

GENERAL WORKS

- G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH GMW TECHNICAL STANDARD TS 35 42 53.05
THESE RETAINING WALL DETAILS ARE GENERIC ONLY AND ARE APPLICABLE TO THE SOIL CONDITIONS IN NOTE W1. THESE DESIGN DRAWINGS SHOULD BE CERTIFIED BY A QUALIFIED ENGINEER TO ENSURE THE GROUND AND LOADING CONDITIONS ARE SUITABLE FOR EACH INDIVIDUAL SITE.
- G2 UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN MILLIMETRES.
- G3 THESE DRAWINGS SHALL NOT BE USED FOR FINAL SET OUT FOR THE PROJECT AND THE PROPONENT SHALL CHECK OR OBTAIN ALL DIMENSIONS RELEVANT TO SETTING OUT OF THE SITE WORKS, AND THE PROVISION OF ANY TEMPORARY BRACING, INCLUDING DESIGN, IN ACCORDANCE WITH THE SPECIFICATION.
- G4 SETTING OUT DIMENSIONS AND SIZES OF STRUCTURAL MEMBERS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS. ANY SETTING OUT DIMENSIONS INCLUDING LEVELS SHOWN IN THE STRUCTURAL DRAWINGS SHALL BE CHECKED BY THE PROPONENT BEFORE CONSTRUCTION COMMENCES.
- G5 THESE ENGINEERING DRAWINGS HAVE BEEN PREPARED FROM INFORMATION STATED ON THE DRAWINGS. AS THIS INFORMATION MAY BE SUBJECT TO CHANGE PRIOR TO OR DURING CONSTRUCTION THE PROPONENT IS TO INFORM GMW WHERE DISCREPANCIES OCCUR.
- G6 PRIOR TO THE COMMENCEMENT OF WORKS THE CONTRACTOR IS TO IDENTIFY ALL EXISTING SERVICES, ANY DAMAGE TO EXISTING SERVICES TO BE RECTIFIED AT THE PROPONENT'S EXPENSE.
- G7 DURING CONSTRUCTION, THE STRUCTURE SHALL BE MAINTAINED IN A SAFE AND STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE PROPONENT AS REQUIRED TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.
- G8 THE STRUCTURAL COMPONENTS DETAILED ON THESE DRAWINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND LOCAL AUTHORITY ORDINANCES FOR THE FOLLOWING LOADINGS:

LIVE LOADS : SURCHARGE 5 kPa
- G9 ALL PENETRATIONS THROUGH SLABS AND BEAMS SHALL BE APPROVED BY GMW PRIOR TO COMMENCEMENT OF WORK.
- G10 ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT AUSTRALIAN STANDARDS AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES.

REINFORCEMENT

- R1 REINFORCEMENT SHOWN ON THE DRAWINGS IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY SHOWN IN TRUE PROJECTION.
- R2 BAR LAP LENGTHS SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT. BAR LAPS IN MILLIMETRES ARE TO BE AS SHOWN BELOW (APPLICABLE FOR 32MPa CONCRETE STRENGTH):-

N12	600	N28	1550
N16	800	N32	1900
N20	1050	N36	2300 FOR COMPRESSION LAP
N24	1300		MECHANICAL SPLICE FOR TENSION LAP
- R3 BUNDLED BARS SHALL BE TIED TOGETHER AT 30 BAR DIAMETER CENTRES WITH 3 WRAPS OF TIE WIRE.
- R4 REINFORCEMENT SYMBOLS :-
R - DENOTES GRADE 250R HOT ROLLED PLAIN BARS TO AS 4671
N - DENOTES GRADE 500N HIGH YIELD DEFORMED BARS TO AS 4671

RETAINING WALL

- W1. RETAINING WALLS HAVE BEEN DESIGNED TO RETAIN A FREE DRAINING, WELL COMPACTED BACKFILL WITH A SLOPE NOT EXCEEDING 10° FROM HORIZONTAL (REFER DIAGRAMS). FOR DESIGN PURPOSES THE FOLLOWING SOIL PROPERTIES HAVE BEEN USED:-

 BACKFILL DENSITY = 1800 Kg/m
 BACKFILL FRICTION ANGLE = 25°
 BACKFILL COHESION C'= 0 kPa

 WHICH CORRESPOND TO STIFF SANDY CLAYS, MEDIUM DENSE CLAYEY SANDS AND SANDY SILT MATERIALS. PARTIAL LOAD AND MATERIAL UNCERTAINTY FACTORS HAVE BEEN APPLIED IN ACCORDANCE WITH AS4678.
- W2. TREAT EARTH FACE WITH BITUMINOUS PAINT AND PROVIDE 1 LAYER OF 0.2mm WATERPROOF MEMBRANE.
- W3. PROVIDE Ø90mm AGG DRAIN AT BASE OF WALL AND CONNECT TO LEGAL POINT OF DISCHARGE. SURROUND AGG DRAIN WITH FILTER SOCK (GEOTEXTILE 0.25MM PARTICLE SIZE RETAINING) AND AT LEAST 300mm OF GRAVEL OR CRUSHED STONE.
- W4. PROVIDE 300mm FREE DRAINING GRANULAR BACKFILL FOR FULL HEIGHT TO BACK FACE OF WALL.
- W5. BACKFILL WITH MATERIAL FROM SITE COMPACTED IN LAYERS NO MORE THAN 150mm DEEP. BACKFILL SHOULD NOT BE PLACED BEHIND THE WALL UNTIL AT LEAST TEN DAYS AFTER POURING FOOTINGS. PREFERABLE BACKFILL IS COARSE GRAINED SOIL WITHOUT AN ADMIXTURE OF FINE SOIL PARTICLES SUCH AS VERY PERMEABLE CLEAN SAND OR GRAVELS.
- W6. SEAL BACKFILL WITH A COMPACTED LAYER OF MATERIAL WITH LOW PERMEABILITY AND PROVIDE AN OPEN DRAIN AT SURFACE IF PAVING OR SIMILAR IS NOT TO BE CONSTRUCTED.
- W7. GLOBAL SLIP FAILURE IS NOT CONSIDERED AN ISSUE WHEN THE SOIL STRENGTH INCREASES WITH DEPTH. CONSULT AN ENGINEER IF THIS IS NOT THE CASE ie. A SOFT LAYER OF CLAY IS BELOW THE WALL AND FOUNDATIONS.

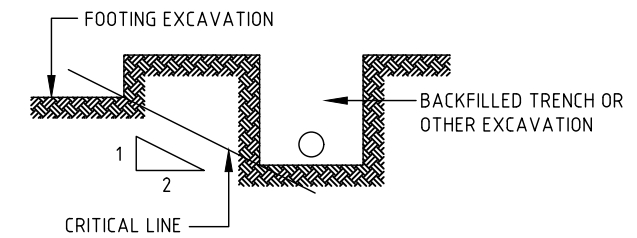
FOUNDATIONS

- F1 THE PROJECT GEOTECHNICAL ENGINEER (PGE) SHALL BE PRESENT FOR ALL EXCAVATIONS FOR BUILDING FOUNDATIONS. SOIL TESTS MUST BE CARRIED OUT AND THE FOUNDATION MATERIAL SHALL BE APPROVED BY THE PGE BEFORE PLACING BLINDING AND/OR REINFORCEMENTS.
- F2 ALL FOOTING EXCAVATIONS SHALL BE MAINTAINED FREE OF WATER BY PROVISION OF RELIEF DRAINS, OR DRAINAGE TO SUITABLE COLLECTION SUMPS FOR REMOVAL BY PUMPING OR MANUAL MEANS.
- F3 ALL FOOTING EXCAVATIONS SHALL BE INSPECTED & APPROVED BY PGE. SO AS TO ENSURE DESIGN ASSUMPTIONS ARE MET.
- F4 FOUNDING MATERIAL ON SITE SHALL HAVE MINIMUM CHARACTERISTIC AS LISTED BELOW:

 MATERIALS: CI/CH/SM/SC
 UNIT WEIGHT: 20kN/m³ FOR BACKFILL AND 18kN/m³ FOR NATURAL SOILS
 DRAINED: PHI'=28 DEGREES MIN. AND C'=0
 UNDRAINED: PHI=0 AND SU=100kPa MIN.
 KAH: 0.41
- F5 REMEDIATION OF ANY IDENTIFIED SOFT AND/OR ORGANIC MATERIAL, OR HARD LAYERS SHALL BE PERFORMED UNDER THE SUPERVISION OF THE ATTENDING PGE & APPROVED BY THE PGE.
- F6 ALL RETAINING WALLS AND TRENCHES SHALL BE TEMPORARILY PROPPED PRIOR TO BACKFILLING, WITH PROPS BEING RETAINED UNTIL COMPLETION OF CURING OF SUPPORTING SLABS.
- F7 BACKFILL WITHIN A MINIMUM OF 400mm OF THE BACKFACE OF ANY RETAINING WALL SHALL BE AN APPROVED NON-PLASTIC, FREE DRAINING GRAVEL MATERIAL, FREE OF DELETERIOUS AND ORGANIC MATTER UNLESS NOTED OTHERWISE. OTHER FILL MATERIAL MAY BE MATERIAL AS EXCAVATED, COMPACTED TO 95% OF MAXIMUM DRY DENSITY (STANDARD COMPACTION TEST AS PER AS1289).
- F8 PGE TO INSPECT BATTERS AND ADJUST SLOPES AS NECESSARY DURING CONSTRUCTION TO ENSURE ADEQUATE STABILITY OF BATTERS.
- F9 FOUNDING MATERIAL FORMING BASE ARE TO BE CLEAN AND FREE OF ANY LOOSE MATERIAL SO AS TO ACHIEVE NOMINATED BEARING CAPACITY GIVEN ON THE DRAWINGS.

FOUNDATIONS CONT'D

F10 UNLESS APPROVED BY THE PGE EXCAVATIONS NEAR FOOTINGS SHALL NOT GO BELOW THE CRITICAL LINE AS SHOWN BELOW.



CONCRETE

- C1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600.
- C2 CONCRETE SHALL BE FROM AN APPROVED SOURCE AND SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING STANDARDS, UNLESS NOTED OTHERWISE :-
 AS 3600 _____ CONCRETE STRUCTURES
 AS 4671 _____ STEEL REINFORCING BARS FOR CONCRETE
 AS 3972 _____ PORTLAND CEMENT
 AS 1379 _____ READY-MIXED CONCRETE
 AS 2758.1 _____ CONCRETE AGGREGATES

C3 CONCRETE SHALL BE SUPPLIED ON A PERFORMANCE BASIS AND HAVE THE FOLLOWING CHARACTERISTICS :-

ELEMENT	STRENGTH f'c (MPa) CLASS GP	MAXIMUM AGGREGATE SIZE (mm)	SLUMP (mm)
SLEEPERS	N40	20	100
BORED PIERS	N32	20	80

- C4 CONCRETE MIX DESIGN, INCLUDING PROPORTIONS OF ADDITIVES AND CEMENTITIOUS REPLACEMENT MATERIALS, SHALL BE APPROVED BY THE CERTIFYING ENGINEER PRIOR TO THE PLACEMENT OF ANY CONCRETE. CALCIUM CHLORIDE SHALL NOT BE USED IN ANY MIX. FLYASH SHALL NOT TO BE USED AS A CEMENT REPLACEMENT BUT MAY BE ADDED FOR WORKABILITY TO A MAXIMUM 25% OF CEMENT CONTENT.
- C5 THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS.
- C6 ALL FORMED EXPOSED EDGES AND RE-ENTRANT CORNERS SHALL BE CHAMFERED OR FILLETED 15mm. FOR CHAMFERS, FILLETS ETC. REFER TO DETAILS. MAINTAIN MINIMUM COVER TO REINFORCEMENT AT THESE LOCATIONS.
- C7 NO PENETRATIONS, CHASES OR TEMPORARY FIXTURES ARE PERMITTED IN THE CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE CERTIFYING ENGINEER.
- C8 WHEN DRILLING INTO EXISTING STRUCTURES, USE HAMMER DRILLS ONLY. DO NOT USE DIAMOND CORE DRILLS, EXCEPT WHERE SPECIFICALLY NOTED. DO NOT CUT OR DAMAGE EXISTING REINFORCEMENT UNLESS NOTED.
- C10 CHEMICAL ANCHORS FOR FIXINGS TO CONCRETE SHALL BE 'HILTI' CHEMSET ANCHORS OR APPROVED SIMILAR.
- C11 ALL CONCRETE, INCLUDING SLABS ON GROUND & FOOTINGS, SHALL BE COMPACTED USING VIBRATION EQUIPMENT.
- C12 THE CONCRETE SHALL BE TESTED FOR COMPLIANCE WITH SPECIFIED STRENGTH & SLUMP IN ACCORDANCE WITH AS3600.
- C13 PROPONENT SUPPORT PROPPING SHALL BE LEFT IN PLACE TO AVOID OVERSTRESSING THE STRUCTURE DUE TO CONSTRUCTION LOADING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT STRIPPING AND BACKPROPPING COMPLIES WITH THE REQUIREMENTS OF AS.3610 - FORMWORK FOR CONCRETE.
- C14 NO CONCRETE TO BE POURED WHEN SITE TEMPERATURE EXCEEDS 35°C OR FALLS BELOW 5°C.
- C15 NO WATER SHALL BE ADDED TO CONCRETE ON SITE WITHOUT PRIOR APPROVAL. ANY SAMPLE SHALL HAVE WATER ADDED ONLY TO THE AMOUNT ALLOWED ON THE SUPPLY DOCKET AND SHALL BE TESTED AFTER THE ADDITION OF THE WATER.

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REV	DATE	REFERENCES	D.C DRAWN	A.N CHECKED	MANAGER	M. LON HO KEE MANAGER ENGINEERING & MAINTENANCE SERVICES	GMW A1978094 CORR. NO. 2011/956/1	GOULBURN MURRAY RURAL WATER AUTHORITY 40 CASEY STREET (PO BOX 165), TATURA VIC. 3616 Telephone (03) 5826 3500 Fax (03) 5826 3501	CAD DRAWING INDEX 485813	SHEET NUMBER 01 OF 04	DRAWING NUMBER 485813	REVISION A

BORED PIER

- BP1 BORED PIERS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS 2159.
- BP2 ALL CONCRETE SHALL HAVE A 28 DAY CHARACTERISTIC STRENGTH ($f'c$) OF 32 MPa WITH A SLUMP OF 80mm.
- BP3 ALL CONCRETE WORK SHALL COMPLY WITH AS 3600. REFER NOTE C10.
- BP4 THE PROPONENT IS RESPONSIBLE FOR PROPERLY SETTING OUT THE PIER LOCATIONS.
- BP5 THE PIERS SHALL NOT DEVIATE FROM THE VERTICAL BY MORE THAN 1 IN 25.
- BP6 THE MAXIMUM DIMENSIONAL TOLERANCE IN ANY DIRECTION IS 20mm.
- BP7 WHERE PIERS HAVE BEEN SET OUT OR PLACED INCORRECTLY THE PROPONENT SHALL BE RESPONSIBLE FOR, AT HIS OWN COST, THE DESIGN AND CONSTRUCTION OF RECTIFICATION WORKS TO MAINTAIN THE DESIGN INTENT AND INTEGRITY OF THE FOUNDATION SYSTEM. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO :
- DESIGN CHECKS BY ENGINEER
 - REVIEW OF RECTIFICATION PROPOSALS BY ENGINEER
 - DESIGN AND CONSTRUCTION OF ADDITIONAL BORED PIERS AND PILE CAP IF NECESSARY
 - INSPECTION AND CERTIFICATION OF RECTIFICATION WORKS THE ENGINEER'S SERVICES FOR THESE WORKS SHALL BE PAID BY THE PROPONENT.
- BP8 CONCRETE SHALL BE PLACED AS SOON AS POSSIBLE AFTER DRILLING AND AFTER APPROVAL HAS BEEN GIVEN BY THE CERTIFYING ENGINEER . IF NECESSARY, TEMPORARY LINING SHALL BE USED TO MAINTAIN THE SIDES OF THE PIER UNTIL CONCRETING.
- BP9 THE PIER HOLES SHALL BE KEPT FREE OF WATER AT ALL TIMES, BY BAILING OR PUMPING WHERE NECESSARY, PARTICULARLY PRIOR TO CONCRETING. CONCRETE SHALL NOT BE PLACED IN WATER. THE TOP OF THE HOLE SHALL BE PROPERLY COVERED TO PREVENT SURFACE WATER OR RAINFALL FROM ENTERING THE HOLE.
- BP10 PROPER SAFETY PRECAUTIONS SHALL BE TAKEN TO AVOID INJURY TO PEOPLE. THE UNATTENDED HOLE SHALL BE COVERED OR FENCED OFF AT ALL TIMES.
- BP11 WHERE THE FINAL CUT-OFF LEVEL IS ABOVE NATURAL GROUND LEVEL, THE PIERS MUST BE FORMED TO THE CORRECT LEVEL BY USING TEMPORARY LINERS.
- BP12 CONCRETE IN THE BASES AND SHAFTS SHALL BE PLACED CONTINUOUSLY UP TO THE UNDERSIDE OF PILE CAPS. CONCRETE SHALL NOT BE DROPPED BUT SHALL BE PLACED USING A CONCRETE PUMP OR A PROPERLY CONSTRUCTED CHUTE. CONCRETING SHALL BE TEMPORARILY STOPPED WHEN THE CONCRETE IS WITHIN ONE METRE BELOW THE TOP OF EACH LENGTH OF LINER IF PROVIDED AND THAT LENGTH OF LINER SHALL BE WITHDRAWN AND THE CONCRETE VIBRATED WITH IMMERSION TYPE VIBRATORS.
- BP13 CONCRETE SHALL BE COMPACTED BY IMMERSED VIBRATORS HAVING A FREQUENCY NOT LESS THAN 5000 VIBRATIONS PER MINUTE.

TIMBER

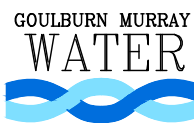
- T1 ALL TIMBER WORKMANSHIP SHALL BE IN ACCORDANCE TO AS1720.
- T2 ALL TIMBER SHALL BE SEASONED AUSTRALIAN HARDWOOD AND SHALL CONFORM TO REQUIREMENTS OF AS2082.
- T3 ALL TIMBER SHALL HAVE A MINIMUM STRESS GRADE OF F22.
- T4 ALL TIMBER SHALL BE OF THE FOLLOWING SPECIES:
 - IRONBARK, RED (EUCALYPTUS SIDEROXYLON)
 - IRONBARK, RED BROAD LEAVED (EUCALYPTUS FIBROSA)
 - IRONBARK, GREY (EUCALYPTUS PANICULATA)
 - GUM, GREY (EUCALYPTUS PROPINQUA)
- T5 ALL TIMBER TO BE USED SHALL BE CCA TREATED IN ACCORDANCE TO AS1604 TO CLASS H6.
- T6 ENDS OF ALL TIMBERS SHALL BE GIVEN A COAT OF PETROLEUM JELLY, OR SIMILAR APPROVED GREASE, WITHIN 48 HOURS OF BEING SAWN AT THE MILL.
- T7 ALL EXPOSED END GRAIN (INCLUDING DRILL HOLES) AND TIMBER TO TIMBER CONTACT SURFACES SHALL BE COATED WITH A HEAVY COAT OF PROTIM CN TIMBER PROTECTIVE EMULSION AFTER CUTTING/DRILLING.
- T8 ALL HOLES FOR JOINTS SHALL BE TRULY BORED AND ALL JOINTS CUT TO FIT ACCURATELY AND TIGHTLY. HOLES SHALL BE 10 PER CENT GREATER IN DIAMETER THAN THE BOLTS.
- T9 BOLTHOLE RECESSES (AFTER FINAL TIGHTENING OF BOLTS), SPLITS AND KNOTHOLES IN TIMBER SHALL BE FILLED WITH PABCO 'HYDROSEAL TYPE 367, KNIFE GRADE' OR EQUIVALENT.
- T10 ALL BOLTS, NUTS AND WASHERS SHALL BE HOT DIPPED GALVANISED IN ACCORDANCE WITH AS 4860.
- T11 BOLTS SHALL BE GRADE 4.6S. WASHERS SHALL CONFORM TO AS 1720. BOLTS SHALL BE RETIGHTENED AT SIX MONTHS AFTER COMPLETION OF CONSTRUCTION.
- T12 ALL BOLTHEADS OR NUTS ON EXPOSED SURFACES SHALL BE RECESSED BELOW THE SURFACE.
- T13 TIMBER CONNECTIONS SHALL BE AS SHOWN ON THE DRAWINGS WHERE DETAILED. WHERE NOT DETAILED, THEY SHALL MATCH AS CLOSE AS PRACTICABLE THE EXISTING DETAILS THEY ARE REPLACING.

STEELWORK

- S1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 4100 AND AS 1554.
- S2 UNLESS SHOWN OTHERWISE, ALL STEEL COMPONENTS SHALL BE IN ACCORDANCE WITH AS3679.1 GRADE 300.
- S3 ALL BOLTS TO BE STRENGTH GRADE 4.6 TO AS1111, TIGHTENED USING A STANDARD WRENCH TO A SNUG TIGHT CONDITION. ALL BOLTS SHALL BE OF SUCH LENGTH THAT AT LEAST ONE FULL THREAD IS EXPOSED BEYOND THE NUT AFTER THE NUT HAS BEEN TIGHTENED.
- S4 ALL WELD TYPES TO BE CATEGORY SP. WELDS SHALL CONFORM TO AS1554 AND WELDING ELECTRODES TO AS/NZS 4855. WELDING SHALL BE PERFORMED BY AN EXPERIENCED OPERATOR. THE INSPECTION/TESTING OF ALL WELDS SHALL BE CARRIED OUT IN ACCORDANCE WITH AS2214 AND NOTES ON THE DRAWING WELD TYPES ARE DESIGNATED AS FOLLOWS:-
 CFW - CONTINUOUS FILLET WELD
 CPBW - COMPLETE PENETRATION BUTT WELD
 A/R - ALL ROUND
- S5 HOT DIP GALVANISING SHALL BE IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS AS1214, AS1559, AS4680, AS4791 & AS4792, REPAINTING/REPAIR OF DAMAGED GALVANISED SURFACES (EG. SITE WELDS) TO BE PAINTED WITH 2 COATS OF APPROVED ZINC RICH PAINT.
- S6 CATHODIC PROTECTION SHALL BE INSTALLED IN ACCORDANCE WITH AS 2832.
- S7 APPROPRIATE CORROSION RESISTANT FITTINGS AND FIXTURES TO BE USED.

PRECAST CONCRETE

- P1 ALL PRECAST CONCRETE IS TO COMPLY WITH THE CONCRETE NOTES ON THESE DRAWINGS, AS 3600 AND AS3850.
- P2 THE CONCRETE IN THE SLEEPERS IS TO HAVE A MINIMUM CHARACTERISTIC STRENGTH $F'c = 40 MPa$. THE CONCRETE STRENGTH AT REMOVAL FROM MOULDS IS TO BE A MINIMUM OF 25 MPa.
- P3 ALL SLEEPERS ARE TO BE CONSTRUCTED FROM NORMAL WEIGHT CONCRETE.
- P4 THE SLEEPERS HAVE BEEN DESIGNED FOR THE IN PLACE CONDITION (I.E. : LOADS THE PRECAST SLEEPERS ARE SUBJECTED TO AFTER ERECTION ON SITE) AND THE PROPONENT MUST MAKE HIS OWN ASSESSMENT AS TO ANY EXTRA REINFORCEMENT, LIFTING FITTINGS, STRONGBACKS, ETC., THAT MAY BE REQUIRED TO SUIT HIS PROPOSED STRIPPING, LIFTING, STACKING, TRANSPORTATION, HANDLING AND ERECTION METHODS. IT IS THE RESPONSIBILITY OF THE PROPONENT TO PROVIDE SUCH ADDITIONAL DETAILS AND REINFORCEMENT IN THE SLEEPERS SUCH THAT CONCRETE STRESSES THROUGHOUT HANDLING SHALL NOT CAUSE CRACKING.
- P5 ALL SHOP DRAWINGS ARE TO BE APPROVED BY THE CERTIFYING ENGINEER PRIOR TO CONSTRUCTION COMMENCING. THE PROPONENT SHALL BE RESPONSIBLE FOR ALL DIMENSIONAL CHECKS AND THE FABRICATED ELEMENT IS SUITABLE FOR CONSTRUCTION.
- P6 LIFTING FIXINGS ARE NOT SHOWN ON THESE DRAWINGS. THE PROPONENT SHALL SUPPLY AND FIT HOT DIP GALVANISED OR OTHERWISE APPROVED LIFTING FIXINGS AS REQUIRED. THESE SHALL TAKE THE FORM OF CAST IN CABLES OR FERRULES. THEY SHALL NOT BE LOCATED IN THE FACE WHICH IS EXPOSED TO VIEW IN THE FINAL CONDITION AND AFTER USE SHALL BE PROTECTED TO AVOID CORROSION AND STAINING. TESTS PROVING ANCHORAGE CAPACITY OF LIFTING FERRULES ARE TO BE CONDUCTED.

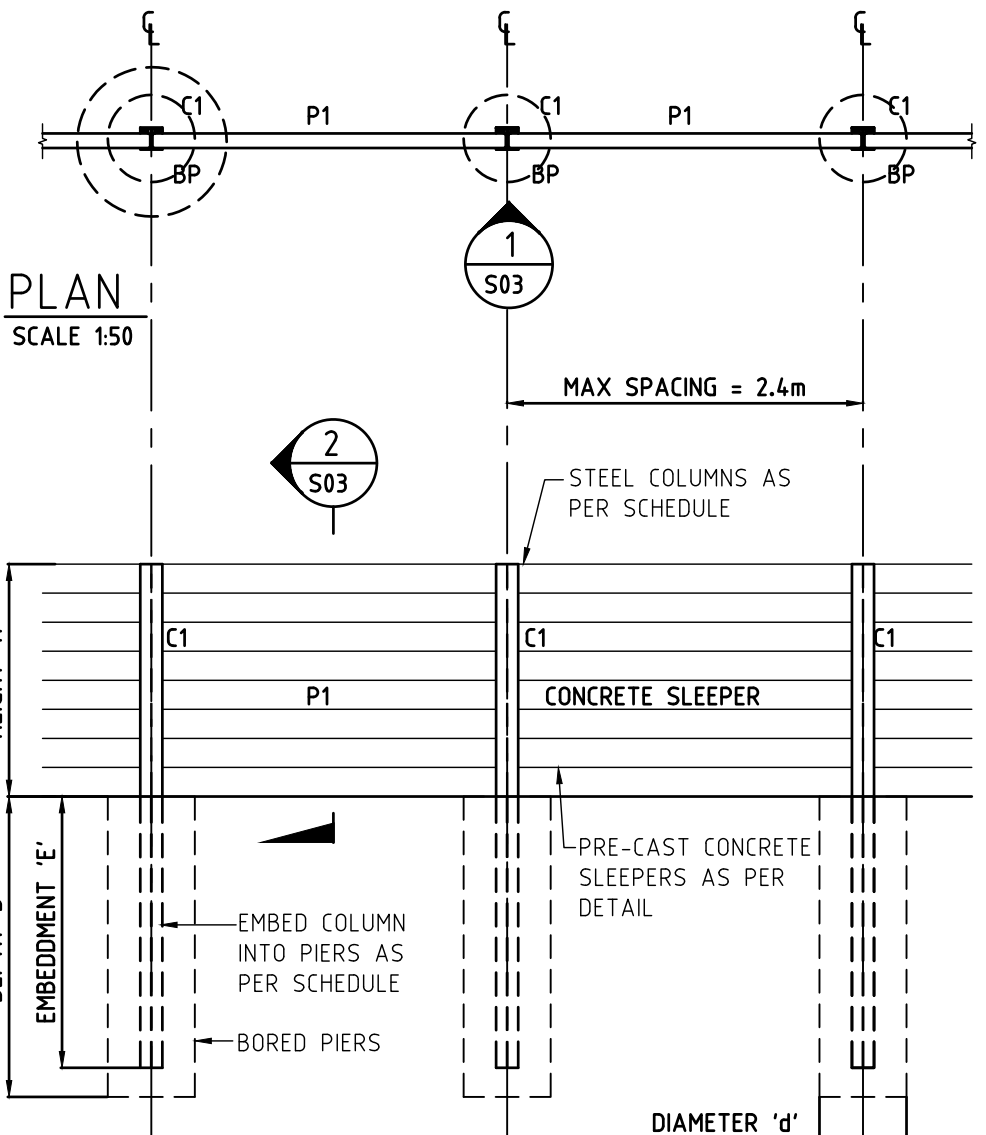
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A	14/10/2021	Page 2 Ret Notes, S2- Update AS1204 to AS 3679.1		DRAWN	D.C	CHECKED	A.N	MANAGER	GMW A1978094 CORR. NO. 2011/956/1	GOULBURN MURRAY RURAL WATER AUTHORITY 40 CASEY STREET (PO BOX 165), TATURA VIC. 3616 Telephone (03) 5826 3500 Fax (03) 5826 3501	CAD DRAWING INDEX	SHEET NUMBER	DRAWING NUMBER	REVISION
REV	DATE	REFERENCES		SURVEYED		SURVEY MANAGER		SENIOR SURVEYOR			485813	02 OF 04	485813	A

RETAINING WALL SCHEDULE @ MAX 2400 CTRS

HEIGHT "H"	DEPTH "D"	EMBED "E"	DIAMETER "d"	COLUMN SIZE C1	CORNER COLUMN SIZE C2
<700	1000	800	600	100 UC15	150 PFC
900	1200	1000	600	100 UC15	150 PFC
1100	1500	1300	600	100 UC15	150 PFC
1300	1700	1500	600	100 UC15	150 PFC
1500	2000	1800	600	150 UC23	180 PFC

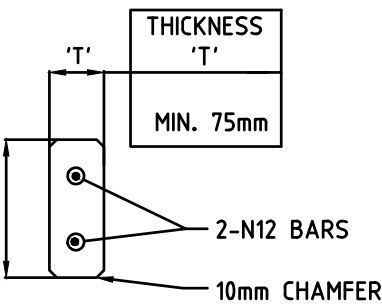
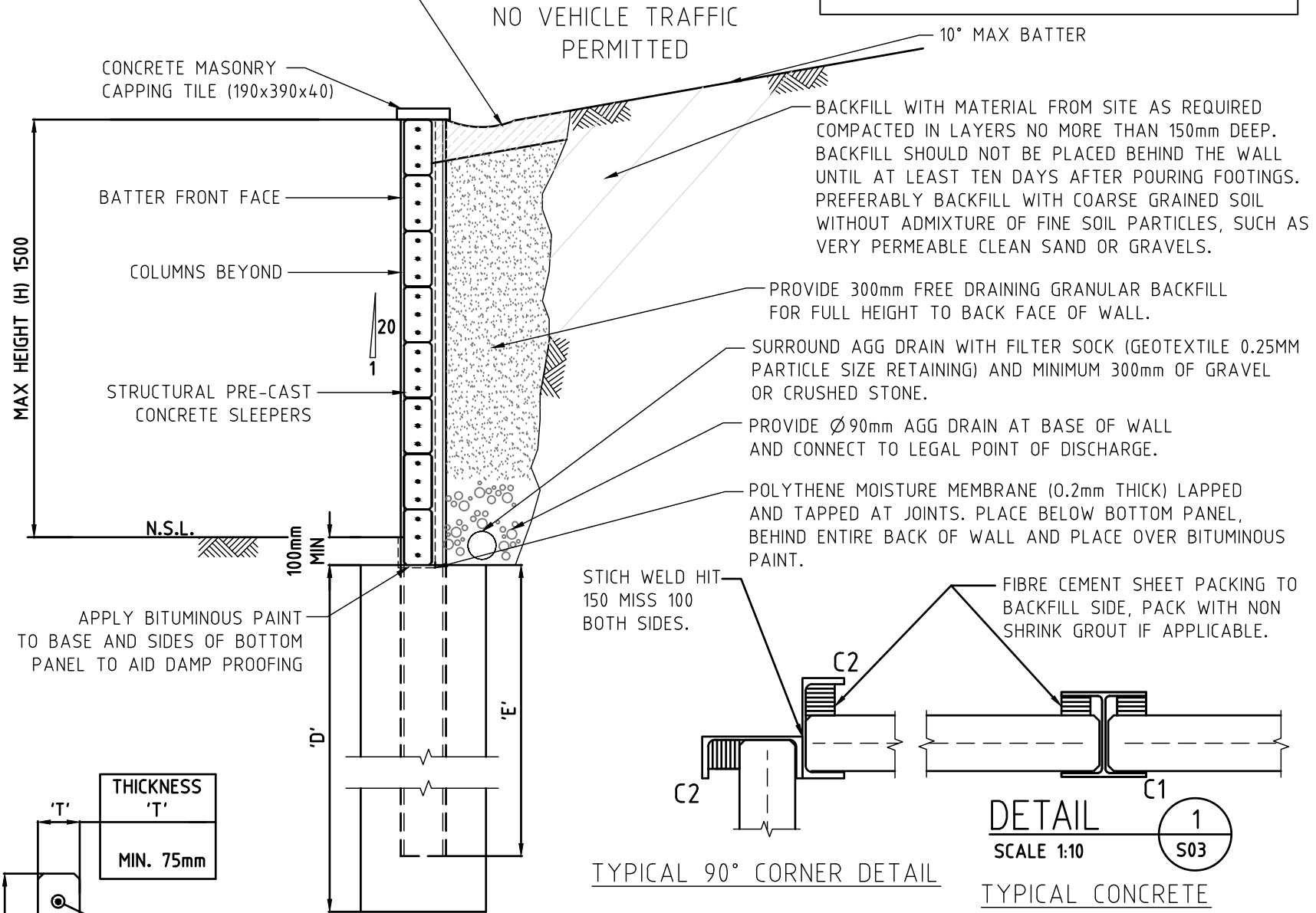
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NOTE:
FOUNDATION MATERIAL TO BE NATURAL SOILS WITH A MIN END SAFE BEARING CAPACITY OF 150kPa & SHAFT ADHESION OF 10kPa FOR BORED PIERS.



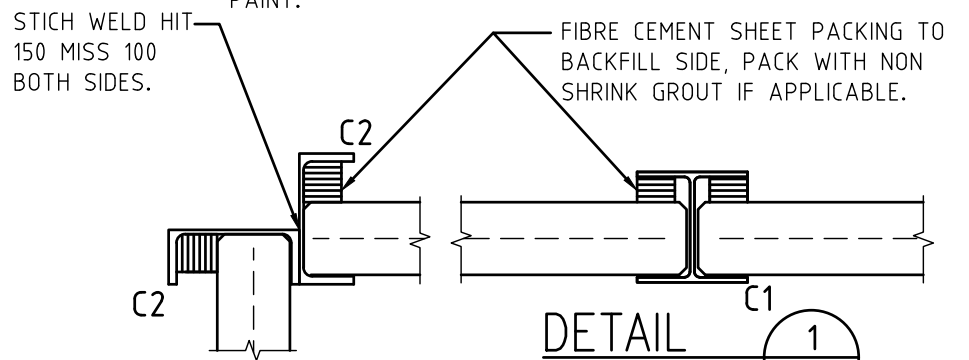
TYPICAL CONCRETE SLEEPER RETAINING WALL
SCALE 1:50

SEAL BACKFILL WITH A COMPACTED LAYER OF MATERIAL WITH LOW PERMEABILITY AND PROVIDE AN OPEN DRAIN AT SURFACE OR PROVIDE PAVING.

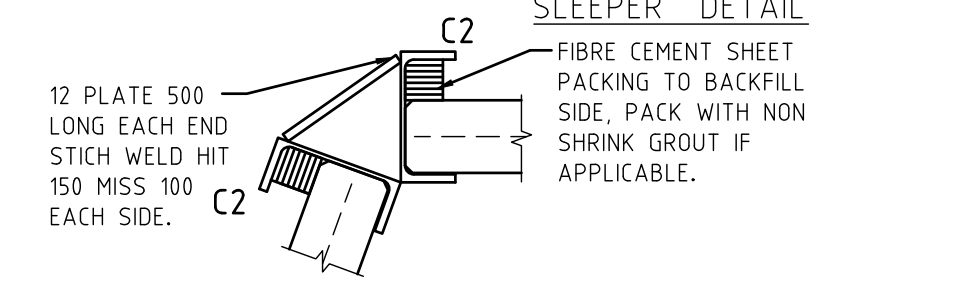


CONCRETE SLEEPER REINFORCEMENT DETAIL

SECTION 2 S03
SCALE 1:20
STEEL POST WALL



TYPICAL 90° CORNER DETAIL



TYPICAL ANGLE CORNER DETAIL

NOTE:
LADDERS AND HANDRAILS WILL BE ASSESSED ACCORDING TO THE RISK ASSESSMENT CRITERIA & TO AS1657.

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A	14/10/2021	Page 2 Ret Notes, S2- Update AS1204 to AS 3679.1		DRAWN	D.C	CHECKED	A.N	MANAGER	G.M.W. A1978094 CORR. NO. 2011/956/1	GOULBURN MURRAY RURAL WATER AUTHORITY 40 CASEY STREET (PO BOX 165), TATURA VIC. 3616 Telephone (03) 5826 3500 Fax (03) 5826 3501	CAD DRAWING INDEX	SHEET NUMBER	DRAWING NUMBER	REVISION
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SEAL BACKFILL WITH A COMPACTED LAYER OF MATERIAL WITH LOW PERMEABILITY AND PROVIDE AN OPEN DRAIN AT SURFACE OR PROVIDE PAVING.

10° MAX BATTER

NO VEHICLE TRAFFIC PERMITTED

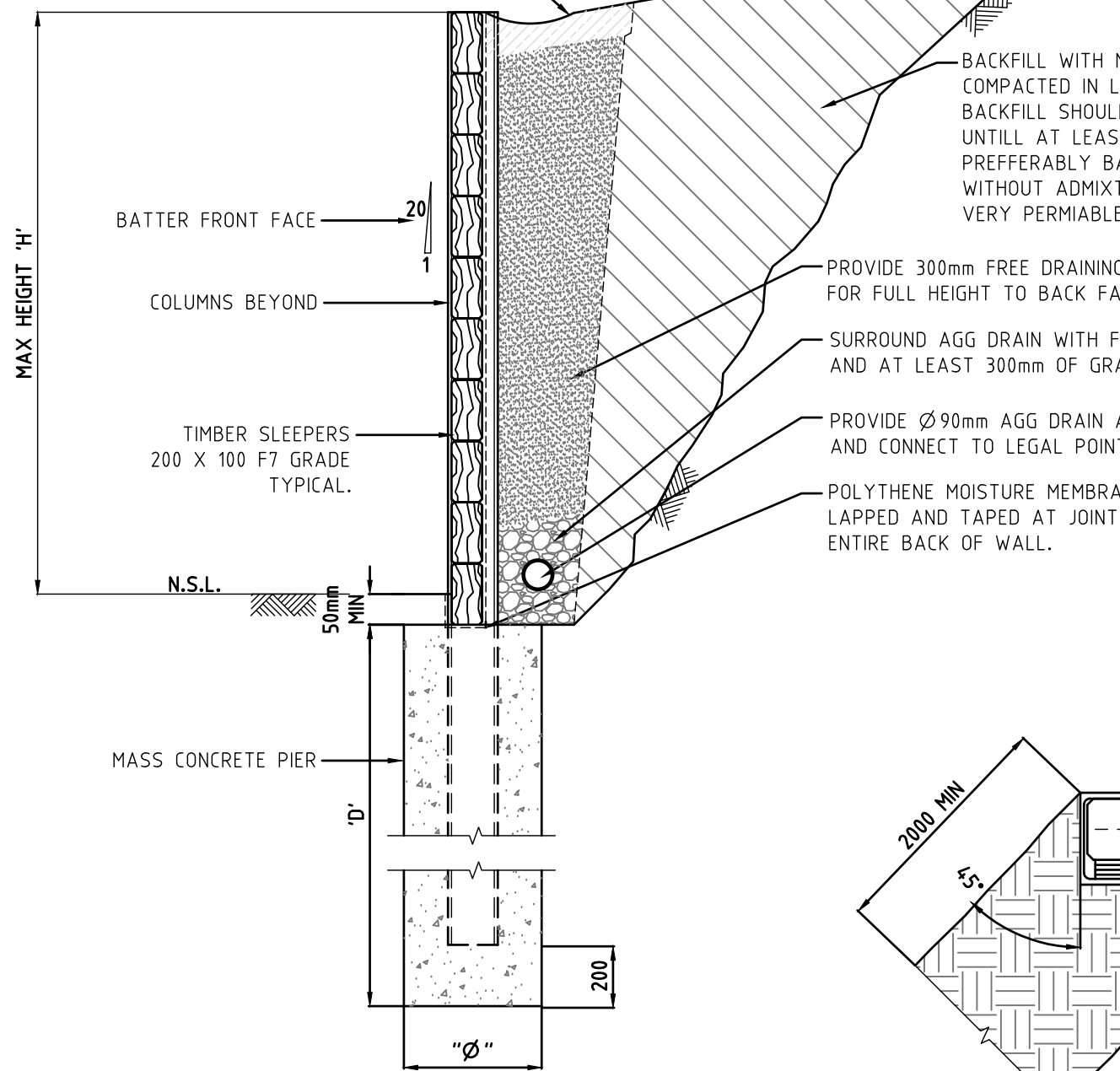
BACKFILL WITH MATERIAL FROM SITE AS REQUIRED COMPACTED IN LAYERS NO MORE THAN 150mm DEEP. BACKFILL SHOULD NOT BE PLACED BEHIND THE WALL UNTILL AT LEAST TEN DAYS AFTER POURING FOOTINGS. PREFERREDLY BACKFILL WITH COARSE GRAINED SOIL WITHOUT ADMIXTURE OF FINE SOIL PARTICLES SUCH AS VERY PERMIABLE CLEAN SAND OR GRAVELS.

PROVIDE 300mm FREE DRAINING GRANULAR BACKFILL FOR FULL HEIGHT TO BACK FACE OF WALL.

SURROUND AGG DRAIN WITH FILTER SOCK (GEOTEXTILE) AND AT LEAST 300mm OF GRAVEL OR CRUSHED STONE.

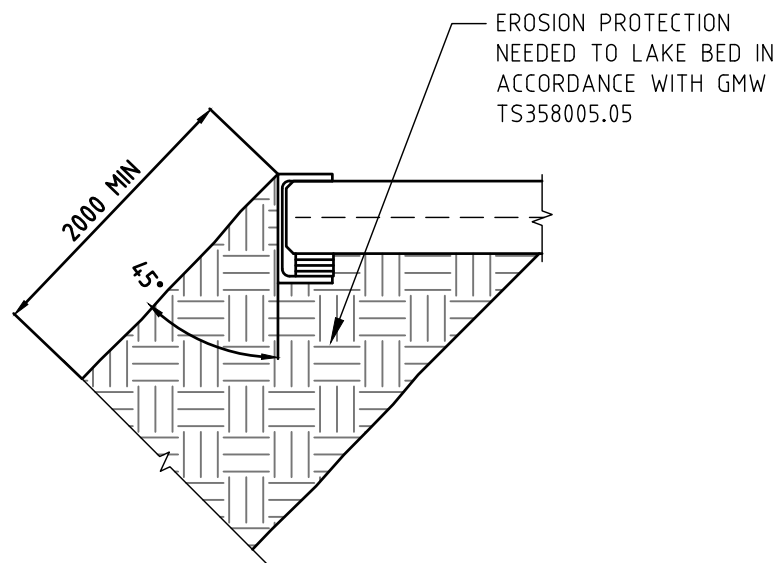
PROVIDE Ø90mm AGG DRAIN AT BASE OF WALL AND CONNECT TO LEGAL POINT OF DISCHARGE.

POLYTHENE MOISTURE MEMBRANE (0.2mm THICK) LAPPED AND TAPED AT JOINTS RUNNING THE ENTIRE BACK OF WALL.



STEEL POST WALL 2.4m CTRS
TYPICAL SECTION

SCALE 1:20



TYPICAL END WALL
CORNER DETAIL

SCALE 1:10

RETAINING WALL SCHEDULE @ MAX 2400 CTRS

HEIGHT "H"	DEPTH "D"	EMBED "E"	DIAMETER "d"	COLUMN SIZE C1	CORNER COLUMN SIZE C2
<700	1000	800	600	100 UC15	150 PFC
900	1200	1000	600	100 UC15	150 PFC
1100	1500	1300	600	100 UC15	150 PFC
1300	1700	1500	600	100 UC15	150 PFC
1500	2000	1800	600	150 UC23	180 PFC

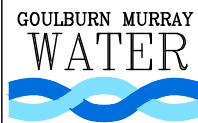
NOTE:

FOUNDATION MATERIAL TO BE NATURAL SOILS WITH A MIN END SAFE BEARING CAPACITY OF 150kPa & SHAFT ADHESION OF 10kPa FOR BORED PIERS.

NOTE:

REFER TO TYPICAL CORNER DETAILS ON SHEET 3 (S03) FOR WALL DIRECTION CHANGES.

TIMBER SLEEPER
RETAINING WALL

		COPYRIGHT				GOULBURN MURRAY WATER STANDARD RETAINING WALL								
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A	14/10/2021	Page 2 Ret Notes, S2- Update AS1204 to AS 3679.1		DRAWN	D.C	CHECKED	A.N	MANAGER	GMW A1978094 CORR. NO. 2011/956/1	GOULBURN MURRAY RURAL WATER AUTHORITY 40 CASEY STREET (PO BOX 165), TATURA VIC. 3616 Telephone (03) 5826 3500 Fax (03) 5826 3501	CAD DRAWING INDEX	SHEET NUMBER	DRAWING NUMBER	REVISION
REV	DATE	REFERENCES		SURVEYED		SURVEY MANAGER		SENIOR SURVEYOR			485813	04 OF 04	485813	A