



CITY OF WINNIPEG  
BRADY ROAD RESOURCE MANAGEMENT FACILITY

LANDFILL GAS COLLECTION  
SYSTEM EXPANSION

BID OPPORTUNITY No. 184-2020

**COMCOR**  
ENVIRONMENTAL LIMITED  
Consulting Engineers and Landfill Gas Specialists

**HSE**   
SYSTEM SOLUTIONS

325832 Norwich Road, Norwich, Ontario, N0J1P0  
Tel (519) 808-9771 Fax (519) 468-3629

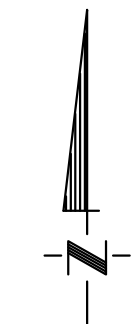
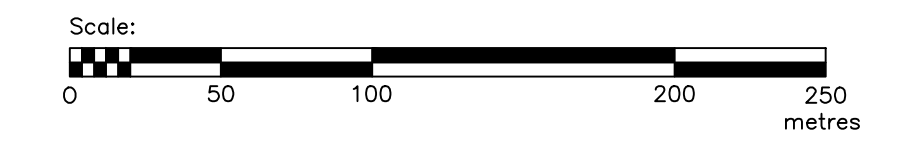
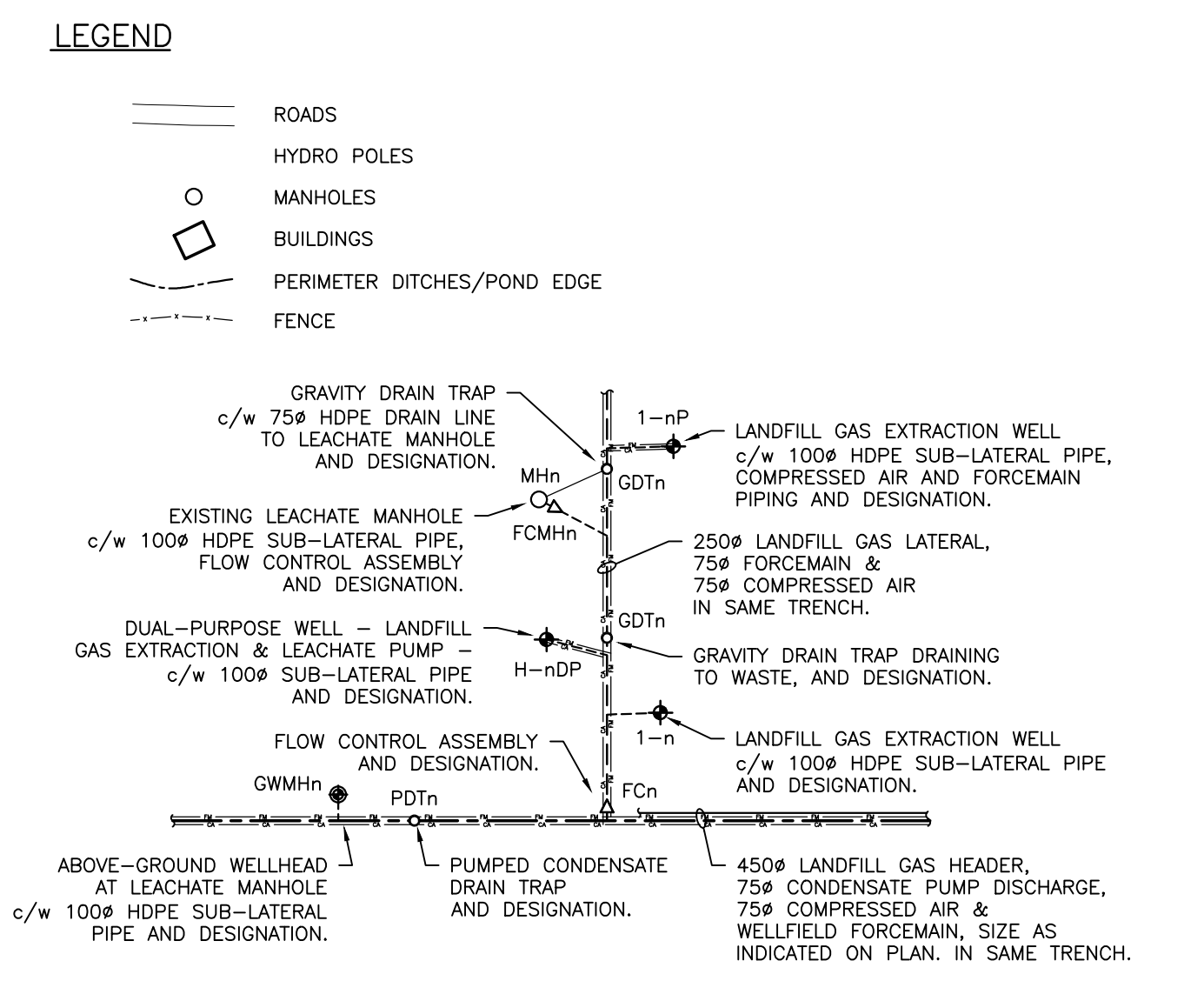
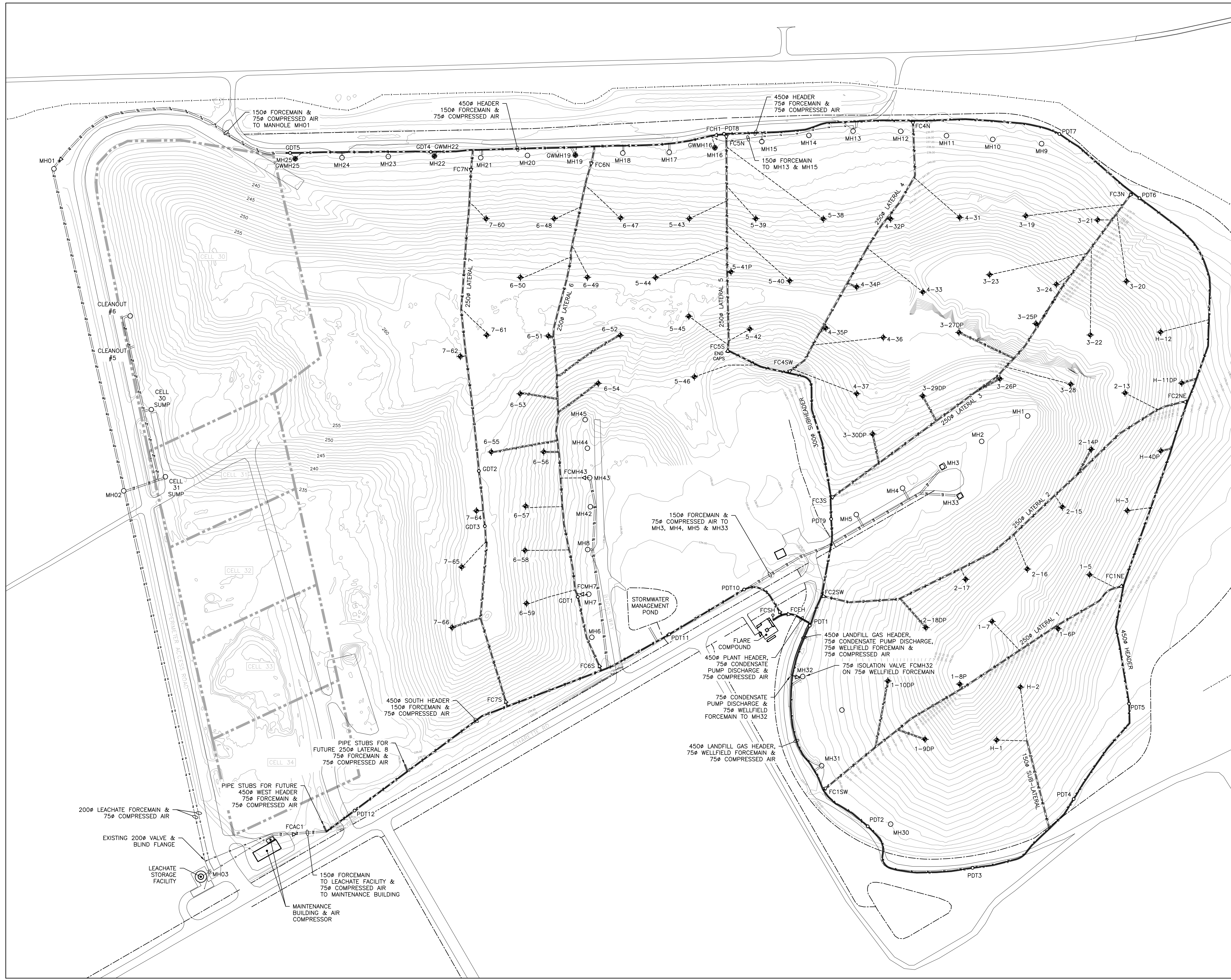
**KGS**  
GROUP

**LIST OF DRAWINGS**

**Issued for Tender, March 17, 2020**

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W1002	PROPOSED SYSTEM LAYOUT
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E8002	POWER AND CONTROLS CONNECTIONS - ELECTRICAL CONTAINER, AIR COMPRESSOR CONTAINER





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1	ISSUED FOR REVIEW	Feb. 27, 2020	JDP
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**NOTES:**  
1. SITE INFORMATION IS BASED ON ELECTRONIC DATA PROVIDED BY THE CITY.

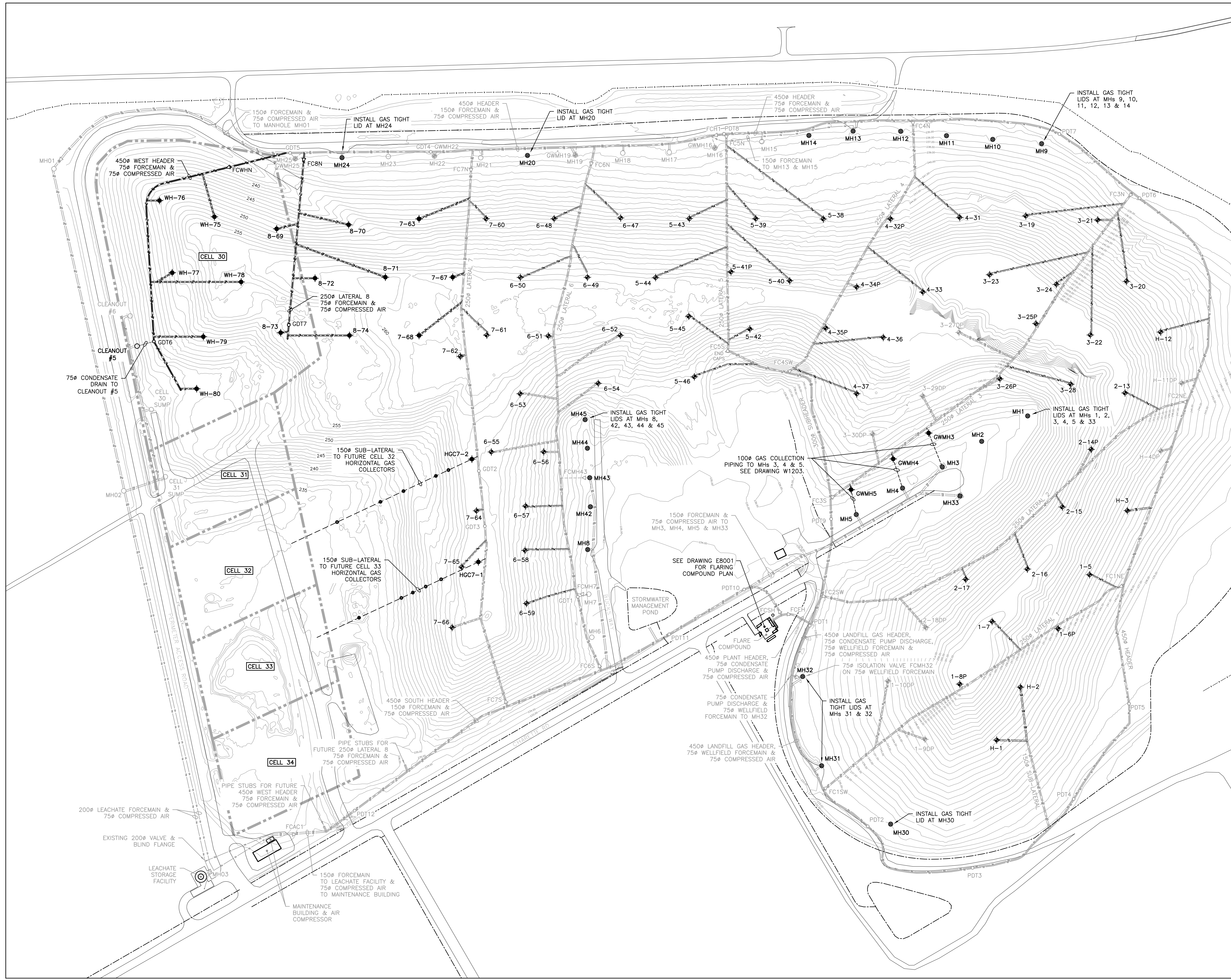
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184-2020  
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DESIGNED BY: JDP  
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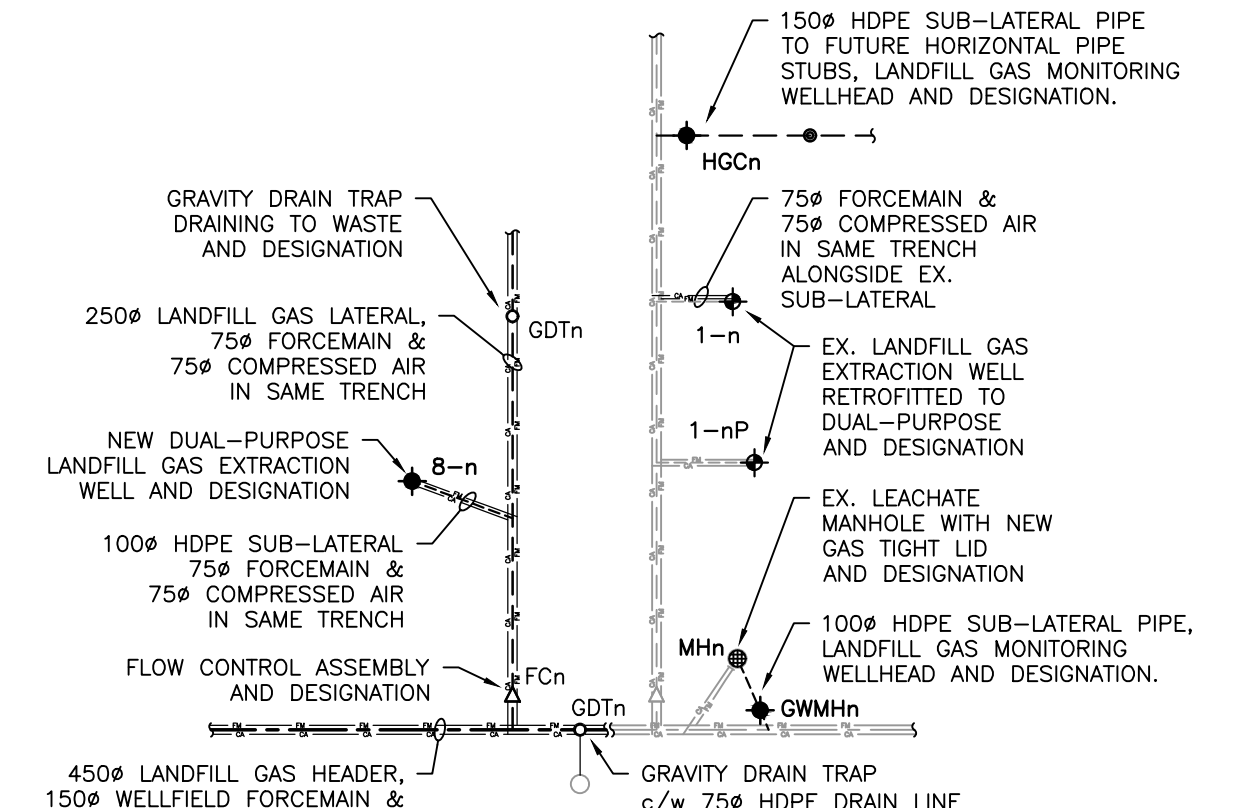
City of Winnipeg  
Brady Road  
Resource Management  
Facility

LANDFILL GAS COLLECTION SYSTEM EXPANSION  
CITY DWG NO. 1-0400A-G0005-001 COMCOR DWG NO. W1001  
PRE-CONSTRUCTION SITE CONDITIONS





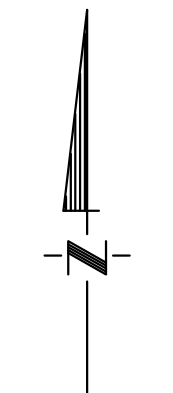
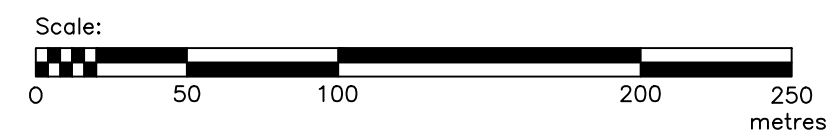
**LEGEND**



**New Dual-Purpose Well Schedule**  
March 17, 2020

Well Designation	Northing (m)	Easting (m)	Grade at Well (masl)	Landfill Base (masl)	Bottom of Well (masl)	Drill Depth (m)	Screen Length (m)
7-63	5514163.9	629775.3	246.5	229.5	232.5	14.0	11.0
7-67	5514088.6	629818.8	261.0	229.5	232.5	28.5	25.5
7-68	5514013.3	629775.3	263.8	229.5	232.5	31.3	28.3
8-69	5514151.1	629591.6	251.6	229.5	232.5	19.1	16.1
8-70	5514156.4	629684.5	248.0	229.5	232.5	15.5	12.5
8-71	5514088.6	629731.9	262.5	229.5	232.5	30.0	27.0
8-72	5514087.3	629641.1	262.0	229.5	232.5	29.5	26.5
8-73	5514017.0	629596.8	259.0	229.5	232.5	26.5	23.5
8-74	5514013.4	629685.6	262.3	229.5	232.5	29.8	26.8
WH-75	5514166.6	629511.2	255.2	229.5	232.5	22.7	19.7
WH-76	5514187.6	629440.4	250.3	229.5	232.5	17.8	14.8
WH-77	5514094.4	629456.8	250.4	229.5	232.5	17.9	14.9
WH-78	5514082.5	629545.7	259.7	229.5	232.5	27.2	24.2
WH-79	5514011.8	629497.0	254.3	229.5	232.5	21.8	18.8
WH-80	5513944.6	629488.4	250.5	229.5	232.5	18.0	15.0

- Notes:**
1. Grade at Well based on January 29, 2020 drone survey.
  2. Bottom of Well elevation is the depth below Grade at Well to 3 metres above Bottom of Landfill Base.
  3. Screened pipe starts 3 metres below Grade at Well.
  4. Final Depth to be field determined based on leachate levels encountered during drilling.
  5. Grade at Well to be verified by contractor prior to drilling.



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4. GROUND SURFACE CONTOURS SHOWN IN WORK AREA FROM A DRONE SURVEY CONDUCTED ON JUNE 6, 2019.

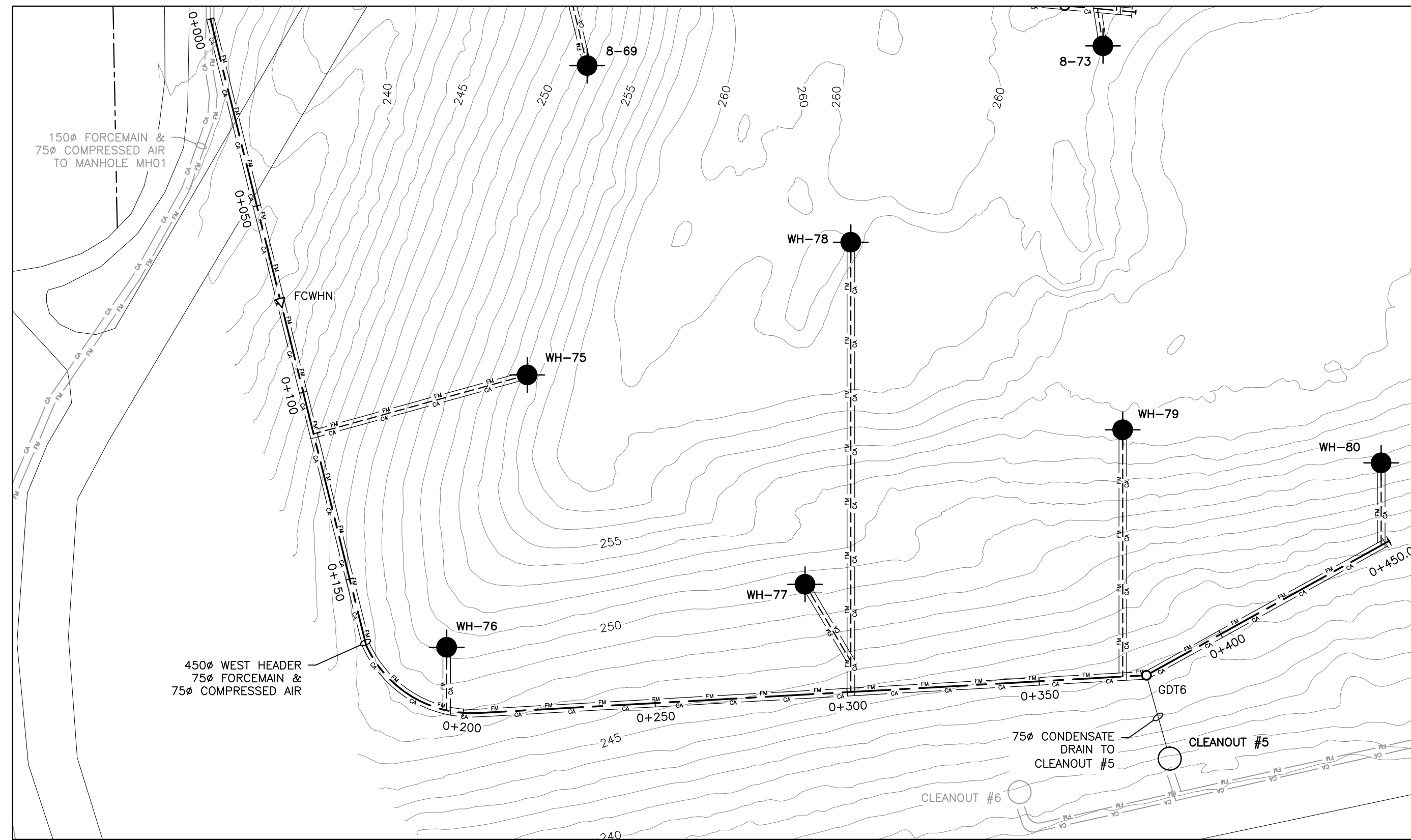
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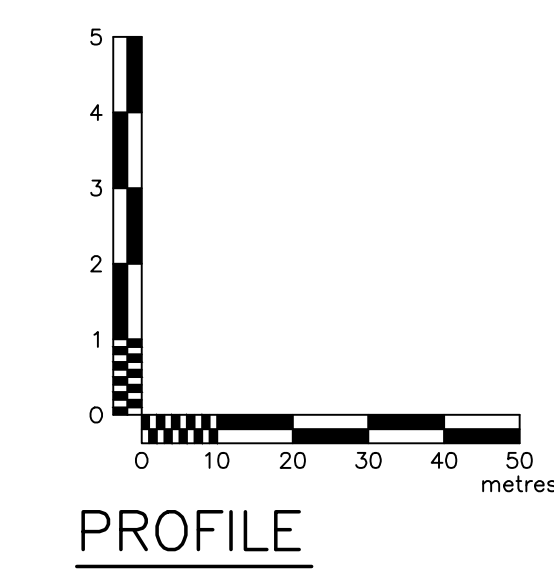
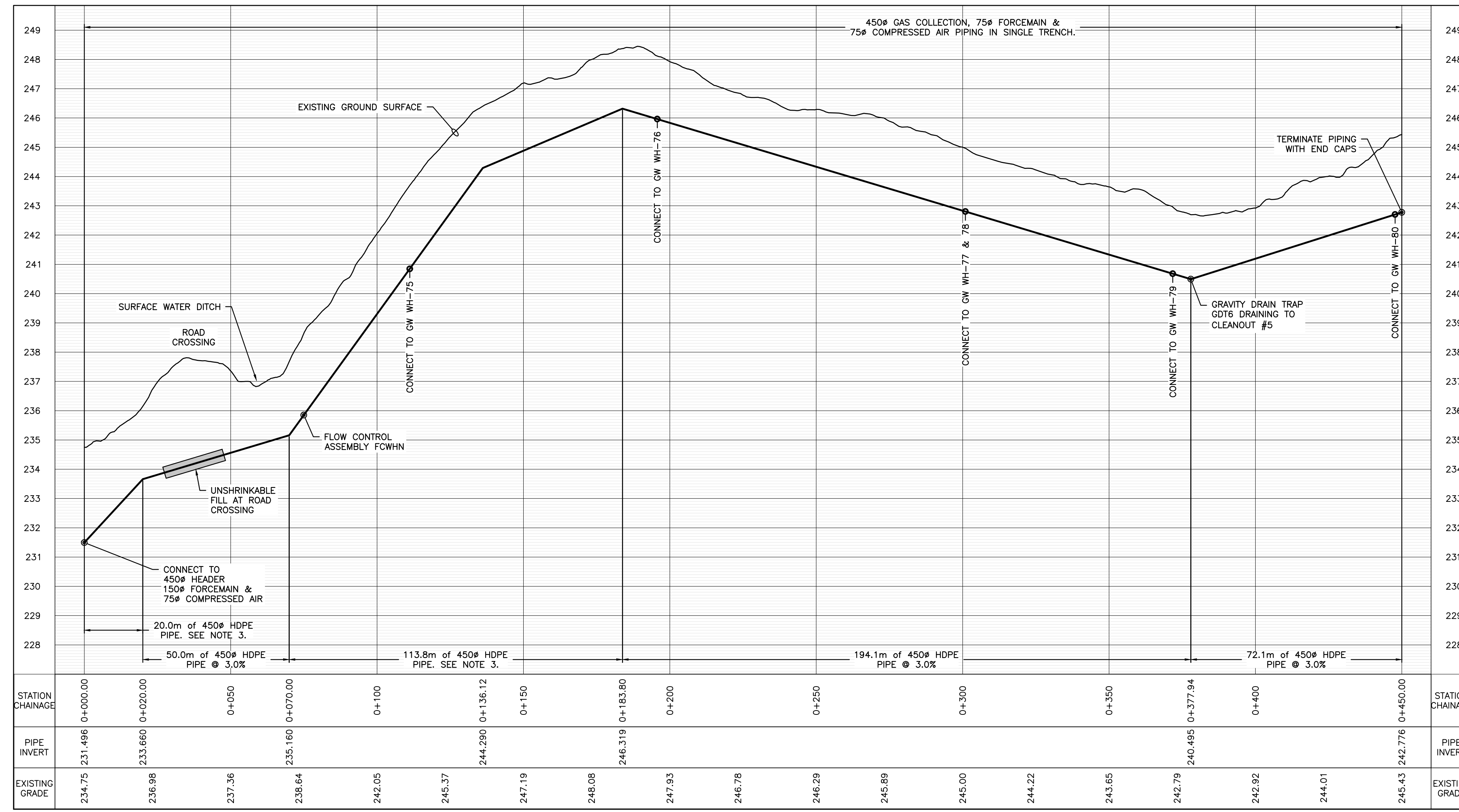
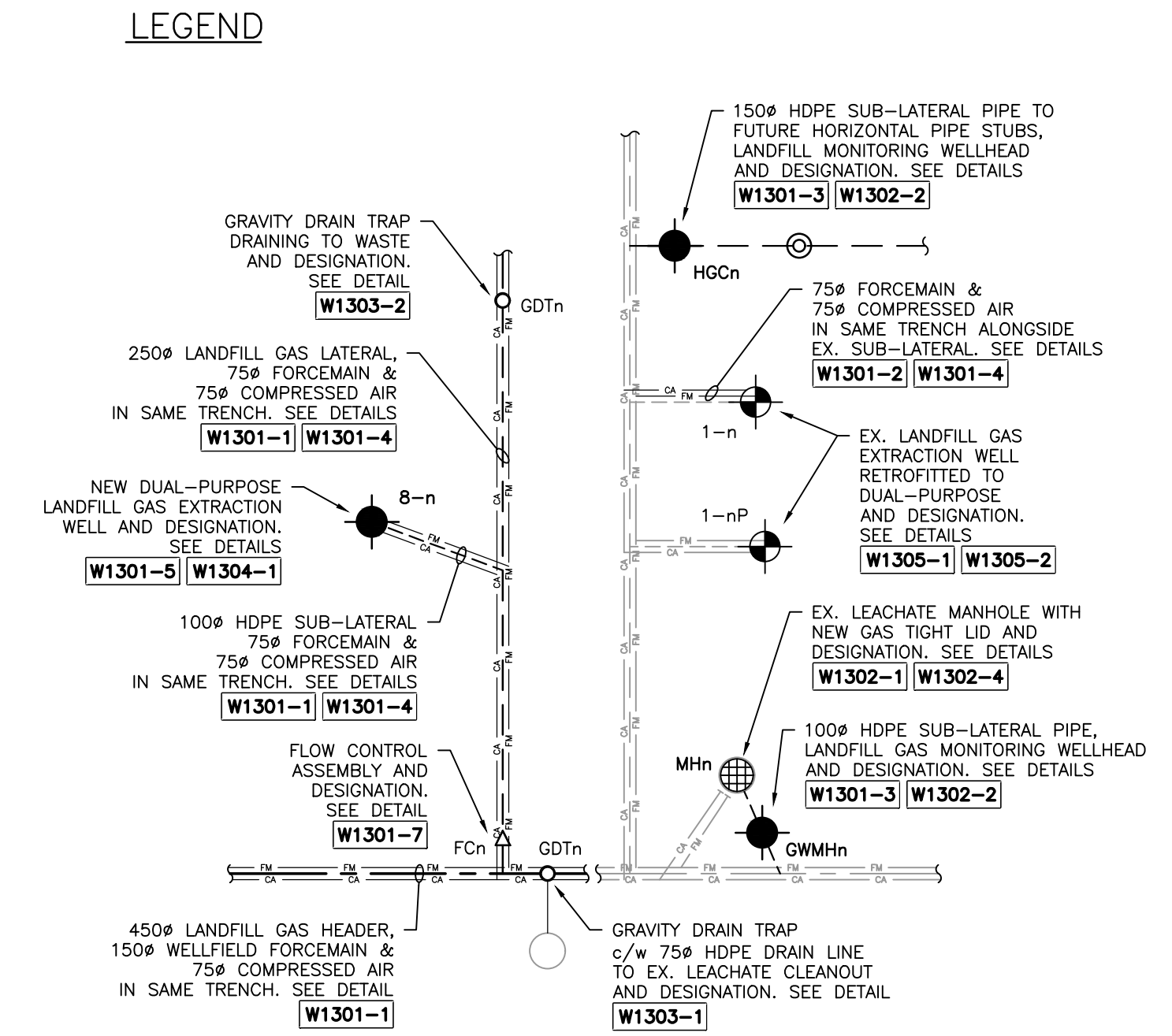
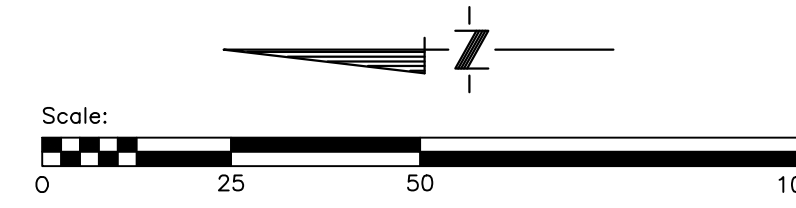
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Resource Management  
Facility

LANDFILL GAS COLLECTION SYSTEM EXPANSION  
CITY DWG NO. 1-0400A-00006-001 COMCOR DWG NO. W1002  
PROPOSED SYSTEM LAYOUT





PLAN



PROFILE

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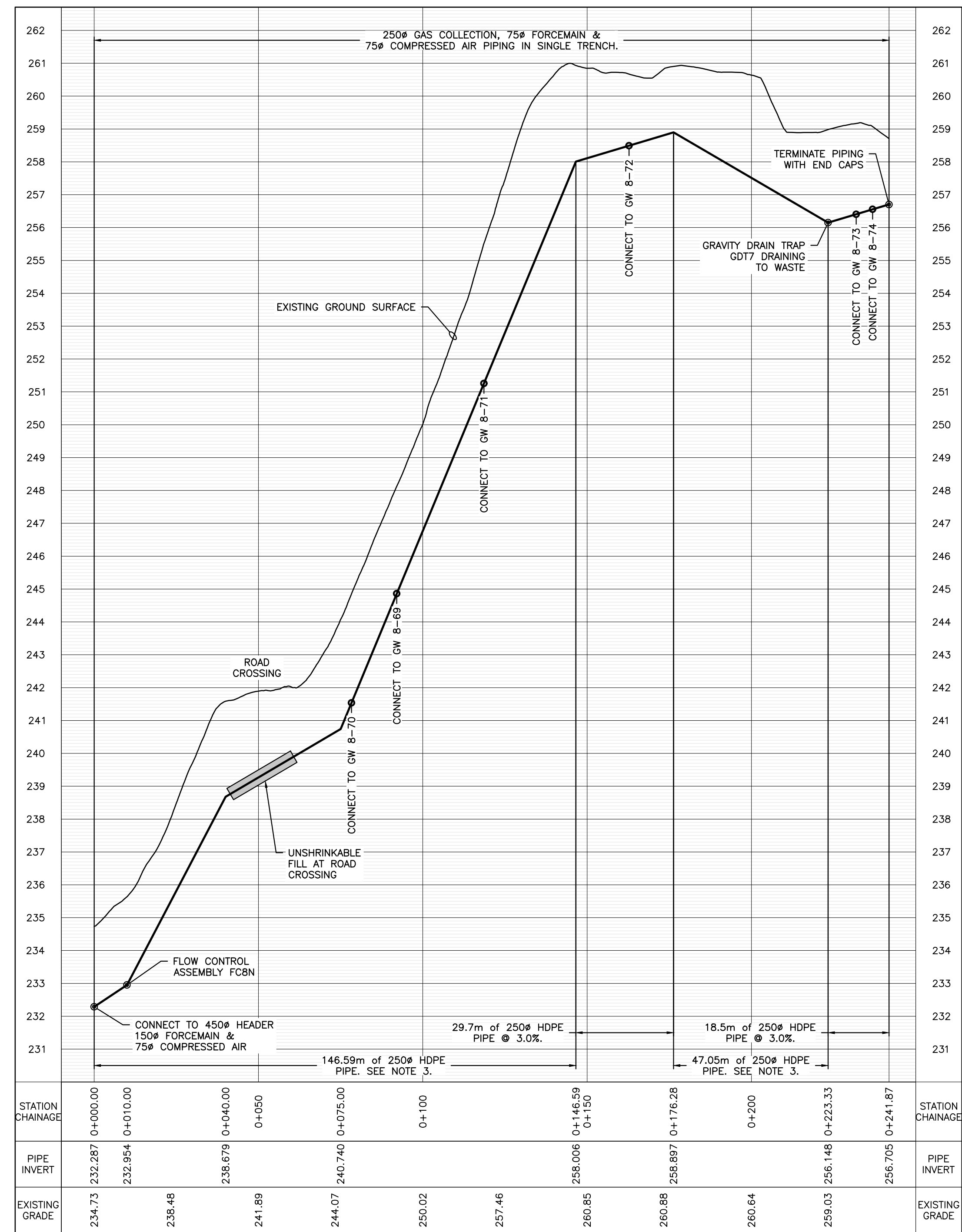
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 4. GROUND SURFACE CONTOURS SHOWN IN WORK AREA FROM A DRONE SURVEY CONDUCTED ON JANUARY 29, 2020.

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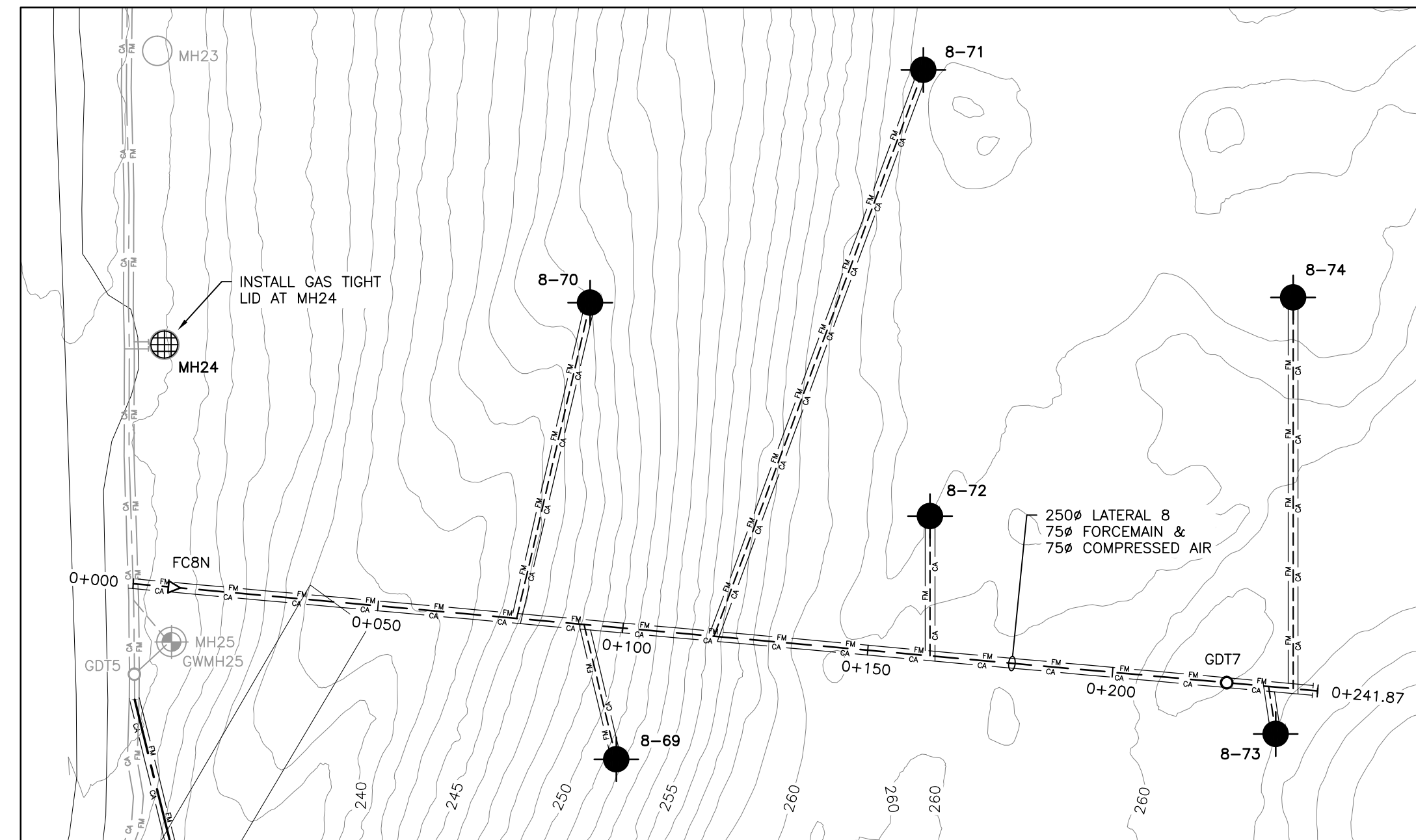
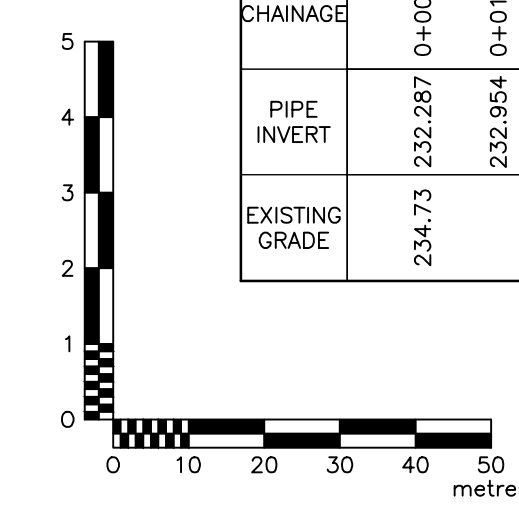
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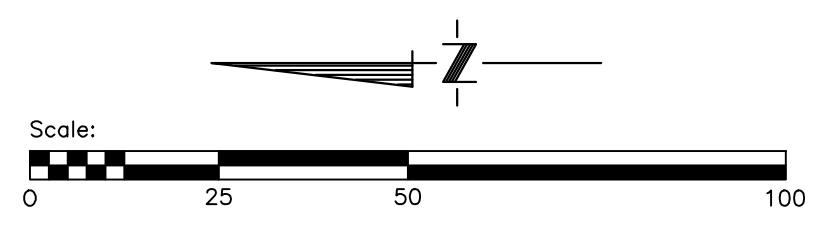
LANDFILL GAS COLLECTION SYSTEM EXPANSION  
 CITY DWG NO. 1-0400A-C0078-001 COMCOR DWG NO. W1101  
 PLAN & PROFILE - 450mm WEST HEADER



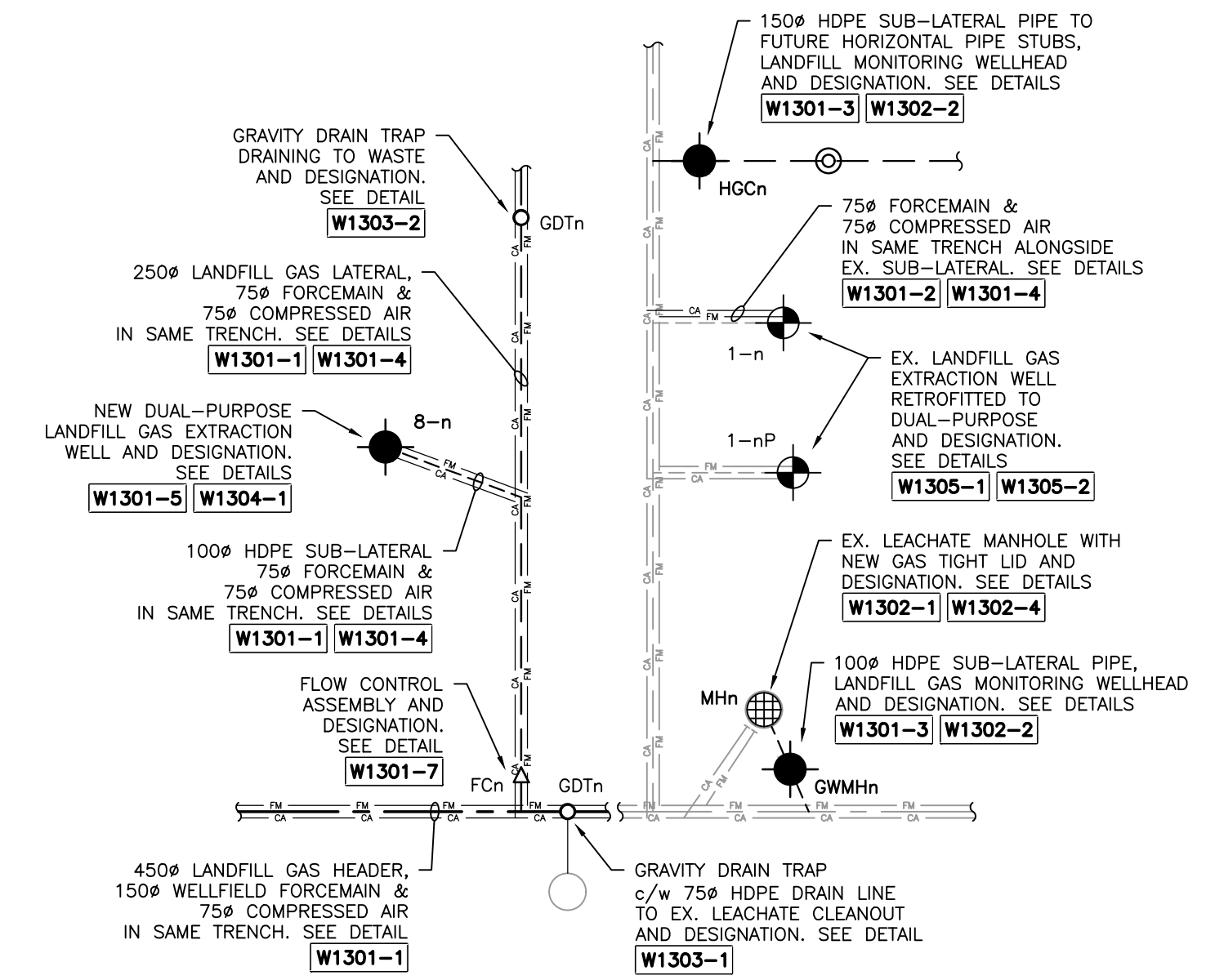
PROFILE



PLAN



LEGEND



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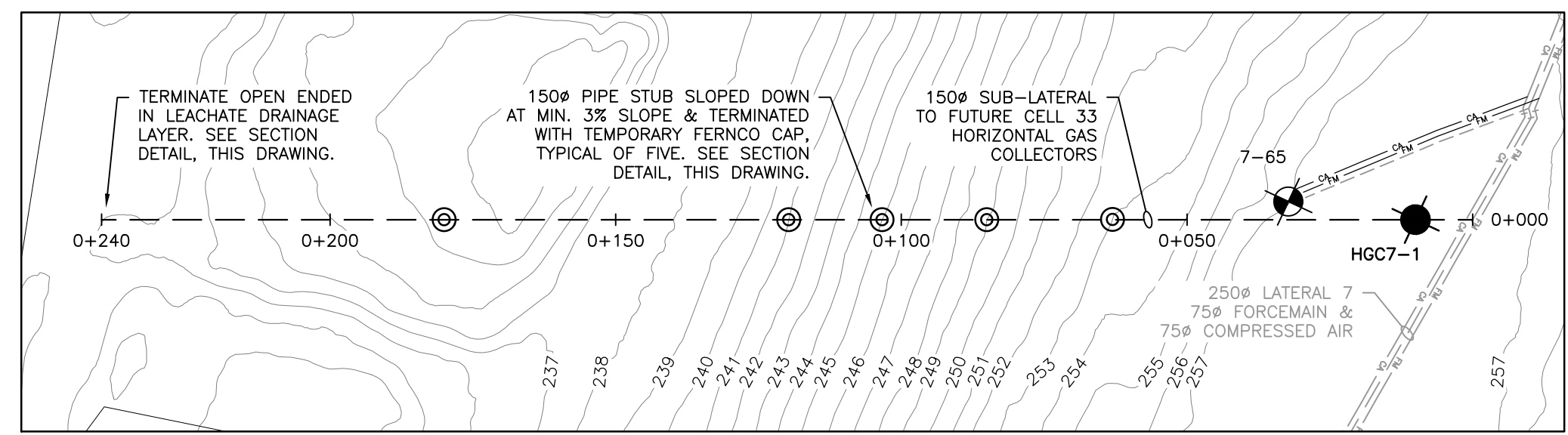
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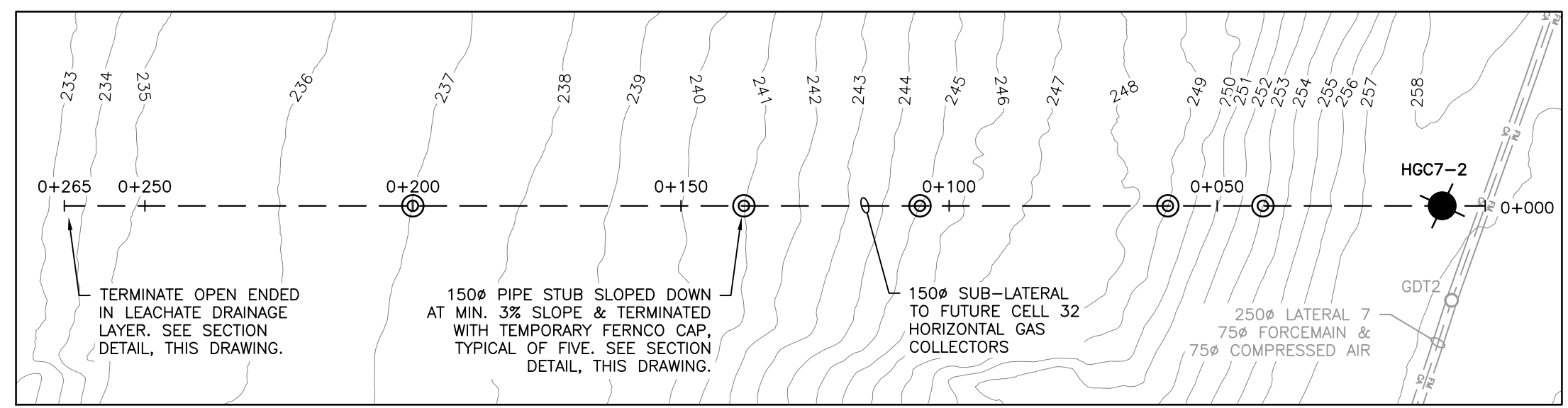
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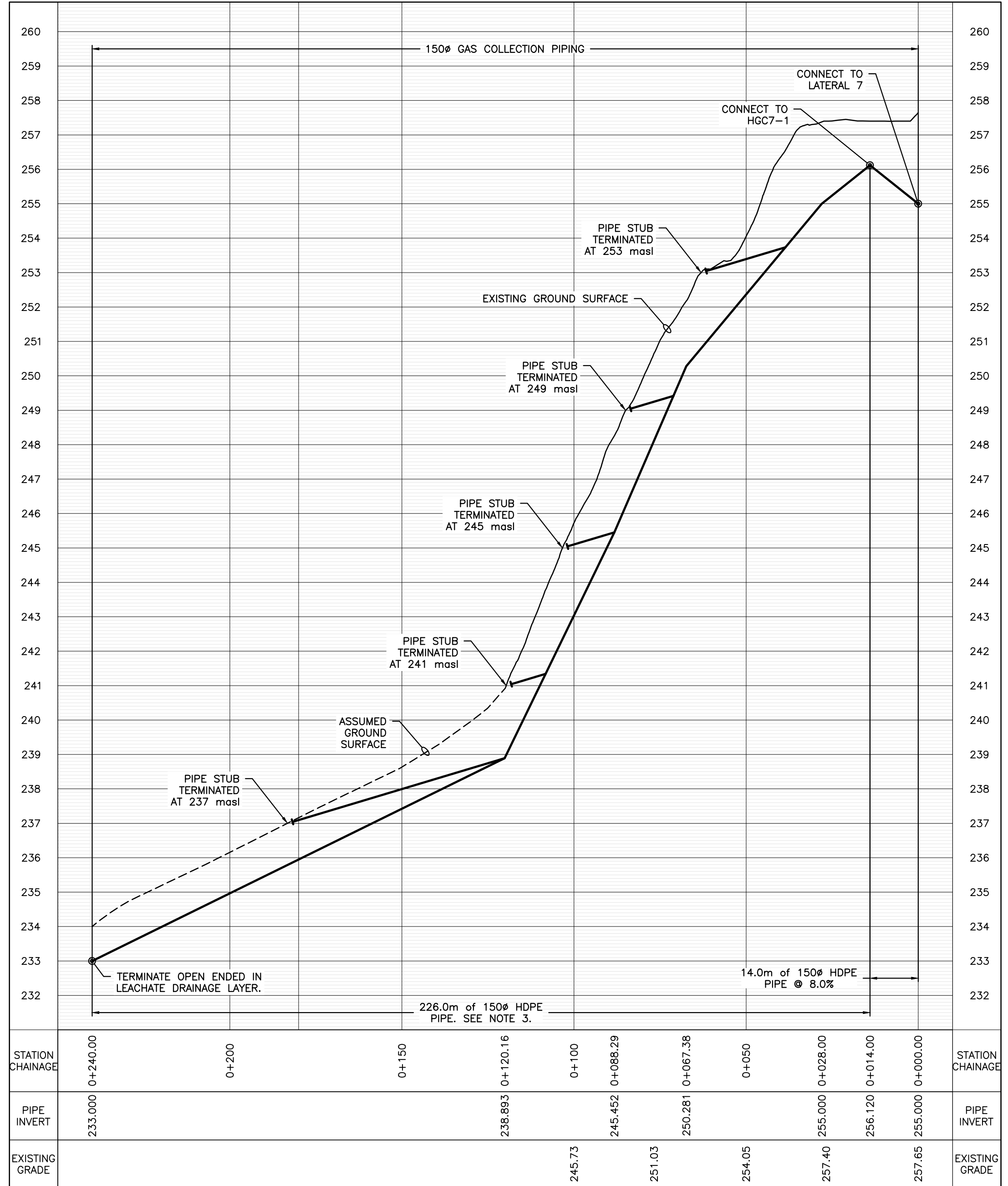
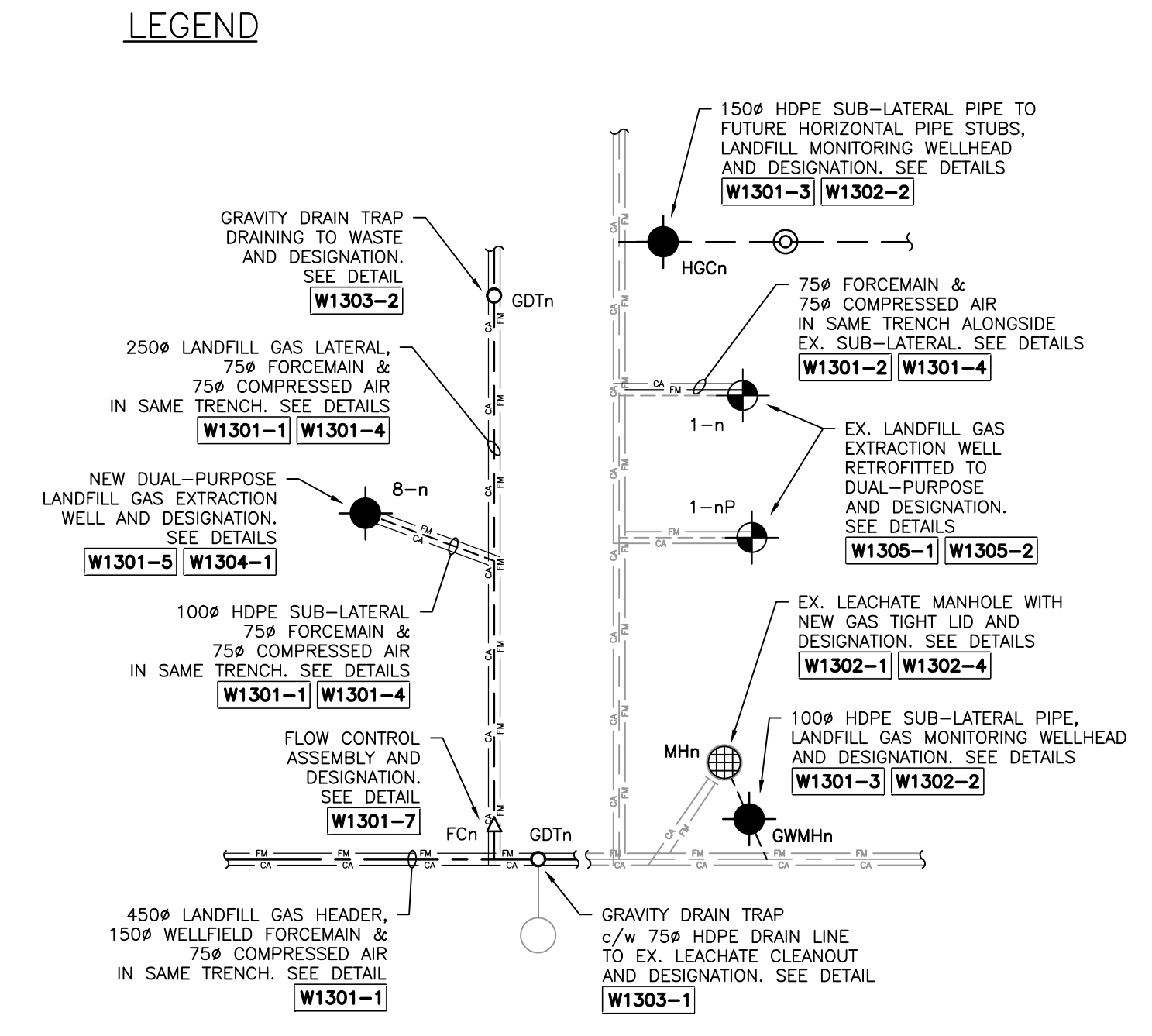
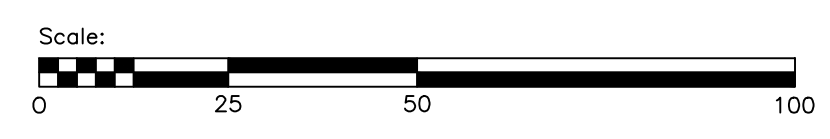
LANDFILL GAS COLLECTION SYSTEM EXPANSION  
 CITY DWG NO. 1-0400A-C0079-001 COMCOR DWG NO. W1201  
 PLAN & PROFILE - 250mm LATERAL 8



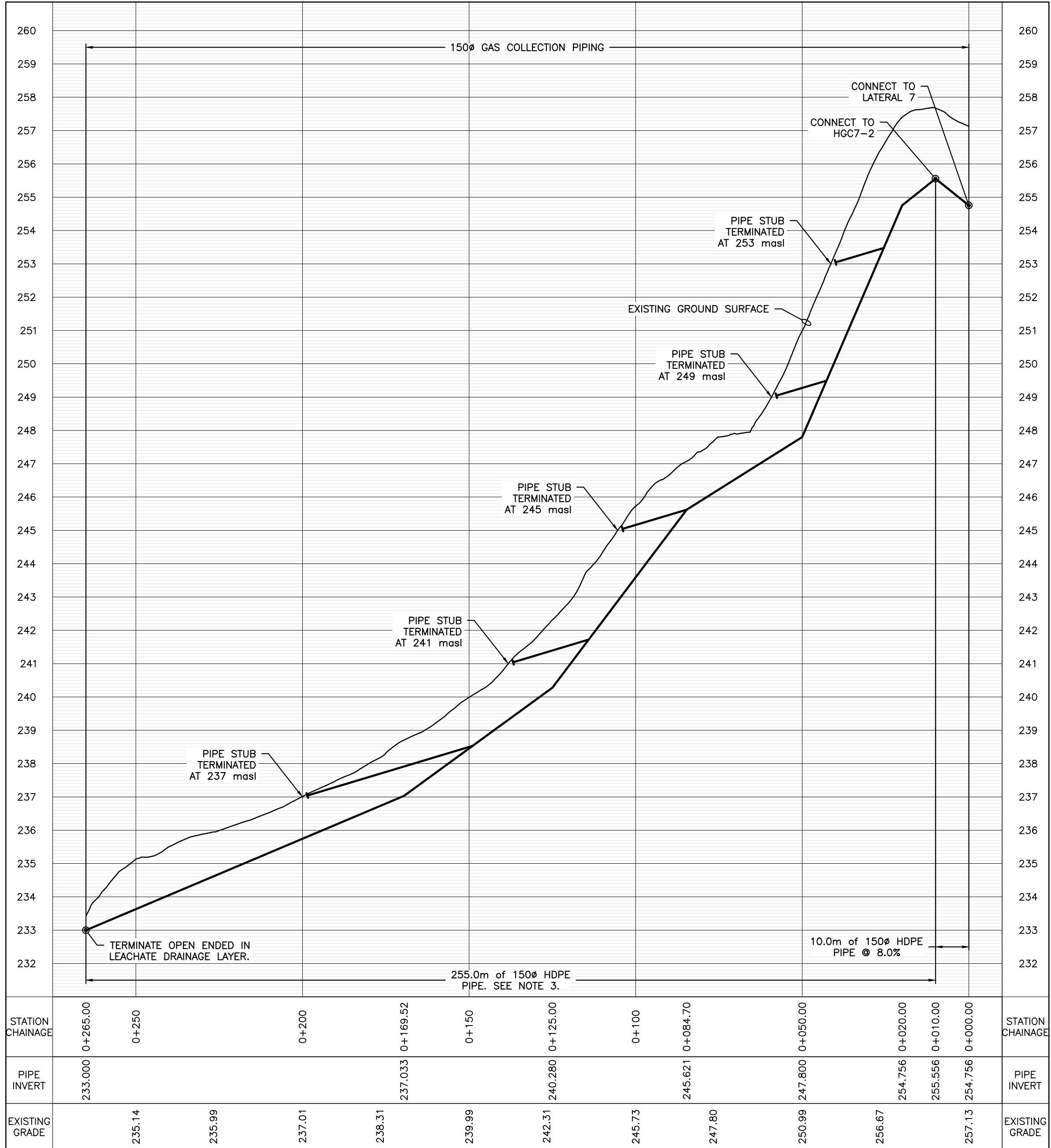
SUB-LATERAL HGC7-1 PLAN



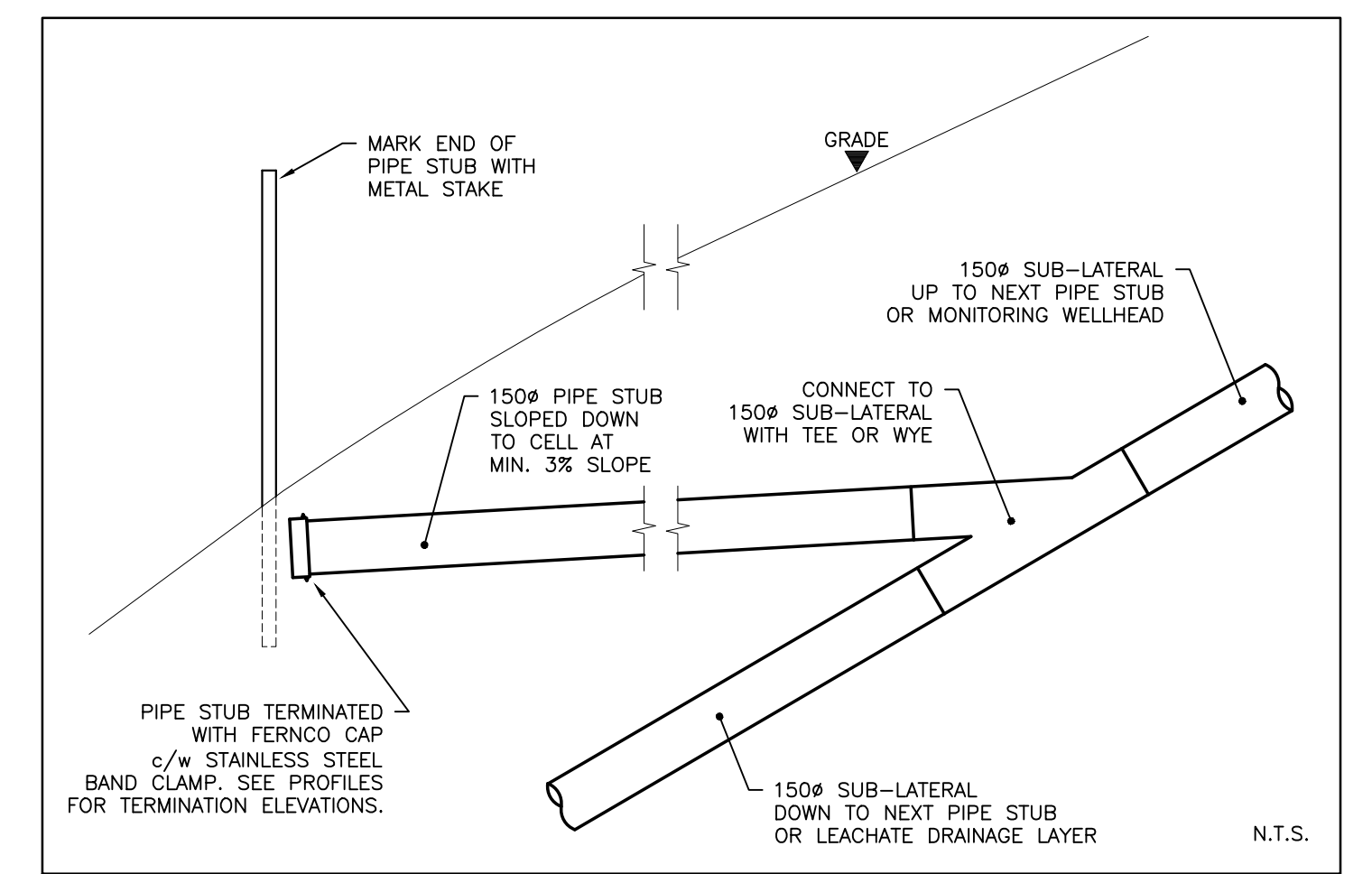
SUB-LATERAL HGC7-2 PLAN



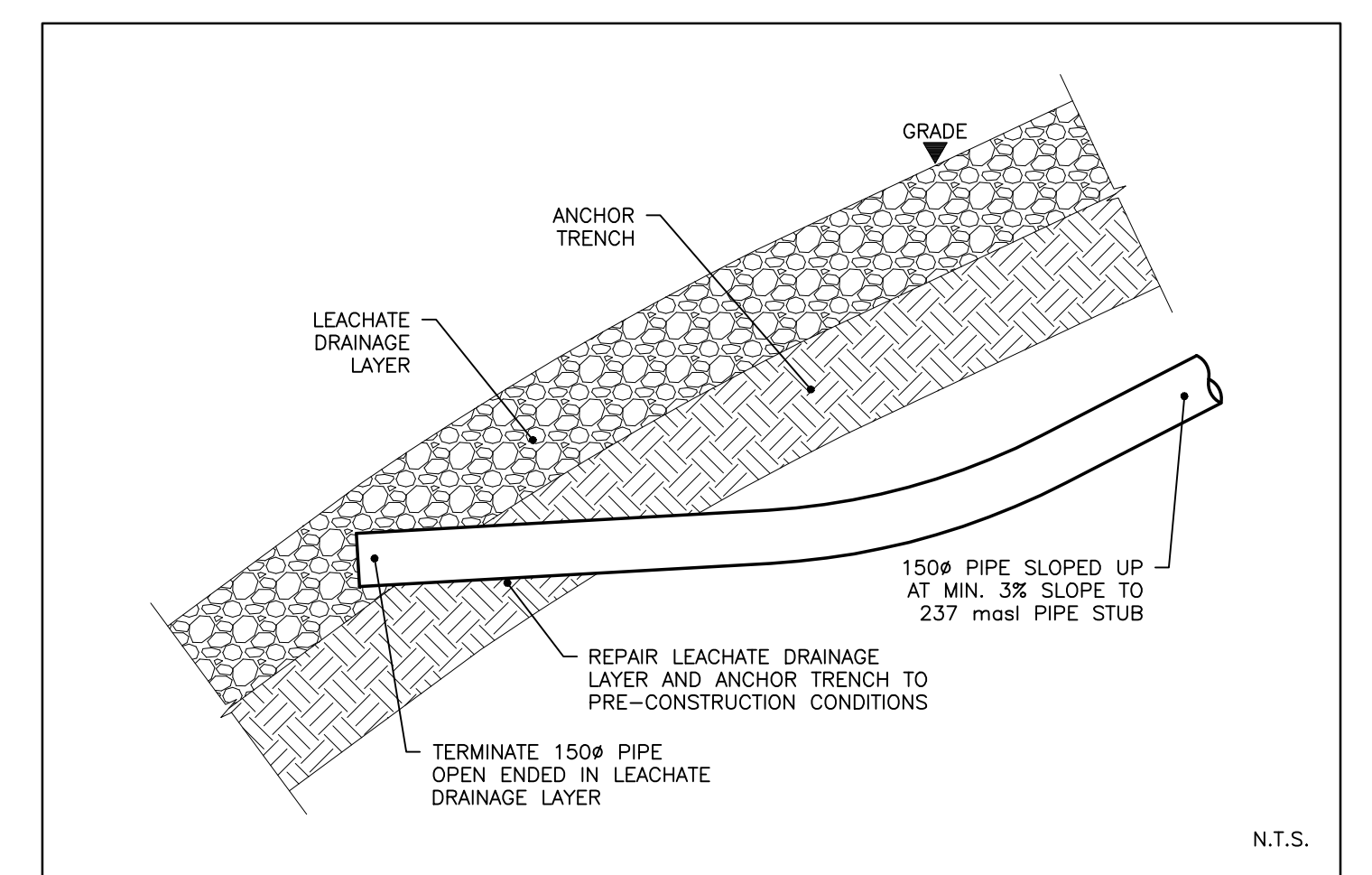
SUB-LATERAL HGC7-1 PROFILE



SUB-LATERAL HGC7-2 PROFILE



PIPE STUB SECTION DETAIL



PIPE TERMINATION IN DRAINAGE LAYER DETAIL

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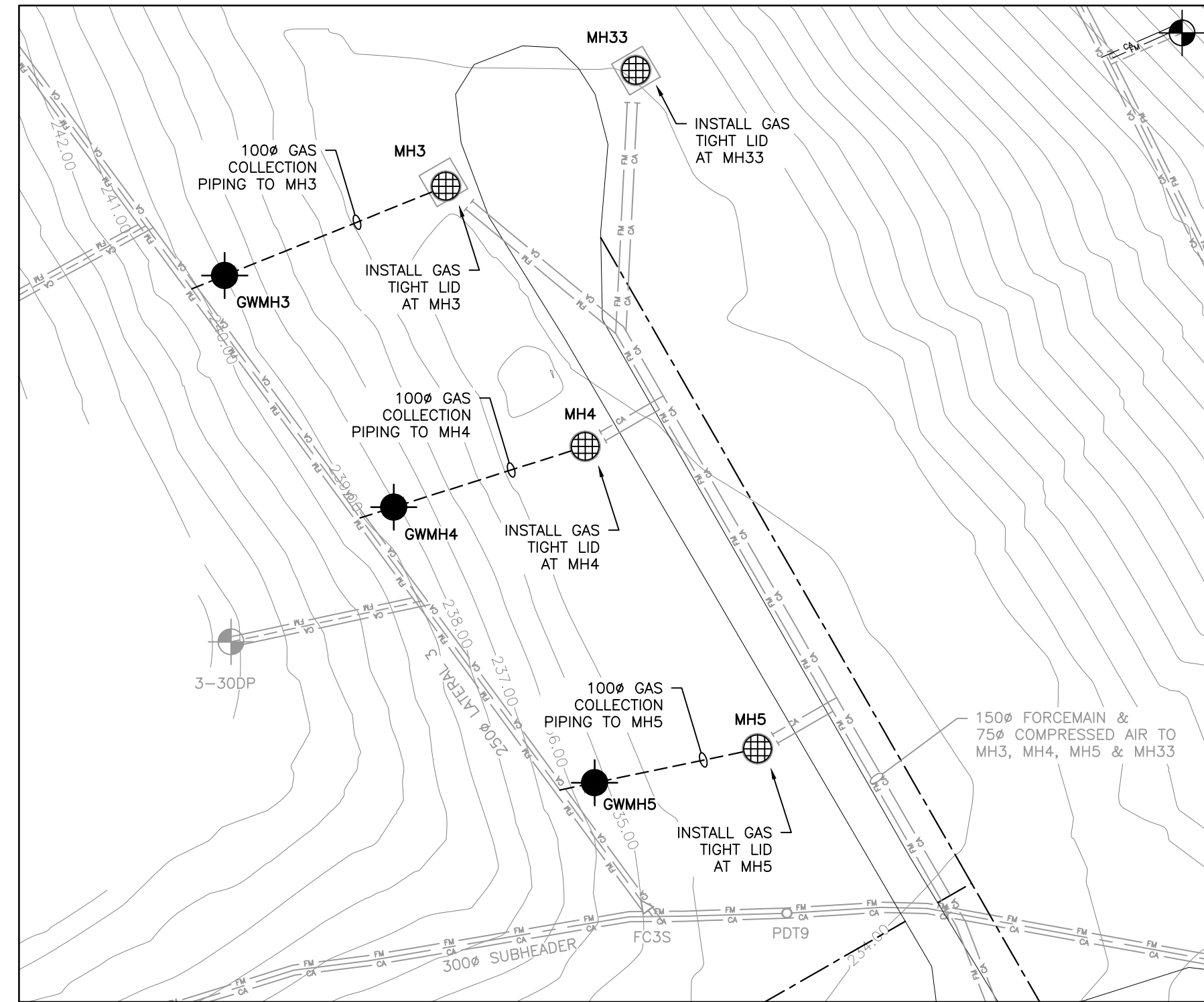
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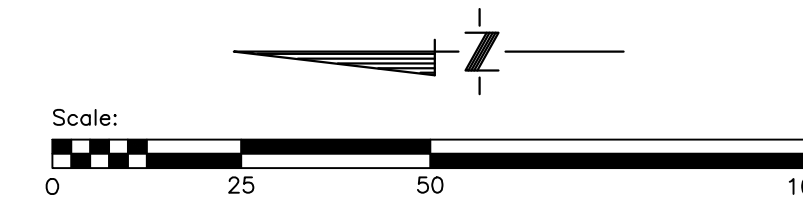
**City of Winnipeg**  
 Brady Road  
 Resource Management  
 Facility

LANDFILL GAS COLLECTION SYSTEM EXPANSION  
 CITY DWG NO. 1-0400A-C0080-001 COMCOR DWG NO. W1202  
 PLAN & PROFILES - HORIZONTALS

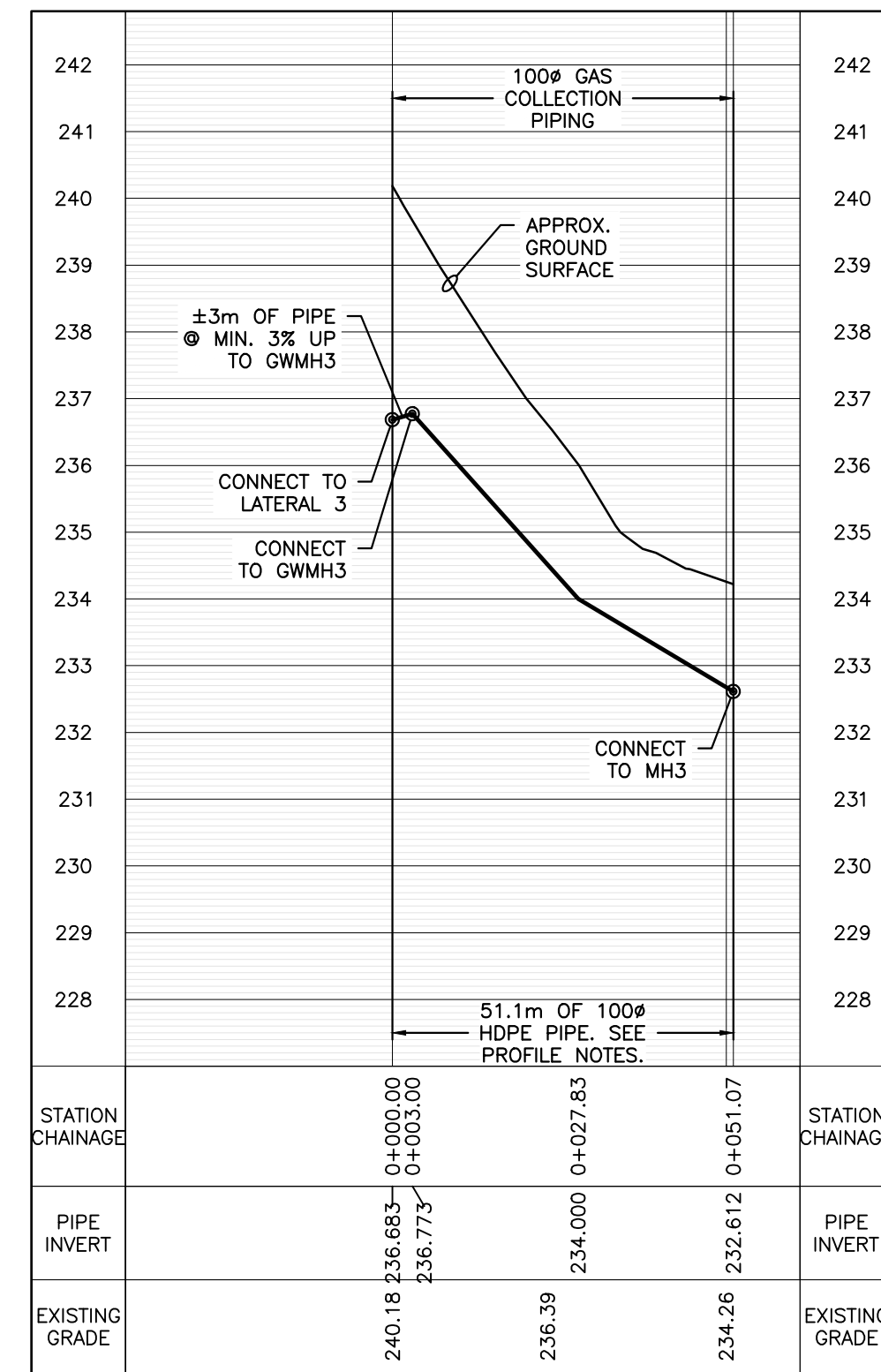
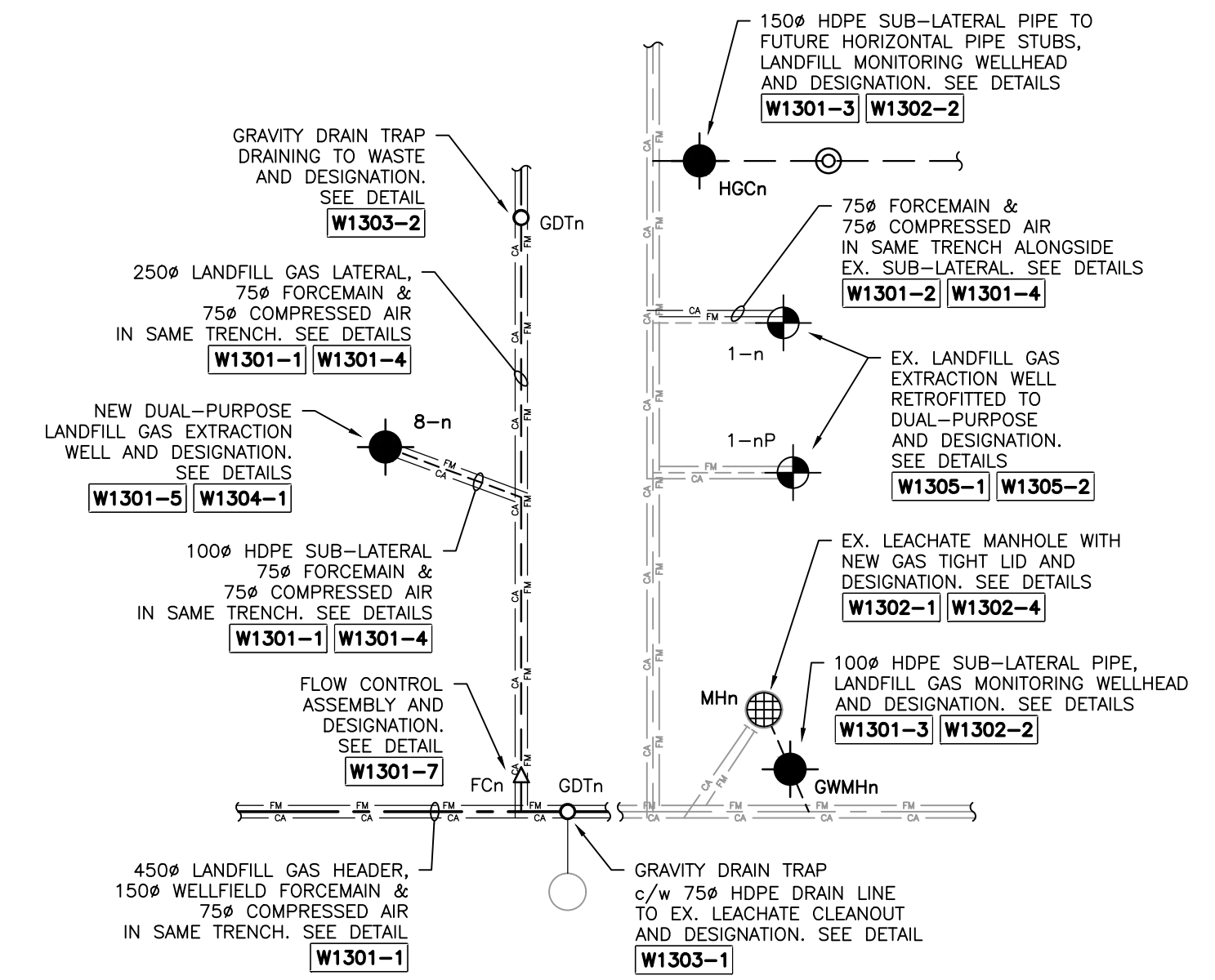




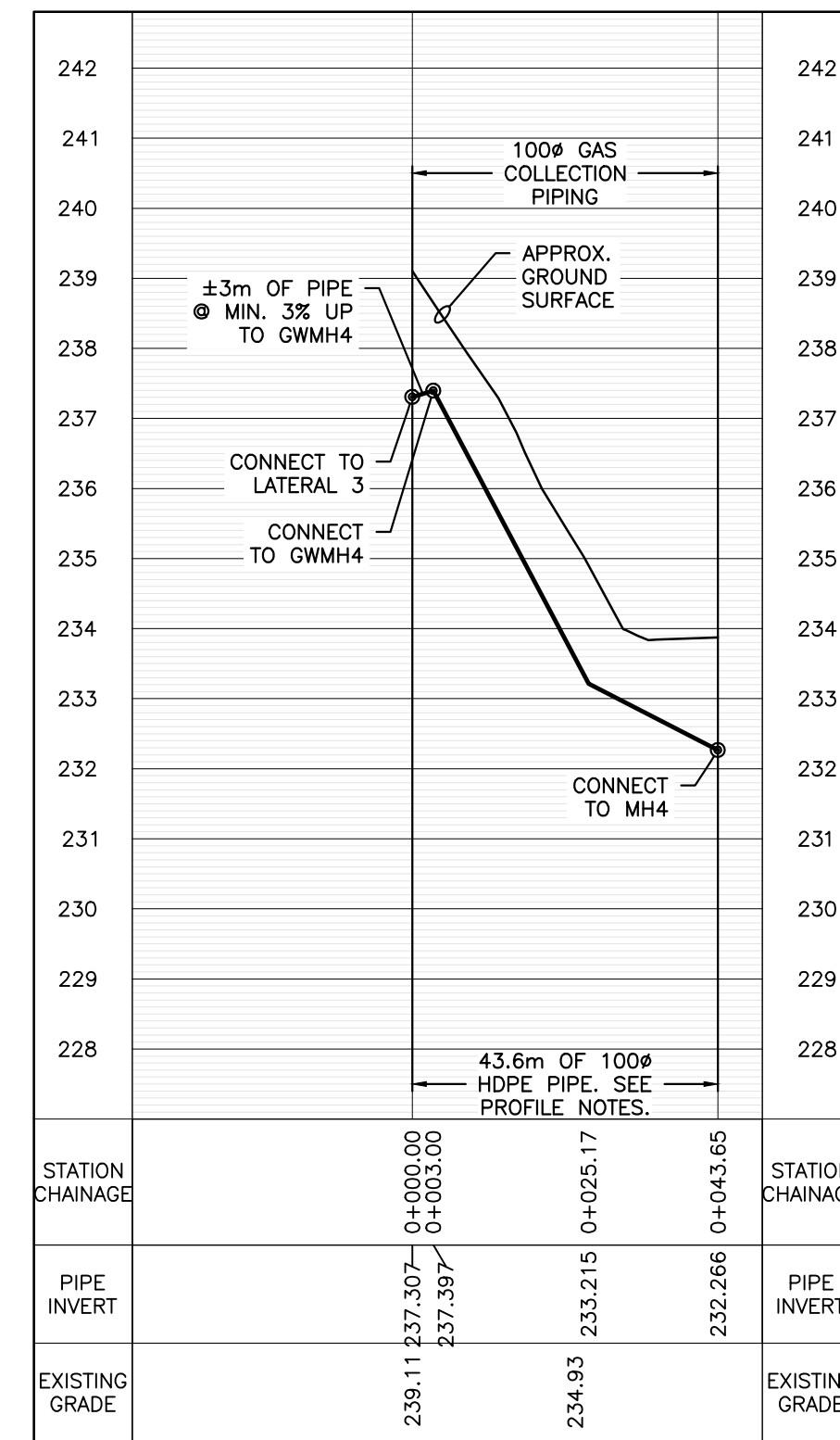
PLAN



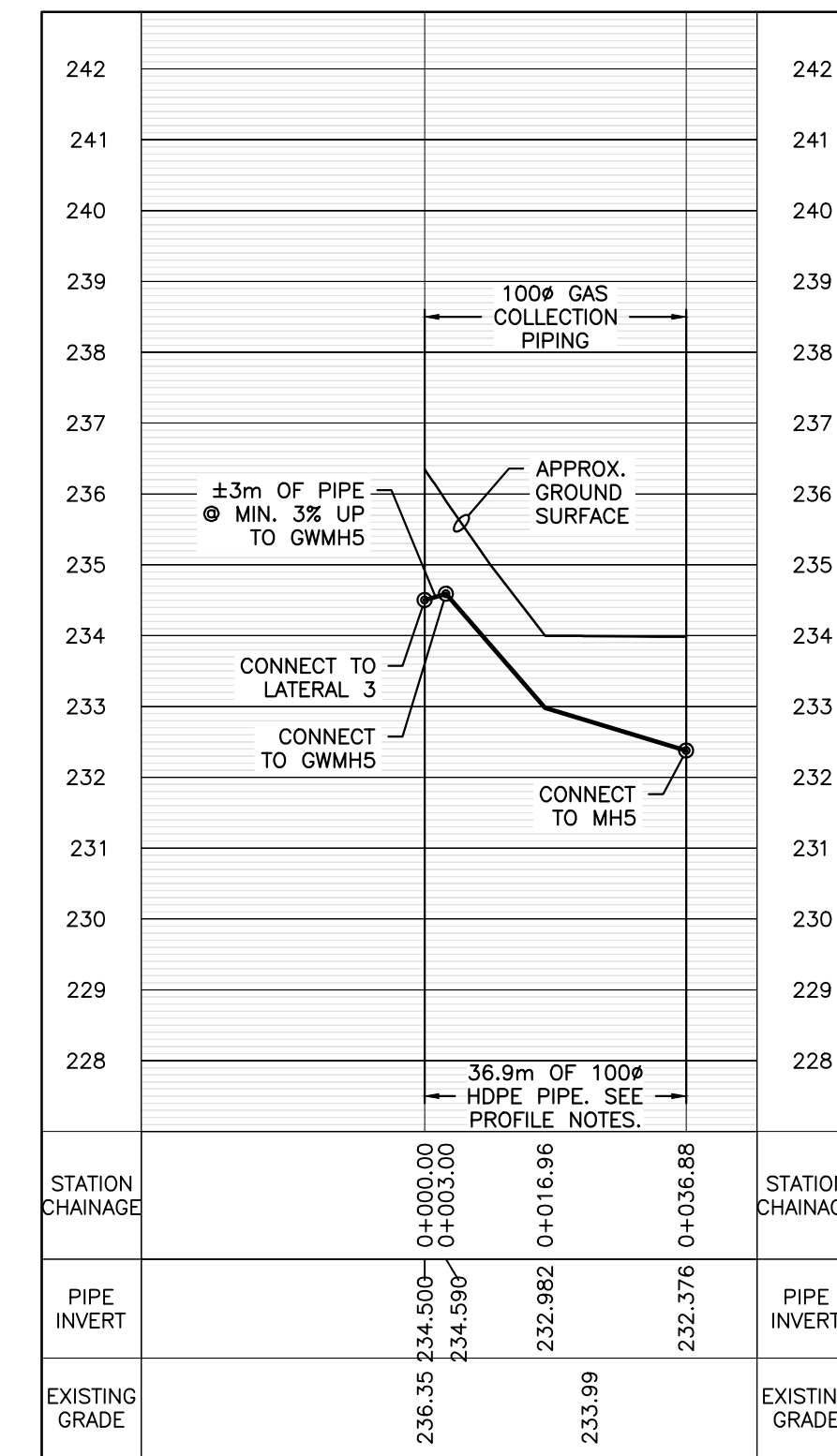
LEGEND



MH3 PROFILE

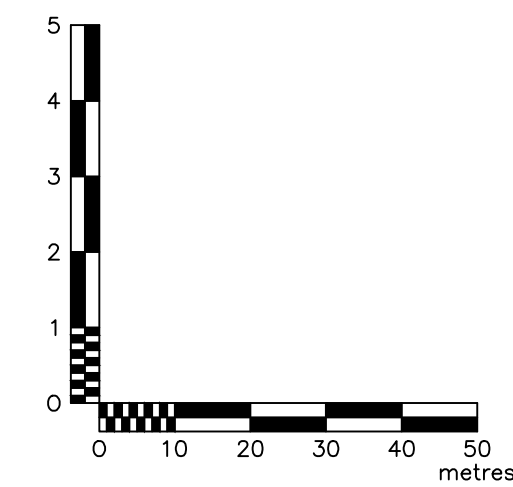


MH4 PROFILE



MH5 PROFILE

- PROFILE NOTES:
- LATERAL 3 INVERT CONNECTION ELEVATIONS ARE APPROXIMATE AND TO BE VERIFIED BY THE CONTRACTOR.
  - STARTING AT STATION 0+000, INSTALL ±3m OF PIPING SLOPED UPWARDS AT 3% GRADE TO LANDFILL GAS MONITORING WELLHEAD.
  - INSTALL PIPING SLOPED DOWNWARDS TO MANHOLE AT A MINIMUM OF 3% GRADE & 1.5m MINIMUM COVER.
  - MINIMIZE PIPE DEPTH AT MANHOLE PENETRATION WHILE MAINTAINING MINIMUM COVER AND SLOPE REQUIREMENTS.



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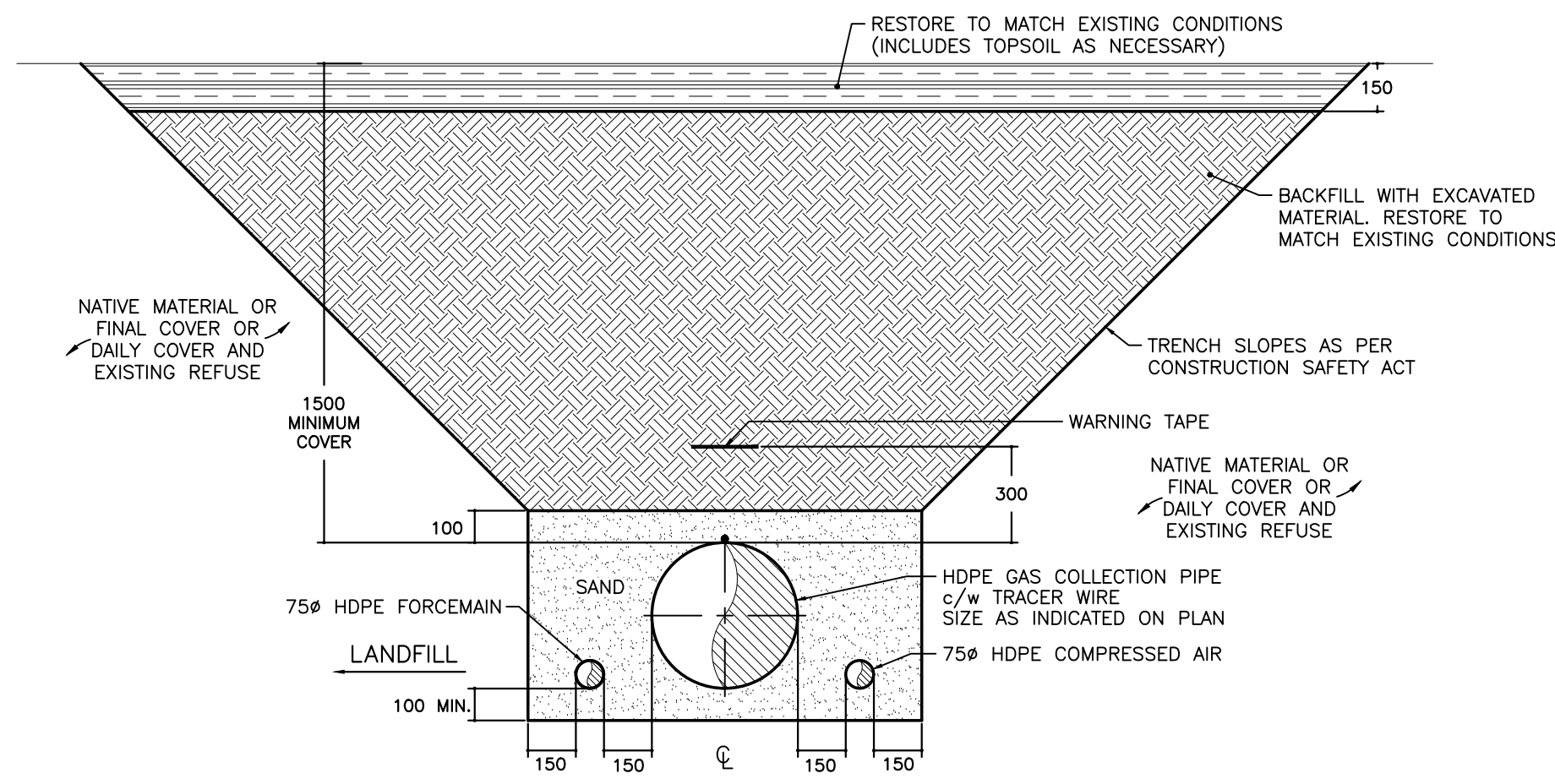
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LANDFILL GAS COLLECTION SYSTEM EXPANSION  
 CITY DWG NO. 1-0400A-C0081-001 COMCOR DWG NO. W1203  
 PLAN & PROFILES - MANHOLES

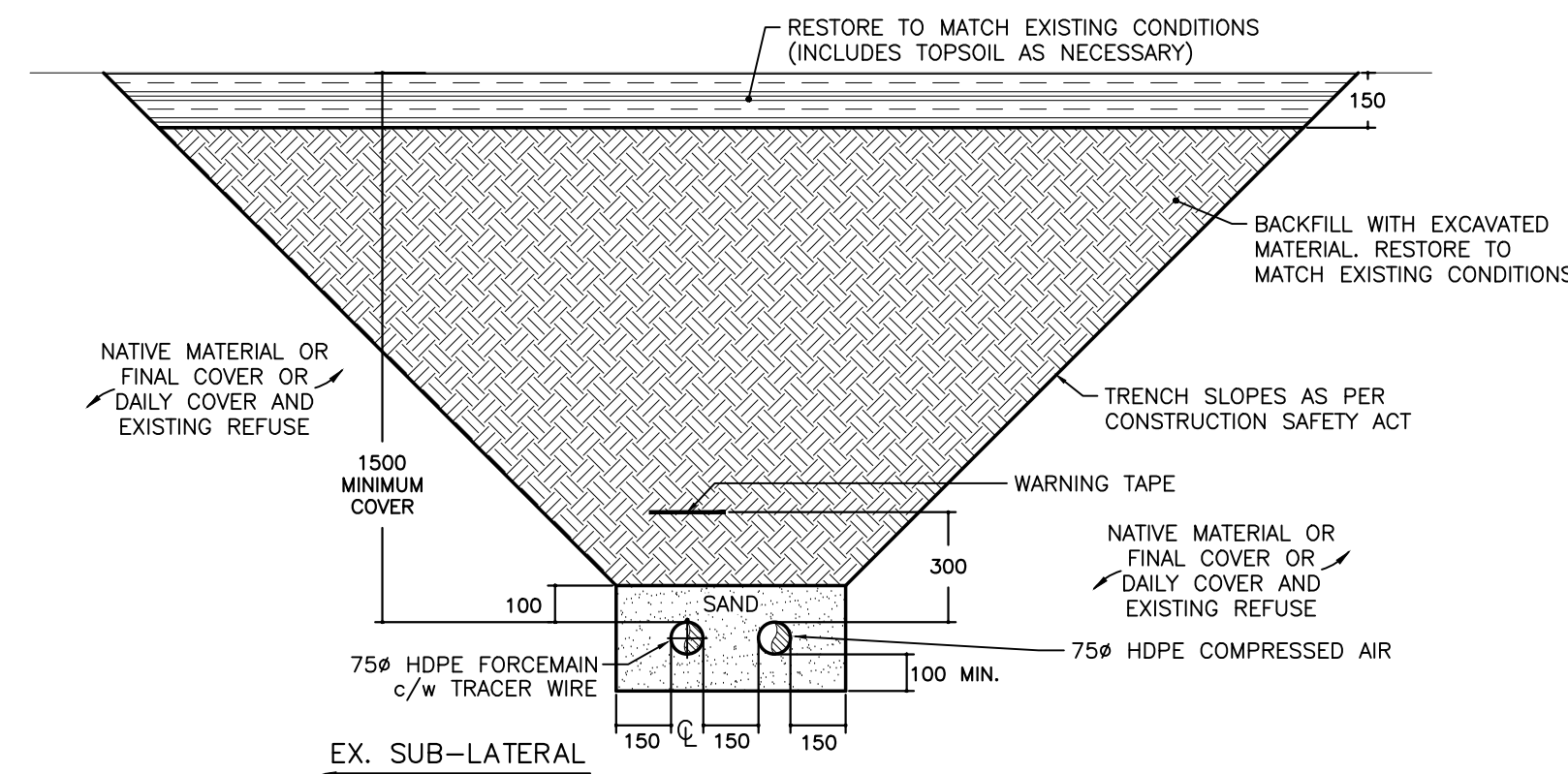
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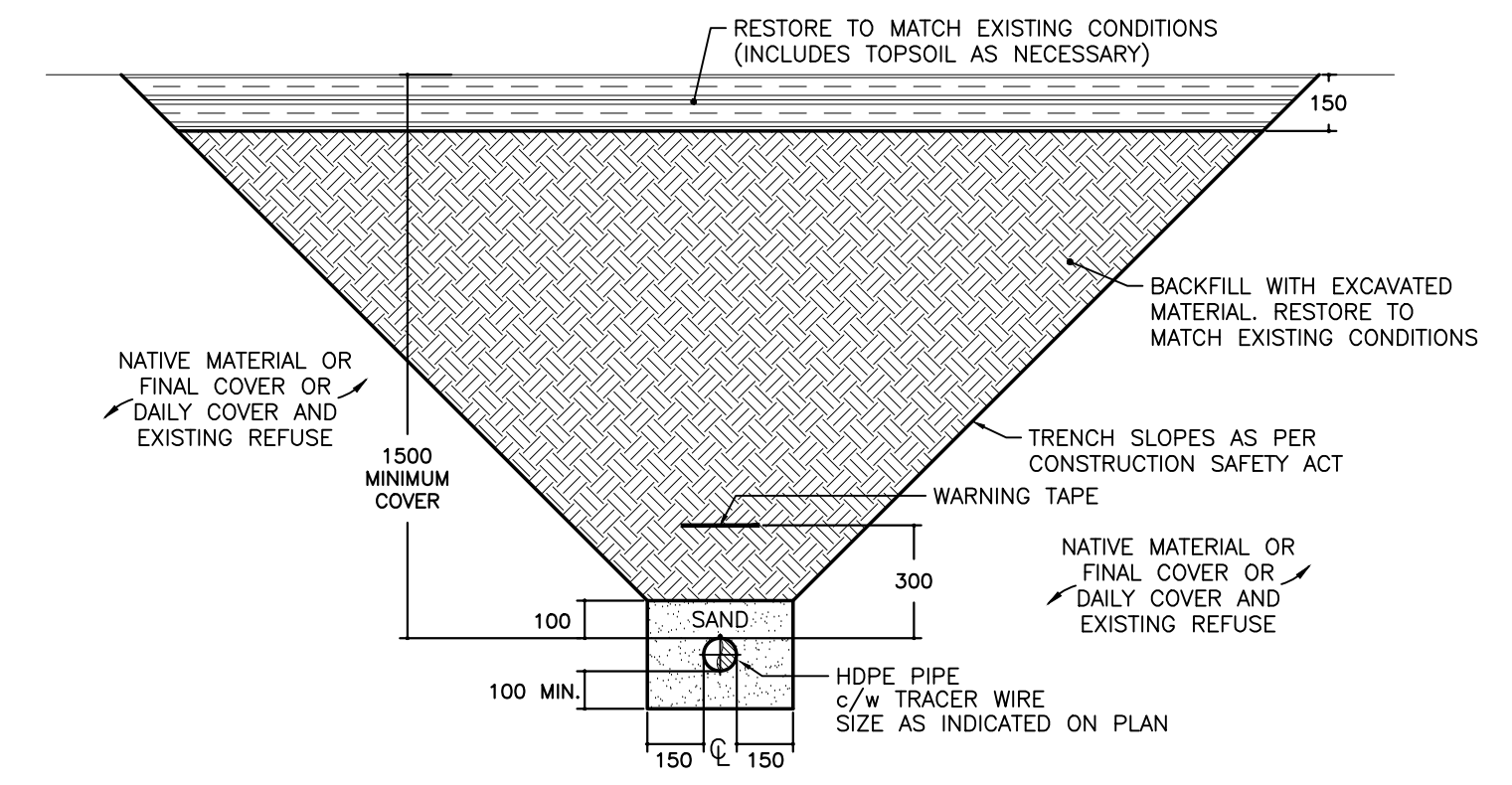
THREE (3) PIPE TRENCH DETAIL  
SEE SCALE BAR

W1301-1



FORCEMAIN & COMPRESSED AIR RETROFIT TRENCH DETAIL  
SEE SCALE BAR

W1301-2

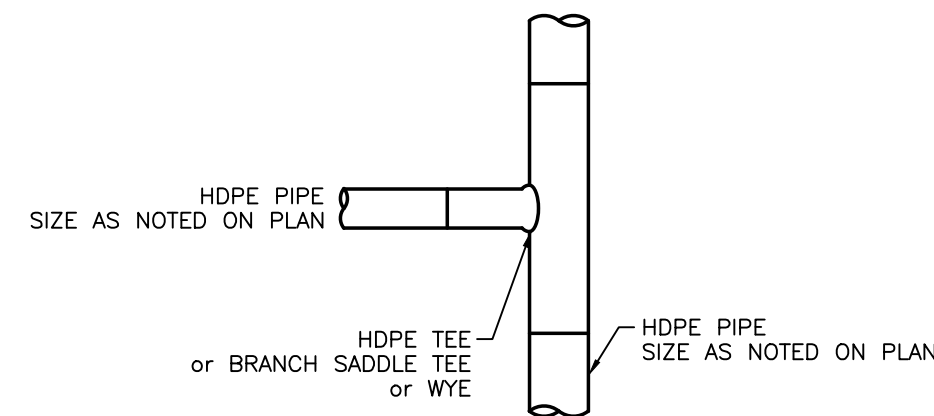


ONE (1) PIPE TRENCH DETAIL  
SEE SCALE BAR

W1301-3

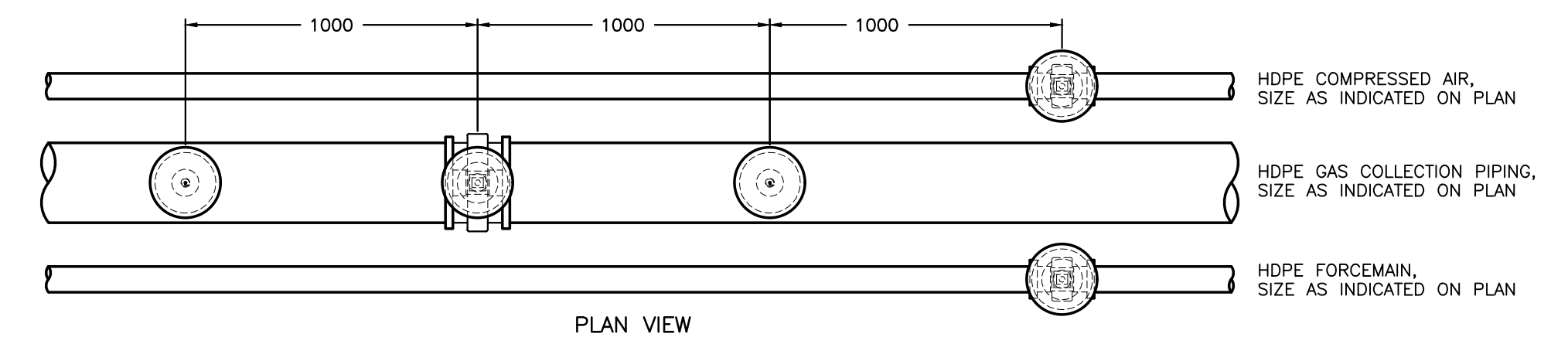
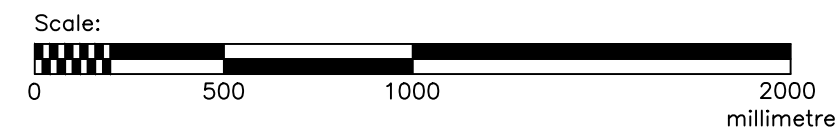
DETAIL NOTES:  
1. FORCEMAIN PIPING SHALL BE INSTALLED IN BETWEEN EX. SUB-LATERAL AND NEW COMPRESSED AIR PIPING.  
2. FORCEMAIN & COMPRESSED AIR PIPING SHALL BE INSTALLED AS CLOSE AS PRACTICABLE TO EXISTING SUB-LATERAL.

TRENCH DETAIL NOTES:  
1. THE CONTRACTOR IS RESPONSIBLE FOR THE REPAIR OF ANY EXISTING SUBSURFACE PIPING DAMAGED, INCLUDING WARNING TAPE, TRACER WIRE AND PIPE BEDDING, DURING THE INSTALLATION OF NEW PIPING.  
2. WHERE ENCOUNTERED, RE-COMPACT CLAY COVER TO 95% S.F.D.  
3. SAND PIPE BEDDING EXCEPT AT ALL ROAD CROSSINGS WHERE PIPE BEDDING TO BE UNSHRINKABLE FILL. FILL TO EXTEND 2m PAST ROAD EDGES.

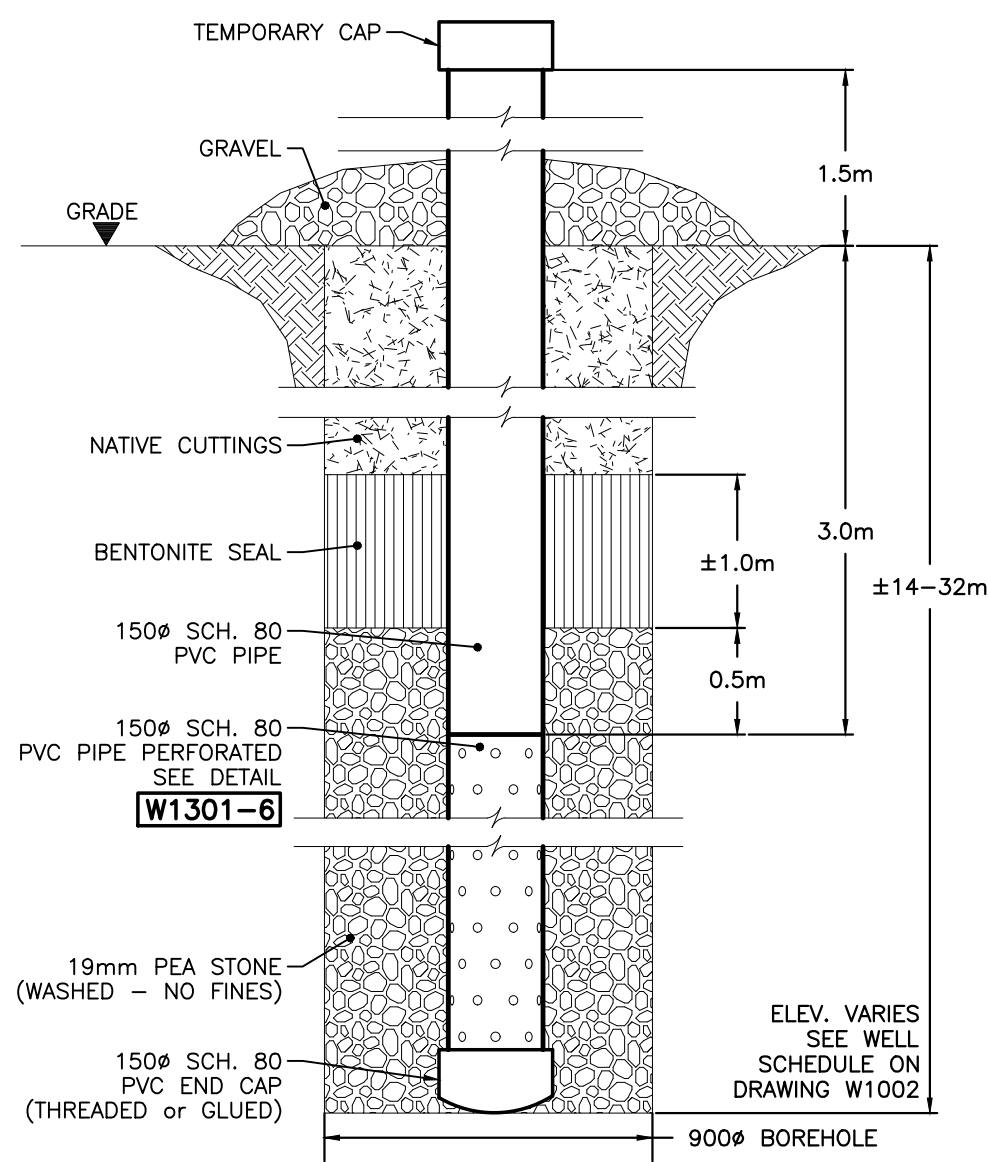


TYPICAL HDPE PIPE CONNECTION  
SEE SCALE BAR

W1301-4

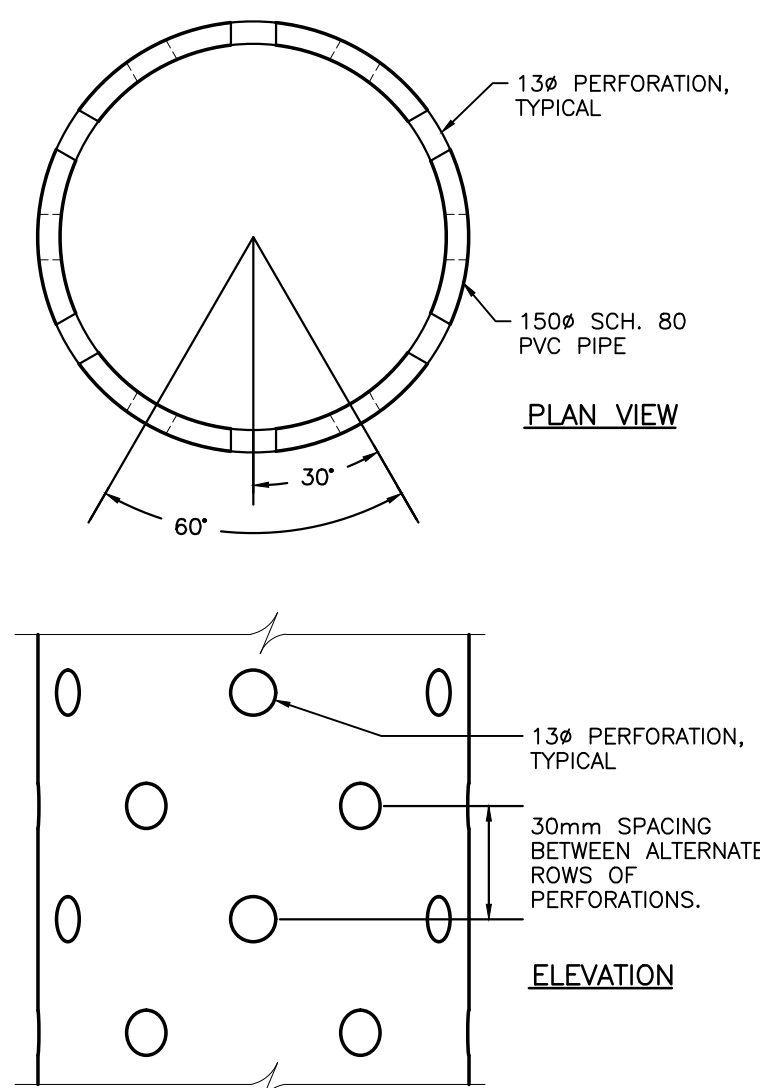


PLAN VIEW



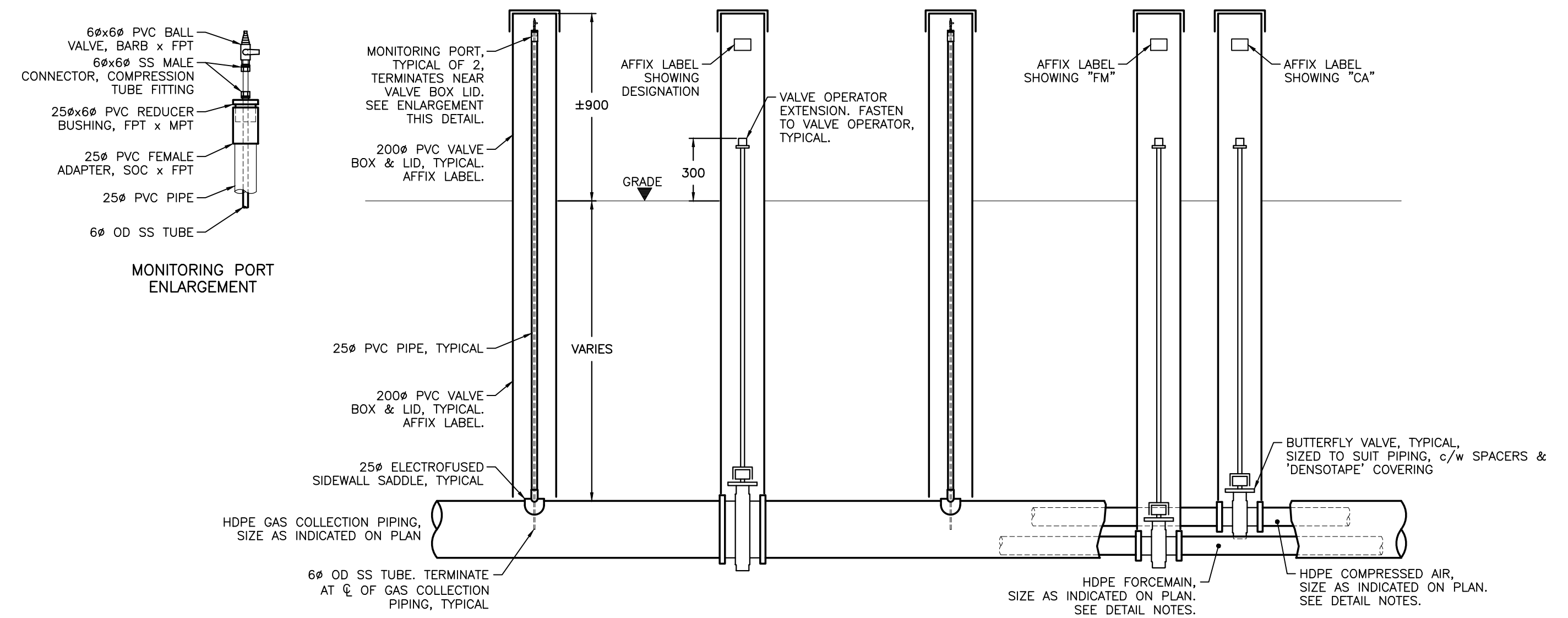
LANDFILL GAS EXTRACTION WELL INSTALLATION  
Not to Scale

W1301-5



PIPING PERFORATION DETAIL  
Not to Scale

W1301-6



FLOW CONTROL DETAIL NOTES:  
1. COMPRESSED AIR & FORCEMAIN PIPING IS WHERE INDICATED ON PLAN.  
2. COMPRESSED AIR & FORCEMAIN PIPING ARE OFFSET FROM ACTUAL LOCATION, REFER TO PLAN VIEW THIS DETAIL AND TRENCH DETAILS FOR ACTUAL LOCATIONS.

TYPICAL FLOW CONTROL ASSEMBLY (FC) DETAIL  
SEE SCALE BAR

W1301-7

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2	ISSUED FOR REVIEW - REVISED	Mar. 11, 2020	JDP
3	ISSUED FOR TENDER	Mar. 17, 2020	JDP

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5. ALL PVC PIPING IS SCHEDULE 80.  
6. PROVIDE SHOP DRAWINGS FOR APPROVAL OF THE ENGINEER PRIOR TO FABRICATION OR CONSTRUCTION.

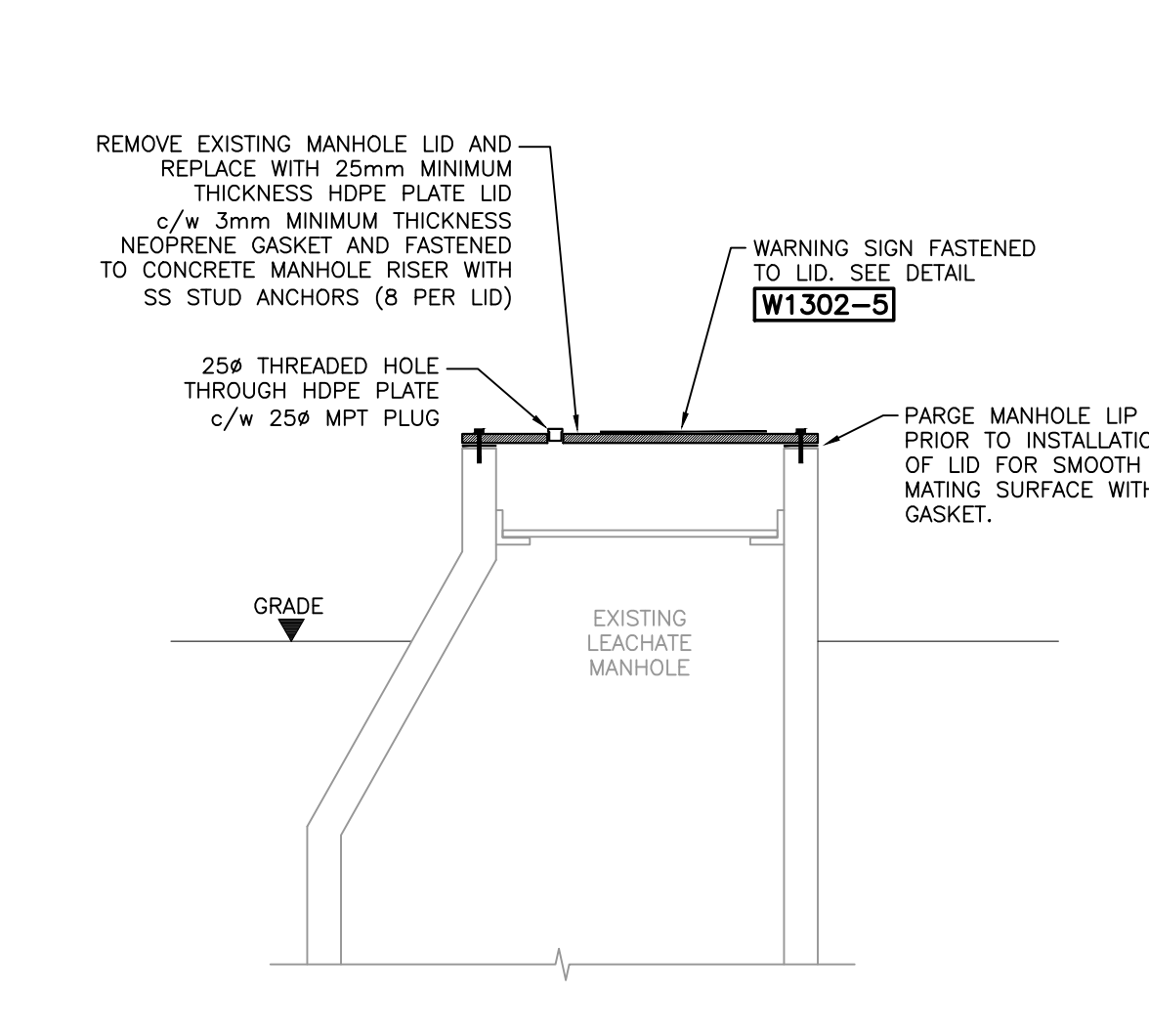
BID OPPORTUNITY:  
184-2020  
DATE: FEBRUARY, 2020  
SCALE: SEE SCALE BAR  
DESIGNED BY: JDP  
DRAWN BY: JDP  
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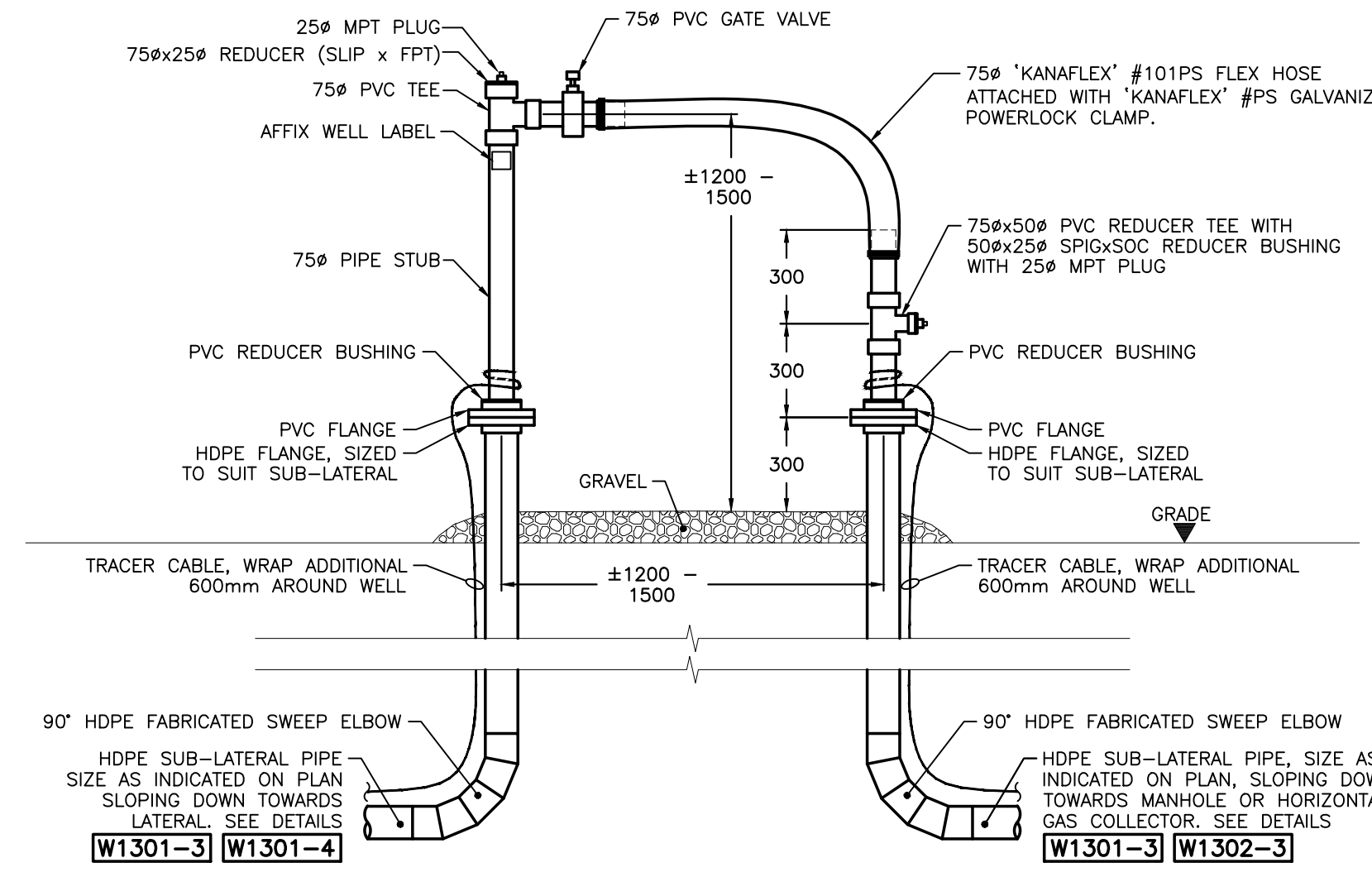
City of Winnipeg  
Brady Road  
Resource Management  
Facility

LANDFILL GAS COLLECTION  
SYSTEM EXPANSION  
CITY DRAWING NO. 1-0400A-C0082-001 COMCOR DRAWING NO. W1301  
TRENCH & SYSTEM DETAILS

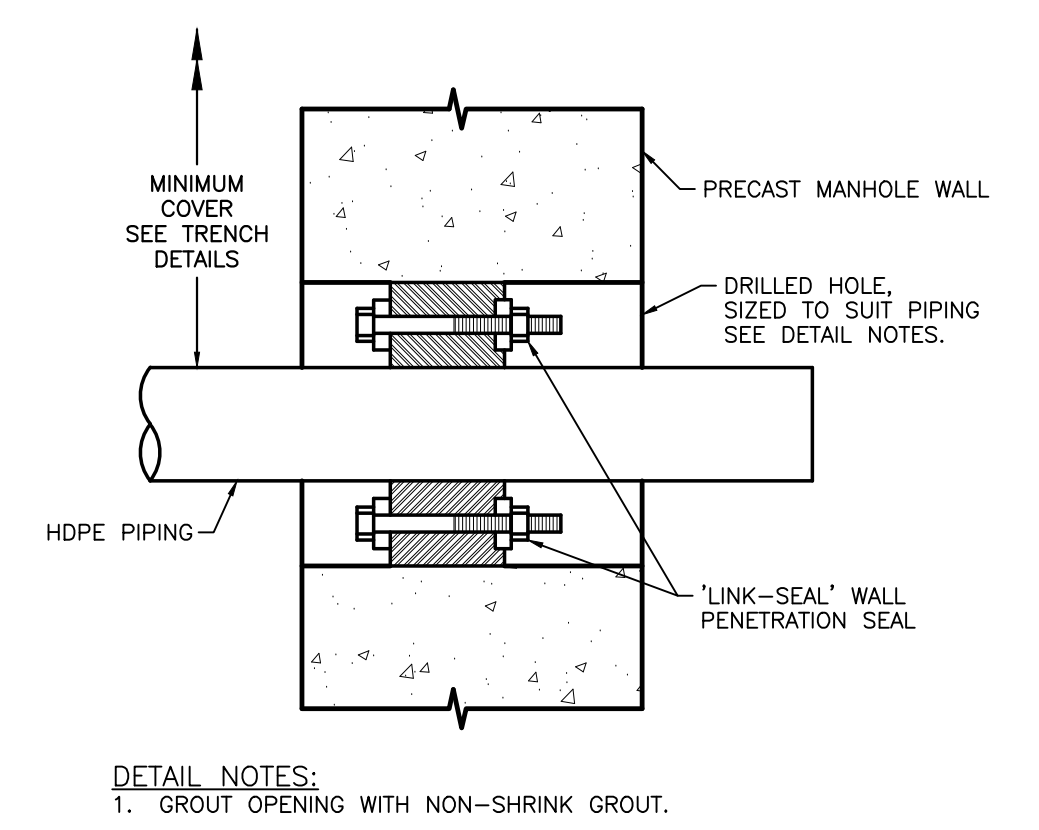




LEACHATE MANHOLE LID RETROFIT W1302-1  
SEE SCALE BAR

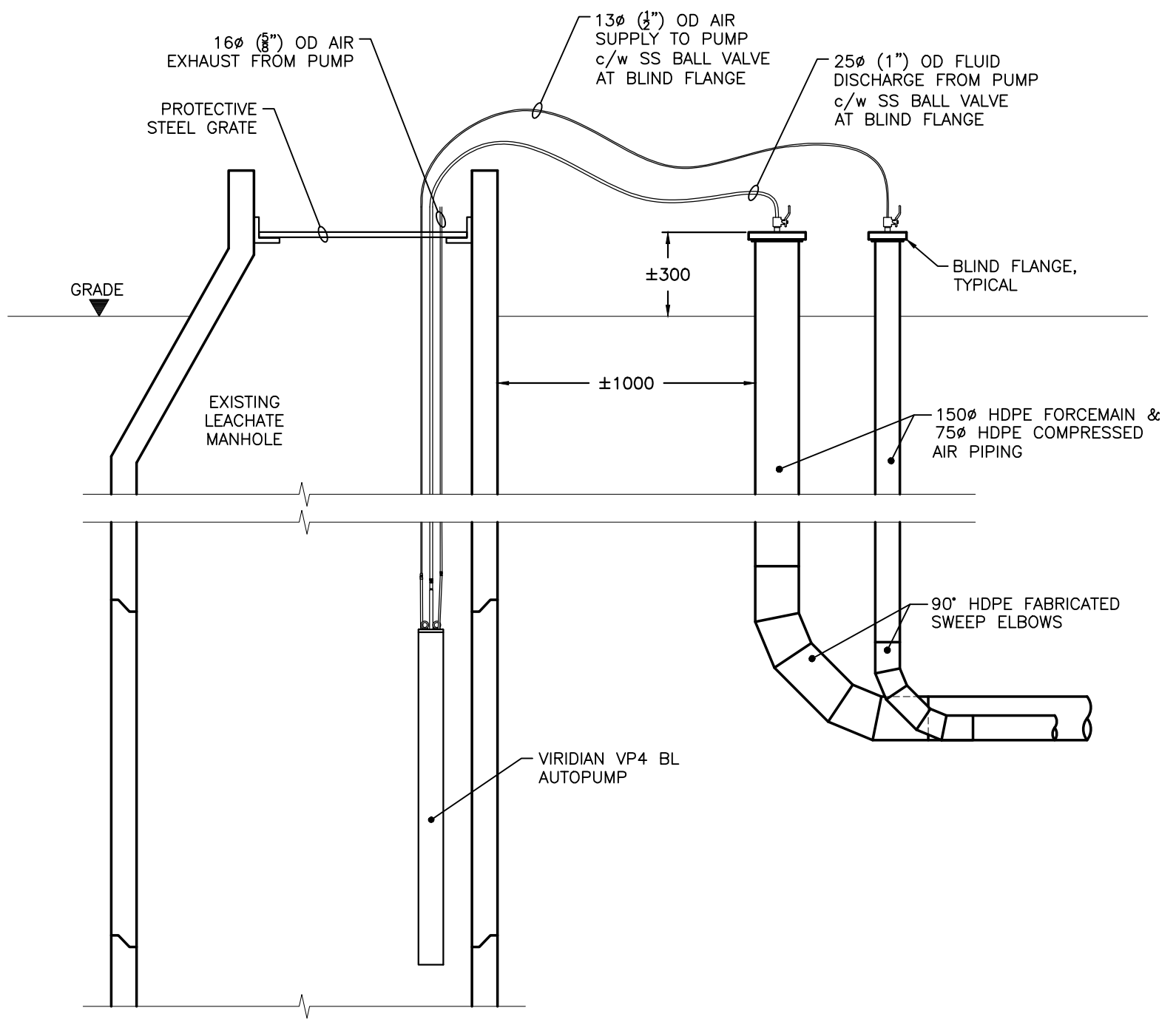
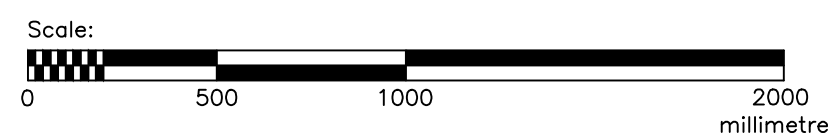


LANDFILL GAS MONITORING WELLHEAD FOR MANHOLES & HORIZONTAL GAS COLLECTORS W1302-2  
SEE SCALE BAR

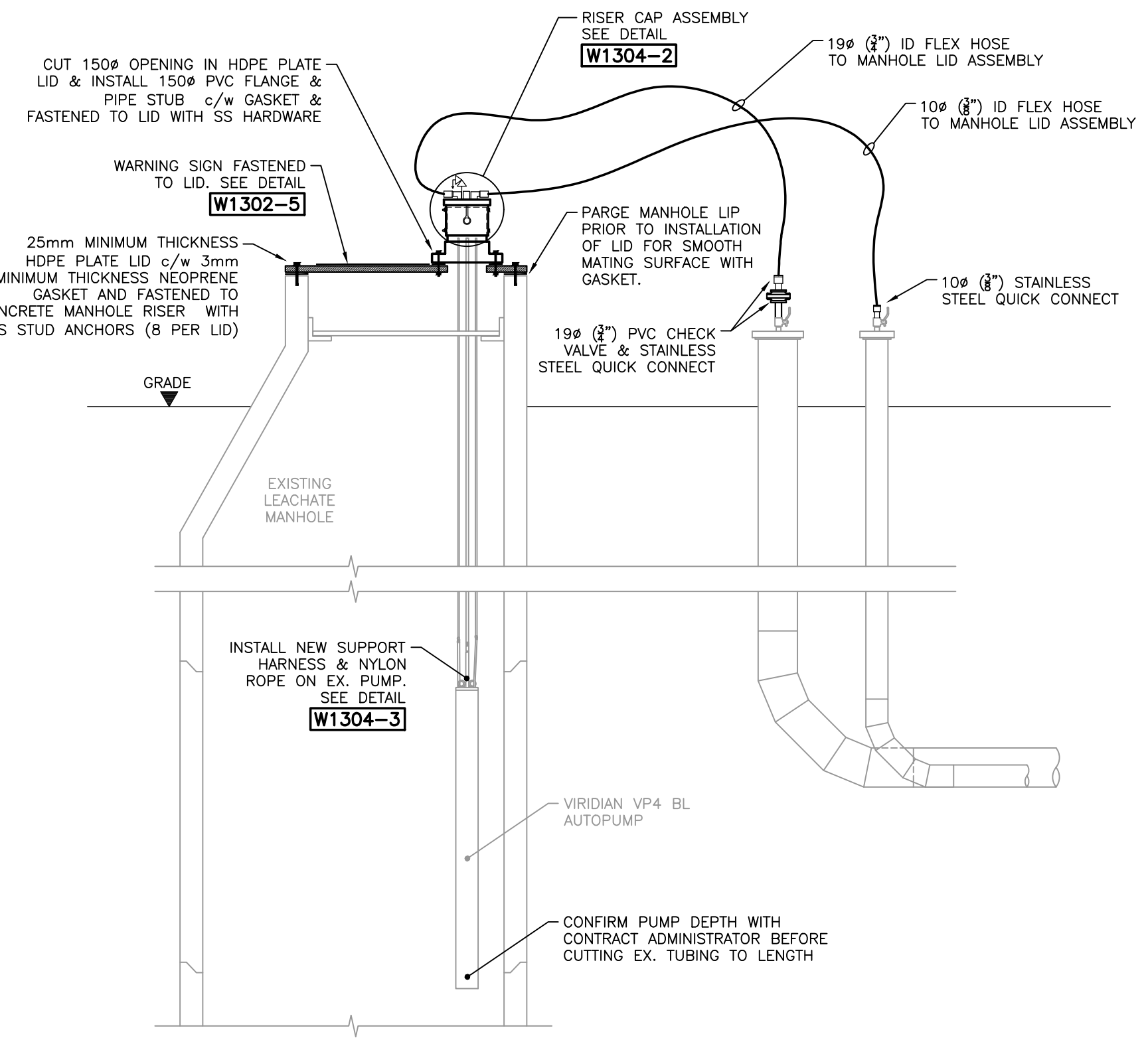


PIPE PENETRATION INTO CHAMBER DETAIL W1302-3  
Not to Scale

MANHOLE WORK SCHEDULE			
MANHOLE	W1302-1	W1302-2	W1302-4
MH1	✓		
MH2	✓		
MH3		✓	✓
MH4		✓	✓
MH5		✓	✓
MH8			✓
MH9	✓		
MH11	✓		
MH12	✓		
MH13			✓
MH14	✓		
MH20	✓		
MH24			✓
MH30	✓		
MH31			✓
MH32			✓
MH33			✓
MH42			✓
MH43			✓
MH44	✓		
MH45	✓		
TOTAL	10	3	11



EXISTING LEACHATE PUMPING MANHOLE RETROFIT W1302-4  
SEE SCALE BAR



RENOVATION ELEVATION W1302-5  
SEE SCALE BAR

**MANHOLE DETAIL NOTES:**  
 1. FOR WORK REQUIRED AT EACH MANHOLE, SEE MANHOLE WORK SCHEDULE, THIS DRAWING.  
 2. CONTRACTOR TO VERIFY MANHOLE SIZES ON SITE AND SUPPLY AND INSTALL HDPE LIDS, PARTS AND ACCESSORIES TO SUIT.



**DETAIL NOTES:**  
 1. SIGN TO CONFORM TO MANITOBA WORKPLACE SAFETY & HEALTH REQUIREMENTS.

WARNING SIGN DETAIL W1302-5  
Not to Scale

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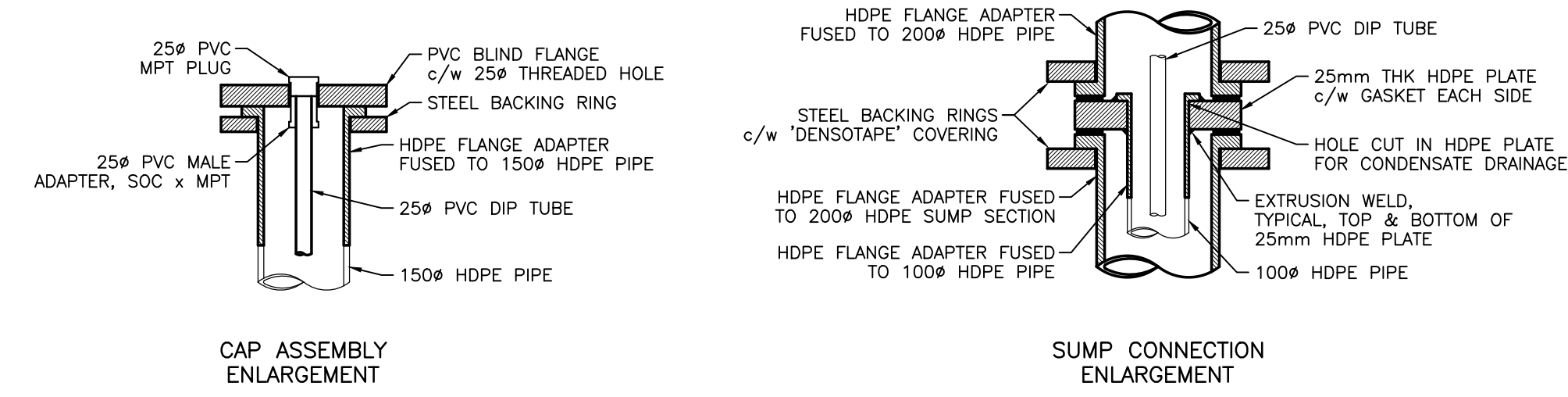
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**DATE:** FEBRUARY, 2020  
**SCALE:** SEE SCALE BAR  
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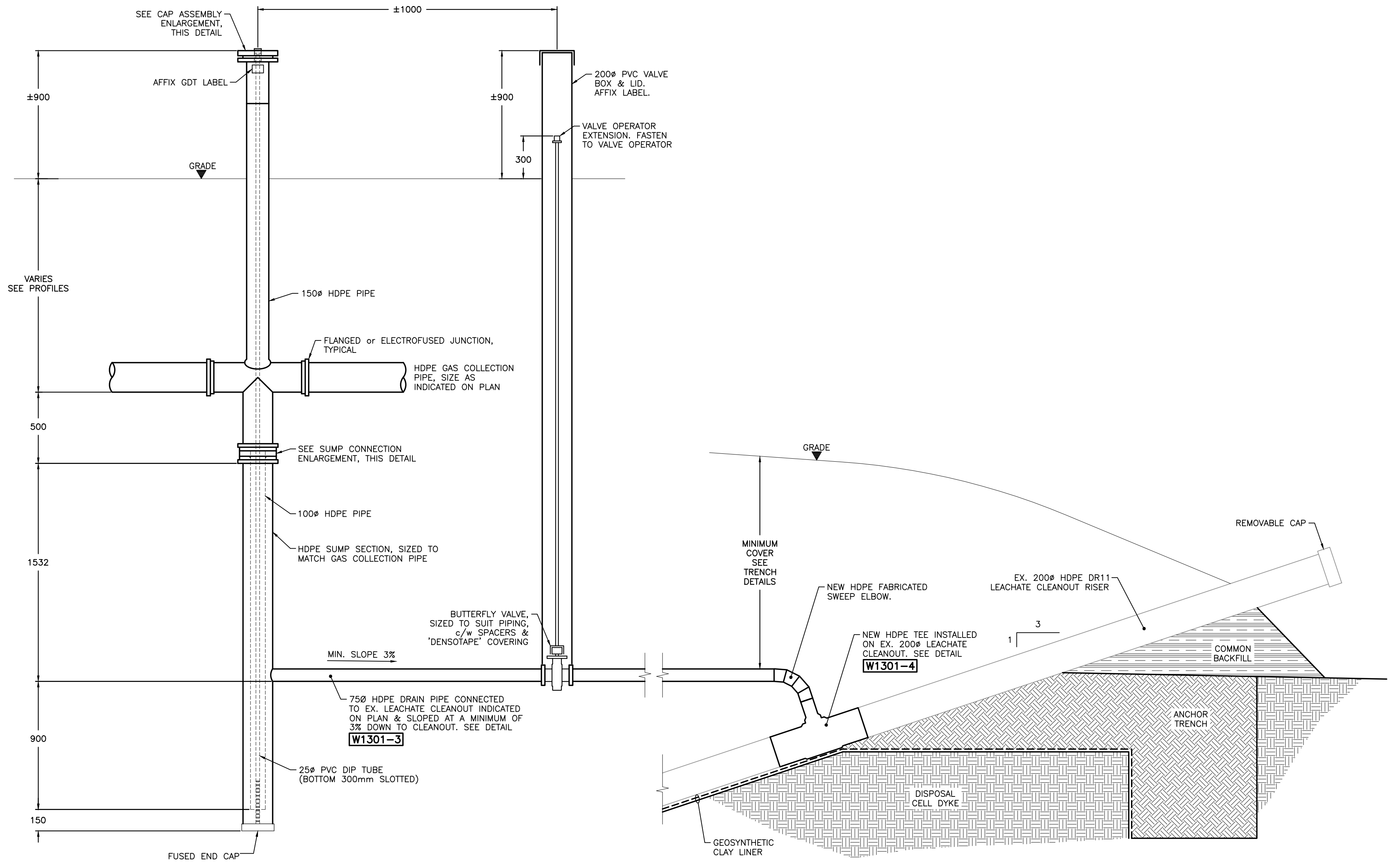
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**City of Winnipeg**  
 Brady Road  
 Resource Management  
 Facility

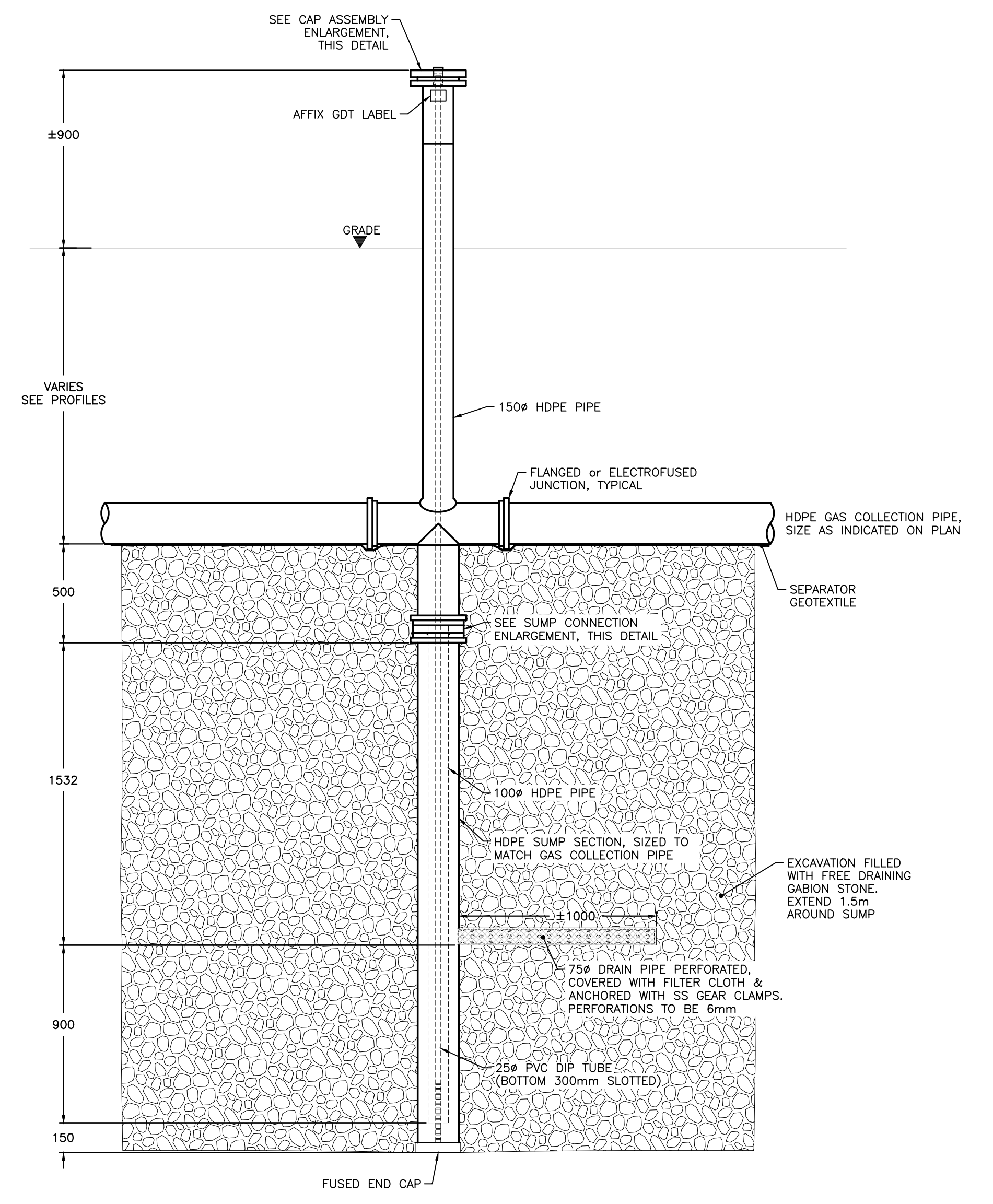
**LANDFILL GAS COLLECTION SYSTEM EXPANSION**  
 CITY DRAWING NO. 1-0400A-C0083-001 COMCOR DRAWING NO. W1302  
**MANHOLE RETROFIT DETAILS**



GRAVITY DRAIN TRAP ENLARGEMENTS W1303-3  
Not to Scale

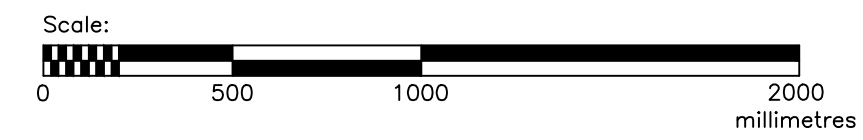


**DETAIL NOTES:**  
 1. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS REQUIRED TO THE LEACHATE COLLECTION SYSTEM & LANDFILL LINER WHILE CONNECTING 75# DRAIN PIPE TO LEACHATE CLEANOUT RISER.



TYPICAL GRAVITY DRAIN TRAP (GDT) IN WASTE DETAIL W1303-2  
SEE SCALE BAR

TYPICAL GRAVITY DRAIN TRAP (GDT) TO LEACHATE CLEANOUT DETAIL W1303-1  
SEE SCALE BAR



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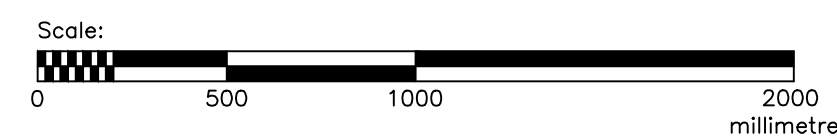
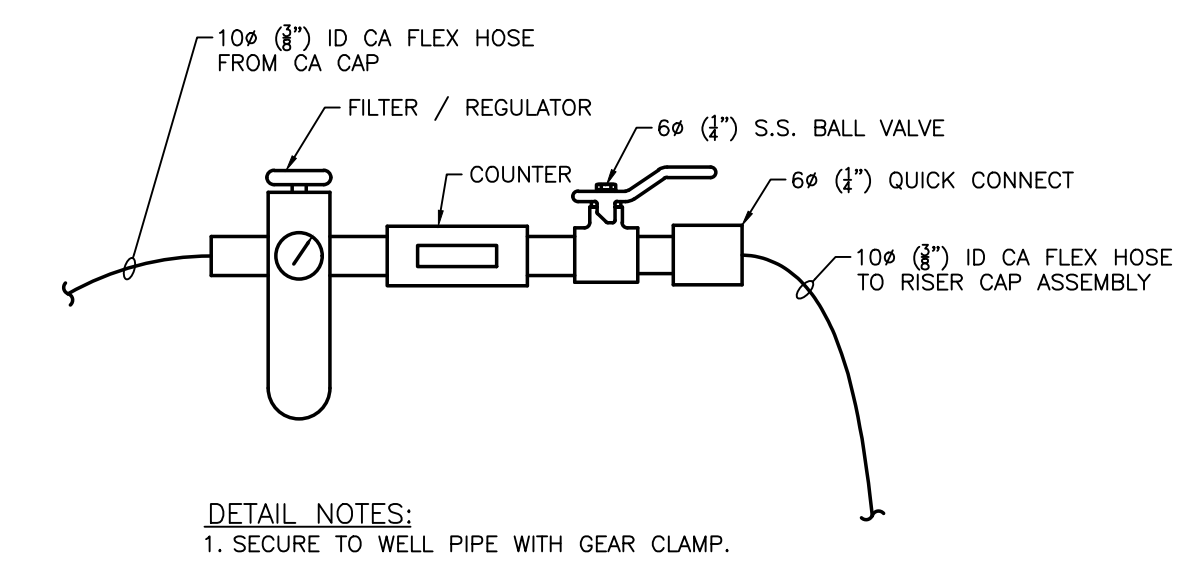
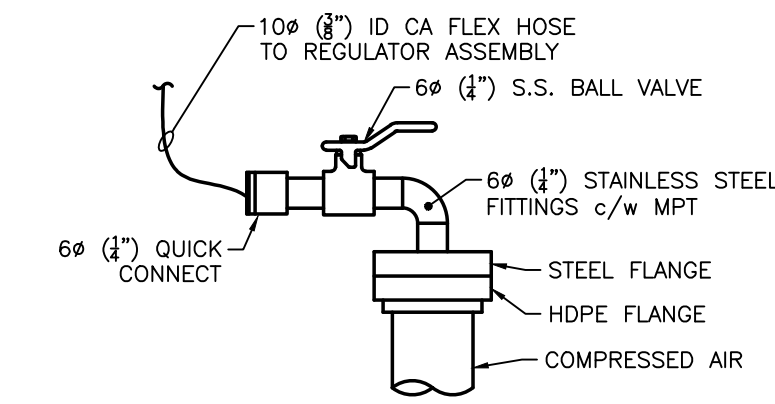
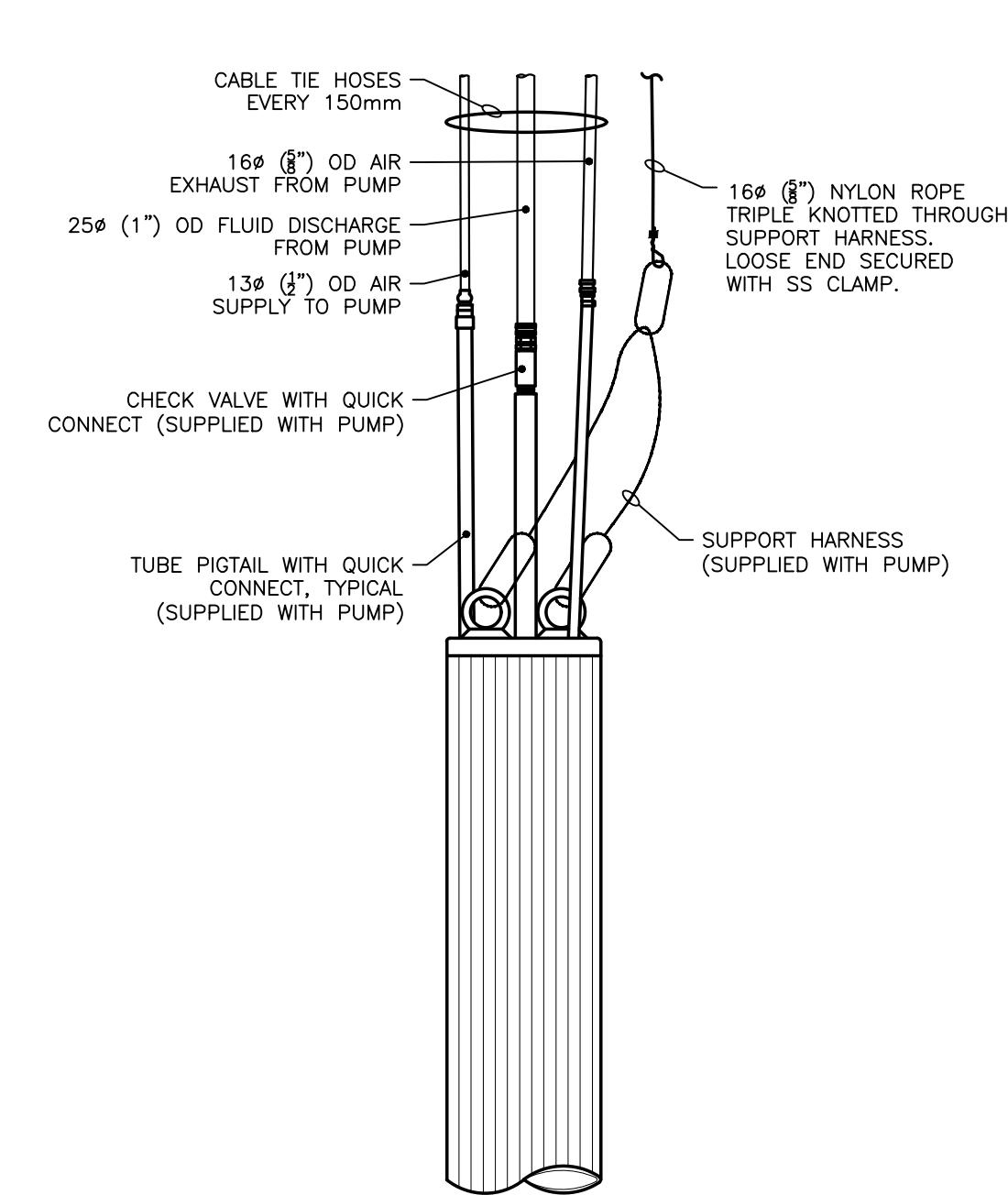
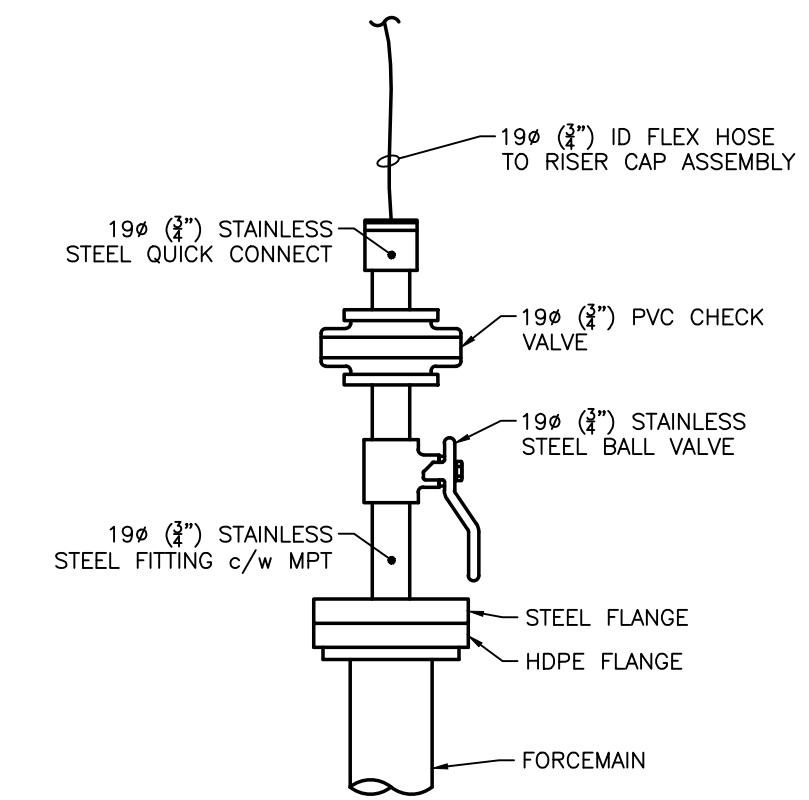
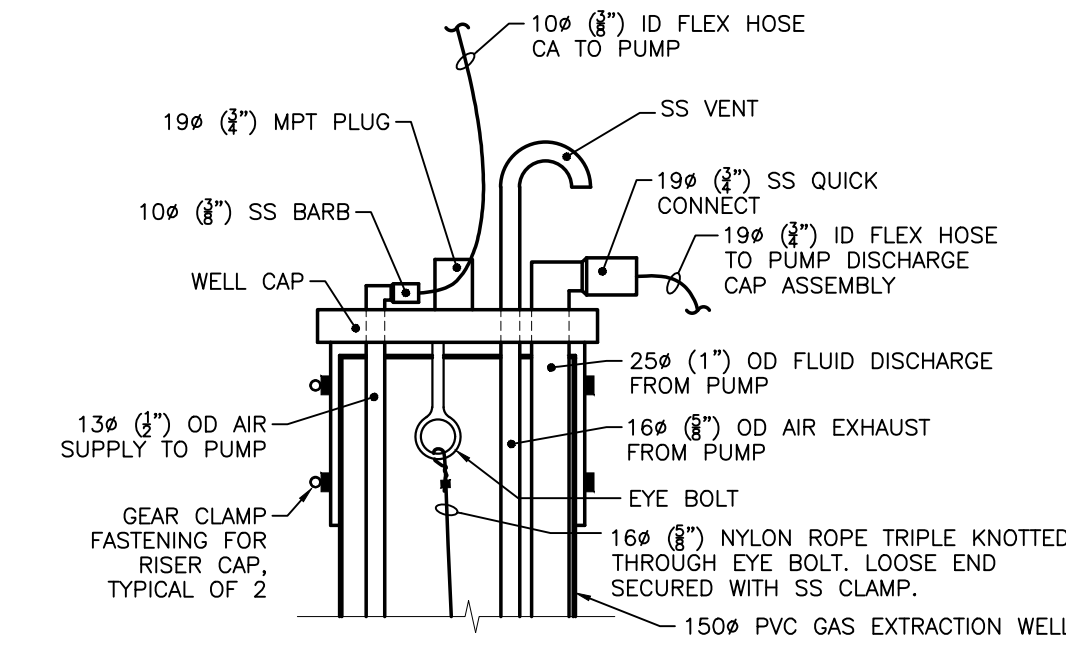
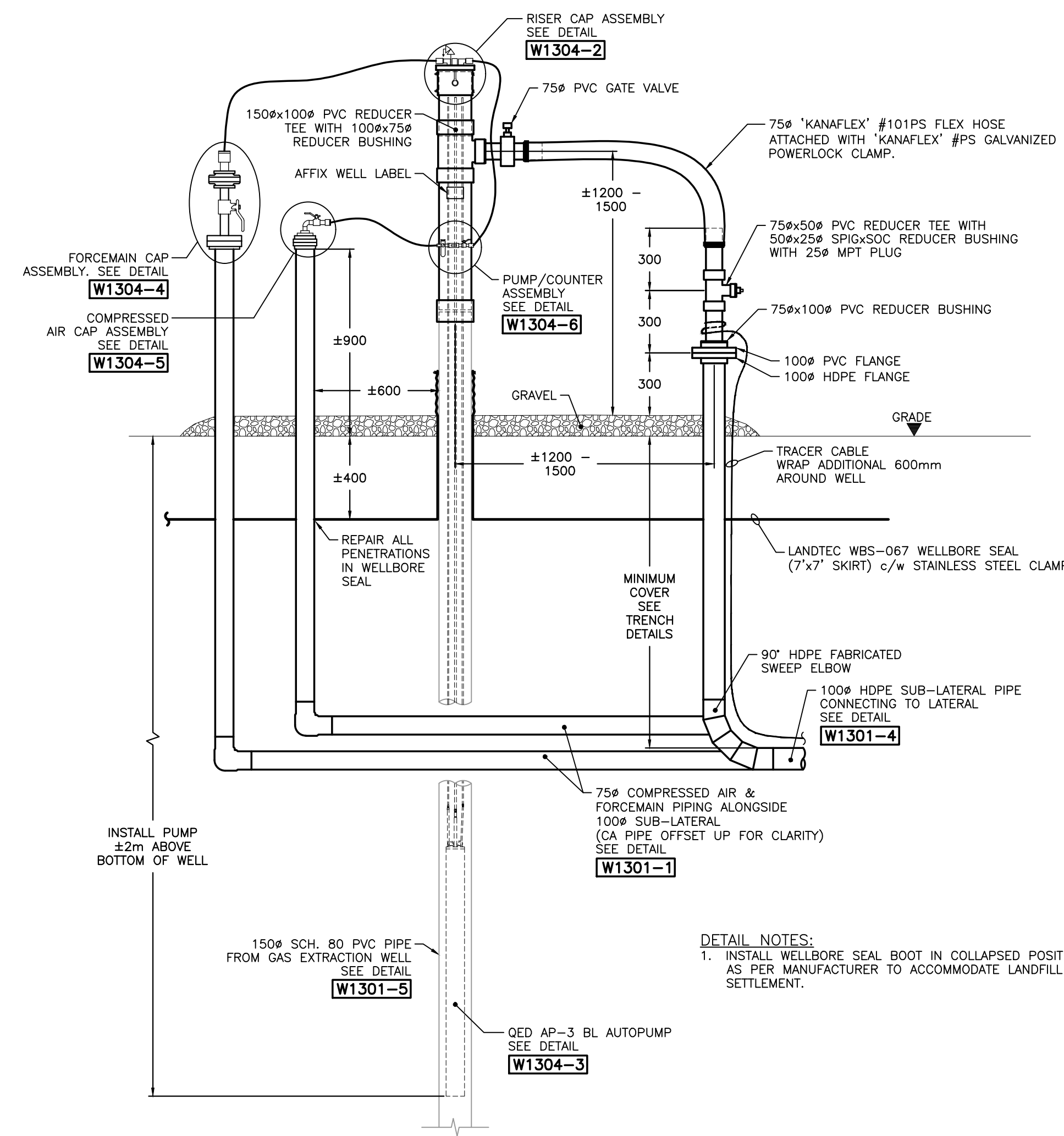
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 184-2020  
 DATE: FEBRUARY, 2020  
 SCALE: SEE SCALE BAR  
 DESIGNED BY: JDP  
 DRAWN BY: JDP  
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**City of Winnipeg**  
 Brady Road  
 Resource Management  
 Facility

**LANDFILL GAS COLLECTION SYSTEM EXPANSION**  
 CITY DRAWING NO. 1-0400A-C0084-001 COMCOR DRAWING NO. W1303  
 GRAVITY DRAIN TRAP DETAILS





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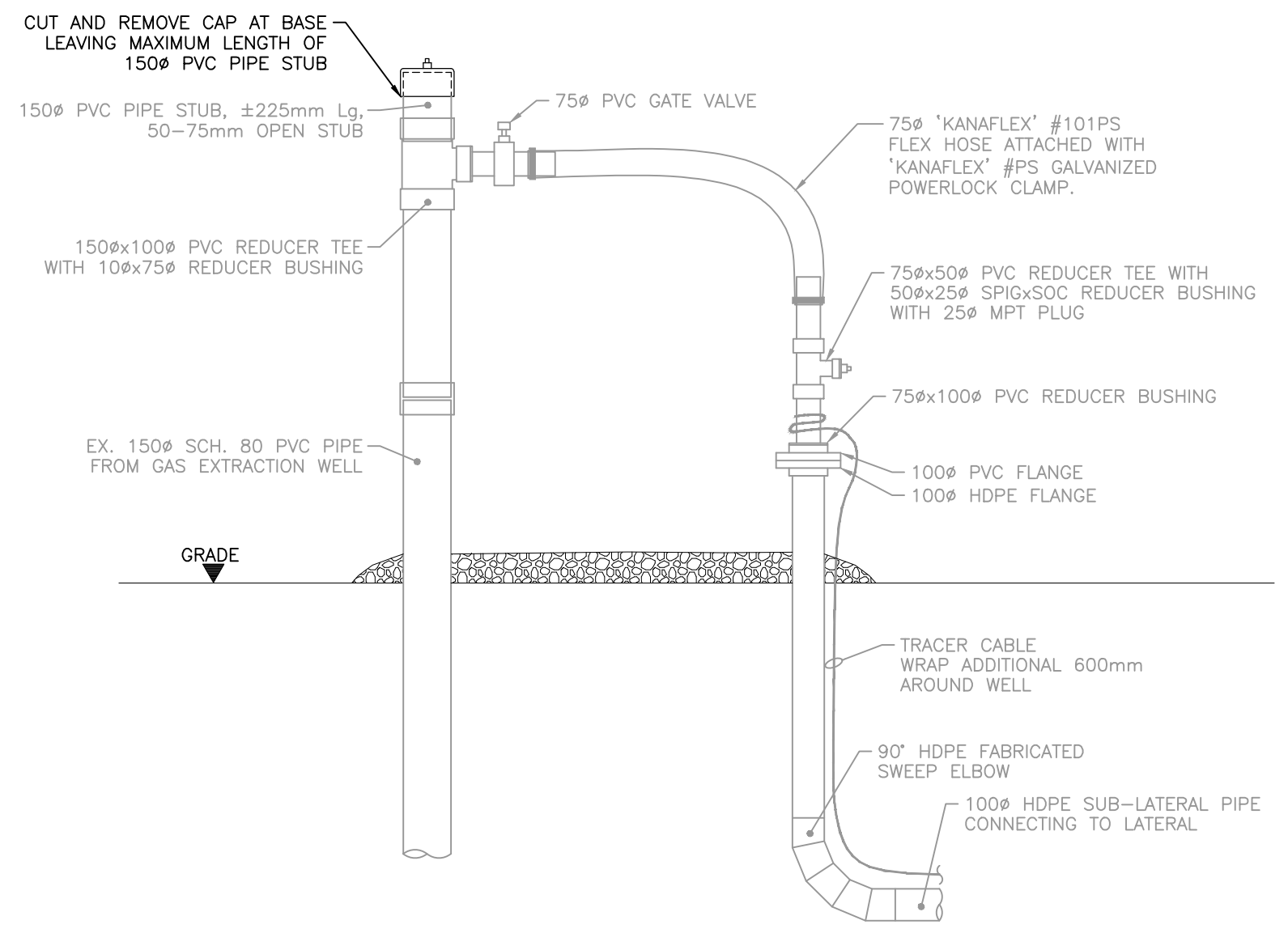
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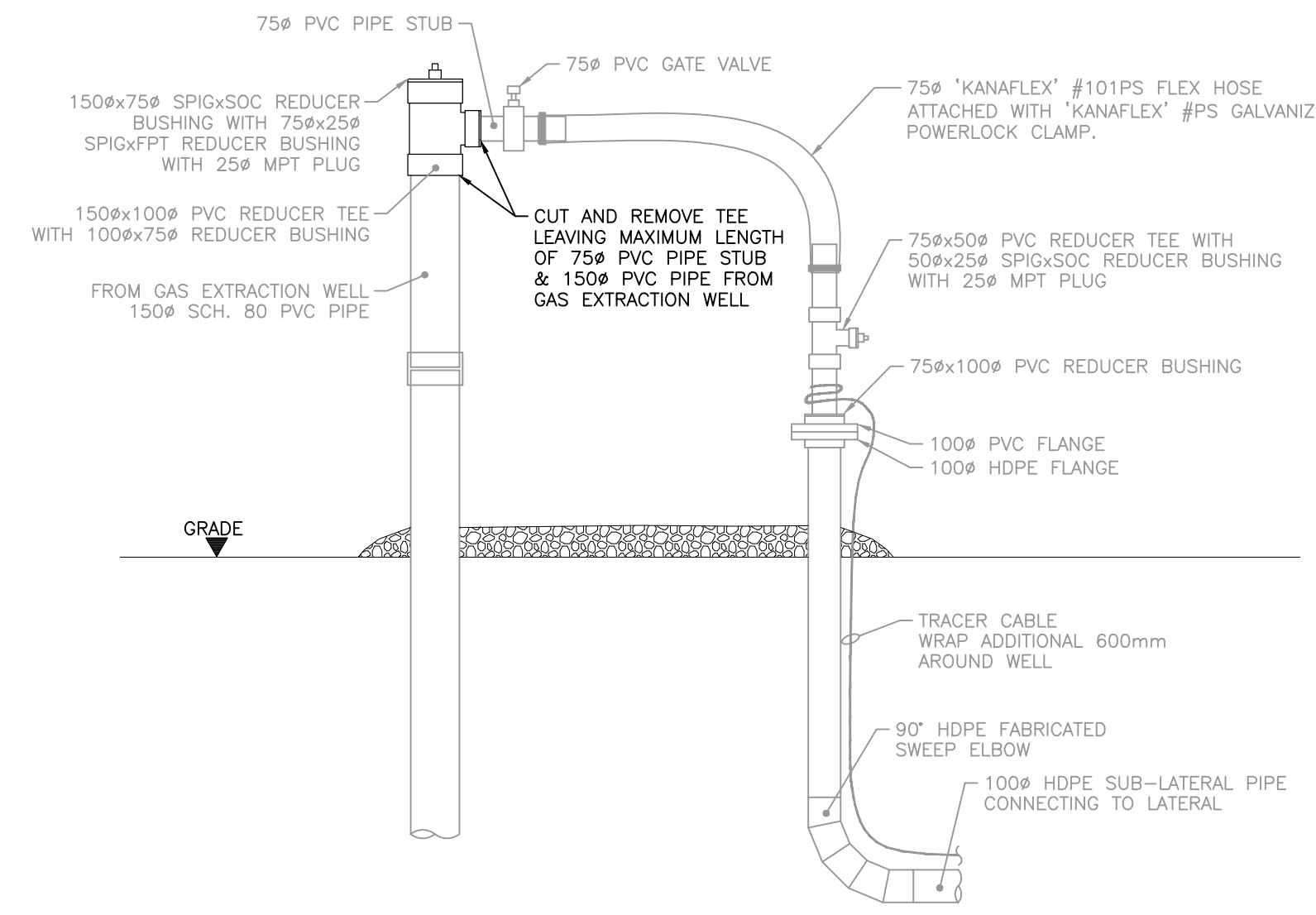
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**City of Winnipeg**  
Brady Road Resource Management Facility

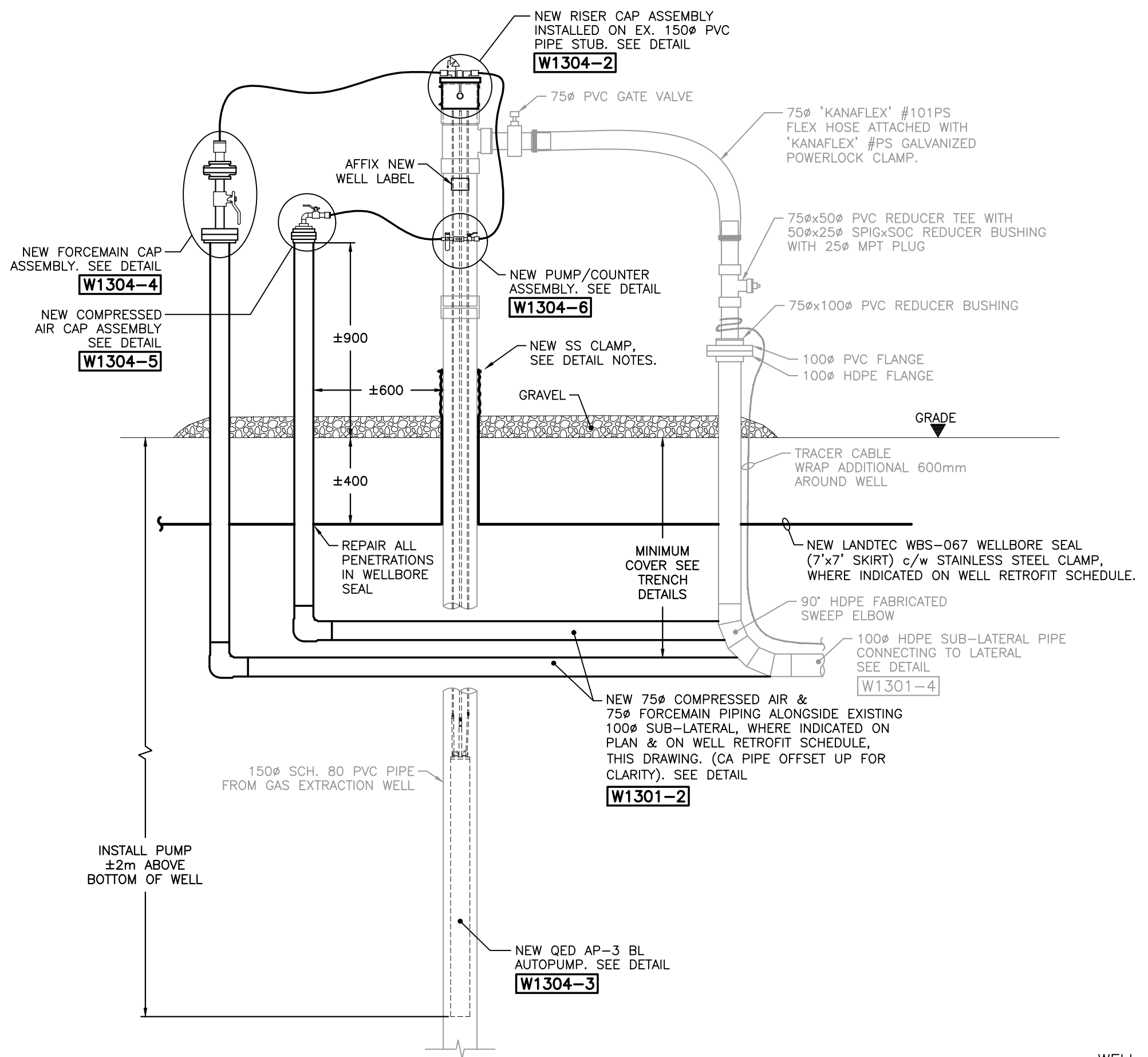
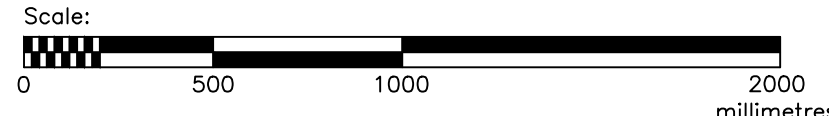
**LANDFILL GAS COLLECTION SYSTEM EXPANSION**  
CITY DRAWING NO. 1-0400A-C0085-001 COMCOR DRAWING NO. W1304  
**NEW DUAL-PURPOSE WELLHEAD DETAILS**



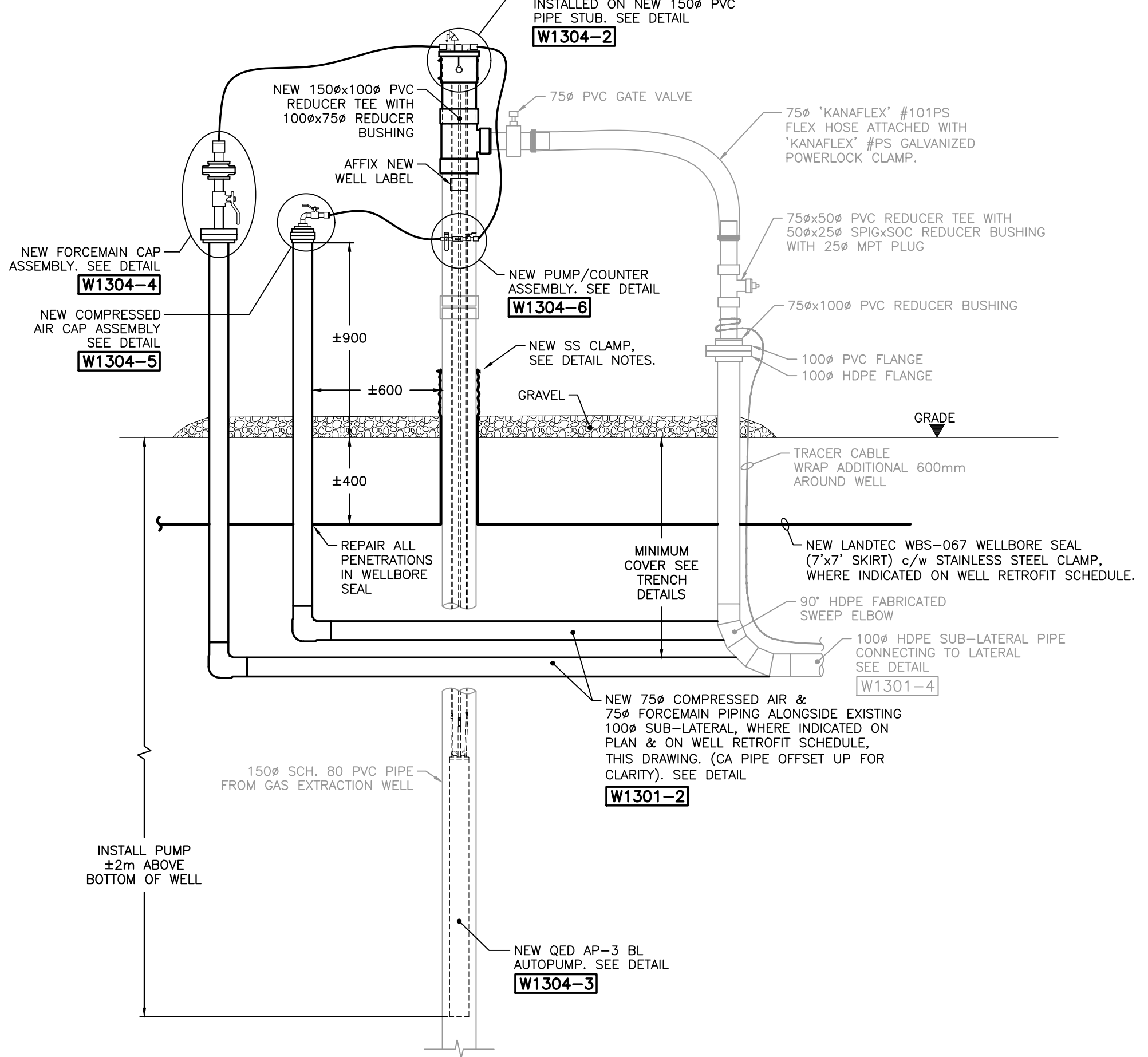
DEMOLITION ELEVATION



DEMOLITION ELEVATION



RENOVATION ELEVATION



RENOVATION ELEVATION

**WELL RETROFIT DETAIL NOTES:**  
 1. CA/FM PIPING & WELLBORE SEAL NOT REQUIRED AT ALL LOCATIONS. FOR WORK REQUIRED AT EACH EXISTING WELL, SEE WELL RETROFIT SCHEDULE, THIS DRAWING.  
 2. INSTALL WELLBORE SEAL BOOT IN COLLAPSED POSITION AS PER MANUFACTURER TO ACCOMMODATE LANDFILL SETTLEMENT.

WELL RETROFIT SCHEDULE				
WELL	W1305-1	W1305-2	CA/FM PIPING	WELLBORE SEAL
H-1	✓		✓	
H-2	✓		✓	✓
H-3	✓		✓	✓
H-4			NO WORK REQUIRED	
1-5	✓		✓	
1-6	✓		✓	✓
1-7	✓		✓	✓
1-8	✓		✓	✓
1-9			NO WORK REQUIRED	
1-10			NO WORK REQUIRED	
H-11			NO WORK REQUIRED	
H-12	✓		✓	
2-13	✓		✓	✓
2-14	✓		✓	
2-15	✓		✓	✓
2-16	✓		✓	✓
2-17	✓		✓	✓
2-18			NO WORK REQUIRED	
3-19	✓		✓	✓
3-20	✓		✓	✓
3-21	✓		✓	✓
3-22	✓		✓	
3-23	✓		✓	✓
3-24	✓		✓	✓
3-25	✓		✓	✓
3-26	✓		✓	✓
3-27			NO WORK REQUIRED	
3-28	✓		✓	✓
3-29			NO WORK REQUIRED	
3-30			NO WORK REQUIRED	
4-31	✓		✓	✓
4-32	✓		✓	✓
4-33	✓		✓	✓
4-34	✓		✓	✓
4-35	✓		✓	✓
4-36	✓		✓	✓
4-37	✓		✓	✓
5-38	✓		✓	✓
5-39	✓		✓	✓
5-40	✓		✓	✓
5-41	✓		✓	✓
5-42	✓		✓	✓
5-43		✓	✓	✓
5-44		✓	✓	✓
5-45		✓	✓	✓
5-46		✓	✓	✓
6-47		✓	✓	✓
6-48		✓	✓	✓
6-49		✓	✓	✓
6-50		✓	✓	✓
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6-52		✓	✓	✓
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6-54		✓	✓	✓
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6-56		✓	✓	✓
6-57		✓	✓	✓
6-58		✓	✓	✓
6-59		✓	✓	✓
7-60		✓	✓	✓
7-61		✓	✓	✓
7-62		✓	✓	✓
7-64		✓	✓	✓
7-65		✓	✓	✓
7-66		✓	✓	✓
TOTAL	34	23	41	47

EXISTING LANDFILL GAS EXTRACTION WELL TO DUAL-PURPOSE RETROFIT - TYPE 1 W1305-1  
 SEE SCALE BAR

EXISTING LANDFILL GAS EXTRACTION WELL TO DUAL-PURPOSE RETROFIT - TYPE 2 W1305-2  
 SEE SCALE BAR

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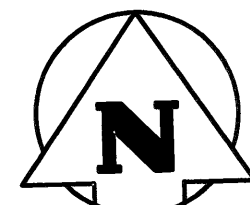
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 184-2020  
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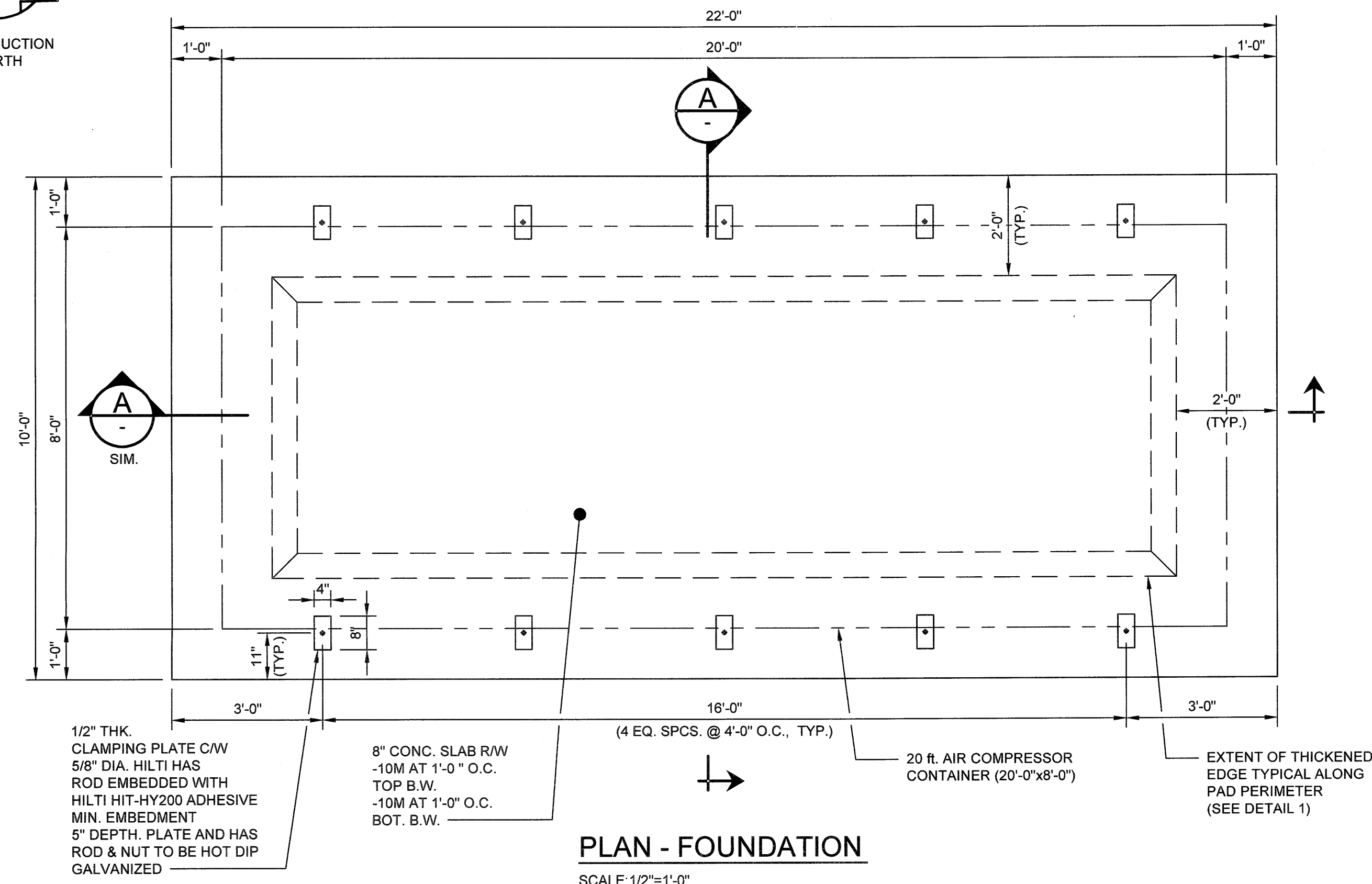
**City of Winnipeg**  
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 Facility

**LANDFILL GAS COLLECTION SYSTEM EXPANSION**  
 CITY DRAWING NO. 1-0400A-C0086-001 COMCOR DRAWING NO. W1305  
**EXISTING WELLHEAD DUAL-PURPOSE RETROFIT DETAILS**



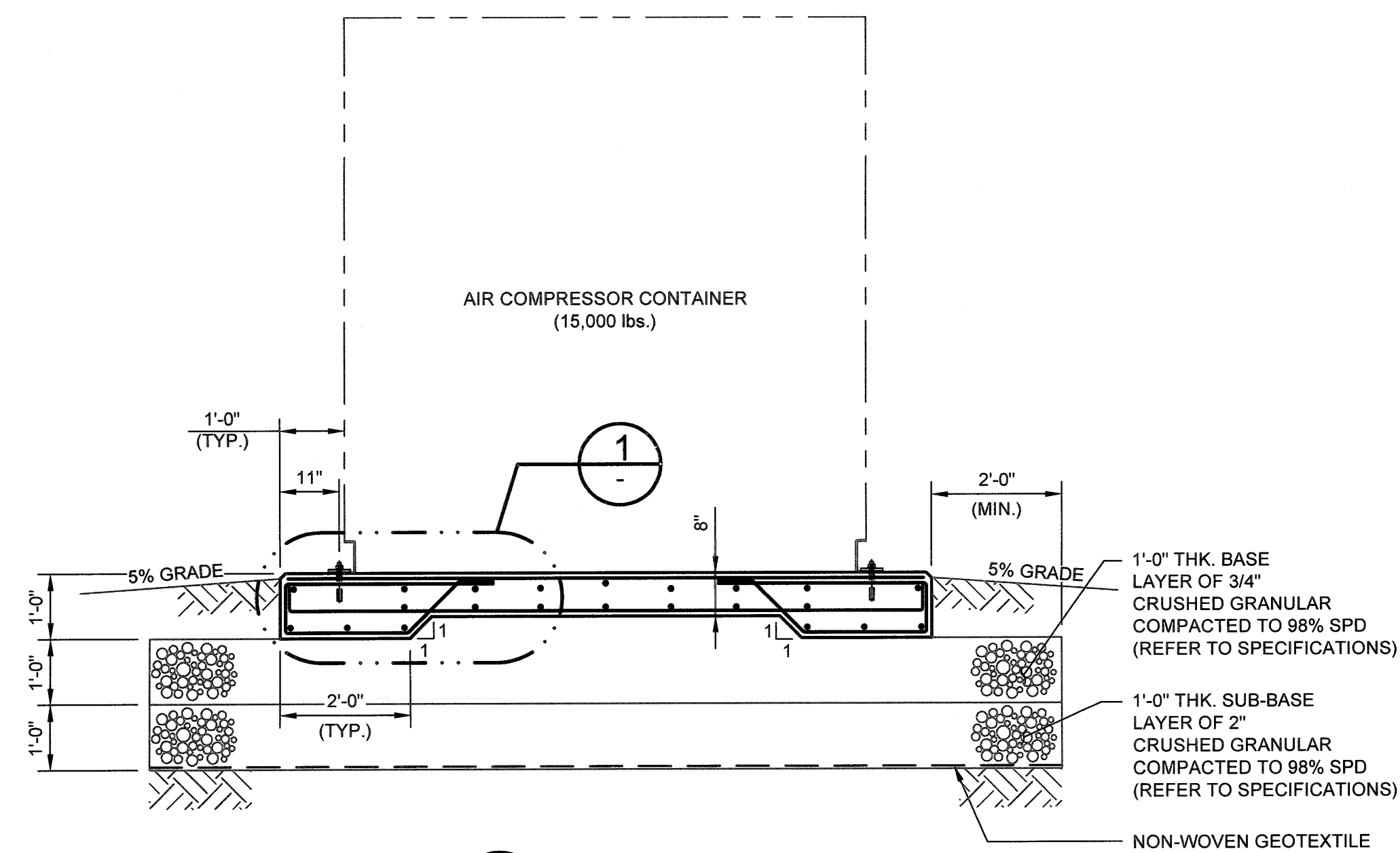


CONSTRUCTION NORTH



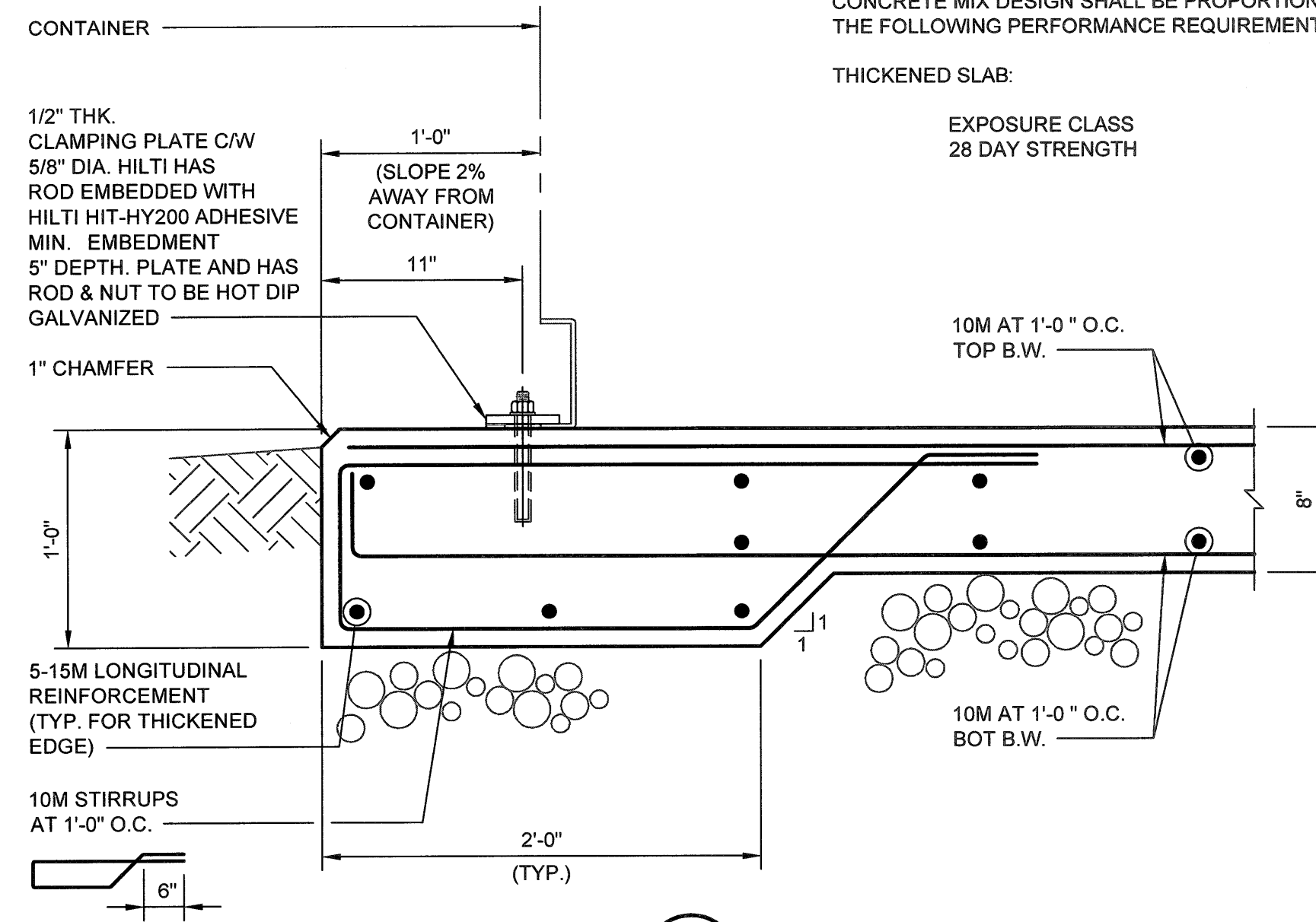
PLAN - FOUNDATION

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



SECTION A-A

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



DETAIL 1

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

GENERAL NOTES:

1. THIS STRUCTURE HAS BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF PART 4 OF THE MANITOBA BUILDING CODE-2011.
2. ALL SPECIFICATIONS AND CODES SPECIFIED SHALL BE THE LATEST REVISION AVAILABLE.
3. SITE VERIFY ALL DIMENSIONS, ELEVATIONS, DETAILS, QUANTITIES AND CONDITIONS PRIOR TO START OF ANY DEMOLITION, CONSTRUCTION OR PREFABRICATION OF ANY STRUCTURAL COMPONENT.
4. THE CONTRACTOR SHALL ENSURE THAT ALL BURIED SERVICES ARE LOCATED AND MARKED PRIOR TO EXCAVATION.
5. SHIP, STORE, HANDLE, ERECT, INSTALL, ETC. ALL BUILDING MATERIALS, COMPONENTS, FIXTURES, EQUIPMENT, ETC. AS PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
6. ALL DEMOLITION, FABRICATION, CONSTRUCTION, ETC. SHALL BE CARRIED OUT IN ACCORDANCE WITH ALL PERTINENT BUILDING CODES, AND LOCAL BYLAWS AND ORDINANCES.
7. TIME AND DURATION OF ANY NECESSARY DISRUPTION IN THE USE OF ANY ROOM, SPACE, SERVICE, EQUIPMENT, ETC. SHALL BE COORDINATED WITH, AND APPROVED BY THE OWNER AT THE START OF THE PROJECT. PROVIDE OWNER WITH MINIMUM ONE WEEK NOTICE (OR AS REQUIRED) PRIOR TO EACH ACTUAL OCCURRENCE.
8. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY THE OWNER AND THE DESIGN ENGINEER OF ANY PREVIOUSLY UNNOTICED PRE-EXISTING FLAW OR CONDITION THAT MIGHT INCREASE THE SCOPE OF WORK OR COMPROMISE NEW CONSTRUCTION, PRIOR TO THE START OF DEMOLITION AND CONSTRUCTION, OR AS SOON AS IT IS DISCOVERED.

FOUNDATIONS (CONCRETE FOOTINGS):

1. THICKENED EDGE FOUNDATION PAD HAS BEEN DESIGNED FOR AN AVERAGE FACTORED BEARING PRESSURE OF 2000 psf.
2. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND SERVICES IN EXCAVATION AREA WHETHER SHOWN OR NOT. EXPOSE ALL SERVICES CLOSE TO EXCAVATION AS REQUIRED.
3. CONCRETE PAD SHALL NOT BE MORE THAN 2" OUT OF POSITION LATERALLY.
4. REINFORCE CONCRETE PAD AS DETAILED ON THE DRAWINGS.
5. REFER TO CONCRETE NOTES FOR CONCRETE REQUIREMENTS.
6. CONCRETE PAD SHALL NOT BE INSTALLED ON FROZEN GROUND OF ANY KIND. BEARING MATERIAL SHALL NOT BE ALLOWED TO FREEZE DURING INSTALLATION OF FOOTINGS OR ANY TIME THEREAFTER.

CONCRETE MIX DESIGNS:

CONCRETE MIX DESIGN SHALL BE PROPORTIONED TO MEET THE FOLLOWING PERFORMANCE REQUIREMENTS:

THICKENED SLAB:

EXPOSURE CLASS	C-2
28 DAY STRENGTH	32 MPa

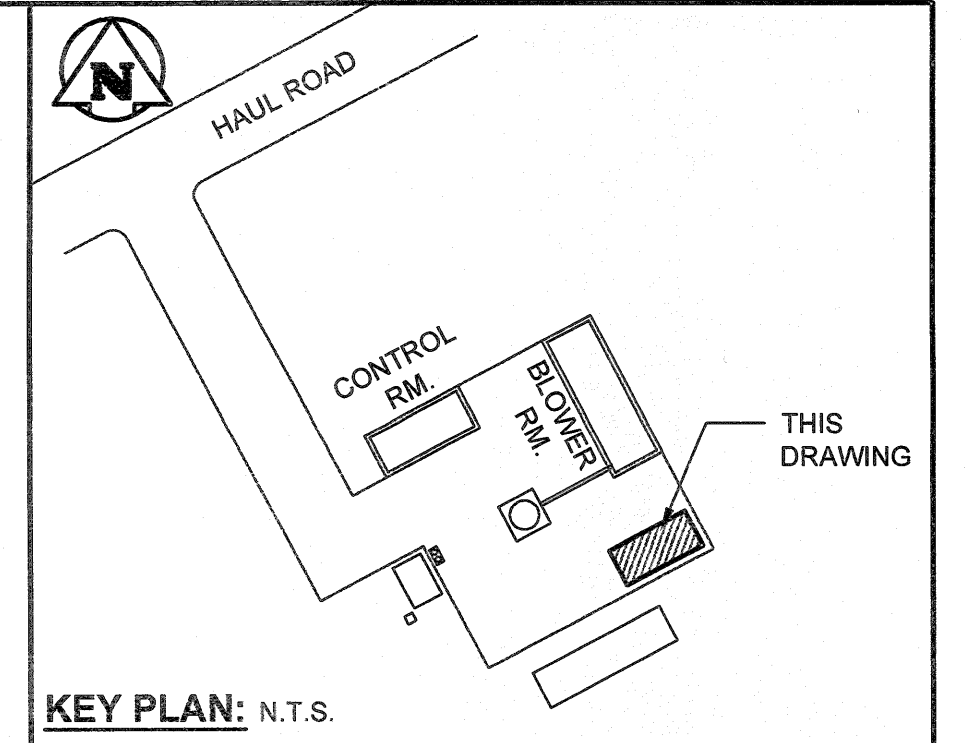
EXCAVATION & BACKFILL:

1. REMOVE ALL FILL MATERIALS, DELETERIOUS SOILS AND ORGANICS IN AREA TO RECEIVE GRANULAR SUB-BASE AND BASE. SUB-EXCAVATE TO NATIVE UNDISTURBED CLAY. PROOF ROLL TO IDENTIFY ANY SOFT SPOTS. IF SOFT SPOTS OR UNSUITABLE AREAS ARE IDENTIFIED, THEY SHOULD BE SUB EXCAVATED 2'-0" AND BACKFILLED WITH COMPACTED GRANULAR FILL TO 98% SPMD.
2. A NON-WOVEN GEOTEXTILE FABRIC SHOULD BE PLACED AS A SEPARATOR AND REINFORCEMENT BETWEEN THE SUBGRADE AND COMPACTED GRANULAR SUB-BASE.
3. A MINIMUM OF 1'-0" THICK LAYER OF SUB-BASE SHOULD BE PLACED IMMEDIATELY BELOW THE SLAB. ALL GRANULAR SHOULD BE PLACED IN MAXIMUM 6" THICK LIFTS AND COMPACTED TO 98% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMD).
4. THE GRANULAR FILL SHOULD BE WELL-GRADED FREE-DRAINING AND INCLUDE ORGANIC-FREE AND NON-FROZEN AGGREGATE. SUB-BASE TO BE 2" GRANULAR SATISFYING GRANULAR REQUIREMENTS OF CITY OF WINNIPEG CW3110 SPECIFICATION. CONTRACTOR TO SUBMIT 5 GALLON PAILS OF EACH GRANULAR TYPE TO BE USED IN PROJECT FOR PROCTOR COMPACTATION TEST IN ADVANCE OF GRANULAR INSTALLATION.
5. CONTRACTOR TO NOTIFY ENGINEER OF RECORD 24 HOURS PRIOR TO SCHEDULED SUB-BASE INSTALLATION. ENGINEER OF RECORD WILL CONDUCT DENSITY TESTING OF SUB-BASE AND BASE ON SITE.
6. THE FINAL GROUND ELEVATION AROUND THE PERIMETER OF THE STRUCTURE SHOULD BE SLOPED AWAY AT A MINIMUM 5% GRADE FOR A DISTANCE OF 7 FT. AWAY FROM THE BUILDING. BEYOND 7 FT. THE FINAL GROUND ELEVATION SHOULD BE SLOPED AT 2% AWAY FROM THE BUILDING. THE FINAL GROUND ELEVATIONS SHOULD BE SLOPED AWAY FROM THE STRUCTURE TO PROTECT AGAINST SURFACE WATER PONDING AND TO COMPENSATE FOR FUTURE LOSS OF GRADE THAT MAY RESULT FROM POTENTIAL SETTLEMENT.

REINFORCING STEEL:

1. REINFORCING STEEL TO BE NEW DEFORMED BILLET STEEL BARS CONFORMING TO CSA G30.18-09. GRADE TO BE 400 MPa.
2. REINFORCING STEEL SHALL BE CLEAN, FREE OF RUST, DIRT, LOOSE SCALE, OIL, GREASE OR ANY OTHER MATERIAL WHICH WOULD REDUCE BOND WITH THE CONCRETE.
3. WELDED STEEL WIRE FABRIC SHALL CONFORM TO A1064/A1064M-14. 400 MPa MINIMUM GRADE IN FLAT SHEETS ONLY UNLESS APPROVED OTHERWISE.
4. SUBMIT SHOP DRAWINGS WHICH CLEARLY INDICATE BAR SIZES, SPACINGS, LOCATIONS & QUANTITIES OF REINFORCING STEEL, BENDING & CUTTING SCHEDULES, SUPPORTING & SPACING DEVICES, ETC. FOR REVIEW PRIOR TO FABRICATION. DETAIL, FABRICATE AND PLACE REINFORCING IN ACCORDANCE WITH CSA A23.1-09 (R2014), CSA A23.3-04 AND ACI SP-98 (2004) UNLESS NOTED. LAP STEEL 36 BAR DIAMETERS (MINIMUM) UNLESS NOTED.
5. BEND ALL HORIZONTAL REINFORCING 1'-0" AROUND CORNERS OR PROVIDE ADDITIONAL 2'-0" X 2'-0" ANGLE BARS.
6. TIE, SUPPORT AND SPACE ALL REINFORCING STEEL WITH PROPER APPROVED DEVICES DESIGNED FOR USE IN REINFORCED CONCRETE. TO PREVENT DISPLACEMENT OF REINFORCING AND ENSURE SPECIFIED CONCRETE COVER.
7. PROVIDE MINIMUM CONCRETE COVER FOR REINFORCING STEEL AS FOLLOWS:
 

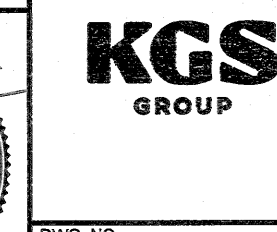
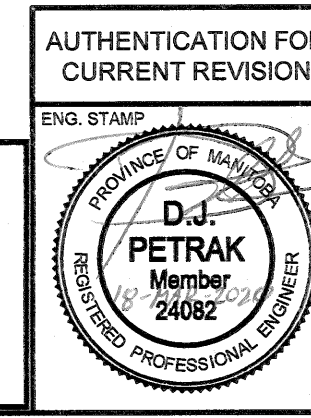
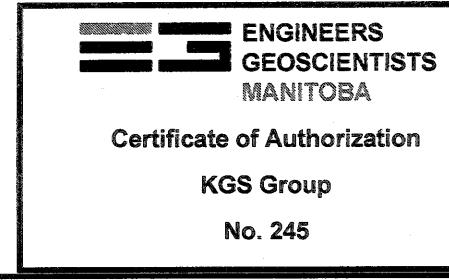
SLAB-ON-GRADE (TOP)	2"
SLAB-ON-GRADE (SIDE)	2"
SLAB-ON-GRADE (BOTTOM)	2"



CONCRETE:

1. CONCRETE MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH CSA A23.1-09 (R2014). SEE BELOW FOR MIX REQUIREMENTS.
2. ADMIXTURES SHALL NOT BE USED UNLESS SPECIFIED HEREIN OR APPROVED BY THE DESIGN ENGINEER. CALCIUM CHLORIDE SHALL NOT BE USED.
3. MIX WATER SHALL BE POTABLE.
4. DESIGN, FABRICATE AND ERECT FORMWORK/SHORING IN ACCORDANCE WITH CAN/CSA-S269.3-M92. ALLOW SUFFICIENT CONCRETE CURING TIME PRIOR TO REMOVAL.
5. CONCRETE FINISHING SHALL MEET THE REQUIREMENTS OF CSA A23.1-09.
6. FORM RELEASE AGENT SHALL BE BIODEGRADABLE, NON-STAINING AND NON-VOLATILE.
7. PROVIDE ADEQUATE COLD/HOT WEATHER PROTECTION AS REQUIRED DURING CURING PERIOD.
8. PLACE AND SECURE ALL EMBEDDED ANCHORS, WELD PLATES, SLEEVES, BUCKS, DOWELS, INSERTS, WATERSTOPS, ETC., PRIOR TO PLACING CONCRETE. CO-ORDINATE WITH ALL TRADES FOR EMBEDDING OF ALL OTHER, CONDUIT, SERVICES, BLOCKING, ETC.
9. LOCATE AND FABRICATE ALL CONSTRUCTION JOINTS, CONTROL JOINTS AND EXPANSION JOINTS AS DETAILED ON THE DRAWINGS. JOINTS NOT SHOWN SHALL BE APPROVED BY THE DESIGN ENGINEER PRIOR TO THE PLACEMENT OF CONCRETE.
10. ALL EXPOSED CORNERS TO HAVE 1" CHAMFER FILLET UNLESS NOTED.
11. EXPANSION ANCHORS SHALL BE HILTI KWIK-BOLTS OR APPROVED EQUAL, UNLESS NOTED. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.
12. ADHESIVE ANCHORS SHALL BE HAS RODS W/ HILTI HIT-HY 200 ADHESIVE OR APPROVED EQUAL, UNLESS NOTED. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.
13. THE CONCRETE SUPPLIER SHALL BE CERTIFIED TO MEET THE REQUIREMENTS OF CSA A23.1-09 (R2014).
14. THE CONCRETE SUPPLIER SHALL SUBMIT CONCRETE MIX DATA SUBMISSION FORMS FOR EACH TYPE OF CONCRETE SPECIFIED FOR REVIEW PRIOR TO BATCHING ANY CONCRETE.
15. PROVIDE ONE SET OF CONCRETE CYLINDERS IN ACCORDANCE WITH CSA A23.1-09 FOR EVERY 50 m³ (65 yd³) OF CONCRETE PLACED FOR EACH TYPE OF CONCRETE PER DAY AND A MINIMUM OF ONE SET PER STRUCTURAL COMPONENT.

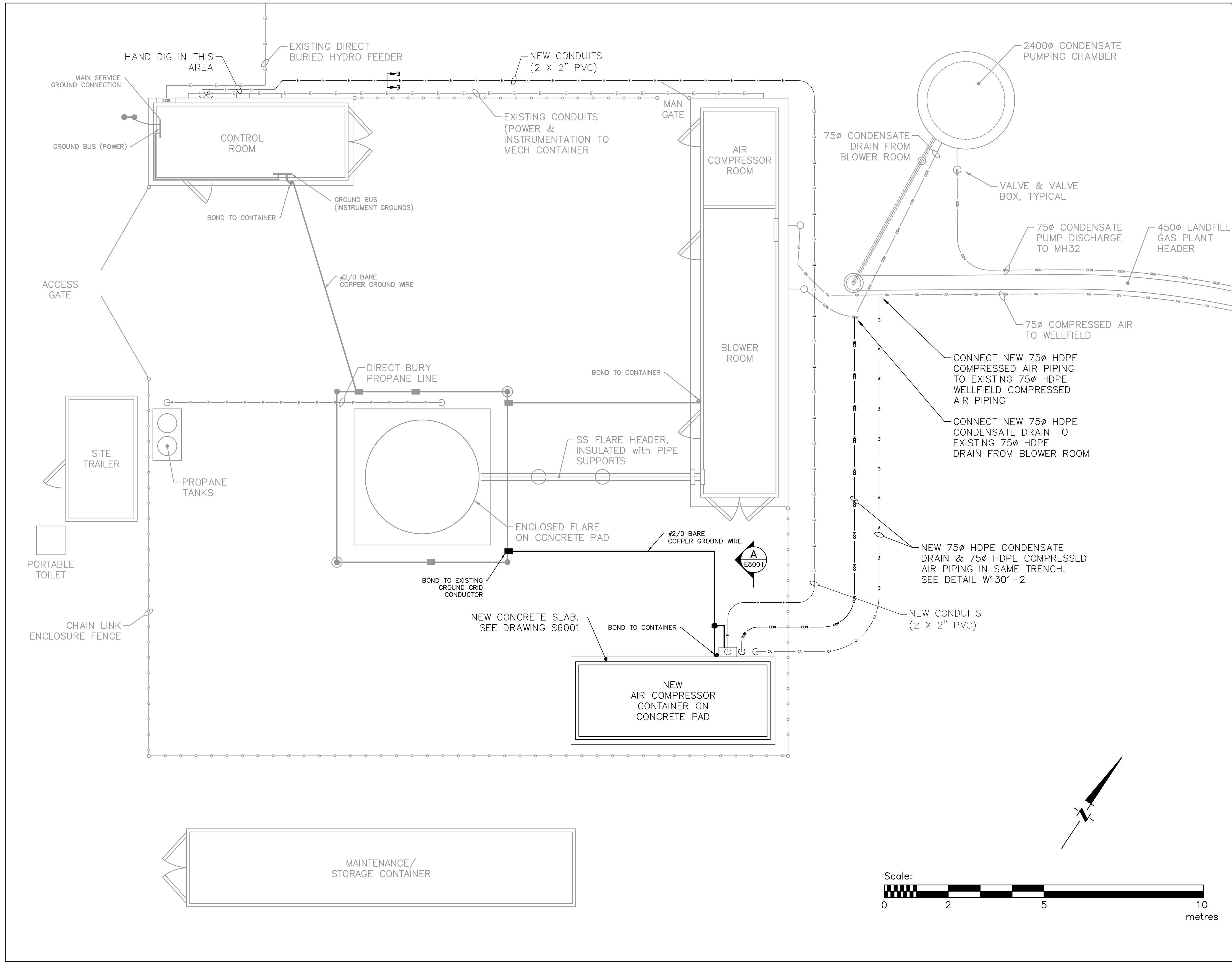
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REVISIONS / ISSUE				
CLIENT: Comcor Environmental Limited				
PROJECT: 2020 LAND FILL PAD COLLECTION SYSTEM EXPANSION BRADY LANDFILL, WINNIPEG, MANITOBA				
DWG. DESCRIPTION: STRUCTURAL FOUNDATION PLAN, SECTION & DETAIL				
DESIGN BY:	SS	DATE (YYMMDD):	20/02/14	
DESIGN CHECK:	DP	DATE:	20/03/18	
DRAWN BY:	FBV	DATE:	20/02/14	
DWG CHECK:	SS	DATE:	20/03/18	
DWG. NO.	1-0400A-S0017-001	S6001	0	



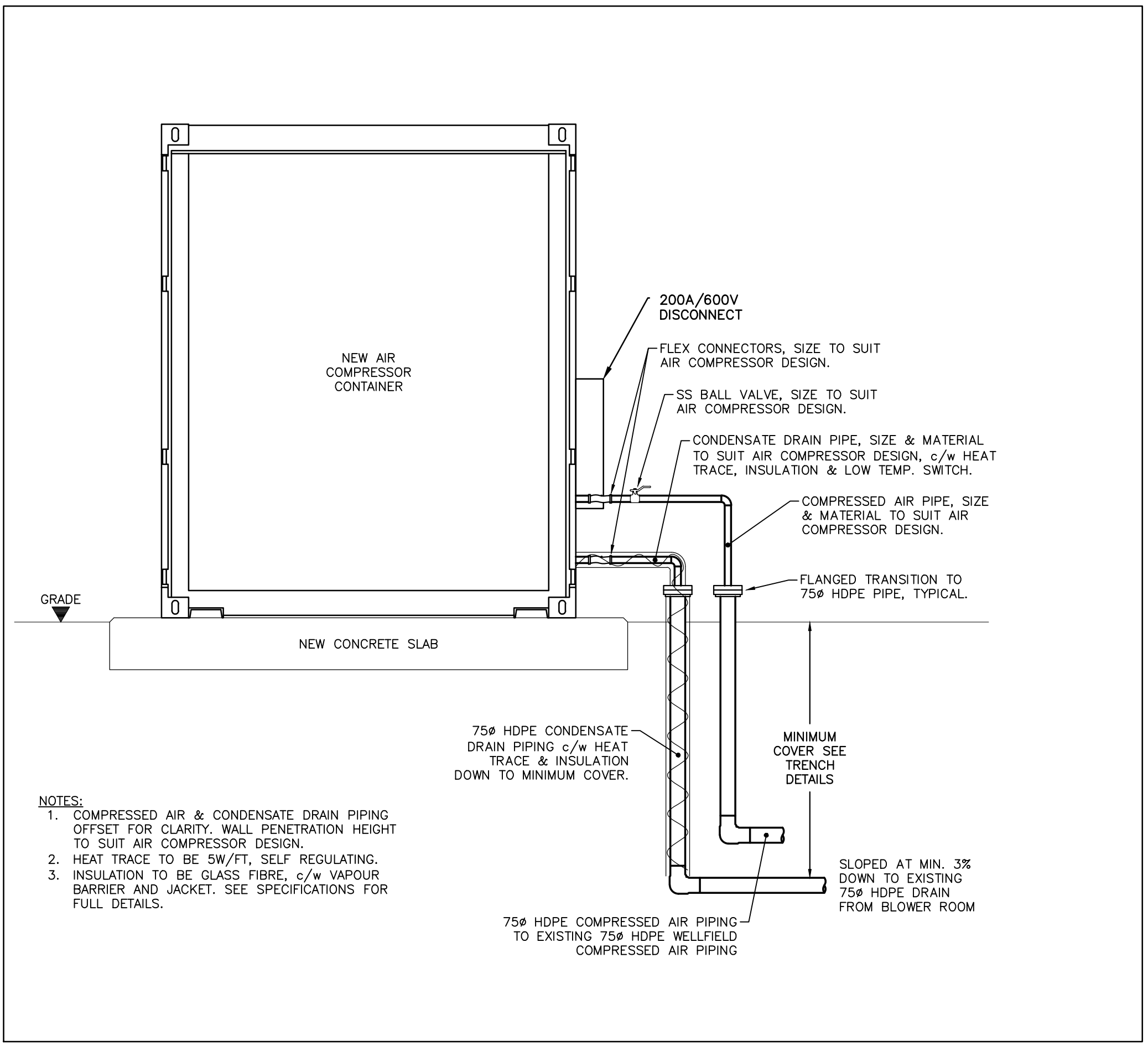
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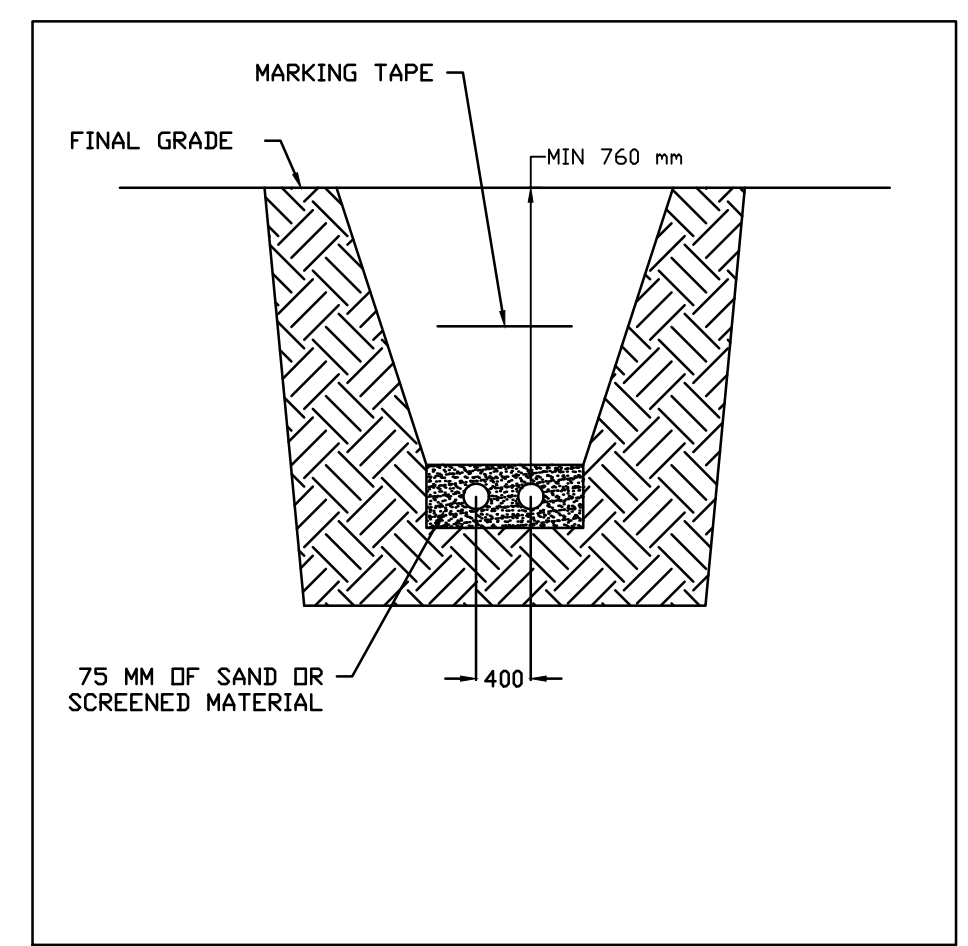
March 11, 2020 10:14:11 AM



FLARING COMPOUND PLAN



CONTAINER SECTION 'A'



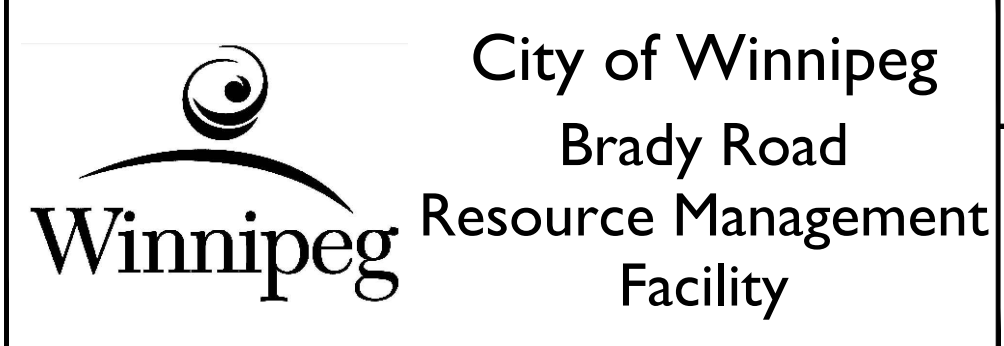
SECTION B-B:  
TRENCH DETAIL

R:\2\Natalie - HS Elect\Brady Road Landfill - Job Code 7088\11E8001-COMPOUND PLAN, UNDERGROUND POWER AND GROUNDING.dwg

NO.	REVISION	DATE	BY
1	ISSUED FOR REVIEW	Feb. 27, 2020	KES
2	ISSUED FOR TENDER	Mar. 17, 2020	KES

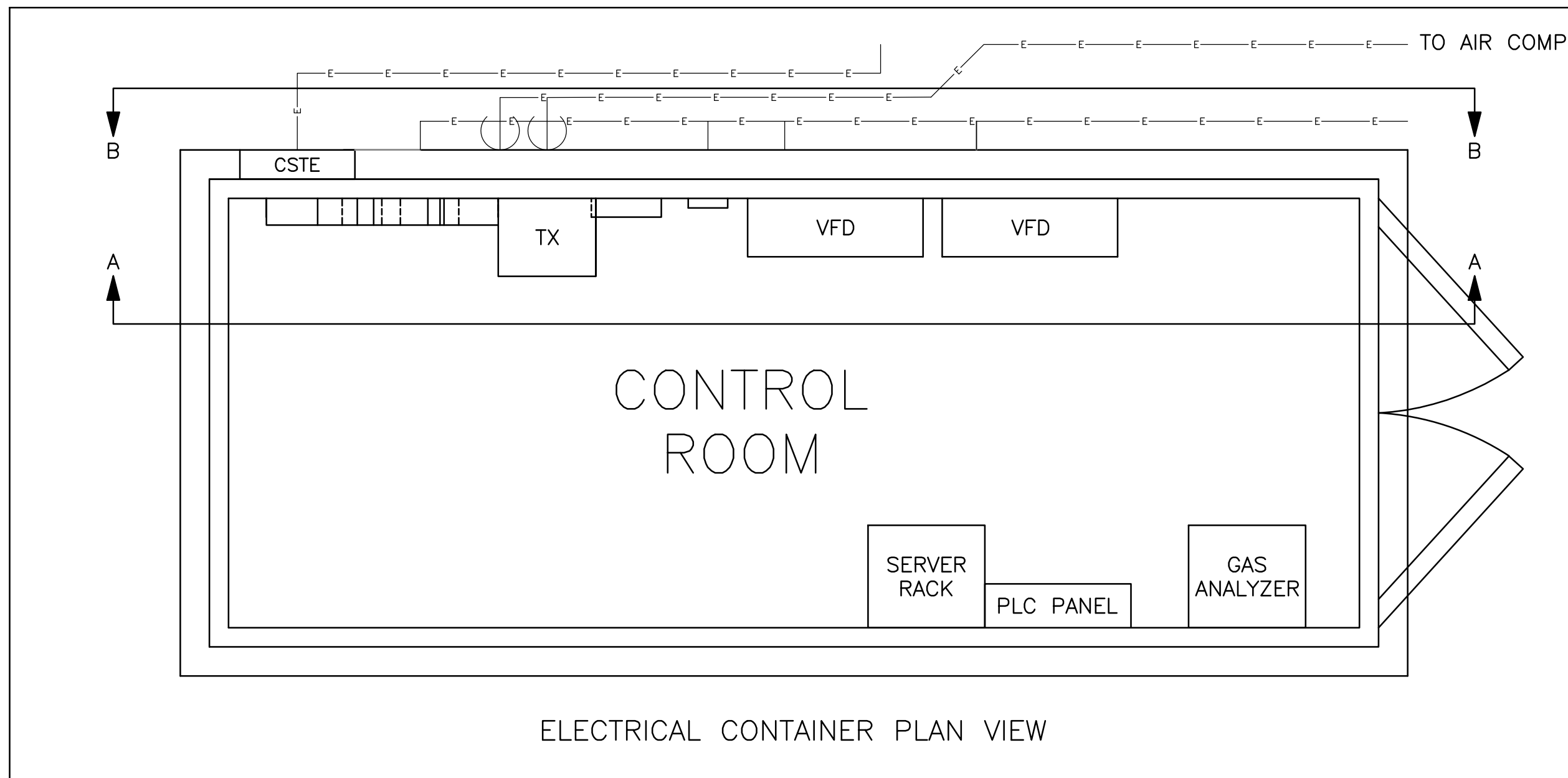
NOTES:  
 1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.  
 2. ALL PIPE SIZES ARE IPS UNLESS NOTED OTHERWISE.  
 3. SITE INFORMATION IS BASED ON ELECTRONIC DATA PROVIDED BY THE CITY.

BID OPPORTUNITY:  
 184-2020  
 DATE: FEBRUARY, 2020  
 SCALE: SEE SCALE BAR  
 DESIGNED BY: KES  
 DRAWN BY: NSS  
 CHECKED BY:  

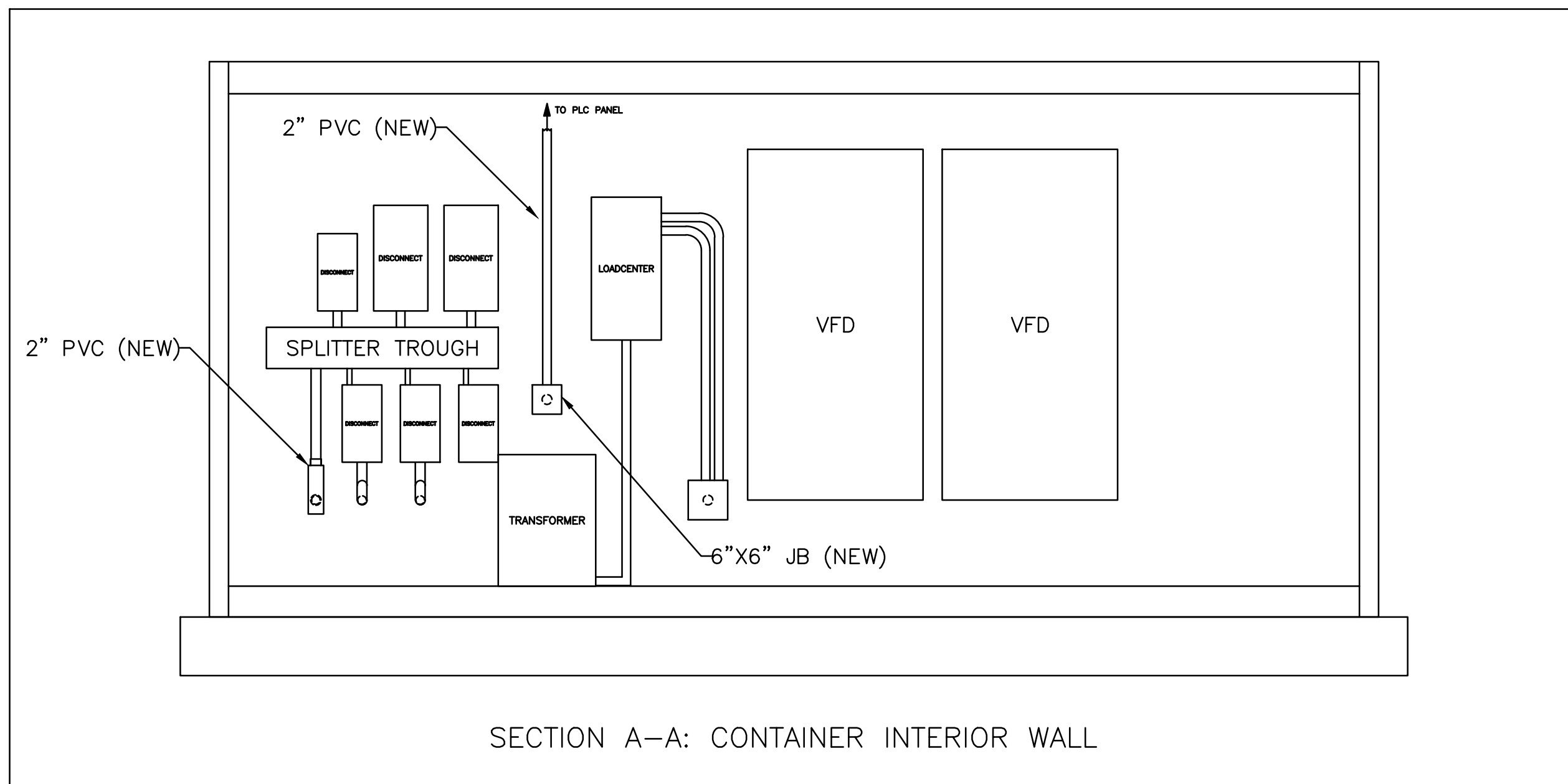


2020 LANDFILL GAS COLLECTION SYSTEM EXPANSION  
 CITY DWG NO. 1-0400A-E0008-001 COMCOR DWG NO. E8001  
 COMPOUND PLAN, UNDERGROUND POWER AND GROUNDING

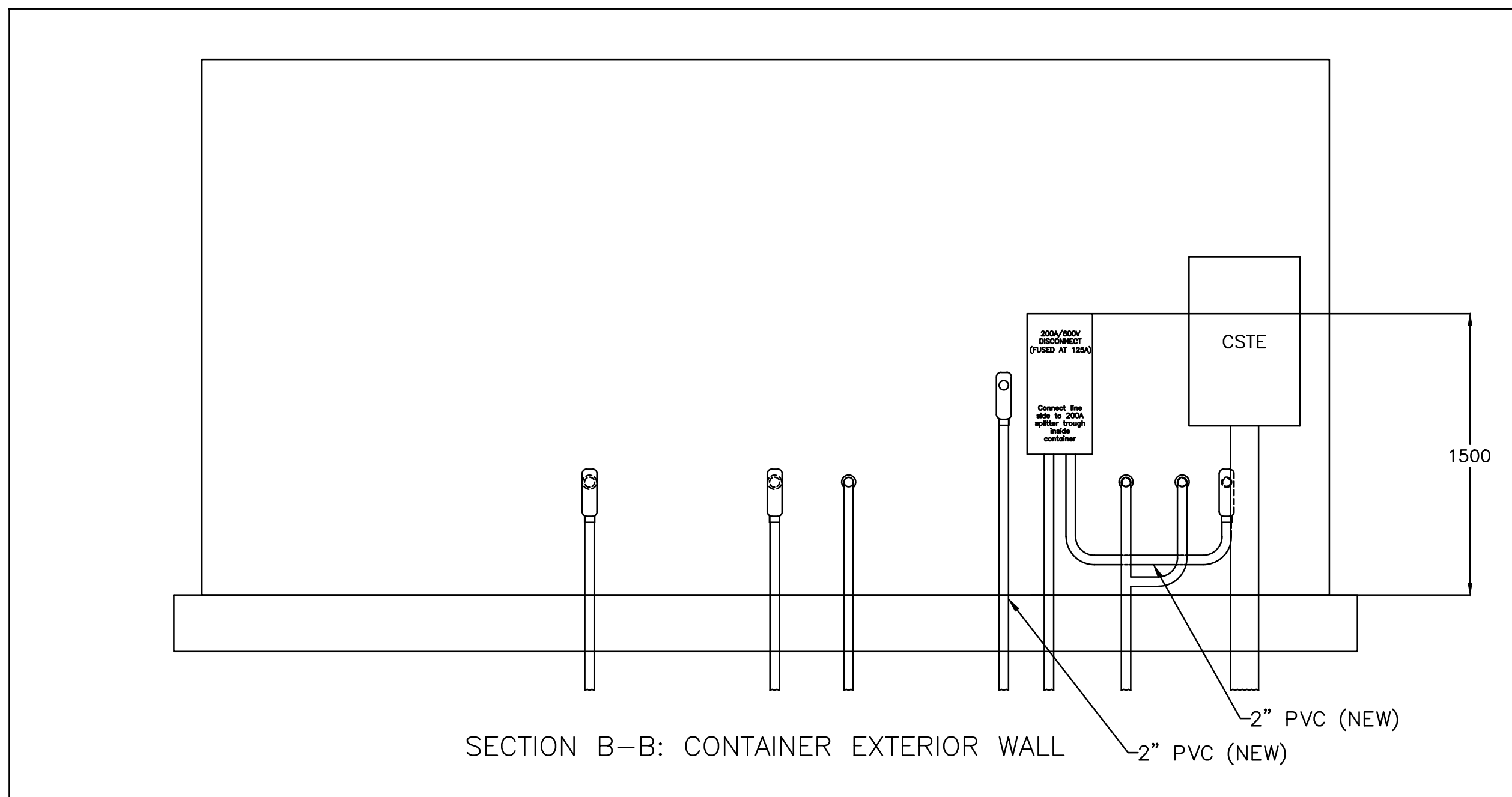




ELECTRICAL CONTAINER PLAN VIEW



SECTION A-A: CONTAINER INTERIOR WALL



SECTION B-B: CONTAINER EXTERIOR WALL

CONDUIT 1 - CABLE SCHEDULE		
#	DESCRIPTION	WIRE/CONDUCTOR
1	600V/125A Air Comp Feeder	3C 1/0 CU RWU90 + #6 GRN

CONDUIT 2 - CABLE SCHEDULE (PLC Panel to Air Compressor Container)		
#	DESCRIPTION	WIRE/CONDUCTOR
1	Network Cable to Controller	Cat 5E Shielded (STP)
2	Modbus RTU to Controller	1 Pr #18 Shielded (STP)
3	Analog Output Signal from Air Dryer Hygrometer	1 Pr #18 Shielded (STP)
4	Wellfield Compressed Air Line Pressure Transmitter	1 Pr #18 Shielded (STP)
5	Air Compressor Container Hi/Lo Ambient Temp Alarm Switches	2C #16 TEW (Blue)
6	Condensate Drain Line Low Temperature Alarm Switch	2C #16 TEW (Blue)

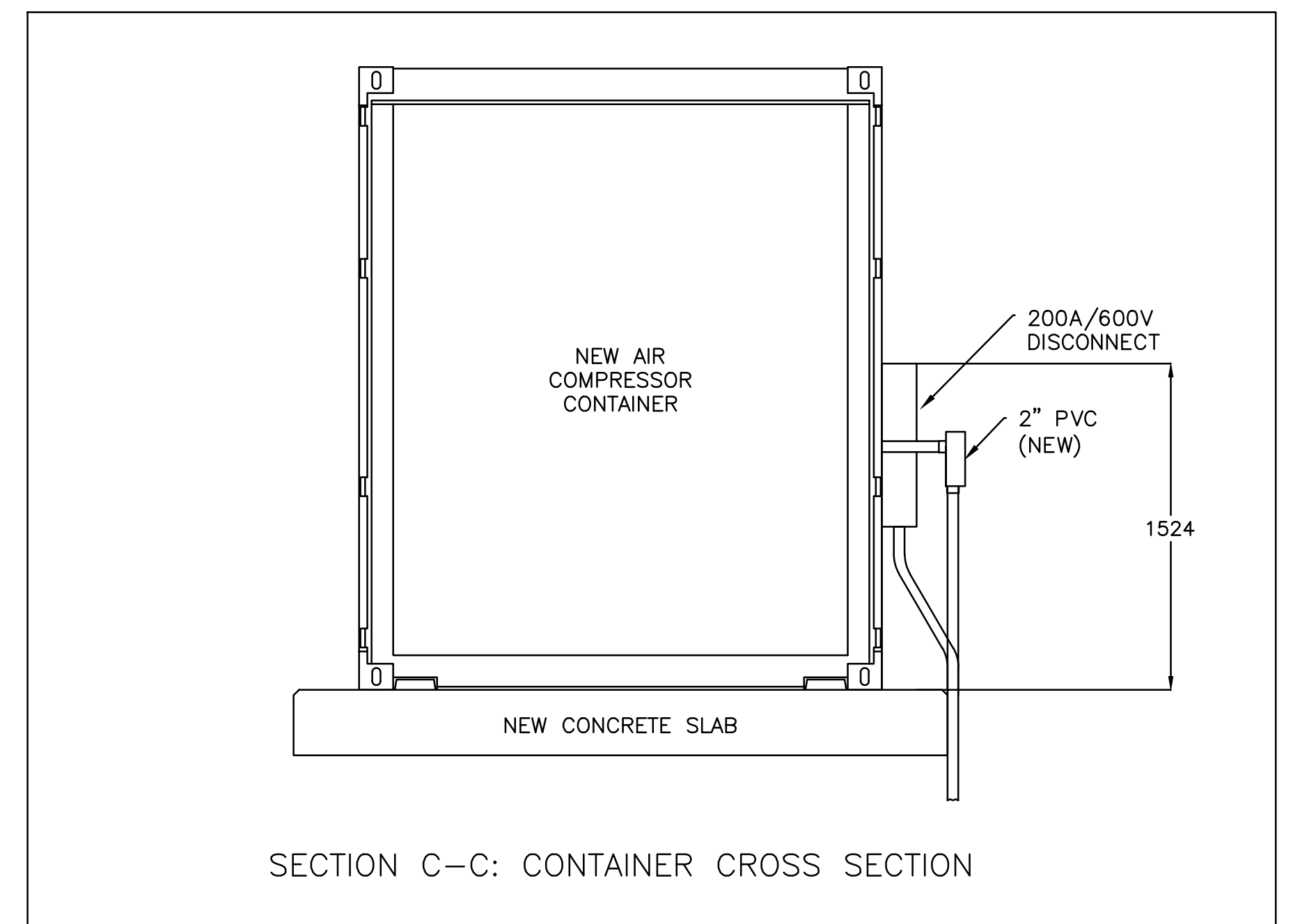
Note: Connection drawings will be provided prior to construction.

Notes:

1. Install new 200A, 600V fusible disconnect on the outside wall of the electrical container as shown and connect electrical feed to existing splitter trough.
2. Install 2 x 2" PVC conduits from electrical container to new air compressor container. One conduit will be for the 600V feeder and one for the networking and signal cables.
3. Install power and control cables as per cable schedules. Terminate 600V feeder at load side of disconnect at the electrical container and line side of the disconnect on the air compressor container. Terminate network and signal cables in PLC panel as per drawings to be provided. Terminate network cable and Modbus RTU cable in Air Comp Control panel as per drawings to be provided. Terminate instrument and device cables at devices.
4. Test power cables prior to energization. Coordinate energizing the 600V feeder to the air compressor container with the supplier.
5. Test signal cables prior to energization. Coordinate testing of devices with the Contract Administrator prior to final connections.
6. Ensure all penetrations in the containers are sealed against moisture intrusion and the effects of corrosion.



AIR COMPRESSOR CONTAINER PLAN VIEW



SECTION C-C: CONTAINER CROSS SECTION

NO.	REVISION	DATE	BY
1	ISSUED FOR REVIEW	Feb. 27, 2020	KES
2	ISSUED FOR TENDER	Mar. 17, 2020	KES

NOTES:  
 1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.  
 2. ALL PIPE SIZES ARE IPS UNLESS NOTED OTHERWISE.  
 3. SITE INFORMATION IS BASED ON ELECTRONIC DATA PROVIDED BY THE CITY.

BID OPPORTUNITY:	184-2020
DATE:	FEBRUARY, 2020
SCALE:	1:25
DESIGNED BY:	KES
DRAWN BY:	NSS
CHECKED BY:	

**HSE** SYSTEM SOLUTIONS  
 325832 Norwich Road, Norwich, Ontario, N0J1P0  
 Tel (519) 808-9771 Fax (519) 468-3629

City of Winnipeg  
 Brady Road  
 Resource Management  
 Facility

2020 LANDFILL GAS COLLECTION SYSTEM EXPANSION  
 CITY DWG NO. 1-0400A-E0009-001 COMCOR DWG NO. E8002  
 POWER AND CONTROLS CONNECTIONS - ELEC CONTAINER, AIR COMP CONTAINER