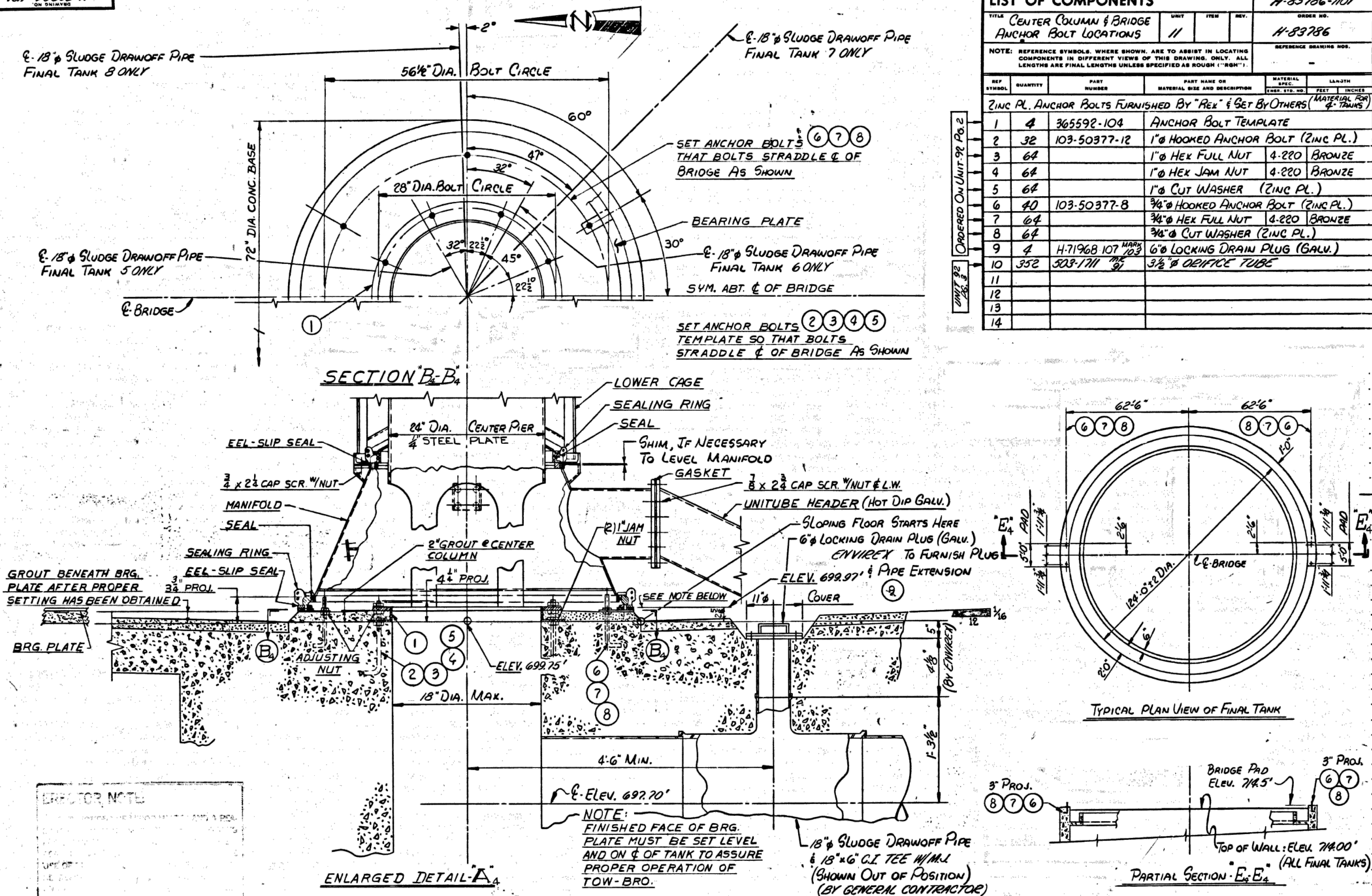
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HRC JOB NO.	SCALE
20200783	AS NOTED
DATE	SHEET NO.
JUNE 2021	REF-9 OF

101-9858-H

FORM NO. 12-14



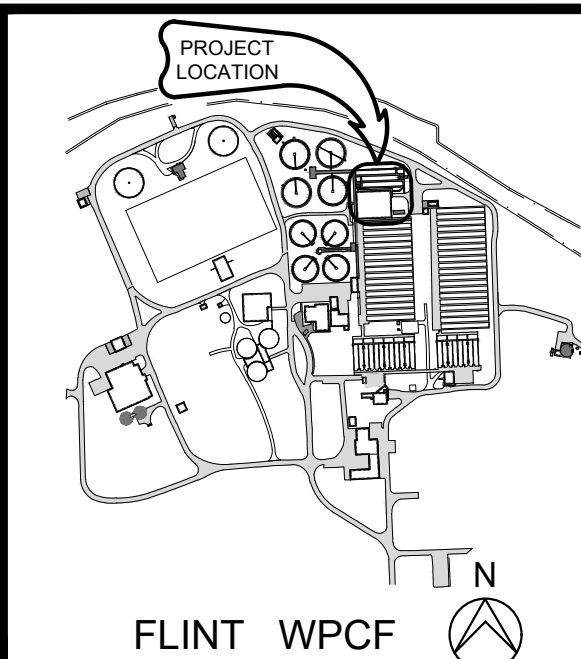
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DATE	SHEET
JUNE 2021	NO. REF-10