

**D011 GENERAL**

**D014-1 GENERAL INFORMATION**

1. THE INFORMATION PRESENTED ON THESE DRAWINGS HAS BEEN DESIGNED AND ANALYZED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CANADIAN NATIONAL BUILDING CODE AND ALL OTHER APPLICABLE CODES.
2. CONTRACTOR IS TO VERIFY/CONFIRM ALL DIMENSIONS/PERTINENT INFORMATION WITH THE ARCHITECT BEFORE PROCEEDING WITH WORK. ANY OPENINGS NOT INDICATED ON STRUCTURAL DRAWINGS ARE TO BE APPROVED BY STRUCTURAL ENGINEER IN WRITING PRIOR TO CONSTRUCTION.
3. CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION.

**D014-2 SHIP DRAWINGS**

1. SUBMIT SHIP DRAWINGS FOR ALL STRUCTURAL WORK AND ANY WORK AFFECTING THE STRUCTURE TO THE CONSTRUCTION MANAGER. OBTAIN ARCHITECT'S & ENGINEER'S APPROVAL BEFORE PROCEEDING WITH THE FABRICATION.
2. EACH OF THE FOLLOWING SHIP DRAWINGS MUST BEAR THE SIGNATURE AND STAMP OF A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE (PLUS OTHER DRAWINGS AS NOTED):
  - a) DRAWINGS FOR ANY TEMPORARY WORK.
  - b) ENGAGEMENT OF ANY STRUCTURAL PARTS DESIGNED BY THE CONTRACTOR'S FORCES INCLUDING EXTERIOR BUILDING FRAMEWORK.
  - c) CONCRETE REINFORCEMENT.
3. SHIP DRAWINGS MUST BE REVIEWED AND STAMPED BY THE CONTRACTOR BEFORE ISSUING TO THE CONSTRUCTION MANAGER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION SCHEDULE DUE TO NONCOMPLIANCE WITH THIS REQUIREMENT. THE RESPONSIBILITY OF THE CONTRACTOR.
4. SHIP DRAWINGS ARE REVIEWED FOR CONFORMANCE WITH THE GENERAL DESIGN CONCEPT. THIS REVIEW DOES NOT COVER THE QUANTITIES AND DETAILED DESIGN OF THE MATERIALS AND COMPONENTS AS REQUIRED TO PROVIDE THE COMPLETE AND SHIP/FACILITY JOB DESCRIBED IN THE DESIGN DOCUMENTS REMAINS WITH THE CONTRACTOR.

**D021 CONCRETE**

**D021-1 CONCRETE COVER (CLEAR TO REINFORCING)**

U/S FOOTINGS, PRE-CAST GRADE BEAMS (LENGTH 900)	75mm (3")
WALLS	50mm (2")
FOOTINGS, PRE-CAST GRADE BEAMS (900 & 109)	40mm (1 1/2")
SLABS	40mm (1 1/2")
BEAMS	40mm (1 1/2") TO STEELWORK
COLUMNS	40mm (1 1/2") TO STEELWORK
BEAMS	40mm (1 1/2") TO STEELWORK
COLUMNS	40mm (1 1/2") TO STEELWORK

PROVIDE 30mm (1 1/4") COVER FOR BOTTOM STEEL FOR SLAB ABOVE 3MR, FINE RATED AREAS.

**D022-2 REINFORCING STEEL**

1. SPACING OF BARS SHALL BE APPROXIMATELY UNIFORM WITHIN THE CORRESPONDING STRIPS. BARS SHALL BE PLACED AS SPECIFIED. OBTAIN APPROVAL OF ALL MANUFACTURERS FROM ENGINEER BEFORE THE PLACING OF CONCRETE.
2. WHERE TENSION LAPS ARE SPECIFIED, LAP REINFORCING STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE CANADIAN NATIONAL BUILDING CODE SHALL BE USED. TENSION LAPS SHALL BE 1.33 TIMES THE DEVELOPMENT LENGTH. OTHERWISE, WIRE MESH LAPS SHALL BE 150mm MINIMUM.

**TYPICAL REBAR REQUIREMENTS:**

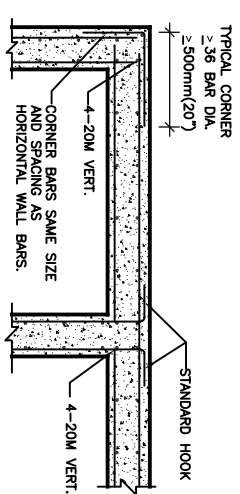
LAPS AS ON DRAWINGS  
2.36 BAR DIA.  
2.800mm(24")

**BAR DESIGNATION:**

LENGTH: 10-15M, 6000/4100 T MEANS 10 BARS, SIZE 15M, TOP OF SLAB 5-6600  
LONG/5-4100 LONG ALTERNATING (+ HOOK LENGTH FOR TOP BARS @ SLAB EDGES)  
WEIGHT: 10-15M 150/290 MEANS 10 BARS, SIZE 15M, TOP OF SLAB 5-15-0" LONG/5-8"-0"  
LONG ALTERNATING (+HOOK LENGTH FOR TOP BARS @ SLAB EDGES)

PROVIDE HOOKS WHERE TOP BARS TERMINATE AT EDGES.

**D023 HORIZONTAL WALL STEEL DETAIL AT CORNERS UNL (NON-SHEAR WALL LOCATIONS)**



**D024 CONCRETE MIXES**

PROPORTION NORMAL STRENGTH CONCRETE IN ACCORDANCE WITH CAN/CSA-423.1, TO MEET THE FOLLOWING QUALITY FOR ALL CONCRETE AS INDICATED.

28 DAY LOCATION	STRENGTH	SLAB CLASS OF EXPOSURE
SLAB ON GRADE (INTERIOR)	25 MPa(4200psi)	N
SLAB ON GRADE (EXTERIOR)	32 MPa(4700psi)	C-2
WALLS (NOT IN SHEAR WALLS OR COLUMNS)	25 MPa(4200psi)	F-2
FOOTINGS	25 MPa(4200psi)	
WALLS	35 MPa(5100psi)	
COLUMNS	35 MPa(5100psi)	
SUSPENDED SLABS	35 MPa(5100psi)	C-2
RETAINING WALLS	35 MPa(5100psi)	C-1
EXTERIOR LAWSLOPE WALL ELEMENTS	35 MPa(5100psi)	C-1

\*OBTAIN THESE SLABS WITH 48 OF SETTING WATER RESISTANCE TEST. THESE SLABS SHALL BE EXPOSED TO EXTERIOR CONDITIONS TO HAVE MINIMUM 6% AIR ENTRAINMENT.

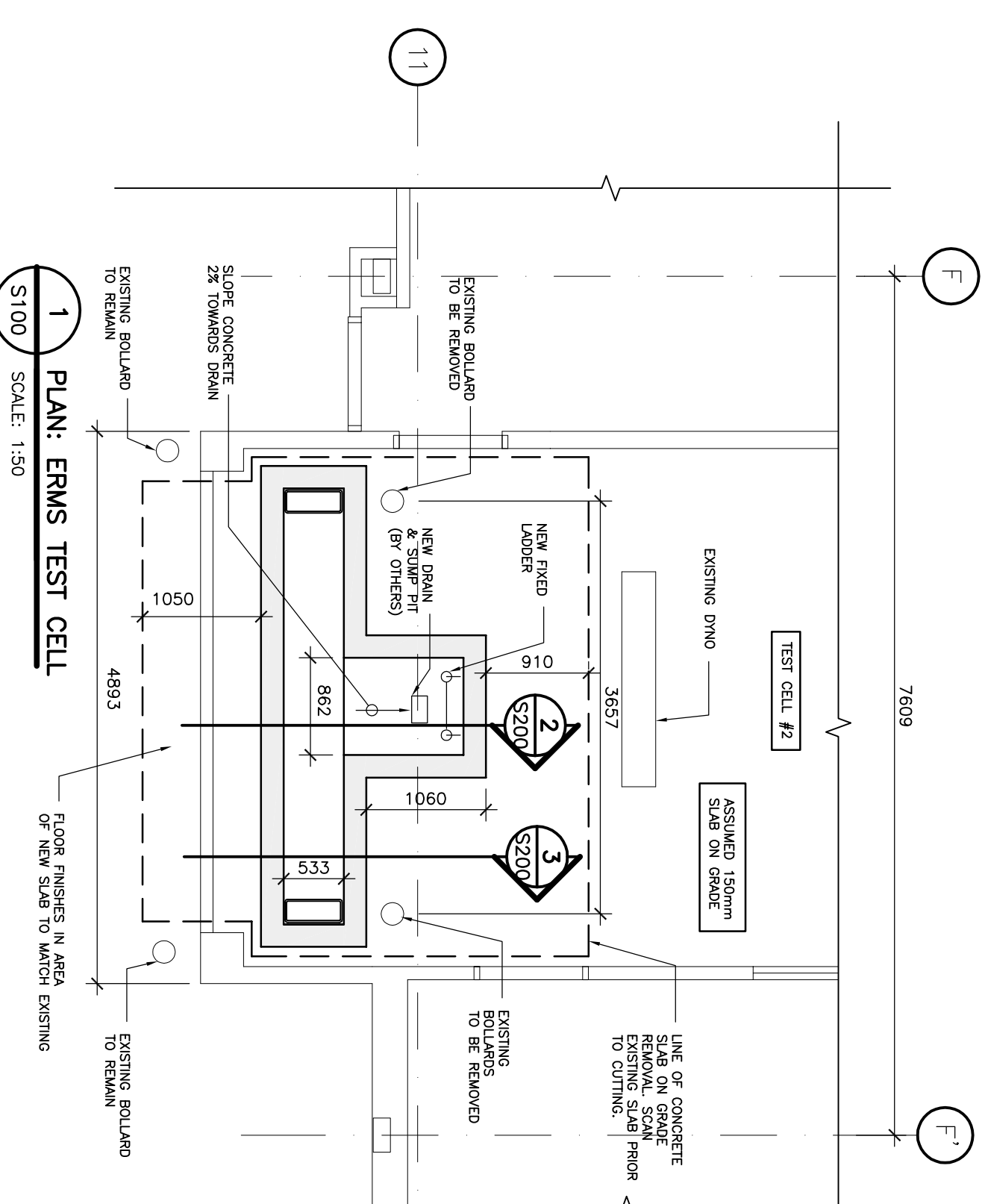
READY-MIXED CONCRETE AND CONCRETE PROPORTIONS SHALL BE IN ACCORDANCE WITH CSA 423.1, CLAUSE 12 AND AS FOLLOWS:

1. MINIMUM ALLOWABLE COMPRESSIVE STRENGTH SHALL BE 30 MPa(4400psi) AT 28 DAYS OF AGE, UNLESS OTHERWISE NOTED OR SHOWN.
2. FLEXED NORMAL PORTLAND CEMENT/CEMENTIOUS MATERIALS RATIO IS USED EXCEPT FOR FLOOR OF EXTERIOR IN CONCRETE FLOOR MIXES SHALL BE 100% NORMAL PORTLAND CEMENT.
3. PROVIDE CERTIFICATION THAT MIX PROPORTIONS SELECTED WILL PRODUCE CONCRETE OF SPECIFIED QUALITY AND YIELD AND THAT STRENGTH WILL COMPLY WITH CAN/CSA-423.1-406.
4. USE OF CALCIUM CHLORIDE NOT PERMITTED.
5. DO NOT CHANGE CONCRETE MIX WITHOUT PRIOR APPROVAL OF CONSULTANT. SHOULD CHANGE IN MATERIAL SOURCE BE PROPOSED, NEW MIX DESIGN TO BE APPROVED BY CONSULTANT.
6. APPLY XTREX COATING IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS WHERE NOTED.

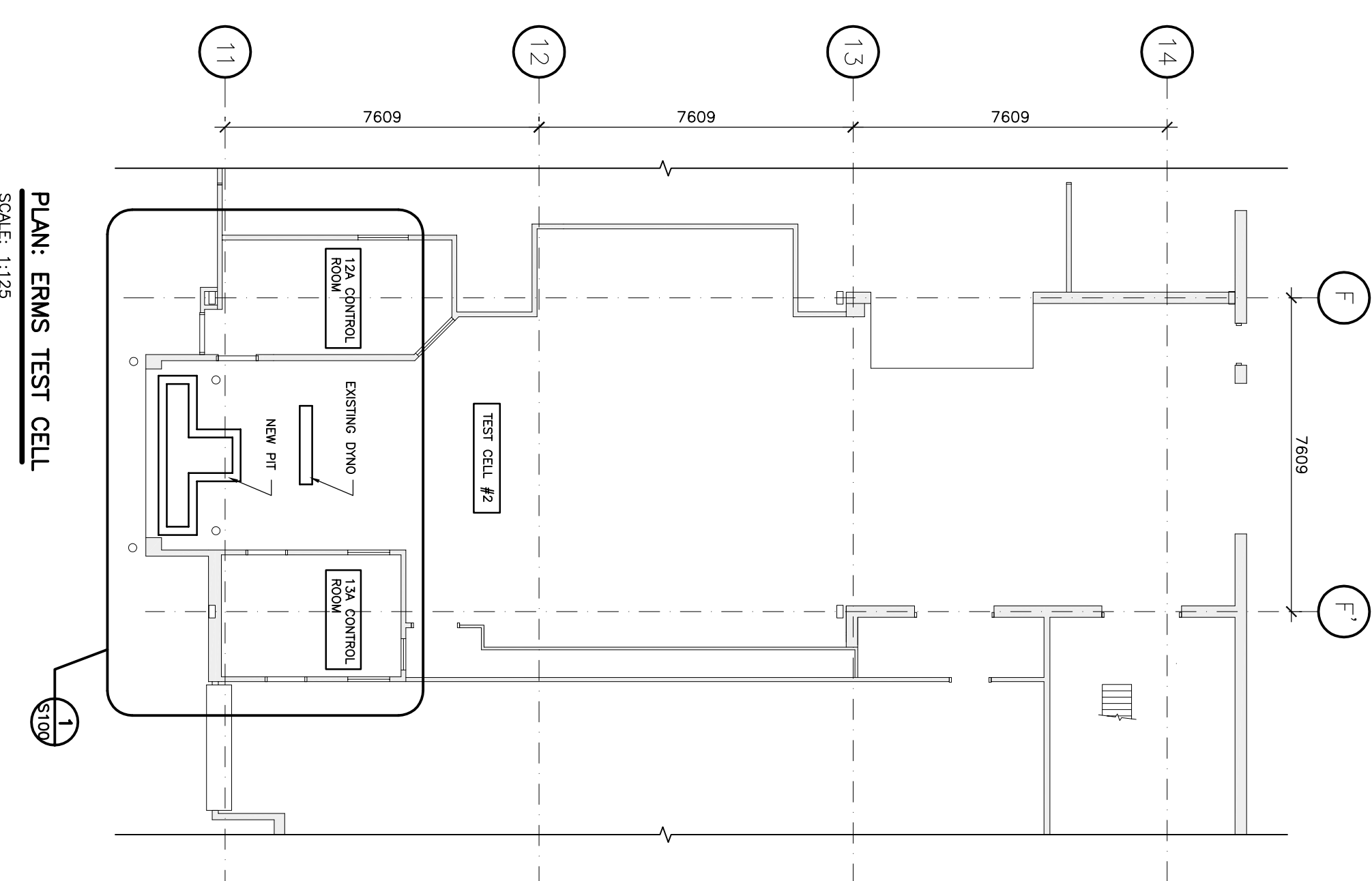
**D031 FOUNDATIONS**

**D031-1 FOOTINGS:**

ALL FOOTINGS TO BEAR ON UNDISTURBED SOIL WITH MINIMUM BEARING STRENGTH OF 100 KPa AT 3% AND 150 KPa AT 4% ULS. DETECHNICAL ENGINEER TO COMMENT.



**1 PLAN: ERMS TEST CELL**  
SCALE: 1:50



**1 PLAN: ERMS TEST CELL**  
SCALE: 1:125

No.	DATE	REVISIONS	BY
3	DEC 19/13	ISSUED FOR TENDER	ME
2	NOV 09/13	ISSUED FOR 99% REVIEW	ME
1	OCT 19/13	ISSUED FOR REVIEW	ME

**CLELAND JARDINE ENGINEERING LIMITED**  
280 TERRY AVE. SUITE 200  
SCARBOROUGH, ONTARIO M1H 3T7  
TEL: (416) 291-1533 FAX: (416) 291-1703  
email: info@clelandjardine.com

**PROJECT**  
355 RIVER ROAD  
ERMS TEST CELL #2  
RESTRAINT SYSTEM

**DRAWING**  
PARTIAL PLAN &  
GENERAL NOTES

**DRAWN:** M. EPPICH  
**DESIGNED:** B. WEATHEROON  
**DATE:** MAR/2013  
**SCALE:** AS SHOWN  
**PRODUCT No.:** 12-2479  
**DRAWING No.:** S100

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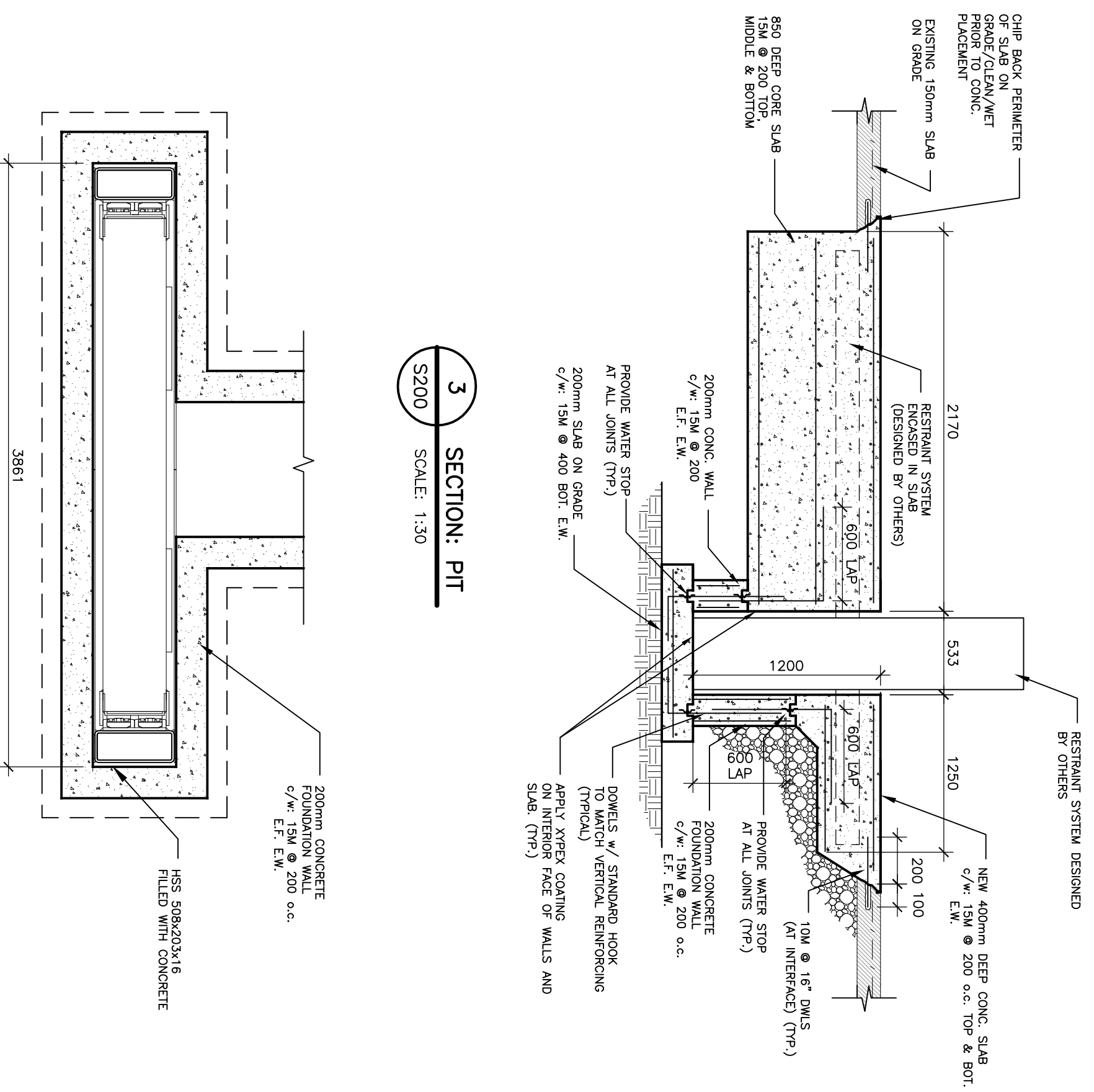
No.	DATE	REVISIONS	BY
3	DEC 18/13	ISSUED FOR TENDER	ME
2	NOV 05/13	ISSUED FOR 99% REVIEW	ME
1	OCT 16/13	ISSUED FOR REVIEW	ME

**CLELAND JARDINE ENGINEERING LIMITED**  
 500 TERN DOCKSIDE, SUITE 200  
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 TEL: (416) 491-1533 FAX: (416) 491-1703  
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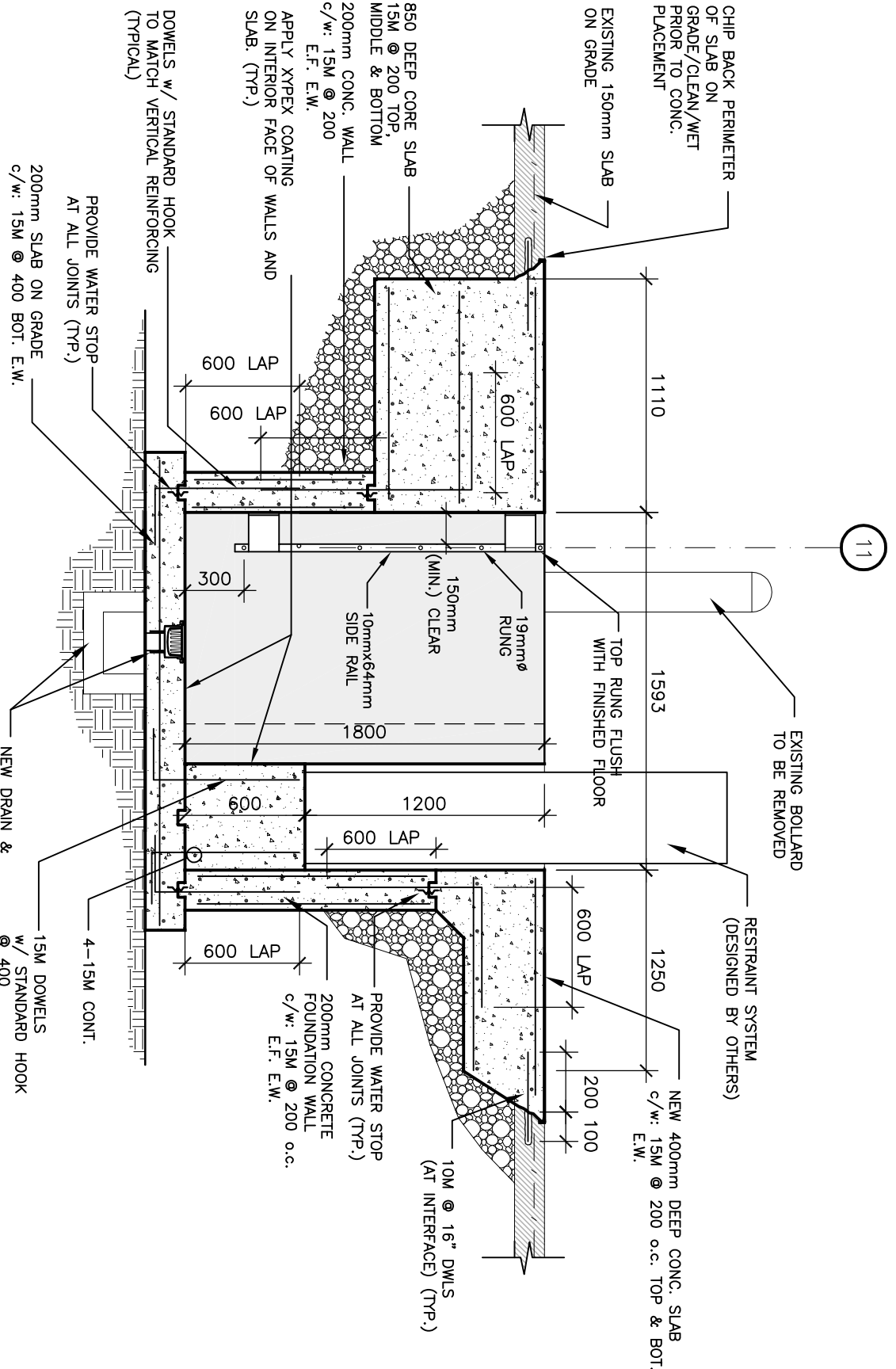
**PROJECT**  
 3555 RIVER ROAD  
 ERMS TEST CELL #2  
 RESTRAINT SYSTEM

**DRAWINGS**  
 SECTIONS &  
 DETAILS

DRAWN:	M. EPPICH	DRAWING No.	S200
DESIGNED:	B. WEATHEROON		
DATE:	MAR/2013		
SCALE:	AS SHOWN		
PRODUCT No.	12-2479		

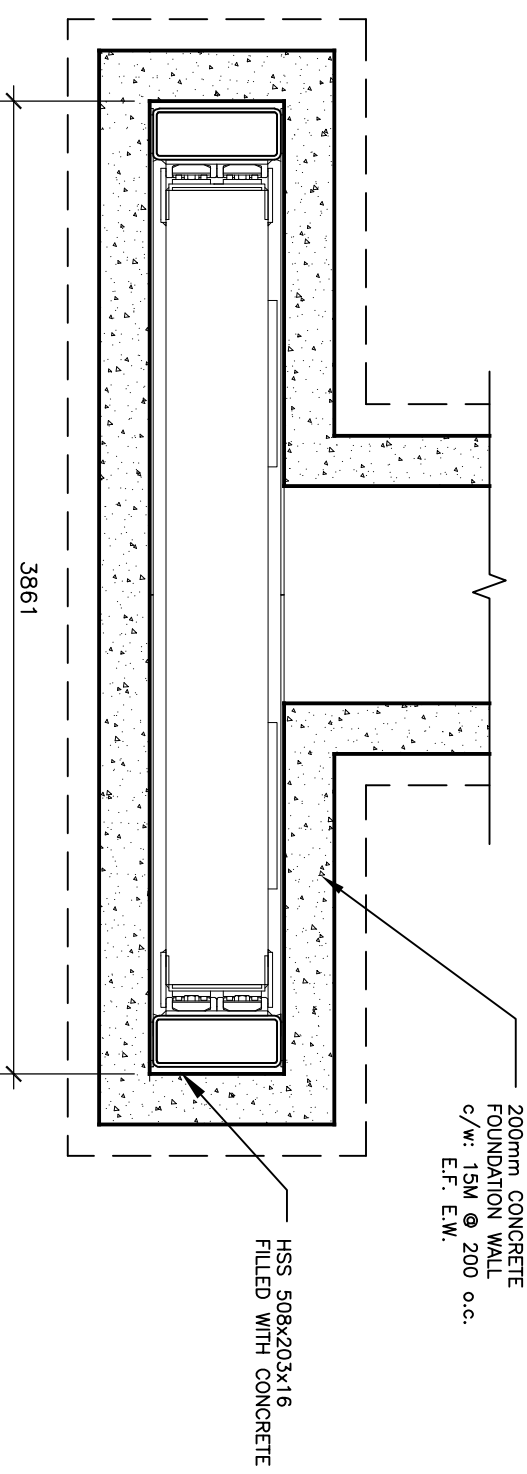


**3 SECTION: PIT**  
 S200 SCALE: 1:30



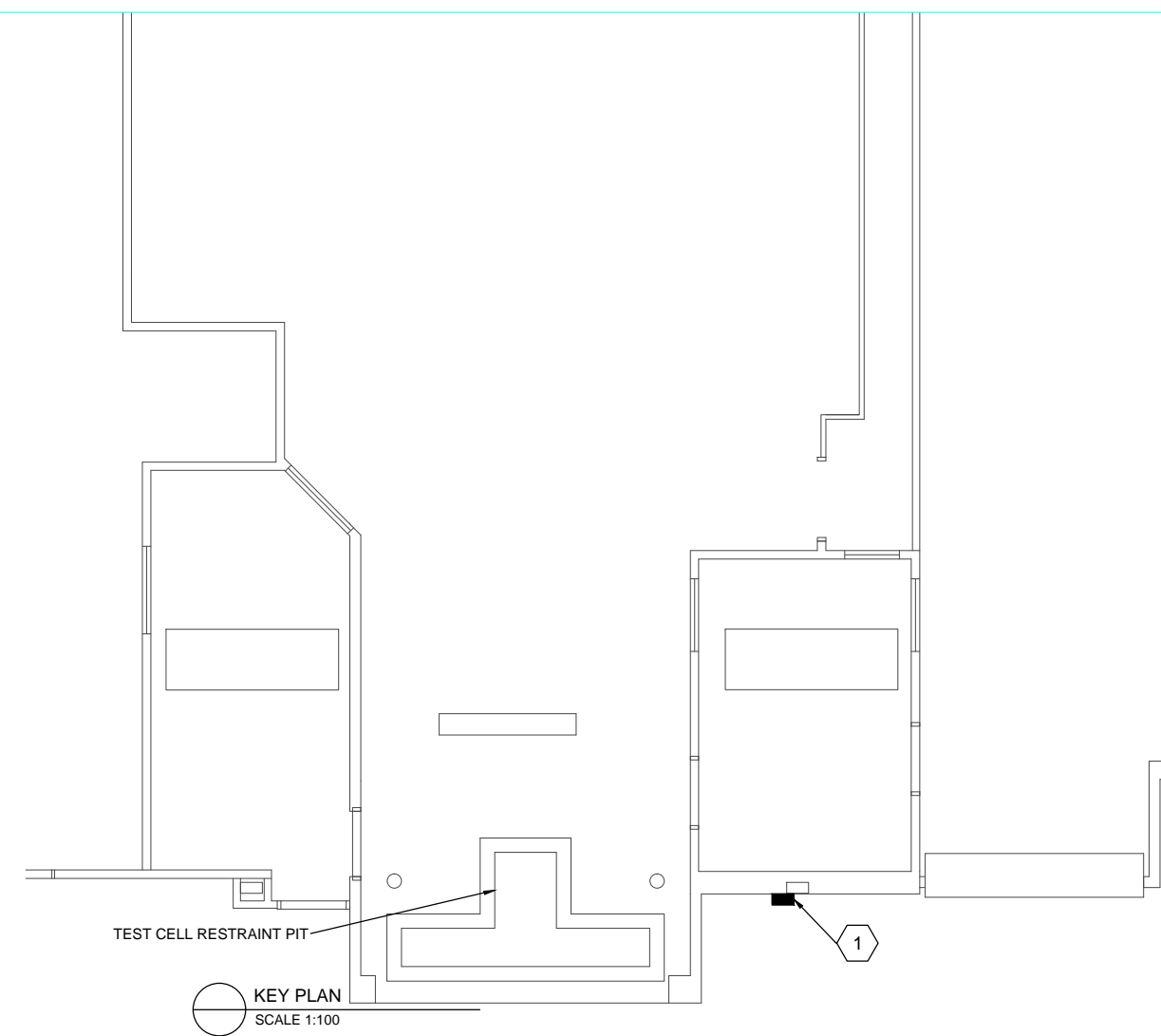
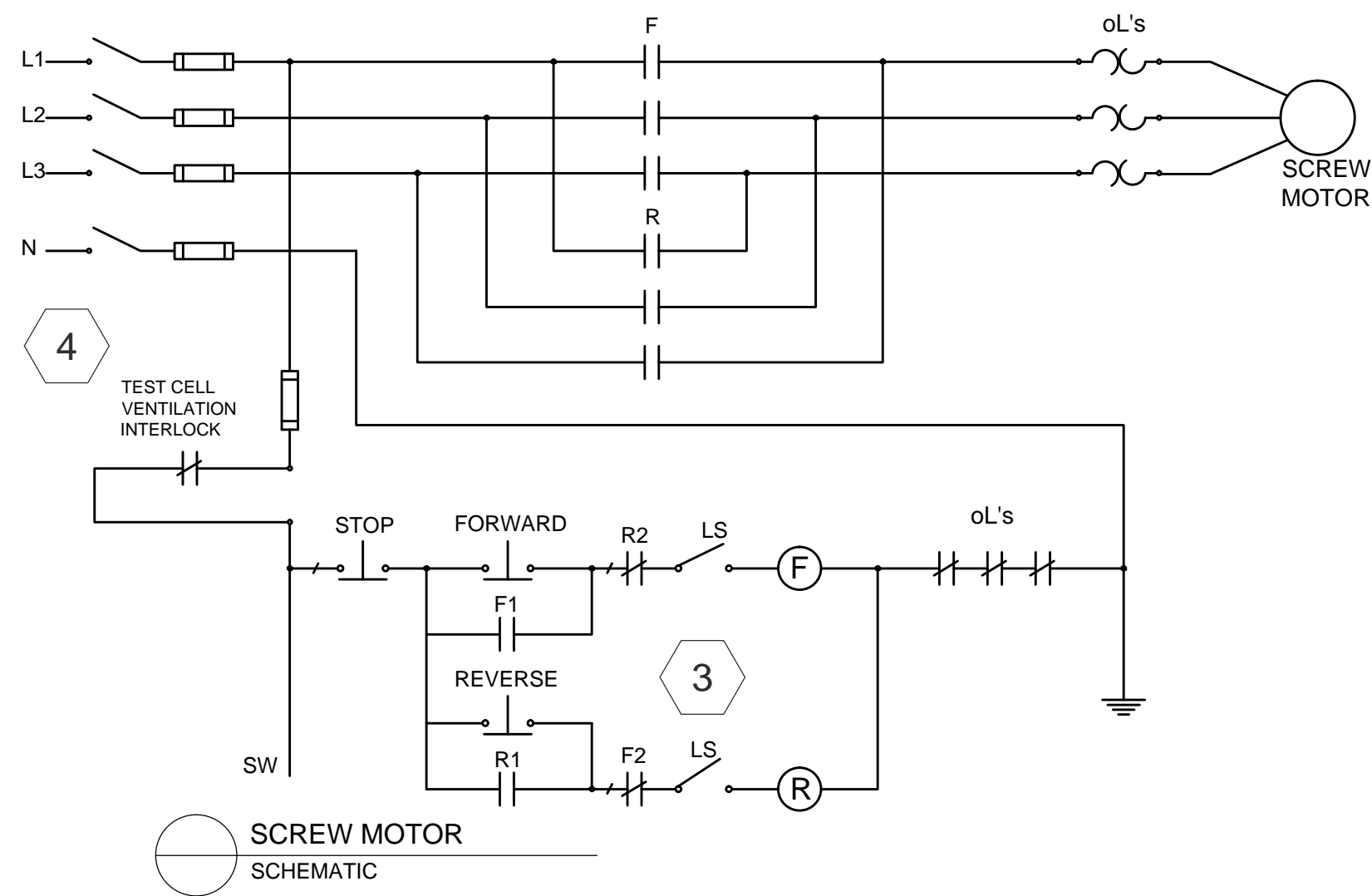
**2 SECTION: PIT**  
 S200 SCALE: 1:30

**1 PLAN:**  
 S200 SCALE: 1:30



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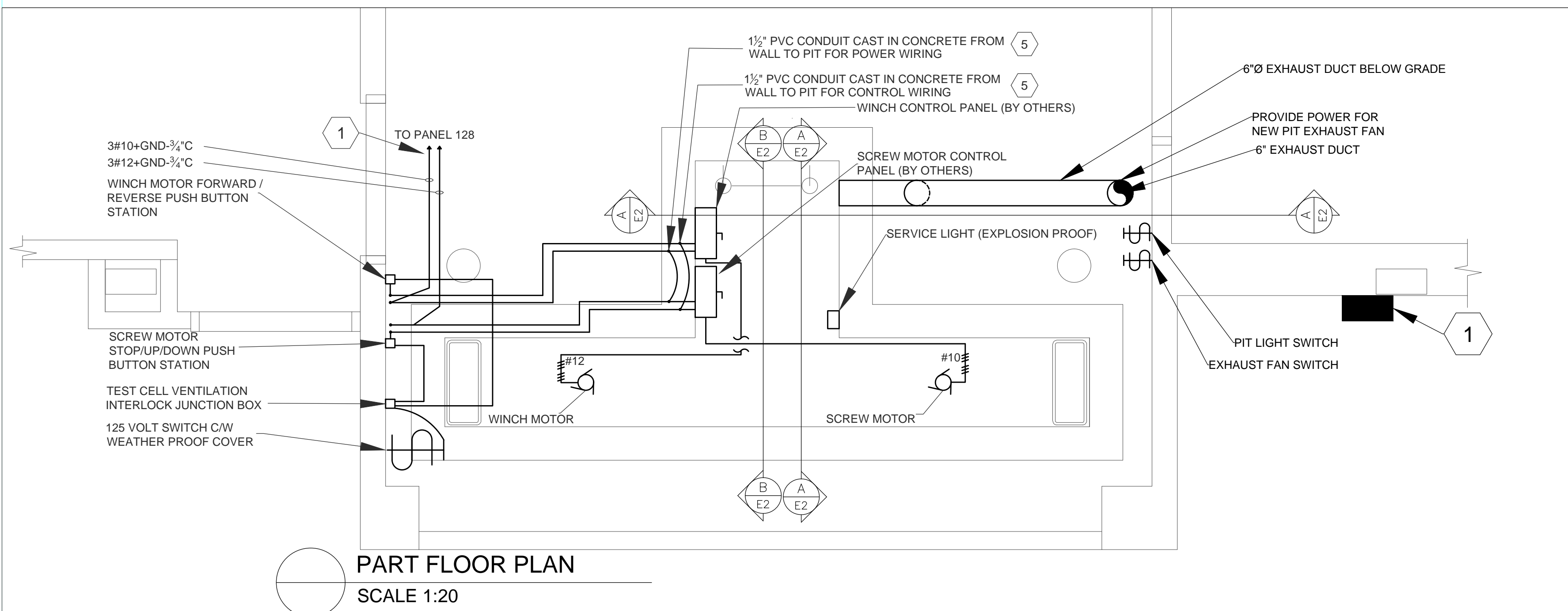
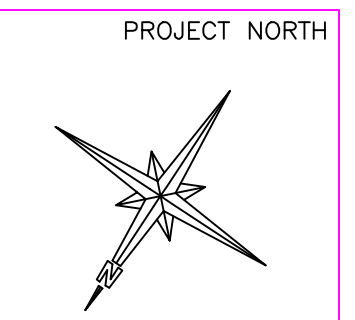
**GENERAL NOTES:**

- ① ALL WIRING IN PIT TO TECK 90° OR LIQUID TITE FLEXIBLE CONDUIT.
- ② RUN ALL CONDUITS ABOVE TEST CELL FALSE CEILING AND WALL MOUNT SURFACE CONDUITS IN TEST CELL.

**DRAWING NOTES:**

- ① EXISTING PANEL '128.'  
- ADD 40AMP 3POLE BREAKER AND FEED SCREW MOTOR AND CONTROL PANEL  
- ADD 30AMP 3POLE BREAKER AND FEED WINCH MOTOR AND CONTROL PANEL  
- ADD 15 AMP SINGLE POLE BREAKER AND FEED LIGHT FIXTURE AND SWITCH
- ② CONTROL PANELS SUPPLIED BY OTHERS INSTALLED & WIRED BY THIS CONTRACTOR.
- ③ WIRING BETWEEN CONTROL PANEL AND CONTROL DEVICES BY THIS CONTRACTOR.
- ④ ALLOW FOR 50 METERS OF 2#14 AWG IN 12mm EMT CONDUIT BETWEEN VENTILATION BOX AND VENTILATION RELAY IN MECHANICAL CLOSET.
- ⑤ PROVIDE 'EYS' FITTING ON ALL CAST CONDUITS AND FILL WITH 3M FLEXIBLE SEALING COMPOUND AFTER WIRING IS PULLED.

No.	DATE	REVISIONS	BY
2	DEC 20/13	ISSUED FOR TENDER	TK
1	DEC 4/13	ISSUED FOR COORDINATION	TK



**TTF ENGINEERING**

TTF Engineering 10B Hearst Way Tel. 613-592-1677  
Ottawa, ON K2L 2P4 Fax. 613-599-1412

**PROJECT**

**ERMS TEST CELL #2  
RESTRAINT SYSTEM**  
335 River Road  
OTTAWA, ONTARIO

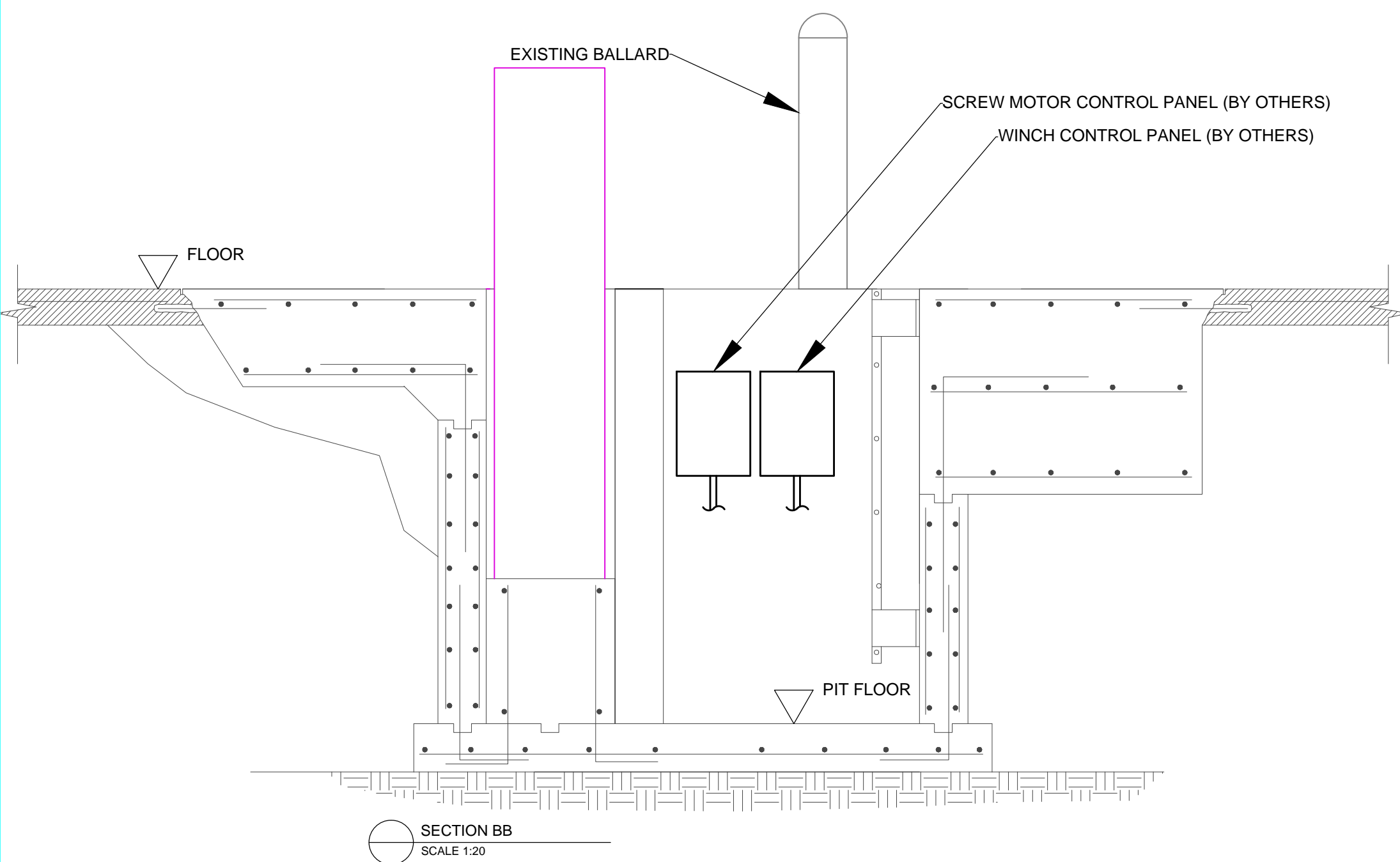
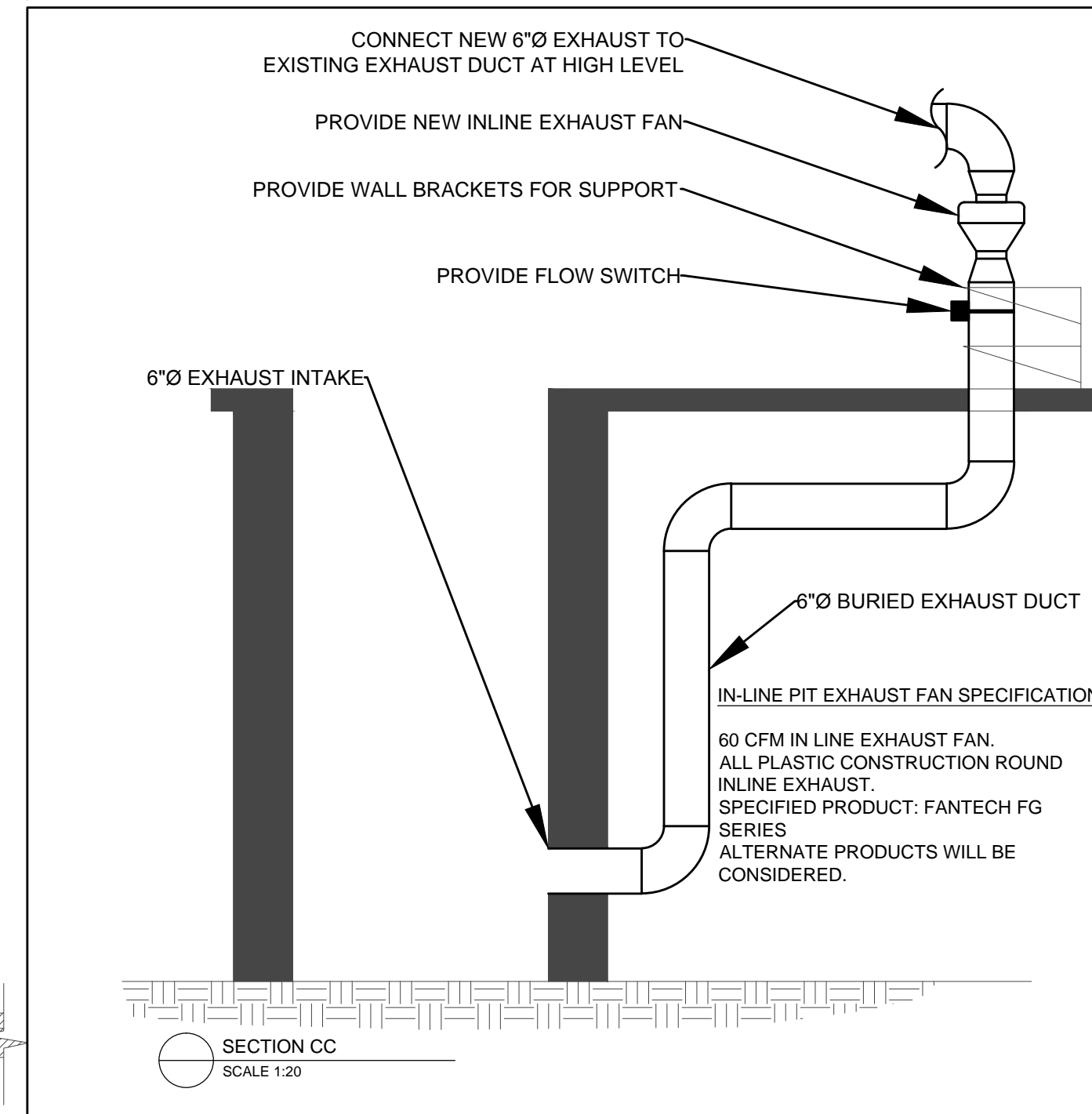
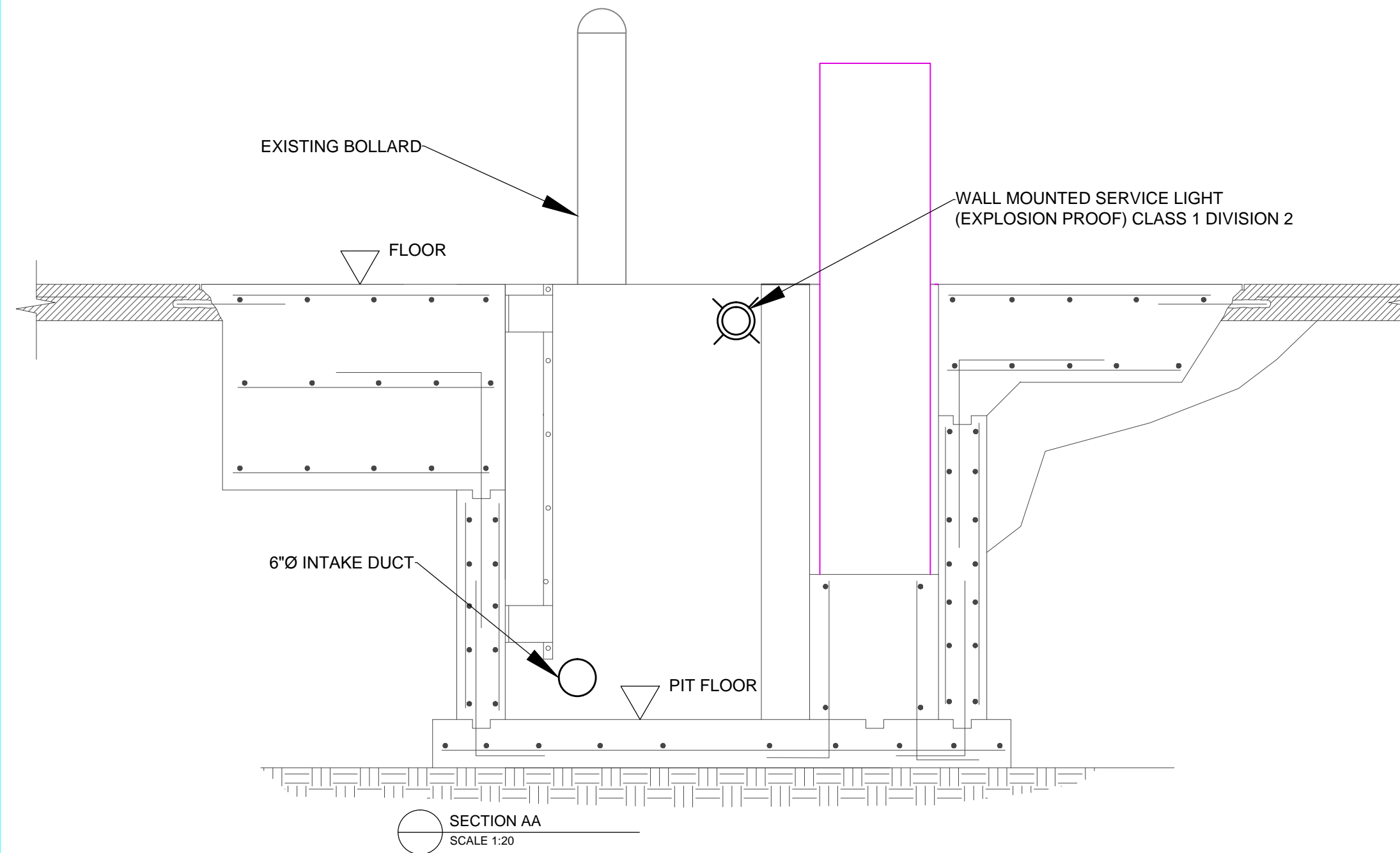
**DRAWING**

**PARTIAL PLANS  
&  
GENERAL NOTES**

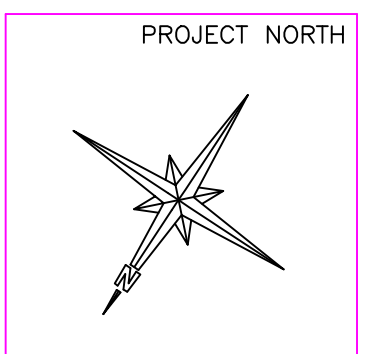
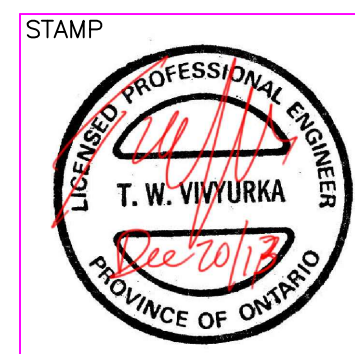
DRAWN:	T.K.	<b>M/E-1</b>
APPROVED:	T.V.	
DATE:	NOV 11/13	
SCALE:	VARIES	
SIZE:	ARCH C	

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Ottawa, ON K2L 2P4 Fax. 613-599-1412

PROJECT

**ERMS TEST CELL #2  
RESTRAINT SYSTEM**  
335 River Road  
OTTAWA, ONTARIO

DRAWING

**SECTIONS & DETAILS**

DRAWN:	T.K.	DRAWING No. <b>M/E-2</b>
APPROVED:	T.V.	
DATE:	NOV 11/13	
SCALE:	VARIES	
SIZE:	ARCH C	

