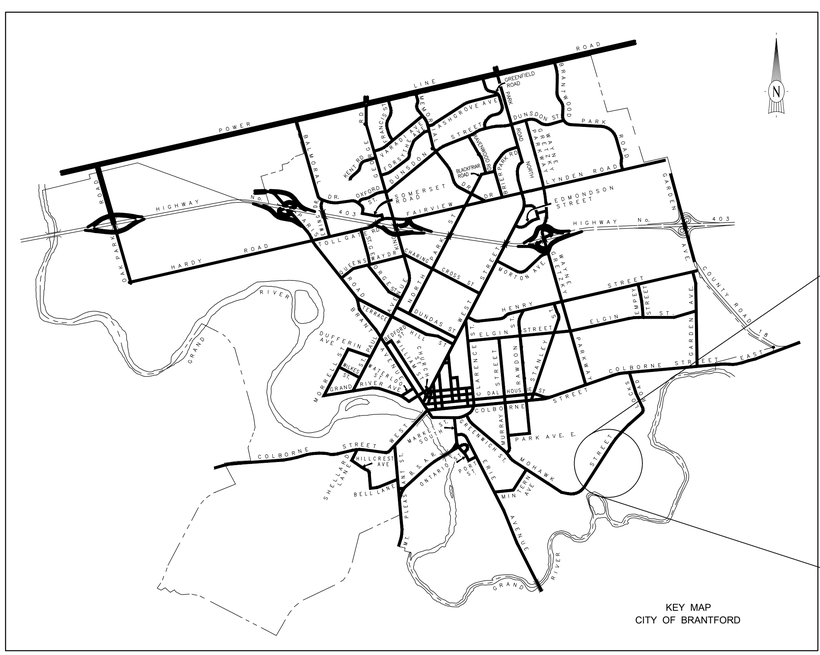
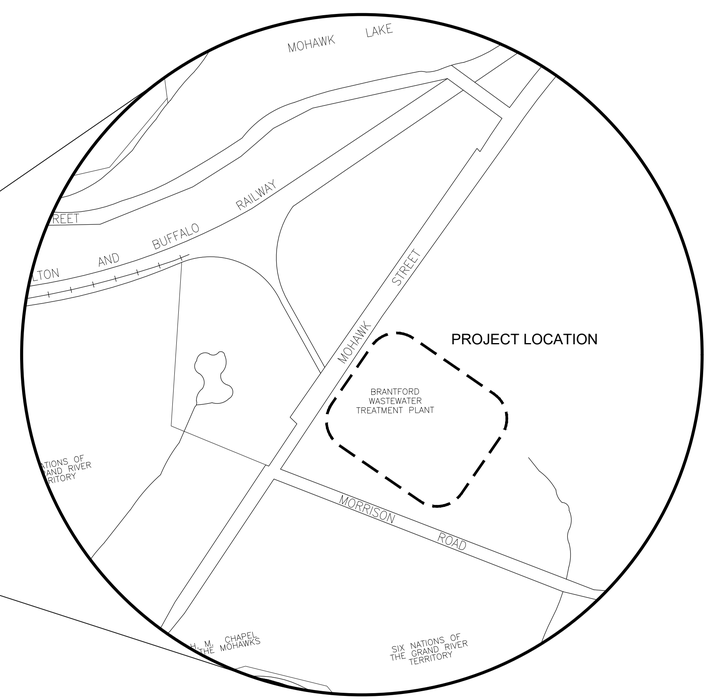
BRANTFORD WWTP

SECONDARY CLARIFIERS REHABILITATION

ISSUED FOR TENDER



BRANTFORD ONTARIO



N. T. S.

CIMA+

T: 519-772-2299
900–101 Frederick Street, Kitchener, ON N2H 6R2 CANADA

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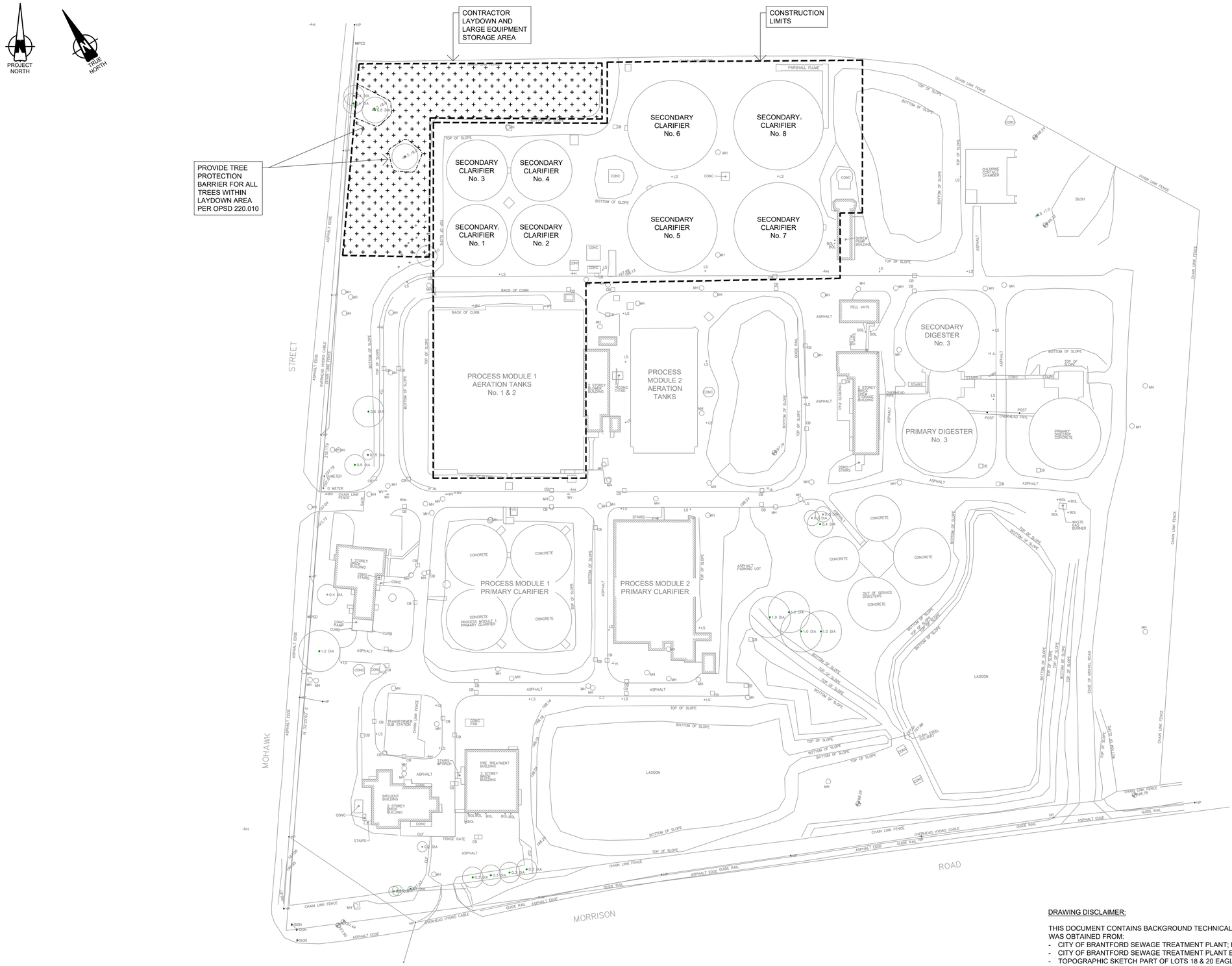

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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
- TOPOGRAPHIC SKETCH PART OF LOTS 18 & 20 EAGLES NEST TRACT, CITY OF BRANTFORD; MACDONALD TABLYN LORD SURVEYING, 2017.

CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

LEGEND

CONTRACT LIMITS

CONTRACTOR LAYDOWN AND STORAGE AREA

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER 05/02/2025 J.G.L.SEGGEWISS 100197929 PROVINCE OF ONTARIO — DESIGNED BY

LICENSED PROFESSIONAL ENGINEER 05/02/2025 N.J. SHERWOOD 100121059 PROVINCE OF ONTARIO — APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

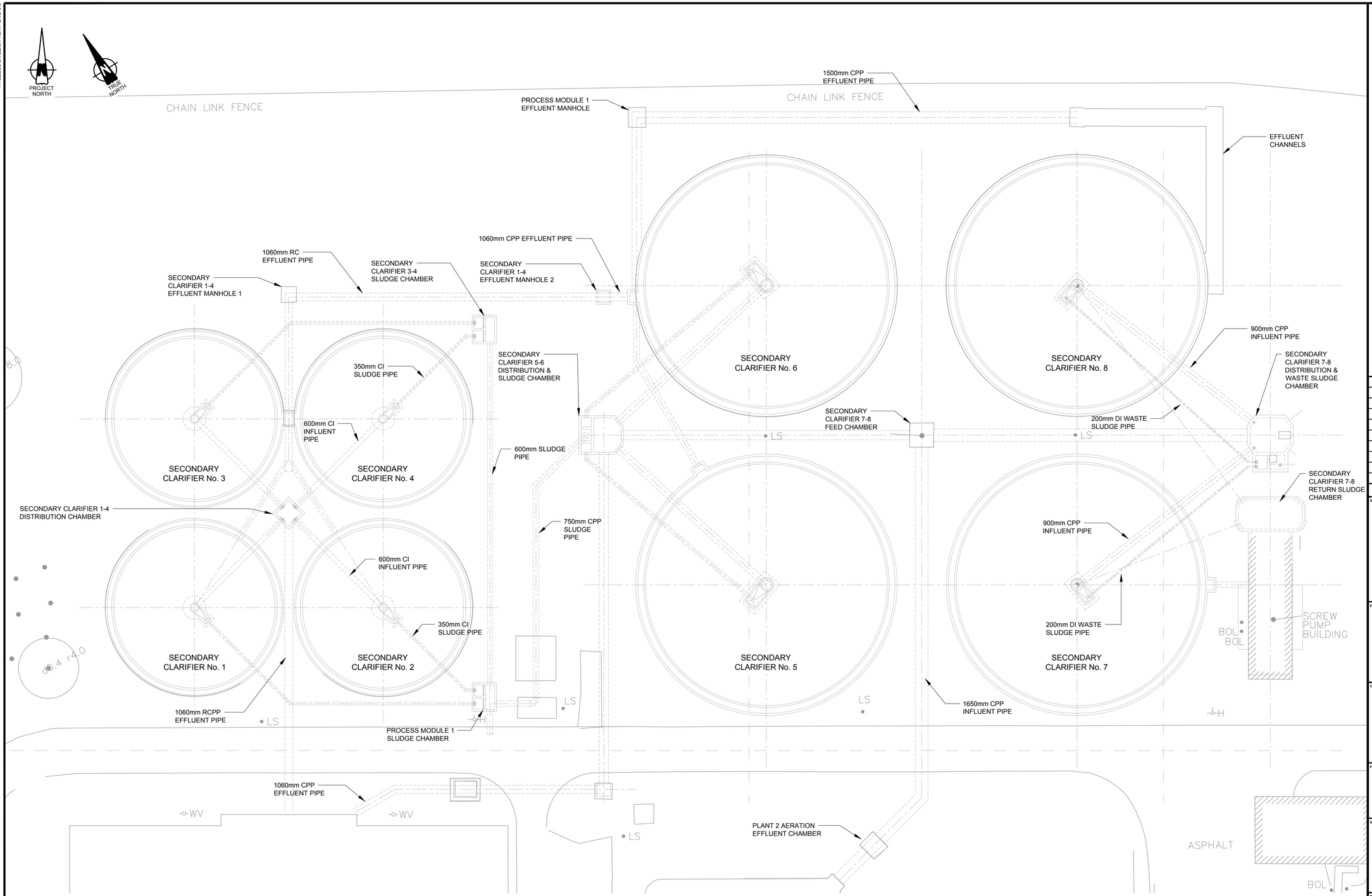
PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: OVERALL SITE PLAN PROJECT LOCATION

DISCIPLINE: GENERAL

DRAFTER: S.C.K.	SCALE: 1:750
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: G01
SHEET No: 2 of 45	

PRINT DATE: 2025/05/02 / PAPER SIZE: ANSI expand D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413Sheets\GT\001630A-G01.dwg / LAYOUT: G01



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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
- TOPOGRAPHIC SKETCH PART OF LOTS 18 & 20 EAGLES NEST TRACT, CITY OF BRANTFORD; MACDONALD TABLYN LORD SURVEYING, 2017.

CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER 05/02/2025 J.G.L. SEGGEWISS 100197929 PROVINCE OF ONTARIO — DESIGNED BY

LICENSED PROFESSIONAL ENGINEER 05/02/2025 N. J. SHERWOOD 100121059 PROVINCE OF ONTARIO — APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: PARTIAL SITE PLAN SECONDARY CLARIFIERS

DISCIPLINE: GENERAL

DRAFTER: S.C.K.	SCALE: 1:250
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: G02
SHEET No: 3 of 45	

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PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI expand D (34.00 x 22.00 Inches)
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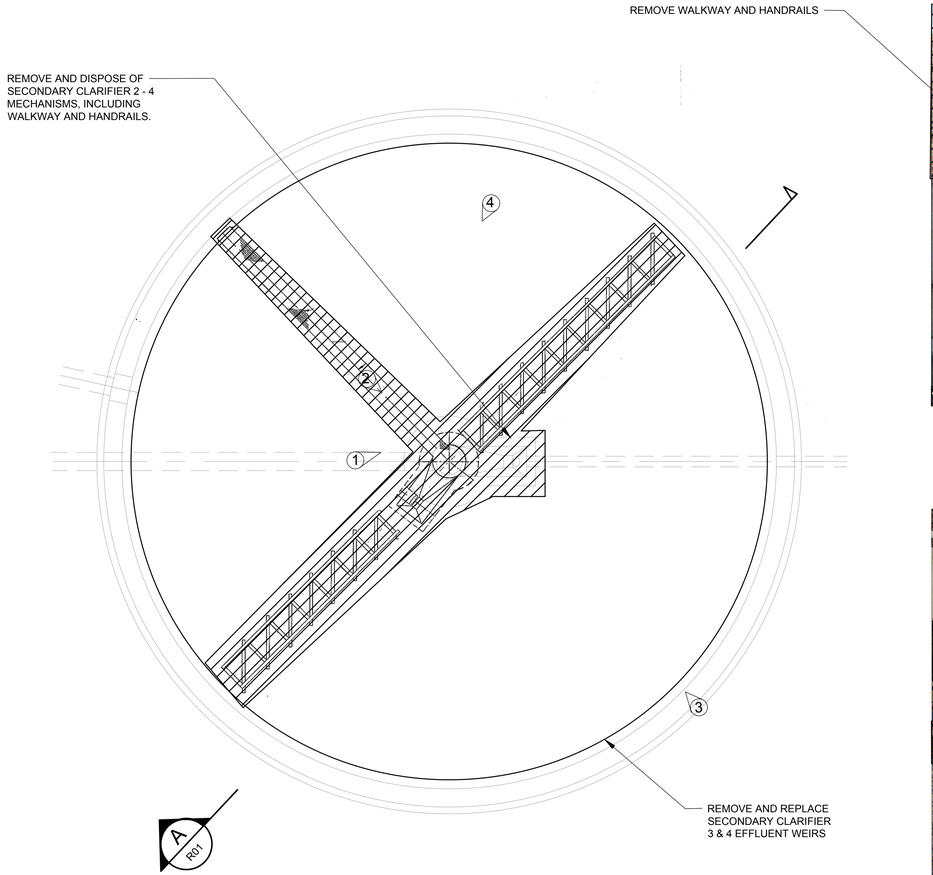


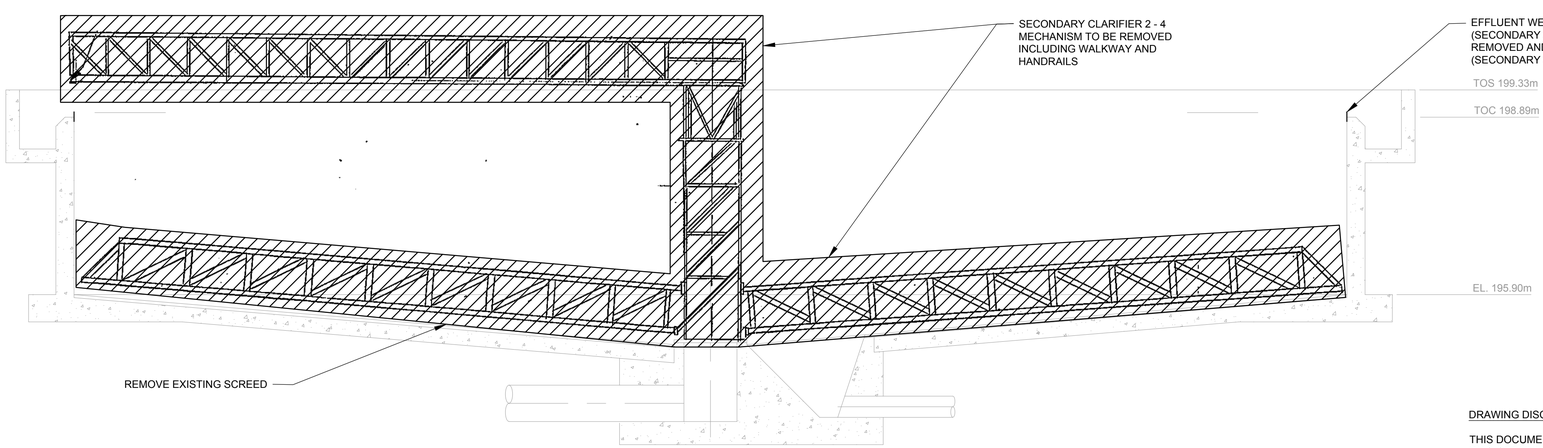
PLAN - TYPICAL FOR CLARIFIER 2-4
SCALE: 1:100

PHOTO 1: ACCESS PLATFORM AND SECONDARY CLARIFIER MECHANISM

PHOTO 2: SECONDARY CLARIFIER MOTOR AND GEAR DRIVE

PHOTO 3: SECONDARY CLARIFIER EFFLUENT WEIR MECHANISM

PHOTO 4: WEIR BRUSH AND SECONDARY CLARIFIER MECHANISM



A G03 SECTION
SCALE: 1:50

NOTES:

1. REMOVALS INCLUDE WEIR BRUSH CLEANER ATTACHED TO CLARIFIER MECHANISM.
2. ANY HOLES OR CAVITIES LEFT BY THE REMOVAL OF EQUIPMENT AND ASSOCIATED APPURTENANCES SHALL BE FILLED WITH GROUT OR OTHER FILLER AS APPROVED BY THE ENGINEER.
3. ALL EMBEDDED EXPOSED METALS LEFT BY THE REMOVALS SHALL BE CUT BACK 40MM FROM THE CONCRETE SURFACE AND REPAIRED WITH NON-SHRINK NON-METALLIC GROUT

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER 05/05/2025 A.R. PRINGLEMEIR 90543125 PROVINCE OF ONTARIO — DESIGNED BY

LICENSED PROFESSIONAL ENGINEER 05/02/2025 N.J. SHERWOOD 100121059 PROVINCE OF ONTARIO — APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIERS 2-4 REMOVALS

DISCIPLINE: REMOVALS

DRAFTER: S.C.K.	SCALE: AS NOTED
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S
PROJECT No: T001630A	DRAWING No: R01
SHEET No: 4 of 45	

DRAWING DISCLAIMER:

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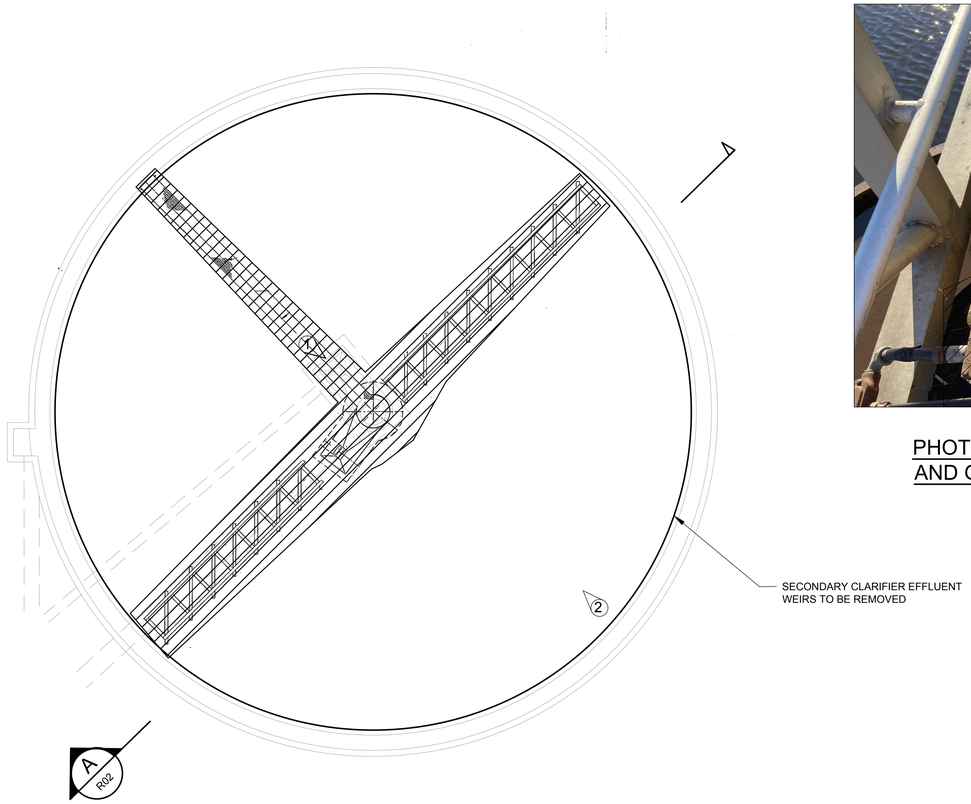
- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
- TOPOGRAPHIC SKETCH PART OF LOTS 18 & 20 EAGLES NEST TRACT, CITY OF BRANTFORD; MACDONALD TABLYN LORD SURVEYING, 2017.

CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

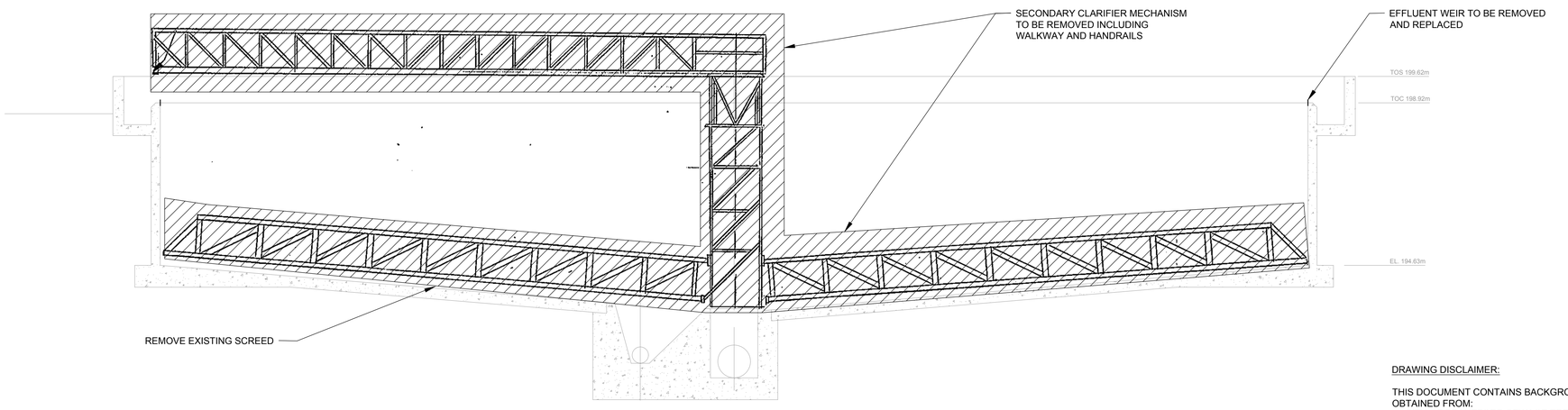
PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 inches)
PATH: Z:\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\GT\T001630A-R01.dwg / LAYOUT: R01



PLAN - TYPICAL FOR CLARIFIER 5-6
SCALE: 1:150

PHOTO 1: SECONDARY CLARIFIER MOTOR AND GEAR DRIVE

PHOTO 2: SECONDARY CLARIFIER ACCESS BRIDGE (WALKWAY) AND GUARDRAILS



A G04 SECTION
SCALE: 1:75

NOTES:

1. ANY HOLES OR CAVATIES LEFT BY THE REMOVAL OF EQUIPMENT AND ASSOCIATED APPURTENANCES SHALL BE FILLED WITH GROUT OR OTHER FILLER AS APPROVED BY THE ENGINEER.
2. ALL EMBEDDED EXPOSED METALS LEFT BY THE REMOVALS SHALL BE CUT BACK 40MM FROM THE CONCRETE SURFACE AND REPAIRED WITH NON-SHRINK NON-METALLIC GROUT

DRAWING DISCLAIMER:

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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
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CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER 05/05/2025 A.R. PRINGLEMEIR 90543125 PROVINCE OF ONTARIO — DESIGNED BY

LICENSED PROFESSIONAL ENGINEER 05/02/2025 N.J. SHERWOOD 100121059 PROVINCE OF ONTARIO — APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIERS 5 & 6 REMOVALS

DISCIPLINE: REMOVALS

DRAFTER: S.C.K.	SCALE: AS NOTED
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: R02
SHEET No: 5 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0

PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 inches)
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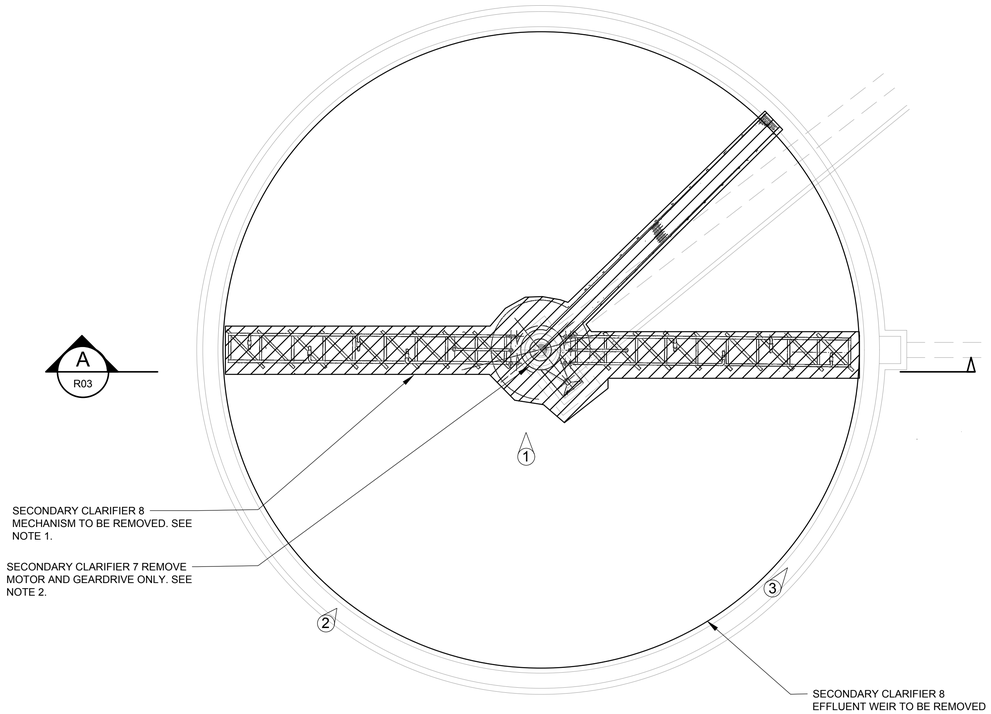
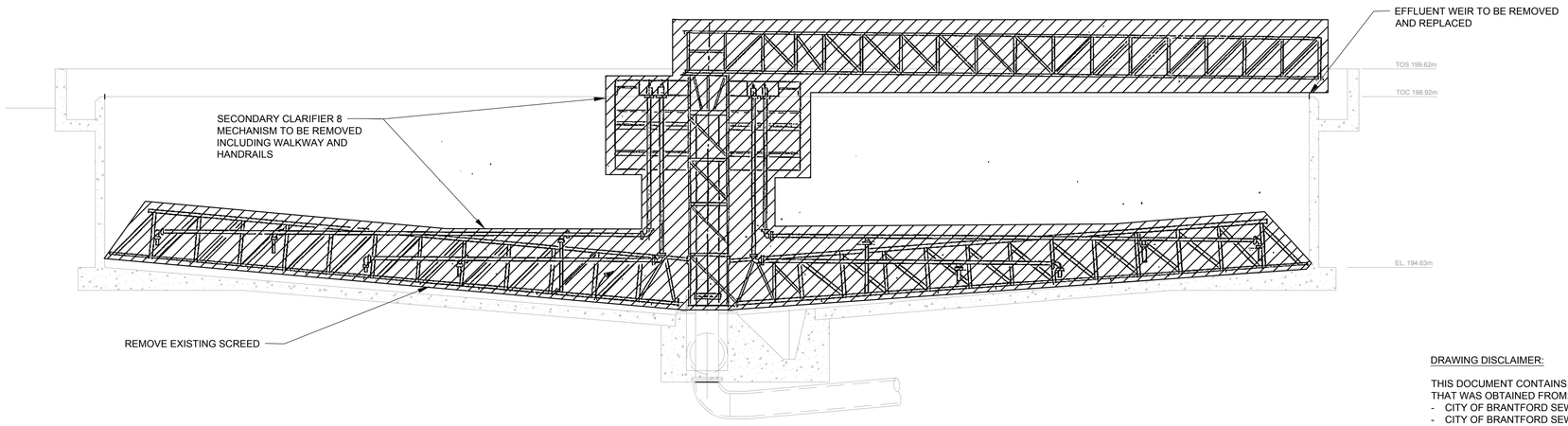


PLAN - TYPICAL FOR CLARIFIER 7-8
SCALE: 1:150

PHOTO 1: SECONDARY CLARIFIER GEAR DRIVE AND FEEDWELL

PHOTO 2: SECONDARY CLARIFIER EFFLUENT WEIRS

PHOTO 3: SECONDARY EFFLUENT WEIR BRUSH AND WEIR



A
G05
SECTION
SCALE: 1:75

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CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

NOTES:

1. ACCESS BRIDGE FOR SECONDARY CLARIFIER 8 HAS BEEN PREVIOUSLY REMOVED. ALL REMAINING COMPONENTS OF MECHANISM, INCLUDING WEIR BRUSH, REMOVED UNDER THIS CONTRACT.
2. SECONDARY CLARIFIER 7&8 MOTOR AND GEARDRIVE TO BE REMOVED AND REPLACED UNDER THIS CONTRACT. ALL REMAINING COMPONENTS OF MECHANISM SHALL REMAIN.
3. ANY HOLES OR CAVITIES LEFT BY THE REMOVAL OF EQUIPMENT AND ASSOCIATED APPURTENANCES SHALL BE FILLED WITH GROUT OR OTHER FILLER AS APPROVED BY THE ENGINEER.
4. ALL EMBEDDED EXPOSED METALS LEFT BY THE REMOVALS SHALL BE CUT BACK 40MM FROM THE CONCRETE SURFACE AND REPAIRED WITH NON-SHRINK NON-METALLIC GROUT

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER 05/05/2025 A.R. PRINGLEMEIR 90543125 PROVINCE OF ONTARIO — DESIGNED BY

LICENSED PROFESSIONAL ENGINEER 05/02/2025 N.J. SHERWOOD 100121059 PROVINCE OF ONTARIO — APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIERS 7 & 8 REMOVALS

DISCIPLINE: REMOVALS

DRAFTER: S.C.K.	SCALE: AS NOTED
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: R03
SHEET No: 6 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
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TITLEBLOCK 22x34 VERT ENG 3.0

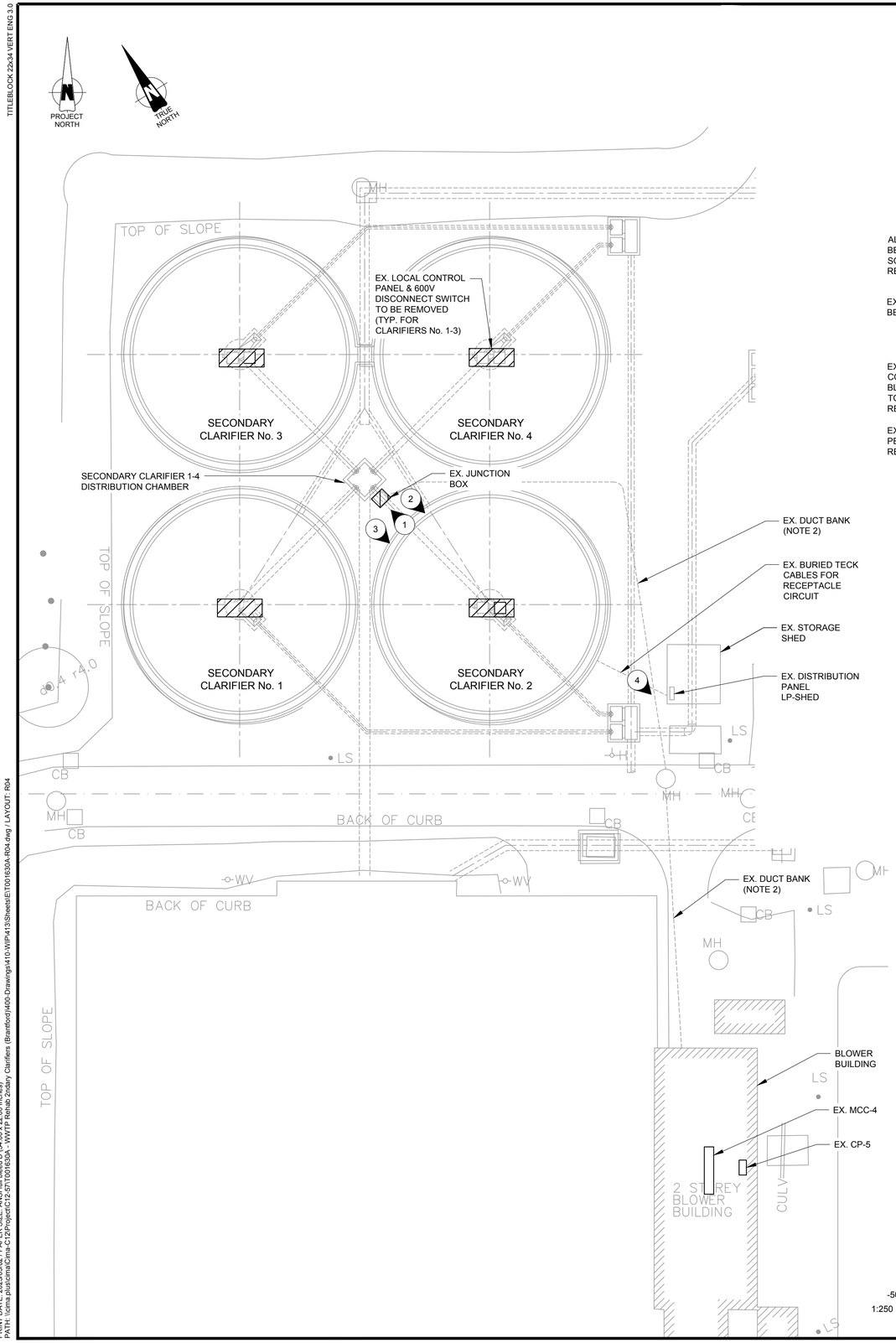

PHOTO 1: EXISTING JUNCTION BOX

PHOTO 2: EXISTING CLARIFIER No.2

TYPICAL OF SECONDARY CLARIFIERS 1,3 & 4

PHOTO 3: EXISTING CLARIFIER No.2

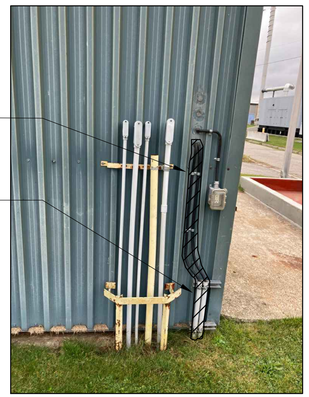

PHOTO 4: EXISTING STORAGE SHED

NOTES:

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CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

NOTES:

1. DRAWING SHOWN FOR REFERENCE PURPOSES. REMOVE ALL POWER DISTRIBUTION, RACEWAYS, EQUIPMENT, JUNCTION BOXES AND ANY INFRASTRUCTURE THAT IS RENDERED REDUNDANT BY THE REMOVAL OF POWER DISTRIBUTION EQUIPMENT IDENTIFIED FOR REMOVAL. REMOVE ALL RELATED CONTROL WIRING AND FIELD I/O RELATED TO EACH EQUIPMENT, BACK TO THEIR RESPECTIVE CONTROL PANEL TERMINALS.
2. CONTRACTOR SHALL DETERMINE EXACT ROUTING OF EXISTING DUCT BANK PRIOR TO ROUTING NEW WIRING.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER 05/02/2025 T.G. BARICHELLO 100041891 PROVINCE OF ONTARIO — DESIGNED BY

LICENSED PROFESSIONAL ENGINEER 05/02/2025 N. J. SHERWOOD 100121059 PROVINCE OF ONTARIO — APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIERS 1-4 ELECTRICAL REMOVALS

DISCIPLINE: REMOVALS

DRAFTER: J.E.P.	SCALE: 1:250
DESIGNER: J.B.P.	DATE: MAY 2025
CHECKER: T.B.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: R04
SHEET No: 7 of 45	

PRINT DATE: 2025/05/02 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: \\cima.plus\cima\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ET001630A-R04.dwg / LAYOUT: R04

TITLEBLOCK 22x34 VERT ENG 3.0

PROJECT NORTH

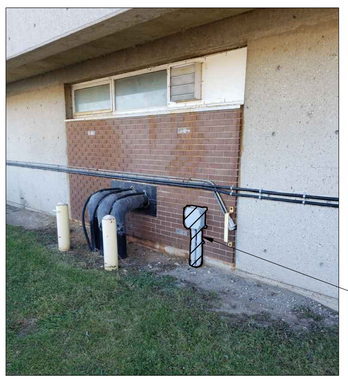
TRUE NORTH

ALL EX. WIRING TO BE PULLED BACK TO SOURCE AND REMOVED.

ALL PVC CONDUITS AT SECONDARY CLARIFIERS SHALL BE CUT, CAPPED AND ABANDONED.

PHOTO 1: EXISTING SECONDARY CLARIFIER NO. 5

TYPICAL OF SECONDARY CLARIFIERS 6-8.

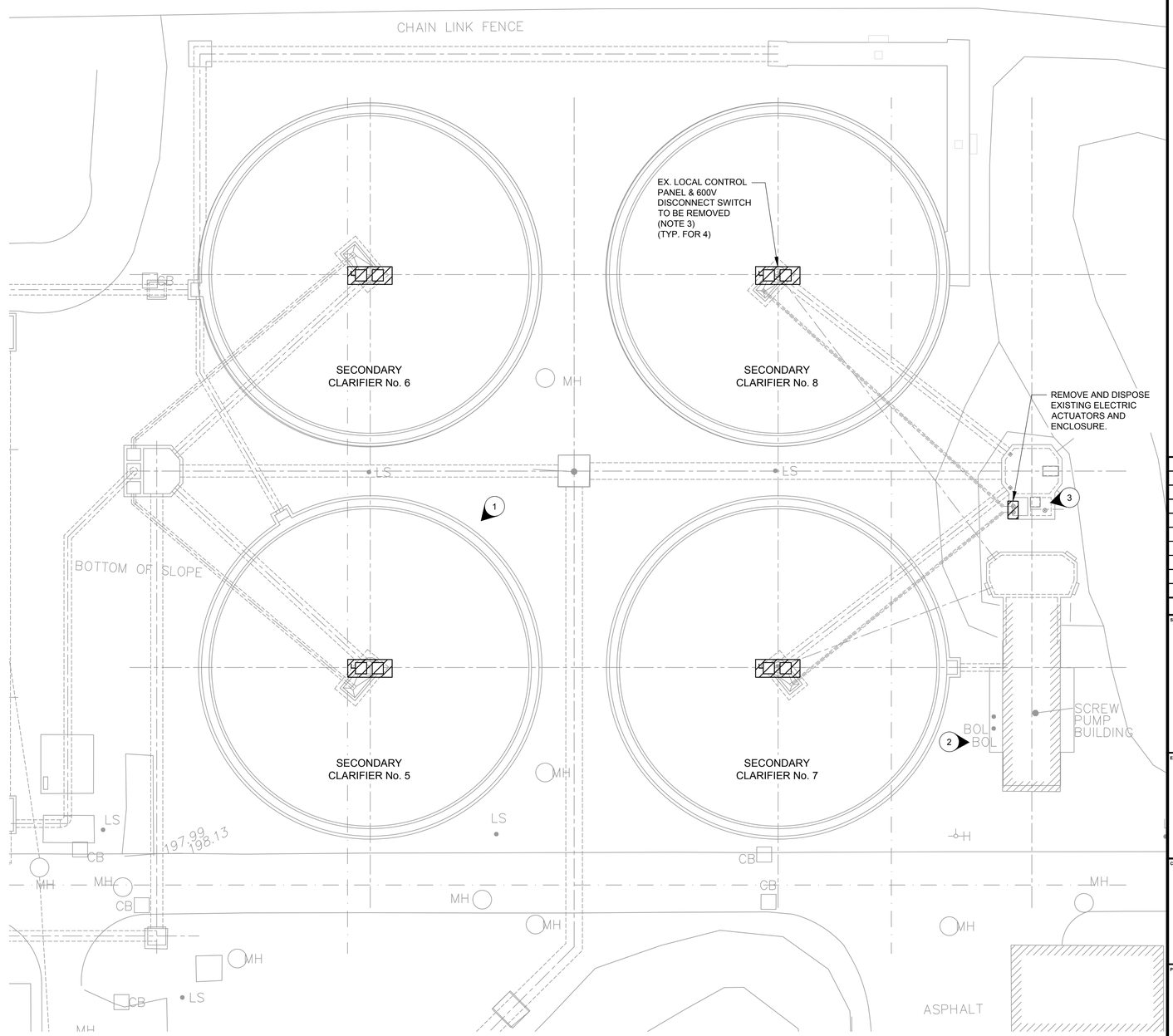


EX. CONDUITS AND JUNCTION BOX TO BE REMOVED. CONDUITS TO BE CUT, CAPPED AND ABANDONED.

PHOTO 2: EXISTING SCREW PUMP BUILDING

REMOVE AND DISPOSE EXISTING ELECTRIC ACTUATORS AND ENCLOSURE.

PHOTO 3: EXISTING SC 7 & 8 WAS GATE ACTUATOR ENCLOSURE



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NOTES:

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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
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CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

NOTES:

1. DRAWING SHOWN FOR REFERENCE PURPOSES ONLY. IN GENERAL, ALL ELECTRICAL EQUIPMENT, CONDUIT, CABLES, AND OTHER ELECTRICAL APPURTENANCES THAT ARE FIXED TO THE SECONDARY CLARIFIERS IS TO BE REMOVED.
2. ALL WIRING AND RACEWAYS ASSOCIATED WITH THE SECONDARY WASTING VALVES No. 7 & No. 8 ARE TO BE REMOVED BACK TO THEIR RESPECTIVE SOURCES. THE EXISTING UNDERGROUND DUCT(S) FEEDING THE VALVES SHALL BE CUT, CAPPED, AND ABANDONED.
3. ALL WIRING AND RACEWAYS ASSOCIATED WITH THE SECONDARY SECONDARY CLARIFIERS' LOCAL CONTROL STATIONS AND DISCONNECT SWITCHES ARE TO BE REMOVED BACK TO THEIR RESPECTIVE SOURCES. THE EXISTING UNDERGROUND DUCT(S) FEEDING THE CIRCUITS SHALL BE CUT, CAPPED, AND ABANDONED AT GRADE.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER 05/02/2025 T.G. BARICHELLO 100041891 PROVINCE OF ONTARIO — DESIGNED BY

LICENSED PROFESSIONAL ENGINEER 05/02/2025 N.J. SHERWOOD 100121059 PROVINCE OF ONTARIO — APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIERS 5-8 ELECTRICAL REMOVALS

DISCIPLINE: REMOVALS

DRAFTER: J.E.P.	SCALE: 1:250
DESIGNER: J.B.P.	DATE: MAY 2025
CHECKER: T.B.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: R05
SHEET No: 8 of 45	

PRINT DATE: 2025/05/02 / PAPER SIZE: ANSI expand D (34.00 x 22.00 Inches)
PATH: \\cima.plus\cima\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ET001630A-R05.dwg / LAYOUT: R05

GENERAL NOTES

1. READ STRUCTURAL DRAWINGS IN CONJUNCTION WITH THE REMAINDER OF THE CONTRACT DRAWINGS AND DOCUMENTS.
2. VERIFY ALL DIMENSIONS ON THE STRUCTURAL DRAWINGS WITH THE REMAINDER OF THE CONTRACT DRAWINGS BEFORE CONSTRUCTION. ANY DISCREPANCIES OR ERRORS MUST BE REPORTED TO THE ENGINEER PRIOR TO STARTING THE WORK.
3. DO NOT SCALE DRAWINGS.
4. DESIGN LOADS INDICATED ARE UNFACTORED UNLESS NOTED OTHERWISE.
5. FEATURES OF CONSTRUCTION NOT FULLY SHOWN ARE OF THE SAME CHARACTER AS THOSE NOTED FOR SIMILAR CONDITIONS.

CAST-IN-PLACE CONCRETE

1. DO CONCRETE WORK IN ACCORDANCE WITH THE LATEST VERSION OF THE APPLICABLE CODES AND STANDARDS AS REQUIRED BY THE PROJECT SPECIFICATION.
2. FORMWORK AND TOLERANCES IN ACCORDANCE WITH THE LATEST VERSION OF THE APPLICABLE CODES AND STANDARDS AS REQUIRED BY THE PROJECT SPECIFICATIONS.
3. SUBMIT REINFORCING DIAGRAMS BEFORE FABRICATION FOR REVIEW BY THE ENGINEER.
4. REINFORCING IS TO BE GENERALLY DETAILED IN ACCORDANCE WITH RSIC. MANUAL OF STANDARD PRACTICE (LATEST EDITION). SPLICES SHALL CONFORM TO "TABLE OF CLASS `B' TENSION LAPS AND STANDARD 90° HOOKS" PROVIDED ON THE DRAWINGS.
5. THE CLEAR DISTANCE BETWEEN REINFORCING STEEL AND SURFACE OF CONCRETE SHALL BE AS FOLLOWS:

   TO WATER, WEATHER OR EARTH: 50mm

   CONCRETE PLACED AGAINST MUD MAT: 50mm

   CONCRETE PLACED AGAINST EARTH: 75mm
6. UNLESS INDICATED OTHERWISE, ALL DOWELS SHALL HAVE THE SAME SIZE AND SPACING AS THE REINFORCING STEEL TO WHICH THEY ARE SPLICED, AND SHALL HAVE A MINIMUM LAP L1.
7. ALL REINFORCING STEEL PLACEMENT TO BE INSPECTED BY THE ENGINEER BEFORE PLACING THE CONCRETE.
8. NO WELDING OF REINFORCING BARS SHALL BE PERMITTED, UNLESS APPROVAL IS OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTION.
9. DO NOT SAWCUT THE SLAB ON GRADE OR OTHER FLOORS, UNLESS SPECIFICALLY SHOWN AND DETAILED ON THE DESIGN DRAWINGS.
10. ALL REINFORCING BARS SHALL BE SUPPORTED IN THE FORMS AND SPACED WITH STANDARD ACCESSORIES SO THAT THERE IS NO MOVEMENT DURING CONCRETE PLACEMENT.

TABLE OF CLASS `B' TENSION LAPS AND STANDARD 90° HOOKS
Fy = 400MPa, Fc = 35MPa

BAR SIZE	STANDARD TENSION LAP SPLICE	TENSION LAP SPLICE FOR TOP BARS	STANDARD 90° HOOK
	L1	L2	L3
10M	400mm	500mm	180mm
15M	600mm	700mm	260mm
20M	700mm	900mm	310mm
25M	1100mm	1400mm	400mm
30M	1300mm	1700mm	510mm
35M	1500mm	2000mm	610mm

REPAIR NOTE

1. COORDINATE WITH ENGINEER TO REVIEW AND CONFIRM LOCATION AND EXTENT OF ALL REPAIRS PRIOR TO START OF THE WORK
2. ENGINEER TO REVIEW ALL REPAIR PREPARATION.
3. PRICING FOR ALL REPAIRS ON THESE DRAWINGS IS TO BE INCLUDED IN THE BASE SCOPE LUMP SUM BID PRICE. ANY ADDITIONAL REPAIRS BEYOND THE QUANTITIES INCLUDED ON DRAWING WILL BE PAID THROUGH PROVISIONAL ALLOWANCES OR CONTINGENCY.

MATERIALS

1. THE DESIGN REQUIREMENTS FOR THE VARIOUS CONCRETE MIX DESIGNS INDICATED SHALL CONFORM TO THE CHARACTERISTICS DESCRIBED IN THE PROJECT SPECIFICATIONS.
2. MINIMUM 28 DAY COMPRESSICE STRENGTH:

   STRUCTURAL CONCRETE: 30MPa

   FIL CONCRETE: 20MPa

   BENCHING: 30MPa
3. ALL REINFORCING BAR SHALL BE GRADE 400MPA, DEFORMED, CAN/CSA-G30.18.
4. THE STRUCTURAL STEEL COMPONENTS SHALL SATISFY THE REQUIREMENT OF THE PROJECT SPECIFICATIONS.
5. COLUMN BEARING GROUT SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 40MPa.
6. THE WELDING ELECTRODES SHALL CONFORM TO THE REQUIREMENTS OF CSA STANDARD W48 (LATEST EDITION)
7. ALUMINUM AND FRP CONSTRUCTION TO CONFORM TO THE REQUIREMENTS OF THE SPECIFICATIONS.
8. ALL PIPE SUPPORTS TO BE 304 STAINLESS STEEL, UNLESS NOTED OTHERWISE.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

DESIGNED BY: APPROVED BY:

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

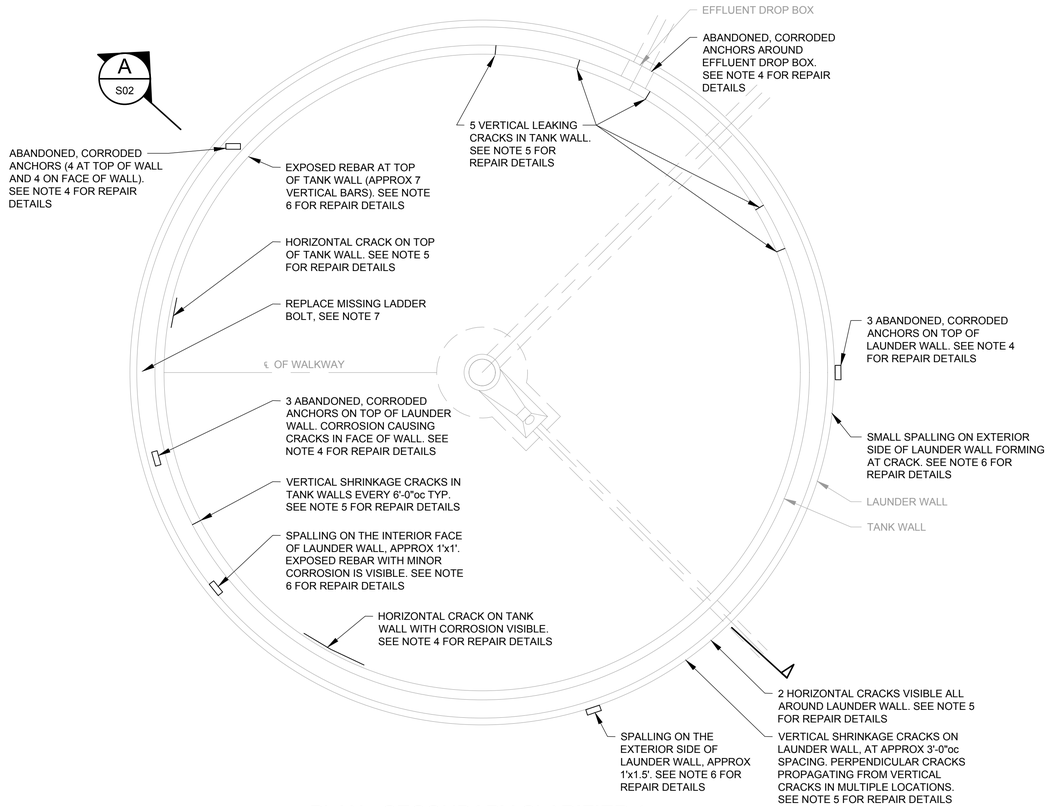
PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: GENERAL NOTES AND STANDARD DETAILS

DISCIPLINE: STRUCTURAL

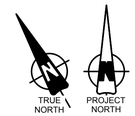
DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S01
SHEET No: 9 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/04/23 | PAPER SIZE: ANSI full blend D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Projects\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP413\Sheets\ST001630A-S01.dwg / LAYOUT: S01-GENERAL NOTES AND DETAILS-



PLAN - SECONDARY CLARIFIER 1

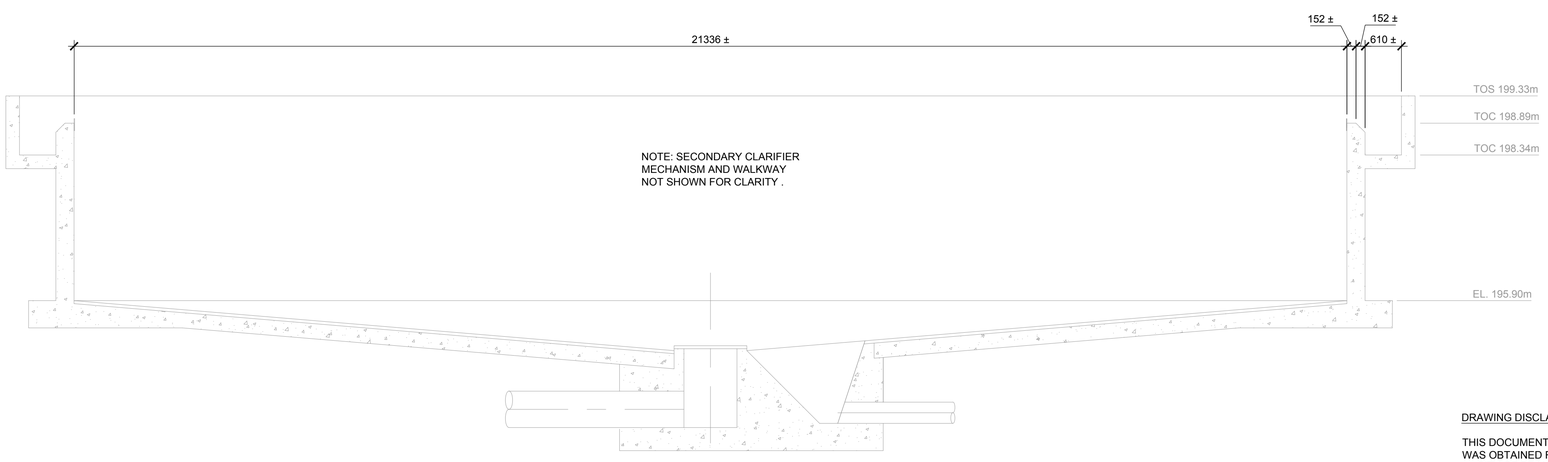
SCALE: 1:100



SECONDARY CLARIFIER 1 REPAIRS	QUANTITY	UNIT
CRACK REPAIRS - TANK WALL	25	M
CRACK REPAIRS - LAUNDER WALL	130	M
ANCHOR/REBAR REPAIR	14	EA
SPALL REPAIRS (300x300x125)	10	EA
CRACK REPAIRS - BASE SLAB	11	M
LADDER BOLT REPLACEMENT	1	EA

NOTES:

1. COMPLETE REPAIRS FOR THE SECONDARY CLARIFIER AS NOTED IN THE TABLE ABOVE ARE TO BE INCLUDED IN THE LUMP SUM CONTRACT.
2. REPAIR QUANTITIES SHOWN IN THIS TABLE ARE FOR COSTING PURPOSES.
3. SEE DRAWING S15 FOR REPAIR DETAILS
4. ABANDONED CORRODED ANCHORS ARE TO BE DRILLED BACK 40mm AND FILLED WITH NON-METALLIC/NON-SHRINK GROUT.
5. LEAKING CRACKS TO BE REPAIRED WITH POLYURETHANE CRACK INJECTION. REFER TO SPECIFICATIONS AND DETAIL 5/S15.
6. SPALLING CONCRETE TO BE REPAIRED WITH MORTAR AS PER SPECIFICATIONS AND DETAIL 2/S15.
7. MISSING LADDER ANCHOR BOLT INTO THE CONCRETE WALL. DRILL AND EPOXY HILTI HIT-HY 200 HIT STAINLESS STEEL BOLT OF EQUIVALENT SIZE, MINIMUM EMBED 150mm.



A SECTION

SCALE: 1:50

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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT; PROCTOR & REDFERN, 1957.
- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
- TOPOGRAPHIC SKETCH PART OF LOTS 18 & 20 EAGLES NEST TRACT, CITY OF BRANTFORD; MACDONALD TABLYN LORD SURVEYING, 2017.

CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIER 1 REPAIRS - PLAN AND SECTION

DISCIPLINE: STRUCTURAL

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S02
SHEET No: 10 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0

PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
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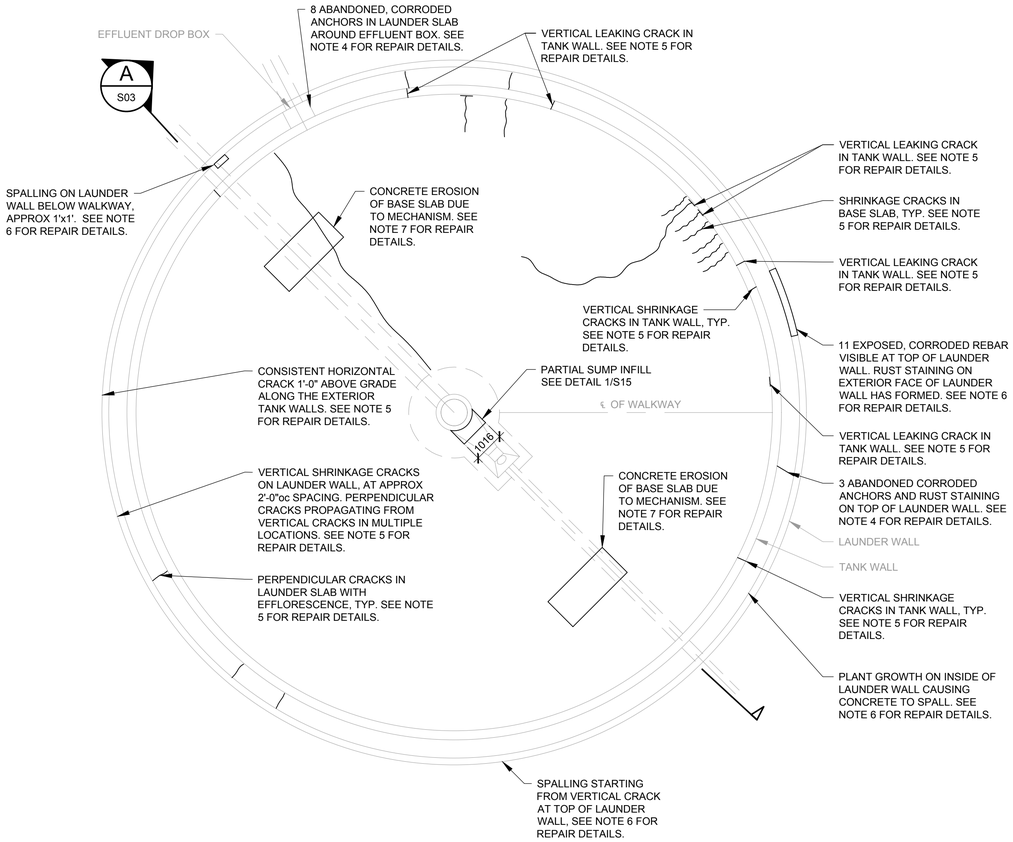
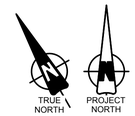


PLAN - SECONDARY CLARIFIER 2

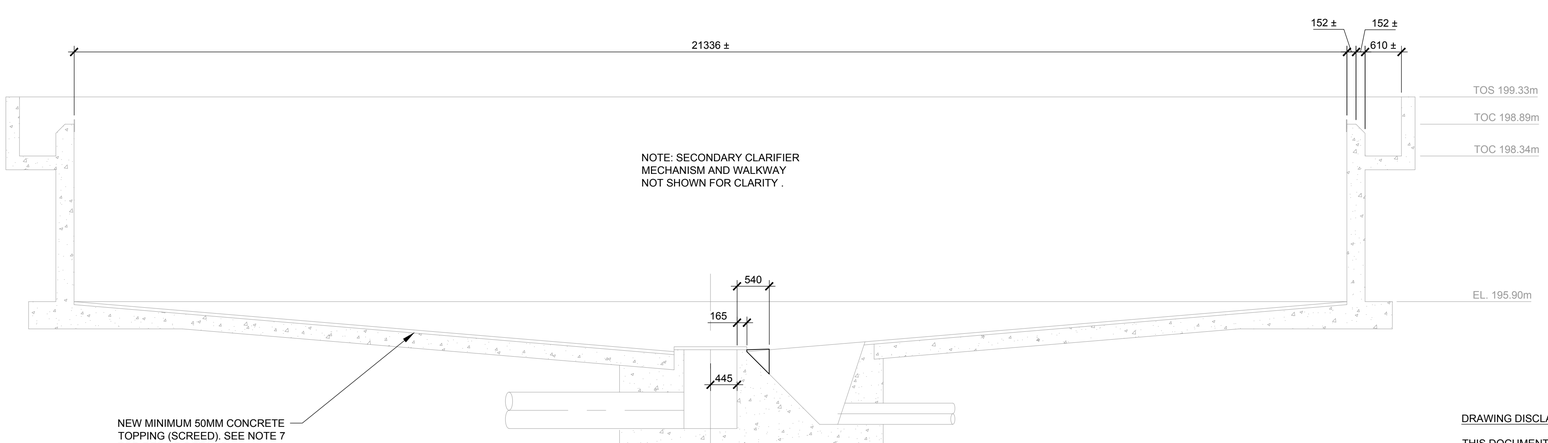
SCALE: 1:100



SECONDARY CLARIFIER 2 REPAIRS	QUANTITY	UNIT
CRACK REPAIRS - TANK WALL	22	M
CRACK REPAIRS - LAUNDER WALL	180	M
CONCRETE TOPPING	1	LS
ANCHOR REPAIR	11	EA
SPALL REPAIRS (300x300x125)	9	EA
CRACK REPAIRS - BASE SLAB	11	M

NOTES:

1. COMPLETE REPAIRS FOR THE SECONDARY CLARIFIER AS NOTED IN THE TABLE ABOVE ARE TO BE INCLUDED IN THE LUMP SUM CONTRACT.
2. REPAIR QUANTITIES SHOWN IN THIS TABLE ARE FOR COSTING PURPOSES.
3. SEE DRAWING S15 FOR REPAIR DETAILS.
4. ABANDONED CORRODED ANCHORS ARE TO BE DRILLED BACK 40mm AND FILLED WITH NON-METALLIC/NON-SHRINK GROUT.
5. LEAKING CRACKS TO BE REPAIRED WITH POLYURETHANE CRACK INJECTION. REFER TO SPECIFICATIONS AND DETAIL 5/S15.
6. SPALLING CONCRETE TO BE REPAIRED WITH MORTAR AS PER SPECIFICATIONS AND DETAIL 2/S15.
7. REMOVE AND REPLACE 50mm CONCRETE TOPPING. SEE SPECIFICATIONS FOR CONCRETE MIX REQUIRED AND REPAIR DETAILS.



A / - SECTION

SCALE: 1:50

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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
- TOPOGRAPHIC SKETCH PART OF LOTS 18 & 20 EAGLES NEST TRACT, CITY OF BRANTFORD; MACDONALD TABLYN LORD SURVEYING, 2017.

CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIER 2 REPAIRS - PLAN AND SECTION

DISCIPLINE: STRUCTURAL

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S03
SHEET No: 11 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0

PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
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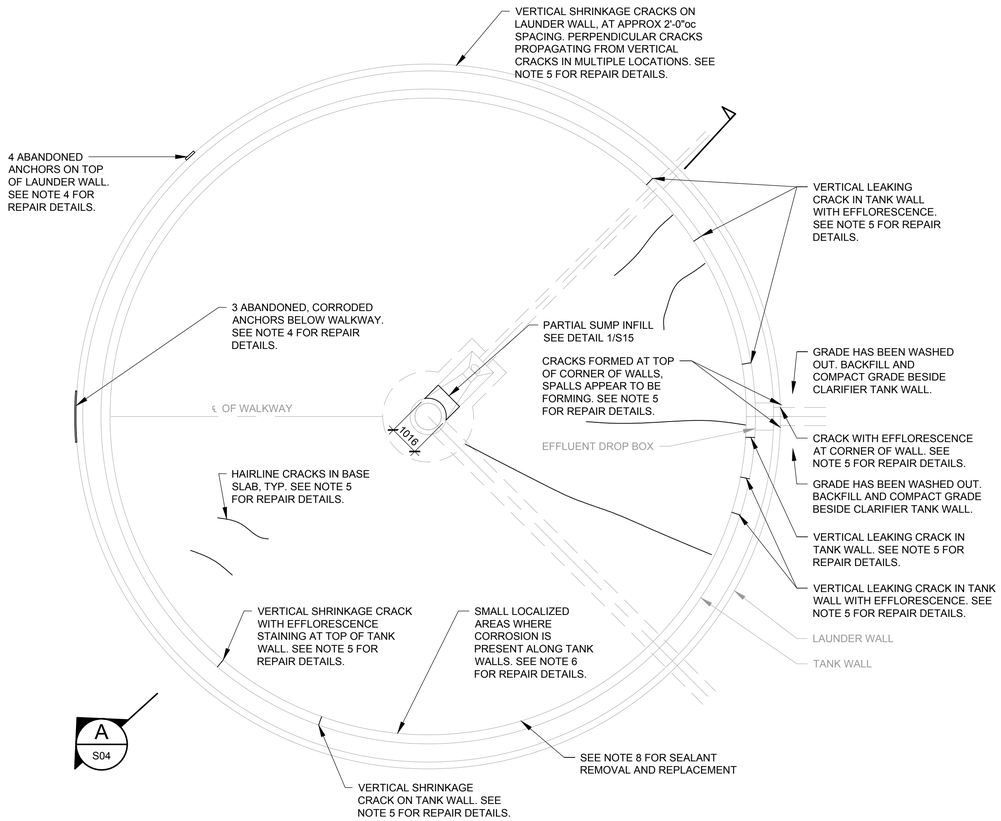
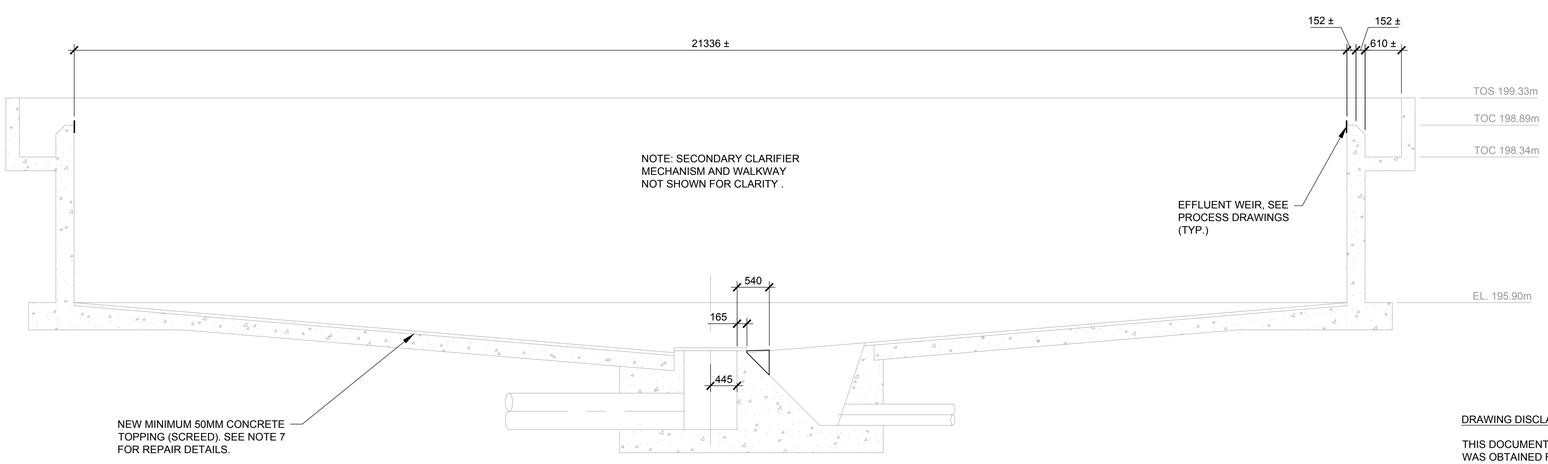


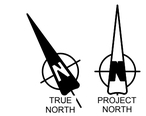
PLAN - SECONDARY CLARIFIER 3

SCALE: 1:100



A
-
SECTION

SCALE: 1:50



SECONDARY CLARIFIER 3 REPAIRS	QUANTITY	UNIT
CRACK REPAIRS - TANK WALL	30	M
CRACK REPAIRS - LAUNDER WALL	180	M
ANCHOR REPAIR	7	EA
SPALL REPAIRS (300x300x125)	9	EA
CONCRETE TOPPING	1	LS
CRACK REPAIRS - BASE SLAB	11	M
WEIR SEALANT REPLACEMENT	1	LOT

NOTES:

1. COMPLETE REPAIRS FOR THE SECONDARY CLARIFIER AS NOTED IN THE TABLE ABOVE ARE TO BE INCLUDED IN THE LUMP SUM CONTRACT.
2. REPAIR QUANTITIES SHOWN IN THIS TABLE ARE FOR COSTING PURPOSES.
3. SEE DRAWING S15 FOR REPAIR DETAILS
4. ABANDONED CORRODED ANCHORS ARE TO BE DRILLED BACK 40mm AND FILLED WITH NON-METALLIC/NON-SHRINK GROUT.
5. LEAKING CRACKS TO BE REPAIRED WITH POLYURETHANE CRACK INJECTION. REFER TO SPECIFICATIONS AND DETAIL 5/S15.
6. SPALLING CONCRETE TO BE REPAIRED WITH MORTAR AS PER SPECIFICATIONS AND DETAIL 2/S15.
7. REMOVE AND REPLACE 50mm CONCRETE TOPPING. SEE SPECIFICATIONS FOR CONCRETE MIX REQUIRED AND REPAIR DETAILS.
8. SEE REMOVALS DRAWINGS FOR V-NOTCH WEIR REMOVAL.SEE PROCESS DRAWINGS FOR V-NOTCH WEIR REPLACEMENT. SEALANT REQUIRED AT THE PERIMETER OF THE WEIR ON THE LAUNDER WALL.

DRAWING DISCLAIMER:

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- TOPOGRAPHIC SKETCH PART OF LOTS 18 & 20 EAGLES NEST TRACT, CITY OF BRANTFORD; MACDONALD TABLYN LORD SURVEYING, 2017.

CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER:

CIMA+

CLIENT:

THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME:

BRANTFORD WWTP
SECONDARY CLARIFIERS
REHABILITATION

SHEET TITLE:

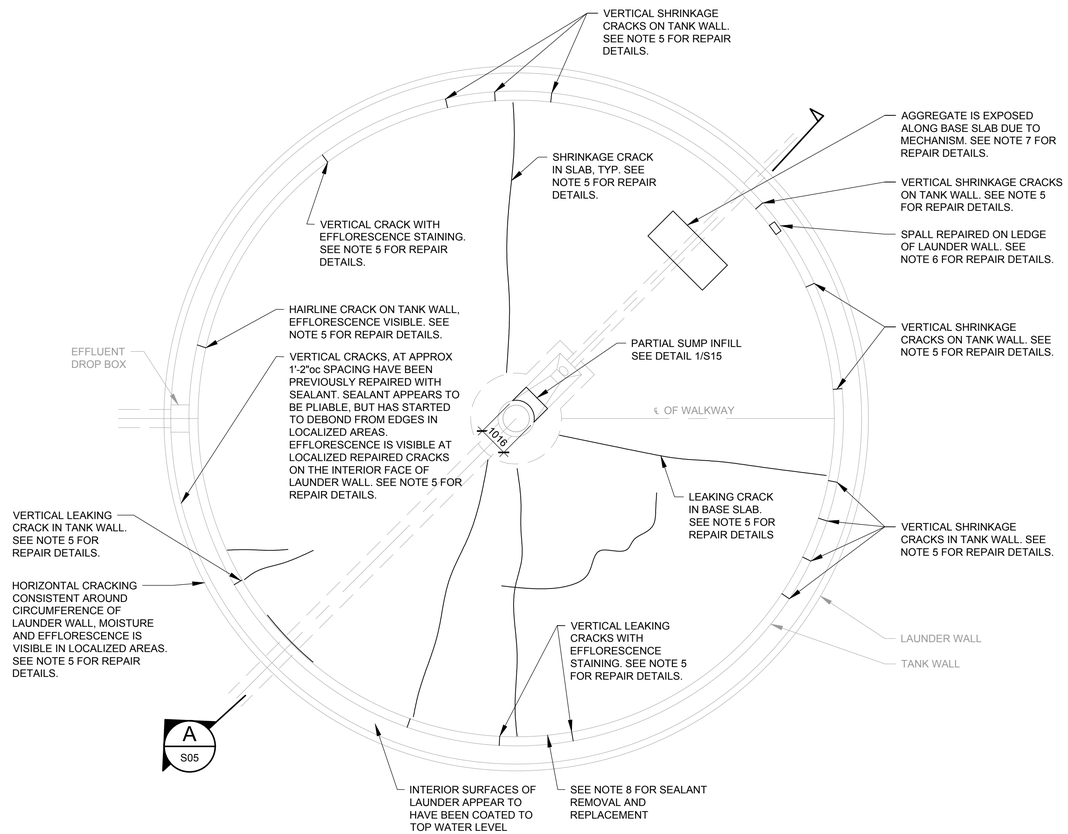
SECONDARY CLARIFIER 3
REPAIRS - PLAN AND SECTION

DISCIPLINE:

STRUCTURAL

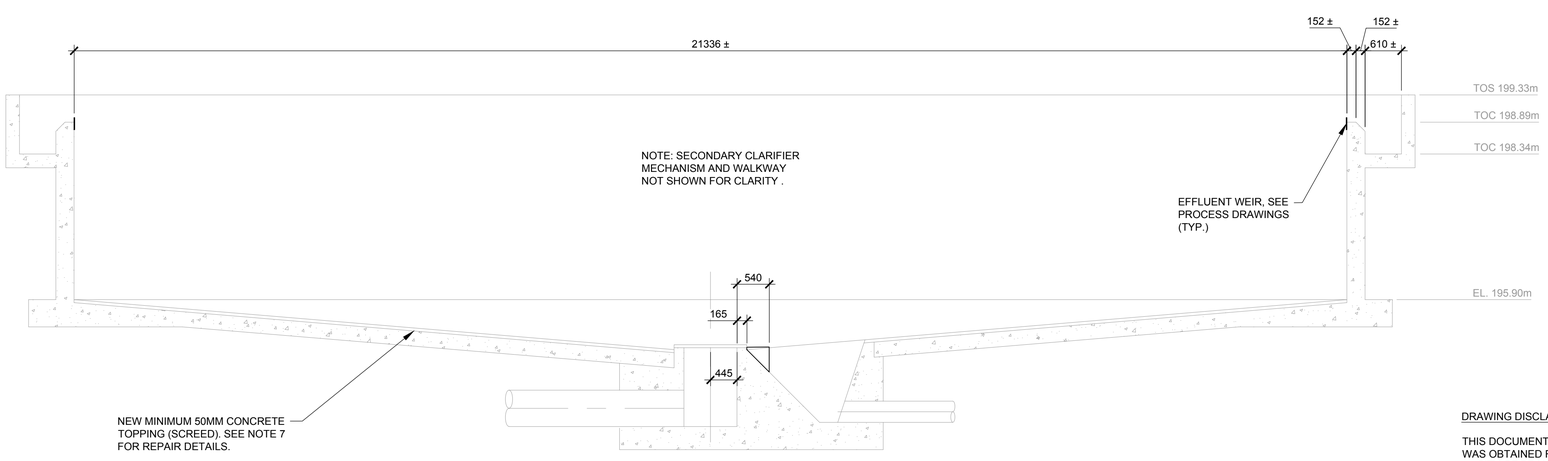
DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S04
SHEET No: 12 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ST001630A-S04.dwg / LAYOUT: S04-PLAN AND SECTION



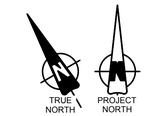
PLAN - SECONDARY CLARIFIER 4

SCALE: 1:100



A - SECTION

SCALE: 1:50



SECONDARY CLARIFIER 4 REPAIRS	QUANTITY	UNIT
CRACK REPAIRS - TANK WALL	30	M
CRACK REPAIRS - LAUNDER WALL	180	M
ANCHOR REPAIR	5	EA
SPALL REPAIRS (300x300x125)	5	EA
CONCRETE TOPPING	1	LS
CRACK REPAIRS - BASE SLAB	11	M
WEIR SEALANT REPLACEMENT	1	LOT

NOTES:

1. COMPLETE REPAIRS FOR THE SECONDARY CLARIFIER AS NOTED IN THE TABLE ABOVE ARE TO BE INCLUDED IN THE LUMP SUM CONTRACT.
2. REPAIR QUANTITIES SHOWN IN THIS TABLE ARE FOR COSTING PURPOSES.
3. SEE DRAWING S15 FOR REPAIR DETAILS
4. ABANDONED CORRODED ANCHORS ARE TO BE DRILLED BACK 40mm AND FILLED WITH NON-METALLIC/NON-SHRINK GROUT.
5. LEAKING CRACKS TO BE REPAIRED WITH POLYURETHANE CRACK INJECTION. REFER TO SPECIFICATIONS AND DETAIL 5/S15.
6. SPALLING CONCRETE TO BE REPAIRED WITH MORTAR AS PER SPECIFICATIONS AND DETAIL 2/S15.
7. REMOVE AND REPLACE 50mm CONCRETE TOPPING. SEE SPECIFICATIONS FOR CONCRETE MIX REQUIRED AND REPAIR DETAILS.
8. SEE REMOVALS DRAWINGS FOR V-NOTCH WEIR REMOVAL. SEE PROCESS DRAWINGS FOR V-NOTCH WEIR REPLACEMENT. SEALANT REQUIRED AT THE PERIMETER OF THE WEIR ON THE LAUNDER WALL.

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CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

DRAWN BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

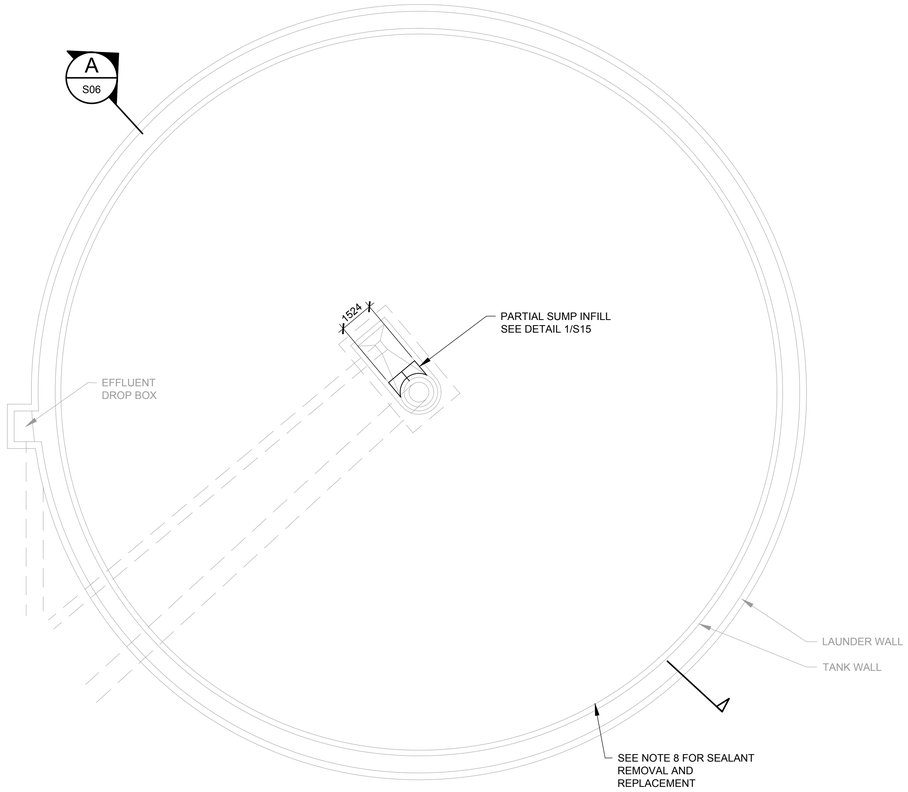
SHEET TITLE: SECONDARY CLARIFIER 4 REPAIRS - PLAN AND SECTION

DISCIPLINE: STRUCTURAL

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MMAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S05
SHEET No: 13 of 45	

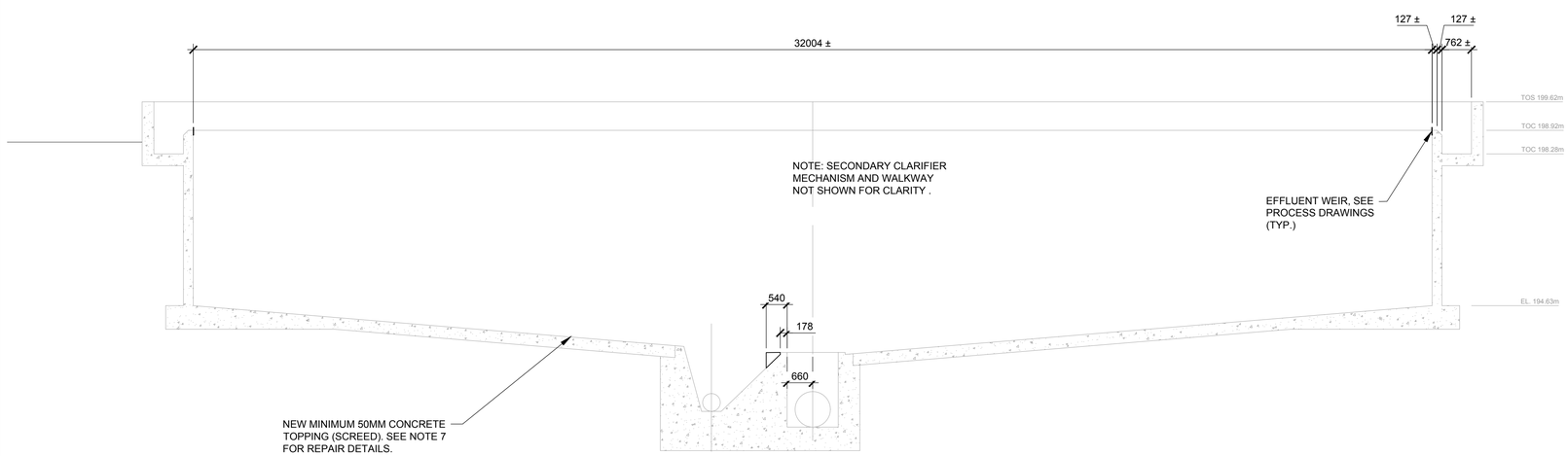
TITLEBLOCK 22x34 VERT ENG 3.0

PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 inches)
PATH: Z:\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ST001630A-S05.dwg / LAYOUT: S05-PLAN AND SECTION



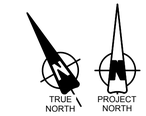
PLAN - SECONDARY CLARIFIER 5

SCALE: 1:125



A SECTION

SCALE: 1:75



SECONDARY CLARIFIER 5 REPAIRS	QUANTITY	UNIT
CRACK REPAIRS - TANK WALL	25	M
CRACK REPAIRS - LAUNDER WALL	130	M
ANCHOR REPAIR	5	EA
SPALL REPAIRS (300x300x125)	10	EA
CONCRETE TOPPING	1	LS
CRACK REPAIRS - BASE SLAB	11	M
WEIR SEALANT REPLACEMENT	1	LOT

NOTES:

1. COMPLETE REPAIRS FOR THE SECONDARY CLARIFIER AS NOTED IN THE TABLE ABOVE ARE TO BE INCLUDED IN THE LUMP SUM CONTRACT.
2. REPAIR QUANTITIES SHOWN IN THIS TABLE ARE FOR COSTING PURPOSES.
3. SEE DRAWING S15 FOR REPAIR DETAILS.
4. ABANDONED CORRODED ANCHORS ARE TO BE DRILLED BACK 40mm AND FILLED WITH NON-METALLIC/NON-SHRINK GROUT.
5. LEAKING CRACKS TO BE REPAIRED WITH POLYURETHANE CRACK INJECTION. REFER TO SPECIFICATIONS AND DETAIL 5/S15.
6. SPALLING CONCRETE TO BE REPAIRED WITH MORTAR AS PER SPECIFICATIONS AND DETAIL 2/S15.
7. REMOVE AND REPLACE 50mm CONCRETE TOPPING. SEE SPECIFICATIONS FOR CONCRETE MIX REQUIRED AND REPAIR DETAILS.
8. SEE REMOVALS DRAWINGS FOR V-NOTCH WEIR REMOVAL. SEE PROCESS DRAWINGS FOR V-NOTCH WEIR REPLACEMENT. SEALANT REQUIRED AT THE PERIMETER OF THE WEIR ON THE LAUNDER WALL.

DRAWING DISCLAIMER:

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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT; PROCTOR & REDFERN, 1957.
- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
- TOPOGRAPHIC SKETCH PART OF LOTS 18 & 20 EAGLES NEST TRACT, CITY OF BRANTFORD; MACDONALD TABLYN LORD SURVEYING, 2017.

CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

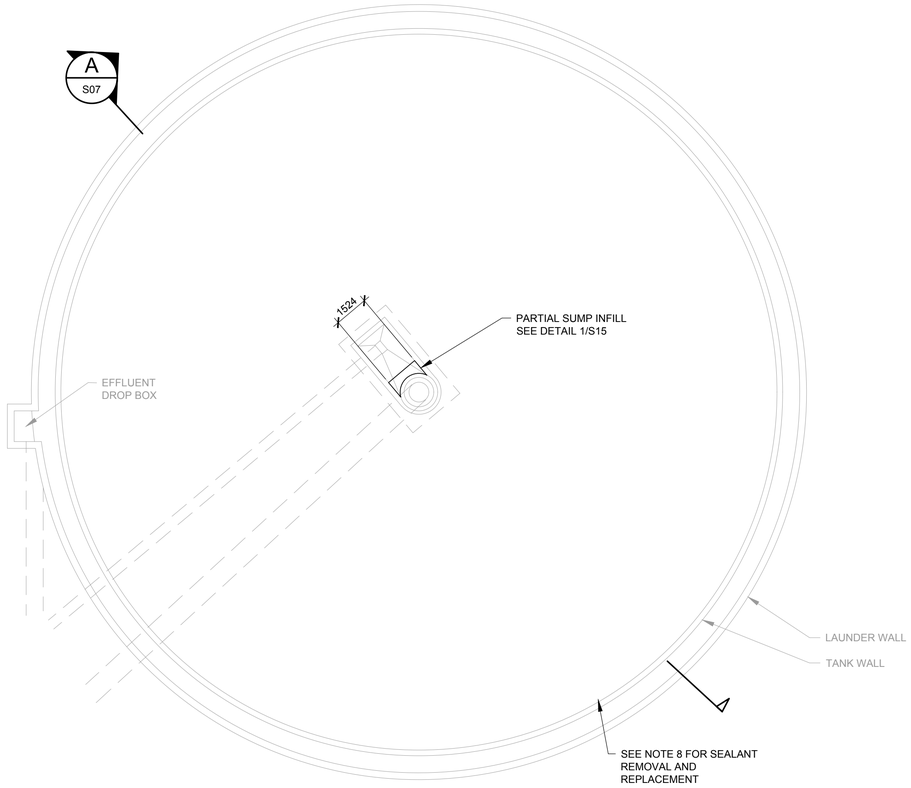
SHEET TITLE: SECONDARY CLARIFIER 5 REPAIRS - PLAN AND SECTION

DISCIPLINE: STRUCTURAL

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S06
SHEET No: 14 of 45	

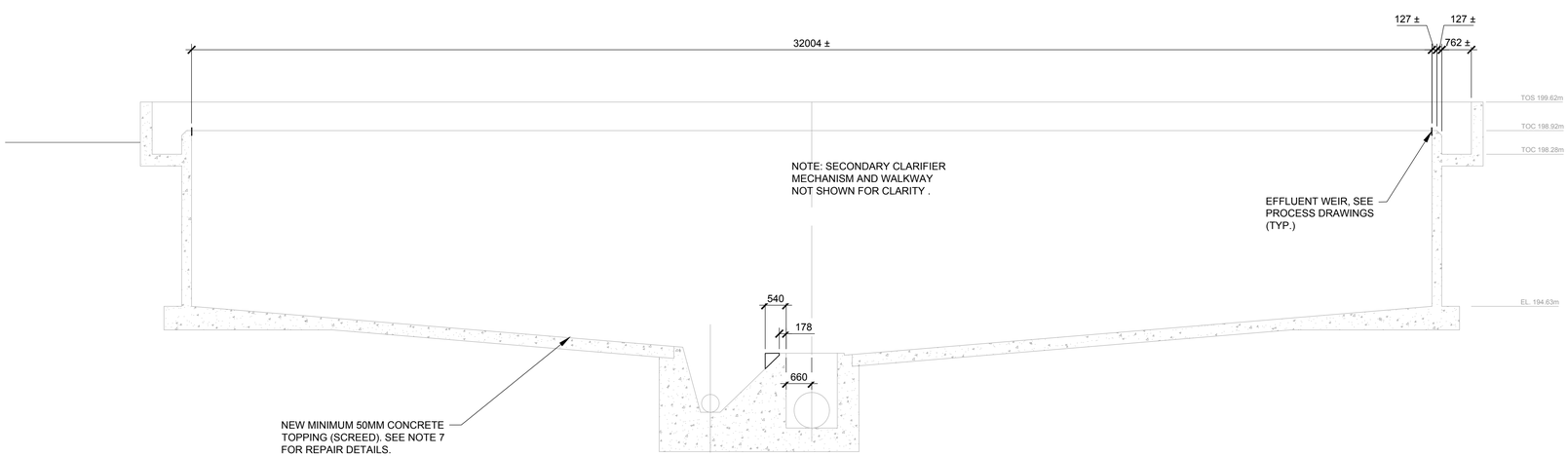
TITLEBLOCK 22x34 VERT ENG 3.0

PRINT DATE: 2025/04/23 | PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Projects\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP413\Sheets\ST001630A-S06.dwg / LAYOUT: S06-PLAN AND SECTION



PLAN - SECONDARY CLARIFIER 6

SCALE: 1:125



A SECTION

SCALE: 1:75

TRUE NORTH

PROJECT NORTH

SECONDARY CLARIFIER 6 REPAIRS	QUANTITY	UNIT
CRACK REPAIRS - TANK WALL	25	M
CRACK REPAIRS - LAUNDER WALL	130	M
ANCHOR REPAIR	5	EA
SPALL REPAIRS (300x300x125)	10	EA
CONCRETE TOPPING	1	LS
CRACK REPAIRS - BASE SLAB	11	M
WEIR SEALANT REPLACEMENT	1	LOT

NOTES:

1. COMPLETE REPAIRS FOR THE SECONDARY CLARIFIER AS NOTED IN THE TABLE ABOVE ARE TO BE INCLUDED IN THE LUMP SUM CONTRACT.
2. REPAIR QUANTITIES SHOWN IN THIS TABLE ARE FOR COSTING PURPOSES.
3. SEE DRAWING S15 FOR REPAIR DETAILS
4. ABANDONED CORRODED ANCHORS ARE TO BE DRILLED BACK 40mm AND FILLED WITH NON-METALLIC/NON-SHRINK GROUT.
5. LEAKING CRACKS TO BE REPAIRED WITH POLYURETHANE CRACK INJECTION. REFER TO SPECIFICATIONS AND DETAIL 5/S15.
6. SPALLING CONCRETE TO BE REPAIRED WITH MORTAR AS PER SPECIFICATIONS AND DETAIL 2/S15.
7. REMOVE AND REPLACE 50mm CONCRETE TOPPING. SEE SPECIFICATIONS FOR CONCRETE MIX REQUIRED AND REPAIR DETAILS.
8. SEE REMOVALS DRAWINGS FOR V-NOTCH WEIR REMOVAL. SEE PROCESS DRAWINGS FOR V-NOTCH WEIR REPLACEMENT. SEALANT REQUIRED AT THE PERIMETER OF THE WEIR ON THE LAUNDER WALL.

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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
- TOPOGRAPHIC SKETCH PART OF LOTS 18 & 20 EAGLES NEST TRACT, CITY OF BRANTFORD; MACDONALD TABLYN LORD SURVEYING, 2017.

CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIER 6 REPAIRS - PLAN AND SECTION

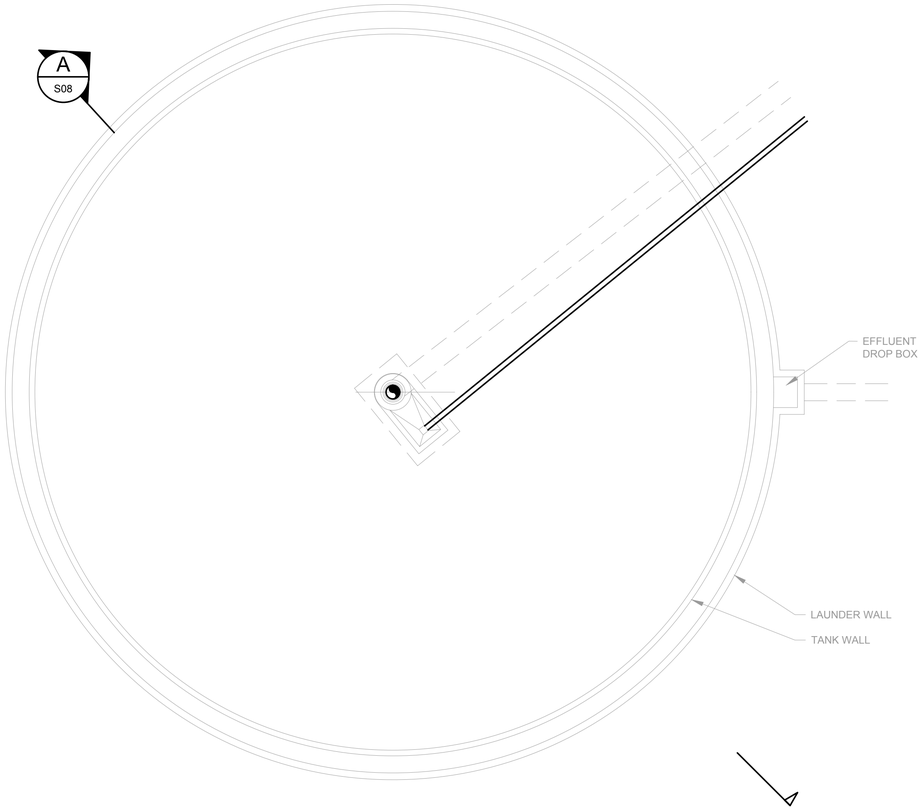
DISCIPLINE: STRUCTURAL

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S07
SHEET No: 15 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0

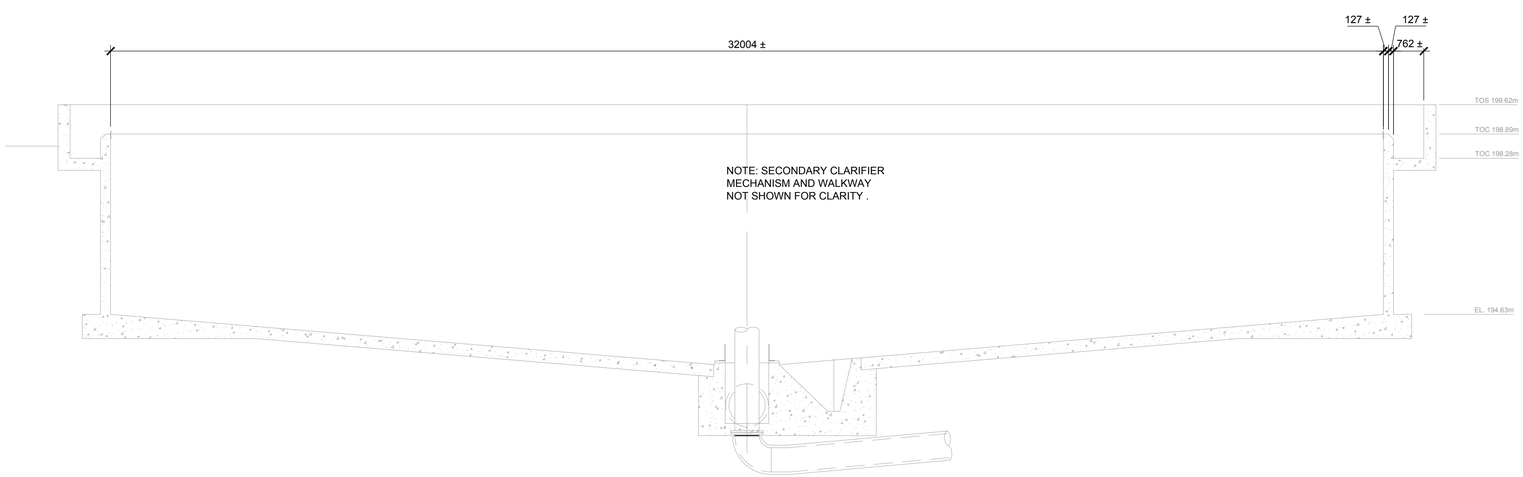
PRINT DATE: 2025/04/23 | PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Projects\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP413\Sheets\ST001630A-S07.dwg / LAYOUT: S07-PLAN AND SECTION

TITLEBLOCK 22x34 VERT ENG 3.0



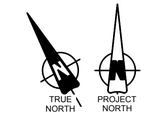
PLAN - SECONDARY CLARIFIER 7

SCALE: 1:125



A SECTION

SCALE: 1:75



SECONDARY CLARIFIER 7 REPAIRS	QUANTITY	UNIT
CRACK REPAIRS - TANK WALL	25	M
CRACK REPAIRS - LAUNDER WALL	130	M
ANCHOR REPAIR	5	EA
SPALL REPAIRS (300x300x125)	10	EA
CRACK REPAIRS - BASE SLAB	11	M
LADDER BOLT REPLACEMENT	2	EA

NOTES:

1. COMPLETE REPAIRS FOR THE SECONDARY CLARIFIER AS NOTED IN THE TABLE ABOVE ARE TO BE INCLUDED IN THE LUMP SUM CONTRACT.
2. REPAIR QUANTITIES SHOWN IN THIS TABLE ARE FOR COSTING PURPOSES.
3. SEE DRAWING S15 FOR REPAIR DETAILS
4. ABANDONED CORRODED ANCHORS ARE TO BE DRILLED BACK 40mm AND FILLED WITH NON-METALLIC/NON-SHRINK GROUT.
5. LEAKING CRACKS TO BE REPAIRED WITH POLYURETHANE CRACK INJECTION. REFER TO SPECIFICATIONS AND DETAIL 5/S15.
6. SPALLING CONCRETE TO BE REPAIRED WITH MORTAR AS PER SPECIFICATIONS AND DETAIL 2/S15.
7. REMOVE AND REPLACE 50mm CONCRETE TOPPING. SEE SPECIFICATIONS FOR CONCRETE MIX REQUIRED AND REPAIR DETAILS.
8. MISSING LADDER ANCHOR BOLT INTO THE CONCRETE WALL. DRILL AND EPOXY HILTI HIT-HY 200 HIT STAINLESS STEEL BOLT OF EQUIVALENT SIZE, MINIMUM EMBED 150mm.

DRAWING DISCLAIMER:

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CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

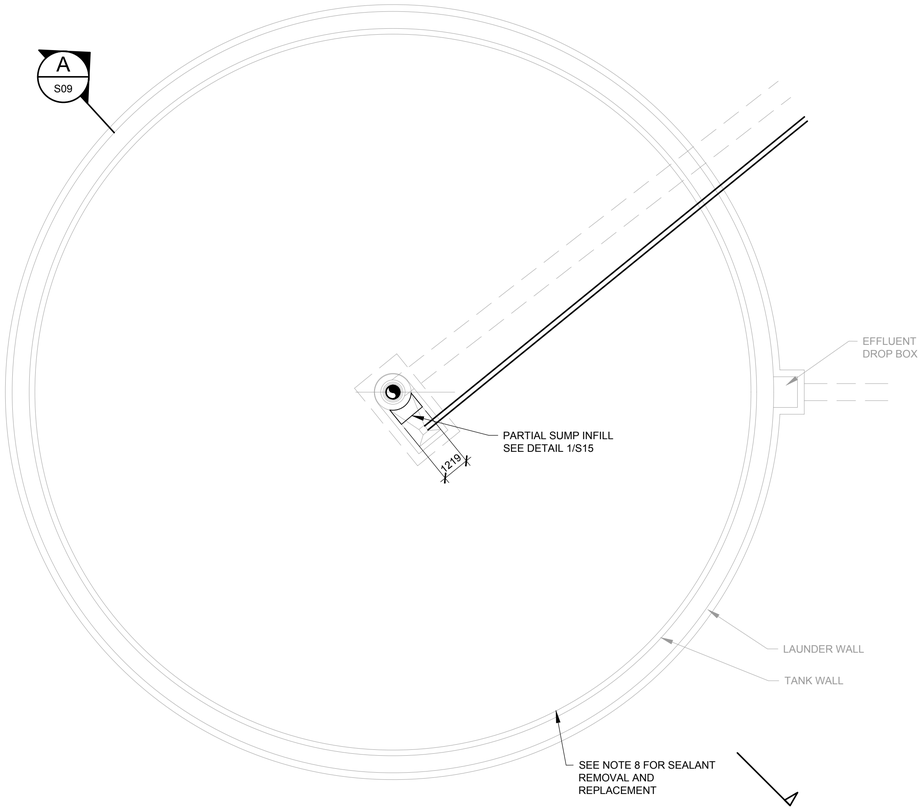
PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIER 7 REPAIRS - PLAN AND SECTION

DISCIPLINE: STRUCTURAL

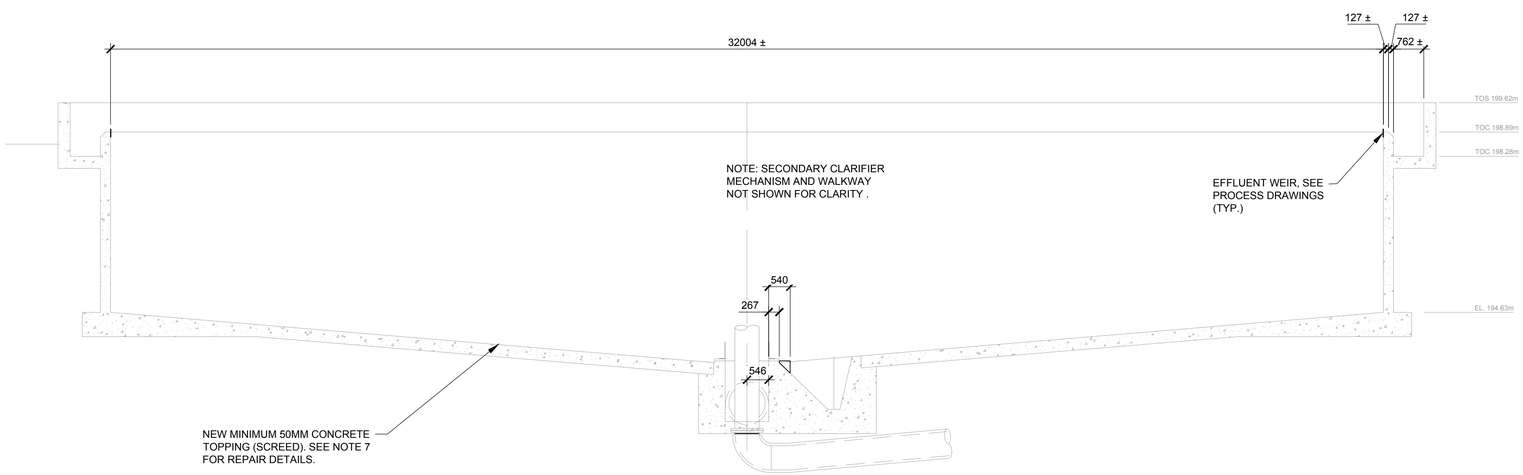
DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S08
SHEET No: 16 of 45	

PRINT DATE: 2025/04/23 | PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Projects\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP413\Sheets\ST001630A-S08.dwg / LAYOUT: S08-PLAN AND SECTION



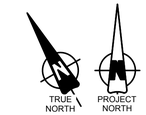
PLAN - SECONDARY CLARIFIER 8

SCALE: 1:125



A SECTION

SCALE: 1:75



SECONDARY CLARIFIER 8 REPAIRS	QUANTITY	UNIT
CRACK REPAIRS - TANK WALL	25	M
CRACK REPAIRS - LAUNDER WALL	130	M
ANCHOR REPAIR	5	EA
SPALL REPAIRS (300x300x125)	10	EA
CONCRETE TOPPING	1	LS
CRACK REPAIRS - BASE SLAB	11	M
WEIR SEALANT REPLACEMENT	1	LOT

NOTES:

1. COMPLETE REPAIRS FOR THE SECONDARY CLARIFIER AS NOTED IN THE TABLE ABOVE ARE TO BE INCLUDED IN THE LUMP SUM CONTRACT.
2. REPAIR QUANTITIES SHOWN IN THIS TABLE ARE FOR COSTING PURPOSES.
3. SEE DRAWING S15 FOR REPAIR DETAILS
4. ABANDONED CORRODED ANCHORS ARE TO BE DRILLED BACK 40mm AND FILLED WITH NON-METALLIC/NON-SHRINK GROUT.
5. LEAKING CRACKS TO BE REPAIRED WITH POLYURETHANE CRACK INJECTION. REFER TO SPECIFICATIONS AND DETAIL 5/S15.
6. SPALLING CONCRETE TO BE REPAIRED WITH MORTAR AS PER SPECIFICATIONS AND DETAIL 2/S15.
7. REMOVE AND REPLACE 50mm CONCRETE TOPPING. SEE SPECIFICATIONS FOR CONCRETE MIX REQUIRED AND REPAIR DETAILS.
8. SEE REMOVALS DRAWINGS FOR V-NOTCH WEIR REMOVAL. SEE PROCESS DRAWINGS FOR V-NOTCH WEIR REPLACEMENT. SEALANT REQUIRED AT THE PERIMETER OF THE WEIR ON THE LAUNDER WALL.

DRAWING DISCLAIMER:

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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
- TOPOGRAPHIC SKETCH PART OF LOTS 18 & 20 EAGLES NEST TRACT, CITY OF BRANTFORD; MACDONALD TABLYN LORD SURVEYING, 2017.

CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER:

CIMA+

CLIENT:

THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME:

BRANTFORD WWTP
SECONDARY CLARIFIERS
REHABILITATION

SHEET TITLE:

SECONDARY CLARIFIER 8
REPAIRS - PLAN AND SECTION

DISCIPLINE:

STRUCTURAL

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S09
SHEET No: 17 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ST001630A-S09.dwg / LAYOUT: S09-PLAN AND SECTION

SECONDARY CLARIFIER 1-4 DISTRIBUTION CHAMBER REPAIRS	QUANTITY	UNIT
CRACK REPAIRS	5	M
SPALL REPAIRS (300x300x125)	3	EA
GRATING	4	M2
LADDER	2	EA
GUARDRAIL	15.5	M

SECONDARY CLARIFIER 5-6 DISTRIBUTION & SLUDGE CHAMBER REPAIRS	QUANTITY	UNIT
CRACK REPAIRS	5	M
SPALL REPAIRS (300x300x125)	3	EA
LADDER	1	EA

SECONDARY CLARIFIER 3-4 SLUDGE CHAMBER REPAIRS	QUANTITY	UNIT
CRACK REPAIRS	5	M
SPALL REPAIRS (300x300x125)	3	EA
GRATING	4	M2
LADDER	1	EA

SECONDARY CLARIFIER 7-8 FEED CHAMBER REPAIRS	QUANTITY	UNIT
CRACK REPAIRS	5	M
SPALL REPAIRS (300x300x125)	3	EA

SECONDARY CLARIFIER 1-4 EFFLUENT MANHOLE 1 REPAIRS	QUANTITY	UNIT
CRACK REPAIRS	5	M
SPALL REPAIRS (300x300x125)	3	EA
LADDER	1	EA

SECONDARY CLARIFIER 1-4 EFFLUENT MANHOLE 2 REPAIRS	QUANTITY	UNIT
CRACK REPAIRS	5	M
SPALL REPAIRS (300x300x125)	3	EA
LADDER	1	EA

SECONDARY CLARIFIER 7-8 RETURN SLUDGE CHAMBER REPAIRS	QUANTITY	UNIT
CRACK REPAIRS	5	M
SPALL REPAIRS (300x300x125)	3	EA
LADDER	1	EA

PROCESS MODULE 1 EFFLUENT CHAMBER REPAIRS	QUANTITY	UNIT
CRACK REPAIRS	5	M
SPALL REPAIRS (300x300x125)	3	EA

EFFLUENT CHANNELS REPAIRS	QUANTITY	UNIT
CRACK REPAIRS	90	M
SPALL REPAIRS (300x300x125)	3	EA
EXPANSION JOINT	18	M

PROCESS MODULE 1 SLUDGE CHAMBER REPAIRS	QUANTITY	UNIT
CRACK REPAIRS	5	M
CONCRETE CRYSTALLINE SLURRY REPAIR	16	M
GRATING	8	M2
LADDER	1	EA

SECONDARY CLARIFIER 7-8 DISTRIBUTION & WASTE SLUDGE CHAMBER REPAIRS	QUANTITY	UNIT
CRACK REPAIRS	5	M
SPALL REPAIRS (300x300x125)	3	EA
LADDER	1	EA

NOTES:

1. COMPLETE REPAIRS FOR THE MISCELLANEOUS CHAMBER, MANHOLES AND CONDUITS AS NOTED IN THE TABLE ABOVE ARE TO BE INCLUDED IN THE LUMP SUM CONTRACT.
2. REPAIR QUANTITIES SHOWN IN THIS TABLE ARE FOR COSTING PURPOSES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

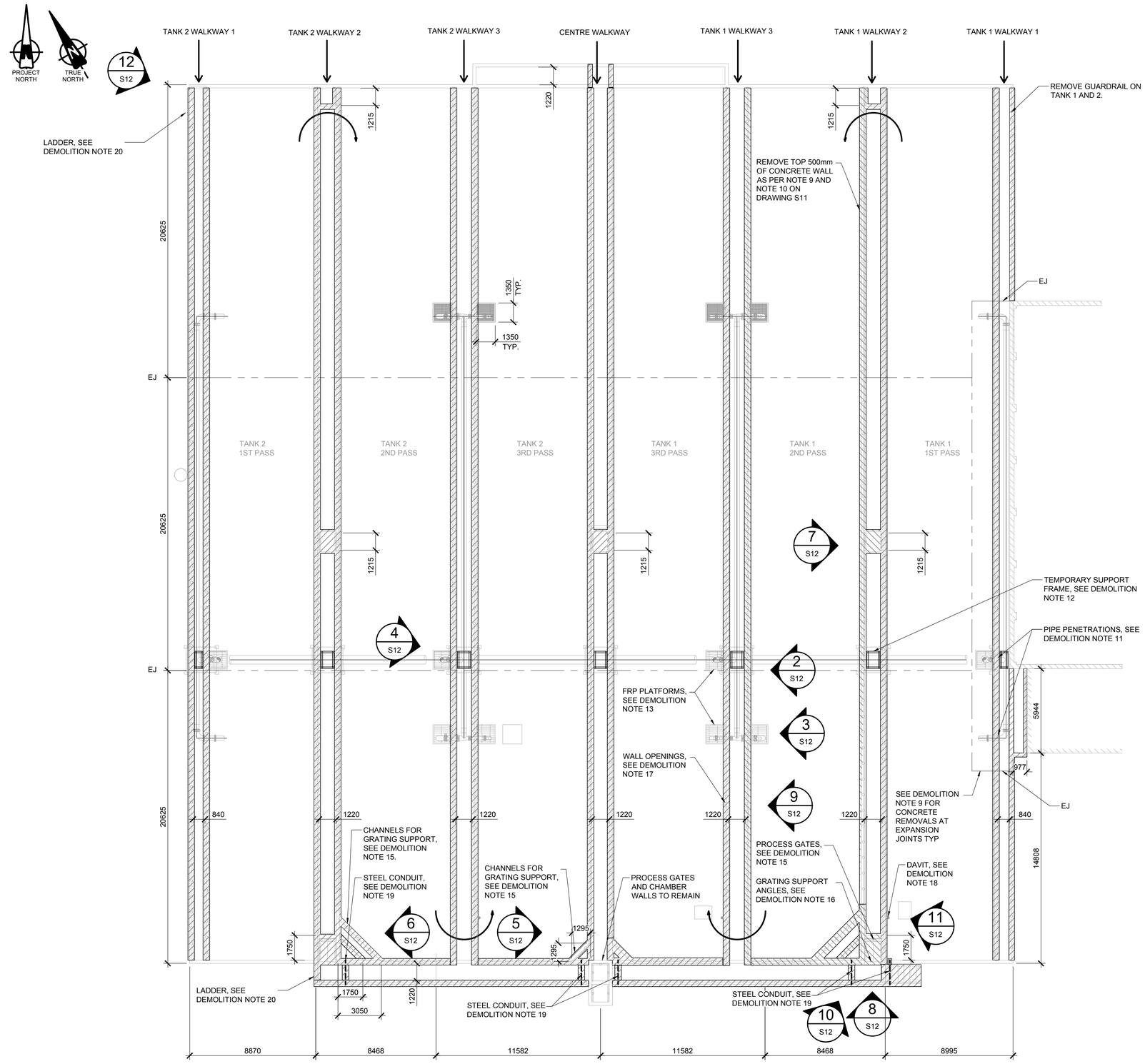
PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: MISCELLANEOUS CHAMBER, MANHOLES AND CONDUITS - REPAIRS

DISCIPLINE: STRUCTURAL

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S10
SHEET No: 18 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 inches)
PATH: Z:\Cima-C12\Project\C12-5\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ST\T001630A-S10.dwg / LAYOUT: S10-REPAIR TABLES



PLAN - PROCESS MODULE 1 AERATION TANK (EL 200.05m)

SCALE: 1:150

DEMOLITION NOTES

1. THE REMOVAL DRAWINGS ARE BASED ON THE AVAILABLE RECORD DRAWINGS. ACTUAL DETAILS OF CONSTRUCTION MAY NOT BE AS INDICATED ON THESE DRAWINGS. CONTRACTOR TO FIELD VERIFY.
2. ELEVATIONS SHOWN ON THE REMOVAL DRAWINGS ARE IN METERS.
3. ALL REMOVALS WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED SEQUENCE OF CONSTRUCTION AND SUBJECT TO THE RESTRICTIONS OF PERMISSIBLE OUTAGES OF PARTICULAR COMPONENTS OR SYSTEMS.
4. CONTRACTOR TO COORDINATE ALL REMOVALS WITH ALL SUBTRADES.
5. REFER TO ELECTRICAL DRAWINGS FOR REMOVALS INCLUDING CONDUIT, WIRING , EQUIPMENT AND ANY OTHER APPURTENANCES.
6. REMOVE AND STORE WALKWAY GRATING, TYPICAL ALL GRATING. REINSTATE ALL GRATING AFTER NEW CONCRETE WORK IS COMPLETE.
7. ANY HOLES OR CAVITIES LEFT BY THE REMOVAL OF GUARDS SHALL BE FILLED WITH GROUT.
8. ALL EMBEDDED, EXPOSED METALS LEFT BY REMOVALS SHALL BE DRILLED BACK 40mm FROM CONCRETE SURFACE AND REPAIRED WITH NON-SHRINK, NON-METALLIC GROUT.
9. IT IS ASSUMED THAT WATERSTOPS ARE PROVIDED AT EXISTING EXPANSION AND CONSTRUCTION JOINTS. LOCALLY CHIP CONCRETE AROUND WATERSTOPS TYP AND TAKE CARE NOT TO DAMAGE WHEN REMOVING CONCRETE. PROVIDE PROTECTIVE CAPS SO THAT THE WATERSTOP IS NOT DAMAGED AND CAN BE REUSED EFFECTIVELY.
10. DO NOT USE WRECKING BALLS OR SLEDGE HAMMERS FOR DEMOLITION OF CONCRETE UNLESS APPROVED IN WRITING BY THE CONTRACT ADMINISTRATOR. USE ONLY HAND OPERATED PNEUMATIC CHIPPERS, DRILLS OR SAWS.
11. LOCALLY CHIP AROUND ALL PROCESS PIPE PENETRATIONS. TAKE CARE NOT TO DAMAGE REBAR DURING CONCRETE REMOVAL.
12. PROVIDE TEMPORARY SUPPORT FRAME FOR PROCESS PIPE HEADER ON EACH WALKWAY TYPICAL THROUGHOUT WALL RECASTING. SEE DETAIL 18/S16 FOR TYPICAL CHANNEL WALL ARRANGEMENT.
13. TEMPORARILY SUPPORT FRP PLATFORMS TYPICAL THROUGHOUT WALL RECASTING. TYP OF 12.
14. REMOVE AND DISPOSE CHANNELS FOR GRATING SUPPORT FOR CENTRE WALKWAY, TANK 1 WALKWAY 2 AND TANK 2 WALKWAY 2 .
15. REMOVE RAISED CONCRETE WALL WITH PROCESS GATES FOR CENTRE WALKWAY, TANK 1 WALKWAY 2 AND TANK 2 WALKWAY 2. REMOVE PROCESS GATES AND ALL APPURTENANCES. TYP OF 14.
16. REMOVE AND DISPOSE OF GRATING SUPPORT ANGLES AT PROCESS GATES. TYP OF 14.
17. REMOVE AND DISPOSE STEEL 'L' ANGLE, STEEL PLATE AND ANCHORS AT 310 WIDE x 990 DEEP OPENING ON FACE OF CONCRETE WALL FOR TANK 1 WALKWAY 2 AND TANK 2 WALKWAY 2. TYP OF 32.
18. TEMPORARILY REMOVE AND STORE DAVIT DURING WALL RECASTING. REINSTATE ALL DAVITS FOLLOWING WALL RECASTING. TYP OF 4.
19. REMOVE AND DISPOSE EXISTING STEEL CONDUIT CAST INTO WALL TYPICAL DURING CONCRETE REMOVAL. TYP OF 5.
20. TEMPORARILY REMOVE AND STORE LADDER DURING WALL RECASTING. REINSTATE LADDER FOLLOWING WALL RECASTING. TYP OF 2.

DEMOLITION AND CONSTRUCTION SEQUENCE

1. TANKS WILL BE DRAINED TO 300mm DEPTH DURING CONSTRUCTION. CLEANING OF THE TANKS WILL NOT BE REQUIRED AFTER COMPLETION OF THE CONCRETE AND HANDRAIL WORKS. DIFFUSER SYSTEM IN THE AERATION TANK MUST BE PROTECTED AT ALL TIMES FROM ANY CONSTRUCTION DEBRIS.
2. TEMPORARILY SUPPORT PROCESS PIPE HEADER, PIPE SUPPORT FRAMES, FRP PLATFORMS, FRP LADDERS AND DAVITS. ANCHORAGE FOR THESE APPURTENANCES WILL BE AFFECTED DURING DEMOLITION. SEE DRAWING S12 AND S13 FOR PHOTOS.
3. TEMPORARILY REMOVE ELECTRICAL APPURTENANCES AS PER ELECTRICAL DRAWINGS.
4. INSTALL FORMWORK ON THE SIDES OF THE TANK WALL. FORMWORK TO BE DESIGNED TO PREVENT DEBRIS FROM ENTERING THE TANK AND DAMAGING THE DIFFUSER SYSTEM.
5. REMOVE EXISTING GUARDRAIL WHERE NOTED.
6. CUT AND REMOVE TOP OF TANK WALL.
7. PERFORM CONCRETE REPAIRS IN ACCORDANCE WITH THE DETAILS, SEE SHEET S15 AND S16.
8. INSTALL NEW CAST IN GRATING ANGLE WITH NEW CONCRETE WORK.
9. REINSTATE ALL TEMPORARILY SUPPORTED PIPE SUPPORT FRAMES, FRP PLATFORMS, LADDERS AND DAVITS. INSTALL ANCHORAGE AS INDICATED ON DRAWING S14.
10. INSTALL NEW GRATING BEAMS, REPLACE STORED GRATING ON WALKWAYS, INSTALL NEW GUARDRAILS, REATTACH ALL ELECTRICAL APPURTENANCES AS PER ELECTRICAL DRAWINGS.

NOTE:

AERATION TANK REMOVALS AND CONSTRUCTION WORK ARE NOT PART OF THE BASE SCOPE OF WORK AND SHALL BE INCLUDED IN THE PROVISIONAL ITEMS IN THE CONTRACTOR'S BID.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: AERATION TANK DEMOLITION PLAN

DISCIPLINE: STRUCTURAL

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S11
SHEET No: 19 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0

PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ST001630A-S11.dwg / LAYOUT: S11-PLAN HANDRAIL

GRATING REMOVAL NOT SHOWN FOR CLARITY.

REMOVE TOP 500mm OF CONCRETE WALL, TYP

REMOVE EXISTING GUARDRAIL, TYP

1 / S11 TYP TOP OF WALL & GUARDRAIL REMOVAL

SCALE: NTS

TEMPORARILY SUPPORT PROCESS HEADER AND PIPE SUPPORT FRAME TYP THROUGHOUT WALL RECASTING.

GUARDRAIL AND GRATING REMOVAL NOT SHOWN FOR CLARITY.

2 / S11 TYP PROCESS HEADER PIPE SUPPORTS

SCALE: NTS

TEMPORARILY SUPPORT FRP PLATFORMS AND LADDERS THROUGHOUT WALL RECASTING. HAND CHIPPING REQUIRED FOR WALL REMOVAL AROUND PIPE PENETRATIONS.

GUARDRAIL AND GRATING REMOVAL NOT SHOWN FOR CLARITY.

3 / S11 TYP FRP PLATFORM WITH LADDER

SCALE: NTS

TEMPORARILY SUPPORT FRP PLATFORM AND PROCESS PIPE THROUGHOUT WALL RECASTING. HAND CHIPPING REQUIRED FOR WALL REMOVAL AROUND PIPE PENETRATIONS.

GUARDRAIL AND GRATING REMOVAL NOT SHOWN FOR CLARITY.

4 / S11 TYPICAL FRP PLATFORM

SCALE: NTS

PROCESS GATES AND CHAMBER WALLS TO REMAIN

TEMPORARILY REMOVE AND STORE WALKWAY GRATING, REMOVE GRATING BEAM

GUARDRAIL AND GRATING REMOVAL NOT SHOWN FOR CLARITY.

5 / S11 CENTRE WALKWAY CORNER GRATING

SCALE: NTS

GUARDRAIL AND GRATING REMOVAL NOT SHOWN FOR CLARITY.

REMOVE AND DISPOSE WALKWAY GRATING AND BEAMS

6 / S11 TANK 1 WALKWAY 2 AND TANK 2 WALKWAY 2 CORNER GRATING

SCALE: NTS

NOTE:

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No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

SIGNATURE APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: AERATION TANK DEMOLITION DETAILS

DISCIPLINE: STRUCTURAL

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S12
SHEET No: 20 of 45	

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PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
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7 S11 TANK 1 WALKWAY 2 AND TANK 2 WALKWAY 2 CONCRETE WALL AND PROCESS GATE REMOVAL
SCALE: NTS

8 S11 TYP CONCRETE WALL AND PROCESS GATE REMOVAL
SCALE: NTS

9 S11 TANK 1 AND TANK 2 WALKWAY 2 TOP OF WALL REMOVAL AT WALL OPENINGS
SCALE: NTS

10 S11 CONCRETE STAIR AND TYP STEEL CONDUIT REMOVAL
SCALE: NTS

11 S11 TYPICAL DAVIT
SCALE: NTS

12 S11 LADDER ON TANK 2 WALKWAY 1
SCALE: NTS

NOTE:

AERATION TANK REMOVALS AND CONSTRUCTION WORK ARE NOT PART OF THE BASE SCOPE OF WORK AND SHALL BE INCLUDED IN THE PROVISIONAL ITEMS IN THE CONTRACTOR'S BID.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

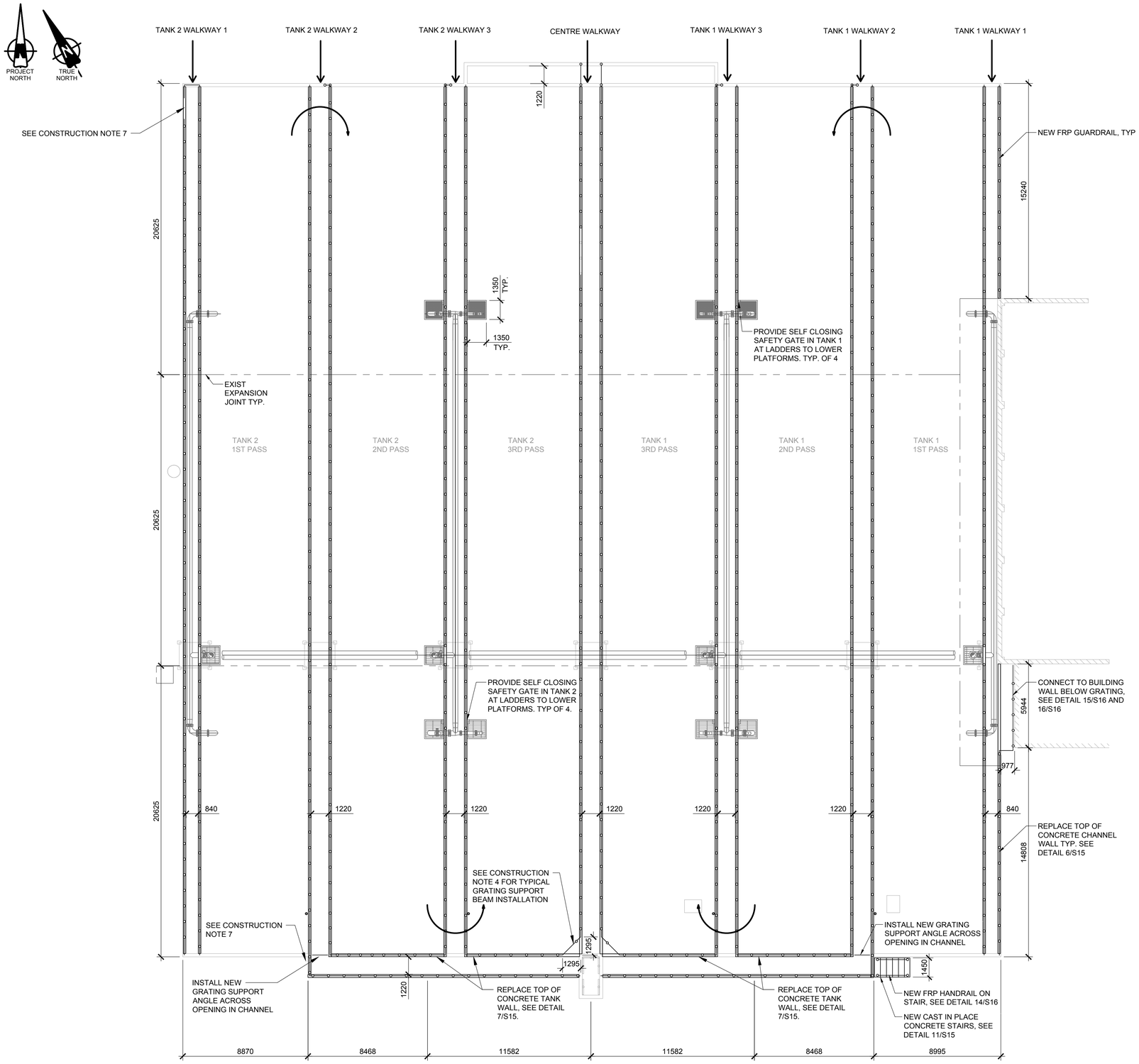
PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: AERATION TANK DEMOLITION DETAILS

DISCIPLINE: STRUCTURAL

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S13
SHEET No: 21 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/04/23 | PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Projects\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ST001630A-S13.dwg / LAYOUT: S13



PLAN - PROCESS MODULE 1 AERATION TANK (EL 200.05m)

SCALE: 1:150

GENERAL NOTES

1. READ STRUCTURAL DRAWINGS IN CONJUNCTION WITH THE REMAINDER OF THE CONTRACT DOCUMENTS.
2. VERIFY ALL DIMENSIONS ON THE STRUCTURAL DRAWINGS WITH THE REMAINDER OF THE CONTRACT DRAWINGS BEFORE CONSTRUCTION. ANY DISCREPANCIES OR ERRORS MUST BE REPORTED TO THE ENGINEER PRIOR TO STARTING THE WORK.
3. DO NOT SCALE DRAWINGS.
4. DESIGN LOADS INDICATED ARE UNFACTORED UNLESS NOTED OTHERWISE.
5. DESIGN LIVE LOADS FOR EACH PORTION OF THE STRUCTURE ARE SHOWN. DO NOT EXCEED THESE LOADS DURING CONSTRUCTION.
6. STRUCTURAL DESIGN IS BASED ON THE LATEST EDITION OF THE NATIONAL AND ONTARIO BUILDING CODES. SUBSTRUCTURES AND WATER RETAINING TANKS, RESERVOIRS AND CONDUITS HAVE BEEN DESIGNED IN ACCORDANCE WITH CODE REQUIREMENTS FOR ENVIRONMENTAL CONCRETE STRUCTURES (ACI) 350-20 EXCEPT WHERE IT WAS NOT CONSIDERED APPLICABLE.
7. FEATURES OF CONSTRUCTION NOT FULLY SHOWN ARE OF THE SAME CHARACTER AS THOSE NOTED FOR SIMILAR CONDITIONS.

MATERIALS

1. THE DESIGN REQUIREMENTS FOR THE VARIOUS CONCRETE REPAIR MATERIALS INDICATED SHALL CONFORM TO THE CHARACTERISTICS DESCRIBED IN THE PROJECT SPECIFICATIONS.
2. ALL REINFORCING BAR SHALL BE GRADE 400MPa, DEFORMED, CAN/CSA-G30.18.
3. THE WELDING ELECTRODES SHALL CONFORM TO THE REQUIREMENTS OF CSA STANDARD W48 (LATEST EDITION).
4. FRP CONSTRUCTION TO CONFORM TO THE REQUIREMENTS OF THE SPECIFICATIONS.
5. ALL STAINLESS STEEL TO BE 304 STAINLESS STEEL, UNLESS NOTED OTHERWISE.

FIBRE REINFORCED PLASTIC (FRP)

1. FOR REQUIRED QUALIFICATIONS FOR THE FRP MANUFACTURER, SEE THE PROJECT SPECIFICATIONS.
2. VENDOR RESPONSIBLE FOR DESIGN, SUPPLY AND INSTALLATION OF FRP GUARDRAILS AND ANY OTHER MISCELLANEOUS ITEMS.
3. THE CONTRACTOR SHALL FURNISH MANUFACTURER'S SHOP DRAWINGS CLEARLY SHOWING MATERIAL SIZES, TYPES, STYLES, PART OR CATALOGUE NUMBERS, COMPLETE DETAILS FOR THE FABRICATION AND ERECTION OF COMPONENTS INCLUDING, BUT NOT LIMITED TO, LOCATION, LENGTHS, TYPE AND SIZES OF FASTENERS, MEMBER SIZES AND CONNECTION DETAILS.
4. THE CONTRACTOR SHALL PROVIDE CALCULATIONS AND DRAWINGS SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
5. FRP EXPOSED TO UV SHALL BE SHOP COATED WITH A TWO-PART POLYURETHANE COATING, 2 MILS THICK MINIMUM, FOR IMPROVED DURABILITY AND UV RESISTANCE.

CONSTRUCTION

1. MAXIMUM UNFACTORED LIVE LOAD ON TANKS WALKWAYS: 4.80 kPa
2. FRP PLATFORMS WERE DESIGNED FOR A MAXIMUM UNFACTORED LIVE LOAD OF 9.6 kPa. FRP PLATFORMS ARE NOT DESIGNED TO SUPPORT ANY EQUIPMENT.
3. ALL ANCHORAGE REMOVED FOR PIPE SUPPORT FRAMES, FRP PLATFORMS, FRP LADDERS AND DAVITS MUST BE REPLACED USING MINIMUM 16 DIA THROUGH BOLTS.
4. INSTALL NEW EMBEDDED GRATING ANGLES DURING WALL RECASTING AS PER DETAIL 12/S15.
5. REINSTALL NEW 150 CHANNEL GRATING BEAMS OF SAME THICKNESS AT CENTRE WALKWAY AFTER WALL RECASTING. BEAMS SHALL BE INSTALLED AT THE ELEVATION BELOW THE TOP OF THE WALL THE THICKNESS OF THE GRATING. SUBMIT SHOP DRAWINGS FOR CONNECTION TO THE CONCRETE WALL FOR REVIEW BY THE ENGINEER BEFORE FABRICATION.
6. REINSTATE EXPANSION JOINT SEALANT C/W BACKER ROD AS PER DETAIL 17/S16.
7. PROVIDE OPENING IN NEW FRP GUARDRAIL FOR ACCESS TO LADDER. REINSTATE LADDER C/W NEW 16 DIA HILTI HIT HY200 SS ANCHORS WITH MIN 125 EMBED.

NOTE:

AERATION TANK REMOVALS AND CONSTRUCTION WORK ARE NOT PART OF THE BASE SCOPE OF WORK AND SHALL BE INCLUDED IN THE PROVISIONAL ITEMS IN THE CONTRACTOR'S BID.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: AERATION TANK NEW WORK PLAN

DISCIPLINE: STRUCTURAL

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S14
SHEET No: 22 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
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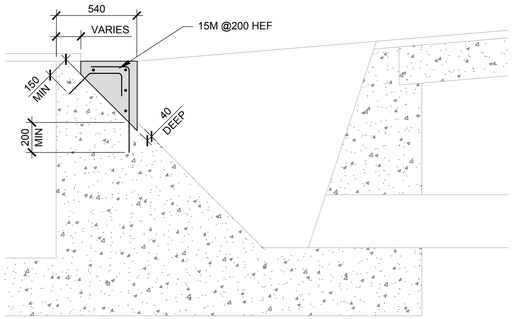
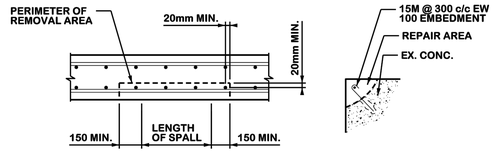
PATH: Z:\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\S\T001630A-S14.dwg / LAYOUT: S13-PLAN HANDRAIL



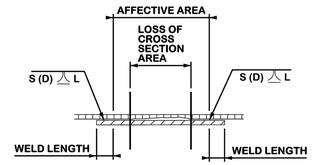
NOTE:
1. CUT 20mm DEEP AND CHIP 40mm DEEP FOR WHOLE AREA TO RECEIVE CONCRETE INFILL.
2. MECHANICALLY ROUGHEN SURFACE TO MIN AMP 5 AND APPLY BONDING AGENT.
3. PROVIDE 150 EMBEDMENT TYPICAL FOR ALL HORIZONTAL REINFORCEMENT.

1 PARTIAL SUMP PIT INFILL DETAIL
SCALE: 1:100



REPAIR NOTES:
1. **DELAMINATED, SPALLED OR DETERIORATED CONCRETE TO BE REMOVED. REPAIR AREA TO BE EXTENDED INTO SOUND CONCRETE.**
2. **REPAIR AREA EDGES TO BE SAWCUT 12 DEEP TO PROVIDE A VERTICAL EDGE. TAKE CARE NOT TO CUT REINFORCEMENT.**
3. **IF REINFORCEMENT IS EXPOSED, EXTEND REPAIR MINIMUM 20mm CLEAR BEHIND REINFORCEMENT.**
4. **PROVIDE PIN INTO REPAIR MATERIAL, SEE DETAIL.**
5. **FINAL CLEANING OF REPAIR AREA TO BE WITH WATER GRIT BLASTING: TO REMOVE ALL DIRT, OIL, SLURRY AND ANY OTHER FOREIGN MATERIAL.**
6. **REPAIR IN ACCORDANCE WITH SPECIFICATION 3905.**

2 CONCRETE REPAIR DETAIL
SCALE: NTS



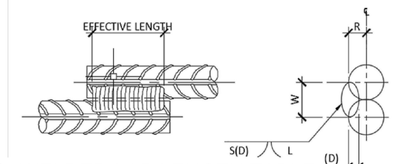
REBAR REPAIR NOTES

1.CLEAN CORRODED REINFORCEMENT OF ALL RUST, DIRT, CONCRETE AND DEBRIS.
2.REPORT TO ENGINEER % LOSS OF CROSS-SECTION, COMPLETE WITH PHOTOS OF AREA AND EXTENT OF DAMAGE.
3.WHEN INSTRUCTED BY ENGINEER, PREPARE REINFORCEMENT FOR REPAIR BY EXPOSING, CLEANING AND PREPARING WELD-LENGTH.
4.PLACE NEW REINFORCEMENT ADJACENT TO EXISTING EXISTING AND WELD IN ACCORDANCE WITH WELDED LAP LENGTHS TABLE.

3 REBAR REPAIR DETAIL
SCALE: NTS

WELDED LAP LENGTHS						
BAR SIZE	R (mm)	D (mm)	W (mm)	WELDING CONSUMABLE	WELD LENGTH (mm) ON SIDE OF BAR (SP CATEGORY WELD)	WELD LENGTH (mm) BOTH SIDES OF BAR (SP CATEGORY WELD)
10M	5	3	6	E4916, E4918	110	55
15M	8	4	8		170	85
20M	10	5	10		200	100
25M	12	6	12		280	140
30M	16	8	16		290	145
35M	18	9	18		370	185

NOTES:
1. WELDING OF REBAR IS ONLY PERMITTED WHERE INDICATED ON ENGINEER'S DETAILS.
2. WELDS ARE NOT PERMITTED ON BENDS OR WITHIN TWO BAR DIAMETERS OF A BEND.
3. PERFORM PREHEAT AND WELDING AS PER CSA W186.



4 WELDED LAP LENGTH TABLE
SCALE: NTS

NOTE:

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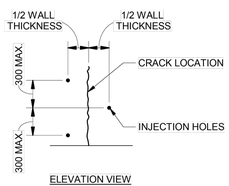
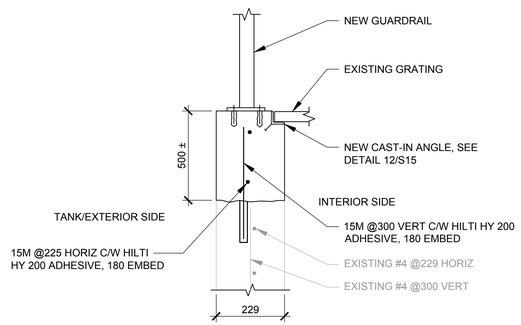


ELEVATION VIEW

CRACK REPAIR (POLYURETHANE OR ACRYLATE INJECTION) NOTES

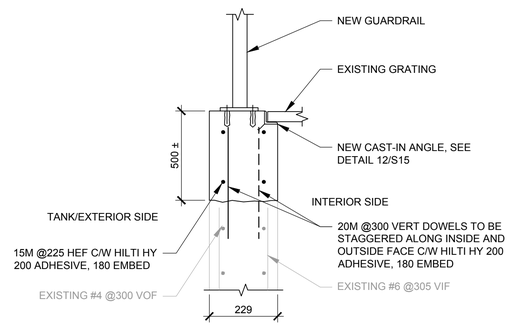
1. DRILL INJECTION HOLES AT 45° ANGLES TO THE SURFACE AND STAGGER ON ALTERNATE SIDES OF THE CRACK (AS SHOWN). MAXIMUM VERTICAL SPACING IS 300 o/c.
2. PREPARE SURFACE AND FLUSH CRACK AND INJECT MATERIAL IN ACCORDANCE WITH SPECIFICATION 3800, CRACK INJECTION.
3. CRACK REPAIR LOCATIONS TO INCLUDE REPAIR OF FULL HEIGHT OF BOTH WALLS AND CEILING, UNLESS NOTED OTHERWISE.
4. CRACK REPAIR CAN ALTERNATIVELY BE REPAIRED BY CAPILLARY CRYSTALLINE WATERPROOFING.

5 CONCRETE CRACK INJECTION DETAIL
SCALE: 1:100



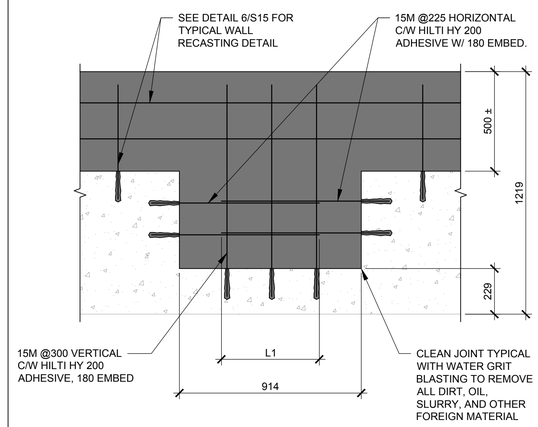
1. CUT AND REMOVE TOP OF WALL.
2. DRILL AND EPOXY VERTICAL AND HORIZONTAL STEEL
3. FINAL CLEANING OF JOINT TO BE WITH WATER GRIT BLASTING: TO REMOVE ALL DIRT, OIL, SLURRY AND ANY OTHER FOREIGN MATERIAL.
4. CAST WALL IN ACCORDANCE WITH SPECIFICATION 3300.
5. CAST EACH SIDE OF EXPANSION JOINT SEPARATELY.

6 RECAST TOP OF CHANNEL WALL
SCALE: NTS

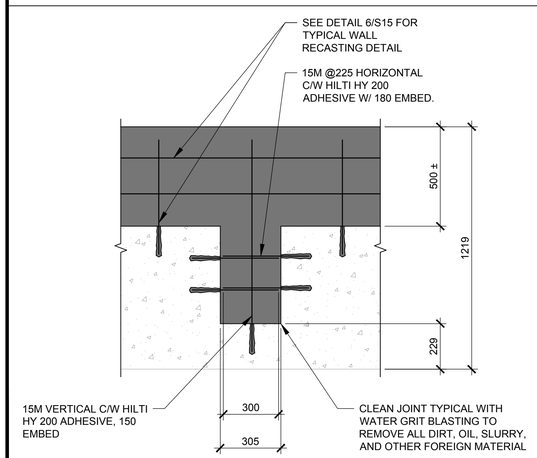


NOTE:
1. REFER TO DETAIL 6/S15 FOR NOTES.

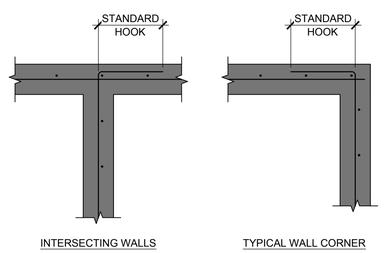
7 RECAST TOP OF TANK WALL
SCALE: NTS



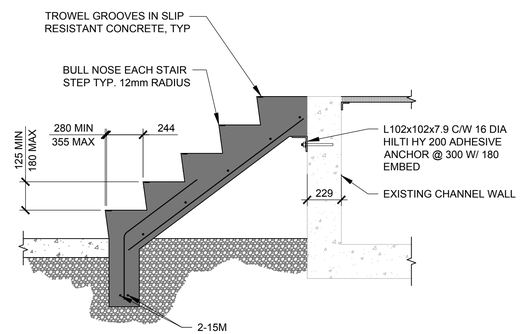
8 RECAST TOP OF WALL & INFILL AT PROCESS GATE
SCALE: NTS



9 RECAST TOP OF WALL & INFILL AT WALL OPENINGS
SCALE: NTS

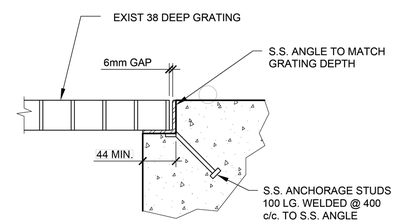


10 WALL CORNER & INTERSECTION
SCALE: NTS



NOTES:
1. PROVIDE SHOP DRAWINGS SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO.
2. INCLUDE GUARDRAILS AS PER DETAILS ON DRAWING S15.

11 EXTERIOR CONCRETE STAIRS
SCALE: 1:20



12 EMBEDDED GRATING ANGLE
SCALE: 1:20

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER 05/05/2025 A.R. PRINGLEMEIR 90543125 PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIER AND AERATION TANK DETAILS

DISCIPLINE: STRUCTURAL

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S15
SHEET No: 23 of 45	

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PRINT DATE: 2025/04/29 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
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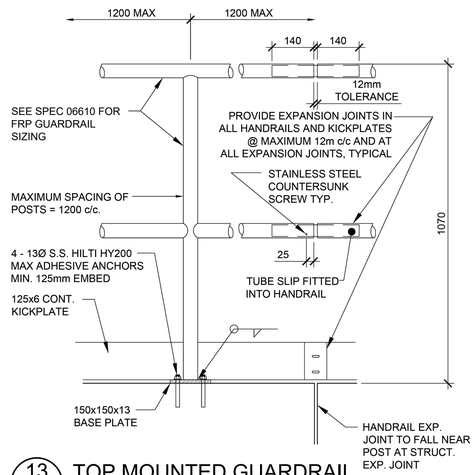
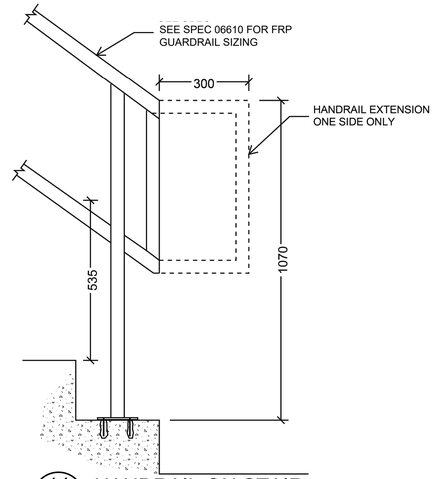
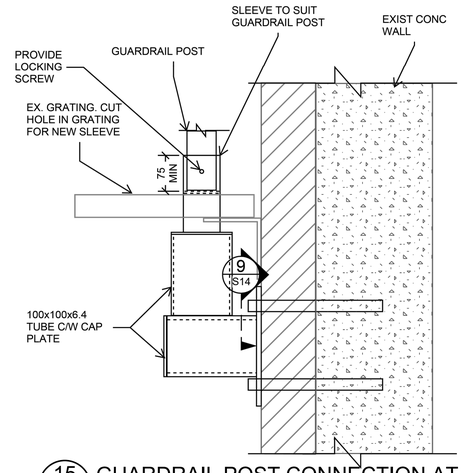


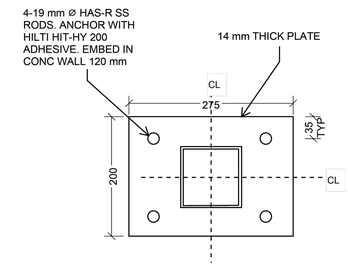
13 / - TOP MOUNTED GUARDRAIL
SCALE: NTS



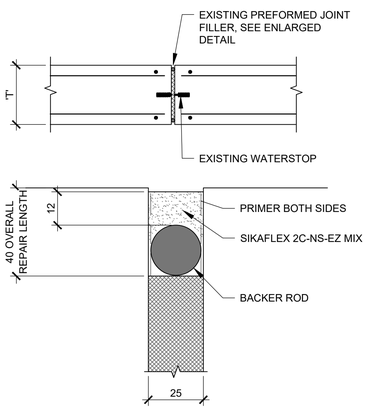
14 / - HANDRAIL ON STAIR
SCALE: NTS



15 / - GUARDRAIL POST CONNECTION AT BRICK WALL

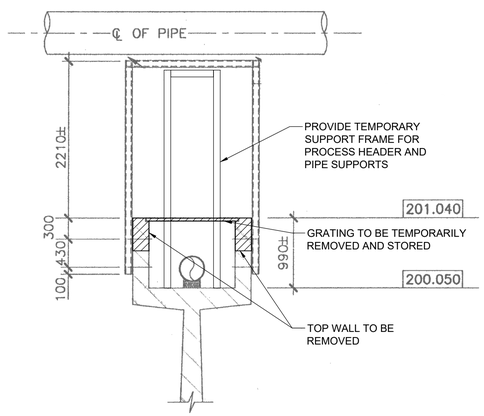


16 / - CONNECTION PLATE AT EXISTING BUILDING WALL



ENLARGED DETAIL

17 / - CONCRETE WALL JOINT REPAIR DETAIL
SCALE: 1:100



18 / - CHANNEL WALLS FOR GRATING SUPPORT TYP CROSS SECTION
SCALE: NTS

NOTE:

AERATION TANK REMOVALS AND CONSTRUCTION WORK ARE NOT PART OF THE BASE SCOPE OF WORK AND SHALL BE INCLUDED IN THE PROVISIONAL ITEMS IN THE CONTRACTOR'S BID.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/05/2025
A.R. PRINGLEMEIR
90543125
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIER AND AERATION TANK DETAILS

DISCIPLINE: STRUCTURAL

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: S16
SHEET No: 24 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0

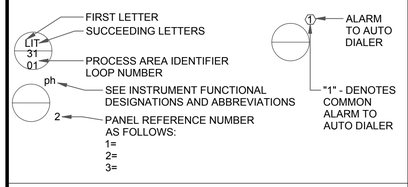
PRINT DATE: 2025/05/02 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ST001630A-S16.dwg / LAYOUT: S16

TITLEBLOCK 22x34 VERT ENG 3.0

GENERAL INSTRUMENT SYMBOLS

- FIELD MOUNTED INSTRUMENT
- INSTRUMENT MOUNTED ON FACE OF PANEL
- INSTRUMENT MOUNTED BEHIND OR INSIDE OF PANEL
- INSTRUMENT MOUNTED ON FACE OF LOCAL PANEL/MCC
- INSTRUMENT MOUNTED BEHIND OR INSIDE OF LOCAL PANEL/MCC
- SINGLE INSTRUMENT HOUSING CONTAINING TWO (OR MORE) INSTRUMENTATION FUNCTIONS
- PILOT LIGHT MOUNTED ON FACE OF PANEL IN CONTROL ROOM
- PILOT LIGHT MOUNTED ON FACE OF LOCAL PANEL/MCC
- I — CONTROL INTERLOCK FUNCTION SEE SCHEMATICS AND SYSTEM SPECIFICATIONS FOR SPECIFIC FUNCTION
- CP X — LOCAL CONTROL PANEL SEE CONTROL WIRING AND/OR EQUIPMENT PACKAGE SPECIFICATIONS X: INDICATES PANEL DESIGNATION AS REQUIRED ON THE RESPECTIVE DRAWINGS

TAG NUMBERS AND ADDITIONAL DESIGNATIONS

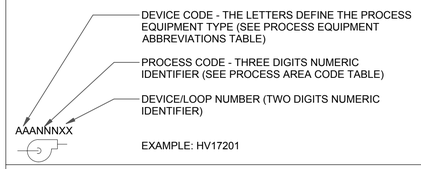


DIGITAL SYSTEMS INTERFACE SYMBOLS

NOTE: REFER TO DETAILED SYSTEM SPECIFICATIONS FOR FUNCTIONAL DESCRIPTION. ALSO SEE I/O SCHEDULES FOR COMPLETE INPUT AND OUTPUT LISTINGS.

- COMPUTER OR DISTRIBUTED CONTROL SYSTEM FUNCTION BLOCK
  - LETTERS, TAG NUMBERS, ABBREVIATIONS AND OTHER ANNOTATIONS ARE SIMILAR TO THE GENERAL INSTRUMENT LEGEND
- DI — DATA INTERFACE TO CONTROL SYSTEM FUNCTIONS. DIRECTION OF ARROW DENOTES INPUT OR OUTPUT SIGNAL
  NOTE: NO ARROW HEAD INDICATES INPUT/OUTPUT SINALS VIA COMMUNICATIONS LINKS
  - ► SOLID ARROW DENOTES ANALOG INPUT/OUTPUT (AI/AO) AT THE RESPECTIVE PLC
  - ▷ EMPTY ARROW DENOTES DIGITAL INPUT/OUTPUT (DI/DO) AT THE RESPECTIVE PLC
- PLC 123 45 — PROGRAMMABLE LOGIC CONTROLLER
  "PLC" DENOTES PROGRAMMABLE LOGIC CONTROLLER
  "123" THREE DIGITAL CODE TO IDENTIFY PLC DESIGNATION
  "45" REPRESENTS THE RIO PANEL TAG IF APPLICABLE
- SHARED DISPLAY/CONTROL ACCESSIBLE TO OPERATOR ON MAIN CONTROL CONSOLE
- PANEL MOUNTED AUXILIARY OPERATOR DEVICE NOT NORMALLY ON MAIN CONTROL CONSOLE
- FIELD MOUNTED OPERATOR DEVICE
- XXX — A SOFTWARE FUNCTION WHICH PROVIDES CONTROL FROM A DISTRBUTED OPERATOR STATION 'XXX' DENOTES ACTION (E.G START/STOP)
- CONNECTION TO/FROM FIELD MOUNTED PLC OR RTU
- CONNECTION TO/FROM A CENTRAL OR MASTER PLC OR RTU NORMALLY ACCESSIBLE TO OPERATOR
- CONNECTION TO/FROM A PLC OR RTU IN AN AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR
- CONNECTION TO/FROM A CENTRAL OR MASTER PLC OR RTU NOT NORMALLY ACCESSIBLE TO OPERATOR OR MOUNTED BEHIND THE PANEL
- CONNECTION TO/FROM A PLC OR RTU IN AN AUXILIARY LOCATION NOT NORMALLY ACCESSIBLE TO OPERATOR OR MOUNTED BEHIND THE PANEL

EQUIPMENT IDENTIFICATION



TRANSDUCER & CONVERTER DESIGNATION

E	VOLTAGE	P	PNEUMATIC
FSK	FREQUENCY SHIFT KEYING	PD	PULSE DURATION
H	HYDRAULIC	PF	PULSE FREQUENCY
I	CURRENT	R	RESISTANCE (ELECTRICAL)

EXAMPLE: I/P = CURRENT TO PNEUMATIC TRANSDUCER

INSTRUMENT FUNCTIONAL DESIGNATIONS AND ABBREVIATIONS

K	GAIN OR ATTENUATE (INPUT:OUTPUT)
-K	GAIN AND REVERSE
Σ	ADD OR SUM (ADD AND SUBTRACT)
Δ	SUBTRACT (DIFFERENCE)
√	EXTRACT SQUARE ROOT
÷	DIVIDE
F(X)	CHARACTERIZE SIGNAL
>	HIGH-SELECT
<	LOW-SELECT
×	MULTIPLY
∫	INTEGRATE (TIME INTEGRAL)
CH4	METHANE
CL2	CHLORINE RESIDUAL
C02	CARBON DIOXIDE
DO	DISSOLVED OXYGEN
LEL	LOWER EXPLOSIVE LIMIT
MLSS	MIXED LIQUOR SUSPENDED SOLIDS
C2	OXYGEN (PURITY)
pH	pH CELL
TURB	TURBIDITY
H2S	HYDROGEN SULFIDE
ORP	OXIDATION REDUCTION POTENTIAL

HAND SWITCH DESIGNATIONS

- XX HS — HAND SELECTOR SWITCH (OR PUSH BUTTON) - MAINTAINED CONTACTS (CONTROLLED DEVICE WILL RESTART ON RETURN OF POWER AFTER POWER FAILURE)
- XX HMS — SPRING RETURN AND SWITCH (OR PUSH BUTTON) - MOMENTARY CONTACTS CONTROLLED DEVICE WILL NOT RESTART ON RETURN OF POWER AFTER POWER FAILURE)
- XX HIC — POTENTIOMETER

XX: SEE ELECTRICAL AND CONTROLS ABBREVIATIONS

EXAMPLES:
- HOA HS 172 — REPRESENTS A HAND/OFF/AUTO HAND SWITCH
- LR HS 172 — REPRESENTS A LOCAL/REMOTE HAND SWITCH
- TEMP HIC — TEMPERATURE CONTROL POTENTIOMETER

POWER SUPPLY ABBREVIATIONS

AS	AIR SUPPLY	NSN	NITROGEN SUPPLY
ES	ELECTRIC SUPPLY	SS	STEAM SUPPLY
GS	GAS SUPPLY	WS	WATER SUPPLY
HS	HYDRAULIC SUPPLY		

AS — POWER SUPPLY SOURCE LABEL. USED ONLY WHERE NECESSARY TO HELP CLARIFY AN INSTRUMENT OR SYSTEM FUNCTION.

PIPELINE IDENTIFICATION DESCRIPTION

- PIPE SIZE-MILLIMETRES UNLESS OTHERWISE NOTED
- PROCESS CODE-DENOTES ASSOCIATED PROCESS STREAM (REFER TO PAIDS APPENDIX E5)
- MATERIAL CODE-DENOTES ASSOCIATED MATERIAL ABBREVIATION (REFER TO P&ID LEGEND SHEET 3)

ZZZZØ-SSSS-MMMM

LINE LEGEND AND SYMBOLS

- MAIN/PRIMARY PROCESS (CLOSED CONDUIT)
- SECONDARY PROCESS
- INSTRUMENT LINE OR CONNECTION TO PROCESS
- SODIUM HYPOCHLORITE
- ALUMINUM SULPHATE
- POLYMER
- CITRIC ACID
- SODIUM HYDROXIDE
- HYDROFLOUSICLIC ACID
- HYDROGEN PEROXIDE
- ELECTRIC SIGNAL - ANALOG OR DISCRETE (ONE OR MULTIPLE)
- L L L — HYDRAULIC SIGNAL
- # # # — PNEUMATIC SIGNAL
- INTERNAL SYSTEM SIGNAL LINK (SOFTWARE OR DATA LINK)
- GROUPING FRAME
- FLOW ARROW FOR PROCESS FLOW DIRECTION
- N XX-XX — PROCESS LINE COMING FROM OR GOING TO ANOTHER SHEET
- N XX-XX — MATCH SHEET NO. IDENTIFIER; MATCH LINE NO.
- PROCESS LINE CONNECTING OUTSIDE OF PROJECT SCOPE
- PROCESS LINES CROSSING (NOT CONNECTED)
- SIGNAL CONNECTION POINT
- SIGNAL CROSSING POINT (NOT CONNECTED)

IDENTIFICATION LETTERS FOR INSTRUMENT TAGGING (1,2)

LETTER	FIRST LETTER: MEASURED OR INITIATING VARIABLE	FIRST LETTER: MODIFIER	SUCCEEDING LETTERS: READOUT OR PASSIVE FUNCTION	SUCCEEDING LETTERS: OUTPUT FUNCTION	SUCCEEDING LETTERS: MODIFIER.
A	ANALYSIS (3)		ALARM		
B	BURNER, COMBUSTION			CLOSE, STOP, DECREASE (4)	
C	CONDUCTIVITY (ELECTRICAL)		CONTROLLER	CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL	DIFFERENTIAL	OPEN, START, INCREASE (4)	
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)	RATIO		FAIL (4)
G	STATUS		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME-SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTOR, MOTION	MOMENTARY	MOMENTARY	MOTOR (4)	MIDDLE OR INTERMEDIATE
N				ON, OPERATE (4)	
O			ORIFICE (RESTRICTION)		
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE OR TOTALIZE	INTEGRATE OR TOTALIZE		
R	RADIATION		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION (3)	MULTIFUNCTION (3)	MULTIFUNCTION (3)
V	VIBRATION			VALVE, DAMPER, OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED (3)	UNCLASSIFIED (3)	UNCLASSIFIED (3)
Y	EVENT, STATE, OR PRESENCE			RELAY OR COMPUTE	
Z	POSITION, DIMENSION			DRIVE, ACTUATOR OR UNCLASSIFIED FINAL CONTROL ELEMENT	

Grand total: 26

NOTES:

1. THIS TABLE IS BASED ON ISA STANDARD ISA-S5.1
2. FOR INSTRUMENT IDENTIFICATION, USE PRIMARILY PAIDS APPENDIX A3. WHERE INSTRUMENT COULD NOT BE FOUND IN PAIDS, REFER TO THIS TABLE.
3. WHEN USED, A SPECIFIC ABBREVIATION (SEE TABLE BELLOW) IS SHOWN AS AN ANNOTATION TO INSTRUMENT SYMBOL.
4. THE INDICATED MEANING, AS ADOPTED PER "USER CHOICE", SALL BE USED CONSISTENTLY.

ELECTRICAL & CONTROL EQUIPMENT AND FUNCTIONS ABBREVIATIONS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
1/A/2	DUTY P1-AUTO-DUTY P2	FR	FORWARD-REVERSE	LOS	LOCKOUT STOP	REV	REVERSE
A	AUTO	FS	FAST-SLOW	LP	CONTROL PANEL, LIGHTING	RIO	REMOTE INPUT/OUTPUT PLC/RTU MODULES
AA	ALARM ACKNOWLEDGE	FWD	FORWARD	LR	LOCAL REMOTE	RPU	REMOTE PROCESSING UNIT
ACK	ACKNOWLEDGE	FZ	FUSE	M	MOTOR	RST	RESET
ACS	AREA CONTROL SWITCH	G	GROUND	MAN	MANUAL	RTU	REMOTE TELEMETRY/TERMINAL UNIT
AR	ALARM RESET	HL	HIGH-LOW	MCC	MOTOR CONTROL CENTER	S	SIGMA A/SIGMA B
AT	ALARM TEST	H	HAND/HOLD	ME	MOTION ELEMENT	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
C	CLOSE	HET	HEAT TRACE	NC	NORMALLY CLOSED	SL	SIGNAL
CB	CIRCUIT BREAKER	HMI	HUMAN MACHINE INTERFACE	NO	NORMALLY OPENED	SOB	SOFT START- OFF-BYPASS
CCP	CONTROL PANEL FOR COMMUNICATION EQUIPMENT	HMS	HAND MOMENTARY SWITCH OR PUSHBUTTON	O	OPEN/OFF	SP	STOP
CP	CONTROL PANEL	HMSH	PUSH BUTTON START/OPEN	OC	OPEN-CLOSE	SPD	SPEED POTENTIOMETER
CR	RELAY, CONTROL	HMSL	PUSH BUTTON START/CLOSE	OCR	OPEN-CLOSE-REMOTE	SS	START-STOP
D	DISABLE	HS	HAND SWITCH OR PUSH BUTTON OR SELECTOR SWITCH	OL	OVERLOAD	ST	START
DAS	DATA ACQUISITION SYSTEM	HOA	HAND-OFF-AUTO	ON	ON	SV	SERVO
DCS	DISTRIBUTION CONTROL SWITCH	ICP	CONTROL PANEL FOR INSTRUMENT	OO	ON-OFF	T	TRANSFORMER
DISC	DISCONNECT	IO	LOCAL INPUT/OUTPUT PLC/RTU MODULES	OOA	ON-OFF-AUTO	TA	TEST ALARM
E	ENABLE	ISO	ISOLATOR (LOOP)	OOR	ON-OFF-REMOTE	TD	TIME DELAY/RELAY
ES	EMERGENCY STOP	J	JOG	OSC	OPEN-STOP-CLOSE	TEMP	TEMPERATURE CONTROL
ESD	EMERGENCY SHUTDOWN	K	KEY	PF	POWER FAIL RELAY	TSFS	TRANSFER SWITCH
ET	ELAPSED TIME	KES	KEY SWITCH	PLC	PROGRAMMABLE LOGIC CONTROLLER	UPS	UNINTERRUPTIBLE POWER SUPPLY
FC	FAIL CLOSE	KI	TIME INDICATOR (CLOCK)	POT	POTENTIOMETER	VFD/VSD	VARIABLE FREQUENCY/SPEED DRIVE
FO	FAIL OPEN	KQ	TIME TOTALIZE (RUNTIME)	PSU	POWER SUPPLY UNIT	XA	ALARM/GENERAL FAULT
FOR	FORWARD-OFF-REVERSE	L	LOCAL/LOCK	PU	POWER MONITOR		
FOS	FAST-OFF-SLOW	LCP	LOCAL CONTROL PANEL	R	REMOTE		
FPP	FIBRE PATCH PANEL	LOR	LOCAL-OFF-REMOTE	RC	RECORDER		

Grand total: 25

GENERAL NOTES:

1. UNLESS OTHERWISE SPECIFIED TRANSMITTERS SHALL BE TWO (2) WIRE SUITABLE FOR OPERATION ON 24V DC WITH 4-20mA DC OUTPUT.
2. PROVIDE SHUNT RESISTORS & LOOP ISOLATORS AS SHOWN OR WHERE REQUIRED TO OBTAIN REQUIRED 4-20mA SIGNALS.
3. INSTRUMENTATION WIRING TO BE BELDEN 9316, 16 GA, SHIELDED. CABLE TO BE PROVIDED IN A METAL ARMOURED PVC ENCAPSULATED CONDUIT AS REQUIRED TO SUIT THE INSTALLATION.
4. I/O NOT SHOWN TO BE CONSIDERED AS SPARE CAPACITY.
5. VERIFY ALL WIRING PRIOR TO PROCEEDING WITH WORK & NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
6. VERIFY LOCATION OF ALL FIELD DEVICES WITH THE ENGINEER PRIOR TO INSTALLATION.
7. ALL CONTROL AND INSTRUMENTATION SHALL BE ON UPS BACKUP.
8. ALL DISCRETE OUTPUTS SHALL TRANSITION THROUGH DIN RAIL MOUNTED INTERPOSING RELAYS C/W LED STATUS INDICATION.
9. UNLESS OTHERWISE SPECIFIED TRANSMITTERS SHALL BE TWO (2) WIRE SUITABLE FOR OPERATION ON 24V DC WITH 4-20mA DC OUTPUT.
10. PROVIDE SHUNT RESISTORS & LOOP ISOLATORS AS SHOWN OR WHERE REQUIRED TO OBTAIN REQUIRED 4-20mA SIGNALS.
11. INSTRUMENTATION WIRING TO BE BELDEN 9316, 16 GA, SHIELDED. CABLE TO BE PROVIDED IN A METAL ARMOURED PVC ENCAPSULATED CONDUIT AS REQUIRED TO SUIT THE INSTALLATION.
12. I/O NOT SHOWN TO BE CONSIDERED AS SPARE CAPACITY.
13. VERIFY ALL WIRING PRIOR TO PROCEEDING WITH WORK & NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
14. VERIFY LOCATION OF ALL FIELD DEVICES WITH THE ENGINEER PRIOR TO INSTALLATION.
15. ALL CONTROL AND INSTRUMENTATION SHALL BE ON UPS BACKUP.
16. ALL DISCRETE OUTPUTS SHALL TRANSITION THROUGH DIN RAIL MOUNTED INTERPOSING RELAYS C/W LED STATUS INDICATION
17. NEW TERMINAL BLOCKS TO BE DIN RAIL MOUNTED TYPE SINGLE LEVEL, PHOENIX CONTACT MOD. UK OR APPROVED EQUAL.
18. ANALOG SIGNAL TERMINAL BLOCKS TO BE KNIFE DISCONNECT TYPE, PHOENIX CONTACT, MOD. MTK OR APPROVED EQUAL.
19. PROVIDE LINE VOLTAGE FILTER/TRANSIENT VOLTAGE SURGE SUPPRESSION AS SHOWN. ACCEPTABLE MANUFACTURER: CUTLER HAMMER AEG11 POWER LINE FILTER OR APPROVED EQUAL.
20. FUSED TERMINAL BLOCKS TO BE PHOENIX CONTACTS MOD. UK-HES1 OR APPROVED EQUAL.
21. PROVIDE 30% SPARE CAPACITY FOR EACH TERMINAL BLOCK TYPE.
22. PROVIDE NEW TERMINAL BLOCKS IN EXISTING PANEL TO SUIT NEW CONTROL WIRING.
23. PROVIDE INTRINSICALLY SAFE BARRIERS FOR ALL DEVICES AND INSTRUMENTATION LOCATED IN A CLASS 1, DIVISION 1 AND/OR 2 ZONE AS DEFINED IN THE ELECTRICAL SAFETY CODE
24. PROVIDE 20% SPARE CONTROL WIRE CAPACITY IN ALL CONTROL WIRING CONDUITS AND MULTI-CONDUCTOR CABLES.
25. REFERENCE MECHANICAL PROCESS AND ELECTRICAL DRAWINGS FOR LOCATION OF ALL INSTRUMENTATION AND FIELD DEVICES.
26. PROVIDE ALL POWER AND CONTROL WIRING FOR PACKAGED SYSTEMS BASED ON APPROVED SUBMITTAL DRAWINGS FOR RESPECTIVE PACKAGE SYSTEM. THE CONTRACTOR SHALL COORDINATE WITH PACKAGE SYSTEM LAYOUT DRAWINGS AND WIRING SCHEMATICS.
27. COMPLY WITH PAIDS TO SUIT ALL CONTROL PANEL HARDWARE, INSTRUMENTATION AND COMMUNICATIONS WIRING.
28. ALL ETHERNET COMMUNICATION MEDIA AND HARDWARE IS TO BE CATEGORY 6 TIA/EIA-568-B.2-1
29. ALL CONTROL PANEL MOUNTED INDICATING LIGHTS TO BE LED PUSH TO TEST TYPE.
30. PROVIDE SYNC. CONNECTIONS BETWEEN ULTRASONIC LEVEL TRANSMITTERS THAT HAVE LEVEL ELEMENTS. FIELD WIRING INSTALLED IN THE SAME CONDUIT OR IN CLOSE PROXIMITY (I.E. <=2m SEPARATION).
31. PROVIDE CONTROL PANELS TO SUIT ALL FIELD I/O REQUIREMENTS SHOWN ON THE DRAWINGS INCLUDING ITEMS IDENTIFIED TO BE INSTALLED BY OTHERS.
32. THE CONTRACTOR IS REQUIRED TO PROVIDE AS BUILT MARK UP CONTROL WIRING DRAWINGS.
33. IN GENERAL, THE P&ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED ON INSTRUMENT SOCIETY OF AMERICA, STANDARD PRACTICE ISA-S5.1. SOME MODIFICATIONS, ADDITIONS AND ALTERATIONS HAVE BEEN MADE AS NEEDED TO ACCOMODATE THE PROJECT REQUIREMENTS.
34. SOME CONTROL AND INTERLOCK REQUIREMENTS WHICH CAN BE MORE CLEARLY ILLUSTRATED ON SCHEMATIC DRAWINGS HAVE BEEN OMITTED FROM THE P&ID DRAWINGS. SOME PROCESS ITEMS SUCH AS EQUIPMENT ISOLATION VALVES, BYPASS LINES, ETC., WHICH ARE NOT CRITICAL FOR AN UNDERSTANDING OF THE INSTRUMENTATION FUNCTIONS HAVE ALSO BEEN OMITTED.
35. THIS IS A GENERAL LEGEN SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
36. PIPING AND EQUIPMENT LEGEND APPLIES TO P&ID SHEETS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.
37. THE SEAL APPLIED ON THE INSTRUMENTATION DRAWINGS ARE BASED ON DIVISION 13, I/O SIGNALS AND P&ID TAGGING. REFER TO PROCESS, MECHANICAL DRAWINGS AND DIVISION 11 FOR PROCESS RELATED INSTRUMENTS, PIPING AND MECHANICAL EQUIPMENT.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
J.G.L.SEGGEWISS
100197929
PROVINCE OF ONTARIO

DESIGNED BY: APPROVED BY:

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: INSTRUMENTATION LEGEND GENERAL NOTES (1)

DISCIPLINE: PROCESS

DRAFTER: D.C.	SCALE: NTS
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: D01
SHEET No: 25 of 45	

PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Projects\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\D\T001630A-D01.dwg / LAYOUT: D01

CONTROL WIRING LEGEND

- NORMALLY CLOSE SPRING RETURN PUSH BUTTON
- NORMALLY OPEN SPRING RETURN PUSH BUTTON
- SELECTOR SWITCH. POSITION TO SUIT APPLICATION
- A — INDICATING LIGHT
  C=A: AMBER C=W: WHITE C=Y: YELLOW
  C=B: BLUE C=G: GREEN C=R: RED
- ME — MOTION ELEMENT
- TD — TIME DELAY RELAY
- CR — CONTROL RELAY
- OFF / HAND / AUTO — 3 POSITION SELECT SWITCH HAND/OFF/AUTO
  'X' INDICATES CONTACT CLOSED POSITION FOR RESPECTIVE MODE
- SOLENOID VALVE
- LIMIT SWITCH
- FLOW SWITCH
- LSH — LEVEL SWITCH
- TEMPERATURE SWITCH (NO)
  CLOSE ON RISE
- PDSH — HIGH PRESSURE DIFFERENTIAL SWITCH
- EMERGENCY STOP BUTTON
- NORMALLY OPEN RELAY CONTACT
- NORMALLY CLOSED RELAY CONTACT
- CIRCUIT BREAKER
- Fz — COMBINATION SWITCHED FUSE BLOCK
- TERMINAL BLOCK
- ANALOG CABLE SHIELD
- GROUND
- DUPLEX RECEPTACLE

ABBREVIATIONS

PLC	PROGRAMMABLE LOGIC CONTROLLER	(	FIBER OPTIC CLOSET CONNECTOR HOUSING PANEL
RPU	REMOTE PROCESSING UNIT		PUSH TO TEST
RIO	REMOTE INPUT & OUTPUT HARDWARE	F	FUSE
CP	CONTROL PANEL	L	LINE
ICP	INSTRUMENTATION'S CONTROL PANEL	N	NEUTRAL
		G	GROUND
		S	SHIELD

VALVE & GATE SYMBOLS

- GATE VALVE
- BALL VALVE
- GLOBE VALVE
- BUTTERFLY VALVE
- PLUG VALVE
- CHECK VALVE
- KNIFE GATE VALVE
- PRESSURE REDUCING VALVE - PILOT
- PRESSURE SUSTAINING VALVE
- SELF ACTUATING PRESSURE REDUCING VALVE
- SELF ACTUATING PRESSURE SUSTAINING VALVE
- SURGE VALVE
- DIAPHRAGM VALVE
- BACKFLOW PREVENTER
- GATE FLAP
- HOSE VALVE W/ HOSE NIPPLE
- M — MOTORIZED GATE VALVE
- VACUUM BREAKER
- SLIDE PLATE
- NEEDLE VALVE
- AIR PURGE
- AIR RELIEF VALVE
- STOP LOG
- DIAPHRAGM SEAL
- CONCENTRIC REDUCER
- CAP OR PLUG
- 'Y' STRAINER
- DUPLEX 'Y' STRAINER
- FLEXIBLE CONNECTOR - FLANGED
- BLIND FLANGE
- ARCH TYPE EXPANSION
- F — FLUSHING CONNECTION
- SLIDE GATE
- STOP GATE
- FINE BUBBLE DIFFUSERS
- CHANNEL AERATION ASSEMBLY

PUMP AND BLOWERS SYMBOLS

- SLUDGE PUMP
- SUMP PUMP
- M — ELECTRIC MOTOR
- BLOWER
- INLINE MIXER
- PROGRESSIVE CAVITY PUMP
- FE 36201 — PARSHALL FLUME

FLOW AND METERING SYMBOLS

- M — MAGNETIC FLOW METER
- TM — THERMAL MASS FLOW METER
- SONIC FLOW METER
- LEVEL SENSING FLOAT
- ULTRASONIC LEVEL ELEMENT
- FE — LEVEL SENSOR

WASTE WATER PROCESS EQUIPMENT SYMBOLS

- CLARIFIER - RECTANGULAR
- M — MONORAIL SLUDGE COLLECTOR
- M — CHAIN AND FLIGHT
- M — SCUM COLLECTOR

GENERAL NOTES:

1. IN GENERAL,THE P & ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED ON INSTRUMENT SOCIETY OF AMERICA, STANDARD PRACTICE ISA-S5.1. SOME MODIFICATIONS, ADDITIONS, AND ALTERATIONS HAVE BEEN MADE AS NEEDED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
2. SOME CONTROL AND INTERLOCK REQUIREMENTS WHICH CAN BE MORE CLEARLY ILLUSTRATED ON SCHEMATIC DRAWINGS HAVE BEEN OMITTED FROM THE P & ID DRAWINGS. SOME PROCESS ITEMS SUCH AS EQUIPMENT ISOLATION VALVES, BYPASS LINES, ETC.,WHICH ARE NOT CRITICAL FOR AN UNDERSTANDING OF THE INSTRUMENTATION FUNCTIONS HAVE ALSO BEEN OMITTED.
3. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
4. PIPING AND EQUIPMENT LEGEND APPLIES TO P & ID SHEETS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.
5. CONTRACTOR TO PROVIDE EYS SEALS TO TRANSITION TO EQUIPMENT LOCATED IN CLASSIFED LOCATIONS. CONTRACTOR SHALL EYS SEAL ALL CONDUIT ENTRIES INTO HAZARDOUS LOCATIONS. CONTRACTOR SHALL ALSO PROVIDE TECK CABLE CONNECTORS RATED FOR CLASSIFIED LOCATIONS AS REQUIRED.
6. ALL NOTES REFERENCING 'RETROFITS TO PCLR-ICP-122' SHALL BE REPLACED WITH NEW TAG 'PCLR-ICP-222'. THE SCOPE OF WORK INCLUDES THE SUPPLY OF A NEW ICP IN PLANT 2 PRIMARY CLARIFIERS BUILDING, TO REPLACE EXISTING. THE SCOPE OF WORK INCLUDES SWINGING OVER ALL EXISTING FIELD I/O AS WELL AS TYING NEW FIELD I/O IN ACCORDANCE WITH THE I/O LIST.

SCADA SYSTEM LEGEND

- Rack X — ALLEN BRADLEY CONTROL LOGIX PLC
  1756-L73 PROCESSOR
  (7/17 SLOT CHASSIS)
- PP YYYXX — ETHERNET PATCH PANEL
  CAT6 PANDUIT DP6 PLUS C/W 72 OF PORTS
  (REFER TO PAIDS)
  "PP" DENOTES ETHERNET COPPER PATCH PANEL
  "YYY" DENOTES PROCESS AREA NUMBER
  "XX" DENOTES PANEL NUMBER
- PP YYYXX — ETHERNET PATCH PANEL
  CAT6 PANDUIT DP6 PLUS C/W 42 OF PORTS
  (REFER TO PAIDS)
  "PP" DENOTES ETHERNET COPPER PATCH PANEL
  "YYY" DENOTES PROCESS AREA NUMBER
  "XX" DENOTES PANEL NUMBER
- PP YYYXX — ETHERNET PATCH PANEL
  CAT6 PANDUIT DP6 PLUS C/W 24 OF PORTS
  (REFER TO PAIDS)
  "PP" DENOTES ETHERNET COPPER PATCH PANEL
  "YYY" DENOTES PROCESS AREA NUMBER
  "XX" DENOTES PANEL NUMBER
- PP YYYXX — ETHERNET PATCH PANEL
  CAT6 PANDUIT DP6 PLUS C/W 8 OF PORTS
  (REFER TO PAIDS)
  "PP" DENOTES ETHERNET COPPER PATCH PANEL
  "YYY" DENOTES PROCESS AREA NUMBER
  "XX" DENOTES PANEL NUMBER
- HMI — RUGGED INDUSTRIAL PANEL MOUNT PC HMI
  INTERFACE TERMINAL, TOUCH SCREEN,
  MODEL: STEALTH SV-2150WS-PM -RT + NUC
  INTEL NEXT C/W CUSTOM IGNITION
  SOFTWARE BASED HMI APPLICATIONS FOR
  ALL GENERATION SWITCHGEAR AUTOMATION
  AND ICP IN ACCORDANCE WITH PEEL PAIDS
  AND SCADA APPLICATION STANDARDS.
- WAxx YY — SURFACE/WALL MOUNT ETHERNET JACK
  MODULES, QUANTITY TO SUIT
  YY: DENOTES QUANTITY OF ETHERNET PORTS CONNECTED TO THE RESPECTIVE ORIGINATING SWITCH
  WAxx: WORK AREA OUTLET NUMBER/TAGS FOR EXAMPLE: WA01
- RS30 / RS YYY XX — HIRSHMANN
  MANAGED ETHERNET SWITCH RS30
  "RS" DENOTES MANAGED ETHERNET SWITCH
  "YYY" DENOTES PROCESS AREA NUMBER
  "XX" DENOTES ETHERNET SWITCH NUMBER
- RS32 / RS YYY XX — HIRSHMANN
  PoE MANAGED ETHERNET SWITCH RS32
  "RS" DENOTES MANAGED ETHERNET SWITCH
  "YYY" DENOTES PROCESS AREA NUMBER
  "XX" DENOTES ETHERNET SWITCH NUMBER
- RS40 / RS YYY XX — HIRSHMANN
  MANAGED ETHERNET SWITCH RS40
  "RS" DENOTES MANAGED ETHERNET SWITCH
  "YYY" DENOTES PROCESS AREA NUMBER
  "XX" DENOTES ETHERNET SWITCH NUMBER
- FW YYY XX — HIRSCHMANN
  EAGLEONE SECURITY FIREWALL-ROUTER
  "FW" DENOTES FIREWALL ROUTER
  "YYY" DENOTES PROCESS AREA NUMBER
  "XX" DENOTES FIREWALL ROUTER NUMBER
- SCADA VIEWNODE
  (WORK STATION COMPUTER)
- UPS — UNINTERRUPTABLE POWER SUPPLY
- X — MEDIA CONVERTER
  'X' DENOTES CONVERTER TYPE:
  1. ROCKWELL 3-PORT ENET/IP TAP - 3-PORT 1783-ETAP1F/ETAP2F. PROVIDE 1 OR 2 FIBER PARTS AS REQUIRED
  2. MODBUS SERIAL TO MB/TCPIP ETHERNET GATEWAY PROTOCOL CONVERTER MOXA MB3170
  3. CAN BUS SERIAL TO FIBER OPTIC CONVERTER DL-CANR
  4. GE MULTILIN FIBER TO SERIAL MEDIA CONVERTER FOR RTU COMM.
- FPYYYXX — FIBER CLOSET CONNECTOR HOUSING (CCH) PANEL
  "FP" INDICATES FIBER PATCH PANEL
  "YYY" DENOTES PROCESS AREA NUMBER
  "XX" DENOTES PANEL NUMBER
- VFD STARTER C/W COMMUNICATIONS
- COMBINATION RECEPTACLE
- T — CONTROLNET TAP
- SC — SECURITY CAMERA
- MFRx — MULTI FUNCTION PROTECTION RELAY
  X=1: GE MULTILIN L30 LINE
  X=2: GE MULTILIN F35 LINE
  X=3: GE MULTILIN SR850 FEEDER MANAGEMENT RELAY

LINE SYMBOLS:

- ETHERNET CABLE - CAT 6 10/100/1000 BASE T COMMUNICATIONS
- FIBER OPTIC PATCH CABLE 50mm/125mm
- FIBER OPTIC MULTI-STRAND BACKBONE CABLE 50mm/125mm
- DEVICENET (THICK) CABLE
- DEVICENET (THIN) CABLE

VALVE AND GATE ACTUATOR SYMBOLS

- M — STANDARD ELECTRIC
- M / P — MODULATING ELECTRIC

ABBREVIATIONS

CCH	FIBER OPTIC CLOSET CONNECTOR HOUSING PANEL
CP	CONTROL PANEL
DRN	DRAINAGE
FRCL	FERROUS
Fz	FUSE
G	GROUND
ICP	INSTRUMENTATION'S CONTROL PANEL LINE
L	LINE
N	NEUTRAL
ODC	ODOUR CONTROL
PLC	PROGRAMMABLE LOGIC CONTROLLER
POLY	POLYMER
PREF	PRIMARY EFFLUENT
PRIN	PRIMARY INFLUENT
PRSC	PRIMARY SCUM
PRS	PRIMARY SLUDGE
PTT	PUSH TO TEST
RAS	RETURN ACTIVATED SLUDGE
RIO	REMOTE INPUT & OUTPUT HARDWARE
RPU	REMOTE PROCESSING UNIT
RWW	RAW WASTEWATER
SH	SHIELD
WAS	WASTE ACTIVATED SLUDGE

MATERIAL CODE

Cu	SCH. 10 COPPER
DI	DUCTILE IRON
PVC	SCH. 80 PVC
SS OR SS304	SCH. 10 304L STAINLESS STEEL
SS316	SCH. 10 316L STAINLESS STEEL
CI	CAST IRON

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS: LICENSED PROFESSIONAL ENGINEER 05/02/2025 J.G.L.SEGGEWISS 100197929 PROVINCE OF ONTARIO

DESIGNED BY / APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: INSTRUMENTATION LEGEND GENERAL NOTES (2)

DISCIPLINE: PROCESS

DRAFTER: D.C.	SCALE: NTS
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: D02
SHEET No: 26 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\D\T001630A-D02.dwg / LAYOUT: D02

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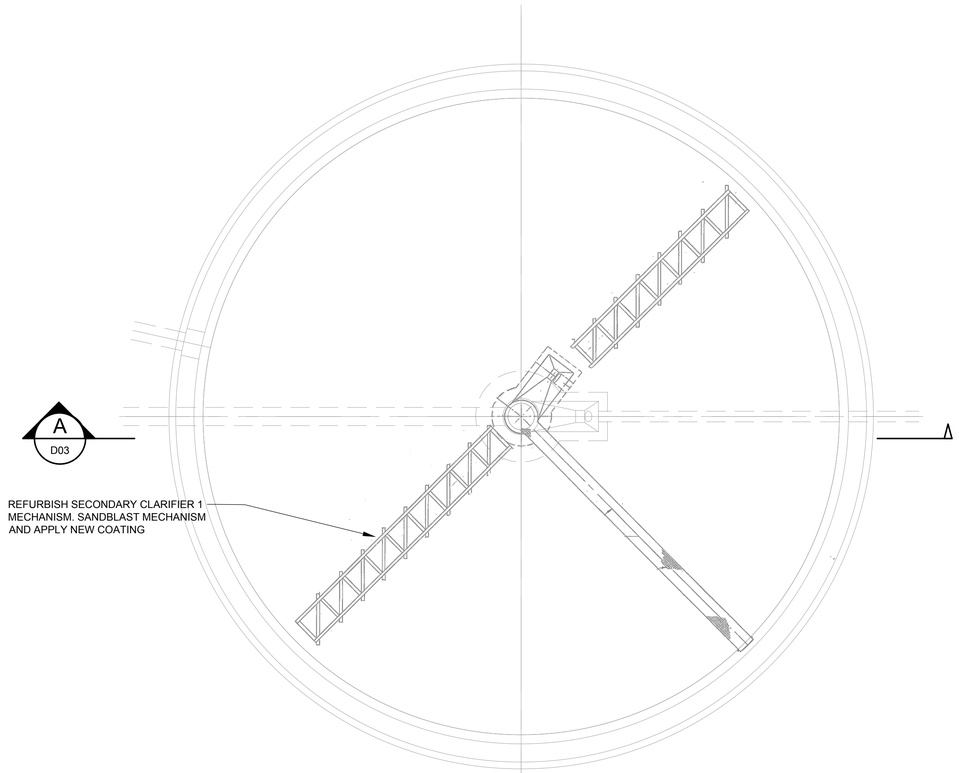
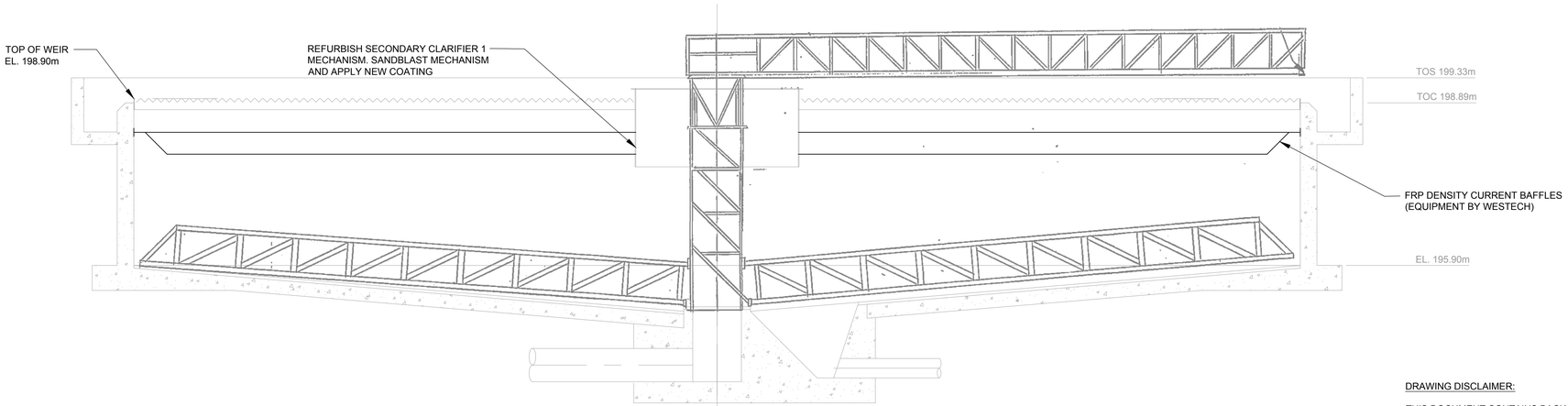


PLAN - CLARIFIER 1

SCALE: 1:100



A SECTION

D03

SCALE: 1:50

DRAWING DISCLAIMER:

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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
- TOPOGRAPHIC SKETCH PART OF LOTS 18 & 20 EAGLES NEST TRACT, CITY OF BRANTFORD; MACDONALD TABLYN LORD SURVEYING, 2017.

CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
J.G.L.SEGGEWISS
100197929
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIER 1 MODIFICATIONS - PLAN AND SECTION

DISCIPLINE: PROCESS

DRAFTER: S.C.K.	SCALE: AS NOTED
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: D03
SHEET No: 27 of 45	

PRINT DATE: 2025/04/23 | PAPER SIZE: ANSI full bleed D (34.00 x 22.00 inches)
PATH: Z:\Cima-C12\Projects\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP413\Sheets\DT001630A-D03.dwg / LAYOUT: D03

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PRINT DATE: 2025/05/01 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 inches)
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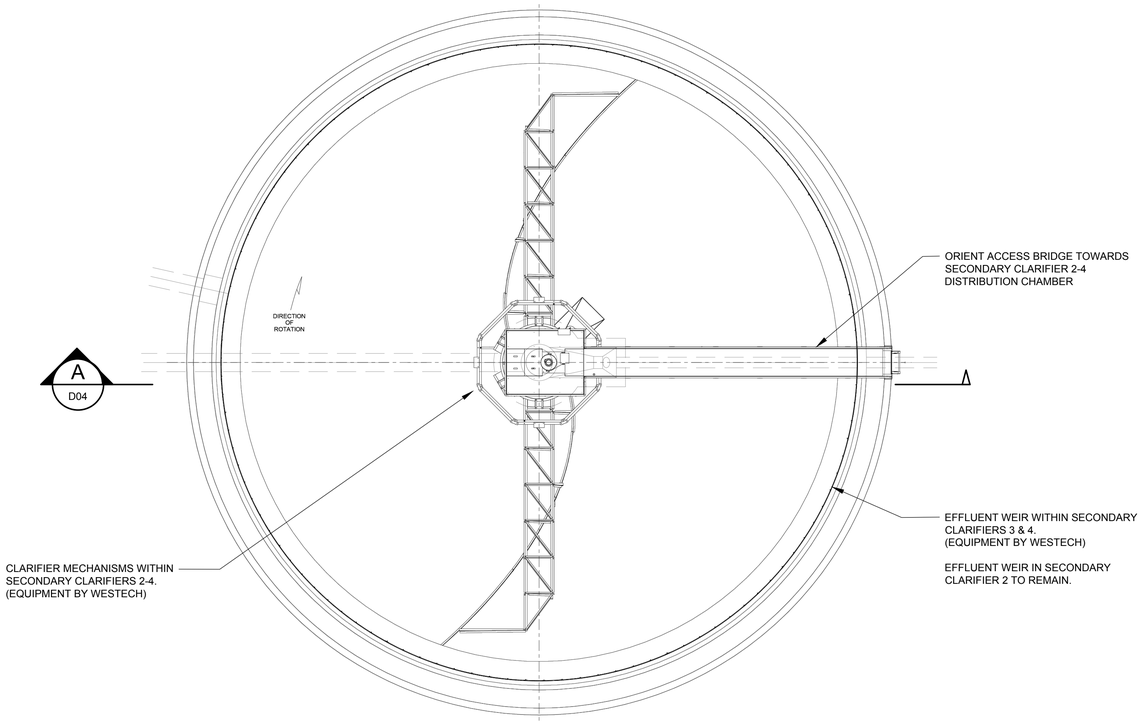
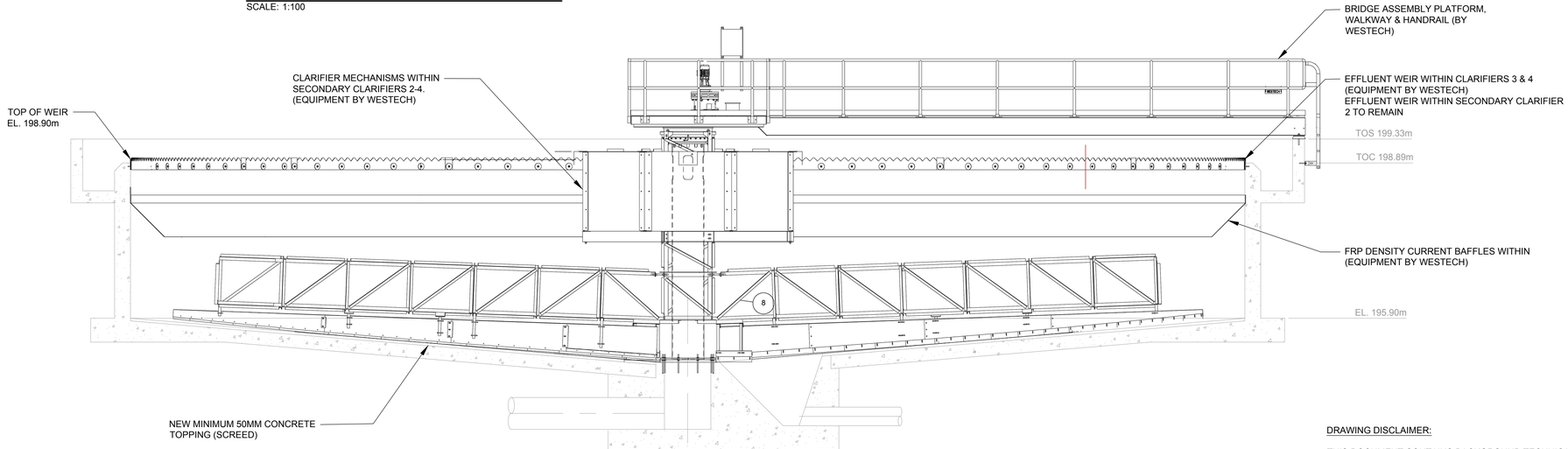
PRE-PURCHASE CLARIFIER MECHANISM

1. CONTRACTOR SHALL REVIEW IN DETAIL PROPOSAL 2022-92 CONTRACT DOCUMENTS AND ASSOCIATED SHOP DRAWINGS FROM WESTECH TO DETERMINE THE EXACT EXTENT OF SUPPLY FOR CLARIFIER MECHANISM EQUIPMENT PROVIDED.
2. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF THE PRE-PURCHASED EQUIPMENT AND FOR ALL WORK AND EQUIPMENT OUTSIDE THE REQUIREMENTS OF THE PRE-PURCHASED EQUIPMENT SUPPLY CONTRACT TO PROVIDE A COMPLETE SYSTEM.
3. ALIGN ALL BRIDGES AND LADDERS OF CLARIFIERS 2-4 TOWARDS THE SECONDARY CLARIFIER 1-4 DISTRIBUTION CHAMBER. FIELD CONFIRM ORIENTATION WITH OPERATORS.



PLAN - TYPICAL FOR CLARIFIER 2-4

SCALE: 1:100



A SECTION

D04

SCALE: 1:50

DRAWING DISCLAIMER:

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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
- TOPOGRAPHIC SKETCH PART OF LOTS 18 & 20 EAGLES NEST TRACT, CITY OF BRANTFORD; MACDONALD TABLYN LORD SURVEYING, 2017.

CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
J.G.L. SEGGEWISS
100197929
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

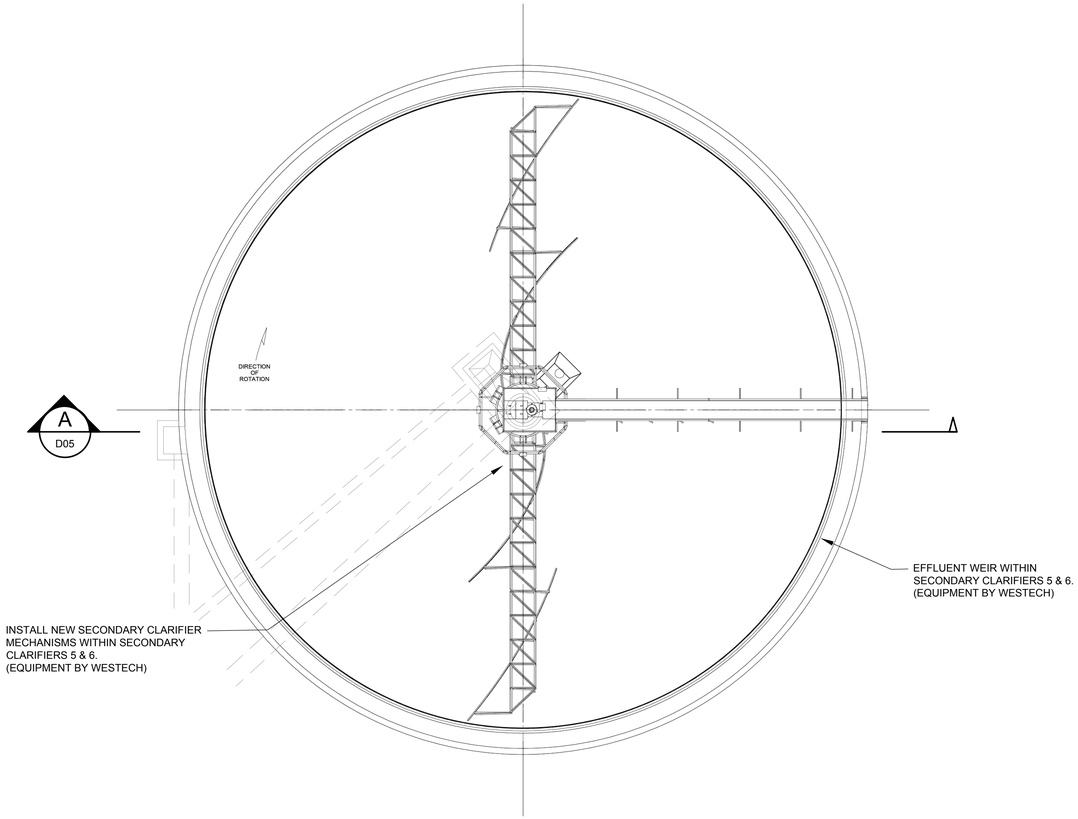
CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIERS 2-4 MODIFICATIONS - PLAN AND SECTION

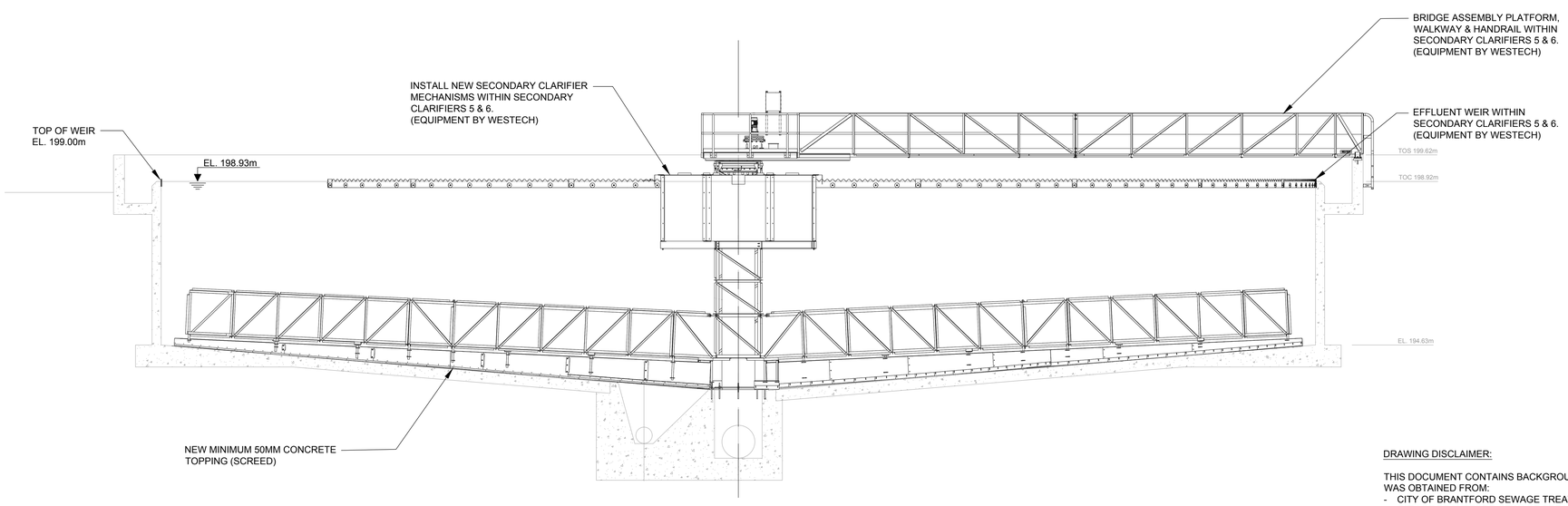
DISCIPLINE: PROCESS

DRAFTER: S.C.K.	SCALE: AS NOTED
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: D04
SHEET No: 28 of 45	



PLAN - TYPICAL FOR CLARIFIER 5-6

SCALE: 1:150



A D05 **SECTION**

SCALE: 1:75

PRE-PURCHASE CLARIFIER MECHANISM

1. CONTRACTOR SHALL REVIEW IN DETAIL PROPOSAL 2022-92 CONTRACT DOCUMENTS AND ASSOCIATED SHOP DRAWINGS FROM WESTECH TO DETERMINE THE EXACT EXTENT OF SUPPLY FOR CLARIFIER MECHANISM EQUIPMENT PROVIDED.
2. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF THE PRE-PURCHASED EQUIPMENT AND FOR ALL WORK AND EQUIPMENT OUTSIDE THE REQUIREMENTS OF THE PRE-PURCHASED EQUIPMENT SUPPLY CONTRACT TO PROVIDE A COMPLETE SYSTEM.
3. ALIGN ALL BRIDGES AND LADDERS OF CLARIFIERS 5-6 TOWARDS THE SECONDARY CLARIFIER 5-6 DISTRIBUTION CHAMBER. FIELD CONFIRM ORIENTATION WITH OPERATORS.

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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT; PROCTOR & REDFERN, 1957.
- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
- TOPOGRAPHIC SKETCH PART OF LOTS 18 & 20 EAGLES NEST TRACT, CITY OF BRANTFORD; MACDONALD TABLYN LORD SURVEYING, 2017.

CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
J.G.L. SEGGEWISS
100197929
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIERS 5 & 6 MODIFICATIONS - PLAN AND SECTION

DISCIPLINE: PROCESS

DRAFTER: S.C.K.	SCALE: AS NOTED
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: D05
SHEET No: 29 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/05/01 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 inches)
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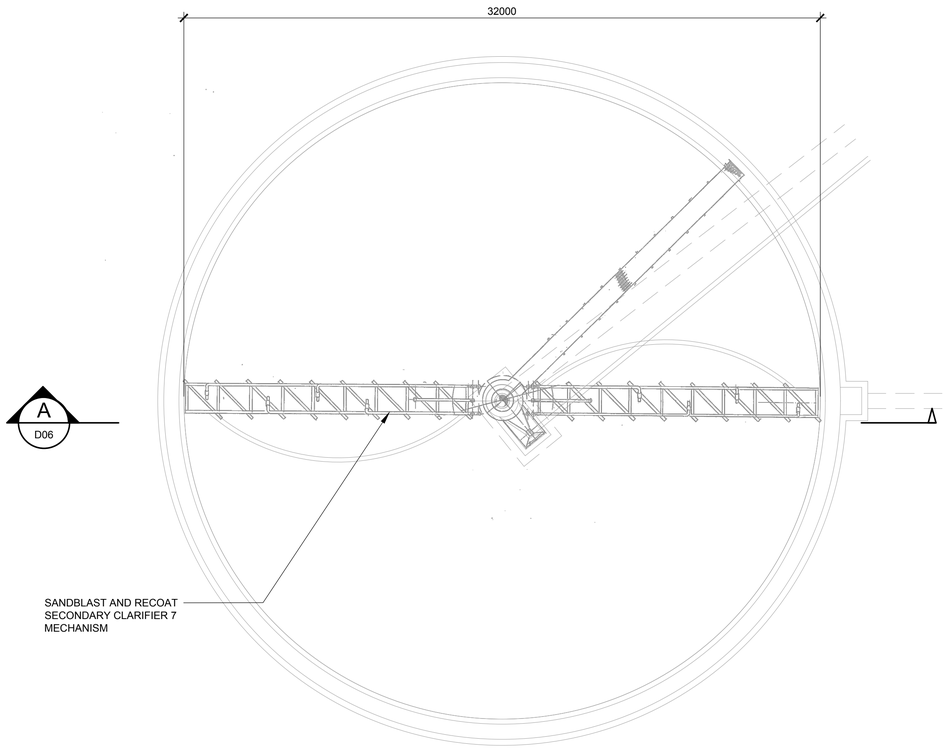
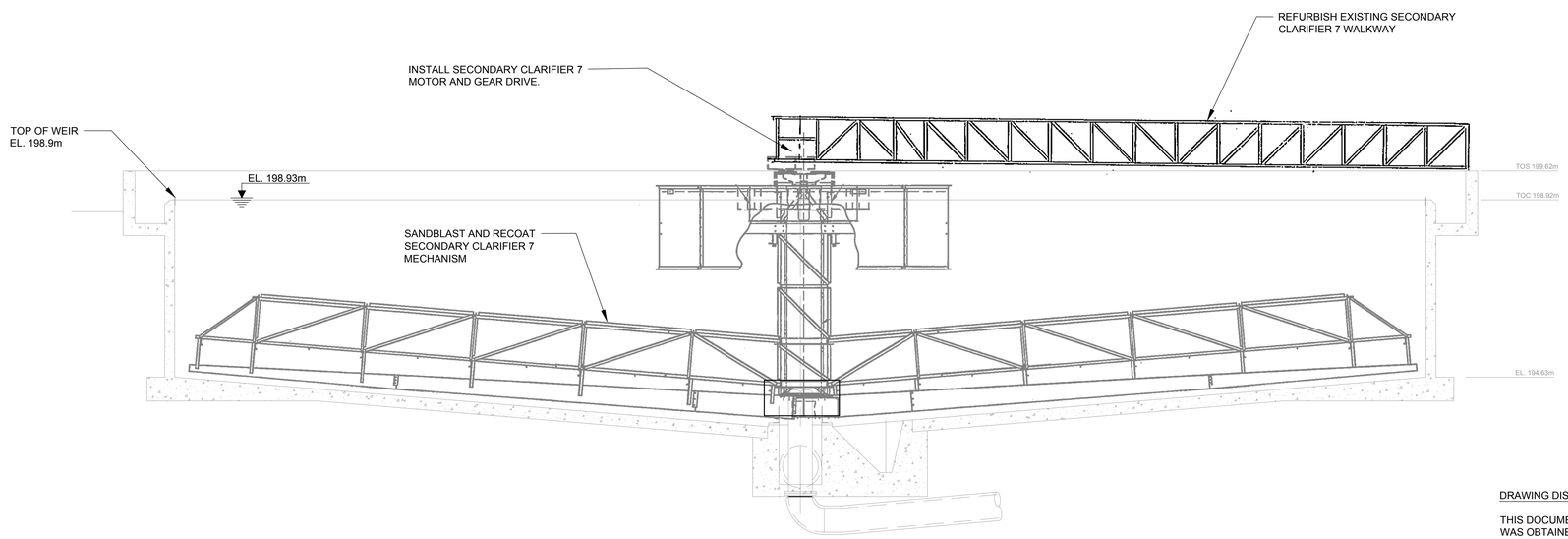


PLAN - CLARIFIER 7

SCALE: 1:150



A D06 **SECTION**

SCALE: 1:75

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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
- TOPOGRAPHIC SKETCH PART OF LOTS 18 & 20 EAGLES NEST TRACT, CITY OF BRANTFORD; MACDONALD TABLYN LORD SURVEYING, 2017.

CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
J.G.L.SEGGEWISS
100197929
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

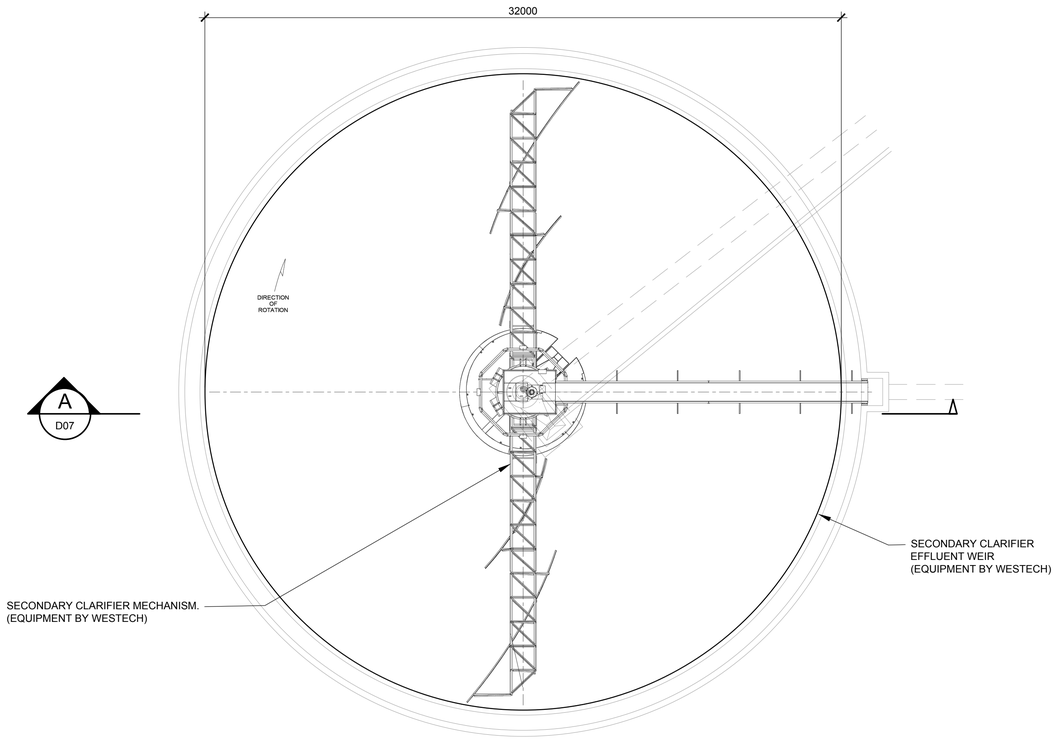
PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIER 7 MODIFICATIONS - PLAN AND SECTION

DISCIPLINE: PROCESS

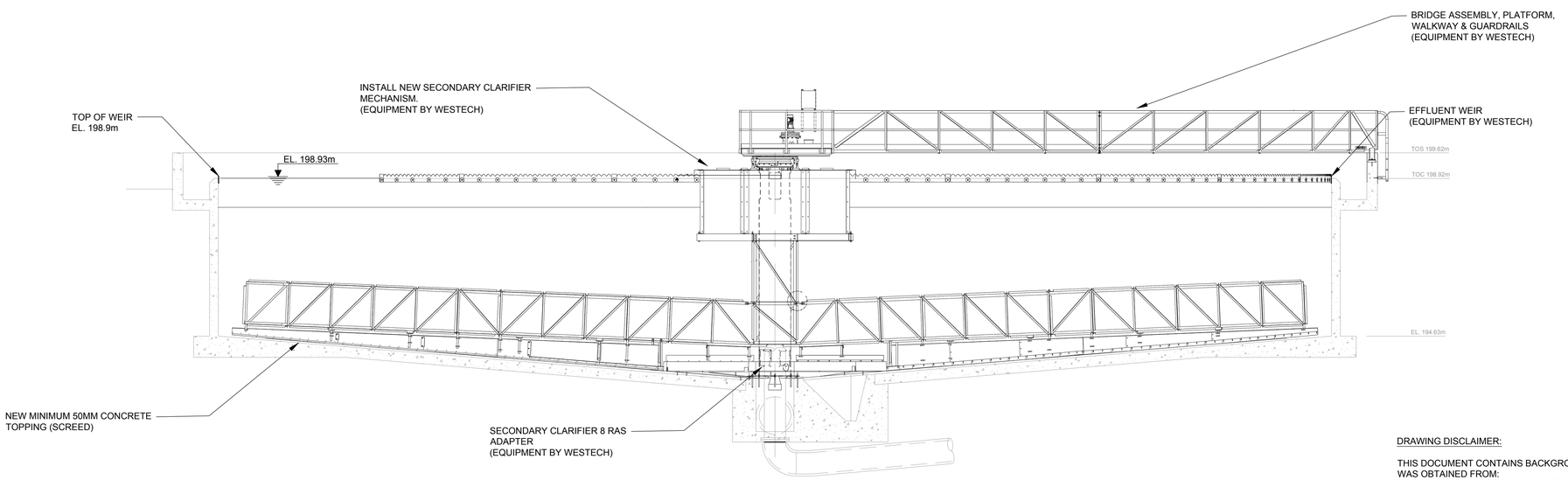
DRAFTER: S.C.K.	SCALE: AS NOTED
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: D06
SHEET No: 30 of 45	

PRINT DATE: 2025/04/23 | PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Projects\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\DT001630A-D06.dwg / LAYOUT: D06



PLAN - CLARIFIER 8

SCALE: 1:150



A SECTION

D07

SCALE: 1:75

PRE-PURCHASE CLARIFIER MECHANISM

1. CONTRACTOR SHALL REVIEW IN DETAIL PROPOSAL 2022-92 CONTRACT DOCUMENTS AND ASSOCIATED SHOP DRAWINGS FROM WESTECH TO DETERMINE THE EXACT EXTENT OF SUPPLY FOR CLARIFIER MECHANISM EQUIPMENT PROVIDED.
2. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF THE PRE-PURCHASED EQUIPMENT AND FOR ALL WORK AND EQUIPMENT OUTSIDE THE REQUIREMENTS OF THE PRE-PURCHASED EQUIPMENT SUPPLY CONTRACT TO PROVIDE A COMPLETE SYSTEM.
3. ALIGN ALL BRIDGE AND LADDER OF CLARIFIERS 8 TOWARDS THE SECONDARY CLARIFIER 7-8 DISTRIBUTION CHAMBER. FIELD CONFIRM ORIENTATION WITH OPERATORS.

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CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
J.G.L.SEGGEWISS
100197929
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

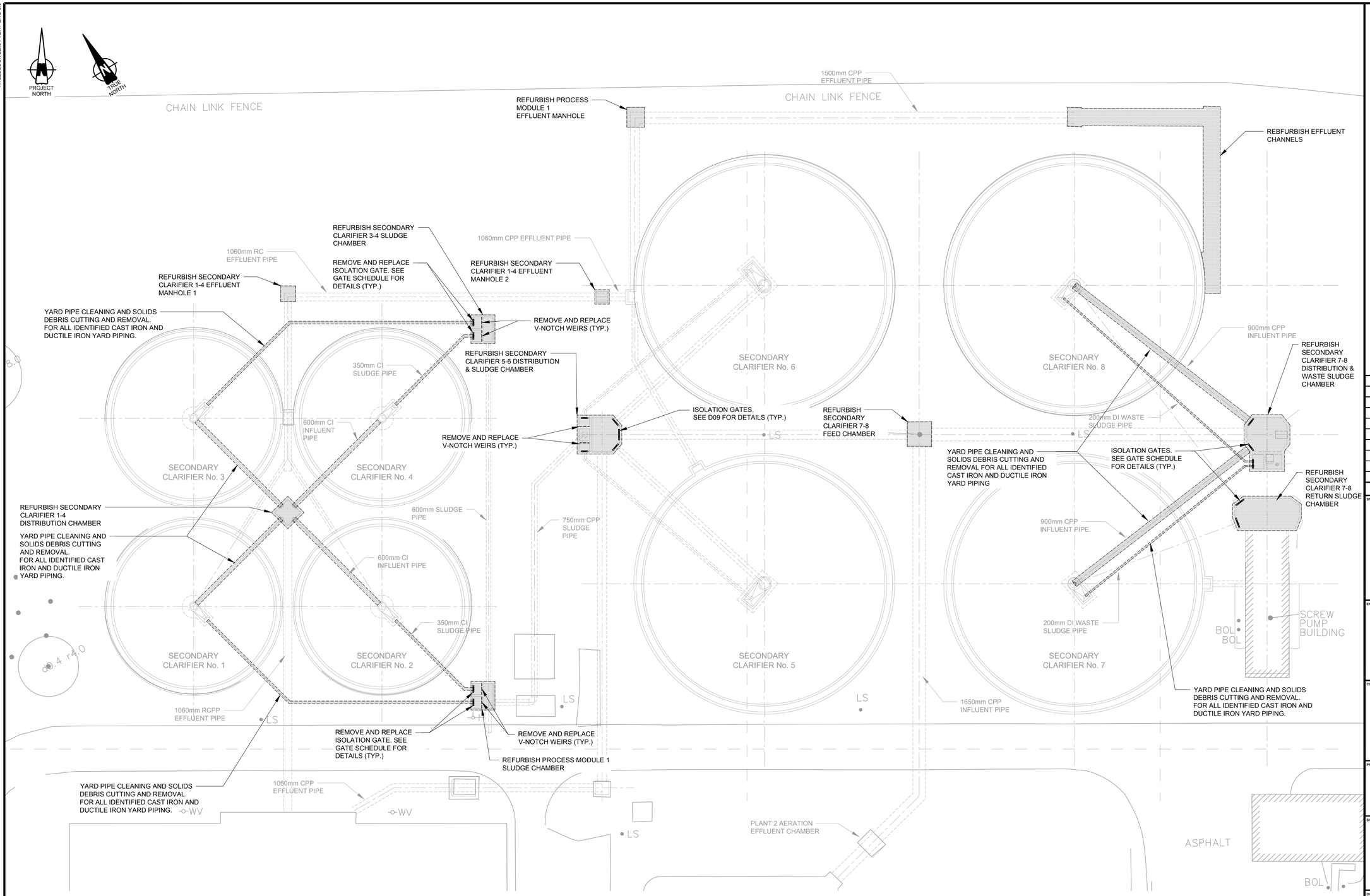
SHEET TITLE: SECONDARY CLARIFIERS 8 MODIFICATIONS - PLAN AND SECTION

DISCIPLINE: PROCESS

DRAFTER: S.C.K.	SCALE: AS NOTED
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: D07
SHEET No: 31 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0

PRINT DATE: 2025/04/23 | PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Projects\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\DIT001630A-D07.dwg / LAYOUT: D03 - GENERAL CONTRACT



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- CITY OF BRANTFORD SEWAGE TREATMENT PLANT EXTENSION; PROCTOR & REDFERN, 1977.
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CONTRACTOR TO FIELD CONFIRM ALL EXISTING CONDITIONS AND ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER 05/02/2025 J.G.L.SEGGEWISS 100197929 PROVINCE OF ONTARIO — DESIGNED BY

LICENSED PROFESSIONAL ENGINEER 05/02/2025 N. J. SHERWOOD 100121059 PROVINCE OF ONTARIO — APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

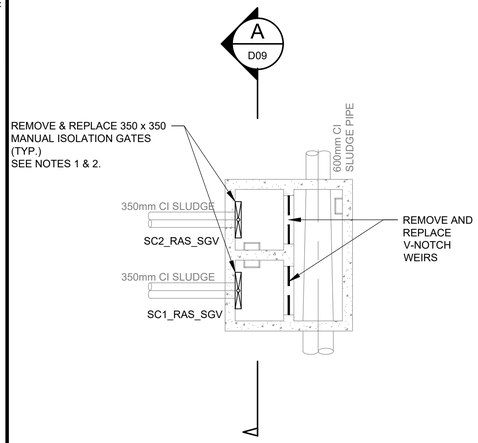
SHEET TITLE: YARD PIPE REHABILITATION AND GATE REPLACEMENT

DISCIPLINE: GENERAL

DRAFTER: S.C.K.	SCALE: 1:250
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: D08
SHEET No: 32 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0

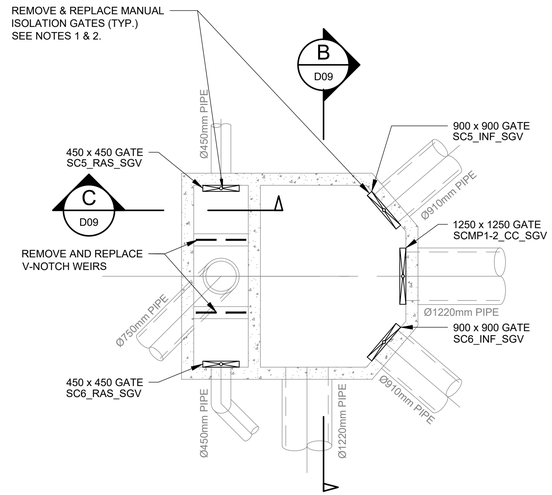
PRINT DATE: 2025/04/23 / PAPER SIZE: ANSI expand D (34.00 x 22.00 Inches)
PATH: Z:\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\416-WIP\413\Sheets\DT001630A-D08.dwg / LAYOUT: D08



PROCESS MODULE 1 SLUDGE CHAMBER - PLAN

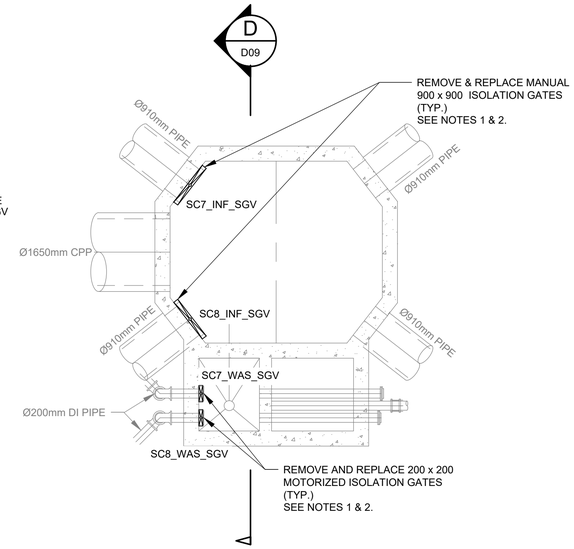
SCALE: 1:75

SECONDARY CLARIFIER 3-4 SLUDGE CHAMBER SIMILAR



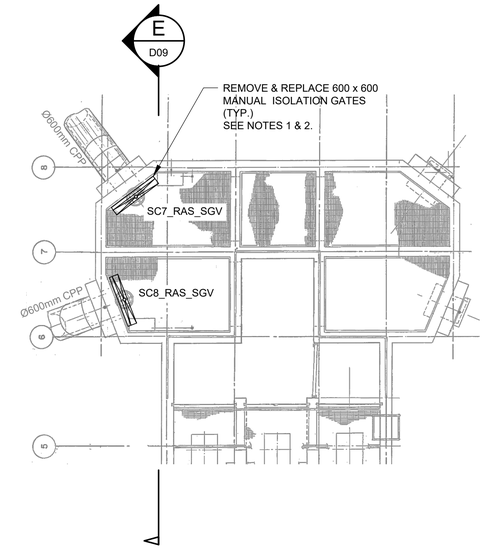
SECONDARY CLARIFIER 5-6 DISTRIBUTION & SLUDGE CHAMBER - PLAN

SCALE: 1:75



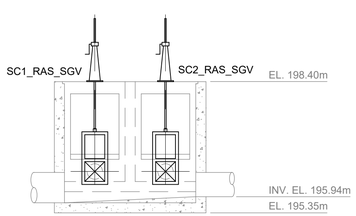
SECONDARY CLARIFIER 7-8 DISTRIBUTION & WASTE SLUDGE CHAMBER - PLAN

SCALE: 1:75

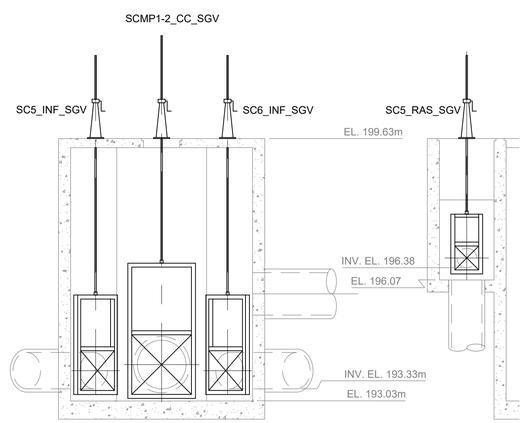


SECONDARY CLARIFIER 7-8 RETURN SLUDGE CHAMBER - PLAN

SCALE: 1:75

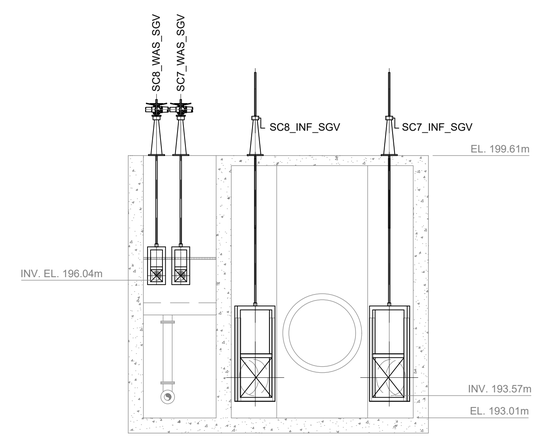


A D09 SECTION
SCALE: 1:75



B D09 SECTION
SCALE: 1:75

C D09 SECTION
SCALE: 1:75



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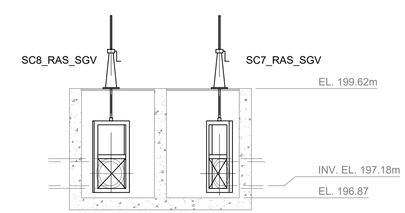

E D09 SECTION
SCALE: 1:75

PROJECT NORTH

NOTES:

1. REFER TO SPECIFICATIONS FOR GATE SCHEDULE.
2. GATE SIZES ARE SHOWN FOR REFERENCE AND DIMENSIONS FOR ALL NEW GATES SHALL BE FIELD VERIFIED

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
J.G.L.SEGGEWISS
100197929
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: DISTRIBUTION CHAMBERS ISOLATION GATES & WEIRS DETAILS AND SCHEDULE

DISCIPLINE: PROCESS

DRAFTER: KD	SCALE: AS NOTED
DESIGNER: CM	DATE: MAY 2025
CHECKER: ARP	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: D09
SHEET No: 33 of 45	

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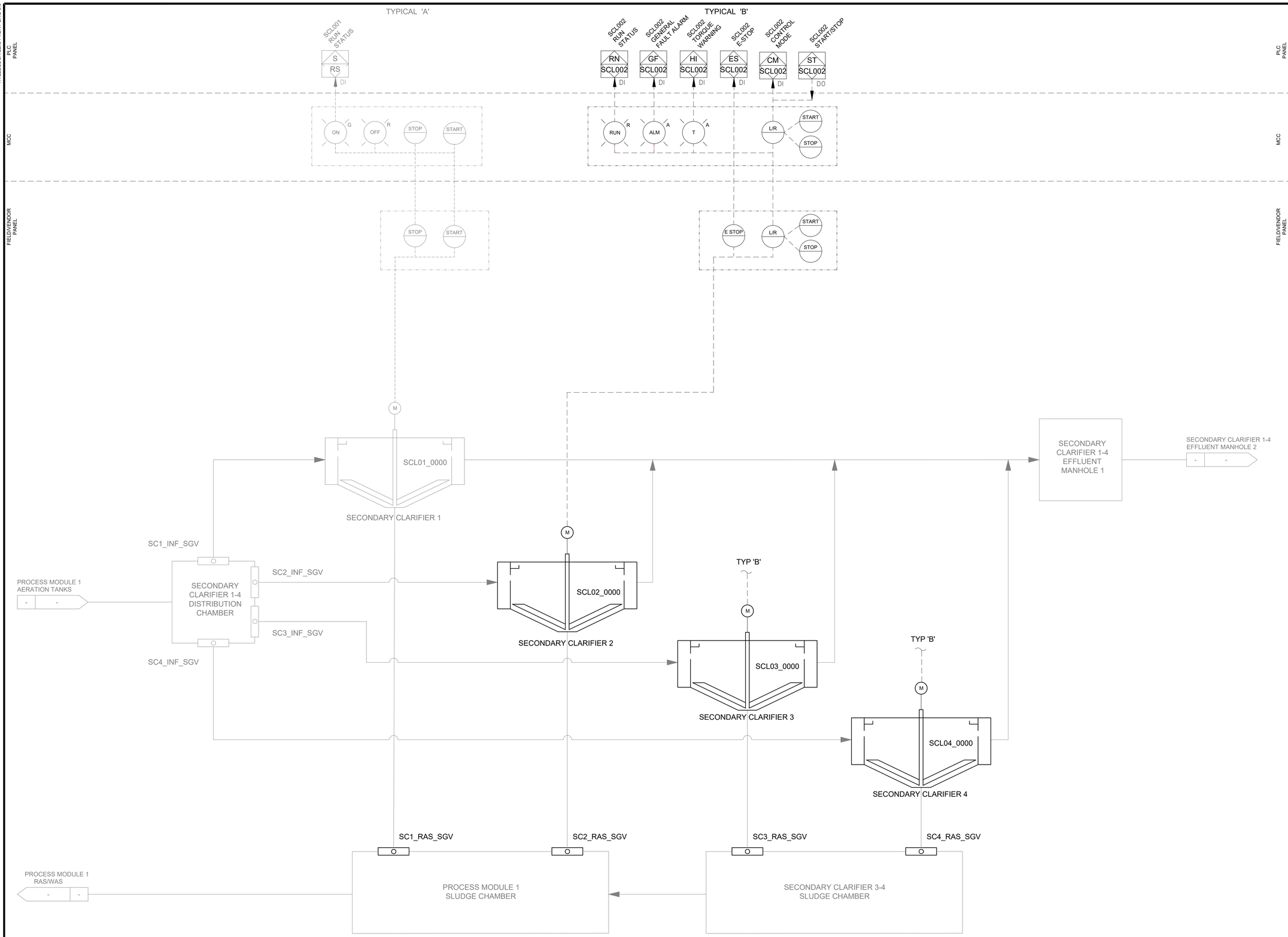

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STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
J.G.L.SEGGEWISS
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PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIERS 1-4 PROCESS & INSTRUMENTATION DIAGRAM

DISCIPLINE: PROCESS

DRAFTER: D.C.	SCALE: NTS
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: D11
SHEET No: 34 of 45	

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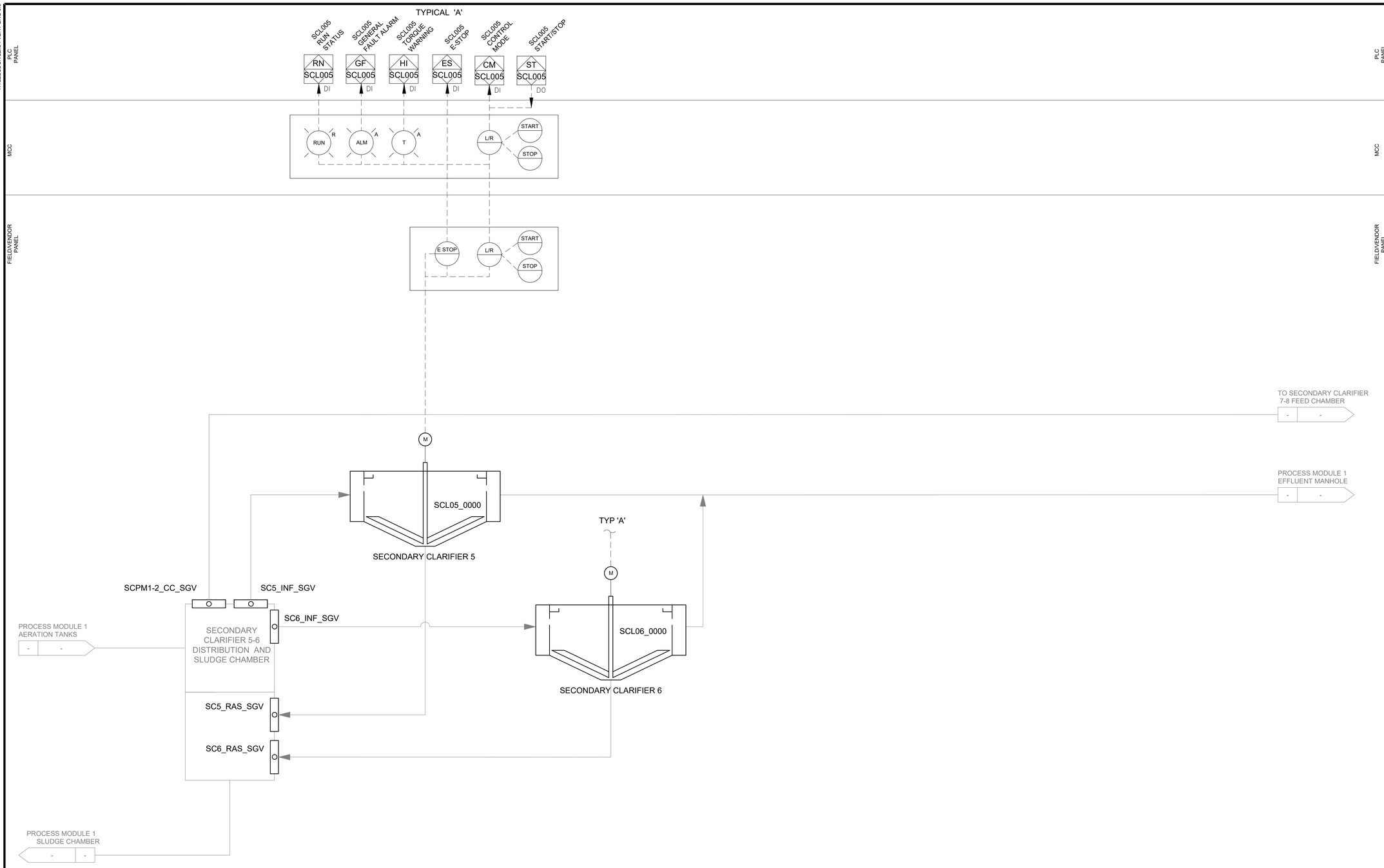

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STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
J.G.L.SEGGEWISS
100197929
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIERS 5-6 PROCESS & INSTRUMENTATION DIAGRAM

DISCIPLINE: PROCESS

DRAFTER: D.C.	SCALE: NTS
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: D12
SHEET No: 35 of 45	

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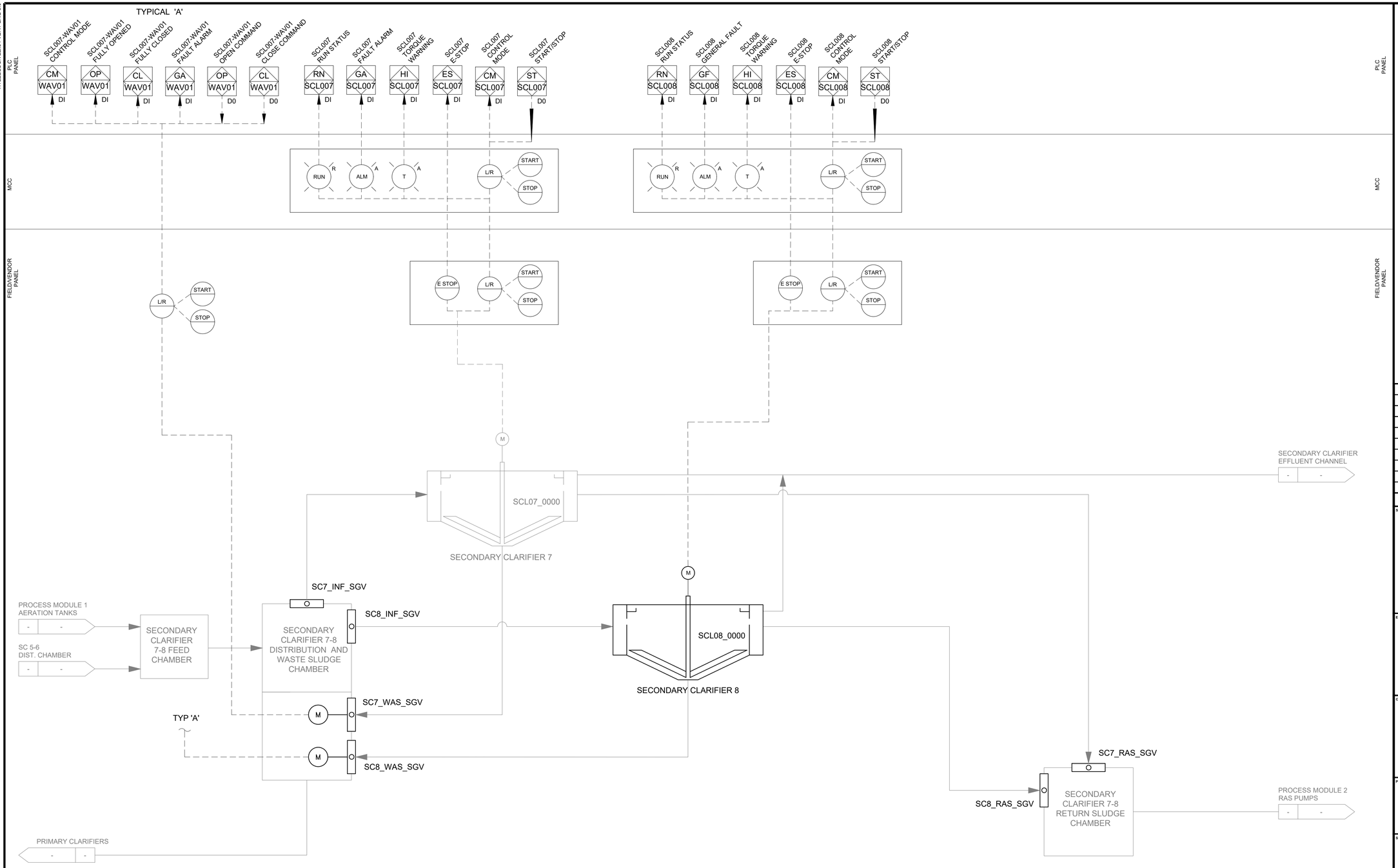

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05/02/2025
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ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIERS 7-8 PROCESS & INSTRUMENTATION DIAGRAM

DISCIPLINE: PROCESS

DRAFTER: D.C.	SCALE: NTS
DESIGNER: G.S.	DATE: MAY 2025
CHECKER: G.S.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: D13
SHEET No: 36 of 45	

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TITLEBLOCK 22x34 VERT ENG 3.0

GENERAL ELECTRICAL LEGEND

TRANSFORMER
△ : DENOTES DELTA CONNECTION
: DENOTES WYE CONNECTION WITH RESISTANCE GROUND
: DENOTES WYE CONNECTION WITH SOLID GROUND

(X) Y:5 — CURRENT XMR
X: QUANTITY (IF SHOWN)
Y: RATIO (IF SHOWN)
IF NOT INDICATED, PROVIDE QUANTITY & RATIO TO SUIT PHASING, COORDINATION STUDY REQUIREMENTS AND EQUIPMENT

ZERO SEQUENCE CURRENT XMR

CONTACTOR & OVERLOAD

FUSE

NON FUSED INTERRUPTER SWITCH

FUSED INTERRUPTER LOAD BREAK SWITCH

FUSED CONTACTOR

CIRCUIT BREAKER, C/W MAG. & THERM TRIP

XC — CONTACTOR-XC
BC: BYPASS CONT.
CC: CAPACITOR CONT.
IC: INLINE CONT.

(X) — FUSED POTENTIAL TRANSFORMER(S)
X: DENOTES QUANTITY

CAPACITOR

CIRCUIT BREAKER MOLDED CASE

SOLID STATE OVERLOAD

HARMONIC LINE FILTER FOR VFD APPLICATIONS

XX HP — MOTOR SYMBOL
"XX" DENOTES HORSEPOWER RATING

X — SS, FRP, XPY
HEAVY DUTY SAFETY SWITCH NON FUSED, 600V, 3P
X: DENOTES AMPACITY RATING AS FOLLOWS:
A=30A (20HP)
B=60A (50HP)
C=100A (75HP)
D=200A (150HP)
ALL DISCONNECTS TO INCLUDE A LATE MAKE, EARLY BREAK AUXILIARY 120V, 2A STATUS CONTACT
SS: DENOTES NEMA 4X STAINLESS STEEL ENCLOSURE
FRP: DENOTES NEMA 4X FIBERGLASS REINFORCED POLYESTER
XP: DENOTES EXPLOSION PROOF
Y=1 CLASS 1, DIVISION 1 RATED
Y=2 CLASS 1, DIVISION 2 RATED

H — TYPE 'H' NON FUSED DISCONNECT RATED 30A(20HP),600V,3P BRYANT MODEL 30003 IN A PVC BOX SCEPTRE TYPE FSC 15/10 C/W VSC 15/10 WEATHERPROOF TOGGLE COVER PLATE.

HIGH VOLTAGE UNFUSED INTERRUPTER SWITCH

REACTOR

XX — CABLE SCHEDULE TAG

SPD — SURGE PROTECTION DEVICE

COMBINATION MAGNETIC STARTER, FULL VOLTAGE NON-REVERSING BREAKER TYPE PROVIDE EEMAC SIZE STARTER TO SUIT MOTOR HORSEPOWER APPLICATION

VFD — VFD MOTOR STARTER, NEMA RATED TO SUIT MOTOR HP, COMPLETE WITH LINE SIDE VFD FILTER FOR MOTOR APPLICATIONS EQUAL TO OR GREATER THAN 50HP. UNIVERSAL HARMONIC LINE FILTER EQUIPPED WITH A CAPACITOR ISOLATION CONTACTOR SIZED TO SUIT MOTOR HP.

SOLID STATE SOFT STARTER C/W BYPASS CONTACTOR, DIGITAL DISPLAY AND PROGRAMMING LCD KEYPAD.

LA — SURGE ARRESTER STATION CLASS

ELECTRICAL UNIT HEATER

DM — DIGITAL POWER METER COMPLETE WITH INTEGRAL ETHERNET COMMUNICATIONS

X BUS — BUS CONTINUATION SYMBOL
X: DENOTES BUS/CONDUCTOR
CONTINUATION IDENTIFIER TAG. MATCHING TAG'S INDICATE POINTS OF CONTINUATION

G — GENERATOR

KX — KIRK KEY INTERLOCK
X: PER APPLICATION DESCRIPTION

E — ELECTRICAL INTERLOCK

LOCAL EQUIPMENT CONTROL BOX

ELECTRICAL MANHOLE

TX — PAD MOUNT TRANSFORMER

S — 3Ø SELECTOR SWITCH

V — VOLTAGE METER

A — AMMETER

F — FREQUENCY METER

PF — POWER FACTOR METER

KW — KILOWATT METER

POWER LAYOUT LEGEND

CP — LOCAL CONTROL PANEL

GROUND ROD
20Ømmx3000mm (GALVANIZED) TOP OF GROUND ROD 250mm BELOW GRADE

T A — LINE VOLTAGE THERMOSTAT, TEMP RANGE - 5° TO 30°C DIFFERENTIAL 1.0°C, 1-SPDT SWITCH RATED 8.0A 120 V. HONEYWELL MODEL T651A OR APPROVED EQUAL
(FAN, HEATER, TSL/H APPLICATIONS)

V — SOLID STATE VARIABLE SPEED CONTROL.

DXX — DAMPER MOTOR, 120VAC
XX = TAG NUMBER

WP GFCI XPY — DUPLEX RECEPTACLE, 20A, NEMA 15-20R
120V U GROUND, COPPER ARC GUARD ENR TYPE.
WP: DENOTES WEATHER PROOF
GFCI: GROUND FAULT CIRCUIT INTERRUPTER
XP: DENOTES EXPLOSION PROOF
Y=1 CLASS 1, DIVISION 1 RATED
Y=2 CLASS 1, DIVISION 2 RATED

600V, 3PH RECEPTACLE

DIRECT CONNECTION TO EQUIPMENT/WELDING OUTLET (600V, 3PH OR 120V, 1PH)

SINGLE P.A. HORN TYPE SPEAKER

AUDIBLE & VISUAL ALARM HORN AND BEACONS

THREE PHASE MOTOR

SINGLE PHASE MOTOR

ELECTRIC UNIT HEATER C/W REMOTE WALL MOUNT THERMOSTAT AND LOCAL DISCONNECT AND LOCAL DISCONNECT

MANUAL STARTER

SMOKE DETECTOR

X — CONDUIT TAG

ATC — ATS CONTROLLER

M — MOTOR SYMBOL

DC L1 — DOOR CONTACT (120V)

DIRECTLY BURIED TECK CABLE (SITE PLAN ONLY)

CONCRETE ENCASED RIGID PVC DUCT (SITE PLAN ONLY)

ABOVE GRADE RIGID DUCT OR EXPOSED (SITE PLAN ONLY)

28KV AERIAL OVERHEAD LINE (SITE PLAN ONLY)

UNDERGROUND 600 CONDUIT (SITE PLAN ONLY)

UNDERGROUND CONDUIT (SITE PLAN ONLY)

AA/FA	DRY TYPE SELF COOLED/FORCED AIR COOLED
ATS	AUTOMATIC TRANSFER SWITCH
CCTV	CLOSED CIRCUIT TELEVISION SECURITY SYSTEM
CPT	CONTROL POWER TRANSFORMER
DIS	LOCAL DISCONNECT AUXILIARY POSITION STATUS CONTACT 2A, 120VAC, LATE MAKE EARLY BREAK TO SUIT VFD APPLICATIONS.
DP	DISTRIBUTION PANEL
HV-SG	DENOTES HIGH VOLTAGE SWITCHGEAR
LP	LIGHTING PANEL
MCC	MOTOR CONTROL CENTER
MFR	MULTI FUNCTION RELAY
MMR	MOTOR MANAGEMENT RELAY
OESC	ONTARIO ELECTRICAL SAFETY CODE
ONAF	OIL IMMERSED, FORCED AIR COOLED
ONAN	OIL IMMERSED, SELF COOLED
PFCC	POWER FACTOR CORRECTION CAPACITOR
RVAT	REDUCED VOLTAGE AUTOTRANSFORMER STARTER
SDBC	SOFT DRAWN BARE COPPER GROUND CONDUCTOR
SLD	SINGLE LINE DIAGRAM
SPD	SURGE PROTECTION DEVICE

CONTROL SCHEMATIC SYMBOLS

NORMALLY OPEN PUSHBUTTON

NORMALLY CLOSED PUSHBUTTON

NORMALLY OPEN MUSHROOM HEAD PUSHBUTTON

NORMALLY CLOSED MUSHROOM HEAD PUSHBUTTON

TOGGLE SWITCH

SELECTOR SWITCH

TWO POSITION SELECTOR SWITCH
X: INDICATES CONTACT CLOSED POSITION FOR RESPECTIVE MODE

THREE POSITION SELECTOR SWITCH
X: INDICATES CONTACT CLOSED POSITION FOR RESPECTIVE MODE
OFF: INDICATES ALL SWITCH CONTACTS OPEN

XX — STARTER/CONTACTOR OPERATING COIL DESIGNATION
XX=M: STARTER COIL
XX=MR: MOTOR STARTER
XX=CR: CONTROL RELAY
XX=TR: ELECTRIC TIMER COIL WITH ADJUSTABLE TIMING RANGE

NORMALLY OPEN CONTACT

NORMALLY CLOSED CONTACT
O/L DENOTES THERMAL OVERLOAD CONTACT

NORMALLY-OPEN, TIMED-CLOSED CONTACT (TIME DELAY ON ENERGIZATION)

NORMALLY CLOSED CONTACT TIME DELAY OPENING

NORMALLY OPEN CONTACT TIME DELAY OPENING

NORMALLY CLOSED CONTACT TIME DELAY CLOSING

TEMPERATURE SWITCH, NORMALLY OPEN CLOSE ON RISE

TEMPERATURE SWITCH, NORMALLY CLOSED OPEN ON RISE

NORMALLY OPEN CONTACT LIMIT SWITCH

NORMALLY CLOSED CONTACT LIMIT SWITCH

P.T.T. C — INDICATING LIGHT (PUSH TO TEST, C: COLOR)
C=A: AMBER C=W: WHITE
C=Y: YELLOW C=B: BLUE
C=G: GREEN C=R: RED

NX — SOLENOID VALVE
NX=NO: NORMALLY OPEN WHEN DE-ENERGIZED
NX=NC: NORMALLY CLOSED WHEN DE-ENERGIZED

ETM — ELAPSED TIME METER

ELECTRICAL CONDUCTORS

EARTH GROUND

GENERAL NOTES:

1. ALL DUCTS AND DUCT STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH OPSS.MUNI 603, EXCEPT AS AMENDED OR EXTENDED BELOW.
2. ALL RIGID PVC DUCTS TO BE BURIED MIN. 760mm BELOW FINISHED GRADE. ALL UNDERGROUND DUCTBANKS TO BE INSTALLED IN ACCORDANCE WITH OESC REQUIREMENTS.
3. ALL TRENCHING TO BE BACKFILLED WITH GRANUAL 'B' MATERIAL & COMPACTED TO BE 95% STD. PROCTOR. ALL TRENCHING TO BE RESTORED TO ORIGINAL CONDITION.
4. RIGID PVC TYPE II DUCT TO BE SCEPTER SUPER DUCT WITH A FLAMESPREAD RATING OF LESS THAN 25. CERTIFIED TO FT-4.
5. THE CONTRACTOR SHALL STAKE ALL PROPOSED ELECTRICAL TRENCHING & SHALL OBTAIN APPROVAL FROM THE ENGINEER PRIOR TO PROCEEDING WITH TRENCHING.
6. COORDINATE INSTALLATION OF ALL BURIED CONDUIT & DUCTS WITH CIVIL WORKS BEING INSTALLED BELOW GRADE.
7. THE CONTRACTOR SHALL OBTAIN SERVICE CLEARANCE FOR EXISTING UNDERGROUND INSTALLATIONS PRIOR TO TRENCHING.
8. ALL DUCTS TO BE TERMINATED AT BOTH ENDS WITH A "BELL END" COUPLING.
9. DUCTS TO BE JOINED TOGETHER WITH AN APPROVED COUPLING.
10. ADJACENT COUPLINGS SHALL BE STAGGERED BY AT LEAST 200mm.
11. WHEN RUNNING PARALLEL TO ANOTHER UTILITY THE DUCT BANK SHALL BE MINIMUM 1.5m CLEAR AND IN NO CASE INSTALLED IN THE SAME EXCAVATION.
12. WHEN COMPLETED THE DUCTS SHALL BE CLEANED AND ENDS PLUGGED WITH DUCT PLUGS. TEST DUCTS FOR CLEARANCE BY PULLING A STEEL WIRE BRUSH AND 90mm MANDREL THROUGH THE COMPLETE LENGTH IN THE PRESENCE OF ENGINEER.
13. SUPPLY, PLACE AND MAINTAIN SHEETING, BRACING AND SHORING AS REQUIRED TO SUPPORT SIDES OF EXCAVATIONS TO PREVENT MOVEMENT WHICH CAN REDUCE NECESSARY WIDTHS OF EXCAVATIONS OR OTHERWISE INJURE OR DELAY WORK, OR ENDANGER ANY PERSON.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF EXCAVATIONS WHERE REQUIRED TO PREVENT ADVERSE EFFECTS OF RAIN OR ANY OTHER WEATHER CONDITIONS ON EXPOSED EXCAVATIONS.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING OF ALL EXCAVATIONS.
16. EXCAVATION IN CLOSE PROXIMITY TO EXISTING SERVICES WHICH ARE TO REMAIN SHALL BE BY HAND.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND COST OF ALL REPAIRS TO SERVICES DAMAGED DURING CONSTRUCTION, IN PARTICULAR, DURING EXCAVATION.
18. THE POSITION OF POLE LINES, CONDUITS, SEWERS, WATERMAINS, AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELVES OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR ANY DAMAGE DONE TO THEM.
19. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY SUPPORT AND/OR RELOCATION OF EXISTING UTILITIES DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE AND COMPLY WITH THE REQUIREMENTS OF ALL UTILITIES WHEN CROSSING OR WORKING NEAR THEIR SERVICES.
20. PROVIDE ALL REQUIRED CONCRETE CORING AND CUTTING FOR CONDUIT/DUCT ENTRY THRU WALLS AND FLOORS.
21. REFER TO SECTION 01120, CONTRACTOR SHALL DEVELOP AND SUBMIT A SEQUENCE OF CONSTRUCTION AND A PROJECT PLAN TO ENGINEER PRIOR TO STARTING ANY WORK.
22. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOUR AND COORDINATION TO SET UP TEMPORARY POWER AND BELL SERVICE FOR PURPOSE OF CONSTRUCTION AND MAINTAINING A SITE OFFICE.
23. CONTRACTOR SHALL PROVIDE LABELS ON ALL EQUIPMENT PER SECTION 16090.
24. EXACT UNDERGROUND FEEDER ROUTES SHALL BE FINALIZED ON SITE.
25. ALL POWER DISTRIBUTION CABLE INSTALLED UNDER THIS PROJECT SHALL BE COPPER.
26. ALL NEW POWER DISTRIBUTION CABLES SHALL BE CONTINUOUS FROM PRIMARY OVER CURRENT PROTECTION SUPPLY POINT TO THE LOAD APPLICATION TERMINATION. NO SPLICES ARE PERMITTED UNLESS INDICATED OTHERWISE.
27. PROVIDE GROUNDED CONDUCTORS TO SUIT METAL DISTRIBUTION EQUIPMENT IN ACCORDANCE WITH THE OESC LATEST REVISION.
28. ALL ELECTRICAL EQUIPMENT & INSTALLATION TO BE INSPECTED BY THE ESA.
29. ALL ELECTRICAL EQUIPMENT MUST BE CSA APPROVED. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ESA REVIEW AND INSPECTION.
30. ALL CONDUIT ROUTES NOT SHOWN SHALL BE FINALIZED ON SITE.
31. REFER TO SECTION 16051 FOR CABLE PULLING CALCULATION REQUIREMENTS.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:
LICENSED PROFESSIONAL ENGINEER
05/02/2025
T.G. BARICHELLO
100041891
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: ELECTRICAL LEGEND

DISCIPLINE: ELECTRICAL

DRAFTER: J.E.P.	SCALE: N.T.S.
DESIGNER: J.B.P.	DATE: MAY 2025
CHECKER: T.B.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: E01
SHEET No: 37 of 45	

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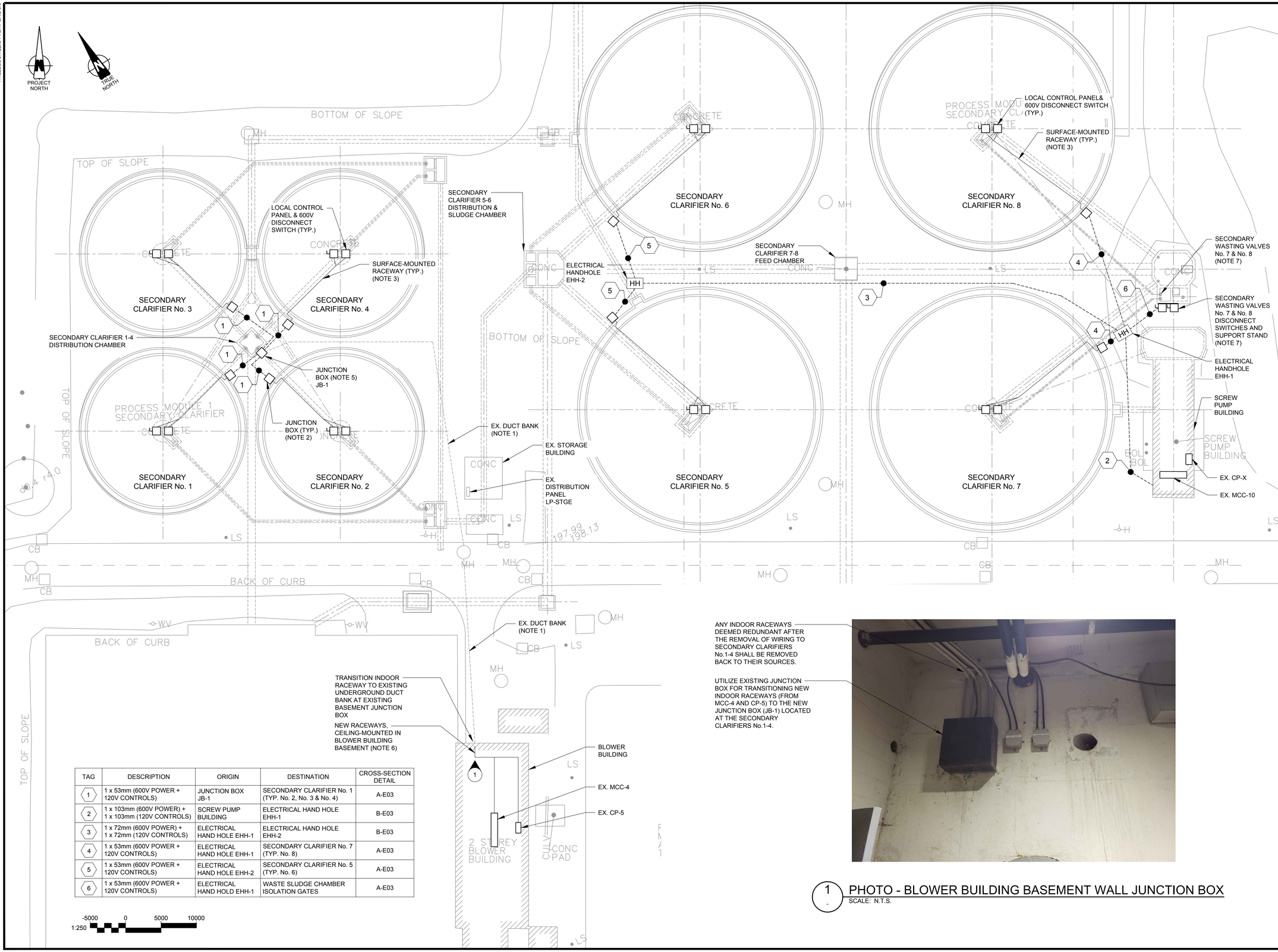


TAG	DESCRIPTION	ORIGIN	DESTINATION	CROSS-SECTION DETAIL
1	1 x 53mm (600V POWER + 120V CONTROLS)	JUNCTION BOX JB-1	SECONDARY CLARIFIER No. 1 (TYP. No. 2, No. 3 & No. 4)	A-E03
2	1 x 103mm (600V POWER) + 1 x 103mm (120V CONTROLS)	SCREW PUMP BUILDING	ELECTRICAL HAND HOLE EHH-1	B-E03
3	1 x 72mm (600V POWER) + 1 x 72mm (120V CONTROLS)	ELECTRICAL HAND HOLE EHH-1	ELECTRICAL HAND HOLE EHH-2	B-E03
4	1 x 53mm (600V POWER + 120V CONTROLS)	ELECTRICAL HAND HOLE EHH-1	SECONDARY CLARIFIER No. 7 (TYP. No. 8)	A-E03
5	1 x 53mm (600V POWER + 120V CONTROLS)	ELECTRICAL HAND HOLE EHH-2	SECONDARY CLARIFIER No. 5 (TYP. No. 6)	A-E03
6	1 x 53mm (600V POWER + 120V CONTROLS)	ELECTRICAL HAND HOLD EHH-1	WASTE SLUDGE CHAMBER ISOLATION GATES	A-E03

ANY INDOOR RACEWAYS DEEMED REDUNDANT AFTER THE REMOVAL OF WIRING TO SECONDARY CLARIFIERS No.1-4 SHALL BE REMOVED BACK TO THEIR SOURCES.

UTILIZE EXISTING JUNCTION BOX FOR TRANSITIONING NEW INDOOR RACEWAYS (FROM MCC-4 AND CP-5) TO THE NEW JUNCTION BOX (JB-1) LOCATED AT THE SECONDARY CLARIFIERS No.1-4.

1 - PHOTO - BLOWER BUILDING BASEMENT WALL JUNCTION BOX
SCALE: N.T.S.

NOTES:

1. EXISTING DUCT BANK LAYOUT SHOWN FOR REFERENCE PURPOSE ONLY. CONTRACTOR SHALL VERIFY LAYOUT ON SITE BEFORE UTILIZING TO PULL NEW WIRES FROM THE BLOWER BUILDING TO JUNCTION BOX JB-1.
2. CONTRACTOR SHALL INSTALL A JUNCTION BOX TO TRANSITION WIRING FROM UNDERGROUND RACEWAY TO SURFACE-MOUNTED RACEWAY.
3. CONTRACTOR SHALL SURFACE-MOUNT RIGID PVC CONDUIT RACEWAY FROM THE UNDERGROUND TRANSITION JUNCTION BOX, ALONG THE CLARIFIER WALKWAY, TO THE LOCAL CONTROL PANEL AND DISCONNECT SWITCH.
4. THE LOCAL CONTROL PANEL AND DISCONNECT SWITCH SHALL BE LOCATED ADJACENT TO THE CLARIFIER MECHANISM DRIVE AT THE THE CENTRE OF THE SECONDARY CLARIFIER, AND SHALL BE MOUNTED AT LEAST ONE METER (1m) ABOVE THE WALKWAY SUCH THAT THEY ARE OUTSIDE THE HAZARDOUS BOUNDARY AS DEFINED BY THE NFPA.
5. REPLACE THE EXISTING CONCRETE PEDESTAL MOUNTED JUNCTION BOX WITH A NEW JUNCTION BOX. NO TERMINATIONS SHALL TAKE PLACE WITHIN THE NEW JUNCTION BOX. THE NEW JUNCTION BOX SHALL SIT ATOP THE EXISTING CONCRETE PEDESTAL, AND UTILIZE THE EXISTING DUCT BANKS FOR ALL CONDUCTORS TRAVELING FROM THE BLOWER BUILDING.
6. CONTRACTOR SHALL FIELD IDENTITY ROUTES FOR NEW RACEWAYS TO CONNECT MCC-4 AND CP-5 WITH THE EXISTING UNDERGROUND DUCT BANK. PROVIDE SEALANT AS REQUIRED FOR ANY NEW WALL OR FLOOR OPENINGS.
7. REFER TO DRAWING E04 FOR WIRING DETAILS FOR THE NEW SECONDARY WASTING VALVES. FIELD-MOUNTED DISCONNECT SWITCHES FOR THE VALVES SHALL BE MOUNTED ATOP THE EXISTING CONCRETE STRUCTURE. REFER TO SUPPORT STAND DETAILS ON DRAWING E03. THE CONTRACTOR SHALL PROVIDE JUNCTION BOXES ON THE SUPPORT STAND AS REQUIRED TO SUIT THE INTENDED DESIGN, AND FOR SPLITTING THE SINGLE RIGID PVC CONDUIT DUCT TOWARDS ITS RESPECTIVE DESTINATIONS.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
T.G. BARICHELLO
100041891
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

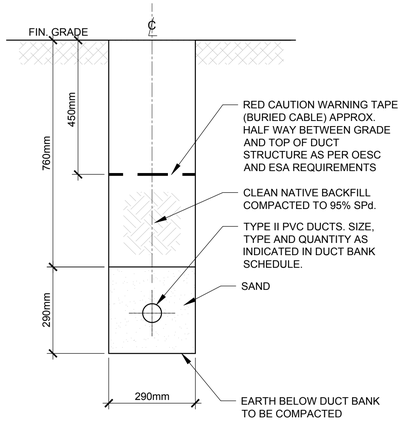
SHEET TITLE: ELECTRICAL SITE PLAN SECONDARY CLARIFIERS

DISCIPLINE: ELECTRICAL

DRAFTER: J.E.P.	SCALE: 1:250
DESIGNER: J.B.P.	DATE: MAY 2025
CHECKER: T.B.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: E02
SHEET No: 38 of 45	

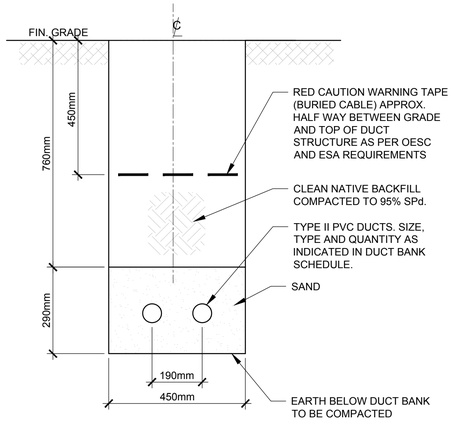
TITLEBLOCK 22x34 VERT ENG 3.0

PRINT DATE: 20250619 / PAPER SIZE: ANSI expand D (34.00 x 22.00 Inches)
PATH: \\cima.plus\cima\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ET001630A-E02.dwg / LAYOUT: E02



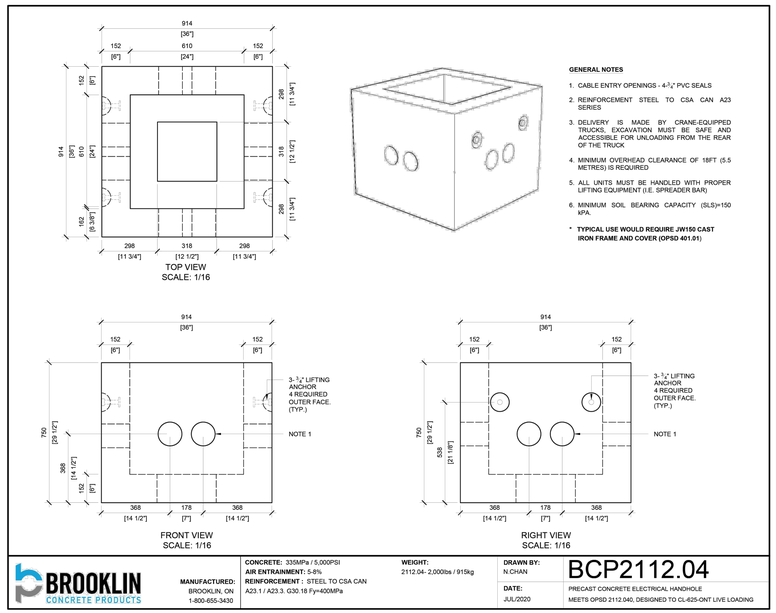
A / E-02 DUCT BANK CROSS-SECTION

SCALE: N.T.S.



B / E-02 DUCT BANK CROSS-SECTION

SCALE: N.T.S.



GENERAL NOTES

1. CABLE ENTRY OPENINGS - 4-$^3/_4$" PVC SEALS
2. REINFORCEMENT STEEL TO CSA CAN A23 SERIES
3. DELIVERY IS MADE BY CRANE-EQUIPPED TRUCKS. EXCAVATION MUST BE SAFE AND ACCESSIBLE FOR UNLOADING FROM THE REAR OF THE TRUCK
4. MINIMUM OVERHEAD CLEARANCE OF 18FT (5.5 METRES) IS REQUIRED
5. ALL UNITS MUST BE HANDLED WITH PROPER LIFTING EQUIPMENT (I.E. SPREADER BAR)
6. MINIMUM SOIL BEARING CAPACITY (SLS)=150 kPA.

* **TYPICAL USE WOULD REQUIRE JW150 CAST IRON FRAME AND COVER (OPSD 401.01)**

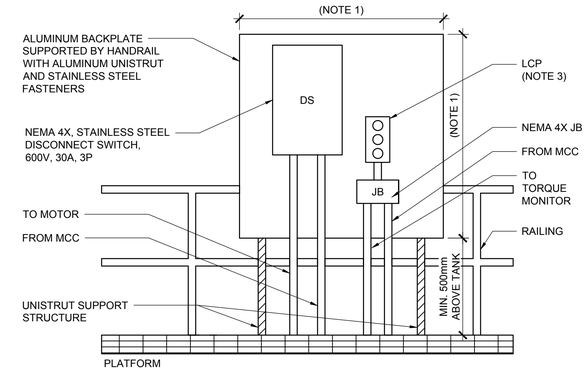
BROOKLIN CONCRETE PRODUCTS	MANUFACTURED: BROOKLIN, ON 1-800-655-3430	CONCRETE: 35SMPa / 5,000PSI AIR ENTRAINMENT: 5-8% REINFORCEMENT : STEEL TO CSA CAN A23.1 / A23.3. G30.18 Fy=400MPa	WEIGHT: 2112.04- 2,000lbs / 915kg	DRAWN BY: N.CHAN DATE: JUL/2020	BCP2112.04 PRECAST CONCRETE ELECTRICAL HANDHOLE MEETS OPSD 2112.040, DESIGNED TO CL-625-ONT LIVE LOADING

NOTES:

1. CONTRACTOR TO PROVIDE WATERTIGHT ACCESS COVER AND LID FOR THE ELECTRICAL HANDHOLE. COVER AND LID BY BROOKLIN, MODEL JW150.

1 / - ELECTRICAL HANDHOLE DETAIL

SCALE: N.T.S.

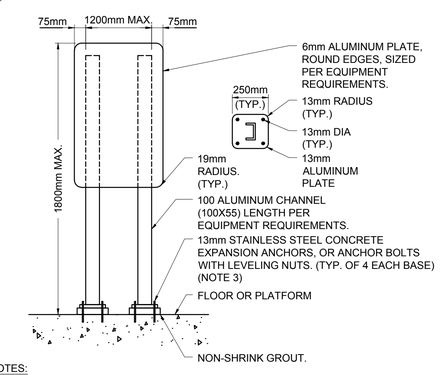


NOTES:

1. CONTRACTOR TO SIZE ALUMINUM BACKPLATE TO SUIT INSTALLATION OF DISCONNECT SWITCH, LOCAL CONTROL PANEL, AND JUNCTION BOX.
2. JUNCTION BOX SHALL BE PROVIDED ONLY IF CABLE LEADS ARE REQUIRED TO BE POTTED AT THE MOTOR AND CANNOT HAVE THE CABLE REMOVED FOR MOTOR MAINTENANCE OR REPLACEMENT.
3. REFER TO SHEET E06 FOR DETAILS.

2 / - CLARIFIER ELECTRICAL EQUIPMENT MOUNTING DETAIL

SCALE: N.T.S.

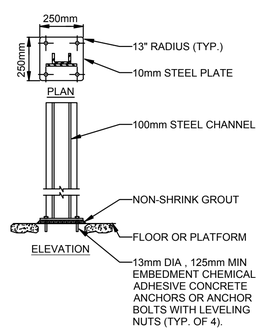


NOTES:

1. USE STAINLESS STEEL MOUNTING HARDWARE. USE WASHER AND SPLIT LOCKWASHER UNDER ALL NUTS.
2. FOR HEIGHT EXCEEDING 1500mm OR WEIGHT OF MOUNTED EQUIPMENT EXCEEDING 90kg, SIZE POSTS AND CONNECTIONS FOR LATERAL LOADS. EXTEND POSTS TO STRUCTURE ABOVE WHERE REQUIRED BY CALCULATIONS.

3 / - ELECTRICAL EQUIPMENT SUPPORT DETAIL

SCALE: N.T.S.

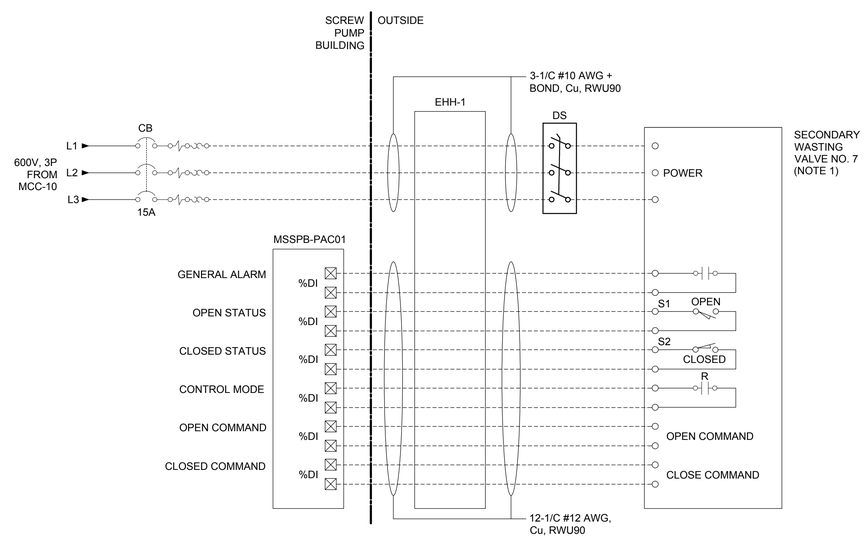


NOTES:

1. HOT-DIP GALVANIZE ASSEMBLY AFTER FABRICATION.
2. USE GALVANIZED MOUNTING HARDWARE. USE WASHERS AND SPLIT-LOCK WASHERS UNDER ALL NUTS AND BOLTS.
3. PROVIDE TYPE 316 STAINLESS STEEL FASTENING HARDWARE. SIZE AND CONFIGURATION AS INDICATED. EXTEND U-CHANNEL ASSEMBLY VERTICALLY AS NECESSARY TO ACCOMMODATE RACEWAYS DESCENDING FROM OVERHEAD.
4. PROVIDE ISOLATION GASKETS IN BETWEEN DISSIMILAR METALS.
5. SUPPORTS TO BE DESIGNED BY VENDOR AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN ONTARIO.

4 / - U-CHANNEL SUPPORT - BASE PLATE CONNECTION

SCALE: N.T.S.



NOTES:

1. WIRING DIAGRAM TYPICAL FOR SECONDARY WASTING VALVE NO. 8
2. CONTRACTOR SHALL SUPPLY AND INSTALL A NEW NAMEPLATE FOR EACH OF THE RESPECTIVE BUCKETS FEEDING THE SECONDARY WASTING VALVES.

5 / - TYPICAL SECONDARY WASTING VALVE WIRING DIAGRAM

SCALE: N.T.S.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER 05/02/2025 T.G. BARICHELLO 100041891 PROVINCE OF ONTARIO

DESIGNED BY / APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: ELECTRICAL DETAILS

DISCIPLINE: ELECTRICAL

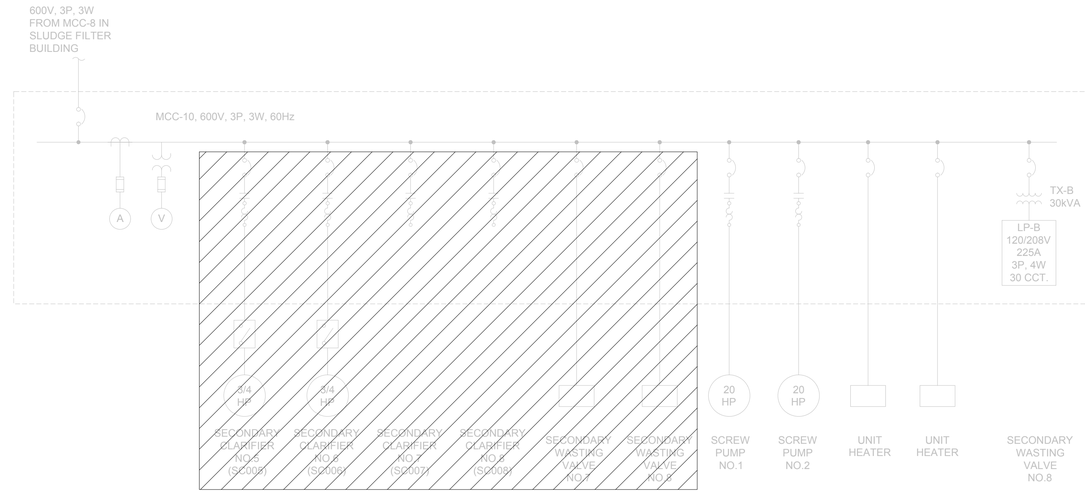
DRAFTER: J.E.P.	SCALE: N.T.S.
DESIGNER: J.B.P.	DATE: MAY 2025
CHECKER: T.B.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: E03
SHEET No: 39 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/05/02 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: \\cima.plus\cima\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413Sheets\E\T001630A-E03.dwg / LAYOUT: E03

NOTES:

1. MCC LAYOUT PROVIDED FOR REFERENCE PURPOSES. CONTRACTOR SHALL UTILIZE EXISTING SECONDARY CLARIFIER BUCKETS AND EXISTING VACANT BUCKETS FOR NEW SECONDARY CLARIFIER BUCKETS. CONTRACTOR SHALL SUPPLY AND INSTALL NEW BUCKETS FOR THE CLARIFIER AND WASTING VALVES.
2. EXISTING MCC IS MANUFACTURED BY KLOCKNER-MOELLER, SERIES 200.
3. REFER TO SPECIFICATION 01120 FOR SEQUENCING REQUIREMENTS FOR THE REMOVAL OF MCC BUCKETS FOR MCC-10.

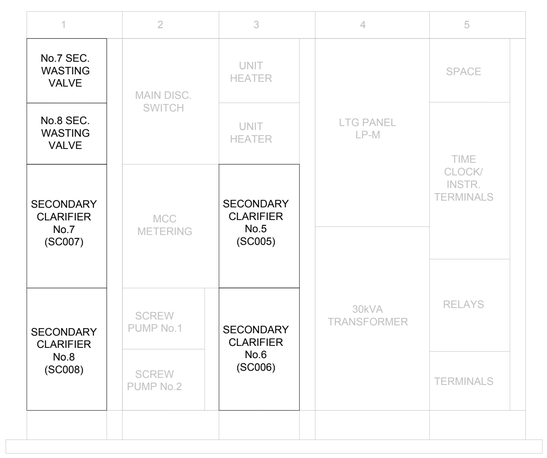
1 MCC-10 REMOVALS
SCALE: N.T.S.

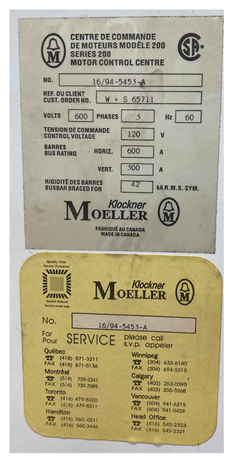


NOTES:

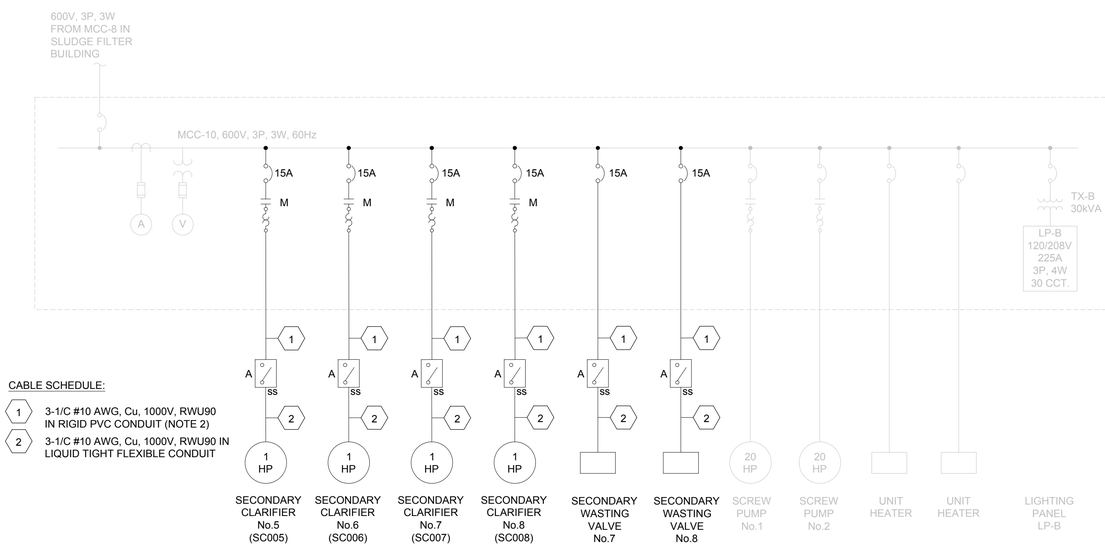
1. SINGLE LINE DIAGRAM PROVIDED FOR REFERENCE PURPOSES. CONTRACTOR IS REQUIRED TO VERIFY ALL EXISTING CONDITIONS, INCLUDING BUT NOT LIMITED TO BREAKER SIZES, CABLE SIZES, EQUIPMENT LOAD RATINGS, KA RATINGS AND OVER CURRENT SETTINGS AS REQUIRED PRIOR TO INSTALLATION OF THE NEW ELECTRICAL DISTRIBUTION.
2. DRAWING SHOWN FOR REFERENCE PURPOSES. REMOVE ALL POWER DISTRIBUTION, RACEWAYS, EQUIPMENT, JUNCTION BOXES AND ANY INFRASTRUCTURE THAT IS RENDERED REDUNDANT BY THE REMOVAL OF POWER DISTRIBUTION EQUIPMENT IDENTIFIED FOR REMOVAL. REMOVE ALL RELATED CONTROL WIRING AND FIELD I/O RELATED TO EACH EQUIPMENT, BACK TO THEIR RESPECTIVE CONTROL PANEL TERMINALS.

2 SINGLE LINE DIAGRAM (MCC-10) - REMOVALS
SCALE: N.T.S.





3 MCC-10 ELEVATION & NAMEPLATE DETAILS
SCALE: N.T.S.



CABLE SCHEDULE:

1. 3-1/C #10 AWG, Cu, 1000V, RWU90 IN RIGID PVC CONDUIT (NOTE 2)
2. 3-1/C #10 AWG, Cu, 1000V, RWU90 IN LIQUID TIGHT FLEXIBLE CONDUIT

NOTES:

1. SINGLE LINE DIAGRAM PROVIDED FOR REFERENCE PURPOSES. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO PERFORMING WORK.
2. REFER TO ELECTRICAL SITE PLAN FOR CONDUIT SIZES AND ROUTING DETAILS.

4 SINGLE LINE DIAGRAM (MCC-10) - MODIFICATIONS
SCALE: N.T.S.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
T.G. BARICHELLO
100041891
PROVINCE OF ONTARIO

DESIGNED BY — APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

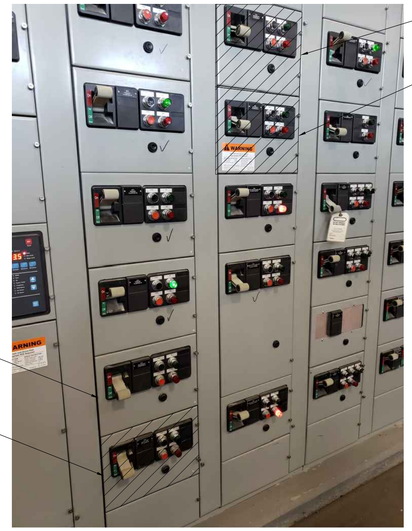
PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

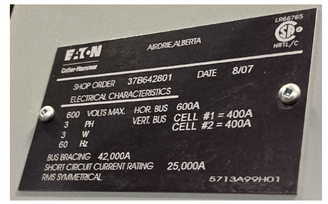
SHEET TITLE: SCREW PUMP BUILDING ELECTRICAL MODIFICATIONS

DISCIPLINE: ELECTRICAL

DRAFTER: J.E.P.	SCALE: N.T.S.
DESIGNER: J.B.P.	DATE: MAY 2025
CHECKER: T.B.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: E04
SHEET No: 40 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/05/02 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 inches)
PATH: \\cima.plus\cima\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ET001630A-E04.dwg / LAYOUT: E04



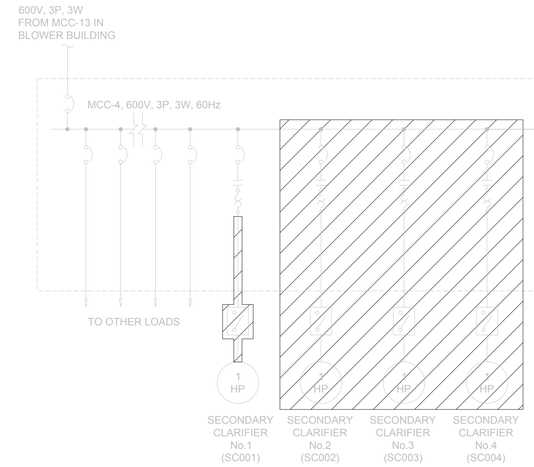


NOTES:

1. MCC LAYOUT PROVIDED FOR REFERENCE PURPOSES.
2. EXISTING MCC IS MANUFACTURED BY EATON CUTLER-HAMMAR, FREEDOM SERIES 2100.
3. EXISTING BUCKETS FOR SECONDARY CLARIFIERS 2-4 TO BE ABANDONED AFTER REMOVAL OF FIELD WIRING. CONTRACTOR TO SUPPLY AND INSTALL NEW NAMEPLATES INSCRIBED WITH "SPARE".

1 - MCC-4 REMOVALS & NAMEPLATE DETAILS

SCALE: N.T.S.

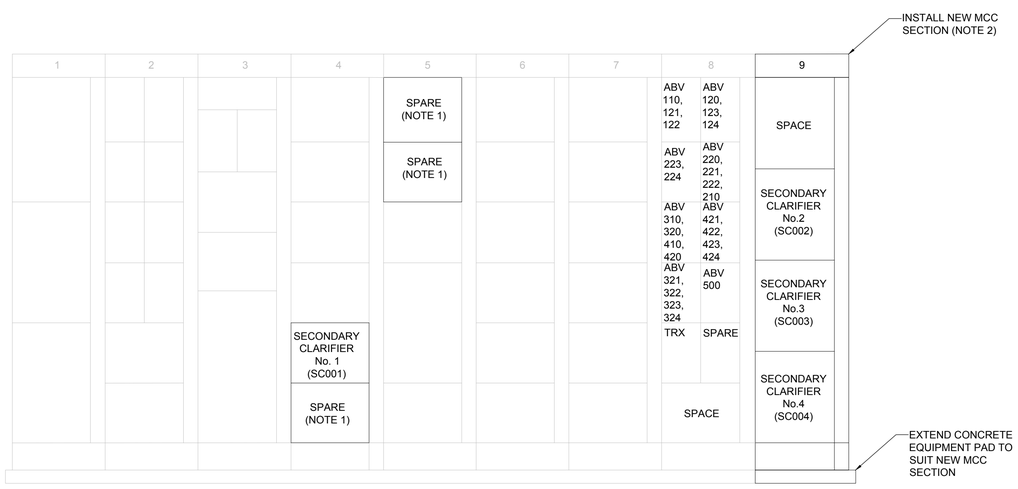


NOTES:

1. SINGLE LINE DIAGRAM PROVIDED FOR REFERENCE PURPOSES. CONTRACTOR IS REQUIRED TO VERIFY ALL EXISTING CONDITIONS, INCLUDING BUT NOT LIMITED TO BREAKER SIZES, CABLE SIZES, EQUIPMENT LOAD RATINGS, KA RATINGS AND OVER CURRENT SETTINGS AS REQUIRED PRIOR TO INSTALLATION OF THE NEW ELECTRICAL DISTRIBUTION.
2. DRAWING SHOWN FOR REFERENCE PURPOSES. REMOVE ALL POWER DISTRIBUTION, RACEWAYS, EQUIPMENT, JUNCTION BOXES AND ANY INFRASTRUCTURE THAT IS RENDERED REDUNDANT BY THE REMOVAL OF POWER DISTRIBUTION EQUIPMENT IDENTIFIED FOR REMOVAL. REMOVE ALL RELATED CONTROL WIRING AND FIELD I/O RELATED TO EACH EQUIPMENT, BACK TO THEIR RESPECTIVE CONTROL PANEL TERMINALS.

2 - SINGLE LINE DIAGRAM (MCC-4) - REMOVALS

SCALE: N.T.S.

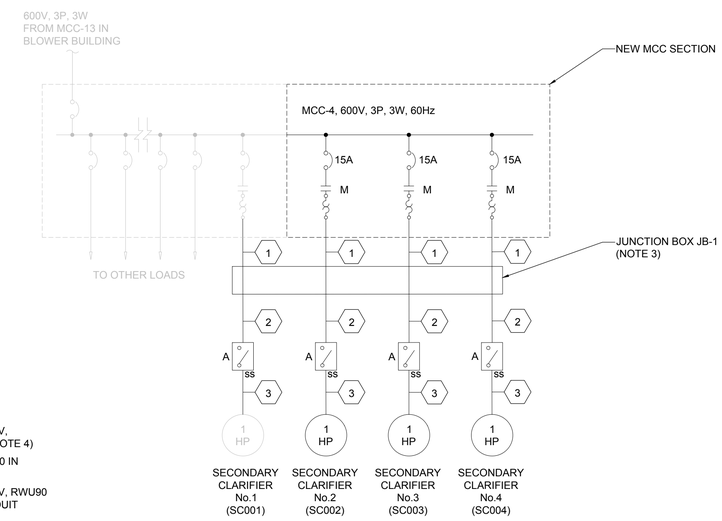


NOTES:

1. MCC LAYOUT SHOWN FOR REFERENCE PURPOSES. NOTED BUCKETS ARE THOSE WHICH WERE VACATED PER DETAIL 1 ON THIS PAGE.
2. EXISTING MCC-4 IS EATON CULTER-HAMMER, FREEDOM SERIES 2100 MCC. NEW MCC SECTION SHALL BE COMPATIBLE WITH EXISTING. EXISTING HORIZONTAL BUS SHALL BE EXTENDED INTO THE NEW SECTION.
3. NEW MCC SECTION SHALL BE BOTTOM-ENTRY. CONTRACTOR SHALL PROVIDE NEW FLOOR PENETRATIONS AS REQUIRED TO TRANSITION WIRING FROM THE NEW MCC SECTION TO NEW BASEMENT RACEWAYS. REFER TO DRAWING E02 FOR DETAILS.

3 - MCC-4 ELEVATION DETAIL

SCALE: N.T.S.



CABLE SCHEDULE:

1. 3-1/C #10 AWG + BOND, Cu, 1000V, RWU90 IN EXISTING CONDUIT (NOTE 4)
2. 3-1/C #10 AWG, Cu, 1000V, RWU90 IN RIGID PVC CONDUIT
3. 3-1/C #10 AWG + BOND, Cu, 1000V, RWU90 IN LIQUID TIGHT FLEXIBLE CONDUIT

NOTES:

1. SINGLE LINE DIAGRAM PROVIDED FOR REFERENCE PURPOSES. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO PERFORMING WORK.
2. REFER TO SITE PLAN FOR EXISTING CONDUIT ROUTING DETAILS. CONTRACTOR TO VERIFY LOCATIONS OF EXISTING DUCT BANKS PRIOR TO INSTALLATION OF NEW WIRING.
3. REFER TO SITE PLAN FOR LOCATION OF NEW JUNCTION BOX JB-1. ALL NEW WIRES TO PASS THROUGH JB-1 CONTINUOUSLY, WITHOUT ANY TERMINATIONS OR SPLICES, TO THEIR RESPECTIVE DESTINATIONS.
4. CONTRACTOR SHALL UTILIZE EXISTING RACEWAYS FOR POWER AND CONTROL WIRING TO SECONDARY CLARIFIERS 1-4. REFER TO SECONDARY CLARIFIER WIRING DIAGRAMS FOR DETAILS.
5. CONTRACTOR SHALL UTILIZE NEW RACEWAYS FROM JB-1 FOR POWER AND CONTROL WIRING TO SECONDARY CLARIFIERS 1-4. REFER TO SECONDARY CLARIFIER WIRING DIAGRAMS FOR DETAILS.

4 - SINGLE LINE DIAGRAM (MCC-4) - MODIFICATIONS

SCALE: N.T.S.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
T.G. BARICHELLO
100041891
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

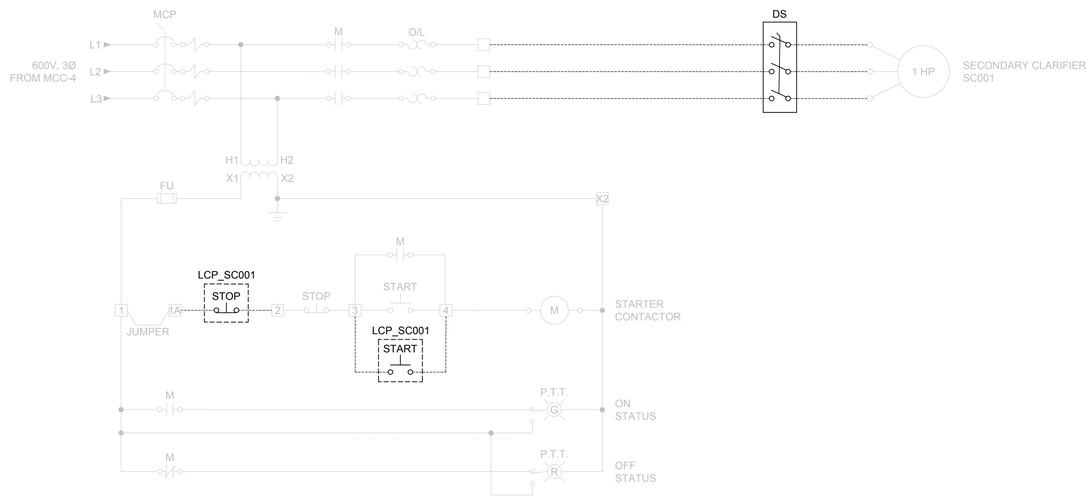
PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

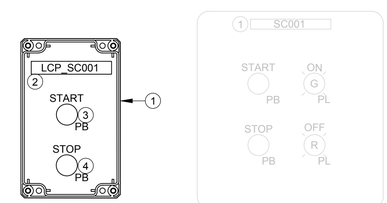
SHEET TITLE: BLOWER BUILDING ELECTRICAL MODIFICATIONS

DISCIPLINE: ELECTRICAL

DRAFTER: J.E.P.	SCALE: N.T.S.
DESIGNER: J.B.P.	DATE: MAY 2025
CHECKER: T.B.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: E05
SHEET No: 41 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/05/02 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 inches)
PATH: \\cima.plus\cima\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ET001630A-E05.dwg / LAYOUT: E05





OPERATOR CONTROL PANEL
LCP_SC001

MCC DOOR
MCC-4
(NOTE 1)

BILL OF MATERIAL - LCP

ITEM	DESCRIPTION	QTY.
1	NEMA 4X POLYCARBONATE ENCLOSURE ACCEPTABLE PRODUCT: HAMMOND, HOFFMAN OR ALLEN BRADLEY	1
2	NAME PLATE	1
3	MOMENTARY PUSH BUTTON, GREEN, 30MM, NEMA 4X	1
4	MOMENTARY PUSH BUTTON, RED, 30MM, NEMA 4X	1

1 / - SECONDARY CLARIFIER MECHANICAL DRIVE (SC001) SCHEMATIC WIRING DIAGRAM

SCALE: N.T.S.

NOTES:

1. WIRING DIAGRAM AND MCC DOOR LAYOUT PROVIDED FOR REFERENCE PURPOSES.
2. CONTRACTOR IS TO SUPPLY AND INSTALL A NEW LOCAL CONTROL PANEL (LCP) AND DISCONNECT SWITCH TO SECONDARY CLARIFIER NO.1, INCLUDING ALL NEW WIRING AND RACEWAYS. REFER TO THE ELECTRICAL SITE PLAN FOR DESCRIPTIONS OF THE EXISTING DUCT BANKS TO BE RE-USED.
3. THE LCP AND DISCONNECT SWITCH SHALL BE INSTALLED ON A NEW SUPPORT STAND TYPICAL OF SECONDARY CLARIFIERS 2-8. REFER TO DRAWING E03 FOR DETAILS.

TERMINALS LEGEND

- ● TERMINAL
- ○ DEVICE TERMINAL
- □ TERMINAL IN MCC
- ⊠ TERMINAL BLOCK IN RPU

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
T.G. BARICHELLO
100041891
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

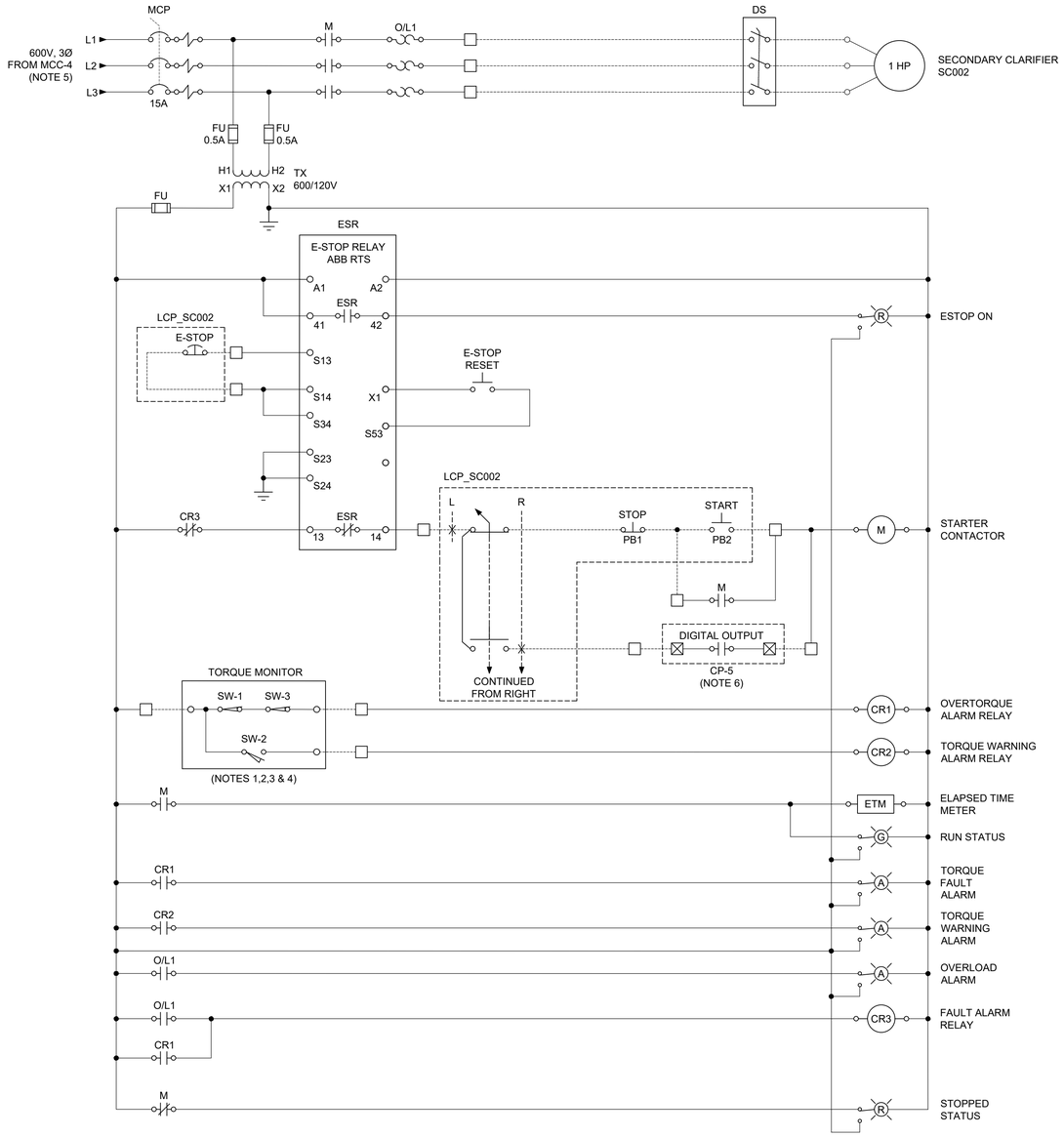
PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

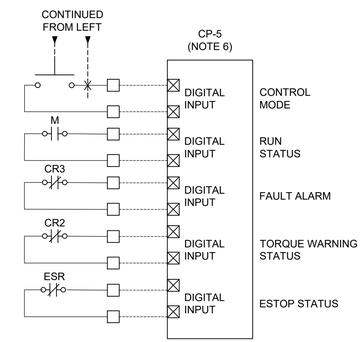
SHEET TITLE: SECONDARY CLARIFIER 1 WIRING DIAGRAM

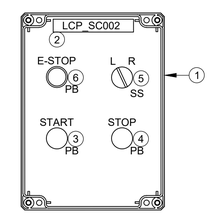
DISCIPLINE: ELECTRICAL

DRAFTER: J.E.P.	SCALE: N.T.S.
DESIGNER: J.B.P.	DATE: MAY 2025
CHECKER: T.B.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: E06
SHEET No: 42 of 45	

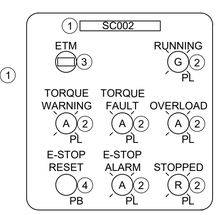
TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/05/02 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
PATH: \\cima.plusicima\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ET001630A-E06.dwg / LAYOUT: E06







OPERATOR CONTROL PANEL
LCP_SC002



MCC DOOR
MCC-4
(NOTE 5)

1 SECONDARY CLARIFIER MECHANICAL DRIVE (SC002) SCHEMATIC WIRING DIAGRAM

SCALE: N.T.S.
TYPICAL FOR SECONDARY CLARIFIERS 3-8.

NOTES:

1. TORQUE MONITOR TO BE SUPPLIED BY CLARIFIER SUPPLIER AND LOCATED IN THE FIELD AT MOTOR.
2. SW-1: HIGH TORQUE MOTOR CUT-OUT AT 85% LOAD.
3. SW-2: TORQUE ALARM SET AT 40% LOAD.
4. SW-3: FAIL SAFE MOTOR CUT-OUT AT 100% LOAD.
5. SECONDARY CLARIFIERS 2-4 TO BE FED FROM MCC-4. SECONDARY CLARIFIERS 5-8 TO BE FED FROM MCC-10.
6. SECONDARY CLARIFIERS 2-4 TO BE CONTROLLED FROM CP-5 IN THE BLOWER BUILDING. SECONDARY CLARIFIERS 5-8 TO BE CONTROLLED FROM THE CONTROL PANEL IN THE SCREW PUMP BUILDING.
7. IDENTIFY ALL WIRING AND TERMINALS BY NUMBER. CONTRACTOR TO FINALIZE TERMINAL NUMBERS ON SITE.
8. ALL EXTERNAL WIRING BEING INTERFACED WITH THE PLC PANEL TO BE WIRED THROUGH TERMINAL BLOCKS.
9. PROVIDE AUXILIARY CONTACTS AS REQUIRED TO ACHIEVE THE INTENDED DESIGN.
10. ALL DEVICES SHOWN IN THE POWER-OFF STATE.
11. DIAGRAMS ARE INTENDED TO SHOW ELEMENTARY CONTROL FUNCTIONS. NOT ALL DEVICES OR CONNECTIONS NECESSARY FOR SAFE OPERATIONS ARE SHOWN. MANUFACTURER WIRING DIAGRAMS TO SUIT SUPPLIED EQUIPMENT. DEVICE NAMES (EXAMPLE TERMINALS, RELAYS), FIELD I/O TAGGING, ARE TO BE SHOWN IN ACCORDANCE WITH THE CONTRACT DOCUMENTS/DRAWINGS.
12. ALL FIELD ALARMS FROM THE RESPECTIVE STARTER TIED TO A PLC CONTROL PANEL ARE TO BE 'FAIL-SAFE'. CONTRACTOR IS TO MODIFY THE WIRING AND/OR CONTACTS ACCORDINGLY TO ACHIEVE THIS INTENDED DESIGN.

TERMINALS LEGEND

- ● TERMINAL
- ○ DEVICE TERMINAL
- □ TERMINAL IN MCC
- ⊠ TERMINAL BLOCK IN RPU

BILL OF MATERIAL - LCP

ITEM	DESCRIPTION	QTY.
1	NEMA 4X POLYCARBONATE ENCLOSURE ACCEPTABLE PRODUCT: HAMMOND, HOFFMAN OR ALLEN BRADLEY	1
2	NAME PLATE	1
3	MOMENTARY PUSH BUTTON, GREEN, 30MM, NEMA4X	1
4	MOMENTARY PUSH BUTTON, RED, 30MM, NEMA 4X	1
5	2 POSITION SELECTOR SWITCH, 30MM	1
6	PUSH-TWIST RELEASE MUSHROOM HEAD E-STOP BUTTON, NEMA 4X	1

BILL OF MATERIAL - MCC DOOR

ITEM	DESCRIPTION	QTY.
1	NAME PLATE	1
2	LED PILOT LIGHT, 30MM	6
3	ELAPSED TIME METER	1
4	MOMENTARY PUSH BUTTON, BLACK, 30MM, NEMA 4X	1

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:
LICENSED PROFESSIONAL ENGINEER
05/02/2025
T.G. BARICHELLO
100041891
PROVINCE OF ONTARIO
DESIGNED BY
APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

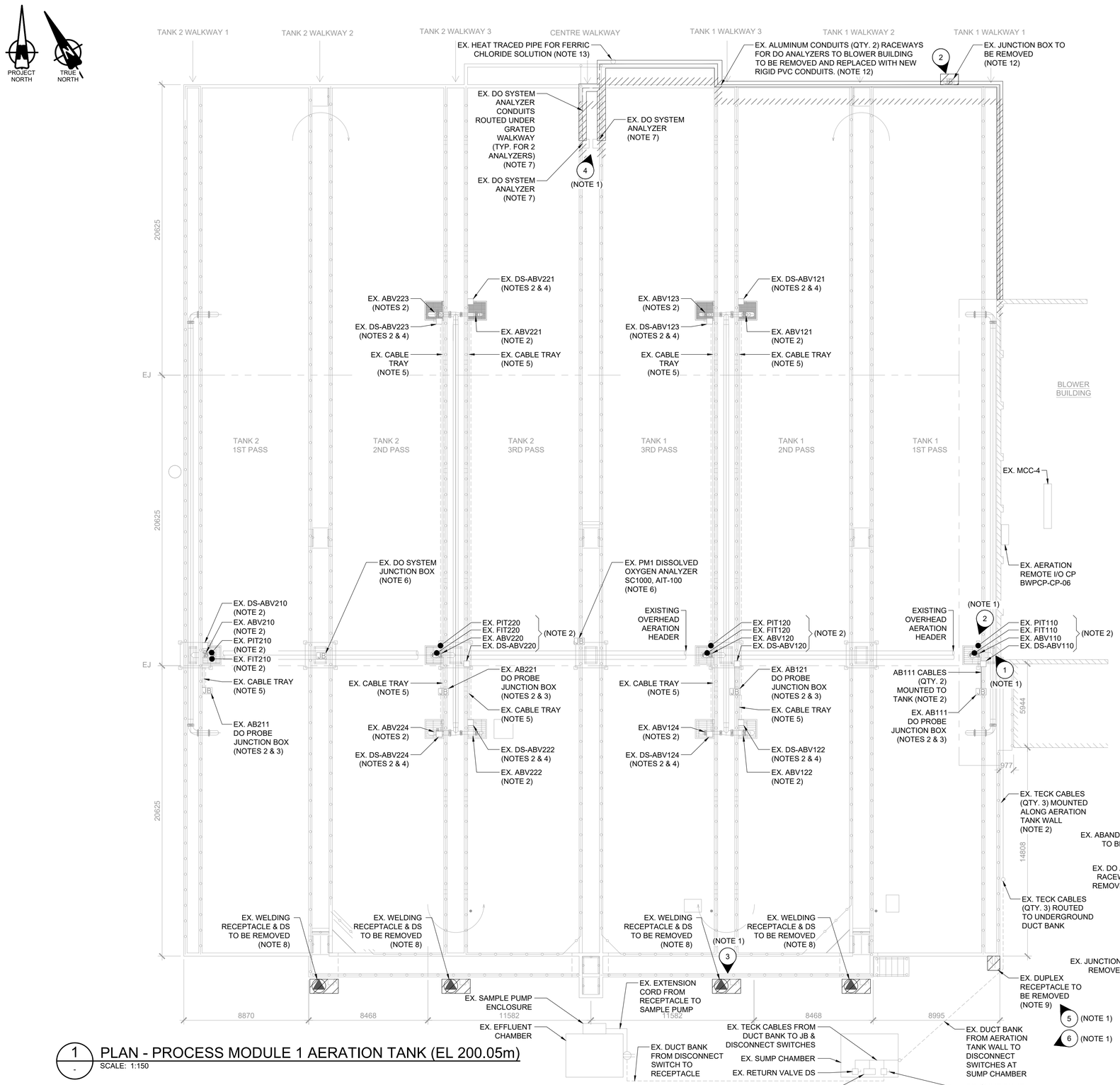
PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: SECONDARY CLARIFIERS 2-8 WIRING DIAGRAM

DISCIPLINE: ELECTRICAL

DRAFTER: J.E.P.	SCALE: N.T.S.
DESIGNER: J.B.P.	DATE: MAY 2025
CHECKER: T.B.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: E07
SHEET No: 43 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/04/25 / PAPER SIZE: ANSI full bleed D (34.00 x 22.00 inches)
PATH: \\cima.plus\cima\Cima-C12\Project\C12-57\T001630A - WWTP Rehab 2ndary Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheet\ET001630A-E07.dwg / LAYOUT: E07

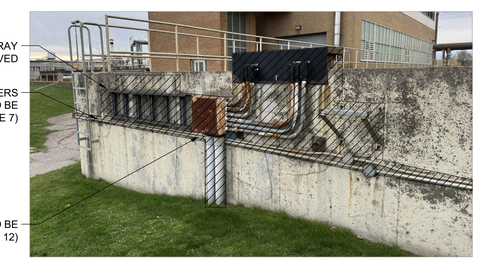


1 - PLAN - PROCESS MODULE 1 AERATION TANK (EL 200.05m)

SCALE: 1:150

NOTES:

1. REFER TO DRAWING E09 FOR PHOTO REFERENCES.
2. ALL EXISTING EQUIPMENT DENOTED WITH THIS NOTE SHALL HAVE THEIR CONNECTING CABLES DISCONNECTED; THEIR CABLES SHALL BE SAFELY AND NEATLY COILED AT THE AERATION HEADER FOR SAFE-KEEPING WHILE CONCRETE REHABILITATION WORK OCCURS ON THE TANKS. THE EXISTING CABLES SHALL BE RE-CONNECTED TO THEIR RESPECTIVE EQUIPMENT AFTER THE PRECEDING REHABILITATION WORK HAS BEEN COMPLETED. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AS REQUIRED TO ENSURE THE CABLES DO NOT INTERFERE WITH THE REHABILITATION WORK.
3. THE EXISTING DO PROBE JUNCTION BOXES AND THEIR ASSOCIATED PROBES DENOTED WITH THIS NOTE SHALL BE REMOVED AND STORED FOR SAFE-KEEPING DURING THE REHABILITATION WORK. THE BOXES AND PROBES SHALL BE RE-INSTALLED TYPICAL OF THEIR EXISTING INSTALLATION AFTER THE REHABILITATION WORK HAS BEEN COMPLETED.
4. EXISTING DISCONNECT SWITCHES DENOTED WITH THIS NOTE ARE MOUNTED TO THE AERATION TANK WALLS. THESE SWITCHES ARE TO BE REMOVED AND STORED FOR SAFE-KEEPING DURING THE REHABILITATION WORK. THE SWITCHES SHALL BE RE-INSTALLED TYPICAL OF THEIR EXISTING INSTALLATION AFTER THE REHABILITATION WORK HAS BEEN COMPLETED.
5. THE EXISTING CABLE TRAY FACILITATES THE RUNNING OF CABLES FROM THE AERATION HEADER, ALONG THE TOP OF THE TANK WALLS, FOLLOWING THE BASE OF THE HAND RAILS, TO THE RESPECTIVE INSTRUMENTS AND DEVICES AROUND THE TANKS. THE EXISTING TRAY IS TO BE REMOVED AND STORED FOR SAFE-KEEPING DURING THE REHABILITATION WORK. THE CABLE TRAY SHALL BE RE-INSTALLED TYPICAL OF ITS EXISTING INSTALLATION AFTER THE REHABILITATION WORK HAS BEEN COMPLETED AND AFTER THE NEW HAND RAILS HAVE BEEN INSTALLED. SUPPLY AND INSTALL ALL NEW STAINLESS STEEL MOUNTING HARDWARE FOR AFFIXING THE TRAYS TO THE TANKS. THE RE-INSTALLED TRAYS SHALL BE PLACED SUCH THAT THEY OPEN OUTWARDS INTO THE TANKS (THE NEW HAND RAIL KICKPLATES WILL BLOCK THEIR ACCESS IF INSTALLED AS EXISTING).
6. THE AIT-100 DO ANALYZER CONTROL PANEL AND ITS ASSOCIATED JUNCTION BOX ARE TO REMAIN IN PLACE DURING THE REHABILITATION WORK.
7. THE EXISTING DO SYSTEM ANALYZERS AND PROBES (QTY. OF 2) ARE LOCATED AT THE NORTH END OF THE AERATION TANKS ALONG THE CENTRE WALKWAY. THESE ANALYZERS AND PROBES ARE TO BE REMOVED AND STORED FOR SAFE-KEEPING DURING THE REHABILITATION WORK. THEY SHALL BE RE-INSTALLED TYPICAL OF THEIR EXISTING INSTALLATION AFTER THE REHABILITATION WORK HAS BEEN COMPLETED. ALL OUTDOOR RACEWAYS ASSOCIATED WITH THESE DEVICES - INCLUDING THOSE UNDER THE GRATED WALKWAY AND THOSE RUNNING ALONG THE OUTER NORTH AND EAST WALLS OF THE TANK - SHALL BE REMOVED. THEIR EXISTING CONDUITS INSIDE THE BLOWER BUILDING ARE TO BE MAINTAINED, DURING THE RE-INSTALLATION OF THE DEVICES, THE CONTRACTOR SHALL SUPPLY AND INSTALL NEW OUTDOOR RIGID PVC CONDUITS TYPICAL OF THE EXISTING LAYOUT, AND SHALL SUPPLY AND INSTALL ALL NEW WIRING TO THESE ANALYZERS. THE CONTRACTOR SHALL INSTALL EYS FITTINGS TO THE PVC CONDUIT AS REQUIRED BY CODE.
8. EXISTING WELDING RECEPTACLE SUPPORT STANDS (QTY. OF 4), INCLUDING RECEPTACLES AND ASSOCIATED DISCONNECT SWITCHES, ARE TO BE REMOVED. ALL WIRING AND RACEWAYS ASSOCIATED WITH THE RECEPTACLES ARE TO BE REMOVED BACK TO THEIR SOURCES.
9. EXISTING RECEPTACLE IS TO BE REMOVED. ALL WIRING AND RACEWAY ASSOCIATED WITH THE RECEPTACLE IS TO BE REMOVED BACK TO ITS SOURCE.
10. ALL DEVICES AFFECTED BY THE TEMPORARY REMOVAL OF THEIR CABLES SHALL BE RE-TESTED UPON THEIR RE-INSTALLATION TO VERIFY THEIR FUNCTIONALITY AT THE SATISFACTION OF THE ENGINEER AND THE CITY.
11. POWER FOR ALL MOTORIZED VALVES AT THE AERATION TANKS (ABVXXX) ARE FED FROM MCC-4 IN THE BLOWER BUILDING. ALL INSTRUMENTATION AT THE AERATION TANKS IS CONNECTED TO BWP-CP-06 IN THE BLOWER BUILDING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING WIRING CONDITIONS AND SAFELY DISCONNECTING AND LOCKING OUT POWER SOURCES AS NEEDED TO COMPLETE THE WORK.
12. REMOVE THE EXISTING ABANDONED JUNCTION BOX LOCATED ON THE NORTH WALL OF THE AERATION TANK, INCLUDING ALL CONNECTING ABANDONED CONDUITS. THE JUNCTION BOX IS CONNECTED TO TWO (2) 103MM PVC CONDUITS THAT TRANSITION UNDERGROUND; THESE CONDUITS ARE TO BE CUT, CAPPED, AND ABANDONED IN PLACE. IF PRESENT, ANY EXISTING WIRING IN THESE ABANDONED CONDUITS AND JUNCTION BOX ARE TO BE REMOVED BACK TO THEIR SOURCE(S).
13. EXISTING HEAT TRACE WIRING FOR THE FERRIC CHLORIDE PIPING TO BE REMOVED COMPLETELY BACK TO ITS SOURCE.
14. POWER TO THE SUMP PUMP DISCONNECT SWITCH TO BE MAINTAINED DURING CONSTRUCTION. EXISTING CABLE, AFTER BEING REMOVED FROM THE TANK WALL, IS TO BE PULLED FROM THE UNDERGROUND DUCT BANK BEFORE BEING RE-CONNECTED TO THIS DISCONNECT WHILE ITS AFFECTED CONCRETE WALL IS REHABILITATED. PROVIDE PROTECTION FOR THIS CABLE AS REQUIRED WHILE IT IS LAYING ON THE GROUND SURFACE.



NOTE:

1. PHOTO PROVIDED FOR REFERENCE PURPOSES.

2 - PHOTO - NORTH TANK WALL JUNCTION BOX

SCALE: N.T.S.

NOTE:

AERATION TANK REMOVALS AND CONSTRUCTION WORK ARE NOT PART OF THE BASE SCOPE OF WORK AND SHALL BE INCLUDED IN THE PROVISIONAL ITEMS IN THE CONTRACTOR'S BID.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
T.G. BARICHELLO
100041891
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: AERATION TANK ELECTRICAL DETAILS

DISCIPLINE: ELECTRICAL

DRAFTER: R.W.	SCALE: AS NOTED
DESIGNER: J.B.P.	DATE: MAY 2025
CHECKER: T.B.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: E08
SHEET No: 44 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0

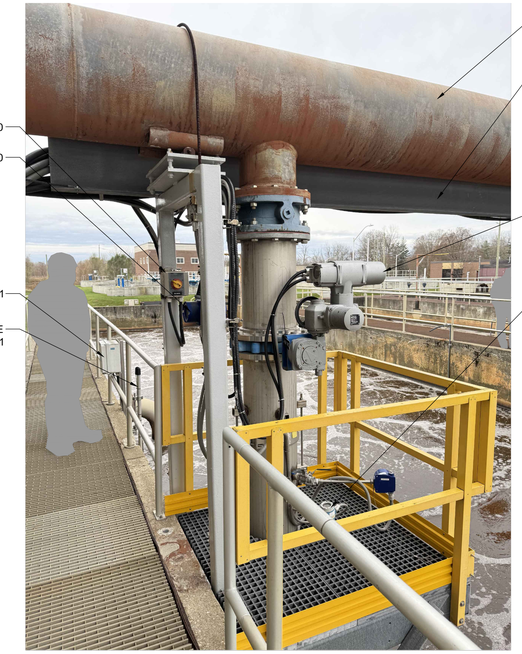
PRINT DATE: 2025/04/25 / PAPER SIZE: ANSI full blend D (34.00 x 22.00 Inches)
PATH: \\cima.plus\cima\Cima-C12\Projects\C12-STT001630A - WWTP Rehab 2nd&ry Clarifiers (Brantford)\400-Drawings\410-WIP\413\Sheets\ET001630A-E08.dwg / LAYOUT: E08

NOTES:

1. PHOTO PROVIDED FOR REFERENCE PURPOSES. REFER TO DRAWING E08 FOR DETAILS.

1 / E08 PHOTO - AERATION HEADER AND CABLES

SCALE: N.T.S.

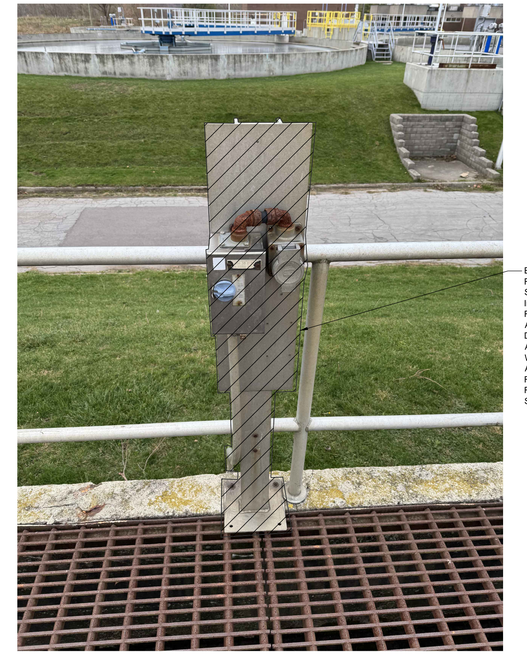


NOTES:

1. PHOTO PROVIDED FOR REFERENCE PURPOSES. REFER TO DRAWING E08 FOR DETAILS.

2 / E08 PHOTO - DEVICES AT AERATION HEADER

SCALE: N.T.S.



NOTES:

1. PHOTO PROVIDED FOR REFERENCE PURPOSES. REFER TO DRAWING E08 FOR DETAILS.

3 / E08 PHOTO - EXISTING 600V RECEPTACLE STANDS

SCALE: N.T.S.

NOTES:

1. PHOTO PROVIDED FOR REFERENCE PURPOSES. REFER TO DRAWING E08 FOR DETAILS.

4 / E08 PHOTO - EXISTING DO SYSTEM ANALYZER

SCALE: N.T.S.

NOTES:

1. PHOTO PROVIDED FOR REFERENCE PURPOSES. REFER TO DRAWING E08 FOR DETAILS.

5 / E08 PHOTO - AERATION TANK SOUTH-EAST CORNER WALLS

SCALE: N.T.S.

NOTES:

1. PHOTO PROVIDED FOR REFERENCE PURPOSES. REFER TO DRAWING E08 FOR DETAILS.

6 / E08 PHOTO - SUMP CHAMBER & EFFLUENT CHAMBER

SCALE: N.T.S.

NOTE:

AERATION TANK REMOVALS AND CONSTRUCTION WORK ARE NOT PART OF THE BASE SCOPE OF WORK AND SHALL BE INCLUDED IN THE PROVISIONAL ITEMS IN THE CONTRACTOR'S BID.

No.	Date	Description	By
0	MAY 2025	ISSUED FOR TENDER	N.S.

STAMPS:

LICENSED PROFESSIONAL ENGINEER
05/02/2025
T.G. BARICHELLO
100041891
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

ENGINEER: CIMA+

CLIENT: THE CORPORATION OF THE CITY OF BRANTFORD

PROJECT NAME: BRANTFORD WWTP SECONDARY CLARIFIERS REHABILITATION

SHEET TITLE: AERATION TANK ELECTRICAL PHOTOS

DISCIPLINE: ELECTRICAL

DRAFTER: R.W.	SCALE: AS NOTED
DESIGNER: J.B.P.	DATE: MAY 2025
CHECKER: T.B.	APPROVER: N.S.
PROJECT No: T001630A	DRAWING No: E09
SHEET No: 45 of 45	

TITLEBLOCK 22x34 VERT ENG 3.0
PRINT DATE: 2025/04/25 | PAPER SIZE: ANSI full bleed D (34.00 x 22.00 Inches)
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