

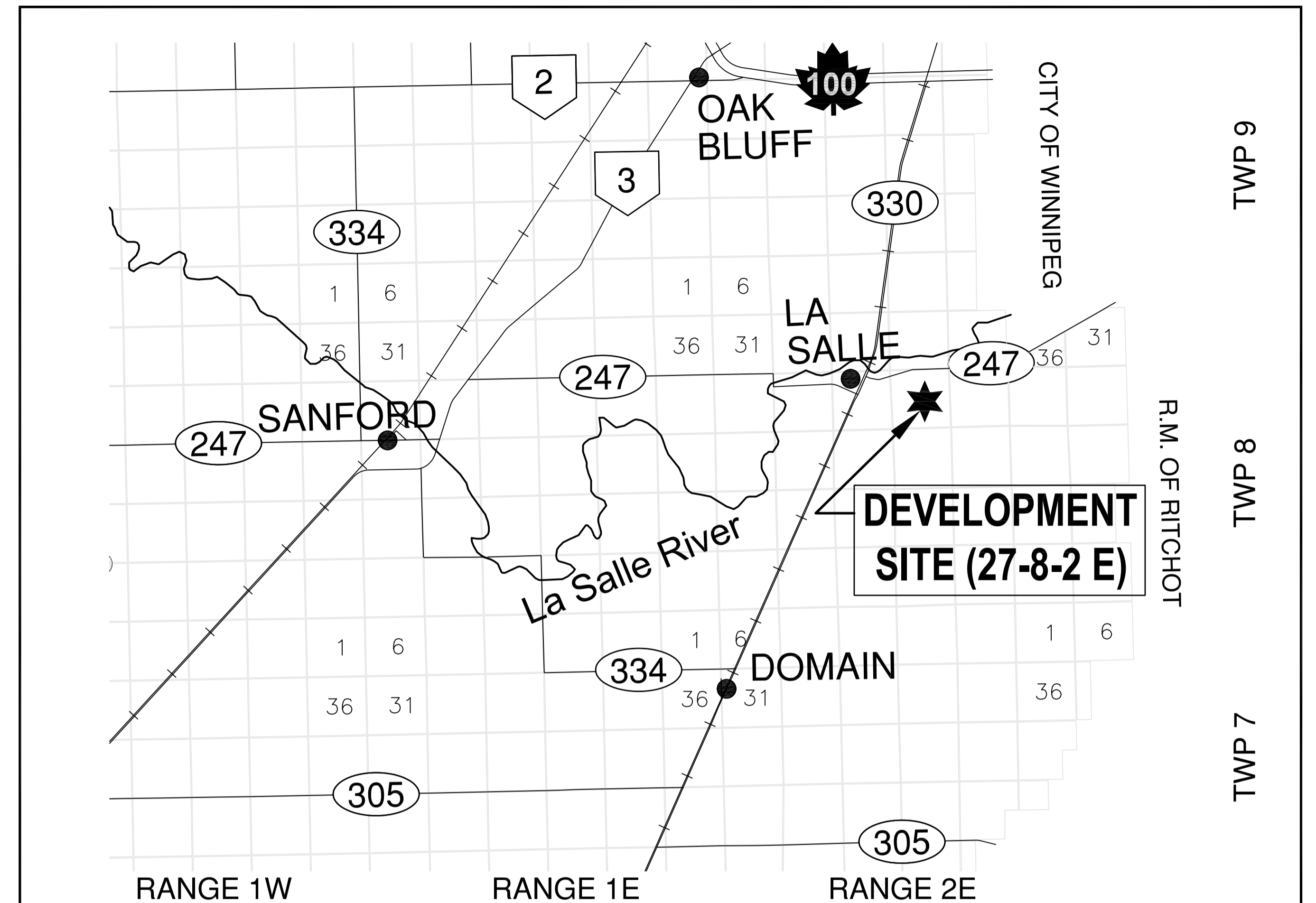
R.M. OF MACDONALD
 COMMUNITY OF LA SALLE
 WASTEWATER STABILIZATION
 POND EXPANSION

R.M. OF MACDONALD

161 MANDAN DRIVE
 SANFORD, MB R0G 2J0



1600 BUFFALO PLACE
 WINNIPEG, MANITOBA
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DRAWING SHEET LIST

- C00 COVER
- C01 EXISTING SITE PLAN
- C02 PROPOSED SITE PLAN
- C03 PROPOSED CELL CROSS SECTIONS, ACCESS ROAD, CULVERT AND RIP RAP DETAILS
- C04 GATE VALVE, SIGNAGE, FENCE AND ACCESS GATE DETAILS

RECORD DRAWING	
DATE: 2016/04/21	BY: J.S.B.
REVIEWED BY: R.W.W.	

CONSULTANT:

RECORD DRAWING
DATE 2016/04/21 BY J.S.B.
REVIEWED BY R.W.W.

SEAL:

ORIGINAL DRAWING
SEALED BY
R.W. WEBSTER
AND DATED
2014-06-27

CLIENT:

R.M. OF MACDONALD

CLIENT REF. #:

PROJECT:

R.M. OF MACDONALD
COMMUNITY OF LA SALLE
WWSP EXPANSION

LOCAL GEODETIC BENCHMARK:
BRASS CAP ON PILE, N. SIDE
OF LA SALLE RIVER, N. OF
N. END OF FOOTBRIDGE.
EL. = 234.533 m

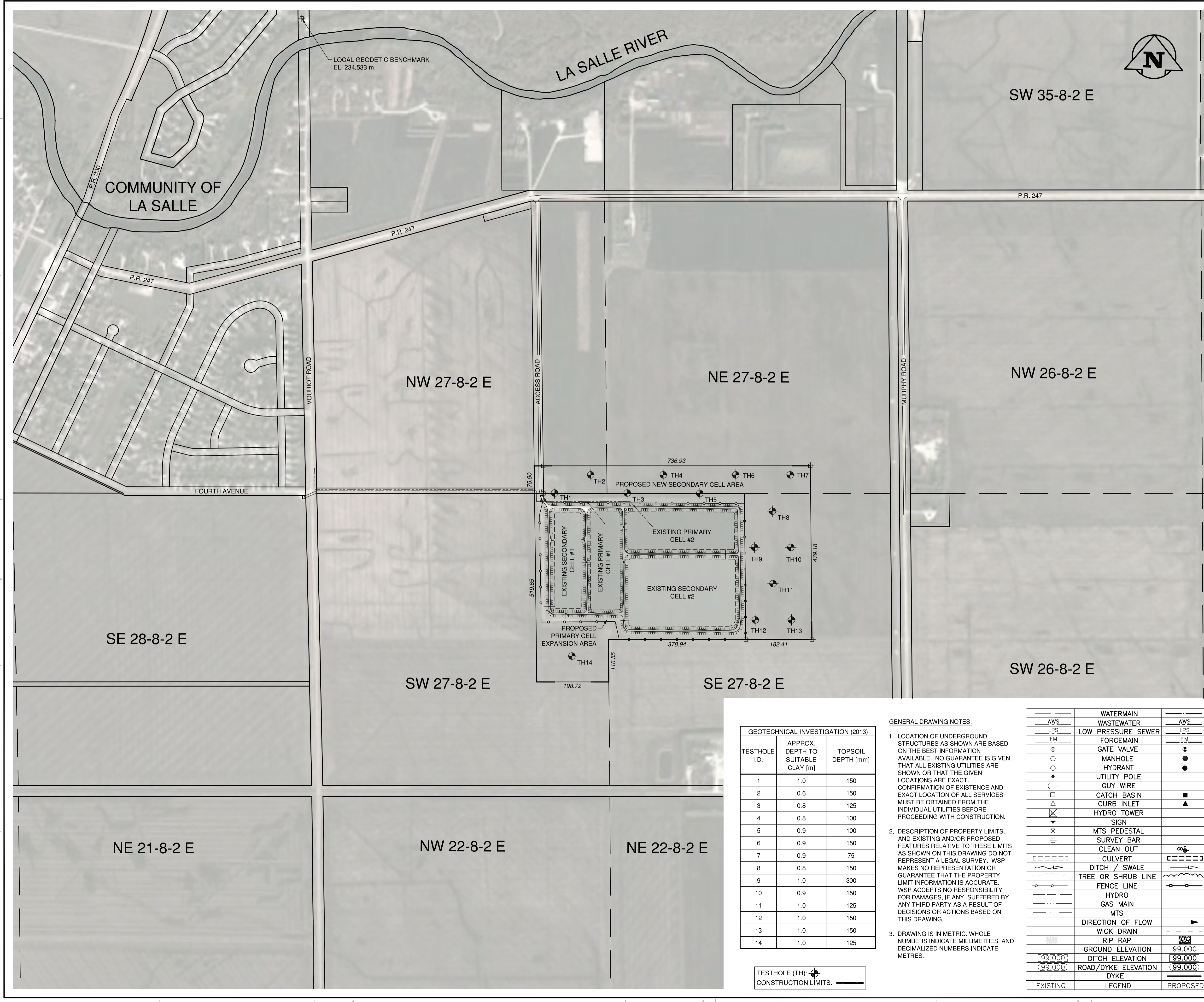
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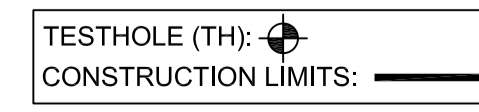
IS	RE	DATE	DESCRIPTION
3	1	2016/04/21	RECORD DRAWINGS
2	0	2014/06/27	TENDER SUBMISSION
1	A	2014/05/23	CLIENT REVIEW

PROJECT NO:	131-21138-00	DATE:	2014/06/27
ORIGINAL SCALE:	1:5000	IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.	
DESIGNED BY:	D.T.G.B.		
DRAWN BY:	D.T.G.B.		
CHECKED BY:	R.W.W.		

DISCIPLINE:	ENVIRONMENTAL INFRASTRUCTURE
TITLE:	EXISTING SITE PLAN
SHEET NUMBER:	C01
ISSUE:	RECORD DRAWINGS
DATE OF:	2016/04/21
REV #	1



TESTHOLE I.D.	APPROX. DEPTH TO SUITABLE CLAY [m]	TOPSOIL DEPTH [mm]
1	1.0	150
2	0.6	150
3	0.8	125
4	0.8	100
5	0.9	100
6	0.9	150
7	0.9	75
8	0.8	150
9	1.0	300
10	0.9	150
11	1.0	125
12	1.0	150
13	1.0	150
14	1.0	125



GENERAL DRAWING NOTES:

- LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE. NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.
- DESCRIPTION OF PROPERTY LIMITS, AND EXISTING AND/OR PROPOSED FEATURES RELATIVE TO THESE LIMITS AS SHOWN ON THIS DRAWING DO NOT REPRESENT A LEGAL SURVEY. WSP MAKES NO REPRESENTATION OR GUARANTEE THAT THE PROPERTY LIMIT INFORMATION IS ACCURATE. WSP ACCEPTS NO RESPONSIBILITY FOR DAMAGES, IF ANY, SUFFERED BY ANY THIRD PARTY AS A RESULT OF DECISIONS OR ACTIONS BASED ON THIS DRAWING.
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WWS	WATERMAIN	WWS
---	WASTEWATER	---
---	LOW PRESSURE SEWER	---
---	FORCEMAIN	---
⊗	GATE VALVE	⊗
⊙	MANHOLE	⊙
⊚	HYDRANT	⊚
•	UTILITY POLE	•
—	GUY WIRE	—
□	CATCH BASIN	□
△	CURB INLET	△
⊠	HYDRO TOWER	⊠
▽	SIGN	▽
⊕	MTS PEDESTAL	⊕
⊗	SURVEY BAR	⊗
—	CLEAN OUT	—
⊠	CULVERT	⊠
—	DITCH / SWALE	—
—	TREE OR SHRUB LINE	—
—	FENCE LINE	—
—	HYDRO	—
—	GAS MAIN	—
—	MTS	—
→	DIRECTION OF FLOW	→
—	WICK DRAIN	—
—	RIP RAP	—
99.000	GROUND ELEVATION	99.000
99.000	DITCH ELEVATION	99.000
99.000	ROAD/DYKE ELEVATION	99.000
—	DYKE	—
---	EXISTING	---
---	LEGEND	---
---	PROPOSED	---

CONSULTANT:
RECORD DRAWING
 DATE: 2016/04/21 BY: J.S.B.
 REVIEWED BY: R.W.W.

SEAL:
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 R.W. WEBSTER
 AND DATED
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 COMMUNITY OF LA SALLE
 WWSP EXPANSION

LOCAL GEODETIC BENCHMARK:
 BRASS CAP ON PILE, N. SIDE
 OF LA SALLE RIVER, N. OF
 N. END OF FOOTBRIDGE.
 EL. = 234.533 m

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PROJECT NO: 131-21138-00 DATE: 2014/06/27

ORIGINAL SCALE: 1:1500 IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.

DESIGNED BY: D.T.G.B.
 DRAWN BY: D.T.G.B.
 CHECKED BY: R.W.W.

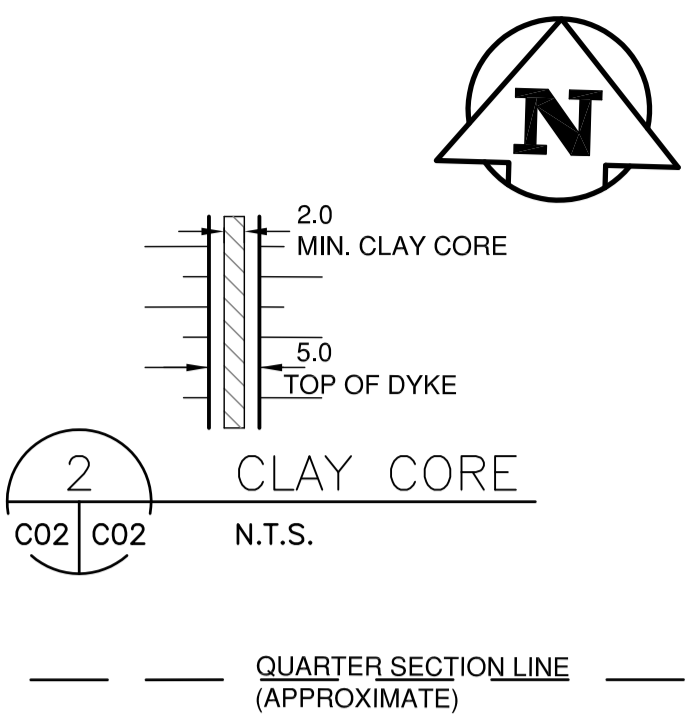
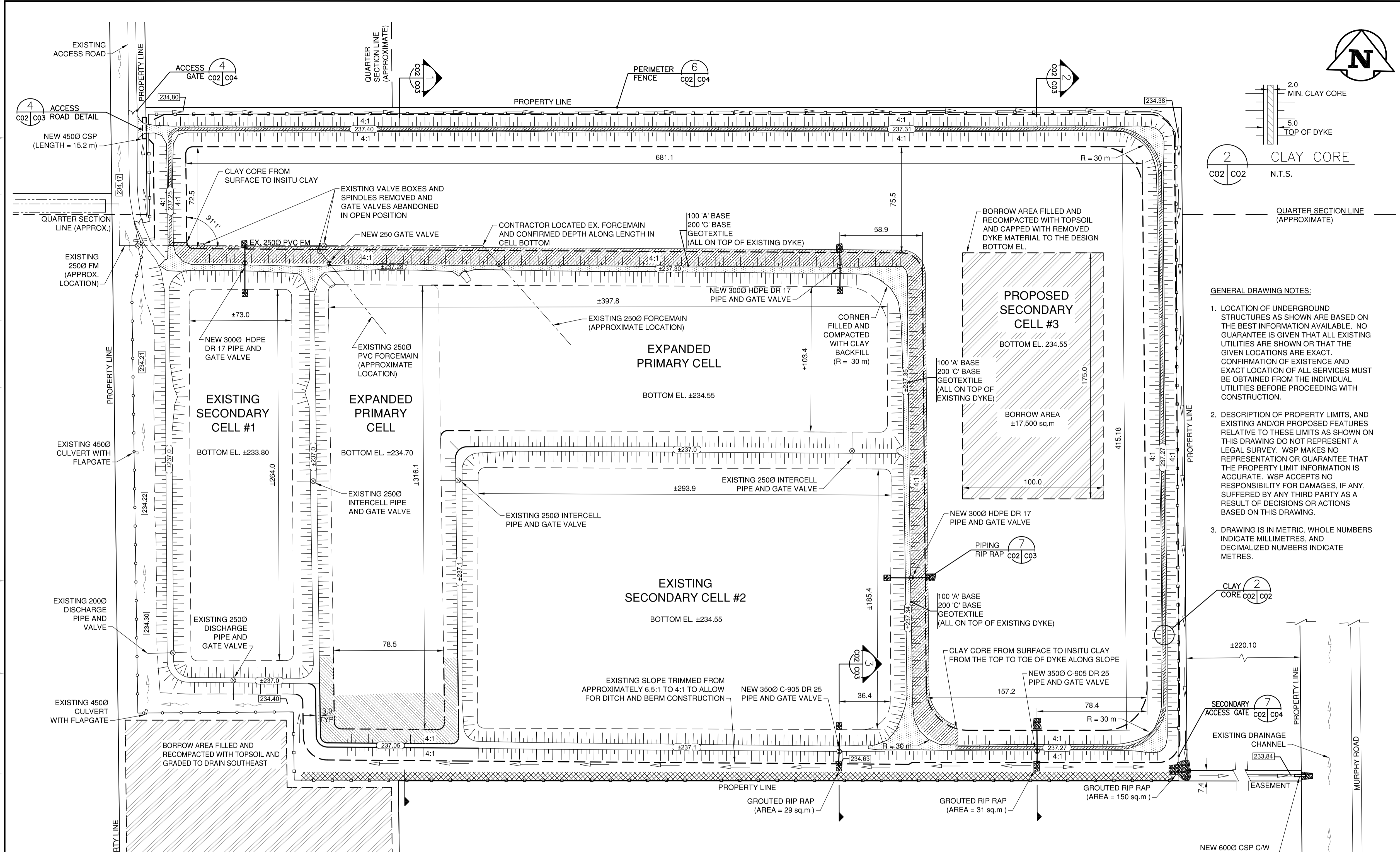
DISCIPLINE: ENVIRONMENTAL INFRASTRUCTURE

TITLE: PROPOSED SITE PLAN

SHEET NUMBER: C02
 SHEET # 3 OF 5

ISSUE: RECORD DRAWINGS
 DATE OF: 2016/04/21

REV # 1



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SHORT FORM CONSTRUCTION SPECIFICATIONS

ALL PRODUCTS INCORPORATED IN THE WORK SHALL CONFORM TO ASTM AND AWWA STD. SPECIFICATIONS. ALL CONSTRUCTION SHALL CONFORM TO SPECIFICATIONS.

VALVES SHALL BE AWWA C509, (LEFT-HAND OPENING) C/W DEPTH ADJUSTABLE BOXES.

FITTINGS (TEES, ELBOWS, ETC.) SHALL BE OF THE SAME CLASS AS THE PIPE. ALL FITTINGS SHALL BE INSTALLED WITH A CONCRETE THRUST BLOCK AND RESTRAINT.

SEWER LINES SHALL BE INSTALLED TO GRADES AND ALIGNMENTS SHOWN ON THE PLANS OR AS STAKED BY THE ENGINEER. VALVE BOXES SHALL BE INSTALLED PLUMB.

ALL AREAS SUBJECTED TO CONSTRUCTION OPERATIONS SHALL BE RESTORED TO THE CONDITION IN WHICH THEY EXISTED PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO PAVEMENT REPAIRS, REGRAVELLING, TRENCH SETTLEMENT CORRECTION AND RESEEDING OF GRASSED AREAS.

NO RESPONSIBILITY SHALL BE ASSUMED BY THE OWNER, THE MUNICIPAL CORPORATION OR THE ENGINEER FOR CORRECTNESS OR COMPLETENESS OF THE PLANS OR DRAWINGS WITH RESPECT TO EXISTING UTILITIES, PIPES, LEGAL SURVEY MARKERS, OR STRUCTURES EITHER UNDER OR ABOVE GROUND, AND NEITHER THE OWNER, THE MUNICIPAL CORPORATION, OR THE ENGINEER SHALL BE LIABLE FOR INCORRECTNESS AND INADEQUACY THEREOF. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS OF SUCH UTILITIES, PIPES, LEGAL SURVEY MARKERS, OR STRUCTURES, AND IF ENCOUNTERED, TO ADEQUATELY PROTECT THEM DURING CONSTRUCTION AND TO REPLACE OR RESET THEM TO ORIGINAL POSITION AND CONDITION.

ALL RELEVANT UTILITIES (WATERWORKS, HYDRO, MTS, GAS, HIGHWAYS, ETC.) SHALL BE NOTIFIED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION. CONTROLS (INCLUDING VALVES) SHALL BE OPERATED BY PERSONNEL OF THE RESPECTIVE UTILITIES.

ALL RELATIVE AND APPLICABLE FEDERAL, PROVINCIAL AND LOCAL STATUTES, BY-LAWS, CODES AND REGULATIONS SHALL BE OBSERVED IN THE COURSE OF CONSTRUCTION. WHERE REQUIRED, THE CONTRACTOR SHALL SECURE AND PAY FOR THE APPROPRIATE CONSTRUCTION PERMITS.

CONTRACTOR TO SUPPLY, INSTALL AND MAINTAIN ALL NECESSARY SEDIMENT RUNOFF PROTECTION, INCLUDING SILT FENCING.

EXPANDED PRIMARY CELL SURFACE AREA = 6.61 ha
 EXPANDED PRIMARY CELL STORAGE VOLUME = 46,385 m³
 EX. SECONDARY CELL #1 STORAGE VOLUME = 26,030 m³
 EX. SECONDARY CELL #2 STORAGE VOLUME = 69,400 m³
 PROPOSED SECONDARY CELL #3 STORAGE VOLUME = 133,475 m³
 TOTAL LAGOON STORAGE VOLUME = 275,290 m³

	CLAY CORE		GRANULAR AREAS
	1.0 m SURFACE CLAY LINER WITH KEYED IN BOTTOM		BORROW AREA
	1.0 m SURFACE CLAY LINER		NEW BERM

EXISTING	LEGEND	PROPOSED	EXISTING	LEGEND	PROPOSED
---	WATERMAIN	---	---	CLEAN OUT	---
---	WASTEWATER	---	---	CULVERT	---
---	LOW PRESSURE SEWER	---	---	DITCH / SWALE	---
---	FORCEMAIN	---	---	TREE / SHRUB LINE	---
---	GATE VALVE	---	---	FENCE LINE	---
---	MANHOLE	---	---	HYDRO	---
---	HYDRANT	---	---	GAS MAIN	---
---	UTILITY POLE	---	---	MTS	---
---	GUY WIRE	---	---	DIRECTION OF FLOW	---
---	CATCH BASIN	---	---	WICK DRAIN	---
---	CURB INLET	---	---	RIP RAP	---
---	HYDRO TOWER	---	---	GROUND ELEVATION	99.000
---	SIGN	---	---	DITCH ELEVATION	99.000
---	MTS PEDESTAL	---	---	ROAD/DYKE ELEVATION	99.000
---	SURVEY BAR	---	---		

CONSULTANT:
RECORD DRAWING
 DATE: 2016/04/21 BY: J.S.B.
 REVIEWED BY: R.W.W.

SEAL:
 ORIGINAL DRAWING
 SEALED BY
 R.W. WEBSTER
 AND DATED
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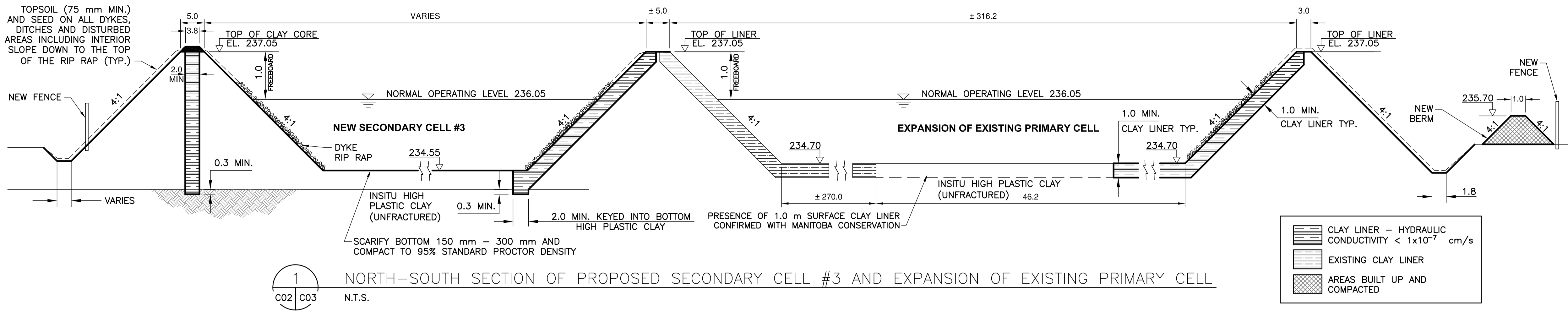
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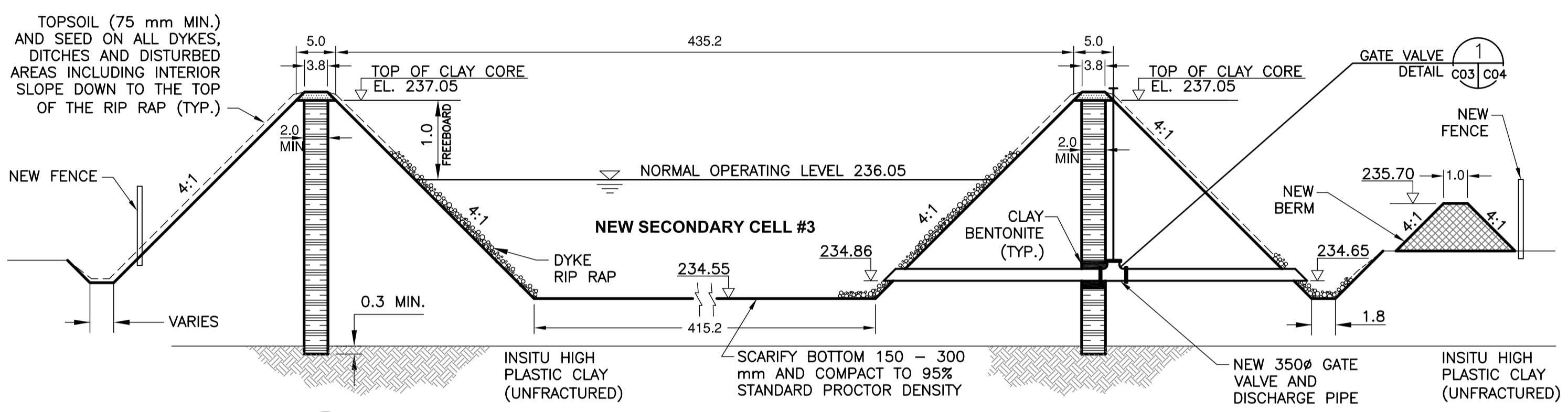
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IS	RS	DATE	DESCRIPTION

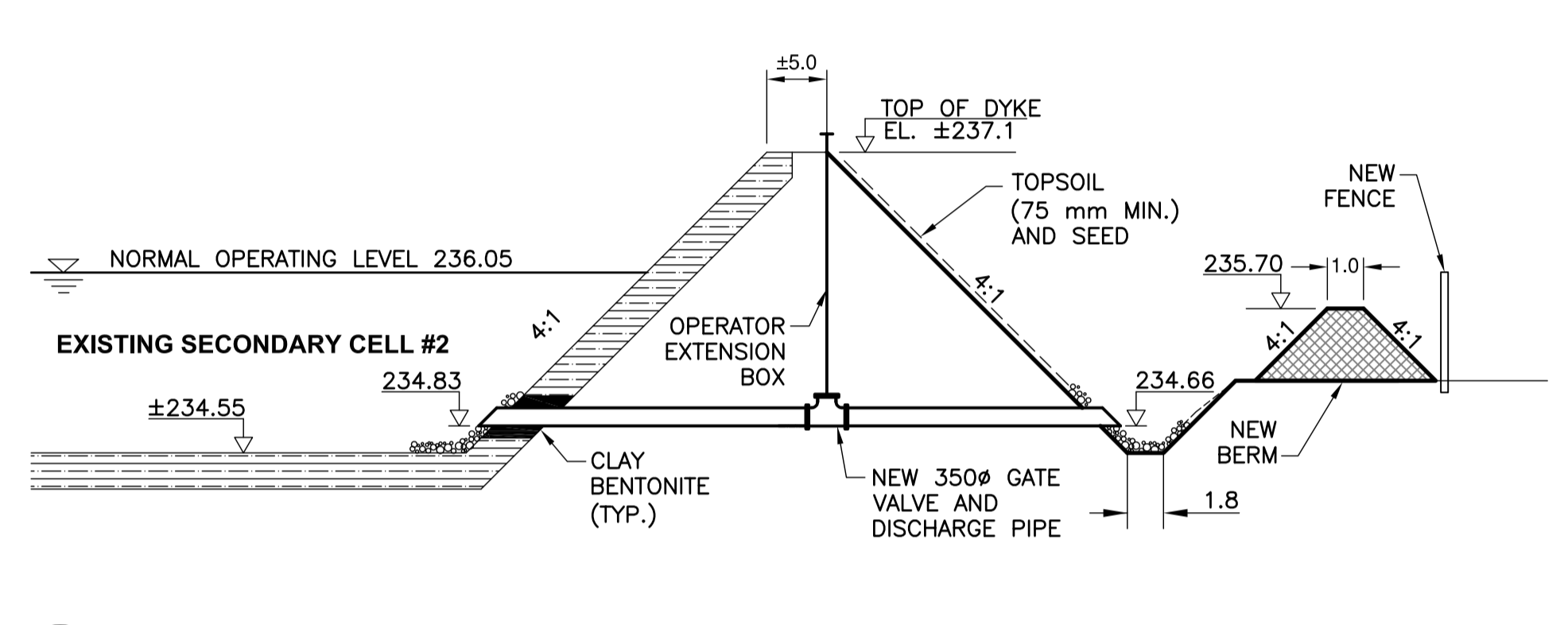
PROJECT NO: 131-21138-00
 ORIGINAL SCALE: N.T.S.
 DATE: 2014/06/27
 DESIGNED BY: D.T.G.B.
 DRAWN BY: D.T.G.B.
 CHECKED BY: R.W.W.
 DISCIPLINE: CIVIL
 TITLE: PROPOSED CELL CROSS SECTIONS, ACCESS ROAD, CULVERT AND RIP RAP DETAILS
 SHEET NUMBER: C03
 SHEET #: 4 OF 5
 ISSUE: RECORD DRAWINGS
 DATE OF: 2016/04/21
 REV # 1



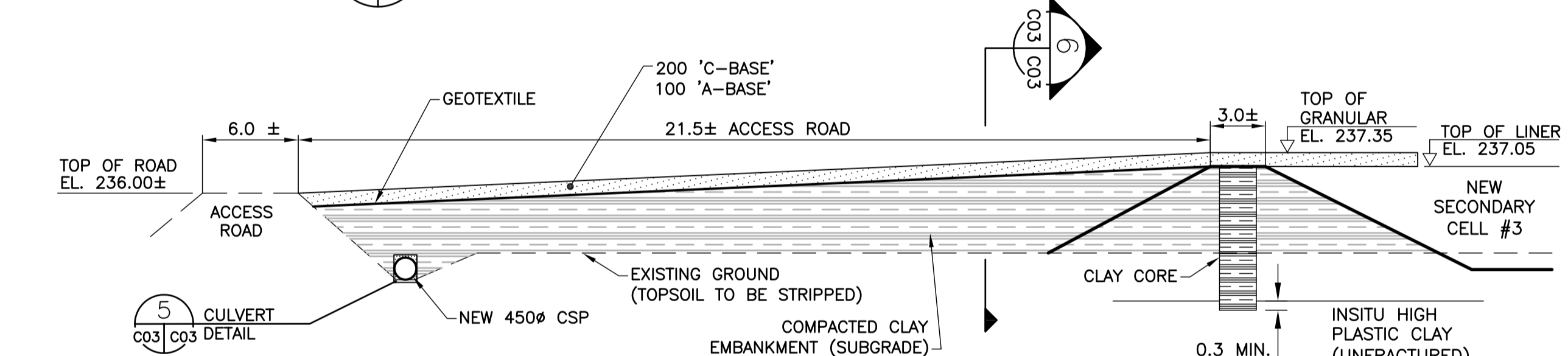
1 NORTH-SOUTH SECTION OF PROPOSED SECONDARY CELL #3 AND EXPANSION OF EXISTING PRIMARY CELL
 C02 C03 N.T.S.



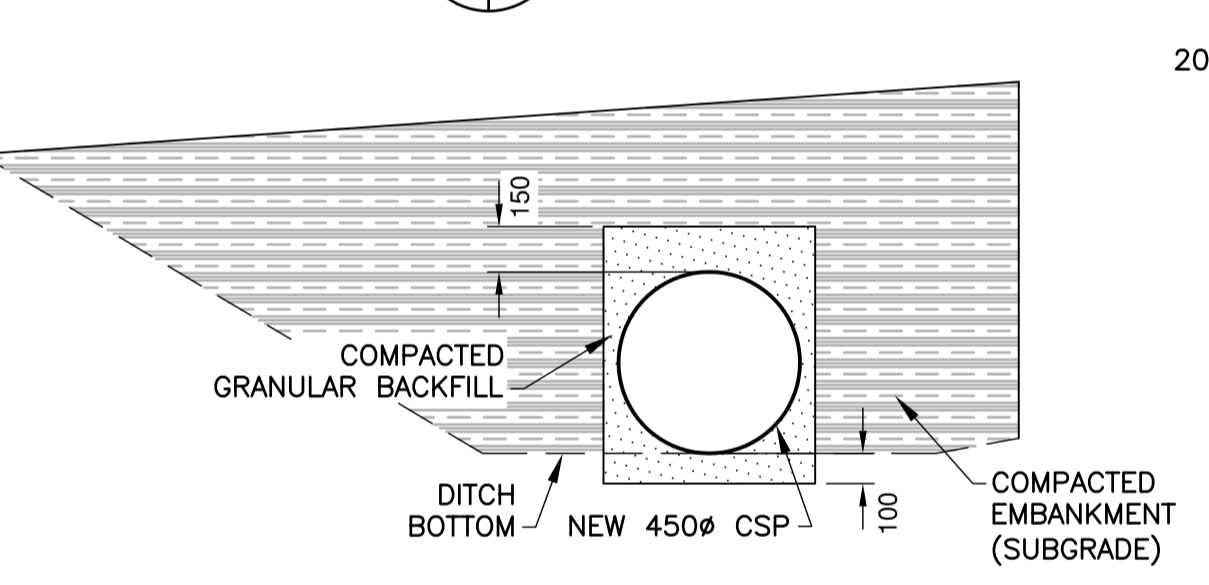
2 NORTH-SOUTH SECTION OF PROPOSED SECONDARY CELL #3
 C02 C03 N.T.S.



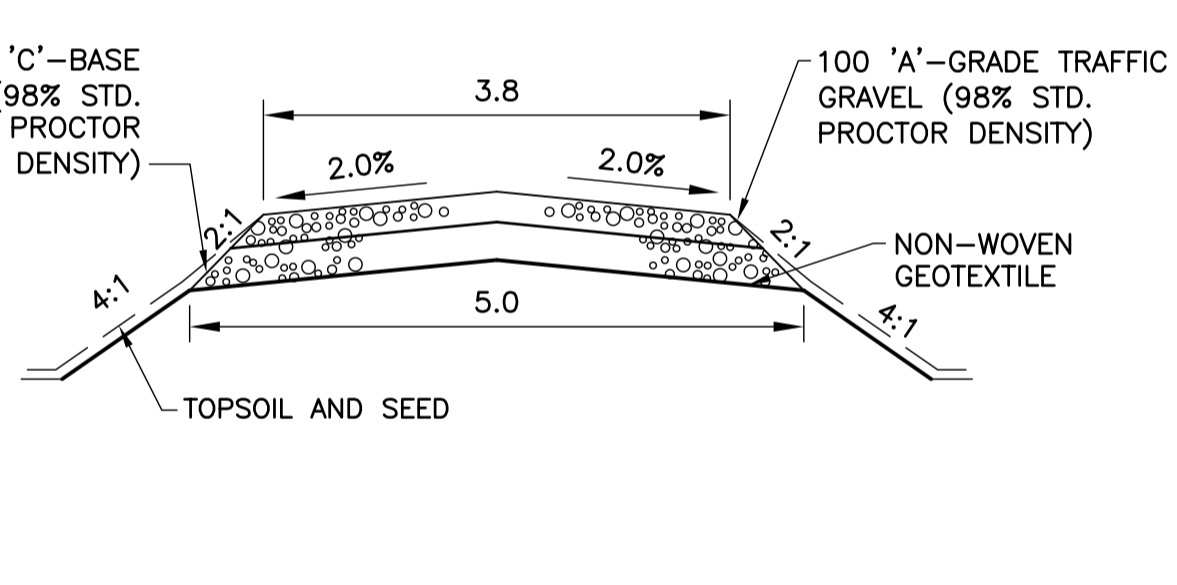
3 NORTH-SOUTH SECTION OF EXISTING SECONDARY CELL #2 DYKE
 C02 C03 N.T.S.



4 ACCESS ROAD DETAIL
 C02 C03 N.T.S.



5 CULVERT DETAIL
 C03 C03 N.T.S.



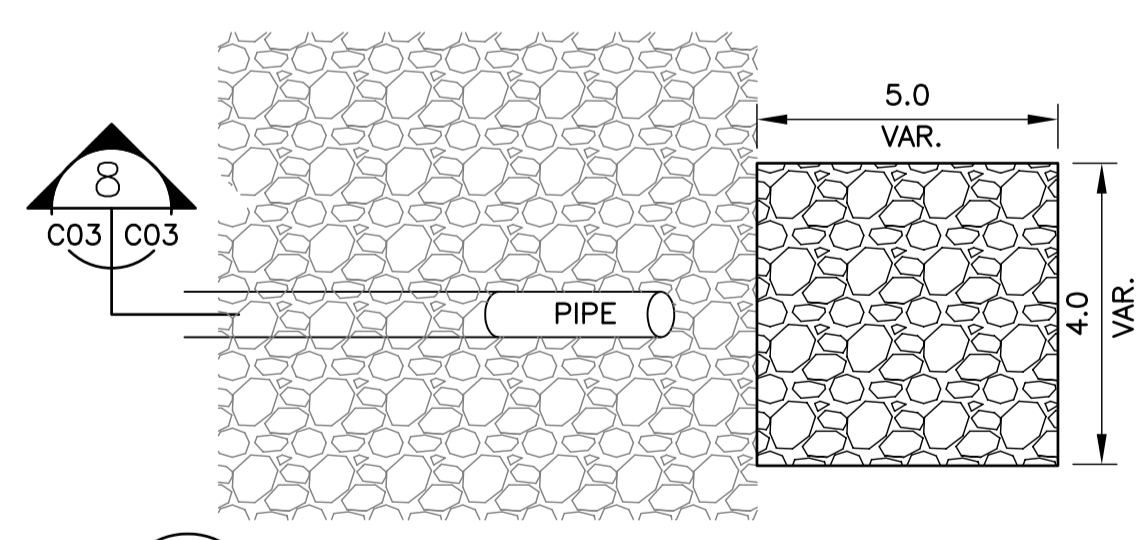
6 ACCESS ROAD SECTION
 C03 C03 N.T.S.

GENERAL NOTES - PART 1:

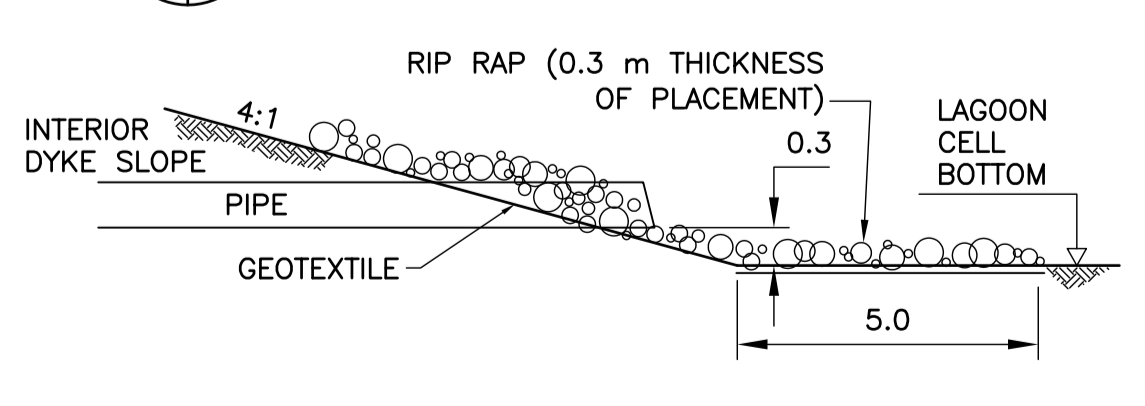
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- DRAWING IS IN METRIC. WHOLE NUMBERS INDICATE MILLIMETRES, AND DECIMAL NUMBERS INDICATE METRES.
- WASTEWATER SEWER PIPE SHALL BE HDPE DR21 OR PVC SERIES 125 (SDR 32.5) UNLESS SPECIFIED OTHERWISE.
- ALL BACKFILL AND BEDDING MATERIAL THROUGH DYKES SHALL BE CLAY HAVING THE SAME PROPERTIES AS THE CLAY LINER AND COMPACTED TO 95% STANDARD PROCTOR DRY DENSITY. WASTEWATER SEWER PIPE THROUGH CELL CLAY LINER SHALL BE CLAY BENTONITE MATERIAL PACKED FOR THE WIDTH OF THE PIPE TRENCH.
- REMOVE AND STOCKPILE TOPSOIL FROM THE AREAS AND TO THE DEPTHS DEFINED IN THE SPECIFICATIONS.
- AFTER TOPSOIL STRIPPED AND REMOVED, CONTRACTOR TO EXCAVATE TO DESIGN GRADES AND PRIOR TO PLACEMENT OF ANY EMBANKMENT, SCARIFY UNDERLYING MATERIAL TO A DEPTH OF 150mm AND COMPACT TO 95% STANDARD PROCTOR DRY DENSITY. THE CELL BOTTOMS AND SLOPES SHALL BE SCARIFIED AND COMPACTED TO THESE SPECIFICATIONS AS WELL.
- EMBANKMENT MATERIAL SHALL BE PLACED AND COMPACTED IN 150mm (MAX.) LIFTS UNTIL THE DENSITY ACHIEVED IS 95% OF STANDARD PROCTOR DRY DENSITY. THE MOISTURE CONTENT OF THE EMBANKMENT MATERIAL SHALL BE MINUS ONE PERCENT TO PLUS THREE PERCENT OF OPTIMUM MOISTURE AS DETERMINED BY THE STANDARD PROCTOR TEST.
- PERIMETER SIGNAGE SHALL BE PLACED EVERY 50 METRES AROUND THE ENTIRE FACILITY.
- ALL PERIMETER DITCH GRADING TO BE FINALIZED DURING CONSTRUCTION, AND MAY NOT BE AS SHOWN.
- BORROW AREA TO BE BACKFILLED AND COMPACTED WITH TOPSOIL AND FINISH GRADED TO SURROUNDING GROUND FEATURES. THE PERIMETER EDGES OF ANY REMAINING DEPRESSIONS SHALL BE FINISHED GRADED AT 4:1 WITH DRAINAGE OPENING TO THE NEAREST DRAIN.
- TEMPORARY BENCHMARK TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION.
- WWSP TO BE CONSTRUCTED IN ACCORDANCE WITH ENVIRONMENT ACT LICENCE, DESIGN DRAWINGS AND THE ENVIRONMENT ACT PROPOSAL (EAP) REPORT CONDITIONS. IN THE EVENT OF A DISCREPANCY BETWEEN THE MINIMUM REQUIREMENTS OF THE EAP AND THESE DESIGN DRAWINGS THE LATTER SHALL GOVERN.

GENERAL NOTES - PART 2:

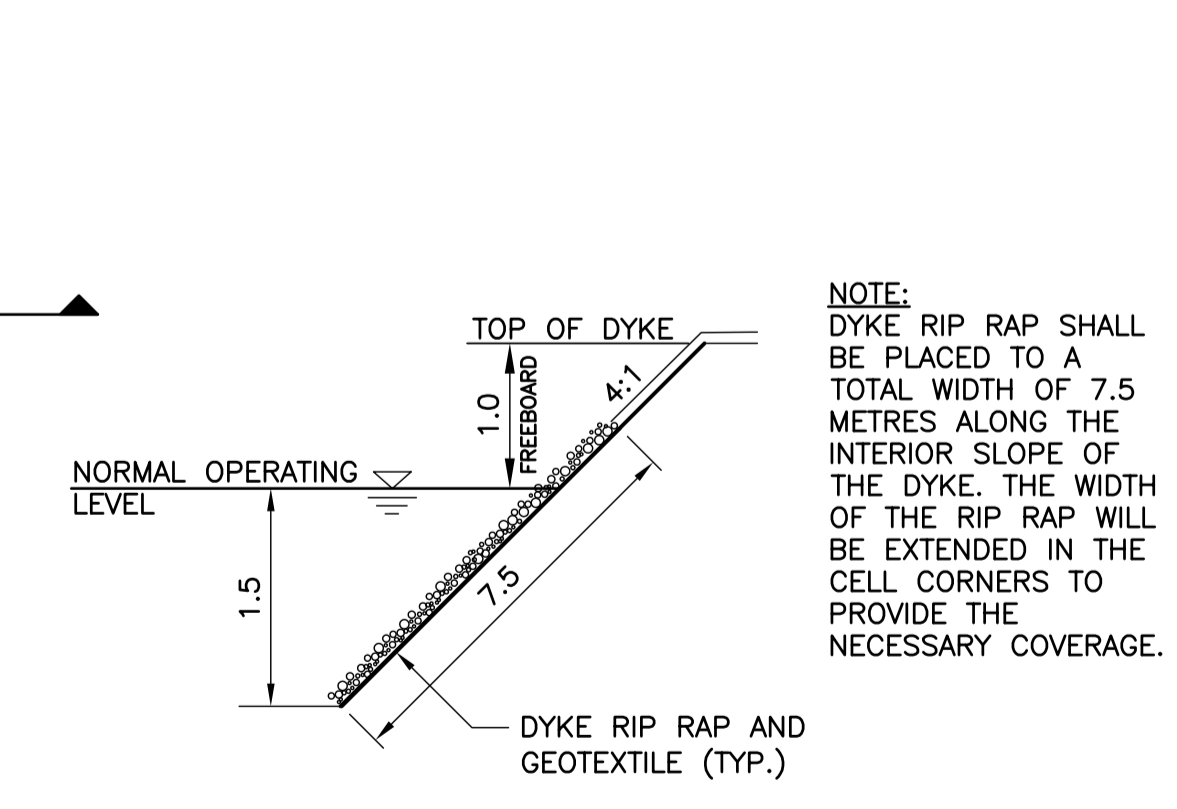
- THE PROPOSED PERIMETER DYKES OF THE PROPOSED SECONDARY CELL ARE TO BE CONSTRUCTED WITH A CLAY CORE WITH THE USE OF IN-SITU CLAY OR SUITABLE CLAY BORROW MATERIAL.
- THE EXISTING DYKES OF THE PROPOSED SECONDARY CELL SHALL BE CONSTRUCTED WITH A 1.0 m (MIN.) THICK CLAY LINER, EXTENDING FROM THE DYKE TOP TO THE INTERIOR TOE WITH THE BOTTOM KEYED INTO (0.3 m MIN.) THE UNFRACTURED HIGH PLASTIC CLAY.
- UNSUITABLE MATERIAL REMOVED FROM THE EXCAVATION OF THE CLAY LINER AND CLAY CORE AREAS MAY BE USED IN THE CONSTRUCTION OF THE EXTERIOR AREAS OF THE PERIMETER DYKES.
- THE COMPLETED EXCAVATED FOUNDATION AND THE EXCAVATED CLAY CORE TRENCH SHALL BE SUBJECT TO REVIEW BY THE ENGINEER.
- THE CONTRACTOR SHALL OBTAIN A PROCTOR ANALYSIS, BY A QUALIFIED SOILS LABORATORY, OF THE SOIL TO BE USED IN THE CONSTRUCTION OF THE CLAY CORE AND THE 1.0 METRE CLAY LINER (AND THE EMBANKMENT IF DIFFERENT).
- THE CONTRACTOR SHALL USE EXCAVATED CLAY MATERIAL THAT HAS BEEN SCARIFIED, MIXED, COMPACTED AT MINUS ONE PERCENT TO PLUS THREE PERCENT OF OPTIMUM MOISTURE CONTENT TO ACHIEVE THE REQUIRED SOIL HYDRAULIC CONDUCTIVITY OF THE CLAY CORE AND THE CLAY LINER.
- FOR THE CLAY CORE, FULLY EXCAVATE THE IN-SITU MATERIAL DOWN INTO THE UNFRACTURED HIGH PLASTICITY CLAY (0.3 m MINIMUM) AS SHOWN ON THE PLANS. REFER TO SPECIFICATIONS FOR COMPACTION TESTING.
- REFER TO SPECIFICATIONS FOR COMPACTION TESTING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SCARIFYING AND RECOMPACTING ANY MATERIAL WHICH DOES NOT MEET THE MINIMUM SPECIFIED DENSITY.
- IF THE SURFACE OF ANY PORTION OF THE EMBANKMENT DURING CONSTRUCTION SHOULD BECOME TOO DRY, IT SHALL BE SCARIFIED, WATERED AND RE-COMPACTED.
- IF THE EMBANKMENT MATERIAL IS TOO WET, IT SHALL BE DISCED AND DRIED BEFORE COMPACTION.
- GENERALLY, COMPACTION SHALL BE BY NONVIBRATORY ROLLERS, UNLESS OTHERWISE APPROVED BY THE ENGINEER. COMPACTION USING VIBRATORY EQUIPMENT SHALL BE PERMITTED FOR THE CLAY EMBANKMENT IN THE CLAY CORE ONLY.
- THE COST OF THE PROCTOR/COMPACTION REVIEW AND TESTING, INCLUDING TESTING AS STIPULATED IN THE ENVIRONMENT ACT LICENCE WILL BE BORNE BY THE CONTRACTOR.
- THE CONTRACTOR SHALL PAY THE COST OF ANY RE-TESTS AND ASSOCIATED COSTS, INCLUDING EARTHWORK AND PERIMETER CLAY CORE, REQUIRED IN THE EVENT OF THE FAILURE OF THE INITIAL TESTS.



7 PIPING RIP RAP DETAIL (TYP.)
 C02 C03 N.T.S.



8 PIPING RIP RAP SECTION (TYP.)
 C03 C03 N.T.S.



9 DYKE RIP RAP AND GEOTEXTILE
 N.T.S.

NOTE:
 DYKE RIP RAP SHALL BE PLACED TO A TOTAL WIDTH OF 7.5 METRES ALONG THE INTERIOR SLOPE OF THE DYKE. THE WIDTH OF THE RIP RAP WILL BE EXTENDED IN THE CELL CORNERS TO PROVIDE THE NECESSARY COVERAGE.

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LA SALLE LAAGOON EXPANSION

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ELEV. = 234.533 m

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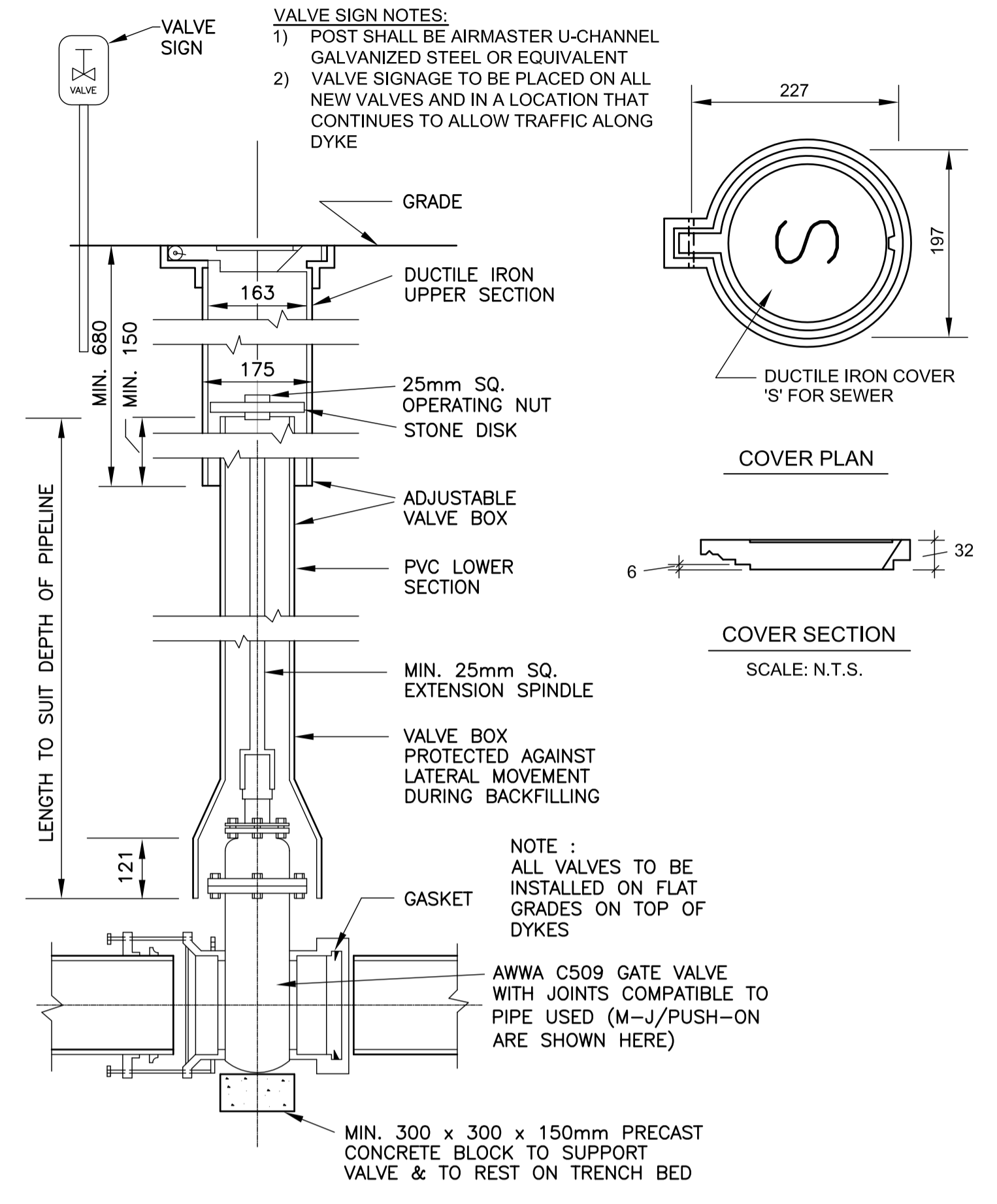
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DRAWN BY: D.T.G.B.	
CHECKED BY: R.W.W.	

DISCIPLINE: CIVIL
TITLE: GATE VALVE, SIGN, FENCE AND ACCESS GATE DETAILS

SHEET NUMBER: C04
SHEET #: 5 OF 5
ISSUE: RECORD DRAWINGS
DATE OF: 2016/04/21
REV # 1

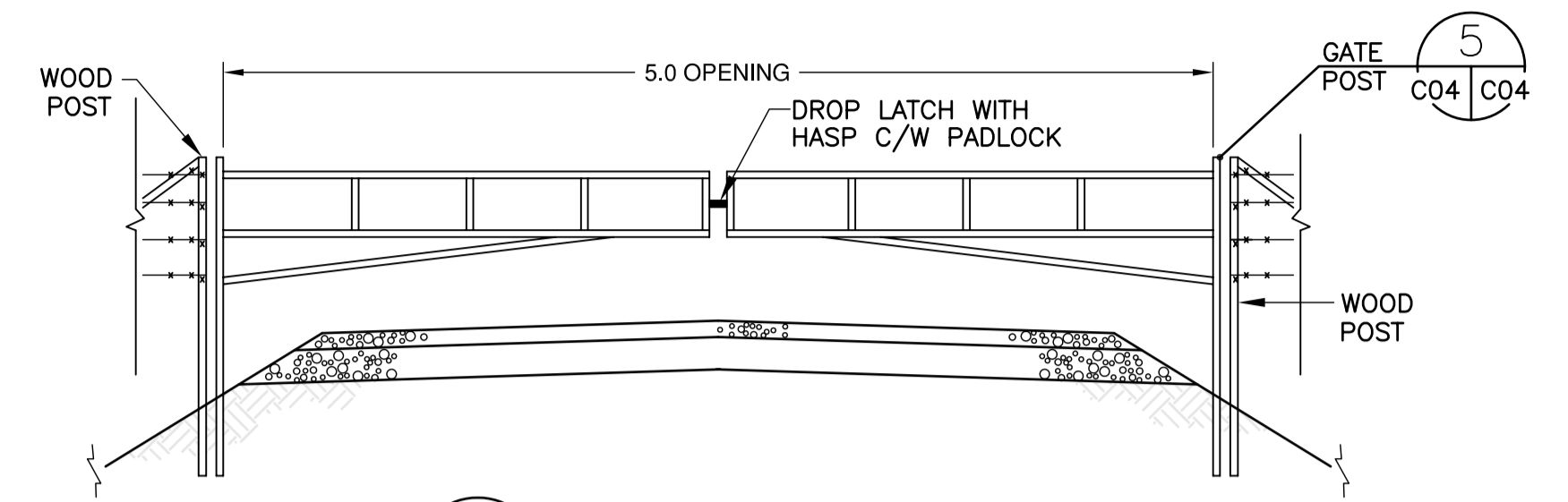


1 GATE VALVE INSTALLATION
C03 C04 N.T.S.

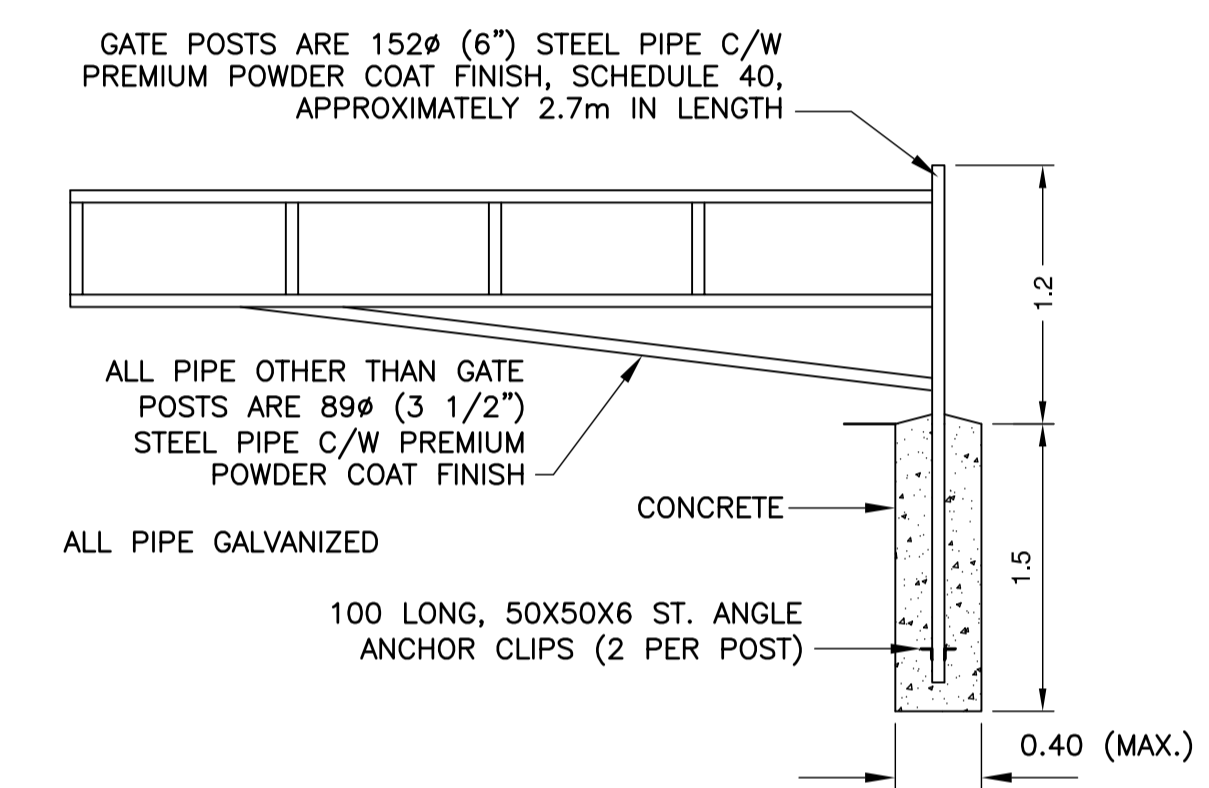


PERIMETER FENCE SIGNAGE NOTES:
1) MAIN ENTRANCE SIGNAGE TO BE ATTACHED AND INSTALLED WITH TWO 4X4 PRESSURE TREATED WOOD POSTS.
2) PERIMETER SIGNAGE TO BE SECURED TO PERIMETER FENCE POSTS EVERY 50 m AROUND ENTIRE FACILITY
3) SIGNS TO BE CONSTRUCTED OF ALUMINUM, AIR MASTER QUALITY OR APPROVED EQUAL

3 MAIN ENTRANCE AND PERIMETER FENCE SIGNAGE DETAIL (TYP.)
N.T.S.

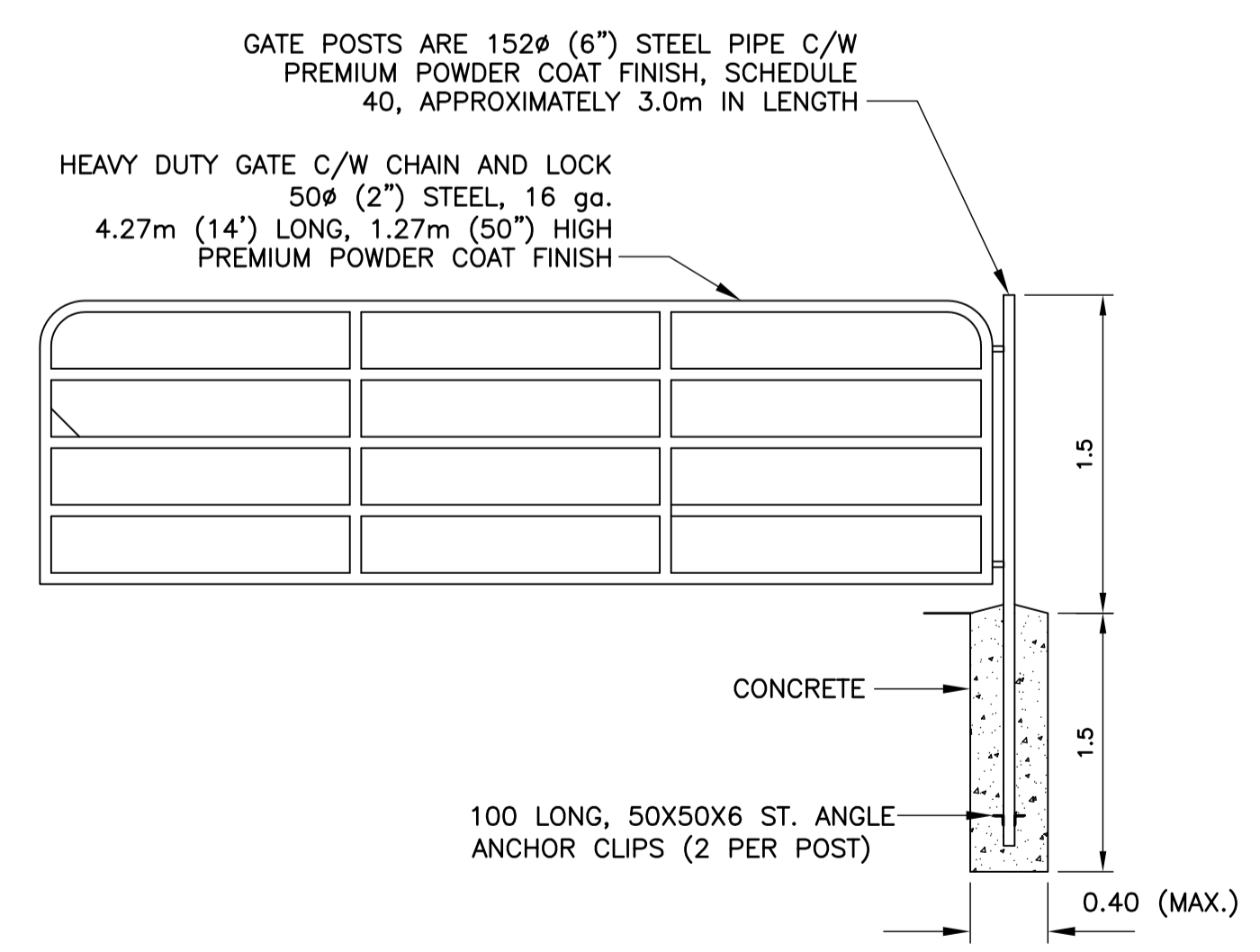


4 ACCESS GATE
C02 C04 N.T.S.



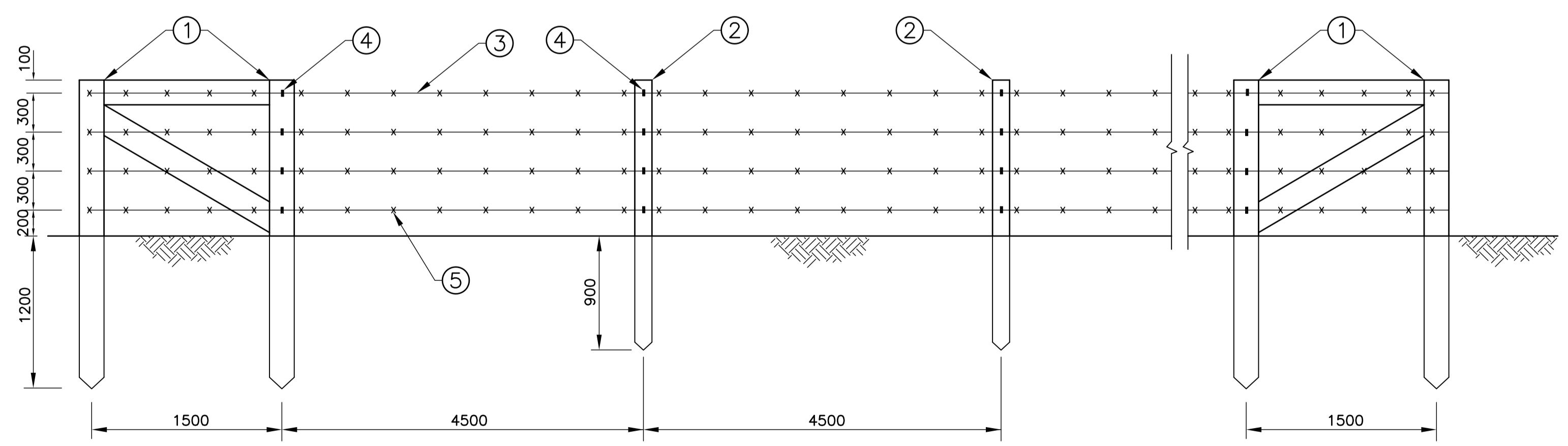
NOTE: REFER TO SPECIFICATIONS FOR CONCRETE DETAILS.

5 GATE POST DETAIL
C04 C04 N.T.S.



NOTE: REFER TO SPECIFICATIONS FOR CONCRETE DETAILS.

7 SECONDARY ACCESS GATE
C02 C04 N.T.S.



6 PERIMETER FENCE DETAIL
C02 C04 N.T.S.

- NOTES:
- CORNER POSTS: 1750 TREATED WOOD POST, 2400mm LONG
 - REGULAR POSTS: 1250 TREATED WOOD POST, 2100mm LONG
 - 2 STRAND 20 GALVANIZED WIRE (TYP.)
 - WIRE FENCE STAPLES (TYP.)
 - 4 POINT BARBS (TYP.)